IWATSU enterprise CS

Technical Manual

8th Edition

Volume 1

IWATSU VOICE NETWORKS

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SPECIAL NOTICES

If the System is equipped with Telephony over Transmission Control Protocol/ Internet Protocol (TCP/IP) and Session Initiation Protocol (SIP) wired and/or wireless facilities, the user may experience certain compromises in performance, reliability and security due to transmission facilities QoS and bandwidth problems, even when the Equipment performs to the specification.

USER(S) ACKNOWLEDGES THAT THEY ARE AWARE OF THESE RISKS AND THAT THEY HAVE DETERMINED THESE RISKS ARE ACCEPTABLE FOR THIER APPLICATION OF THE EQUIPMENT. USER(S) ALSO ACKNOWLEDGE(S) THAT THEY ARE SOLELY RESPONSIBLE FOR ENSURING THAT THEIR NETWORKS AND TRANSMISSION FACILITIES QOS AND BANDWIDTH ARE ADEQUATE FOR THE PURPOSE INTENDED AND THEIR NETWORKS AND TRANSMISSION FACILITIES ARE ADEQUATELY SECURED AGAINST UNAUTHORIZED INTRUSION.

Toll Restriction

The Toll Restriction feature of the Iwatsu Enterprise-CS system is one method of preventing fraud (i.e., the making of unauthorized toll calls) by users of the system. The chance of fraud may be reduced but may not be eliminated. Only a complete program which includes but may not be limited to inspection of telephone call billing, use of call detail recorders and other such call monitoring devices, systematic monitoring of all telephone call activity, and implementing corrective measures can minimize the possibility of fraud. Iwatsu Voice Networks and/or its Third Party manufacturers/suppliers hereby disclaim any express or implied warranty that its equipment is technically immune from or prevents unlawful and/or unauthorized utilization that may result in unauthorized toll calls. Iwatsu Voice Networks hereby warns Distributor that such is possible.

Direct Inward System Access (DISA)

The Direct Inward System Access (DISA) feature, with the ability to allow outside parties to connect to the internal services of the Iwatsu Enterprise-CS, may provide a means for fraudulent calls to occur. Only a complete program which includes, but may not be limited to, inspection of telephone call billing, use of call detail recorders and other such call monitor devices, systematic monitoring of all telephone call activity, frequently changing DISA authorization codes, and implementing corrective measures can minimize the possibility of fraud. Iwatsu Voice Networks and/or its Third Party manufacturers/suppliers hereby disclaim any express or implied warranty that its equipment is technically immune from or prevents unlawful and/or unauthorized utilization that may result in unauthorized calls. Iwatsu Voice Networks hereby warns Distributor that such is possible.

Use Of Call Recorder, Station Monitor, Station Coaching and Voice Mail Record

In certain states it is illegal to intercept, listen to, and/or record telephone calls. In certain states and under certain circumstances it is illegal to intercept for the purposes of listening in and/or recording telephone calls. Because such activity is not illegal in all jurisdictions and may be permitted in training and/or monitoring of personnel, this telephone system can be programmed to permit interception, listening to, and/or recording with or without warning to those on the line. Before utilizing the system for such purposes, you are advised to confirm the laws of the jurisdiction in which you utilize such feature(s). Iwatsu Voice Networks and/or its Third Party manufacturers/suppliers disclaim any responsibility for improper use or illegal of the Call Record, Station Monitor, Station Coaching and VM Record Feature and disclaim any obligations to render legal advice concerning this feature.

Support Of Enhanced 911

In order to comply with regulations for support of Enhanced 911 service that may be in effect in the local jurisdiction that the Iwatsu Enterprise-CS system is installed, the Iwatsu Enterprise-CS system provides for Enhanced E911 support by either using optional third party equipment, or configuring the system to use assigned telephone numbers (ANI) for defined areas, or a station or group of stations. Distributor is hereby warned to check local laws as to Enhanced 911 support requirements, and that the configuration of the Iwatsu Enterprise-CS system not contravene any such statutes, and to properly warn the End User (Purchaser) of the Iwatsu Enterprise-CS system of the possible legal implication of the use of this feature.

Electrical Safety Advisory

It is recommended that an AC surge arrestor of the form and capacity suitable for the model of the Iwatsu Enterprise-CS system purchased be installed in the AC outlet to which the system is connected.

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Note: The UL model name for the Iwatsu Enterprise-CS is ADIX-ECS.

This manual was written for systems with Iwatsu Enterprise-CS Version 8.x software. In some cases, operation of available features may differ from that listed in this manual, depending on the hardware, software and programmed functions in your Iwatsu Enterprise-CS system.

Iwatsu Voice Networks shall not be held responsible for any representation made regarding this information by any individual.

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Part Number: **108614a**

FCC Registration and Requirements

Instructions to the User:

The Iwatsu Enterprise-CS line of digital telecommunications systems has been registered and approved by the Federal Communications Commission (FCC) for direct connection to your local telephone service. In accordance with FCC rules and regulations regarding telephone equipment, Iwatsu is required to make you aware of your rights and obligations regarding the use of this equipment. In order that we may fulfill our obligations, please take a moment to carefully read the rules and regulations contained herein that apply to you.

FCC Rules and Regulations

1. Notification to the Local Telephone Company

The local Telephone Company may request specific information about the Iwatsu Enterprise-CS system before connection can be made to the local Telephone Company lines. When requested by the Telephone Company, the following information should be provided:

- The FCC Registration Number for all equipment connected to an individual line.
- The largest Ringer Equivalence Number (REN) for each line.
- Information required for compatible operation of the equipment with the Telephone Company communication facilities.

The FCC Registration Number and Ringer Equivalence Number (REN) is printed on the equipment label located on the common equipment cabinet of the system (IX-CME). The largest Ringer Equivalence Number is the sum of the Ringer Equivalence Number (REN) of each FCC registered device that is connected to the same line. The maximum Ringer Equivalence Number that can normally be used without causing faulty operation is 5.0. Check with your local Telephone Company to determine what is the maximum Ringer Equivalence Number for the telephone lines you are using. In order to connect registered terminal equipment to the Telephone Company lines, the terminal equipment must utilize an FCC “standard means of connection”, often referred to as a “registered jack”. The type of jack utilized on the Iwatsu Enterprise-CS system is identified by a USOC code number. Different code numbers are utilized for the various types of services provided by the Telephone Company that the systems use. When requesting new telephone service, the Telephone Company must be informed of the code number for each type of service. The Iwatsu Enterprise-CS system can be configured as either a Private Branch Exchange (PBX) - Fully Protected, Key Telephone System - Fully Protected or a Multi-Function (Hybrid) System - Fully Protected.

The Iwatsu Enterprise-CS systems FCC - Part 68 registered as a fully protected telephone system. The following information must be provided to the local telephone operating company when requesting service terminating to the Iwatsu Enterprise-CS system:

LOOP START TRUNK
Ringer Equivalence No 0.5B
Service Order Code 9.0F
Facility Interface Code 02LS2
Registered Connection RJ21X

GROUND START TRUNK†
Ringer Equivalence No 1.0B
Service Order Code 9.0F
Facility Interface Code 02GS2
Registered Connection RJ21X

CALLER ID TRUNK
Ringer Equivalence No 0.5B
Service Order Code 9.0F
Facility Interface Code 02LS2
Registered Connection RJ21X, RJ11*

E&M TIE LINE CARD
TYPE 1
Facility Interface Codes TL31M
Service Order Code 9.0F
Registered Connection RJ2GX
TYPE 2
Facility Interface Codes TL32M
Service Order Code 9.0F
Registered Connection RJ2HX

T-1 SERVICE (SF)
Facility Interface Code 04DU9-BN
Service order Code 6.0P
Registered Connection RJ48C

T-1 SERVICE (ESF)
Facility Interface Code 04DU9-1KN
Service order Code 6.0P
Registered Connection RJ48C

DID TRUNK*
Facility Interface Codes 02RV2-T
Ringer Equivalence No. 0.0B
Service order Code 9.0F
Registered Connection RJ21X

OPS LINE CARD
Facility Interface Codes. OL13C
Service Order Code 9.0F
Registered Connection RJ21X

ISDN BRI CARD
Facility Interface Codes. 02IS5
Registered Connection RJ49C#

ISDN PRI CARD
Facility Interface Codes. 04DU9-1KN
Registered Connection RJ49C or RJ48X

NOTE:

* Check with local utility or service provider for type of connection allowed.

† Not available for US:BD6KF10BIWATSU1 registration applications.

NT1 required.

2. Restrictions on the Use of Registered Telephone Equipment

FCC rules governing customer owned telephone equipment specifically exclude the use of the ECS system on public coin telephone (pay phone) lines. The connection to party line service is subject to local state tariffs. Contact your state public utility, public service commission or corporate commission for information on this.

3. Incidence of Harm

If for some reason the ECS system causes harm to the Telephone Company network, the Telephone Company will notify you in advance that temporary discontinuance of service may be required. In the event advance notice is not practical, the Telephone Company will notify you of the interruption of service as soon as possible. Also, the Telephone Company will advise you of your right to file a complaint with the FCC if you believe it is necessary. The Telephone Company may also make changes in its facilities, operations or procedures that could affect the operation of your system. If this occurs, the Telephone Company will provide advance notice in order for you to make the necessary modifications to maintain uninterrupted service.

4. Hearing-Aid Compatibility

The ECS system, utilizing telephone station equipment manufactured by Iwatsu, meets all FCC requirements for hearing-aid compatibility.

5. Instruction Regarding the Repair and Refurbishment of Registered Equipment

Only the manufacturer or its authorized agents are permitted under FCC rules to make other than routine repairs to registered telephone equipment. Repairs made to registered telephone equipment by unauthorized entities is a violation of local state tariffs and will void equipment warranties. Routine repairs are classified typically as lamp replacement, fuse replacement, directory label replacement, etc. All other repairs to your ECS telephone equipment should be performed by Iwatsu Voice Networks. When trouble is experienced on any telephone line that your system is connected to and the trouble is causing harm to the network, the Telephone Company may request that you remove the equipment from the telephone line(s) until the problem has been corrected. To contact Iwatsu Voice Networks for information regarding the repair of your equipment, write or call:

(972) 929-0242
Iwatsu Voice Networks
8001 Jetstar Drive
Irving, TX 75063
Attn: Repair Department

6. Use of Other FCC Registered Equipment

Aside from the Ringer Equivalence reporting as explained (above), use of other FCC equipment may provide for specific limitations depending upon the type of equipment. Check the instructions included with such equipment to determine what the limitations are, if any, on the use of such equipment.

7. Automatic Dialers

The ECS system contains features that provide for the automatic dialing of outgoing calls. When programming Emergency Numbers and/or making test calls to Emergency Numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities during off-peak hours such as early morning or late evening.

8. Toll Restriction and Optimized Routing Features

The ECS system provides both Toll Restriction and Optimized Routing features that may be programmed in your system. The software or programming contained in the ECS system may need to be upgraded to allow user access to the network in order to recognize newly established network area codes and exchange codes as they are placed in service. Failure to upgrade the programming or software (if required) to recognize the new codes as they are established will restrict the user from gaining access to the network and to these codes.

9. Direct-Inward-Dialing (DID) Requirements

The ECS system meets all FCC requirements for Direct-Inward-Dialing (DID) service by providing Answer Supervision on incoming DID calls in accordance with FCC regulations. Allowing this equipment to be operated in such a manner as to not provide proper Answer Supervision is a violation of Part 68 of the FCC's rules. The equipment returns proper Answer Supervision to the local telephone exchange when DID calls are: answered by the called station, answered by the attendant, routed to a recorded announcement that can be administered by the system user, routed to a dial prompt (instruction).

10. Radio Frequency Emissions

The ECS system is registered with the FCC as a Class A RF Device, pursuant to Part 15 of the FCC rules, that may radiate radio frequency emissions. This equipment complies with the limits for a Class A device. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. In the event that the system causes interference with another device, steps must be taken to reduce the interference, including possible removal of the equipment. While the probability of such an event is remote, consult Iwatsu Voice Networks for further assistance if this occurs.

11. Equal Access Requirements

This system is capable of providing users access to interstate providers of operator services through the use of equal access codes. Failure to provide equal access capabilities is a violation of the Telephone Operator Consumer Services Improvement Act of 1990 and Part 68 of the FCC rules.

IWATSU VOICE NETWORKS

IWATSU enterprise CS

Technical Manual

Section 1

Introduction

About This Edition...

The release of the eighth edition of the Iwatsu Enterprise-CS Technical Manual contains new components, features, enhancements and programming classes and items. A list of new components and special notes for the ECS can be found on the following page.

Introduction

Years of research and development have made the Iwatsu Enterprise-CS the most technologically advanced system ever designed by Iwatsu.

How to Use This Manual

This manual is designed to be the nexus between the technician and the Iwatsu Enterprise-CS. What you need to know, from installation to programming to troubleshooting is contained herein.

- The ECS Technical Manual 8th Edition consists of three volumes:
  - **Volume 1** – **Sections 1 through 4**.
  - **Volume 2** – **Section 5 and Appendix**.
  - **Volume 3** – **Section 6**.

- Each of this manual's six sections and the appendix are listed below followed by a brief description of its subject matter:
  - **Section 1** – **Introduction •** Overview of the ECS Technical Manual.
  - **Section 2** – **System Specifications •** Listing of technical specifications.
  - **Section 3** – **Features and Operations •** A description of each system feature.
  - **Section 4** – **Component Description •** A description of each piece of system hardware.
  - **Section 5** – **Installation Guide •** Installation instructions and procedures.
  - **Appendix** – Iwatsu Enterprise-CS Licensing.
  - **Section 6** – **Database Programming Guide •** A detailed description of the ECS programming database.

Newest Components for the Iwatsu Enterprise-CS:

- IX-APPSRV Application Server Card with Browser Programmer
- IX-5930 (IP Telephone)
- IX-5910 (IP Telephone)
- IX-5900 (IP Telephone)
- IX-59DS (IP DSS Unit)
- IX-5800 (Digital Telephone)
- IX-5810 (Digital Telephone)
- IX-16PSUB-2 (Digital Station Card for the IX-5800 and IX-5810 Digital Telephones)
- IX-8PSUB-2 (Digital Station Card for the IX-5800 and IX-5810 Digital Telephones)
- IX-400-2 (Four Port Trunk Daughterboard)
- IX-58BTINF (Bluetooth Interface for the IX-5810)
- IX-59BTINF (Bluetooth Interface for the IX-5930/IX-5910)
- IX-58EXTENDER (Loop Limit Extender)
- IX-59AC (AC Adapter for the IX-58EXTENDER and optional power supply for Iwatsu ICON Series IP telephones and DSS units)
- IX-ELK8 (Eight Line Key Expansion Unit for the IX-5810/IX-5910
- IX-ELK9 (Nine Line Key Expansion Unit for the IX-5800

IMPORTANT!

REQUIRED DTMF PAYLOAD CHANGE FOR IWATSU ENTERPRISE TOL

The DTMF Payload change is not required for TOL software version 8.0 when ECS software version 8.0.

Iwatsu Enterprise TOL software version 7.10 SP2 SU5 (Build 7.1.0.96279) and below and Iwatsu WeLink Conference Server software version 2.0.12 and below require a DTMF payload setting change to function with ECS software version 7.0 or higher.

If the DTMF payload values are not changed to a value of 101, the ECS will not recognize the DTMF digits from the Iwatsu Enterprise TOL or WeLink Conference Server.

Notes:

1. **TOL Voicemail** - Enterprise TOL version 8.0 requires SIP Voicemail integration. TOL version 8.0 licensing requires constant connection to the internet in order to function. If a system utilizing soft license loses connection to the internet, it will go on a 15 day countdown. If the internet connection is not restored after the countdown has ended, the license will become deactivated and the system will have reduced functionality.
2. **Omega-Voice VMI** - The Omega-Voice VMI Editor version 3.02.13 or later is required to program an IX-4EVMC, IX-4SEVMC, IX-4VML, IX-4VMLCFM, or VS-VSL / IX-VMAC card installed in an ECS system.
3. **TASKE** - TASKE must be upgraded to **version 8.8** in order to operate with an ECS system. This upgrade is free of charge provided the TASKE system is under a TASKE Total Care Maintenance Subscription. The upgrade may be downloaded from the TASKE website at: **http://www.taske.com/**

Typographical Conventions

The typographical conventions used in this manual are listed below. They will help you quickly locate and identify specific information.

Formatting:	Identifies:
PC bullet	Important programming information.
boldface type	Important instructions. Programming examples.
italic type	Specialized terms. Variable information that must be dialed. A reference to a programming class/item
[KEY]	A specific button on the telephone.

IWATSU enterprise CS

Technical Manual

Section 2

System Specifications

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Chapter 1

System Overview

The Iwatsu Enterprise-CS (ECS) is a fully digital converged telecommunications system designed to provide a multitude of voice and data communications features. The ECS system supports both Time Division Multiplexing (TDM) and LAN technology. This converged communications platform was designed to allow the end user to implement IP technology while providing the reliability, features, and migration that Iwatsu is known for. Existing customers may retain their current hardware and upgrade to the new converged controller, maintaining their original investment and eliminating the need for system replacement and staff training.

The system architecture of the Iwatsu Enterprise-CS is compliant with TAPI (Telephone Application Programming Interface) and CSTA (Computer Supported Telecommunications Applications) standards to allow for Computer Telephony Integration (CTI).

Model Numbers

The following is a list of Iwatsu Enterprise-CS and ADIX model numbers. The ADIX model numbers are listed because the Iwatsu Enterprise-CS system can be expanded and fully integrated with any Iwatsu legacy system.

Iwatsu Enterprise-CS	1024-TDM + IP Ports Fully Expanded
ADIX APS-L	472-Port Single Tower Up To 5 Cabinets
ADIX-M	200-Port Up To 3 Cabinets
ADIX-S	52-Port Single Cabinet
ADIX 450	448-Port Twin Tower 5 To 8 Cabinets
ADIX 200	224-Port Single Tower Up To 4 Cabinets
ADIX 100	96-Port Common Module 2 Cabinets
ADIX 50	56-Port Common Module Single Cabinet

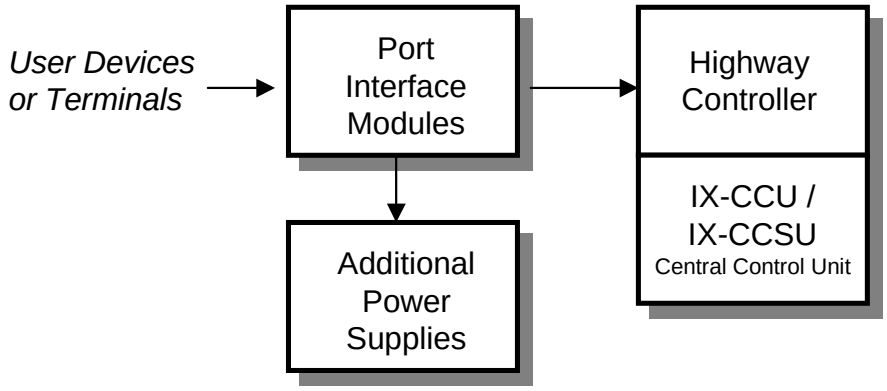
System Architecture

The Iwatsu Enterprise-CS is a stored program, distributed-control multi-microprocessor system that provides a wide variety of features and fast service. The main processor is a 64-bit / 266 MHz chip. Peripheral Processing Units (PPU) are also used for a number of features. The system supports an open architecture that is expandable to a maximum of 1024 non-blocking ports.

The Iwatsu Enterprise-CS supports both TDM and IP voice and data devices. The system utilizes a Media Bridge Unit (MBU) that provides IP to TDM and TDM to IP conversion. TDM allows several low-speed transmission circuits to share a single high-speed channel by assigning each sub-channel exclusive use of the communications bank for a brief period of time or *time slot*.

Together with the digital control system that optimizes the advantages of this switching system, the ECS provides a universal port system that standardizes the unit interface thus simplifying system installation.

Universal Port System



The Iwatsu Enterprise-CS consists of four basic components as illustrated above:

Central Control Unit (IX-CCU) and Central Control Sub Unit (IX-CCSU)

The Central Control Unit controls all the system functions throughout the ECS operating system software and communicates to the outside world through the universal ports. (i.e. Central Office lines and System Extensions)

Highway Controller

The Highway Controller manages all voice and data switching under the control of the Central Control Unit.

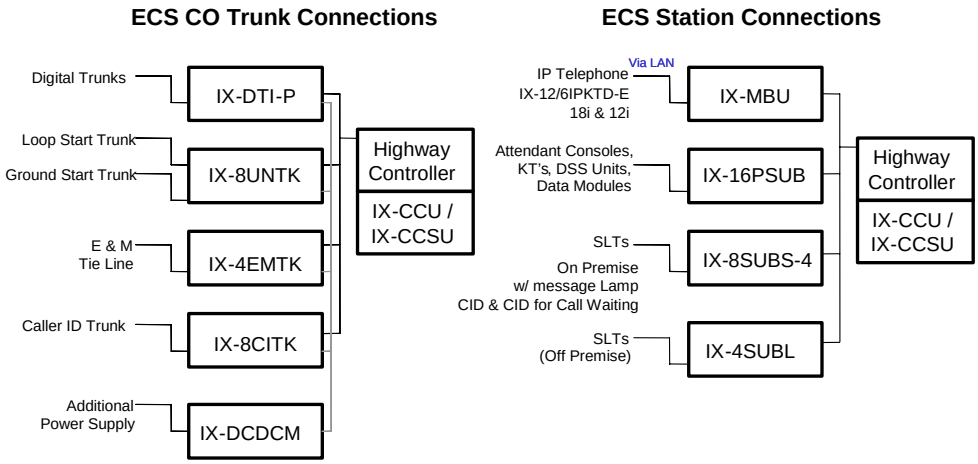
Media Bridge Unit

The Media Bridge Unit is the interface between Time Division Multiplexing (TDM) voice data on the system highways and IP packet (TCP and RTP/UDP packet) data.

Port Interface Modules

These are the interface cards that translate information such as voice energy and electric impulses into digital signals that communicate with the Central Control Unit and Highway cards.

Basic Interface Types



Additional Power Supplies

The additional power supplies provide operating power to the port interface units. Power supply requirements vary according to the type of service and feature used in the ECS system.

Chapter 2

System Specifications

Modular Design

The Iwatsu Enterprise-CS IX-CME Gateway Controller cabinet provides five 96-channel and one 32-channel card slots and can be expanded to support a maximum of 616 TDM or 1024 TDM + IP ports.

IX-CME Gateway Controller

- 5 x 96-Channel Universal Card Slots
- 1 x 32-Channel Universal Card Slot
- Dimensions (HxWxD): 13.3" x 16.93" x 12.21"
- Rack Units: 8.5
- Weight: 20 lbs. Empty: 34.5 lbs. Full Capacity
- 19” Rack Mounted

IX-EXPME1 Expansion Module

- 4 maximum (2nd, 3rd, 5th, and 6th Shelf)
- 6 x 16-Channel Universal Card Slots
- Dimensions (HxWxD): 11.5" x 16.93" x 12.21"
- Rack Units: 6.5
- Weight: 20 lbs. Empty: 34.5 lbs. Full Capacity
- 19” Rack Mounted

IX-EXPME2 Expansion Module

- 1 maximum (4th Shelf)
- 6 x 16-Channel Universal Card Slots
- Dimensions (HxWxD): 11.5" x 16.93" x 12.21"
- Rack Units: 6.5
- Weight: 20 lbs. Empty: 34.5 lbs. Full Capacity
- 19” Rack Mounted



Iwatsu Enterprise-CS

Three Cabinet Configuration (Shown)
Expandable to Six Cabinets

Note: The ECS system may also be expanded by adding ADIX cabinets, under control of the ECS operating system, through the TDM interface. This integration is possible when the IX-HWYA card is installed in the IX-CME and the IX-HWYL card is installed in the IX-CML, IX-CMM, or the IX-CM.

IX-PWSE Power Supply

- Dimensions (HxWxD): 10.5" x 2.75" x 11.5"
- Weight: 5 lbs.

IX-PWSES Power Supply

- Dimensions (HxWxD): 10.5" x 2.75" x 11.5"
- Weight: 3 lbs. 13.4 oz.

IX-EXPWS Expansion Module Power Supply

- Dimensions (HxWxD): 10.5" x 2.75" x 11.5"
- Weight: 5 lbs.

System Architecture

VR4133
64-bit CPU
266 MHz
433 MIPS
Flash Memory
Distributed Multi-microprocessor
Time Slots:
IX-CME:..... 1024

System Memory

Component	Compact Flash Memory	SDRAM	ROM
IX-CCU / IX-CCSU	256 MB	128 MB	4 MB

Heat Dissipation

IX-PWSE (maximum):.....316 BTU/hr

IX-PWSES (maximum):.....205 BTU/hr

IX-EXPWS (maximum):.....316 BTU/hr

Environment

Operating Temperature:.....0° to 40°C/32° to 104°F

Storage Temperature:.....-10° to 50°C/14° to 122°F

Relative Humidity (non-condensing):....10% to 90%

Seismic Withstanding

Applied Force	Sweep Cycle/Wave	Applied Waves	Simulated Installation
0.25g vertical 0.125g horizontal	0.5-10Hz	30	Ground level, floor mount
0.5g vertical 0.25g horizontal	0.5-5Hz	30	2nd to 6th floor mount

Power

Model	Nominal	Maximum
IX-PWSE Input:	115 watts	185 watts
IX-PWSES Input:	115 watts	120 watts
IX-EXPWS Input:	115 watts	185 watts

AC Input

AC Input Voltage Tolerance:

IX-PWSE:.....120 +/- 10% VAC

IX-PWSES:.....120 +/- 10% VAC

IX-EXPWS:.....120 +/- 10% VAC

Frequency Tolerance:

IX-PWSE:.....60 Hz +/- 3 Hz

IX-PWSES:.....60 Hz +/- 10%

IX-EXPWS:.....60 Hz +/- 3 Hz

Maximum Input Current:

IX-PWSE:.....3.4 Amps

IX-PWSES:.....2.2 Amps

IX-EXPWS:.....3.4 Amps

Ringing Generator

Frequency:.....20 Hz

Amplitude:.....90 VAC

Maximum Simultaneous

Ringing (SLT):.....20

Battery Backup

Iwatsu Enterprise-CS IX-PWSE and the IX-EXPWS power supplies include a battery interface. Backup time is dependent upon battery array, system size and system usage.

FCC Registration Numbers for Iwatsu Enterprise-CS

Key Telephone Systems:.....US:BD6KF10BIWATSU1

Multi-Function System (Hybrid):.....US:BD6MF10BIWATSU1

PBX:.....US:BD6PF10BIWATSU1

FCC ID Number

Your Iwatsu Telephone may contain a wireless Bluetooth® module which carries an FCC ID number of BD6BTINF

BIC Registration Number

IC:577A-IWATSU1

Facility Interface Codes

Loop Start Trunks:	02LS2
Ground Start Trunks:	02GS2
DID Trunks:	02RV2-T
E&M Tie Lines:	TL31M/TL32M
OPS Lines:	0L13C
T1-SF:	04DU9-BN
T1-ESF:	04DU9-1KN
ISDN BRI:	02IS5
ISDN PRI:	04DU9-1KN

Software Capacities

Abandon Call Storage:	500 call records
Account Codes:	12 digits
Call Forwarding:	10 steps
No Answer:	no limit to steps
Call Pick-up Groups:	250
CO/ICM Hunt Groups:	250
CO/Station Alphanumeric ID:	8 characters
DHCP Server:	1024 IP Addresses
DID Alphanumeric ID:	16 characters
Door Phone Ringing Assignment:	16 ringing stations/455 door phones
External Paging Zones:	125
Flexible Numbering Plan:	1-4 digits
Forced Verified Account Codes:	2000
Incoming Call Delayed Ringing Assignment:	16 stations/line
Incoming Call Ringing Assignment:	16 stations/line, 32 stations/line if delayed assignment is not programmed.
Incoming Trunk Groups:	250
Intercom Call Groups:	250
Maximum Call Coverage Keys:	2048
Maximum Digits per Speed Dial Number:	32
Maximum Stations per Hunt Group:	32
Maximum Stations per Paging Group:	64
Maximum Stations per Text Message Group:	16
Outgoing Trunk Groups:	250
Paging Groups External:	125
Paging Groups Internal:	125
Park Orbits	
Attendant:	24
System:	128
Station:	1
Programmable System Announcement Time:	330 seconds (IX-CMSG-1 required)
Relays:	32
SIP Trunks:	248
Speed Dial Alphanumeric ID:	10 characters
Station Speed Dial Numbers:	10
Station Text Messages:	10
System Speed Dial Numbers:	900
System Text Messages:	90
Text Message Groups:	250
Ticker Field Display (Iwatsu Ticker):	5 Sources
Text Web (Iwatsu Text Web):	5 Sources

Media Gateway Channels:

IX-MBU:	24 Channels
IX-EMBU:	24 Channels
IX-MBU + (3) IX-EMBU:	96 Channels

Circuits Per Card

Caller ID Trunk Module (IX-400-2): ..... 4 circuits
T1 Campus Networking Card (IX-DTI-N w/IX-VCOMP): ..... 1 circuit
Conference Card (IX-CNFBOX-1): ..... 8 circuits
Digital Station Card (IX-16PSUB-2): ..... 16 circuits
Digital Station Card (IX-16PSUB): ..... 16 circuits
Digital Station Card (IX-8PSUB-2): ..... 8 circuits
Digital Station Card (IX-8PSUB-1): ..... 8 circuits
Digital Station/Caller ID Trunk Card (IX-408): ..... 12 circuits
Digital Station/On-premise SLT Card (IX-044): ..... 8 circuits
E & M Tie Line Trunk Card (IX-4EMTK): ..... 4 circuits
Ground/Loop Start Trunk Card (IX-8LGTK-2): ..... 8 circuits
IP Networking Card (IX-8IPNET/IX-8EIPNET): ..... 8 circuits
IP Station Card (IX-8IPSUB/IX-8EIPSUB): ..... 8 circuits
ISDN BRI Trunk Card (IX-4ICOTB/IX-4EICOTB): ..... 4 circuits
ISDN BRI Trunk Card (IX-2ICOTB): ..... 2 circuits
ISDN PRI Trunk Card (IX-DTI-P): ..... 1 circuit
CID w/Message Lamp SLT Card (IX-8SUBS-4): ..... 8 circuits
CID w/Msg Lamp SLT Expansion Card (IX-8ESUBS-4): ..... 8 circuits
Omega-Voice VMI Voice Mail Card (IX-4EVMC): ..... 4 circuits
Omega-Voice VMI Voice Mail Card (IX-4SEVMC): ..... 4 circuits
Omega-Voice VMI Expansion Card (IX-4EVML): ..... 4 circuits
Omegatrek Wireless Interface Card (IX-4CSUB-3): ..... 4 circuits
On-premise SLT Card (IX-8SUBS-3): ..... 8 circuits
On-premise SLT Expansion Card (IX-8ESUBS): ..... 8 circuits
T1 Trunk Card (IX-DTI-T): ..... 1 circuit
Universal Caller ID Trunk Card (IX-8UNTK): ..... 8 circuits

Attendant Console

Maximum Attendant Positions: 32
Loop Keys (Incoming Lines): 8
Programmable Function Keys: 16
DSS Units: ..... 128 (max 64 IX-59DS Units)
Programmable DSS Keys (IX-DSS-3 / Platinum DSS) 30
Programmable DSS Keys (IX-59DS) 60
Menu Driven Software Function Keys: 8
Call Waiting Indications: 12
Alphanumeric LCD: ..... 4 rows, 40 characters
BLF Indications: ..... 200 x 2

Telephone Requirements

IP Telephones

Wiring: ..... CAT5 UTP or better

Total End-to-end Distance
CAT5: ..... 328 ft.

Digital Telephones

Wiring: ..... 1 pair
Total End-to-end Distance
22 AWG Twisted Pair: ..... 1,000 ft.
24 AWG Twisted Pair: ..... 1,000 ft.
IX-58EXTENDER: ..... 2,100 ft.
1 Star Repeater: ..... 1,500 ft.
2 Star Repeaters: ..... 8,500 ft.

Single Line Telephones

Wiring: ..... 1 pair
Wiring w/Message Lamp: ..... 1 or 2 pair
Maximum Loop Resistance (Includes SLT)
On-premise SLT: ..... 600 ohm
Off-premise SLT: ..... 1,200 ohm
Ringing Frequency: 20Hz

Omegatrek IX-BS5 Base Stations

Wiring: ..... 1 or 2 pair
Total End-to-end Distance
22 AWG Twisted Pair: ..... 820 ft.
24 AWG Twisted Pair: ..... 460 ft.
1 IX-BSREP Repeater (24 AWG): ..... 4,450 ft.
2 IX-BSREP Repeaters (24 AWG): ..... 10,150 ft.

Key Telephone Lamp Indications

Status	Lamp Indication
I-Use (Green)	Modulation Steady (On)
CO Incoming/Call Forward	0.1 sec. on, 0.9 sec. off
I-Hold (Green)	0.5 sec. on, 0.5 sec. modulated on
System Hold/Non-Privacy	0.1 sec. off, 0.3 sec. modulated on
Recall, ICM Incoming, Message	0.7 sec. off, 0.3 sec. modulated on
DND	0.5 sec. on, 0.5 sec. modulated on
Busy	Steady (On)

Station Port Requirements

Model	Description	Ports Required
IX-ATT	Attendant Console	2
IX-BLF	Busy Lamp Field	1
DCKT970	Digital Wireless Telephone	1 or shared with digital telephone
IX-PS6	Omegatrek Portable Station	1
Iwatsu ICON IX-5800	9 line keys (18w/ELK) 2-line LCD display	1
Iwatsu ICON IX-5900	9 line keys (18w/ELK) 2-line LCD display	1
Iwatsu ICON IX-5810	16 line keys (24 w/ELK) 7-line LCD display	1
Iwatsu ICON IX-5910	16 line keys (24 w/ELK) 7-line LCD display	1
Iwatsu ICON IX-5930	30 line keys 15 line LCD display	1
Iwatsu ICON IX-59DS	30 Self-labeling keys 15-line LCD display	1
IX-DSS-3	50 DSS & 20 function keys with display	1
Platinum DSS	50 DSS & 20 function keys with display	1
Platinum 18i / 18d	18 line keys with 6 line LCD display	1
Platinum 12d	12 line keys with 2 line LCD display	1
IX-12KTD-3	12 line keys (24 line keys with IX-ELK-3)	1
IX-12KTS-3	12 line keys (24 line keys with IX-ELK-3)	1
IX-DDPH	Digital Door Phone	1
IX-PSUBMDM	Digital Port Modem	1

Time Parameters

Hold Recall Timer	0 - 255 seconds
Timed Trunk Queuing	1 - 20 minutes
Door Phone Answer Time	5 - 255 seconds
VSS Recording Time	0 - 120 seconds
Hunting Time	0 - 255 seconds
Night Mode Start Time	00:00 - 23:59
Auto CO Answer Start Time	00:00 - 23:59
MISC Relay Timer	10 - 255 ms
DISA Waiting Time	0 - 255 seconds

System Numbering Plan

Flexible - extensions may be one to four digits in length.

Iwatsu Programmer

The Iwatsu Enterprise-CS utilizes the Iwatsu Programmer Graphic User Interface for all system programming. The latest copy of the Iwatsu Programmer can be downloaded from the Iwatsu Distributor website at: http://www.iwatsu.biz/Distributors/TechSupport/Downloads.cfm

The Iwatsu Programmer 5.0.3954 minimum PC operating requirements are:

- Windows® 7, Windows® Vista, Windows® XP (Standard or Professional) operating system with Service Pack 2, or Windows® 2003 Server.
- Microsoft .NET Framework 3.5.
- 700 MHz or higher processor speed.
- 256 MB RAM
- Monitor resolution: 800 x 600 (minimum) / 1024x768 (recommended).

Browser Programmer

The Iwatsu Browser Programmer gives users access to system settings, extension settings, voicemail settings, trunk settings, and diagnostics. This new tool gives IT managers the ability to make changes, edit system settings, and view the status of IP traffic and network resources in real-time. The Browser Programmer supports up to 10 concurrent users (web sessions).

The ECS Browser Programmer comes pre-installed on all Iwatsu Enterprise TOL platforms, Iwatsu Enterprise Application Gateway Servers, and the IX-APPSRV card. The Browser Programmer was designed to be used primarily with Iwatsu Enterprise-CS IP systems, but it can also be used with TDM systems. A new browser-based Configure My Phone application is also included with the Browser Programmer. In the graphic below, the administration page of the programmer shows the status of the ECS system at a glance.

Requirements:

- Dell™ Iwatsu Enterprise Application Gateway server, Dell™ Iwatsu Enterprise TOL server, or IX-APPSRV card.
- Valid ECS system software version license 6.0 or higher.
- IX-MBU card.

IX-MBU

IX-MBU Channel Usage

The IX-MBU channel usage chart lists the number of IX-MBU channels that are required based on the connection type: For example: SIP trunk to SIP station requires two IX-MBU channels.

IX-MBU Channel Usage Chart

IX-MBU Channel Usage Chart Based on Connection Type								
	IPKT	IPKT-Non VPN	Digital KT	SIP SLT	SIP Trunk	SIP VM Port	TDM Trunk (PRI/Analog)	SIP Conference Ports
IPKT	0	2	1	2	2	2	1	2
IPKT-Non VPN	2	2	1	2	2	2	1	2
Digital KT	1	1	0	1	1	1	0	1
SIP SLT	2	2	1	2	2	2	1	2
SIP Trunk	2	2	1	2	2	2	1	2
SIP VM Port	2	2	1	2	2	N/A	1	2
TDM Trunk (PRI/Analog)	1	1	0	1	1	1	0	1
SIP Conference Ports	2	2	1	2	2	2	1	N/A

- N/A = Connection not supported

IX-MBU Software Version Chart

IX-MBU software version 1.22 is required with ECS software version 8.0 and higher and ECS systems with ECS software version 4.0x or higher that have Iwatsu Enterprise TOL with SIP Voice Mail installed.

IX-MBU software version 1.22 is included with the ECS software version 8.0 image. IX-MBU software version 1.22 is not compatible with ECS software version 3.x and lower. Refer to the table below for IX-MBU compatibility based on ECS software version.

MBU Ver.	ECS Software Version												
	1.0	1.2	1.5	2.0	2.1	3.0	4.0	5.0	5.1	5.2	6.0	7.0	8.0
1.22							X	X	X	X	X	X	X
1.21							X	X	X	X	X	X	
1.20							X	X	X	X			
1.19							X	X	X				
1.18							X						
1.17					X	X							
1.10	X	X	X	X									
1.09	X	X	X										
1.08	X	X	X										
1.07	X	X	X										
X = Supported													

Important! IX-MBU software version 1.22 is required on all ECS systems with ECS software version 4.0x or higher that have Iwatsu Enterprise TOL with SIP Voice Mail installed.

ECS with the IX-PWSE and IX-PWSES Hardware Capacity[1]

This table lists the maximum port capacities for an ECS hardware capacities utilizing the IX-PWSE or the IX-PWSES power supply in the IX-CME Cabinet.

Power Supply	IX-PWSE	IX-PWSES
Shelf 6		
Shelf 5		
Shelf 4		
Shelf 3		
Shelf 2		
Shelf 1	IX-CME	IX-CME
Universal Card Slots	6	6
Number of TDM Ports [2]	144	144
Trunk Ports	144	144
T1 Ports w/o T1RCV	144	144
Station Ports [4]	1024	1024
IP Stations [4]	1024	1024
Omegatrek Portable Station (IX-PS6)	1024	1024
IX-BS5 Base Stations	24	16
TDM Digital Station Ports [5]	72	48
Attendant Positions	32	32
Attendant Consoles	24 w/o BLF	16 w/o BLF
BLF Units [6]	8	7
DSS Units (IX-DSS-3) [10]	32	20
IP DSS Units (IX-59DS) [10]	64	64
On-Premise SLTs (Regular)	72	28
On-Premise SLTs (MSG)	72	24
Off-Premise SLTs	16	16
Doorphones	96	47
Busy Bypass Units [7]	36	24
Loop Start Trunks	48	20
Caller ID Trunks	48	20
Ground Start Trunks	48	16
E & M Tie Trunks	20	16
DID Trunks	20	12
SIP Trunks [9]	248	248
IX-MSGU Message Cards	5	5
IX-EDVIF Cards [8]	1	1
Conference Circuits / Party	32 / 4	32 / 4
T1 Cards (Circuits) (IX-DTI-T) [3]	6	6
T1 Cards w/o T1RCV	6	6
T1 Cards with T1RCV	0	0
ISDN BRI Circuits	48	40
ISDN PRI Cards (Circuits) (IX-DTI-P)	6	6
Campus APS Network Cards (IX-DTI-N w/ IX-VCOMP)	5	3
IP Networking Cards / Circuits (IX-8IPNET or IX- 8EIPNET)	12 / 96	12 / 96
IX-MBU Channels: G.729 / G.711	192 / 160	192 / 160

1. This table lists the maximum capacity supported for each component type based on the type of power supply installed on the shelf, total number of cards slots available, software restrictions and the power consumption of each component. The combined total number of ports for each system is limited to 1024 ports. Power consumption based on utilizing the IX-PWSE and the IX-PWSES in the IX-CME ECS cabinet.
2. The combined number of TDM Station, Trunk, and Miscellaneous ports may not exceed the numbers listed in this category.
3. This number indicates the maximum trunk port capacity utilizing no T1RCV cards.
4. The ECS supports a maximum of 1024 IP or IP+TDM ports, this number assumes a minimum of 8 trunk ports supported (1016 station ports + 8 trunk ports = 1024 total ports). Maximum of 64 remote IP stations via Internet mode connection.
5. The maximum number of TDM station ports per shelf may not exceed 72. This number does not apply to PS6 Portable Stations.
6. The total combined number of IX-BLF Units and IX-DSS-A-2 units installed in the system may not exceed 15.
7. When Busy Bypass Units are used, the total number of Digital Stations should not exceed these numbers.
8. The IX-EDVIF card may only be installed in the first three shelves of the system. For additional serial card functions, IX-SCIF or IX-HCIF cards can be added based on available card slots and power consumption.
9. Requires ECS Software Version 8.0 and a Version 8.0 License (PN: 000347) Reference EBA-2010-19 for details.
10. The maximum number of DSS units and attendant consoles in the ECS system cannot exceed 128. The ECS system supports a maximum of 64 Iwatsu ICON Series IX-59DS units as part of the 128 total.

ECS with ECS Expansion Hardware Capacity[1]

This table lists the maximum port capacities for an ECS with ECS expansion shelves based on configuration and utilizing the IX-PWSE power supply in the IX-CME and the IX-EXPWS in the Expansion Cabinets.

Power Supply Location	IX-PWSE	IX-EXPWS	IX-EXPWS	IX-EXPWS	IX-EXPWS	IX-EXPWS
Shelf 6						**IX-EXPME1**
Shelf 5					**IX-EXPME1**	**IX-EXPME1**
Shelf 4				**IX-EXPME2**	**IX-EXPME2**	**IX-EXPME2**
Shelf 3			**IX-EXPME1**	**IX-EXPME1**	**IX-EXPME1**	**IX-EXPME1**
Shelf 2		**IX-EXPME1**	**IX-EXPME1**	**IX-EXPME1**	**IX-EXPME1**	**IX-EXPME1**
Shelf 1	**IX-CME**	**IX-CME**	**IX-CME**	**IX-CME**	**IX-CME**	**IX-CME**
Universal Card Slots	6	12	18	24	30	36
Number of TDM Ports [2]	144	240	336	432	528	624
Trunk Ports	144	240	336	432	528	624
T1 Ports w/o T1RCV	144	144	144	144	144	144
Station Ports [4]	1024	1024	1024	1024	1024	1024
IP Stations [4]	1024	1024	1024	1024	1024	1024
Omegatrek Portable Station (IX-PS6)	1024	1024	1024	1024	1024	1024
IX-BS5 Base Stations	24	48	72	96	120	144
TDM Digital Station Ports [5]	72	144	216	288	360	432
Attendant Positions	32	32	32	32	32	32
Attendant Consoles	24 w/o BLF	32 (8 w/ BLF 24 w/o BLF)	32	32	32	32
BLF Units [6]	8	8	8	8	8	8
DSS Units (IX-DSS-3) [10]	32	64	96	128	128	128
IP DSS Units (IX-59DS) [10]	64	64	64	64	64	64
On-Premise SLTs (Regular)	72	144	216	288	360	432
On-Premise SLTs (MSG)	72	144	216	288	360	432
Off-Premise SLTs	16	32	48	64	80	96
Doorphones	96	192	288	384	480	576
Busy Bypass Units [7]	36	72	108	144	180	216
Loop Start Trunks	48	96	144	192	240	288
Caller ID Trunks	48	96	144	192	240	288
Ground Start Trunks	48	96	144	192	240	288
E & M Tie Trunks	20	40	60	80	100	120
DID Trunks	20	40	60	80	100	120
SIP Trunks [9]	248	248	248	248	248	248
IX-MSGU Message Cards	5	8	8	8	8	8
IX-EDVIF Cards [8]	1	1	1	1	1	1
Conference Circuits / Party	32/4	32/4	32/4	32/4	32/4	32/4
T1 Cards (Circuits) (IX-DTI-T) [3]	6	9	12	15	18	21
T1 Cards w/o T1RCV	6	6	6	6	6	6
T1 Cards with T1RCV	0	3	6	9	12	15
ISDN BRI Circuits	48	96	144	192	240	288
ISDN PRI Cards (Circuits) (IX-DTI-P)	6	9	12	15	18	21
Campus APS Network Cards (IX-DTI-N w/ IX-VCOMP)	5	6	7	8	9	10
IP Networking Cards / Circuits (IX-8IPNET or IX- 8EIPNET)	12/96	24/192	36/288	48/384	60/480	72/576
IX-MBU Channels: G.729 / G.711	192 / 160	192 / 160	192 / 160	192 / 160	192 /160	192 / 160

1. This table lists the maximum capacity supported for each component type based on the type of power supply installed on the shelf, total number of cards slots available, software restrictions and the power consumption of each component. The combined total number of ports for each system is limited to 1024 ports. Power consumption based on utilizing the IX-PWSE in the IX-CME ECS cabinet and IX-EXPWS in the ECS expansion cabinets.
2. The combined number of TDM Station, Trunk, and Miscellaneous ports may not exceed the numbers listed in this category.
3. This number indicates the maximum trunk port capacity utilizing no T1RCV cards.
4. The ECS supports a maximum of 1024 IP or IP+TDM ports, this number assumes a minimum of 8 trunk ports supported (1016 station ports + 8 trunk ports = 1024 total ports). Maximum of 64 remote IP stations via Internet mode connection.
5. The maximum number of TDM station ports per shelf may not exceed 72. This number does not apply to PS6 Portable Stations.
6. The total combined number of IX-BLF Units and IX-DSS-A-2 units installed in the system may not exceed 15.
7. When Busy Bypass Units are used, the total number of Digital Stations should not exceed these numbers.
8. The IX-EDVIF card may only be installed in the first three shelves of the system. For additional serial card functions, IX-SCIF or IX-HCIF cards can be added based on available card slots and power consumption.
9. Requires ECS Software Version 8.0 and a Version 8.0 License (PN: 000347) Reference EBA-2010-19 for details.
10. The maximum number of DSS units and attendant consoles in the ECS system cannot exceed 128. The ECS system supports a maximum of 64 Iwatsu ICON Series IX-59DS units as part of the 128 total.

ECS with ADIX APS Expansion Hardware Capacity[1]

This table lists the maximum port capacities for an ECS with ADIX APS expansion shelves based on configuration and utilizing the IX-PWSE power supply in the IX-CME and the IX-PWSL in the IX-CML and expansion cabinets.

Shelf 6						**IX-EXPML1**
Shelf 5					**IX-EXPML2**	**IX-EXPML2**
Shelf 4				**IX-EXPML1**	**IX-EXPML1**	**IX-EXPML1**
Shelf 3			**IX-EXPML1**	**IX-EXPML1**	**IX-EXPML1**	**IX-EXPML1**
Shelf 2		**IX-CML**	**IX-CML**	**IX-CML**	**IX-CML**	**IX-CML**
Shelf 1	**IX-CME**	**IX-CME**	**IX-CME**	**IX-CME**	**IX-CME**	**IX-CME**
Universal Card Slots	6	11	17	23	29	35
Number of TDM Ports [2]	144	232	328	424	520	616
Trunk Ports [3]	144	200	256	312	368	424
T1 Ports without T1RCV	144	168	168	168	168	168
T1 Ports with T1RCV	0	24	72	120	168	216
Station Ports (TDM + IP) [4]	1024	1024	1024	1024	1024	1024
IP Stations [4]	1024	1024	1024	1024	1024	1024
Omegatrek Portable Station (IX-PS6)	1024	1024	1024	1024	1024	1024
IX-BS5 Base Stations	24	40	64	88	112	136
TDM Digital Station Ports [5]	72	144	216	288	360	432
Attendant Positions	32	32	32	32	32	32
Attendant Consoles	24-w/o BLF	32-8 w/BLF 24 w/o BLF	32	32	32	32
BLF Units	8	16	24	32	32	32
DSS Units (IX-DSS-3) [9]	32	64	96	128	128	128
IP DSS Units (IX-59DS) [9]	64	64	64	64	64	64
On-Premise SLTs (Regular)	72	140	212	284	356	428
On-Premise SLTs (MSG)	72	136	208	280	352	424
Off-Premise SLTs	16	20	24	28	32	36
Doorphones	96	167	240	312	384	456
Busy Bypass Units [6]	36	72	108	144	180	216
Loop Start Trunks	48	84	132	180	228	264
Caller ID Trunks	48	80	128	176	224	268
Ground Start Trunks	48	76	124	172	220	260
E & M Tie Trunks	20	36	60	84	108	132
DID Trunks	20	36	60	84	108	132
SIP Trunks [8]	248	248	248	248	248	248
IX-MSGU Message Cards	4	7	8	8	8	8
IX-EDVIF Cards [7]	1	1	1	1	1	1
Conference Circuits / Party	32/4	32/4	32/4	32/4	32/4	32/4
T1 Cards (Circuits)(IX-DTI-T) [3]	6	8	10	12	14	16
T1 Cards without T1RCV	6	7	7	7	7	7
T1 Cards with T1RCV	0	1	3	5	7	9
ISDN BRI Circuits	48	76	120	164	208	252
ISDN PRI Cards (Circuits)(IX-DTI-P)	6	8	10	12	14	16
Campus APS Network Cards (IX-DTI-N w/ IX-VCOMP)	5	8	11	14	15	15
IP Networking Cards / Circuits (IX-8IPNET or IX- 8EIPNET)	12	21	32	43	54	62
IX-MBU Channels: G.729 / G.711	192 / 160	192 / 160	192 / 160	192 / 160	192 /160	192 / 160

1. This table lists the maximum capacity supported for each component type based on the type of power supply installed on the shelf, total number of cards slots available, software restrictions and the power consumption of each component. The combined total number of ports for each system is limited to 1024 ports. Power consumption based on utilizing the IX-PWSE in the IX-CME ECS cabinet and IX-PWSL in the ADIX APS and expansion cabinets.
2. The combined number of TDM Station, Trunk, and Miscellaneous ports may not exceed the numbers listed in this category.
3. This number indicates the maximum trunk port capacity utilizing no T1RCV cards.
4. The ECS supports a maximum of 1024 IP or IP+TDM ports, this number assumes a minimum of 8 trunk ports supported (1016 station ports + 8 trunk ports = 1024 total ports). Maximum of 64 remote IP stations via Internet mode connection.
5. The maximum number of TDM station ports per shelf may not exceed 72. This number does not apply to PS6 Portable Stations.
6. When Busy Bypass Units are used, the total number of Digital Stations should not exceed these numbers.
7. The IX-EDVIF card may only be installed in the first three shelves of the system. For additional serial card functions, IX-SCIF or IX-HCIF cards can be added based on available card slots and power consumption.
8. Requires ECS Software Version 8.0 and a Version 8.0 License (PN: 000347) Reference EBA-2010-19 for details.
9. The maximum number of DSS units and attendant consoles in the ECS system cannot exceed 128. The ECS system supports a maximum of 64 Iwatsu ICON Series IX-59DS units as part of the 128 total.



Technical Manual

Section 3

Feature Description

Feature Code:	Description:	Type:
Feature #4 6246	SYSTEM RESET (ATTENDANT ONLY)	
Feature #7	ALARM OFF	STATION
Feat #8	LAMP OFF	STATION
Feat #9	KEY ID	ICM / CO
Feat 11	LONG FLASH	CO
Feat 12	SHORT FLASH	CO
Feat 13	DIAL RELEASE	CO
Feat 14	PRIVACY RELEASE	CO
Feat 21	SAVE NUMBER DIAL	CO
Feat 22	MEMO DIAL	CO
Feat 23	TRUNK QUEUING	CO
Feat 023	CANCEL TRUNK QUEUING	CO
Feat 24	TIME TRUNK QUEUING	CO
Feat 024	CANCEL TIME TRUNK QUEUING	CO
Feat 25	ACCOUNT CODE	ICM
Feat 31	CALL PICKUP INSIDE	ICM / CO
Feat 32	CALL PICKUP OUTSIDE	ICM / CO
Feat 33	CALL PICKUP DIRECTED	ICM / CO
Feat 34	INDIVIDUAL CALL PARK REMOTE ANSWER	ICM / CO
Feat 35	MEET ME ANSWER	ICM
Feat 36	UNIVERSAL NIGHT ANSWER	SYSTEM
Feat 41	TIME REMINDER	STATION
Feat 041	CANCEL TIME REMINDER	STATION
Feat 42	MESSAGE CARD WAKEUP CALL	
Feat 43	CALL BACK	ICM
Feat 44	STATION PASSWORD LOCKOUT	STATION
Feat 044	UNLOCK STATION PASSWORD	STATION
Feat 45	PLAY VOICE MESSAGE	SYSTEM
Feat 61	TURN ON HANDS FREE ANSWERBACK	STATION
Feat 061	TURN OFF HANDS FREE ANSWERBACK	STATION
Feat 62	BGM ON	STATION
Feat 062	BGM OFF	STATION
Feat 63	LCD DISPLAY CHANGE	STATION
Feat 64	CALENDAR SETTING	SYSTEM
Feat 65	VOICE TONE SWITCHING	STATION
Feat 065	TURN OFF VOICE TONE SWITCHING	STATION
Feat 66	FULL DUPLEX	STATION
Feat 066	HALF DUPLEX	STATION
Feat 91	SHOW LAN1 IP ADDRESS AND SUBNET MASK	ATTENDANT
Feat 92	SHOW LAN2 IP ADDRESS AND SUBNET MASK	ATTENDANT
Feat 93	CCSU SERIAL NO. / ECS SOFTWARE VER. DISPLAY	ATTENDANT
Feat 99	EXTENSION NUMBER DISPLAY	STATION

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Chapter 1

System - Wide Features

911 Support

At default, the Iwatsu Enterprise-CS is programmed to automatically contact your local Public Safety Answering Point (PSAP) when 911 is dialed. In addition, the ECS is one of the only system that supports Enhanced 911 Service. Enhanced 911 Service ensures that when 911 is dialed from a system extension, information that allows the PSAP to identify the caller's location in a building is sent to the PSAP along with the call. Check with your system installer or Authorized Iwatsu Distributor to make sure your system is programmed for Enhanced 911 Service.

Operation

From an outside or inside line:

1. Go off-hook.
   - Press [SPKR] on a digital key telephone.
   - Press and hold [Send] on an Omegatrek Portable Station.
2. Dial 911

You will be connected to your local Public Safety Answering Point (PSAP).

Abandon Call Storage

When a call on a Caller ID (IX-8CITK Loop Start Trunk Card for Caller ID) or ANI (IX-DTI-T T1 Interface Card) line is disconnected before being answered, during transfer, or while on hold, system memory may retain caller information. This information includes the caller's telephone number and name, date and time of the call, trunk number, and destination station. This information can be output as a system event code or to SMDR. A maximum of 500 abandoned call records may be stored in memory.

Note: Please refer to Call Logging (All Call/Abandon Call Storage) for information on storing all calls.

The following types of incoming calls on Caller ID or ANI lines are considered abandoned calls:

- Caller hangs up or is disconnected before the call is answered.
- Caller hangs up or is disconnected while on hold or during hold recall.
- Caller hangs up or is disconnected during camp-on transfer or camp-on recall.
- Caller hangs up or is disconnected while in Auto Attendant or Voice Mail but before being answered by a station telephone.

Keys Used for Abandoned Call Storage

Three keys, [USATn], [USAT], and [USAS], have been added to provide access for the abandoned call information that has been saved in the system memory. The [USATn], [USAT], and [USAS] keys are programmed in Class 14.01 or 15.01 to the desired key pattern. Use Class 10.12 to assign a key pattern to a specific station. The function of each new key is explained below:

Abandoned Call System Key [USAT]. The [USAT] key (Class 14.01/15.01 Abandon Call/CID at Trunk Group (flexible)) may be used to check abandoned calls on any trunk group in the system. This key allows the user to select a specific trunk group to check for abandoned call records (the trunk group is based on Class 11.39). This key does not provide a lamp indication.

Abandoned Call Trunk Group Key [USATn]. The [USATn] key (Class 14.01/15.01 Abandon Call/CID at Trunk Group (flexible), Incoming CO Group programmed in Class 11.39) is used to check abandoned calls received on a specific trunk group. This key lights solid red to indicate abandoned calls were received on the associated trunk group.

Abandoned Call Station Key [USAS]. The [USAS] key (Class 14.01/15.01 Abandon Call at Station) is used to check abandoned calls received at an individual station. This key lights solid red to indicate information about a Caller ID/ANI call that was abandoned while ringing at a specific station or group of stations has been saved in system memory. The tables below list the relationship between the type of abandoned call and the stations at which the [USAS] key lamp will light.

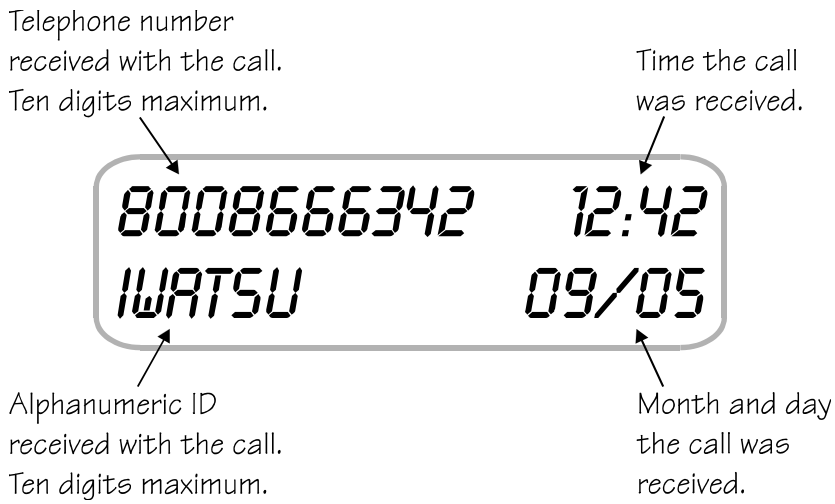
Incoming Call Abandoned During Ringing		
Type of Call	Status When Disconnected	Station(s) Receiving Indication on [USAS] Key Lamp
Individual Station Call	Station is ringing	Ringing station
Incoming Call to a Hunt Group	Ringing following hunting sequence programmed for the group	Station ringing when the call was abandoned
Caller ID/ANI call with Multiple Stations Ringing	Ringing at multiple stations	All ringing stations
Recall	Station is ringing with recall	Station receiving recall
Attendant Intercept	Attendant station(s) ringing	Attendant station with lowest logical port number

Call Abandoned After Answer by the System or a Station		
Type of Call	Status When Disconnected	Station(s) Receiving Indication on [USAS] Key Lamp
UCD	Station Ringing	Ringing station
Auto Attendant or Voice Mail Transfer to a Hunt Group	Ringing following hunting sequence programmed for group	Station ringing when the call was abandoned
Auto Attendant or Voice Mail Transfer (Camp-On)	Camped-on station is ringing	Station ringing when the call was abandoned
Forwarding, Camp-on or Recall of a Call in Progress	Ringing at a station	Station ringing when the call was abandoned
Call in Progress on Hold	Call on hold	Station at which the call was placed on hold

Note: The [USATn] and [USAS] keys remain illuminated until the abandoned call information is deleted from system memory. If abandoned call indication on either the [USAS] or [USATn] key occurs at more than one station for the same record, deleting the record from one station deletes the record at all stations.

Displaying Abandoned Call Information

When the [USATn], [USAT], or [USAS] key is pressed, the following information about the call is displayed on the station LCD:



Station users can view the next saved abandoned call information by pressing [#] and the previous abandoned call record by pressing [*].

Returning a Call Using the Stored Abandon Call Information

When a station user is displaying an abandoned call record, an outgoing call to the displayed number may be automatically initiated by pressing [FLT], [FLTn], or [COLn]. If optimized routing is programmed, a callout to the abandoned number can also be made by pressing the [USAT], [USATn], or [USAS] key a second time. Before initiating an outgoing call, up to four digits may be added to the abandoned call number. These additional digits, however, do not appear on the display during input, but do appear during call origination.

Note: In certain areas, local calls are received with ten Caller ID digits that include the area code. If the telephone company does not support local calls dialed with an area code, optimized routing must be used and correctly programmed to automatically remove the three-digit area code from the outgoing number.

Deleting Abandon Call Information

Abandoned call information can be deleted from memory either manually or automatically by the system.

Manual Deletion: Stations that have been assigned a [UAD] key can delete abandoned call information saved in system memory, one call at a time. When an abandoned call message is displayed, pressing the [UAD] key deletes the record from system memory. If an abandoned call record is accessible at more than one station via either the [USAS], [USATn] or [USAT] key, deleting the record from one station in effect deletes the same record at all stations.

All Record Manual Deletion: Any attendant station in the system can delete all of the abandoned call records in the system memory by pressing the [UAD] key and entering a station password (Class 10.05).

Automatic Deletion: Class 04.71.40 determines the length of time, between 1 and 30 days, that abandoned call information will be retained in memory. The system automatically deletes the affected abandoned call information at 12:00 AM on the day following the retention period programmed. For example, if Class 04.71.40 is programmed to retain abandoned call information for 10 days, messages will be deleted at 12:00 AM on the 11th day. By default, abandoned call information is deleted at 12:00 a.m. of the day following reception.

The ECS has the capacity to store information on 500 abandoned calls at one time. When the number of abandoned calls in memory exceeds 500, information is deleted on a first in, first out basis.

SMDR Printout of Abandon Call Information

Abandoned call information can be sent to the SMDR port of the ECS system. All call records for abandoned calls are indicated with ABDN in the note column of the printout. The system must be programmed (Class 04.52) to output incoming calls on SMDR in order to print abandoned call information.

Operation:

To view abandoned call information:

1. For station: At ICM dial tone press the [USAS] key once to display information about the first abandoned call that occurred at your station. Press [#] to scroll forward and [*] to scroll backward in sequence.
2. For trunk group: At ICM dial tone press the [USATn] key once or the [USAT] key + trunk group number to display information about the first abandoned call that occurred on a specific trunk group. Press [#] to scroll forward and [*] to scroll backward in sequence.

To return a call by automatically dialing the abandoned call Caller ID number:

1. With an abandoned call record displayed, Do one of the following:
2. For station: Press the [FLT], [OPT], or [COL], or press the [USAS] key a second time.
3. For trunk group: Press the [FLT], [OPT], or [COL], or press the [USAT] + *trunk group number* or [USATn] key a second time.
4. To cancel: Press [UAD] to cancel the outgoing call.

To add digits to the displayed number before calling out:

1. With an abandoned call record displayed,
   - Dial the additional digits to be added to the outgoing number.

Note: The added digits do not appear on the display when entered.

2. Do one of the following:
   - For station: Press the [FLT] or [COL], or press the [USAS] key a second time.
   - For trunk group: Press the [FLT] or [COL], or press the [USAT] + trunk group number or [USATn] key a second time.
   - To cancel: Press [UAD] to cancel the outgoing call.

To delete abandoned call information for an individual call record:

With an abandoned call record displayed, press the [UAD] key.

To delete all abandoned call records from system memory (Attendant Only).

1. Press [SPKR].
2. Press the [UAD] key.
3. Enter your station password.
4. Wait for confirmation tone.
5. Press [SPKR].

Conditions:

1. Information on up to 500 calls may be stored in memory. When the number of abandoned calls exceeds 500, each new abandoned call will overwrite the abandoned call that has been saved in memory for the longest time.
2. Incoming trunk groups are programmed in Class 11.39. In order for a [USATn] key to function properly, the desired incoming trunks must belong to the specified incoming group of the key.
3. Class 04.71.40 is used to determine the maximum retention period between 1 and 30 days that abandoned call information will be stored in memory. Abandoned call records scheduled for deletion are purged from memory at 12:00 AM of the day following the programmed duration.
4. Abandoned call information will remain on the station LCD for 20 seconds.
5. An outgoing call to the displayed dial destination may be made while the abandoned call information is being displayed. Up to four digits may be added to the number stored in memory but will not be displayed during input.
6. Abandoned call information output to SMDR includes the incoming trunk number, ringing or affected extension number, time call was received, duration of the call, Caller ID/ANI number and Caller ID Name. The Note column will indicate ABDN.

Database Programming:

System Hardware (Class 01); 04.71 - Call Coverage/Voice Mail Data Element 40 Abandoned Call Information Retention Period; 11.39 - Incoming CO Group; 14.01 - Key Assignment; 15.01 - Attendant Key Assignment.

Hardware Required:

IX-8CITK for Caller ID, IX-DTI-T/IX-T1DTI and IX-T1RCV for ANI. Optional SMDR license, IX-SCIF, or IX-HCIF, or IX-EDVIF for SMDR or Event Record output.

Answering Machine Emulation (Voice Mail Monitor)

The Answering Machine Emulation feature allows a user to hear a caller leaving a message. The user can then pick-up the call if desired. The Answering Machine Emulation feature is useful for screening your calls just like a home answering machine.

When a station is set for call forward to voice mail, notification is sent to the station when a call is forwarded to voice mail. The station user may then choose to monitor the voice mail message as it is being recorded. During voice mail message monitoring, the station user may initiate a conversation with the calling party by pressing a [VML Monitor] key. The station user may turn this feature on or off and set the mode from the key telephone.

In order to use this feature at a system extension, the extension must be enabled in 10.72 - Programming Reserve 3 and assigned a [VML Monitor] key in 14.01 - Key Assignment/15.01 - Attendant Key Assignment (VM Monitor AME).

When a call is forwarded to voice mail, the forwarding station, if idle, will hear monitor start tone for 200 milliseconds. The Answering Machine Emulation feature will not operate if the called extension is off-hook or on another call. Monitoring will begin only if the station user presses the [VML Monitor] key. Once monitoring is initiated, the [VML Monitor] key red LED will begin to flash. When monitoring starts, the [VML Monitor] key LED indication will change from blinking red to solid green. While in the monitor state, the user has three options:

- Continue monitoring until the caller hangs up and the disconnect packet is received
  (*Class 04.77.22 Stop call recording VM/AA ([pkt22])*).
- Go on-hook to end the monitor.
- Press the [VML Monitor] key to initiate a conversation with the calling party.
- If the user chooses to terminate the voice mail monitoring without initiating a conversation, the [VML Monitor] key will revert back to a blinking red LED. If the user chooses to initiate a conversation with the caller, the [VML Monitor] key will revert to inactive and the voice mail message will be automatically deleted.

Operation:

To Set or Change the Voice Mail Monitor Mode

1. While your station is idle, press [SPKR]
2. Press [FEAT]
3. Press the Voice Mail Monitor key [VML Monitor]
4. Press 1 to deactivate (if previously activated)
   Press 2 to set the mode as Manual
   Press 3 to set the mode as Automatic

To initiate Voice Mail Monitoring

1. After the call is answered by voice mail at an idle station.
2. You will hear a Monitor Alert Tone.
3. The Voice Mail Monitor key [VML Monitor] red LED will begin to flash.
4. If set to manual, press the Voice Mail Monitor key [VML Monitor]
   If set to automatic, call monitoring begins immediately.
5. When the Voice Mail Monitor key [VML Monitor] green LED lights, you will hear the caller's message as it is recorded.

To cancel Voice Mail Monitoring

1. Hang up or press [SPKR].
2. The Voice Mail Monitor key [VML Monitor] red LED will begin to flash.
3. The voice mail message will be saved.

To begin a conversation with the caller during monitor

1. While listening to the caller record a message.
2. Press the Voice Mail Monitor key [VML Monitor].
3. The Voice Mail Monitor key [VML Monitor] green LED will turn off.
4. Begin speaking with the caller.
5. The voice mail message will be automatically deleted.

Conditions

1. Packet 23, (*Class 04.77.23*), must be programmed as 2222.
2. To monitor a call with this feature, the station must be enabled for Call Monitor in *Class 10.72.07*.
3. In order take a call being monitored with this feature, the station must be enabled for Barge-In in *Class 10.40*.

Note: Enabling a station for Barge-In allows the user to barge into other stations' calls. This could potentially lead to phone abuse. The solution is to make certain stations protected in *Class 10.44*. If a station is protected, it cannot be overridden by stations programmed as barge-in stations. Protected stations deny barge-in and monitoring from occurring.

4. The station must be idle to monitor a call.
5. Monitoring will begin only if the station user presses the [VML Monitor] key if manual monitoring is engaged. Calls will be monitored automatically if automatic monitoring is engaged.
6. If multiple forwards occur, the originating station receives notification when record to voice mail starts.
7. Audible indication of Voice Mail recording is only provided to an idle station.
8. A station may begin to monitor a call being recorded to voice mail at any time by pressing the [VML Monitor] key with a flashing red LED.
9. This feature operates for one call at a time. If a second call is forwarded to voice mail while the Answering Machine Emulation feature is active, the second call is ignored.
10. In order for this feature to operate, a conference circuit is required. If a conference circuit is not available, a busy tone will be sent to the originating station.
11. When a headset is used, automatic monitoring will not operate. In addition, audible indication is not provided.

Automatic Answer

An outside line can be programmed for automatic answer using the system database. A line can be programmed for automatic answer on all calls, or only when an [Automatic Answer] key at an attendant position is pressed. When a line is in the automatic answer mode, the caller will hear a recorded message. This feature is only available in systems equipped with an IX-MSGU card. If an IX-CMSG-1 daughterboard is mounted on the IX-MSGU card, customized messages can be recorded. If an IX-CMSG-1 daughterboard is not installed prerecorded system messages must be used. Lines subject to automatic answer are defined in *Class 11.24*. Automatic answer mode can be started automatically at a specific time of day as programmed in *Class 04.32*, or manually by pressing an [Automatic Answer] key at an attendant position. The programming in *Class 04.33* determines the days on which automatic answer message 1 and automatic answer message 2 are played to callers. The ECS is programmable to play automatic answer message 2 on as many as four days.

Operation:

To manually switch to automatic answer mode from an attendant position:

At ICM dial tone press [Automatic Answer] once to display, and multiple times to toggle between VOICE MESSAGE 1, VOICE MESSAGE 2, and OFF.

Conditions:

1. System must be equipped with an IX-MSGU card.
2. This feature does not function with the Delayed Ringing feature.
3. If custom messages are required, IX-CMSG-1 daughterboard must be mounted on the IX-MSGU.
4. An [Message Record] key is required to record automatic CO answer messages.
5. If the system is equipped with an IX-CMSG-1 card the IX-MSGU card must have a 1.5 processor.
6. If the system is equipped with an IX-CMSG-1 card 330 seconds of recording time is available.

Database Programming:

03.01 - Time of Day; 04.14 - Automatic CO Answer; 04.20 - VSS Recording Time; 04.33 - Automatic CO Answer Day; 11.24 - Automatic Answer Line; 11.45 - Auto Answer Message 1; 11.46 - Auto Answer Message 2; 15.01 - Attendant Key Assignment.

Hardware Required:

IX-MSGU, IX-CMSG-1 for custom messages.

Automatic Number Identification (ANI)

When ANI T1 lines are terminated to the IX-DTI-T/IX-T1DTI card, the caller's name and alphanumeric ID will be sent along with a call and appear on the station LCD. Using the Class 24 Caller ID/ANI Conversion Table these calls can be routed to ring a specific station, master hunt group, ACD group or voice mailbox. Caller ID calls may be programmed to ring up to 32 station simultaneously.

Multiple Ringing Stations for ANI Calls To utilize this feature, the CO Access Number of a trunk (Class 11.02) must be programmed as the destination in the conversion table for ANI (Class 24.02). The call will be routed based on the primary ringing assignment of Class 11.32 (maximum 16 stations) and the delayed ringing assignment of Class 11.33 (maximum 16 stations) programmed for the trunk that was specified in the conversion table.

Caller ID/ANI Conversion Table The caller ID/ANI conversion table is programmed using *Class 24*. Up to 1600 caller ID/ANI digit entries, each with a corresponding routing assignment and alphanumeric ID, can be programmed.

A range of incoming digits received from the CO is extracted according to the programming in *Classes 24.05 and 24.06*. The system then searches for a match in Class 24.01. If a match is found the system searches *Class 24.03* for an alphanumeric ID and Class 24.02 for a ringing assignment. The ringing assignment can be either a station, master hunt group, or voice mailbox.

Caller ID/ANI Conversion Table				
Day /Night Mode	Entry Number [Class 24.01, 24.02, 24.03]	Converted Caller ID/ANI Digits [Class 24.01]	Alphanumeric ID [Class 24.03]	Destination [Class 24.02]
Determines if Class 24.01 - Caller ID/ANI Incoming Numberr, 24.03 - Caller ID/ANI Number ID value is day mode or night mode or day/night mode.	Range 1-800 Each number represents one line in the entry table. See 24.01 - Caller ID/ANI Incoming Number, 24.03 - Caller ID/ANI Number ID	Values entered here should match the result of programming in Classes 24.05, and 24.06 on the Caller ID/ANI digits sent by the CO.	Maximum of 16 characters. Identifies the calling party, geographical location, etc.	This item determines where the call is routed; a system extension number, master hunt group access number, voice mailbox number, or ACD group access code.

Conditions:

1. The IX-DTI-T/IX-T1DTI card and IX-T1RCV DTMF receiver card are required for this feature.
2. ANI information can only be received from COs sending DTMF signaling.
3. According to the programming in *Class 04.70.16*, either 800 day mode/800 night mode or 1600 day/night mode numbers can be entered in Class 24.01.
4. According to the programming in *Class 04.71.28*, the ringing on a ANI trunk can be delayed between 0 and 255 milliseconds.
5. The Multiple Ringing Stations feature is available only when a CO Access Number (Class 11.02) is programmed as the destination in the DID, ANI, DNIS, and Caller ID Conversion Table. Ringing Assignment is programmed in Class 11.32. Delayed Ringing Assignment is programmed in Class 11.33. Class 04.16 must be set to **0** (no delayed ringing) to have the primary and delayed ringing stations ring simultaneously.
6. If the destination programmed in *Class 24.02* is a voice mailbox the ANI digits are output as a packet.
7. If the destination programmed in *Class 24.02* is an ACD group the ANI digits are output as an event code according to database programming.
8. If there is no destination programmed in *Class 24.02* the system will route the call according to the following programming:
   - Class 11.34 - DIL to Hunt Group
   - Class 11.32 - Ringing Station
   - Class 11.26 - Attendant Intercept Line
   - Class 04.55 - True Attendant Position

Database Programming:

System Hardware (Class 01); 04.71 - Call Coverage/Voice Mail Data Elements 16 and 22; 04.72 - Programming Reserve 3 Element 15; 04.77 - Voice Mail/Auto Attendant Packet Codes; Class 24 Caller ID/ANI Conversion Data.

Hardware Required:

IX-DTI-T/IX-T1DTI, IX-T1RCV.

Automatic Outside Line Release

Trunk lines that are in a hold status or involved in a trunk-to-trunk conference are automatically disconnected when the outside party hangs up. The optional IX-4ETRAN card monitors the voice/tone signals from the outside line to determine if the call is terminated when a remote disconnect signal is not provided.

Conditions:

A remote disconnect signal from the central office is required for this feature unless an IX-E4TRAN card is installed in the system. The signal detection timing is programmable between 100 and 1500 milliseconds.

Database Programming:

System Hardware (Class 01); 02.10 - CO Monitor Guard Time; 02.11 - CO Interrupt Tone Duration; 02.12 - CO Interrupt Tone Repetition; 02.13 - CO Interrupt Tone Allowance; 02.14 - CO Continuous Tone Duration; 02.15 - CO Silence Duration; 02.16 - CO Silence - Noise Allowance; 11.19 - Disconnect Signal.

Hardware Required:

IX-4ETRAN if standard loop open disconnect is not provided.

Automatic Relay Control

The ECS system may be programmed to operate a one-shot relay at a fixed time each day. The time specified for automatic one-shot relay control is programmed in Class 04.76.01. The relay number being controlled is programmed in Class 04.71.42.

Conditions:

1. Only One-Shot Relays, defined in Class 04.37, may be used with this feature.
2. The system will automatically active the one-shot relay at the time specified in Class 04.76.01.
3. The relay number to be controlled is specified in Class 04.71.42.

Database Programming:

System Hardware (Class 01); 04.35 - Miscellaneous Function Port; 04.36 - Miscellaneous Relay Timer; 04.37 - Miscellaneous Function; 04.71 - Call Coverage/ Voice Mail Data Element 42; 04.76 - Programming Reserve 7 Element01.

Hardware Required:

IX-MISC/IX-MCAA, IX-EDVIF.

Automatic Reset Operation

The ECS telephone system can be programmed to reset automatically at a pre-programmed time. After a system is reset, information about the reset is stored in the system's error log.

Warning: This function should be used with caution. An automatic system reset can occur regardless of the system status at the pre-programmed time.

Conditions:

1. The ECS system time and the reset mode (see below) must be set for this feature to be utilized.
2. System reset modes include:
   - 0 = No Reset
   - 1 = Monday, Wednesday, Friday and Sunday
   - 2 = Tuesday, Thursday and Saturday
   - 8 = Only Once
   - 9 = Every day

Note: When 8 is selected as a reset mode, the system will reset at the programmed time on that day. The system recognizes the day of the input as the only valid date for reset. Once the system has executed the reset, the time entered in 04.76.02 is cleared and the automatic reset operation is no longer enabled unless another valid entry is made to 04.76.02.

Database Programming:

03.01 - Time of Day; 03.02 - Calendar; 04.71 - Call Coverage/Voice Mail Data Element 18 Automatic System Reset Mode; 04.76 - Programming Reserve 7 Element 02 Automatic System Reset Time.

Background Music

If your ECS system is connected to an external music source, the music played can be heard through the speaker of any Omega-Phone telephone (except an Omegatrek Portable Station) connected to the system. This same music source can be played through an external paging system when the optional IX-MISC/MCAA components are added. An external BGM source (example: an FM tuner / CD player connected to the IX-CCU) can be used.

Note: Paging overrides BGM played through the external paging system.

Operation:

To turn on BGM at a KT:

Press [FEAT] + [6][2], or [BGM].

To turn off BGM:

Press [FEAT] + [0][6][2], or [BGM].

Conditions:

Background Music will not play through an Omegatrek Portable Station (IX-PS6).

Bacground Music is not supported on IP telephones.

Database Programming:

System Hardware (Class 01), 04.03 - Background Music (BGM) Input Port, 04.04 - Background Music Output Port.

Hardware Required:

Standard. External MOH/BGM input connector on the IX-CCU.

Call Forwarding - Fixed Call Forwarding

The system database contains items that allow you to define a fixed call forward destination for each station. Use *Class 10.78* to program the fixed call forward destination. Once fixed call forwarding is set, deleting the destination programmed in Class 10.78 can only disable it. This feature operates in conjunction with the fixed call forward mode programmed in *Class 10.73.01*. Fixed call forwarding modes are assigned on the station level as follows:

- Forward all calls.
- Forward when the station is busy or there is no answer.
- Forward only if there is no answer.

Call forwarding activated using the [FORWARD] key overrides fixed call forwarding programming.

Conditions:

1. Fixed call forwarding does not activate the lamp on the [FORWARD] button.
2. To program this feature **All** must be entered in *Class 10.73.01*, and a destination station must be programmed in *Class 10.78*.
3. The value in *Class 04.13* determines how long a call will ring before being forwarded to the fixed call forward destination.
4. The fixed call forwarding destination can be another station or a hunt group.
5. If fixed call forwarding is assigned the station cannot activate the most recent call forwarding destination by pressing [FORWARD].
6. Fixed call forwarding does not affect ringing at stations in a hunt group. However, if all call forwarding is activated manually at a station in a hunt group that station is removed from the hunting sequence.
7. The timer in *Class 04.16* is functional in voice mode only. If the tone mode is selected, the clock never times out. To switch from tone mode to voice mode, press [#] after going off hook.

Database Programming:

04.13 - Call Forward - No Answer; 10.73 - Call Forwarding Modes; 10.78 - Fixed Call Forward Destination.

Hardware Required:

Standard.

Call Logging (All Call/Abandon Call Storage)

The enhanced Abandon Call Storage feature provides the ability to store information about all calls received. When a call is received on a caller ID or ANI line, the ECS will capture and store in the system memory information about the caller received with the call. This information may include the caller's telephone number and name, date and time of the call, trunk number, and destination station. The information can be displayed at a station LCD display. This information can be output as a system event code or to SMDR. Information for the 500 most recent calls can be stored in the system memory on a last in, first out basis. Two modes of storage are available for this feature:

1. Abandon Call Storage
2. All Call Storage (CID/ANI)

Abandon Call Storage. When Abandoned Calls Only is selected as the storage mode for this feature, information will only be stored for the following types of calls:

- Caller hangs up or is disconnected before the call is answered.
- Caller hangs up or is disconnected while on hold or during hold recall.
- Caller hangs up or is disconnected during camp-on transfer or camp-on recall.

All Call Storage (CID/ANI). When All Call is selected as the storage mode for this feature, the system will capture and store information about the caller received with the 500 most recent calls on caller ID or ANI lines.

The Caller ID Information Storage feature may be programmed to store the Caller ID/ ANI/DNIS information sent with either All Calls (CID/ANI), or Abandoned Calls only. This feature is programmed in *Class 04.70.36*. Programming in *Class 04.70.36* affects this feature system-wide.

Database Programming:

04.50 - SMDR - Output Port; 04.70 - Programming Reserve 1 Monitor Mode/ Conference Mode; 14.01 - Key Assignment; 15.01 - Attendant Key Assignment.

Hardware

IX-CCU/CCSU SMDR Output license, IX-EDVIF, IX-SCIF, or IX-HCIF for output to SMDR.

Call Monitor

Stations that are assigned a [Monitor] key can monitor the call in progress at another station by pressing [Monitor] and dialing the station number.

Note:

In certain states it is illegal to intercept and / or record telephone calls.

In certain states and under certain circumstances it is illegal to intercept for the purpose of listening in and / or recording telephone calls. Because such activities are not illegal in all jurisdictions and may be permitted in training and/or monitoring of personnel, this telephone system can be programmed to permit interception and / or recording with or without warning to those on the line. Before utilizing the system for such purposes, you are advised to consult with an attorney familiar with the laws of the jurisdiction in which you utilize such a feature.

IWATSU AMERICA, INC., its distributors and the manufactures responsible for this feature make no representations with respect to the legality of its use and disclaim any liability for claims and / or damage arising from the use or misuse of this feature.

Operation:

To monitor a call from a digital key telephone at ICM dial tone:

1. Press the [Monitor] key and enter the extension number.
2. Press the [Monitor] key and the Direct Station Signaling button [DSSn]
3. Press the [Monitor] key and the Call Coverage button [CCVn]
4. Press the [Monitor] key and the Trunk Access number.
5. Press the [Monitor] key and the Direct CO Line button [COLn]

To monitor a call from an Omegatrek Portable Station:

1. Press the [SEND/SPK] key + [Monitor] + the extension number to be monitored or [DSSn] or [ICCVn].
2. To monitor an outside call, press the [SEND/SPK] key + [Monitor] + the extension number to be monitored or [DSSn], [ICCVn] or Trunk Access Number or [COLn].

Conditions:

1. Operations for ICM and CO monitoring have changed.
2. There are no changes to the functionality of the Monitor feature.
3. If no available ‘B’ channel exists, an Omegatrek Portable Station (IX-PS6) cannot monitor a call.
4. The Omegatrek Portable Station (IX-PS6) cannot monitor a station if the Portable Station is out of area.

Database Programming:

10.02 - Station Numbering; 10.40 - Barge-In Station; 10.44 - Protected Station; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

Standard.

Caller ID

When caller ID lines are terminated to the IX-8CITK card, the caller's name and alphanumeric ID will be sent along with a call and appear on the station LCD. Using the Class 24 Caller ID/ANI Conversion Table these calls can be routed to ring a specific station, master hunt group, ACD group or voice mailbox. Caller ID calls may be programmed to ring up to 32 station simultaneously.

Multiple Ringing Stations for Caller ID Calls To utilize this feature, the CO Access Number of a trunk (Class 11.02) must be programmed as the destination in the conversion table for Caller ID (Class 24.02). The call will be routed based on the primary ringing assignment of Class 11.32 (maximum 16 stations) and the delayed ringing assignment of Class 11.33 (maximum 16 stations) programmed for the trunk that was specified in the conversion table.

Caller ID/ANI Conversion Table The caller ID/ANI conversion table is programmed using *Class 24*. Up to 1600 caller ID/ANI digit entries, each with a corresponding routing assignment and alphanumeric ID, can be programmed.

A range of incoming digits received from the CO is extracted according to the programming in *Classes 24.05 and 24.06*. The system then searches for a match in Class 24.01. If a match is found the system searches *Class 24.03* for an alphanumeric ID and Class 24.02 for a ringing assignment.

Caller ID/ANI Conversion Table				
Day / Night Mode [Class 24.01, 24.02, 24.03]	Entry Number [Class 24.01, 24.02, 24.03]	Converted Caller ID/ANI Digits [Class 24.01]	Alphanumeric ID [Class 24.03]	Destination [Class 24.02]
Determines if *Class 24.01, 24.02, 24.03* value is day mode or night mode or day/night mode	Range 1-800. Each number represents one line in the entry table.	Values entered here should match the result of programming in *Classes 24.05, and 24.06* on the Caller ID/ANI digits sent by the CO.	Maximum of 16 characters. Identifies the calling party, geographical location, etc.	Programming in this item determines where the call is routed; a system extension number, master hunt group access number, voice mailbox number, or ACD group access code.

Conditions:

1. The IX-8CITK card is required for caller ID.
2. According to the programming in *Class 04.70.16*, either 800 day mode/800 night mode or 1600 day/night mode numbers can be entered in Class 24.01.
3. According to the programming in *Class 04.71.28*, the ringing on a caller ID trunk can be delayed between 0 and 255 milliseconds to allow time for an external PC to process caller ID information.
4. The Multiple Ringing Stations feature is available only when a CO Access Number (Class 11.02) is programmed as the destination in the Caller ID/ANI Conversion Table (Class 24.02). Ringing Assignment is programmed in Class 11.32. Delayed Ringing Assignment is programmed in Class 11.33. Class 04.16 must be set to **0** (no delayed ringing) to have the primary and delayed ringing stations ring simultaneously.
5. Incoming calls originating with ### are regarded as *private.* Private calls can be routed to a specific destination by entering ### in Class24.01.
6. Incoming calls originating with *** are regarded as *out-of-area.* Out-of-area calls can be routed to a specific destination by entering *** in Class24.01.
7. If the destination programmed in *Class 24.02* is a voice mailbox the caller ID digits are output as a packet.
8. If the destination programmed in Class 24.02 is an ACD group the caller ID digits are output as an event code through database programming.
9. If there is no destination programmed in Class 24.02 the system will route the call according to the following programming:
   - Class 11.34 - DIL to Hunt Group
   - Class 11.32 - Ringing Station
   - Class 11.26 - Attendant Intercept Line
   - Class 04.55 - True Attendant Position

Database Programming:

System Hardware (Class 01); 04.70.16/22; 04.71 - Call Coverage/Voice Mail Data; 04.72.15 - Event Code Output Port; 04.77 - Voice Mail/Auto Attendant Packet Codes; Class 24 Caller ID/ANI Conversion Data

Hardware Required:

IX-8CITK.

Caller ID, ANI, DNIS Name and Number Display

Caller ID Number and Name Displayed Simultaneously

When a caller ID call is received at the ECS, the name and number sent with the call by the telephone company are now shown simultaneously. If the caller ID name is not provided by the telephone company, the Class 24.03 Caller ID/ANI Conversion Table may be programmed to provide the name.

ANI Number and Name Displayed Simultaneously

When an ANI call is received at the ECS, the number sent with the call by the carrier and the name programmed in the Class 24.03 Caller ID/ANI Conversion Table are now shown simultaneously.

DNIS Number and Name Displayed Simultaneously

When a DNIS call is received at the ECS, the number sent with the call by the carrier and the name programmed in the Class 25.03 DNIS Conversion Table are now shown simultaneously.

Caller ID, ANI, and DNIS Numbers Displayed With Hyphens

When a Caller ID, ANI or DNIS call is received at the ECS the number sent by the telephone company or carrier is displayed with hyphens separating the area code, office code and subscriber number.

Caller ID, ANI and DNIS Number and Name Displayed During Camp-On

When a Caller ID, ANI or DNIS call is camped-on to a station the number and name is now shown.

Customize Information Displayed on Station LCD

The information displayed on the station LCD during incoming ringing, call in progress, incoming forwarded call ringing, and camped-on/transferred call ringing may be programmed in the system database. This feature affects only incoming calls on Caller ID/ANI or DNIS lines.

The data displayed during incoming ringing and each time the [CID Display Change] key is pressed depends on the programming in Class 04.71.45 through Class 04.71.64. Ten different display modes are available. Each of these is listed in the table below. Also shown below are illustrations of how this feature works based on the default values in Class 04.71.45-64.

Displayed Data	Description	Value in Class 04.71.45-64
Caller ID/ANI Name	Name sent by the telephone company in the multiple message format, or the Caller ID/ANI name programmed in Class 24.03	1
Caller ID/ANI Number	Caller's telephone number sent by the telephone company	2
DNIS Name	Name programmed in Class 25.03	3
DNIS Number	Number the caller dialed sent by the telephone company	4
ACD Group Name	ACD Group name programmed in Class 19.02	5
Call Duration Timer	LCD timer showing the total duration of the call after answer	6
User Name of Forwarding Station	Station user ID (Class 10.04) of the station that forwarded or camped-on the call.	7
Extension Number of Forwarding Station	Extension number (Class 10.02) of the station that forwarded the call	8
Trunk Line ID	Line ID programmed for the trunk in Class 11.03.	9
Trunk No. & Trunk Group No.	Trunk Number or Incoming Trunk Group Number (Class 11.39)	10

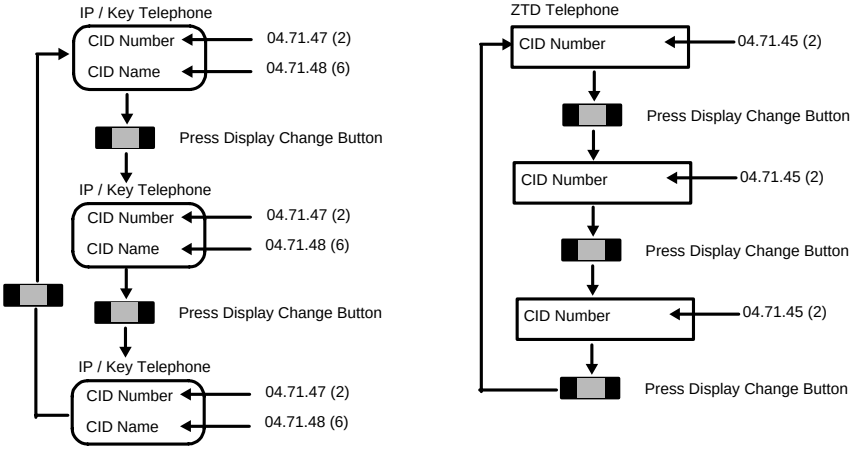
Using the new [CID Display Change] key, you can change the displayed information as illustrated below. The numbers listed in parenthesis are suggested programming only. At default, each of these elements is blank.

Note: A blank line on the LCD will appear if the data received does not match the programming in Class 04.71.45-64, or if no data is received with the call.

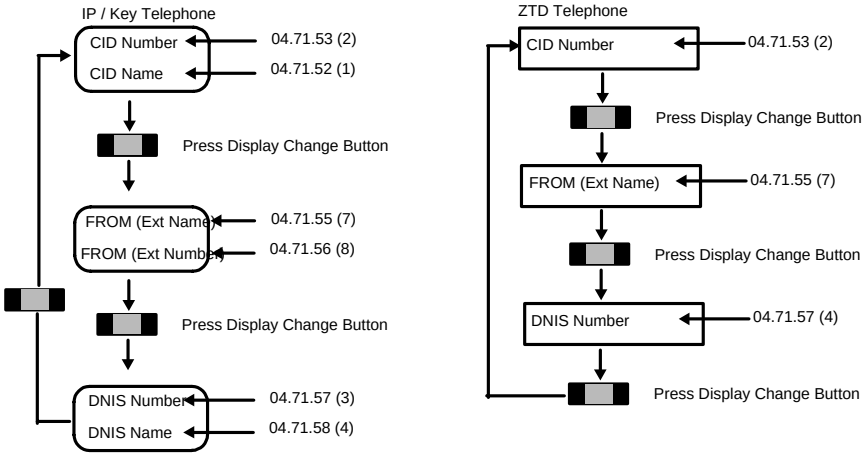
Incoming Call Ringing



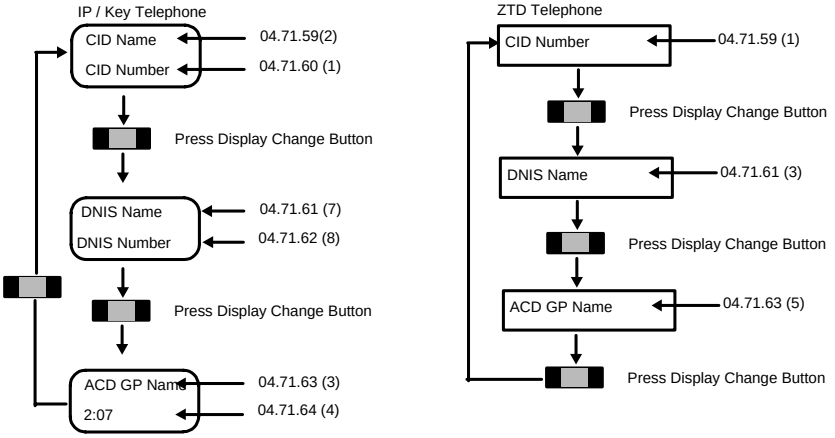
Call In Progress



Forwarded Call (Ringing)



Camped On/Transfered Call (Ringing)



During a screened transfer the display will indicate what station is transferring the call. After the transferring station connects the call, the display will change to the Camped-On/Transferred Call (Ringing) condition shown above.

Note: CID Number is the caller's telephone number sent by the telephone company, "CID Name" is the name sent by the telephone company in the multiple message format or the Caller ID/ANI name programmed in the Class 24.03 Conversion Table, or the DNIS name programmed in the Class 25.03 Conversion Table. The Caller ID name sent by the telephone company overrides any corresponding programming in the conversion table. "EXT #" is the extension number (Class 10.02) of the station that forwarded the call. "Ext Name" is the station user ID (Class 10.04) of the station that forwarded or camped-on the call. "Call Duration" is the LCD timer showing the total duration of the call after answer. "Tr #" is the logical port number of the trunk that the call was received on. "Tr Gr #" is the outgoing trunk group (Class 11.38) of the trunk that the call was received on.

Conditions:

1. A [Display Change] key (*Class 14.01, 15.01*) must be assigned in order to change the data displayed on the LCD.
2. If both ANI and DNIS data are received on the trunk, Class 04.70.22 determines which data is used to route the call and which data is displayed on the station LCD.
3. Class 04.71.45 through Class 04.71.64 determines which data is displayed on the station LCD.
4. A blank line on the LCD will occur under the following conditions:
   - The data received does not match the programming in Class 04.71.45-64>.
   - The CID Name area will be blank if a name is not received from the telephone company and a name is not programmed in the Class 24.03 Conversion Table for Caller ID/ANI or Class 25.03 Conversion Table for DNIS.
   - The CID Number area will be blank when a private or out-of-area call is received.
5. Hyphens are only shown when seven or ten digits are received with the call. Any other combination of digits will display without the hyphen.

Database Programming:

System Hardware (Class 01); 04.70.16/22; 04.71 - Call Coverage/Voice Mail Data; 04.72.15; 04.77 - Voice Mail/Auto Attendant Packet Codes; 14.01 - Key Assignment; 15.01 - Attendant Key Assignment; 24.01 - Caller ID/ANI Incoming Number, 24.03 - Caller ID/ANI Number ID; 25.01 - DNIS Incoming Number, 25.02 - DNIS Conversion Number.

Hardware Required:

IX-8CITK for caller ID, IX-DTI-T/IX-T1DTI and IX-T1RCV for ANI/DNIS.

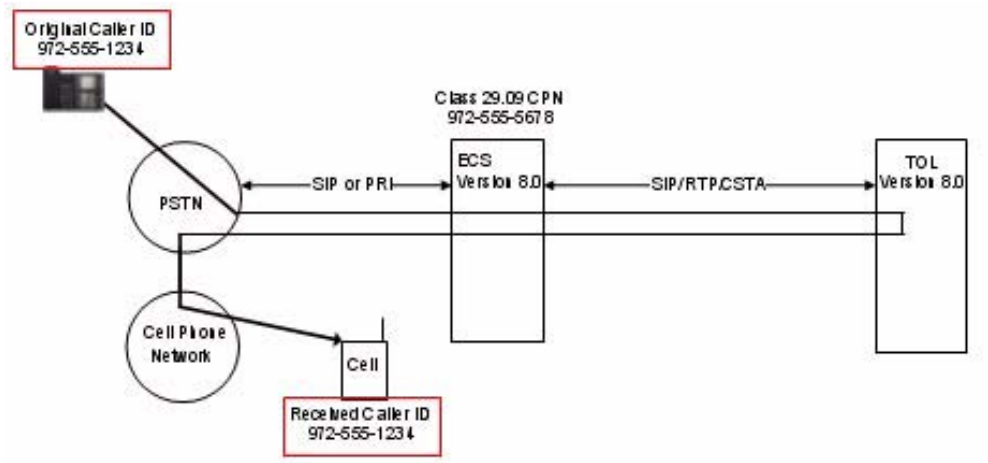
Caller ID Pass Through on TOL Transfer to External Number

When TOL transfers an incoming CO call (trombone transfer) to an outside number through a PRI or SIP trunk, the TOL sends the ECS the original caller ID received from the incoming CO call. If the PRI or SIP carrier accepts replacement of the calling party number, then the called party can see the original Caller ID instead of the Caller ID of the ECS.

Note:

Some PRI and SIP carriers do not accept changes to Calling Party Number (CPN). This feature is not applicable with those carriers. Dealer is responsible for verifying carrier support for this feature.

This feature requires ECS Software Version 8.0 and an ECS Software version 8.0 License (PN: 000347).



Originating Outbound Call Type	Outbound Caller ID Sources Sorted by Priority
SIP-VML	1. Calling Party Number in ISDN register in System Memory* 2. Trunks > IPNET/PRI Trunk Group Data (Class 29.09) 3. Stations > Access No. (Class 10.02)**

***** The Calling Party Number (CPN) in the ISDN register is used only when an incoming call comes into an Iwatsu Enterprise TOL system and is then sent off-premise. No programming is necessary; the incoming Caller ID (if available) is automatically placed in the outbound header.

****** When the Call Control obtains the number programmed in the ECS database from Stations > Access No. (Class 10.02) or Trunks > Access No. (Class 11.02), the '+' sign will not be added.

Conditions:

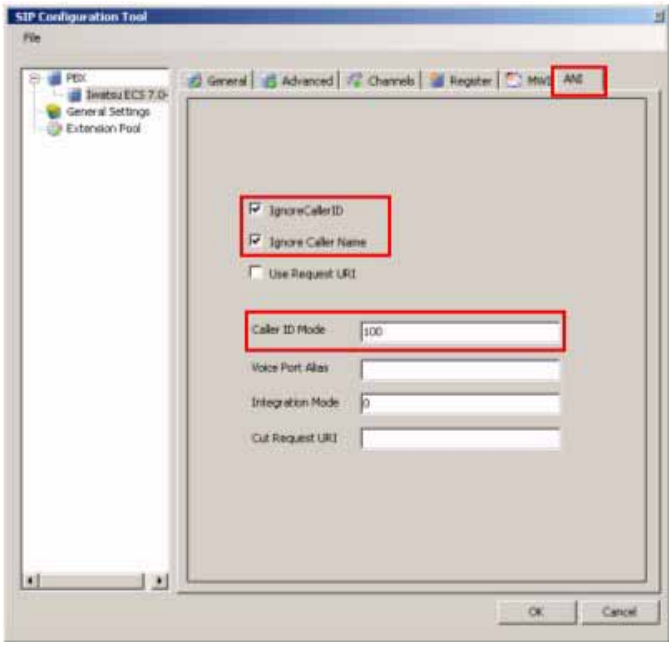
1. Requires Iwatsu Enterprise TOL software version 8.0.
2. A PRI or SIP trunk is required between the ECS / TOL and the CO carrier.
   - Requires ECS software version 8.0 license (PN: 000347). The original CID will not transfer without a version 8.0 or higher license.
3. This feature is for calls transferred by TOL only and will not appear as an ECS transferred call.
4. Some PRI and SIP carriers do not accept changes to the CPN. This feature is not applicable with those carriers. Dealer is responsible for verifying carrier support for this feature.

Database Programming:

Iwatsu Enterprise TOL Programming:

From the **TOL SIP Configuration Wizard under PBX > Iwatsu > ANI** tab make the following changes:

- Select the **Ignore Caller ID** check box.
- Select the **Ignore Caller Name** check box.
- Enter a value of **100** for the **Caller ID Mode**.
- Press **OK**.



ECS Programming

Class 10.02 - Stations Access No., Class 11.02 - Trunk Access No., Class 20.09 - IPNET/PRI Trunk Group Data, Class 29.09 - Trunks > IPNET/PRI Trunk Group Data

Hardware Required:

Standard.

CO Line Groups

CO lines can be grouped in both outgoing and incoming CO line groups. CO lines groups are used for trunk selection with system features such as optimized routing, toll restriction, speed dialing, and remote CO forward. There are two types of CO line groups:

Outgoing CO Line Groups Outgoing CO line groups are programmed in *Class 11.38*. The system will support a maximum of 250 outgoing CO line groups with no limit to the number of CO lines that can be included in one group.

Incoming CO Line Groups Incoming CO line groups are programmed in *Class 11.39*. The system will support a maximum of 250 incoming CO line groups with no limit to the number of CO lines that can be included in one group. The primary purpose of the incoming CO line group is restricting stations from answering calls on certain lines.

Conditions:

1. The hunting method - either *circular* or *normal* - is programmable in *Class 04.38*.
2. Outgoing CO groups cannot be programmed in KF registered systems.

Database Programming:

11.38 - Outgoing CO Group; 11.39 - Incoming CO Group.

Hardware Required:

Standard.

Conference Call—Eight-Party Conference Call

The *Eight-Party Conference* feature is available to any system extension when the IX-CNFBOX-1 card is utilized. In order to join a conference call, a station must dial the trunk group access code assigned for the IX-CNFBOX-1 ports in Class 07.03 or press a Float key for the trunk group.

Attending an Eight-Party Conference Call. System extensions may join an eight-party conference call by dialing the trunk group access code designated to access the IX-CNFBOX-1 ports or by pressing a Float key for the trunk group.

Joining an Outside Party in an Eight-Party Conference Call. If the ECS is equipped with an IX-4ETRAN card, up to five outside parties may join an IX-CNFBOX-1 eight party conference call. However, the outside party may be added to the eight party conference call only by an attendant position. To add the outside party, the attendant position presses the [TRAN] key, dials the trunk group access code and [CONNECT] or hang-up.

Conference Call—Forty-Party Conference Call

Up to five IX-CNFBOX-1 cards may be installed in the system and connected together to provide a maximum of 40 parties in one conference call. However, the system will support a maximum of five outside parties on an IX-CNFBOX-1 conference call regardless of the number of cards connected together.

Programming:

Follow the instructions below to program the ECS system database to support an eight-party conference call.

1. Define each of the IX-CNFBOX-1 card's eight circuits as a loop start trunk port in Class 01.08.
2. Group each IX-CNFBOX-1 logical port in Class 11.38 as part of an Outgoing Trunk Group.
3. In order for the system extensions to access an eight-party conference call, they must dial the trunk access number of the Outgoing Trunk Group. Define the trunk group access number in Class 07.03.

Operation:

To join an IX-CNFBOX-1 eight-party conference call:

1. From any system extension, go off hook and dial the *IX-CNFBOX-1 trunk access number.*
2. When the party answers press [ADD].

To add an outside party to an IX-CNFBOX-1 eight-party conference call:

1. While speaking on an outside call from an attendant position press [TRAN] + *IX-CNFBOX-1 trunk group access number.*
2. When the IX-CNFBOX-1 port is seized press [CONNECT] or hang-up.

Conditions:

1. The IX-CNFBOX-1 is not supported with the IX-4ETRAN when analog trunks are used.
2. The eight IX-CNFBOX-1 circuits must be defined as loop start trunks in Class 01.08.
3. The eight IX-CNFBOX-1 ports must be joined in an outgoing trunk group in Class 11.38. That trunk group must then be assigned an access code in Class 07.03.
4. Each IX-CNFBOX-1 will support a maximum of eight parties on a conference call. However, the IX-CNFBOX-1 card will support a maximum of five outside parties on an eight-party conference call.
5. In order to support outside parties on an eight-party conference call, the IX-4TRAN card is required. Each IX-4TRAN card will support four outside parties on an IX-CNFBOX-1 eight-party conference call.
6. Only attendant positions can join outside parties in an IX-CNFBOX-1 eight-party conference call.
7. An Intercom Call or E&M Tie Line call may not be transferred to an IX-CNF-BOX-1 circuit from a system extension. They must access an IX-CNFBOX-1 circuit directly by dialing the access code programmed in Class 07.03.

Database Programming:

01.08 - Card Information; 07.03 - CO Line Group Access Numbers; 11.38 - Outgoing CO Group.

Hardware Required:

IX-CNFBOX-1; IX-4ETRAN to support external parties on conference calls.

Conference Call—Improved

The Iwatsu Enterprise-CS allows you to make conference calls with any combination of up to four extensions and outside lines on the same call.

Operation:

To Make a Conference Call:

- While speaking on an outside or internal call:
- Press the **Conference** / [**ADD**] key (Conference [ADD] key will flash). The call is automtically placed on Conference Hold.
- Make your next call (internal or outside call).
    - When the party you are calling answers, press the **Conference** / [**ADD**] key again.

Note:	If the station user places a call on hold using the Hold key, the Improved Conference feature will not function. The user must use the legacy method for conferencing or pickup the call from Hold and use the Conference key to place the call on hold.

or

- Press **Park** to park the call.
- Make your next call.
- Press **Conference** / [**ADD**] and then **Park** to complete the conference.
- After you hear a tone burst, all parties are connected.

To add another extension or outside line, repeat the same procedure.

Conditions:

1. The [ADD] key (key data = 025) is required to access the conferencing feature.

Database Programming:

Stations > Key Patterns (Class 14.01 / 15.01)

Delayed Ringing

If a call on a CO line is not answered at the ringing stations (*Class 11.32*) within a programmable duration (*Class 04.16*), the system can be programmed to ring a group of delayed ringing stations. Delayed ringing stations are assigned for each CO line in *Class 11.33*. When delayed ringing occurs, the primary ringing station(s) will deliver a different ringing tone.

Delayed Ringing on a UCD Line A CO line designated as a UCD line in *Class 11.23* can also have a delayed ringing assignment. Delayed ringing on a UCD line will occur first at the UCD overflow destination (*Class 11.72/Class 08.05*). If the UCD overflow destination is not defined delayed ringing will occur at the stations programmed as delayed ringing stations for that line in *Class 11.33*.

Conditions:

1. Calls will not ring at the delayed ringing stations until the delayed ringing timer programmed in *Class 04.16* has expired.
2. Calls will not ring at the delayed ringing stations assigned to a UCD line if a UCD overflow destination has been assigned in *Class 11.72*.
3. This feature does not function with the Automatic CO Answer feature.
4. If *Class 24.01* and *Class 24.02* are set to use ANI, delayed ringing will not work with extension numbers.

Database Programming:

Delayed Ringing: 04.15 - Attendant DIL Intercept; 04.16 - Delayed Ringing Timer; 11.30 - Ringing Method; 11.31 - Ringing Tone; 11.32 - Ringing Station; 11.34 - Direct In Line (DIL) to Hunt Group.

UCD Line Delayed Ringing 04.34 - UCD Answer Time; 08.01 - Hunt Group - Type; 08.04 - Paging Group - Station/Zone; 11.23 - Uniform Call Distribution (UCD) Line; Hunt Group Station; 11.32 - Ringing Station; 11.33 - Delayed Ringing Station; 11.34 - Direct In Line (DIL) to Hunt Group; 11.72 - UCD Overflow Calls.

Hardware Required:

IX-8LGTK, IX-MSGU, IX-CMSG-1 for custom messages).

Dialed Number Identification Service (DNIS)

When a call arrives on an 800 or 900 line terminated to a DNIS T1 trunk, it includes a series of digits that identify the number the calling party dialed. This information can be programmed to appear on a station set equipped with an LCD.

Multiple Ringing Stations for DNIS Calls To utilize this feature, the CO Access Number of a trunk (Class 11.02) must be programmed as the destination in the conversion table for DNIS (Class 25.02). The call will be routed based on the primary ringing assignment of Class 11.32 (maximum 16 stations) and the delayed ringing assignment of Class 11.33 (maximum 16 stations) programmed for the trunk that was specified in the conversion table.

DNIS Conversion Table The DNIS conversion table is programmed using *Class 25*. Up to 400 DNIS digit entries, each with a corresponding routing assignment and alphanumeric ID, can be programmed.

A range of dialed number digits received from the CO are extracted according to the programming in *Classes 25.05 and 25.06*. The system then searches for a match in Class 25.01. If a match is found the system searches *Class 25.03* for an alphanumeric ID and *Class 25.02* for a ringing assignment. The ringing assignment can be either a station, master hunt group, or voice mailbox.

DNIS Conversion Table				
Day /Night Mode [Class 25.01, 25.02, 25.03]	Entry Number [Class 25.01, 25.02, 25.03]	Converted Caller ID/ANI Digits [Class 25.01]	Alphanumeric ID [Class 25.03]	Destination [Class 25.02]
Determines if *Class 25.01, 25.02, 25.03* value is day mode or night mode or day/ night mode (2)	Range 1-500. Each number represents one line in the entry table.	Values entered here should match the result of programming in *Classes 25.05, and 25.06* on the DNIS digits sent by the CO.	Up to 16 characters. Identifies the ID corresponding to the incoming DNIS digits (i.e., incoming line)	Programming in this item determines where the call is routed, a system extension number, master hunt group access number, voice mailbox number, or ACD group access code.

Conditions:

1. The IX-DTI-T/IX-T1DTI card and IX-T1RCV card used as a DTMF receiver are required for this feature.
2. DNIS information can only be received from COs sending DTMF signaling.
3. According to the programming in *Class 04.70.16*, either 500 day mode/500 night mode or 1000 day/night mode numbers can be entered in Class 25.01.
4. According to the programming in *Class 04.71.28*, the ringing on a DNIS trunk can be delayed between 0 and 255 milliseconds to allow time for external equipment processing.
5. The Multiple Ringing Stations feature is available only when a CO Access Number (Class 11.02) is programmed as the destination in the DNIS Conversion Table (Class 25.02). Ringing Assignment is programmed in Class 11.32. Delayed Ringing Assignment is programmed in Class 11.33. Class 04.16 must be set to **0** (no delayed ringing) to have the primary and delayed ringing stations ring simultaneously.
6. The DNIS number is output as a packet if the destination in *Class 25.02* is a voice mailbox.
7. If the destination programmed in *Class 25.02* is an ACD group the DNIS number can be output as an event code through database programming.
8. If there is no destination programmed in *Class 25.02* the system will route the call according to the following programming:
   - Class 11.34 - DIL to Hunt Group
   - Class 11.32 - Ringing Station
   - Class 11.26 - Attendant Intercept Line
   - Class 04.55 - True Attendant Position

Database Programming:

System Hardware (Class 01); 04.70.16/22; 04.71 - Call Coverage/Voice Mail Data; 04.72.15; 04.77 - Voice Mail/Auto Attendant Packet Codes; Class 25 DNIS Conversion Data.

Hardware Required:

IX-DTI-T/IX-T1DTI, IX-T1RCV.

DID Alphanumeric ID

Direct Inward Dial (DID) numbers can be assigned a 16-character alphanumeric ID to identify the party being called, type of call, or purpose of the call in *Class 09.04*. The DID ID is displayed when an incoming call is ringing at a station. A similar function is available on T1 spans.

Conditions:

The DID trunk ID number is not displayed under the following conditions:

- Call Forward
- [Call Coverage] Key
- Group Pick Up
- Transferring from a Sequence Table (ACD)
- Recalls

Database Programming:

9.04 DID Trunk ID.

Hardware Required:

IX-4DITK, IX-DCDCM.

Direct Inward Dial (DID) Trunks

The ECS supports both analog and digital Direct Inward Dial (DID) trunks. DID trunks allow outside callers to ring a specific ECS station without passing through an operator or attendant. When DID trunks are terminated at either the IX-4DITK or IX-DTI-T/IX-T1DTI card, the ECS can have more extension numbers that CO lines. Both DP and DTMF DID trunks are supported by the ECS.

When the ECS receives a call on a DID trunk, the incoming digits are converted to an extension number using a DID conversion table (*Class 09.01*). The DID conversion table can be programmed to ring a specific station or a hunt group. The attendant will intercept any undefined incoming numbers on a DID line.

Multiple Ringing Stations for DID Calls To utilize this feature, the CO Access Number of the trunk (Class 11.02) must be programmed as the destination in the conversion table for DID (Class 09.01). The call will be routed based on the primary ringing assignment of Class 11.32 (maximum 16 stations) and the delayed ringing assignment of Class 11.33 (maximum 16 stations) programmed for the trunk that was specified in the conversion table.

Conditions:

1. The DID routing table has 500 tables for day and 500 tables for night.
2. A maximum of four DID routing digits—the possible routing digits are 0 through 9—are set as the DID Incoming Number in Class 09 Item 01.
3. The N Code as a general wildcard cannot be set in Class 09 Item 01 as the incoming number.
4. The maximum preceding digits a DID trunk allows is six, four of which are allowed for routing purposes. The following example describes the numbering process.

Preceding Digits	1	2	3	4	5	6
	Ignored Digits		Routing Digits			

In this example, the first two digits, programmed in Class 09 Item 05, are ignored leaving the last four digits to route using Class 09 Item 04.

1. In Class 09 Item 02, the following access numbers can be set in the first field of the DID conversion number:
   - Station Access number.
   - Hunt Group Access number.
   - Trunk Access number.
   - Network Access number.
   - ACD Group Access number.

2. In Class 09 Item 02, the following access numbers can be set in the second field of the DID conversion number:
   - Mailbox number.
   - ACD priority.
   - Network Service Class.
3. An extension with a Digital Display Key telephone will show the DID trunk ID that is set in Class 09 Item 03.
4. Like the data format of DNIS, an event record is provided through the serial port.

< Class 09 - DID - Data >			
04. Incoming Digits: 0			
Conversion Table (Day Mode)			
Number:	Incoming Number:	Conversion Number:	DID NUmber ID:
001	209	201 -	Security Station
002	210	400 -	VM Access Auto Attendant
003	211	301 - 1	Network Call
004	212	303 - 1	Net 2
005	213	305 - 1	Net 3

16 Character Alphanumeric
(Text that displays during ring cycle)

5. In day mode, calls on DID trunks will recall the attendant if the line is programmed to enable attendant intercept in *Class 11.26*. Recall conditions are as follows:
   - Undefined Number
   - No Answer
   - Extension Busy
   - Station in DND Mode
6. The Multiple Ringing Stations feature is available only when a CO Access Number (Class 11.02) is programmed as the destination in the DID Conversion Table (Class 09.01). Ringing Assignment is programmed in Class 11.32. Delayed Ringing Assignment is programmed in Class 11.33. Class 04.16 must be set to **0** (no delayed ringing) to have the primary and delayed ringing stations ring simultaneously.
7. Attendant intercept is not available in night mode. However, DID calls can be programmed for *universal night answer* (UNA) by programming the line as a UNA line in *Class 11.27*.
8. If attendant intercept is not programmed for a DID line the following conditions apply:
   - If the system receives an undefined number a warning tone is sent to the CO.
   - Unanswered calls will continue to ring at the station until the caller hangs up.
   - Busy tone is sent to the CO when a station in DND mode is called.
   - If the called station is busy, the call will ring at the station if the off-hook signaling feature (Class 10.43) is programmed for that station. If off-hook signaling is not programmed for the called station, the caller will hear busy tone.

Database Programming:

04.15 - Attendant DIL Intercept; 04.25.08/09 - Calls for Pickup; 04.70.16; 09.01 - Incoming Number; 09.04 - DID Incoming Digits; 09.05 - DID Ignored Digits; 10.02 - Station Numbering; 10.21 - Outgoing CO Line Group; 10.43 - Off-Hook Signaling; 11.26 - Attendant Intercept Line; 11.38 - Outgoing CO Group; 11.39 - Incoming CO Group.

Hardware Required:

IX-4DITK for DID; IX-ICOTP or IX-DTI-P for ANI / DNIS over PRI; IX-4/2ICOTB for ANI / DNIS over BRI; IX-DTI-T and IX-T1RCV for ANI / DNIS over T1.

Direct Inward Line

Each trunk line can be programmed to ring at up to 16 extensions in *Class 11.32*. A different ringing assignment can be programmed for both the day and night modes in *Class 11.30*. One of four different ringing tones can be selected for each line in *Class 11.31*. If a call is not answered by one of the ringing stations, 16 additional delayed ringing stations can be programmed in *Class 11.33* to ring after a programmable duration (*Class 04.16*).

Direct Inward Line Ringing to Hunt Group Outside lines can be programmed to ring at the stations assigned to a hunt group in *Class 08.02*. The line will ring at the first available station in the hunting sequence. The same trunk can be assigned to ring at different hunt groups for day and night modes. If a station is busy or does not answer within the preset time, the call will ring at the next station in the hunting sequence.

Conditions:

The default ringing assignment for each line is the first 16 station logical ports.

Database Programming:

11.30 - Ringing Method; 11.31 - Ringing Tone; 11.32 - Ringing Station; 11.33 - Delayed Ringing Station; 11.34 - Direct In Line (DIL) to Hunt Group.

Hardware Required:

IX-8LGTK-2, IX-MSGU, (IX-CMSG-1 for custom messages)

Direct Inward System Access

Direct Inward System Access (DISA) allows an external caller to access ECS intercom dial tone by dialing the phone number of a dedicated DISA trunk line. DISA allows the external caller to make intercom calls, hunt group calls, external calls and have access to the paging system. Use of DISA for external calls and paging requires the entry of a security code. The security code is programmed in *Class 10.05* and can be up to six digits long. Security code entry is also required to make external calls through DISA and to access system paging. Feature operation through DISA is the same as SLT feature operation. However, feature access is limited to the station class of service associated with the DISA station.

The following features are accessible through DISA:

- ICM Calls
- Master Hunt Groups
- Operator Calls
- ICM Calls
- System Paging
- Outgoing Calls
- Speed Dial

Note: Iwatsu does not control the distribution of security codes and is not responsible for any unauthorized toll calls.

Operation:

To dial in through DISA:

Do one of the following:

- If you are a subscriber, dial the DISA number + [*] + *extension number* + *security code*;
- If you are not a subscriber dial the DISA number + *extension number*

Conditions:

1. Dial pulse cannot be used to access the system through DISA.
2. If the caller attempts to enter the password more than three times the call is disconnected.
3. To reorder ICM dial tone press [#][#]. However, you cannot reorder ICM dial tone after accessing a CO line or tie line through DISA.
4. The following conditions apply to ICM calls through DISA:
   - Only tone calls are allowed.
   - If attendant intercept is programmed unanswered calls and calls that result in a busy tone, warning tone, or DND tone will ring at the attendant.
   - If attendant intercept is not programmed unanswered calls and calls that result in a busy tone, warning tone, or DND tone will be disconnected.
   - A caller can override a busy station by dialing [*].

5. The following conditions apply to paging through DISA:
   - DISA paging can be answered by meet-me answer operation ([FEAT] + [3][5]) only.
   - If attendant intercept is programmed unanswered paging calls will ring at the attendant after the caller receives a busy tone.
6. The following conditions apply when entering account codes through DISA:
   - Account codes can be entered from ICM dial tone. They will appear on the SMDR printout.
   - To end account code operation the caller must press [*], wait for inter-digit time out, enter the maximum amount of account code digits, or press [#][#] to reorder dial tone.
   - If a caller makes an outgoing call after entering an account code the account code will be included on the SMDR printout.
7. An IX-MSGU message card is recommended when DISA operation is required. If the message card is installed the caller will hear a message when accessing the system using DISA.
   - Class 04.20 message 002 is the DISA message.
   - The length of the messaged may be created in Class 04.20; refer to Class 04.20 for further information.
8. Use *Class 04.70.18* to program the method for interrupting the DISA message.

Database Programming:

System Hardware (Class 01); 04.20 - VSS Recording Time; 04.39 - DISA ICM Call; 04.40 - DISA Paging Call; 04.41 - DISA Waiting Time; 04.42 - DISA: Total Duration; 04.70.18 DISA Short-Cut Operation; 10.02 - Station Numbering; 110.05 - Station Password; 10.06 - DISA Service; 11.19 - Disconnect Signal; 11.47 - DISA/T1 E&M Virtual Station; 11.48 - DISA Message Number.

Hardware Required:

IX-8LGTK-2, IX-408, IX-RCVPM with IX-4RCVC, or IX-RMPU (IX-4TRAN if loop disconnect signal is not provided, IX-MSGU, IX-CMSG/IX-CMSG for custom messages). You **must** have either an IX-RCVPM or IX-RMPU.

Doorphone Features

The doorphone can be programmed for use as a simplified intercom extension at a building entrance or sound monitoring locations. When the call button on the doorphone is pressed up to 16 stations programmed in *Class 10.57* will ring. The doorphone ringing tone is programmed in *Class 10.59*. One of four different tones can be selected. Using *Class 10.58* a doorphone can be programmed to trip a doorphone relay.

Conditions:

A doorphone will not ring unless a ringing station is programmed in *Class 10.57*.

Database Programming:

04.17 - Doorphone Answer; 10.57 - Doorphone Ringing; 10.58 - Doorphone Relay; 10.59 - Doorphone Tone.

Hardware Required:

IX-8PSUB, IX-DDPH.

DTMF Dialing During Conference Calls

A station on a conference call can send DTMF tones. This feature allows users to access features while on a conference call. For example, a user may play back a voice mail message during a conference call or dial a conference call through an Auto Attendant or voice response system.

In order to use this feature, the station must be enabled for Dial-On Conversation in Class 10.28.

Operation:

During a conference call:

Press any key on the dial pad of your telephone. The corresponding DTMF tone is sent.

Conditions:

1. This feature will not operate on an IX-ATT Attendant Console.
2. Stations that may use this feature include:
   - All ECS Digital Key Telephones and IP Key Telephones including Omegatrek Portable Stations (IX-PS6)
   - ECS Attendant Positions (excluding the IX-ATT Attendant Console).
   - Single Line Telephones and ZT-D Key Telephones
   - Voice Mail Ports
3. The DTMF tone is sent to all other participants, including outside party and voice mail.
4. A station being monitored from another station can send a DTMF tone.
5. A station doing the monitoring of a call cannot send a DTMF tone.
6. A station sending a whisper page can send a DTMF tone to the whispered station only.
7. A Single Line Telephone with dial-on conversation disabled in Class 10.28 (Dial-On Conversation) cannot send DTMF tone on a conference call with an outside party.
8. A single-line telephone programmed for Dial Pulse (DP) operation must be enabled in Class 10.27 for Automatic Signal Alternating from DP to DTMF after sender time-out.
9. A supervisor monitoring or receiving an ACD call cannot send a DTMF tone.

Database Programming:

10.27 - Automatic Signal Alternating; 10.28 -Dial-On Conversation.

Hardware Required:

All digital and IP key telephones and single line telephones.

Emergency Help Call Feature

The Emergency Help Call Feature allows specific system extensions to simultaneously call a group of extensions and access a system paging port upon dialing a specific ICM Group access number or, if the station remains off-hook without dialing for a programmable period of time. When the Emergency Help Call is placed, the LCD displays of the called extensions in the Emergency ICM Group will display the message programmed in Class 04.79.08 plus the calling party's extension number (Class 10.02) and station ID (Class 10.04). The Emergency Help Message may be a maximum of 16 characters in length.

Enabling a Station for the Emergency Help Call Feature. If a system extension is assigned the Emergency Help Call Extension attribute in Class 10.74.03, that station will automatically place and Emergency Help Call to Intercom Group designated as an the Emergency Help Group for that extension in Class 10.74.04. An emergency help call will be placed automatically if the station remains off hook without dialing for a duration which exceeds the value programmed in Class 04.71.41. An emergency help call will also be placed automatically if an Emergency Help Call station begins, but does not complete dialing a number thus causing the Intercom Inter-Digit Time-out (fixed at 10 seconds) to occur.

Defining an ICM Group and an Emergency Help Call Group. An ICM Group may be identified as the Emergency Help Call Group for a specific system extension on a station-by-station basis in Class 10.74.04. An ICM Group of up to 64 stations may be programmed and assigned a group number in Class 08.04. The group is then identified as a Paging Group in Class 08.05.06. An access code for the group must be programmed in Class 07.04.

When a call is placed to the Emergency Help Call Group, all the stations in the group will be called simultaneously. If the originating station is programmed in Class 10.48 for tone calling, the stations in the Emergency Help Call Group receive ringing tone with the call. If the originating station is programmed in Class 10.48 for voice calling, the stations in the Emergency Help Call Group do not receive ringing tone with the call. The originating station may, however, make an announcement through the Emergency Help Call Group extension speakers.

Programming an Unanswered Emergency Help Call to Operate a Relay. If an Emergency Help Call is not answered within the time programmed in Class 04.13 — Call Forward No Answer, the ECS may be programmed to operate an Emergency Help Call Contact Relay on the IX-MISC or IX-EDVIF card. The Emergency Help Call Contact Relay is defined in Class 08.05.07. The relay type used for this feature is a Relay Control Relay (Push ON/Push OFF). Once turned on, the Emergency Help Relay must be manually turned off from either a [Relay] Key on a digital telephone, or by dialing a feature access code from a single line telephone (Class 07.06). The Single Line Telephone Relay Control Feature is described later in this bulletin.

Operation:

To call an ICM Group from any system extension defined as an Emergency Help Call station:

1. Lift the receiver and remain off hook for a duration that exceeds the programming in Class 04.71.41. Or,
2. Lift the receiver to make either an outside or intercom call. Begin dialing. Between digits stop dialing for more than 10 seconds.
3. At ICM dial tone dial the *Emergency Group access number.*

Conditions

1. An ICM Group may be identified as the Emergency Help Call Group for a specific system extension on a station-by-station basis in Class 10.74.04. An ICM Group is defined in Class 08.04 and Class 08.05.06. Stations are assigned to a specific ICM Group in Class 08.04 . An attribute of 1 in Class 08.05.06 defines the group created in Class 08.04 as an ICM Group.
2. System extensions may be enabled to use the Emergency Group Call feature in Class 10.74.03. One of three modes may be selected: Disable, Day Only, Day/ Night.
3. A system extension enabled to make an Emergency Help call will automatically call the Emergency Help Group programmed in Class 10.74.04 if left off hook for a duration that exceeds the Emergency Call Time programmed in Class 04.71.41, or after pausing between digits dialed for longer than 10 seconds without completing the call. Stations not enabled to use the Emergency Help Call feature simply receive howler tone after the time out.
4. The following types of system extensions may be enabled to make an Emergency Help Call: Key Telephones, Attendant Positions, Versa-Phones, Single Line Telephones, Voice Mail Extensions, T1 Off-Premises Extensions, T1 Off-Premises Voice Mail Extensions.
5. On an incoming Emergency Help Call, the LCD display of the called extensions will appear as illustrated below.

   Data 04.79<NUM08>
   Station ID 201
6. The Emergency Message programmed in Class 04.79.08 may be a maximum of 16 characters in length.
7. The ICM Calling Mode is defined in Class 10.48. If the originating station is programmed in Class 10.48 for tone calling, the stations in the Emergency Help Group receive ringing tone with the call. If the originating station is programmed in Class 10.48 for voice calling, the stations in the Emergency Help Group do not receive ringing tone with the call. Originating stations programmed for voice calling in Class 10.48 may, however, make an announcement through the Emergency Help Group extension speakers.

Note: The Calling Mode Change feature (pressing [#] after dialing an extension number to toggle the ICM calling mode) or the Handsfree AnswerBack feature for a voice call feature will not function on an Emergency Help Call.

8. The system must be programmed for Calling Party Control in Class 04.22 in order to use the Emergency Help Call Feature.
9. The Emergency Help call may only be answered by one of the ringing stations in the Emergency Help group. Once an extension answers the group call, the other extensions will stop ringing.
10. An Emergency Help Call overrides call forwarding set at a station. If a called extension is set for call forwarding, the Emergency Help Call will still ring at the called extension.
11. An Emergency Help Call may not be transferred by the originating station.
12. An Emergency Help Group may not be programmed as the destination for a transferred camp-on call.
13. After an Emergency Help Call is answered, it operates as a regular ICM call.
14. An Emergency Help Group may not be accessed from an outside line.
15. If an Emergency Help Call is not answered within the time programmed in Class 04.13 — Call Forward No Answer, the ECS may be programmed to operate an Emergency Contact Relay on the IX-MISC or IX-EDVIF card. The Emergency Contact Relay is defined in Class 08.05.07.

Database Programming:

04.13 - Call Forward - No Answer; 04.22 - ICM Call Mode; 04.35 - Miscellaneous Function Port <1-32>, 04.36 - Miscellaneous Relay Timer, 04.37 - Miscellaneous Function, 07.71.41 - Help Call Off Hook Timeout, 04.71.42 - Fixed Time Relay, 04.76.01 - Relay On Time (Simplex); 04.79.08 - Help Call LCD Display; 07.04 - Paging Group Access Numbers; 08.04 - Paging Group - Station/Zone; 08.05.06 - Paging Group Type; 08.05.07 - Paging Group -Emergency Call Relay Number; 10.48 - Calling Mode; 10.74.03 - Emergency Call Mode; 10.74.04 - Emergency Call Timeout.

Hardware Required:

IX-MISC or IX-EDVIF for Emergency Contact Relay.

Flexible Numbering

Numbers one to four digits in length can be assigned for any of the following numbering plans. Use the items in parenthesis to change the default numbers:

- Intercom Extensions (*Class 10.02*)
- Outside Line Access Numbers (*Class 11.02*)
- CO Line Group Access Numbers (*Class 07.03*)
- Paging Group Access Numbers (*Class 07.04*)
- Hunt Group Access Numbers (*Class 07.02*)
- Park Orbit Numbers (*Class 07.01*)
- Single-Line Telephone Feature Access Codes (*Class 07.06*)
- PBX Network Access Numbers (*Class 07.05*)

Conditions:

KT feature access codes cannot be changed.

Database Programming:

Class 7 Numbering Plans; 10.02 - Station Numbering; 11.02 - CO Line Access Numbers.

Hardware Required:

Standard.

Flexible Ringing

Outside telephone lines terminating at the ECS can be programmed to have one of four distinct ringing tones. Use *Class 11.31* to select one of the incoming ringing tones listed in the table below for each outside line.

Tone Number	Tone	Duration
0	432/480	1 second on, 3 seconds off.
1	432/624/16	0.8 seconds on, 0.2 seconds off, 0.2 seconds on, 3 seconds off.
2	432, 480	0.4 seconds on, 0.2 seconds off, 0.4 seconds on, 3 seconds off.
3	MOH	Continuous

Database Programming:

11.31 - Ringing Tone; 11.32 - Ringing Station; 11.33 - Delayed Ringing Station.

Hardware Required:

None.

Group Monitor

Key telephones and attendant stations can be set to On Speaker Phone or Off Speaker Phone group speaker monitoring. This allows a user not utilizing the group monitoring feature a smooth transition from handset to speaker phone. This feature may be programmed in *Class 10.70.04* (On Speaker Phone / Off Speaker Phone).

Conditions:

1. This feature may be programmed in *Class 10.70.04* to specify whether the speaker is available when the user presses [SPKR] while off-hook.
2. If the data setting *Class 10.70.04* is set to Off Speaker Phone, monitoring from the speaker is not available until the handset is on hook.
3. If the data setting *Class 10.70.04* is set to On Speaker Phone, monitoring from the speaker is available when the handset is off-hook.
4. The system default setting for *Class 10.70.04* is On Speaker Phone.
5. When the user presses [SPKR] on-hook, monitoring can be done from the speaker regardless of the data setting in *10.70.04*.

Database Programming:

10.70.04 Group Monitor.

Group Night

This feature allows an attendant to activate or de-activate night mode on an individual trunk group basis through a KT with a DSS unit or an attendant console.

Operation:

To access the Group Night feature through a KT+DSS:

1. Press [Group Night] key.
2. Enter in trunk group # (001-250).
3. Enter mode (1=day, 2=night).

To access the Group Night feature through an attendant console:

1. Press [ETC] once.
2. Press [F1] once to select Group Night.
3. Enter in the trunk group # (001-250).
4. Enter mode (1=day, 2 = night).
5. Press [END].

Conditions:

1. This feature can only be accessed through an attendant station KT+DSS or an attendant console.
2. The [Night] key overrides the [Group Night] key. Elimination of the [Night] key is recommended if the [Group Night] key is used.
3. This feature operation changes the ringing assignments in Class 11.32 and Class 11.34.

Database Programming:

15.01 - Attendant Key Assignment; 11.39 - Incoming CO Group; 01.11 Port Definition; 11.32 - Ringing Station; 11.34 - Direct In Line (DIL) to Hunt Group.

Hardware:

None.

Howler Tone

When a station remains off hook for longer than 50 seconds without dialing, a howler tone will sound. Use *Class 10.47* to disable this feature at a station.

Database Programming:

10.47 - Howler Alert.

Hardware Required:

Standard.

Hunt Group: Delayed Ringing

A Hunt Group may be programmed as the delayed ringing assignment for a trunk in *Class 11.73.03*. If a call on a CO line is not answered at the ringing stations (*Class 11.32*) within a programmable duration (*Class 04.16*), the call starts ringing to the hunt group designated in *Class 11.73.03*.

This feature makes it possible for you to send delayed calls to Auto Attendant or to another department. For example, the Sales line can have a different delayed ringing destination than the Support line. If Sales is closed, calls might be forwarded to Support or to a Sales voice mailbox.

Conditions:

1. A hunt group can be set as the delayed call destination for each CO line.
2. To set a hunt group as the delayed call destination, data setting is required in *Class 11.73.03*.
3. If a call on a CO line is not answered at the ringing stations (*Class 11.32*) within a programmable duration (*Class 04.16*) and thus becomes a delayed call, the hunt group programmed in
   Class 11.73.03 starts ringing.
4. Calls will not ring at the delayed ringing destination until the delayed ringing timer programmed in *Class 04.16* has expired.
5. On condition that a hunt group is specified to ring for CO incoming calls, when an incoming call changes to a delayed call, if a delayed call hunt group is set, the original hunt group stops ringing and only the delayed call hunt group rings.

Note: This feature may not be available for customers using ISDN PRI or T1 because those calls are not directed to specific channels.

Database Programming:

04.15 - Attendant DIL Intercept; 04.27 - Station Password Digits; 11.26 - Attendant Intercept Line; 11.30 - Ringing Method; 11.31 - Ringing Tone; 11.32 - Ringing Station; 11.34 - Direct In Line (DIL) to Hunt Group; 11.73.03 Delayed incoming call destination hunt group number.

Hunt Group: All Ring

Users have the ability to call or transfer a call into an All Ring Hunt Group. When a user either calls or transfers a call to the All Ring Hunt Group, all stations in the Hunt Group begin to ring simultaneously. However if all stations in the All Ring Hunt Group are busy, the caller hears a busy tone and none of the All Ring Hunt Group stations receive an indication.

An All Ring Hunt Group differs from a hunt group in that all stations of the All Ring Hunt Group ring simultaneously instead of call hopping from one hunt group to another after a predetermined time. This allows calls to a hunt group to be answered more efficiently.

Conditions:

1. When a Hunt Group is defined as All Ring and the group is accessed, all stations that belong to the hunt group ring simultaneously.
   - The definition of a Hunt Group is programmed in Class 08.01.
2. The maximum number of ringing stations is 32.
   - The total amount of stations in Class 11.32, Class 11.33 and Class 11.34 cannot exceed 32 stations.
   - When a DIL call using Class 11.34 goes to a delayed ringing, the original stations in the hunt group do not ring during the delayed ringing, unless Class 11.73 is used.
3. If all stations in the Hunt Group are busy, the caller hears a busy tone. The stations in the Hunt Group do not receive visual or audible call indication.
   - If all Hunt Group stations are busy and a user has a call on consultation hold, then goes on-hook, the call camps-on to the Hunt Group.
   - All stations, in the above scenario—including busy stations—will ring as camp-On call.
4. When a caller attempts to call a Hunt Group for a second time, a busy tone is heard and Hunt Group stations do not receive call information through a tone or their display.
   - In the above scenario, when the caller making the second call has a call on consultation hold and goes on-hook, the call on hold camps-on to the Hunt Group.
   - All stations, in the above scenario—including busy stations—will ring as a Camp-On call.
5. A Hunt Group can be defined as a UCD group and All-Ring hunt group, with all UCD features functioning normally.
6. Calls will not ring to an All Ring Hunt Group if all stations in the hunt group are busy.
7. If a station is set to forward calls to a Hunt Group defined as All-Ring and the Hunt Group is called a second time, the call will not forward.

Database Programming:

Item 07.02 - Hunting Group Access Numbers; 08.01 - Hunt Group - Type; 08.02 - Hunt Group - Station; 08.03 - Hunt Group - ID; 08.05 - UCD Hunt Group; 11.34 - Direct In Line (DIL) to Hunt Group.

Hardware Required:

None.

Hunt Groups: Master

A master hunt group is a series of stations organized in a way to allow an incoming call to search for a station to answer the call. If a station is busy or does not answer within a programmable duration (*Class 04.21*), the call will ring at the next station in sequence. The hunting method - either *Terminal Hunting*, incoming calls start hunting from the first telephone in the group, or *Distributed Hunting*, incoming calls start hunting from the telephone following the last called telephone - is programmed in *Class 08.01*. The stations that belong to each master hunt group are programmed in *Class 08.02*; as many as 32 stations can be assigned to each master hunt group. The system supports a total of 60 master hunt groups. A station can belong to more that one master hunt group. You can assign an ID (*Class 07.02*) and a hunt group type (*Class 08.01*) to each master hunt group.

Operation:

To call a hunt group:

1. Obtain ICM dial tone
   - Press [SPKR] or pick up the handset from a digital key telephone
   - Press and hold [Send] from an Omegatrek Portable Station
2. Dial a *hunt group access number* or press [Hunt Group n]

To transfer a call to a hunt group:

While on a call press [TRAN] + a *hunt group access number* or [Hunt Group n]

Conditions:

1. The hunting time is programmable in Class 04.21 between 1 and 255 seconds.
2. CO lines are assigned to ring at a hunt group in Class 11.34.
3. Stations belonging to a hunt group are passed over when the following conditions exist:
   - The station is busy.
   - While receiving calls with higher priority.
   - When either the call forward - all calls, DND, absence message, or station forced release feature is active.
   - The incoming line is pick up restricted.
4. If all the stations in a hunt group are in DND, the call is routed to the attendant if the line is programmed as an attendant intercept line (Class 11.26).
5. If all the stations in a hunt group are busy and attendant intercept is not programmed for the line, the call rings (or waits to ring) at the first station in order of the hunt group.
6. If off-hook signaling is enabled, a call will ring with ICM dial tone if the station is busy.

Database:

04.21 - Hunting Time; 07.02 - Hunting Group Access Numbers; 08.01 - Hunt Group - Type; 08.02 - Hunt Group - Station; 08.03 - Hunt Group - ID; 11.26 - Attendant Intercept Line; 11.34 - Direct In Line (DIL) to Hunt Group.

Hardware Required:

Standard.

Intercom (ICM)

An ECS station can call another station by dialing a one- to four-digit extension number. This feature is called intercom (ICM) dialing. ICM calls can be made in either the tone or voice mode according to the programming in *Class 04.22*. ECS extensions can be divided into ICM groups in *Class 10.50*. If a station is in an ICM group that extension cannot call an extension outside the ICM group.

Conditions:

1. The ICM calling mode can be changed from voice to tone at the station level by pressing [FEAT] + [6][5].
2. If *Class 04.22* is set to **calling party control**, and *Class 10.48* is set to **tone**, the calling party has calling mode control.
3. If *Class 04.22* is set to **called party control**, the called party can change the calling mode by dialing [FEAT] + [6][5].
4. If the called party selects *tone*, all calls are tone.
5. If the called party selects *voice*, all calls are voice and can be toggled to *tone*.
6. Two extensions can be restricted from calling each other in *Class 10.39*.

Database Programming:

04.22 - ICM Call Mode; 10.08 - Off-Hook ICM; 10.09 - Prime Line Access; 10.48 - Calling Mode; 10.50 - ICM Group.

Hardware Required:

Standard.

Intercom (ICM) Group Call Feature

The Intercom Group Call feature allows any system extension to simultaneously call a group of extensions that are part of an Intercom Group. A group of up to 64 stations may be programmed and assigned a group number in Class 08.04. The group is then identified as an Intercom Group in Class 08.05.06. An access code for the group must be programmed in Class 07.04.

When an extension dials the ICM Group access number (Class 07.04), all the stations in the ICM Group will be called simultaneously. If the originating station is programmed in Class 10.48 for tone calling, the stations in the ICM Group receive ringing tone with the call. If the originating station is programmed in Class 10.48 for voice calling, the stations in the ICM Group do not receive ringing tone with the call. The originating station may, however, make an announcement through the ICM Group extension speakers. The liquid crystal display of the stations in the ICM Group will display the calling party's station ID (Class 10.04) and station number (Class 10.02).

Operation:

To call an Intercom Group

1. Obtain ICM dial tone from any system extension
   - Press [SPKR] or pick up the handset from a digital key telephone
   - Press and hold [Send] from an Omegatrek Portable Station
2. Dial the ICM Group access number.

Conditions

1. An Intercom (ICM) Calling Group is defined in Class 08.04 and Class 08.05.06. Stations are assigned to a specific ICM Group in Class 08.04. An attribute of 1 in Class 08.05.06 defines the group created in Class 08.04 as an ICM Group.
2. Any of the following types of system extensions may call an ICM Group by dialing the ICM Group Access number programmed in Class 07.04: Key Telephones, Attendant Positions, Versa-Phones, Single Line Telephones, Voice Mail Extensions, T1 Off-Premises Extensions, T1 Off-Premises Voice Mail Extensions.

3. On an incoming ICM Group Call, the LCD display of the called extensions will appear as illustrated below.

   CALL FM Station iD
   201

   - If the station is defined as an Emergency Group Call extension in Class 10.74.03, the called extensions will display the emergency message programmed in Class 04.79.08.
   - The ICM Calling Mode is defined in Class 10.48. If the originating station is programmed in Class 10.48 for tone calling, the stations in the ICM Group receive ringing tone with the call. If the originating station is programmed in Class 10.48 for voice calling, the stations in the ICM Group do not receive ringing tone with the call. Originating station programmed for voice calling in Class 10.48 may, however, make an announcement through the ICM Group extension speakers.

Note: The Calling Mode Change feature (pressing [#] after dialing an extension number to toggle the ICM calling mode) or the Handsfree AnswerBack feature for a voice call feature will not function on an ICM Group Call.

   - The system must be programmed for Calling Party Control in Class 04.22 order to use the ICM Group Call Feature.
   - The ICM Group call may only be answered by one of the ringing stations in the ICM group. Once an extension answers the group call, the other extensions will stop ringing.
4. An ICM Group Call overrides call forwarding set at a station. If a called extension is set for call forwarding, the ICM Group Call will still ring at the called extension.
5. An ICM Group Call may not be transferred by the originating station.
6. An ICM Group may not be programmed as the destination for a transferred camp-on call.
7. After an ICM Group Call is answered, it operates as a regular ICM call.
8. A ICM Group may not be accessed from an outside line.

Database Programming:

04.22 - ICM Call Mode; 07.04 - Paging Group Access Numbers; 08.04.01 - Station Paging Group Number; 08.04.02 - Zone Paging Group Number; 10.48 - Calling Mode.

Hardware Required:

Standard.

IP Telephony

The Iwatsu ICON Series, Iwatsu Platinum Series, and the IX-12/6IPKTD-E Executive Model IP telephones provide complete access to the ECS feature set from an Ethernet connection. Each Iwatsu ICON Series, Iwatsu Platinum Series, and the IX-12/6IPKTD-E require an IP address that is either static or dynamically allocated by the network DHCP server. These IP telephones include an integrated Layer 2 switch that was designed for the workstation user and allows the switching of data within a LAN via MAC address. A PC can connect to the back of the IP telephone which allows all data to pass through the phone.

The Iwatsu ICON Series, Iwatsu Platinum Series, and the IX-12/6IPKTD-E IP telephones require an available channel on an IX-MBU Media Bridge Unit card to communicate with TDM resources. Since these IP telephones are a true IP device, the telephones are able to communicate peer-to-peer (via the IP Network) and do not utilize an IX-MBU channel.

The IX-MBU Media Bridge Unit is the component that provides the “Bridge” between the IP and TDM worlds. IP to TDM and TDM to IP conversions are handled by the IX-MBU Media Bridge Unit. The IX-MBU is the main component required to create an IP Campus Network that ties multiple ECS systems together as one system.

IP Campus Networking converges and exchanges your voice and data traffic between offices via IP addressing. The IP Campus Network is easy to install and configure providing full transparency over Virtual Private Network (VPN) or Managed IP Network.

Omegatrek roaming is also supported throughout the IP Campus Network. The Omegatrek handset will operate transparently in any remote IP Campus system that has a base station. This means that your extension and functionality remain the same throughout the network.

ISDN PRI Lines

The ECS telephone system supports ISDN PRI lines using the IX-DTI-P or the IX-ICOTP.

Loud Bell Interface

Outside telephone lines can be directed to ring a loud bell when the ECS is equipped with the optional IX-MISC/IX-MCAA or IX-EDVIF and components. Each IX-MISC/IX-MCAA can support eight loud bells. The IX-EDVIF can support four loud bells.

Conditions:

1. Eight loud bell relays per IX-MISC/IX-MCAA combination.
2. Four loud bell relays per IX-EDVIF card.

Database Programming:

01.03 Port Definition; 04.35 - Miscellaneous Function Port; 04.37 - Miscellaneous Function; 11.35 - Loud Ringer Relay Number.

Hardware Required:

IX-MISC/IX-MCAA or IX-EDVIF.

Music-On-Hold

The ECS provides eight internal Music on Hold (MOH) sources and one external MOH source connector on the IX-CCU card. The external MOH source is connected to the IX-CCU card. Additonal MOH sources for use with ACD can be added when optional IX-MISC/IX-MCAA or the IX-EDVIF cards are installed in the system.

The MOH plays when a call is placed on hold. Each system in the ECS IP Campus Network can have its own dedicated MOH source.

Up to nine external MOH sources can be programmed in the ECS database. Refer to the following page for the multiple MOH feature.

Conditions:

1. Using the Iwatsu Programmer under System > System Features > MOH Source (Class 2.03) must be programmed to indicate if an Internal MOH source (Internal 1-8) or the External MOH source is used.
   - If System > System Features > MOH Source (Class 2.03) is set to 0 (Internal Music on Hold), System > System Features > Ports > MOH Port (Class 04.05) must be set to 0 as well.
2. Each set of one IX-MISC card and one IX-MCAA board has connectors for two external MOH sources.
3. The external MOH input port must be defined in System > System Features > Ports > MOH Port (Class 04.05).

Database Programming:

System > System Features > MOH Source (Class 2.03); System > System Features > Ports > MOH Port (Class 04.05); Incoming Calls > DNIS (Class 25).

Hardware:

Standard

Music-On-Hold (Multiple Source)

The Multiple Music On Hold (MOH) enhancement allows for up to nine external MOH sources to be programmed in the ECS system database.

Operation:

- The ECS system provides external MOH from the selected the Miscellaneous logical port that is associated with the DNIS information.
- MOH Selection Method:
  - External MOH sources can be selected based on the DNIS information programmed under Incoming Calls > DNIS (Class 25) or individual CO trunk programming under Trunks > Trunk Features (Class 11.74.03).
  - When the DNIS setting is unavailable, the ECS selects the MOH port from ECS database programming under Trunks > Trunk Features (Class 11.74.03) trunk data.
  - If no trunk data is unavailable, then MOH is selected from System > System Features > Ports (Class 4.05).
  - If the previously listed sources are unavailable, then the MOH selection follows System > System Features (Class 2.03) programming.

Conditions:

1. An IX-MISC or IX-EDVIF card is required as an interface to the MOH source(s).
   - Each IX-MISC card provided up to two MOH sources.
   - IX-EDVIF card provides one MOH source.
2. ICM calls follow the ECS data programmed under System > System Features > Ports (Class 4.05) or if unavailable System > System Features (Class 2.03) for TDM stations. IP stations using an IX-MBU use their own internal MOH setting. IP stations using IX-8IPSUB follow ECS data programmed under System > System Features > Ports (Class 4.05) or if unavailable System > System Features (Class 2.03).
3. This feature co-exists with ACD Sequence tables and ACD MOH. For example, if a PBX call is transferred to an ACD Group, the ACD MOH source takes precedence.
4. Established calls continue to use same MOH source during transfers and on Hold unless the established call is transferred to an ACD group where the programmed ACD data in the Sequence table takes precedence.

Database Programming:

System > System Features > MOH Source (Class 2.03); System > System Features > Ports > MOH Port (Class 04.05); Incoming Calls > DNIS (Class 25); Trunks > Trunk Features (Class 11.74.03).

Hardware:

IX-MISC or IX-EDVIF

Multiple Ringing Mode

The Multiple Ringing Mode feature enhancement expands the current Day and Night Ringing modes by adding a Day-2 and a Day-3 mode. This feature enhancement also adds the option to choose between System Ringing (Default) or Group Ringing.

Note:

Activation and control of the Multiple Ringing mode is available only from Iwatsu ICON Series (IX-5810, IX-5910, and IX-5930) telephones. Activation and control of this feature is not available for legacy telephones or ICON IX-5800/5900 attendant positions.

The legacy Night Mode key (Day/Night) operation remains unchanged for legacy and ICON IX-5800/IX-5900 attendant positions. (Refer to the Night Mode feature in this section)

System and Group Ringing Mode Overview

System Ringing Mode (Default)

System Ringing controls the ringing for all trunk groups in the ECS system. The System Ringing option allows an ICON Series (IX-5930, IX-5910, or IX-5810) attendant position to change the System Ringing Mode to one of four different modes (Day-1, Day-2, Day-3, or Night) for all trunk groups through a Night key programmed in the telephone's key pattern.

- Attendant stations (Other than ICON Series IX-5810, IX-5910, or IX-5930) with a Night key have the option to select only Day or Night mode. However, when the Day-2 or Day-3 mode is selected from an Iwatsu ICON Series (IX-5810, IX-5910, or IX-5930) attendant station, the LED indication will reflect the current system mode.
- The new Trunk Group Night key can select In Forced Night mode which will override the normal system operation mode for that trunk group or In System Mode which allows the trunk group to follow the current System Ringing programming.

Group Ringing Mode

The Group Ringing option allows an ICON Series (IX-5930, IX-5910, or IX-5810) attendant position to change the Ringing Mode for a specific trunk group through the Group Night key programmed in the telephone key pattern. This means that an individual trunk group can be changed to one of four different Ringing Modes (Day-1, Day-2, Day-3, or Night) independent of other trunk groups in the system.

- When in the Group Ringing mode, the system Night key has the ability to change the system to In Forced Night which overrides the Group Ringing mode operation and forces all groups into Night Ringing mode. You can also set the system to In Group Mode which causes the system to follow the current state of each individual Group Night Transfer key.
- In the Group Ringing mode, Iwatsu ICON Series (IX-5810, IX-5910 or IX-5930) Attendant stations have the option to select Day-1, Day-2, Day-3, or Night mode for each specific group.

- In the Group Ringing mode, the Group Night Transfer key can select Day-1, Day-2 Day-3, or Night mode for each specific trunk group.

Note: If the Night key is in forced night mode all trunks are in night mode. When the Night key is changed back to Group mode the trunks return to the mode selected by the Trunk Group key.

- Attendant stations (Other than ICON Series IX-5810, IX-5910, or IX-5930) have the option to select only Day or Night mode. However, when the Day-2 or Day-3 mode is selected from an Iwatsu ICON Series attendant station, the LED indication will reflect the current mode of that group.

Ringing Option Programming

An ECS system with the Multiple Ring Mode must select either the System Ringing Mode or the Group Ringing Mode from System > System Features > Ringing Option (Class 04.70.08). Default = System Ringing.

System Ringing

System Ringing controls the ringing for all trunk groups in the ECS system.

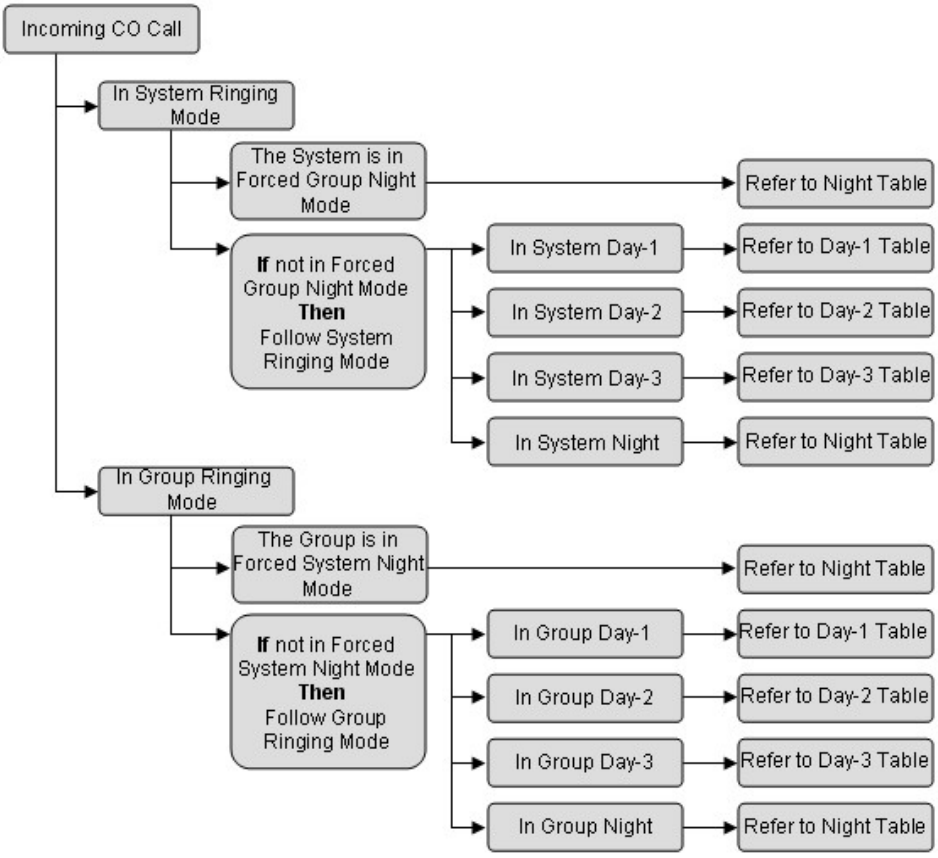
- The System Ringing Mode will follow the system setting except when a trunk group is in the forced Group Night Mode.

Group Ringing

One of four different ringing modes can be selected for each trunk group.

- When the Ringing Option is set to Group Ringing, trunk groups will follow the group setting except when the system is in the forced System Night Mode.
- A trunk group number must be entered in the ECS database under Incoming Calls > DNIS > Trunk Group (Class 25.08) to enable Group Ringing for a trunk group. If there is no Trunk Group number entered, the default setting is 0 and the trunk group will follow System Ringing.

Incoming CO Call Flow for System Ringing and Group Ringing Modes



System Ringing Mode Operation

This section details the operation and conditions for the System Ringing Mode.

Manual Mode Change

The ringing mode can be selected from an Iwatsu ICON Series telephone attendant position (except IX-5800 / IX-5900) using the display menu.

Menu Operations

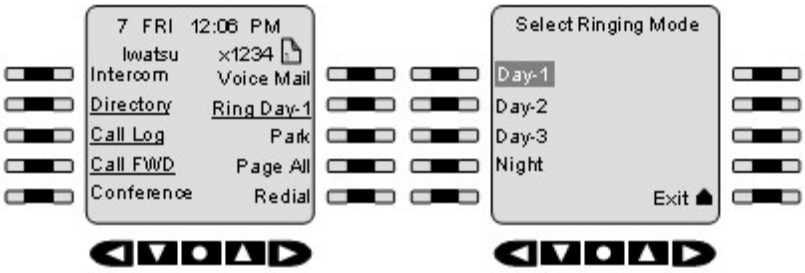
When the ECS system is in the System Ringing Mode (default), pressing the Night Mode key from an Iwatsu ICON Series telephone attendant position (IX-5810, IX-5910 and IX-5930) will take you to the **Ringing Mode > Select Mode** screen.

When the Night Mode key is assigned to a self-labeling key position, the current ringing mode will display as shown below:



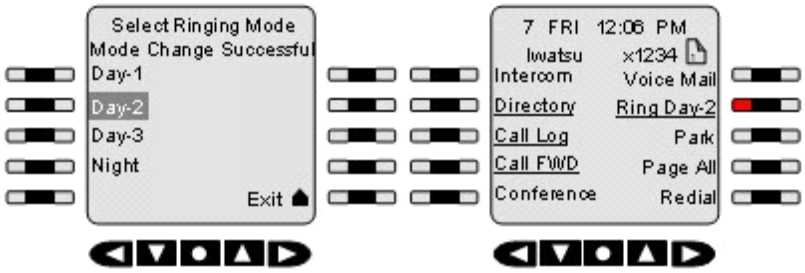
To Change the Ringing Mode from an ICON Series Attendant Position:

- Press the Night Mode key. The current ringing mode is displayed in reverse video.



- Press the Day-1, Day-2, Day-3, or Night key to change the ringing mode. The new selection will display in reverse video and Mode Change Successful will appear on the second line of the display.

- Press Exit to return to the main display. The new ringing mode selection will appear on the display.



Menu Operations in System Ringing Mode (Forced Night)

When a system is in System Ringing Mode, pressing existing Group Night Mode key from an Iwatsu ICON Series (IX-5810, IX-5910, and IX-5930) attendant position will take you to the Select Ringing Mode screen with limited selections. The menu will prompt the attendant to select either In Forced Night (Group Night) or In System Mode.

This operation has a Group Night override for system ringing. Incoming calls through a specified trunk group will generate ringing based on the Night ringing table.



Key Lamp Indication for Day-1, Day-2, Day-3, and Night Mode

The System Night Mode key will change the LED lamp status based on the System Ringing mode. The LED lamp indication is reflected for the ringing mode on all Iwatsu telephones (legacy and ICON Series) with a Night Mode key.

- Day-1 Ringing Mode = No lamp indication.
- Day-2 Ringing Mode = Slow red flash.
- Day-3 Ringing Mode = Fast red flash.
- Night Ringing Mode = Solid red flash.

Note:	Iwatsu ICON Series Self-Labeling Key name change is not supported with the Multiple Ringing Mode.

Group Ringing Mode (Group Night) Operation

This section details the operation and conditions for the Group Ringing Mode.

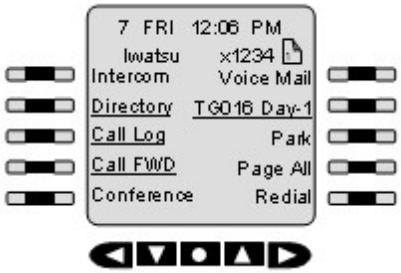
Group Night Multiple Ringing Mode

The ringing mode for each Trunk Group can be selected from an Iwatsu ICON Series telephone attendant position (except IX-5800 / IX-5900) using the display menu.

Menu Operations

When the ECS system is in the Group Ringing Mode (default = System Ringing Mode), pressing the existing Group Night Mode key (Trunk Groups 001-250) from an Iwatsu ICON Series telephone (IX-5810, IX-5910 and IX-5930) attendant position will take you to the Select Ringing Mode screen.

- The key operation for the Group Night Mode key with the Group parameter can only toggle between Day / Night Modes if assigned on any legacy telephone, the Attendant Console, or ICON Series IX-5800 / IX-5900.
- Group Night Mode key assigned to the self labeling key will indicate current ringing mode as shown below:



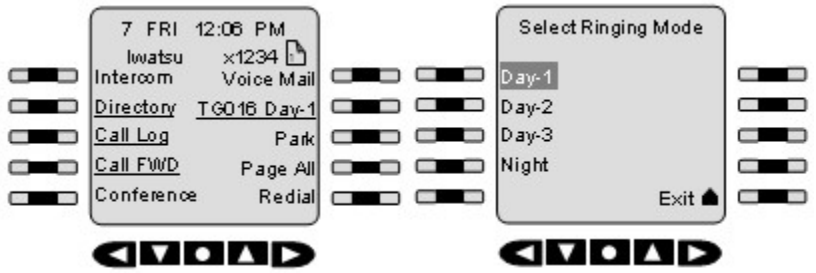
To Change the Ringing Mode from an ICON Series Attendant Position:

TGNNN Day-1 indicates Day-1 mode, TGNNN Ring-Day2 indicates Day-2 mode, TGNNN Ring-Day3 indicates Day-3 mode and TGNNN Night indicates Night mode. *NNN is Trunk Group Number 1-250.

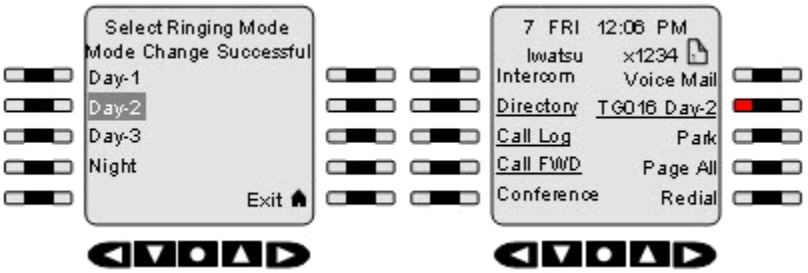
If database programming in Trunks > IPNET/PRI Trunk Group Data >NSF Ringing-ISDN > Group Name (Class 29.02) has a name assigned, the key will indicate first 11 characters of the name instead.

Group Night Mode key without the group parameter maintains the legacy key operation regardless of the type of telephone. The key can only toggle between Day (Day-1) and Night.

- Press the Group Mode key. The current ringing mode is displayed in reverse video.



- Press the Day-1, Day-2, Day-3, or Night key to change the ringing mode. The new selection will display in reverse video and Mode Change Successful will appear on the second line of the display.
- Press Exit to return to the main display. The new ringing mode selection will appear on the display.



Menu Operations in Group Ringing Mode (Forced Night)

When an ECS system is in the Group Ringing Mode, pressing the existing Night Mode key from an Iwatsu ICON Series attendant position (IX-5810, IX-5910 and IX-5930) will take you to the Select Ringing Mode screen with limited selections. The menu will prompt the attendant to select either In Forced Night (System Night Mode) or In Group Mode. If In Forced Night mode is selected, all trunks are forced into the system night mode. When In Group Mode is selected, the trunks return to the mode selected by the Trunk Group key.

This operation has a System Night override for each ringing group. For example: All trunks will generate ringing based on the Night ringing table.



Key Lamp Indication for Day-1, Day-2, Day-3, and Night Mode

The Group Night Mode key will change the LED lamp status based on the Group Ringing mode. The LED lamp indication is reflected for the ringing mode on all Iwatsu telephones (legacy and ICON Series) with a Night Mode key.

- Day-1 Ringing Mode = No lamp indication.
- Day-2 Ringing Mode = Slow red flash.
- Day-3 Ringing Mode = Fast red flash.
- Night Ringing Mode = Solid red flash.

Note: Iwatsu ICON Series Self-Labeling Key name change is not supported with the Multiple Ringing Mode.

DNIS Based Call Routing with Group Ringing Mode (in Group Ringing Mode)

Each DNIS entry in the Day Mode belongs to one of the 250 trunk groups (1 to 250). This number is used as a pilot number to determine the ringing mode from the incoming DNIS digit.

- If the number is 0, a DNIS call will follow System Ringing Mode.
- This application includes total reconfiguration of the Class 25 DNIS table.

Routing Operation Example

Incoming Number	Day-1	Day-2	Day-3	Night	Trunk Group
(972)929-0242	2001	2002	2003	*-2000	2

- When Trunk Group #2 is in Day-1 mode, incoming call from (972)929-0242 is routed to:
  - Extension 2001 if System Ringing Mode is Day-1.
  - Extension 2002 if System Ringing Mode is Day-2.
  - Extension 2003 if System Ringing Mode is Day-3.
  - Mailbox 2000 if System Ringing Mode is Night.
- When Trunk Group #2 is in Day-2 mode, incoming call (972)929-0242 is routed to extension 2002 regardless of the System Ringing Mode.
- When Trunk Group #2 is in Day-3 mode, incoming call (972)929-0242 is routed to extension 2003 regardless of System Ringing Mode.
- When Trunk Group #2 is in Night mode, incoming call (972)929-0242 is routed to extension 2002 regardless System Ringing Mode.

New and Modified System Database Items

System > System Features > Ringing Option (Class 04.70.08)

Specifies whether the ECS system is in System Ringing or Group Ringing Mode (default = System Ringing).

Incoming Calls > Ringing Stations (Class 11.32)

This database entry has been expanded from Day and Night to Day-1, Day-2, Day-3, and Night.

Incoming Calls > Trunk Processing DIL to Hunt Group (Class 11.34)

This database entry has been expanded from Day and Night to Day-1, Day-2, Day-3, and Night.

Incoming Calls > DNIS (Class 25) Reconfiguration

Incoming Calls > DNIS table has to be reconfigured as described below:

- Incoming Calls > DNIS > Incoming Number (Class 25.01)
  - Incoming Calls > DNIS > Incoming Number (Class 25.01) has a total of 1500 entries to program a DNIS incoming number.

Incoming Calls > DNIS > Access Number (Class 25.02)

- Incoming Calls > DNIS > Access No. (Class 25.02) has a total of 1500 entries to program a DNIS conversion number and the index for Class 25.02 corresponds to the index for Class 25.01.
- Each entry has four data spaces to store a DNIS conversion number (access number) and a corresponding parameter, such as an MBOX number for Day-1, Day-2, Day-3 and Night Mode.

Incoming Calls > DNIS > Number ID (Class 25.03)

- Incoming Calls > DNIS > Number ID (Class 25.03) has a total of 1500 entries to program a DNIS number ID and the index for Class 25.03 corresponds to the index for Class 25.01.

Incoming Calls > DNIS > MOH Source (Class 25.07)

- Incoming Calls > DNIS > MOH Source (Class 25.07) has a total of 1500 entries to program a DNIS MOH source and the index for Class 25.07 corresponds to the index for Class 25.01.

Incoming Calls > DNIS > Trunk Group Number (Class 25.08) - (New Data Field for ECS software version 8.0)

- Incoming Calls > DNIS > Trunk Group Number (Class 25.08) has a total of 1500 entries to program the trunk group number that is used to obtain the Group Ringing Mode. The index for Class 25.08 corresponds to the index for Class 25.01.

Conditions:

Some of the Day/Night programming items listed below have not been expanded. Features related to these data tables handle Day-2 and Day-3 mode the same as the Day (Day-1) mode.

1. **Legacy Telephones**: Legacy telephones, Attendant Consoles, and ICON Series IX-5800/5900 telephones, assigned as attendant positions cannot access the Day-2 and Day-3 modes. These telephones can only switch between Day (Day-1) and Night modes. The legacy Day / Night mode operation remains the same as in previous software versions.
2. **Station Outgoing Trunk Group**: The Class 10.21, Station Outgoing Trunk Group maintains the current Day/Night mode.
3. **Station Toll Restriction**: The Class 10.23, Station Toll Restriction Class maintains the current Day/Night mode.
4. **Incoming CO Access Class**: The Class 11.43, Incoming CO Access Class maintains the current Day/Night mode.
5. **DID Routing**: The Class 09.01, DID Incoming Number, 09.02 DID Conversion Number and 09.03 DID Number ID maintain the current Day/Night mode.
6. **Caller ID / ANI Routing**: The Class 24.01, Caller ID/ANI Incoming Number, 24.02 Caller ID/ANI Conversion Number and 24.03 Caller ID/ANI Number ID maintain the current Day/Night mode.
7. **ACD Night**: This enhancement will not affect ACD functionality, ACD Night maintains the existing toggle operation (Day or Night).
8. **Universal Night Answer (UNA)**: Universal Night Answer will operate only if a system is in the Night Mode.
9. A**ttendant Intercept (UCD)**: Attendant Intercept will operate if a system is in the Day-1, Day-2 or Day-3 mode (Night Mode not supported).
10. **Licensing**: The Multiple Ring Mode application requires ECS software version 8.0x license (part number 000347). A system without a version 8.0x license will not have access to the Multiple Ring Selection menu. The legacy Day / Night mode operation remains the same as in previous software versions.
11. **Iwatsu ICON Series Self-labeling key** name change is not supported with the Multiple Ringing Mode.

Database Programming:

System > System Features > Ringing Option (Class 04.70.08), Incoming Calls > Ringing Stations (Class 11.32), Incoming Calls > Trunk Processing DIL to Hunt Group (Class 11.34), Incoming Calls > DNIS . Incoming Number (Class 25.01), Incoming Calls > DNIS > Access No. (Class 25.02), Incoming Calls > DNIS > Number ID (Class 25.03), Incoming Calls > DNIS > MOH Source (Class 25.07), Incoming Calls > DNIS > Trunk Group (Class 25.08).

Hardware Required:

Iwatsu ICON Series IX-5930, IX-5910, or IX-5810 telephones.

Night Mode

The system can be placed in night mode either automatically (at a specific time of day according to the programming in Class 04.31) or manually using a [Night Change] key assigned to an attendant station.

Conditions:

1. Manual operation has priority over automatic operation.
2. Regardless of how the system is switched to night mode, it must always be switched back to day mode manually using the [Night Change] key.

Database Programming:

Trunk > UNA Line (Class 11.27) - Universal Night Answer (UNA) Line; Trunk > UNA Relay Number (Class 11.28) - Universal Night Answer (UNA) Relay Number; 11.32 - Ringing Station; 11.34 - Direct In Line (DIL) to Hunt Group.

Hardware Required:

Standard.

Off System Transfer

Off System Transfer enables any ECS system station user on a CO Line call to transfer the call to another party over a different CO Line. This feature automatically sets up the transferred call as a trunk-to-trunk conference. For example, if a caller wishes to speak to a salesperson who is currently out of the office, the station user can press transfer [TRAN] and dial [9] (to get outside line access) + the cell phone number of the salesperson and connect the calling party directly to the salesperson in the field.

Operation:

ECS key telephones, attendant telephones, single line telephones and voice mail ports have the ability to use this feature.

To transfer a CO call to an outside line while speaking on an outside CO line call:

1. Press [TRAN].
2. Wait for transfer tone.
3. Dial the second call using optimized routing or a CO group access code plus the phone number.
4. Wait for the second party to answer.
5. Hang-up or press [Connect] to complete.
6. To retrieve the original call from hold if the second call is busy or does not answer, press [TRAN] again.

Conditions:

1. Conditions for Off System Transfer are the same as for a Trunk-to-Trunk Conference; however, the user is not able to re-enter the call or monitor the call status.
2. This feature does not function for single line telephones or voice mail if Class 04.25.11 Calls for Pickup (flash on CO calls for single-line telephones) is set to disable.
3. An IX-4ETRAN can be utilized to improve voice amplification and disconnect detection.

Database Programming:

04.25.11 Calls for Pickup (flash on CO calls for single-line telephones); 07.03 - CO Line Group Access Numbers; 10.46 - Hookswitch Flash.

Hardware Required:

IX-4ETRAN Card

Optimized Routing

Optimized Routing is frequently referred to as either Least Cost Routing (LCR) or Automatic Route Selection (ARS). This feature allows the ECS to automatically select the least expensive way to make an outgoing call. The system identifies the dialed number, and then selects the most cost effective way to make the call. If a line is not available in the least expensive outgoing group, the system can be programmed to select an alternate outside line group. The ECS optimized routing package provides the following features:

- Eight routing plans.
- Eight outside line group choices per routing plan.
- Week day, Saturday, Sunday and holiday selection.
- Three time periods per day.
- Deletion and insertion of digits.
- NANP compatibility .

Conditions:

None

Database Programming:

Class 17 Optimized Routing.

Hardware:

Standard.

Paging

Meet-Me Page Answer A station user can answer a page from any phone that is in the same meet-me page answer group (*Class 10.49*).

Internal Paging An ECS station can make a page announcement that is broadcast to stations that belong to a page group. *Class 07.04* is used to define the ICM dial numbers used to access the internal paging groups. *Class 08.04* is used to assign stations to page groups. Each page group can have a maximum of 64 stations. Internal paging group 125 is reserved for all internal groups paging.

Zone (External) Paging The ECS can be connected to an external paging system when the optional IX-EDVIF, IX-MISC/IX-MCAA components are added. An IX-MISC/IX-MCAA or IX-EDVIF has the ability to support four zones of paging. *Class 07.04* is used to define the ICM dial numbers used to access the external paging zones. *Class 08.04* is used to assign speakers to external paging zones. Each paging group can have a maximum of 64 external speakers. A maximum of 16 external paging zones (four IX-MISC cards) can be accommodated. External paging group 250 is reserved for paging all external zones.

The table below lists the page group numbering plan. *All Call* includes the paging stations assigned to page group 125 and the external speakers assigned to page group 250:

Page Group Number	Feature
01-124	Page a specific station group
125	Page all station groups
126-249	Page a specific external zone
250	Page all external zones
255	Page all station groups and external zones (125 + 250)

Operation:

To answer a paging call using meet-me:

1. Obtain ICM dial tone
   - Press [SPKR] or pick up the handset from a digital key telephone
   - Press and hold [Send] from an Omegatrek Portable Station
2. Press [FEAT] + [3][5] or [Meet-Me Pick-Up] with a digital key telephone
   OR
   Press [FEAT] + [FEAT] + [3][5] or [Meet-Me Pick-Up] with an Omegatrek Portable Station

To page an/all internal groups:

1. Obtain ICM dial tone
   - Press [SPKR] or pick up the handset from a digital key telephone
   - Press and hold [Send] from an Omegatrek Portable Station

2. Dial the page group access number or press [Group Call Key n]
3. Wait for the tone then make an announcement
4. Hang up to end the operation.

To page an/all external zones:

1. Obtain ICM dial tone
   - Press [SPKR] or pick up the handset from a digital key telephone
   - Press and hold [Send] from an Omegatrek Portable Station
2. Dial the page group access number or press [Zone Paging n]
3. Wait for the tone then make an announcement
4. Hang up to end the operation.

To page all internal groups and zone speakers:

1. Obtain ICM dial tone
   - Press [SPKR] or pick up the handset from a digital key telephone
   - Press and hold [Send] from an Omegatrek Portable Station
2. At ICM dial tone press and hold the [PAGE] button
3. Wait for the tone then make an announcement
4. Release the [PAGE] button to end the operation.

Conditions:

None

Database Programming:

07.04 - Paging Group Access Numbers; 08.04 - Paging Group - Station/Zone; 10.38 - Paging Access; 10.49 - Meet-Me Answer Group.

Hardware Required:

IX-MISC/IX-MCAA, IX-EDVIF for external paging zones.

Disclaimer:

Iwatsu recommends against paging over IP. Should Iwatsu authorized distributors and end users choose to configure ECS systems with paging over IP, they do so at their own risk. Iwatsu Voice Networks does not support and is not responsible for the degredation of network performance or quality of paging over IP.

Power Failure Battery Backup

In the event of a power failure the system programming will be protected in the main and backup

Conditions:

1. Backup battery voltage must be between 21.7 VDC and 27.3 VDC.
2. The IX-BACBB cable is connected to the system power supply.
3. Every shelf of the ECS must be connected to the battery backup.

Database Programming:

None.

Hardware:

IX-BACBB.

Power Failure Memory Backup

In the event of a power failure, the system programming will be protected in the main and backup partitions of the IX-CCSU flash memory.

Conditions:

None.

Database Programming:

None.

Hardware:

Standard.

Power On Maintenance

ECS system circuit cards can be replaced while the system is up and running. It is recommended that you save the system database before attempting power on maintenance. If one or more cards are being added to the ECS the System Hardware (Class 01) must be changed and the system must be reset to affect the programming changes.

Note:	A circuit card can only be replaced with a card of the same type during power on maintenance.

The following tools are required to perform power on maintenance:

- An anti-static wrist band
- A discharge connector

Relays

Relays can be connected to the ECS through the IX-MISC and/or IX-EDVIF cards to drive external devices such as an electronic door opener or a monitor camera. Remote relay control is provided at the station set using a **[**Remote Control**]** key. The relays connected to the IX-MISC and/or IX-EDVIF cards supply dry contact closures that operate externally mounted slave relays. The slave relays are then used to operate external devices. The devices connected to external relays are equipped at the discretion of the distributor. See **Section 4 - Component Description** for the electrical specifications of the relays.

Three programming items are required to define relays for use with the ECS: *System Hardware (Class 01), Class 04.35 - Miscellaneous Function Port,* and *Class 04.37 - Miscellaneous Function.*

Class 04.35 Miscellaneous Function Port This item is used to assign one or more of the 32 relays specific relay of a IX-MISC or IX-EDVIF circuit card. Once the physical relays of the card are associated in this program, the functionality or the type of relay must be defined in *Class 04.37*.

Class 04.37 Miscellaneous Function This item is used to define the function of each relay. The relay function is selected from a list of features.

Class 01.08 Miscellaneous Port Definition Relays are always defined using the fourth miscellaneous logical port of the IX-MISC or IX-EDVIF card. The table below lists miscellaneous logical port layout.

Class 01.08 Miscellaneous Port Definition for the IX-MISC Card		
Physical Port	Definition	Data Port Function
First Port	2 - 4 - 0	Zone Page Speaker 1
Second Port	2 - 7 - 0	BGM Source
Third Port	2 - 7 - 0	MOH Source
Fourth Port	2 - 5 - 0	Control Relays
Fifth Port	2 - 6 - 0	Sensor Input
Sixth Port	2 - 4 - 0	Zone Page Speaker 2
Seventh Port	2 - 4 - 0	Zone Page Speaker 3
Eight Port	2 - 4 - 0	Zone Page Speaker 4

Conditions:

1. The following limits apply to relays connected to the ECS:
   - The relay contacts provided by the circuit cards are dry steady-state contacts and are not interrupted.
   - The relay closures provided by the IX-MISC card are make contacts only.
   - The relay closures provided by the IX-EDVIF card are make and break contacts.
   - A total of 32 relays can be programmed for use in the ECS system.
2. The relay contacts are provided on screw terminals L1 through L8 +/- on the IX-EDCTU, IX-MCAA board with a IX-MISC card or L1 through L4, M/S/B on the IX-EDVIF card. The IX-EDVIF card contacts are wired to the yellow/blue through violet/green conductors of the IX-EDVIF amphenol.

Database:

System Hardware (Class 01); 04.35 - Miscellaneous Function Port; 04.36 - Miscellaneous Relay Timer; 04.37 - Miscellaneous Function; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

IX-MISC/IX-MCAA, IX-EDVIF.

Release Loop Operation on Analog E&M Tie Lines

The Analog E&M Tie Line Trunk interface on the ECS provides a release loop operation. The release loop operation enables the ECS to send calls back over the same tie line circuit when transferred back to the main system by a station.

Conditions:

1. An IX-4EMTK E&M Tie Line Card can receive a short-flash signal.
2. The existing functions are not affected.
3. There is no voice mail support.

Database Programming:

11.38 - Outgoing CO Group, 28.01 - Network Number, 28.02 - Network Attribute, 28.05 - Network External.

Hardware Required:

IX-4EMTK

Remote Programming and Diagnostics

A Pentium PC running Windows XP or higher at a remote location can be used to change the customer database using a modem. The line used for remote programming can also be used as a regular outgoing line and manually switched for modem use. The remote programming package includes a diagnostic service for system maintenance and troubleshooting. This also includes an automatic callout feature to a remote location. Callout can be programmed to occur either daily or after a certain number of failures have been recorded. System diagnostics includes the following error analysis:

- Program Check-Sum
- Memory Read/Write
- Software Overrun
- Other Diagnostics

Note:	Alarm indications are displayed on the ECS top cover, attendant consoles and IX-DSSA units.

Operation:

To access remote programming through DISA:

1. Dial into the system.
2. When the system answers dial ([#][#] to interrupt message) [*][*] + *password*

To access remote programming manually:

1. Dial into the system attendant position.
2. The attendant must dial the following sequence: [FEAT][#][3] + *password*

Conditions:

1. Certain brands of PCs and modems may not be compatible with this operation.
2. If remote programming is performed through DISA, the remote programming password must be 12 digits in length.
3. If remote programming is accessed manually, the password can be from one to twelve digits in length.
4. When calling the diagnostics callout number, if a connection is not established after 10 attempts, the system will wait until the following day to try and connect with the callout number.

Database Programming:

02.04 - Remote System ID; 02.05 - Remote Programming Password; 02.06 - Diagnostics Callout Number; 02.07 -Diagnostics Callout Time; 02.08 - Diagnostics Callout Level; 02.09 - Diagnostics Callout CO Group.

Hardware:

IX-RMPU (Not supported)

SIP Trunk - Direct Connection

Iwatsu has made significant changes to the ECS IP and Call Control platforms in software version 8.0 enabling direct connection of SIP trunks to the ECS system as well as the SIP enhancements listed below:

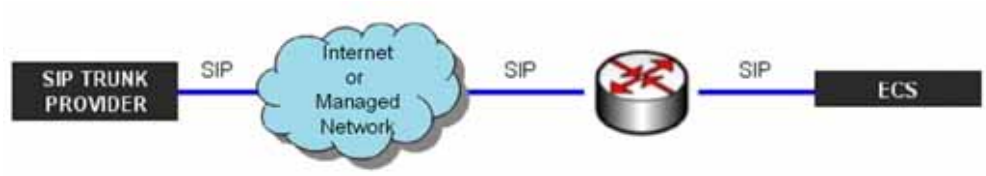
Information regarding each of these enhancements is listed in this section.

- Caller ID Name
- Caller ID / Telephone Number Format
- Capacity Enhancements
- DNS (Domain Name Server) Lookup
- ENUM (E.164 NUmber Mapping)
- NAT (Network Address Translation) Traversal
- SIP Trunk Registration

SIP Connection Method Overview

There are four methods supported for connecting SIP trunks to the ECS system: (1) Connecting SIP trunks directly to the ECS (ECS version 8.0 enhancement) or (2) Connecting SIP trunks to the ECS via a SIP/PRI gateway, or (3) Connecting SIP trunks to the ECS via the Ingate SIParator, (4) Connecting to a SIP to Analog ATA device (i.e., SPA 3102). This section focuses on the SIP trunk to ECS Direct Connection and associated ECS software version 8.0 enhancements. Refer to the four examples below for SIP connection types that are supported:

Direct Connection (ECS 8.0 Enhancement)



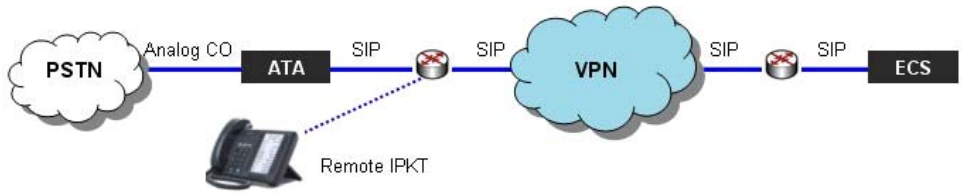
SIP/PRI Gateway



Ingate SIParator



SIP to Analog ATA

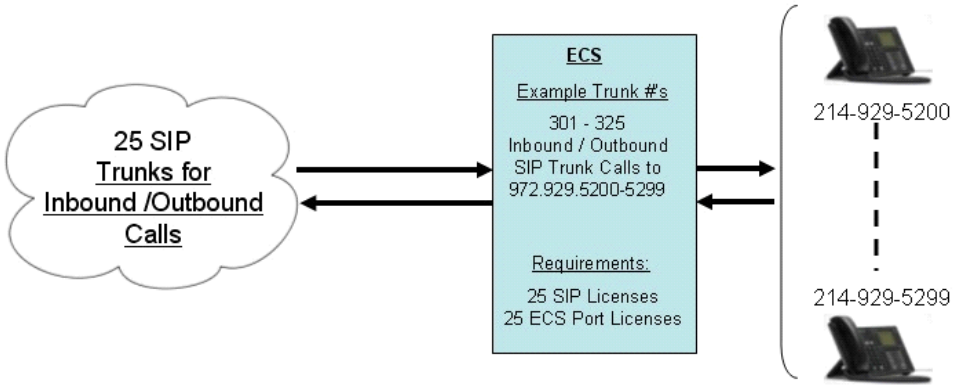


Direct Connection

The Direct Connection method enables SIP trunks to connect directly to the ECS without the use of a SIP proxy.

Direct Connection Example

The direct connection example below shows 25 SIP trunks directly connected to the ECS system and requires 25 SIP licenses (PN: 000331) and 25 ECS Port licenses (PN: 000317) that can be routed via DID.



Direct Connection Exceptions

Some applications or devices, such as the SIPURA gateway, may require fixed ECS port addressing (i.e., dedicated ECS port).

1. New IP database item: Trunks > SIP Settings > VTrunk Card N Channels > DID Features (Class IP1.2.19.01) is used for this option, default value = Line.
2. If the data is set to Line, a SIP Trunk port can accept an incoming call only if the call contains the exact same user ID-1 and Domain Name as the Incoming call.
3. Direct Connection not supported on Cbeyond and Babytel SIP trunks.
4. For users that require firewall functionality, QoS, and diagnostic capability.
5. Change caller ID name / number.
6. Iwatsu primarily supports Non-VPN static IP addressing, but some carriers support DHCP with far end NAT traversal. Contact Iwatsu Tech Support for further information.

ECS System and Licensing Requirements

SIP trunks require the following:

- ECS with Software Version 8.0 and a valid ECS 8.x License (PN: 000347).
- ECS SIP License (PN: 000331) equal to the total number of SIP trunks.
- ECS Port License for each SIP trunk (PN: 000317 ECS Basic System Port License).
- IX-MBU Card (With MBU software version 1.22 or higher) installed in the ECS system.
- ECS Programmer Version 5.0. 3954 or higher.

MBU Channel Usage

A Non-VPN SIP Trunk port will always use at least one IX-MBU channel in the main ECS system. IX-MBU channel usage is based on the destination device type and is detailed in the tables below:

Standalone ECS System

Destination Device Type	IX-MBU Channel Usage
Main TDM	1
IPKT/Remote IPKT (VPN IPKT)	2
Remote IPKT (Non-VPN)	2
SIP Station / SIP VML	2

IP Campus System

Destination Device Type	IX-MBU Channel Usage	IX-MBU Channel Usage - Remote	Total IX-MBU Channel Usage
Main TDM	1	0	1
Remote TDM	1	1	2
IPKT/Remote IPKT (VPN IPKT)	2	0	2
Remote IPKT (Non-VPN)	2	0	2
SIP Station / SIP VML	2	0	2
	2	1	3

Conditions:

1. ECS direct SIP trunk connection requires ECS Software Version 8.0 or higher and a valid ECS Software Version 8.0 license (PN: 000347).
2. SIP licenses are requires are required for each SIP trunk.
3. A maximum of 248 SIP trunks can be programmed in the ECS. The number of concurrent incoming/outgoing SIP trunk calls cannot exceed 248.
4. An **ECS system reset is required** when the **Non-VPN (Public) IP address is changed** for all SIP trunks.
5. Incoming Port Selection - When the ECS receives an incoming SIP call, the IP Platform will select the idle SIP Trunk port with the lowest physical port number in same domain name group.
6. SIP Trunk calls may be routed via Incoming Calls > DNIS (Class 25).
7. SIP Trunk calls may be routed via Incoming Calls > ANI (Class 24).
8. SIP Trunk calls may be routed via Class 11.34 (Incoming Calls > Trunk Call Processing > DIL to Hunt Group).
9. SIP Trunk calls may be routed via Class 11.32 (Incoming Calls > Ringing Stations).
10. SIP trunks installed in the ECS support G.711 voice codec only. G.729 is not supported.
11. IX-MBU maximum = 160 MBU channels with G.711.
12. Iwatsu has tested a maximum of eight SIP trunk calls routed to a station at one time.
13. Due to the nature of IP / SIP transmissions, fax services over IP / SIP cannot be guaranteed. A dedicated analog fax circuit is recommended for all mission critical / core business faxes. Fax over SIP trunks is dependant upon the SIP Provider's fax support policy. Some carriers DO NOT support fax. If the provider does support fax, the circuit on the transmission must not use any compression and must be configured for G.711. Iwatsu has successfully tested incoming and outgoing fax between a fax machine connected to an ECS analog fax port and a SIP trunk provider when the two conditions above are true. ECS does not support T.38 fax detection. T.38 is a fax relay standard that was adopted to permit fax over conventional IP networks operating at G.729. Implementation of compression to the circuit renders poor quality or no service on fax calls.
14. The Iwatsu Enterprise TOL softfax feature does not support inbound nor outbound fax over SIP trunks.
15. In an IP Campus environment, the Main IP Campus system must be configured to always have more MBU channels available than Remote IP Campus systems. On an outbound SIP call, the ECS system chooses the IX-MBU card with the most available channels for the audio transmission. In a standalone system, this is always the main IX-MBU. In an IP Campus environment, the audio may be sent

to a remote node ECS system's IX-MBU card which would cause unnecessary traffic. Inbound calling always uses the Main IP Campus system's MBU channels.

Note: The quality of Iwatsu's IP/SIP-based applications is dependant upon variables such as available bandwidth, network latency, and quality of service (QoS). Each of these variables is controlled by the LAN/WAN administrator and/or carrier. Because these variables are not under Iwatsu's control, Iwatsu cannot guarantee the performance of an Iwatsu IP/SIP product deployed on an IP network.

16. All four SIP trunk routing methods can coexist in the same system. Dedicated virtual trunks are required for each type, excluding SIP/PRI.

ECS SIP Trunk Interoperability

Iwatsu Voice Networks has performed interoperability testing with each of the SIP trunk providers listed below:

Note: Iwatsu only supports the service providers and features listed in the SIP Trunk Interoperability table that have passed carrier and feature testing. If a feature or service provider is not listed or has failed testing, it is not supported by Iwatsu. Iwatsu makes no guarantee of interoperability for feature or service provider compatibility beyond what is listed in the SIP Trunk Interoperability table below.

	Direct to ECS Test Date	Outbound Calling	Inbound Calling	Disconnect	DTMF--Inband	DTMF--RFC 2833 (ECS V7)	FAX	Direct to ECS	Notes
Broadvox	Sep 2010	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
Commpartners	Sep 2010	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
Paetec	Aug 2010	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
Voxitas	Sep 2010	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Requires ENUM for inbound and outbound dialing. This circuit will not work with ECS version 7 and lower.
Teloip	Nov 2010	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
Ring 9	Nov 2010	Fail	Fail	Fail	Fail	Fail	Fail	Fail	No Disconnect.
VIP Powernet	Nov 2010	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Test trunks had no connection. No support from vendor.
Cbeyond	Oct 2010	Fail	Fail	Fail	Fail	Fail	Fail	Fail	DIRECT CONNECTION NOT SUPPORTED (Requires Domain changed on Request URI, From Header, possibly To header)

Caller ID Name for SIP Trunks

New in ECS software version 8.0 is the ability to recognize the Display Name that is coded into the From header. This allows the Caller ID name (up to 16 characters) to be displayed on stations receiving calls on SIP trunks.

Caller ID / Telephone Number-"SIP Trunk CNIS" (Calling Number Identification Services)

Depending on the device originating the call, the call control obtains the source for the Calling Party Number based on the priorities listed in the table below:

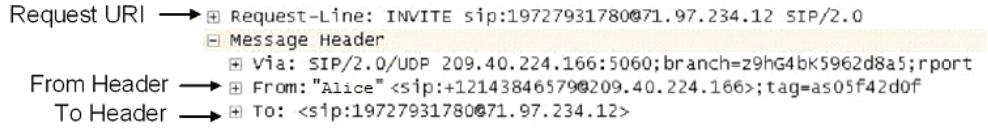
Outbound Calling Party Number Priority

Note: These changes are in the From Header only. Other methods of Caller ID Number / Name programming are not supported.

Device Originating Outbound Call	Outbound Caller ID Sources Sorted by Priority
Station	1. Stations > OutDial > CNIS No. (Class 10.79) or Station Speed dial #97 2. Trunks > IPNET/PRI Trunk Group Data (Class 29.09) 3. Stations > Access No. (Class 10.02)**
Trunk	1. Calling Party Number in ISDN register in System Memory* 2. Trunks > IPNET/PRI Trunk Group Data (Class 29.09) 3. Trunks > Access No. (Class 11.02)**
SIP VML	1. Calling Party Number in ISDN register in System Memory* 2. Trunks > IPNET/PRI Trunk Group Data (Class 29.09) 3. Stations > Access No. (Class 10.02)**

***** The Calling Party Number (CPN) in the ISDN register is used only when an incoming call comes into an Iwatsu Enterprise TOL system and is then sent off-premise. No programming is necessary; the incoming Caller ID (if available) is automatically placed in the outbound header. Refer to Caller ID Pass Through on TOL Transfer to External Number on page 49 for further information.

****** When the Call Control obtains the number programmed in the ECS database from Stations > Access No. (Class 10.02) or Trunks > Access No. (Class 11.02), the '+' sign will not be added.



DNS Lookup for SIP Trunks

ECS software version 8.0 can perform a domain name (DNS) lookup to resolve the IP address for a SIP trunk carrier. This feature is programmed per Virtual SIP Trunk (VTtrunk) card.

All data items described below require system reset to activate the new data values.

Programming

DNS Server

The DNS Server parameter specifies the DNS server the Virtual SIP Trunk (VTRUNK) card will use. The card references the table in Trunks > SIP Settings > DNS Server (Class IP1.02.05.05). The parameter is associated with each VTRUNK card.

Note: The **DNS Server** data value defaults to 0. **DNS lookup is not functional in default**.

1. Set the Protocol 1 parameter to SIP for each of the Virtual SIP Trunk Cards.
2. If required, set the DNS Server table number.

SIP Virtual Trunk Cards

VTrunk Card #	Protocol 1	DNS Server	Invite Primary Server	Registrar Primary Server	Register
1	SIP	0	72.32.58.125	72.32.58.125	Disable
2	SIP	0	64.199.64.220	64.199.64.220	Enable
3	SIP	0	10.129.0.9	10.129.0.9	Disable
4	SIP	0	204.138.56.246	204.138.56.246	Disable
5	SIP	0	208.65.240.133	208.65.240.133	Enable
6	SIP	0	10.133.25.63	10.133.25.63	Disable
7	SIP	1	mobileoffice.obtssolutions.net	mobileoffice.obtssolutions.net	Enable
8	SIP	1	dfw01-01.fs.broadvox.net	dfw01-01.fs.broadvox.net	Enable
9	SIP	1	dal01a.netlogic.net	dal01a.netlogic.net	Enable
10	SIP	1	las-sip.commpartners.us	las-sip.commpartners.us	Enable

DNS Primary and Secondary IP Address Programming

The DNS Primary IP and DNS Secondary IP parameters specify the primary and secondary DNS server IP addresses that will be used to resolve IP addresses for the SIP carrier. (Default = No IP address)

1. To program the Primary and secondary DNS Server IP addresses, go to Trunks > SIP Settings > DNS Settings > DNS Primary IP (Class IP1.02.13.05) / DNS Secondary IP (Class IP1.02.13.06) and enter the IP address for the DNS servers.

Trunks > SIP Settings > SIP DNS Settings

#	DNS Primary IP	DNS Primary Port	DNS Secondary IP	DNS Secondary Port
1	4 .2 .2 .1	53	4 .2 .2 .2	53
2	. . . .	53	. . . .	53
3	. . . .	53	. . . .	53
4	. . . .	53	. . . .	53

DNS Primary and Secondary Port Programming

The DNS Primary and DNS Secondary Port parameters specify the UDP port number for the Primary and Secondary DNS server. (Default = Port 53 for Primary and Secondary DNS Ports)

1. To program the Primary and secondary DNS Ports, go to Trunks > SIP Settings > DNS Settings > DNS Primary Port (Class IP1.02.13.02) / DNS Secondary Port (Class IP1.02.13.04) and enter the port for the DNS servers.
2. Program the **DNS Primary** server and the **Secondary** server in T**runks > SIP Settings > SIP DNS Settings**.

Trunks > SIP Settings > SIP DNS Settings

#	DNS Primary IP	DNS Primary Port	DNS Secondary IP	DNS Secondary Port
▶ 1	4 .2 .2 .1	53	4 .2 .2 .2	53
2	. . . .	53	. . . .	53
3	. . . .	53	. . . .	53
4	. . . .	53	. . . .	53

3. Program the **Invite Primary Server**.
4. Program the **Registrar Primary Server**.

SIP Virtual Trunk Cards

VTrunk Card #	Protocol 1	DNS Server	Invite Primary Server	Registrar Primary Server	Register
1	SIP	0	72.32.58.125	72.32.58.125	Disable
2	SIP	0	64.199.64.220	64.199.64.220	Enable
3	SIP	0	10.129.0.9	10.129.0.9	Disable
4	SIP	0	204.138.56.246	204.138.56.246	Disable
5	SIP	0	208.65.240.133	208.65.240.133	Enable
6	SIP	0	10.133.25.63	10.133.25.63	Disable
7	SIP	1	mobileoffice.obtssolutions.net	mobileoffice.obtssolutions.net	Enable
8	SIP	1	dfw01-01.fs.broadvox.net	dfw01-01.fs.broadvox.net	Enable
9	SIP	1	dal01a.netlogic.net	dal01a.netlogic.net	Enable
10	SIP	1	las-sip.commpartners.us	las-sip.commpartners.us	Enable

Conditions:

1. All DNS Setting data items described above require system reset to activate the new data values.

ENUM for SIP Trunks

ECS software version 8.0 will accept ENUM (E.164 NUmber Mapping ENUM) formatted dial numbers in the user part of a request Uniform Resource Identifier (URI), From and To header.

Inbound Accepted Characters

All alpha characters and the '+' sign (ASCII code 0x2B) are acceptable. All numeric characters (0-9) that were supported on previous software versions are also accepted.

Outbound Calling Party Number Priority

- The ECS does not display the + on the telephone display on an incoming call.

Programming

ENUM programming is a one bit data field and if the value is set to 1 (ENUM), the ECS system software will add a '+" sign to the head of dial strings for the outgoing calls.

1. If the trunks are required to send + in front of the call, then set the ENUM format to Add + sign to calling/called number.
2. Go to Trunks > Trunk Features > ENUM Format (Class 11.70.09).
3. From the ENUM Format parameter, use the drop-down menu to select Add '+' to calling/called number. (Default = None)

Trunks > Trunk Features

Log #	Access No.	E&M On-Hook Detect	Forced Rel. Condition	E911 Trunk	Short Flash Time	Short Flash Guard Time	MOH Input Port	ENUM Format
85	1085	1	Loop Close	Normal	4	2	0	Add '+' sign to calling/called number
86	1086	1	Loop Close	Normal	4	2	0	Add '+' sign to calling/called number
87	1087	1	Loop Close	Normal	4	2	0	Add '+' sign to calling/called number
88	1088	1	Loop Close	Normal	4	2	0	Add '+' sign to calling/called number
89	1089	1	Loop Close	Normal	4	2	0	None

Conditions:

1. Outgoing calls will automatically be modified when this is set.
2. Incoming calls do not require this setting.
3. The ECS does not display the + on the telephone display on an incoming call.

Network Address Translation (NAT) for SIP Trunks

ECS software version 8.0 will accept ENUM (E.164 NUmber Mapping ENUM) formatted dial numbers in the user part of a request Uniform Resource Identifier (URI), From and To header.

This section describes NAT traversal support for SIP Trunk configuration when terminating SIP trunks directly to the ECS system. This application expands the capability of placing an ECS with SIP Trunks behind a router/firewall.

The three main concerns for NAT traversal are:

1. Programming a static public IP address
2. Transmit audio (MBU audio) port programming
3. Transmit signaling (ECS LAN 2) port programming

Programming

Public IP Address and NAT

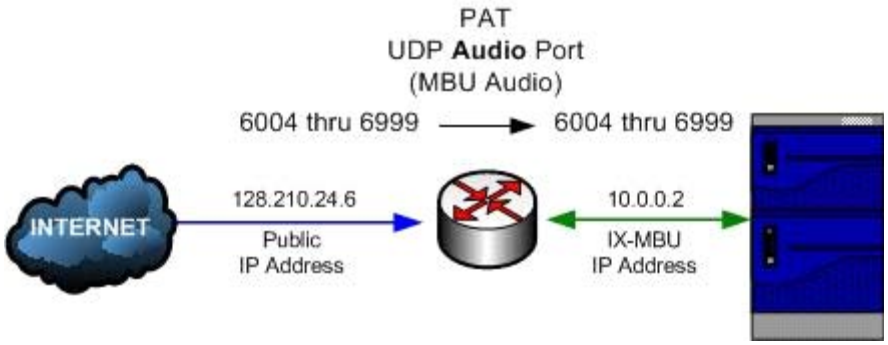
The three main concerns for Network Address Translation are port transmit audio (MBU audio), port transmit signaling (LAN 2 port), and static public IP address.

The Public IP Address which is part of the Network Address Translation (NAT) traversal is programmed under Trunks > SIP Settings > SIP IP Settings.

Proper port forwarding on a NAT router is the sole responsibility of the distributor / installer. Iwatsu Voice Networks is not responsible for customer premise equipment configuration.

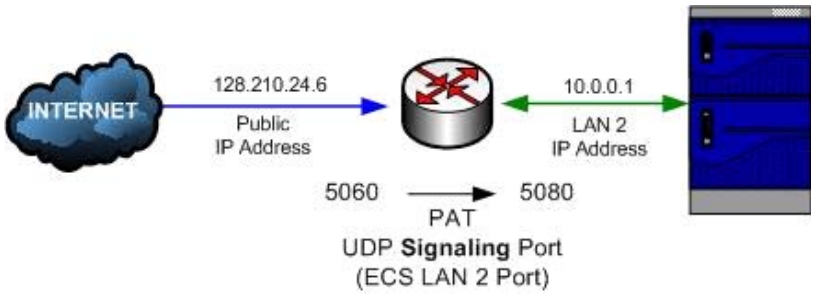
Port Address Translation (PAT) for audio signaling

- Signaling port UDP 5060 from carrier must be routed to UDP 5080 at ECS LAN 2 IP Address.
  - If required, the signaling port can be changed to a different port.



Port Address Translation (PAT) for User Datagram Protocol (UDP) signaling

- Audio ports UDP 6004-6999 must be routed to UDP 6004-6999 at ECS MBU IP Address.



Port Forwarding

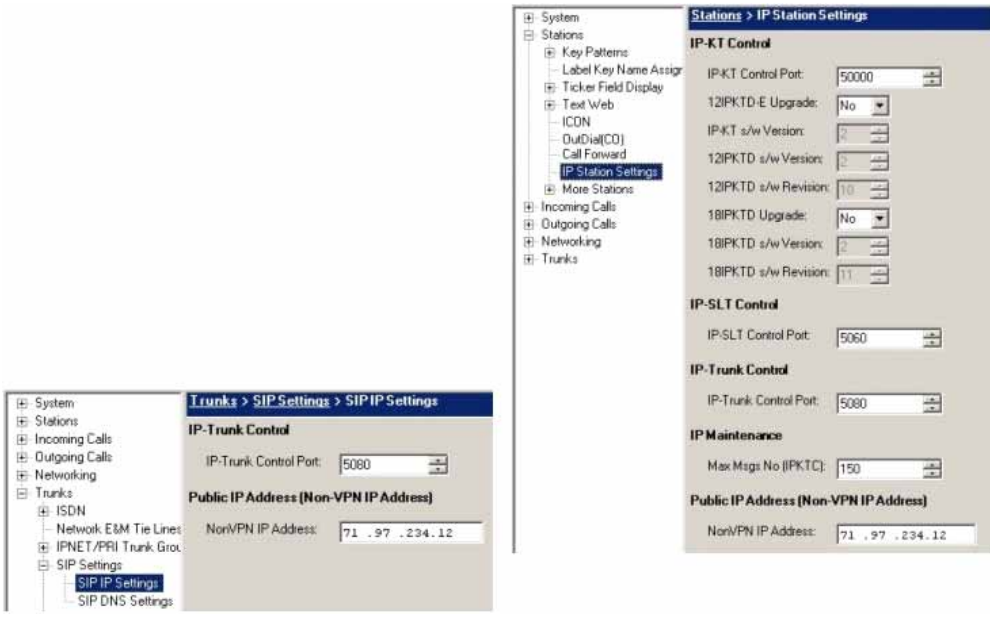
- A Non-VPN SIP Trunk call will specify port 5060 as the contact port for the internet side of the router.

Routers used for this application must be programmed to forward all inbound (from the internet) SIP packets to ECS SIP Trunk port 5080.

Public IP Address

Direct connection requires a static pubic IP address. This public IP address is programmed in the ECS database under Trunks > SIP Settings > SIP IP Settings and is used for a SIP Trunk Port that is marked as a Non-VPN port under System > Hardware (Class 01).

Note:	Iwatsu primarily supports Non-VPN static public IP addressing, but some carriers do support DHCP with far-end NAT traversal. Contact Iwatsu Technical Support for further information.



Important! The **Public IP Address** programmed under **Stations > IP Station Settings > Public IP Address** and **Trunks > SIP Settings > SIP IP Settings > Public IP Address** is the **same IP Address**. **An IP address change to one of these database items will change the other programming item**.

Non-VPN SIP Trunk Port Programming

SIP trunks programmed for direct connection to the ECS require a public IP address programmed in the ECS database and those trunks are flagged as Non-VPN SIP trunks. For this purpose, a Non-VPN flag has been added to System > Hardware > Ports as part of the SIP Trunk port configuration.

- Non-VPN assumes the trunks will use the ECS public IP addresses. This setting is used for direct connections to the SIP carrier. This mode is only supported in ECS software version 8.0 or higher.
    - VPN assumes that the trunks will use private IP addresses. This setting is used for SPA 3102 or Ingate Siparator installations.

Note: Iwatsu primarily supports Non-VPN static public IP addressing, but some carriers do support DHCP with far-end NAT traversal. Contact Iwatsu Technical Support for further information.

Cards

#	Type	1	2	Sys.	Remote VCIF	Remote Card	Sys. Name
▶ 65	VTRUNK	1		0			Main
66	NONE			0			Main
67	NONE			0			Main
68	NONE			0			Main

Ports

#	Type	Logical	Definition	Function	1	2	3
481	Trunk	9	IP Trunk	SIP or H.323 Trun	RFC2833 Eve	SIP	Non-VPN
482	Trunk	10	IP Trunk	SIP or H.323 Trun	RFC2833 Eve	SIP	Non-VPN
483	Trunk	11	IP Trunk	SIP or H.323 Trun	RFC2833 Eve	SIP	Non-VPN
484	Trunk	12	IP Trunk	SIP or H.323 Trun	RFC2833 Eve	SIP	Non-VPN
485	Trunk	13	IP Trunk	SIP or H.323 Trun	RFC2833 Eve	SIP	Non-VPN
486	Trunk	14	IP Trunk	SIP or H.323 Trun	RFC2833 Eve	SIP	Non-VPN
487	Trunk	15	IP Trunk	SIP or H.323 Trun	RFC2833 Eve	SIP	Non-VPN
488	Trunk	16	IP Trunk	SIP or H.323 Trun	RFC2833 Eve	SIP	Non-VPN

SIP Trunk Capacity Expansion

SIP trunk capacity has been expanded in ECS software version 8.0 for the following:

Virtual SIP Trunk Cards

Virtual SIP Trunk cards are the "virtual" cards programmed for SIP trunks. The maximum number of VTRUNK cards that can be installed in the ECS is 31.

SIP Trunk Ports

The maximum number of configurable SIP trunk ports has been expanded to 248. Each VTRUNK card supports eight SIP trunk ports.

Conditions:

1. SIP trunks installed in the ECS support G.711 voice codec only. G.729 is not supported.
2. IX-MBU maximum = 160 MBU channels with G.711.
3. The maximum number of concurrent SIP trunk calls cannot exceed the number of SIP licenses for SIP trunks installed in the system and available IX-MBU channels.

SIP Trunk Registration

The SIP registration parameter enables or disables SIP Registration on a per card and / or port basis (i.e., Per user ID). A SIP trunk channel (port) that is set to Disable will not send the SIP registration even if the SIP VTrunk card > Register setting is set to Enable.

The SIP Virtual Trunk Card > Register setting is the parent parameter and therefore a SIP Virtual Trunk Card Channel > Registration that is set to Enable will not send the SIP Registration when SIP Virtual Trunk Card > Register is set to Disable.

SIP Virtual Trunk Card Registration	SIP Virtual Trunk Card Channel Registration (Channel = 1-8)	SIP Registration Sent (Yes / No)
Enable	Enable	Yes
	Disable	No
Disable	Enable	No
	Disable	No

SIP Trunk Registration Programming

1. To change the SIP registration parameter for S**IP Virtual Trunk Card** , go to Trunks > SIP Settings > SIP Virtual Trunk Cards > Register (Class IP1.02.14.03). **Default = Disable**.

SIP Virtual Trunk Cards

VTrunk Card #	Protocol 1	DNS Server	Invite Primary Server	Registrar Primary Server	Register
1	SIP	0	72.32.58.125	72.32.58.125	Disable
2	SIP	0	64.199.64.220	64.199.64.220	Enable
3	SIP	0	10.129.0.9	10.129.0.9	Disable
4	SIP	0	204.138.56.246	204.138.56.246	Disable
5	SIP	0	208.65.240.133	208.65.240.133	Enable
6	SIP	0	10.133.25.63	10.133.25.63	Disable
7	SIP	1	mobileoffice.obtssolutions.net	mobileoffice.obtssolutions.net	Enable
8	SIP	1	dfw01-01.fs.broadvox.net	dfw01-01.fs.broadvox.net	Enable
9	SIP	1	dal01a.netlogic.net	dal01a.netlogic.net	Enable
10	SIP	1	las-sip.commpartners.us	las-sip.commpartners.us	Enable

2. To change the SIP registration parameter for a **SIP Virtual Trunk Card Chan-ne**l, go to Trunks > SIP Settings > SIP Virtual Trunk Card Channels > Registration (Class IP1.02.19.02). **Default = Enable**.

Virtual Trunk Card 1 Channels

Channel #	Log.	Port Activation	User ID-1	Password-1	Domain Name	DID Feature	Registration
1	29	Enable	2145551212	password	71.97.234.12	DID	Enable
2	30	Enable	2145551212	password	71.97.234.12	DID	Disable
3	31	Enable	2145551212	password	71.97.234.12	DID	Disable
4	32	Enable	2145551212	password	71.97.234.12	DID	Disable
5	33	Enable	2145551212	password	71.97.234.12	DID	Disable
6	34	Enable	2145551212	password	71.97.234.12	DID	Disable
7	35	Enable	2145551212	password	71.97.234.12	DID	Disable
8	36	Enable	2145551212	password	71.97.234.12	DID	Disable

SIP Trunk Registration Conditions

1. A SIP trunk port that is set to Disable will not send the SIP Registration even if the **SIP VTrunk card > Register** setting is set to **Enable**.
2. **SIP Virtual Trunk Card Channel > Registration** that is set to **Enable** will not send the SIP Registration when **SIP Virtual Trunk Card > Register** is set to **Disable**.

Speed Dial

The speed dial feature allows station users to dial frequently used numbers by dialing a two- or three-digit access code or by pressing a [System Speed n] button. The system will support either 100 or 900 speed dial numbers according to the programming in *Class 02.01*. There are two types of speed dial numbers:

System Speed Dial System speed dial numbers are available to all ECS station users. They are entered in *Class 05.01* and can be 32 digits in length including one or more pauses. The speed dial ID programmed in *Class 05.02* is displayed when the number is dialed unless *Class 05.03* is programmed to make the display inactive when speed-dialing. Access restrictions can be placed on specific numbers or stations (*Classes 10.24 and 10.25*). Speed dial numbers can be subject to optimized routing and toll restriction at the station level.

Personal Speed Dial Speed dial bin numbers 90 through 99 are reserved for individual station use. Regardless of the programming in *Class 02.01*, the personal speed dial bin number is always two digits. These numbers are entered by the station user using an ECS KT.

Note: Speed Dial numbers are supported with the Omegatrek Portable Station. Because the feature and operation differs significantly from the station feature and operation, reference the Omegatrek chapter of Section 3.

Operation:

To dial a system speed dial number:

[SPEED] + *000-899*.

To scroll and access a speed dial number by the name:

1. Press [SPEED] + [SPEED]
2. To search for a registered name, press the dial pad until the desired characters are displayed.
   To focus your search, enter a character, press [HOLD/DND], and then enter another character.
3. To scroll through the registered names, press FORWARD **#** or BACKWARD *****
4. When the desired name is found, press [SPEED] to dial the number.

To scroll a speed dial number:

1. Press [SPEED] + [*]
2. Dial the a Speed Dial code
3. To scroll through the registered names, press FORWARD **#** or BACKWARD *****

Conditions:

1. A maximum of 900 speed dial numbers can be programmed.
2. If a speed dial number is defined as invisible in *Class 05.03* it will not appear on the SMDR report.
3. *Class 02.01* sets the amount of speed dial numbers available to the system as either 90 two-digit or 900 three-digit speed dial numbers. Regardless of the programming in *Class 02.01*, personal speed dial numbers are always two digits and are fixed at bins 90 through 99.
4. *Class 10.24* is used to deny access to the system speed dialing feature on a station-by-station basis.
5. *Class 10.25* is used to subject system speed dial numbers to toll restriction.

Database Programming:

02.01 - System Speed Dial Type; Class 05 System Speed Dial; 10.24 - System Speed Access; 10.25 - System Speed Toll Restriction; 10.30 - Automatic Outgoing CO.

Hardware:

Standard.

Station Message Detail Recording

Station Message Detail Recording (SMDR) allows you to connect an RS232C compatible serial printer to the IX-CCU serial port, IX-CCSU ethernet port, an IX-SCIF, IX-HCIF, or IX-EDVIF card. This printer will record all incoming and outgoing call activity. The following information will be shown:

- Call number 001-999
- Date of the call
- Extension number that made/received the call
- Start time of the call
- Duration of the call
- Outside line number used for the call (outgoing)
- Caller ID/ANI/DNIS for incoming call on Caller ID/ANI/DNIS line
- Number dialed for the call
- Account code number for the call
- Other notes for the call

The table below lists the abbreviations that appear on the SMDR printout to indicate system conditions:

Type of Call	Abbreviation on SMDR Printout
Incoming Local/Toll Call	(blank)
DID Call	DID
DISA Call	DIS
Remote Call Forwarding	TRN
Outgoing Local Call	#
Outgoing Toll Call	*
Tie Call	TIE
Attendant Calls	A
Abandoned Call	ABN

Operation:

To enter an account code:

At ICM dial tone press [FEAT] + [2][5] + [Account Code] + account code

Conditions:

1. An SMDR event license or an IX-SCIF, IX-HCIF, or IX-EDVIF card is required for this feature.
2. Only the first 24 digits of a dialed number will appear on the printout.
3. An identification number is assigned to each call in sequence from 1 to 999. Once call 999 has been recorded the next call will be call 1.
4. Information on up to three extensions will print for a transferred call.
5. An account code can be a maximum of 12 digits.

Database Programming:

04.25.10 - SMDR Call Duration Unit; 04.50 - SMDR - Output Port; 04.51 - SMDR - Minimum Call Duration; 04.52 - SMDR - Incoming Call Report; 04.53 - SMDR - Toll Only Report; 06.07 - Toll Restriction - SMDR Table; 10.18 - SMDR Report; 11.29 - SMDR Report; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware:

SMDR Event License, IX-SCIF, IX-HCIF, or IX-EDVIF, Customer-provided serial printer.

System Alarm and Status Indication

LED's on the IX-PWSE power supply display the status of the system software. Should your system malfunction, ECS will display an alartm indication on the IX-PWSE Power Supply and on all attendant telephones.

The table below lists the function of each LED indicator:

LED Status Indicators

Note: Major and Minor Alarm LEDs are associated with specific LED Status Indicators.

The 7-Segment LED indicates the number (0-F) corresponding to the severity level for Major and Minor alarms.

Error Message Code Severity Level

0 1 2 3 4 5 6 7 8 9 A b C d E F

High (Urgent) → → → → Middle → → → → Low

Major Alarm Status Indicators

Alarm Level	7 Segment LED	Cause	Measures
MAJOR	0	Undefined	
	1	Power Supply Error	Replace Power Supply Unit
	2	IX-CCU / CCSU HardwareError	Replace IX-CCU / CCSU Card
	3	IX-CCU / CCSU Hardware Error	Replace IX-CCU / CCSU Card
	4	Compact Flash Card Error	Replace Compact Flash card. Update the file. Replace IX-CCU.
	5	Phase Reset Error	Replace IX-CCU Card if problem persists
	6	Platform Program Error	Replace IX-CCU Card if problem persists
	7	Call Control Program Error	Replace IX-CCU Card if problem persists
	8	Undefined	
	9	System Data Error	Reprogram system data. Use Auto-Recognition
	A	Undefined	
	b	Undefined	
	C	Undefined	
	d	Undefined	
	E	Undefined	
	F	Undefined	

Minor Alarm Status Indicators

Alarm Level	7 Segment LED	Cause	Measures
MINOR	0	Undefined	
	1	License Card Error	Replace the license card
	2	License Information Error	Reenter the license information
	3	Program Startup Failure	Update the program file
	4	System Congestion	Reduce the load by checking the status of congestion and reprogramming system data if necessary
	5	SMDR Information Error	Check the connection and operation of TME
	6	Unit Breakdown	Replace the unit or the BU fuse
	7	Call Control Program Error	Replace the IX-CCU if the problem persists
	8	Undefined	
	9	System Data Error	Reprogram system data. Use Auto-Recognition
	A	Undefined	
	b	Undefined	
	C	Undefined	
	d	Undefined	
	E	Undefined	
	F	Campus Link Error	Check the network status and capacity; replace the network [sic] and expand the capacity if the problem persists

Conditions:

The LED indicators may not function depending on the type of EPROM error.

Database Programming:

None.

System Announcements

When the ECS is equipped with an IX-MSGU, various automatic answering services can be played to callers. These messages are stored in the ROM of the IX-MSGU card. The desired message for each situation can be selected through database programming then played automatically depending on the application. Example applications include:

- UCD announcements - All agents are busy
- Night mode announcements - Our office is closed for the day
- Hotel/Motel announcements - This is your wake up call
- DISA - Please dial your authorization code

If an IX-CMSG or IX-CMSG-1 daughterboard is mounted on the IX-MSGU, custom system announcement messages can be recorded. The IX-CMSG-1 card provides 330 seconds of message recording time. Messages can only be recorded at attendant positions equipped with a [Message Record] key.

Operation:

To record a message:

1. Wait for dial tone.
2. Dial [Message Record] + *message number (01-52)* + *record message* + [#]

To replay a custom message:

1. Wait for dial tone.
2. Dial [Message Record] + [#] + *message number (01-52)*

To replay all message:

1. Wait for dial tone.
2. Dial [Message Record] + [#][#]

To replay all fixed messages:

1. Wait for dial tone.
2. Dial [Message Record] + [#][*]

To delete a custom message:

1. Wait for dial tone.
2. Dial [Message Record] + [*]+ *message number (01-52)*

Conditions:

1. An [Message Record] key is required to record custom messages.
2. If the system is equipped with an IX-CMSG-1 card the IX-MSGU card must have a 1.5 processor.
3. If the system is equipped with an IX-CMSG-1 card 330 seconds of recording time is available.
4. Recording system announcements is not supported on Iwatsu IP Telephones with ECS system software versions 6.0x and below.

Database Programming:

04.20 - VSS Recording Time; 04.45 - Remote CO Forward Message Number; 08.05 - UCD Hunt Group; 11.45 Auto Answer MSG 1; 11.46 Auto Answer Message 2; 11.48 DISA Message Number; 15.01 Attendant Key Assignment.

Hardware:

IX-MSGU, IX-CMSG for custom messages.

System Clock

The ECS is equipped with a real time clock that provides an indication of the current time and duration of both incoming and outgoing calls on the LCD display of Iwatsu telephones. The clock also has a 100-year calendar that eliminates the need to change the date for leap year.

Conditions:

The system clock may not match the telephone company billing time. System clock time must be used for reference purposes only. Time-of-day can be adjusted through Iwatsu programming or by the attendant.

Database Programming:

None.

Hardware:

Standard.

Text Messaging

The Text Messaging feature allows station users to send a 16-character text message to another system extension. There are two types of text messages, system text messages and personal text messages. Up to 90 system text messages and 10 personal text messages are available to each user. System text messages are accessible by all ECS station users. They are entered in Class 02.20 and can be a maximum of 16 digits in length. Personal text messages, also a maximum of sixteen digits in length, are programmed by the individual station user and may only be accessed at the specific station set.

Text messages may be sent as a *Busy Bypass, Manual Signal Text Message*, or *Stored Text Message*. Busy Bypass and Manual Signal text messages appear on the recipient's LCD immediately. Stored text messages do not appear on the display, but instead, light the recipient's [TEXT MSG] key. Stored text messages are saved in memory until the recipient manually displays them. The [TEXT MSG] key (key data 161) is required to send all three types of text messages. The [TEXT MSG] key is also required at a station receiving a stored text message.

Sending Text Messages. During an intercom call to a busy, no answer or DND station, a text message may be selected and sent by either pressing the [TEXT MSG] key plus a two-digit access code, or a [TEXT MSGn] key programmed to access a specific text message.

The station user may choose to change the text message to a Stored Text Message by pressing [#] after selecting a text message.

A Manual Signal text message can be sent by either pressing the [TEXT MSG] key (key data 161) plus a two-digit access code or a [TEXT MSGn] key programmed to access a specific text message followed by an extension number, DSS key, or Call Coverage key.

Text message alert tone is sent to the recipient along with each text message, while the sender receives confirmation tone. If the recipient is talking through the handset, alert tone is audible through the earpiece. If the recipient is talking through the speakerphone, or the station is inactive, alert tone is sent through the speaker. Text message alert tone is also sent to a recipient station that is in DND mode. However, Class 10.72.03 may be used to disable text message alert tone at a DND station.

Text Message Display. When a text message arrives at a station, the top line of the display contains the text message which can be up to 16 digits in length. The bottom line of the display contains the station user ID (Class 10.04). If no station user ID is programmed, the station number is displayed on the second line. When multiple text messages are sent to a station, each new text message overwrites the existing text message. The preceding message is deleted. A text message will remain on the LCD for the duration programmed in Class 04.71 or until manually deleted by the recipient or the sender. Press [FEAT] + [6][3] or [LCD Mode Change] to change the displayed data. At the sending station, the text message number appears on the first line of the LCD and the message text appears on the second line of the display for 10 seconds or until the station goes on hook.

Stored Text Message Display. Stored text messages cause the [TEXT MSG] key to light but do not appear on the station LCD. Station users are notified of a new stored text message via an alert tone, and when the red lamp on the [TEXT MSG] key lights. A maximum of three stored text messages can be saved in memory. Stored text messages remain in memory until either canceled by the sender or deleted by the recipient. Stored text messages may only be sent to stations that have a [TEXT MSG] key.

Responding to a Text Message. A station user may respond to a text message while on a call by sending a text message. Stored text messages may only be displayed and responded to when the station is idle. A station user may respond to a stored text message by calling the sender by pressing [#] with the stored text message displayed.

Text Message Groups. Up to sixteen stations may be joined in a text message group. Using a [MSGGPn] key, a station user can send a text message to all the stations in a text message group simultaneously. Text message groups are programmed in Class 08.06. The system supports a maximum of 60 text message groups.

Operation:

Sending and Receiving Text Messages

To select and send a text message to a busy or no answer system extension:

1. While calling a busy or idle extension
2. Press [TEXT MSG] + *text message number (00-99)*, or [TEXT MSG].

To select and send a manual signaling text message to another system extension:

1. Press [TEXT MSG] + *text message number (00-99)*, or [TEXT MSG].
2. Dial an extension number or press a DSS key or Call Coverage key

To respond to a text message while on a call:

1. While on a call with a text message on your display
2. Press [TEXT MSG] + [*] + *text message number (00-99)* + [TEXT MSG].

To delete a text message from your display:

While a text message is on your display press [TEXT MSG] + [#] + [*].

Stored Text Messages

To select and send a stored text message to another system extension:

1. While calling a busy or idle extension
2. Press [TEXT MSG] + *text message number (00-99)*, or [TEXT MSGn]
3. Press [#]

To display a stored text message:

Press [TEXT MSG] + [#] to display a stored text message

To responded to a stored text message by calling the originating extension:

1. Press [TEXT MSG] + [#] to display the stored text message
2. Press [#] a second time to call the station that sent the text message.

Scrolling and Selecting Text Messages

To scroll through the available system text messages:

1. Go off hook and press [TEXT MSG] + [*] + *text message number* (00-89)
2. With a message displayed press [#] to scroll forward and [*] to scroll backward.

To scroll through the available personal text messages:

1. Go off hook and press [TEXT MSG] + [*] + *text message number* (90-99)
2. With a message displayed press [#] to scroll forward and [*] to scroll backward.

Entering System Text Messages (From an Attendant Station Only)

To enter a system text message:

1. From an attendant defined station,
2. Press [FEAT] + [TEXT MSG] + *text message number (00-89)* + *text message data* + [FEAT]
3. Press the following keys for text message data entry:

Press	1	2	3	4	5	6	7	8	9	0	HOLD	#
1X	-	A	D	G	J	M	P	T	W	Q	write character	lower case
2X	.	B	E	H	K	N	R	U	X	Z	cancel character	upper case
3X	sp	C	F	I	L	O	S	V	Y	&		
4X	1	2	3	4	5	6	7	8	9	0		

Entering Personal Text Messages

To enter a personal text message:

1. Press [FEAT] + [TEXT MSG] + text message number (90-99) + text message data + [FEAT]
2. Press the following keys for text message data entry:

Press	1	2	3	4	5	6	7	8	9	0	HOLD	#
1X	-	A	D	G	J	M	P	T	W	Q	write character	lower case
2X	.	B	E	H	K	N	R	U	X	Z	cancel character	upper case
3X	sp	C	F	I	L	O	S	V	Y	&		
4X	1	2	3	4	5	6	7	8	9	0		

Conditions:

1. Text messages cannot be sent to stations that are not connected (including IX-8PSUB cards in make-busy state), subject to station call restriction or in use by a different tenant.
2. System text messages, bins 00-89, are programmed in Class 02.20 and may also be changed be changed from attendant stations. Personal text messages, bins 90-99, may be added, deleted or changed at the individual station.
3. Text messages may be sent to any system extension equipped with a display telephone.
4. Saved text messages may only be sent to stations that have been assigned a [TEXT MSG] key.
5. The [TEXT MSG] key is required to display saved text messages.
6. Text messages may be sent to stations in DND mode.
7. At system default, text message alert tone is not audible from the recipient station when that station is DND mode. Use Class 10.72.03 to enable text message alert tone at a DND station.
8. Text message alert tone is audible at the recipient station from either the earpiece or the handset according to the following conditions:
   - If the station is on a call using the handset alert tone is sent through the earpiece.
   - If the station is on a call using the speakerphone alert tone is sent through the speaker.
   - If the station is idle, alert tone is sent through the speaker.
9. Text message confirmation tone is audible at the originating station from either the earpiece or the handset according to the following conditions:
10. If the originating station is calling using the handset confirmation tone is received through the earpiece.
11. If the originating station is calling using the speakerphone confirmation tone is received through the speaker.
12. Class 04.71.39 determines the length of time in minutes (0-255), that a text message remains on the recipient station LCD.
13. The recipient station cannot view or respond to a saved text message while on an intercom or CO call.
14. The originating station cannot delete a text message from the recipient station set.
15. A reply to a text message may be sent to the sender during an intercom or outside line call by pressing [TEXT MSG] + [*] +*message number* + [#] while the message is displayed.
16. A text message is not forwarded with a call to the forwarding destination. The text message is displayed on the forwarded station.
17. he [MSGGPn] key (key data 170) is required to send messages to a text message group. Text message groups are programmed in Class 08.06. The system supports a maximum of 250 text message groups with 16 stations maximum per group.

Database Programming:

02.20 - System Text Message; 04.71 - Call Coverage/Voice Mail Data, Element 39 Text Message Display Duration; 08.06 - Text Message Group; 10.72.03 Text Message Tone; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 26.01 - Station Text Message 1.

Hardware Required:

Omega-Phone Display Telephones.

Toll Restriction

The ECS provides flexible toll restriction of area codes, office codes, and subscriber numbers. Toll restriction is applied in one of 16 levels at the station level in *Class 10.23*. Eight of the toll restriction levels reference toll restriction tables that are programmed in *Class 06*. The table below lists the 16 levels of toll restriction.

Toll Restriction Level	Description
0	No restriction of outgoing calls.
1-4, 8-15	Restriction through the Toll Restriction Tables programmed in *Class 06.*
5	Deny any outgoing calls, except for system speed dial calls. Allow all incoming calls and calls on hold.
6	Deny any outgoing calls. Deny access to system speed dial. Allow all incoming calls and calls on hold.
7	Deny all outgoing and incoming calls, deny access to calls on hold. Allow intercom and camp-on calls.

Conditions:

A separate toll restriction class can be programmed for day mode and night mode operation.

Database Programming:

Class 06 Toll Restriction; 10.23 - Toll Restriction Level and Class; 11.40 - Toll Restriction Group Number; 11.41 - Predial Group Number.

Hardware:

Standard.

Tone/Pulse Dialing

Using *Class 11.08*, loop start and ground start trunks can be programmed for either dial pulse or DTMF dialing to accommodate the local CO.

For DTMF Dialing: Use *Class 11.09* to program the DTMF signal within a range of 100 to 400 milliseconds. Trunks programmed as dial pulse may be switched to DTMF dialing by using the *dial reverse* feature. Use *Class 11.10* to program the *address signaling speed* of DTMF signals generated after the *dial reverse* feature is activated. This feature is useful for those customers who are served by a dial pulse Central Office that wishes to use OCC services.

For Dial Pulse Dialing: Use *Class 11.11* to program the dialing speed of an IX-8LGTK card as either 10 PPS or 20 PPS when rotary pulse CO lines are terminated at the ECS.

Conditions:

1. The DTMF dial signal programming of the first circuit of the trunk card with the lowest physical port number applies to all trunk cards installed in the system.
2. The DP dialing speed programming of the first circuit of a trunk card applies to all circuits of that trunk card.
3. The Canadian Department of Communications prohibits the use of dial pulse trunks with a dial speed of 20pps.

Database Programming:

10.26 - Dial Pulse to DTMF Signal Alternating; 10.27 - Automatic Signal Alternating; 11.08 - Dial Type DP/DTMF; 11.09 - DTMF Dial Speed; 11.10 - DTMF Dial (Altered)-Duration; 11.11 - Dial Pulse Speed; 11.12 - Dial Pulse Break Ratio.

Hardware:

DTMF/DP trunk cards.

Trunk Interfaces

The following type of outside lines are supported by the ECS:

- Loop Start Trunks
- Ground Start Trunks
- Caller ID Trunks
- OPS Trunks
- DID Trunks
- E&M Tie Trunks
- ANI T1 Trunks
- DNIS T1 Trunks
- T1 Spans
- ISDN BRI Trunks
- ISDN PRI Trunks

Database Programming:

System Hardware (Class 01); Class 11 Line Class; Class 24 Caller ID/ANI Conversion Data; Class 25 DNIS Conversion Data.

Hardware:

Trunk cards.

Uniform Call Distribution (UCD)

Uniform Call Distribution allows telephone lines to be directed to a group (UCD Hunt Group) of phones according to the programming in *Classes 08.05 and 11.23*. If all phones are busy, the call will be placed on hold and the caller will hear a recorded message if your system is equipped with an IX-MSGU card. Calls to a UCD group search for an idle extension using either *Terminal Hunting* where incoming calls start hunting from the first telephone in the group, or *Distributed Hunting* where incoming calls start hunting from the telephone following the last called telephone according to the programming in *Class 04.38*. In both cases, calls will hunt to the next telephone if a telephone does not answer in a pre-defined period of time, is busy, or is in either the call forward, absence message or do not disturb mode. Using *Class 08.05*, two levels of message playback can be programmed. A caller on hold will hear UCD message 1 after the timer programmed in *Class 04.34* has expired. The second UCD message will be played to a caller on hold after the timer programmed in *Class 04.20* has expired. The ECS also allows you to send unanswered calls to an overflow destination or secondary answering position after a pre-defined period of time has elapsed. The overflow destination is programmed in *Class 11.72* and can be a hunt group, an extension, or an attendant position. The ECS can also be programmed to disconnect a UCD call after a duration programmed in *Class 04.20* has expired.

Conditions:

1. To operate this feature *Class 08.05 - UCD Hunt Group* and *Class 11.34 - DIL to Hunt Group* must be programmed.
2. The following types of calls are handled as UCD calls:
   - DID calls that initially ring at a UCD hunt group
   - DISA calls that ring at a UCD hunt group
   - Transferred calls to a UCD hunt group
   - Forwarded calls to a UCD hunt group
3. Calls from E&M tie lines and system extensions to a UCD hunt group are not handled as UCD calls.
4. Attendant intercept and delayed ringing cannot be programmed on a UCD line.
5. An IX-MSGU card must be installed for messages. An IX-CMSG-1 or IX-CMSG must be installed for custom message recording.
6. Delayed ringing does not operate on a UCD trunk.
7. The UCD feature is dormant when the system is in the night mode.

Database Programming:

04.34 - UCD Answer Time; 04.71 - Call Coverage/Voice Mail Data Element 02 UCD Back Tone; 04.71.05 - UCD Overflow Timer; 07.02 - Hunting Group Access Numbers; 08.02 - Hunt Group - Station; 08.05 - UCD Hunt Group; 11.23 - Uniform Call Distribution (UCD) Line; 11.34 - Direct In Line (DIL) to Hunt Group; 11.72 - UCD Overflow Calls.

Hardware:

IX-MSGU, IX-CMSG-1 for custom messages.

Universal Night Answer (UNA)

One or more CO lines can be designated as a Universal Night Answer line in *Class 11.27*. When the system is in the night mode any phone with a [UNA Pickup] key can pick up a call on a UNA line. Use *Class 11.28* to associate a loud ringer relay with UNA lines.

Operation:

To answer a call on a UNA line from a digital key telephone:

With ringing on UNA line press [FEAT] + [3][6] or [UNA Pickup]

To answer a call on a UNA line from an Omegatrek Portable Station:

With ringing on UNA line press [FEAT] + [FEAT] + [3][6] or [UNA Pickup]

Conditions:

1. This feature operates automatically when the system is in the night mode.
2. There is no limit to the amount of CO lines programmed as UNA lines.

Database Programming:

04.31 Night Mode Start Time; 11.27 UNA Line; 11.28 UNA Relay Number.

Hardware:

Standard.

Voice Mail/Automated Attendant Integration

The ECS has been designed to provide full integration with third-party voice mail and automated attendant machines. The ECS will allow you to transfer and forward calls to a mailbox and provide you with a unique voice mail message waiting indication. The software will also allow calls transferred from the automated attendant to be directed to messages other than the initial greeting if the desired party does not answer.

Operation:

To retrieve a voice mail message using the [Message] key:

1. When [Message] LED is flashing, go off-hook and press [Message] + [#]
2. The system will automatically call the voice mail system

To retrieve a voice mail message using the [MBOX] key:

1. When [MBOX] LED is flashing, go off-hook and press [MBOX]
2. The system will automatically call the voice mail system

To transfer a call to a voice mailbox:

While on a call press [TRAN] + *access code* + *extension number*

Conditions:

1. Ports used for the voice mail/auto attendant system must be assigned as AA/VM ports in System Hardware (Class 01).
2. Assign voice mail ports to a hunt group in *Class 08.02* for access to voice mail.
3. If incoming calls are routed directly to voice mail, or for automatic attendant applications, *Class 11.34* must be assigned for DIL to hunt group for the lines.
4. Enable *Class 10.44 - Protected Station* for the voice mail port.

Database Programming:

System Hardware (Class 01); 04.77 - Voice Mail/Auto Attendant Packet Codes; 07.02 - Hunting Group Access Numbers; Class 08 Group Data; 11.34 - Direct In Line (DIL) to Hunt Group.

Hardware:

SLT station card, third-party VM/AA system.

Voice Mailbox Access and Indication

The [MBOX-nnn] key adds more functionality than the [MSG] key. With the [MBOX-nnn] key, users access voicemail messages by pressing the [MBOX-nnn] key and entering their password. The [MBOX-nnn] key only represents messages in the user's voice mailbox. When there is no message indication, users can now access mailbox options by pressing the key and entering their password.

Key telephones may be programmed with multiple [MBOX-nnn] keys. This allows key telephones in common areas to have multiple users access voice mail. Each user can have a message indicator and easy access to their mailbox.

Class 35.01 is a new database class consisting of the [MBOX-nnn] translation table. A maximum of 1000 [MBOX-nnn] keys can be configured in Class 35. Class 04.70 is new element with the [MSG] key or [MBOX-nnn] key option. Setting Class 04.70 to [MBOX] enables the use of this key.

The following is an example of the use of multiple [MBOX-nnn] keys on a single key telephone.

Telephone #1, Extension 2010
MBOX
MBOX-000
MBOX-001
MBOX-002

Class 35.01	
Entry	Mailbox Number
001	2001
002	2002
003	2003
004	2004
To	To
998	2998
999	2999

- When a message is left in mailbox 2001, the [MBOX-001] key on Telephone #1 will illuminate.
- When a message is left in mailbox 2999, the [MBOX-999] key on Telephone #1 will illuminate.
- When a message is left in mailbox 2010, the [MBOX-000] key on Telephone #1 will illuminate.
- The following diagram illustrates the use of multiple [MBOX-nnn] keys on a two key telephones.
- When a message is left in mailbox 2001, the [MBOX-001] key on both Telephone #1 and Telephone #2 will illuminate.
- When a message is left in mailbox 2020, only the [MBOX-000] key on Telephone #2 will illuminate.

- When a message in mailbox 2001 is deleted using Telephone #1, the [MBOX-001] key on both Telephone #1 and Telephone #2 turn off.

Telephone #1, Extension 2010
MBOX
MBOX-000
MBOX-001
MBOX-002
Telephone #2, Extension 2020
MBOX-000
MBOX-001
MBOX-002

Class 35.01	
Entry	Mailbox Number
001	2001
002	2002
003	2003
004	2004
To	To
998	2998
999	2999

Operation:

To access the mailbox using the [MBOX-nnn] key

While the telephone is in an idle state:

- Press [MBOX-nnn].
- Enter the mailbox passcode.

Conditions

The following conditions apply when using the [MBOX-nnn] key.

1. When pressing [FEAT] [#] [9] then the [MBOX-nnn] key, the key will appear as [MBOX-nnn] key, where [MBOX] is the key and [nnn] is the mailbox number.
2. When the [MBOX-nnn] key is enabled in Class 04.70.04, the message lamp indication will appear on the [MBOX-nnn] key instead of the [MSG] key.
   - The Message Waiting feature will not operate if the [MBOX-nnn] key is set to enable.
   - If the [MBOX-nnn] key is disabled, message-waiting indication will appear on the [MSG] key.
   - This item affects voicemail message indication system wide.
3. The [MBOX-nnn] key can be assigned to key telephones, including ACD agents and the Omegatrek Portable Station (IX-PS6).

Note: [MBOX-nnn] keys are not supported on a DSS unit.

1. The range of serial numbers of the [MBOX-nnn] key is 000 through 999.
2. Serial numbers 001 through 999 correspond to Class 35 Item 01, Element 01.
   - Actual mailbox numbers are set in Class 35.01.
   - Serial number 000 signifies the extension's own mailbox.
3. When changing from a [MSG] key to a [MBOX-nnn] key or from a [MBOX-nnn] key to a [MSG] key, all lighted [MBOX-nnn] keys and [MSG] keys must be turned off in advance by clearing all messages from the mailbox.
4. For a mailbox message to illuminate the [MBOX-nnn] key, the mailbox number must correspond to an actual station extension number.
5. Extension users can access their mailbox using the [MBOX-nnn] key.
   - Pressing the key accesses Hunt Group 47, meaning only Hunt Group 47 can be used for voicemail ports.
6. The status of the [MBOX-nnn] key is saved during any system reset.
7. Both the station status and the voicemail status of each extension with [MBOX-000] key are indicated on the [DSS-nnn] key with the DSS console.

Database Programming:

04.70.04 Mailbox Indication; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 35.01 - MBOX Translation Table.

Hardware Required:

Standard

Chapter 2

Station Features

Absence Message Display

If a digital telephone is equipped with an [Absence Message] key, that station user can program an advisory message that will be sent to callers with display telephones. Four messages are available:

- Return at (time)
- Return on (date)
- Meeting at (time)
- Call (number)

Operation:

To register an absence message:

1. Obtain ICM dial tone
   - Press [SPKR] or pick up the handset from a digital key telephone
2. [Absence Message] + [1]+ time to display RETURN TIME message
3. [Absence Message] + [2]+ date to display RETURN DATE message
4. [Absence Message] + [3]+ time to display MEETING AT message
5. [Absence Message] + [4]+ telephone number to display CALL message

To cancel the absence message:

At ICM dial tone press [Absence Message] + [*]

Conditions:

1. The [Absence Message] key is required to activate this feature.
2. Absence message can only be seen at telephones equipped with a display.
3. A station with an active absence message cannot receive CO or ICM calls.
4. Call forwarding does not operate when this feature is activated.

Database Programming:

14.01 - Key Assignment.

Hardware Required:

KT with display to view absence message.

Account Code

An account code is used to identify information about the call. Account code length can be up to twelve digits. The programming in *Class 04.54* determines if the account code is included on the SMDR printout. An account code can be entered before the party answers, during a conversation, or after the outside party hangs up.

Operation:

After trunk information displays on the Key Telephone, the follow operation applies.

To enter an account code:

1. Press [FEAT] + [2][5] (or [Account Code]) + *account code*
2. When the called party answers, a confirmation tone sounds.

Conditions:

The account code can be a maximum of 12 digits.

Database Programming:

04.50 - SMDR - Output Port; 04.51 - SMDR - Minimum Call Duration; 04.52 - SMDR - Incoming Call Report; 04.53 - SMDR - Toll Only Report; 04.54 - SMDR - Account Code Only; 10.18 - SMDR Report; 11.29 - SMDR Report.

Hardware Required:

IX-SCIF, printer.

All Attendants Call

The All Attendant Call feature allows a station user to ring all the attendant positions by dialing a feature access code. The feature access code for all attendants call must be defined in *Class 07.06*. When this number is dialed from a telephone, up to thirty-two stations defined in *Class 04.55* as true attendant positions will ring.

Conditions:

Up to thirty-two true attendant positions can be defined in *Class 04.55*.

Database Programming:

System Hardware (Class 01); 04.55 - Port Definition - True Attendant Position; 07.06.30 - Feature Code Numbering (Attention All Call).

Hardware Required:

Standard.

All Ring Hunt Group Name Display on Intercom Call

When an intercom call is placed to an all ring hunt group, the ECS can be programmed to display the calling party extension number and the hunt group name on the display of an Iwatsu ICON telephone. The primary purpose of this enhancement is to provide additional detail about the caller's location when integrating the ECS with a nurse call system.

Note: This feature is not supported on outside line calls to an all ring hunt group.

Operation:

This feature is activated by an intercom call to an All Ring Hunt Group. This feature displays the extension number, station name (if programmed in Class 10.04) and the Hunt Group ID name programmed in (Class 08.03) on the display of the All Ring Hunt Group memberConditions:

Conditions:

1. Omegatrek, SIP, Single Line telephones do not support the All Ring Hunt Group Display Name feature.
2. Only Iwatsu key telephones and attendant stations programmed in an All Ring Hunt Group have access to this feature.
3. Only Iwatsu telephones and attendant stations with a two-line display can display the station name, station extension number, and group name. Iwatsu Platinum Series 12i/d telephones cannot display information on the second line of the display.
4. A name must be programmed for the All Ring Hunt Group for it to appear on the display.
5. Only internal calls to the All Ring Hunt Group result in the display of the group name on the display of the called stations.
6. The Attendant Console will display the Call FM, Station Name, Station Extension, and Hunt Group Name on one line.

Database:

- Hunt Group Access Number - Programmed in the ECS database under System > System Numbering > Park/Hunt/Page Numbering > Access No. (Class 07.02).
- Hunt Group Type. Programmed in the ECS database under System > Paging/Hunt Group > Hunt Grp Type (Class 08.01).
- Hunt Group Type = All.
- Station Hunt Group - Programmed in the ECS database under System > Paging/Hunt Group > Station Hunt Group (Class 08.02).

- All Ring Hunt Group Name - Programmed in the ECS database under System > Paging/Hunt Group > Hunt Grp ID (Class 08.03).
- Eight character name that can be displayed on the second line of the telephone display.
- Station Name - Programmed in the ECS database under Stations > Name (Class 10.04).

Hardware Required:

Only Iwatsu telephones and attendant stations with a two-line display can display the station name, station extension number, and group name. Iwatsu Platinum Series 12i/d telephones cannot display information on the second line of the display.

Alphanumeric Display

The LCDs on ECS digital telephones and attendant consoles will provide the following information:

- Absence Messages
- Account Code Input
- Calls in an ACD Group
- Call Duration Timer
- Callback CO/ICM
- Called Party Identification
- Called Party Status - BUSY/DND
- Calling Party Identification
- Camp-On
- Feature Options Menu (IX-12IPKTD-E2 and IX-12IPKTD-E)
- Forwarding Extension Numbers
- Message Waiting Identification
- Real Time Clock
- Recall CO/ICM
- Reminder
- Ringing Outside Line Identification

Database Programming:

None.

Hardware Required:

ECS KTs with displays.

Alternate Tone/Pulse Dialing (Dial Reverse)

Stations enabled for alternate tone/pulse dialing in *Class 10.26* can switch between dial pulse and DTMF signaling during a conversation. *Class 11.10* is used to program the *address signaling* speed of DTMF signals generated after the alternate tone/pulse dialing feature is activated. This feature allows you to use enhanced communications devices like voice mail and automated attendant on dial pulse trunks.

Operation:

To toggle between DTMF and dial pulse during a call:

Press [FEAT] + [1][3] (or [Dial Reverse])

Conditions:

1. The alternate tone/pulse dialing feature is only valid for CO lines which have been programmed as dial pulse in *Class 11.08*.
2. Stations must be enabled to use this feature in *Class 10.26*.

Database Programming:

10.23 - Toll Restriction Level and Class; 11.08 - Dial Type DP/DTMF; 11.10 - DTMF Dial (Altered) - Duration.

Hardware Required:

Dial Pulse Trunks.

Auto-Discovery Mode

Iwatsu Auto-Discovery Mode is a propriety network protocol developed by Iwatsu that allows the Iwatsu ICON Series IX-5930/IX-5910/IX-5900 IP Telephone to automatically identify itself on the local network and connect to the ECS system. Iwatsu Auto-Discovery is available when the IP telephone is in the factory default configuration. If the IP telephone has been previously configured, the IP telephone can be defaulted or can be configured using the Manual Quick Setup or the Manual Setup Advanced.

Operation:

Refer to the IP Station Installation section of this Technical Manual for Operation, Conditions, Database Programming, and required hardware for this feature.

Automatic Outside Line Answer/Hold

The automatic outside line answer/hold feature allows a station user to place the current call on hold and answer a second call by pressing a single key. When *Class 10.36* is enabled, a station user can activate this feature during a call by pressing the [HOLD], [Individual Park], or [COL n] button to answer a the following types of calls:

- Transferred Calls
- DIL CO Calls
- ICM Tone Calls
- ICM Voice Calls
- DID Calls
- E&M Calls

Note: A single-line telephone can access this feature by performing a hookswitch flash.

Operation:

To place one call on hold/park and answer a second call simultaneously:

On a call with a second call ringing press [HOLD], [Individual Park], or [COL n].

To return to the first call:

With the first call on hold/park disconnect the second call.

Conditions:

1. *Class 10.41* must be enabled for busy override.
2. *Class 10.43* must be enabled for off-hook signaling.

Database Programming:

04.08 - Hold Recall Timer; 10.36 - Answer Hold; 10.37 - Hold Recall; 10.41 - Busy Overriding; 10.43 - Off-Hook Signaling; 10.46 - Hookswitch Flash.

Hardware Required:

Standard.

Automatic Repeat Dialing

If a KT is equipped with a [Auto Repeat Dial] button the station user can press this button to continuously redial an outside party. When the outside party answers, a voice path is established through the speaker. In order to have a conversation, you must pick up the receiver. If you are away from your phone when the called party answers, the called party will hear silence and the ECS will recall later. *Class 04.47* is used to define the interval between occurrences of automatic repeat dialing. The programming in *Class 04.48* determines the length of time the system remains off-hook during an auto repeat dial call attempt. The programming in *Class 04.49* determines the number of automatic repeat dialing attempts the system will make.

Operation:

To perform auto repeat dialing:

1. While ringing tone is audible through the handset press [Auto Repeat Dial] to initialize.
2. Go off-hook during dialing to cancel.

Conditions:

1. The auto repeat dial duration timer programmed in *Class 04.47* has no effect if *Class 11.13 - Sender Time Out* is set to **0**.
2. If the station that activated auto repeat dialing goes off-hook before the time programmed in *Class 04.48* has elapsed, the feature is canceled.
3. When the number of auto repeat dialing attempts equals the number programmed in *Class 04.49*, this feature is canceled.

Database Programming:

04.47 - Automatic Repeat Dial - Duration; 04.48 - Auto Repeat Dial - Off Hook; 04.49 - Auto Repeat Dial - Repetition; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

Standard.

Backlight Duration Timer

The LCD Backlight Timer determines the length of time the Iwatsu ICON Series IX-5930, IX-5910, and IX-5810 LCD backlight will remain illuminated. By default, this timer is set to 30 seconds.

Operation:

To Change the LCD Backlight Duration through the Iwatsu Programmer:

- Go to Stations > ICON (Class 10.73.06).
- Select an LCD Backlight Duration of: 30 seconds (default), 1, 3, 5, 10, 20, 30, 60, 90, or 120 minutes.
- Upload your database change and Disconnect.



Conditions:

1. The Backlight Duration Timer applies to the Iwatsu ICON Series (IX-5930, IX-5910, and IX-5810) telephones only. The IX-5900 and IX-5800 do not have a backlight.

Database Programming:

Stations > ICON (Class 10.73.06)

Hardware Required:

IX-5810, IX-5910, IX-5930

Barge-In

A station enabled for barge-in in *Class 10.40* can join another station's call-in-progress by pressing the [ADD] key or by dialing a station number. A warning tone alerts the internal call parties that a conference has been established.

Operation:

To barge-in:

Obtain ICM dial tone

- Press [SPKR] or pick up the handset from a digital key telephone
- Press and hold [Send] from an Omegatrek Portable Station
- Dial an *extension number* and wait for busy tone
  or
  Press [ADD] or [DSS n]

Conditions:

1. Barge-in is not possible if sender time out has not elapsed.
2. Stations programmed as barge-in stations in *Class 10.40* may not interrupt calls by stations programmed as *protected stations* in *Class 10.44*.
3. In order to barge in by dialing a station number *Class 10.43 - Off-Hook Signaling* must be disabled.
4. A conference circuit is required in order to initiate Barge-In. The ECS IX-CCU card provides 32, 4-party conference circuits.

Database Programming:

10.40 - Barge-In Station; 10.43 - Off-Hook Signaling; 10.44 - Protected Station.

Hardware Required:

Standard.

Bluetooth

IX-58BTINF - The optional IX-58BTINF Bluetooth Interface module allows a Bluetooth headset to be used with the IX-5810 Digital Telephone. This is a Class 2 version 2.0 + EDR Bluetooth module that attaches to the IX-5810 circuit board and can be installed by your Iwatsu Authorized installer.

IX-59BTINF - The IX-59BTINF Bluetooth Interface module is an optional module available for the IX-5930 and IX-5910 IP Telephones. This is a Class 2 version 2.0 + EDR Bluetooth module. This optional module attaches to the IX-5930 or IX-5910 circuit board and can be installed by the Iwatsu Authorized installer.

Note:	**THE COMPATIBILITY AND PERFORMANCE OF ANY BLUETOOTH HEADSET NOT MANUFACTURED BY IWATSU IS "AS IS" AND IS NOT SUPPORTED, WARRANTED OR GUARANTEED BY IWATSU IN ANY MANNER, AND IWATSU HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

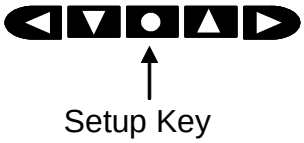
Bluetooth Pairing

Use the Bluetooth menu to Discover (pair), Connect, and Disconnect a Bluetooth headset.

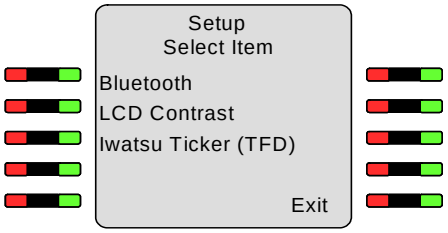
To Discover (Pair) a Bluetooth device

Note:	Follow the Bluetooth manufacturer's instructions to prepare your Bluetooth device for pairing. Your Bluetooth device must be in the pairing mode before beginning this procedure.

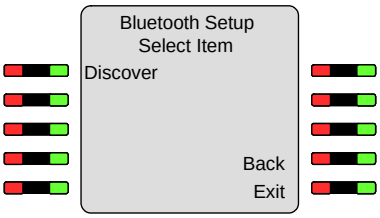
- Press the **Setup** Menu key on the ICON Series IP Key telephone.



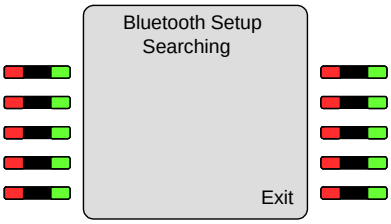
- Press **Bluetooth**.
  - If Bluetooth does not appear on your LCD, you do not have the optional IX-58BTINF/IX-59BTINF Bluetooth module installed in you telephone.



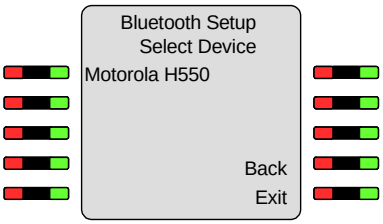
- Press **Discover.**



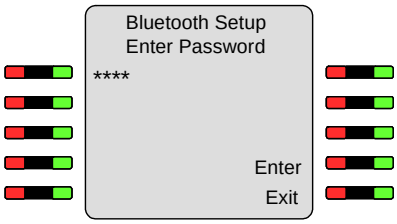
- During the discovery process, **Searching** will flash on your display.



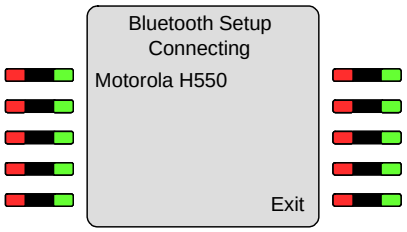
- When the discovery process is complete, available Bluetooth devices will appear on the display.
  - Select the key that corresponds to the name of the Bluetooth device your are pairing.
  - If **Unkown** appears on the display, it is possible that the Bluetooth Name Check Response Timer has timed out before the name was received. In most cases the Bluetooth device will pair successfully. You can choose to rediscover the Bluetooth device if the name does not appear on your display.



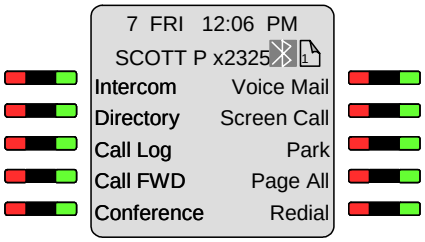
- Input the Bluetooth device's **Password** / passkey. (Example: 0000) and press **Enter**.



- If you have entered the correct password, **Connected** will appear on the display.



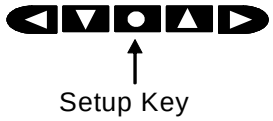
- Press **Exit** to return to the main screen. You will now see the Bluetooth icon on your display when your Bluetooth device is paired and connected.



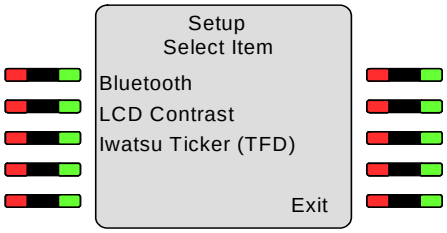
To Disconnect or Connect your Paired Bluetooth Device

Note: If the ECS system or your Iwatsu ICON IP telephone has been reset, you must re-connect your Bluetooth headset. Follow the directions below to re-connect your Bluetooth headset to the telephone.

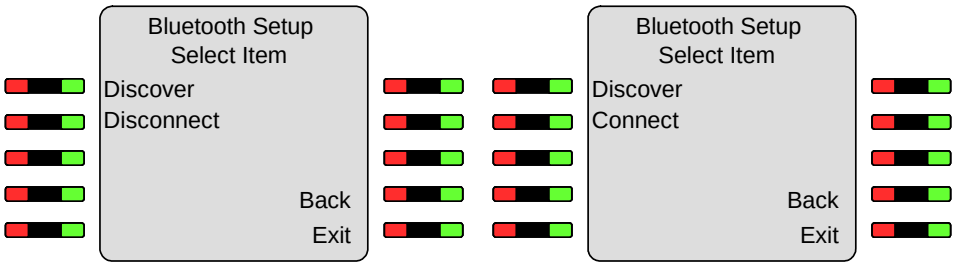
- Press the **Setup** Menu key.



- Press **Bluetooth.**



- Select **Disconnect** or **Connect**.



- Press **Exit**.

Conditions:

1. **Headset Control Key**: For convenience and visibility, Iwatsu recommends placing a Headset Control Key in the key pattern of all telephones with a Bluetooth Interface Module.
2. Only one Bluetooth device can be paired to the telephone. If another Bluetooth device is paired to the same telephone, the previous pairing information is overwritten.

Database Programming:

Class 41 - Bluetooth Control Data.

Hardware Required:

Iwatsu ICON Series IX-5810, IX-5910, or IX-5930 Key Telephone, IX-58BTINF/IX-59BTINF Bluetooth Interface Module, Bluetooth Headset.

Built-In Speakerphone

Many ECS digital telephones include a built-in speakerphone. Use of the speakerphone allows for complete hands-free operation on external calls.

Operation:

To perform hands-free operation:

Press [SPKR]

Conditions:

1. The IX-12KTD-2, IX-12KTD/S-3, IX-12IPKTD-E2, IX-12IPKTD-E, and Platinum Series telephones include a built in speakerphone.
2. An IX-SSPU speakerphone is required.
3. Simplex voice switching is used. Switching quality depends on the CO line condition and the acoustic conditions of the KT's location. On-site adjustment may be required.

Database Programming:

None.

Hardware Required:

Standard.

Busy Bypass Calling

Busy Bypass Tone Calling If a station is enabled for off-hook signaling in *Class 10.43*, that station user will receive a call waiting indication tone when they receive a second call while off-hook or with the speaker on. Busy bypass tone calling is not available for recalls, doorphone calls, data modules, or SLT ports programmed as facsimile, voice mail, or automated attendant ports in System Hardware (Class 01). Busy bypass tone calling must be disabled in order to use the barge-in by dialing a station number or station monitoring features. This feature is available to stations with or without a busy bypass unit (IX-BPAD).

Busy Bypass Voice Calling Stations that are equipped with an IX-BPAD can receive voice announcements when they are off-hook or have the speaker on. The IX-BPAD allows the station user to respond through the microphone without placing the current call on hold. The station must be enabled for off-hook signaling in *Class 10.43* to use this feature.

Operation:

To answer the waiting call:

Press the button indicating the waiting call (first call is disconnected)
or
Press [Individual Park] then press the button indicating the waiting call

Conditions:

1. An IX-BPCU internal busy bypass unit is required for IX-12KTD-3 Key Telephones
2. X-BPAD busy bypass unit is required for busy bypass voice calling on the IX-12KTD-2.
3. The IX-BPCU or IX-BPAD requires one station port.
4. The Busy Bypass feature is not supported on the IX-12IPKTD or IX-12IPKTD-E IP Telephones.

Database Programming:

10.43 - Off-Hook Signaling.

Hardware Required:

ECS KT (IX-BPAD for busy bypass voice calling).

Busy Number Callback

A station user can instruct the ECS to redial a previously dialed outside number that was busy or had no answer at an interval equal to the programming in *Class 04.10*. The callback interval can be changed from the station set. This feature is available from ECS station sets by either pressing [FEAT] + [2][4] or by pressing a [Timed Trunk Queue] key.

Operation:

To program the KT for busy number callback:

When an outside number is busy or there is no answer:

- While still off hook press [FEAT] + [2][4] or [Timed Trunk Queue]
- Enter the desired callback interval in minutes (1-9)
- Wait for the confirmation tone before hanging up

To cancel busy number callback:

At ICM dial tone press [FEAT] + [0][2][4]
or
[Timed Trunk Queue] + [*]

Conditions:

1. If the station does not specify the callback interval time during feature operation the callback interval is equal to the programming in *Class 04.10*.
2. If more than one station is using this feature on the same CO/PBX line, the station with the higher queuing class programmed in *Class 10.19* has priority.
3. Busy number callback cannot be used with any other queuing feature.

Database Programming:

04.09 - Call Back Duration; 04.10 - Timed Trunk Queuing; 07.06 - Feature Access Numbers; 10.19 - Queuing Class.

Hardware Required:

Standard.

Busy Overriding

According to database programming, a station may alert a station that is busy or in DND mode by either dialing the busy extension number or pressing the [Over Ride] key upon hearing a busy tone. When busy override occurs, the busy station LCD displays the calling party's ID and periodic tone bursts are audible through the speaker. Programming in the following items affects busy overriding at both the system and station levels:

- *Class 04.25.08/09* are used to select the type of calls - CO calls in progress, ICM calls in progress, or both - for which the system allows busy bypass calling.
- *Class 10.43* is used to enable or disable off-hook signaling.
- *Class 10.41* is used to enable or disable busy overriding at a station.
- An [Over Ride] key is assigned in *Classes 14.01 and 15.01*.
- Busy overriding is denied if a station is programmed as protected in *Class 10.44*.

The table below illustrates the relationships between the items used to program busy overriding:

If the system is programmed for:		And the called station is programmed for:	Then, busy bypass tone calling will operate based on the following programming for the calling station:		
04.2508	04.25.09	10.43 Off-Hook Signaling	10.41 Busy Overriding set to 0-Denied.	10.41 Busy Overriding set to 1-Allowed.	14.01/15.01 [Over Ride] key assigned.
Denied	Denied	Allowed to receive	No bypass signal - Busy status indication	Busy Bypass signaling will be sent regardless of other programmed items.	Busy Bypass signaling will be sent regardless of other programmed items.
Denied	Denied	Denied receiving	No bypass signal - Busy status indication		
Allowed	Denied	Allowed to receive	Busy bypass signaling on ICM call only		
Allowed	Denied	Denied receiving	No bypass signal - Busy status indication		
Denied	Allowed	Allowed to receive	Busy bypass signaling on CO calls only		
Denied	Allowed	Denied receiving	No bypass signal - Busy status indication		
Allowed	Allowed	Allowed to receive	Busy bypass signaling on ICM and CO calls.		
Allowed	Allowed	Denied receiving	No bypass signal - Busy status indication		

Operation:

To override a station busy signal:

When you dial a busy extension:

- Press [Over Ride]
- Wait for the station user to answer

Conditions:

Busy override cannot be used to signal stations programmed as protected in *Class 10.44*.

Database Programming:

04.25.08 - Call Override on ICM, 04.25.09 - Call Override on CO, 10.49 - Meet-Me Answer Group; 10.43 - Off-Hook Signaling; 10.45 - Message Key; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

Standard.

Busy Trunk Queuing

When all CO/PBX lines are busy, stations can wait in queue for the next available line by either pressing [FEAT] + [2][3] or by pressing a [Trunk Queuing] key. When a line becomes available the station set will ring. If a number was previously dialed ringing tone is heard when the handset is lifted. If a number was not dialed, CO dial tone is heard.

Off-Hook Trunk Queuing When all CO/PBX lines are busy, stations that are enabled for off-hook trunk queuing in *Class 10.20* can wait for the next available line by remaining off hook. This feature is only used when one or more outside lines belong to a CO group.

Operation:

To program the KT for busy trunk queuing:

When all outside lines are busy:

- While still off hook press [FEAT] + [2][3] or [Trunk Queuing]
- After the confirmation tone enter the number you wish to dial
- Hang up

To cancel busy trunk queuing:

At ICM dial tone press [FEAT] + [0][2][3]
or
[Trunk Queuing] + [*]

Conditions:

1. The length of time a station can remain in the trunk queue is equal to the programming in *Class 04.11*.
2. A station must be enabled in *Class 10.20* to use this feature.
3. If multiple stations are waiting in queue for the same CO/PBX line, the station with the higher queuing class programmed in *Class 10.19* has priority.
4. Busy trunk queuing cannot be used with any other queuing feature.

Database Programming:

04.09 - Call Back Duration; 04.11 - Off-Hook Trunk Queuing Duration; 10.19 - Queuing Class; 10.20 - Off-Hook Trunk Queuing.

Hardware Required:

Standard.

Call Coverage

If a station is assigned a call coverage key in *Class 14.01 or 15.01*, that station will receive an audible and/or visual indication of a call ringing at another extension. The visual indication provided by the call coverage button is immediate. A slow-flashing green LED indicates an intercom call. A fast-flashing green LED indicates an outside line call. A steady-lit red LED indicates the covered station is off hook. A fast-flashing red LED indicates the covered station is in DND mode. There are three types of call coverage buttons each of which affects the audible indication:

- Immediate Call Coverage Button [Immed. n] - Audible indication is immediate at the covering station.
- Delayed Call Coverage Button [Delayed n] - Audible indication at the covering station is delayed between 1 and 255 seconds according to the programming in *Class 04.71.01*.
- No Ring Call Coverage Button [No ring n] - When a call rings at the covered station the covering station receives a visual indication only.

Note: The ringing status of a call coverage button can be changed at the station.

When the extension monitored by a call coverage button is not in the ringing state, the button functions as a DSS/BLF button.

Note: The Omegatrek Portable Station (IX-PS6) is able to support a call coverage key. However because the operation differs significantly, the feature is described in Section 3, Chapter 8 – Omegatrek.

Operation:

To answer a call using a call coverage button:

When a call coverage button indicates a call:

- Press the flashing Call Coverage key

To change the audible indication of call coverage button:

Do not go off hook, press:

- [FEAT] + *Call Coverage* key + [1] for immediate ringing mode
- [FEAT] + *Call Coverage* key + [2] for delayed ringing mode
- [FEAT] + *Call Coverage* key + [3] for no ring mode

Conditions:

1. When a new call coverage key is assigned, a system reset is required to effect key operation.
2. There is not a day mode/night mode setting for call coverage.
3. The following types of calls are not subject to call coverage:
   - Transferred calls from a covering station to a covered station
   - ICM voice call
   - Consultation hold recall
   - Paging call
   - Doorphone call
   - Time reminder
   - Wake-up call
   - ICM or CO callback
   - ICM call to an IX-BPAD
   - Data call
   - All attendant call
   - A call to a covered station in DND mode
4. A dual-color LED is required to provide visual indication on a Call Coverage button.
5. The Call Coverage feature is not functional with Versa-Phones.
6. Call Coverage is not supported for ACD calls.
7. A maximum of 64 Call Coverage keys referencing a specific station may be programmed in the system.
8. There is a maximum of 2048 Call Coverage keys per ECS.

Database Programming:

04.70.02 - Call Coverage Camp-On Indication; 04.71.01 - Call Coverage Delay Time; 10.70 - Call Coverage; 11.70.01 - Call Coverage Trunk;14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

KT with dual-colored LEDs.

Call Divert

A station user can divert an incoming ringing call by pressing the **MBOX** key to activate the Call Forward No Answer process. The Fixed Call Forwarding Destination must be programmed in the ECS database under **Stations > Call Forward** (Class 10.78).

Operation:

While a call is ringing at your station and your station is idle, off hook, or on a call, press your MBOX key and the call is immediately sent to your Call Forward No Answer Destination.

Conditions:

1. An MBOX key must be programmed on the station to use Call Divert.
2. A Fixed Call Forwarding Destination must be programmed under Stations > Call Forward (Class 10.78). If not Fixed Call Forwarding Destination is programmed, the call will continue to ring after the MBOX key is pressed.
3. Incoming calls that ring at multiple stations will divert if one of the ringing stations presses their MBOX key.
4. The incoming call must be a Tone call.
5. The following calls can not be diverted:
6. Ringing calls to members of Hunt groups and members of Delayed ringing programmed under Incoming Calls > Delayed Ringing Stations (Class 11.33).
7. Incoming ACD calls.
8. Stations in DND (Do Not Disturb).
9. Voice Announce calls.
10. Call Coverage calls.

Database Programming:

- An MBOX key must be programmed on the station to use Call Divert.
- A Fixed Call Forwarding Destination must be programmed under Stations > Call Forward (Class 10.78). If not Fixed Call Forwarding Destination is programmed, the call will continue to ring after the MBOX key is pressed.

Hardware Required:

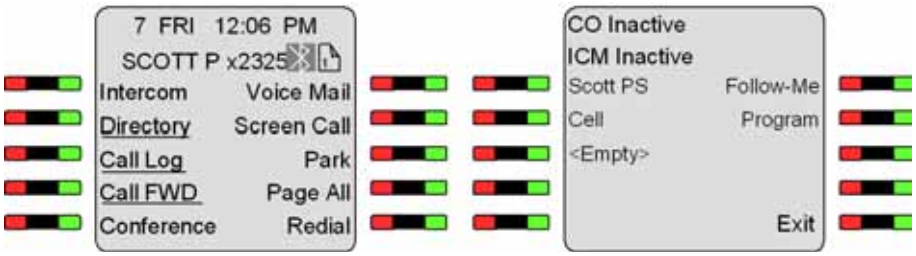
NA

Call Forwarding - Enhanced

Enhanced Call Forwarding on Iwatsu ICON Series IX-5810, IX-5910, and IX-5930 telephones allows you to program up to three forwarding destinations. An external telephone number can be entered as one of the forwarding destinations. The third forwarding entry is also used for Follow-Me Forward and CTI (Computer Telephony Integration) applications such as, Enterprise TOL.

Note:	Profiles are preserved after a system reset, but will be lost if the ECS system is defaulted.

Access to this feature requires a forward key (key data = 038) programmed on the telephone.



IX-5810, IX-5910, IX-5930 Programming

Program a Forward Destination

From the Self-Labeling Display Menu:

- Press the Call FWD menu key on your display.
- Press Program.
- Select an item to program. You can select an <EMPTY> entry or overwrite an existing entry.
- Enter the Call Type you wish to forward.
- CO & ICM (Outside/Intercom).
- CO Only (Outside).
- ICM Only (Intercom).
- CO and ICM calls can be forwarded to different numbers.
- Enter the Forward Mode
- Immediate
- Busy/No Answer
- No Answer
- External
- Press Enter.

For Immediate, Busy/No Answer, No Answer:

- Enter the Extension number where you want your calls forwarded and press the key that corresponds to the number you just entered.
- Using the dial pad, enter the Label (name) you want to associate with this entry and press Enter to continue.

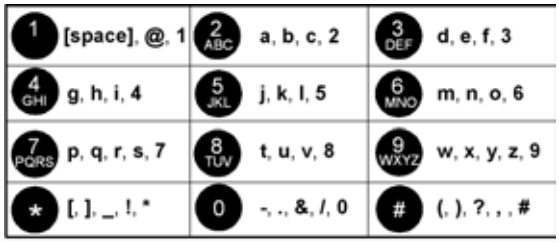
For External:

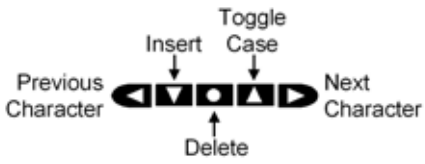
Select the External Destination Type - Personal Speed Dial Bin or External Number:

- Personal Speed Dial Bin - If you have personal speed dial numbers programmed, you can select one of those entries.
- External Number - Enter external number where you want your calls forwarded and press the corresponding menu key.

Note: The external number is stored in Personal Speed Dial Bin 99

- Enter a label for the number you just entered and press Enter to continue.
- Use the dial pad and the navigation keys to enter the new name for that key.
- Press Enter to save your changes or Cancel to exit without saving.





- After programming Call Forwarding, you must activate the programmed destination.

Activate a Forward Destination

From the Self-Labeling Display Menu:

- Press the Call FWD key on your display.
- Select the key that corresponds to a pre-programmed forwarding destination.
- The selected forward destination will flash when activated and a red LED will appear on the Call FWD key.
- Press Exit to return to the main menu.

Forward Status / Inactivate

To check the Forward status of your phone or to cancel station forwarding:

- Press the Call FWD key. The active selection will be flashing and your status will appear on the top two lines of the display.
- Press the corresponding key to inactivate call forwarding.
- Press the Exit to end the operation.

Call Forward - Follow-Me

Set Follow Me (From the destination extension):

- Press the Call FWD key.
- Select the Follow-Me key.
- Enter the number for the extension you are forwarding from.
- Press Enter and then press Exit to end the operation.

Cancel Follow-Me (From the forwarded station)

- Press Call FWD.
- Select the flashing (active) entry.
- Press Exit to end the operation.

Hardware Required:

IX-5810, IX-5910, IX-5930

Call Forwarding - Fixed Call Forwarding

The system database contains items that allow you to define a fixed call forward destination for each station. Use *Class 10.78* to program the fixed call forward destination. Once fixed call forwarding is set, it can only be disabled by deleting the destination programmed in *Class 10.78*. This feature operates in conjunction with the fixed call forward mode programmed in *Class 10.73*. Fixed call forwarding modes are assigned on the station level as follows:

- Forward all calls.
- Forward when the station is busy or there is no answer.
- Forward only if there is no answer.

Call forwarding activated using the [FORWARD] key overrides fixed call forwarding programming.

Conditions:

1. Fixed call forwarding does not activate the lamp on the [FORWARD] button.
2. To program this feature **All Call** must be entered in *Class 10.73*, and a destination station must be programmed in *Class 10.78*.
3. Fixed Call Forward must be initialized by manually activating and deactivating the [FORWARD] key at the station level after initial system start-up or following the system default procedure. If initialization is not performed, the fixed call forward feature will not operate.
4. The value in *Class 04.13* determines how long a call will ring before being forwarded to the fixed call forward destination.
5. The Fixed Call Forward destination can be another station or a hunt group.
6. If fixed call forwarding is assigned the station cannot activate the most recent Call Forwarding destination by pressing [FORWARD].
7. Fixed call forwarding does not affect ringing at stations in a hunt group. However, if all call forwarding is activated manually at a station in a hunt group that station is removed from the hunting sequence.
8. The timer in *Class 04.16* is functional in voice mode only. If the tone mode is selected, the clock never times out. To switch from tone mode to voice mode, press [#] after going off hook.

Database Programming:

04.13 - Call Forward - No Answer; 10.73 - Call Forwarding Modes; 10.78 - Fixed Call Forward Destination.

Hardware Required:

Standard.

Call Forwarding - Flexible Call Forward (Internal/ External)

The Flexible Call Forward feature allows the user to forward calls to an internal destination or external line (using Personal Speed Dial numbers 90-99). The user can set separate call forward destinations for ICM Incoming and CO Incoming calls. For instance, you could set all intercom calls to go to your cell phone and all CO calls to be forwarded to your voice mail or vice versa.

The Flexible Call Forward feature incorporates Follow Me capabilities. The Follow Me feature lets you receive your calls internally at any station you choose. This allows you to forward your calls as you move around the office. Instead of having to set your forward destination from your extension each time you move to another area of the building, you can set the forward destination from the station at which you will be working. For example, if you usually work at extension A but are going to be working at extension B, you would set extension B as the forward destination. If at some point you need to receive your calls at extension C, you would go to extension C and set that extension as Follow Me destination for extension A.

In addition, Flexible Call Forward Active/Inactive status and Call Forward destination can be changed through a DISA line.

With this feature, **all transferred calls are considered Intercom calls**. If Flexible Call Forward is Inactive, Fixed Call Forward settings are used (*Class 10.78*).

When an incoming call is forwarded externally, the system will refer to the class of service of the station that set External Call Forward. When the incoming CO call is forwarded to the external line, if the IX-4ETRAN is available in the system, the IX-4ETRAN will be used for this connection. If the IX-4ETRAN is not available, low audio levels may occur.

The IX-4ETRAN is also needed if trunk lines used for forwarding a call externally does not have disconnect supervision enabled. External Flexible Call Forward is available only when the incoming call arrives at the station that actually set External Flexible Call Forward. Therefore, when External Flexible Call Forward is set, the cascading of Call Forward is not available. For example: Cascade Call Forward is set as A → B → C → External Flexible Call Forward. If an incoming call comes to C directly, the call is forwarded to an external line, but if incoming call comes to A or B, the incoming call will cascade to C but not forward externally. From the caller's perspective, the call forwarding process is seamless.

Note:	Please refer to the [Hold/Quick Forward] key for additional information on forwarding a phone.

Flexible Call Forward Call Types:

A Call Type specifies which incoming calls (Intercom, CO, or Both) go to which destinations.

Type 1 - Both (CO/Intercom Incoming)
All incoming calls are forwarded based on the Mode (see Flexible Call Forward Modes below) and destination specified.

Type 2 - CO Incoming
Only incoming CO calls are forwarded based on the Mode (see Flexible Call Forward Modes below) and destination specified.

Type 3 - Intercom Incoming
Only incoming intercom calls and transferred calls are forwarded based on the Mode (see Flexible Call Forward Modes below) and destination specified.

After choosing a Call Type, you can narrow down under what conditions a call is forwarded by selecting a Mode for the Call Type.

When a valid destination is set, the LED pattern of the Call Forward key on the telephone displays as follows:

- Call Type1 = ON
- Call Type2 = Fast Flash
- Call Type3 = Slow Flash

Flexible Call Forward Modes:

After setting the Call Type (as described above) you must select a Forward Mode. A Forward Mode can be set for each call Type.

Mode 1 - Forward All Calls
Send all calls of a certain Call Type to another extension or hunt group where you can answer them, or send calls to a number where they can be answered automatically (such as a hunt group, voice mail or a receptionist).

Mode 2 - Forward Busy/No Answer Calls
Send calls of a certain Call Type to another extension when the original destination is busy or unable to answer the call within a specified time period. If you are in the middle of an important conversation, calls can be forwarded to another location where they can be answered (such as a hunt group, another extension, voice mail, or a receptionist).

Mode 3 - Forward No Answer Calls
Send calls of a certain Call Type to another extension only when the extension does not answer the incoming call within a specified time period.

Mode 4 - External Forward for All Calls
Send all calls of a certain Call Type to an external line (such as a home phone, a pager, or other external location) using a Personal Speed Dial Number (*90-99*).

Flexible Call Forward Display

1. The display below shows Both ICM and CO calls are forwarded to another extension.

   CO to EXT2205 A
   ICM to EXT2205 A

2. The display below shows ICM calls are forwarded to an external number, and all CO calls are forwarded to another extension.

   CO to EXT2205 A
   ICM to SSPD90 A

Operation:

Set Forward Destination from a KT or Attendant station

1. Lift the receiver (handset) or press [SPKR]
2. Press [FWD].
3. Enter the Call Type you wish to forward
   - 1 = All calls (CO/Intercom)
   - 2 = CO calls only
   - 3 = Intercom calls only
4. Enter the Flexible Call Forward Mode
   - 1 = All calls to another extension or hunt group
   - 2 = Busy/No Answer calls to another extension or hunt group
   - 3 = No Answer calls to another extension or hunt group
   - 4 = All calls forward to an external number (using Personal Speed Dial Codes 90-99)
5. Do one of the following
   - If you chose Mode 1, 2, or 3, enter the extension or hunt group number
   - If you chose Mode 4, enter the Personal Speed Dial Code (90-99)

Note: When the setting is valid, a confirmation tone is sent. When it is invalid, a warning tone is sent.

Forward Cancel From a KT or Attendant station

1. Lift the receiver (handset) or press [SPKR]
2. Press [FWD]
3. Press [*]
4. Enter the Call Type number you wish to cancel
   - 1 = Cancel Forwarding of All calls (CO/Intercom)
   - 2 = Cancel Forwarding of CO calls only
   - 3 = Cancel Forwarding of Intercom calls only

Set Active/Inactive from a KT or Attendant station

1. Press [FWD]
2. Enter the Call Type you wish to forward
   - 1 = All calls (CO/Intercom)
   - 2 = CO calls only
   - 3 = Intercom calls only

Set Follow Me Destination From a KT or Attendant Station

1. Lift the receiver (handset) or press [SPKR]
2. Press [FWD] + [FWD]
3. Enter the Call Type you wish to forward
   - 1 = All calls (CO/Intercom)
   - 2 = CO calls only
   - 3 = Intercom calls only
4. Enter the extension number of the originating forwarding station.

Set Forward Destination from a Single Line Telephone

1. Lift the receiver (handset)
2. Enter the Call Forward Activation Code (*Class 07.06.22*)
3. Enter the Call Type you wish to forward
   - 1 = All calls (CO/Intercom)
   - 2 = CO calls only
   - 3 = Intercom calls only
4. Enter the Flexible Call Forward Mode
   - 1 = All calls to another extension or hunt group
   - 2 = Busy/No Answer calls to another extension or hunt group
   - 3 = No Answer calls to another extension or hunt group
   - 4 = All calls forward to an external number (using Personal Speed Dial Codes 90-99)
5. Do one of the following
   - If you chose Mode 1, 2, or 3, enter the extension or hunt group number
   - If you chose Mode 4, enter the Personal Speed Dial Code (90-99)

Forward Cancel From a Single Line Telephone

1. Lift the receiver (handset)
2. Enter the Call Forward Cancel Code (*Class 07.06.01+07.06.22*)
3. Enter the Call Type number you wish to cancel
   - 1 = Cancel Forwarding of All calls (CO/Intercom)
   - 2 = Cancel Forwarding of CO calls only
   - 3 = Cancel Forwarding of Intercom calls only

Set Follow Me Destination from a Single Line Telephone

1. Lift the receiver (handset)
2. Enter the Call Forward Destination (*Class 07.06.20*)
3. Enter the Call Type you wish to forward.
   - 1 = All calls (CO/Intercom)
   - 2 = CO calls only
   - 3 = Intercom calls only
4. Enter the extension number of the originating forwarding station

Set Forward Destination From a DISA Line

1. Dial the DISA line number
2. Press [*]
3. Dial the extension you wish to forward
4. Enter the Station Password (set in *Class 10.05*)
5. Enter the Call Forward Activation Code (*Class 07.06<NUM22>*)
6. Enter the Call Type you wish to forward
   - 1 = All calls (CO/Intercom)
   - 2 = CO calls only
   - 3 = Intercom calls only
7. Enter the Flexible Call Forward Mode
   - 1 = All calls to another extension or hunt group
   - 2 = Busy/No Answer calls to another extension or hunt group
   - 3 = No Answer calls to another extension or hunt group
   - 4 = All calls forward to an external number (using Personal Speed Dial Codes 90-99)
8. Do one of the following
   - If you chose Mode 1, 2, or 3, enter the extension or hunt group number
   - If you chose Mode 4, enter the Personal Speed Dial Code (90-99)

Forward Cancel from a DISA Line

1. Dial the DISA line number
2. Press [*]
3. Enter the extension number for which you want to cancel call forward
4. Enter the Station Password (set in *Class 10.05*)
5. Enter the Call Forward Code (*Class 07.06.01+07.06.22*).
6. Enter the Call Type number you wish to cancel.
   - 1 = Cancel Forwarding of All calls (CO/Intercom)
   - 2 = Cancel Forwarding of CO calls only
   - 3 = Cancel Forwarding of Intercom calls only

Set Active/Inactive From a DISA Line

1. Dial the DISA line number
2. Press [*]
3. Dial the extension you wish to forward
4. Enter the Station Password (set in *Class 10.05*)
5. Enter the Call Forward Activation Code (*Class 07.06.01+07.06.22*)
6. Enter the Call Type number you wish to cancel
   - 1 = Cancel Forwarding of All calls (CO/Intercom)
   - 2 = Cancel Forwarding of CO calls only
   - 3 = Cancel Forwarding of Intercom calls only

Conditions:

1. The Forward Destination and the Forward Mode can be set for each Call Type (Intercom Incoming or CO Incoming).
2. When a Personal Speed Dial Number (*90-99*) is specified as the destination, the following limitations exist:
   - The Forward Mode is ALL only.
   - The cascade call forward is invalid. For example, when EXT#201sets Call Forward to EXT#202, and EXT#202 sets Call Forward to a Personal Speed Dial Number, the cascade call forward is invalid. In this case, EXT#201 is called.
   - In the case of Direct In Line, Call Forward to a Personal Speed Dial Number is valid when only one station is set as the Direct In Line ringing station.
3. The Call Types are defined below. As to the relationship of Type1, Type2 and Type 3, the most recent Type setting overrides the previous Type setting.
   - Type 1 = Both (CO/Intercom Incoming)
   - Type2 = CO Incoming
   - Type3 = Intercom Incoming
4. The Forward Mode is defined as follows:
   - Mode 1 = to extension or hunt group for All calls
   - Mode 2 = to extension or hunt group for Busy/No Answer calls
   - Mode 3 = to extension or hunt group for No Answer calls
   - Mode 4 = to Personal Speed Dial number for All calls

Note: When a valid setting is found in the Destination at the time of Mode change, Active is automatically established.

5. The LED pattern of the Call Forward Key at Active state is as follows:
   - Call Type1 = On
   - Call Type2 = Fast Flash
   - Call Type3 = Slow Flash
6. If Fixed Call Forward has been set and a Flexible Call Forward setting is canceled, Fixed Call Forward becomes valid.
7. If Fixed Call Forward has been set and a Call Type is set to Inactive, Fixed Call Forward will be applied to the Inactive Call Type.

8. With this feature, **all transferred calls are considered Intercom calls**.
9. If Flexible Call Forward is Inactive, Fixed Call Forward settings are used (*Class 10.78*).
10. When an incoming call is forwarded externally, the system will refer to the class of service of the station that set External Call Forward. When the incoming CO call is forwarded to the external line, if the IX-4ETRAN is available in the system, the IX-4ETRAN will be used for this connection. If the IX-4ETRAN is not available, only the conference circuits will be used.
11. All camp-on calls are treated as intercom calls with this feature.
12. This feature is not available in Hotel Mode.

Database Programming

07.06 - Feature Access Numbers; 10.32 - Optimized Routing Call; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; Class 17 Optimized Routing.

Hardware Required:

IX-RCVPM with IX-4RCVC, or IX-RMPU required for DISA access of the Flexible Call Forward feature. IX-4ETRAN is recommended when using the Flexible Call Forward feature to forward calls to an external location because of audio levels and disconnect supervision.

Call Forwarding

A user at a station enabled for call forwarding in *Class 10.16* can choose one of the three forwarding modes listed below from the KT.

All Calls Automatically forward all calls to another extension.

Busy/No Answer Forward all calls when the extension is busy or does not answer.

No Answer Forward calls only when the extension does not answer within a certain time period.

When a call forwarding mode is selected the call will go to the forwarding destination programmed in *Class 10.78*. However, you can change the fixed call forwarding destination from the KT using the *follow me* feature. Using *Class 10.73, Element 2* you can program a default forwarding mode.

Operation:

To manually forward an ECS KT:

1. Press [FEAT] and do one of the following:

To:	Press:
Forward all calls	[Forward] + [#][#][1]
Forward busy/no answer calls only	[Forward] + [#][#][2]
Forward no answer calls only	[Forward] + [#][#][3]
Change the forwarding destination	[Forward] + *extension number*

2. Wait for the confirmation tone then press [FEAT]

To cancel call forwarding:

1. Press [FEAT] + [Forward] + [*]
2. Wait for the confirmation tone then press [FEAT]

To activate the most recent call forwarding:

While on hook press [Forward]

Conditions:

1. Up to 10 forwarding steps are permitted for busy and busy/no answer modes. Unlimited forwarding steps are permitted for no answer mode. However, a call cannot be forwarded back to the original station.
2. The attendant can cancel the forwarding status of any station.
3. ICM voice calls are forwarded in the following manner:

Mode		Forwarding an ICM Call
No Answer	Busy	N
	Idle	N
Busy/No Answer	Busy	Y
	Idle	N

4. If fixed call forwarding is assigned the station cannot activate the most recent call forwarding destination by pressing [Forward].
5. If all call forwarding is activated manually at a station in a hunt group, that station is not part of the hunting sequence.
6. Calls on Networked systems with analog E&M tie lines do not forward.

Database Programming:

04.13 - Call Forward - No Answer; 10.73 - Call Forwarding Modes; 10.78 - Fixed Call Forward Destination.

Hardware Required:

Standard.

Call Hand-Off - Mobility Key

The Call Hand-Off feature allows the seamless transfer of an ongoing phone call at your desk to another device (e.g., cell phone, another station, etc.) without interruption. The Call Hand-Off feature requires Enterprise TOL software version 8.0 with the version 8.0 UC Client Manager and Iwatsu Enterprise-CS software version 8.0 with a valid ECS version 8.0 license (PN: 000347). A TOL UC Client license is required for each telephone with a Mobility key programmed in the key pattern.

Operating Conditions

1. Hand-Off destinations are based on the location settings defined in the UC Client Manager. No limit to the number of destinations.
2. The Mobility key displays the locations that are programmed in UC Client Manager on ICON Mobility key menu.
3. Location with an active call is not displayed.
4. The Mobility key Call Hand-Off feature is available from an Iwatsu ICON Series (IX-5810, IX-5910, and IX-5930) telephone that has a Mobility key programmed on the key pattern of the telephone.

Mobility Key (Key Pattern) Programming

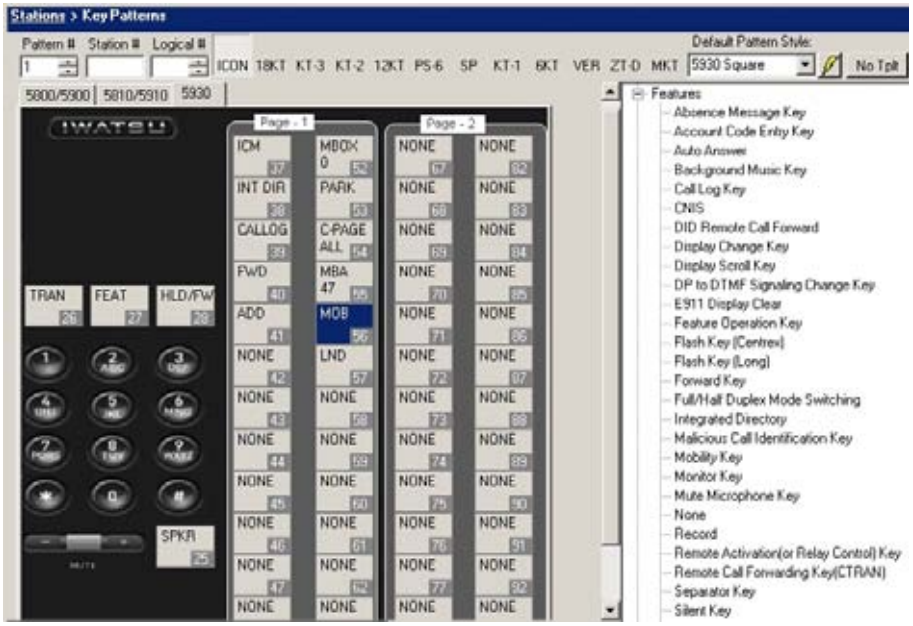
The Mobility key must be programmed in the key pattern of your Iwatsu ICON Series (IX-5810, IX-5910, or IX-5930) telephone. The Mobility key can be added to the key pattern using the Iwatsu Programmer or the ICON Series telephone's User Options menu.

Iwatsu Programmer

Add the Mobility key to an IX-5810, IX-5910, or IX-5930 station from the Iwatsu Programmer in the Category Mode:

1. Go to Stations > Key Patterns and select Features from the menu display on the right side of the display.
2. Drag and drop the Mobility key to a key location in the station key pattern.

- The key will appear as MOB.



ICON Series Telephone Programming

Add the Mobility key to an IX-5810, IX-5910, or IX-5930 station:.

Note:	If Key Assignment does not appear on your display, you do not have access to this programming item. Stations that share a common key pattern cannot change Key Assignments and you cannot change a key while the LED for that key is lit (red or green/solid or flashing).

1. Press the Setup Menu key.
2. Press User Options.
3. Enter your Station Password and press Enter.
4. Press the right navigation key to move to the next menu page.
5. Select Key Assignment.
6. Use the left or right navigation keys to scroll through and select one of the Key Assignment categories.
7. Select Mobility to add to your key pattern.
8. Select the key you wish to change on your station. The new Mobility key will now display in the key location you have selected.
9. Select Exit to return to the main screen.

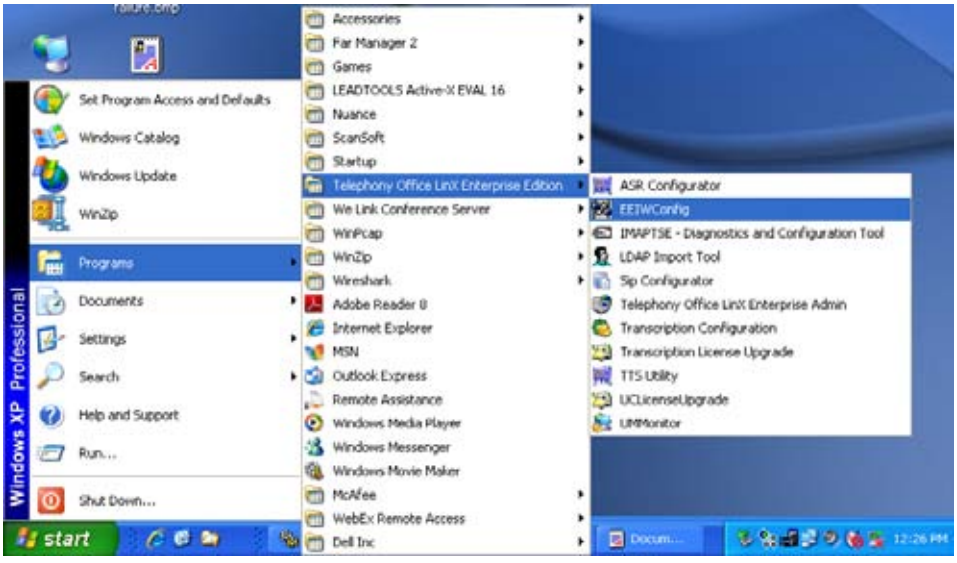
Iwatsu Enterprise TOL Programming

The following Iwatsu Enterprise TOL programming is required to enable the Mobility key call hand-off feature:

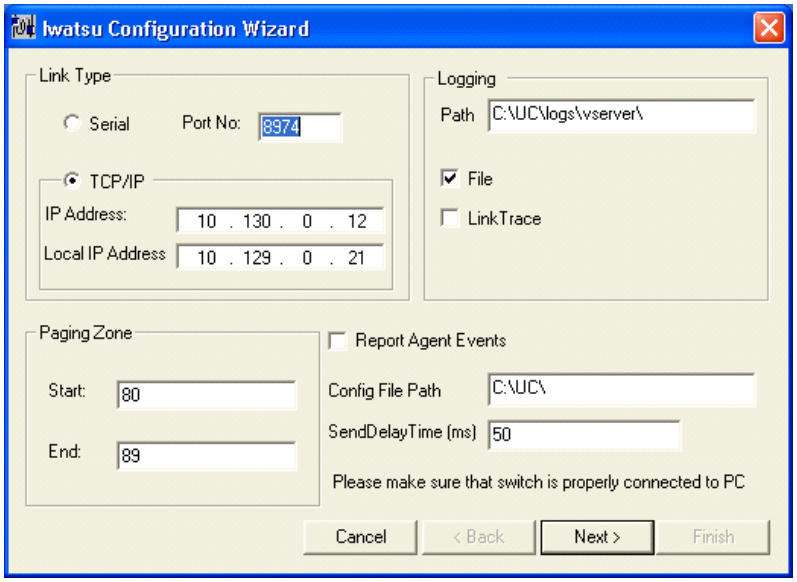
1. From the Advanced tab for the Mailbox, select Unified Communications from the Desktop Capabilities drop-down menu.



2. A station that is assigned a Mobility key must be a TOL monitored station. To monitor a station, the station must be added to the TOL EEIWConfig file.
   - From the desktop, go to Start > Programs > Telephony Office Linx Enterprise Edition > EEIWConfig.

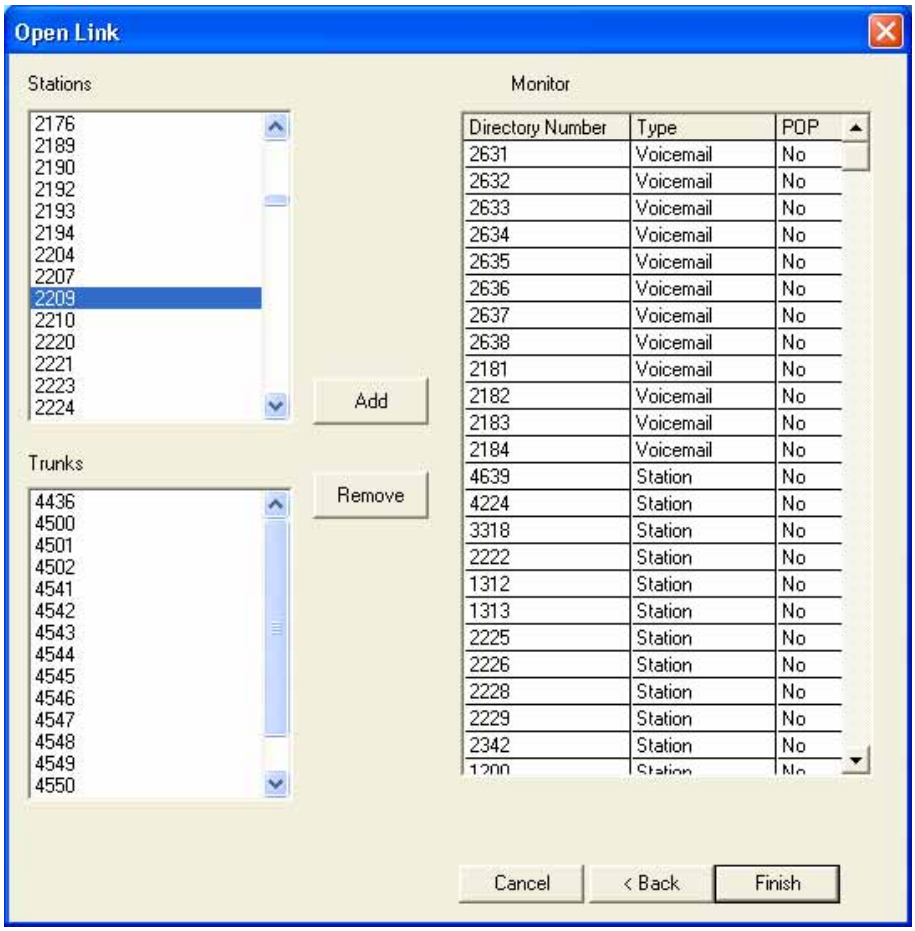


3. From the Iwatsu Configuration / EEIWConfig Wizard:
   - For CSTA via ECS LAN2 port: Change the Link Type to TCP/IP and enter in the Port Number 8974.
   - IP Address: Enter in the ECS LAN2 IP address or the Iwatsu Enterprise Services server IP address.
   - Local IP Address: Enter in the Iwatsu Enterprise TOL IP address.
   - Select Next to continue.

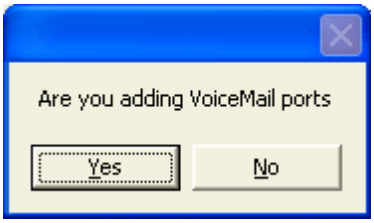


4. The EEIWConfig will start running. When the connection is made, you will see the Stations and then the Trunks windows populate.

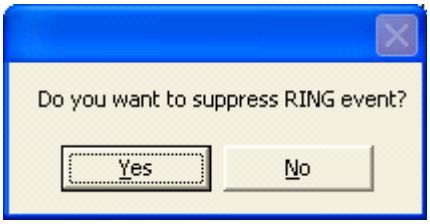
- Once the Stations and Trunks have loaded, select the station extension that needs to be monitored and then select Add to add that extension to the Monitored extension list.



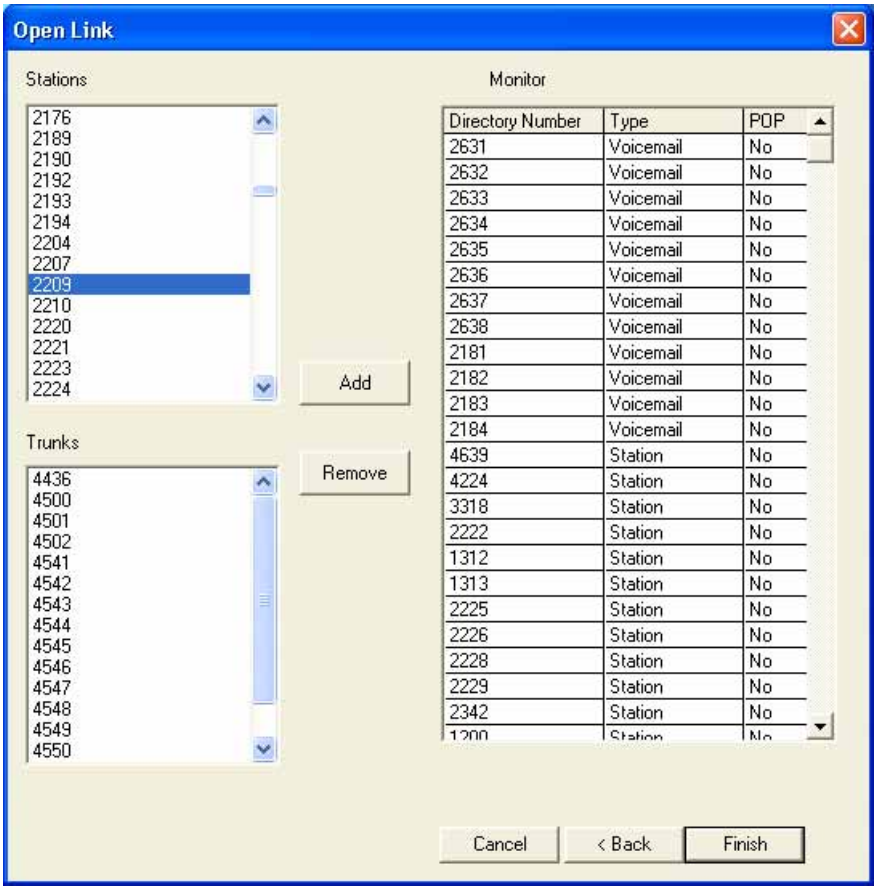
- You will be asked if you are adding voice mail ports, select No for station extensions number and Yes for voice mail port extensions.



- For a station, select No to suppress Ring events. If you select Yes, the station will not be monitored. Yes is only selected for voice mail ports.



- The Station extension number will be added to the Monitor list. This extension will appear at the bottom of the list.



- Select Finish when completed.

Call Log

If programmed with a Call Log key (Key Data = 199), your IX-5810, IX-5910, and IX-5930 is programmed to capture, store, and display telephone numbers and Caller ID information for the last 10 Incoming and 10 Outgoing calls with Caller ID, ANI, or DNIS information and date and time stamp.

Note: ACD, Voice Announce, and IPNET calls are not stored in the Call Log



View the Call Log

Using the Display Menu:

- Press the Call Log key on your display.
- Select an entry from the Call Log to view the number, trunk, and date and time stamp.

Make a Call from the Call Log

Using the Display Menu:

- Press the Call Log key on your display.
- Select an entry from the Call Log to view the number, trunk, and date and time stamp.
- Press Dial to call the entry that you selected.
- You can also delete the Call Log record by selecting Delete.

Add Digits to a Call Log Entry

This feature is used to add digit(s) to a Call Log entry before making a call.

- Press the Call Log key on your display.
- Select the entry from the Call Log.
- Enter the digit(s) to be added to the entry (for example you may need to add a 1 to dial a long-distance number).
- Press Dial to call the entry that you selected.

Note: Making a call from the Call Log requires a Float or CO line key in the key pattern.

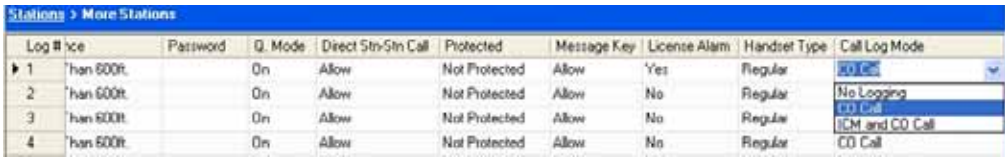
Change the Call Log Mode

The type of calls that appear in each station's Call Log can be changed by changing the Call Log Mode for a station. The Call Log Mode can be changed from CO Calls (outside calls=default), to ICM and CO Calls (internal and outside calls) to No Logging (no calls logged).

Note:	The Call Log is supported on the Iwatsu ICON Series (IX-5810, IX-5910, IX-5930) and Platinum Series 18i/d telephones

To change the Call Log Mode using the Iwatsu Programmer in the Category mode:

- Go to Stations > More Stations > Call Log Mode (Class 10.73.05).
- Select No Logging, CO Call, or ICM and CO Call from the Call Log Mode drop-down menu.
- Upload your changes to the ECS database and disconnect.



Database Programming:

Stations > More Stations > Call Log Mode.

Hardware Required:

IX-5810, IX-5910, IX-5930

Call Monitoring

If a station is assigned a [Monitor] button in Class 14.01 or 15.01, that station may silently monitor another station's CO and ICM conversations. However, stations defined as protected in *Class 10.44* cannot be monitored.

Operation:

To monitor a conversation on an outside line:

While on a CO call, press [COL n] + [Monitor]

To monitor a busy ECS extension:

1. Obtain ICM dial tone
   - Press [SPKR] or pick up the handset from a digital key telephone
   - Press and hold [Send] from an Omegatrek Portable Station
2. Dial the busy extension
3. At ICM busy tone press [Monitor]

Conditions:

1. Calls or stations in the following conditions cannot be monitored:
   - Protected stations
   - CO lines on hold
   - Pick up restricted calls
   - Four-party conferences
   - Trunk-to-trunk conferences
   - Outgoing DISA calls
   - Doorphone calls
   - Data module calls
   - Incoming calls on private lines
2. A conference circuit is required to monitor.

Database Programming:

10.40 - Barge-In Station; 10.44 - Protected Station.

Hardware Required:

Standard.

Call Park/Swap, Call Park Pick-Up

The call park feature allows a station user to place a call on hold. Unlike the hold feature, parked calls may be picked up at any station assigned a [Call Park Pick-Up] key. If a parked call is not answered within the time programmed in *Class 04.08* the station is recalled. With one parked call and one active call the station user can use [Individual Park] to alternate between calls.

Operation:

To place a call on park:

While on a call press [Individual Park]. The green LED will flash intermittently

To switch between a call on park and an active call:

While on a call with a call on park: Press [Individual Park]. The green LED will flash intermittently.

To pickup a call parked at your extension:

While the call is on park, press the flashing [Individual Park] key.

To pickup a call parked at another extension:

Press the [Call Park Pick-Up] key then dial the extension number where the call is parked.

Conditions:

1. A station must have a [Individual Park] key assigned in *Class 14.01 or 15.01* to use this feature.
2. The hold recall timer is programmed in *Class 04.08* from 0 to 255 seconds. Stations must be enabled for hold recall in *Class 10.37*.
3. Use *Class 04.25, Element 06* to enable or restrict system extensions from parking ICM calls.

Database Programming:

04.08 - Hold Recall Timer; 04.25.06 - Call Park for ICM Calls; 10.37 - Hold Recall; 10.73 - Call Forwarding Modes, 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

Standard.

Call Pick Up

If a station is assigned a call pick up button, that station can pick up a call ringing at another extension or call pick up group. There are three types of call pick up buttons:

- Direct Call Pick Up Button [Spec. Call Pickup] - Station can pick up a call ringing at any system extension.
- External Group Call Pick Up Button [Call Pickup Out] - Station can pick up a call ringing at a station in any pick up group.
- Internal Group Call Pick Up Button [Call Pickup In] - Station can pick up calls ringing at a station within their pick up group.

Call pick up groups are defined in *Class 10.51*. The programming in *Class 04.25.01-04* determines the types of calls station users can pick up - CO calls, ICM calls, camp-on calls, and recalls.

Operation:

To perform direct call pick up:

1. Obtain intercom dial tone
   - Press the [Spkr] key or go off-hook from a digital key telephone
   - Press and hold the [Send] key from an Omegatrek Portable Station.
2. Press [FEAT] + [3][3] + extension number
   or
   Press [Spec. Call Pickup] + *extension number*

To perform external group call pick up:

1. Obtain intercom dial tone
   - Press the [Spkr] key or go off-hook from a digital key telephone
   - Press and hold the [Send] key from an Omegatrek Portable Station.
2. Press [FEAT] + [3][2] + group number 01-60
   or
   Press [Call Pickup Out] + group number 01-60

To perform internal group call pick up:

1. Obtain intercom dial tone
   - Press the [Spkr] key or go off-hook from a digital key telephone
   - Press and hold the [Send] key from an Omegatrek Portable Station.
2. Press [FEAT] + [3][1] + *group number 01-60*
   or
   Press [Call Pickup In] + group number 01-60

Conditions:

1. A station must be assigned to a group in *Class 10.51* to use internal group pick up.
2. Stations assigned to group 0 in *Class 10.51* cannot perform call pick up.
3. The system supports a maximum of 250 call pick up groups.
4. The following types of calls cannot be picked-up:
   - Calls on answer/pick up restricted lines (*Classes 10.22, 11.43, 11.44*).
   - Calls from ICM stations that are access restricted.
   - Calls from data modules.
5. The Omegatrek Portable Station (IX-PS6) cannot receive a call if no 'B' channel is available.
6. The Omegatrek Portable Station (IX-PS6) cannot perform a Call Pick-Up if it is out of area.

Database Programming:

04.25.01-04 - Calls for Pickup; 07.06 - Feature Access Numbers; 10.22 - Incoming CO Access Group; 10.51 - Call Pick-Up Group; 11.43 - Incoming CO Access Class; 11.44 - Access Group Number; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

Standard.

Call Recording

The Call Recording feature allows an ECS station user to record a station-to-station, outside line, or conference call to voice mail. This feature is available at any station that has been assigned a Call Recording [REC] key. In order for this feature to operate, the voice mail port reserved for recording must be identified in Class 04.70.26. Hunt group 47 is reserved for voice mail hunting. Use Class 08.02 to associate the voice mail recording ports with hunt group 47.

When the [REC] key is pressed during a call, the red LED on the key will begin to flash. When the red LED lights steady, the voice of all parties involved in the call will begin recording to voice mail.

Note:

The [REC] key will light solid red when the ECS system has completed the call setup. The actual time recording begins is dependent on the operation of the voice mail system connected to the ECS.) Recording will continue until either the [REC] key is pressed a second time, or the call is terminated, placed on hold, parked or transferred by the station that initiated the recording. When recording is finished, the recorded call will be saved as a message in the voice mail system.

Important!

IMPORTANT NOTICE REGARDING THE CONVERSATION RECORDING FEATURE

In certain states it is illegal to intercept and/or record telephone calls.

In certain states and under certain circumstances it is illegal to intercept for the purposes of listening in and/or recording telephone calls. Because such activity is not illegal in all jurisdictions and may be permitted in training and/or monitoring of personnel, this telephone system can be programmed to permit interception and/or recording with or without warning to those on the line. Before utilizing the system for such purposes, you are advised to consult with an attorney familiar with laws of the jurisdiction in which you utilize such feature.

IWATSU AMERICA, INC., its distributors, and the manufacturers responsible for this feature make no representations with respect to the legality of its use and disclaim any liability for claims and/or damages arising from the use or misuse of this feature.

Voice Mail Packets for Call Recording. Packets 21 and 22 have been added to accommodate the voice-recording feature. Packet 21 is the recording start packet. It is used to send the start recording command and the initiating station number to the voice mail port. Packet 22 is sent to the voice mail port to stop recording.

Operation:

To start voice recording:

While on a call press [REC]

To end voice recording:

While recording press [REC] a second time or hang up.

Conditions:

1. The station must be assigned a [REC] key to use this feature.
2. The voice mail ports used for recording must be associated with Hunt Group 47 in Class 08.02.
3. When the [REC] key (Class 14.01 or 15.01) is pressed, the specified voice mail port (any available voice mail port in hunt group 47) is added on to the call in the mode (monitor or conference) selected by data setting (Class 04.70.26) to start recording the call.
4. Each voice mail port can accommodate three parties during the recording of a conference call. The voice mail port counts as one party in the conference.
5. If an Omegatrek Portable Station goes out of area while recording a conversation, the recording is terminated, and the recorded portion of the call is saved as a new message in voicemail.

Database Programming:

04.70.26 - Voice Mail Recording Mode; 04.77.21/22 - Voice Mail/Auto Attendant Packet Codes; 08.02 - Hunt Group - Station; 10.44 - Protected Station; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

A Voice Mail System; IX-8SUBS-2; Conference circuits on IX-CCU card.

Call Transfer

There are two ways a station user can transfer a call:

- Screened Transfer The call is transferred after the transferring station announces the call.
- Unscreened Transfer The call is transferred without being announced.

If the called station set is equipped with an LCD, the transferring extension number is displayed. Camped-on calls recall the transferring extension if not answered within the time programmed in *Class 04.12* or if the receiving station is restricted from picking up the call. Calls can be transferred to a specific station or a hunt group.

Operation:

To transfer a call:

1. While on a call press [TRAN] + *extension number*, [DSS n], or [Hunting n]
2. Do one of the following:

To perform a:	Do this:
Screened transfer	announce the call then hang up
Unscreened transfer	hang up

Conditions:

1. Doorphone calls, group calls, and paging calls cannot be transferred.
2. Calls cannot be transferred to a station outside of the transferring station's ICM group.

Database Programming:

04.12 - Camp-On Duration; 10.17- Unscreened Transfer (SLT Only); 10.22 - Incoming CO Access Group; 10.50 - ICM Group; 11.44 - Access Group Number.

Hardware Required:

Standard.

Caller ID on Hold/Park - Enable/Disable

ECS Software Version 7.0 includes a new programming item that allows the Caller ID Display on Hold feature to be disabled at a station. The Caller ID Display on Hold feature was added in version 5.0 and enables an Iwatsu ICON Series IX-5810, IX-5910, IX-5930 and IX-59DS to display the Caller ID name or number information of a call placed on hold or park from one of the following self-labeling keys. For the IX-59DS, this feature is enabled / disabled based on the programming for the paired ICON Series telephone.

This feature is enabled for all or disabled for all of the following keys on a specific station and the key(s) must be programmed on an Iwatsu ICON Series self-labeling key:

- CO Line keys
- Float keys
- Individual Park keys
- Group Park keys

Operation:

When this feature is enabled, placing a CO call on hold or park will display the incoming caller's caller ID name or number, if available. The programmed key label will display if caller ID name or number is not available.

This feature is only available on Iwatsu ICON Series IX-5810, IX-5910, and IX-5930 self-labeling keys.

Conditions:

1. The CO Line key, Float key, Individual Park key, or Group Park key must be programmed on an IX-5810, IX-5910, IX-5930, or IX-59DS self-labeling key to support this feature.
    - The IX-59DS only supports the Group Park key. CO Line, Float, and Individual Park keys are not supported on the IX-59DS.
    - For the IX-59DS, this feature is enabled / disabled based on the programming for the paired ICON Series telephone.
2. When enabled and the caller ID name is not available, the caller ID number will display. The programmed or default key label will continue to display when there is no caller ID name or number information for a call on hold/park.
3. If this feature is disabled, the self labeling key will continue to display the programmed key name when a call is held or parked.
4. The station must have an assigned station password to enable or disable this feature through the Iwatsu ICON Series telephone User Options menu.
5. Caller ID name / number display is limited to 11 characters.

Database Programming:

Stations > ICON > CID Display on Hold (Class 10.70.14) (Default = Enabled)

Hardware Required:

Iwatsu ICON Series IX-5930, IX-5910, IX-5810.

Camp-On

Camp-on allows a station user to transfer a call to a busy extension. When camp-on occurs the station user hears periodic tone bursts through the speaker. At stations equipped with a LCD, the extension that sent the call will be displayed followed by **CAMP-ON**. If the busy extension does not respond within the camp-on duration programmed in *Class 04.12*, the call will return to the transferring station.

Operation:

To camp-on to a busy extension:

While on a call press [TRAN] + *extension number* + on hook (or [Send] from an Omegatrek Portable Station)
or
[DSS n] + *extension number* + on hook (or [Send] from an Omegatrek Portable Station)
or
[Hunting n] + *extension number* + on hook (or [Send] from an Omegatrek Portable Station)

Conditions:

1. The camp-on duration is programmable between 1 and 255 seconds in *Class 04.12*.
2. Doorphone calls, group calls, and paging calls cannot be camped-on.

Database Programming:

04.12 - Camp-On Duration.

Hardware Required:

Standard.

Clear Call

The clear call feature allows a station user to dial a new intercom call without hanging up if the called extension does not answer or if there was a dialing mistake.

Operation:

To clear call:

With ICM busy tone, ringback tone, or DND warning tone dial an *extension number*

Conditions:

This feature must be enabled in *Class 04.23*.

Database Programming:

04.23 - Shift/Clear Call.

Hardware Required:

Standard.

Conference

The ECS allows a combination of four parties (any combination of station users and external callers) to converse at one time. There are three types of conference calls:

Add-On One outside party plus three inside parties, or four inside parties.

Multiline Maximum of four parties: Two or three outside parties plus one or two system extension.

Trunk-To-Trunk Two outside parties. When a system extension is engaged in a multiline conference, the station can exit the conference creating a trunk-to-trunk conference. Connection on a trunk-to-trunk conference is maintained until the CO provides a disconnect signal to the ECS. If disconnect signal is not provided by the CO an IX-4ETRAN card is required for trunk-to-trunk conferencing.

Operation:

To perform an add-on conference:

1. While speaking on an outside or ICM call press [TRAN] + *extension number*
2. When the party answers, wait for the Sender and Interdigit Timeouts to expire, then press [ADD]

To perform a multiline conference:

1. While speaking on an outside call press [HOLD] or [Individual Park] to place the call on hold
2. Make the second outside line call
3. When the second party answers, wait for the Sender and Interdigit Timeouts to expire, then press [ADD]
4. Press the line for the call on hold or the flashing [Individual Park] button

To perform a trunk-to-trunk conference:

1. While speaking to two outside parties on a multiline conference press [HOLD]
2. Go on hook

Conditions:

1. Thirty-two four-party conference circuits are provided on the IX-CCU card.
2. The IX-4ETRAN card provides four circuits for trunk-to-trunk conferences.
3. Use *Class 11.19* to enable disconnect detection on lines used for conferencing.

Database Programming:

01.08 Card Configuration; 11.19 - Disconnect Signal.

Hardware Required:

IX-4ETRAN.

Conference - Improved

The Iwatsu Enterprise-CS allows you to make conference calls with any combination of up to four extensions and outside lines on the same call. .

Operation:

To Make a Conference Call:

While speaking on an outside or internal call:

- Press the Conference key on the display (Conference will flash).
- Make your next call (internal or outside call).
    - When the party you are calling answers, press the Conference key again.

or

- Press Park to park the call.
- Make your next call.
- Press Conference and then Park to complete the conference.
- After you hear a tone burst, all parties are connected.

To add another extension or outside line, repeat the same procedure.

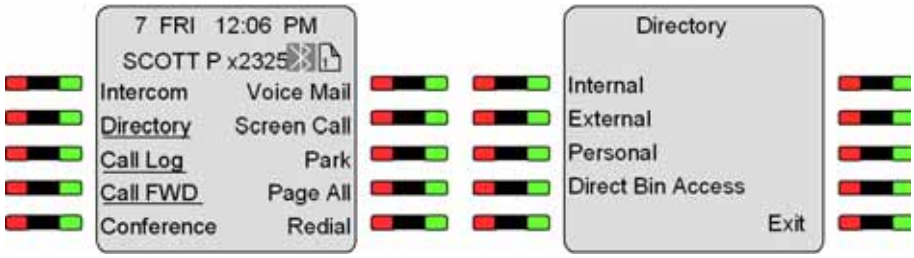
Hardware Required:

IX-5810, IX-5910, IX-5930

Directory

Iwatsu ICON Series Telephones (IX-5810, IX-5910, IX-5930)

If programmed with a Directory key (key Data = 196), your IX-5930, IX-5910, and IX-5810 provide access to a Directory for access to system Internal, External Speed Dial (System Speed Dial), Personal Speed Dial, and Direct Bin Access. A name must be assigned to appear in the Directory.



Operation:

Internal (Internal Station Directory)

From the Self-Labeling Display Menu:

- Press the Directory menu key on your display.
- Press Internal.
- Select an entry:
- Select an entry on the screen

or

- Select Search and use the dial pad to enter a search string

or

- Select Navigate and use the left and right arrows to page through the Internal Directory or use the up and down arrows to scroll one entry at a time.
- To make a call, select the key that corresponds to the entry you want to call.

LED Display Status for a station that appears in the Internal Directory : Solid = Busy, flashing = DND, and no LED = available.

External (System Speed Dial Directory)

From the Self-Labeling Display Menu:

- Press the Directory menu key on your display.
- Press External.
- Select an entry:
  - Select an entry on the screen

or

- Select Search and use the dial pad to enter a search string.

or

    - Select Navigate and use the left and right arrows to page through the Internal Directory or use the up and down arrows to scroll line by line.
- To make a call, select the key that corresponds to the entry you have selected.

Personal (Personal Speed Directory)

From the Self-Labeling Display Menu:

- Press the Directory menu key on your display.
- Press Personal.
- Select a programmed entry on the screen and the number is dialed.

or

- Select Program to program a new entry.
    - Select an <Empty> entry or select an entry to overwrite.
    - Using the dial pad, enter a Name for the new entry. Press Save.
    - Using the dial pad, enter a Number for the new entry. Press Save.
    - Enter the Trunk Group number (Range = 000-250). 0 = Optimized. Press Save.
- You are returned to the main menu.

Note:	You can press **Exit** to cancel the operation at any time

Direct Bin Access (Personal Speed Dial Bin)

From the Self-Labeling Display Menu:

- Press the Directory menu key on your display.
- Press Direct Bin Access.
- Enter the Personal Speed Dial Bin 90-98 or System Speed Dial Bin 000-899

Note:	Personal Speed Dial Bin 99 is used to store the External Call Forward Destination. Personal Speed Dial Bin number is displayed when you make a call using Personal Speed Dial

Hardware Required:

IX-5810, IX-5910, IX-5930

Direct Outside Line Appearance

A multipurpose button on an ECS digital telephone can be programmed as a [COL n] button in *Class 14.01* or *Class 15.01* for direct access to an outside line for incoming and outgoing calls. A station user can also seize a specific outside line by dialing a CO line access number (programmed in *Class 11.02*).

Operation:

To seize an outside line:

Press [COL n]
or
Go off hook and dial a *CO line access number*

Database Programming:

10.12 - Key Assignment; 11.02 - CO Line Access Numbers; 14.01 - Key Assignment; 15.01 - Attendant Key Assignment.

Hardware Required:

Station set with multipurpose buttons.

Direct Station Selection

A multipurpose button on an ECS digital telephone can be programmed as a [DSS n] button in *Class 14.01* or *Class 15.01* for direct access to a system extension. Direct station selection buttons provide an indication if the extension programmed to that button is busy or idle. If the represented extension is busy the LED is illuminated.

Operation:

To call a system extension:

Press [DSS n]
or
Go off hook and dial a *system extension number*

Database Programming:

10.02 - Station Numbering; 10.12 - Key Assignment; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

Station set with multipurpose buttons.

Distinctive Ringing

Outside Line Calls An outside line can be assigned a ringing tone in *Class 11.31*. The table below lists the four choices available for incoming ringing at the system extensions:

Tone Number	Tone	Duration
1	432/480	1 second on, 3 seconds off.
2	432/624/16	0.8 seconds on, 0.2 seconds off, 0.2 seconds on, 3 seconds off.
3	432, 480	0.4 seconds on, 0.2 seconds off, 0.4 seconds on, 3 seconds off.
MOH	MOH	Continuous

ICM Calls The ringing tone of an ICM call differs from outside line ringing tone.

Conditions:

Ring 1 is the default ringing tone.

Database Programming:

11.31 - Ringing Tone.

Hardware Required:

Standard.

Do Not Disturb (DND)

Pressing the [HOLD/DND] button at an inactive station places the station in do not disturb (DND) mode. A station must be enabled to use this feature in *Class 10.42*. When in DND mode the following calls will not ring at the station:

- Incoming CO
- DID Ringing
- DISA Ringing
- ICM Calls
- Doorphone Calls
- Page/Group Calls

However, the following calls override DND mode:

- Recalls
- Lines programmed as DND override lines in *Class 11.22*
- Busy Overriding Calls (if enabled in *Class 10.41* or station has an [Over Ride] key)
- Operator Calls
- Executive Override Calls

Conditions:

1. When DND override ringing is enabled, stations assigned as ringing stations in *Class 11.32* or *Class 11.3*3 cannot activate DND for incoming calls on the line.
2. An incoming call to a DND station on a DID trunk receives busy tone.

Database Programming:

10.41 Busy Override; 10.42 - Do Not Disturb (DND); 11.22 - Do Not Disturb (DND) CO Override Ringing.

Hardware Required:

Standard.

Executive Override

See Busy Overriding.

Hardware Required:

Standard.

Extension Number Display

A user can display the logical port number, extension number, and station user ID of an ECS KT equipped with a display by pressing [FEAT] + [9][9].

Conditions:

1. The station number can be changed in *Class 10.02*.
2. The station user ID is programmed in *Class 10.04*.

Database Programming:

10.02 - Station Numbering; 10.04 - Station User ID.

Hardware Required:

ECS KT with LCD.

Feature Button Display

A user can display the assignment of each feature button on an ECS KT equipped with a display by pressing [FEAT] + [#][9] + the feature button.

Database Programming:

None.

Hardware Required:

ECS KT with LCD.

Flash

By pressing [FLASH] you can reorder dial tone on an outside line without performing hookswitch flash. Flash can also be used to reorder intercom dial tone to place another intercom call. Two different flash settings are programmable in the system database to allow for the use of Centrex or PBX features:

- Class 11.15 - CO Flash Time
- Class 11.16 - Centrex Flash Time

Conditions:

Recommended flash times should be provided by the CO.

Database Programming:

11.15 - CO Flash Time (Long Flash); 11.16 - Centrex Flash Time (Short Flash).

Hardware Required:

Standard.

Flexible Key Assignment

The buttons on ECS digital telephones and attendant consoles are programmable for specific feature operation. Key patterns are defined in *Class 14.01* for system stations and *Class 15.01* for attendant positions. Use *Class 10.12* to assign a key pattern to a station logical port. See *Classes 14 and 15* for listings of available key types.

Conditions:

A key pattern must be assigned to each station in *Class 10.12*.

Database Programming:

10.12 Station Key Assignment; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

Standard.

Floating CO Line Group Access

One or more CO lines can be assigned to a group that is used for remote CO forwarding, incoming calls, outgoing calls, or both incoming and outgoing calls. *Class 11.38* is used to define *outgoing floating CO line* groups. A maximum of 60 outgoing floating CO line groups can be programmed. *Class 11.39* is used to define the *incoming floating CO line* groups. A maximum of 60 incoming floating CO line groups can be programmed. There is no limit to the number of CO lines that can be included in one CO line group. A [FLT n] button provides one-touch access to a floating line group.

Operation:

To access a floating CO line group:

Go off-hook and press [FLT n]
or
Go off-hook and press [FLT] + a *floating CO line group access number*

Conditions:

1. The floating CO line group access number is assigned in *Class 07.03*.
2. This feature can be disabled in *Class 04.25.07*.

Database Programming:

04.25.07 - Multiple Trunk Access; 07.03 - CO Line Group Access Numbers; 11.38 - Outgoing CO Group; 11.39 - Incoming CO Group.

Hardware Required:

Standard.

Forced and Verified Account Codes

When a station is defined as a forced account code station in *Class 10.73.03*, that station is required to enter an account code before gaining access to a line defined as a forced account code line in *Class 11.70.03*. Account codes are programmable between one and twelve digits long. Four account code entry options are programmable in *Class 10.73.03*:

FORCED-TOLL Station user must enter a string of digits equal in length to the programming in *Class 04.71.03* when dialing a number included in the toll dial table (*Class 04.78.01*).

FORCED-ALL Station user must enter a string of digits equal in length to the programming in *Class 04.71.03* when dialing an outside number.

VERIFIED-TOLL Station user must enter a verified account code that matches a verified account code stored in *Class 37.01* when dialing a number included in the toll dial table (*Class 04.78.01*).

VERIFIED-ALL Station user must enter a verified account code that matches a verified account code stored in *Class 37.01* when dialing an outside number.

Up to 10 numbers can be programmed in an emergency dial table (*Class 04.78.33)* that override all account code programming. This option allows important or emergency numbers to be dialed without account code entry. The verification table, for verified account code entry, shares memory with system speed dial (*Class 05.01*). Use *Class 04.71.04* to allocate a block of numbers in *Class 37.01* for use as the verification table. Up to 800 verified account codes can be entered.

Operation:

To make an outside call at a forced/verified account code station:

1. Go off-hook and press [FLT n] or [COL n]
2. Dial the desired phone number
3. Press [*] and wait for the account code entry tone
4. Enter an account code
5. If variable-length account codes are used press [*]

Conditions:

1. The programming in *Class 10.70.02* determines if the account code number is displayed on the station LCD.
2. The programming in *Class 10.70.05* determines if the account code number is included on the SMDR printout.
3. If verified account codes are used *Class 02.01* must be programmed as 900 speed dial numbers.
4. If verified account codes are used the programming in *Class 04.71.03* must be greater that zero.
5. A forced account code station is not required to enter an account code when dialing a number listed in the emergency dial table (*Class 04.78.33*).
6. Account code entry is required on trunks programmed as forced account code trunks in *Class 11.70.02*.
7. If a verified account code has fewer digits than the forced account code length programmed in *Class 04.71.03* a separator code (dialing [*]) must follow the account code.
8. If the account code entered is not correct the station user will receive a warning tone.

Database Programming:

02.01 - System Speed Dial Type; 04.71.03 - Forced Account Code Length; 04.71.04 - Number of Verified Account Codes; 04.78.01-42 - System Toll Dial/Emergency Dial Table; 10.70.03 - Verified Account Code Display; 10.70.05 - Forced Account Code Printout; 10.73.03 - Forced Account Code; 11.70.01- Call Coverage Trunk; 11.70.02 - Forced Account Code; 37.01 - Forced Account Code.

Hardware Required:

Standard.

Full/Half Duplex Speakerphone Mode Switching

The half duplex speakerphone of the IX-12KTD-3, Platinum Series, and Iwatsu ICON Series telephones, can be changed to full duplex through the operation of the [Speaker Duplex] key or feature access code. The user simply presses the [Speaker Duplex] key (Class 14.01/15.01) to toggle between Half Duplex and Full Duplex Mode. In addition, the mode can change using feature access code [FEAT] [0] [6] [6] to toggle from Full Duplex Mode to Half Duplex Mode or [FEAT] [6] [6] to toggle from Half Duplex Mode to Full Duplex Mode.

One of two sub modes may be programmed in Class 10.70.06 - Half Duplex Speakerphone Mode Priority to determine the priority of Receiving mode (speaker active/microphone inactive) or Sending Mode (microphone active/speaker inactive) when in Half Duplex Mode (also affects current model telephones). When Receiving Mode is programmed as the priority in Class 10.70.06, the KT speaker is enabled to receive audio and the microphone is disabled to send audio when no conversation is taking place. When Sending Mode is programmed as the priority in Class 10.70.06, the KT speaker is disabled to receive audio and the microphone is enabled to send audio when no conversation is taking place.

Operation:

To switch from the Full Duplex Mode to the Half Duplex Mode:

Press [Speaker Duplex] or Press [FEAT] [0] + [6] + [6]

To switch from the Half Duplex Mode to the Full Duplex Mode:

Press [Speaker Duplex] or Press [FEAT] [6] + [6].

Conditions:

1. The Full Duplex Speakerphone Mode/Half Duplex Speakerphone Mode switching works only on the IX-12KTD / S-3 and Platinum Series Digital Telephones.
2. The [SPKR] key lights solid when the KT uses Full Duplex Speakerphone Mode.
3. The [SPKR] key flashes when the KT uses Half Duplex Speakerphone Mode.
4. The Half Duplex Speakerphone Mode has two submodes, the Receiving Priority Mode and the SendingPriority Mode.
    - When Class 10.70.06 Half Duplex Speakerphone Mode Priority is set to Receiving Priority Mode (speaker active/microphone inactive), the handsfree circuit switches to the receiving mode when conversation is detected.
    - When the Class 10.70.06 Half Duplex Speakerphone Mode Priority is set to Sending Priority Mode (microphone active/speaker inactive), the hands free circuit switches to sending mode when conversation is detected.
5. Half Duplex Speakerphone Mode/Receiving Priority Mode is the default setting in Class 10.70.06.

Database Programming:

14.01 - Key Assignment / 15.01 - Attendant Key Assignment [Speaker Duplex].

Hardware Required:

IX-12KTD / S-3, Platinum Series, and Iwatsu ICON Series telephones.

Group Monitoring

Key telephones, IP telephones, and attendant stations can be set to enable or disable group speaker monitoring. This allows a user not utilizing the group monitoring feature a smooth transition from handset to speaker phone. This feature may be programmed in *Class 10.70.04* (On Speaker Phone / Off Speaker Phone).

Conditions:

1. This feature may be programmed in *Class 10.70.04* to specify whether the speaker is available when the user presses [SPKR] while off-hook.
2. If the data setting *Class 10.70.04* is set to **Off Speaker Phone**, monitoring from the speaker is not available until the handset is on hook.
3. If the data setting *Class 10.70.04* is set to **On Speaker Phone**, monitoring from the speaker is available when the handset is off-hook.
4. The system default setting for *Class 10.70*.04 is On Speaker Phone.
5. When the user presses [SPKR] on-hook, monitoring can be done from the speaker regardless of the data setting in *10.70.04*.

Database Programming:

10.70.04 - Group Monitor.

Group Park

When a station places a call on Group Park, a station's [Group Park] button representing that group will flash red. A station can pick up the call by pressing [Group Park]. If the call is not picked up within the duration programmed in Class 04.08 the station that originally placed the call on Group Park is recalled.

Operation:

To place a call in group park:

On a call press [Group Park]. The button will intermittently flash green

To retrieve a call in group park:

Go off hook and press the red-flashing [Group Park] button or dial a group park orbit number/dial code

Conditions:

1. The hold recall timer (*Class 04.08*) is programmable between 1 and 255 seconds.
2. A system limit of 60 group park orbit numbers are programmable in *Classes 04.24 and 07.01*.

Database Programming:

04.08 - Hold Recall Timer; 04.15 - Attendant DIL Intercept; 04.15 - Attendant DIL Intercept; 07.01 - Attendant/System Park Orbit Numbers.

Hardware Required:

Standard.

Hands-Free Answerback On Intercom

This feature allows a station user to answer an intercom call without lifting the receiver. The microphone can be turned off by pressing the [MIC OFF] key if desired.

Operation:

To turn on hands-free answerback:

Press [MIC OFF] or [FEAT] + [6][1] to extinguish the button LED.

To turn off hands-free answerback:

Press [MIC OFF] or [FEAT] + [0][6][1] to extinguish the button LED.

Conditions:

An IX-SSPU speakerphone unit is required for hands-free operation on certain model phones.

Database Programming:

None.

Hardware Required:

Standard on most Iwatsu digital and IP Telephones.

Headset Operation

An ECS digital telephone can be equipped with a customer-provided headset. By pressing the [Headset] button the station user can alternate between the headset and handset for answering calls. When a station is in the headset mode the [Headset] button LED must be on and the handset must be in the on-hook position. A [Release] key is required to disconnect a call at a headset station. A [Connect] button is required to transfer calls to other stations without hanging up the headset.

Operation:

To answer a call at a headset station:

While station is ringing press [COL n], [FLT], or [ICM]

To disconnect a call at a headset station:

Press [Release]

To transfer a call from a headset station:

On call press [HOLD/DND] + [ICM] + *extension number*

- After receiving ringback tone press [Connect] + [Release]

Conditions:

1. Before purchasing a headset make sure that it is compatible with ECS digital telephones.
2. The telephone must be programmed with [Headset], [Release], and [Connect] keys.
3. Prime line access (*Class 10.09*) and off-hook CO answering (*Class 10.35*) must be disabled at a station equipped with a headset.

Database:

10.09 - Prime Line Access; 10.12 - Key Assignment; 10.35 - Off-Hook CO Answering; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

Customer-provided headset.

Headset Control Key Operations

ECS Digital and IP Key Telephones can be equipped with the [Headset Control] key. This key allows a user to control a headset without using the [Connect] or [Release] key. The following is a table of telephones requiring a headset adaptor box to switch the audio between handset and headset.

Station Type	Adaptor Required
IX-12KTD/S	Yes
IX-12KTD/S-2	Yes
IX-12KTD/S-3	No
IX-MKT	Yes
IX-VTD/S	Yes
IX-12IPKTD-E2	No
IX-12IPKTD-E	No
Platinum Series	No
Iwatsu ICON Series	No

Any multipurpose key from the telephones listed above may be designated as a [Headset Control] key in Class 14.01- Station Key Assignment or Class 15.01- Attendant Key Assignment.

Operation:

To begin a call:

Press the [Headset Control] key while the phone is idle.

To answer a call:

Press the [Headset Control] key when receiving a ringing or incoming call.

To end a call:

1. Press the [Headset Control] key to disconnect when finished with the call.
2. To transfer a call using Screened Transfer:
   - Press the [TRAN] key.
   - Dial the telephone number.
   - When the party answers, press the [Headset Control] key.

To transfer a call using Unscreened Transfer:

1. Press the [TRAN] key.
2. Dial the telephone number.
3. While waiting for the called party to answer, press the [Headset Control] key.

To place a call on hold:

1. Press the [HOLD/DND] key. An ICM dial tone is heard.
2. Dial another number or press the [Headset Control] key.

To retrieve a call from hold with [Headset Control] key idle:

Press the [Headset Control] key, then press the line key on which the party is holding.

To receive a call from hold with [Headset Control] key active:

Press the line key where the party is holding.

To retrieve a message:

Press the [Message] key, then the [#] key, then the [Headset Control] key.

To change from headset use to speakerphone use:

Press the [SPKR] key, then press the [Headset Control] key.

To answer an ACD call:

Press the [Headset Control] key. ACD calls do not produce an audible ring in the headset.

Conditions:

1. The [Headset Control] Key lights red when the key is activated.
2. Automatic switching between headset and handset works on the Iwatsu ICON Series, Platinum Series, IX-12KTDS-3 Digital Key Telephone, IX-12IPKTD-E2, and IX-12IPKTD-E IP Telephones and Platinum Series Telephones.
3. The [Headset Control] key feature does not support Agent Automatic Answer in ECS ACD applications.
4. To use this feature, the standard [Headset] key is needed.
5. This key cannot be used on the IX-ATT Attendant Console.

Note:	ACD calls will always ring to the speaker when the [Headset Control] key is used

Database:

14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

Customer-provided headset.

Hold/Hold Recall

A call can be put on hold by pressing the [HOLD/DND] button. Calls that remain on hold for a programmable amount of time (*Class 04.08*) will recall. The ringing tone for recall differs from the ringing tone of an incoming call. Recalls that are not picked up are automatically forwarded to the attendant. There are three modes of hold:

Consultation Hold A call is placed on consultation hold temporarily before a transfer or conference is completed. If the hold recall timer programmed in *Class 04.08* or the camp-on duration timer programmed in *Class 04.12* expires before the transfer extension answers, or if you dialed incorrectly the call will be returned. If recall occurs the station set LCD will display **Camp On RCL** and the name of the person that the call was sent to.

System Hold A station can place a call on system hold by pressing the [HOLD/DND] button. Calls on system hold cannot be picked-up by another system extension. If the call on system hold is not picked-up within the duration programmed in *Class 04.08*, the call recalls the station and the status of the call is changed to system hold.

System Hold The status of a call that remains on system hold or consultation hold is automatically changed to system hold after the duration programmed in *Class 04.08* expires. Any system extension can pick up a call on hold with system hold status.

Operation:

To place a call on consultation hold:

While speaking on an outside call press [TRAN] + *extension number*, [DSS n], or [Hunting n]

To place an outside call on system hold:

While speaking on a call press [HOLD/DND]. The green LED of the outside line button will flash intermittently

To retrieve a call from system hold:

While speaking on a call press [HOLD/DND]. The green LED of the outside line button will flash

To retrieve a call from system hold:

Press the line button or dial the access number for the line with the call on hold

Conditions:

1. The hold recall timer is programmable in *Class 04.08* between 1 and 255 seconds.
2. The camp-on duration is programmable in *Class 04.12* between 1 and 255 seconds.
3. *Class 04.29* is used to determine how a dial-pulse SLT station places a call on consultation hold - by hookswitch flash or extension number dialing.
4. Hold recalls and camp-on recalls will change to attendant intercept calls if they are not answered within the time programmed in *Class 04.15.* This timer starts the instant recall begins.
5. The programming in *Class 10.37* determines if a station is permitted to receive a hold recall.

Database Programming:

04.08 - Hold Recall Timer; 04.12 - Camp-On Duration; 04.15 - Attendant DIL Intercept; 04.29 - Dial Pulse SLT Consultation Hold; 10.37 - Hold Recall.

Hardware Required:

Standard.

[Hold/Quick Forward] Key (Quick Forwarding)

The [HOLD/QUICK FORWARD] key allows a station user to forward their telephone with a single keystroke. In order to use the feature, the [HOLD/QUICK FORWARD] key must be assigned to the station in Class 14.01/15.01. The [HOLD/QUICK FORWARD] key replaced the [HOLD] key. The [HOLD/DND] key is still the default key assigned.

The [HOLD/QUICK FORWARD] key (Class 14.01/15.01) includes the Hold, DND and Quick Forwarding functions. This key is used as an option to the [Hold/DND] key. This key provides the same feature as the [HOLD/DND] key except callers are sent to the Fixed Call Forward destination instead of hearing DND tone.

When a call is routed to a station programmed with a Fixed Call Forwarding destination in Class 10.78 that has activated the [HOLD/QUICK FORWARD] key, the call is immediately routed to the Fixed Call Forwarding destination. If Class 10.78 has not been programmed, the caller will hear a DND tone.

Operation:

To use the [HOLD/QUICK FORWARD] key to forward a call with an ECS Key Telephone:

From an idle condition, press the [HOLD/QUICK FORWARD] key. This key toggles ON and OFF.

Conditions:

1. Pressing the [HOLD/QUICK FORWARD] key while on a call places the call on hold.
2. When active, the [HOLD/QUICK FORWARD] key lights red in the same way as [HOLD/DND] key.

When the [HOLD/QUICK FORWARD] key is active, all calls are immediately forwarded to the destination programmed in Class 10.78 Fixed Call Forward Destination. Programming in Class 10.73 .01- Fixed Call Forward (All, Busy/No Answer, No Answer) is ignored when the [HOLD/QUICK FORWARD] key is active.

1. A station with DND disabled in Class 10.42 cannot set the [HOLD/QUICK FORWARD] feature.
2. If Manual Call Forwarding is active, the Quick Forwarding feature will not operate.
3. The [HOLD/QUICK FORWARD] key cannot be assigned simultaneously with [HOLD/DND] key on the same KT.
4. [DSS] and [Call Coverage] keys on other stations show station status of a key telephone with [HOLD/QUICK FORWARD] enabled with a flashing red LED.
5. If a station does not have a Fixed Call Forwarding destination programmed in Class 10.78, the [HOLD/QUICK FORWARD] key operates as a [HOLD/DND] key.
6. The [HOLD/QUICK FORWARD] status is preserved following a system reset.
7. If the destination of Fixed Call Forwarding is a Hunt Group and all stations that belong to the Hunt Group are busy, the caller hears a busy tone.
8. If the destination of Fixed Call Forwarding in Class 10.78 is External Call Forwarding, the caller hears a DND tone.
9. If the destination of Fixed Call Forwarding in Class 10.78 is the same as the caller (i.e., system extension), the caller will hear a DND tone.
10. If the destination of Fixed Call Forwarding is an Omegatrek IX-PS6 Portable Station that is out of area, the caller receives the Busy tone instead of the DND tone.
11. If Class 10.78 has not been programmed, the caller hears a DND tone.

Database Programming:

10.42 - Do Not Disturb (DND); 10.73 - Call Forwarding Modes; 10.78 - Fixed Call Forward Destination; 114.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware:

Standard.

Hot Line

If a station is programmed for this feature, pressing the [SPKR] button or going off-hook will place a call to a predetermined extension.

Conditions:

1. The hot line station can be assigned in *Class 10.09* to call the following numbers:
   - A system extension number
   - A hunt group number
   - Group call paging access number
   - External zone paging access number
2. Automatic CO outgoing (*Class 10.30*) and off-hook CO answering (*Class 10.35*) programming have priority over hot line dialing (*Classes 10.08 and 10.09*).

Database:

10.08 - Off-Hook ICM; 10.09 - Prime Line Access; 10.30 - Automatic Outgoing CO; 10.35 - Off-Hook CO Answering.

Hardware Required:

Standard.

Last Number Redial

The last number dialed at a station is automatically stored in memory and can be redialed by pressing [SPEED] + [#]. SLTs and data modules access the previous CO line when this feature is activated.

Conditions:

A maximum of 48 digits can be stored in memory.

Database:

None.

Hardware Required:

Standard.

Memo Dial

A station user can save a number in memory during an outgoing call. This feature shares memory with the save number redial feature.

Operation:

To save a number using memo dial:

While on a call press [FEAT] + [2][2]+ telephone number + [FEAT]
or
[Memo Dial] + telephone number + [Memo Dial]

To make a call using a memo dial number:

1. Go off hook and seize an outside line
2. Press [FEAT] [2][2] or [Memo Dial]

Conditions:

1. A maximum of 48 digits can be stored in memory.
2. Memory is shared with the save number redial feature.

Database:

None.

Hardware Required:

Standard.

Malicious Call Identification (MCID)Key

If a station receives a malicious (i.e., harassing, threatening, obscene) call via a PRI trunk, the user is able to initiate a Central Office Malicious Call Identification (MCID) request by pressing an MCID key programmed on their Iwatsu ICON series telephone. If the central office (CO) supports the Malicious Call Identification service, the CO will send the call data to the appropriate public safety office.

Operation:

Pressing the MCID key while on a call over a PRI trunk will send the CO MCID request to the central office. The MCID key will flash when pressed.

Conditions:

1. The MCID key **must be assigned** on the Iwatsu telephone key pattern (KT or SATT).
2. The central office (CO) must support the Malicious Call Identification service.

3. Only PRI trunks support this feature.
4. An MCID key press is ignored during any state, other than on a call, or while on a call over a trunk type other than a PRI.
5. Omegatrek, SIP, and Single Line stations are not supported.

Database:

The MCID key must be assigned to the key pattern of the (KT or SATT) telephone. There is no feature code operation for this feature.

Iwatsu Programmer:

The key can be programmed in the database using the Iwatsu Programmer under Stations > Key Patterns (Class 14 / 15). The Malicious Call Identification Key is located under the Features category.

Hardware Required:

Standard.

Message Waiting

A station user can light the [MESSAGE] LED at another system extension if that station is busy or did not answer a call. Up to three extension numbers and one operator message will be displayed at a station with a LCD. A station user can press the [MESSAGE] button to call the station that left the message. Messages left by another extension are indicated by a solid [MESSAGE] LED. Messages left by a voice mail machine are indicated by a flashing [MESSAGE] LED.

Operation:

To light a message lamp at a busy/no answer station:

While busy tone or ringing is audible press [MESSAGE] + [#]

To respond to a message:

1. When the message lamp is lit go off hook and press [MESSAGE] + [#]
2. The system will automatically call the extension that left the message

To display messages left at your station:

1. When the message lamp is lit press [MESSAGE]
2. The LCD will show the extension number that left the message and the message number. To see another message press [MESSAGE]

To turn off the message lamp

Press [MESSAGE] + [#] + [#]

Conditions:

1. The Message Waiting feature is disabled if the [MBOX] key is enabled in Class 04.70.04 MailBox Indication (MBOX).
2. The [MESSAGE] key must be activated in Class 10.45 in order to use the message waiting feature and receive voice mail message indications.
3. A message lamp is required on a SLT to use this feature.

Database:

04.70.04 MailBox Indication; 10.45 - Message Key.

Hardware Required:

For SLTs with message lamps: IX-DCDC.

Microphone Cut-Off

A station user can disable the KT microphone by pressing the [MIC OFF] button. When the microphone is off the [MIC OFF] button, LED is solid red. Pressing [FEAT] + [6][1] can also be used to activate this feature. This feature is available for the Omegatrek Portable Station (IX-PS6).

Note: This operation must be done prior to receiving a call.

Operation:

To turn the microphone using a key telephone:

Press the [MIC OFF] button
or
Press [FEAT] + [6][1]

To turn the microphone using an Omegatrek Portable Station (IX-PS6):

Press the [MIC OFF] button
or
Press [FEAT] [FEAT] + [6][1]

Database:

None.

Hardware Required:

Standard.

Multiple CO Line Access

Trunk access code 255, programmable in *Class 07.03*, allows a station user to seize a CO line by searching all trunk groups for an idle line. This feature supersedes all optimized routing and trunk group programming. Use *Class 04.25.07* to enable this feature.

Important: This feature overrides all optimized routing programming. If enabled, all system extensions can access an available trunk line in any CO group at any time.

Operation:

To seize an outgoing line using the multiple CO line access feature:

At ICM dial tone dial the multiple CO line access number

Conditions:

1. The multiple CO line access number must be defined in *Class 07.03.61*.
2. The system must be enabled to use this feature in *Class 04.25.07*.
3. By dialing the multiple CO line access code, the system will select an idle CO line from one of the CO groups defined in *Class 11.38*.
4. The hunting method - either *circular* or *normal* - is selected in *Class 04.38*.
5. If all lines are busy, busy tone is sent to the station. If the queuing feature is activated, the station is queued in the CO group with the lowest number.
6. When a line is seized termination moves from [ICM] to a [COL n] or [FLT] key.

Database:

04.25.01-04&07 - Calls for Pickup; 04.38 - Hunting Method in CO Line Group; 07.03 - CO Line Group Access Numbers; 11.38 - Outgoing CO Group.

Hardware Required:

Standard.

Off-Hook Outgoing Call

When a station is enabled for this feature in *Class 10.30*, upon going off hook an outside line is automatically seized and personal speed dial number 99 is dialed.

Operation:

To register a personal speed dial number at a KT:

Press [FEAT] + [SPEED] + *speed dial number* + *telephone number* + [FEAT]

To register a personal speed dial number at an Omegatrek Portable Station:

Press [FEAT] + [FEAT] + [SPEED] + *speed dial number* + *telephone number* + [FEAT] + [FEAT]

Note: Press [HOLD/DND] plus *a digit (1-9)* to register a pause time in seconds.

Conditions:

This feature uses personal speed dial number 99 regardless of the programming in *Class 02.01*.

Database:

10.24 - System Speed Access; 10.30 - Automatic Outgoing CO; 11.38 - Outgoing CO Group.

Hardware Required:

Standard.

Off-Hook Outside Line Answering

This feature allows a station user to answer an outside call without having to press the button representing the ringing line. The station user can still access other system features using CO/ICM line selection while an incoming call is ringing.

Conditions:

1. When a station enabled for this feature goes off hook, calls are handled in the following priority:
   - Off-Hook CO Answering
   - Automatic Outgoing CO
   - Prime Line Access - CO
   - ICM Hot Line
   - Prime Line Access - ICM
2. A station must be defined as a ringing station in *Class 11.32* on a line-by-line basis for this feature to work.
3. If a station is programmed as a delayed ringing station in *Class 11.33* this feature does not operate on those lines.

Database:

10.35 - Off-Hook CO Answering; 11.32 - Ringing Station.

Hardware Required:

Standard.

One Touch Optimized Key

The one touch optimized key may be used to access optimized routing without programming Forced Optimized Routing. An optimized key is programmed as [FLT 00] (Class 14.01/15.01. When a one-touch optimized key is allocated on a station enabled for optimized routing, that user can make an optimized call by simply pressing the Optimized key [FLT 00].

Operation

Optimized calling operation:

Omegatrek Portable Station, KT, SATT, ATT, VT
(Idle) [FLT00]

Conditions

1. Any SATT, ATT, VT or Omegatrek Portable Station enabled for optimized routing in Class 10.32 can use this new key.
2. A station does not require forced optimized programming in Class 10.33 in order to utilize the [FLT 00] key.
3. The quick mode feature will operate with this feature.
4. Appearance of outgoing, incoming and hold, for keys relative to a trunk or trunk group is controlled by the following priority:
   Direct key [COLn] > Group key [FLTn] > Optimized key [FLT00]

Database Programming:

10.32 - Optimized Routing Call; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; Class 17 Optimized Routing.

On-Hook Dialing

By pressing the [SPKR] key on a digital key telephone or the [Send] key on an Omegatrek Portable Station, a station user can dial an ECS extension or outside number without lifting the receiver. The receiver must be picked up to converse if your phone is not equipped with a speakerphone.

Operation:

To dial a digital key telephone while on hook:

1. Press [SPKR] + *extension number*
2. Lift the handset at any time to converse

To dial an Omegatrek Portable Station while on hook:

Press [Send] + *extension number*

Conditions:

This feature is only available from an ECS KT and an Omegatrek Portable Station.

Database:

None.

Hardware Required:

Standard.

Outside Line Call and Pick Up Restriction

The system can be programmed to restrict any phone from making outside line calls or from picking up calls on specified outside line groups. .

Personal Ringing Tones

Station users may choose one of eight different ringing tones to distinguish their station from others. The selected ringing tone is used for all incoming CO calls, camp-on calls, and (tone) intercom calls. It is also audible during busy override. The ringing pattern of each tone is illustrated in the table below:

Operation:

To play a ringing tone for your system extension:

With your station idle press [FEAT] + [#] + [*] + 1-8

To select a ringing tone for your system extension:

With your station idle press [FEAT] + [#] + [*] + 1-8 + [#]

To restore default ringing tone at your system extension:

With your station idle press [FEAT] + [#] + [*] + [0] + [#]

Note:	Default ringing tone is selected in Class 11.31 for outside lines. Default ringing tone intercom calls is Ring 1.
Note:	This feature is not available for the Omegatrek Portable Station. Personal Ringing tones are set locally through the Omegatrek Portable Station.

Conditions:

1. The selected ringing tone is used for all incoming outside line calls, incoming camp-on calls and incoming tone intercom calls and busy override.
2. Each ringing tone plays for ten seconds when played at a station during selection ([FEAT] + [#] + [*] + 1-8).

Database Programming:

04.22 - ICM Call Mode; 10.48 - Calling Mode.

Hardware Required:

Standard.

Personal Speed Dial Registration

Speed dial numbers 90 through 99 are reserved for individual station use. The numbers can be a maximum of 32 digits in length and can include the insertion of a pause.

Operation:

To register a personal speed dial number from a digital key telephone:

1. Press [FEAT] + [SPEED] + *speed dial bin number* + *outgoing digits*
2. Press [FEAT] to end the operation or [SPEED] to enter another number

Note:	Press [HOLD/DND] plus *a digit (1-9)* to register a pause time in seconds. Press [FLASH] to insert a short flash.

To register a personal speed dial number from an Omegatrek Portable Station:

Press [FEAT] + [FEAT] + [SPEED] + *speed dial bin number* + *outgoing digits*

To register a CO line group for a personal speed dial number from a digital key telephone:

Press [FEAT] + [SPEED] + [#] + *speed dial bin number* + *CO group number* + [FEAT]

To register a CO line group for a personal speed dial number from aa Omegatrek Portable Station:

Press [FEAT] + [FEAT] + [SPEED] + [#] + *speed dial bin number* + *CO group number* + [FEAT] + [FEAT]

Personal Text Message Registration

Text messages 90 through 99 are reserved for individual station use. The text message may be a maximum of 16 characters in length.

Operation:

To enter a personal text message:

1. Press [FEAT] + [TEXT MSG] + *text message number (90-99)* + *text message data* + [FEAT]
2. Press the following keys for text message data entry:

Press	1	2	3	4	5	6	7	8	9	0	HOLD	#
1X	-	A	D	G	J	M	P	T	W	Q	write character	lower case
2X	.	B	E	H	K	N	R	U	X	Z	cancel character	upper case
3X	sp	C	F	I	L	O	S	V	Y	&		
4X	1	2	3	4	5	6	7	8	9	0		

Preset Dial

This programming option (*Class 10.29*) allows a station user to dial an intercom or outside phone number and have the number appear on the station LCD before the call is placed. The number is dialed when the station user goes off-hook and selects a line.

Conditions:

This feature is only available from an ECS KT with a LCD.

Database:

10.29 - Preset Dial.

Hardware Required:

Standard.

Prime Line to Optimized

This programming option allows you to have immediate access to either your intercom extension, a desired outside line, or optimized routing upon going off-hook. If the Optimized Access Code is programmed in Class 10.09, a station will receive optimize dial tone upon going off-hook.

Conditions:

1. The optimized access code is programmed in Class 07.03.63
2. The Prime Line feature is set in Class 10.09 on a station-by-station basis.
3. The station that has the optimized access code set as prime line in Class 10.09 will receive Optimized dial tone upon going off hook.
4. A station must be enabled for Optimized Routing in class 10.32 in order to use this feature.
5. Forced Optimized (Class 10.33) is not required for this feature.

Database Programming:

07.03.63 - CO Line Group Access Number; 10.09 - Prime Line Access; 10.32 - Optimized Routing Call; Class 17 Optimized Routing.

Privacy/Privacy Release

By default, all conversations are private. If, however, a station user presses a [Privacy Release] key another party can enter the conversation. The line remains open until [Privacy Release] is pressed again.

Operation:

To toggle between privacy/privacy release on a line:

Press [Privacy Release] or [FEAT] + [1][4]

Database:

None.

Hardware Required:

Standard.

Private Line

A line can be programmed for exclusive use by one system station. A private line is assigned to a multipurpose button.

Conditions:

None.

Database:

10.21 - Outgoing CO Line Group; 10.22 - Incoming CO Access Group; 11.22 - Do Not Disturb (DND) Override CO Ringing; 11.32 - Ringing Station; 11.39 - Incoming CO Group; 11.44 - Access Group Number; 14.01 - Key Assignment.

Hardware Required:

Standard.

Protected Station

If a station is defined as protected in *Class 10.44* override calls to that station are restricted.

Conditions:

The following types of override calls cannot be made to a protected station:

- Busy Override Calls
- DND Override Ringing
- Barge-In Calls
- Call Monitoring
- Off-Hook Signaling

Database:

10.44 - Protected Station.

Hardware Required:

Standard.

Quick-Mode Operation

This feature, if enabled in *Class 10.07*, allows a station user to access an outside line or ICM dial tone without going off-hook.

Operation:

To perform quick-mode operation:

Press [COL n], [FLT n], [Speed Dial n], [System Speed n], or [ICM]

Database:

10.07 - Quick Mode Operation.

Hardware Required:

Standard.

Relay Control from Single Line Telephones and Voice Mail Ports

Single Line Telephones (SLT) and Voice Mail ports may be programmed to control Relay Control Relays (Function 1) or One-Shot Relays (Function 2) type relays located at the IX-MISC or IX-EDVIF card. Feature Access Number 43 (Class 07.06.43) is used to turn on and turn off the relays. Conformation tone is sent to the controlling station when the operation is complete. If the operation fails, the controlling station will receive warning tone.

Operation:

To turn the relay ON:

At ICM dial tone dial the Relay Control Feature Access Number (Class 07.06.43) + Relay Number (01-32).

To turn the relay OFF:

At ICM dial tone dial the Cancel Feature Access Number (Class 07.06.01) + Relay Control Feature Access Number (Class 07.06.43) + Relay Number (01-32).

Conditions:

1. Only Relay Control Relays (Function 1) or One-Shot Relays (Function 2) may be controlled by the SLT or voice mail port.
2. The SLT or voice mail port must dial Feature Access Number 43 (Class 07.06.43) to control the relays.
3. The SLT or voice mail port will receive a confirmation tone when the on-off operation is complete. If the operation fails, the station will receive a warning tone.Up to 32 relays may be controlled by the SLT or voice mail port.

Database Programming:

System Hardware (Class 01); 04.35 - Miscellaneous Function Port; 04.36 - Miscellaneous Relay Timer; 04.37 - Miscellaneous Function; 07.06.43 - Feature Code Numbering.

Hardware Required:

IX-MISC/IX-MCAA, IX-EDVIF.

Remote Call Forwarding (CTRAN)

This feature allows a station user to program their station set to forward an outside line call to a remote location. Four remote call forwarding groups can be programmed per system in *Class 04.43*. Each remote call forwarding group is associated with one outside line group in *Class 04.44*. This programming determines the lines used for remote forwarding. When the system executes remote call forwarding, the message entered in *Class 04.45* is played at the remote end.

Operation:

To register remote CO forward:

At ICM dial tone press [Remote Call FWD n] + *destination number* + [Remote Call FWD n]

To cancel remote CO forward:

At ICM dial tone press [Remote Call FWD n] + [*]

Conditions:

1. Once the remote CO forward duration programmed in *Class 04.46* has elapsed, the call is disconnected.
2. If the IX-4ETRAN card is installed in the system *Class 04.46* must be set to 0.
3. This feature does not forward transferred calls; forwarding only occurs with outside line calls.

Database:

04.43 - Remote CO Forward Incoming Group; 04.44 - Remote CO Forward Outgoing Group; 04.45 - Remote CO Forward Message Number; 04.46 - Remote CO Forward Duration; 11.38 - Outgoing CO Group; 11.39 - Incoming CO Group; 14.01 - Key Assignment.

Hardware Required:

IX-4ETRAN, IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

Remote Relay Control

Relays used to connect the ECS to external devices such as an electronic door opener or a monitor camera can be controlled at the station set using a [Relay n] key.

Operation:

To control a relay:

Press the [Relay n] key while idle or off hook.

Conditions:

The Omegatrek Portable Station cannot operate a [Relay n] key while out of area.

Database:

System Hardware (Class 01); 04.25.01-04 - Calls for Pickup; 04.35 - Miscellaneous Function Port; 04.36 - Miscellaneous Relay Timer; 04.37 - Miscellaneous Function; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

IX-MISC/IX-MCAA, IX-MISC/IX-EDCTU, IX-EDVIF.

Ring Muting

An ECS station user can press a [Silence] button to turn the ringer, microphone and speaker off. Ring muting is recommended instead of do not disturb when the call coverage feature is used.

Operation:

To turn the ringer off:

Press [Silence] and the button LED is solid red.

To turn the ringer on:

Press [Silence] and the button LED is extinguished.

Database:

14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

Standard with ECS digital telephones.

Save Number Redial

A station user can save the number of a busy or no answer outside call in memory. The memory for this feature is shared with the memo dial feature.

Operation:

To save a number using save number redial:

While on a call press [FEAT] + [2][1] + *telephone number*
or
[Save No. Redial] + *telephone number*

To make a call using a memo dial number:

1. Go off hook and seize an outside line
2. Press [FEAT] [2][1] or [Save No. Redial]

Conditions:

1. A maximum of 48 digits can be stored in memory.
2. Memory is shared with memo dial feature.

Database:

None.

Hardware Required:

Standard.

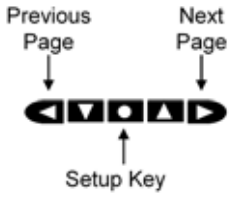
Self-Labeling Keys

The Iwatsu ICON Series IX-5930, IX-5910, and IX-5810 Telephones are equipped with Self-Labeling keys. When a key that resides on the LCD is changed on the key pattern of your telephone, the label for that key will change. Changing the label of a Self-Labeling key or the key assignment of the self-labeling key can be performed through the IX-5930, IX-5910, or IX-5810 Key Telephone or through the Iwatsu Programmer. Both procedures are detailed in this section.

Operation:

Self-Labeling Key Display Navigation

- Use the Next page and Previous page keys to access Page 1 and Page 2 on the display.
- The Setup key is used to access the LCD Contrast, Bluetooth setup, and the TFD (Ticker Field Display).



Self-Labeling Keys, Multipurpose Keys and Sub-Menus

When a sub-menu is assoicated with the function of a Self-Labeling key, the key name is underlined. Pressing the underlined Self-Labeling key will display the sub-menu. However, it is not required that feature keys with sub-menus are programmed as Self-Labeling keys. Multipurpose keys programmed with a feature that includes a sub-menu may be programmed to a Multipurpose key. Pressing the Multipurpose key will open the sub-menu. For example, the Call FWD key may be programmed in the key pattern to any Self-Labeling or Multipurpose key. Pressing the key will always open the Call Forward sub menu.

Self-Labeling Key Name Change through the KT

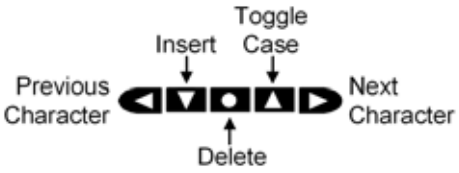
You can manually change the name of a key on the display. This does not change the function of the key, only how it appears on your display.

Note:	If you change the label on a key and that key is changed, the custom label that you assigned to that key will not change. If you have an IX-4EVMC voice mail card installed in your system and your Voice Mail Self-Labeling key displays your voice mail message count and you change the key name to anything other than the default value, the message count will not display. You cannot change the name of a Press Page key. If you press and hold the Press Page key to change the key label, you will make a page when performing this action.

To change the name of a key on the display:

- Press and hold (for five seconds) the key that corresponds to the label you want to change.
- When the Label Name Change screen appears, use the dial pad and the navigation keys to enter the new name for that key. ASCII characters are supported on Self-Labeling keys.
- Press Save to save your changes or Cancel to exit the name change without saving.

1 [space], @, 1	2 ABC a, b, c, 2	3 DEF d, e, f, 3
4 GHI g, h, i, 4	5 JKL j, k, l, 5	6 MNO m, n, o, 6
7 PQRS p, q, r, s, 7	8 TUV t, u, v, 8	9 WXYZ w, x, y, z, 9
* [,], _, !, *	0 -, ., &, /, 0	# (,), ?, , , #



Return a key label to its default name:

If you have changed the name of the key and wish to return the key name to its default setting:

- Press and hold (five seconds) the desired key that corresponds to the label you want to return to the default name.
- Do not enter a new name, press Save & Exit without entering a new name.
- The default key label is now displayed.

Self-Labeling Key Name Change through the Iwatsu Programmer

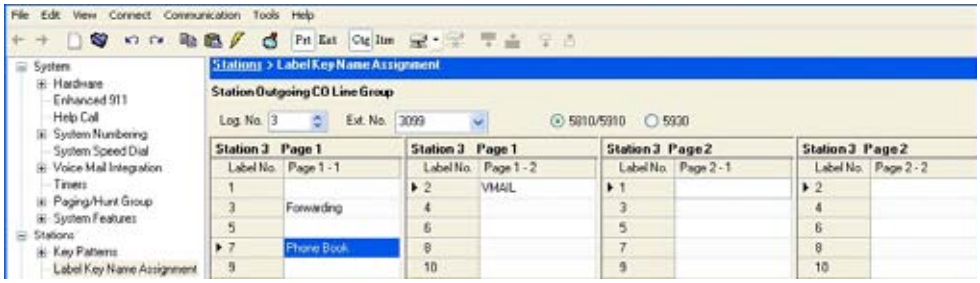
A new ECS database programming category has been added for this feature (Stations > Label Key Name Assignment (Class 39)). The Label Key Name Assignment database item stores the custom Self-Labeling Key Names that are assigned to for each IX-5930, IX-5910, IX-5810 telephone through the Iwatsu Programmer or when changed through the IX-5930/IX-5910/IX-5810.

- Custom key label names are stored in this database location when a Self-Labeling Key is changed from the default setting.
- The Key Name Assignment field will remain blank if the corresponding Self-Labeling Key is set to the default name. Simply delete the custom entry if you choose to return a label to the default name.

Note: Make sure that you have downloaded a current copy of the database before making a change to the Label Key Name Assignment. If you do not have a current database download, you will delete any custom keys programmed at the station.

To change the name of a key on the display:

- Go to Stations > Label Key Name Assignment:
- Enter the Station Logical Port Number (Log. No.). This is the logical port number for the station you wish to modify.
- Enter the Extension Number (Ext. No.). This is the extension number for the station you wish to modify.
- Select the 5810/5910 or 5930 radio button. This is the key telephone model.
- Enter your new label name(s) next to the Label Number (Label No.).
- When you have made your changes, upload the database changes and disconnect. The labels on the key telephone will change when you disconnect.



Conditions:

- **Call ID with a Call on Hold**: CO Line Key, Trunk Group Key, and Call Park Key (Individual Park) display the Caller ID information while a CO call is on hold. The Self-Labeling key label will display its regular indication when the call state changes to other than hold.
- **Caller ID Name**: If a held CO call is an incoming Caller ID call, ANI/DNIS call or ISDN call and has received a Caller ID name, it will display first 11 characters of the Caller ID name with a blinking indication.
- **Caller ID Number**: If a held CO call is an incoming Caller ID call, ANI/DNIS call or ISDN call and it has not received caller ID name but caller ID number, it displays first 11 digits of the caller ID number with a blinking indication.
- **Out Dial Information with a Call on Hold**: CO Line Key, Trunk Group Key, and Call Park Key (Individual Park) can display the sent dial information while a CO call is on hold. The Self-Labeling key label will display its regular indication when the call state changes to other than hold. If a held CO call is an outgoing CO call it displays the first 11 characters of the sent dial digits with a blinking indication.

Self-Labeling Keys, Multipurpose Keys, and Sub-Menus

When a sub-menu is assoicated with the function of a Self-Labeling key, the key name is underlined. Pressing the underlined Self-Labeling key will display the sub-menu. However, it is not required that feature keys with sub-menus are programmed as Self-Labeling keys. Multipurpose keys programmed with a feature that includes a sub-menu may be programmed to a Multipurpose key. Pressing the Multipurpose key will open the sub-menu. For example, the Call FWD key may be programmed in the key pattern to any Self-Labeling or Multipurpose key. Pressing the key will always open the Call Forward sub menu.

Database Programming:

Stations > Label Key Assigment (Class 39).

Hardware Required:

IX-5810, IX-5910, IX-5930

Shift Call

The shift call feature allows a station user to initiate a new intercom call by dialing the last digit of an ECS extension without hanging up if the called extension does not answer or if there was a dialing mistake.

Operation:

To shift call:

With ICM busy tone, ringback tone, or DND warning tone dial the last digit of an *extension number*

Conditions:

This feature must be enabled in *Class 04.23*.

Database Programming:

04.23 - Shift/Clear Call.

Hardware Required:

Standard.

Single Line Telephone Message Waiting Stutter Dial Tone

When a Single Line Telephone that has a message goes off-hook, the ECS automatically sends intermittent tone for 2 seconds before normal dial tone is heard. This feature alerts users of Single Line Telephones they have messages. No system programming is required for this feature.

Operation:

To determine whether you have a message on a Single Line Telephone:

1. From the telephone's idle state, go off hook.
2. If a message exists, you will hear a stutter dial tone.

Conditions:

1. The tone that is used for this feature is the same as second dial tone.
2. The duration of the stutter dial tone is approximately 2 seconds before normal dial tone is heard.
3. The user can dial during the stutter tone.
4. The station must be idle and go off-hook to hear the stutter tone.
5. This feature is also available on Single Line Telephones with message lamps.
6. The stutter tone cannot be heard when answering an incoming call.
7. The stutter tone cannot be heard in a call transfer operation.
8. This feature does not operate on voice mail ports.

Database Programming:

None.

Hardware Required:

Standard.

Speed Dial—Alphanumeric Speed Dial By Name

The Alphanumeric Speed Dial By Name feature allows users to access the speed dial list alphabetically. When a user wants to place a CO outgoing call with the Speed Dial feature, the desired Speed Dial destination can be searched by name alphanumerically.

When a user accesses the Alphanumeric Speed Dial Feature, the system displays the first name in the System Speed Dial or user's Station Speed Dial. The user can then scroll forward or backward through the Speed Dial list or enter specific characters or numbers using the keypad. As more characters are entered, the system narrows, or focuses the search. When the desired name is found, the number can then be dialed.

Operation:

To Access the Alphanumeric Speed Dial By Name Feature

1. Press [SPEED] + [SPEED].
2. To search for a registered name, press the dial pad to select the first character.
3. To focus your search, enter a character, press [HOLD/DND], and then enter another character.
4. To scroll through the registered names, press [#] FORWARD or [*] BACKWARD.
5. When the desired name is found, press [SPEED] to dial the number.

Conditions:

1. This feature is applied to both System Speed Dial and Station Speed Dial.
2. The system searches through the registered names in alphabetical order.
3. A registered name (up to 10 characters) can be searched, and the corresponding Speed Dial Code and telephone number are displayed.
4. Search is carried out in the order of characters (A, a, B, b, C, c, , Z, z), numbers (0, 1, 2, , 9), and symbols, (SP, !, , #, ,~).
5. An extension set to System Speed Dial Disabled (*Class 10.24*) cannot use this feature for dialing out, although the station can use this feature for Station Speed Dial.
6. When a dial digit interval timeout takes place (based on settings in *Class 11.06* and *Class 11.13*) during search, a warning tone is sent and the feature will timeout.

Database Programming:

05.01 - System Speed Dial - Number; 05.02 - System Speed Dial - ID; 05.03 - System Speed Dial - Invisible; 10.24 - System Speed Access; 11.06 - Inter-Digit Time; 11.13 - Sender Time Out; 12.01 - Station Speed Dial; 12.02 - Station Speed Dial - ID

Station Based Recall, Camp-On, Forward Timer

The Hold Recall Timer, Camp-On Recall Timer and No Answer Call Forward Timer can be set for an individual station. This allows station users to have individual timers instead of using the system-wide timers.

Station Hold Recall Timer

With the Station Hold Recall Timer *Class 10.74.01*, you can define the length of time a call will remain on hold on a station-by-station basis. This timer is also used for Call Park and Group Park calls. The value entered denotes the length of time a call will remain on hold before the station that placed it on hold is recalled. A call placed on hold will recall the attendant if recall is not answered after the time programmed in *Class 04.15 - Attendant DIL Intercept* has elapsed.

This is a per station setting. If no setting is made, the programming in *Class 04.08* will determine the hold recall time.

Station Camp-On Timer

With the Station Camp-On Timer *Class 10.74.02*, you can define the length of time the camp-on condition is maintained on a station-by-station basis. When the time programmed elapses, a recall is made to the originating station. At that time, if the line is enabled in *Class 11.26 - Attendant Intercept Line* for attendant intercept, if the originating station does not answer the recall within the attendant DIL intercept time (programmed in *Class 04.15*), recall will be directed to the attendant station.

This is a per station setting. If no setting is made, the programming in *Class 04.12* will determine the camp-on time.

Station Forward Timer

With the Station No Answer Call Forward Timer *Class 10.75.02*, you can define the length of time a call will ring at one station without being answered before it is forwarded to another station.

This is a per station setting. If no setting is made, the programming in *Class 04.13* will determine the station forward timer.

Conditions:

1. Hold Recall Timer can be set separately for each individual station in *Class 10.74.01*.
   The following settings are available.
   - **0-255** seconds
   - (Default) = use setting in *Class 04.08*
2. Camp-On Recall can be set separately for each individual station in *Class 10.74.02*.
   The following settings are available.
   - **0-255** seconds
   - (Default) = use setting in *Class 04.12*
3. No Answer Call Forward Timer can be set separately for each individual station in *Class 10.75.02*. The following settings are available.
   - **0-255** seconds
   - (Default) = use setting in *Class 04.13*
4. If these timer data for the individual station are set as **0**, the system applies the existing data setting (Class 04.08 for Hold Recall, Class 04.12 for Camp-On, Class 04.13 for No Answer Call Forward).
5. For camp-on recall, the system timer value (Class 04.12) at the station called is used.
6. In the case of a DIL incoming call , the transition time for No Answer Call Forward is decided following the rules below:
   - When only one station is ringing (incoming CO call), the system uses the timer value for the station.
   - When two or more stations are ringing, the system uses the timer for the DISA virtual station of the incoming trunk (Class 11.47).

Note:	In either of the above examples, if the data for the corresponding station is not set, the applicable *Class 4* setting is applied.

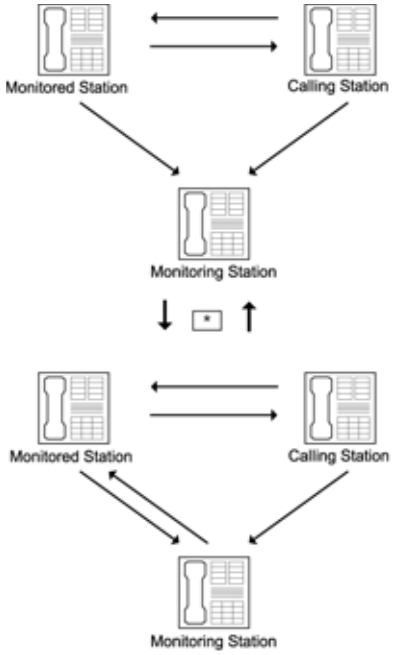
Database Programming:

10.74.01 - Station Hold Recall Timer; 10.74.02 - Station Camp-On Recall Timer; 10.75.02 - Station No Answer Call Forward Timer.

Station Coaching

The user of a digital key telephone or IP telephone is able to whisper page an IP/ digital key telephone after invoking the Monitor feature (hereafter called ‘whisper monitor’). Monitoring stations can whisper monitor other stations while on an outside call, an intercom call or an ACD call. While Whisper Monitoring a station (pressing the [*] key), barge-in is not allowed. However, barge-in is allowed while monitoring a station.

This feature is useful because a monitored user can receive assistance by a monitoring supervisor while on a call. The following illustration visually explains the Station Coaching feature using whisper monitor.



In the above illustration, the Calling Station and the Monitored Station engage on a telephone call. Both the Calling Station and the Monitored Station can hear and speak to one another. The Monitoring Station can only hear the conversation between the Calling Station and the Monitored Station. As was possible prior to ADIX Software Version 7.30, the Monitoring Station can barge-in to the call at any time while monitoring and become part of the conversation by pressing the [ADD] key.

Should the Monitoring Station wish to offer assistance to the Monitored Station without becoming part of the conversation, the Monitoring Station simply presses the [*] key while monitoring. Pressing the [*] key allows the Monitoring Station to hear the conversation between the Calling Station and the Monitored Station and speak to the Monitored Station without the Calling Station hearing the voice of the Monitoring Station. Once the Monitoring Station presses the [*] key, barge-in to the call between the Calling Station and the Monitored Station is not possible unless the [*] key is pressed again.

Operation

To use the Station Coaching feature, the following instructions apply:

While monitoring an outside call, an intercom call or an ACD call:

- Press the [*] key.
  The monitoring station is now able to speak with the monitored station without the calling station hearing.

To return to call monitoring, the following instructions apply:

While using the Station Coaching feature:

- Press the [*] key.
  The monitoring station returns to a monitoring state and cannot speak to the monitored call.

To barge-in while monitoring a station, the following instructions apply:

While monitoring an outside call, an intercom call or an ACD call:

- Press the [ADD] key.
  The monitoring station is now part of the conversation.

To barge-in while whisper monitoring a station, the following instructions apply:

While whisper monitoring an outside call, an intercom call or an ACD call:

- Press the [*] key
- Press the [ADD] key
  The monitoring station is now part of the conversation.

Note:	State law may prohibit the use of this feature.
Note:	Due to the design of some headset amplifiers, the use of the amplified headset may cause the outside party to hear the station using the Whisper Monitor feature.

Conditions

1. A station monitoring a conference call cannot use the Station Coaching feature.
   - Pressing [*] key is ignored.
2. A station monitoring a trunk-to-trunk conference call cannot use the Station Coaching feature.
   - Pressing [*] key is ignored.
3. The Station Coaching feature does not provide the toggle operation for a whispered station.
4. A supervisor monitoring an ACD Emergency Help call cannot use the Station Coaching feature.

Station Restriction Password

A station user can disable or lock their station using a feature access code. This prevents others from making or receiving outside calls at the station until the station is restored. In order to use this feature a password must be entered in *Class 10.05*. The attendant position can restore or lock any station.

Tip: Use this feature to prevent a station from making or receiving outside calls.

Operation:

To disable a station:

At ICM dial tone press [FEAT] + [4][4] + *password*
or
[Station Lockout] + *password*

To restore a locked station:

At ICM dial tone press [FEAT] + [0][4][4] + *password*
or
[Station Lockout] + *password*

Conditions:

A locked station can still make and receive intercom calls.

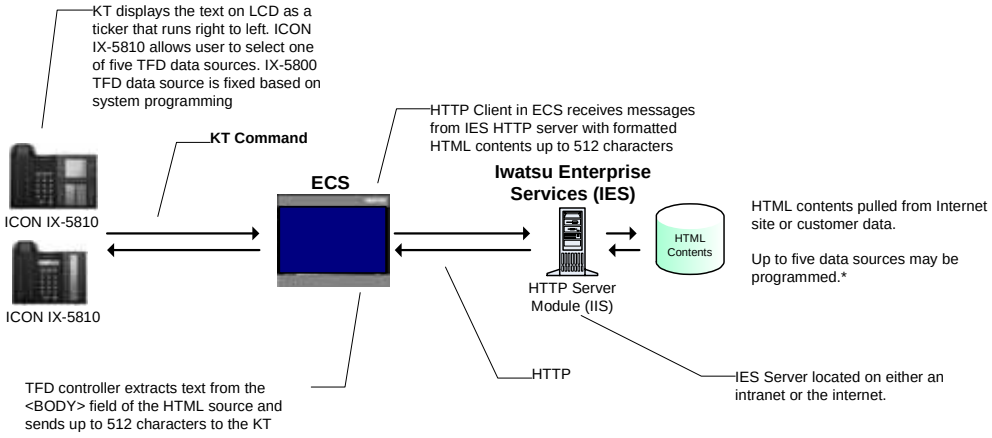
Database Programming:

04.27 - Station Password Digits; 10.05 - Station Password.

Ticker Field Display (TFD)

The Ticker Field Display allows you program a ticker formatted URL and have that information scroll across one of two lines on the Iwatsu ICON Series telephones. As an example, the ticker can be programmed to scroll weather, news, or quote of the day across the display of the key telephone.

Ticker Field Display requires Enterprise Services Version 2.1 or higher. Enterprise Services Version 2.1 and higher adds a data parsing service as part of the Microsoft IIS service that is used to format the Ticker Field Display text into a required ECS format to display on the station LCD. The drawing below illustrates the various components of the Ticker Field Display application.



TFD Feature Overview

1. TFD messages may be up to 512 characters.
2. TFD messages may be programmed to scroll across the first line or the second line of the display.
3. Up to five TFD data sources or five may be programmed in the ECS database. The TFD data source is an HTTP server located on the Internet or an Intranet site or a manually typed message. All TFD message source information is programmed in IES.

4. There are two station TFD modes, Forced and User Selectable (Not Forced). In forced mode, the telephone will always display the TFD text of the selected source. The user does not have the option of changing the source or turning off the TFD. User selectable mode permits the station user to turn the TFD on or off. User selectable mode also permits the station user to select the source, change the scroll speed and select the LCD line that the TFD scrolls. User Selectable mode is only available on the IX-5930, IX-5910, and IX-5810 telephones. Note: Forced mode will override all User Selectable settings.
5. The TFD Refresh Interval, the time between updates of the TFD messages, is programmable between 10 seconds and 18 minutes. Default refresh interval is 3 minutes.
6. One of three TFD display scroll speed settings may be programmed on a user-by user basis. This setting affects the text transition speed as described below:
   - SLOW the text transition speed is 500 milliseconds
   - MEDIUM the text transition speed is 300 milliseconds
   - FAST the text transition speed is 200 milliseconds.
7. Display Priority. Call progress information has a higher display priority than TFD data. As a result, the TFD data only displays when the station is idle.

Operation:

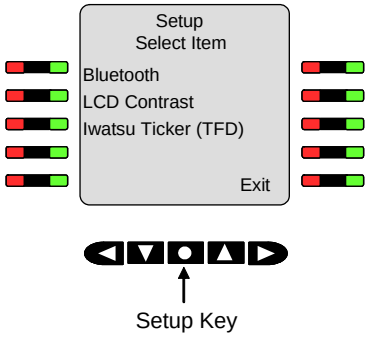
All of the Iwatsu ICON Series telephones support the Iwatsu Ticker Field Display (TFD). The TFD can be activated and deactivated by the user through the Setup Menu on the IX-5810, IX-5910, and IX-5930 telephones. The TFD Forced Mode must be activated and deactivated from the Iwatsu Programmer. Note that on the IX-5810, IX-5910, and IX-5930 telephones, the TFD Forced Mode will override any user programming setting performed through station programming.

Ticker Activation

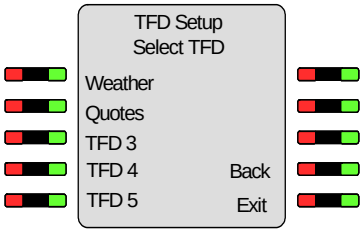
The Iwatsu Ticker cannot be actived/deactivated through the telephone on the IX-5800/IX-5900.

From the **Iwatsu ICON Series** telephone (Except the IX-5800 and IX-5900):

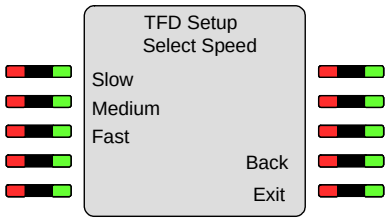
- Press the Setup key and select Iwatsu Ticker (TFD).



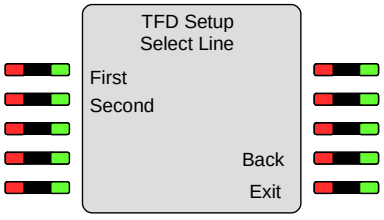
- Select one of the five TFD Sources.



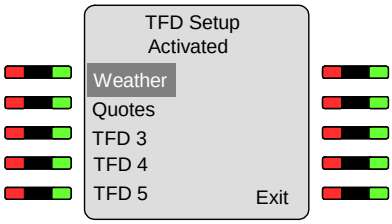
- Select the scroll Speed: Slow, Medium, or Fast.



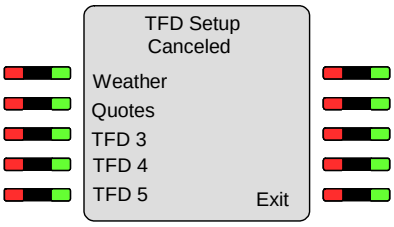
- Select the display Line: First or Second.



- When the TFD is active, the second TFD is highlighted and the display will show Activated. Press Exit to return to the main screen.



- To deactivate the TFD, select the ticker that is currently active.



Database Programming:

Stations > Ticker Field Display (Class 40)

Time Reminder

The station user can program an ECS KT to play a series of tone bursts through the station speaker at a certain time of day. **Reminder** appears on the LCD while the tone bursts are audible. Time must be entered using military time.

Operation:

To set the time reminder:

At ICM dial tone press [FEAT] + [4][1] + *time in military time*
or
[Reminder] + *time in military time*

To cancel:

At ICM dial tone press [FEAT] + [0][4][1]
or
[Reminder] + [*]

Database Programming:

None.

Tone/Voice Calling

A station user can switch the ICM calling mode from voice to tone from the station set. *Class 04.22* is used to grant access to this feature to either the called station or the calling station.

Operation:

To switch the ICM calling mode from voice to tone (calling station) from a digital key telephone:

1. Obtain intercom dial tone by pressing [SPKR] or lifting the handset
2. Dial an extension number then press [#]

To switch the ICM calling mode from voice to tone (calling station) from an Omegatrek Portable Station:

1. Obtain intercom dial tone by pressing [Send]
2. Dial an extension number then press [#]

To switch the ICM calling mode from voice to tone (called station) from a digital key telephone:

Press [FEAT] + [6][5] or [Calling Mode CHG] before dialing an extension

To switch the ICM calling mode from voice to tone (called station) from an Omegatrek Digital Station:

Press [FEAT] + [FEAT] + [6][5] or [Calling Mode CHG] before dialing an extension

Database Programming:

04.22 - ICM Call Mode.

Transfer to Guest Mailbox

Transfer to Guest Mailbox is a Mailbox Access feature. It accommodates the Guest Mailbox feature provided by many voice mail systems. It allows access to mailboxes that are not associated with specific ECS extensions.

The guest mailbox may be accessed from any system extension. Guest mailboxes are accessible by either dialing the mailbox access code (Class 07.06.47-50) plus the guest mailbox number, or by pressing a [Voice Mailbox Access] key (Class 14.01) then dialing the guest mailbox number. The Guest Mailbox Number may be any combination of digits up to a maximum of four digits in length. The maximum length of system mailbox numbers is programmed in Class 04.71.16.

Conditions:

1. Guest mailboxes are created in the voice mail system.
2. Guest Mailboxes have the same capabilities as system mailboxes, however, they are not associated with a specific station and require no ECS hardware (i.e., a dedicated ECS station port with a station terminal).
3. A mailbox number may consist of any combination of digits between 0 and 9.
4. Mailbox numbers may be up to four digits in length. The length of system mailbox numbers is programmed in Class 04.71.16. At default, the mailbox number length is three digits.
5. After dialing either the [Voice Mailbox Access] key + {*mailbox number*}, or {*Mailbox Access Code*} + {*mailbox number*}, the ECS will call the voice mail hunt group after either:
   - The number of digits programmed as the mailbox length in Class 04.71.16 have been dialed.
   - The [#] key is pressed.
   - The 10-second inter-digit timer has elapsed.
6. Awatsu recommends that you program all mailbox numbers and system extension numbers to be the same length.
7. A Guest Mailbox cannot be programmed for Message Waiting lamp appearance on an IX-DSSA-2 unit.
8. If the voice mail number does not match the system extension number, the system/voice mail will not control the station Message lamp.

Operation:

To transfer a call to a Guest Mailbox from an ECS Key Telephone, an Omegatrek Portable Station, a ZT-D/S Key Telephone, SATT, ATT, or VT:

1. While on a call (CO or ICM), press [Tran]
2. Press [*] + voicemail box number
3. Hang up
   - Press [SPKR] or place the handset down while using a digital key telephone
   - Press [Send] from an Omegatrek Portable Station

Database Programming:

04.71.16 - MailBox Length; 07.06.47-50 - Feature Code Numbering; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Whisper Page

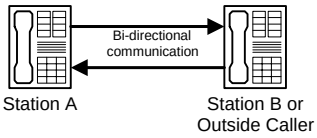
When a busy station is called using the Whisper Page feature, the busy station will hear the voice announcement via the handset receiver. Neither the voice of the station sending the whisper page, nor the busy station's response is audible to the outside party.

The Whisper Page feature allows ECS station users to communicate with busy extensions without requiring the IX-BPAD Busy Bypass Unit. This feature is available from any ECS digital / IP key telephone (including an Omegatrek Portable Station, SLT, or Attendant station.

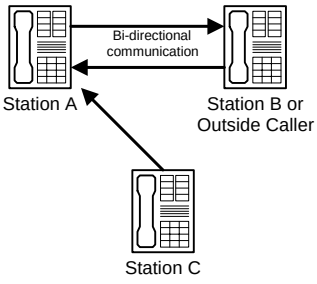
Whisper Page State. As illustrated below, Station A is on a call with Station B (either another station or an outside line as illustrated in . Station C places an intercom call to station A and receives busy tone. Station C presses the [*] key to initiate the Whisper Page feature. At this point , Station C receives confirmation tone and Station A receives conference tone to indicate their station is in the Whisper Page state.

In the Whisper Page state, Station A may listen to Station C, while continuing bi-directional communication with Station B. Station B cannot hear the voice of Station C. Station A may choose to establish bi-directional communication with Station C by pressing the [*] key while in the whisper page state . At this point, Station A hears audio from Station B, but cannot return audio to Station B. Station A may press the [*] key a second time to restore bi-directional communication with Station B .

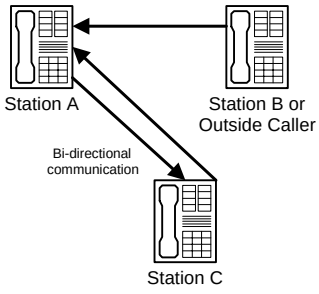
1. Station A is on a call with Station B.



2. Station C calls Station A and receives busy signal. Station C presses [*] to initiating the Whisper Page feature.



3. In the Whisper Page state, Station A may establish bi-directonal communication with Station C by pressing [*].



Conditions:

1. The ECS will support a maximum of 32 simultaneous Whisper Page operations.
2. The following station types may access this feature: ECS Digital Telephones (Including an Omegatrek Portable Station), IX-ATT, Attendant KTs, Versa-Phones, SLTs (DTMF) Telephones.
3. Stations equipped with a Busy Bypass Unit (IX-BPAD) cannot receive a Whisper Page.
4. When a station calls a busy extension, that call is treated as a second call and will follow the class of service programmed for the called station. (For example, if off-hook signaling is enabled at the called station, the station will ring. If off-hook signaling is disabled at the called station, the calling station will hear busy tone.) In order to activate the Whisper Page feature, the calling extension must press the [*] key.
5. In the Whisper Page state, two stations are in bi-directional communication, with the third capable of sending only voice to one of the stations. For example, Station A is communicating bi-directionally with station B and can listen to voice from station C.
6. There is no display indication sent to a station during a Whisper Page.
7. A short alert tone is sent to the interrupted station only after the calling station presses the [*] key to initiate Whisper Page.
8. Confirmation tone is sent to the calling station after pressing the [*] key to initiate Whisper Page.
9. If a SLT in the Whisper Page state dials [*] to respond, a DTMF tone is also sent to the outside party.
10. If a station is programmed as protected in Class 10.44, that station may not receive a Whisper Page.
11. The called station in the Whisper Page state may toggle bi-directional communications between the two stations by pressing the [*] key.
12. If either station A, B, or C hangs up while in the Whisper Page state, the line status changes as listed below:

Disconnecting Station	Line Condition
Station A	All lines are disconnected and all stations go to idle.
Station B	Bi-directional communications between stations A and C
Station C	Bi-directional communications between stations A and B

13. When the call in a Whisper Page state is placed on hold (system hold, park hold, consultation hold), the Whisper Page state is terminated.
14. The Barge-In and Call Monitor features are disabled when a station is in the Whisper Page state.
15. The Text Message feature is disabled when a station is in the Whisper Page state.
16. An ACD agent may not make a ACD Help call or ACD Emergency Help call while in the Whisper Page state.

17. A station in DND mode or with a call on Hold may not receive a Whisper Page.
18. The Whisper Page feature should not be used with stations that have Call Forwarding set.

Operation:

Operation for shifting to whisper page:

After busy signal press [*].

Whisper page toggle change:

During whisper page press [*].

Database Programming:

10.44 - Protected Station

Hardware Required:

Standard.

User Options (Station Programming)

The user programming options listed below are accessible from the IX-5930, IX-5910, and IX-5810 setup menu. Access to these options requires the entry of the station password programmed in the ECS database under **Stations > More Stations** (Class 10.05).

- **Station User ID** – Change the station ID. Up to eight characters supported.
- **Station Password** – Change the station password. Up to four digits.
- **Dial Confirmation Tone** – Turn dial confirmation tone on or off.
- **Handset Volume Control –** Program the default volume setting that the KT will always return to after use. Options are Use Last, Low, Medium, and High.
- **Hold Recall Timer** – Change the value of the Hold Recall Timer between 0 (off) and 255 seconds.
- **Camp-On Recall Timer** – Change the value of the Camp-On Recall Timer between 0 (off) and 255 seconds.
- **Station Ring Tone** – Choose one of eight tones as the default station ring tone.
- **Key Assignment** – Change the value of a Self-Labeling key or multi-purpose key. Note: The User Key Assignment database setting must be set to Allow (default = Deny) to allow station users to change Key Assignments.
- **LCD Backlight Duration** – Change the amount of time the LCD backlight will remain illuminated to a time between 30 seconds (default) and 120 minutes.

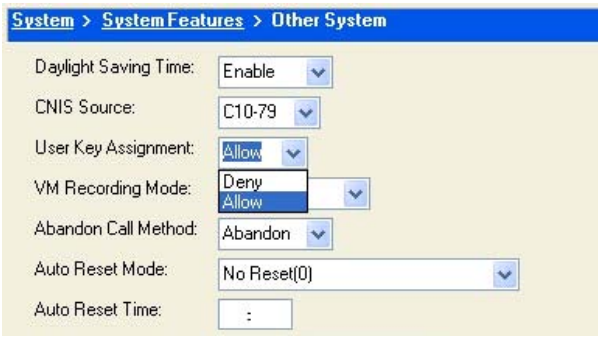
Database Programming

To enable **User Options**, go to **Stations > More Stations** (Class 10.05) and create a **Password** for the station or stations you want to have station programming access under the User Options menu on IX-5930, IX-5910, and IX-5810 telephones.

Stations > More Stations

Log #	Access No.	Name	Distance	Password	Q. Mode	Direct Stn-Stn Call	Protected	Message
12	3108		Less Than 600ft.		On	Allow	Not Protected	Allow
13	3109		Less Than 600ft.		On	Allow	Not Protected	Allow
14	3110		Less Than 600ft.		On	Allow	Not Protected	Allow
15	3111		Less Than 600ft.		On	Allow	Not Protected	Allow
16	3112		Less Than 600ft.		On	Allow	Not Protected	Allow
17	3385		Less Than 600ft.		On	Allow	Not Protected	Allow
18	3386		Less Than 600ft.		On	Allow	Not Protected	Allow
19	3387		Less Than 600ft.		On	Allow	Not Protected	Allow
20	3388		Less Than 600ft.		On	Allow	Not Protected	Allow
21	3095	Icon1	Less Than 600ft.	1234	On	Allow	Not Protected	Allow
▶ 22	3094	Icon2	Less Than 600ft.	1234	On	Allow	Not Protected	Allow

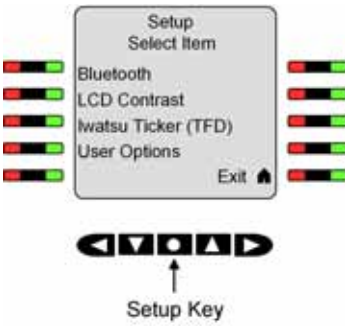
- User Key Assignment access must be changed from Deny (default) to Allow to allow station users to change key assignments on their stations. Go **System > System Features > Other System** (Class 4.70.07) and change the User Key Assignment from Deny to Allow.



Key Telephone Programming

To access User Options from an Iwatsu ICON Series telephone (IX-5810, IX-5910, and IX-5930):

- Press and release the Setup key.
- Select User Options.



- Enter your Station Password. If you do not have a Station Password assigned, you will not see the User Options menu.



- Select the Self-labeling key that corresponds to the User Option that you would like to access. If the User Key Assignment database setting is set to Deny, you will not see the Key Assignment option on your screen.



Database Programming:

Stations > More Stations (Class 10.05); **System > System Features > Other System** (Class 4.70.07)

Hardware Required:

Iwatsu ICON Series IX-5810, IX-5910, IX-5930

Whisper Page with Text Message

The Whisper Page feature allows a busy station to communicate with a station user by sending a 16-character text message to the station that sends a Whisper Page. When a busy station is called using the Whisper Page feature, the busy station will hear the voice announcement via the handset receiver. Neither the voice of the station sending the whisper page, nor the busy station's response is audible to the outside party. At that point, the busy station can return a text message to the originating station that sent the Whisper Page, eliminating the need to interrupt the conversation in progress.

There are two types of text messages, system text messages and personal text messages. Up to 90 system text messages and 10 personal text messages are available to each user. System text messages are accessible by all ECS station users. They are entered in *Class 02.20* and can be a maximum of 16 digits in length. Personal text messages, also a maximum of sixteen digits in length are programmed by the individual station user and may only be accessed at the specific station set.

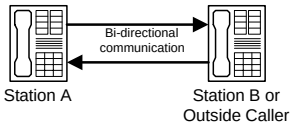
Whisper Page with Text Message Feature Operation

Whisper Page State. As illustrated below, Station A is on a call with Station B (either another station or an outside line. Station C places an intercom call to station A and receives busy tone. Station C presses the [*] key to initiate the Whisper Page feature. At this point , Station C receives confirmation tone and Station A receives conference tone to indicate their station is in the Whisper Page state.

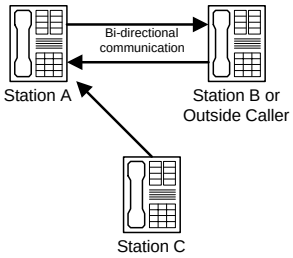
In the Whisper Page state, Station A may listen to Station C, while continuing bi-directional communication with Station B. Station B cannot hear the voice of Station C. Station A may either choose to establish bi-directional communication with Station C by pressing the [*] key OR to send a text message by pressing the [TXT MSGn] button (or the [TXT MSG] button and the message number 00-99) while in the whisper page state. At this point, Station A hears audio from Station B, but cannot return audio to Station B. Station A may press the [*] key a second time to restore bi-directional communication with Station B.

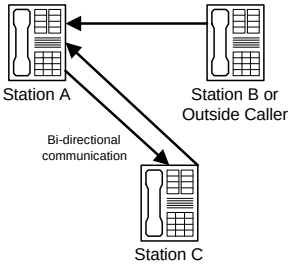
[*] key a second time to restore bi-directional communication with Station B.

1. Station A is on a call with Station B.



2. Station C calls Station A and receives busy signal. Station C presses [*] to initiating the Whisper Page feature.





3. In the Whisper Page state, Station A may either establish bi-directonal communication with Station C by pressing [*] OR send a text message by pressing the [TXT MSGn] button or the [TXT MSG] button plus the message number 00-99.

Sending Text Messages During Whisper Page. When a whisper page is received, a text message may be selected and sent by either pressing the [TEXT MSG] key (key data 161) plus a two-digit access code, or a [TEXT MSGn] key programmed to access a specific text message. The station user may choose to change the text message to a Stored Text Message by pressing [#] after selecting a text message.

A Manual Signal text message can be sent by either pressing the [TEXT MSG] key plus a two-digit access code, or a [TEXT MSGn] key programmed to access a specific text message followed by an extension number, DSS key, or Call Coverage key. Text message alert tone is sent to the recipient along with each text message, while the sender receives confirmation tone. If the recipient is talking through the handset, alert tone is audible through the earpiece. If the recipient is talking through the speakerphone, or the station is inactive, alert tone is sent through the speaker. Text message alert tone is also sent to a recipient station that is in DND mode. However, *Class 10.72.03* may be used to disable text message alert tone at a DND station.

Text Message Display. When a text message arrives at a station, the top line of the display contains the text message which can be up to 16 digits in length. The bottom line of the display contains the station user ID (*Class 10.04*). If no station user ID is programmed, the station number is displayed on the second line. When multiple text messages are sent to a station, each new text message overwrites the existing text message. The preceding message is deleted. A text message will remain on the LCD for the duration programmed in *Class 04.71* or until manually deleted by the recipient or the sender. Press [FEAT] + [6][3] or [LCD Mode Change] to change the displayed data. At the sending station, the text message number appears on the first line of the LCD and the message text appears on the second line of the display for 10 seconds or until the station goes on hook.

Stored Text Message Display. Stored text messages cause the [TEXT MSG] key to light but do not appear on the station LCD. Station users are notified of a new stored text message via an alert tone, and when the red lamp on the [TEXT MSG] key lights. A maximum of three stored text messages can be saved in memory. Stored text messages remain in memory until either canceled by the sender or deleted by the recipient. Stored text messages may only be sent to stations that have a [TEXT MSG] key.

Text Message Groups. Up to sixteen stations may be joined in a text message group. Using a [MSGGPn] key, a station user can send a text message to all the stations in a text message group simultaneously. Text message groups are programmed in *Class 08.06*. The system supports a maximum of 60 text message groups.

Whisper Page During Consultation Hold

Whisper is now possible during consultation hold. When a station tries to transfer a call to a busy station (and thus the call is temporarily placed on consultation hold) the station can send a whisper page to the busy station. This allows the transferring party to announce a call to a busy station and then camp-on the call all in one step.

Operation:

Operation for shifting to whisper page state

After busy signal press [*]

Whisper page toggle change

During whisper page press [*]

To select and send a text message to the originating Whisper Page station

After you receive a whisper page, press the Text Message button [TEXT MSG] + *text message number (00 – 99)*, or the Preprogrammed Text Message button [TEXT MSGn]

To scroll through the available system text messages

1. Go off hook and press the Text Message button [TEXT MSG]
2. Press [*]
3. Enter a system text message number *00-89*
4. With a message displayed, press [#] to scroll forward and [*] to scroll backward

To select and send a manual signaling text message to the originating Whisper Page station

1. After you receive a whisper page, press the Text Message button [TEXT MSG] + text message number (00 – 99), or the Preprogrammed Text Message button [TEXT MSGn]
2. Dial an extension number or press a DSS key or Call Coverage key

To delete a text message from your display

1. While a text message is on your display press the Text Message button [TEXT MSG]
   - Press [#]
   - Press [*]
2. To send a Whisper Page during consultation hold
   - During consultation hold press [*] and announce the call
   - If the busy station wishes to take the call, hang up to camp-on the call

Conditions:

1. When a station sends a Whisper Page to a busy station, the busy station (KT, SATT, or ATT) can return a text message.
2. When a station sends a Whisper Page to a busy station, the busy station can only send a text message to that station.
3. When a station sends a Whisper Page to a busy station, and the busy station also receives a text message from another station, if the busy station sends a text message, the text message goes to the Whisper Page station.
4. The station that initiates Whisper Page can complete the transfer by hanging up or by using the connecting key.
5. The ECS will support a maximum of 32 simultaneous whisper page operations.
6. Stations equipped with a Busy Bypass Unit (IX-BPAD) cannot receive a Whisper Page.
7. When a station calls a busy extension, that call is treated as a second call and will follow the class of service programmed for the called station. (For example, if off-hook signaling is enabled at the called station, the station will ring. If off-hook signaling is disabled at the called station, the calling station will hear busy tone.) In order to activate the Whisper Page feature, the calling extension must press the [*] key.
8. In the whisper page state, two stations are in bi-directional communication with the third capable of sending only voice to one of the stations. For example, Station A is communicating bi-directionally with station B and can listen to voice from station C.
9. There is no display indication sent to a station during a Whisper Page.
10. A short alert tone is sent to the interrupted station only after the calling station presses the [*] key to initiate whisper page.
11. Confirmation tone is sent to the calling station after pressing the [*] key to initiate whisper page.
12. If a single line telephone in the Whisper Page state dials [*] to respond, a DTMF tone is also sent to the outside party.
13. If a station is programmed as protected in Class 10.44, that station may not receive a Whisper Page.
14. The called station in the whisper page state may toggle bi-directional communications between the two stations by pressing the [*] key.

15. If either station A, B, or C hangs up while in the Whisper Page State, the line status changes as listed below:

Disconnecting Station	Line Condition
Station A	All lines are disconnected and all stations go to idle.
Station B	Bi-directional communications between stations A and C
Station C	Bi-directional communications between stations A and B

16. The Barge-In and Call Mornitor features are disables when a station is in the Whisper Page state.
17. The Text Message feature is disabled when a station is in the Whisper Page state.
18. An ACD agent may not make a ACD Help call or ACD Emergency Help call while in the Whisper Page state.
19. An ACD agent on an ACD call cannot respond with a Text Message to a Whisper Page.
20. Stations in DND mode or with a call on Hold may not receive a Whisper Page.
21. The Whisper Page feature should not be used with stations that have Call Forwarding set.
22. Text messages cannot be sent to stations that are not connected (including IX-8PSUB cards in make-busy state), subject to station call restriction, or in use by a different tenant.
23. System text messages, bins 00-89, are programmed in *Class 02.20* and may be changed from attendant stations. Personal text messages, bins 90-99, may be added, deleted or changed at the individual station.
24. Text messages may be sent to any system extension equipped with a display telephone.
25. Saved text messages may only be sent to stations that have been assigned a [TEXT MSG] key.
26. The [TEXT MSG] key is required to display saved text messages.
27. Text messages may be sent to stations in DND mode.
28. At system default, text message alert tone is not audible from the recipient station when that station is in DND mode. Use *Class 10.72.03* to enable text message alert tone at a DND station.
29. Text message alert tone is audible at the recipient station from either the earpiece or the handset according to the following conditions:
30. If the station is on a call using the handset, alert tone is sent through the earpiece.
31. If the station is on a call using the speakerphone, alert tone is sent through the speaker.
32. If the station is idle, alert tone is sent through the speaker.
33. Text message confirmation tone is audible at the originating station from either the earpiece or the handset according to the following conditions:

34. If the originating station is calling using the handset, confirmation tone is received through the earpiece.
35. If the originating station is calling using the speakerphone, confirmation tone is received through the speaker.
36. *Class 04.71, Element 39* determines the length of time in minutes (0-255) that a text message remains on the recipient station LCD.
37. The recipient station cannot view or respond to a saved text message while on an intercom or CO call.
38. The originating station cannot delete a text message from the recipient station set.
39. A reply to a text message may be sent to the sender during an intercom or outside line call by pressing [TEXT MSG] + [*] + message number + [#] while the message is displayed.
40. A text message is not forwarded with a call to the forwarding destination. The text message is displayed on the forwarded station.
41. The [MSGGPn] key is required to send messages to a text message group. Text message groups are programmed in Class 08.06. The system supports a maximum of 60 text message groups with 16 stations maximum per group.

Database Programming:

System Hardware (Class 01); 02.20 - System Text Message; 04.71.39 Text Message Display Duration; 08.06 - Text Message Group; 10.44 - Protected Station;10.72.03 - Text Message Confirmation Tone; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 26.01 - Station Text Message 1.

Required Hardware

Display Telephones.

Chapter 3

Attendant Features

This chapter lists features that are exclusive to attendant positions. If you cannot find information about the feature you are looking for see Chapters 1 and 2.

Alarm Clear

Five primary alarm notifications relate to this feature: Major Alarm, Minor Alarm, Power Alarm, T1NET INIT Error and T1NET Disconnect. The alarm notifications are sent to all attendant telephones.

The following table shows the available values in the Iwatsu Programmer for the Selectable Alarm Notification feature.

Notification Level	Alarm Types				
	MAJOR ALARM	MINOR ALARM	POWER ALARM	T1NET INIT ERROR	T1NET DISCONNECT
All Alarms	Yes	Yes	Yes	Yes	Yes
No Alarms	No	No	No	No	No
No Minor Alarms	Yes	No	Yes	Yes	Yes
Campus Alarms Only	No	No	No	Yes	Yes

Operation:

To clear a major or minor system alarm:

At ICM dial tone press [FEAT] + [#] + [7]

Conditions

1. All five alarm types display in default.
2. Regardless of the Class 04.71.19 Alarm Notification Level selection, all errors are recorded in the ECS system error log and lamp indications are sent to the IX-ATT.

Database Programming:

04.71.19 - Alarm Notification Level; 31.07 - Network Error Display Station.

Hardware Required:

Standard.

Attendant Automatic Hold

By pressing the button indicating a new call while on a call, the current call is automatically placed on hold and the new call is put through. This feature must be enabled in *Class 10.53*.

Database Programming:

10.53 - Attendant Automatic Hold.

Hardware Required:

Standard.

Attendant Override

If this feature is enabled in *Class 10.41*, the attendant can override a call at a busy station or a station in do not disturb mode. The extension user is notified by a tone burst or SLT ringing.

Database Programming:

10.41 - Busy Override; 10.43 - Off-Hook Signaling; 10.44 - Protected Station.

Hardware Required:

Standard.

Automatic Answer Mode

An attendant position that has been assigned an [Automatic Answer] key in Class 15.01 can place the system in automatic answer mode. The attendant is required to switch the system out of automatic answer mode using the [Automatic Answer] key.

Operation:

To manually switch to automatic answer mode from an attendant position:

At ICM dial tone press [Automatic Answer] once to display, and multiple times to toggle between VOICE MESSAGE 1, VOICE MESSAGE 2, and OFF.

Database Programming:

Ensure system date and time are correct;04.04 - Background Music (BGM) Output Port; 04.20 - VSS Recording Time; 04.33 - Automatic CO Answer Day; 11.24 - Automatic Answer Line; 11.45 - Auto Answer Message 1; 11.46 - Auto Answer Message 2 15.01 - Attendant Key Assignment.

Hardware Required:

IX-MSGU, IX-CMSG or IX-CMSG-1 for custom messages.

Attendant Intercept

The Attendant Intercept feature (Class 11.26) allows an outside call to be directed to ring at an attendant position if the call goes unanswered, if transferred to a non existent extension, or if a call reaches an extension in the DND (Do Not Disturb) mode. If a call is transferred to a non existent extension the [Recall Answer] key LED will light on the attendant station.

ECS software version 8.0 extends the Attendant Intercept operation to incoming PRI/BRI calls as well as, incoming T1 ANI/DNIS calls. The Improved Attendant Intercept feature changes the Attendant Intercept Line attribute (Class 11.26) default from Disable to Enable. This change enables incoming PRI/BRI calls to a busy VM/AA or station to be answered by an attendant.

Conditions

1. ATT Intercept operation is not valid when a system or trunk group is in Night mode.
2. Direct Station Call (Class 24 - CID/ANI Conversion Data/Class 25 DNIS Conversion Data)
   - A PRI call will attempt an ATT intercept if an individual station, specified in the Class 24 or 25 conversion table, is on a call and the Off-Hook Signaling parameter (Class 10.43) is set to Deny.
   - Stations > More Stations > Off Hook Param > Off Hook Signaling = Deny (Default = Allow).
   - A PRI call will attempt the ATT Intercept operation if an individual station, specified in the Class 24 or 25 conversion table, is busy (off-hook or on speaker).
   - A PRI call will attempt the ATT Intercept operation if an individual station, specified in the Class 24 or 25 conversion table, is ringing.
3. Hunt Group Call (Class 24 or 25 - Terminal or Distributed Hunt Group)
   - A PRI call will attempt the ATT Intercept operation if all individual stations in a hunt group, specified in the Class 24 or 25 conversion table, are all busy or ringing.
4. Certain conditions invoke the intercept only after timeout. e.g., calls to auto-attendant when ports are out-of-service. Outside caller will hear ring-back tone until timeout, then the call is routed the intercept location.
5. When multiple attendants are programmed in the ECS database under Stations > Attendant > Attendant Positions (Class 04.55) the attendant position that intercepts the call is distributed to each programmed attendant.
   - If there is no entry programmed in the ECS database under Stations > Attendant > Attendant Positions (Class 04.55) the ECS system will distribute the call to the attendant with the lowest physical port number.

6. In default, there is one true attendant position programmed in Stations > Attendant > Attendant Positions (Class 04.55) for each ECS system. This also applies to ECS systems that are part of an IP Campus system. The main and remote ECS systems have one true attendant (by default) programmed in Class 04.55.
   - If an incoming call at an IP Campus remote goes unanswered, it is possible that the call could be intercepted by an attendant in the main ECS IP Campus system or at another remote.

Database Programming:

11.26 - Attendant Intercept Line; 15.01 - Attendant Key Assignment.

Note:	If you have upgraded your ECS system from a previous software version to ECS software version 8.0 and have uploaded a converted database to the system, you will need to manually change this parameter from Disable to Enable.

Hardware Required:

Standard.

Attendant Overflow Transfer

If the number of calls waiting to be answered at an attendant position exceeds the value programmed in *Class 10.55*, new incoming calls to the attendant position will overflow to the destination programmed in *Class 10.56*. Indication of the number of calls waiting in the queue of an attendant position are indicated by the Operator Wait LEDs. If the number of calls waiting in queue exceeds 12 queue indication is not provided. The attendant overflow level and destination can be changed at the attendant station.

Operation:

To manually set the attendant overflow level:

At ICM dial tone press [FEAT] + [Over Ride] + [#] + *overflow level (01-30)*

To manually set the attendant overflow destination:

At ICM dial tone press [FEAT] + [Over Ride] + *extension number* or *hunt group number*

Database Programming:

10.55 - Attendant Overflow Level; 10.56 -Attendant Overflow Destination.

Hardware Required:

Standard.

Clock Set/Adjustment

The system clock can be adjusted at the attendant position.

Operation:

To set the system clock at an attendant position:

Press [FEAT] + [6][4] + *time in military time.* Wait for the confirmation tone.

Database Programming:

None.

Hardware Required:

Standard.

CCSU Serial Number / ECS Software Version Display

The IX-CCSU Serial Number and ECS Software Version Display feature allows a technician or user to display the last six digits of the IX-CCSU Serial Number and the ECS Software Version from any attendant position.

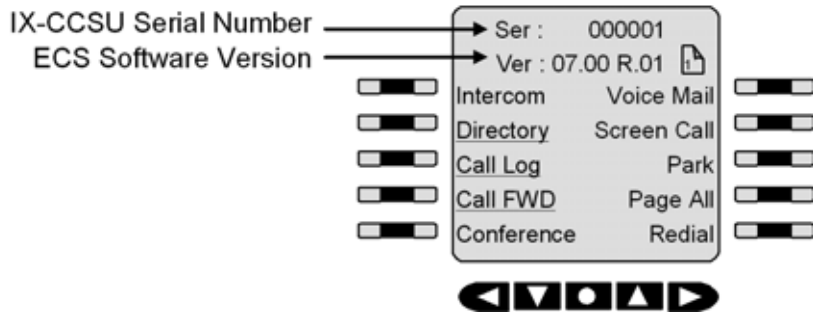
Database Programming:

No database programming is required for this feature.

Operation:

The IX-CCSU serial number and ECS software version is displayed by pressing [**FEATURE**] + **9** + **3** on an attendant station.

- The CCSU serial number and the ECS software version will display for approximately 10 seconds.



Hardware Required:

ECS attendant station with a two line display.

Conditions:

1. The last six digits of the IX-CCSU serial number (including leading zeroes) appear on the top system line of the attendant station display.
2. The ECS software version displays on the second system line of the attendant station display.
3. This feature is available on any station configured as an Attendant
4. Only Iwatsu attendant stations with a two-line display can display this information. Iwatsu Platinum Series 12i/d telephones can only display the IX-CCSU serial number (top system line) and not the ECS software version on the second line of the display.

Direct Station Selection

A [DSS n] button provides one-touch access to call extensions. At default there are 30 [DSS n] buttons on an attendant console (first 30 station logical ports) and 100 on a DSS unit (first 100 station logical ports).

Operation:

To call a specific extension:

Press the [DSS n] button representing that extension

Database Programming:

15.01 - Attendant Key Assignment.

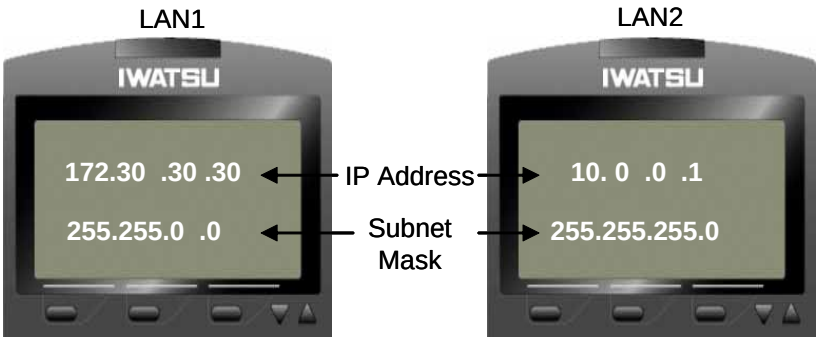
Hardware Required:

Standard.

IP Address Indication on SATT

The ECS IP Addresses for the LAN1 and LAN2 ports on the IX-CCSU can be shown pressing [FEAT] + [91] for the LAN1 IP Address and Subnet Mask and [FEAT] + [92] for the LAN2 IP Address and Subnet Mask.

[FEAT] + [91] and [FEAT] + [92] Example



Conditions:

The IP Address and Subnet Mask will appear on the SATT LCD for ten seconds

Database:

None.

Hardware Required:

Standard.

Operator Call

The attendant receives internal (ICM) calls on an [Operator] key. When a call is answered, the LCD displays the following information about the calling extension: extension number, extension ID, and toll restriction class.

Database Programming:

None.

Hardware Required:

Standard.

Paging/Park

When an operator pages while on a call, the call is automatically placed in an attendant call park orbit. The orbit number and trunk number are displayed on the LCD.

Conditions:

1. If all attendant park orbits are full the call is placed on system hold.
2. Park orbit numbers are displayed on a DSS or console; they do not display on KT displays.

Database Programming:

07.01 - Attendant/System Park Orbit Numbers; 07.04 - Paging Group Access Numbers; 08.04 - Paging Group - Station/Zone.

Hardware Required:

Standard.

Serial Call

By pressing a [Serial Call] button, a call transferred from the attendant position will return to the attendant position when the extension the call was transferred to hangs up. Serial call can only be used with incoming CO calls.

Operation:

To perform serial call operation:

1. While on a call
2. Attendant Console: Press *extension number* + [Serial Call]
3. DSS unit: Press [TRAN] + *extension number* + [Serial Call]

Database Programming:

15.01 - Attendant Key Assignment.

Hardware Required:

Standard.

Station Call Forward/Do Not Disturb Release

The attendant may cancel the flexible call forward or do not disturb settings at any other system extension.

Operation:

To cancel call forwarding or DND at another extension at ICM dial tone:

1. Attendant Console: Press [ETC] + [ETC] + [F4] + *extension number* + [F2] + [END]
2. DSS Unit: Press [Forced Release] + [3] + *extension number* + [Release]

Database Programming:

15.01 - Attendant Key Assignment.

Hardware Required:

Standard.

Station Class Restriction Change

Each system extension can be programmed to have a different toll restriction class in the day mode and night mode. The attendant can switch the toll restriction class of a group of extensions or an individual extension.

Operation:

To change the class of service of a station at ICM dial tone:

1. Attendant Console: Press [ETC] + [F2] + *extension number* + [1] (day mode) or [2] (night mode) + [END]
2. DSS Unit: Press [SPKR] + [Station Service] + [*] + *extension number* + [1] (day mode) or [2] (night mode)

To change the class of service of a group of stations at ICM dial tone:

1. Attendant Console: Press [ETC] + [F2] + [F2] + *group number* + [1] (day mode) or [2] (night mode) + [END]
2. DSS Unit: Press [SPKR] + [Station Service] + [*] + *group number* + [1] (day mode) or [2] (night mode)

Database Programming:

10.52 - Toll Restriction Class Alternating Group; 15.01 - Attendant Key Assignment.

Hardware Required:

Standard.

Station Forced Release

This feature allows the attendant to remove an extension from service.

Operation:

To remove a station from service:

At ICM dial tone:

- Attendant Console: Press [ETC] + [ETC] + [F2] + *extension number* + [F3]
- DSS Unit: Press [Forced Release] + [1] + *extension number* + [Release]

To put a station back in service:

At ICM dial tone:

- Attendant Console: Press [ETC] + [ETC] + [F2] + *extension number* + [F2]
- DSS Unit: Press [Forced Release] + [1] + *extension number* + [Connect]

Database Programming:

15.01 - Attendant Key Assignment.

Hardware Required:

Standard.

Station Lock

This feature allows the attendant to deny an extension access to outside lines.

Operation:

To lock a station:

At ICM dial tone:

- Attendant Console: Press [ETC] + [ETC] + [F1] + [#] + *extension number*
- DSS Unit: Press [Station Lockout] (or [FEAT] + [4][4])+ [#] + *extension number*

To unlock a station:

At ICM dial tone:

- Attendant Console: Press [ETC] + [ETC] + [F1] + [#] + *extension number* + [RLS]
- DSS Unit: Press [Station Lockout] (or [FEAT] + [0][4][4])+ [#] + *extension number*

Database Programming:

15.01 - Attendant Key Assignment.

Hardware Required:

Standard.

System Speed Dial Registration

System speed dial numbers can be changed from the attendant position without accessing database programming mode. Depending on the programming in *Class 02.01* there are either 90 two-digit speed dial numbers (01-89) or 900 three-digit speed dial numbers (001-899). The numbers can be a maximum of 32 digits in length and can include the insertion of a pause.

Operation:

To register a system speed dial number:

At ICM dial tone:

- Attendant Console: Press [ETC] + [F5] + speed dial bin number + CO line group number + telephone number + [F1]
- DSS Unit: Press [FEAT] + [SPEED] + [#]+ speed dial bin number + CO line group number + telephone number + [FEAT]

Database Programming:

02.01 - System Speed Dial Type; Class 05 System Speed Dial; 15.01 - Attendant Key Assignment.

Hardware Required:

Standard.

Through Dialing

This feature allows an attendant position to make CO calls or provide CO dial tone for toll restricted or access restricted extensions. The attendant's LCD shows the station's toll restriction class when called.

Operation:

To grant dial tone to a toll restricted or access restricted station:

After answering ICM call press [HOLD/DND] + [COL n] or [FLT n] + *telephone number* + [Connect]

Database Programming:

10.21 - Outgoing CO Line Group; 10.23 - Toll Restriction Level and Class.

Hardware Required:

Standard.

True Attendant Position

Attendant positions defined in *Class 04.55* as true attendant positions will receive attendant intercept calls and all attendant calls.

Conditions:

1. Attendant intercept calls and all attendant calls are equally distributed among the true attendant positions.
2. If no attendant positions are defined as true attendant in *Class 04.55*, the attendant position connected to the lowest logical port becomes the true attendant position.
3. The system will support thirty-two true attendant positions.

Database Programming:

01.11 Port Definition; 01.11 Port Configuration; 04.55 - Port Definition - True Attendant Position; 07.06.30 - Feature Access Numbers.

Hardware Required:

Standard.

Trunk Access Control

The attendant can deny stations access to an individual trunk or trunk group.

Note: The attendant can still access a denied trunk.

Operation:

To set the access control of a trunk or trunk group:

At ICM dial tone:

- Attendant Console: Press [ETC] + [F3] (+ [F4] trunk group only) + *trunk logical port number* or *trunk group number* + [F3] (deny) or [F2] (allow) + [END]
- DSS Unit: Press [Trunk Access CNT] + [*]+ *trunk logical port number* or *trunk group number* + [Release] (deny) or [Connect] (allow)

Database Programming:

11.38 - Outgoing CO Group; 15.01 - Attendant Key Assignment.

Hardware Required:

Standard.

Trunk Forced Release

This feature allows an attendant position to remove a trunk or trunk group from service.

Operation:

To set the access control of a trunk or trunk group:

At ICM dial tone:

- Attendant Console: Press [ETC] + [ETC] + [F3] (+ [F4] trunk group only) + *trunk logical port number* or *trunk group number* + [F3] (release) or [F2] (connect) + [END].
- DSS Unit: Press [Forced Release] + [2] (+ [*] trunk group only) + *trunk logical port number* or *trunk group number* + [Release] or [Connect]

To display the status of a trunk or trunk group:

At ICM dial tone:

- Attendant Console: Press [ETC] + [ETC] + [F3] + *trunk logical port number* + [F1]

Database Programming:

11.37 - Forced Release Condition; 11.38 - Outgoing CO Group; 15.01 - Attendant Key Assignment.

Hardware Required:

Standard.

User System Reset Operation

Users can reset the ECS system from an attendant console or an attendant key telephone (SATT) by pressing [FEAT] + [#] + [4] + [6] + [2] + [4] + [6] in sequence. Once the sequence is entered, there is an approximately 5 second delay while the ECS writes the current database to backup memory.

Additionally, non-attendant stations can be programmed to use this feature. If this feature is used, the software registers an error to the error log that includes the logical port number from which the system has been reset.

Note:	It is possible for a user to reset the system by pressing the reset key sequence. Please warn any user of the consequences of resetting the system.

Operation:

To reset the ECS telephone system:

Press [FEAT] + [#] + [4] + [6] + [2] + [4] + [6] in sequence.

Conditions:

1. All attendant stations (IX-ATT, KT / DSS, SATT) automatically have this feature.
2. Other non-attendant key telephones must be set to be the Network Error Display Station in Class 31.07 in order to utilize this feature.

Database Programming:

01.11 Port Definition; 31.07 - Network Error Display Station.

Chapter 4

Omegatrek Features

The Omegatrek Portable Station (IX-PS6) allows many of the commonly used features used on the digital key telephone. The table below lists all Omegatrek Portable Station (IX-PS6) features. The process for using most features on the Omegatrek Portable Station (IX-PS6) is the same as they are used on a digital key telephone. The Omegatrek Portable Station features that differ substantially from those of digital key telephone immediately follow the table. For those features not listed in this section, please refer to System - Wide Features or Station Features.

Omegatrek Portable Station Features

System Features

Feature	Supported By Omegatrek	Notes
911 Support	Yes	
ACD Access and Agent Capabilities	Yes	
ANI Alphanumeric ID	Yes	
Automatic Number Identification (ANI)	Yes	
Background Music	No	
Fixed Call Forwarding	Yes	
Flexible Call Forwarding	Yes	
Caller ID Alphanumeric ID	Yes	
Conversation Recording	Yes	
Delayed Ringing	Yes	
DNIS Alphanumeric ID	Yes	
Dialed Number Identification Service (DNIS)	Yes	
DID Alphanumeric ID	Yes	
DISA	Yes	
E-Response Help Call	No	
External Paging Access	Yes	
Intercom Group Call	Yes	
Flexible Numbering	Yes	
Internal Paging Access	Yes	
Master Hunt Group	Yes	
Music On Hold	Yes	
Networking - Campus APS Networking	Yes	Omegatrek equipment can only be used in the main hub system of a Campus application.
Networking - E & M Tie Lines	Yes	
Optimized Routing	Yes	
Personal Ringing Tones	No	Omegatrek IX-PS6 Portable Stations include a multiple ringer setting built into the handset.
SMDR	Yes	
System Clock	Yes	
System Speed Dial	Yes	
Text Messaging	No	
Toll Restriction	Yes	
Tone Pulse Dialing	Yes	
Transfer Off Premises	Yes	
Transfer to Guest Mailbox	Yes	
Uniform Call Distribution (UCD)	Yes	

Basic Features

Feature	Supported By Omegatrek	Notes
Making a 911 Call	Yes	
Making an Outgoing Call	Yes	
Receiving an Incoming Call	Yes	
Making an Intercom Call	Yes	
Receiving an Intercom Call	Yes	
Making an Intercom Group Call	Yes	
Making an E-Response Help Call	No	
Transferring a Call to Another Extension	Yes	
Putting a Call on Hold	Yes	
Picking Up a Call on Hold	Yes	
Putting a Call on Call Park	Yes	
Handling a Second Call	Yes	

Advanced Features

Feature	Supported By Omegatrek	Notes
Absence Message Display	No	
ACD Group Access	Yes	
Account Code	No	
All Attendants Call	Yes	
Alphanumeric Display	Yes	
Alphanumeric Speed Dial by Name	Yes	
Alternate Tone/Pulse Dialing	No	
Automatic Repeat Dialing	No	
Background Music	No	
Barge-In	Yes	
Built-In Speakerphone	No	
Busy Intercom Callback	No	
Busy Number Callback	No	
Busy Outside Line Queuing	No	
Call Coverage	Yes	
Flexible Call Forwarding	Yes	
Forward Cancel	Yes	
Set Forward Destination	Yes	
Set Active/Inactive	Yes	
Set Forward Via Direct Inward System Access (DISA)	Yes	
Cancel Via Direct Inward System Access (DISA)	Yes	
Call Monitoring	Yes	
Call Park/Swap	Yes	
Call Pickup	Yes	
Direct Call Pickup	No	
Internal Group Call Pickup	No	
External Group Call Pickup	No	
Caller ID Display Change	No	

Feature	Supported By Omegatrek	Notes
Camp-On	Yes	
Clear Call	Yes	
Comlink Applications	Yes	
Conference	Yes	
Add-On	Yes	
Multiline	Yes	
Trunk-to-Trunk	Yes	
Consultation Hold	Yes	
Conversation Recording	Yes	
Delayed Ringing	Yes	
Direct Outside Line Appearance	Yes	
Direct Station Select/Busy Lamp Field	Yes	
Distinctive Ringing ICM / Outside Line	Yes	Ring Tone options for ICM, CP, PBX/ Centrex, Alarm, and Doorphone
Do Not Disturb (DND)	No	
Executive Hold	Yes	
Executive Override	Yes	
Set Forward Via Direct Inward System Access (DISA)	Yes	
Cancel Via Direct Inward System Access (DISA)	Yes	
Extension Number Display	Yes	
Feature Button Display	Yes	
Flash	Yes	
Floating Outside Line Group Access	Yes	
Forced/Verified Account Code	No	
Group Monitoring	No	
Group Park	Yes	
Hands-Free Answerback on Intercom	Yes	
Headset Button	No	The IX-PS6 Portable Station does not require a headset key because the Headset feature is built into the portable handset.
Headset Connection	Yes	
Hot Line	No	
Howler Tone	No	
Last Number Redial	No	
Master Hunt Groups	Yes	
Memo Dial	No	
Message Waiting	Yes	
Microphone Cut-Off	Yes	
Off-Hook Outgoing Call	Yes	
Off-Hook Outside Line Answering	Yes	
Off-Hook Outside Line Queuing	No	
On-Hook Dialing	Yes	
Outside Line Call Restriction	Yes	
Outside Line Pick-up Restriction	Yes	
Paging (Access Only)		

Feature	Supported By Omegatrek	Notes
All Call	Yes	
Group Call (Internal)	Yes	
Zone (External)	Yes	
Meet-Me Page Answer	Yes	
Personal Ringing Tone	No	Omegatrek IX-PS6 Portable Stations include 13 ringer tones built into the handset.
Preset Dial/Backspace Dialing	Yes	Use the Clear/History key to back space.
Protected Station	Yes	
Quick Mode Operation	Yes	Quick Mode activates the earpiece but not the speaker of the IX-PS6 Portable Station
Remote Call Forwarding	No	
Remote Relay Control	Yes	
Ring Muting	Yes	
Save Number Redial	No	
Shift Call	Yes	
Speed Dial - Personal	Yes	
Station Restriction Password	No	The Omegatrek IX-PS6 Portable Station includes a Dial Lock Feature
System Announcement Message	No	
Text Messaging	No	
Time Reminder	No	The Omegatrek IX-PS6 Portable Station includes a built-in alarm function.
Tone/Voice Calling	Yes	
Transfer to Guest Mailbox	Yes	
Transfer Off Premises	Yes	
Transfer to Park	Yes	
Unanswered Incoming Outside Line Warning Tone	Yes	
Universal Night Answer	Yes	
Voice Mail Message	Yes	
Voice Mail Monitor (Answering Machine Emulation)	No	
Whisper Page	Yes	
Whisper Monitor	Yes	

ACD Group Access

An Omegatrek Portable Station (IX-PS6) can call and transfer a call to an ACD group.

Operation:

To call an ACD group from an Omegatrek Portable Station:

From an idle condition, dial the ACD access code + [Send].

To transfer a call to an ACD group from an Omegatrek Portable Station:

While on a call, press [TRAN] + ACD access code + [End].

Conditions:

An Omegatrek Portable Station cannot log in as an agent.

Database Programming:

None.

ACD Supervisor Features

An Omegatrek Portable Station may log in as an ACD supervisor. To log into an ACD group, a [S.LOG] key must be programmed on the Omegatrek Portable Station (IX-PS6). To login, the supervisor must enter a two-digit supervisor code (01-30). This code is equal to the value set in Class 21.02.

ECS ACD supports a maximum of thirty supervisors with a maximum of 3 supervisors per ACD group. When a supervisor logs into an ACD group, the supervisor's station is able to receive help calls but is not able to function as an agent. The primary purpose of a supervisor is to answer help calls and emergency calls.

The Omegatrek Portable Station (IX-PS6) supervisor can confirm the ACD group number, supervisor ID and the supervisor name on the Omegatrek Portable Station (IX-PS6) display by pressing [FEAT] + [FEAT] + [9] + [9].

Operation:

To log into an ACD group at the intercom dial tone:

Press [S.LOG] + ID code (01-30).

To log out while at the intercom dial tone:

Press [S.LOG].

To display the supervisor login information while idle:

[FEAT] + [FEAT] + [9] + [9].

Conditions:

With the exception to the following, all functional specifications are the same as the ECS Digital Key Telephones Refer to the ECS ACD Technical Manual Sixth Edition for further documentation.

1. An Omegatrek Portable Station (IX-PS6) cannot display the supervisor login state when the Omegatrek Portable Station (IX-PS6) is idle.
2. If an Omegatrek Portable Station (IX-PS6) is in the process of logging in or logging out of the ACD group and the Omegatrek Portable Station (IX-PS6) travels outside the coverage area, the login or logout becomes invalid.
   - If logged into an ACD group and the Omegatrek Portable Station (IX-PS6) travels outside the coverage area, the station resumes its logged in status when returning to the coverage area.
3. No Agent Monitor Key is available.

Database Programming:

14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 21.01 - Supervisor Name; 21.02 - Supervisor Log In ACD Group Number.

Alarm Clock

The Omegatrek Portable Station allows the use of an alarm clock function. The alarm clock can be set to ring one time or on a programmed schedule.

Operation:

To program the Alarm Clock feature on the Omegatrek Portable Station:

1. While the Omegatrek Portable Station is idle, press [Menu] [1] [1] to display the Alarm Clock menu.
2. Press [Menu] to begin programming the alarm clock.
3. Press up or down arrow to select ON or OFF.
4. Press [Menu]. If OFF is a confirmation tone sounds. The Portable Station will go back to the idle state.
5. Set the alarm time in military time (00:00 - 23:59).
6. Press [Menu] to confirm.
7. Press up or down arrow to select ONE TIME or EVERY DAY.
8. Press [Menu] to leave the alarm clock programming section.

Conditions:

1. The letter A (for Alarm) appears on the display when alarm is set.
2. The tone selected for ICM Ringing Tone using Operating Menu Option 32 is used as the Alarm Clock Tone.
3. The alarm tone volume is the same as the ringer volume. An alarm tone may or may not be heard if your PS6 Portable Station is in the Personal Ringing mode, depending on the Personal Ringing setting.
   - An alarm tone lasts one minute.
   - Pressing [End] to stops the alarm tone (even while the Key Lock feature is ON).
   - The Alarm setting will not be lost even if the Omegatrek Portable Station is turned off.

Database Programming:

None.

Any Key Answer

When the Any Key Answer feature in ON, pressing any key (including 0-9, * and #) allows connection of that call.

Operation:

To program the Omegatrek Portable Station for the Any Key Answer feature:

1. While the Omegatrek Portable Station is idle, press [Menu] [5] [4] to display the Any Key Answer menu.
2. Press [Menu].
3. Press up or down arrow to select ON or OFF.
4. Press [Menu]. A confirmation tone will sound and the Portable Station goes back to the idle state.

Conditions:

If the Key Lock feature is ON, answering a call using the Any Key feature is not allowed. To answer the call, press and hold [Send] for more than two seconds.

Database Programming:

None.

Call Coverage

An Omegatrek Portable Station (IX-PS6) can be assigned an immediate call coverage key. Unlike an ECS Digital Telephone, the Omegatrek Personal Station (IX-PS6) can be programmed to ring or not ring locally on the handset. This local ring setting allows call coverage to operate utilizing only one key type.

Setup

Before beginning the programming of the [Call Coverage] key, the following steps must be completed for call coverage to properly work. This setup will allow the Omegatrek Personal Station (IX-PS6) to be programmed with call coverage buttons on keys 5 through 8 only.

Note: The [Call Coverage] key works only with the Omegatrek Portable Station (IX-PS6) Ringing feature. The ECS database must be programmed to accept this.

1. Turn off the Omegatrek Personal Station (IX-PS6).
2. While holding the [#] and [4] keys, press the [Power] key.
3. Within three seconds: Press [5] [1] [6] [2].
4. Press [9] + [Hold].
5. Press [7] + [Hold].
6. Press [9] + [Hold].
7. Press [0] + [0] + [Feat] + [6] + [0] + [Hold]. 00F0 will appear in the LCD display.
8. Power off the Omegatrek Personal Station (IX-PS6).
9. Power on the Omegatrek Personal Station (IX-PS6).
10. The following must be programmed in the Omegatrek Portable Station (IX-PS6) database.
    - Press [Menu] + [3] [3]. Set **Local Ring** to **Yes** and press [**Menu**].
    - The Ringing Tone may be changed using the Centrex Ringing Type for a separate Call Coverage ringing tone (Press [Menu] + [3] [2]). Choose Centrex Ringing by pressing [**Menu**] and then scroll through the ringing options and select the desired option by pressing [**Menu**].

Operation:

To answer a call using a call coverage key:

Press the [SEND/SPK] key + the flashing [ICCVn] key.

To call an extension using a [ICCVn] key:

Press the [ICCVn] key.

Conditions:

1. The following are limitations to the Omegatrek Portable Station (IX-PS6) ringing features.
   - The Omegatrek Portable Station (IX-PS6) cannot answer an incoming call if no 'B' channel is available.
   - When using the Omegatrek Portable Station (IX-PS6) ringing features, standby time decreases from 350 to approximately 90 hours.
2. The [Call Coverage] key (immediate ringing mode) must be set as an individual key.
3. To set the Omegatrek Portable Station (IX-PS6) Call Coverage in no ring mode, use personal ringing mode (press and hold [#] for one second).
4. The Omegatrek Portable Station (IX-PS6) cannot support the Delay Ring Call Coverage feature.
5. When an extension monitored by a [Call Coverage] key is not in the ringing state, the [Call Coverage] key functions as a [DSS/BLF] key.
6. When an Omegatrek Portable Station (IX-PS6) is out of area and a Digital Key Telephone has a [Call Coverage] key that corresponds to the Omegatrek Portable Station (IX-PS6) and a caller accesses the Omegatrek Portable Station (IX-PS6), the Call Coverage ringing will stop after one second.
   - The actual waiting time is dependent on the timer setting of the Omegatrek Portable Station (IX-PS6) response timeout in Class 32.03 (default timeout is 10 seconds).
7. A call coverage key can be programmed on buttons 5 through 8 only.

Database Programming:

10.70.01 - Call Coverage of ICM Calls; 11.70.02 - Call Progress Tone; 04.71.01 - Call Coverage Delayed Mode Ring Start Time; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Call History

Outgoing Call History - The 10 most recent phone numbers dialed are recorded. Selecting and redialing a phone number from the list is possible. Up to 24 digits can be recorded as a phone number.

Incoming Call History - The Omegatrek Portable Station (IX-PS6) stores the 10 most recent calls received on the Omegatrek Portable Station. Pressing the [HIST] key twice, accesses the Incoming Call History. The Omegatrek Portable Station's LCD displays IN, signaling the Incoming Call History is accessed.

Operation:

To dial phone numbers from the Call History List:

1. When the Portable Station is idle, press [Hist]. If any outgoing phone numbers are recorded, the Outgoing Call History displays.
   - Press [Hist] again to display the Incoming Call History. If no outgoing or incoming phone numbers are recorded, the display shows the word EMPTY and the Omegatrek Portable Station returns to the idle state.
2. Press up or down arrows to select the desired phone number to dial. The last ten numbers displays successively.
3. Press [Send] or an outside line key, depending on the specific system programming. The currently displayed phone number dials.

Deleting an item from the Call History:

1. Select the desired item to delete from the Incoming Call History.
2. Press [Menu]. Confirm that DELETE is selected.
3. Press [Menu] again. You a confirmation tone sounds to indicate the selected item was deleted.
   - The Portable Station returns to the idle state.

Deleting all items from the Call History:

1. Display the Outgoing or Incoming Call History.
2. Press [Menu].
3. Press the up or down arrow to select ALL CLEAR.
4. Press [Menu].
5. Press up or down arrow to select YES or NO.
6. Press [Menu].
   - If YES is selected, a confirmation tone sounds to indicate that all the items in the Incoming Call History were deleted. The Omegatrek Portable Station returns to the idle state.
   - If NO is selected, the operation cancels, and the Omegatrek Portable Station returns to the idle state.

Conditions:

1. The phone numbers recorded in the Incoming Call History will not be lost even when turning off the Omegatrek Portable Station.
2. If an unanswered incoming call contains the caller's phone number, a small phone symbol appears on the LCD display. It is located beside the current time.
3. In the Incoming Call History, an unanswered call is indicated with the letter A (for Abandoned Call) on the left side of the date.
4. To place an outside line call, press a line key after you press [Hist] to access an outside line.
5. If a recorded phone number is already registered in the Directory, the name is also displayed.
6. To switch to the Outgoing Call History, press [Hist] while the Incoming Call History is displayed.

Database Programming:

None.

Character Entry

The Omegatrek Portable Station accepts alphanumeric characters and symbols for display information, including One-Touch Dial Numbers and User Name and when entering information in Programming Mode. Use the dial pad to enter the desired characters.

Operation:

To enter alphanumeric characters:

1. When prompted enter the desired character. For example, to enter *Jim,* press [5] once, [4] three times, [6] once.
2. Press [Menu] to save the entry.

Conditions:

1. To enter a character, press the dial pad key (repeatedly, if necessary) on which the character is displayed.
   - When the character is displayed, press another dial pad key.
2. If a character is incorrectly entered, press [Clear] to delete it.
   - The cursor moves back one character.
   - Press and hold [Clear] for more than one second to delete the current line.
3. To change a character, use [* <] or [# >] to move the cursor over that character.
   - Press [Clear] to delete it, and then enter a different character.
4. Insert characters at the cursor position.
   - If the number of characters entered exceeds the limit, the right most character will be deleted automatically.
   - The following are available characters and operations.

Key	Characters
[1]	Various Symbols
[2ABC]	ABCabc
[3DEF]	DEFdef
[4GHI]	GHIghi
[5JKL]	JKLjkl
[6MNO]	MNOmno
[7PQRS]	PQRSpqrs
[8TUV]	TUVtuv
[9WXYZ]	WXYZwxyz
[0OPER]	- . & / [ ] # * (Space) ! ?
[*]	Moves the cursor to the left.
[#]	Moves the cursor to the right.
[Clear]	Deletes one character.
[Clear] for 1 sec	Deletes all the characters.

Database Programming:

None.

Charger Tone

The charger tone sounds when the Omegatrek Portable Station (IX-PS6) is properly placed in the charger.

Operation:

To adjust the Charger Tone:

1. While the Omegatrek Portable Station is idle, press [Menu] [4] [3] to display the Charger Tone menu.
2. Press [Menu].
3. Press up or down arrow to select ON or OFF.
4. Press [Menu]. A confirmation tone sounds and the Omegatrek Portable Station returns to the idle state.

Conditions:

None.

Database Programming:

None.

Dial Lock

Activate the Dial Lock feature to prevent unauthorized individuals from making calls using the Omegatrek Portable Station (IX-PS6). The password required to invoke the Dial Lock feature is programmed using Menu [5][5].

To activate the Dial Lock feature:

1. While the Omegatrek Portable Station is idle, press [Menu] [2] [1] to display the Dial Lock menu.
2. Press [Menu]. If a password is not registered, you will hear a warning tone to indicate that you cannot activate the Dial Lock feature.
3. Enter the four-digit password. A confirmation tone sounds to indicate that the Dial Lock feature has been successfully activated. The Portable Station returns to the idle state. If the wrong password is entered, a warning tone sounds.

Disabling Dial Lock:

1. Enter the four-digit password.
2. Press [Menu]. A confirmation tone sounds to indicate the Dial Lock feature was successfully disabled. (If the wrong password is entered, a warning tone sounds.)

Conditions:

1. Press [End] to stop disabling the Dial Lock Feature.
2. If an invalid key is pressed while the Dial Lock feature is ON, the words DIAL LOCK appears on the display.
3. The Dial Lock setting will not be lost even if off the Omegatrek Portable Station is turned off.
4. If the Key Lock and Dial Lock features are both activated, the Key Lock must be deactivated before deactivating the Dial Lock feature.
5. The password is required to activate/deactivate the Dial Lock feature or the Directory Lock feature. Write it down and try not to lose it. If you do lose your password, contact your system administrator.
6. Outgoing calls (except 911) cannot be placed
7. Incoming calls can be received
8. The Omegatrek Portable Station can be turned on or off
9. Only the Key Lock feature can be activated/deactivated

Database Programming:

None.

Directory

The Omegatrek Portable Station (IX-PS6) has the ability to manage up to 500 contacts, including contact name and number. There are many ways to customize these directories that are described this section of the document. For more information on the Omegatrek Directory, see *EBA-2002-02 Omegatrek Directory Tool*.

Directory numbers can be other Omegatrek or ECS system extensions, outside telephone numbers or system access codes. The 500 directory entries can be divided into up to 10 directory groups. Using the Directory Group feature will help quickly locate and manage individual entries.

To lock the Omegatrek Portable Station using the Directory Lock feature:

1. While the Omegatrek Portable Station is idle, press [Menu] [2] [2] to display the Lock Directory menu.
2. Press [Menu]. If a password is not registered, a warning tone sounds to indicate the Directory Lock feature cannot be activated.
3. Enter the four-digit password. If the wrong password is entered, a warning tone sounds to indicate the Directory Lock feature cannot be activated.
4. Press the up or down arrow to select ON or OFF.
5. Press [Menu].
   - A confirmation tone sounds to indicate that the Directory Lock feature was successfully turned on or off.
   - The Portable Station returns to the idle state.

To make an entry in the Directory:

1. While the Omegatrek Portable Station is idle, press [Menu] and [Dir].
   - The display requires a name be entered.
   - Pressing [Dir] for more than one second is another way to get to this menu.
2. Enter a name by following the instructions listed in the Character Entry description of the Omegatrek section of this manual.
3. Press [Menu].
4. Enter the desired phone number.
5. Press [Menu]. The display shows the Group Selection menu.
6. Press an up or down arrow to display the desired group. Use the dial pad (0-9) to select a group.
7. Press [Menu]. Confirm the selection.

8. Press the up or down arrow to select ENTRY or EDIT, then press [Menu]. Two quick tones sound when the entry was successfully made.
   - Selecting EDIT returns to Step 2.
   - Press [End] when finished entering data.

To edit an entry in the directory:

1. Search and select the desired entry.
2. Press [Menu].
3. Press [Menu].
   - The previously entered name will be displayed.
   - If the name does not need to be edited, skip to Step 5.
4. Use [* <] or [# >] to move the cursor over a character and then insert another character on the left.
   - Moving the cursor over a character and pressing [Clear] will delete it.
5. Press [Menu]. The previously entered phone number displays.
   - If the phone number does not need to be edited, skip to Step 7.
6. Press [Clear] once to delete one digit from the right.
   - Delete as many digits as necessary and enter new digits to the right.
   - Pressing and holding [Clear] to deletes all digits and allows the entry of a whole number. (This is easier in most cases.)
7. Press [Menu].
   - The previously selected group number displays.
   - If no change the group number is needed, skip to Step 9.
8. Press the up or down arrow to select a different group number.
9. Press [Menu].
   - The display confirms the overwrite of the previous entry with new changes.
10. Press up or down arrow to select YES, SAVE AS NEW, or EDIT.
11. Press [Menu]. If you select YES or SAVE AS NEW, you will hear two quick tones to indicate that the entry has been saved. Selecting EDIT will take you back to Step 3.

To delete a directory entry:

1. Search and select the desired entry to delete.
2. Press [Menu].
3. Press the down arrow to select DELETE.
4. Press [Menu].
5. Press the up arrow to select YES or NO.
6. Press [Menu].
   - If YES is selected, two quick tones sound to indicate that the entry was deleted.
   - If NO is selected, NOT DELETED appears on the display.

To delete all numbers in a directory:

1. While the Portable Station is idle, press [Menu] [2] [3] to display the Delete All Directory menu.
2. Press [Menu].
3. Enter the four-digit password. If the password entered is incorrect, a warning tone sounds and INCORRECT appears on the display.
4. Press the up or down arrow to select YES or NO.
5. Press [Menu].
   - If YES is selected, the display shows DELETING.
   - When deletion is complete, a confirmation tone sounds. The Portable Station returns to the idle state.
   - If NO is selected, the Delete All Directory operation is canceled and NOT DELETED displays. The Portable Station l returns to the idle state.

To name a group:

1. While the Portable Station is idle, press [Menu] [5] [8] to display the Directory Group Name menu.
2. Press [Menu].
3. Press up or down arrow to select a directory group.
4. Press [Menu].
5. Edit the directory group name and press [Menu]. A confirmation tone sounds to indicate the change was successfully made.

To Register a phone number from the call history to the directory:

1. Select the desired data to register.
2. Press [Menu].
3. Press an up or down arrow to select SAVE.
4. Press [Menu]. You will be prompted to enter a name. The rest of the procedure is the same as in *Making an Entry in Directory.*

To dial a phone number in the directory with an access code:

1. Dial the desired access code (e.g., 0) to combine with a phone number in the Directory.
2. Press [Dir].
3. Search and select the phone number from the Directory.
4. Press [Send] to combine numbers.

Inserting a pause when registering a phone number:

1. Press [Feat] [Menu] and a digit (1-9) to register a pause time in seconds.
2. You can register more than one pause.
3. One pause is counted as two digits.

Conditions:

1. Press [End] to cancel the Directory Lock feature.
2. When pressing [Dir] while the Directory Lock feature is ON, the words DIRCTRY LOCK will appear on the display.
3. If the Key Lock feature or the Dial Lock feature is activated along with the Directory Lock feature, Key Lock feature or the Dial Lock feature must be deactivated before deactivating the Directory Lock feature.
4. The password is required to activate/deactivate the Dial Lock feature or the Directory Lock feature.
5. To place an outside line call, an Outside Line Access Code must be entered if it is not programmed in the Directory with the number.
6. When entering a number, an outside line access code or a pause in the dial string may need to be included. Pauses between the outside line access code and the outside number are not normally required, however, they may be entered by pressing [FEAT] + [MENU/HOLD] + a digit between 1 and 9 to indicate the duration of the pause in seconds.
7. Pressing [Clear] when the middle line shows no digits takes you back to the previous menu screen.
8. A pause can be inserted registering a phone number.
9. A group name can be registered to a Directory group.
10. 500 is the maximum allowed entries in the directory.
    - When entering the 501st entry, a warning tone sounds and the Portable Station displays, ‘ENTRY FAILED: MEMORY FULL’.
    - The Portable Station will go back to the idle state in two seconds.

Database Programming:

None.

Disabling the Omegatrek Keypad Tone

The tones that sound as a key is pressed on an Omegatrek Portable Station can be turned off.

To disable the keypad tone:

1. While the Portable Station is idle, press [Menu] [4] [1] to display the Keypad Tone menu.
2. Press [Menu].
3. Press the up or down arrow to select ON or OFF.
4. Press [Menu]. A confirmation tone sounds, and the Portable Station returns to the idle state.

Conditions:

The keypad tone feature will not operate if the Personal Ringing is active and/or CONF. TONE is set to OFF in Personal Ringing programming.

Database Programming:

None.

Headset Operation

The Omegatrek Portable Station (IX-PS6) has an integrated headset jack to provide for hands-free communications. With an optional headset attached to the Omegatrek Portable Station, hands-free conversation is possible.

Operation:

To speak hands-free:

1. Connect a headset to the Omegatrek Portable Station by inserting the plug of the headset into the headset jack on the Omegatrek Portable Station.
2. All Omegatrek Portable Station feature operations remains the same.
3. Headsets equipped with a hookswitch allow calls to be answered and disconnected by pressing the switch for three seconds. To answer a call, press [Send] on the Omegatrek Portable Station. To end a call, press [End] on the Omegatrek Portable Station.

Conditions:

None.

Database Programming:

None.

Help Display

Browse this list if you have forgotten how to operate Omegatrek. When an item is displayed, press [Menu] to change the setting.

Operation:

To display help contents:

1. While the Omegatrek Portable Station is idle, press [Menu] [9] to display the Help Display menu.
2. Press [Menu].
3. Press up or down arrow to select a programming item.

Conditions:

None.

Database Programming:

None.

Hands-Free Answerback on Intercom

When receiving a call from another extension, you can answer the call with your voice with the microphone turned on. The microphone can be turned on or off when the Portable Station is idle or when you are receiving an intercom call. (The [MIC] key needs to be assigned to a line key in database programming.)

The microphone is on by default. When the microphone is on, the light on the [MIC]key is off.

Operation:

To Turn off the Microphone:

1. Press the [MIC] key
   OR
   Press [Feat][Feat] + [0][6][1]
2. The light on the MIC OFF key goes out.

To turn on the microphone:

1. Press the [MIC] key
   OR
   Press [Feat][Feat] + [6][1]
2. The MIC OFF key illuminates.

Note: Press [Feat][Feat] + [6][5] to toggle between voice and tone signaling.

Conditions:

The [MIC] key must be programmed in Class 14.01 or 15.01 if used in the Attendant position.

Database Programming:

14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Idle State Indicators

Your Portable Station may display M and/or G in the idle state, depending on the status or the condition the Portable Station is in.

M: Message/Forward Indicator

When M is on the display, Message Waiting or Flexible Call Forwarding is enabled. Press the Message or Forward key to display what is enabled. (A Message and/or Forward key needs to be assigned to a Directory Key in database programming.) If both are enabled, you see MESSAGE first then FORWARD as you press the Message/ Forward Status key twice.

G: Common Keys Active Indicator

When G is on the display, the Common Keys programmed on your PS6 Portable Station are active. Common Keys are Multipurpose Keys programmed by the system administrator with the same feature on multiple PS6 handsets. In order for Common Keys to be active, you must be within the area of a sub cell group in which your PS6 is enabled. Your system administrator must program common keys on your Omegatrek Portable Station (IX-PS6). If your PS6 is not programmed with Common Keys, your PS6 will never display G. The Common Key Active indication (G) can be disabled in database programming.

Operation:

None.

Conditions:

None:

Database Programming:

None:

Intercom Call

The Omegatrek Portable Station (IX-PS6) comes with the ability to place and receive hands-free Intercom Calls.

Operation:

To placing an Intercom Call:

1. Lift the Omegatrek Portable Station from the charger and press [Send].
   - The [Send] key lights up and intermittently flashes.
2. Dial the desired extension number.
   - After dialing the extension number, you may press [#] to toggle between voice calling and tone calling.
3. When finished, press [End] and place the Omegatrek Portable Station back in the charger.

Note:	Depending on the type of the phone on the other end, you may not be able to call to the party. Using the Pre-Dial feature you may enter the number to be dialed to display it on the alphanumeric display, then press [Send] to place the call.

Receiving an Intercom Call:

1. The Omegatrek Portable Station rings or vibrates to indicate a new call. The Indicator lamp and the [Send] key flashes.
2. Lift the Omegatrek Portable Station from the charger and press [Send].
   - The [Send] key lights up and intermittently flashes.
3. When finished, press [End] and place the Omegatrek Portable Station back in the charger.

Conditions:

None.

Database Programming:

None.

Key Lock

The Key Lock feature keeps you from inadvertently operating the Omegatrek Portable Station by hitting a key while carrying the Portable Station.

Operation:

To lock the keys:

When the Portable Station is idle, press and hold [*] for one second.

- A confirmation tone sounds to indicate that Key Lock has been successfully activated.
- The Omegatrek Portable Station returns to the idle state.

To disable the key lock feature:

When the Key Lock Feature is ON, press and hold [*] for one second.

- A confirmation tone sounds to indicate that Key Lock was successfully deactivated.
- The Portable Station returns to the idle state.

Conditions:

1. Key Lock is disabled once when the Omegatrek Portable Station is powered down.
2. When receiving a call while the Key Lock feature is ON, pressing [Send] for more than one second picks the call up.
   - The Key Lock feature will temporarily be disabled throughout the call.
3. The Key Lock feature supersedes the Any Key Answer feature.
4. The Key Lock feature cannot be turned ON or OFF during a call.
5. Even if the Key Lock feature is ON, pressing [End] stops the ringer, vibrating alert and alarm.
6. The LCD or the keys will not illuminate while Key Lock is ON.
7. When you press a key while the Key Lock feature is ON, the words KEY LOCK appear on the display for a short period.

Database Programming:

None.

Outside Line Calling

Outside dialing may be accomplished by various methods using the Omegatrek Portable Station (IX-PS6). The following must be programmed:

- Direct Outside Line Access
- Outside Line Group Access
- Optimized Routing Access
- Dialing an Outside Line Access Code

One or more of the Multipurpose Keys on the PS6 Portable Station may be programmed for one-touch outside line access.

Operation:

To placing an Outside Line Call:

1. Lift the Omegatrek Portable Station (IX-PS6) from the charger and press [Send].
   - The [Send] key flashes green and LCD displays 'ICM'
2. Press a line key and wait for the dial tone.
   - The line key flashes green.
3. Dial the desired phone number. The LCD displays the outside line number as well as the dialed number.
   - Once connected, the LCD displays the elapsed time of the ongoing call.
4. When finished, press [End] and place the Omegatrek Portable Station back into the charger.

To receive an Outside Line Call:

1. Lift the Omegatrek Portable Station from the charger and press the red flashing line key.
   - The line key turns green and intermittently flashes.
2. Press [Send] to receive the call using the Omegatrek Portable Station.
3. When finished, press [End].

To place a Prime Line to Optimized Call:

1. While the Omegatrek Portable Station is idle, press the [Send] key to access an outside line.
   - A line key lights up green and intermittently flashes.
2. Dial the desired phone number. The LCD displays the outside line number as well as the dialed number.
   - Once connected, the LCD displays the elapsed time of the ongoing call.
3. When finished, press [End] and place the Omegatrek Portable Station back into the charger.

Conditions:

1. If the System Quick-Mode Operation is programmed in the system database, by pressing a line key accesses an outside line.
2. If *Prime Line to Optimized* is programmed in the system database, pressing [Send] accesses an outside line.
3. If the phone number exceeds 12 digits, the display shows only the last 12 dialed digits. The left most digit will blink, displaying the entered number is more than 12 digits.
4. If the Omegatrek Portable Station is specified in database programming to ring for incoming calls received on a particular line, pressing [Send] answers incoming calls (without pressing the line key).
5. When the Any Key Answer feature (menu 54) is ON, any dial pad key answers the incoming call. The Portable Station must be programmed to ring for that line.
6. If the Omegatrek Portable Station is specified in database programming to ring for incoming calls on a particular line, the station displays Caller ID if it is delivered with the call on that line.
7. When the PS Quick mode (Menu 52) is ON and the Omegatrek Portable Station is in the charger, lifting the Portable Station from the charger answers incoming calls.
8. Press [End] while the Omegatrek Portable Station is ringing (or vibrating stops the ringing (or vibrating) for that incoming call only.

Database Programming:

14.01 - Key Assignment.

Personal Ringing Mode

To avoid disturbing others when the Omegatrek Portable Station rings, setting the Personal Ringing Mode temporarily changes the settings for the ringer, confirmation / warning tones and vibrating indication.

Operation:

To program the setting of the Personal Ring Mode:

1. While the Omegatrek Portable Station is idle, press [Menu] [1] [4] to open the Personal Ringing menu.
2. Press [Menu].
3. Press the up or down arrow to select from Ringer ON, OFF or Ring Time-out then press [Menu].
4. Press the up or down arrow to select Confirmation Tone/Warning Tone ON or OFF.
5. Press the up or down arrow to select Vibration ON or OFF.
6. Press [Menu]. A confirmation tone to indicate that the Personal Ringing settings were successfully made. The Portable Station returns to the idle state.

To set the Personal Ringing Mode:

When the Portable Station is idle, press and hold [#] for one second. The confirmation tone may or may not sound, depending on the Personal Ringing settings.

To disable Personal Ringing Mode:

When the Omegatrek Portable Station is in the Personal Ringing mode, press and hold [#] for one second. A confirmation tone sounds to indicate that the Personal Ringing mode was successfully disabled. The Omegatrek Portable Station returns to the idle state.

Conditions:

1. When the Portable Station is idle and the Personal Ringing mode is ON, PRS appears on the display.
2. The Personal Ringing settings will be preserved even when the Omegatrek Portable Station is powered down.
3. Depending on the Personal Ringing settings, the letter S (for Silent) and the letter V (for Vibration) may display when Personal Ringing is active.
4. The Personal Ringing mode cannot be turned ON or OFF while the Key Lock feature is ON.
5. When vibration is ON, the Omegatrek Portable Station vibrates regardless of the ringer volume setting. If ringer is not turned OFF, the Portable Station will ring and vibrate at the same time upon receiving a call.
6. The Auto OFF setting makes the Omegatrek Portable Station ring for 30 seconds upon receiving a call. If a second call is received right after the first ring stops, the Omegatrek Portable Station rings ring for another 30 seconds.
7. The Portable Station will not vibrate while it is placed in the charger.

Database Programming:

None.

Quick Dial

The Quick Dial feature may be used to register frequently-dialed numbers for quick access, without opening the Omegatrek Portable Station Directory. The Quick Dial feature works by pressing the [Feat] Key plus a digit from 0-9 that has been programmed with an outside or internal phone number.

Operation:

To Placing a call using the Quick Dial Feature:

1. While the Omegatrek Portable Station is idle, press [FEAT] + a key ([0-9] corresponding with the desired Quick Dial number). The line key lights green and intermittently flashes and a ring back tone sounds.
2. Begin speaking when the call is answered.

To register a Quick Dial Number:

1. While the Portable Station is idle, press [Menu] [7].
2. Press [Menu]. A list of available Quick Dial key combinations is displayed. A Quick Dial Key Combination that has already been assigned data will display with an asterik (*) on the right side.
3. Press the up or down arrow to select the desired Quick Dial Key Combination then press [Menu]. If you select EAR-MIC, you can register a phone number to the hookswitch on the Headset (if equipped)
4. Enter the name you wish to register.
5. Press [Menu].
6. Enter the phone number to register. A confirmation tone to indicate the registration was successful. The Portable Station returns to the idle state.

To delete a phone number from a Quick Dial Key Combination:

1. While the Omegatrek Portable Station is idle, press [Menu] [7].
2. Press [Menu].
3. Press the up or down arrow to select the desired Speed Dial key/key to delete a phone number. Press [Menu] again or wait two seconds to go to the next menu screen.
4. Press up or down arrow to select ‘DELETE’, then press [Menu].

To register a phone number from call history to a Quick Dial Key Combination:

1. Select the data you wish to register from the Incoming Call History or the Outgoing Call History.
2. Press [Menu].
3. Press the up or down arrow to select In One Touch then press [Menu].
4. Press the up or down arrow to select the desired Quick Dial key combination then press [Menu].

To registering a phone number from a directory to a Quick Dial Key Combination:

1. Select the desired data to register from the Directory.
2. Press [Menu].
3. Press up or down arrow to select In One Touch then press [Menu].
4. Press an up or down arrow to select a desired Quick Dial key combination to which to register the phone number, then press [Menu].

Conditions:

1. The key combinations [Feat] + [0]-[9] can be programmed as Quick Dial keys.
2. Depending on system programming, either a Line Access number or a Line Group Access number may need to be entered as part of the dial string or accessing an outside line key may be needed to place the call.
3. Pauses and [Send] can be registered to a Quick Dial key combination. However, [Send] must be registered following the phone number.
4. Press [Feat], [Menu] and a digit (1-9) to register a pause time in seconds.
   - One pause is one to nine seconds long. If you need longer pause duration, program two or more consecutive pauses.
5. If the selected Quick Dial key combination is already in use, the display shows OCCUPIED and another Quick Dial key combination must be entered.

Database Programming:

None.

Quick Mode

Quick Mode allows access to system dial tone or the ability to answer a call by removing the PS6 Portable Station from the Charging Cradle. If the Quick Mode accesses intercom dial tone and a key is not pressed for 20 seconds after picking up the Omegatrek Portable Station from the charger, the Omegatrek Portable Station will generate a warning tone.

Operation:

To program the Quick Mode feature:

1. When the Portable Station is idle, press [Menu] [5] [2] to display the Quick Mode menu.
2. Press [Menu].
3. Press up or down arrow to select ON or OFF.
4. Press [Menu]. You will hear a confirmation tone and the Portable Station will go back to the idle state.

Conditions:

The capability to access outside dial tone using Quick Mode must be programmed in Class 10.09 Prime Line Access. At default, Quick Mode allows the ability to answer a call or access intercom dial tone.

Database Programming:

10.09 - Prime Line Access.

Ringing Options

The Omegatrek Portable Station (IX-PS6) can be programmed to further customize its operations. Several options are available for the type and tone of ringing for the Omegatrek Portable Station.

The Omegatrek Portable Station (IX-PS6) can be programmed to have different ringing tones depending on the type of call the Omegatrek Portable Station receives.

Ringing Types

Option	Description
ICM	Ringing tone for incoming station-to-station calls.
CO	Ringing tone for incoming calls on an outside line.
PBX/CEX	Ringing tone for incoming calls from a network system or Centrex line.
Alarm	Ringing tone for the Omegatrek PS6 Alarm Clock.
Door Phone	Ringing tone for calls from a doorphone.

Ringing Tone Options

Options 1-6
Doorphone 1-2
Music 1 = *The Entertainer* (by Scott Joplin)
Music 2 = *The Four Seasons: Spring* (by Antonio Vivaldi)
Music 3 = *Military March No. 11 in D* (by Franz Schubert)
Music 4 = *Sur Le Pont D'Avignon* (French Folksong)
Music 5 = *Comin' Thro' The Rye* (Scottish Folksong)

Operation:

To change the ringing tone of the Omegatrek Portable Station:

1. While the Omegatrek Portable Station is idle, press [Menu][3][2] to access the Ring Option menu.
2. Press [Menu].
3. Press the up or down arrow to select a ringer type or Alarm then press [Menu]. The currently selected tone sounds.
4. Press the up or down arrow to select a tone type. Each time the up or down arrow is pressed, the active tone ringing sounds.
5. Press [Menu]. The confirmation tone sounds to indicate that the tone was successfully selected.

Conditions:

None.

Database Programming

None.

Vibrate Alert

The Vibrate Alert feature provides vibrating indication when receiving a new call. This feature has no effect on the ringing tone selected; The Omegatrek Portable Station rings and vibrates simultaneously.

Operation:

To set the vibrating alert:

1. While the Omegatrek Portable Station is idle, press [Menu] [3] [1] to display the Vibrate menu.
2. Press [Menu].
3. Press up or down arrow to select ON or OFF.
4. Press [Menu]. A confirmation tone sounds to indicate that the change was successfully made.

Conditions:

None.

Database Programming:

None.

Range Notify

When walking outside the service area with the Portable Station, while the Range Notify feature is ON, the Omegatrek Portable Station sends a warning tone.

Operation:

To set the Range Notify feature:

1. While the Omegatrek Portable Station is idle, press [Menu] [4] [2] to display the Range Notify menu.
2. Press [Menu].
3. Press the up or down arrow to select ON or OFF.
4. Press [Menu]. A confirmation tone sounds and the Omegatrek Portable Station returns to the idle state.

Conditions:

None.

Database Programming:

None.

Speaker Feature

The Omegatrek Portable Station (IX-PS6) is equipped with a speaker that allows voice announcements, voice messages and the ability to hear station tones and signals. The speaker feature is also used when on a call to hear the outside party in an orator mode.

Operation:

To use the [SPKR] key

1. While on a call press the [SPKR] key to turn on the speaker and hear the outside party.
2. Press the [SPKR] key a second time to turn off the speaker and begin talking to the outside party.

Conditions:

1. The speaker feature is used to listen to a call in orator mode.
2. The called party will not hear your voice when the speaker is on.
3. To use the speaker during a phone conversation, press the Speaker key. (The Speaker key toggles on/off the speaker.)
4. Press up or down arrow to adjust the speaker volume.

Database Programming:

14.01 - Key Assignment.

Speed Dial Features

The System Speed Dial allows users to access frequently dialed numbers that are common to the entire office. The numbers may be 32 digits in length and may include the insertion of a pause.

Personal Speed Dial allows a user to program frequently dialed numbers using one-touch or abbreviated dialing. The numbers may be 32 digits in length and may include the insertion of a pause.

Operation:

The table below lists the Omegatrek Portable Station (IX-PS6) Speed Dial operations.

Function	Operation
To make an outgoing speed call:	[SPD] + [n] or [S-SPDn] or [P-SPDn]
To access the Alphanumeric Speed Dial by Name feature:	[SPD] + [SPD] + desired character + [* or #] (see the following chart for detailed character representations)
To make an outgoing call by scrolling through speed dial entries in numeric order:	[SPD] + [*] + [n] [n] [n] + [*] or [#] + [SPD]
To register or confirm the station speed dial:	[FEAT] + [FEAT] + [SPD] + [n] + {[d]} + [FEAT] [FEAT]
To register a trunk group number:	[FEAT] + [FEAT] + [SPD] [#]+ [n] + {[g]} + [FEAT] + [FEAT]
To register a station speed dial name:	[FEAT] + [FEAT] + [SPD] [*]+ [n] + {[c]} + [FEAT] + [FEAT]

Symbol	Meaning
[*]	Backward
[#]	Forward
[HOLD]	Decides a character to focus your search
{}	Optional
___	Repetition
[n]	Speed dial Numbers (001 – 899)
[g]	CO Group numbers (00- 61)
[d]	Destination Dial Code
[0] - [9], [*], [#]	Dial
[HOLD] + [1] - [9]	Pause
[FLSH]	Short Flash
[c]	Character code

Key	Meaning	Key	Meaning	Key	Meaning
1	, . , (Space), 1	5	J,K,L,5	9	W,X,Y,Z,9
2	A,B,C,2	6	M,N,O,6	0	OPER
3	D,E,F,3	7	P,Q,R,S,7	*	Alphanumeric
4	G,H,I,4	8	T,U,V,8	#	Upper/Lower case

Database Programming:

02.01 - System Speed Dial Type; 05.01 - System Speed Dial - Number; Class 05.02 - System Speed Dial - ID; 05.03 - System Speed Dial - Invisible; 10.24 - System Speed Access; 10.25 - System Speed Toll Restriction; 12.01 - Station Speed Dial; 12.02 - Station Speed Dial - ID.

Station Password

To activate / deactivate Dial Lock or Directory Lock, a four-digit password is needed.

Operation:

To activate / Deactivate the Dial Lock or Directory Lock:

1. While the Portable Station is idle, press [Menu][5][5] to display the Password menu.
2. Press [Menu].
3. If a password is already registered, enter the four-digit password (0000-9999).
4. Enter a new four-digit password.
5. Reenter the new four-digit password. A confirmation tone sounds to indicate that the new password was successfully saved. If the wrong password was entered a warning tone sounds.

Conditions:

1. The password is required to activate / deactivate Dial Lock or Directory Lock.
2. The password cannot be deleted.
3. The Dial Lock and Directory Lock features remain in effect if the Omegatrek Portable Station (IX-PS6) is turned off.
4. To hide the password digits, asterisks will replace the entered digits on the IX-PS6 display.

Database Programming:

None.

System Select

If enabled, the Omegatrek Portable Station (IX-PS6) will function on up to nine Omegatrek systems. If moving from one system to another (from one building in which an Omegatrek is used to another building in which Omegatrek is used), the Omegatrek Portable Station switches automatically. If the service area of two or more systems overlap, select one of them as follows.

Operation:

To select an Omegatrek system when two or more systems overlap:

1. While the Omegatrek Portable Station is idle, press [Menu] [1] [2] to display the System Select menu.
2. Press [Menu]. The display shows the currently selected system.
3. Press the up or down arrow to select the desired system.
4. Press [Menu]. Two quick tones sound to indicate the system was successfully changed.

Conditions:

1. If AUTO is selected, a system is automatically selected.
2. When the Range Notify feature (Menu 42) is ON, a warning tone sounds when walking out of the service area.
3. The eight line keys can be assigned to various functions with database programming. The line keys light up red or green to indicate different statuses.
4. The key service unit provides various services. The display on the Omegatrek Portable Station shows the statuses of the services.
5. Distinctive ringers can be used for incoming calls from outside line and other extensions.

Database Programming:

None.

User Name

A user name can be programmed to display on the LCD when the Omegatrek Portable Station is idle.

Operation:

To program the User Name:

1. While the Omegatrek Portable Station is idle, press [Menu] [5][7] to display the User Name menu.
2. Press [Menu].
3. The currently registered user name displays. Use [* <] or [# >] to move the cursor and enter a new name.
4. Press [Menu]. A confirmation tone sounds to indicate that the registration was successful. The Portable Station returns to the idle state.

Conditions:

1. The registered user name is displayed on the middle line when the Portable Station is idle.
2. The display function of the key service unit overrides the display.
3. The user name may be up to 12 characters in length.

Database Programming:

None.

Volume Controls

- During a conversation, pressing the up arrow to increase the volume of the receiver and the down arrow to decrease the volume of the receiver.
- When using the speakerphone feature, the speaker volume can be adjusted in the same manner.

Operation:

To adjust the receiver / speaker volume while on a call:

Press the up arrow key to raise the volume
Or
Press the down arrow key to lower the volume.

To adjust the ringer volume while idle:

Press the up arrow key to raise the volume
Or
Press the down arrow key to lower the volume.

Conditions:

1. To adjust the receiver / speaker volume, the Omegatrek Portable Station must be on a call.
2. To adjust the ringer volume, the Omegatrek Portable station must be idle.
3. If the Ringer Volume is completely off, the Omegatrek Portable Station displays ‘S’ (for Silent) on the LCD display.

Database Programming:

None.

Chapter 5

SIP and Single Line Telephone Operations & Feature Access Codes

This section contains both Session Initiation Protocol (SIP) and Single Line Telephone (SLT) operations and their feature access codes. Often, both of these are used together. Feature access codes provide SIP and SLT users many of the same features available to digital station users.

Feature access codes are programmed in Class 07.06 - Feature Access Numbers. There are a total of 60 feature access codes in Class 07.06 - Feature Access Numbers, some of which are not used. The Feature Access Code table lists the available feature access codes. Notice under the **Feature Code Number** column there is a list of numbers. These numbers are the elements in Class 07.06 - Feature Access Numbers.

When going through SIP and SLT telephone operations, there will be references to a feature access code. Each installation may have different feature access codes programmed in Class 07.06 - Feature Access Numbers.

Disclaimers

The SIP station feature information published in this document is intended to provide a general overview of Iwatsu Enterprise-CS interoperability with third party SIP products and services. Iwatsu has tested the performance of the SIP stations listed in this document. Please note, however, that since changes, modifications and availability of third party equipment and services are beyond the control of Iwatsu, interoperability and/or compatibility with said products and services are subject to change without notice.

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Feature Code Numbering		
Feature Code	Default	Meaning
1	Yes	Cancel
2	No	SPD (for SLT and data modules only)
3	No	SPD with Group (for SLT and data modules only)
4	No	SPD without Group (for SLT and data modules only)
5	No	Last No. redial (for SLT and data modules only)
6	No	Trunk Queuing (for SLT and data modules only)
7	No	Busy Number Callback (for SLT and data modules only)
8	No	Hold/Hold Pickup (for SLT and data modules only)
9	No	Group Call Pickup In Group
10	No	External Group Pickup
11	No	Directed Call Pickup
12	No	Station Park Pickup (for SLT and data modules only)
13	No	Remote Station Park Pickup
14	No	Long CO Flash (for SLT and data modules only)
15	No	Short CO Flash (for SLT and data modules only)
16	No	ADD (for SLT and data modules only)
(17)	No	
18	No	ICM Call Back (for SLT and data modules only)
19	Yes	Message Wait (for SLT and data modules only)
20	No	Call Forward Destination (for SLT and data modules only)
21	No	Call Forward Mode (for SLT and data modules only)
22	No	Call Forward Activation (for SLT and data modules only)
23	No	DND (for SLT and data modules only)
24	No	Meet-me Answering
25	No	Voice Message ([Message Record] key or [FEAT]+[4][5])
26	No	Morning Call Registration
27	No	Station Password (for SLT and data modules only)
28	No	Through Dialing (for SLT and data modules only)
29	No	Through Dialing - Disconnect (for SLT and data modules only)
30	Yes	All Attendant Call
36	No	Room Status-Occupied and Cleaned)
37	No	Room Status-Occupied and Cleaning Confirmed
38	No	Remote CO Forward Access Code for Reactivating/Cancellation
39	No	CO Group Incoming Call Answer
43	No	Automatic Relay Feature Access Number
45	No	External Call Forward Set (for SLT and data modules only)
46	No	UNA Pickup
47	No	Account Code (for SLT and data modules only)
48	Yes	Voicemail mailbox access Hunt Group 47
49	No	Voicemail mailbox access Hunt Group 48
50	No	Voicemail mailbox access Hunt Group 49
51	No	Voicemail mailbox access Hunt Group 50
52	No	I-CNIS OFF
53	No	Transfer to Park (for SLT and data modules only)

Account Code

Operation

When speaking on an outside line

1. Press and release the receiver button quickly (Hook flash) or press the Flash key.
2. Dial the Feature Access Code for Account code (07.06 - Feature Access Numbers: # 47).
3. Dial the desired account code.
4. Dial *.
5. Press and release the receiver button quickly or press the Flash key.

All Attendants Call

Allows you to call all attendants.

Operation

To call all attendants

1. Go off-hook.
2. Wait for the dial tone.
3. Dial the assigned access code (07.06 - Feature Access Numbers: # 30).

Busy Intercom Callback

Operation

When you make an intercom call and the extension is busy:

1. Do not hang up.
2. Hook flash.
3. Wait for the dial tone.
4. Dial the Feature Access code for Busy Intercom Callback (07.06 - Feature Access Numbers: # 18).
5. Wait for a confirmation tone.
6. Hang up.

To cancel:

1. Lift the receiver.
2. Wait for the dial tone.
3. Dial the Feature Access Code to Cancel (07.06 - Feature Access Numbers: # 01).
4. Dial the Feature Access Code for Busy Intercom Callback (07.06 - Feature Access Numbers: # 18).
5. Wait for a confirmation tone.
6. Hang up.

(SIP-Not Supported)

Busy Number Callback

Operation

When you dial an outside number and there is no answer or a busy signal:

1. Do not hang up.
2. Hookflash.
3. Wait for the dial tone.
4. Dial the Feature Access Code for Busy Number Callback code (07.06 - Feature Access Numbers: # 05).
5. Wait for a confirmation tone.
6. Hang up and ECS will call you back periodically to try calling again.

To change the callback interval:

1. Dial the desired interval time in minutes 0-9 before you hang up.
   - When your phone rings:
2. Lift the receiver.
   - The number will automatically be dialed.

To cancel:

1. Lift the receiver.
2. Wait for the dial tone.
3. Dial the Feature Access Code for Cancel (07.06 - Feature Access Numbers: # 01).
4. Wait for a confirmation tone.
5. Hang up.

(SIP-Not Supported)

Busy Outside Line Queuing

Operation

When attempting to make an outside call and all lines are busy:

1. Do not hang up.
2. Dial the Feature Access Code for Busy Outside Line Queue (07.06 - Feature Access Numbers: # 06).
3. Wait for a confirmation tone.
4. Hang up.

The ECS will call you back when an outside line becomes free. If you previously dialed the outside number, that number will automatically be dialed when the receiver is picked up.

To cancel:

1. Lift the receiver.
2. Wait for the dial tone.
3. Dial the Feature Access Code to Cancel (07.06 - Feature Access Numbers: # 01).
4. Dial the Feature Access Code for Busy Outside Line (07.06 - Feature Access Numbers: # 06).
5. Wait for a confirmation tone.
6. Hang up.

(SIP-Not Supported)

Call Park/Swap

Operation

When you have a call on Call Park and are involved in a second conversation and wish to alternate between conversations:

1. Press and release the receiver button quickly or press the Flash key (or for Polycom, press Hold).
2. Dial the Feature Access Code for Call Park (07.06 - Feature Access Numbers: # 12) and you will be connected to the call that was on Call Park and the second call will be placed on Call Park.
   - You may continue to alternate between conversations by repeating the above procedure.

Call Pick-Up: Direct Call Pick-Up

Allows you to answer a call ringing at any extension in the office.

Operation

1. Lift the receiver and wait for dial tone.
2. Dial the Feature Access Code for Direct Call Pick-Up (07.06 - Feature Access Numbers: # 11).
3. Dial the extension number of the ringing phone.

Call Pick-Up: Internal Group Call Pick-Up

Allows extensions to be grouped together. This eliminates the need to dial the ringing extension number to answer the call.

Operation

1. Lift the receiver and wait for dial tone.
2. Dial the Feature Access Code for Internal Group Call Pick-Up (07.06 - Feature Access Numbers E# 11).

External Group Call Pick-Up

Allows you to answer a call ringing in a Group Call Pick-Up group that they are not part of.

Operation

1. Lift the receiver and wait for dial tone.
2. Dial the Feature Access Code for External Group Call Pick-Up (07.06 - Feature Access Numbers: # 10).
3. Dial the External Group external group number.

Camp-On

Operation

When you want to transfer a call to an extension that is busy:

1. While on an outside line, do not hang up.
2. Press and release the receiver button quickly or press the Flash key.
3. Wait for the dial tone.
4. Dial the desired extension number.
5. Hang up.

(Polycom):

1. While on an outside line, do not hang up.
2. Press the Transfer soft key.
3. Dial the desired extension number.
4. When you here busy ring back tone, press the Transfer soft key.

To answer a Camp-On call:

1. Hang up on the first call.
2. Answer the second call
   Or
3. Place the first call on Hold or Call Park.
4. Hang up or press the receiver button.
5. Answer the second call.

(SIP-Not Supported)

Clear Call

Operation

When you make an intercom call, but the called extension cannot be reached, and you wish to call another extension:

1. Do no hang up, dial the second extension number.

(SIP-Not Supported)

Conference: Add-On

A conference with a maximum of 1 outside & 3 inside parties or 4 inside parties.

Operation

While speaking on an outside or intercom call:

1. Press and release the receiver button quickly or press the Flash key.
2. Dial the extension number of the party you wish to add.
3. When the party answers, press and release the receiver button quickly or press the Flash key.
   - After you hear a tone, all parties will be connected.
4. To add another extension, repeat the same procedure.

Polycom SIP station - Not Supported

Conference: Multi-Line

A conference with a maximum of 3 outside & 1 inside parties.

Operation

While speaking on an outside call:

1. Press and release the receiver button quickly or press the Flash key.
2. Dial the Feature Access Code for Exclusive Hold (07.06 - Feature Access Numbers: # 08).
3. Press and release the receiver button quickly or press the Flash key.
4. Dial the second outside party.
5. Wait for the second party to answer.
6. Press and release the receiver button.

7. Dial the Feature Access Code for Conference (07.06 - Feature Access Numbers: # 16) and all parties will be connected.

To add the 3rd outside line, repeat the same procedure.

(Polycom SIP Station):

1. Press the Hold soft key.
2. Dial the Exclusive Hold code.
3. Hang up.
4. Dial the second outside party.
5. Press the Hold soft key.
6. Dial the Feature Access Code for Conference and all parties will be connected.

Conference: Trunk-To-Trunk

(Up to 2 outside parties)

Operation

While speaking with two outside parties in a Multi-line Conference call and wish to leave:

1. Press and release the receiver button quickly or press the Flash key.
2. Dial the Feature Access Code for Conference (07.06 - Feature Access Numbers: # 16).
3. Hang up.

(Polycom SIP Station):

1. Press the Hold soft key.
2. Dial the Feature Access Code for Conference.
3. Hang up.

To get back in the Multi-line Conference:

1. Lift the receiver and wait for dial tone.
2. Dial the Feature Access Code for Exclusive Hold code (07.06 - Feature Access Numbers: # 08) and you will be connected to the original conference call.

Consultation Hold

Operation

1. Press the Hold button **or**
2. While on an outside call, press and release the receiver button quickly or press the Flash key.

Do Not Disturb

Operation

To turn on:

1. Lift the receiver and wait for dial tone.
2. Dial the Feature Access Code for Do Not Disturb (07.06 - Feature Access Numbers: # 23).
3. Wait for a confirmation tone.
4. Hang up.

To turn off:

1. Lift the receiver and wait for dial tone.
2. Dial the Feature Access Code for Cancel code (07.06 - Feature Access Numbers: # 01).
3. Dial the Feature Access Code for Do Not Disturb code (07.06 - Feature Access Numbers: # 23).
4. Wait for a confirmation tone.
5. Hang up.

Flash

Operation

For Long Flash:

1. Press and release the receiver button quickly or press the Flash key.
2. Dial the Feature Access Code for Long Flash (07.06 - Feature Access Numbers: # 14).
3. Dial new number.

For Short Flash (Centrex or PBX use):

1. Press and release the receiver button quickly or press the Flash key.
2. Dial the Feature Access Code for Short Flash (07.06 - Feature Access Numbers: # 15).
3. Dial new number or feature code.

Call Forwarding: Set Forward Destination

Operation

1. Lift the receiver (handset).
2. Enter the Feature Access Code for Call Forward (07.06 - Feature Access Numbers: # 22).
3. Enter the Call Type you wish to forward:
   - 1 = All calls (CO/Intercom)
   - 2 = CO calls only
   - 3 = Intercom calls only
4. Enter the Flexible Call Forward Mode:
   - 1 = All calls to another extension or hunt group
   - 2 = Busy/No Answer calls to another extension or hunt group
   - 3 = No Answer calls to another extension or hunt group
   - 4 = All Calls forward to an external number (using Personal Speed Dial Codes 90-99)
5. Do one of the following:
   - If you chose Mode 1,2, or 3, enter the extension or hunt group number
   - If you chose Mode 4, enter the Personal Speed Dial Code (90-99)
6. If the setting is invalid, you will hear a warning tone. Hang up.

Call Forwarding: Forward Cancel

You may cancel the forwarding of All calls, CO calls only, or Intercom calls only.

Operation

1. Lift the receiver (handset).
2. Enter the Feature Access Code for Cancel (07.06 - Feature Access Numbers: # 01).
3. Enter the Feature Access Code for Call Forward (07.06 - Feature Access Numbers: # 22).
4. Enter the Call Type number you wish to cancel:
   - 1 = All calls (CO/Intercom)
   - 2 = CO calls only
   - 3 = Intercom calls only

Note:	When the setting is valid, you will hear a confirmation tone. If the setting is invalid, you will hear a warning tone.

Call Forwarding: Follow Me

When you move to a different extension, you may change the forwarding destination from the extension you originally set to the extension to which you are now using.

Operation

1. Lift the receiver (handset) or press the speaker key (SPKR).
2. Enter the Feature Access Code for Call Forward Follow Me (07.06 - Feature Access Numbers: # 22).
3. Enter the Call Type you wish to forward:
   - 1 = All calls (CO/Intercom)
   - 2 = CO calls only
   - 3 = Intercom calls only
4. Enter the extension number of the originating forwarding station.

Note: When the setting is valid, you will hear a confirmation tone. If the setting is invalid, you will hear a warning tone.

Floating Outside Line Group Access

Operation

1. Lift the receiver and wait for dial tone.
2. Dial the outside line group number 01-60 or 00 for the desired group.

Forced/Verified Account Code

Operation

1. Lift the receiver.
2. Dial the access code for an outside line (assigned by the system installer).
3. Wait for the dial tone.
4. Dial the desired phone numbe.
5. Dial *.
6. Wait for the account code entry tone.
7. Dial a code.
8. Dial * only if your code entry is variable in length.

Group Park

Operation

To place a call in Group Park:

1. Press and release the receiver button quickly.
2. Wait for the dial tone.
3. Dial the Group Park code.
4. Hang up.

To retrieve a call in Group Park:

1. Lift the receiver and wait for dial tone.
2. Dial the Group Park code.

Hot Line

Operation

If your telephone is programmed for use as a Hot Line:

Lift the receiver, and you will automatically call the preprogrammed extension.

(SIP-Not Supported)

Howler Tone

Operation

Replace the receiver on the receiver button.

(SIP-Not Supported)

Last Number Redial

Operation

1. Lift the receiver and wait for dial tone.
2. Press the Redial button on the telephone **or**
3. Dial the Feature Access Code for Last Number Redial (07.06 - Feature Access Numbers: # 05) if you have a Rotary Dial Telephone.

Master Hunt Groups

Operation

To call a Hunt Group:

1. Lift the receiver and wait for dial tone.
2. Dial the Hunt Group access code.

Message Waiting

(This feature is not available when the ECS is using the MBOX feature)

Operation

To leave a message when the extension you are calling is busy or does not answer:

1. Do not hang up.
2. Press and release the receiver button quickly or press the Flash key.
3. Wait for the dial tone.
4. Dial the Feature Access Code for Message (07.06 - Feature Access Numbers: # 19).
5. Wait for a confirmation tone.
6. Hang up.

To cancel a message:

1. Lift the receiver and wait for dial tone.
2. Dial the Feature Access Code for Cancel (07.06 - Feature Access Numbers: # 01).
3. Dial the Feature Access Code for Message (07.06 - Feature Access Numbers: # 19).
4. Dial the extension number.
5. Wait for a confirmation tone.
6. Hang up.

To answer messages when the message lamp on your phone is flashing:

1. Lift the receiver and wait for dial tone.
2. Dial the Feature Access Code for Message (07.06 - Feature Access Numbers: # 19) and the ECS will automatically call the extension that left the message

or

3. Press the Message button on the telephone.

Off-Hook Outgoing Call

Operation

Lift the receiver and the ECS will automatically dial the outside number.

(SIP-Not Supported)

Off-Hook Outside Line Queuing

Operation

To wait for an outside line:

Stay on the line until you hear the dial tone.

(SIP-Not Supported)

Paging: All Call

Allows you to make an announcement either through the speakers in the Digital Telephones or an External Paging System.

Operation

1. Lift the receiver and wait for the dial tone.
2. Dial the Feature Access Code for All Call (07.04 - Paging Group Access Numbers).
3. Wait for the Page tone.
4. Make an announcement.
5. Hang up.

Paging: Group Call (Internal)

Allows you to page through the speaker in a group of phones.

Operation

1. Lift the receiver and wait for the dial tone.
2. Dial the Feature Access Code for Group Call (07.04 - Paging Group Access Numbers).
3. Wait for the Page tone.
4. Make an announcement.
5. Hang up.

Paging: Zone Page (External)

Allows you to access individual groups of external speakers.

Operation

1. Lift the receiver and wait for the dial tone.
2. Dial the Feature Access Code for Zone Page (07.04 - Paging Group Access Numbers).
3. Wait for the Page tone.
4. Make an announcement.
5. Hang up.

Paging: Meet-Me Page Answer

Allows you to answer a page from any phone that is in the same Meet-Me Page Answer group.

Operation

1. Lift the receiverand wait for the dial tone.
2. Dial the Feature Access Code for Meet-Me Page Answer (07.06 - Feature Access Numbers: # 24) and you will be connected to the extension that made the page.

Pre-Ringing

This programming option allows calls to Single Line Telephones to receive a short ring before the normal ring signaling begins.

This feature helps reduce the noise level in the office environment.

Operation

None.

Private Line

Operation

None.

Protected Extension

Operation

None.

Shift Call

Operation

When you make an intercom call, but the called extension cannot be reached, and you wish to call another extension:

1. Do not hang up.
2. Dial the last digit of the next desired extension number.

(SIP-Not Supported)

SIP Station Name Display for Intercom Calls

SIP stations can display name of the calling party for intercom calls. The station will display the name programmed in the ECS database under Stations > Name (Class 10.04).

- Wake-up calls to SIP stations will display "Wakeup Call" for the display name.

Speed Dial: Personal Speed Dial Registration

Operation

To register Personal Speed Dial Numbers (with an outside line group):

1. Lift the receiver and wait for the dial tone.
2. Dial the Feature Access Code for Speed Dial Registration (07.06 - Feature Access Numbers: # 04).
3. Dial the Personal Speed Dial code 90-99.
4. Dial the access code for the outside line group.
5. Wait for the dial tone.
6. Dial the phone number.
7. Hang up.

Repeat the procedure to enter additional numbers.

To register Personal Speed Dial Numbers (without an outside line group):

1. Lift the receiver and wait for the dial tone.
2. Dial the Feature Access Code for Speed Dial Registration (07.06 - Feature Access Numbers: # 03).
3. Dial the Personal Speed Dial code 90-99.
4. Wait for the dial tone.
5. Dial the phone number.
6. Hang up.

Repeat the procedure to enter additional numbers.

To register a pause:

When registering the telephone number, at the place where you want to insert a pause.

1. Dial *.
2. Dial 1-9 for the desired pause time in seconds.

Note: Pause may not be used on ISDN PRI or ISDN BRI lines.

To register the * symbol in a number:

When registering the telephone number, at the place where you want to insert a *:

- Dial **.

Note: * may not be used on ISDN PRI or ISDN BRI lines.

Speed Dial: To Speed Dial A Number

Operation

Touch-tone Phone:

1. Lift the receiver and wait for the dial tone.
2. Dial *.
3. Dial the Speed Dial code.

The system will automatically dial the registered number.

Rotary Dial Phone:

1. Lift the receiver and wait for the dial tone.
2. Dial the Feature Access Code for Speed Dial Access (07.06 - Feature Access Numbers: # 02).
3. Dial the Speed Dial code. The system will automatically dial the registered number.

Station Restriction Password

Operation

To restrict your phone:

1. Lift the receiver and wait for dial tone.
2. Dial the Feature Access Code for Station Restriction Password (07.06 - Feature Access Numbers: # 27).
3. Dial your password.
4. Hang up.

To cancel restriction at your phone:

1. Lift the receiver and wait for dial tone.
2. Dial the Feature Access Code to Cancel (07.06 - Feature Access Numbers: # 01).
3. Dial the Feature Access Code for Station Restriction Password (07.06 - Feature Access Numbers: # 27).
4. Dial your password.
5. Hang up.

Single Line Message Waiting Stutter Dial Tone

When a Single Line Telephone that has a message goes off-hook, the ECS automatically sends an intermittent tone for 2 seconds before normal dial tone is heard. This feature alerts you of messages.

Operation

To determine if you have a message on a Single Line Telephone:

1. From the telephone's idle state, go off hook.
2. If a message exists, you will hear a stutter dial tone.

(SIP-Not supported from the system. The SIP telephone controls its own dialtone. Your specific telephone may have this feature.)

System Announcement Message

Operation

To play the System Announcement Message:

1. Lift the receiver and wait for dial tone.
2. Dial the Feature Access Code for System Announcement Message (07.06 - Feature Access Numbers: # 25).

Tone/Voice Calling

Operation

To switch the calling mode to a Digital Telephone:

1. Dial the extension number.
2. Dial #.

Transfer To Park

Operation

You may transfer a call to the call park orbit of another extension:

1. Press and release the receiver button quickly or press the Flash key.
2. Dial the Feature Access Code for Transfer to Call Park (07.06 - Feature Access Numbers: # 53).
3. Dial the Extension Number.
4. Hang up.

(Polycom SIP Station):

1. Press the Hold soft key.
2. Dial the Feature Access Code for Transfer to Call Park.
3. Dial the extension number.
4. Hang up.

Unanswered Incoming Outside Line Warning Tone

Operation

None.

Universal Night Answer

Operation

1. Lift the receiver and wait for dial tone.
2. Dial the Feature Access Code for Universal Night Answer (07.06 - Feature Access Numbers: # 46) and you will be connected to the incoming call.

Wake-Up Call

Operation

Wake-up call available on SIP stations with ECS software version 8.0 or higher.

To **set** a wake-up time from SIP station:

1. Go off-hook and wait for intercom dial tone.
2. Dial the Wake-Up Call feature access code programmed in the ECS database under System > System Numbering > Feat/Ntwk/AcdGrpNumbering (Class 07.03.26).
3. Wait for a confirmation tone and dial the wake-up time (24-hour clock) HH:MM.
   - 24-hour clock example: 15:15 = 3:15 pm / 08:00 = 8:00 am.
4. Wait for a confirmation tone.
5. Press the Speaker key or hang-up.

To **cancel** a wake-up call:

1. Go off-hook and wait for intercom dial tone.
2. Dial the Cancel + Wake-Up Call feature access codes programmed in the ECS database under System > System Numbering > Feat/Ntwk/AcdGrpNumbering (Class 07.03.26).
   - Example: 501+526
3. Wait for a confirmation tone.
4. Press the Speaker key or hang-up.

Chapter 6

Hotel/Motel Features

This section lists features that are useful for systems installed in hotels and motels. System-wide, station, and attendant features are also available for hotel and motel operation. If you cannot find information about the feature you are looking for refer to System - Wide Features, Station Features or Attendant Features.

Hardware Requirements

The following hardware is recommended for hotel/motel operation:

- IX-DSS unit for receptionist or room supervisor
- IX-SCIF for call accounting device connection
- IX-HCIF for interface between the ECS and the hotel/motel property management system.

Hotel Mode

04.28 - Hotel Mode is used to place the system in *hotel mode*. When in hotel mode, the keys on a DSS unit function as room indication keys.

Conditions:

1. The differences between hotel mode and normal mode are as follows:
   - In hotel mode, an attendant position equipped with a KT + DSS unit will display the room status on the BLF unit.
   - If a station is set as “occupied” by the attendant, the station is not restricted from making outgoing calls. If a station is set as “vacant” by the attendant, the station is restricted from making outgoing calls.
2. A reset is required to effect the changes programmed in 04.28 - Hotel Mode.

Hardware Required:

KT + DSS units, IX-8SUBM (for message waiting), IX-DCDCM.

Intercom Call Restriction

The ECS can be programmed to restrict guest rooms from calling each other. Guests can still make intercom calls to the hotel/motel's administrative extensions. For more details on this feature see Intercom (ICM).

Message Waiting Control

This feature allows the operator to inform a guest that a message(s) is waiting by lighting a message waiting lamp on the phone in their room. This operation allows you to send a message without having the phone ring. For more information on this feature see Message Waiting.

Property Management System (PMS) Interface

The IX-HCIF card provides an interface between the hotel/motel property management system and the ECS. This interface allows commands issued for the property management system to control the individual room telephones as listed:

- Toll Restriction PMS can change the toll restriction class of a station depending on the room status – vacant or occupied. Toll Restriction levels are assigned in 10.23 - Toll Restriction Level and Class. determines event code can restrict Place outgoing dialing restrictions on a room terminal when the room is vacant.
- Message Waiting The PMS can light the message lamp at a specific station. in order for this feature to operate, 10.45 - Message Key must be set to **Allow**.
- Wake-Up Call Wake-up call requests are output to the PMS. PMS can track result of wake-up call attempts – answered, recall. Wake-Up Call report prints to the port defined in 04.07 - Wake Up Call Report Port.
- Room Status The ECS outputs room status for PMS reporting. The ECS must be in hotel mode (04.07 - Wake Up Call Report Port) for this feature to work.
- Lamp Control PMS can change the room status indication lamp at the attendant position DSS. The ECS must be in hotel mode (04.28 - Hotel Mode) for this feature to work.

Database Programming:

04.07 - Wake Up Call Report Port; 04.28 - Hotel Mode; Class 6 Toll Restriction; 10.23 - Toll Restriction Level and Class; 10.45 - Message Key; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

IX-HCIF.

Room Status

The buttons on a DSS unit can be programmed to display the status of each guest room. There are nine status indications:

1. Vacant-Ready (Cleaning Confirmed).
2. Vacant-To Be Cleaned.
3. Vacant-Cleaned.
4. Occupied (In Room)-Ready (Cleaning Confirmed).
5. Occupied (In Room)-To Be Cleaned.
6. Occupied (In Room)-Cleaned.
7. Occupied (Out Of Room)-Ready (Cleaning Confirmed).
8. Occupied (Out Of Room)-To Be Cleaned.
9. Occupied (Out Of Room)-Cleaned.

When the status of a guest room is changed from “occupied (in room)” to another status, the guest room phone is restricted.

The maid can change the status of the guest room from “to be cleaned” to “cleaned” by dialing a code from the guest room phone. The supervisor, after inspection of the cleaning, can change the status of the guest room from “cleaned” to “ready (cleaning confirmed)” by dialing a code from the guest room phone.

Room Status	Button Lamp	Call Externally
Vacant-Ready	off	No
Vacant-To Be Cleaned	red-fast flash	No
Vacant-Cleaned	red-slow flash	No
Occupied (In Room)-Ready	green	Yes
Occupied (In Room)-To Be Cleaned	green & red-fast flash	Yes
Occupied (In Room)-Cleaned	green & red-slow flash	Yes
Occupied (Out of Room)-Ready	green-slow flash	No
Occupied (Out of Room)-To Be Cleaned	green-slow flash & red-fast flash	No
Occupied (Out of Room)-Cleaned	green-slow flash & red-slow flash	No

Operation:

To change the status of a guest room from the DSS:

1. Press the button on the DSS representing the desired guest room.
2. Press the button representing the desired room status and the lamp on that button will change to represent the new status.

To change the status of a guest room from the guest room:

1. From to be cleaned to cleaned: At ICM dial tone press [5][3][6].
2. Wait for the confirmation tone then hang up.
3. **From to be cleaned or cleaned to ready:**
   - At ICM dial tone press [5][3][7].
   - Wait for the confirmation tone then hang up.

Database Programming:

04.28 - Hotel Mode; 07.06 - Feature Access Numbers; 15.01 - Attendant Key Assignment.

Wake-Up Call

This feature allows the hotel operator or a guest to enter the time that they wish to receive a wake-up call. Guests are notified by having their phone ring five minutes before the time set. If the first wake-up call is not answered, the ECS will call the guest room at the time set. The guest room phone will ring five times. When the receiver is lifted the guest has the option of hearing music-on-hold or either a prerecorded or customized message if the system is equipped with a message card and associated hardware.

Operation:

To set a wake-up time from the attendant position:

At ICM dial tone press [Wake Up Call ATT] + *room extension number* + *wake-up time* in military time.

To cancel a wake-up time from the attendant position:

At ICM dial tone press [Wake Up Call ATT] + [*] + *room extension number.*

To set a wake-up call from a guest room:

At ICM dial tone press [5][2][6] + *wake-up time* in military time.

To cancel a wake-up call from a guest room:

At ICM dial tone press [5][0][1] + [5][2][6].

Database Programming:

07.06 - Feature Access Numbers; 15.01 - Attendant Key Assignment.

Wake-Up Call Report

If your system is connected to a printer you can have the status of wake-up call attempts printed as they occur. An example of the printout is illustrated below.

DATE	TIME	TEL	ANSWER
07/29	08:20	230	O

The result of the call attempt is shown in the ANSWER column.

O = call was answered, X = call was not answered

Note: This feature will only work with the IX-CPUL-1 and newer processors.

Database Programming:

07.06 - Feature Access Numbers; 04.28 - Hotel Mode.

Hardware Required:

IX-SCIF, Printer.

Chapter 7

Voice Mail/ Automated Attendant Integration

Most of the voice mail and automated attendant systems on the market today are compatible with the ECS. The ECS sends in-band DTMF packet signals that identify the call status when the AA/VM system answers a call. The degree of integration between the ECS and the VM/AA system depends on the packet handling capability of the VM/AA system.

Hardware Requirements

The following hardware is recommended for voice mail/automated attendant operation:

- An IX-8SUBS card for VM/AA port connection (Not required)
- An IX-SCIF card for call accounting device connection

In-Band Packet Codes

The actual data of each DTMF in-band packet sent from the ECS to the voice mail or auto attendant port is programmed in 04.77 - Voice Mail/Auto Attendant Packet Codes. The data for each packet can be entered according to the specifications of the voice mail/automated attendant system. The ECS uses two types of DTMF in-band packets:

Call Identifier Packets Call identifier packets consist of a *call type identifier* and a *call detail identifier*. The call type identifier identifies the type of call that is being sent to the VM/AA port. The call type identifier is followed by a call detail identifier. The call detail identifier identifies the mailbox number, extension number, or trunk number. In some cases the call detail identifier may be omitted either automatically or through database programming. Call identifier packet data flow is as follows:

[Pause 1] [Call Type Identifier] [Pause 2] [Call Detail Identifier]

Pause 1	Predial pause of one second after the VM/AA closes the loop
Call Type Identifier	Type of call sent to the VM/AA port
Pause 2	In-packet pause time programmable between 0 and 9 seconds
Call Detail Identifier	Value depends on the call type identifier.

Call Process Packets These packets indicate to the VM/AA port a specific change in the status of an ECS extension. Two call process packets are provided.

Packet Programming Options

The table below lists each 04.71 - Call Coverage/Voice Mail Data packet programming option:

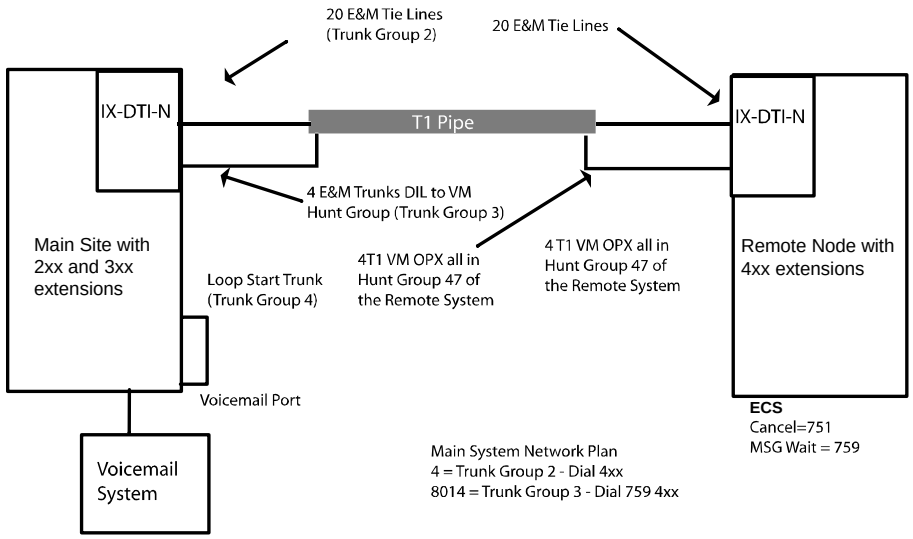
Option	Notes
DTMF Speed	The DTMF packet signal speed is programmable between 50 ms on/off and 200 ms on/off.
In-Packet Pause Time	The pause time between the call type identifier and call detail identifier is programmable between 0 and 9 seconds.
Disconnect Pause Time	The pause time between disconnection detection and the disconnect packet is programmable between 0 and 9 seconds
Disconnect Signal Time	Select between loop open or DTMF disconnect packet for disconnection detection.
Trunk ID Packet	Enabling this element prevents the trunk ID from being included as a call detail identifier
Loop Open Duration	If Disconnect Signal Time is set to loop open, this element is used to program the loop open duration for SLT ports

Centralized Voice Mail via the T1/IP Net Off-Premise Voice Mail Port

The ECS system can be configured with Voice Mail Off-Premise (OPX) ports (Class 01.11, data = 0-4-3) for channels on the T1 card or IX-8IPNET card. This allows one or more branch locations to share the voice mail system connected to the main ECS system. The channels at each branch system will be configured as T1 Voice Mail OPX ports. At the branch office, these channels are treated as regular voice mail channels. All voice mail operation at the branch office will be the same as if the ECS had a dedicated voice mail system attached. Users can forward calls to the voice mail hunt group that will send the calls to the main location and play a personal greeting. These ports will be used to turn message waiting lights on and off. In addition, pressing a flashing [MSG] key plus the [#] key will call the voice mail system at the main location for message retrieval.

The voice mail packets are sent by each branch system. Therefore, the packet structure of Class 04.77 must be configured the same for each ECS system in the voice mail network.

System Connection:



Note: The numbering plan shown above is an example. The actual numbering plan of the system may vary based on the overall configuration.

Main Location:

The voice mail system will be installed at the main location with conventional analog voice mail ports. The main location will be set up following standard programming for voice mail integration outlined in the ECS Technical Manual.

The T1/IP-NET channels at the main location must be programmed as T1/IP-NET E&M Trunk, Wink Start (Class 01.11 data = 1-0-7, Class 01.11 data = 1-1-3) to accept the incoming voice mail calls from the branch locations. These T1/IP-NET E&M Trunks must be programmed for DIL to hunt group 47 (Voice Mail) of the main system.

If your voice mail system will only support one common operation for activating message waiting, the network dial plan can be used to access the different branches and turn the message lights on and off. This application requires one analog voice mail port looped back into a loop start trunk position at the main location only. This allows the system to access message lights from a trunk position on all systems.

Branch Locations:

The T1/IP-NET channels used for voice mail at the branch locations will be programmed as T1 Voice Mail OPX (System Hardware (Class 01)). The configuration will be programmed as AA/VM and Wink Start. The T1/IP-Net Voice Mail OPX ports are assigned to hunt group 47.

Note:	When the configuration is changed to support OPX voicemail, the logical port from a trunk logical port to a station logical port. This requires an available station in Class 01.09.
Note:	If you have trunk packets enabled (04.71 - Call Coverage/Voice Mail Data: Trunk ID Packet) at the main system, you will receive packet 01 + *the trunk number,* a one second pause and then the packet from the branch system.

Calls can be forwarded to Voice Mail using the hunt group access number of their local system. This access code can be the same number for all systems within the network.

Database Programming:

01.09 Station Port Definition

Hardware Required:

IX-DTI-T/, IX-TIRCV for off-premise voice mail port.

IX-IPNET cards.

Analog Single-Line Features

ECS station ports defined as voice mail/auto attendant ports in Class 01.09 Station Port Definition support features available to single line telephone ports. The Features now available are listed below:

Answer Hold
Attendant Call Park Answer
Busy Override
Call Forwarding
Call Forward Destination Set
Call Forward Mode Set
Call Park
Call Park Split
Call Pickup
CO Account Code
CO Hold Pickup
Conference, Add On
Conference, Multitrunk
Conference, Trunk-to-Trunk
CO Flash (Long and Short)
CO Conference Call
Conference Between CO Lines
Do Not Disturb
Equal Access
Fixed Call Forward
Forced Account Code
Group Call
Information Service
Last Number Redial
Meet Me Answer Page
Network Dial Access Codes
Override
Paging Access
Shift Call/Clear Call
Station Conference Call
Station Hold
Station Callback
Station Lock
Time Trunk Queuing
UNA Pickup
Voice/Tone Calling Mode
Wake Up Call Service

MBOX / Message Waiting Lamp Control

The VM/AA system can turn on or off the [MBOX] or [MESSAGE] LED on an ECS KT or the message lamp on a SLT through the VM/AA port. The following information must be supplied by the VM/AA system:

- MSG feature code programmed in 07.06 - Feature Access Numbers.: MSG Waiting
- Message cancellation code programmed in 07.06 - Feature Access Numbers: Cancel
- Extension Number

Call Progress Tones to VM/AA Port

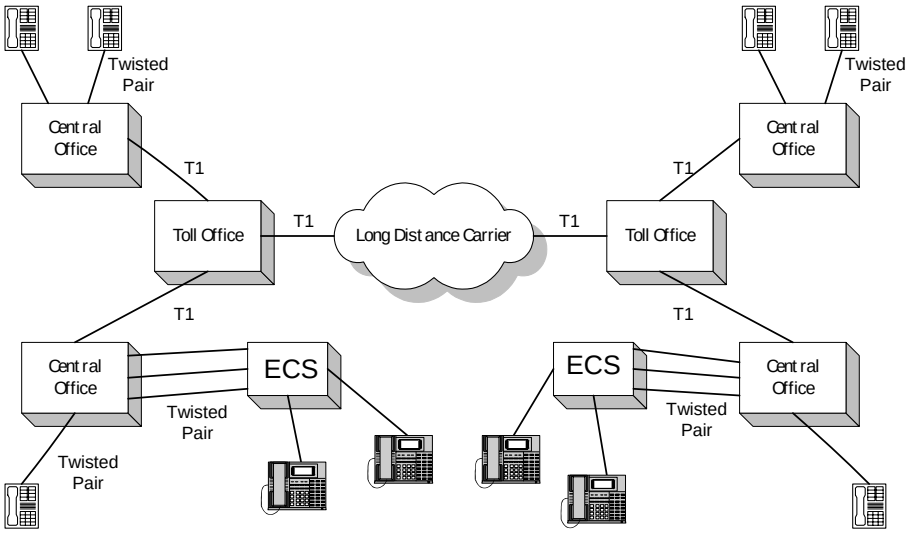
The following call progress tones are sent to the VM/AA port:

- ICM dial tone when the VM/AA closes the loop.
- Ringback tone when VM/AA calls an idle station or a busy station that is allowed off-hook signaling.
- Busy tone when the VM/AA calls a busy station that is denied off-hook signaling, a DND station, a station with an active absence message, or when the AA/VM dials an invalid number.

Chapter 8

ECS T1 Interface

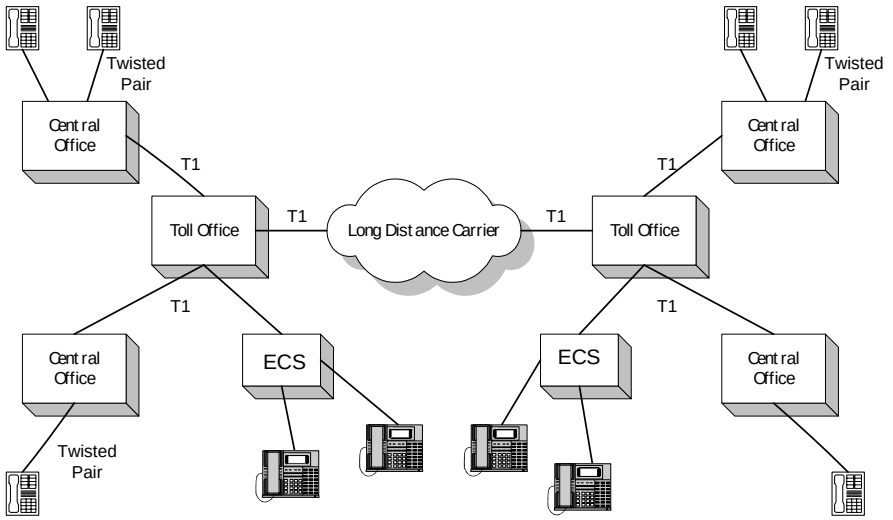
Traditionally, twisted pair cable has been used to provide connection between the local telephone company exchange and a PBX system. As a result calls were always routed through the local telephone companies. For example, to place a call from New York to Los Angeles requires connection through three telephone companies; NYNEX in New York, A long distance company such as AT&T or MCI for long distance connection, then Pacific Bell in California. This telephone network is called the Public Switched Telephone Network (PSTN). In the following illustration two ECS systems, one in New York the other in Los Angeles are connected to their local telephone company (CO) using twisted pair cable for each subscriber line. At the CO, the lines are multiplexed and carried on a two-pair cable. This is called the T1 carrier. (In fact, a much higher rate of multiplexing than T1 is used within telephone companies.) In the illustration, the long distance carrier's property includes Toll Offices and ends at the T1 cabling to the CO.



If a carrier company provides toll service such as WATS 800 service, the conventional system subscriber is required to pay an “access charge” to the local telephone company for every WATS call made or received.

The T1 Interface

Another choice for line connection is available to the ECS. Utilizing an IX-DTI-T digital trunk card, the long distance carrier's T1 pipe interface circuit can be connected directly to the ECS bypassing the local CO. Therefore the customer avoids an access charge from the local CO. The following illustrates T1 termination at the ECS.



For more details on T1 connection contact your local long distance company.

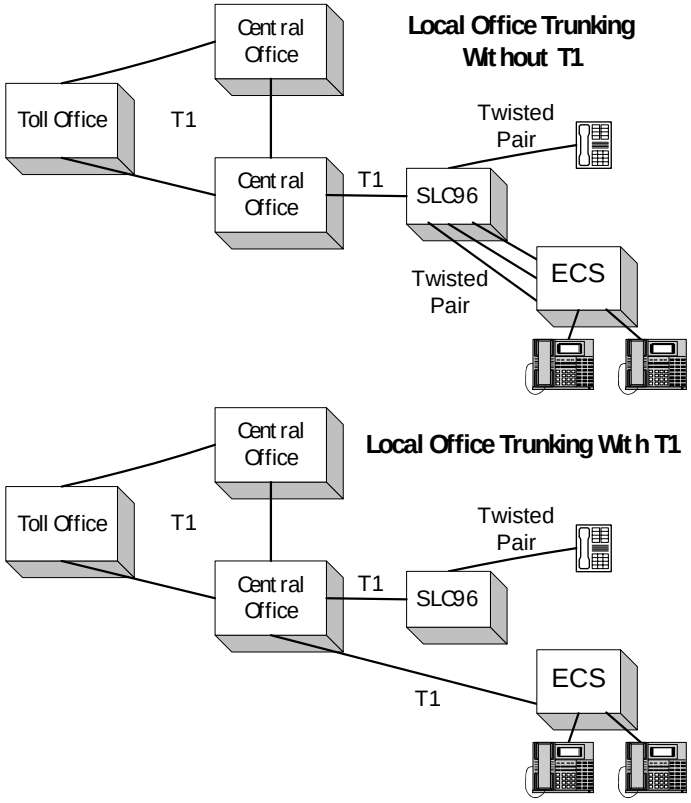
The approximate service charges with and without the T1 pipe are compared in the following table:

Service Charges	With T1	Without T1
Installation charge	$1600	24 x $40
Monthly charge	$800 for T1 pipe	24 x $60 trunk line charge
WATS call charge	$50 WATS service charge	$50 WATS service charge + Access charge
Total	$2450	$2450

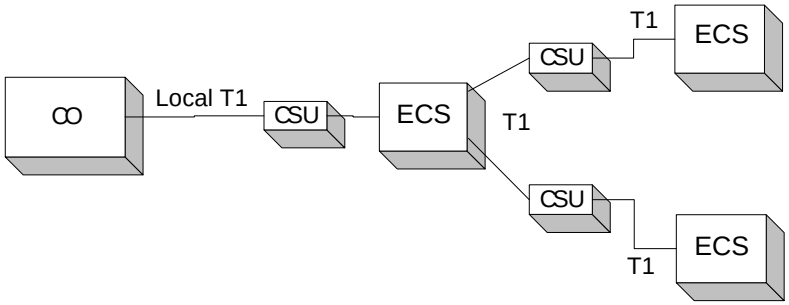
The basic cost is about the same, however, with traditional twisted pair connection through the local CO you are paying a monthly access charge to the local CO on every WATS call. The monthly service charges from the long distance carrier are the same in either case. The T1 subscriber will pay much less than the local telephone company subscriber. In general, a business that uses 12 WATS lines will save over $20,000 each year.

Note: The above example is used for illustration purposes only. Refer to your respective offices for actual charges.

Local Telephone Company Trunking In some areas the local CO provides a service called Direct Distance Dialing (DDD). DDD is local line connection through T1 pipes. In the following illustration, the local CO provides a digital line facility called SLC96 that allows up to 96 subscribers to be served on three pairs of wire. Although this facility is owned by the CO and is not exactly the T1 format, the ECS T1 interface (IX-DTI-T) allows the customer to bypasses the SLC96 and connect directly to the CO's digital T1 pipe.



Private Line Connection One of the most common uses for the local CO's T1 pipe is system interconnection through point-to-point links. As illustrated below, the point-to-point T1 link connects two remote ECS systems together bypassing the CO altogether. This application is equivalent to using the system networking feature to connect two ECS systems using 24 E&M tie lines. The private T1 lines can be used for voice communications as well as data communication.



Characteristics of the T1 Pipe

The T1 pipe is a digital signal carried over two-pair (four wire) data cable. Twenty-four channels are carried on a single T1 pipe as a series of digital pulses using Time Division Multiplex (TDM) technology. Every channel of the T1 frame represents one digitized voice path. In the U.S., the PCM coding scheme of mu255 is used with the D2 to D4 channel banks; with which the ECS system is compatible. The signal itself is a bipolar pulse train that represents digital 1 and 0. The telephone company provides various voice functions for each channel as requested. However, the ECS T1 interface is only compatible with the following functions:

- FXS
- FXO
- E&M
- DID

The following channel functions are not compatible with ECS:

- ARD
- TO
- PLR
- DPT
- DPO
- SAO, SAA
- DS0

T1 connection to the ECS is provided using the IX-DTI-T Digital Trunk Interface Card. This circuit card connects directly to the T1 pipe via a CSU. Because the digital signal is transmitted over long distances, a channel service unit (CSU) is required before termination at the ECS to recondition and reshape the digital signal. The IX-DTI-T card can be configured as an 8-, 16-, or 24-port card. This feature is called fractional setting. Through database programming (*C*System Hardware (Class 01)) the digital ports can be individually configured to provide any combination of the following T1 channel functions:

- Loop Start Trunk
- Ground Start Trunk
- ANI Trunk
- DNIS Trunk
- E&M Signaling Trunk
- DID Trunk
- E&M Tie Line
- OPX Line

Data Communication

The ECS T1 interface does not provide data service such as Digital Data Service (DDS) or 64 kbps data line (DS0) over the T1 span. However, the customer can split the T1 span at the CSU and direct it to an individual data connection port, such as RS232C or X.25. The remaining digital channels are then connected to the IX-DTI-T card.

Features Supported by the IX-DTI-T/IX-T1DTI Card

T1 Framing

The ECS supports both D4 Superframe (SF) and Extended Superframe (ESF) for the T1 connection. Extended Superframe is used more often for high-speed data communication. Superframe is recommended for voice communication to the ECS. Extended Superframe is not available in some areas.

Zero Suppression

In most cases, AMI (B7 stuffing) is used for Superframe (D4) and B8ZS is for ESF. The ECS supports both of the zero suppression schemes.

Trunk Type Selection

The following types of signaling can be selected for each T1 channel through database programming to simulate the following types of trunks:

Outgoing/Incoming Trunks

- Loop Start Signaling
- Ground Start Signaling
- E&M Signaling
- Two-Way DID Signaling

Incoming Trunks

- DID Signaling
- E&M Tie Line Signaling - functions as IX-4EMTK for tie line use
- OPX Signaling
- ANI Signaling
- DNIS Signaling

T1 Alarms

The IX-DTI-T/IX-T1DTI card will respond to conditions on the T1 span and issue the following alarms:

Red Alarm

When the ECS system detects one of the following T1 signal failures on the receiving line they are determined to be framing errors. The response is a red alarm.

- Out of Frame (OOF) alarm
- Loss of Signal (LOS) alarm

Yellow Alarm

The yellow alarm is sent to the T1 carrier to indicate that a Red Alarm condition is detected.

Blue Alarm

This signal informs the T1 carrier that the ECS system is up and running. This alarm signal is sent to the carrier by the CSU during ECS system troubleshooting.

T1 Network Clock Synchronization

In the U.S., a master clock source provides T1 network clock synchronization. Network clock synchronization trickles down to the ECS from the long distance carrier, toll offices, and central office. The ECS synchronizes itself to the master clock in *slave* mode. Within the ECS, clock synchronization between IX-DTI-T/IX-T1DTI cards is provided through slave-primary/slave-backup operation. In networked ECS systems, T1 clock synchronization is provided using master/slave-private operation.

ECS Master/Slave Operation

Positions 1 and 2 of Switch 1 on the IX-DTI-T card is used to select clock mode setup of each T1 connection. The selection will assign one of the following four clocking modes:

Slave-Primary - Card synchronizes itself to the master clock source of the T1 carrier signal.

Slave-Backup - Card synchronizes itself to the card configured as slave-primary. A slave-backup card will provided synchronization if the slave-primary card fails.

Master Clock - The master clock source can either be internal or external. **External Source:** In a network configuration synchronization is to the slave card at the distant end of the span. **Internal Source:** Used when the ECS is the main switch. Synchronization is to the system highway clock.

Slave-Private - Card synchronizes itself to the card configured as Master Clock.

System Requirements for T1 Termination

The requirements listed below vary according to the channel functions that are utilized by the ECS system.

Minimum Requirements

- One IX-DTI-T digital trunk interface card is required for each T1 (DS1) pipe.
- One external CSU for each T1 pipe.

Optional Hardware

IX-T1RCV digital receiver card.

One or two IX-8ERCV DTMF receiver daughterboards.

Chapter 9

ISDN Basic Rate Interface (BRI) & ISDN Primary Rate Interface (PRI)

This chapter describes the system database programming required for ECS ISDN Basic Rate Interface (BRI) subscriber line connection using the IX-4ICOTB trunk interface card, and ISDN Primary Rate Interface (PRI) using the IX-DTI-P card.

Note: The ISDN Ordering Code (IOC) for a BRI subscriber line connection is Package M.

ISDN Basic Rate Interface (BRI) Overview

An ISDN Basic Rate Interface subscriber line consists of two 64 kilobits per second B channels (or “bearer” channels) and one 16 kilobits per second D channel. This type of configuration is commonly called "2B+D." In the ECS system, the two B channels are used to transmit voice and the D channel is reserved for signaling. Two of the key advantages of installing ISDN BRI lines in the ECS are:

- Lower line costs (depending on location).
- Supports multiple telephone numbers on a single line.

ECS ISDN BRI Support

Below is a description of ISDN BRI line support in the ECS:

- Each IX-4ICOTB card supports four ISDN BRI lines.
- Each ISDN BRI line provides two B channels for voice and one D channel for signaling.
- An NT1 is required to interface ISDN BRI lines to the IX-4ICOTB card installed in the ECS system.
- At this time, the ECS system will only support IX-4ICOTB card installations in the United States.
- The ECS system is able to receive ANI name through the key telephone display.

ECS System Requirements

In order to support ISDN BRI subscriber lines, the ECS system must meet the following hardware and software requirements:

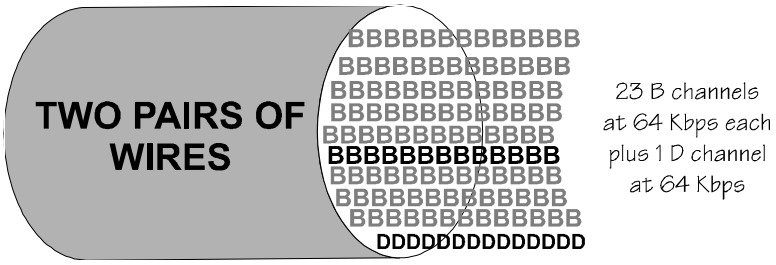
- One IX-4ICOTB card supports 4 ISDN BRI circuits
- One NT1 device is required to interface each ISDN BRI line (2B + D) to the IX-4ICOTB (or IX-2ICOTB) card.
- The table below lists the switch types and protocols supported by the ECS IX-4ICOTB card:

Switch Type	Protocol Type	Detail Type
DMS-100	National ISDN DMS-100 (Custom)	Multipoint2
5ESS	National ISDN	Multipoint2

- The ECS must be installed within the United States. ECS does not support ISDN BRI installations in Canada.

ISDN Primary Rate Interface (PRI)

An ISDN Primary Rate Interface (PRI) subscriber line consists of 23 64 kilobits per second B channels (or “bearer” channels) and one 64 kilobits per second D channel. This type of configuration may be referred to as "23B+D."



As illustrated above, a PRI is delivered as a single pipe using two pairs of wires. One pair of wires is used for transmit, the other pair for receive. A high capacity, 1.544 megabit per second (Mbps) T1 circuit is used for delivery of this service. This 1.544 Mbps bandwidth or "23B+D" consists of 23 64Kbps B channels which are used for call connection and one 64 Kbps D channel used for control of the circuit.

ISDN PRI Services Supported by the IX-DTI-P Card

Central Office Switch Types Supported

- AT&T 5ESS
- Other (e.g., DMS-100, DMS-250)

Note: Iwatsu America has conducted extensive testing at Bellcore testing facilities and field test sites to confirm the compatibility of the AT&T 5ESS, DMS-100, and DMS-250 central office switches. These three switches are the most common used to provide ISDN PRI service in North America. However, other switches may be available that offer comparable services. Should the ISDN service provider in your area use a switch other than the AT&T 5ESS, DMS-100, or DMS-250, contact Iwatsu America for compatibility information.

Basic Services Supported

Service	Description
Bearer Service	Basic service-to-circuit switch the ISDN network establishes the B-channel for communication between two end points and the D channel for signaling. Bearer service includes dialing, ringing, busy, etc.
Point-to-Point Connection	ECS supports only point-to-point connection of the ISDN PRI span. Point-to-point connection means a direct connection from the ECS site to the ISDN PRI provider. No fractional connection is supported at this time.
Directory Number	Telephone number assigned to ISDN PRI line for dialing in.

Optional Services Supported

Service	Description	Conditions
Direct Outward Dialing (DOD)	Direct line access for outgoing calls for local or long distance.	May not be used with any other outgoing dialing services.
Direct Inward Dialing (DID)	Allows call connection directly to a system extension or group of extension bypassing an attendant.	Calls follow DNIS routing. May not be used in combination with ANI for routing.
Automatic Number Identification (ANI)	Identifies the calling party's telephone number with an incoming call. Note: No alphanumeric ID is sent with the call.	Calls may be routed according to ANI received. If calls are received with both DNIS and ANI, 04.70 - Programming Reserve 1: Route Table Selection determines routing table - ANI or DNIS.
Dialed Number Identification Service (DNIS)	Identifies the number the caller dialed with an incoming call. Note: No alphanumeric ID is sent with the call.	Calls may be routed according to DNIS received. If calls are received with both DNIS and ANI,04.70 - Programming Reserve 1: Route Table Selection determines routing table - ANI or DNIS.
Dynamic Channel Allocation	All 23 B Channels of the PRI span may be used for both incoming and outgoing dialing.	This feature will be required in the future to implement Call-by-Call NSF (network specific facilities).
Multi-PRI (Multi-DS1)	Use one D channel for signaling on multiple PRI spans.	Up to 8 spans may be assigned to one D channel.

Services Not Supported

Service	Description
Call-by-Call NSF	Allows multiple inbound and outbound network specific services (i.e., out WATS, Foreign Exchange, DID) on a line depending on the telephone number dialed or received.
Network Ringback	When a busy call is made, NSF waits for availability then redials the number.
Channel Restriction	Fractional use of an ISDN PRI span.
D-channel Backup	Secondary D-channel for use as a backup with Multi-PRI feature. This feature would allow the capability to use the D channel of another ISDN PRI span in the event that the primary D channel fails.
Calling Line ID (Delivery on Outbound Calls)	ECS does not include calling party number identification element with outgoing calls from the ISDN PRI. This information must be requested through your ISDN service provider.

ECS System Requirements

In order to support ISDN PRI subscriber lines, the ECS system must meet the following hardware and software requirements:

- One IX-DTI-P card for each ISDN PRI subscriber line.
- One external CSU for each ISDN PRI subscriber line. The customer must provide this component.

Configuring and Defining ISDN PRI Lines

The data settings in System Hardware (Class 01) that are discussed in this section are programmed to identify and configure ISDN lines. All channels of the IX-DTI-P card must be defined as ISDN trunks. The 24th channel must be defined as the “D” channel.

Physical Port Assignment

The table below illustrates physical port mapping of the IX-DTI-P ISDN PRI card:

Physical Port	Channel
1-23	B channel 1-23 respectively of the ISDN PRI subscriber line
24	D channel of first ISDN PRI subscriber line

Relationship Between Logical Port and ISDN PRI Channel

Like all other lines terminated to ECS, the association between physical and logical ports is programmed in Class 01.11 of the system database. All subsequent database programming is based on the logical port assignment. However, when a line is seized for an outgoing call, the system connects with the highest available channel of the ISDN PRI span regardless of the logical port number. Also, when an incoming call arrives on the PRI span, it always arrives via the first available channel of the ISDN PRI span. However, the call is connected through the highest available logical port associated with the ISDN PRI span.

The relationship between logical port and PRI channel for incoming and outgoing calls is explained in greater detail below.

Outgoing Calls

When an ISDN PRI line (i.e., a PRI channel identified by its logical port number) is seized for an outgoing call, the system will select the highest available channel from one of the 23 B channels on the card to connect the call. All programming (e.g., toll restriction, outgoing group) is still associated with the call according to the logical port number.

For example, an IX-DTI-P card is installed in card slot 1 of an IX-CM (B channels = physical ports 001-023). A system extension presses a [FLT] key and seizes trunk logical port 001. The system will then use the highest available channel of the ISDN PRI span to connect the outgoing call. For example, channel 23. All database programming for the call is associated with trunk logical port 1.

Incoming Calls

An incoming call on an ISDN PRI line will always arrive at the ECS on the lowest available channel of the ISDN PRI span. Connection to the system, however, is always through the highest available ISDN PRI logical port.

For example, an IX-DTI-P card is installed in card slot 1 of an IX-CM (B channels = physical ports 001-023). Trunk logical ports 001 through 023 are programmed to ring in at station 201. A call arrives on the ISDN PRI line via the first channel of the IX-DTI-P card. The system then selects the highest available trunk logical port associated with that PRI span to connect the call. In this example, the call rings in at station 201 via trunk 23.

Protocol Type

The protocol type must be set in Class 11.73, Element 2 of the ECS database. ECS supports the following ISDN PRI protocol types:

Software Version	CO Switch Type	Protocol Supported
4.75/5.73/ACD 2.31	5ESS	National ISDN Only
	DMS	National ISDN, DMS Custom
6.00/ACD 6.00	5ESS	National ISDN, 5ESS Custom
	DMS	National ISDN, DMS Custom

Entering the PRI Interface ID for Multiple ISDN PRI Lines

Class 11.74.01 is used to program the identification number for each PRI line when multiple ISDN PRI lines are terminated to ECS. The PRI Interface ID for each line is a number between zero and eight that is assigned by the telephone company. Programming in this item is only required when the Multi-DS1 feature is used.

Programming the Controlling D Channel for Multiple ISDN PRI Lines

Class 11.74.02 is used to identify the controlling D channel when the Multi-DS1 feature is used. **Enter the last logical port number of the IX-DTI-P card that contains the controlling D channel.** Programming in this item is only required when the Multi-DS1 feature is used. A single D channel can control a maximum of Eight IX-DTI-P (or IX-ICOTP) cards.

Preventing Call Blocking on ISDN PRI Lines

In many ISDN PRI installations, the span is configured to allow incoming traffic only on one specific block of channels and outgoing traffic only on the remaining block of channels. This type of configuration may be programmed in the ECS database using Class 11.38 and Class 24.07 or 25.07. An ISDN PRI span may also be ordered from the service provider with this type of configuration already in place. For example, Channels 1-12 of the ISDN PRI span are used for incoming traffic only, while channels 13-23 are used for outgoing traffic only.

Because the ECS uses the highest available ISDN PRI trunk logical port to connect an incoming call, and also uses the highest available ISDN PRI trunk logical port to connect an outgoing call, care must be taken when programming outgoing trunk groups in Class 11.38. When configuring an ISDN PRI span for specific incoming and outgoing channel assignment, Iwatsu America recommends using the lowest trunk logical port numbers available when creating outgoing trunk groups in Class 11.38. This will prevent the possibility of call blockage occurring on the line when an outgoing call is attempted.

Note:	The information in this section only affects ISDN PRI spans in which access to specific channels is restricted for incoming call traffic only or outgoing call traffic only. Call blocking, as described in this section, is not an issue when all 23 B channels of the ISDN PRI span are accessible for both incoming and outgoing call service.

Enabling ISDN PRI Lines for Routing Based on ANI or DNIS

All incoming calls on an ISDN PRI lines may be routed based on either the ANI conversion table or DNIS conversion table. Calls received with DNIS or DID information are both treated as DNIS calls. The ECS does not refer to the DID table in Class 9 for ISDN PRI calls received with DID. In order for this feature to operate, the following programming is required:

1. Class 04.70.22 must be enabled for either ANI call routing or DNIS call routing.
2. If routing is according to ANI, each individual channel of the ISDN PRI span, on which routing according to ANI received with the call is desired, must be enabled for routing based on the ANI received in each line of the conversion table (1-500) in Class 24.07.
3. If routing is according to DNIS or DID, each individual channel of the ISDN PRI span, on which routing according to DNIS received with the call is desired, must be enabled for routing based on the DNIS received in each line of the conversion table (1-200) in Class 25.07.

If the ANI or DNIS conversion table does not contain routing information for the call, or if the trunk is not enabled for ANI in Class 24.07 or DNIS in Class 25.07, the ECS will route the call according to the following programming:

- Class 11.34 - DIL to Hunt Group
- Class 11.32 - Ringing Station
- Class 11.26 - Attendant Intercept Line
- Class 04.55 - True Attendant Position

Call Routing Based on ANI. When an incoming call with ANI digits is received on an ISDN trunk, the system first looks to Class 24.07 to determine if the trunk is enabled for ANI call routing. If the ISDN trunk is enabled for ANI, the ECS will search *Class 24.01* for a match. If a match is found the system searches *Class 24.03* for an alphanumeric ID and *Class 24.02* for a ringing assignment. The ringing assignment can be either a station, master hunt group, ACD group or voice mailbox.

Call Routing Based on DNIS. When an incoming call with DNIS digits is received on an ISDN trunk, the system first looks to Class 25.07 to determine if the trunk is enabled for DNIS call routing. If the ISDN trunk is enabled for DNIS, the ECS will search *Class 25.01* for a match with the DNIS digits received. If a match is found the system searches *Class 25.03* for an alphanumeric ID and *Class 25.02* for a ringing assignment. The ringing assignment can be either a station, master hunt group, ACD group or voice mailbox.

Note:	Incoming calls routing according to the DID digits received follow programming in the Class 25 DNIS Conversion Tables. Class 09 does not affect DID calls on ISDN PRI lines.

Conditions:

1. One IX-DTI-P card is required for each ISDN PRI line.
2. Incoming ISDN calls can be routed according to the ANI, DNIS, or DID digits received. DID routing follows the DNIS conversion tables (Class 25).
3. Class 24.07 must be enabled to allow call routing according to ANI on ISDN lines. Class 25.07 must be enabled to allow call routing according to DNIS on ISDN lines.
4. When both ANI and DNIS digits are received with a call, the system may use only ANI or DNIS to route the call. Routing is based on the programming in Class 04.70.22.
5. When both ANI and DNIS digits are received with a call, only the ANI digits will print on the SMDR.

Database Programming:

04.70.22 - ANI/DNIS Routing Table Selections; 04.71 - Call Coverage/Voice Mail Data; 04.72.15 - Event Code Output Port; 04.77 - Voice Mail/Auto Attendant Packet Codes; 11.74.01 - PRI Interface ID; 11.74.02 - Controlling D Channel; Class 24 Caller ID/ANI Conversion Data, Class 25 DNIS Conversion Data.

Hardware Required:

IX-DTI-P or IX-ICOTP

Programmable CNIS Output for ISDN

Class 04.70.03 has the option of using the new Class 10.79 for setting the first choice option of CNIS output on an ISDN outgoing call. All 911 calls made on an ISDN line will use Class 10.79 for the first choice of CNIS output. If Class 10 Item 79 is left blank, the Number Programmed in Class 29.09.01 will be used.

Conditions:

1. When making an outside call, if Class 04.70.03 is set to C10-79, the Calling Party Number will be picked from Class 10.79 first.
   - When Class 04 Item 70, Element 3 is set to SSPD97, the Calling Party Number will be picked from Station Speed Dial Bin 97 first.
2. When an E911 call is originated, the ECS will send the CNIS number that is set in Class 10.79 as the Calling Party Number. In the case of E911 calls, the ECS always attempts to obtain the CNIS number from Class 10.79 first, regardless of the setting of Class 04.70.03.
3. If the first choice is empty, Class 10.79 or Station Speed Dial Bin 97, the ECS will send the CNIS number programmed in Class 29.09.

Database Programming:

04.70.03 - CNIS Source; 04.70.35 - E911 Outgoing Type; 04.71.06 - E911 Relay Number; 04.71.08 - E911 Fail Relay Number; 04.71.09 - E911 Special Trunk Group; 04.71.17 - E911 CAMA Wink Time; 10.73 - Call Forwarding Modes; 12.01 - Station Speed Dial.

Hardware:

IX-ICOTP, IX-DTI-P, IX-2ICOTB, IX-4ICOTB

ISDN Caller Name ID (I-CNAM)

The ECS is able to receive Caller Name ID information from an incoming ISDN trunk. This is commonly referred to as ANI name. The information displays on the LCD of the key telephone.

Note: This feature works with the Calling Name Identification Service (I-CNAM), an ISDN service in some parts of North America.

Conditions:

1. The LCD of key telephone displays the Caller Name posted from the network with I-CNAM.
2. Both BRI and PRI are subjected to I-CNAM.
3. The Protocol Type corresponds only to National ISDN (NI) and 5ESS-Custom.
4. For the LCD to display the Caller Name, Caller-ID/ANI Name (1) must be set in *04.71.45 through 04.71.64*.
5. The Caller Name cannot be posted if you make an incoming call from the ECS. (This feature is not available in the network service.)

Database Programming:

04.71.45-64 (Display Item Number).

Hardware Required:

IX-DTI-P or IX-ICOTP, IX-2ICOTB, IX-4ICOTB.

Chapter 10

Networking

When networking two or more ECS telephone systems, three options exist: ECS IP Networking, T1 Campus Networking, and networking through E&M Tie Lines. Whereas traditional networking through E&M Tie Lines and T1 Campus Networking are thoroughly discussed in this section, IP Campus Networking is briefly overviewed and discussed in more detail in Section 5.

IP Campus Networking

IP Campus Networking converges and exchanges your voice and data traffic between offices anywhere worldwide via IP addressing - transparently. The IP Campus network is easy to install and configure providing full transparency over a Virtual Private Network (VPN) or Managed IP network. IP Campus is able to maximize bandwidth by allocating it dynamically and allows each system node to generate all tones (Dial Tone, Ring Back Tone, etc). Additionally, local calls are controlled at the local system independent of the main system.

Peer-to-peer connections between system nodes is now possible across the IP Campus network. Resources and bandwidth in the main system that were previously dedicated to handling a call between remote systems are now handled by the remote systems (locally) with the main system monitoring the connection. The main system resources remain available to process other calls.

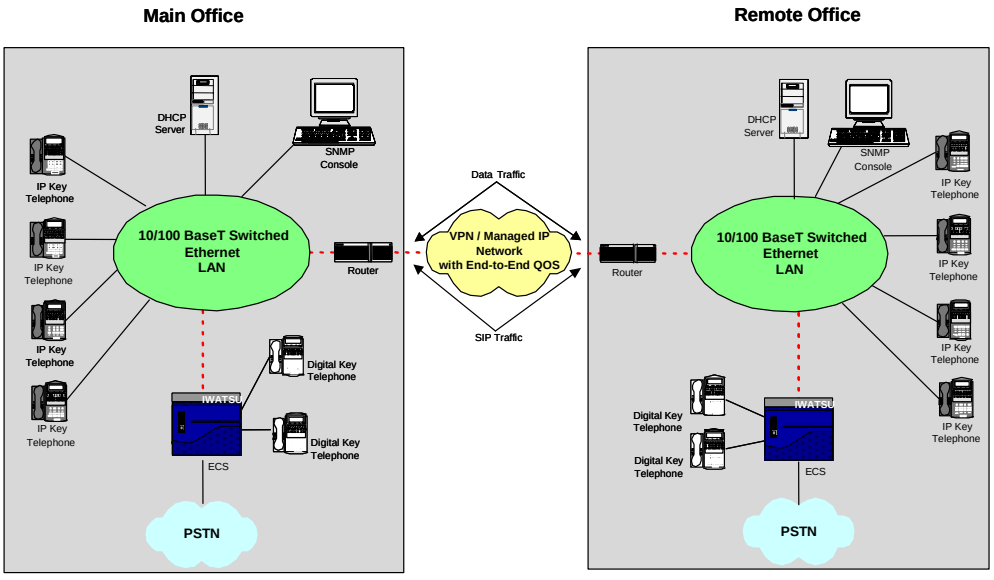
IP Campus also supports Omegatrek roaming throughout the network. The Omegatrek handset will operate transparently in any remote IP Campus system that has a base station. This means that your extension and functionality remain the same throughout the network.

IP Networking

IP Networking uses Session Initiated Protocol (SIP) to control and pass voice traffic over a managed IP network such as a Virtual Private Network (VPN). This is beneficial because recurring costs are reduced by voice and data traffic travel over the same medium, rather than leasing a dedicated T1 for voice traffic and another for data traffic. Additionally, using an Iwatsu-developed IP networking protocol based on the open-standard Session Initiated Protocol (SIP), network-bound traffic generated by the ECS requires no bandwidth when not in use.

The following is an illustration of an IP Networking topology.

In this illustration, IX-8IPNET cards are installed in each ECS cabinet. Each of these cards can support up to 16 channels of ECS IP networking (eight channel IX-8IPNET card plus eight channel IX-8EIPNET daughter card). Possible uses for these IP voice channels include inter-system traffic bound for either remove end, intercom call traddic between systems (4 digit dialing), and reserved channels centralized voice mail prts. In the illustration below the physical connection between sites is referenced as either a Virtual Private Network (VPN) or managed IP network instead of a traditional E&M tie line. The VPN or managed IP network ensures Quality of Service (QOS) for voice calls from end to end.



Networking Through E&M Tie Lines

The ECS networking software supports communication between telephone systems over E&M tie lines. Either T1 E&M Tie Lines or analog E&M Tie Lines (IX-4EMTK) must be used to connect the systems. The following features are available across a network of remote ECS systems:

- Network Translation Tables. Support for 600 External, 200 Internal, network translations using the network translation tables (28.05 - Network External).
- Intercom Calling Between Multiple Remote Systems. The calling extension number is displayed with the call using in-band signaling.
- Route DID, ANI/DNIS, and Caller ID calls through the network to a remote ECS system.
- Provide Caller ID/ANI/DNIS number display over the network using in-band signaling.
- Light Message Waiting lamps on a remote telephone using a Feature Access Code translation (28.04 - Network Feature).
- Centralized Voice Mail
- A release loop operation on T1 E&M Tie Lines. (Requires an IX-DTI-T Port Processor Unit Version 3.0 or higher)

Note: This feature is not available on analog E&M tie lines.

Network Translation Tables for Network Call Routing

The system supports up to 600 external conversions for routing calls across the network and up to 200 internal conversions for rerouting calls within the system. The Feature Access table is used to turn on and off Message Lamps at the local system for centralized voice mail applications.

External Conversions. The 600 External Conversions may be used for the following:

- Use an External Conversion to route incoming calls on outside lines to a networked system. When the call rings in at the local/host system, it may be programmed to ring a specific station, hunt group, voice mailbox, or ACD group at the remote system based on the caller ID information or the incoming trunk group. (In-band signaling must be selected in 28.05 - Network External in order to send Caller ID/ANI/DNIS information with the call across the E&M tie line.)
- Use an external conversion to make an intercom call across the network. (When in-band signaling is enabled, the calling station number is sent with the intercom call and displayed on ICM calls.)
- Program up to three route advance steps for each external conversion. The route advanced steps programmed in 28.06 - Network Route Advance Step are referenced if the original trunk group over which the call was routed in 28.05 - Network External is busy.

Internal Conversions. The 200 Internal Conversions are used to route internal calls within a single ECS system. Up to 16 different destinations, based on the Network Class of Service programmed in 10.75 - Programming Reserve 6, may be programmed for each of the 200 Index numbers in 28.03 - Network Internal. For example, dial "0" can be converted to call extension 203 if dialed by one user and to call extension 345 if dialed by another user.

Feature Access Code Conversions. This table may only be used to translate Message Waiting On and Off codes at the main location for centralized voice mail applications.

In-Band Signaling provides Display Information to Networked ECS Systems

When In-Band signaling is programmed in the 28.05 - Network External, the extension number of the calling station is provided on the remote station display. In addition, the Caller ID Number of an incoming call will be provided on the remote station display when In-Band Signaling is enabled in 04.70.33.

DID, ANI, DNIS and Caller ID Translation Across the Network

DID, ANI, or DNIS and Caller ID calls may be converted to route across the network by programming external translations for DID, ANI, DNIS and Caller ID calls as follows:

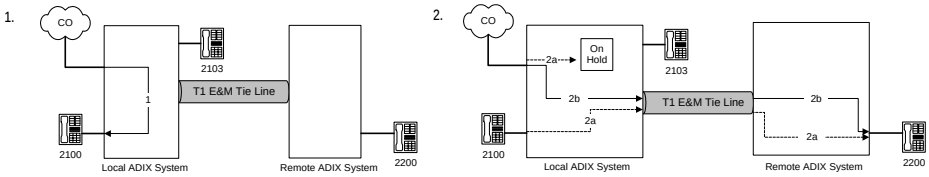
Type of Call	Programming for Network Routing
DID	09.01 - Incoming Numberand 09.02 - Conversion Number to convert the incoming digits to an extension number. 09.05 - DID Ignored Digits to assign a network Class of Service to the call.
Caller ID/ANI	24.01 - Caller ID/ANI Incoming Number and 24.02 - Caller ID/ANI Conversion Number to convert the incoming digits to an extension number. 24.02 - Caller ID/ANI Conversion Number to assign a network Class of Service to the call.
DNIS	25.01 - DNIS Incoming Numberand 25.02 - DNIS Conversion Number to convert the incoming digits to an extension number. 25.02 - DNIS Conversion Number to assign a network Class of Service to the call.

When translating DID, DNIS, Caller ID, or ANI calls across the network via E&M Tie Lines, no internal translation is provided at the remote system. These calls will ring in as intercom calls at the remote ECS. The ringing station is based on the programming in the Caller ID/ANI, DID, or DNIS translation table at the remote ECS.

T1 E&M Tie Line Release Loop Operation

The T1 E&M Tie Line trunk interface on the ECS provides a release loop operation to send calls back over the same tie line circuit when transferred back to the main system by a station.

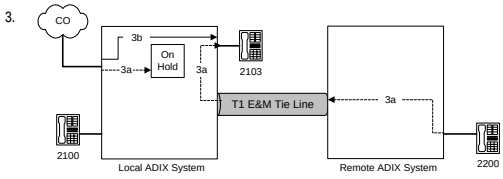
The following diagrams illustrate a release loop tie operation across two networked ECS systems. It documents how a call is transferred from the local ECS system to the remote ECS system, and how the same call is then transferred back to the local system to any station extension.



1. Incoming call from CO connected to station 2100 at local ADIX system.

2a. Call is placed on consultation hold while station 2100 calls station 2200.

2b. Call is transferred across the T1 E&M tie line to station 2200 at the remote ADIX system when 2100 hangs up.



3a. Call is placed on consultation hold at local system while station 2200 calls station 2103.

3b. Call is connected to station 2103 when station 2200 hangs up. The tie connection is dropped and free for other incoming and outgoing activity.

Centralized SMDR

SMDR consolidation allows the customer to only need one Call Accounting system. With Centralized SMDR, an outgoing CO call via tie lines provides extension information to the call detail record at the main location. For example, the extension number from a remote site prints in the extension section of the call detail record. All extensions in the network must have unique numbers for this feature to function correctly. Enabling and disabling extension information in this case is programmed in 11.70 - Call Coverage Trunk:Enable/Disable Extension Information.

Centralized Voice Mail

Centralized Voice Mail now allows you to specify whether or not the system sends trunk information to Voice Mail for an incoming call on a CO line. CO lines can be specified as “no packet” lines. This is programmed in 11.70 - Call Coverage Trunk Enable/Disable Trunk Packet.

Also, Centralized Voice Mail now allows a remote system configured with Voice Mail OPX ports (System Hardware (Class 01)) to perform a release loop operation on the corresponding E&M Trunk when:

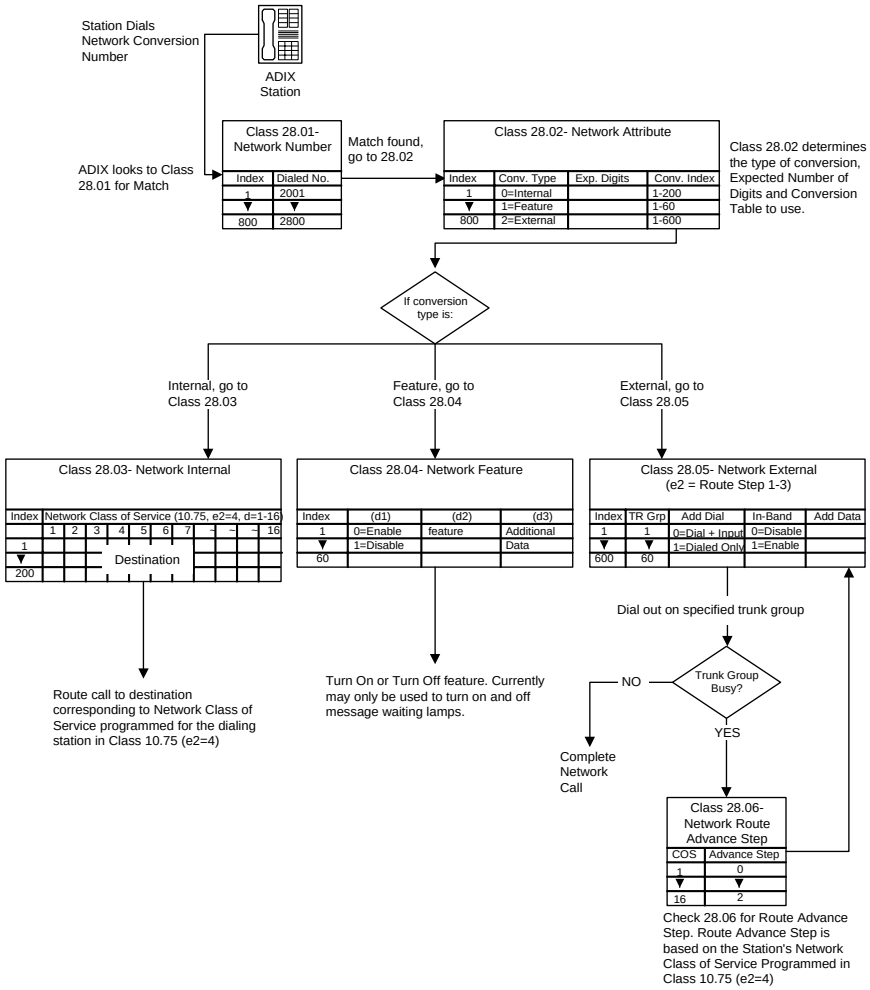
1. A CO call is directed to a station at the remote system location.
2. The destination station at the remote system is set to forward calls to the voice mail system of the main system.
3. The call is forwarded via the Voice Mail OPX port across the corresponding E&M Trunk to the voice mail system of the main system and then to the remote station's voice mailbox .
4. The caller dials an extension of another station located on the remote system.
5. The call is transferred back to the remote system and the E&M Trunk is released.

The following diagrams illustrate how the Centralized Voice Mail release loop operation works for an incoming CO call

Network Access from DISA

The system supports network access from remote stations using a DISA line.

Networking Database Structure



E&M tie lines are programmable for the following modes in *Class 01.03*:

- Attendant Mode
- Immediate Signal Mode
- Delay Signal Mode
- Wink Signal Mode

The following system features are available on E&M tie lines:

- ICM Calls
- Master Hunt Group Calls
- All Call, Paging Calls
- Operator Calls
- Outgoing Calls
- Access to System Speed Dialing

Feature operation through E&M tie lines is the same as SLT feature operation.

Conditions:

1. Attendant intercept is not available on E&M tie lines.
2. Forwarding is not available on networked systems with analog E&M tie lines.
3. T1 E&M Tie Line or Analog E&M Tie Line circuits are utilized for connecting the systems.
4. Only T1 E&M Tie Line circuits with PPU Version 3.0 support the Release Loop Operation. Analog E&M Tie Line circuits (IX-4EMTK) will not support the Release Loop Operation at this time.
5. Up to 800 Network Conversion Numbers may be entered in 28.01 - Network Number. These conversion numbers may be used for 600 external translations and 200 internal translations.
6. Conversion entries may be set to internal, external or feature access code.
    - Internal conversions are set based on a network class of service (10.75 - Programming Reserve 6 Network Class Of Service. Entries that can be registered include extension numbers, hunting, paging, CO line access, CO group access, optimize routing and ACD group access numbers. When the network service class is 0, the conversion is disabled and a reorder tone is returned if the entry is dialed.
    - External conversions include three possible route advance steps. The ability to advance is based on the entry registered for each network class of service (28.06 - Network Route Advance Step).
    - Feature Access conversions are currently limited to turning “Message Waiting Lamps” On and Off. This feature is used in the Centralized Voice Mail operation to eliminate the loop-back trunks.

Database Programming:

07.05 - PBX Network Access Numbers; 11.20 - E&M On-Hook Detect; 04.70.33 - Inband Signaling; 09.01 - Incoming Number; 09.04 - DID Incoming Digits; IX-DCDCM; IX-DTI-T, IX-T1RCV; 10.75.04 - Network Service Class; 11.32 - Ringing Station; 24.02 - Caller ID/ANI Conversion Number; 25.02 - DNIS Conversion Number; 28.01 - Network Number, 28.02 - Network Attribute, 28.05 - Network External, 28.06 - Network Route Advance Step.

Hardware Required:

IX-DTI-T, IX-T1DTI card with PPU Version 3.0 or IX-4EMTK.

Network Enhancements

The Networking features are enhanced to implement Centralized SMDR, improve Centralized Voice Mail/Auto-Attendant, and to add Network Access from DISA.

Note:	Networking features on the ECS are designed around a star network environment. While this does not preclude other types of network configurations, due to the delays encountered by in-band signaling the new networking features cannot be fully supported on any network configuration other than a star environment.
Note:	If Omega-Voice VMI is used for the Centralized Voice Mail, Iwatsu recommends using the IX-4EVMC card with VMI System Editor Version 3.00.12.
Note:	If you have any questions regarding your network environment please call Iwatsu Technical Support.

Conditions:

1. When a CO call is made through a tie line (analog E&M, T1 E&M) in the main system from a remote station, the call detail record can be output to SMDR.
2. To Output the call detail record of a CO call via the tie line to SMDR, *Class* 11.70 - Call Coverage Trunk:Enable/Disable Extension Information must be set to send extension information to SMDR.
3. When a CO call is made via a tie line with a data setting for SMDR, all calls are subject to SMDR output.
4. The conditions applied to the call detail record output depend on the data setting of the main system (i.e., threshold value, account code, toll call, incoming call output.)
5. The remote system information is printed in the EXT column of the call detail record. The printing is done according to the following rules:
    - When a CO outgoing call is made via the tie line with a data setting for SMDR from a remote system, and a caller extension number at the remote system side is added prior to the CO line information, the caller number is printed in the extension section of the call detail record.
    - When a CO incoming call to the main system is transferred to the remote system via the tie line with a data setting for SMDR, a maximum of four digits from the last digit of a dial string sent to the remote system are output to the extension section of the call detail record.
    - No other information, including FACS and Accounting Codes, is printed.

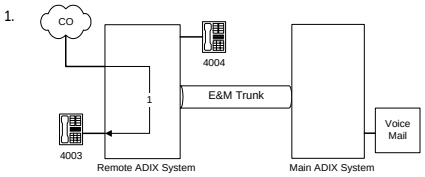
Centralized Voice Mail

Centralized Voice Mail allows you to specify whether or not the system sends trunk information to Voice Mail for an incoming call on a CO line. CO lines can be specified as “no packet” lines. This is programmed in 11.70 - Call Coverage Trunk Enable/ Disable Trunk Packet.

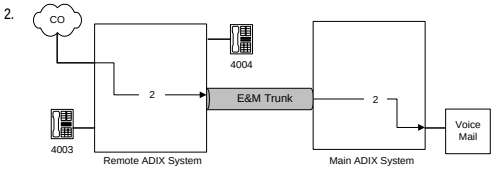
Also, Centralized Voice Mail allows a remote system configured with Voice Mail OPX ports (System Hardware (Class 01)) to perform a release loop operation on the corresponding E&M Trunk when:

1. A CO call is directed to a station at the remote system location.
2. The destination station at the remote system is set to forward calls to the voice mail system of the main system.
3. The call is forwarded via the Voice Mail OPX port across the corresponding E&M Trunk to the voice mail system of the main system and then to the remote station’s voice mailbox .
4. The caller dials an extension of another station located on the remote system.
5. The call is transferred back to the remote system and the E&M Trunk is released.

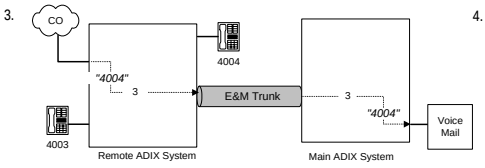
The following diagrams illustrate how the Centralized Voice Mail release loop operation works for an incoming CO call.



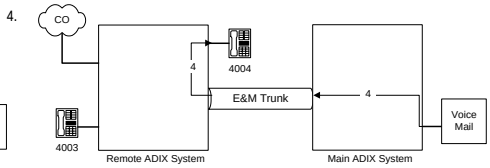
1. Incoming call from CO connected to station 4003 at remote ADIX system. Station 4003 is set to forward calls to voice mail on busy/ no answer.



2. Station 4003 does not answer the call. The call is then transferred across the E&M Trunk to voice mail at the main ADIX system.



3. Outside party on the CO line dials "4004" for connection to station 4004.



4. Call is transfered across the E&M Trunk to station 4004 at the remote station. The E&M Trunk connection is released.

Conditions:

1. In 11.70 - Call Coverage Trunk: Remote Trunk Packet CO Lines can be restricted to send a packet to Voice Mail when Voice Mail answers an incoming call to the CO line.
   - Send packet
   - No packet
2. The types of incoming calls to be specified as no packet lines are general incoming calls and delay calls.
3. The system will perform a release loop operation when: (1) A CO call is directed to a station at the remote system location. (2) The extension at the remote station is set to forward calls to the voice mail system of the main system. (3) The call is forwarded via the Voice Mail OPX port across the corresponding E&M Trunk to the voice mail system of the main system and then to the remote station's voice mailbox. (4) The caller dials an extension of another station located on the remote system. (5) The call is transferred back to the remote system and the E&M Trunk is released.
4. For a remote system configured with Voice Mail OPX ports (System Hardware (Class 01)) to perform a release loop operation on the corresponding E&M Trunk, external conversion must be programmed in 28.05 - Network External, and access to route advance steps must be programmed using 10.75 - Programming Reserve 6 Network Class of Service and 28.06 - Network Route Advance Step.
5. For this feature to function properly, the voice mail system must be capable of pausing after the release loop operation for transferred calls.
6. The voice mail system for centralized voice mail must be located at the hub switch in the network.
7. The Release Link Ties will properly function on a point-to-point span, but not in a series environment.

Network Access from DISA

The system supports network access from remote stations using a DISA line.

Conditions:

1. Dialing a network access code from DISA allows network access.
2. When entering a network access code from DISA, neither an extension number nor a station password is required.
3. When a network CO line is seized after a network access code is entered, dial tone re-order (##) cannot be accepted.
4. When making network access from DISA, as the network service class, service class of a DISA dummy station is referred.

Database Programming:

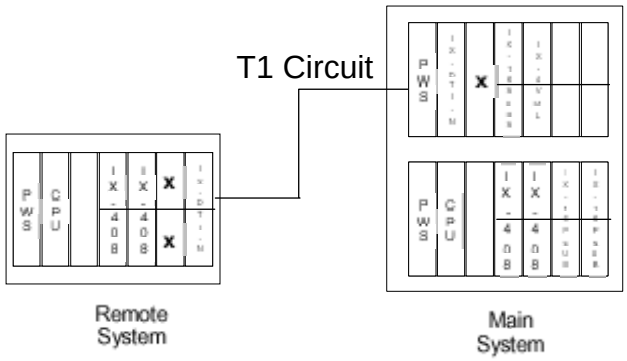
04.70 - Programming Reserve 1: Network Switch Type; 10.75.04 - Network Service Class; 11.70 - Call Coverage Trunk: Enable/Disable Extension Information; 11.70 - Call Coverage Trunk: Enable/Disable Trunk Packet; 28.05 - Network External; 28.06 - Network Route Advance Step.

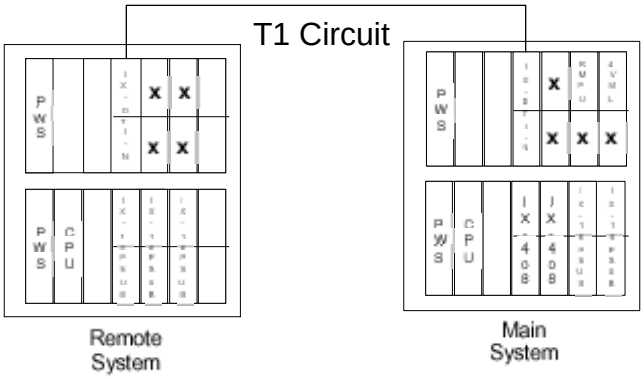
T1 Campus Networking

The T1 Campus Networking application enables corporate offices and branch offices to have transparent access to ECS system features regardless of their location within the network. While each site will have the standalone hardware for that individual system, T1 Campus Networking uses all call processing from the main system CPU. Organizations can benefit by centrally locating and administering their voice mail, call accounting and call center reporting applications. In addition, both corporate and branch office extensions have full transparency of features such as call coverage, whisper page, text messaging, intercom calling to networked extensions, conference calling, automated attendant, busy lamp appearances and transfers across the network.

System Description

T1 Campus Networking provides a method for transparently linking two or more ECS systems. A networked system can provide voice communication and features across a T1 circuit with distances limited only by the availability of T1 Point-to-Point Circuits (T1 circuits). Each network consists of a main system and one or more remote systems. The figure below illustrates T1 Campus Networking systems. The **X**'s in each figure show the slots that are reserved, in addition to the slots used for the IX-DTI-N card, to transport the remote system ports over the T1 circuit to the main system.





Main and Remote Systems Links

The main ECS system can be linked to multiple remote systems in a star configuration. In addition, multiple T1 circuits can be used between the main system and a single remote system. By linking remote systems, using one or more T1 circuits, the main system operates as the CPU for all remote systems. Due to the limitations on how many signals can be sent over each T1 circuit, this increases communication capacity, at the expense of additional IX-DTI-N cards and space requirements within the ECS cabinet.

The T1 circuits are interfaced to the main and remote systems by digital trunk interface-network (IX-DTI-N) cards and voice compression (IX-VCOMP) cards. The number of remote systems in a network is limited to the main system's resource capacity (including the number of ports) and the number of IX-DTI-N cards. Each IX-DTI-N / IX-VCOMP card combination provides a maximum of 23 digital channels for supporting ECS ports and 1 data channel for signaling. By compressing channels, a total of 46 ECS ports can be supported in the remote system. A channel service unit (CSU) is required at each end of the T1 circuit used for campus networking.

Data Compression

Data (digital voice signals) is compressed for transmission over the T1 circuit by an IX-VCOMP card provided with the IX-DTI-N card. By using the IX-VCOMP card for compression, the twenty-three channels normally available in a card slot are expanded to forty-six (46) channels. Voice compression allows main and remote systems to use a total of 480 ports in a networked system.

Note:	Regardless of the use of compression, one IX-DTI-N card with an IX-VCOMP card must be installed at each end of the Campus T1 circuit.

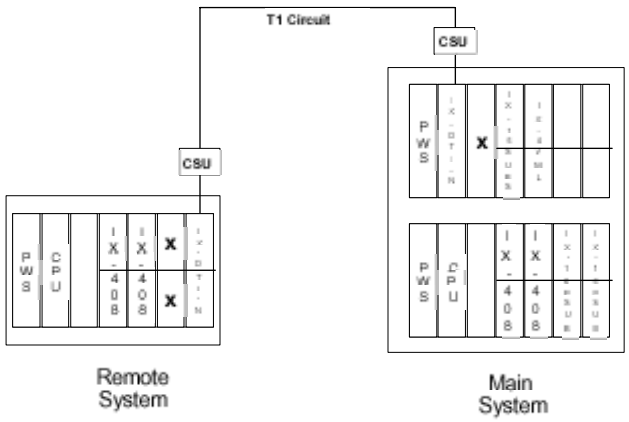
Shared Resources

The central processing unit (CPU) of the main system controls the remote components as if they are installed in, or are extensions of, the main system itself. The user data settings in the main system determine what services are provided for the users by the remote components. The main system identifies the remote components the same way it identifies the directly installed components. The CPU cards in the remote systems monitor the control commands from the main system CPU. This allows them, in the event the T1 circuit is lost, to take over control of the components in the remote location. When the T1 circuit is re-established, the remote systems can be set for either manual or automatic recovery, to allow communications between the main system and the remote systems to be reestablished.

One or more consecutive channels of the point-to-point T1 circuit NOT utilized for the ECS campus application may be dropped out utilizing a CSU / DSU device and be used for another purpose. The channels dropped out for this purpose must be dropped from the highest channel (24) downward (24, 23, 22, 21, 20, etc.). A typical customer will use 6 to 8 channels dropped out for wide area networking of their computer system. Those channels can be selected by setting DIP switches on the IX-VCOMP cards of the main and remote systems.

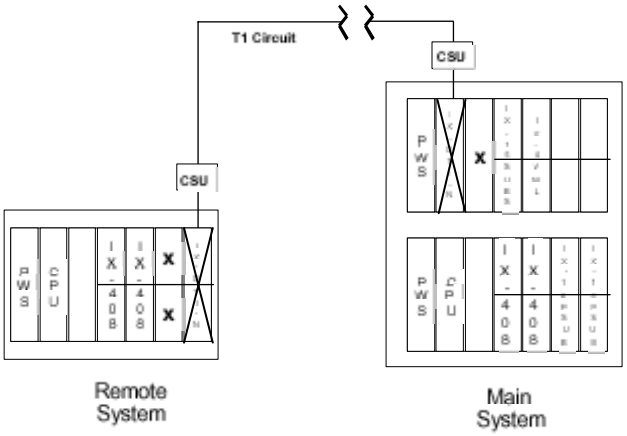
Remote System Operation

A remote system functions as a part of the main system when it has been configured to do so and when the T1 circuit linking the remote and main systems is operative. A remote system can utilize components of the main system, such as a voicemail cards and outside lines, if the database settings have been programmed to permit remote usage. If the T1 circuit linking the remote system to the main system is lost or disconnected, or if the main system becomes nonfunctional, the remote system functions as a local standalone system.



Local System Operation

A remote system becomes a local system when the T1 circuit linking it to the main system is lost or disconnected, or if the main system becomes nonfunctional. A local system controls and operates its own components and disregards hardware and database settings for T1 Campus Networking. Database settings in the local CPU and hardware in the local system determine what services the local system can provide.



Chapter 11

Computer Telephony Integration

Computer Telephony is a technology that combines several existing technologies to connect callers with people and information over a public or private telephone network. Iwatsu has used this technology to develop products designed to allow users to handle telephone calls in an automated manner. By combining standard ECS features such as Caller ID, Automatic Number Identification (ANI) and Dialed Number Identification Service (DNIS) with PC applications, important information about a call or caller will arrive at the ECS station user's PC with an incoming call.

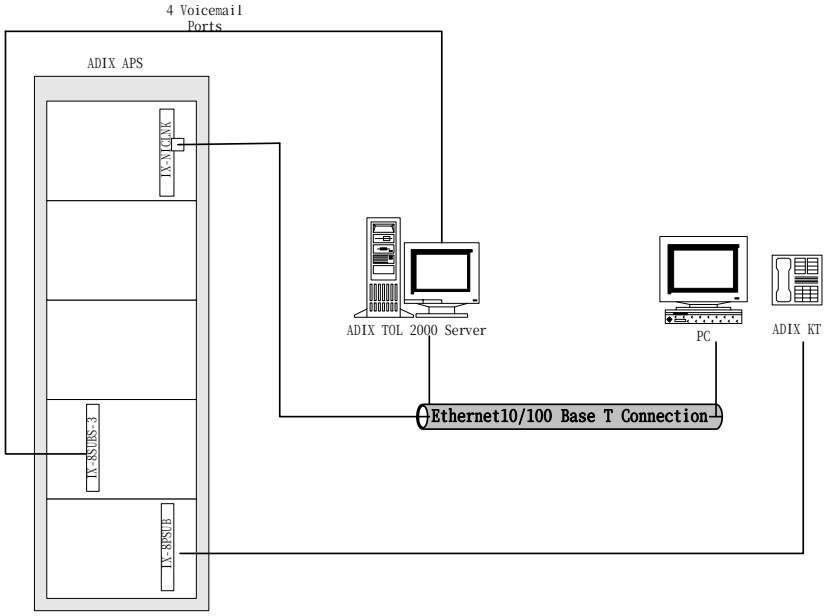
Common Computer Telephony Applications

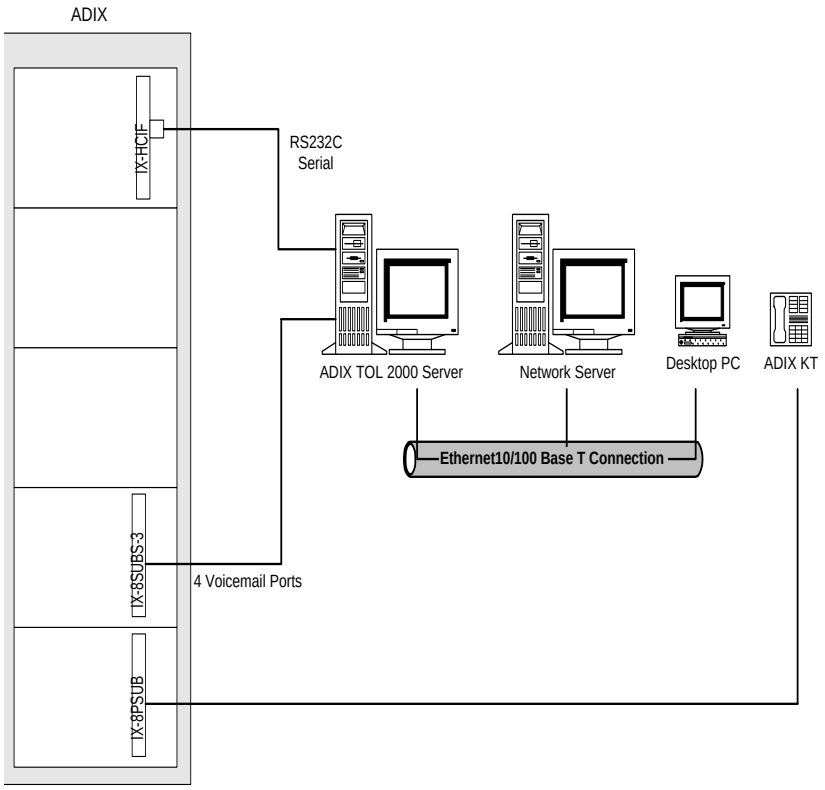
- Intelligent Call Routing
- ActiveX Controls
- Interactive Voice Response
- Desktop Telephony
- Unified Messaging
- Call Center

LAN-LinX

LAN-LinX Plus —Lan-LinX Plus is an optional, client-side module for the Iwatsu Enterprise TOL Unified Communications System that allows users to manage their voice messages and incoming calls from their desktop PCs. Iwatsu Enterprise TOL Server Lan-LinX Plus requires the ECS CSTA Integration Module. This is optional firmware for either the IX-HCIF Serial Interface Card or IX-NICLINK Network Interface Card installed in an ECS system. Two versions of Lan-LinX Plus are available:

***ECS Lan-LinX Plus* – Ethernet** includes the IX-NICLINK Card, and the ECS CSTA Integration Module provides Lan-LinX Plus functionality via an Ethernet connection between the ECS and the LAN-connected Iwatsu Enterprise TOL Server. Lan-LinX Plus - Serial may be used in applications with fewer than 20 users..





ActiveX Services adds the ActiveX service SDK to the Iwatsu Enterprise TOL and Lan-LinX Plus applications and allows software developers to integrate ECS call control commands with their third-party applications. Iwatsu Enterprise TOL with ActiveX controls allows third-party applications developed in any language with container support for ActiveX controls (e.g., VBScript, Visual Basic, Visual C++) to receive immediate notification of incoming calls and either act on them or pass a dialed number to the Iwatsu Enterprise TOL. The ActiveX services SDK consists of documentation, the required .ocx file and basic code outline for different available functions.

IX-COMLINK

IX-COMLINK-2 is a TAPI-compliant Computer Telephony Interface adapter that bridges the gap between your PC and ECS desktop telephone. IX-COMLINK-2 combines desktop application software such as Iwatsu's Contact Point application and a digital telephone system to fully harness the power of your PC through your ECS telephone system.

Contact Point is a desktop or "First Party Call Control" computer telephony application that provides Visual Call Control, Incoming Call Screen Pop and Dial by Name capability from one of the following contact management applications:

- Microsoft® Outlook®
- Symantec® Act! ®
- Goldmine®
- Maximizer®
- Iwatsu's Omega-Phone Contact Manager

In order to implement desktop call controll, contact Point software and the IX-COMLINK-2 are required and installed at each desktop computer. This makes it a cost-effective solution for organizations that do not have a LAN or require a call control/contact database integrated application for specialized users.

Features:
Visual Call Control
Dial Answer
Hold Transfer
End Call
Call Logging
Dial from Contact List
Dial from Call Log List
Incoming Call Screen Pop
Add New Contact (MS Outlook Only)

Requirements:
Pentium®-class PC with Windows XP
Contact Manager Application (Symantec® Act! ®, Maximizer®, Goldmine®, Omega-Phone ECS, Microsoft® Outlook®)
TAPI-compliant ECS phone system
ECS Digital Station Port (IX-8PSUB-1, IX-408, IX-044 or IX-16PSUB)
Comlink 2 Computer Telephony Interface Adapter with latest driver (version 1.10 or higher)
ECS Digital Key Telephone (IX-12KTD/S-3, IX-12KTD/S-2 or IX-MKT)
Iwatsu's Omega-Phone ECS Software Application

Chapter 12

SMDR Data Streams

SMDR, or Station Message Detail Recording, is a data stream generated by the ECS that records incoming and outgoing call activity. SMDR output is through the RS232C port of the IX-CCU serial port or IX-CCU ethernet port provided a license turn-on of the feature has been purchased. SMDR is also supported by installing an IX-SCIF, IX-HCIF, or IX-EDVIF serial interface card.

This bulletin provides a detailed description of the SMDR data generated by various types of incoming and outgoing calls.

Data Transmission

SMDR data transmission from the ECS is in ASCII code. Various data transmission parameters must be defined by setting DIP switch SW2 on the IX-SCIF and IX-EDVIF cards, or DIP switch SW4 on the IX-EDVIF card. These parameters include the transmission speed, data size, data length, parity and stop bits. The ECS system also supports printer controls such as XON-XOFF flow control and DTR. For more information on DIP switch settings please refer in to the Hardware documentation for the respective card.

Printout Configuration

Standard 8.5” by 11” printer paper is used for the SMDR printout. It is formatted as follows:

Pages

Each page contains 66 lines and includes the following information:

- Line 1 through 6 = header / date
- Line 7 through 64 = SMDR records
- Line 65 through 66 = footer

If there is not enough space remaining on the page to print out all the information for a particular call, it is continued on the next page. When the date changes, it will automatically print a new page.

Records

A record contains 80 characters followed by a [CR/LF]. The detail of each record is described later in this chapter.

SMDR Data Fields

Each SMDR record contains eight data fields:

- Sequence number
- Extension number
- Time when call is made
- Duration
- Time of the call
- Called number
- Account number
- Notes

Data Field Descriptions:

Sequence Number

Title:	SEQ
Position:	1 through 3
Range:	001 through 999. When 999 is exceeded, restarts at 001

Note: The ECS will record up to two call transfers. The extension the call was transferred to and the duration of the calls will be included in the second and third line of the call.

Trunk Number

Title:	TRK
Position:	5 through 7
Range:	Up to three digits, showing a logical port number of the trunk port

Extension Number

Title:	EXT
Position:	9 through 12
Range:	Up to four digits

Note: If a station number is not assigned in Station Class of Service, XXXX prints as the station number.

Call Start Time

Title:	TIME
Position:	15 through 19
Range:	00:00 through 23:59.

Duration Of The Call

Title:	DUR
Position:	21 through 28
Range:	Up to 9 hours 59 minutes and 59 seconds for the call duration time. If a call exceeds the maximum time of 9 hours and 59 minutes and 59 seconds, it is indicated as *9:59:59.

Called Number (Outgoing Calls)

Title:	CALLED NUMBER
Position:	35 through 61
Range:	Up to 26 digits

Special Symbols For Called Number (Outgoing Calls). The following symbols are used to indicate a “pause” and “dial mark.”

Condition	Description	Symbol
Dial Pause	A pause in the dial string.	(ASCII code 2DH) X
Dial Mark	When the invisible system speed dial is accessed, this code is printed instead of the speed dial number. This is a programming option.	(ASCII code 58H).

Calling Number (Incoming Calls)

Title:	CALLED NUMBER
Position:	35 through 44
Range:	Up to 10 digits

Calling Name (Incoming Calls)

Title:	CALLED NUMBER
Position:	46 through 61
Range:	Up to 16 characters

Account Code

Title:	ACCT NO.
Position:	62 through 73
Range:	Up to 12 digits

Note: Account Codes are not included in the text strings if they are entered before sender time out.

Outgoing Indicator

Title:	NOTE
Position:	75
Range:	1 character #

Notes

Title:	NOTE
Position:	76 through 78
Range:	Up to 3 alpha characters

Call Detail Notations in the Note Column. The ECS system SMDR print out provides the call detail in the NOTE column with the notations listed below.

Incoming Calls	
DID	DID incoming call
DIS	DISA incoming call (without station password)
DIP	DISA incoming call (with station password)
DIA	DISA incoming call (Remote programming access)
TRA	Incoming call on the activated Remote Call Forwarding line

Outgoing Calls	
DIS	Outgoing call through DISA (with station password)
TRN	Outgoing call through Remote Call Forwarding
TIE	Outgoing call through Tie Line

Common Symbols

The following symbols are added before a call record:

Symbol	Description
*:	Indicating first transfer
**:	Indicating second transfer

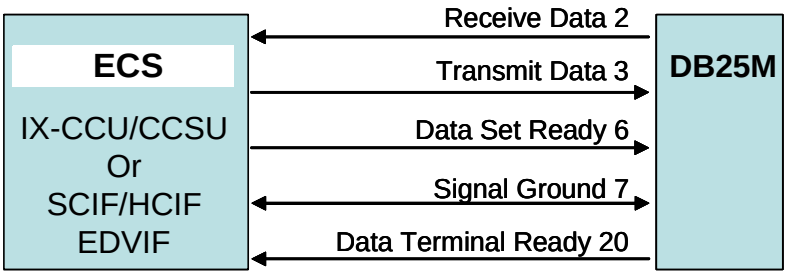
The following symbols are added at the end of a call record:

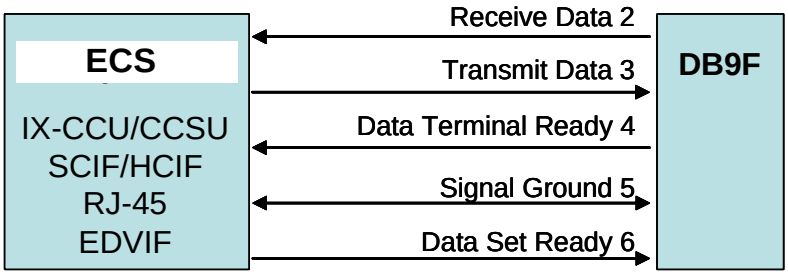
Symbol	Description
#	Outgoing call
A	Attendant handled call

SMDR Output Format

OUTGOING RECORD			INCOMING RECORD		
Field	Start Col	Length	Field	Start Col	Length
SEQUENCE	1	3	SEQUENCE	1	3
TRUNK	5	3	TRUNK	5	3
EXTENSION	9	4	EXTENSION	9	4
TIME	15	5	TIME	15	5
DURATION	21	8	DURATION	22	7
NUMBER DIALED	35	26	CALLING NUMBER	35	10
ACCOUNT NUMBER	62	12	CALLING NAME	47	16
OUT INDICATOR	75	1	ACCOUNT NUMBER	62	12
NOTES	76	3	OUT INDICATOR	75	1
ATTENDANT MARK	79	1	NOTES	76	3
			ATTENDANT MARK	79	1

SMDR Cable Pin Outs





Centralized SMDR

Information on centralized SMDR is provided in Chapter 10 “Networking”.

Chapter 13

Automatic Call Distribution (ACD)

Overview

ECS ACD is a combination of specially designed hardware that is compatible with any ECS telephone system to provide Automatic Call Distribution capability. ACD can be of benefit to any organization because it distributes calls equally among employees and ensures that callers are handled in the most efficient manner.

ECS ACD is designed to provide the most flexible, integrated ACD product offering. Unique to ECS ACD is extension priority assignment. This priority enhancement allows calls transferred to an ACD Group from an ECS extension or an automated attendant/voice mail machine to be answered prior to other calls presented to the ACD Group.

TASKE® Contact, a call center management and reporting software solution, may be added to the ECS ACD package. TASKE® Contact allows ACD Supervisors to view contact center activity in real time. In addition, TASKE® Contact offers the ability to generate over 150 detailed reports on call details, abandoned calls, extension, queue groups and much more. ECS ACD Supervisors have access to this information from their network PC or remotely via the internet.

ACD Calls

The following type of calls may be directed to an ACD Group:

- CO line calls programmed to a specified ACD Group.
- E&M Tie Line calls when the calling party dials an ACD Group Access Number.
- DID calls when the DID conversion number is programmed to be an ACD Group Access Number.
- DISA calls when the calling party dials an ACD GRoup Access Number.
- Unscreened transfer calls from an ECS system extension or another ACD Agent in the system when the transferring party dials an ACD Group Access Number.
- Extension calls that dial an ACD Group Access Number.
- T1 span calls programmed as CO, E&M, or DID lines.
- IP Networking calls configured as CO, E&M, or DID lines.

ACD calls are subject to the following conditions:

- When an ACD call is transferred from an Agent in an ACD Group to an ECS system extension or another Agent, the call is no longer treated as an ACD call. When an ACD call is transferred from an Agent in an ACD Group to another ACD Group, the call is treated as a new ACD call for the second ACD Group.
- Calls may not Call Forward to an ACD Group.
- When an Agent performs a Trunk-to-Trunk Conference call, the ACD call is canceled.
- Up to sixty Trunk Groups may be programmed for ACD calls.

The order in which an ACD Agent's telephone rings is as follows:

1st	ACD Supervisor Call
2nd	ACD Call Hold Recall
3rd	Incoming ACD Call
4th	ECS System Extension Hold Recall
5th	Incoming ECS System Extension Call

ACD Call Routing

Call to an ACD Group are distributed on the longest idle agent basis. The longest idle agent method of call distribution sends the next ACD call to the ACD Agent that has not handled a call for the longest period of time and has the highest Agent Answering Priority among the ACD Agents currently logged-in the ACD Group. When a new ACD Agent logs into an ACD Group, the Agent becomes the ACD Agent with the least idle ACD Call handling time. When all ACD Agents in the ACD Group are busy, ACD calls are placed in queue and follow the programmed Call Sequence Table for the ACD Group. When an ACD Agent becomes free, the call routes to the first available Agent.

An ACD call will not be presented to an ACD Agent under the following conditions:

- When the Agent is handling another ACD call.
- When the Agent is handling an ECS system call.
- When the Agent is in the Wrap-Up state.
- When the Agent is in the Not Available state.

ACD Group

An ACD Group is the destination for ACD call to be answered and is comprised of ACD Agents (up to 1024 with 512 active at any given time), ACD Supervisors, Call Sequence Tables, Priority Change Timer, and ACD Group Expansion Timer. The ECS ACD will allow a maximum of 250 ACD Groups and each ACD Group may be assigned an eight character alphanumeric name. In addition, each ACD Group may be assigned one of four ECS system ring patterns.

ACD Group Expansion

ACD Group Expansion provides an ACD Call in Queue a greater chance of being answered after a specified period of time, 0-999 seconds. This is accomplished by adding a second ACD Group to assist in answering calls. When ACD Group Expansion occurs, calls in queue that exceeded the specified period of time will search for an idle Agent in both groups. Further expansion is possible and is based on the ACD Group Expansion Timer of the additional group(s). After expansion, the ACD call still follows the Call Sequence Table of the original ACD Group.

Call Sequence Table

The Call Sequence Table sets the parameters that an ACD call follows. Each ACD Group may have three types of Call Sequence Tables associated with it: One table for normal business hour operation, one table for after hour operation, and one table for calls transferred to the ACD Group. The Day and Night Mode operation may be programmed to occur either automatically or manually. ACD calls in queue remain in the current Call Sequence Table when a mode change takes place.

The ECS ACD offers sixty Call Sequence Tables. Each Call Sequence Table consists of eleven boxes for call delaying and processing instructions. The boxes may be programmed as any of the following:

Play MSG	Play a recorded message
Auto Attendant Queue	Ability to play a message from a source
MOH	Play Music On Hold
Forward to Station	Overflow Forward to an extension and exit the ACD Group
Forward to Hunt Group	Overflow Forward to a Hunt Group and exit the ACD Group
Forward to ACD Group	Overflow Forward to another ACD Group and exit the original ACD Group
Go to Other Box	Go to another box in the same or different Call Sequence Table
Forward with SPD Dial	Overflow Forward to a System Speed Dial number (IX-4TRAN card required)
Disconnect	Disconnect the call
Delay / Answer	Delay for ring tone - call not answered by system
No Operation (Skip)	No operation

When a recorded message, delay or MOH is assigned to the first box in a Call Sequence Table, The ACD caller hears the entire recorded message, ring tone or MOH for the programmed length of time, and the call will not be distributed.

The following table illustrates the conditions that each box option is valid.

Box Option	Initial (New Call for ACD Group)	Queued (Waiting for Idle Agent)	Distributed (Call sent to Idle Agent)
Play MSG	YES	YES	YES
Auto Attendant Queue	YES	YES	YES
MOH	YES	YES	YES
Forward to Station	YES	YES	NO
Forward to Hunt Group	YES	YES	NO
Forward to ACD Group	YES	YES	NO
Go to Other Box	YES	YES	YES
Forward with SPD Dial *	YES	YES	NO
Disconnect	YES	YES	NO
Delay / Answer	YES	YES	YES / NO
No Operation (Skip)	YES	YES	NO

* IX-4ETRAN card required

Priority

Priority enables all types of ACD calls to be ranked in the order that they are to be answered, regardless of time in queue. ACD Trunk Groups, ECS system extensions, Agent ID Codes (for transferring to another ACD Group) and ACD Groups (for Overflow Forwarding to another ACD Group) may be assigned one of the eight possible priority levels. The call waiting in queue with the highest priority and the longest waiting time is the call answered first.

Each ACD Group has the option of enabling a Priority Change Timer. This timer allows the priority of an ACD call to change after a specified period of time 0-999 seconds. After the priority is changed, the call is then placed in queue relative to its new priority.

Queue

When all ECS ACD Agents are busy or unavailable, calls ringing into the ACD group are placed in queue. An ACD call remains in queue until an ACD Agent becomes free or a command in the Call Sequence Table forwards or disconnects the call. ACD calls wait in queue in the order of assigned priority and time in queue. If there are calls in queue with different Priorities, the calls with the highest priority are answered first. When a call is placed in Queue, the ACD Group Expansion and ACD Call Priority Change Timers are activated.

ACD Agent Features

The ECS ACD will allow 1024 ACD Agents to be programmed with a maximum of 512 active at any given time.

ACD Agent Keys

The ECS ACD offers special station feature keys for ACD operation. These features are only active when an Agent logs-in. The list below highlights these additional features.

FEATURE NAME:	RESTRICTION:
ACDn / ALLACD	ACD Call Status (n= 1-250/255) *
QUEUEn	Queue status for group (n=1-250)
QUALIFYn	Qualify Code - Preset entry (n=000-999)
QUALIFY	Qualify Code - Manual entry
LOG	Log-in / Log-out status
N/A	Not Available status
WRAP	Wrap-Up status
HELP	Call Supervisor for help
EMG	Call Supervisor for help / record conversation
AAGTANS	Answer ACD and non-ACD calls
(* n=1-250 for individual ACD Groups and 255 for all ACD Groups)	

.ECS system extensions have the following feature restrictions when an Agent is logged-in or is presented with an ACD call.

FEATURE NAME:	RESTRICTION:
Group Park	
Absence Message	Queue status for group (n=1-250)
Direct Call Pickup	Not valid for ACD calls
Remote Call Forward	Not valid for ACD calls
Call Coverage	Not valid for ACD calls
Call Forward	Not valid for ACD calls
Call Park Pickup at remote extension	Not valid for ACD calls
Call Pickup - Direct, External, Internal	Not valid for ACD calls
Voice / Tone Call	Tone valid for ACD calls
Hold / Do Not Disturb	DND valid for ACD calls / Exclusive Hold for ACD calls

When an ACD Agent is logged-in, all calls to the Agent's telephone will ring: Off-Hook Call Announce and Hands-Free Answer Back are disabled.

Agents may not use a Busy Bypass Module (IX-BPCU), and Off-Hook Signaling (CLASS 10.43) must be programmed for denied.

ACD Call Answering

To answer calls an ACD Agent may use either a handset or a headset. When an ACD Agent has the HEADSET programmed on their telephone, a call rings through the telephone and the Agent presses the HEADSET key to answer the call.

Call Park / Swap

Allows an Agent to alternate between an ACD call and an ECS system call by pressing the PARK key.

Group Park

The ACD Group Park feature allows an active ACD agent to place an ACD call in Group Park.

Operation:

- To place a call in Group Park: While on an ACD call, press the GROUP PARKn key.

Conditions:

- The ACD call status changes to a PBX call when an ACD call is placed in Group Park and the ACD agent becomes available to take the next call.
- When an ACD agent parks a call, that parked call is not subject to the Hold/Park Recall Timer. However, subsequent parks of that same call do follow the Hold/ Park Timer.
- An ACD agent cannot Group Park a call using the Page feature.

Transfer to Call Park

This feature enables an active ACD agent to place an ACD call in Individual Call Park or transfer the call to another extension's Individual Call Park.

Operation:

- To transfer a call to another extension's Individual Park: While on an ACD call, press TRAN + PARK + the extension number or assigned DSS key.

Conditions:

- Transfer to another extension's Individual Call Park: The ACD call status changes to a PBX call when an ACD call is transferred to another extension's Individual Call Park and ACD agent becomes available to take the next ACD call.
- Place a call on the ACD agent's own Individual Call Park: The ACD call status remains an ACD call when the agent places a call on his/her Individual Call Park. The call cannot be picked-up from another station and the call remains an ACD call.

Transferred/Forwarded Calls to an ACD Group

Transferred/Forwarded calls to an ACD Group follow the ACD Group Night setting. The programming field Calls > ACD > Group Data (Class 19.04 Linked Call Sequence Table Transferred /Forwarded) now provides a Night mode setting for calls that are transferred or forwarded to an ACD Group from a Call Sequence Table.

Operation:

- This feature is activated / de-activated with the ACD NIGHTn key only.

Conditions:

- While the ACD Group is in the ACD Night mode, all transferred or forwarded ACD calls refer to the Sequence table that is specified in the Night mode entry under Calls > ACD > Group Data (Class 19.04).
- System Night and Group Night have no effect on this feature.

Call Record while Monitoring

This feature enables an ACD agent or ACD Supervisor to record an ACD call that he/she is monitoring using the [AGENTn] or [Monitor] key. The call is recorded to voice mail using the [Record] key.

Operation:

While monitoring an ACD call, press the Call Record key to start and stop call recording.

Conditions:

- A Call Record key must be programmed on the telephone.
- This ACD Call Record feature is available from the following telephone states:
  - Monitoring an ACD Agent while on an ICM call using an AGENTn or Monitor key.
  - Monitoring an ACD Agent while on an ACD call using an AGENTn or Monitor key.
  - Monitoring an ACD Agent while on a HELP call using an AGENTn or Monitor key.
  - Monitoring an ACD Agent while on a PBX call using an AGENTn or Monitor key.
- An available Conference circuit is required for monitoring.
- Protected Stations programmed in Stations > More Stations > Protected (Class 10.44) cannot be monitored or recorded.

Help

During difficult call situations, an Agent may request the help of an ACD Supervisor by pressing the Help key. When the Help key is pressed, the ACD Supervisor is notified and the Agent’s Help key flashes red. When the ACD Supervisor responds to the Help request, the Agent’s Help key becomes solid red and the ACD Supervisor is in the Call Monitoring state.

Log-in

To begin receiving ACD calls, ECS ACD Agents must login to the ACD group. There are two methods for logging into an ECS ACD Group: Multi-Group Login and Dual Group Login. Any ECS IP Telephone or Digital Key Telephone equipped with a LOG key can use either method to login to an ECS ACD group.

ECS ACD Agents can use Multi-Group Login to log into one or multiple ACD Groups. The login procedure is done on a group-by-group basis.

With Dual-Group login, two ECS ACD Groups are pre-programmed and the ECS ACD Agent logs into both groups simultaneously.

Not Available

When the Not Available feature key is pressed, an Agent is excluded from receiving ACD calls for an undefined period of time. There are two ways to activate the Not Available state: Reserved and Immediate. When the Reserved method is selected, the ACD Agent will be in the Not Available state upon pressing the Not Available key and the ACD call is disconnected. When the Immediate method is selected, the ACD call is disconnected and the Agent will be placed in the Not Available state when the Agent presses the Not Available key.

If an Agent should leave their workstation and forget to place their phone in the Not Available state, the ECS ACD will automatically place the Agent's phone in the Not Available state after a specified period of ACD call ring time, 0-255 seconds.

Qualification

During the Wrap-Up state, ACD Agents may enter a three-digit code to identify the source, type or result of the call received. Four three-digit codes may be chained together for a total of twelve digits. Each three-digit code may represent a different source, type or result. Qualifier codes may be entered two ways: Manual or Preset. The Preset method allows codes to be programmed to a feature key for quick and accurate entry. Manual method, however, requires the Agent to dial the codes.

A programming option may be enabled to force an Agent to enter a Qualification Code. When Forced Qualify is enabled, the Agent will remain in Wrap-Up until the code is entered.

Queue Indication

Each ACD Group may be assigned a Queue Indication key. This key provides the Agent or Supervisor with useful information about the number of calls waiting to be answered by their group. ECS ACD Queue Indication is provided in two ways.

- Lamp status of the QUEUEn key
- LCD when the QUEUEn key is pressed

The following table indicates the possible Queue Indications.

LAMP INDICATION:	NUMBER OF CALLS WAITING:
OFF	0
RED	LEVEL 1 *
FLASHING RED	LEVEL 2 *
FAST FLASHING RED	LEVEL 3 *
GREEN + TYPE OF RED	ACD GROUP EXPANSION
* Number of calls is programmable (0-255 calls)	

Pressing the Queue Indication key provides the ability to view the actual number of calls in the ACD Queue. When pressing the [QUEUEn] key (where n is the ACD Group number) the number of ACD calls in the queue that display on the LCD is 255.

All three Queue Indication Levels, as well as the ACD Group Expansion, may be associated with an external relay to activate a light or ring a bell. An IX-MISC or IX-EDVIF card is required for this operation.

Wrap-Up

The Wrap-Up function temporarily takes Agents out of queue and provides them with the ability to have a programmed period of time, 0-255 seconds, to complete paperwork after a call. Two call types are selectable for Wrap-Up, ACD calls only and ACD calls and outside line calls.

There are two methods to activate Wrap-Up: Automatic Wrap-Up and Manual Wrap-Up. When Automatic Wrap-Up is selected, Wrap-Up starts immediately after the call is disconnected and lasts for the period of time programmed. When Manual Wrap-Up is selected, pressing the Wrap-Up key disconnects the call and starts the Wrap-Up.

If an Agent their after-call work before the programmed Wrap-Up time has expired, the Agent may press the Wrap-Up key to start receiving calls.

When an Agent is programmed for Automatic Wrap-Up, the Agent will be notified by a warning tone five seconds prior to the end of Wrap-Up. When this tone is heard, the Agent may repeat the length of Wrap-Up time by pressing the Wrap-Up key again.

Emergency Recording

During difficult call situations, an Agent may record the conversation and notify the ACD Supervisor by pressing the Emergency Recording key. When the Emergency Recording key is pressed, the dedicated paging port is activated, the ACD Supervisor is notified and the Agent's Emergency Recording key flashes red. When ACD Supervisor responds to the Emergency Recording request, the Agent's Emergency Recording key becomes solid red and the ACD Supervisor is in the Call Monitoring state.

An IX-MISC card and a paging port are required for this feature. This feature operates when the dedicated ACD Group paging port is idle.

ACD Supervisor Features

ACD Supervisor Keys

ECS ACD offers special station feature keys for ACD operation. These features are only active when programmed on a Supervisor's telephone. The list below highlights these additional features.

FEATURE NAME:	FUNCTION:
ACDn / ALLACD	ACD Call Status (n= 1-250/255) *
QUEUEn	Queue status for group (n=1-250)
NIGHT	ACD Group Night status (n=1-250)
S. LOG	Supervisor Log-in / Log-out status
LOG	Supervisor as Agent Log-in / Log-out status
SQC	Call Sequence Table Change
A. DATA	ACD Supervisor Data Programming
A. REC	ACD Message Recording
AGENTn	Agent Call Monitoring by Agent ID
(* n=1-250 for individual ACD Groups and 255 for all ACD Groups)	

ACD Supervisor Log-In

ECS ACD Supervisor Log-In allows ACD Supervisors to login to an ECS ACD group with supervisor status. ECS ACD Supervisors can login to an ACD group using the Single Group Login feature. Additionally, ECS ACD Supervisors can login to all ACD groups using the All Group Login feature.

ACD Group Night

The Supervisor has the ability to switch the Call Sequence Table between the Day and Night Mode for each group that they are responsible for. The mode change can be programmed to take place automatically at a defined time of day or can be manually activated by the Supervisor.

Barge-In

The Barge-In feature allows the Supervisor to enter an Agent's conversation. Barge-In may be programmed to allow silent entry or provide interrupt tones.

Call Monitoring

The Call Monitoring feature allows the Supervisor to silently listen to an Agent's conversation. There are two methods to monitor an Agent's conversation. The Monitor key will monitor an Agent based on the extension number they are using. When the Monitor key is used, Off-Hook Signaling must be denied. The [AGENTn] key allows the ACD Supervisor to monitor Agents based on Agent ID Code instead of extension number

Message Record

When a Supervisor has a feature key programmed as A.REC, the Supervisor may record any of the thirty possible recorded messages. The message length is programmable from 0-255 seconds. IX-MSGU and IX-CMSG-1 cards are required for Message Recording.

Simultaneous Agent and Supervisor Login

The Simultaneous Agent and Supervisor Login feature allows ECS ACD Supervisors to log into one or all ACD groups with Supervisor and Agent status. Doing so allows the ACD Supervisor to receive Help and Emergency record calls from ACD Agents while acting as an ACD Agent.

Station Coaching

Station Coaching provides the ability to whisper page a digital key telephone after invoking the Monitor feature (hereafter called 'Whisper Monitor') without the caller hearing. Monitoring stations (i.e. ACD Supervisors) can Whisper Monitor other stations while on an outside call, an intercom call, or an ACD call. While Whisper Monitoring a station (pressing the [*] key), barge-in is not allowed. However, barge-in is allowed while monitoring a station. This feature is useful because an ACD Agent can receive assistance by an ACD Supervisor while on a call, but without the caller hearing the ACD Supervisor.

ACD Supervisor Programming

The ACD Supervisor has the ability to program the ACD parameters in the ECS system. This procedure requires the Supervisor to press the feature key programmed as A.DATA and dial a five-digit security code. ECS ACD allows eight telephones to be assigned an A.DATA key. When the Supervisor's telephone is in the programming mode only, ACD data setting operations may be performed. The Supervisor may program the data settings for the following items:

- **ACD GROUP**: ACD Group Name, ACD Group Overflow, Call Sequence Table Number and Change Time, Priority Change Timer and Level, ACD Group Expansion Timer and Destination, and Queue Indication Number of Calls.
- **AGENT**: Agent Name, Agent ACD Group Number, Agent Answering Priority, Agent Transfer Priority, ACD Call Automatic Connection - Method and Time, Wrap-Up Enable - Method and Time, Not Available - Method and Transition Time, and Qualify Enable.

Call Sequence Table Number Change

This feature allows the Supervisor to select any of the programmed Call Sequence Tables without entering ACD Supervisor Programming.

ACD Hardware Overview

Central Control Unit / Central Control Sub Unit

IX-CCU/IX-CCSU

An ACD License key installed in the IX-CCU / IX-CCSU card is required to enable the ACD feature.

The Central Control Unit and Central Control Sub Unit provide Serial and / or Ethernet Ports for ACD Event Output (License required) and up to eight Music On Hold (MOH) sources. An ACD Event License is required to enable the Ethernet and Serial Ports for ACD Event Output.

Miscellaneous Function Cards

IX-HCIF

The IX-HCIF card provides two serial ports: One for the TASKE® Contact and one for system database programming. The IX-HCIF can buffer 14,336 call events without the addition of an IX-BUFM. An IX-HCIF card is required for TASKE® Contact.

Note:	If an ACD Event Output License key is installed in the system, the IX-HCIF card is not required. The IX-HCIF card does not require an ACD Event Output License.

IX-BUFM

The IX-BUFM daughter board attaches to the IX-HCIF card to provide additional call event buffering. One IX-BUFM will allow 30,720 events to be stored. Two IX-BUFM's will allow 47,104 events to be stored.

IX-MSGU

The IX-MSGU is the message card that must be installed to provide recorded messages for ACD callers. the IX-MSGU provides two voice channels and may be expanded to four voice channels by adding an IX-EMCH. Multiple IX-MSGU cards may be installed to increase the number of voice channels. Each IX-MSGU must be equipped with an IX-CMSG-1 card for customized message recording. Each voice channel requires a port of an IX-8PSUB station interface card. A maximum of eight IX-MSGU cards may be installed.

IX-EMCH

The IX-EMCH is a daughter board that attaches to the IX-MSGU card to add two additional voice channels.

IX-CMSG-1

The IX-CMSG-1 is a daughter board that attaches to the IX-MSGU card and provides 330 seconds of customized message recording.

IX-MISC

The IX-MISC card converts ECS system ports for input/output functions. An IX-MISC card supports two ACD Group Music On Hold sources and each IX-MISC must be connected to an IX-MCAA. Up to eight IX-MISC cards may be installed, one per shelf.

IX-EDVIF

The IX-EDVIF is a combination of the IX-SCIF and the IX-MISC cards. This card provides two serial communication ports (RS232C) for Station Message Detail Recording (SMDR) and an on-site programming terminal.

TASKE® Contact Overview

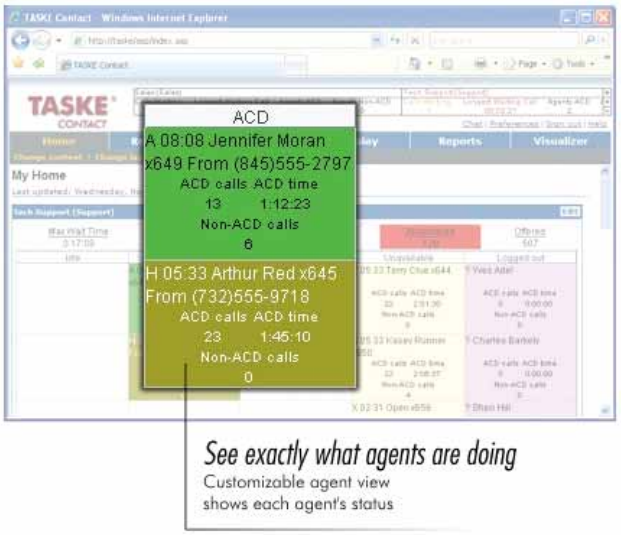
TASKE® Contact Overview

TASKE Contact provides real-time ACD monitoring and historical call reporting for the contact center. As a flexible contact center management solution, TASKE® Contact helps ACD supervisors manage ACD agents, set and meet service level benchmarks and obtain vital information on call activity. TASKE Contact includes all of the following features:

- Real-time monitoring of ACD agents or queue activity.
- Comprehensive reporting on all ACD agents, ACD call queues, extensions, and trunk activity.
- Powerful search tools to quickly identify a particular call.
- Replay past call and agent activity used to isolate specific events.
- Reports on agents, groups, extensions, trunks, trunk groups, paths/queues, ACD and non-ACD data.
- Browser-based management portal provides the ability to securely manage the business from anywhere.
- Forecasting and traffic analysis applications assist in managing staff and resources.
- TASKE® Display Central and Desktop Sign applications provides real-time information vital to the call center on the agent desktop.

Real-Time Monitoring And Review

With a real-time view of all queue-based inbound, outbound and internal calls, the Real-Time area of TASKE Contact lets managers track a variety of important contact center indicators, including agents available, longest call waiting, calls answered and average talk time. Manage by exception by viewing color-coded alarms that alert the user when thresholds are exceeded.

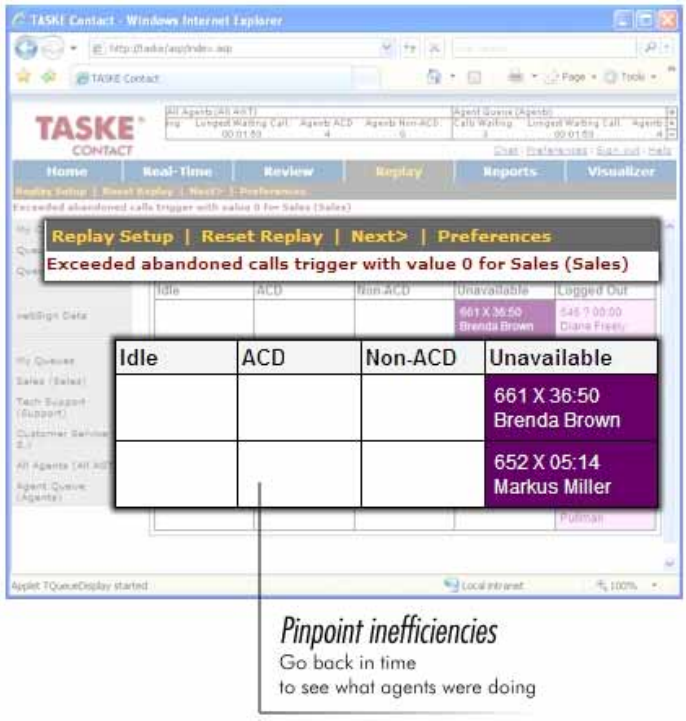


TASKE Contact provides enhanced capabilities to manage your contact center from any computer with web access. It is designed to deliver additional functionality enabled through the use of browser-based technologies.

- Monitor your contact center from any computer in the world with Internet access.
- Configure your own portal by choosing the information you want displayed.
- Ensure security during web access with a protective "Sign In" feature.
- Simplify management by accessing information from a single browser session.
- Be computer operating system independent and have a client supported on most Java-enabled browsers.
- See a snapshot view of all events that have happened in the contact center that day.

TASKE® Replay

TASKE® Replay uses the ACD Monitor interface to provide an animated review of a 24-hour period using logged contact center data. This powerful search tool reduces the time required to find a specific event within the contact center by providing the ability to define event triggers. These triggers are defined to identify abandoned calls, the number of calls in queue or the length of a call in queue.



TASKE® Replay uses the same format as the ACD Monitor: now, last hour, last 12 hours, last 24 hours and current day, and users select a date with logged contact center data. The information for the day is replayed as a simulation.

The user determines the speed of the replay. At its slowest, the data is replayed in real-time, where one second equals one second. At its fastest, the data is replayed at 1000 times the real-time increments.

The speed is changeable while the replay is in progress, allowing users to quickly move through the information and slow it down when an in-depth analysis is required

Historical Reports and Forecasting

TASKE Reports cover daily, weekly, monthly and yearly timeframes that may be customized to highlight key information. Automatic report printing can be scheduled for any time of the day, emailed or exported to spreadsheet, database, or text files - even HTML for the World Wide Web! With an Internet connection and Web browser, users can view reports posted on the company intranet or Internet site while on the road. The reports provide you with the information to determine the efficiency of your contact center by analyzing the following factors.

- Customer perception of service-Queue and Queue Group Reports.
- Agent activity and productivity-Agent and Agent Group Reports.
- System/equipment activity-Trunk, Trunk Group, Extension and Extension Group Reports.
- Call types (optional)-Queue and Queue Group Call Reason Reports.

Queue and Queue Group Reports

Queue and Queue Group reports provide a view of the operation of the contact center as seen by the caller. Information is collated on service parameters and call activity including: the Service Percentage (the chance of being answered before abandoning), the length of time a caller waits before abandoning, and whether the call is answered by an Agent or is overflowed to an alternate answering point.

Agent and Agent Group Reports

Agent and Agent Group reports provide a view of the operation of the Contact Center as seen by the Agent. Information is compiled on call parameters and resource activity such as the number of non-ACD calls that are answered by an ACD Agent and the percentage of time that an Agent talks with callers.

Trunk and Trunk Group, Extension and Extension Group Reports

Trunk, Trunk Group, Extension and Extension Group reports provide an indication of how ACD equipment is used. Information is compiled on the percentage of total time spent on incoming and outgoing calls for a particular Extension or Group.

Queue and Queue Group Call Reason Reports

Queue and Queue Group Call Reason reports provide a detailed view of call handling. By analyzing Agent Account Codes, a view may be obtained of the type of calls that are handled.

Account Codes Reports

Account Codes are strings of digits that Agents enter into the ACD system to indicate a particular category of call. For example, if an Agent in an office supply business receives an order for a stapler, the code 1588 might be entered, where 15 is used to

indicate stationery products and 88 to indicate staplers. The business can then track how many calls were received for various departments and products.

TASKE® Contact collates call records by Account Code and reports call details for each code, i.e., the total number of calls and the relative usage of a given code when compared to all codes. This enables the business to identify which departments and products are generating the most or the least amount of calls.

Visualizer

TASKE Visualizer provides in-depth search and filtering capabilities allow managers to quickly identify problem calls from cradle to grave. Drill-down into the call details and reveal the events of a specific call, such as the amount of time a caller was on hold or the number of times a caller was transferred. This information allows managers to review call handling techniques and improve the customer experience.

Visualizer lets you quickly search through thousands of call records for those that match given criteria. Create filters that match call records with dates, times, call types and activity, call information, such as telephone numbers and account codes, and resource participation, such as agents, extensions, queues and trunks.

- Perform complex searches.
- Understand call flows.
- Detect fraud and abuse of phone systems.
- Improve customer service.

Display Central

DisplayCentral's is an innovative alternative to traditional contact center wall signs. Using a large screen display (plasma, LCD, or projector technologies) in your contact center, DisplayCentral integrates the real-time statistics that you want your team to focus on, with dynamic data from a wide range of business applications. For a traditional LED wall board solution, see WallSign.

With endless capabilities for real-time, feature-rich presentation of content, DisplayCentral lets you spend your time analyzing and using business data instead of trying to find it on your intranet. Designing the display is as simple as selecting the agent and queue content that is important to your business. Add eye-catching design elements such as alarms to highlight critical changes in service levels or scrolling tickers to identify key performance indicators. You can enhance your call center data with web pages, web news feeds, or any application that runs in a browser. With DisplayCentral, all the data you need to make smart business decisions is yours to view on the contact center display right in front of you.

- Minimal design time using very flexible layouts.
- Integrates external data.
- Change views on the fly.
- Customize for different audiences.
- Threshold alerts.
- Dynamic display of data.

TASKE® Desktop

TASKE Desktop allows agents and supervisors to view real-time and historical data from their personal computers. This information helps employees stay cognizant of performance levels, make educated decisions on when to take breaks, and remain aware of how many calls are waiting in the queue. It also includes a built-in chat feature and allows each user to customize the application to have it work best for them.

- Provide employees with access to real-time information
- Empower agents to make decisions
- Customize the application



Provide real-time data to employee desktops, this information helps employees to:

- Evaluate performance levels
- Make educated decisions on when to take breaks
- Remain aware of how many calls are in the queue
- Fix problems before they start by seeing what needs to be done and doing it
- Empower agents to make decisions - with TASKE Desktop they can:
- Decide which changes could be made to improve efficiency by monitoring the real-time and historical information
- Utilize TASKE Chat to request a coworkers assistance with a customer phone call
- Gauge productivity relative to others regardless of whether they are in the office or working from home
- Assign actions to call events to save time - e.g., Have the CRM database open whenever a customer calls
- Program notifications to appear when particular events take place - e.g., Be notified when an agent logs-in.

	Qualified Callers	All Agents	CALL CENTER 2
TSF	0%	0%	0%
Avg Talk Time	0:05:31	0:02:42	0:05:50
Max Time to Answer	0:02:02	0:02:02	0:01:04
Total Talk Time	2:12:26	7:52:13	2:25:50
Re-queues	0	1	0
Answered Calls	24	174	25
Abandonded Calls	1	10	4
Interflowed Calls	0	57	27
Avg Time to Answer	0:00:31	0:00:11	0:00:16
Avg Abandon Time	0:00:11	0:00:14	0:00:12
Avg Time to Interflow	0:00:00	0:00:22	0:00:23
Offered Calls	25	241	56
Max Wait Time	0:02:02	0:02:02	0:01:57

Customize the application - each user can:

- Configure the application to show only the most critical statistics
- Use alarms to signal when a threshold is exceeded

TASKE® WallSign

TASKE WallSign is a visual interface that simplifies configuring and managing reader board messages. If no one reads a wall sign, what good is it? WallSign not only provides the capabilities of user-defined messaging you would expect of reader-board software, it extends them; and with TASKE, wall signs get noticed! TASKE WallSign gives meaning to your real-time business information.



TASKE® Iwatsu Enterprise Supervisor

The TASKE® Iwatsu Enterprise Supervisor, an add-on module to TASKE® Contact provides supervisors with the convenience and ease of real-time viewing of contact center data from multiple PBX locations with a single connection. Supervisors can run historical reports for multiple contact centers with a single connection.

TASKE® Agent Desktop

The TASKE® Agent Desktop, an add-on module to TASKE® Contact, moves reader board functionality to the desktops of agents. The TASKE® Agent Desktop is a sizable, on-screen window that displays user-specified, real-time queue statistics on the agents' computer desktop.

The Agent Desktop displays several queue statistics that keep agents informed of current call traffic, service levels and performance averages for the answering group. Statistics display in colored cells that change when pre-defined thresholds have been exceeded.

The TASKE® Agent Desktop also provides chat capability between the agent and the supervisor.

TASKE® Contact Hardware Requirements

The TASKE Contact hardware requirements are listed below:

TASKE Server Requirements	
Operating System	Microsoft Windows Server 2003 (32-bit_ Microsoft Internet Explorer, minimum version 6 Microsoft Internet Information Server (IIS) for TASKE web applications
Processor	Intel, Pentium 4, 2.x GHz
RAM	512 MB
Disk Drive	40 GB of available disk space
Drives	CD-ROM (for installation)
Sound Card	Optional for audible alarms
Network Interface Card	Fast Ethernet (100 Mbps)

TASKE Display Central Requirements	
Operating System	Microsoft Windows XP
Sound Card	Optional for audible alarms
Network	Network connection to TASKE server

TASKE Desktop Requirements	
Operating System	Microsoft Windows XP, Linux, Mac
Required Software	Java 5 (1.5)
Sound Card	Optional for audible alarms
Network	Network connection to TASKE server

TASKE Web Portal Requirements	
Required Software	A web browser supporting HTML 3.2, Java 5 (1.5), and JavaScript 1.2
Sound Card	Optional for audible alarms
Network	Network connection to TASKE server

ACD System Capacities

ACD GROUPS	250
ACD GROUP ACCESS NUMBER	0-9999
ACD GROUP NAME LENGTH	8
ACD GROUP NIGHT MODES	250
ACD GROUP RINGING PATTERNS	4
ACD PROGRAMMING POSITIONS	8
ACD SUPERVISORS/GROUP	30
ACD SUPERVISOR ID CODES	30
VALUE	01-30
ACD TRUNK GROUPS	250
AGENTS - ACTIVE	512
AGENT ID CODES	1024
VALUE	001-1024
AGENT ID CODE TOLL RESTRICTION	5
AGENT ID NAME LENGTH	8
AGENT ANSWERING PRIORITY LEVELS	3
CALL SEQUENCE TABLES	250
BOXES/TABLE	10
OPTIONS/BOX	10
TYPES	3
MESSAGES	30
MESSAGES/BOX	3
MUSIC ON HOLD SOURCES	9
PRIORITY LEVELS	8
QUALIFIER CODE LENGTH	3
NUMBER OF CODES CHAINED	4
VALUE	000-999
MAXIMUM NUMBER OF CODES	99
QUEUE INDICATION LEVELS	4
NUMBER OF CALLS/LEVEL	0-255

ACD System Capacities

ACD CALL AUTOMATIC CONNECTION	0-255 seconds
ACD GROUP EXPANSION TIMER	0-999 seconds
ACD GROUP NIGHT CHANGE	00:00-23:59 hh:mm
DELAY	0-999 seconds
MESSAGE LENGTH	0-255 seconds
MUSIC ON HOLD	1-999 seconds
NOT AVAILABLE TRANSITION TIME	0-255 seconds
PRIORITY CHANGE TIMER	0-999 seconds
WRAP-UP (AUTOMATIC ANSWER)	1-255 seconds or ∞
SPEED DIAL CO ANSWER TIME	1-255 seconds or ∞
HELP/EMERGENCY SUPERVISOR CALL TIME	1-255 seconds or ∞

ACD Programming Options

ACD GROUP
ACD GROUP NUMBER (1-250)
ACD GROUP ACCESS NUMBER (0-9999)
ACD GROUP NAME (8 characters)
ACD GROUP FORWARDING PRIORITY (1-8)
CALL SEQUENCE TABLE TYPE (1-3), 1 = day, 2 = night, 3 = transfer NUMBER (0-250) CHANGE TIME (00:00-23:59)
PRIORITY CHANGE TIMER (0-999 seconds) INCOMING LEVEL (1-8) CHANGE LEVEL (0-8), 0 = no & 1 = highest
ACD GROUP EXPANSION TIMER (0-999 seconds) DESTINATION (0-250), 0 = none
QUEUE INDICATION LEVEL (1-3) NUMBER OF CALLS (0-255)
EXTERNAL RELAY - QUEUE INDICATION LEVEL (1-4) RELAY (0-64), 0 = none
ACD GROUP MOH SOURCE (0-8) 0 = system & (1-8) = ACD MOH
ACD GROUP RINGING PATTERN (0-3)
EMERGENCY RECORDING PORT (0-1024), 0 = none

ACD AGENT
AGENT LOGIN METHOD 0 = Dual Group, 1 = Multi-Group
AGENT ID (001-1024) - 512 *active at a time*
AGENT NAME (8 characters)
AGENT ACD GROUP NUMBER (1-250)
AGENT ANSWERING PRIORITY (1-3) 1 = always, 2 = 1 is busy, 3 = 1 & 2 are busy
AGENT TRANSFER PRIORITY (1-8), 1 = highest
ACD CALL AUTOMATIC CONNECTION ENABLE (0-1), 0 = disable, 1 = enable TIME (0-255 seconds)
WRAP-UP ENABLE (0-2), 0 = no, 1 = ACD Calls, 2 = ACD & PBX calls METHOD (0-1), 0 = automatic, 1 = manual TIME (0-255 seconds)
NOT AVAILABLE METHOD (0-1), 0 = reserved, 1 = immediate TRANSITION TIME (0-255 seconds)
QUALIFY ENABLE (0-1) 0 = disable, 1= enable
FORCED QUALIFY ENABLE (0-1) 0 = disable, 1= enable
SUPERVISOR HELP CALL TIME (0-255 seconds)

CALL SEQUENCE TABLE
CALL SEQUENCE TABLE NUMBER (1-250) BOX (1-10)

ACD SUPERVISOR
SUPERVISOR ID (01-30)
SUPERVISOR NAME (8 characters)
SUPERVISOR ACD GROUP (1-250, 255)

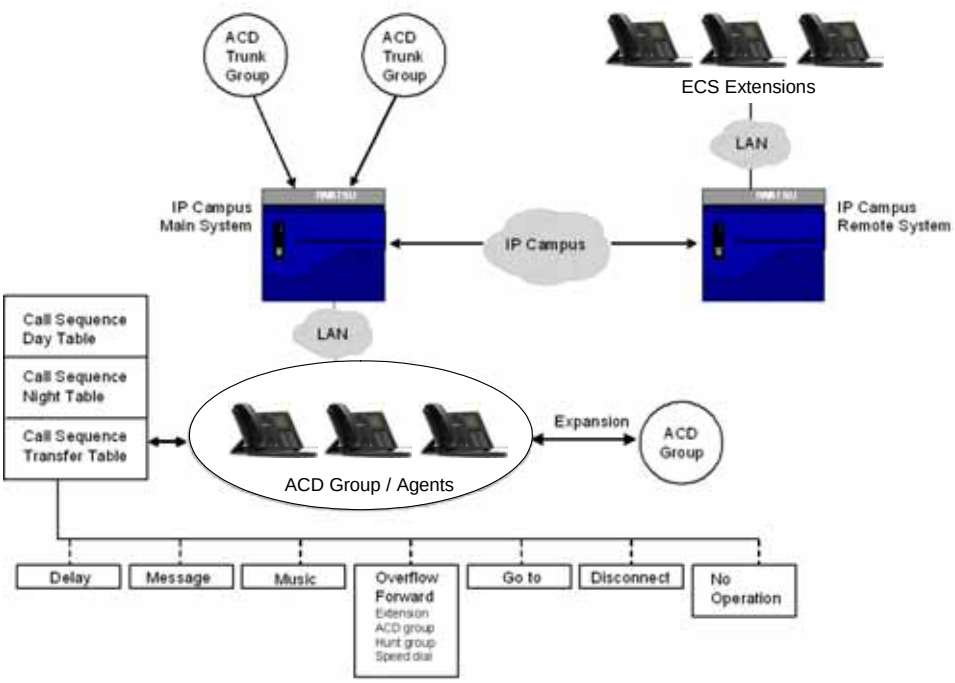
BOX OPTIONS
MESSAGE - 3 messages per box NUMBER (1-250) LENGTH (0-255 seconds) LOGICAL PORT (0-1024), 0 = none
MUSIC ON HOLD MODE (0-2), 0=none, 1 = system, 2 = ACD SOURCE (0-8), 0 = system & (1-8) = ACD LOGICAL PORT (0-1024), 0 = none
FORWARD - EXTENSION (1-1024)
FORWARD - HUNT GROUP (1-255)
FORWARD - ACD GROUP (1-255)
GO TO ANOTHER BOX CALL SEQUENCE TABLE NUMBER (1-250) BOX NUMBER (1-10)
FORWARD - SYSTEM SPEED DIAL (000-899) CO LINE ANSWER TIME (0-255 seconds) DUMMY TERMINAL (1-1024)
DISCONNECT
DELAY (0-999 seconds)
NO OPERATION

ECS EXTENSION
PRIORITY LEVEL (1-8), 1 = highest
AGENT POSITION (000-1024), 0 = none
SUPERVISOR POSITION (00-30), 0 = none
HEADSET POSITION (0-1)

ACD TRUNK GROUP
TRUNK GROUP NUMBER (0-250), 0 = not ACD
PRIORITY LEVEL (1-8), 1 = highest
ACD GROUP DESTINATION (1-250)

ACD REPORTING OUTPUT PORT
LOGICAL PORT (0-1024), 0 = none

ACD Call Flow



ACD Group

NUMBER_____
(1 – 250)

ACD GROUP - CLASS 19

ACD GROUP ACCESS # _____ *(0-9999)*
CLASS 19 - ITEM 01
ACD GROUP NAME _____ *(8 characters)*
CLASS 19 - ITEM 02
ACD GROUP FORWARDING PRIORITY _____ *(1-8)*
CLASS 19 - ITEM 03
CALL SEQUENCE TABLE
TYPE 1 2 3
TABLE # __ __ __
CLASS 19 - ITEM 04
CHANGE TIME - 1 _____ *(00:00-23:59)*
CLASS 19 - ITEM 05
CHANGE TIME - 2 _____ *(00:00-23:59)*
CLASS 19 - ITEM 05
PRIORITY CHANGE
TIMER __ __ __ __ __ __ __ __ *(0-999 seconds)*
CLASS 19 - ITEM 06
INCOMING 1 2 3 4 5 6 7 8
CHANGE __ __ __ __ __ __ __ __ *(0-8)*
CLASS 19 - ITEM 07
ACD GROUP EXPANSION
TIMER _____ *(0-999 seconds)*
CLASS 19 - ITEM 08
DESTINATION _____ *(0-250)*
CLASS 19 - ITEM 09
QUEUE INDICATION
LEVEL 1 2 3
OF CALLS __ __ __ *(0-255)*
CLASS 19 - ITEM 10
ACD GROUP MOH SOURCE _____ *(0-8)*
CLASS 19 - ITEM 11
ACD GROUP RINGING PATTERN _____ *(0-3)*
CLASS 19 - ITEM 13

ACD Agent

ID_____
(001 – 1024)

AGENT - CLASS 20

AGENT NAME _____ *(8 characters)*
CLASS 20 - ITEM 01
AGENT LOGIN METHOD ___ Dual ___ Multi Group
CLASS 20 - ITEM 02
AGENT ACD GROUP # _____ *(1-250)*
CLASS 20 - ITEM 03
AGENT ANSWERING PRIORITY _____ *(1-3)*
CLASS 20 - ITEM 04
AGENT TRANSFER PRIORITY _____ *(1-8)*
CLASS 20 - ITEM 05
ACD CALL AUTOMATIC CONNECTION
ENABLE _____ *(0-1)*
CLASS 20 - ITEM 07
TIME _____ *(0-255 seconds)*
CLASS 20 - ITEM 08
WRAP-UP
ENABLE _____ *(0-2)*
CLASS 20 - ITEM 10
METHOD _____ *(0-1)*
CLASS 20 - ITEM 11
TIME _____ *(0-255 seconds)*
CLASS 20 - ITEM 12
NOT AVAILABLE
METHOD _____ *(0-1)*
CLASS 20 - ITEM 13
TRANSITION TIME _____ *(0-255 seconds)*
CLASS 20 - ITEM 14
QUALIFY ENABLE _____ *(0-1)*
CLASS 20 - ITEM 15
FORCED QUALIFY ENABLE _____ *(0-1)*
CLASS 20 - ITEM 06
SUPERVISOR HELP CALL TIME _____ *(0-255 seconds)*
CLASS 20 - ITEM 16

ACD Supervisor

ID_____
(01 – 30)

ACD SUPERVISOR - CLASS 21

SUPERVISOR NAME _____ *(8 - characters)*
CLASS 21 - ITEM 01
SUPERVISOR ACD GROUP _____ *(1 - 250)*
CLASS 21 - ITEM 02

Call Sequence Table

NUMBER _____
(1-250)

SELECTIONS			CLASS 18 - ITEM 06		
TYPE	**1 = MESSAGE**		**BOX 1**	**TYPE**	
DATA 1	1-30 = *MESSAGE # 1*	ELAPSED	TIME	DATA 1	
DATA 2	1-30 = *MESSAGE # 2*	TIME		DATA 2	
DATA 3	1-30 = *MESSAGE # 3*			DATA 3	
TYPE	**2 = MUSIC ON HOLD**		**BOX 2**	**TYPE**	
DATA 1	0 = *NO*, 1 = *SYSTEM*, 2 = *ACD*	ELAPSED	TIME	DATA 1	
DATA 2	1-8 = *ACD MOH SOURCE*	TIME		DATA 2	
DATA 3	1-999 = *TIME IN SECONDS*			DATA 3	
TYPE	**3 = FORWARD - EXTENSION**		**BOX 3**	**TYPE**	
DATA 1	1-488 = *LOGICAL PORT*	ELAPSED	TIME	DATA 1	
DATA 2		TIME		DATA 2	
DATA 3				DATA 3	
TYPE	**4 = FORWARD - HUNT GROUP**		**BOX 4**	**TYPE**	
DATA 1	1-60 = *HUNT GROUP*	ELAPSED	TIME	DATA 1	
DATA 2		TIME		DATA 2	
DATA 3				DATA 3	
TYPE	**5 = FORWARD - ACD GROUP**		**BOX 5**	**TYPE**	
DATA 1	1-60 = *ACD GROUP*	ELAPSED	TIME	DATA 1	
DATA 2		TIME		DATA 2	
DATA 3				DATA 3	
TYPE	**6 = GOTO**		**BOX 6**	**TYPE**	
DATA 1	1-60 = *CALL SEQUENCE TABLE*	ELAPSED	TIME	DATA 1	
DATA 2	1-10 = *BOX*	TIME		DATA 2	
DATA 3				DATA 3	
TYPE	**7 = FORWARD - SPEED DIAL**		**BOX 7**	**TYPE**	
DATA 1	*(IX-4TRAN card required)*	ELAPSED	TIME	DATA 1	
DATA 2		TIME		DATA 2	
DATA 3				DATA 3	
TYPE	**8 = DISCONNECT**		**BOX 8**	**TYPE**	
DATA 1		ELAPSED	TIME	DATA 1	
DATA 2		TIME		DATA 2	
DATA 3				DATA 3	
TYPE	**9 = DELAY**		**BOX 9**	**TYPE**	
DATA 1		ELAPSED	TIME	DATA 1	
DATA 2		TIME		DATA 2	
DATA 3				DATA 3	
TYPE	**10 = NO OPERATION**		**BOX 10**	**TYPE**	
DATA 1		ELAPSED	TIME	DATA 1	
DATA 2		TIME		DATA 2	
TYPE	**11 = AUTO ATTENDANT QUEUE**		**BOX 11**	**TYPE**	
DATA 1		ELAPSED	TIME	DATA 1	
DATA 2		TIME		DATA 2	
DATA 3				DATA 3	

ACD Trunk Group

NUMBER _____
(1-250)

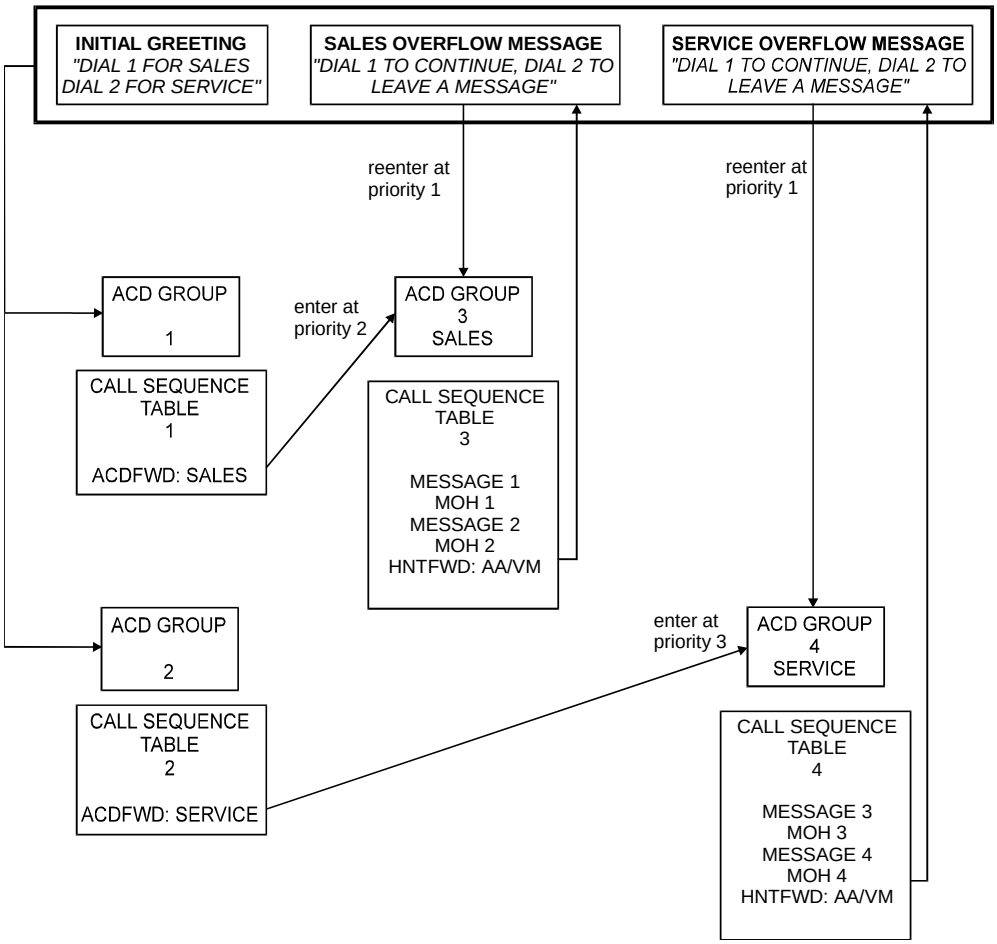
ACD TRUNK GROUP - CLASS 18	
ACD TRUNK GROUP PRIORITY CLASS 18 - ITEM 01	_____*(1-8)*
ACD GROUP DESTINATION CLASS 18 - ITEM 02	_____*(1-250)*

ACD TRUNK - CLASS 23 - ITEM 01			
LOGICAL PORT	ACD TRUNK GROUP (1-250)	LOGICAL PORT	ACD TRUNK GROUP (1-250)

ACD Extension Priority

EXTENSION PRIORITY - CLASS 22 - ITEM 03			
LOGICAL PORT	PRIORITY (1-8)	LOGICAL PORT	PRIORITY (1-8)

Automated Attendant / Voice Mail Application



IWATSU enterprise CS

Technical Manual

Section 4

Component Description

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Chapter 1

Introduction

This section describes in detail the Iwatsu Enterprise-CS (ECS) components. The ECS components are divided into four basic categories: Common Modules, Power Supplies, Circuit Cards, and Station Equipment.

Common Modules

This category describes the Iwatsu Enterprise-CS IX-CME Gateway Controller cabinet and the IX-EXPME1 and IX-EXPME2 Expansion Module cabinets.

Power Supplies

This category includes the three types of power supplies: the *Main Power Supply* which provides basic operating power to the system components, the *Expansion Module Power Supply* which provides operating power to the Expansion Module system components, and *Additional Power Supplies* which provide additional power resources when certain circuit cards or station terminals are installed in the system.

Circuit Cards

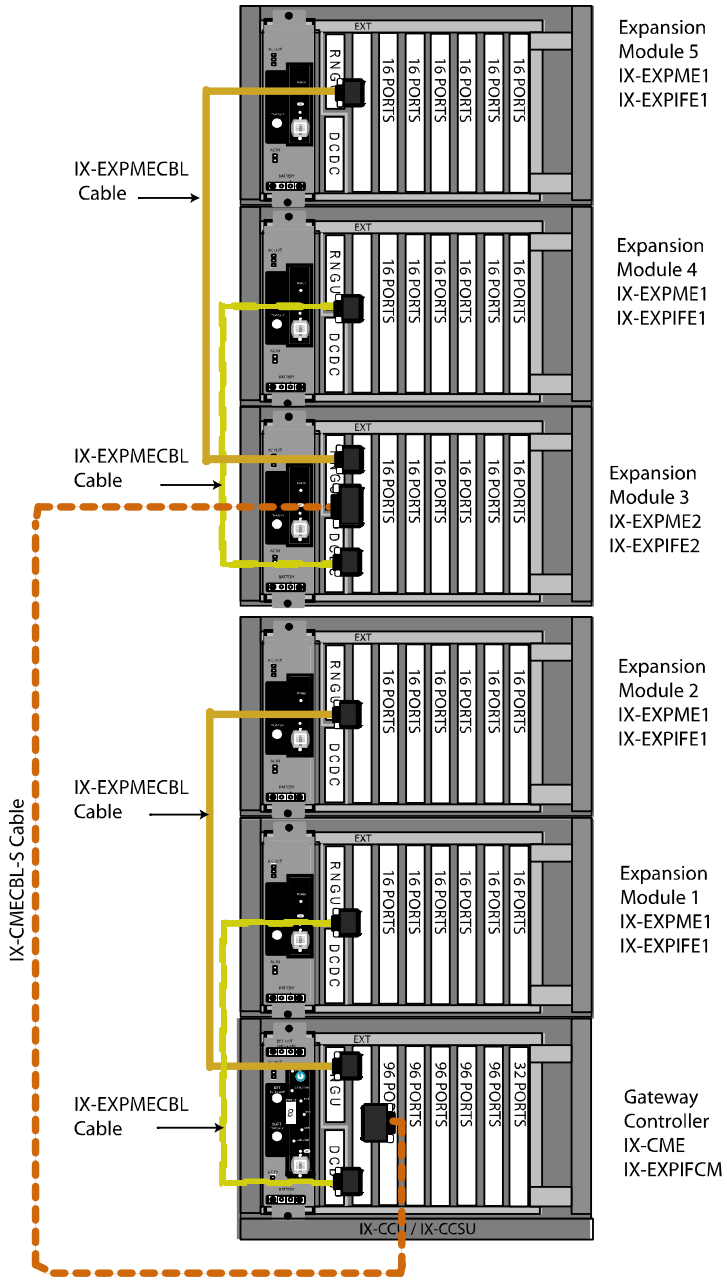
Circuit cards control system functions, add features to the system, provide a physical path between outside lines, ECS components, and individual stations. This category is divided into four sub-categories:

- Common Control Cards control system functions by interpreting and executing instructions as they are received. This category includes central control units, media bridge units, and highway/expansion controller cards.
- Station Interface Cards provide an interface between the system universal ports and the individual station terminals.
- Trunk Interface Cards provide an interface between the system universal ports and the different types of trunk lines.
- Shared Resource Cards or Miscellaneous Cards add features to the ECS system. For example, external Music On Hold (MOH), conferencing, paging, and message recording.

Station Equipment

This category includes the station equipment that can be installed in the system. For example; IP phones, digital telephones, and attendant consoles.

Fully-Expanded Iwatsu Enterprise-CS.



Chapter 2

Common Modules

IX-CME Gateway Controller

The IX-CME is a 19 inch rack-mountable cabinet that is the fundamental component of the Iwatsu Enterprise-CS. The IX-CME hosts the system IX-CCU Central Controller Unit and IX-CCSU Central Controller Sub Unit (daughterboard), the IX-MBU Media Bridge Units, and Expansion cards, as well as station, trunk, and miscellaneous resource cards.

Card Slots

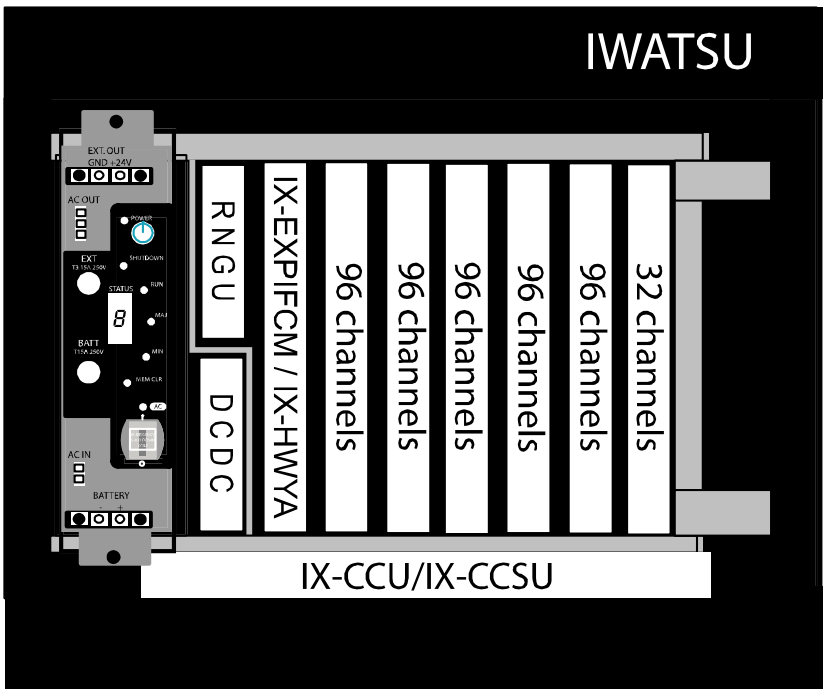
- One horizontally mounted IX-CCU and IX-CCSU to control all ECS system functions including the TDM resources installed as expansion cabinets in ADIX APS, ADIX-M, and ADIX cabinets connected to the ECS using the IX-HWYA/L TDM Highway Expansion cards
- One EXT card slot that supports:
  - IX-HWYA Highway Expansion card used to connect to the ADIX IX-CML, IX-CMM, or IX-CM for Time Division Multiplexing (TDM) expansion.
  - One IX-EXPIFCM Expansion Interface Card used to connect with the IX-EXPME1 and IX-EXPME2 Expansion Modules.
- One IX-PWSE Power Supply
- Five 96-channel card slots to support up to two IX-MBUs (for IP to TDM or TDM to IP conversion) and/or up to five TDM resource cards
- One 32 channel card slot that supports TDM resource cards
- One IX-DCDCM slot to support additional power requirements
- One IX-RNGUM slot to support a ring generator

Technical Specifications

Model:	IX-CME	Card Slots:	
Part No.:	040014	Common:	2
Capacity:	1024 ports	Universal:	5 x 96 channel slots and 1 x 32 channel slot
CPU:	IX-CCU with the IX-CCSU	Other:	IX-RNGUM, IX-DCDCM
		Size:	13.13"H x 16.93"W x 12.21"D
Power Supply:	IX-PWSE or IX-PWSES	Weight:	20 lbs. Empty 34.5 lbs. Full capacity (Approximate)

IX-CME Gateway Controller

IX-CME Gateway Controller
1024 TDM+IP Ports
624 TDM channel max.



IX-CME Port Mapping

The Iwatsu Enterprise-CS IX-CME cabinet supports the following:

Five 96 - Port Card Slots

Each 96-Port slot supports:

- 96 ports
- Twelve 8-port cards
  Only one physical card can be installed in the slot. Remaining ports can be used for virtual card applications (i.e., Omegatrek or Virtual Campus Interface (VCIF) cards)
- Three 32-channel TDM Highways

One 32 - Port Card Slot

The 32-Port slot supports:

- 32 ports
- Four 8-port cards
- One 32 channel TDM Highway

IX-HWY A OR IX-EXPIFCM

HWY 0	HWY 3	HWY 6	HWY 9	HWY 12	HWY 15
Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #
5 — 1-8	17 — 97-104	29 — 193-200	41 — 289-296	53 — 385-392	65 — 481-488
6 — 9-16	18 — 105-112	30 — 201-208	42 — 297-304	54 — 393-400	66 — 489-496
7 — 17-24	19 — 113-120	31 — 209-216	43 — 305-312	55 — 401-408	67 — 497-504
8 — 25-32	20 — 121-128	32 — 217-224	44 — 313-320	56 — 409-416	68 — 505-512
HWY 1	**HWY 4**	**HWY 7**	**HWY 10**	**HWY 13**	
9 — 33-40	21 — 129-136	33 — 225-232	45 — 321-328	57 — 417-424	
10 — 41-48	22 — 137-144	34 — 233-240	46 — 329-336	58 — 425-432	
11 — 49-56	23 — 145-152	35 — 241-248	47 — 337-344	59 — 433-440	
12 — 57-64	24 — 153-160	36 — 249-256	48 — 345-352	60 — 441-448	
HWY 2	**HWY 5**	**HWY 8**	**HWY 11**	**HWY 14**	
13 — 65-72	25 — 161-168	37 — 257-264	49 — 353-360	61 — 449-456	
14 — 73-80	26 — 169-176	38 — 265-272	50 — 361-368	62 — 457-464	
15 — 81-88	27 — 177-184	39 — 273-280	51 — 369-376	63 — 465-472	
16 — 89-96	28 — 185-192	40 — 281-288	52 — 377-384	64 — 473-480	

Expansion Modules

There are two types of Expansion Modules: The IX-EXPME1 and the IX-EXPME2 used to increase the port capacity of the ECS system from 512 ports supported by a single cabinet to 1024 port capacity.

IX-EXPME1 Expansion Module

The IX-EXPME1 cabinet supports the IX-EXPIFE1 Expansion Interface card, as well as station, trunk, and miscellaneous resource cards.

The IX-EXPME1 is used for Expansion Modules one, two, four, and five. The IX-EXPME2 Expansion Module is used for Expansion Module three.

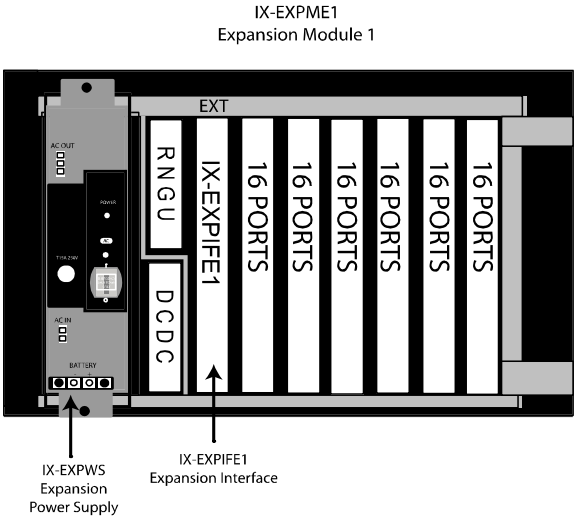
Card Slots

- One EXT Slot to support an Expansion Interface card to connect ECS IX-CME Gateway Controller.
- One IX-EXPWS Power Supply.
- Six 16-channel card slots to support TDM resource cards.
- One IX-DCDCM slot to support additional power requirements
- One IX-RNGUM slot to support a ring generator

Technical Specifications

Model:	IX-EXPME1	Card Slots:	
Part No.:	040023	Common:	1 IX-EXPIFE1
Capacity:	96 ports	Universal:	6 x 16 channel slots
CPU:	Cabinet controlled by the	Other:	IX-RNGUM, IX-DCDCM
	IX-CCU/IX-CCSU	Size:	11 3/8”H x 16 15/16”W x 12 3/8”D
Power Supply:	IX-EXPWS	Weight:	20 lbs. Empty 34 lbs. Full capacity (Approximate)

IX-EXPME1 Expansion Module



IX-EXPME2 Expansion Module

The IX-EXPME2 cabinet supports the IX-EXPIFE2 Expansion Interface card, as well as station, trunk, and miscellaneous resource cards.

The IX-EXPME2 is used for Expansion Module three (only).

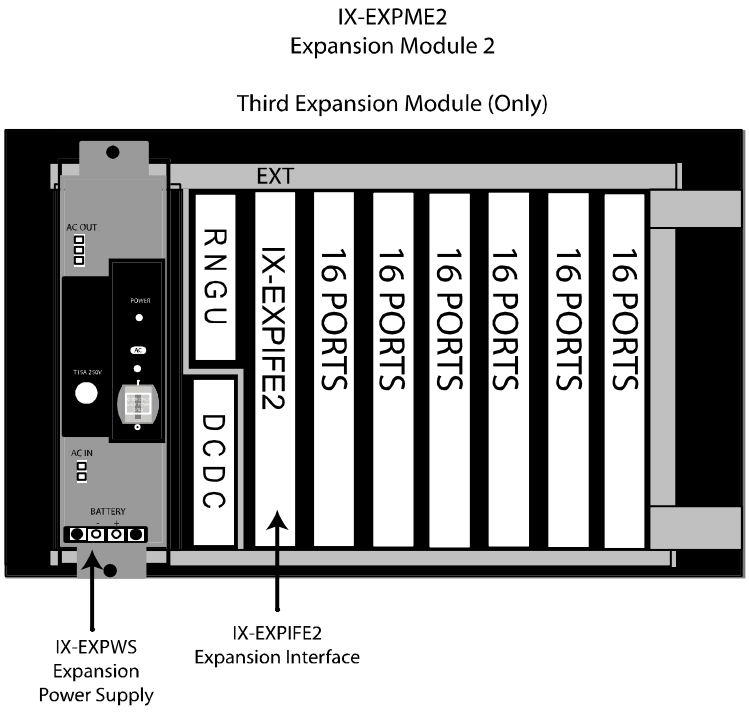
Card Slots

- One EXT Slot to support an Expansion Interface card to connect ECS IX-CME Gateway Controller and the fourth and fifth Expansion Modules.
- One IX-EXPWS Power Supply.
- Six 16-channel card slots to support TDM resource cards.
- One IX-DCDCM slot to support additional power requirements
- One IX-RNGUM slot to support a ring generator

Technical Specifications

Model:	IX-EXPME2	Card Slots:	
Part No.:	040024	Common:	1 IX-EXPIFE2
Capacity:	96 ports	Universal:	6 x 16 channel slots
CPU:	Cabinet controlled by the	Other:	IX-RNGUM, IX-DCDCM
	IX-CCU/IX-CCSU	Size:	11 7/16”H x 16 15/16”W x 12 3/8”D
Power Supply:	IX-EXPWS	Weight:	20 lbs. Empty 34 lbs. Full capacity (Approximate)

IX-EXPME2 Expansion Module



Fully-Expanded Port Map

Fully Expanded Iwatsu Enterprise-CS System

IX-EXPIFE1 — Fifth Expansion Module

HWY 28		HWY 29		HWY 30	
Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #
117 — 897-904	119 — 913-920	121 — 929-936	123 — 945-952	125 — 961-968	127 — 977-984
118 — 905-912	120 — 921-928	122 — 937-944	124 — 953-960	126 — 969-976	128 — 985-992

IX-EXPIFE1 — Fourth Expansion Module

HWY 25		HWY 26		HWY 27	
Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #
105 — 801-808	107 — 817-824	109 — 833-840	111 — 849-856	113 — 865-872	115 — 881-888
106 — 809-816	108 — 825-832	110 — 841-848	112 — 857-864	114 — 873-880	116 — 889-896

IX-EXPIFE2 — Third Expansion Module

HWY 22		HWY 23		HWY 24	
Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #
93 — 705-712	95 — 721-728	97 — 737-744	99 — 753-760	101 — 769-776	103 — 785-792
94 — 713-720	96 — 729-736	98 — 745-752	100 — 761-768	102 — 777-784	104 — 793-800

IX-EXPIFE1 — Second Expansion Module

HWY 19		HWY 20		HWY 21	
Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #
81 — 609-616	83 — 625-632	85 — 641-648	87 — 657-664	89 — 673-680	91 — 689-696
82 — 617-624	84 — 633-640	86 — 649-656	88 — 665-672	90 — 681-688	92 — 697-704

IX-EXPIFE1 — First Expansion Module

HWY 16		HWY 17		HWY 18	
Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #
69 — 513-520	71 — 529-536	73 — 545-552	75 — 561-568	77 — 577-584	79 — 593-600
70 — 521-528	72 — 537-544	74 — 553-560	76 — 569-576	78 — 585-592	80 — 601-608

IX-HWYA OR IX-EXPIFCM

HWY 0	HWY 3	HWY 6	HWY 9	HWY 12	HWY 15
Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #
5 — 1-8	17 — 97-104	29 — 193-200	41 — 289-296	53 — 385-392	65 — 481-488
6 — 9-16	18 — 105-112	30 — 201-208	42 — 297-304	54 — 393-400	66 — 489-496
7 — 17-24	19 — 113-120	31 — 209-216	43 — 305-312	55 — 401-408	67 — 497-504
8 — 25-32	20 — 121-128	32 — 217-224	44 — 313-320	56 — 409-416	68 — 505-512
HWY 1	**HWY 4**	**HWY 7**	**HWY 10**	**HWY 13**	
9 — 33-40	21 — 129-136	33 — 225-232	45 — 321-328	57 — 417-424	
10 — 41-48	22 — 137-144	34 — 233-240	46 — 329-336	58 — 425-432	
11 — 49-56	23 — 145-152	35 — 241-248	47 — 337-344	59 — 433-440	
12 — 57-64	24 — 153-160	36 — 249-256	48 — 345-352	60 — 441-448	
HWY 2	**HWY 5**	**HWY 8**	**HWY 11**	**HWY 14**	
13 — 65-72	25 — 161-168	37 — 257-264	49 — 353-360	61 — 449-456	
14 — 73-80	26 — 169-176	38 — 265-272	50 — 361-368	62 — 457-464	
15 — 81-88	27 — 177-184	39 — 273-280	51 — 369-376	63 — 465-472	
16 — 89-96	28 — 185-192	40 — 281-288	52 — 377-384	64 — 473-480	

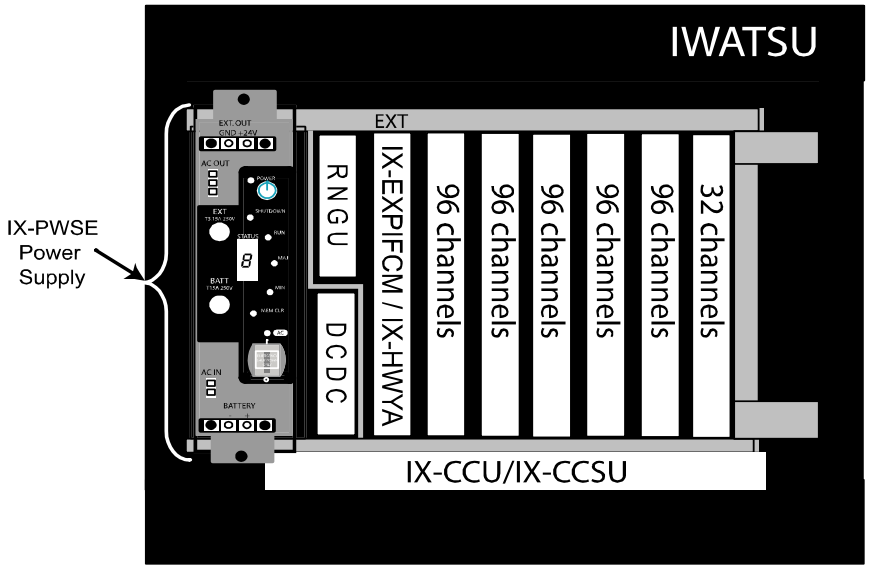
Chapter 3

Power Supplies

This chapter describes in detail each Iwatsu Enterprise-CS power supply. The IX-PWSE and the IX-PWSES are the main power sources for the IX-CME Gateway Controller. ECS Expansion Modules (IX-EXPME1 and IX-EXPME2) utilize the IX-EXPWS expansion power supply. *Additional Power Supplies* are used to provide additional power resources for certain circuit cards or station terminals when installed in the system. The table below lists the distinction between power supplies.

Model	Type	Function
IX-PWSE	Main	1024 port ECS system (IX-CME)
IX-PWSES	Main	ECS Low Power (IX-CME)
IX-EXPWS	Expansion	ECS Expansion Modules (IX-EXPME1 and IX-EXPME2)
IX-DCDCM	Additional	Provides an additional -48VDC for ECS
IX-RNGUM	Additional	Provides an additional +90VAC for ECS
IX-PMMSG	Additional	Mounts on IX-8SUBM-3. Provides an additional +90VDC

IX-PWSE Location in IX-CME Gateway Controller



Main Power Supplies

IX-PWSE Power Supply

Note: The IX-PWSE Power Supply installed in the IX-CME must be turned OFF when powering down the ECS System.

The IX-PWSE is installed in a dedicated slot on the IX-CME and provides power for all resource cards installed in the IX-CME. This power unit generates the DC voltages required for system operation. The DC output voltages of the power supply are +5 VDC, +8 VDC, -8 VDC and +24 VDC. These voltages are converted from the 120 VAC commercial power supply or the +24 VDC emergency backup battery at the main power supply unit. The system power supply specifications are as follows:

Technical Specifications

Model:	IX-PWSE	BTU:	Approx. 120
Part No.:	040325	Circuit	
Location	IX-CME Gateway Controller	Protection:	F1 - 250V, 8 amp fuse F2 - 250V, 10 amp fuse F3 - 250V, 10 amp fuse
Input Requirement:	120 (+ or - 10%) VAC, 50-60 Hz		EXT - 250V, 3.15 amp fuse BATT - 250V, 15 amp fuse
Input Current:	2 amps per shelf		
DC Output:	+ 26.8 Vdc/0.1 amps Battery +24 Vdc/3.4 amps for top battery relay operation +5 Vdc/4.0 amps for transistor logic +8 Vdc/0.4 amps for coding and decoding -8 Vdc/0.1 amps for analog and digital conversion	Connectors:	AC OUT AC IN BATTERY EXT. OUT
Variable Resistors	VR101 Factory Use Only VR102 Do Not Touch VR201	Size: Weight:	10.5”H x 2.75”W x 11.5”D 5 lbs.
LED Indicators	POWER: DC (Battery) Operation SHUTDOWN: System Shutting Down RUN: System Operating Status MAJ: Major Alarm MIN: Minor Alarm MEM CLR: Power Supply Reset in Progress AC: AC Power Supplied STATUS: MAJ or MIN Alarm Cause	Operating Conditions:	32° F to 104° F 10 to 90% non-condensing humidity

Power Input Control

The IX-PWSE has an Emergency Shutdown Switch and a Power Button that control power input to the ECS cabinet and components.

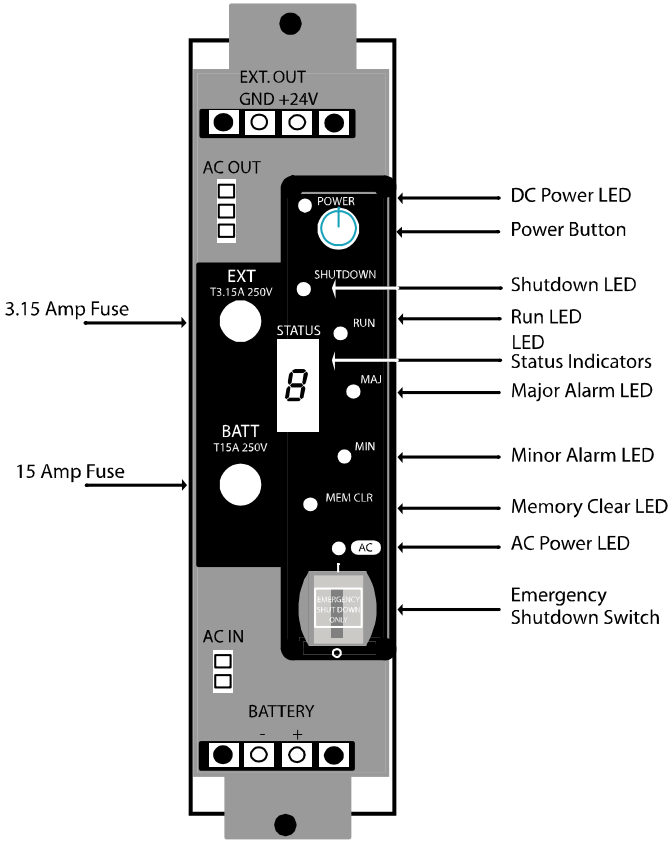
Emergency Shutdown Switch

The Emergency Shutdown Switch controls the AC power input to the ECS cabinet. When ON, the Emergency Shutdown Switch allows commercial AC power to be applied to the ECS system. This switch is to be used for the emergency shutdown of the system (i.e., in case of fire, etc....). This switch should not be used to reset or restart the ECS system during normal operation.

Power Button

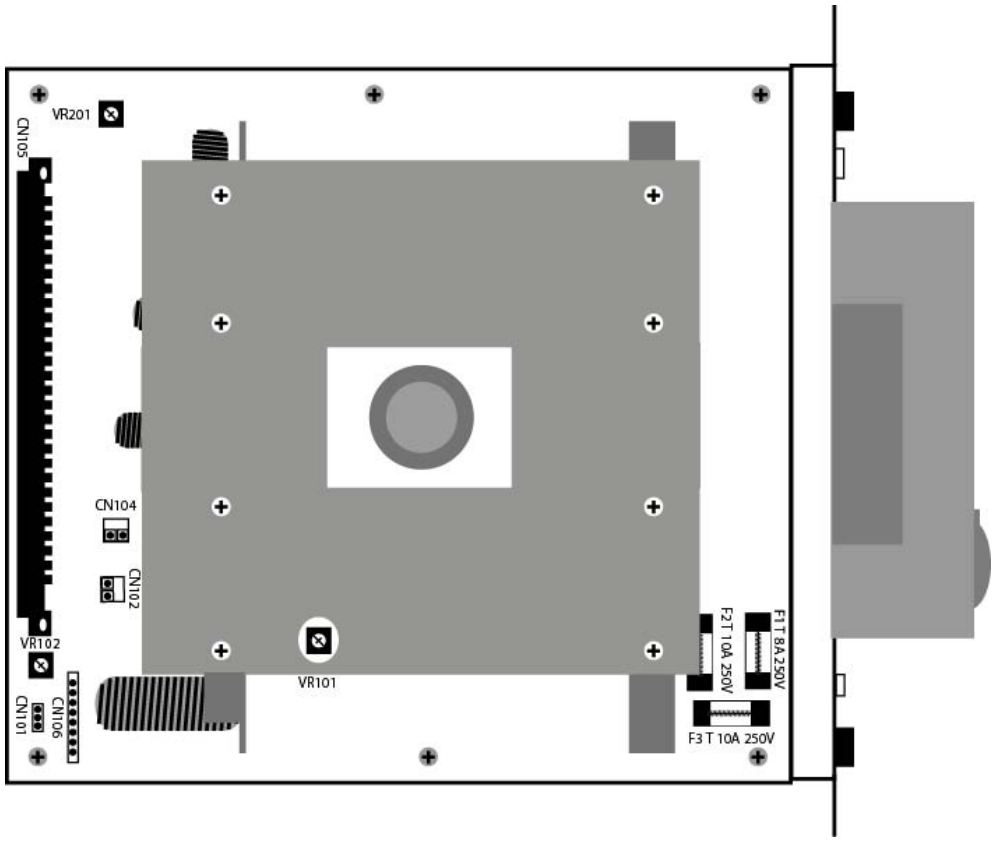
The Power Button allows DC / battery power to be applied to the ECS system components. The Power Button functions the same as the power button on a desktop computer, power is present, but not applied to the system components when the Power Button is OFF.

IX-PWSE Front View



Note: The IX-PWSE Power supply can be identified by the LED Status indicator, alarm indicator LEDs, and Emergency Shutdown Switch.

IX-PWSE Side View



IX-PWSES Power Supply

Note: The IX-PWSES power supply is pluggable equipment without a power switch (No Emergency Shutdown Switch). Place an electrical outlet nearby to make unplugging easy.

The IX-PWSES is installed in a dedicated slot on the IX-CME and provides power for resource cards installed in the IX-CME. This power unit generates the DC voltages required for system operation. The DC output voltages of the power supply are +5 VDC, +8 VDC, -8 VDC and +24 VDC. These voltages are converted from the 120 VAC commercial power supply at the power supply unit.

The IX-PWSES power supply may only be installed in the IX-CME Gateway Controller Cabinet.

The system power supply specifications are as follows:

Technical Specifications

Model:	IX-PWSES	BTU:	Approx. 120
Part No.:	040326	Circuit	
Location	IX-CME Gateway Controller	Protection:	F1 - 250V, 5 amp fuse F2 - 250V, 8 amp fuse
Input Requirement:	120 VAC (+ or - 10%), 60 Hz (+ or - 10%)	Connector:	AC IN
Input Current:	2 amps per shelf	LED Indicators	POWER: DC Operation SHUTDOWN: System
DC Output:	+27 Vdc/2.2 amps +5 Vdc/5.0 amps for transistor logic +8 Vdc/0.3 amps for coding and decoding -8 Vdc/0.2 amps for analog and digital conversion		Shutting Down RUN: System Operating Status MAJ: Major Alarm MIN: Minor Alarm MEM CLR: Power Supply Reset in Progress AC: AC Power Supplied STATUS: MAJ or MIN Alarm Cause
Variable Resistors	RV501 Factory Use Only Do Not Touch	Size: Weight:	10.5”H x 2.75”W x 11.5”D 5 lbs.
		Operating Conditions:	32° F to 104° F 10 to 90% non-condensing humidity

Power Input Control

The IX-PWSES has a Power Button that controls power output to the ECS components.

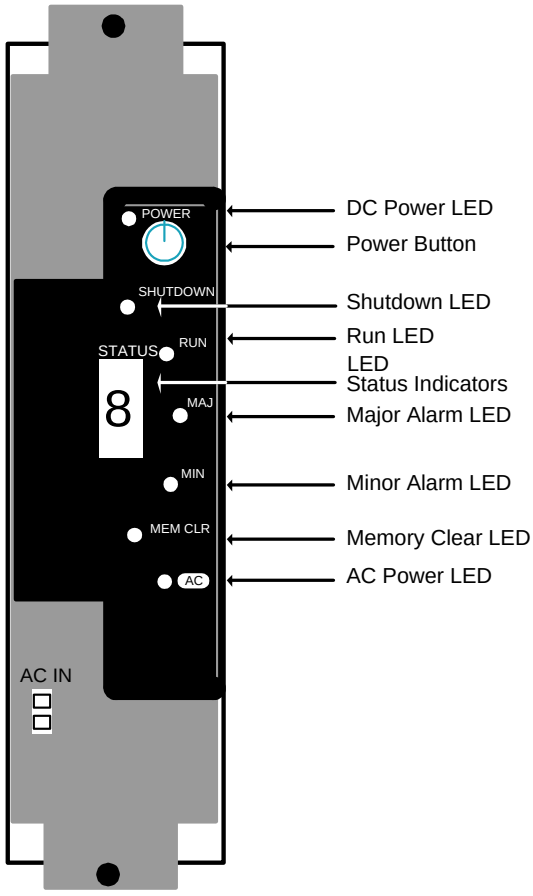
Power Button

The Power Button allows DC power to be applied to the ECS system components. The Power Button functions the same as the power button on a desktop computer, power is present, but not applied to the system components when the Power Button is OFF.

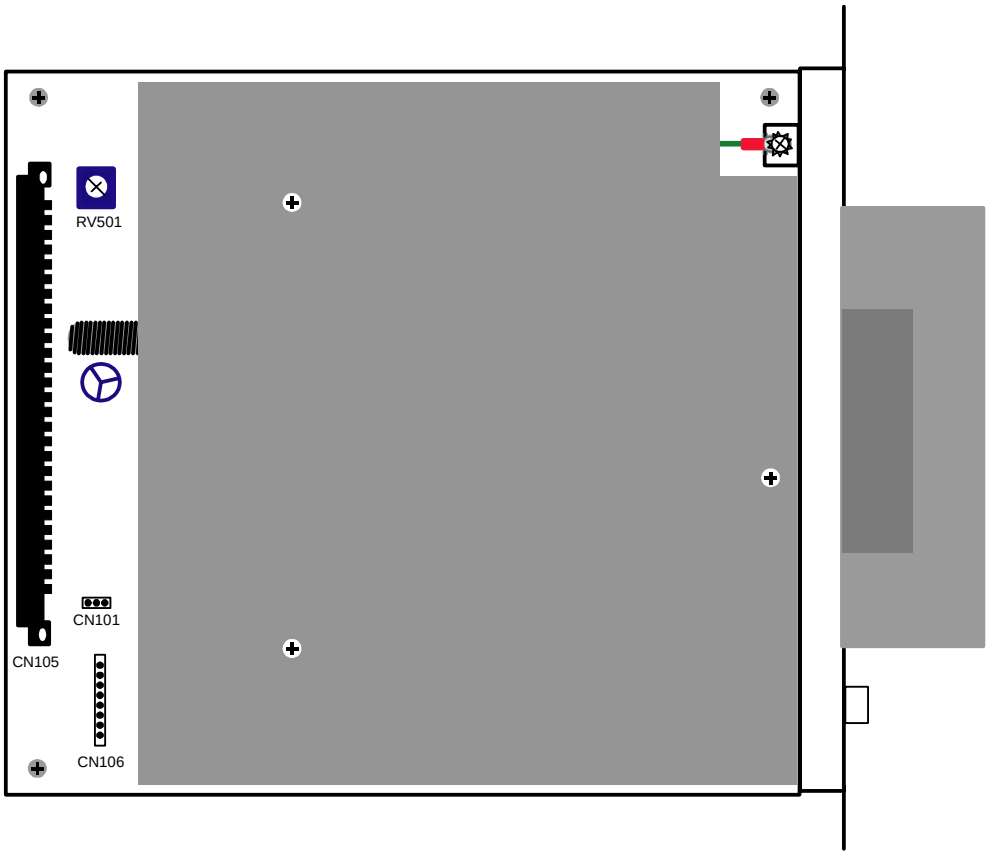
Shutdown

- If the POWER switch is pressed, the power supply unit sends the Power-Off Request signal to the IX-CCU. The power supply unit goes into standby mode when it receives the Power Off signal from the IX-CCU.
- If overvoltage protection is activated for +27VDC or +5VDC, the power supply unit will unconditionally stop operating.

IX-PWSES Front View



IX-PWSES Side View



LED Indicators

AC and Power LED Status Indicators

Item	AC LED	POWER LED	Output			
			+ 24 V	+ 5 V	+ 8 V	- 8 V
AC Disconnected	OFF	OFF				
AC Connected (Standby)	ON	OFF				
AC Operation	ON	ON	ON	ON	ON	ON
+ 24 V Short-Circuited	OFF	OFF				
+ 5 V Short-Circuited	ON	OFF	ON		ON	ON
+ 8 V Short-Circuited	ON	ON	ON	ON		ON
- 8 V Short-Circuited	ON	ON	ON	ON	ON	
+27 V Output Overvoltage	OFF	OFF				
+5 V Output Overvoltage	OFF	OFF				

Other LED Indicators

LED Name	Color	State	Meaning
SHUTDOWN	GREEN	FLASHING	Shutdown in Progress
		OFF	Normal Operation
RUN	GREEN	ON	Normal Operation
		OFF	System Not Running
	GREEN	FLASHING	System Powering Up (Boot in Progress)
MAJ	RED	ON	Major Alarm (See Major Alarm Status Indicators Below)
		OFF	No Major Alarms
MIN	RED	ON	Minor Alarm (See Minor Alarm Status Indicators Below)
		OFF	No Minor Alarms
MEM CLR	RED	ON	The Memory Clear button is being pressed during a system restart (It will be off later)
		OFF	Memory Clear button is not being pressed
	RED	FLASHING	Auto Recognition in Progress

Alarm LED Status Indicators

The 7-Segment LED indicates the number (0-F) corresponding to the severity level for Major and Minor alarms.

Note: Major and Minor Alarm LEDs are associated with specific LED Status Indicators on the IX-PWSE and the IX-PWSES.

Error Message Code Severity

0 1 2 3 4 5 6 7 8 9 A b C d E F

High (Urgent) → → → → Middle → → → → Low

Major Alarm Status Indicators

Alarm Level	7 Segment LED	Cause	Measures
MAJOR	0	Undefined	
	1	Power Supply Error	Replace Power Supply Unit
	2	IX-CCU / CCSU Hardware Error	Replace IX-CCU / CCSU Card
	3	IX-CCU / CCSU Hardware Error	Replace IX-CCU / CCSU Card
	4	Compact Flash Card Error	Replace Compact Flash card. Update the file. Replace IX-CCU.
	5	Phase Reset Error	Replace IX-CCU Card if problem persists
	6	Platform Program Error	Replace IX-CCU Card if problem persists
	7	Call Control Program Error	Replace IX-CCU Card if problem persists
	8	Undefined	
	9	System Data Error	Reprogram system data. Use Auto-Recognition
	A	Undefined	
	b	Undefined	
	C	Undefined	
	d	Undefined	
	E	Undefined	
	F	Undefined	

Minor Alarm Status Indicators

Alarm Level	7 Segment LED	Cause	Measures
MINOR	0	Undefined	
	1	License Card Error	Replace the license card
	2	License Information Error	Reenter the license information
	3	Program Startup Failure	Update the program file
	4	System Congestion	Reduce the load by checking the status of congestion and reprogramming system data if necessary
	5	SMDR Information Error	Check the connection and operation of TME
	6	Unit Breakdown	Replace the unit or the BU fuse
	7	Call Control Program Error	Replace the IX-CCU if the problem persists
	8	Undefined	
	9	System Data Error	Reprogram system data. Use Auto-Recognition
	A	Undefined	
	b	Undefined	
	C	Undefined	
	d	Undefined	
	E	Undefined	
	F	Campus Link Error	Check the network status and capacity; replace the network [sic] and expand the capacity if the problem persists

System Shutdown / Restart Procedure

This procedure is used for the IX-PWSE and the IX-PWSES Main power supplies

To properly shutdown or restart the ECS System, follow the steps listed below:

1. Press and Hold the POWER button on the IX-PWSE or IX-PWSES Power Supply
2. The SHUTDOWN LED on the IX-PWSE or IX-PWSES will begin to flash
3. Release the POWER button. The ECS now begins logically shutting down and will write any unsaved data to the Compact Flash area.
4. If system restart is required, press the POWER button and release, the system will restart.

Expansion Module Power Supply

IX-EXPWS Expansion Power Supply

Note: The IX-EXPWS Power Supply installed in the IX-EXPME1 or the IX-EXPME2 must be turned OFF when powering down the ECS System.

The IX-EXPWS provides power for resource cards installed in the IX-EXPME1 or EXPME2 Expansion Modules. This power unit generates the DC voltages required for system operation. The DC output voltages of the power supply are +5 VDC, +8 VDC, -8 VDC and +24 VDC. These voltages are converted from the 120 VAC commercial power supply or the +24 VDC emergency backup battery.

The IX-EXPWS power supply may only be installed in the IX-EXPME1 or IX-EXPME2 Expansion Modules.

Technical Specifications

Model:	IX-EXPWS	Circuit Protection:	F1 - 250V, 8 amp fuse F2 - 250V, 10 amp fuse F3 - 250V, 10 amp fuse
Part No.:	040327		BATT - 250V, 15 amp fuse
Location:	IX-EXPME1 and IX-EXPME2 Expansion Modules	BTU:	Approx. 120
Input Requirement:	120 (+ or - 10%) VAC, 60 (+ or - 3) Hz	LED Indicators	POWER: DC (Battery) Operation AC: AC Power Supplied
Input Current:	2 amps per shelf		
DC Output:	+ 26.8 Vdc/0.1 amps Battery +24 Vdc/3.4 amps for top battery relay operation +5 Vdc/4.0 amps for transistor logic +8 Vdc/0.4 amps for coding and decoding -8 Vdc/0.1 amps for analog and digital conversion	Connectors:	AC OUT AC IN BATTERY
Variable Resistors	VR101 Factory Use Only VR102 Do Not Touch VR201	Size: Weight:	10.5”H x 2.75”W x 11.5”D 5 lbs.
		Operating Conditions:	32° F to 104° F 10 to 90% non-condensing humidity

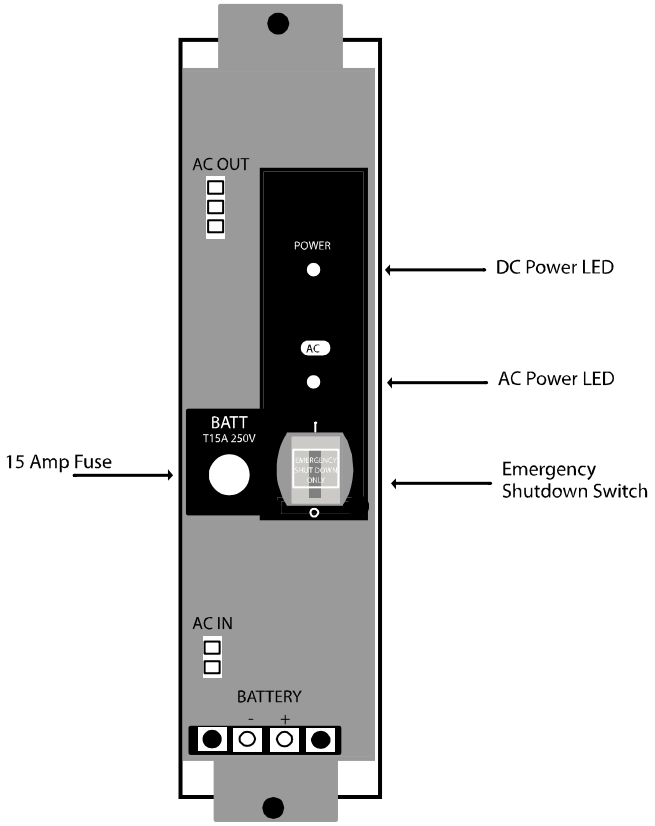
Power Input Control

The IX-EXPWS has an Emergency Shutdown Switch that controls power input to the ECS Expansion Module.

Emergency Shutdown Switch

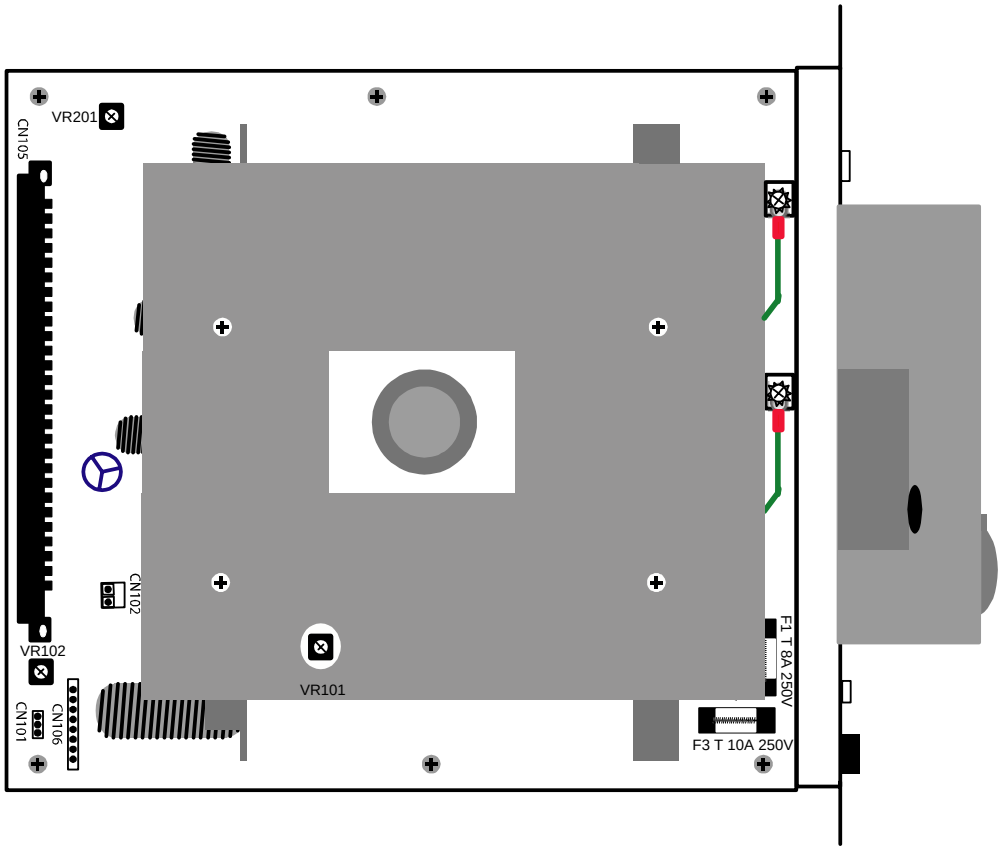
The Emergency Shutdown Switch controls the AC power input to the ECS cabinet. When ON, the Emergency Shutdown Switch allows commercial AC power to be applied to the ECS system. This switch is to be used for the emergency shutdown of the system (i.e. in case of fire, etc....). This switch should not be used to reset or restart the ECS system during normal operation.

IX-EXPWS Front View



Note: The IX-EXPWS Power supply can be identified by the Emergency Shutdown Switch and a single 15 Amp Fuse on the front of the power supply.

IX-EXPWS Side View



AC and Power LED Status Indicators

Item	AC LED	POWER LED	Output			
			+ 24 V	+ 5 V	+ 8 V	- 8 V
AC Disconnected	OFF	OFF				
AC Connected (Standby)	ON	OFF				
AC Operation	ON	ON	ON	ON	ON	ON
DC (Battery) Operation	OFF	ON	ON	ON	ON	ON
+ 24 V Short-Circuited	OFF	OFF				
+ 5 V Short-Circuited	ON	OFF	ON		ON	ON
+ 8 V Short-Circuited	ON	ON	ON	ON		ON
- 8 Short-Circuited	ON	ON	ON	ON	ON	
Output Overvoltage	OFF	OFF				

IX-EXPWS Basic Operation

Startup

- The IX-EXPWS starts up and goes into standby mode when AC power is supplied. (Power cord is connected or the POWER switch on the IX-PWSE is turned on).
- The DC outputs of the IX-EXPWS become active when the DC outputs of the IX-PWSE become active.

AC Operation

- The IX-EXPWS will keep operating on AC power unless a power outage occurs.
- During AC operation, the IX-EXPWS provides output voltages to the load devices and charges the batteries.

DC Operation

- If a power outage occurs during AC operation, the IX-EXPWS will switch to the battery for DC operation.
- When AC power is restored, the IX-EXPWS will automatically switch back to AC operation.
- The IX-EXPWS will automatically go into standby mode as soon as the DC outputs from the IX-PWSE are deactivated.

Shutdown

- If the DC outputs of the IX-PWSE become deactivated while the IX-EXPWS is in AC operation, the IX-EXPWS will go into standby mode.
- If the DC outputs of the IX-PWSE become deactivated while the IX-EXPWS is in DC operation, the IX-EXPWS will go into standby mode.
- When the AC Switch (Emergency Shutdown) is turned off in the event of an emergency during AC or DC operation, the IX-EXPWS will stop operating and the DC output for the load devices are immediately stopped.

Additional Power Supplies

Certain circuit cards and station terminals installed in the IX-CME Gateway Controller or IX-EXPME1/2 Expansion Modules require additional power resources other than those supplied by the IX-PWSE, IX-PWSES, or the IX-EXPWS power supplies.

Additional power supplies, their outputs, and locations are listed below:

Model	Output	Location
IX-DCDCM	-48 VDC talk battery for ground start trunks, analog E&M trunks, DID lines, and off premise single-line telephones	Dedicated Slot in the IX-CME, IX-EXPME1, or IX-EXPME2
IX-RNGUM	90 VAC power source for SLT ringing signal	Dedicated Slot in the IX-CME, IX-EXPME1, or IX-EXPME2
IX-PMMSG	+90 VDC power source for SLTs with message waiting lamps	Daughterboard for IX-8SUBM-3 or IX-8ESUBM Cards

Additional Power Supply Usage with the ECS

The -48 VDC and 90 VAC (IX-DCDCM and IX-RNGUM respectively) power outputs are distributed only to the shelf where the additional power supply is located. The total current requirement of the circuit cards installed on the shelf cannot exceed the capacity provided by the additional power supply.

The +90 VDC (IX-PMMSG) provides power only to the card where it is installed.

Circuit Cards That Require Additional Current:

Circuit Card	Type of Voltage Required	Current Requirement of Card	Current Requirement of Each Circuit
IX-8UNTK	-48 VDC	10 m-amps	1.3 m-amps
IX-4SUBL	-48 VDC	320 m-amps	80 m-amps
IX-8SUBS-3	+90 VDC	N/A	Dependent on type of SLT
IX-8SUBM-3**	+90 VDC	12 m-amps	1.5 m-amps
IX-044	+90 VDC	N/A	Dependent on type of SLT
IX-8LGTK-2*	-48 VDC	10 m-amps	1.3 m-amps
IX-4EMTK	-48 VDC	80 m-amps	20 m-amps
IX-4DITK	-48 VDC	120 m-amps	30 m-amps

* - The IX-8LGTK-2* and IX-8UNTK require -48 VDC for Ground Start Trunks ONLY.

** - The total current requirement of all IX-8SUBM cards mounted on one shelf cannot exceed the power capacity of the additional power supply installed on the shelf.

Note: * The IX-8LGTK-2 /with ground start trunks/ is not supported in the IX-CME. The IX-8UNTK card replaces the IX-8LGTK-2.

IX-DCDCM Additional Power Supply

The IX-DCDCM DC-to-DC converter unit generates -48 VDC. This voltage is required when the following cards are installed in the IX-CME, IX-EXPME1, or IX-EXPME2: IX-8UNTK (with ground start trunks) and IX-4SUBL. The IX-DCDCM will only supply -48 VDC to the cards located on the same shelf as the power supply. A maximum of three cards per system are permitted. There is a dedicated card slot on the left side of the Gateway Controller or Expansion Modules for the IX-DCDCM.

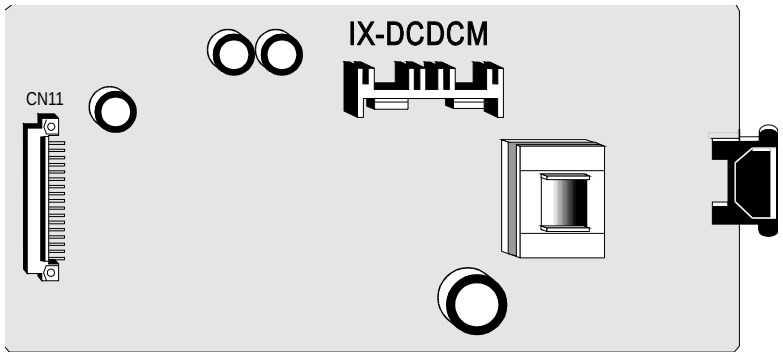
Model:	IX-DCDCM
Part No.:	040310
Location:	DC/DC Dedicated Card Slot
Output:	-48 VDC / 0.5 amps

Stations/Cards Required For:

IX-8UNTK (with ground start trunks)

IX-4SUBL

Size:	4.5”H x 9.34”W x 1.2”D
Weight:	0.4 lbs.

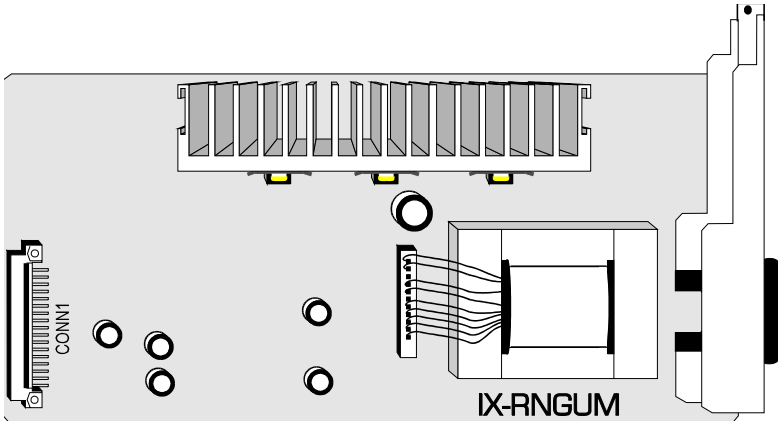


IX-RNGUM Ring Generator

The IX-RNGUM ring generator unit supplies ringing voltage to *on-premise* and *off-premise* single-line telephones that are terminated at an IX-CME, IX-EXPME1, or IX-EXPME2 by converting +24 VDC from the IX-PWSE, IX-PWSES, or IX-EXPWS power supplies to 90 VAC. This unit is required on each shelf equipped with an IX-8SUBS, IX-8SUBM, IX-4SUBL, or IX-044 card. This unit will ring only single-line stations connected to a circuit card that is located on the same shelf as the power supply. There is a dedicated card slot on the left side of the IX-CME, IX-EXPME1, or IX-EXPME2 for the IX-RNGUM.

Note: The IX-RNGUM can provide ring voltage for up to 128 Single Line Telephones simultaneously.

Model:	IX-RNGUM	Stations/Cards Required For:	
Part No.:	040500		IX-8SUBS, IX-4SUBL, IX-8SUBM,
Location:	RING Dedicated Card Slot		IX-044, SLTs
Outputs:	90 VAC (1s on/3s off)	Size:	5”H x 9.75”W x 1.5”D
		Weight:	1.8 lbs.



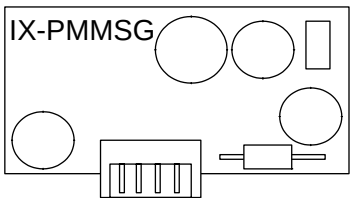
IX-PMMSG 90V Power Supply for IX-8SUBM-3

The IX-PMMSG is a miniature DCDC power supply that is mounted on the IX-8SUBM-3 and IX-8ESUBM cards at the MCONN connector. It provides 90 VDC that is required to turn on the message waiting lamps of single line telephones connected to the IX-8SUBM-3 and IX-8ESUBM cards.

The IX-8SUBM-3 card requires one IX-PMMSG for each 8 ports. For instance, only one IX-PMMSG power supply is required for the IX-8SUBM-3, but two IX-PMMSG power supplies are required if you add the IX-8ESUBM card.

The IX-PMMSG is required for each IX-8SUBM-3 and IX-8ESUBM card installed in an ECS system to which single line telephones with message lamps are connected.

Model:	IX-PMMSG	Size:	0.75”L x 0.88”W x 1.5”D
Part No.:	101483	Weight:	0.2 lbs.
Location:	IX-8SUBM-2 or IX-8SUBM-3 MCONN Connector		
Outputs:	90 VDC		



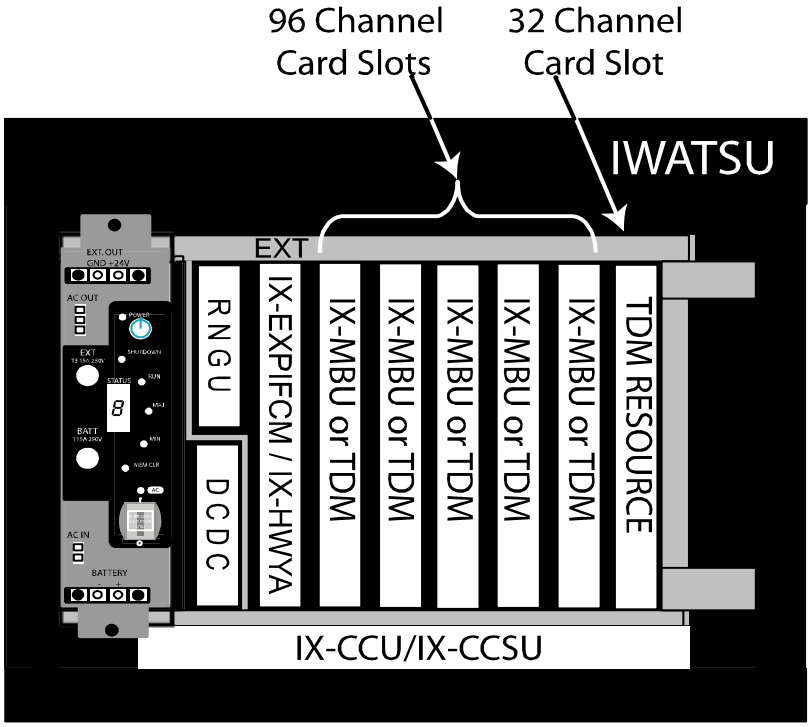
Chapter 4

Common Control Cards

Overview

The Iwatsu Enterprise-CS utilizes common control cards that control system functions by interpreting and executing instructions as they are received. This category includes the Central Control Unit and Sub Unit, Media Bridge Units and TDM Highway Expansion. These cards are identified by their red locking tabs with the exception of the TDM Highway Expansion cards. TDM Highway cards have orange locking tabs.

Control Card Locations in the IX-CME Gateway Controller



IX-CCU Central Control Unit

Overview

The Iwatsu Enterprise-CS uses the IX-CCU Central Control Unit that along with the IX-CCSU Central Control Sub Unit daughterboard, controls all call processing and processing for device and IP controls.

The IX-CCU Central Control Unit allows real-time maintenance and system management for the ECS system database. To facilitate the maintenance options, the IX-CCU card is equipped with FTP, Telnet, and HTTP servers. When the ECS is equipped with an IX-MBU Media Bridge Unit card, the IX-CCU can provide DHCP services for IP devices connected to the IX-CCU Central Control Unit. Finally, When an IX-MBU Media Bridge Unit is installed in an ECS cabinet (IX-CME), the IX-CCU Central Control Unit can provide a directory server connection to the IP terminal.

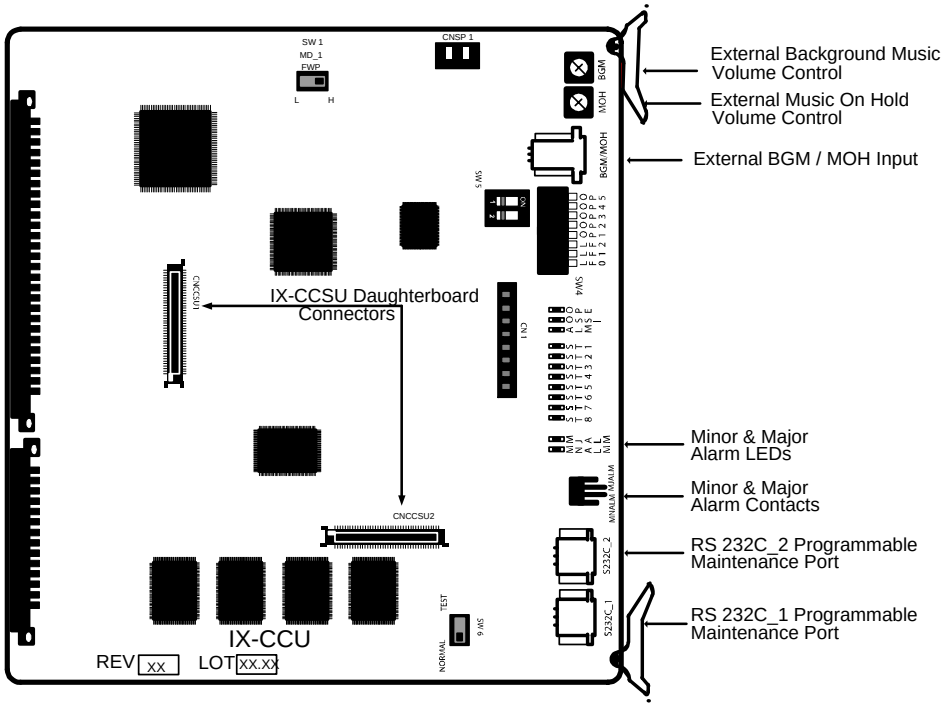
Features

- Controls all Call Processing for device and IP controls (For up to 1024 ports)
- TCP/IP layer 2 switching Control
- Built-in servers for FTP, Telnet, and HTTP for system maintenance and management
- 256 MB Compact Flash memory located on the IX-CCSU daughterboard for storing the working and backup ECS databases
- Eight Internal Music On Hold (MOH) Tunes. Selections made through the ECS Programmer
- Background Music (BGM) and Music On Hold (MOH) RJ-11 input connector for external BGM and MOH sources
- External Background Music (BGM) and Music On Hold (MOH) Source Volume Controls to adjust the volume for external BGM and MOH inputs
- 1024-address DHCP Server
- SIP Protocol support

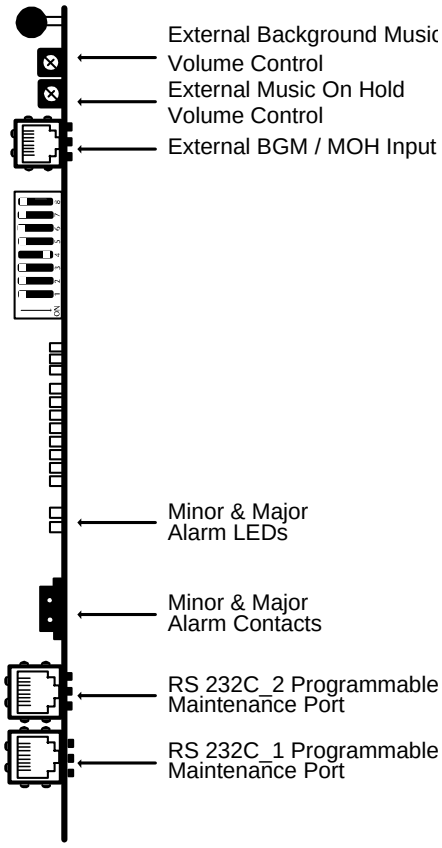
Technical Specifications

Model:	IX-CCU	Indicators:	OPE: Operational Status
Part No.:	101115		OSSI:
Location:	IX-CME Gateway Controller		ALM: Alarm in Progress
Channels:	NA		ST1 - ST8: (8 bits) Status
Connectors:	CNCCU1: IX-CME Motherboard		MNALM: Minor Alarm
	CNCCU2: IX-CME Motherboard		MJALM: Major Alarm
	CN 1: CNSP1:	Switches:	MD_1 FWP (SW1): SW4: See Below
	232C_1: Programmable maintenance port		SW5: Normal/TEST (SW6)
	232C_2: Programmable maintenance port	SRAM:	512 KB
	MNALM: External Alarm Panel	RAM:	8 KB [Built-in CPU(IC1)]
	MJALM: External Alarm Panel	FROM:	256 KB [Built-in CPU(IC1)]
	CNCCSU1: IX-CCSU	Size:	9 7/16”H x 10 7/16”D x 9/16”W
	CNCCSU2: IX-CCSU	Weight:	.816 lbs
	BGM/MOH: External Background Music/Music on Hold input		
Rotary Switches:	MOH: External Music on Hold Volume Control BGM: External Background Music Volume Control	Operating Conditions:	32° F to 104° F 10 to 90% non-condensing humidity

IX-CCU Central Control Unit



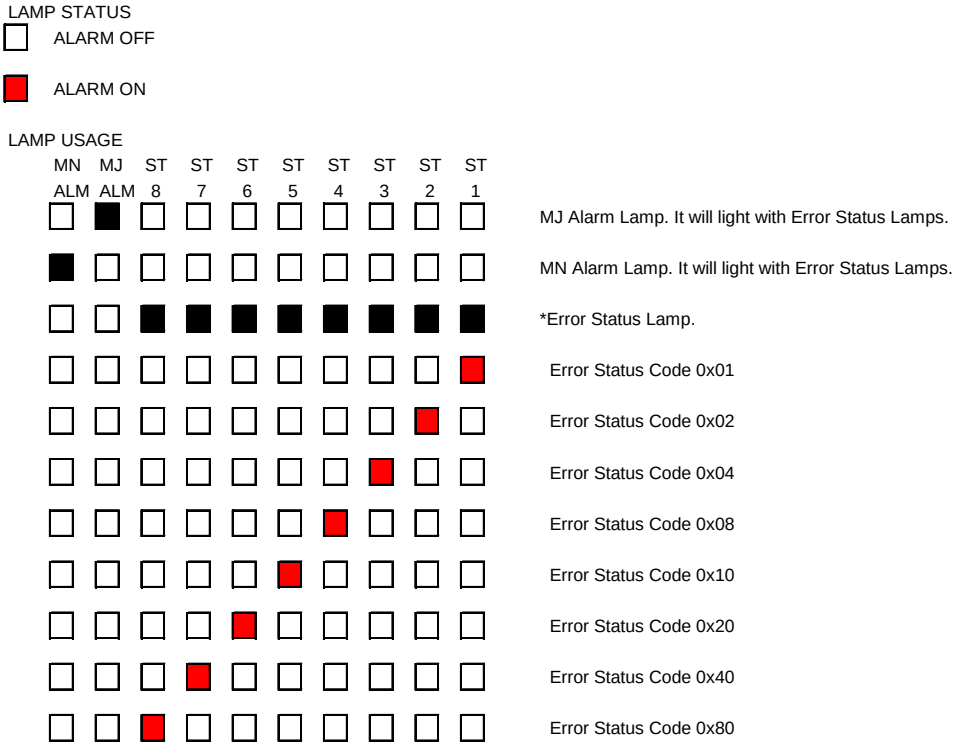
IX-CCU Side View



LED Inidicators

LED Name	Color	State	Meaning
OPE		FLASHING	Normal Operation
		OFF	Non-Operational Status
OSSI		ON / OFF	Task in Progress
ALM		ON	Alarm in Progress
		OFF	No Alarm
ST1 - ST8		ON / OFF	See Table
(8 bits)			
MJALM		ON / OFF	See Table
MNALM		ON / OFF	See Table

Status (1-8) and Major / Minor Alarm LED Indicators



* Error Status Lamp. These lamps express an 8bit error code status.
Status codes are the sum of the hex values assigned to light the lamps.

Status (1-8) and MJ / MN Alarm LED Indicators Continued

Call Control Application Tasks

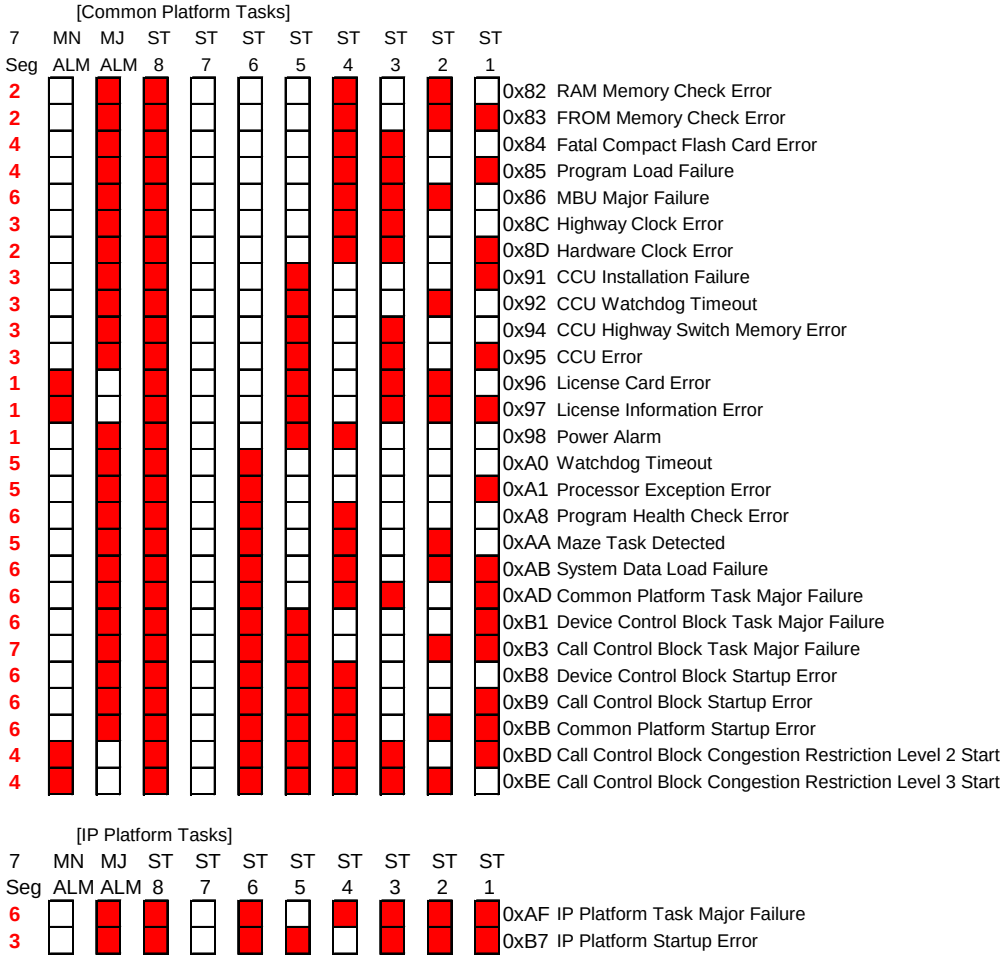
ERROR STATUS LIST

[Call Control Application Task]

7 Seg	MN ALM	MJ ALM	ST 8	ST 7	ST 6	ST 5	ST 4	ST 3	ST 2	ST 1	Hex	Error Reason
2		■							■		0x02	CCSU Hardware Error
7		■						■	■		0x06	C.C. Management Information Error
7		■						■	■	■	0x07	AP Memory Allocation Error
7		■					■				0x08	Dynamic Programming Error
7		■					■			■	0x09	AP Database Corrupted
7		■					■		■		0x0A	Application Overrun Error
2	■						■		■	■	0x0B	License Error
2	■						■	■			0x0C	Basic License Information
2	■						■	■		■	0x0D	Feature License Information (ACD)
2	■						■	■	■		0x0E	Feature License Information (ACD Event)
2	■						■	■	■	■	0x0F	Feature License Information (SMDR)
2	■					■					0x10	Feature License Information (Version UP)
2	■					■				■	0x11	Feature License Information (Outgoing Restriction)
2	■					■			■		0x12	Feature License Information (CSTA)
2	■					■			■	■	0x13	Software Upgrade License Information
4	■					■		■			0x14	System Congestion Start (C.C.)
7	■					■		■	■		0x16	Database Write Error
7	■					■		■		■	0x17	PPU Command Transmission Error
7	■					■	■				0x18	C.C. Management Information Error
7	■					■	■			■	0x19	Timer Management Information Error
7	■					■	■		■		0x1A	C.C. Management Information Error
7	■					■	■		■	■	0x1B	CTI Management Information Error
7	■					■	■	■			0x1C	Task Message Transmission Error
7	■					■	■	■		■	0x1D	Heap Management Error (C.C.)
9	■					■	■	■	■		0x1E	Configuration Failure Detected
F	■					■	■	■	■	■	0x1F	Campus Network Link Error
7		■			■	■	■		■		0x3A	Call Control Failure L1 (Unrecoverable) *Reserverd for V4.0
7	■				■	■	■		■	■	0x3B	Call Control Failure L2 (Unrecoverable) *Reserverd for V4.0
7		■			■	■	■	■		■	0x3D	Call Control Failure L1 (Recoverable) *Reserverd for V4.0
7	■				■	■	■	■	■		0x3E	Call Control Failure L2 (Recoverable) *Reserverd for V4.0

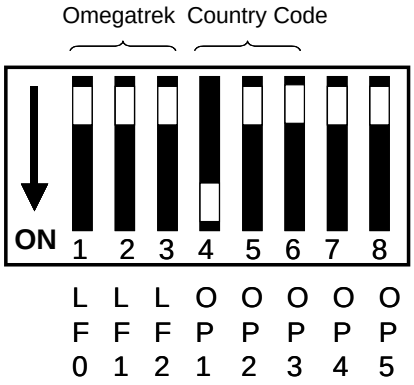
Status (1-8) and MJ / MN Alarm LED Indicators Continued

Common and IP Platform Tasks



Switch Settings

SW4



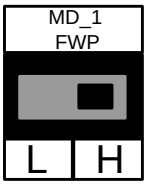
Switch Name	Position	Meaning
LF0 - LF2	OFF	Omegatrek
OP1 - OP3		US Country Code Settings
OP1	ON	
OP2	OFF	
OP3	OFF	
OP4	OFF	Future Use. Not Defined
OP5	OFF	Future Use. Not Defined

SW5



Switch	Position	Meaning
1	OFF	Factory Use Only. Do Not Modify
2	OFF	Factory Use Only. Do Not Modify

SW1



SwitchName	Position	Meaning
MD_1 FWP	L / H	Default = H Used for Software Writing

SW6



Switch Position	Meaning
Normal	Default = Normal Used for Software Writing
TEST	

RS-232C Serial Connectors

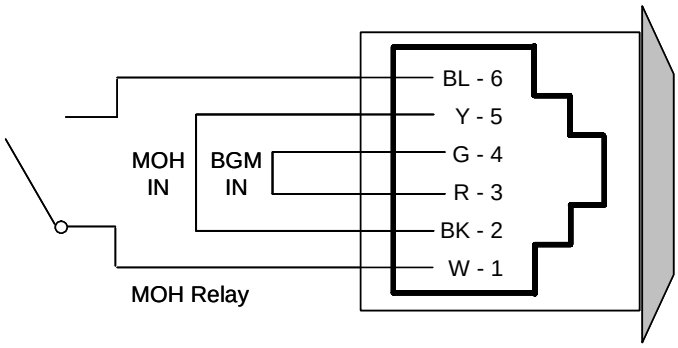
Item	Specification	Remarks
232C_1	Programmable Maintenance Port	Used for Local Serial Connection and SMDR Reporting
232C_2	Programmable Maintenance Port	

External Music on Hold and Background Music

The table and drawing below illustrate how to connect external Background Music (BGM) and Music on Hold (MOH) to the IX-CCU.

BGM / MOH Pin Outs

External BGM / MOH Connection:			
Pin Number:	Name:	Color:	Function:
1	MOH Relay (S)	White	MOH Device Control Relay (Stationary)
2	MOH (+)	Black	External MOH Source Input
3	BGM (+)	Red	External BGM Source Input
4	BGM (-)	Green	External BGM Source Input
5	MOH (-)	Yellow	External MOH Source Input
6	MOH Relay (M)	Blue	MOH Device Control Relay



Rotary Switch MOH (Music On Hold)



Switch Position	Meaning
1 - 10	Increase or Decrease Volume Level for Music On Hold (External)

Rotary Switch BGM (Background Music)



Switch Position	Meaning
1 - 10	Increase or Decrease Volume Level for Background Music (External)

IX-CCSU Central Control Sub Unit

Overview

The IX-CCSU Central Control Sub Unit is a daughterboard card that connects to the IX-CCU Central Control Unit card. The combination of the IX-CCU Central Control Unit and the IX-CCSU Central Control Sub Unit controls all system functions for the Time Division Multiplexing (TDM) and IP ports.

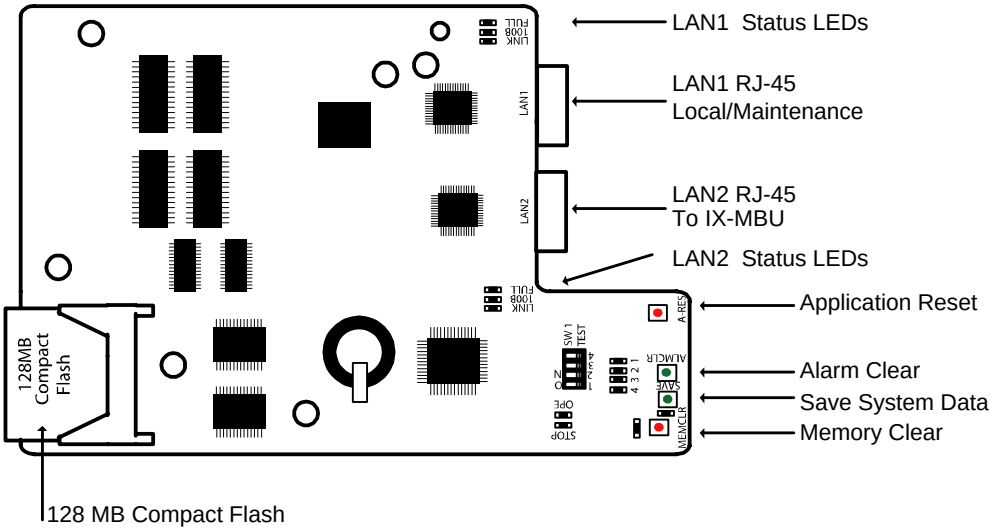
Features

- Main control for the Iwatsu Enterprise-CS
- 256 MB Compact Flash memory for storing the working and backup databases
  - By default, an automatic Database Backup is performed on a weekly basis.
- Two LAN ports (10/100Base-T) for system programming and maintenance
- Synchronized serial communications with the CPU on the IX-CCU card
- Full control of two RS-232C programmable maintenance ports located on the IX-CCU card

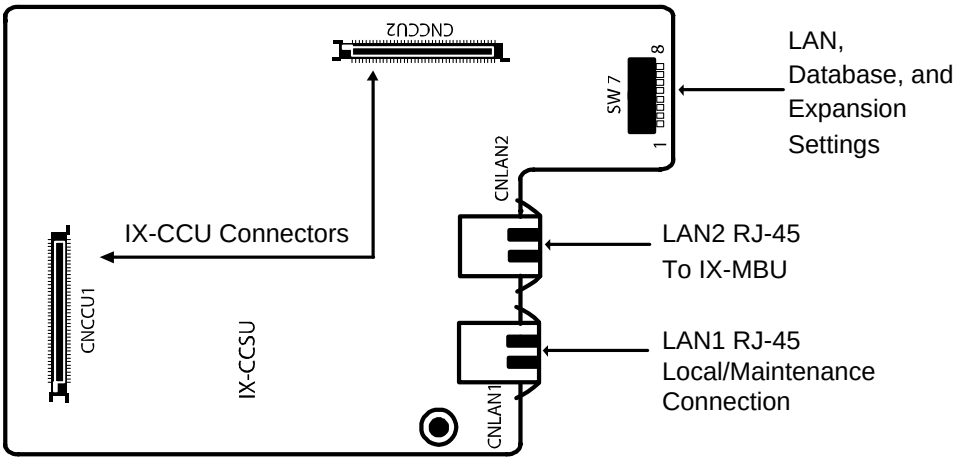
Technical Specifications

Model:	IX-CCSU	LED Indicators:	OPE (D9): Operating Status STOP (D3): Operating Status OSSI: See Table
Part No.:	101116		
Location:	IX-CCU Central Control Unit		
Connectors:	CNCF: Compact Flash CNCCU1: CNCCSU1 on the IX-CCU CNCCU2: CNCCSU2 on the IX-CCU LAN1: RJ-45 local or maintenance connection LAN2: RJ-45 to the IX-MBU CCU Connector		D4: SAVE (System Data) D10: MEMCLR (Memory Clear) LINK (D12): Physical connection to the LAN 100B (D16): IX-CCSU is operating on the LAN at 100 MBPS FULL (D11): Full-Duplex LINK (D18): Physical connection to the LAN 100B (D22): IX-CCSU is operating on the LAN at 100 MBPS FULL (D17): Full-Duplex
Push Switches:	MEMCLR: Memory Clear SAVE: Save System Data ALMCLR: Alarm Clear A-RES: Application Reset		
		Size:	4 11/16”H x 6 9/16”D x 5/8” W
		Weight:	.26 lbs / with 256MB CF = .28 lbs
DIP Switches:	SW 1 TEST (See table below) SW 7 (See table below)	Operating conditions:	32° F to 104° F 10 to 90% non-condensing humidity
Compact Flash Memory	IX-CFMU Part No. 101126-50 256 MB	FROM: SDRAM:	1 MB 128 MB

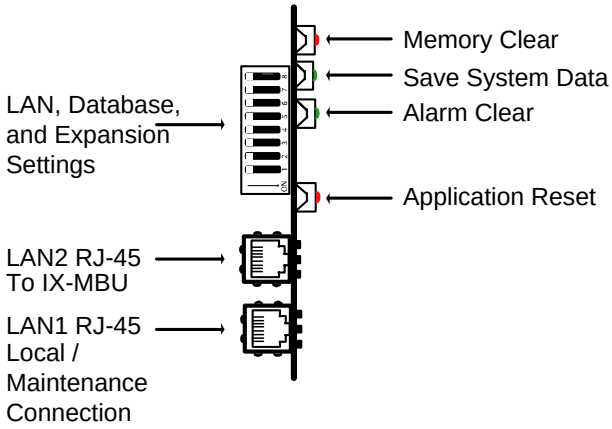
IX-CCSU Top View



IX-CCSU Bottom View



IX-CCSU Side View



LED Indicators

LED Name	Color	State	Meaning
OPE		ON	Normal Operation
		OFF	
		FLASHING	Starting Up
STOP		ON	
		OFF	Normal Operation
		FLASHING	Starting Up
OSSI (1-4)		ON / OFF	See Table
SAVE (D4)		ON	Saving System Data
		OFF	
MEMCLR (D10)		ON	Memory Clear button is being pressed during a system reset. (The LED will then turn off)
		OFF	
		FLASHING	Auto Recognition in Progress
LINK (D12)		ON	Link Synchronized
		OFF	
100B (D16)		ON	100 Mbps Operation
		OFF	10 Mbps Operation
FULL (D11)		ON	Full-Duplex Communication
		OFF	Half-Duplex Communication
LINK (D18)		ON	Link Synchronized
		OFF	
100B (D22)		ON	100 Mbps Operation
		OFF	10 Mbps Operation
FULL (D17)		ON	Full-Duplex Communication
		OFF	Half-Duplex Communication

OSSI 1-4 LED Inicators

Lamp Status (for this document)

☐ Off

D Dim Blinking

B Bright Blinking (Almost solid but wavers.)

S Solid

OSSI Lamp Usage

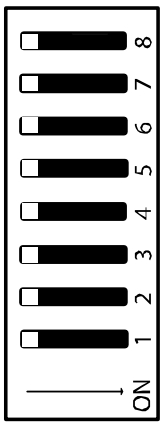
4	3	2	1	
☐	☐	☐	■	Vxworks and Platform Task Working Status
☐	☐	■	☐	Call Control Task Message (FIFO) Receiving Status
☐	■	☐	☐	Call Switching Application (VSCC) Task Working Status
■	☐	☐	☐	Call Control Application (CC) Task Working Status

OSSI Lamp Status

4	3	2	1	
☐	☐	☐	☐	Power Off
☐	☐	☐	D	Idle
☐	☐	☐	B	Platform Task Working e.g. Common or IP database up/down loading Database backup to CF FIFO message trasmission between platform and PPU
☐	☐	☐	S	Freezing at Platform Layer or Vxworks.
☐	☐	D	☐	FIFO message transmitting/receiving in low traffic
☐	☐	B	☐	FIFO message transmitting/receiving in high traffic
☐	☐	S	☐	Freezing or looping at EVDOS layer in call control task. Eventually an 'Overrun Error' occurs and the system resets.
☐	D	☐	☐	VSCC is working in low traffic.
☐	B	☐	☐	VSCC is working in high traffic.
☐	S	☐	☐	Freezing or looping at VSCC layer in call control task. Eventually an 'Overrun Error' occurs and the system resets.
D	☐	☐	☐	CC is working in low traffic.
B	☐	☐	☐	CC is working in high traffic.
S	☐	☐	☐	Freezing or looping at VSCC layer in call control task. Eventually an 'Overrun Error' occurs and the system resets.

Additional Information:
1) Dim blinking interval is 100ms on/off or faster.
2) Bright blinking seems almost solid but wavers.
3) Lit solid does not waver.
4) OSS 2, 3, and 4 do not light at the same time.

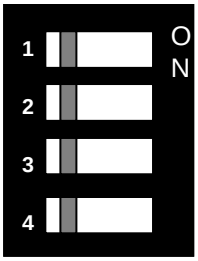
SW7 Switch Settings



Switch Name	Position	Meaning
1	ON / OFF	Factory Use Only. Do Not Modify
2	ON / OFF	Factory Use Only. Do Not Modify
3	ON / OFF	Not Defined
4	ON	Compact Flash Area = Backup Database
	OFF	Compact Flash Area = Current Database (Default)
5	ON	EXP: = IX-450 or ADIX-M
	OFF	EXP: = IX-R (Default) ADIX APS or ECS
6	ON	Half-Duplex Communications (For LAN 1)
	OFF	Full-Duplex Communications (Default) (For LAN 1)
7	ON	10 Mbps Operation (For LAN 1)
	OFF	100 Mbps Operation (Default) (For LAN 1)
8	ON	SW6, SW7 Effective (For LAN 1)
	OFF	Auto Negotiation in Progress (Default) (For LAN 1)

Note: LAN 2 Port (Connected to an IX-MBU) is Auto Negotiate Only

SW1 TEST Switch Settings



Switch Name	Position	Meaning
1-4	OFF	Factory Use Only. Do Not Modify.

Push Switch Settings



SwitchName	Meaning
MEMCLR	Memory Clear Switch
(Red Button)	ECS System Default (See Note Below)

Note:

System Default Procedure:

1. If power is ON, press and hold the POWER button until the SHUTDOWN LED begins to flash. The system will power down.
2. With the system powered down, press and hold the MEMCLR switch
3. Press the POWER button (Do not release the MEMCLR switch)
4. Observe the Power Supply: The MEMCLR LED will light (Red) and an "*L*" will appear in the STATUS window
5. Release the MEMCLR switch and wait until the LEDs stop flashing and the RUN LED remains ON
6. This procedure takes 3-4 minutes to complete



SwitchName	Meaning
SAVE	System Data Save Switch
(Green Button)	



SwitchName	Meaning
ALMCLR	Alarm Clear Switch
(Green Button)	



SwitchName	Meaning
A-RES	Do Not Use
(Red Button)	

Connections

Connection	Cable/Connector Type	Remarks
CNCCU1	DIN Connector	To CNCCSU1 Connector on IX-CCU
CNCCU2	DIN Connector	To CNCCSU2 Connector on IX-CCU
CNCF	DIN Connector	256MB Compact Flash Memory
LAN1	RJ-45 Connector	LAN Connection
LAN2	RJ-45 Connector	Connect to CCU Connector on the IX-MBU Card

IX-MBU Media Bridge Unit

The IX-MBU Media Bridge Unit is the interface between TDM voice data on the system highways and IP packet (TCP and RTP/UDP packet) data. The IX-MBU receives signaling commands and call control data from the IX-CCU card; then converts Pulse Code Modulation (PCM) voice data on a specified highway channel into IP packet data, and sends the IP packet data to the LAN.

The IX-MBU has a Layer 2 switch that processes IP-based data and voice traffic.

The IX-MBU base card can be expanded from 24 MBU to 96 MBU channels by adding up to three IX-EMBU Expansion Media Bridge Unit daughterboards to the IX-MBU card. Each IX-EMBU expands the capacity of the IX-MBU by 24 channels.

The IX-CME Gateway Controller will support two IX-MBU cards (192 channels). When two IX-MBU cards are used, only one LAN connection is required and the two IX-MBU cards are connected using the two cascade (CAS) ports.

Operating Conditions

1. An IX-MBU is not required when operating in a TDM-only configuration. (No IP telephone (except IX-12IPKTD/-E2 IP telephones) in the system and the ECS is not being configured for IP Campus Networking).
2. An IX-MBU is required when using Iwatsu IP telephones or when the ECS is configured for IP Campus Networking.
3. An IX-MBU is not required if an IX-12IPKTD/-E2 IP telephones are connected to an IX-8IPSUB card or IP Networking is enabled using the IX-8IPNET card. The IX-8IPSUB and IX-8IPNET cards are considered TDM resources.
4. If a cascade connection to a second IX-MBU card is utilized, only one LAN connection is required to support all devices.

IX-MBU Channel Usage

The IX-MBU channel usage chart lists the number of IX-MBU channels that are required based on the connection type: For example: SIP trunk to SIP station requires two IX-MBU channels

IX-MBU Channel Usage Chart

IX-MBU Channel Usage Chart Based on Connection Type								
	IPKT-VPN	IPKT-Non VPN	Digital KT	SIP SLT	SIP Trunk	SIP VM Port	TDM Trunk (PRI/Analog)	SIP Conference Ports
IPKT-VPN	0	2	1	2	2	2	1	2
IPKT-Non VPN	2	2	1	2	2	2	1	2
Digital KT	1	1	0	1	1	1	0	1
SIP SLT	2	2	1	2	2	2	1	2
SIP Trunk	2	2	1	2	2	2	1	2
SIP VM Port	2	2	1	2	2	N/A	1	2
TDM Trunk (PRI/Analog)	1	1	0	1	1	1	0	1
SIP Conference Ports	2	2	1	2	2	2	1	N/A
N/A = Connection Not Supported								

IX-MBU Upgrade to IX-MBU Software Version 1.22 Required

IX-MBU software version 1.22 is required with ECS software version 8.0 and ECS systems with ECS software version 4.0x or higher that have Iwatsu Enterprise TOL with SIP Voice Mail installed.

IX-MBU software version 1.22 is included with the ECS software version 8.0 image. IX-MBU software version 1.22 is not compatible with ECS software version 3.x and lower. Refer to the table below for IX-MBU compatibility based on ECS software version.

IX-MBU Software Version Chart

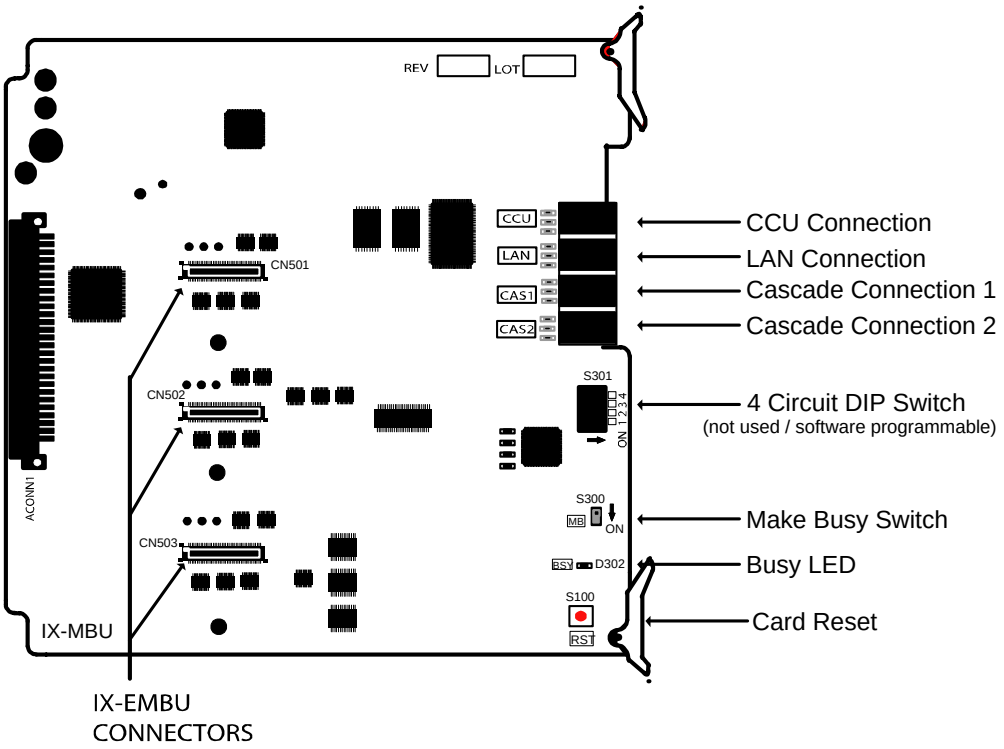
MBU Version	ECS Software Version												
	1.0	1.2	1.5	2.0	2.1	3.0	4.0	5.0	5.1	5.2	6.0	7.0	8.0
1.22							X	X	X	X	X	X	X
1.21							X	X	X	X	X	X	
1.20							X	X	X	X			
1.19							X	X	X				
1.18							X						
1.17					X	X							
1.10	X	X	X	X									
1.09	X	X	X										
1.08	X	X	X										
1.07	X	X	X										
X = Supported													

Important! IX-MBU software version 1.22 is required on all ECS systems with ECS software version 4.0x or higher that have Iwatsu Enterprise TOL with SIP Voice Mail installed.

Technical Specifications

Model:	IX-MBU	Indicators:	BSY: Make Busy
Part No.:	101270		
Location:	Any 96-Channel slot in the	LAN Status	
	IX-CME Gateway Controller	LED Bank:	LED1: Full / Half Duplex
Channels:	96 per card (24x4) with IX-EMBUs	(Per Connection)	LED2: 10 or 100 MBPS
Connectors:	ACONN1: IX-CMBDN CN200:		LED3: Linking / Processing / Not Linked
	CN501: IX-EMBU Daughterboard CN502: IX-EMBU Daughterboard CN503: IX-EMBU Daughterboard	Switches:	RST: CPU cold start MB: Make Busy 4-Circuit DIP Switch (not used)
RJ-45 Connectors:	CCU: To IX-CCU/CCSU LAN2	SDRAM: FROM:	16 MB 8 MB
	LAN: To 10/100 Ethernet	Size:	9 7/16”H x 5/8”W x9 1/16”D
	CAS1: Cascade connection IN from a cascaded IX-MBU	Weight:	.58 lbs
	CAS 2: Cascade connection OUT to a cascaded IX-MBU	Operating Conditions:	32^0 F to 104^0 F 10 to 90% non-condensing humidity

IX-MBU Side View



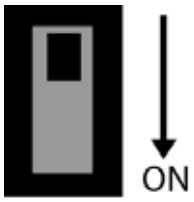
IX-MBU Switch Settings

DIP Switch



Switch Number	Function	Setting	Meaning
1	CCU LAN Port Setting(LAN-CCU)	OFF	DIP Switches not used. Switches must remain off. Switch options are software programmable via the Iwatsu Programmer.
2	Network Port Setting(LAN-NET)	OFF	
3	FROM Write(FROM)	OFF	
4	Subnet Setup(Subnet)	OFF	

Make Busy Slide Switch



Switch Name	Position	Meaning
MB	OFF	The IX-MBU is able to process calls (Default)
	ON	The IX-MBU is made busy for maintenance functions

Reset Button



Switch Name	Meaning
RST	Resets the IX-MBU (Cold Start) and reloads software on IX-MBU

Connectors

Connector	Connection	Remarks
ACONN1	IX-CMBDN to IX-MBU	Connection to IX-CMBDN Motherboard
CN501 CN502 CN503	IX-EMBU to IX-MBU IX-EMBU to IX-MBU IX-EMBU to IX-MBU	Adds 24 MBU channels to IX-MBU Adds 24 MBU channels to IX-MBU Adds 24 MBU channels to IX-MBU

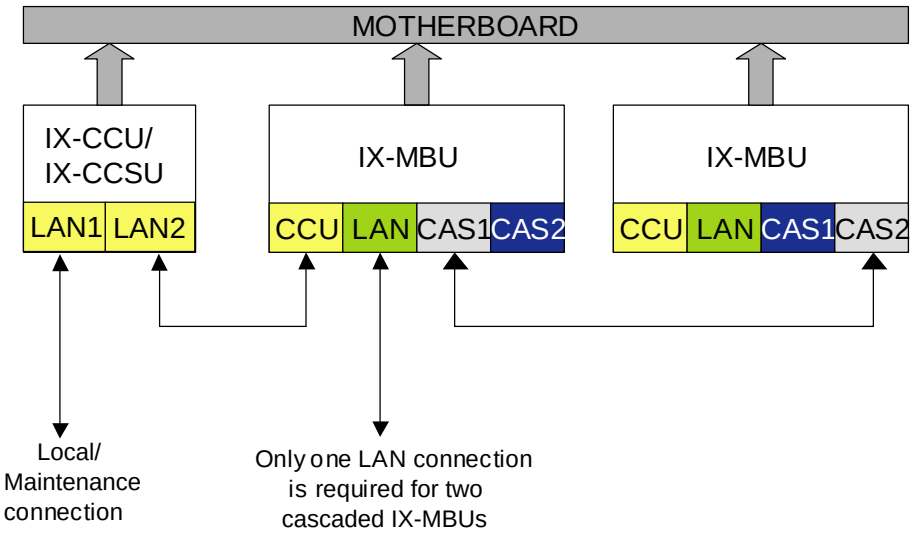
RJ-45 Connectors

RJ-45 Connector	Meaning	Remarks
CCU	Central Control Unit Port	Connects IX-MBU to the IX-CCU
LAN	10/100 External Ethernet Port	Only one LAN connection needed when cascading IX-MBU cards
CAS 1	Cascade Port 1	Connection OUT to another IX-MBU
CAS 2	Cascade Port 2	Connection IN from another IX-MBU

Operating Conditions for IX-MBU Cascade Connection

- IX-CCU (LAN2 port) to IX-MBU (CCU port) connection is made using a Unshielded Twisted-Pair (UTP) Straight-through cable The IX-MBU card receives call control data from the IX-CCU card. (Cable supplied with IX-MBU card).
- IX-MBU to LAN connection is made using a UTP Straight-through cable. Only one IX-MBU card needs to be connected to an external LAN through a switching hub. (Cable not supplied with IX-MBU card).
- IX-MBU to IX-MBU (CAS1 - CAS2) cascade connection is made using a UTP Straight-through cable. This connection is used when more than one IX-MBU card is in the system. (Cable supplied with IX-MBU card).

IX-MBU Cascade Connections



LED Status Indicators

LAN Status Indicators

Each of the four RJ-45 connectors on the IX-MBU card are associated with three LED status indicators. These LEDs are located directly behind each RJ-45 connector on the left side of the IX-MBU.

Number	LED Name	LED		Indicated State	Signal	Remarks
		Color	State			
1	FUL	Green	ON	Full-Duplex	L2SW: LED 1	L2SW: KS8995 Mode 0
			FLASHING	Data Collision		
			OFF	Half-Duplex		
2	100	Green	ON	100 Mbps	L2SW: LED 0	
			OFF	10 Mbps		
3	LIN	Green	ON	Linking	L2SW: LED 2	
			FLASHING	Processing Data (ACT)		
			OFF	Not Linked		

Make Busy LED

LED Name	Meaning	Remarks
BSY	ON (Red)	Busy
	OFF	Idle
	FLASHING (Red)	Make Busy

Features

1. TDM Interface

Item	Specification	Remarks
Clock Frequency	2.048 MHz	
Companding Standards	μ-law, A-law	
Number of Highways in System	3 (96 channels)	32 channels/highway
Number of TDM-to-Ethernet Conversion Channels	24 (IX-MBU only) with 24 more per sub-board	Up to three sub-boards can be added.

2. IP Packet Interface

Item	Specification	Remarks
Packet Data	RTP (every 20 msec)	
Jitter Buffers	Automatic Adaptation	
Vocoders	G.711, G.729A	

3. Echo Canceller

Item	Specification	Remarks
Standard	G.168-2000	
Echo Tail Length	64 msec	
Additional Features	NLP, Double-Talk Detection	

4. LAN Interface

Item	Specification	Remarks
Number of Interfaces	4	One for CCU connection, one for LAN connection, and two for WGU/MBU cascade connection
Transmission System	10/100Base	
Voice Priority Processing	IEEE802.IP	
	Two-Step Control by Tag	
Connector Type	RJ-45	
Auto-Negotiation	10/100 Mbps, Full-Duplex/ Half-Duplex Auto-Detection	
Cable Polarity	MDI/MDIX Auto-Switching	

5. Other

Item	Specification	Remarks
Fax Relay	N/A	T.38 not supported

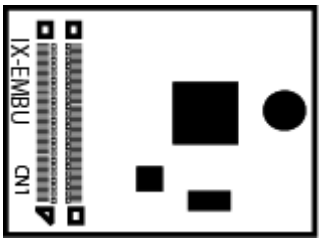
IX-EMBU Expansion Media Bridge Unit Daughterboard

The IX-EMBU Expansion Media Bridge Unit daughterboard is mounted on the side of the IX-MBU Media Bridge Unit. The IX-MBU can support up to three IX-EMBU daughterboards. Each IX-EMBU increases the channel capacity for system IP resources carried by the IX-MBU from a baseline of 24 channels up to 96 channels in 24 channel increments.

IX-EMBU Technical Specifications

Model:	IX-EMBU	Size:	1 3/4”H x 1/4”W x 1 1/2”D
Part No.:	101271	Weight:	0.125lbs.
Location:	IX-MBU		
Connectors:	CN1 Connection to IX-MBU		
Channels:	24 Channel expansion to IX-MBU card		

IX-EMBU Daughterboard Side View



ECS Expansion

There are three Expansion Interface cards required to fully expand the ECS to six cabinets.

1. The IX-EXPIFCM Expansion Interface card is in the IX-CME Gateway Controller to connect to the five expansion cabinets.
2. The IX-EXPIFE1 Expansion Interface card is used in the IX-EXPME1 Expansion Module
3. The IX-EXPIFE2 Expansion Interface card is used in the IX-EXPME2 Expansion Module.

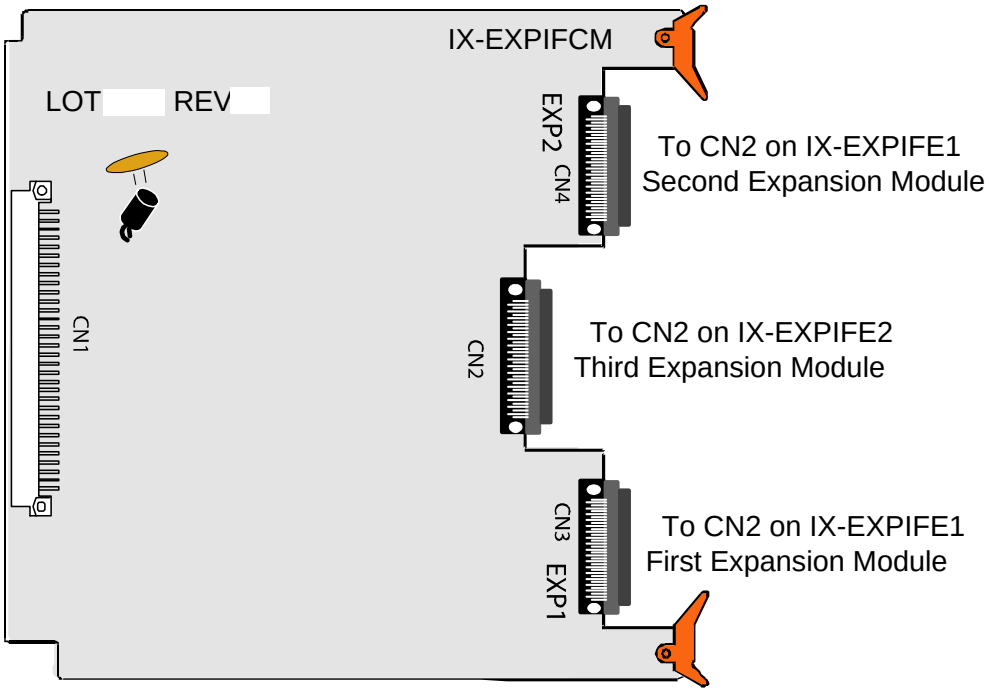
IX-EXPIFCM Expansion Card

The IX-EXPIFCM card is located in the EXT slot in the IX-CME Gateway Controller cabinet and connects to an IX-EXPIFE1 card in an IX-EXPME1 or an IX-EXPIFE2 card in an IX-EXPME2. These connections are made utilizing an IX-EXPMECBL or IX-CMECBL-L Expansion Cable.

IX-EXPIFECM Technical Specifications

Model:	IX-EXPIFCM	Connectors:	
Part No.:	040043	CN 1	IX-CMBDN Motherboard
Location:	EXT Slot in the IX-CME Gateway Controller	CN2 (EXP3)	IX-CMECBL-L Cable (68-pin cable) to connect the IX-CME to the third expansion module (IX-EXPME2)
		CN3 (EXP1)	IX-EXPMECBL Cable (50-pin cable) to connect the IX-CME to the first expansion module (IX-EXPME1)
		CN4 (EXP2)	IX-EXPMECBL Cable (50-pin cable) to connect the IX-CME to the second expansion module (IX-EXPME1)
Channels:	480 channels		
Highways:	15 one-way Highways	Size:	9 7/16”H x 5/8”W x9 1/16”D
		Weight:	.58 lbs

IX-EXPIFCM Common Module Interface Expansion Card



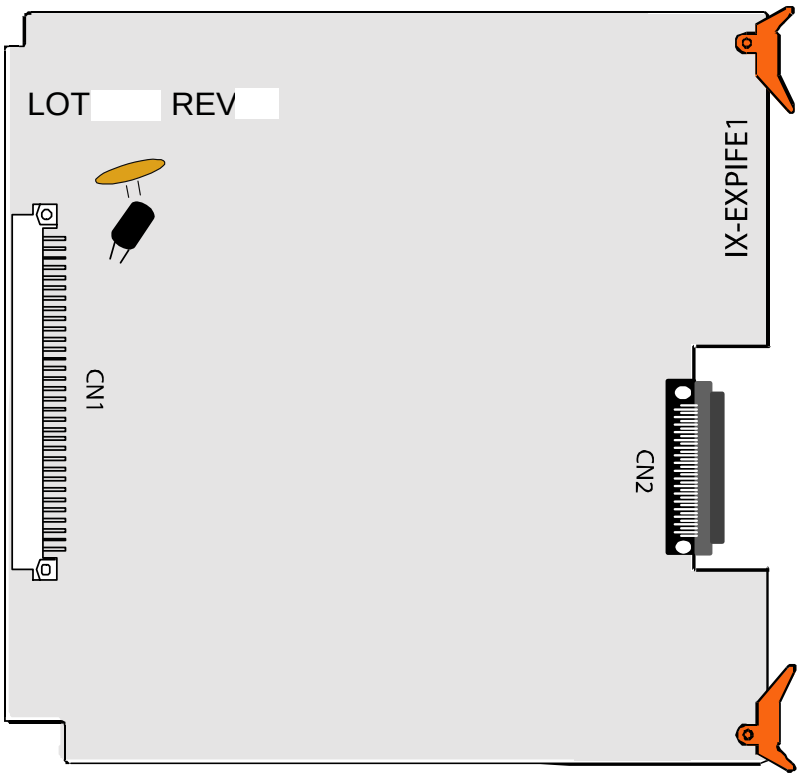
IX-EXPIFE1 Expansion Card

The IX-EXPIFE1 card is located in the EXT slot in the IX-EXPME1 Expansion Module. This card is used to connect to an IX-EXPIFECM card in the IX-CME Gateway Controller or to the IX-EXPIFE2 card in the IX-EXPME2. This connection is made utilizing an IX-EXPMECBL Expansion Cable.

IX-EXPIFE1 Technical Specifications

Model:	IX-EXPIFE1	Connectors:	
Part No.:	040044	CN 1	IX-CMBDN Motherboard
Location:	EXT Slot in the IX-EXPME1 Expansion Module	CN2	IX-EXPMECBL Cable (50-pin cable) to connect the IX-EXPIFECM card in the IX-CME Gateway Controller or to the IX-EXPIFE2 card in the IX-EXPME2 Expansion Module
Channels:	96 channels		
Highways:	3 one-way Highways	Size:	9 7/16”H x 5/8”W x9 1/16”D
		Weight:	.58 lbs

IX-EXPIFE1 Expansion Interface Card



IX-EXPIFE2 Expansion Card

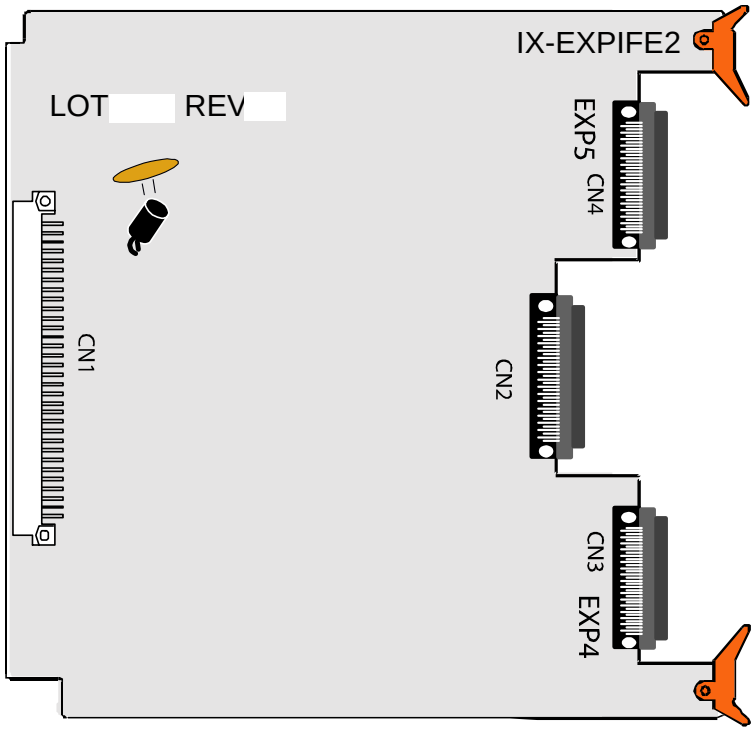
The IX-EXPIFE2 card is located in the EXT slot in the IX-EXPME2 Expansion Module and connects to the IX-EXPIFECM card in the IX-CME Gateway Controller or to an IX-EXPIFE1 card in an IX-EXPME1 Expansion Module. These connections are made utilizing an IX-EXPMECBL or IX-CMECBL-L Expansion Cable.

The IX-EXPIFE2 is used to connect expansion modules three, four, and five to the IX-CME Gateway Controller.

IX-EXPIFE2 Technical Specifications

Model:	IX-EXPIFECM	Connectors:	
Part No.:	040043	CN 1	IX-CMBDN Motherboard
Location:	EXT Slot in the IX-EXPME2 Expansion Module	CN2 (IX-CME)	IX-CMECBL-L Cable (68-pin cable) to connect to the IX-CME Gateway Controller
		CN3 (EXP4)	IX-EXPMECBL Cable (50-pin cable) to connect to the fourth expansion module (IX-EXPME1)
		CN4 (EXP5)	IX-EXPMECBL Cable (50-pin cable) to connect to the fifth expansion module (IX-EXPME1)
Channels:	288 channels		
Highways:	9 one-way Highways	Size:	9 7/16”H x 5/8”W x9 1/16”D
		Weight:	.58 lbs

IX-EXPIFE2 Expansion Interface Card



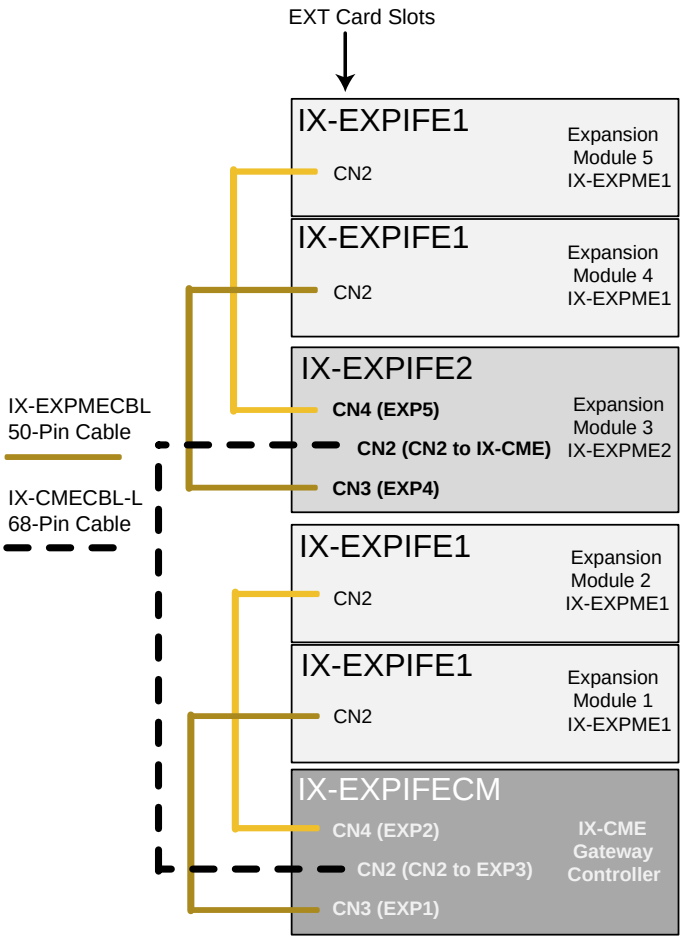
ECS Expansion Cables

The ECS Expansion Cables are the physical connections between the Expansion Modules (IX-EXPME1 and IX-EXPME2) and the IX-CME Gateway Controller. The Expansion Cables are connected to the Expansion Interface Cards located in the EXT slots in each shelf. the technical specifications and layout are listed below:

Expansion Cable Technical Specifications

Model:	IX-EXPMECBL	IX-CMECBLE-L
Part No.:	107579	107578
PINS:	50-Pin Cable	68-Pin Cable
Location:	IX-EXPIFECM to IX-EXPIFE1 IX-EXPIFE2 to IX-EXPIFE1	IX-EXPIFECM (CN2) to IX-EXPIFE2 (CN2)
Channels:	96 Channels	288 Channels
Highways:	3 two-way highways	9 two-way highways

Expansion Interface Cable Layout



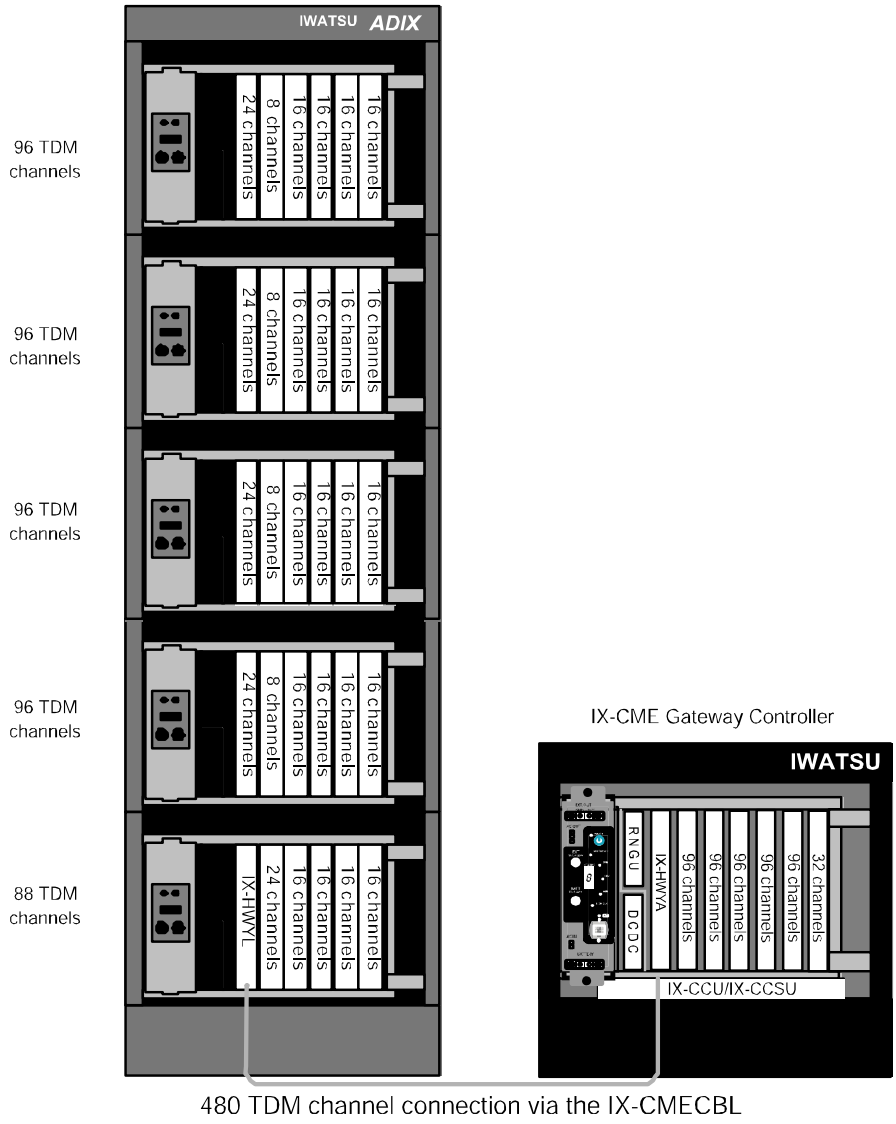
ECS to ADIX Expansion

IX-HWYA/L TDM Highway Expansion Cards

The Iwatsu Enterprise-CS supports up to 624 TDM ports. To access all 624 TDM ports, the use of the IX-HWYA/L TDM Highway Expansion cards are required. The IX-HWYA/L cards are used to connect between the ECS system and ADIX systems (including the ADIX APS, ADIX-M, and ADIX-450). This connection provides the ECS with 480 additional TDM ports.

An IX-CMECBL CME Cable is used to make the physical connection between the ECS and the ADIX telephone systems.

ECS to ADIX-APS Connection



480 TDM channel connection via the IX-CMECBL

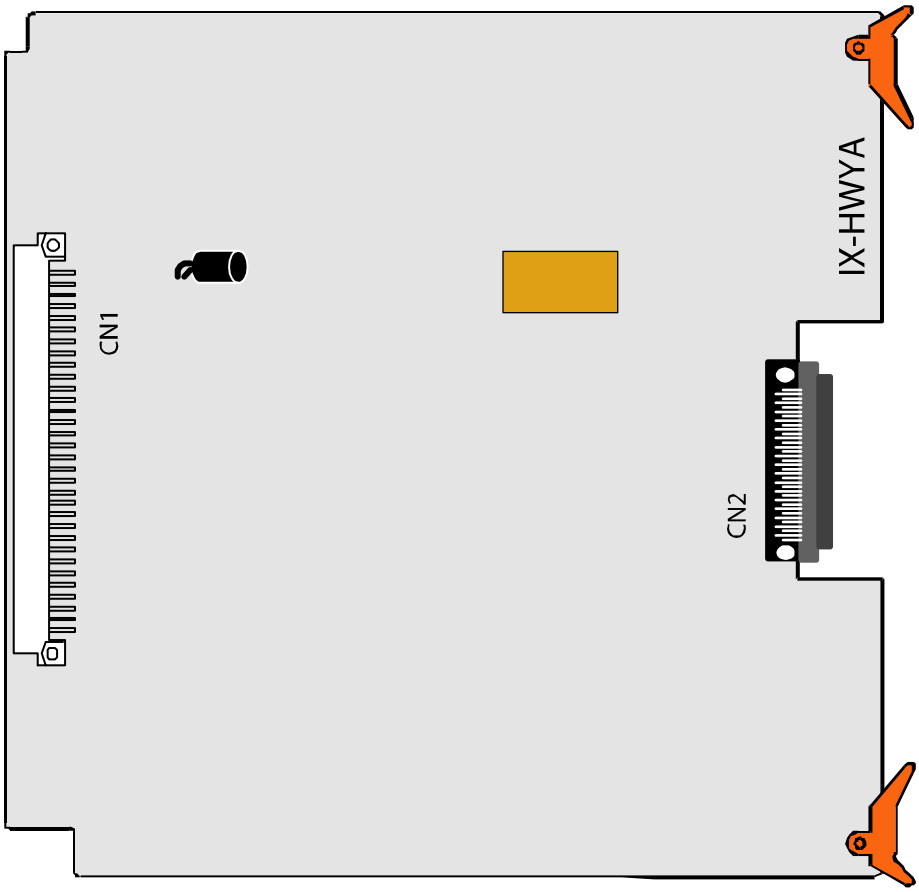
IX-HWYA TDM Highway Expansion Card

The IX-HWYA TDM Highway Expansion card is required to connect the ECS to the ADIX systems (including the ADIX APS, ADIX-M, and ADIX-450). The IX-HWYA card is located in the EXT slot in the IX-CME Gateway Controller cabinet of the ECS and connects to an IX-HWYL card located in the CPU slot in the ADIX cabinets. This connection is made utilizing an IX-CMECBL CME Cable.

IX-HWYA Technical Specifications

Model:	IX-HWYA	Connectors:	
Part No.:	101275	CN 201	IX-CMBDN Motherboard
Location:	EXT Slot	CN102	IX-CMECBL CME Cable
Channels:	480 channels		connected to IX-HWYL card
Highways:	15 two-way Highways	Size:	9 7/16”H x 5/8”W x9 1/16”D
		Weight:	.58 lbs

IX-HWYA Highway Controller Card



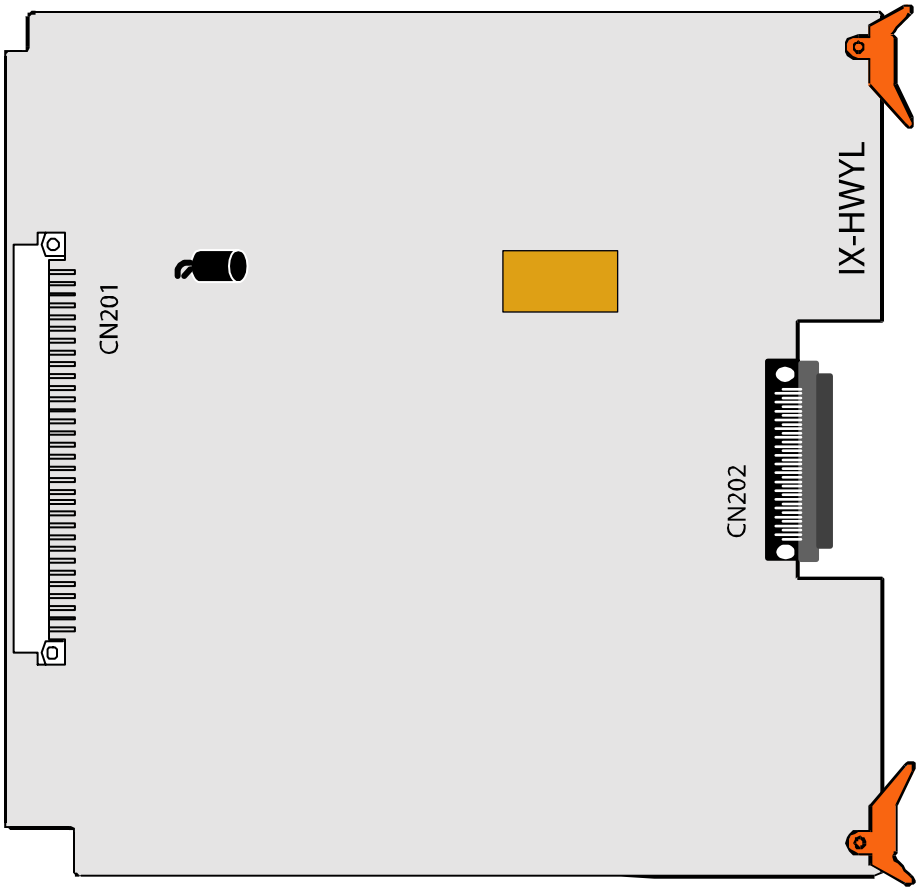
IX-HWYL TDM Highway Expansion Card

The IX-HWYL TDM Highway Expansion card is used in lieu of the CPU card located in the ADIX cabinet (including the ADIX APS, ADIX-M, and ADIX-450). The IX-HWYL card is connect to the IX-HWYA card located in the EXT slot in the IX-CME cabinet of the ECS. This connection is made utilizing the IX-CMECBL CME Cable.

IX-HWYL Technical Specifications

Model:	IX-HWYL	Connectors:	
Part No.:	101276	CN 201	IX-CMBDN Motherboard
Location:	CPU Slot in ADIX cabinet	CN 202	IX-CMECBL CME Cable
Channels:	480 channels		connected to IX-HWYA card
Highways:	15 two-way Highways	Size:	9 7/16”H x 5/8”W x9 1/16”D
		Weight:	.58 lbs

IX-HWYL Highway Controller Card



IX-CMECBL CME Cable

The IX-CMECBL CME Cable is the physical connection used between the IX-HWYA card located in the ECS and the IX-HWYL card located in the ADIX cabinet.

Two cable lengths are supported to connect the IX-HWYA and IX-HWYL cards. The IX-CMECBL-L (Long) cable is three meters (9 ft) long used for rack mount installations and the IX-CMECBL-S (Short) cable is a two meter (6 ft) long cable used for side-by-side installations.

IX-CMECBL Technical Specifications

Model:	IX-CMECBL-S / IX-CMECBL-L
Part No.:	107577 / 107578
Location:	IX-HWYA and IX-HWYL cards
Channels:	480 Channels
Highways:	15 two-way highways

IX-CMECBL CME Cable



Chapter 5

Station Cards

IX-8IPSUB IP Station Card

The IX-8IPSUB card is an 8-port card that accepts the 8-port IX-8EIPSUB card for a combined total of sixteen telephone ports. The IX-8IPSUB card connects to either a new or existing LAN (Local Area Network) and adds proprietary headers to the IP 'stack' to seemlessly provide support for the IX-12IPKTD and IX-12IPKTD-E2 IP telephones.

With the introduction of the IX-8IPSUB card, the ECS system enables users to migrate their existing key telephones to an IP-based system without discarding their previously purchased equipment.

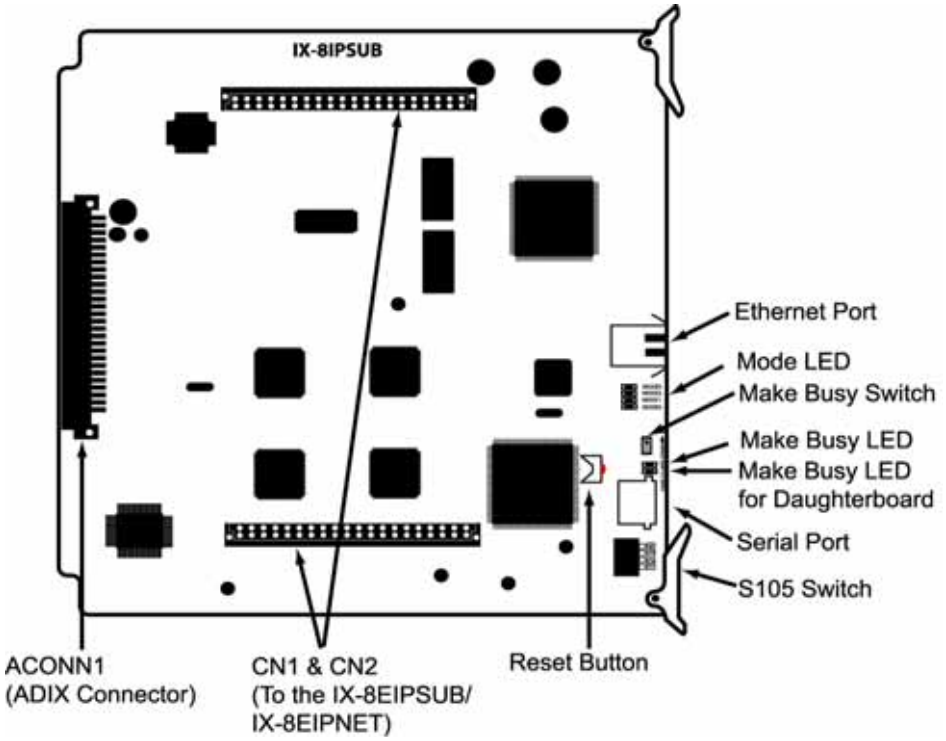
Although the IX-8IPSUB card must use a static IP address, it supports DHCP addressing of the IX-12IPKTD/-E2. The IX-12IPKTD/-E2 can be disconnected and reconnected anywhere on the subnet and will maintain all programming features.

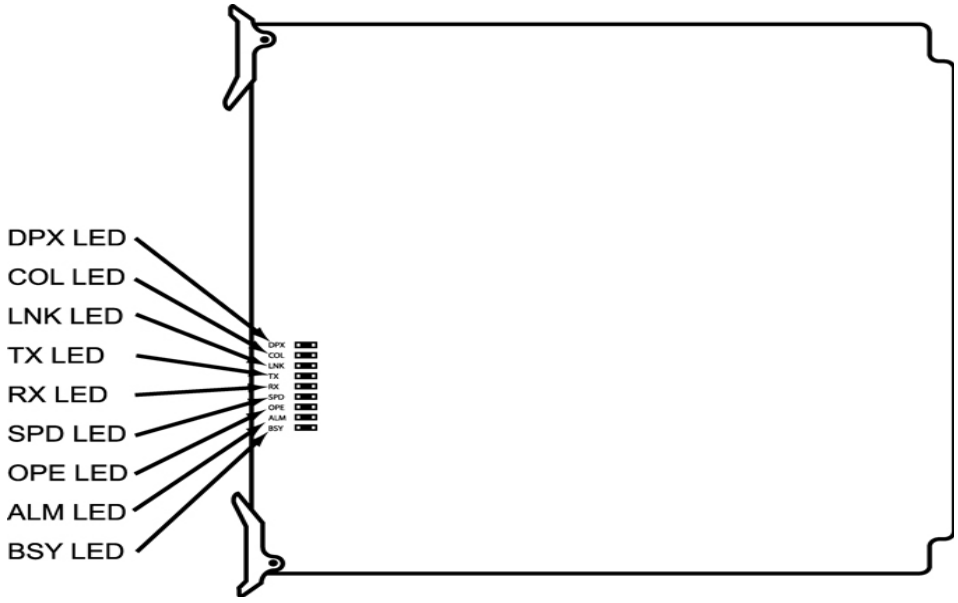
Physical Port Mapping Table

Card Installed in IX-CME Slot #	IP Station Ports	With IX-8EIPSUB
1	1-8	9-16
2	97-104	105-112
3	193-200	201-208
4	289-296	297-304
5	385-392	393-400
6	481-488	489-496

Technical Specifications

Model:	IX-8IPSUB	On Board Functions:	
Part No.:	101445	S105	See Table Below
Ports:	8 Ports	Reset (S1)	Resets the card
Required Network Ports:		MB (S101)	Makes the card busy
	1	Connectors:	
IP Addressing:		PC (CN_Serial 1)	Serial port for programming
	1 Static IP Address / card	Ethernet (CN601)	Ethernet port to the switch/router
Default IP Address:	192.168.0.1	CN1 & CN2	For the IX-8EIPNET/IX-8EIPSUB daughterboard
Subnet Mask:	255.255.255.0	ACONN1	IX-CME Connector
Default Gateway:	0.0.0.0		
Bandwidth Requirements (per Port):		Size:	9.0” high x 9.0” wide x 1” deep
Overhead	16 kbps	Weight:	.6 lbs
G.711	80 kbps total	Operating Temperature:	
G.729	24 kbps total		32° F to 104° F





IX-8IPSUB LED Indication

Mode LED Description

The IX-8IPSUB has four Mode LEDs. Because the IX-8IPNET and the IX-8IPSUB differ only by firmware, the Mode LEDs are important because they signify how the card is operating.

LED Status		Meaning
MODE0	MODE2	
ON	OFF	Indicates the card is a IX-8IPSUB/IX-8EIPSUB
OFF	ON	Indicates the card is a IX-8IPNET/IX-8EIPNET

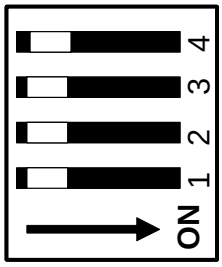
General LED Description

LED Name	Location on Card	Meaning
MBLED	Front	ON = IX-8IPSUB card is in use
		OFF = IX-8IPSUB card is functional
		Flashing = IX-8IPSUB card is in Make Busy Mode
EMBLED	IX-8EIPSUB or IX-8EIPNET	ON = IX-8EIPNET/IX-8EIPSUB card is in use
		OFF = IX-8EIPNET/IX-8EIPSUB card is functional
		Flashing = IX-8EIPNET/IX-8EIPSUB card is in Make Busy Mode
DPX	Back	ON = Full Duplex mode
		OFF = Half Duplex mode
COL	Back	ON = Packet Collision was detected
		OFF = No packet collision detected
LNK	Back	ON = The IX-8IPSUB is physically connected to the network
		OFF = The IX-8IPSUB in NOT physically connected to the network
TX	Back	ON = Data transmission occurred
		OFF = No data transmission is sent
RX	Back	ON = Receiving IP data
		OFF = Not receiving IP data
SPD	Back	ON = IX-8IPSUB sends and receives data at 100 mbps
		OFF = Card sends and receives data at 10 mbps
OPE	Back	ON = Card is operating
		OFF = Card is inoperative
ALM	Back	ON = Hardware is not functioning properly
		OFF = Normal card activity (hardware is functioning properly)
BSY	Back	Factory use only

Note: Because of the rate of incoming and outgoing IP traffic, the COL, TX and RX LEDs will appear to flash.

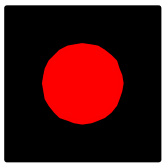
IX-8IPSUB Switch Settings

S105 Switch Bank



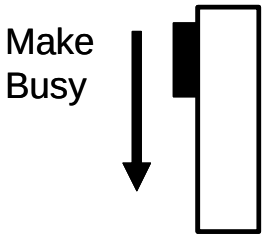
Switch Number	Position	
	OFF (Default)	ON
1	Factory Use Only; Remain OFF	Factory Use Only
2	Factory Use Only; Remain OFF	Factory Use Only
3	Factory Use Only; Remain OFF	Factory Use Only
4	Normal operation	PPU Program mode for updating IX-8IPSUB software

IX-8IPSUB Reset Switch (S1)



Switch Name	Meaning
RESET	Resets the card

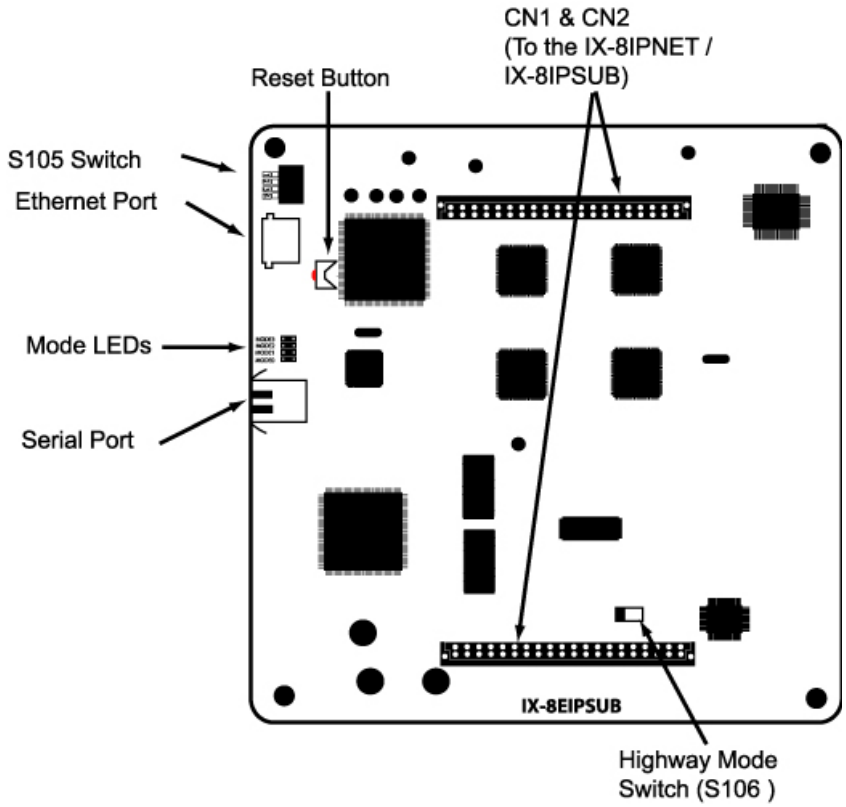
IX-8IPSUB Make Busy (S101)

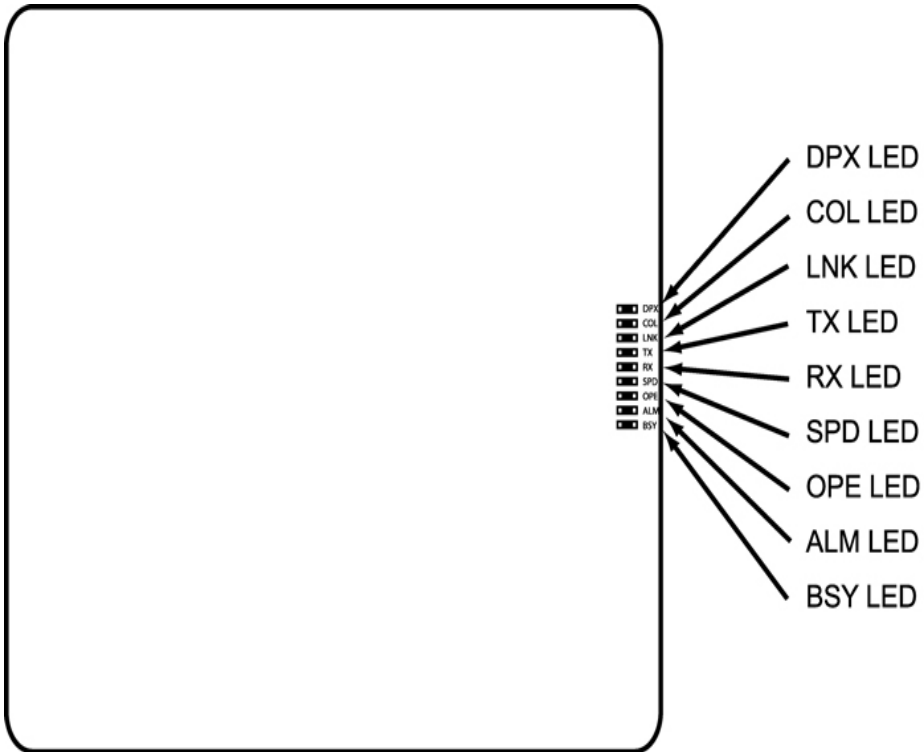


Switch Name	Position	Meaning
MB	UP	Card is able to make and receive calls
	DOWN	Card is made busy for maintenance functions.

IX-8EIPSUB IP Station Daughter Card

The IX-8EIPSUB is an 8-port IP station daughterboard. This card may be installed on an IX-8IPSUB or an IX-8IPNET via CN 1 and CN2 connectors. Because the IX-8EIPSUB receives power from either the IX-8IPSUB or an IX-8IPNET, it is a true daughterboard.





Technical Specifications

Model:	IX-8EIPSUB	On Board Functions:	
Part No.:	101446	On Board Functions:	
Location:	IX-8IPSUB or IX-8IPNET	S105	See Table Below
		Reset (S1)	Resets the card
Ports:	8 Ports	Connectors:	
Required Network Ports:		PC (CN_Serial 1)	Serial port for programming
	1 Static IP Address / card	Ethernet (CN601)	Ethernet port to the switch/router
Default IP Address:	192.168.0.1	CN1 & CN2	For the IX-8EIPNET/IX-8EIPSUB daughterboard
Subnet Mask:	255.255.255.0		
Default Gateway:	0.0.0.0		
Bandwidth Requirements (per Port):		Size:	9.0” high x 9.0” wide x 1” deep
Overhead	16 kbps	Weight:	.6 lbs
G.711	80 kbps total	Operating Temperature	
G.729	24 kbps total		32°F to 104°F
		Humidity	90% or less

IX-8EIPSUB LED Indication

Mode LED Description

The IX-8EIPSUB has four Mode LEDs. Because the IX-8EIPSUB and the IX-8EIPNET differ only by firmware, the Mode LEDs are important because they signify how the card operates.

LED Status		Meaning
MODE0	MODE2	
ON	OFF	Indicates the card is a IX-8IPSUB/IX-8EIPSUB
OFF	ON	Indicates the card is a IX-8IPNET/IX-8EIPNET

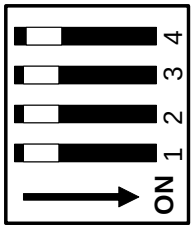
General LED Description

LED Name	Location on Card	Meaning
MBLED	Front	ON = IX-8IPSUB card is in use
		OFF = IX-8IPSUB card is functional
		Flashing = IX-8IPSUB card is in Make Busy Mode
EMBLED	IX-8EIPSUB or IX-8EIPNET	ON = IX-8EIPNET/IX-8EIPSUB card is in use
		OFF = IX-8EIPNET/IX-8EIPSUB card is functional
		Flashing = IX-8EIPNET/IX-8EIPSUB card is in Make Busy Mode
DPX	Back	ON = Full Duplex mode
		OFF = Half Duplex mode
COL	Back	ON = Packet Collision was detected
		OFF = No packet collision detected
LNK	Back	ON = The IX-8IPSUB is physically connected to the network
		OFF = The IX-8IPSUB in NOT physically connected to the network
TX	Back	ON = Data transmission occurred
		OFF = No data transmission is sent
RX	Back	ON = Receiving IP data
		OFF = Not receiving IP data
SPD	Back	ON = IX-8IPSUB sends and receives data at 100 mbps
		OFF = Card sends and receives data at 10 mbps
OPE	Back	ON = Card is operating
		OFF = Card is inoperative
ALM	Back	ON = Hardware is not functioning properly
		OFF = Normal card activity (hardware is functioning properly)
BSY	Back	Factory use only

Note: Because of the rate of incoming and outgoing IP traffic, the COL, TX, and RX LEDs will appear to flash.

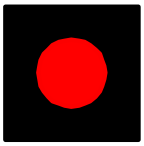
IX-8EIPSUB Switch Settings

S105 Switch Settings



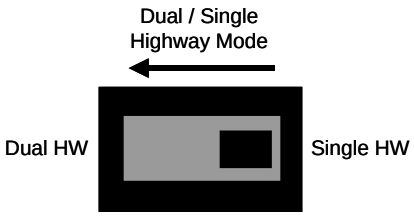
Switch Number	Position	
	OFF (Default)	ON
1	Normal operation	PPU Program mode for updating IX-8EIPSUB software
2	Factory Use Only; Remain OFF	Factory Use Only
3	Factory Use Only; Remain OFF	Factory Use Only
4	Normal operation	Logging mode; log data is sent to the serial port

IX-8EIPSUB Reset Switch (S1)



Switch Name	Meaning
RESET	Resets the card

IX-8EIPSUB S106 Highway Selection



Switch Name	Position	Meaning
S106	Right (Default)	Card is in Single Highway Mode
	Left	Card is in Dual Highway Mode (Not Supported in IX-CME)

IX-16PSUB-2 Digital Station Interface Card

The IX-16PSUB-2 is designed specifically for the IX-5800 and IX-5810 Digital telephones. This card is the interface for up to 16 IX-5800 and/or IX-5810 digital stations to the ECS. Each circuit of the IX-16PSUB-2 card is star connected to an IX-5800 or IX-5810 digital telephone using #22/24 AWG one-pair twisted cable. Single-pair cable allows for bi-directional data transmission or ping-pong transmission. The loop limit of ECS digital station terminals is 1,000 feet. The loop limit can be extended to a maximum of 2,100 feet using the optional IX-58EXTENDER installed in the KT.

Note:	Legacy Iwatsu telephones, including the IX-DDPH doorphone, DSS units, IX-12KTD-3, Platinum 18d and 12d are not compatible with the IX-16/8PSUB-2. These telephones may only be connected to the IX-16PSUB, IX-8PSUB, IX-408, or IX-044 cards.
Note:	The CCONN amphenol connector on the IX-16PSUB-2 is located at the same height as the CCONN connector on the IX-8PSUB-1, which is one inch higher than the CCONN connector on the IX-8PUB. This should be taken into consideration when running cable and installing the card in an ECS cabinet.

Physical Port Mapping Table

Card Installed in IX-CME Slot #	Digital Station Ports
1	1-16
2	97-112
3	193-208
4	289-304
5	385-400
6	481-496

IX-16PSUB-2 Capacity Per Shelf

Cabinet	Power Supply	Max Digital Station Ports per Shelf	Max IX-16PSUB-2 per Shelf
IX-CME	IX-PWSE Power Supply	72	4
IX-CME	IX-PWSES Power Supply	48	3
IX-EXPME1/2	IX-EXPWS Power Supply	72	4

Technical Specifications

Model: IX-16PSUB-2

Part No.: 040361

Location: Any ECS universal card slot

Ports: 16 per card

Loop Limit: 1000 feet

Max. 2,100 feet with IX-58EXTENDER on KT

8000 feet with two star repeaters

Circuit Protection:

Possitor/Thermistors PTH101-PTH801

Operating Power:

+24V: +20-28V
+5V: +4.5-5.5V
+3.3V: +3.0-3.6V

Transmission Speed:

16K

Compatible Station Terminals:

IX-5800, IX-5810 Digital Key Telephones

Connectors: ACONN - Motherboard

CCONN - Station Terminals

On-Board Functions: MBSW1

Indicators: MBLED1 = Make Busy Circuits 1-8
MBLED3 = Make Busy Circuits 9-16

Power Consumption:

Approx: 928 mW

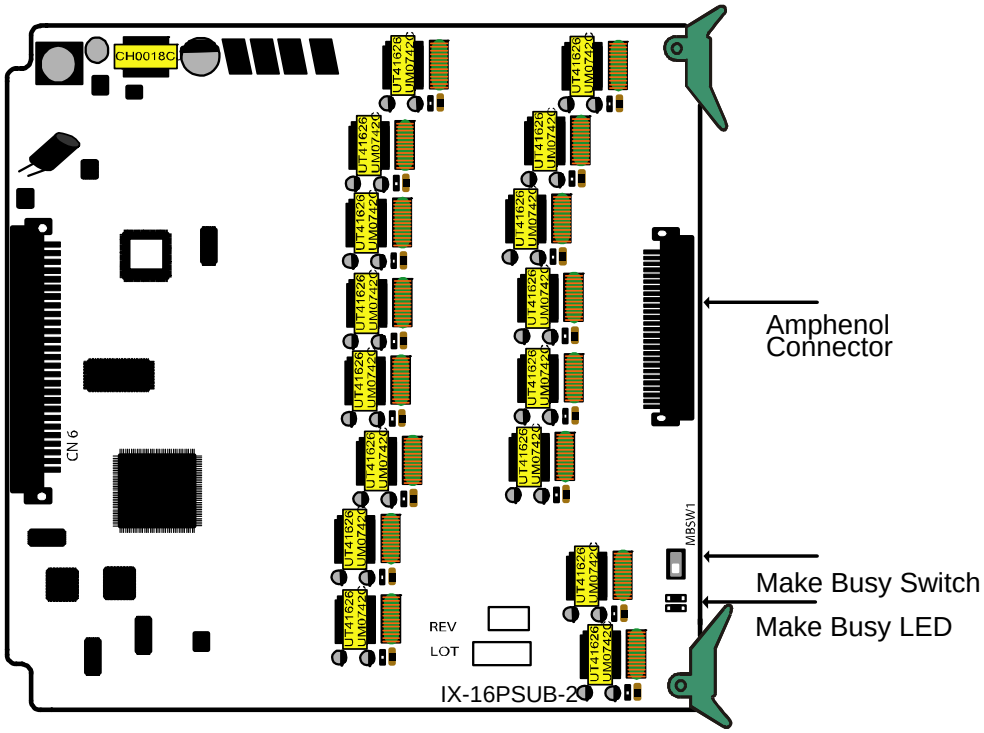
Power Supply Capacity:

Voltage: +20-28V
Maximum Supply Current: 300mA

Size: 9.7"H x 9.5"W x .75"D

Weight: 1 lb.

IX-16PSUB-2



IX-16PSUB-2 Amphenol and MDF Wiring Assignment

IX-16PSUB-2	Amphenol	MDF	CM	RJ11 Jack	
	Pin Number	Pin Number	Wire Color	Pin Number	Wire Color
1PT	26	1	W-BL	3	GN
1PR	1	2	BL-W	2	R
2PT	27	3	W-O	3	GN
2PR	2	4	O-W	2	R
3PT	28	5	W-GN	3	GN
3PR	3	6	GN-W	2	R
4PT	29	7	W-BR	3	GN
4PR	4	8	BR-W	2	R
5PT	30	9	W-SL	3	GN
5PR	5	10	SL-W	2	R
6PT	31	11	R-BL	3	GR
6PR	6	12	BL-R	2	R
7PT	32	13	R-O	3	GN
7PR	7	14	O-R	2	R
8PT	33	15	R-GN	3	GN
8PR	8	16	GN-R	2	R
9PT	34	17	R-BR	3	GN
9PR	9	18	BR-R	2	R
10PT	35	19	R-SL	3	GN
10PR	10	20	SL-R	2	R
11PT	36	21	BK-BL	3	GN
11PR	11	22	BL-BK	2	R
12PT	37	23	BK-O	3	GN
12PR	12	24	O-BK	2	R
13PT	38	25	BK-GN	3	GN
13PR	13	26	GN-BK	2	R
14PT	39	27	BK-BR	3	GN
14PR	14	28	BR-BK	2	R
15PT	40	29	BK-SL	3	GN
15PR	15	30	SL-BK	2	R
16PT	41	31	Y-BL	3	GN
16PR	16	32	BL-Y	2	R
	42	33	Y-O	3	GN
N/C	17	34	0-Y	2	R
:	:	:	:	:	:
N/C	50	49	V-SL	3	GN
	25	50	SL-V	2	R

IX-8PSUB-2 Digital Station Interface Card

The IX-8PSUB-2 is designed specifically for the IX-5800 and IX-5810 Digital telephones. This card is the interface for up to 8 IX-5800 and/or IX-5810 digital stations to the ECS. Each circuit of the IX-8PSUB-2 card is star connected to an IX-5800 or IX-5810 digital telephone using #22/24 AWG one-pair twisted cable. Single-pair cable allows for bi-directional data transmission or ping-pong transmission. The loop limit of ECS digital station terminals is 1,000 feet. The loop limit can be extended to a maximum of 2,100 feet using IX-58EXTENDER installed in the KT.

Note: Legacy Iwatsu telephones, including the IX-DDPH doorphone, DSS units, IX-12KTD-3, Platinum 18d and 12d are not compatible with the IX-16/8PSUB-2. These telephones may only be connected to the IX-16PSUB, IX-8PSUB, IX-408, or IX-044 cards.

Physical Port Mapping Table

Card Installed in IX-CME Slot #	Digital Station Ports
1	1-8
2	97-104
3	193-200
4	289-296
5	385-392
6	481-488

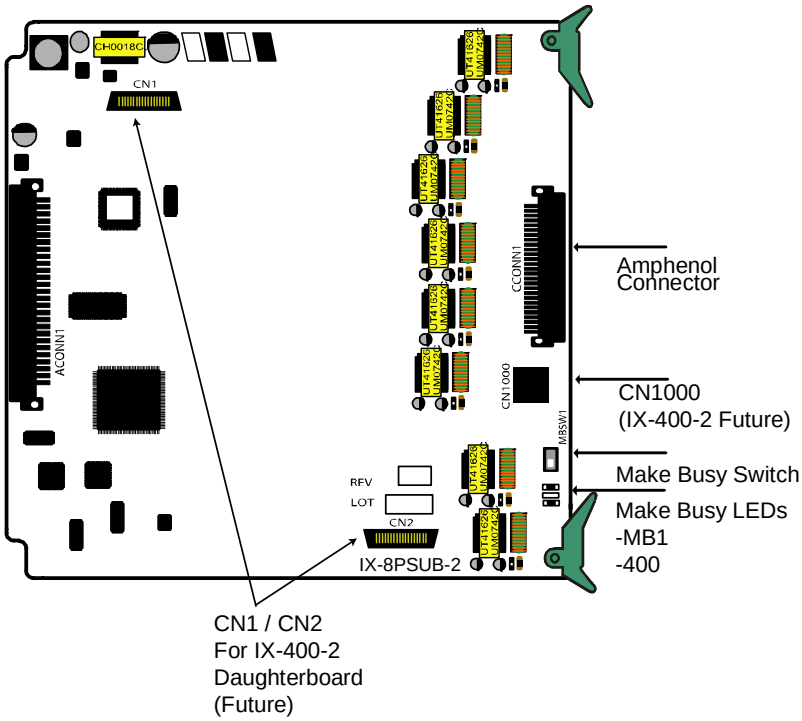
IX-8PSUB-2 Capacity Per Shelf

Cabinet	Power Supply	Max Digital Station Ports per Shelf	Max IX-8PSUB-2 per Shelf
IX-CME	IX-PWSE Power Supply	48	6
IX-CME	IX-PWSES Power Supply	48	6
IX-EXPME1/2	IX-EXPWS Power Supply	48	6

Technical Specifications

Model:	IX-8PSUB-2	Compatible Station Terminals:	
Part No.:	101443	IX-5800, IX-5810 Digital Key Telephones	
Location:	Any ECS universal card slot		
Ports:	8 per card	Connectors:	ACONN1 - Motherboard
Loop Limit:	1000 feet		CCONN1 - Station Terminals CN1 - IX-400-2 CN2 - IX-400-2 CN1000 - IX-400-2
	Max. 2,100 feet with IX-58EXTENDER on KT	On-Board Functions:	MBSW1
	8000 feet with two star repeaters	Indicators:	MBLED1 = Make Busy Circuits 1-8 400 = Make Busy IX-400-2
Circuit Protection:		Power Consumption:	
	Possitor/Thermistors PTH101-PTH801		Approx: 928 mW
Operating Power:		Power Supply Capacity:	
	+24V: +20-28V +5V: +4.5-5.5V +3.3V: +3.0-3.6V		Voltage: +20-28V Maximum Supply Current: 300mA
Transmission Speed:		Size:	9.7"H x 9.5"W x .75"D
	16K	Weight:	.75 lb.

IX-8PSUB-2



IX-8PSUB-2 Amphenol and MDF Wiring Assignment

Digital Station Ports	Amphenol Pin Number	MDF "66" Pin Number	25-Pair Wire Color	RJ11 Jack	
				Pin Number	Wire Color
1PT	26	1	W-BL	3	GN
1PR	1	2	BL-W	2	R
NC	27	3	W-O	4	Y
NC	2	4	O-W	1	BK
2PT	28	5	W-GN	3	GN
2PR	3	6	GN-W	2	R
NC	29	7	W-BR	4	Y
NC	4	8	BR-W	1	BK
3PT	30	9	W-SL	3	GN
3PR	5	10	SL-W	2	R
NC	31	11	R-BL	4	Y
NC	6	12	BL-R	1	BK
4PT	32	13	R-O	3	GN
4PR	7	14	O-R	2	R
NC	33	15	R-GN	4	Y
NC	8	16	GN-R	1	BK
5PT	34	17	R-BR	3	GN
5PR	9	18	BR-R	2	R
NC	35	19	R-SL	4	Y
NC	10	20	SL-R	1	BK
6PT	36	21	BK-BL	3	GN
6PR	11	22	BL-BK	2	R
NC	37	23	BK-O	4	Y
NC	12	24	O-BK	1	BK
7PT	38	25	BK-GN	3	GN
7PR	13	26	GN-BK	2	R
NC	39	27	BK-BR	4	Y
NC	14	28	BR-BK	1	BK
8PT	40	29	BK-SL	3	GN
8PR	15	30	SL-BK	2	R
NC	41	31	Y-BL	4	Y
NC	16	32	BL-Y	1	BK

When configured with the IX-400-2

Caller ID	Amphenol	MDF "66"	25-Pair	RJ11 Jack	
Ports	Pin Number	Pin Number	Wire Color	Pin Number	Wire Color
1T	42	33	Y-O	2	GN
1R	17	34	O-Y	1	R
2T	43	35	Y-GN	2	GN
2R	18	36	GN-Y	1	R
3T	44	37	Y-BR	2	GN
3R	19	38	BR-Y	1	R
4T	45	39	Y-SL	2	GN
4R	20	40	SL-Y	1	R

IX-8PSUB-1 Digital Station Card

The IX-8PSUB-1 card interfaces ECS digital station terminals to the ECS modules. Each circuit of the IX-8PSUB-1 card is star connected to an ECS digital telephone, DSS unit or attendant console using #22/24 AWG one-pair twisted cable. If a busy bypass unit or data module is used with an ECS digital telephone, #22/24 AWG two-pair twisted cable is required. Single-pair cable allows for bi-directional data transmission or *ping-pong* transmission. The loop limit of ECS digital station terminals is 1000 feet. The loop limit can be extended using star repeaters.

Note:

The main physical difference between the IX-8PSUB-1 and IX-8PSUB card is the location of the CCONN amphenol connector. The location of the connector is approximately one inch higher on the IX-8PSUB-1 card. This should be taken into consideration when running cable and installing the card in an ECS cabinet.

The IX-8PSUB has a 500 ft loop limit, while the IX-8PSUB-1 has a 1000 ft loop limit.

Technical Specifications

Model:	IX-8PSUB-1
Part No.:	101441
Location:	Any universal card slot
Ports:	8 per card
Loop Limit:	1000 feet
	1500 feet with one star repeater
	8000 feet with two star repeaters
Circuit Protection:	Possitor/Thermistors PTH101-PTH801
Additional Power Requirements:	None

Compatible Station Terminals:

IX-ATT (requires 2 ports), IX-BLF, IX-DSSA/DSSB, NR-A-50DSS

IX-BPAD, IX-12KTS/KTD-2, IX-24KTS/KTD, IX-VT,

IX-8KTS/KTD, IX-COMLINK, IX-DDPH, IX-MSGU

Non- Compatible Station Terminals:

IX-DMS

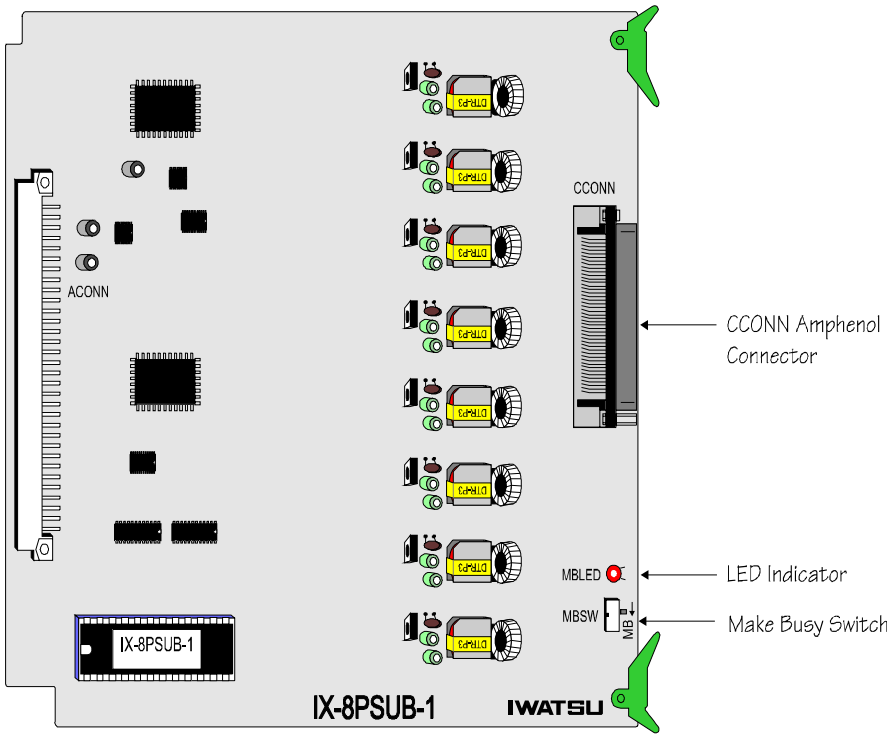
Note: The IX-DMS is only supported by the IX-8PSUB

Connectors:	ACONN - Motherboard
	CCONN - Station Terminals

On-Board Functions:

	MBSW - Make Busy
Indicators:	MBLED = Make Busy
Size:	9.7”H x 9.5”W x .75”D
Weight:	0.75 lbs.

8PSUB	Amphenol Pin Number	MDF Pin Number	CM Wire Color	RJ11 Jack	
				Pin Number	Wire Color
1PT	26	1	W-BL	3	GN
1PR	1	2	BL-W	2	R
FG	27	3	W-O	4	Y
FG	2	4	O-W	1	BK
2PT	28	5	W-GN	3	GN
2PR	3	6	GN-W	2	R
FG	29	7	W-BR	4	Y
FG	4	8	BR-W	1	BK
3PT	30	9	W-SL	3	GN
3PR	5	10	SL-W	2	R
FG	31	11	R-BL	4	Y
FG	6	12	BL-R	1	BK
4PT	32	13	R-O	3	GN
4PR	7	14	O-R	2	R
FG	33	15	R-GN	4	Y
FG	8	16	GN-R	1	BK
5PT	34	17	R-BR	3	GN
5PR	9	18	BR-R	2	R
FG	35	19	R-SL	4	Y
FG	10	20	SL-R	1	BK
6PT	36	21	BK-BL	3	GN
6PR	11	22	BL-BK	2	R
FG	37	23	BK-O	4	Y
FG	12	24	O-BK	1	BK
7PT	38	25	BK-GN	3	GN
7PR	13	26	GN-BK	2	R
FG	39	27	BK-BR	4	Y
FG	14	28	BR-BK	1	BK
8PT	40	29	BK-SL	3	GN
8PR	15	30	SL-BK	2	R
FG	41	31	Y-BL	4	Y
FG	16	32	BL-Y	1	BK
N/C	42	33	Y-O	3	GN
	17	34	0-Y	2	R
:	:	:	:	:	:
N/C	50	49	V-SL	3	GN
	25	50	SL-V	2	R


CCONN
ACONN
CCONN Amphenol
Connector
MBLED
LED Indicator
MBSW
MB
Make Busy Switch
IX-8PSUB-1
IX-8PSUB-1
IWATSU

IX-16PSUB Digital Station Interface Card

The IX-16PSUB card interfaces 16 ECS digital station terminals to the ECS. Each circuit of the IX-16PSUB card is star connected to an ECS digital telephone, IX-COMLINK, DSS unit or IX-ATT attendant console using #22/24 AWG one-pair twisted cable. If an IX-BPAD busy bypass unit is used with an ECS digital telephone, #22/24 AWG two-pair twisted cable is required. Single-pair cable allows for bi-directional data transmission or *ping-pong* transmission. The loop limit of ECS digital station terminals is 1000 feet. The loop limit can be extended using IX-4SLREPU star repeaters.

Note: The CCONN amphenol connector on the IX-16PSUB is located at the same height as the CCONN connector on the IX-8PSUB-1, which is one inch higher than the CCONN connector on the IX-8PUB. This should be taken into consideration when running cable and installing the card in an ECS cabinet.

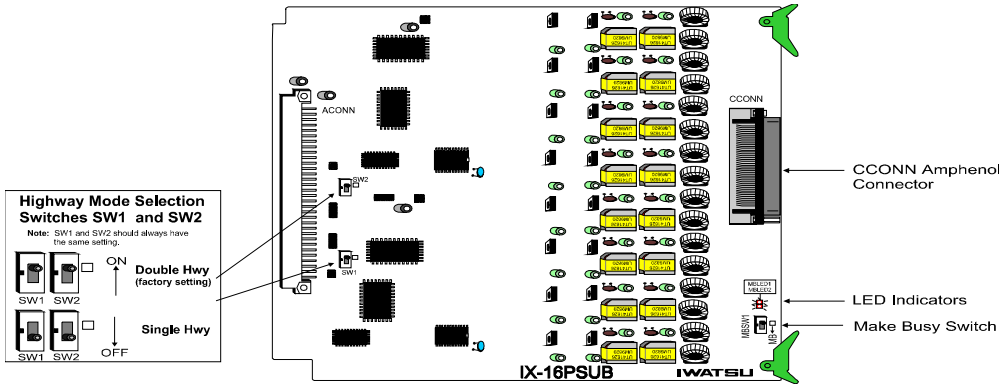
Physical Port Mapping Table

Card Installed in IX-CME Slot #	Digital Station Ports
1	1-16
2	97-112
3	193-208
4	289-304
5	385-400
6	481-496

Technical Specifications

Model:	IX-16PSUB	Compatible Station Terminals:	
Part No.:	040360		IX-ATT (requires 2 ports), IX-BLF, IX-DSS-A-2, NR-A-50DSS
Location:	Any universal card slot		IX-BPAD, IX-12KTS/KTD-2, IX-24KTS/KTD, IX-VT,
Ports:	16 per card		IX-8KTS/KTD, IX-COMLINK, IX-DDPH, IX-MSGU
Loop Limit:	1000 feet	Connectors:	ACONN - Motherboard
	1500 feet with one star repeater		CCONN - Station Terminals
	8000 feet with two star repeaters	On-Board Functions:	
Circuit			MBSW - Make Busy SW1/SW2 – Highway Mode Selectors
Protection:	Possitor/Thermistors PTH101-PTH801	Indicators:	MBLED1 = Make Busy Circuits 1-8
Additional Power Requirements:			MBLED2 = Make Busy Circuits 9-16
	None	Size:	9.7”H x 9.5”W x .75”D
		Weight:	1 lb.

Note: SW1 and SW2 should always have the same setting.



IX-16PSUB Capacity Per Shelf

Cabinet	Power Supply	Max Digital Station Ports per Shelf	Max IX-16PSUB per Shelf
IX-CME	IX-PWSE Power Supply	72	6

IX-16PSUB On-Board Switch Settings

Note: SW1 and SW2 must always have the same setting. When installed in the IX-CME, Set to OFF for Single Highway Mode. The IX-CME Gateway Controller cabinet does not support Dual Highway setting.

Cabinet	Card Position	SW1	SW2	Card Slots Required	Notes
IX-CME	96 or 32 Channel Card Slot	OFF	OFF	1	Single Highway Mode

IX-16PSUB Amphenol and MDF Wiring Assignment

IX-16PSUB	Amphenol	MDF	CM	RJ11 Jack	
	Pin Number	Pin Number	Wire Color	Pin Number	Wire Color
1PT	26	1	W-BL	3	GN
1PR	1	2	BL-W	2	R
2PT	27	3	W-O	3	GN
2PR	2	4	O-W	2	R
3PT	28	5	W-GN	3	GN
3PR	3	6	GN-W	2	R
4PT	29	7	W-BR	3	GN
4PR	4	8	BR-W	2	R
5PT	30	9	W-SL	3	GN
5PR	5	10	SL-W	2	R
6PT	31	11	R-BL	3	GR
6PR	6	12	BL-R	2	R
7PT	32	13	R-O	3	GN
7PR	7	14	O-R	2	R
8PT	33	15	R-GN	3	GN
8PR	8	16	GN-R	2	R
9PT	34	17	R-BR	3	GN
9PR	9	18	BR-R	2	R
10PT	35	19	R-SL	3	GN
10PR	10	20	SL-R	2	R
11PT	36	21	BK-BL	3	GN
11PR	11	22	BL-BK	2	R
12PT	37	23	BK-O	3	GN
12PR	12	24	O-BK	2	R
13PT	38	25	BK-GN	3	GN
13PR	13	26	GN-BK	2	R
14PT	39	27	BK-BR	3	GN
14PR	14	28	BR-BK	2	R
15PT	40	29	BK-SL	3	GN
15PR	15	30	SL-BK	2	R
16PT	41	31	Y-BL	3	GN
16PR	16	32	BL-Y	2	R
	42	33	Y-O	3	GN
N/C	17	34	0-Y	2	R
:	:	:	:	:	:
N/C	50	49	V-SL	3	GN
	25	50	SL-V	2	R

IX-4LSREPU Card

The IX-4LSREPU card is a four-port star repeater unit. It is used to extend the maximum distance from the ECS system to the ECS digital key telephone. Each IX-4LSREPU card may be used to extend the loop limit of four digital telephones. One IX-4LSREPU card port will extend the maximum station distance up to 2000 feet from the ECS system. A second IX-4LSREPU card port will extend the station distance to a maximum of 8500 feet from the ECS system. Depending on the configuration of the IX-4LSREPU, a 24 VDC local power source may be required.

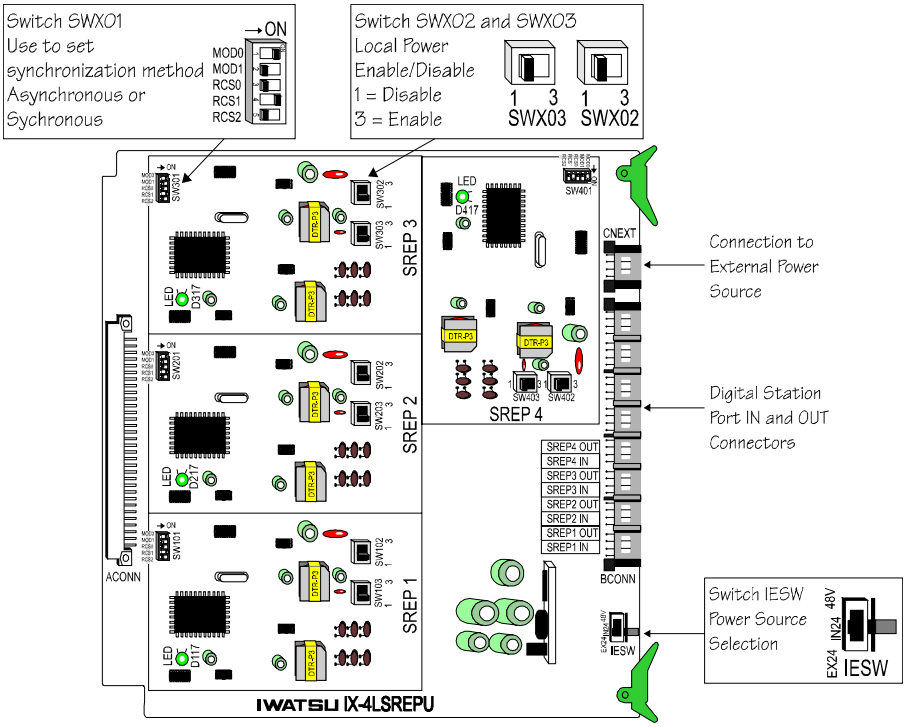
At a remote location, it may be placed in an IX-CME Gateway Control module and operates without a IX-CCU card. Additionally, the IX-4LSREPU offers several advantages over the IX-SREP Star Repeater:

- Uses the system IX-PWSE Power Supply instead of requiring a individual power supply.
- Each card supports up to four digital station ports.

Technical Specifications

Model:	IX-4LSREPU
Part No.:	101565
Location:	Any universal card slot
	IX-CME Gateway Controller
Circuits:	4 per card
Loop Limit:	2000 feet with one IX-4LSREPU circuit
	8500 feet with two IX-4LSREPU circuits
Power Requirements:	
	IX-PWSE
Compatible Station Terminals:	
IX-12KTS/KTD-2, IX-24/8KTS/KTD, IX-BPAD,	
IX-VT, IX-DSSA-2/B, IX-DCKT900	
IX-DDPH, IX-DCKT900	

Connectors:	ACONN - Motherboard
	CCONN - Amphenol Connector
	BCONN - Station IN/OUT Connectors
On-Board Switches:	
IESW	Power Source Selection (Always IN24)
SWX01	Synchronization Method
SWX02, SWX03 - Local Power Enable/ Disable	
Indicators:	LED D117-D417 = Synchronization
	Indication for circuits 1-4 respectively
Software Settings:	
	None
Size:	9.7”H x 9.5”W x .75”D
Weight:	0.75 lbs.


Switch SWX01
Use to set
synchronization method
Asynchronous or
Sychronous
ON
MOD0
MOD1
RCS0
RCS1
RCS2
Switch SWX02 and SWX03
Local Power
Enable/Disable
1 = Disable
3 = Enable
1 3 1 3
SWX03 SWX02
SREP 3
SREP 2
SREP 1
SREP 4
LED
D317
D217
D117
DTR-P3
SW401
SW403
SW402
CNEXT
Connection to
External Power
Source
Digital Station
Port IN and OUT
Connectors
SREP4 OUT
SREP4 IN
SREP3 OUT
SREP3 IN
SREP2 OUT
SREP2 IN
SREP1 OUT
SREP1 IN
BCONN
ACONN
IESW
Switch IESW
Power Source
Selection
48V
IN24
EX24
IESW
IWATSU IX-4LSREPU

IX-4LSREPU BCONN Connector Pin Assignment

Pin Number	Function	Description
32	Ground	
31	Ground	
30	SREP4 OUT-2	Circuit 4, Wire 2, Out to Digital Telephone or 2nd IX-4LSREPU
29	SREP4 OUT-1	Circuit 4, Wire 1, Out to Digital Telephone or 2nd IX-4LSREPU
28	Ground	
27	Ground	
26	SREP4 IN-2	Circuit 4, Wire 2, From PSUB port or 1st IX-4LSREPU
25	SREP4 IN-1	Circuit 4, Wire 1, From PSUB port or 1st IX-4LSREPU
24	Ground	
23	Ground	
22	SREP3 OUT-2	Circuit 3, Wire 2, Out to Digital Telephone or 2nd IX-4LSREPU
21	SREP3 OUT-1	Circuit 3, Wire 1, Out to Digital Telephone or 2nd IX-4LSREPU
20	Ground	
19	Ground	
18	SREP3 IN-2	Circuit 3, Wire 2, From PSUB port or 1st IX-4LSREPU
17	SREP3 IN-1	Circuit 3, Wire 1, From PSUB port or 1st IX-4LSREPU
16	Ground	
15	Ground	
14	SREP2 OUT-2	Circuit 2, Wire 2, Out to Digital Telephone or 2nd IX-4LSREPU
13	SREP2 OUT-1	Circuit 2, Wire 1, Out to Digital Telephone or 2nd IX-4LSREPU
12	Ground	
11	Ground	
10	SREP2 IN-2	Circuit 2, Wire 2, From PSUB port or 1st IX-4LSREPU
9	SREP2 IN-1	Circuit 2, Wire 1, From PSUB port or 1st IX-4LSREPU
8	Ground	
7	Ground	
6	SREP1 OUT-2	Circuit 1, Wire 2, Out to Digital Telephone or 2nd IX-4LSREPU
5	SREP1 OUT-1	Circuit 1, Wire 1, Out to Digital Telephone or 2nd IX-4LSREPU
4	Ground	
3	Ground	
2	SREP1 IN-2	Circuit 1, Wire 2, From PSUB port or 1st IX-4LSREPU
1	SREP1 IN-1	Circuit 1, Wire 1, From PSUB port or 1st IX-4LSREPU

IX-408 Digital Station/Caller ID Trunk Card

The IX-408 card consists of eight digital station (PSUB-1) ports and four Caller ID trunk (CITK) ports. This card may be inserted in any 96 or 32 channel card slots in the IX-CME Gateway Controller cabinet.

Digital Station (PSUB-1) Ports. The eight PSUB-1 ports are terminated on ports 1-8 of the card slot. They interface ECS digital station terminals to the IX-CME Gateway Controller.

Each PSUB-1 circuit of the IX-408 card is connected to an ECS digital telephone or DSS unit using #22/24 AWG one-pair twisted cable. If a busy bypass unit is used with an ECS digital telephone, #22/24 AWG two-pair twisted cable is required. The loop limit of ECS digital station terminals is 1000 feet. The loop limit can be extended using star repeaters.

Caller ID Trunk (CITK) Ports. The four CITK ports are terminated on ports 9-12 of the card slot. They interface central office/PBX circuits that provide caller ID service to the IX-CME Gateway Control Module.

Physical Port Mapping Table

Card Installed in IX-CME Slot #	Digital Station Ports	Caller ID Ports
1	1-8	9-12
2	97-104	105-108
3	193-200	201-204
4	289-296	297-300
5	385-392	393-396
6	481-488	489-492

Technical Specifications

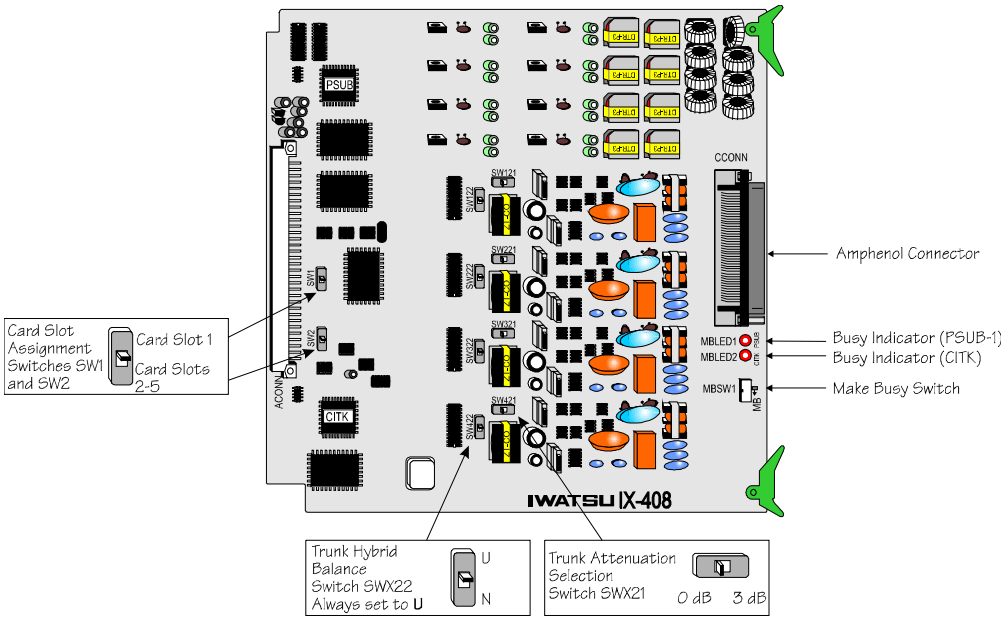
Model:	IX-408	Connectors:	ACONN - Motherboard
Part No.:	040330		CCONN - Amphenol Connector
Location:	Any Universal Slot		BCONN - Station IN/OUT Connectors
			Card Slot Assignment
		On-Board Switches:	
Ports:	12 per card	MBSW1	Make Busy
Loop Limit:	1000 feet	SW1/SW2	CCONN - Amphenol Connector
	1500 feet with one star repeater	SW121-SW421	Trunk Attenuation Selection
	8000 feet with two star repeaters	SWX02, SWX03 -	Local Power Enable/Disable
		SW122-SW422	Trunk Hybrid Balance
Power Requirements:		Indicators:	MBLED1 = PSUB-1 Busy Indication
	None		MBLED2 = CITK Busy Indication
Compatible Station Terminals:		Software Settings:	
IX-12KTD/KTS-3, IX-12KTS/KTD-2, IX-24/8KTS/KTD, IX-BPAD, IX-VT, IX-DSSA-2/B,DCKT970, X-DDPH,			Class 01.03 Port Definition; Class 01.04 Configuration
IX-MSGU		Size:	9.7”H x 9.5”W x .75”D
Trunk Impedance:		Weight:	1.05 lbs.
Fixed at 600 Ohms			

Configuring the IX-408 Card

SW1 and SW2 are used to identify whether the IX-408 card is installed in a Single or Dual Highway card slot in the system. Since the IX-CME Gateway Controller cabinet only contains Single Highway slots, the IX-408 card must be configured for Single Highway. Both SW1 and SW2 must be set to the SLOT 1 position.

Important! Both SW1 and SW2 must be set to the same position. For example, if SW1 is set to SLOT1, SW2 must also be set to SLOT1. The card will not function properly if these two switches are not in the same position.

Card Position	SW1	SW2
IX-CME (Any 96 or 32 channel card slot)	SLOT 1	SLOT 1
IX-CMM/L Slot 1	SLOT 1	SLOT 1
IX-CMM/L Slot 2-5	SLOT 2	SLOT 2
Any other cabinet (IX-EXPMM, IX-CM, IX-EXPM)	SLOT 1	SLOT 1
IX-EXPML Slot 1 and 2	SLOT 1	SLOT 1
IX-EXPML Slot 3-6	SLOT 2	SLOT 2


PSUB
CCONN
Amphenol Connector
MBLED1
MBLED2
Busy Indicator (PSUB-1)
Busy Indicator (CITK)
MBSW1
Make Busy Switch
CITK
IWATSU IX-408
Card Slot Assignment Switches SW1 and SW2
Card Slot 1
Card Slots 2-5
Trunk Hybrid Balance Switch SWX22 Always set to U
U
N
Trunk Attenuation Selection Switch SWX21
0 dB
3 dB

IX-408 Pin Assignment

The table below lists the pin-out of the connector CCONN on IX-408 card.

Digital Station Ports	Amphenol Pin Number	MDF “66” Pin Number	25-Pair Wire Color	RJ11 Jack	
				Pin Number	Wire Color
1PT	26	1	W-BL	3	GN
1PR	1	2	BL-W	2	R
FG	27	3	W-O	4	Y
FG	2	4	O-W	1	BK
2PT	28	5	W-GN	3	GN
2PR	3	6	GN-W	2	R
FG	29	7	W-BR	4	Y
FG	4	8	BR-W	1	BK
3PT	30	9	W-SL	3	GN
3PR	5	10	SL-W	2	R
FG	31	11	R-BL	4	Y
FG	6	12	BL-R	1	BK
4PT	32	13	R-O	3	GN
4PR	7	14	O-R	2	R
FG	33	15	R-GN	4	Y
FG	8	16	GN-R	1	BK
5PT	34	17	R-BR	3	GN
5PR	9	18	BR-R	2	R
FG	35	19	R-SL	4	Y
FG	10	20	SL-R	1	BK
6PT	36	21	BK-BL	3	GN
6PR	11	22	BL-BK	2	R
FG	37	23	BK-O	4	Y
FG	12	24	O-BK	1	BK
7PT	38	25	BK-GN	3	GN
7PR	13	26	GN-BK	2	R
FG	39	27	BK-BR	4	Y
FG	14	28	BR-BK	1	BK
8PT	40	29	BK-SL	3	GN
8PR	15	30	SL-BK	2	R
FG	41	31	Y-BL	4	Y
FG	16	32	BL-Y	1	BK

Caller ID	Amphenol	MDF “66”	25-Pair	RJ11 Jack	
Ports	Pin Number	Pin Number	Wire Color	Pin Number	Wire Color
1T	42	33	Y-O	2	GN
1R	17	34	O-Y	1	R
2T	43	35	Y-GN	2	GN
2R	18	36	GN-Y	1	R
3T	44	37	Y-BR	2	GN
3R	19	38	BR-Y	1	R
4T	45	39	Y-SL	2	GN
4R	20	40	SL-Y	1	R

IX-044 SLT Station/Digital Station Card

The IX-044 card consists of four single-line (SUBS-2) ports and four digital station (PSUB-1) ports. Four caller ID trunk (CITK) ports may be added to the IX-044 with the addition of an IX-400 daughterboard. This card may be installed in any 96 or 32 channel card slot in the IX-CME Gateway Controller cabinet.

Single-Line Station (SUBS-2) Ports. The four SUBS-2 ports are terminated on ports 1-4 of the card slot. They interface analog station terminal devices to the IX-CME.

This card supports standard 2500-type single-line telephones and 500-type single-line telephones. Each SUBS-2 port has a built-in DTMF receiver. Single-line devices must be connected to an IX-044 SUBS-2 port using #24 AWG one-pair (twisted or quad) wire. The loop resistance of single-line telephones is fixed at 600 Ohms (including SLT resistance). An IX-RNGUM additional power supply is required to provide 90 VAC for SLT ringing.

Digital Station (PSUB-1) Ports. The four PSUB-1 ports are terminated on ports 9-12 of the card slot. They interface ECS digital station terminals to the IX-CME.

Each PSUB-1 circuit on the IX-044 card is connected to an ECS digital telephone or DSS unit using #22/24 AWG one-pair twisted cable. If a busy bypass unit is used with an ADIX digital telephone, #22/24 AWG two-pair twisted cable is required. The loop limit of ECS digital station terminals is 1000 feet. The loop limit can be extended using star repeaters.

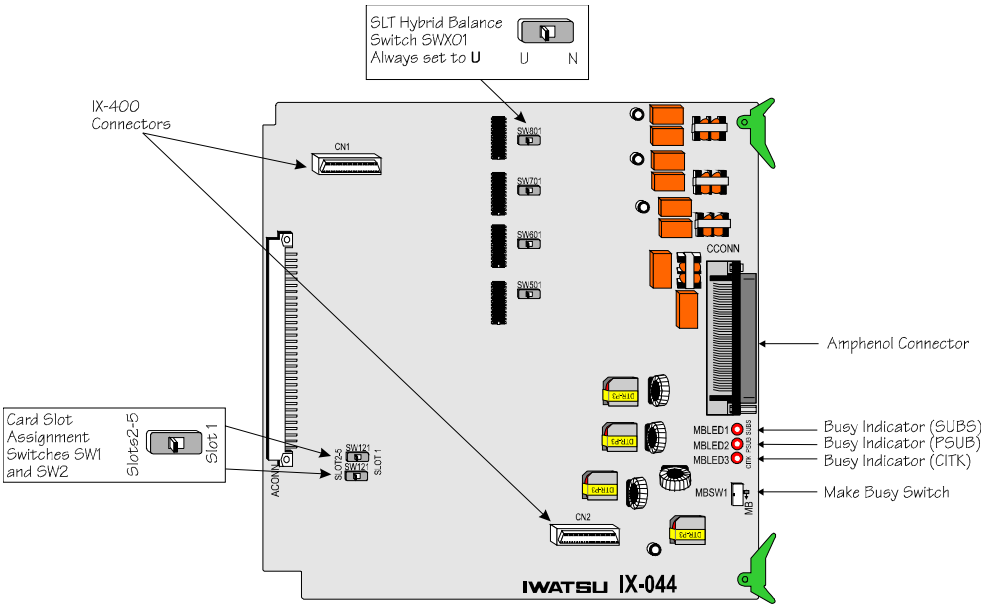
Physical Port Mapping Table

Card Installed in IX-CME Slot #	SLT Ports	Digital Station Ports	Caller ID Ports
1	1-4	9-12	17-20
2	97-100	105-108	113-116
3	193-196	201-204	209-212
4	289-293	297-300	305-308
5	385-388	393-396	401-404
6	481-484	489-492	497-500

Technical Specifications

Model:	IX-044
Part No.:	040350
Location:	Without IX-400 - Any IX-CMM card slot
	With IX-400 - IX-CMM Card Slot 1
Ports:	8 per card (12 with IX-400)
Loop Limit:	Single-Line ports
	600 Ohms (including SLT resistance)
	Digital Station Ports 1000 feet
	1500 feet with one star repeater 8000 feet with two star repeaters
Additional Power Requirements:	
	IX-RNGUM for SLT ringing
Compatible Station Terminals:	
Single Line:	2500 SLTs, 500 SLTs
Digital:	IX-12KTS/KTD-2, IX-24/8KTS/KTD,
	IX-VT, IX-DSSA-2/B, IX-DCKT900
	IX-BPAD, IX-DDPH, IX-MSGU

Connectors:	ACONN - Motherboard
	CCONN - Amphenol Connector
	CN1 and CN2 - IX-400 Daughterboard
On-Board Switches:	
	MBSW1 - Make Busy
	SW1 and SW2 - Card Slot Assignment
	SW501-SW801 - SLT Hybrid Balance (Always set to U)
Indicators:	MBLED1 = SUBS-2 Busy Indication
	MBLED2 = PSUB-1 Busy Indication
	MBLED2 = CITK Busy Indication
Software Settings:	
	Class 01.03 Port Definition; Class 01.04 Configuration
Size:	9.7”H x 9.5”W x .75”D
Weight:	.80 lbs.



Configuring the IX-044 Card

SW1 and SW2 are used to identify whether the IX-044 card is installed in a Single or Dual Highway card slot in the system. Since the IX-CME Gateway Controller cabinet only contains Single Highway slots, the IX-044 card must be configured for Single Highway. Both SW1 and SW2 must be set to the SLOT 1 position.

Important!	SW1 and SW2 must both be set to the same position. For example, if SW1 is set to SLOT1, SW2 must also be set to SLOT1. The card will not function properly if these two switches are not in the same position.

Card Position	SW1	SW2
IX-CME (Any 96 or 32 channel card slot)	SLOT 1	SLOT 1
IX-CMM/L Slot 1	SLOT 1	SLOT 1
IX-CMM/L Slot 2-5	SLOT 2-5	SLOT 2-5
Any other cabinet (IX-EXPMM/L, IX-CM, EX-EXPM)	SLOT 1	SLOT 1

IX-044 Card and IX-400 Daughterboard Pin Assignment

The table below lists the pin-out of the connector CCONN on IX-044 card.

Single Line Ports	Amphenol Pin Number	MDF "66" Pin Number	25-pair Wire Color	RJ11 Jack	
				Pin Number	Wire Color
1T	26	1	W-BL	3	GN
1R	1	2	BL-W	2	R
FG	27	3	W-O	4	Y
FG	2	4	O-W	1	BK
2T	28	5	W-GN	3	GN
2R	3	6	GN-W	2	R
FG	29	7	W-BR	4	Y
FG	4	8	BR-W	1	BK
3T	30	9	W-SL	3	GN
3R	5	10	SL-W	2	R
FG	31	11	R-BL	4	Y
FG	6	12	BL-R	1	BK
4T	32	13	R-O	3	GN
4R	7	14	O-R	2	R
FG	33	15	R-GN	4	Y
FG	8	16	GN-R	1	BK
Digital Station Ports	Amphenol Pin Number	MDF Pin Number	CM Wire Color	RJ11 Jack	
				Pin Number	Wire Color
5PT	34	17	R-BR	3	GN
5PR	9	18	BR-R	2	R
FG	35	19	R-SL	4	Y
FG	10	20	SL-R	1	BK
6PT	36	21	BK-BL	3	GN
6PR	11	22	BL-BK	2	R
FG	37	23	BK-O	4	Y
FG	12	24	O-BK	1	BK
7PT	38	25	BK-GN	3	GN
7PR	13	26	GN-BK	2	R
FG	39	27	BK-BR	4	Y
FG	14	28	BR-BK	1	BK
8PT	40	29	BK-SL	3	GN
8PR	15	30	SL-BK	2	R
FG	41	31	Y-BL	4	Y
FG	16	32	BL-Y	1	BK
CITK Ports	Amphenol Pin Number	MDF "66" Pin Number	25-pair Wire Color	RJ11 Jack	
				Pin Number	Wire Color
1CT	42	33	Y-O	2	GN
1CR	17	34	O-Y	1	R
2CT	43	35	Y-GN	2	GN
2CR	18	36	GN-Y	1	R
3CT	44	37	Y-BR	2	GN
3CR	19	38	BR-Y	1	R
4CT	45	39	Y-SL	2	GN
4CR	20	40	SL-Y	1	R

IX-8DSUB Card for ZT-D and ZT-S Telephone Connection

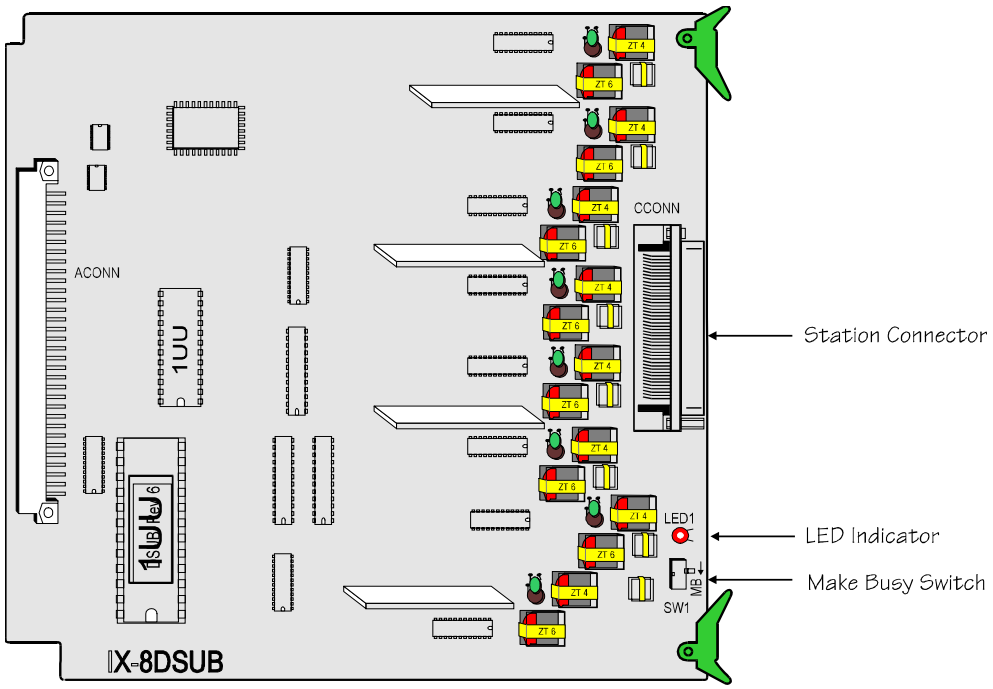
The IX-8DSUB card interfaces up to eight ZT-D and ZT-S analog station terminals to the ECS common module. Each port is star connected to a ZT-D or ZT-S station terminal using #22/24 three-pair twisted cable. The loop limit of ZT-D and ZT-S telephones is fixed at 1000 feet.

Note: The off-hook voice-announce feature does not operate at ZT-D telephones connected to an IX-8DSUB card with a PPU version before Rev. 6.

Technical Specifications

Model:	IX-8DSUB	Compatible Station Terminals:	
Part No.:	101460		ZT24D/K, ZT-12D/K, ZT-8K/D,
Location:	Any universal card slot		ZT-6D/K, ZS-6KTD/S
Ports:	8 per card	On-Board Functions:	
Loop Limit:	1000 feet		SW1 - Make Busy
Circuit		Indicators:	LED = Busy
Protection:	Possitor/Thermistors PTH101-PTH801	Connectors:	ACONN - Motherboard
Additional Power Requirements:			CCONN - ZT-D/ZT-S stations
	None	Size:	9.7”H x 9.5”W x 1.0”D
		Weight:	0.9 lbs.

IX-8DSUB	Amphenol Pin No.	MDF Pin No.	CM Wire Color	RJ11 Jack	
				Pin No.	Wire Color
1PT	26	1	W-BL	3	GN
1PR	1	2	BL-W	2	R
1DT	27	3	W-O	4	Y
1DR	2	4	O-W	1	BK
2PT	28	5	W-GN	3	GN
2PR	3	6	GN-W	2	R
2DT	29	7	W-BR	4	Y
2DR	4	8	BR-W	1	BK
3PT	30	9	W-SL	3	GN
3PR	5	10	SL-W	2	R
3DT	31	11	R-BL	4	Y
3DR	6	12	BL-R	1	BK
4PT	32	13	R-O	3	GN
4PR	7	14	O-R	2	R
4DT	33	15	R-GN	4	Y
4DR	8	16	GN-R	1	BK
5PT	34	17	R-BR	3	GN
5PR	9	18	BR-R	2	R
5DT	35	19	R-SL	4	Y
5DR	10	20	SL-R	1	BK
6PT	36	21	BK-BL	3	GN
6PR	11	22	BL-BK	2	R
6DT	37	23	BK-O	4	Y
6DR	12	24	O-BK	1	BK
7PT	38	25	BK-GN	3	GN
7PR	13	26	GN-BK	2	R
7DT	39	27	BK-BR	4	Y
7DR	14	28	BR-BK	1	BK
8PT	40	29	BK-SL	3	GN
8PR	15	30	SL-BK	2	R
8DT	41	31	Y-BL	4	Y
8DR	16	32	BL-Y	1	BK
	42	33	Y-O	3	GN
N/C	17	34	0-Y	2	R
:	:	:	:	:	:
N/C	50	49	V-SL	3	GN
	25	50	SL-V	2	R


ACONN
CCONN
LED1
SW1
MB
Station Connector
LED Indicator
Make Busy Switch
IX-8DSUB

IX-8SUBS-4 Card for Single-Line Telephones

The IX-8SUBS-4 Single Line Station card supports Caller ID, Caller ID for Call Waiting, Message Waiting notification, and requires no additional power. This is the first Iwatsu single line card that supports Caller ID and Caller ID for Call Waiting and combines all the functionality of the IX-8SUBS, IX-8SUBM, and IX-4SUBL cards.

Because this card is designed with an on-board ring generator and power converters, the IX-DCDC and IX-RNGUM cards are not required with this card.

The IX-8SUBS-4 supports eight on-premise or four on-premise and four off-premise (Ports 5-8) single line telephone extensions, Caller ID, Caller ID for call waiting, and message waiting lamps (neon or LED lamps). An IX-8SUBS-4 can be expanded to support up to 16 single line telephones by adding an IX-8ESUBS-4 single line telephone expansion card. The IX-8SUBS-4 includes the DTMF receivers required for 2500 (touch-tone) type telephones and also provides a hardware loop open feature for Voice Mail Integration.

This card is compatible with the ECS and ADIX systems and replaces the IX-8SUBS, IX-8SUBM, and IX-4SUBL cards. This card functions as a basic SLT interface in the ADIX and APS systems and can be installed in any shelf with no hardware conflict with the IX-RNGUM or IX-DCDC power supplies.

Note:	This card was tested using a standard 2500 single line telephones. Due to the multitude of single line telephone manufacturers, features, and current draw of your specific telephone, SLT performance may vary.
Note:	Iwatsu Enterprise-CS 2.02 or higher software is required to send caller ID information to the single line telephone.

SLTs must be star connected to an IX-8SUBS-4 port using #24 AWG one-pair (twisted or quad) wire. The loop resistance of single-line telephones is fixed at 700 Ohms (including SLT resistance).

Features

- Caller ID
  - Available on ECS version 2.02 software and above.
- Caller ID for Call Waiting
  - Available on ECS version 2.02 software and above.
- Message Waiting Lamp Signaling for Neon and LED Lamps.
  - For software versions below 2.02 and ADIX systems, message waiting lamps will light solid - Flashing not supported.
- On-board Ring Generator and Power Converters
  - The IX-RNGUM and/or the IX-DCDC card are not required for the IX-8SUBS-4. These cards can be installed in the same shelf as the IX-8SUBS-4 card to support other cards that require the IX-RNGUM and/or the IX-DCDC.
- Single and Dual-Highway Selection.

Technical Specifications

Model: IX-8SUBS-4

Part No.: 101472

Location: Any universal card slot

Ports: 8 per card

Loop Resistance:

700 Ohms (including SLT)
1200 Ohms (SUBL Mode)

Circuit Protection:

Metal Oxide Varistors

Additional Power Requirements:

None

On-Board Switches:

MBSW - Make Busy Circuits 1-16

S2 - 4 Circuit DIP Switch

Message Waiting Lamp Signaling:

Neon Lamp - Up to 130 VDC

LED Lamp - FSK Modulation

Compatible Station Terminals:

2500-type (touchtone) SLTs

Indicators: D49 = MB LED

Connectors: ACONN - Motherboard

CCONN - Station terminals

J2 and J3 - IX-8ESUBS

On-board Power:

- Power Source: +5 VDC from Motherboard

+27 VDC from Motherboard

- Local Power Generation: +5 VDC & +3.3 VDC

-24 VDC

-48 VDC

-140 VDC

Ring Voltage: 65 Vrms @ 20 hertz

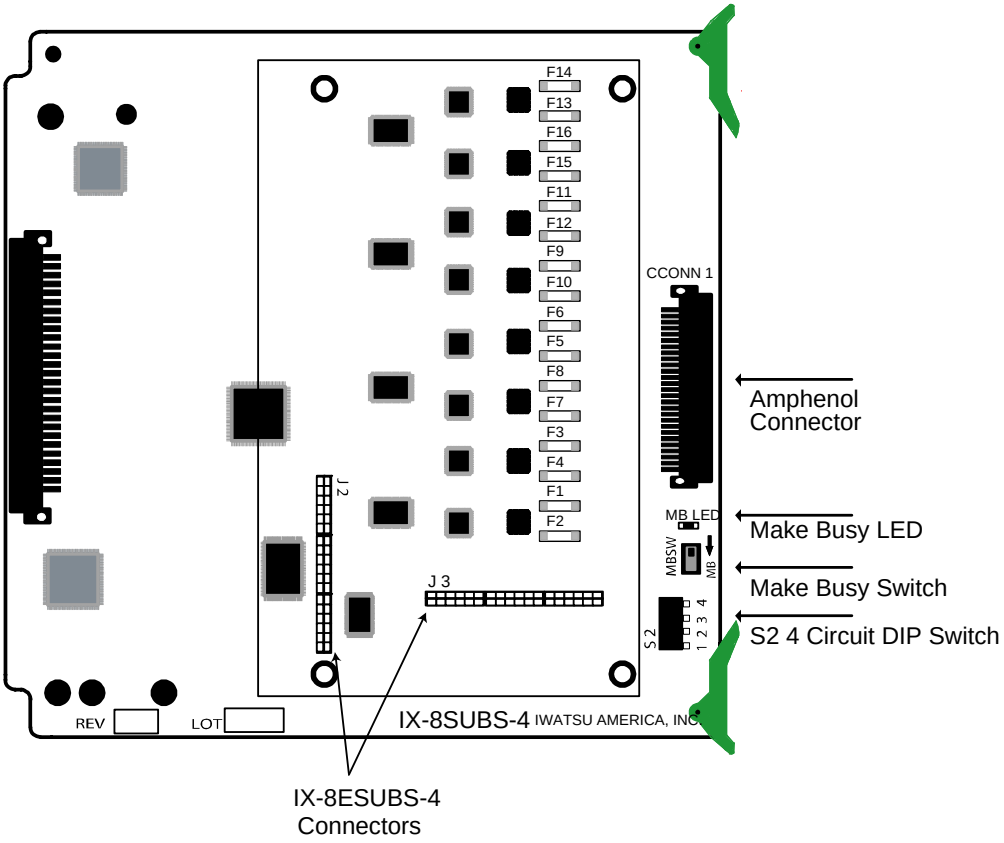
Size: 9”H x 9”W x 3/4”D

Weight: 0.75 lbs.

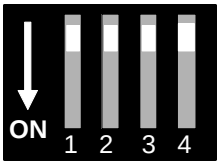
Physical Port Mapping Table for the IX-CME Cabinet

Card Installed in IX-CME Slot #	SLT Ports	With IX-8ESUBS-4
1	1-8	9-16
2	97-104	105-112
3	193-200	201-208
4	289-296	297-304
5	385-392	393-400
6	481-488	489-496

IX-8SUBS-4



S2 - 4 Circuit DIP Switch



S2 Switch Settings

Position:	Function:	Off (Default)	On
1	Ports 1-4 talk battery	-24 volts talk battery (-20v at tip and ring) SUBS/SUBM Mode	SUBL Mode not supported on ports 1-4
2	Ports 5-8 talk battery	-24 volts talk battery (-20v at tip and ring) SUBS/SUBM Mode	SUBL Mode supported on ports 5-8 only -48 volts talk battery (-40v at tip and ring)
3	Voice Compression	Mu Law	A Law (Not Supported)
4	Not Used	Off - Default	Not Used

On-Board Power

Power Source:	Local Power Generation:	Power Supplied For:
+5 VDC From Motherboard +27 VDC From Motherboard	+5 VDC & +3.3 VDC	Logic Supply
	-24 VDC	On-Premise telephone talk battery
	-48 VDC	Off-Premise telephone talk battery
	-140 VDC	On-Premise neon lamps
	65 Vrms @ 20 hertz	Telephone ringing

Message Waiting Lamp Type and Signaling

Lamp Types Supported:	Lighting Method:
Neon Lamps	Up to 130 VDC provided
LED Lamps	FSK Modulation. Typically for cordless telephones and telephones with LED lamps.

IX-8ESUBS-4 Card for Single-Line Telephones

The IX-8ESUBS-4 card provides eight additional station ports when connected to the IX-8SUBS-4 card. The IX-8ESUBS-4 card is connected to the J2 and J3 connectors on the IX-8SUBS-4 card.

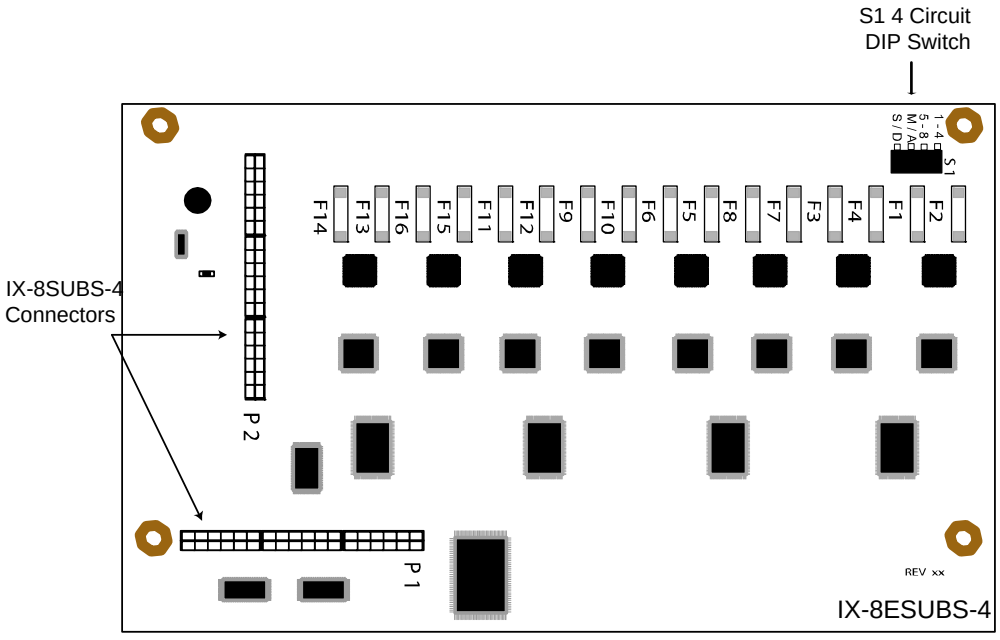
The 8ESUBS includes eight DTMF receivers on board. SLTs must be star connected to an 8ESUBS port using #24 AWG one-pair (twisted or quad) wire. The loop resistance of single-line telephones is fixed at 700 Ohms (including SLT resistance).

Important! An **8ESUBS** label is included with the IX-8ESUBS packaging. Apply this label to the top ejector tab of the IX-8SUBS-4 card when installing the IX-8ESUBS card.

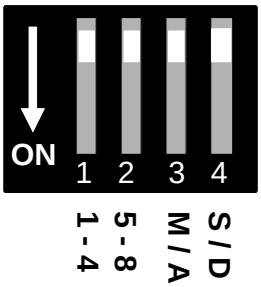
Technical Specifications

Model:	IX-8ESUBS-4	Part No:	101473
Location:	IX-8SUBS-4	Connectors:	P1 and P2 - IX-8SUBS-4
Ports:	8 per card		
On-Board Switches:		Size:	8 5/16”H x 5 1/8”W x 1/2”D
	S1 4 Circuit DIP Switch – See table on next page	Weight:	0.25 lbs.

IX-8ESUBS-4 Card



S1- 4 Circuit DIP Switch



S1 Switch Settings

Position:	Marking:	Function:	Off (Default)	On
1	1-4	Ports 1-4 talk battery	-24 volts talk battery (-20v at tip and ring) SUBS/SUBM Mode	SUBL Mode Not Supported on Expansion Ports
2	5-8	Ports 5-8 talk battery	-24 volts talk battery (-20v at tip and ring) SUBS/SUBM Mode	SUBL Mode Not Supported on Expansion Ports
3	M/A	Voice Compression	Mu Law	A Law
4	S/D	Highway Selection	Single Highway	Dual Highway

IX-8SUBS-4 + IX-8ESUBS-4 Highway Switch Setting

Cabinet:	Card Position:	S1 Switch - Position 4:	Card Slots Required:
IX-CME	Any 96 or 32 channel card slot	OFF	1
IX-EXPME	Any 16 channel card slot	OFF	1
IX-CML	Slot 1	OFF	1
IX-CML	Slot 2-5	ON	1
IX-EXPML	Slot 1	OFF	1
IX-EXPML	Slot 2	Not Supported	Not Supported
IX-EXPML	Slot 3-6	ON	1
IX-CMM	Slot 1	OFF	1
IX-CMM	Slot 2-5	ON	1
IX-EXPMM	Slot 3, 5	OFF	2
IX-EXPMM	Slot 2, 4, 6	Not Supported	Not Supported
IX-CM (Shelf 1)	Slot 1, 3	OFF	2
IX-CM (Shelf 1)	Slot 2, 4	Not Supported	Not Supported
IX-CM (Shelf 2)	Slot 1, 3, 5, 7	OFF	2
IX-CM (Shelf 2)	Slot 2, 4, 6, 8	Not Supported	Not Supported
IX-EXPM	Slot 1, 3, 5, 7	OFF	2
IX-EXPM	Slot 2, 4, 6, 8	Not Supported	Not Supported

Note: S1 DIP switch position 4 MUST be set to OFF for Single Highway in the ECS system. The ECS does NOT support a Dual Highway structure.

IX-8SUBS-3 Card for Single-Line Telephones

The IX-8SUBS-3 card interfaces station ports to up to eight on-premises single-line telephones. The IX-8SUBS-3 has loop open capabilities for use with voicemail. This eight-circuit card replaces the IX-8SUBS-2 card. The IX-8SUBS-3 provides no support for message lamps.

Eight ports may be added to the IX-8SUBS-3 with the addition of an IX-8ESUBS card for a total of 16 ports.

The IX-8SUBS-3 includes eight DTMF receivers on board. SLTs must be star connected to an IX-8SUBS-3 port using #24 AWG one-pair (twisted or quad) wire. The loop resistance of single-line telephones is fixed at 600 Ohms (including SLT resistance). An IX-RNGUM power supply is required to provide 90 VAC for SLT ringing.

Physical Port Mapping Table

Card Installed in IX-CME Slot #	SLT Ports	With IX-8ESUBS
1	1-8	9-16
2	97-104	105-112
3	193-200	201-208
4	289-296	297-304
5	385-392	393-400
6	481-488	489-496

Technical Specifications

Model: IX-8SUBS-3

Part No.: 101477

Location: Any universal card slot

Ports: 8 per card

Loop Resistance:
600 Ohms (including SLT resistance)

Circuit Protection: Metal Oxide Varistors

Additional Power Requirements:
IX-RNGUM

On-Board Functions:
MBSW - Make Busy Circuits 1-16
SW1 - Must be set to U

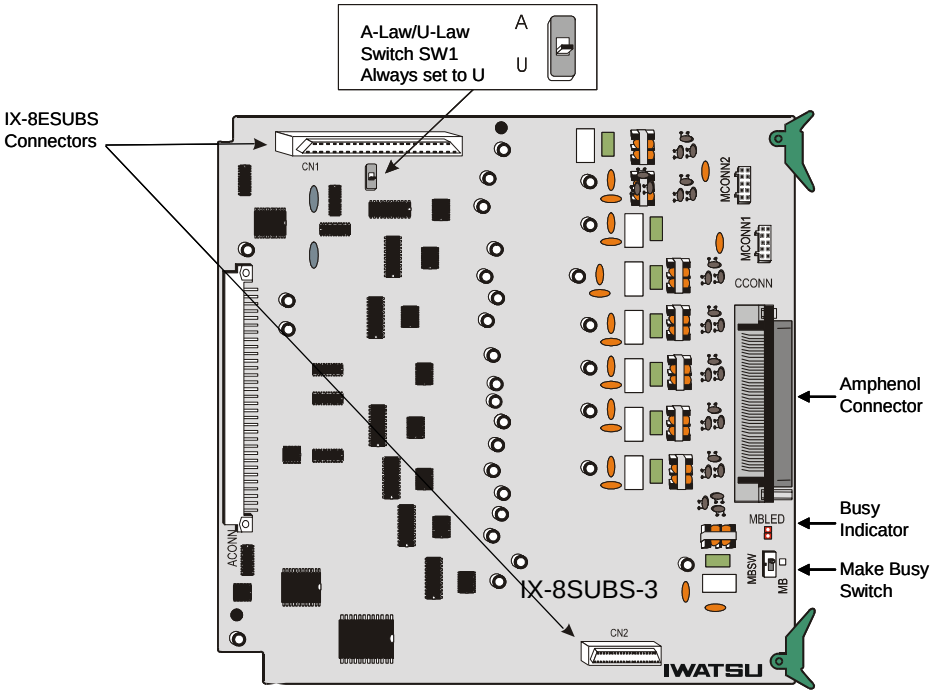
Compatible Station Terminals:
500-type (dial pulse) SLTs
2500-type (touchtone) SLTs

Indicators: D1 = Busy

Connectors: ACONN - Motherboard
CCONN - Station terminals
CN1 and CN2 - IX-8ESUBS

Size: 9”H x 9”W x 0.75”D

Weight: 0.9 lbs.


A-Law/U-Law
Switch SW1
Always set to U
A
U
IX-8ESUBS
Connectors
CN1
MCONN2
MCONN1
CCONN
Amphenol
Connector
MBLED
Busy
Indicator
MBSW
MB
Make Busy
Switch
ACONN
IX-8SUBS-3
CN2
IWATSU

IX-8ESUBS Card for Single-Line Telephones

The IX-8ESUBS card provides eight additional station ports when connected to the IX-8SUBS-3 card. The IX-8SUBS card is connected to the CN1 and CN2 on either the IX-8SUBS-3 card or the IX-8SUBM-3 card.

The 8ESUBS includes eight DTMF receivers on board. SLTs must be star connected to an 8ESUBS port using #24 AWG one-pair (twisted or quad) wire. The loop resistance of single-line telephones is fixed at 600 Ohms (including SLT resistance).

Important!	An **8ESUBS** label is included with the IX-8ESUBS packaging. Apply this label to the top ejector tab of the IX-8SUBS-3 card when installing the IX-8ESUBS card.

Note:	It is possible to add an IX-8ESUBS card to the IX-8SUBM-3 card. However, if you add an IX-8ESUBS card to an IX-8SUBM-3 card, at system default the ECS defines all 16 ports as message waiting single line ports. The upper 8 ports (IX-8ESUBS) must be reconfigured as standard single line ports. The message key programming should also be changed (*Class 10.45* to **0** = no message key) for the IX-8ESUBS ports. This disables the message key, and the system will not send a confirmation tone to a station that tries to turn the message lamp on at the IX-8ESUBS single line telephones.

Technical Specifications

Model: IX-8ESUBS

Part No.: 101478

Location: IX-8SUBS-3 or IX-8SUBM-3 CN1 and CN2

Ports: 8 per card

Loop Resistance:

600 Ohms (including SLT resistance)

Circuit Protection: Metal Oxide Varistors

Additional Power Requirements:

IX-RNGUM

On-Board Functions:

SW2 – Highway Mode Selections, see illustration on next page

Compatible Station Terminals:

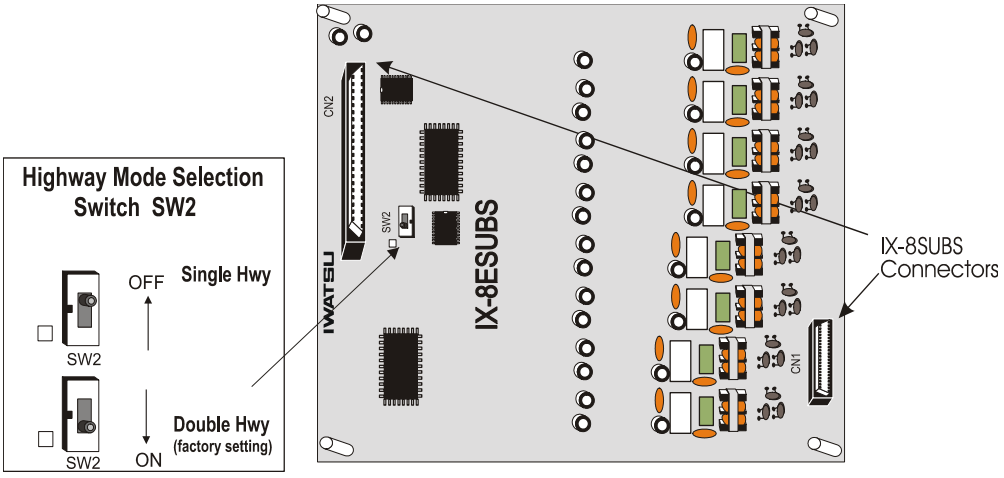
500-type (dial pulse) SLTs

2500-type (touchtone) SLTs

Connectors: CN1 and CN2 - IX-8SUBS-3 or IX-8SUBM-3

Size: 8.5”H x 6.5”W x 9”D

Weight: 0.75 lbs.



IX-8SUBS-3 + IX-8ESUBS On-Board Switch Settings

Cabinet	Card Position	SW2	Card Slots Required
IX-CME	Any 96 or 32 Channel card slot	OFF	1
IX-CML	Slot 1	OFF	1
IX-CML	Slot 2-5	ON	1
IX-EXPML	Slot 1	OFF	1
IX-EXPML	Slot 2	Not Supported	Not Supported
IX-EXPML	Slot 3-6	ON	1
IX-CMM	Slot 1	OFF	1
IX-CMM	Slot 2-5	ON	1
IX-EXPMM	Slot 3, 5	OFF	2
IX-EXPMM	Slot 2, 4, 6	Not Supported	Not Supported
IX-CM (Shelf 1)	Slot 1, 3	OFF	2
IX-CM (Shelf 1)	Slot 2, 4	Not Supported	Not Supported
IX-CM (Shelf 2)	Slot 1, 3, 5, 7	OFF	2
IX-CM (Shelf 2)	Slot 2, 4, 6, 8	Not Supported	Not Supported
IX-EXPM	Slot 1, 3, 5, 7	OFF	2
IX-EXPM	Slot 2, 4, 6, 8	Not Supported	Not Supported

Note: SW2 MUST be set to OFF for Single Highway in the ECS system. The IX-CME Gateway Controller cabinet does NOT support Dual Highways.

IX-8SUBM-3 Card for Single-Line Telephones with Message Lamps

The IX-8SUBM-3 interface card provides connection of up to eight single-line telephones (SLT) with message lamps. The IX-8SUBM-3 has loop open and message waiting capabilities. This eight-circuit card replaces the IX-8SUBM-2 card.

Optional IX-PMMSG 90V Message Lamp Power Supplies may be connected to the IX-8SUBM-3 card to provide on-board power to light SLT message lamps. Utilizing these two components, the ECS can support single-line telephones with message lamps.

Eight ports may be added to the IX-8SUBM-3 with the addition of an IX-8ESUBM card for a total of 16 ports.

The IX-8SUBM-3 includes eight DTMF receivers on board. SLTs must be star connected to an IX-8SUBM-3 port using #24 AWG one-pair (twisted or quad) wire. The loop resistance of single-line telephones is fixed at 600 Ohms (including SLT resistance). An IX-RNGUM additional power supply is required to provide 90 VAC for SLT ringing.

The card requires one IX-PMMSG for each 8 ports. For instance, only one IX-PMMSG power supply is required for the IX-8SUBM-3, but two IX-PMMSG power supplies are required if you add the IX-8ESUBM card. The IX-8SUBM-3 and IX-8ESUBM support only 2-wire message lamp telephones.

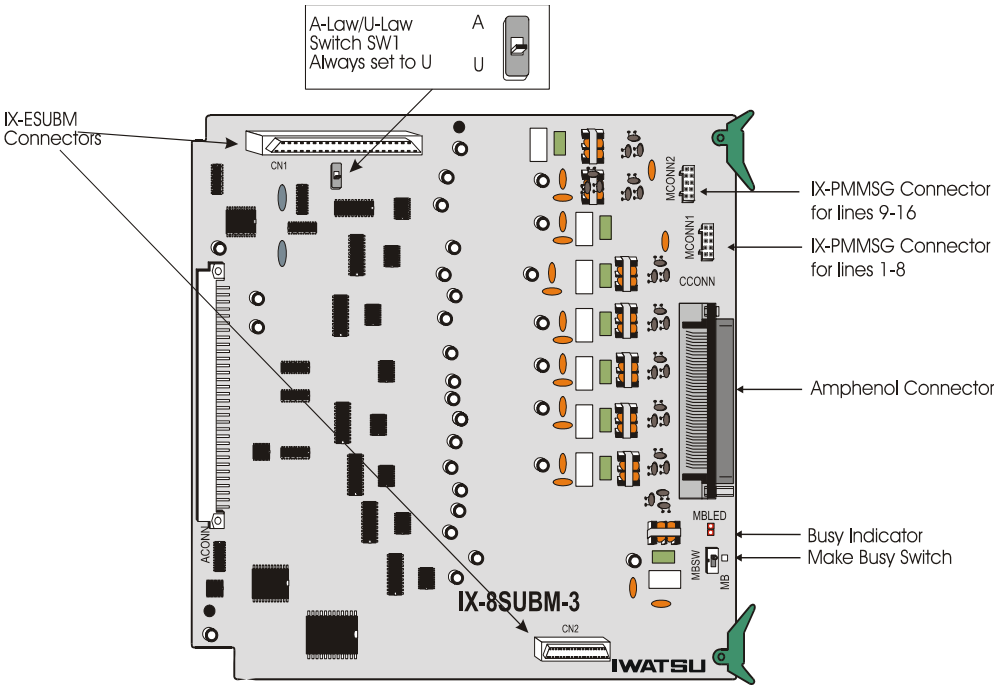
Note: It is possible to add an IX-8ESUBS card to the IX-8SUBM-3 card. However, if you add an IX-8ESUBS card to an IX-8SUBM-3 card, at system default the ECS defines all 16 ports as message waiting single line ports. The upper 8 ports (IX-8ESUBS) must be reconfigured as standard single line ports. The message key programming should also be changed (*Class 10.45* to **0** = no message key) for the IX-8ESUBS ports. This disables the message key, and the system will not send a confirmation tone to a station that tries to turn the message lamp on at the IX-8ESUBS single line telephones.

Physical Port Mapping Table

Card Installed in IX-CME Slot #	SLT Ports	With IX-8ESUBS
1	1-8	9-16
2	97-104	105-112
3	193-200	201-208
4	289-296	297-304
5	385-392	393-400
6	481-488	489-496

Technical Specifications

Model:	IX-8SUBM-3	Additional Power Requirements:	
Part No.:	101484		IX-PMMSG, IX-RNGUM
Location:	Any universal card slot		
Ports:	8 per card	Compatible Station Terminals:	
Loop Resistance:			500-type (dial pulse) SLTs
	600 Ohms (including SLT resistance)		2500-type (touchtone) SLTs
Circuit		Connectors :	ACONN - Motherboard
Protection:	Metal Oxide Varistor		CCONN - Station terminals
Indicators:	MBLED = Make Busy Circuits 1-16		CN1 and CN2 - IX-8ESUBM/S MCONN1 - IX-PMMSG for lines 1-8 MCONN2 - IX-PMMSG for lines 9-16
On-Board Functions:		Size:	9.”H x 9.”W x 0.75”D
	MBSW - Make Busy (for all 16 ports)	Weight:	0.9 lbs.
	SW1 - Not Used - set to U		



IX-8ESUBM Card for Single-Line Telephones with Message Lamps

The IX-8ESUBM card provides connection of up to eight single-line telephones (SLT) with message lamps when connected to the IX-8SUBM-3 card. The IX-8SUBM card is connected to the CN1 and CN2 on the IX-8SUBM-3 card. An optional IX-PMMSG 90V Message Lamp Power Supply may be connected to the IX-8SUBM-3 card to provide on-board power to light SLT message lamps.

The 8ESUBM includes eight DTMF receivers on board. SLTs must be star connected to an 8ESUBM port using #24 AWG one-pair (twisted or quad) wire. The loop resistance of single-line telephones is fixed at 600 Ohms (including SLT resistance).

The IX-8ESUBM only supports 2 wire message waiting single line telephones. This new card also requires an IX-PMMSG (connected to MCONN2 on the IX-8SUBM-3 card) for message lamp operation.

Important! An **8ESUBM** label is included with the IX-8ESUBM packaging. Apply this label to the top ejector tab of the IX-8SUBM-3 card when installing the IX-8ESUBM card.

Technical Specifications

Model: IX-8ESUBM

Part No.: 101486

Location: IX-8SUBM-3 CN1 and CN2

Ports: 8 per card

Loop Resistance:
600 Ohms (including SLT resistance)

Circuit Protection:
Metal Oxide Varistor

On-Board Functions:
SW2 – Highway Mode Selections, see illustration.

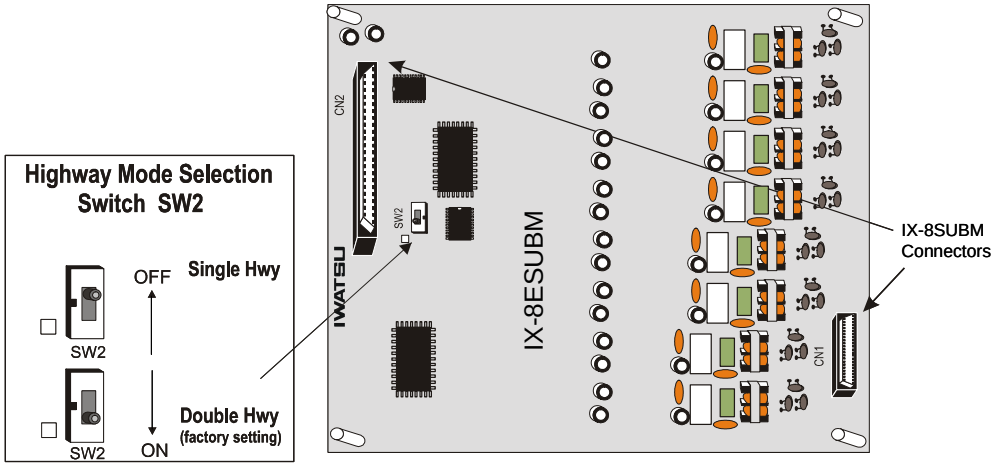
Additional Power Requirements:
IX-PMMSG, IX-RNGUM

Compatible Station Terminals:
500-type (dial pulse) SLTs
2500-type (touchtone) SLTs

Connectors: CN1 and CN2 – IX-8SUBM-3

Size: 8.5”H x 6.5”W x 0.75”D

Weight: 0.75 lbs.



IX-8SUBM-3 + IX-8ESUBM On-Board Switch Settings

Cabinet	Card Position	SW2	Card Slots Required
IX-CME	Any 96 or 32 Channel card slot	OFF	1
IX-CML	Slot 1	OFF	1
IX-CML	Slot 2-5	ON	1
IX-EXPML	Slot 1	OFF	1
IX-EXPML	Slot 2	Not Supported	Not Supported
IX-EXPML	Slot 3-6	ON	1
IX-CMM	Slot 1	OFF	1
IX-CMM	Slot 2-5	ON	1
IX-EXPMM	Slot 3, 5	OFF	2
IX-EXPMM	Slot 2, 4, 6	Not Supported	Not Supported
IX-CM (Shelf 1)	Slot 1, 3	OFF	2
IX-CM (Shelf 1)	Slot 2, 4	Not Supported	Not Supported
IX-CM (Shelf 2)	Slot 1, 3, 5, 7	OFF	2
IX-CM (Shelf 2)	Slot 2, 4, 6, 8	Not Supported	Not Supported
IX-EXPM	Slot 1, 3, 5, 7	OFF	2
IX-EXPM	Slot 2, 4, 6, 8	Not Supported	Not Supported

Note: SW2 MUST be set to OFF for Single Highway in the ECS system. The IX-CME Gateway Controller cabinet does NOT support Dual Highways.

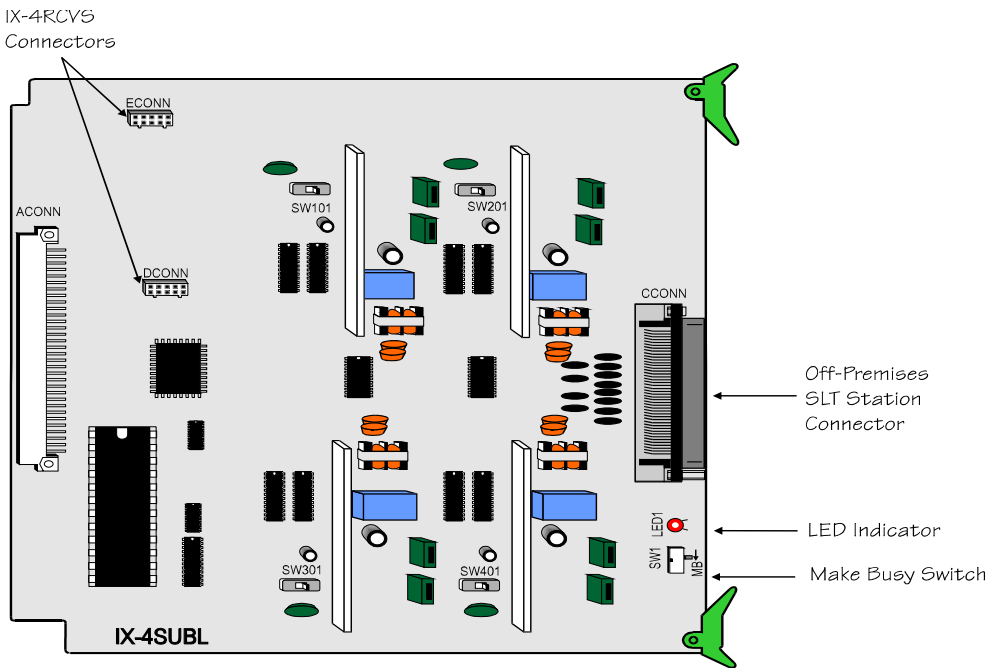
IX-4SUBL Card

The IX-4SUBL card interfaces station ports to up to four off-premise single-line telephones. If 2500-type SLTs are used, an IX-4RCVS DTMF receiver must be mounted on board. An IX-DCDCM additional power supply must be installed in the system when the IX-4SUBL card is used. An IX-RNGUM additional power supply is required to provide 90 VAC for SLT ringing. If the CO supplies the lines for the off-premise SLTs, OL13C circuiting can be used. If the lines for the off-premises SLTs are not supplied by the CO, SW101 - SW104 must be set to indicate the distance from the ECS.

Technical Specifications

Model:	IX-4SUBL	Facility Interface Code:	
Part No.:	101490		OL13C
Location:	Any universal card slot	Additional Power Requirements:	
Ports:	4 per card		IX-DCDCM, IX-RNGUM
Circuit Protection:	Metal Oxide Varistors	Compatible Station Terminals:	
Indicators:	LED1 = Busy		500-type (dial pulse) SLTs
Resistance:	1200 Ohms		2500-type (touchtone) SLTs
On-Board Functions:		Connectors:	ACONN - Motherboard
SW1	Make Busy		CCONN - Station terminals
SW101- SW401	Distance Set		DCONN / ECONN - IX-RCVS
	L = Long (9,843 ft. or greater)	Size:	9.7”H x 9.5”W x 0.75”D
	N = Near (1,640 ft. - 9,842 ft.)	Weight:	0.9 lbs.
	S = Short (less than 1,640 ft.)		

IX-4SUBL Card



Omega-Voice VMI IX-4EVMC Voice Mail Card

Omega-Voice VMI consists of the IX-4EVMC circuit board that resides inside the ECS system. The IX-4EVMC may be expanded from 4 to 8 ports with the addition of a four-port IX-4EVML expansion card. The Omega-Voice **VMI Editor version 3.02.16** or later is required to program an IX-4EVMC, IX-4VML, IX-4VMLCFM, or VS-VSL/IX-VMAC card installed in an ECS system.

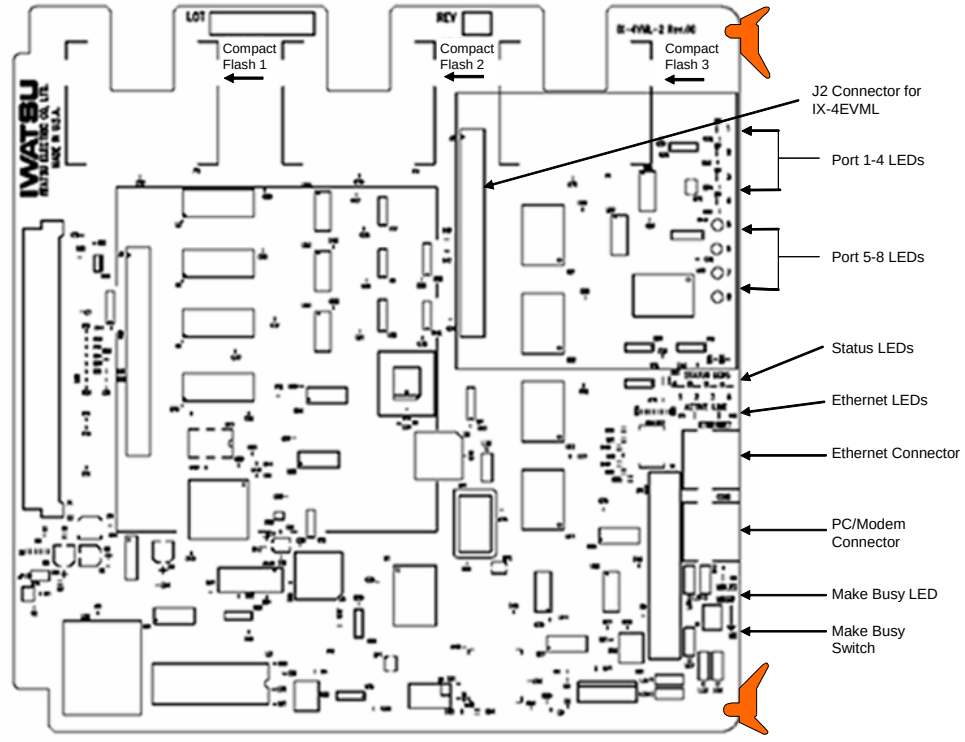
Technical Specifications

Model:	IX-4EVMC	Status LEDS:	D1 – Not Used
Part No:	500606		D2 – CFM Active
Location:	Any universal card slot		D3 – Communications Active
Ports:	4 per card (8 with IX-4EVML)		D4 – Housekeeping Active
Additional Power Requirements:			D5 MBLED – Make Busy Indication
	None		D10 - Active Link
Connectors:	ACONN – Motherboard		D11 - Active Link
	P5 - External devices	RAM:	4 MB SRAM
	J2 - 4 Port expansion Module	Storage:	Compact Flash Module:
	J3 - Future feature expansion	Size:	256 MB or 512 MB CFM
	Ethernet - 10/100 Ethernet	Capacity:	55 hours (256 MB CFM)
	PC / Modem		110 hours (512 MB CFM)
On-board Functions:		Size:	9.7”H x 9.5”W x .75”D
	MBSW - Make Busy Switch	Weight:	IX-4EVMC: 1 lb. .05 oz.

IX-4EVMC LED Functions

LED:	Function:	Indication:
D1	Not Used	None
D2	CFM Active	Flashes when CFM is in use
D3	Communications Active	Flashes to indicate serial communication with the VS-VML
D4	Housekeeping Active	Flashes to indicate Housekeeping Function is active
D5	MBLED	Indicates Make Busy Function is active
D10	Active Link	Indicates there is activity on the Ethernet port
D11	Active Link	Indicates an Ethernet connection has been established

IX-4EVMC Card



IX-4EVMC System Capacities

Mailboxes and Menus:	The total number or mailboxes accommodated by the Omega-Voice VMI IX-4EVMC depends on the density of the data CFM. 256MB CFM = 400 mailboxes 512MB CFM = 600 mailboxes
Administrator Mailboxes:	Administrator mailboxes are limited to the maximum number of mailboxes.
Automatic Distribution Mailboxes:	Automatic Distribution mailboxes are limited to the maximum number of mailboxes.
Message Folders:	New: 120 Saved: 128 Archived: 32 Receipts: 32 Deleted: 192
Message Retention:	The Omega-Voice VMI IX-4EVMC will retain messages up to 365 days. This value is programmable on the System Integration General tab.
Message Record Time:	The maximum record time is 60 minutes. This value is programmable on the System Integration General tab.
Storage Hours:	256MB CFM = 55 hours 512MB CFM = 110 hours
Ports:	The Omega-Voice VMI IX-4EVMC has 4 ports and will accommodate a daughter board (IX-4EVML) that provides 4 additional ports.

Omega-Voice VMI IX-4SEVMC Voice Mail Card

Omega-Voice VMI consists of the IX-4SEVMC circuit board that resides inside the IX-CME Cabinet of the ECS system. The IX-4SEVMC is completely compact flash based voicemail card with one type II compact flash socket. The compact flash socket contains a 128MB Compact Flash Module (CFM) for system files and fixed system prompts and for customer data and voice, greeting and message files. The Omega-Voice **VMI Editor version 3.02.16** or later is required to program an IX-4SEVMC card.

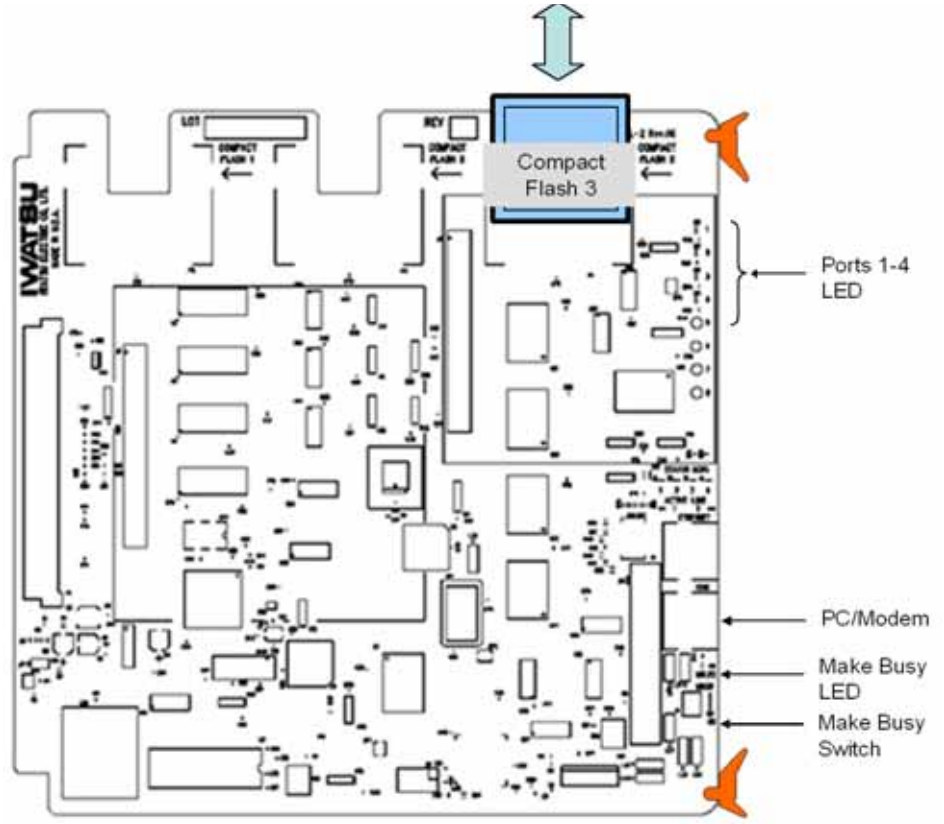
Technical Specifications

Model:	IX-4SEVMC	Status LEDS:	D1 – Not Used
Part No:	500626		D2 – CFM Active
Location:	ECS - IX-CME Cabinet only ADIX APS or ADIX-M - Physical port 97-120 (card 17) only		D3 – Housekeeping Active
Ports:	4 per card		D4 – Error
Additional Power Requirements:			D5 MBLED – Make Busy Indication
	None		D6-D9 - Voice Mail Port Status
Connectors:	P1 - Motherboard	RAM:	2 MB SRAM
	P4 - Compact Flash	Storage:	Compact Flash Module:
	J2 - RS232C PC/Modem	Size:	128 MB CFM
		Capacity:	25 hours
On-board Functions:		Size:	9.7”H x 9.5”W x .75”D
	MBSW - Make Busy Switch	Weight:	1 lb. .05 oz.

IX-4SEVMC LED Functions

LED:	Function:	Indication:
D1	Not Used	None
D2	CFM Active	Flashes when CFM is in use
D3	Housekeeping Active	Flashes to indicate the housekeeping function is active
D4	Error	Flashes to indicate an error has occurred
D5	MBLED	Indicates Make Busy Function is active
D6-D9	Voice Mail Port Status	Off - Port Idle Steady - Port Active Flashing 50/50 - Audio Playing Flashing 75/25 - Audio Recording

IX-4SEVMC Card



IX-4SEVMC System Capacities

Mailboxes and Menus:	The Omega-Voice VMI IX-4SEVMC card will accommodate a total combination of 100 mailboxes and menus. 128MB CFM = 100 mailboxes
Administrator Mailboxes:	Administrator mailboxes are limited to the maximum number of mailboxes.
Automatic Distribution Mailboxes:	Max 50
Message Folders:	New Message folder will store up to 120 messages. Saved Message folder will store up to 128 messages Deleted Message folder will store up to 192 messages. Archive folder will store up to 32 messages.
Message Retention:	The Omega-Voice VMI IX-4SEVMC will retain messages from 15 days (default) to 365 days. This value is programmable on the System Integration General tab.
Message Record Time:	The maximum record time is 60 minutes per message. This value is programmable on the System Integration General tab.
Storage Hours:	128MB CFM = 25 hours
Ports:	The Omega-Voice VMI IX-4SEVMC has 4 ports. Expansion to 8 ports is not supported.
Compression:	The Omega-Voice VMI IX-4SEVMC uses DSPG TrueSpeech™ compression (approximately 8.5 KBPS).

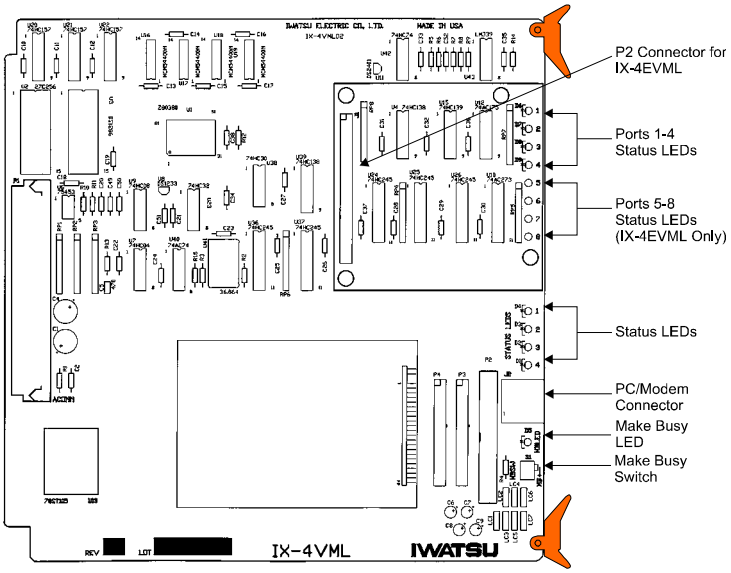
Omega-Voice VMI IX-4VML Voice Mail Card

(Manufacturer Discontinued June 2006)

Omega-Voice VMI consists of the IX-4VML circuit board that resides inside the ECS system. The IX-4VML may be expanded from 4 to 8 ports with the addition of a four-port IX-4EVML expansion card. The Omega-Voice **VMI Editor version 3.00.7** or later is required to program an IX-EVMC, IX-4VML, IX-4VMLCFM, or VS-VSL/IX-VMAC card installed in an ECS system.

Technical Specifications

Model:	IX-4VML	Port Status LEDS:	Off = Port Idle
Part No:	500100	D6-D9	50/50 Cycle = Audio Playing
Location:	Any universal card slot		75/25 Cycle = Audio Recording
Ports:	4 per card, 8 with IX-4EVML		Steady = Port Active
Additional Power Requirements:		Card Status LEDs:	D1 – Not Used
	None		D2 – Hard Drive Active
Connectors:	ACONN – Motherboard		D3 – Communications Active
	P2 - 4-port Expansion Board		D4 – Housekeeping Active
	J2 - PC/Modem Connector		D5 MBLED – Make Busy Indication
On-Board Functions:		Size:	9.7”H x 9.5”W x .75”D
	MBSW - Make Busy	Weight:	1 lb. .05 oz.

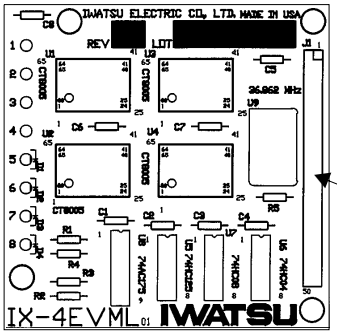

P2 Connector for IX-4EVML
Ports 1-4 Status LEDs
Ports 5-8 Status LEDs (IX-4EVML Only)
Status LEDs
PC/Modem Connector
Make Busy LED
Make Busy Switch
IX-4VML
IWATSU

IX-4EVML Voice Mail Add-on Board for IX-4EVMC / IX-4VML Card

The IX-4EVML is an add-on board for the IX-4EVMC / IX-4VML. It provides four additional voice mail ports

Technical Specifications

Model:	IX-4EVML	Port Status LEDS:	Off = Port Idle
Part No.:	500110		50/50 Cycle = Audio Playing
Location:	IX-4VML Expansion socket		75/25 Cycle = Audio Recording
Ports:	4 per card		Steady = Port Active
Additional Power Requirements:			MBLED - Busy
	None	Size:	3 7/16" x 3 1/2"
Connectors:	None	Weight:	.17 lbs.
On-Board Functions:			
	MBSW - Make Busy		



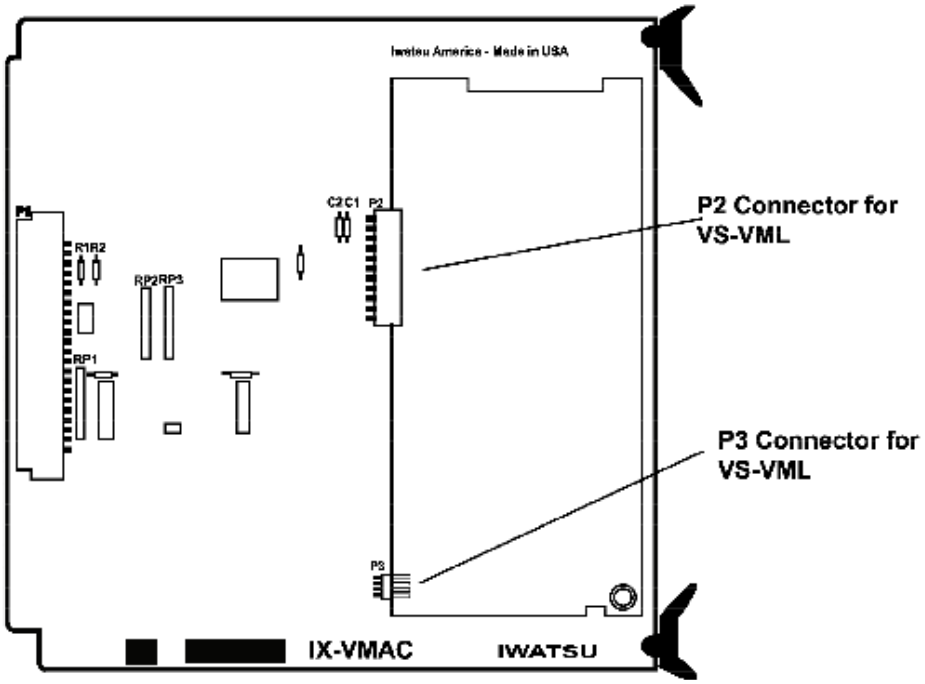
J1 Connector for IX-4VML

Omega-Voice VMI IX-VMAC Voice Mail Card

The IX-VMAC enables the installation of an Omega-Voice VMI VS-VML with software revision 1.06 or higher into an ECS, ADIX APS, ADIX-M, ADIX-S, or ADIX system. The IX-VMAC must be installed in physical slots 1-32 of the main cabinet of an ECS or ADIX APS system. The Omega-Voice **VMI Editor version 3.00.7** or later is required to program an IX-4VML, IX-4VMLCFM, or VS-VSL/IX-VMAC card installed in an ECS system.

Technical Specifications

Model:	IX-VMAC	Connectors:	P1 - ACONN
Part No:	500630	D6-D9	P2 - VS-VML Main
Location:	Physical slot 1-32		P3 - VS-VML Ground
Ports:	0 (4 with VS-VML installed)		Steady = Port Active
Additional Power Requirements:		Storage Capacity:	None
	None		
On-Board Functions:		Size:	9.7”H x 9.5”W x .75”D
	None	Weight:	4.35 oz.



IX-VMBAC Card

The IX-VMBAK circuit card does not require any database programming. The IX-VMBAK is installed into the DC/DC slot of the same cabinet in which the IX-4VML card is installed. It may have an IDE, an IOMEGA ZIP drive installed or both. Full backup requires an IDE drive and a partial backup requires an IOMEGA ZIP drive. The IX-VMBAK may be used as maintenance equipment to perform partial backups of customer IX-4VML data or it may be installed and left behind to perform periodic full/partial data backups.

Full or partial backups may be executed on demand or scheduled. The VMI System Editor version 2.99.08 or higher is required. Multiple backups cannot be maintained on one IX-VMBAK-HDD, IX-VMBAK-ZIP, or IX-VMBAK-ZHD card.

The IX-VMBAK card is available in three versions; the IX-VMBAK-HDD, IX-VMBAK-ZIP, and the IX-VMBAK-ZHD.

Type of Backup:	Hardware Required:	Data Saved:
Partial Backup	IX-VMBAK-ZIP (IOMEGA ZIP Drive)	Partial Backup of: System Prompts Recorded mailbox greetings and names Omega-Voice VMI System Programming
Full Backup	IX-VMBAK-HDD (IDE Hard Drive)	Full Backup of: System Prompts Recorded mailbox greetings and names Omega-Voice VMI System Programming Stored messages
Partial or Full Backups	IX-VMBAK-ZHD (IOMEGA ZIP Drive and IDE Hard Drive)	Full or Partial Backups

IX-VMBAK-HDD

Technical Specifications

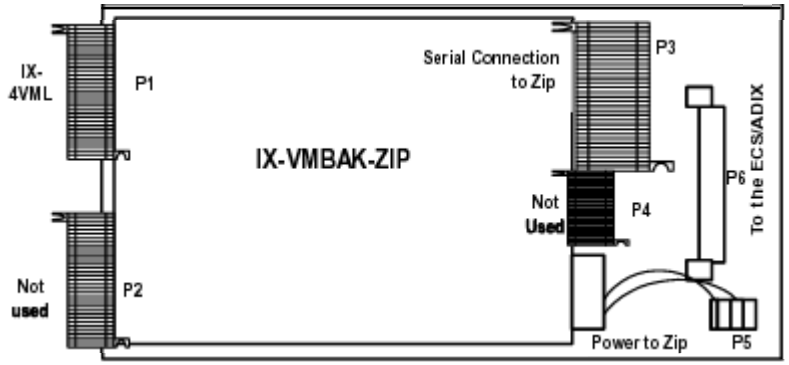
Model:	IX-VMBAK-HDD	Connectors:	P1 - IDE Cable to IX-4VML
Part No:	500634		P4 - IDE Drive
Location:	DC/DC Slot		P5 - ZIP Power
Ports:	0		P6 - Motherboard
Additional Power Requirements:		Storage Media:	IDE Hard Disk Drive
	None		
On-Board Functions:		Size:	9”H x 4.5”W x 1.875”D
	None	Weight:	6.75 oz.



IX-VMBAK-ZIP

Technical Specifications

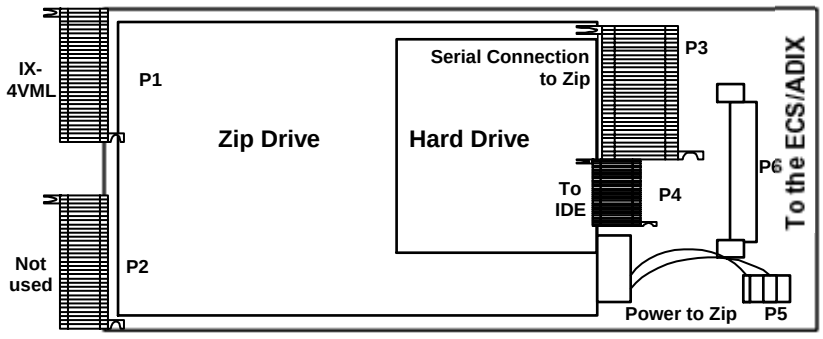
Model:	IX-VMBAK-ZIP	Connectors:	P1 - IDE Cable to IX-4VML
Part No:	500633		P4 - IDE Cable for IOMEGA ZIP Drive
Location:	DC/DC Slot		P5 - ZIP Power
Ports:	0		P6 - Motherboard
Additional Power Requirements:		Storage Media:	IOMEGA ZIP Drive
	None		
On-Board Functions:		Size:	9”H x 4.5”W x 1.875”D
	None	Weight:	6.75 oz.



IX-VMBAK-ZHD

Technical Specifications

Model:	IX-VMBAK-ZHD	Connectors:	P1 - IDE Cable to IX-4VML
			P3 - IDE Cable for IOMEGA ZIP Drive
Part No:	500635		P4 - IDE Drive
Location:	DC/DC Slot		P5 - ZIP Power
Ports:	0		P6 - Motherboard
Additional Power Requirements:		Storage Media:	IDE Hard Disk Drive
	None		
On-Board Functions:		Size:	9”H x 4.5”W x 1.875”D
	None	Weight:	6.75 oz.

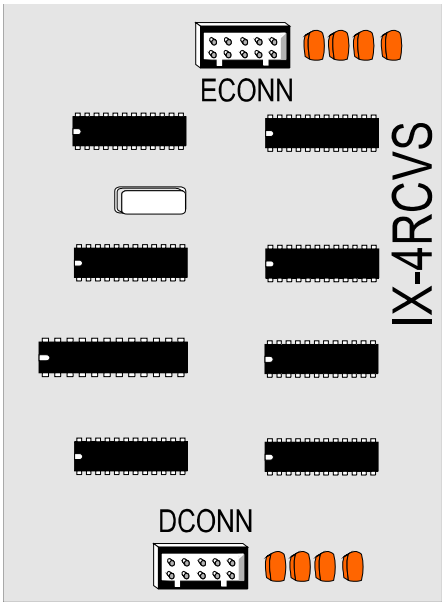


IX-4RCVS DTMF Receiver Card for SLTs

The IX-4RCVS card is a daughterboard that must be mounted on the IX-8SUBS, IX-8SUBS-1, IX-8SUBM or IX-4SUBL cards when 2500-type SLTs are used. This daughterboard is also required on the IX-4DITK when DTMF signal detection is required. Each card contains four DTMF receivers.

Technical Specifications

Model:	IX-4RCVS	Ports:	None
Part No.:	101500	Circuits:	4 DTMF receivers per card
Location:	IX-8SUBS, IX-8SUBM, IX-4SUBL IX-4DITK	Size:	3.5”H x 2.75”W x 0.75”D
		Weight:	0.1 lbs.



Chapter 6

Trunk Cards

Trunk cards, which can be identified by their blue ejector tabs, interface the Iwatsu Enterprise-CS universal ports to the individual outside lines.

IX-8UNTK Universal Trunk Card

Note: The IX-8UNTK Universal Trunk card is UL approved for the ECS IX-CME, IX-EXPME1, and IX-EXPME2 cabinets - only.

The IX 8UNTK card is an analog trunk card that was developed to provide a single interface board that supports ground start, loop start, and caller ID trunks on a single board. The card also employs technology that improves the speech quality of IP phones over analog trunks. This card employs a linear codec and a DSP-based echo canceller. The IX-8UNTK has a combination of features found on the IX-8CITK and the IX-8LGTK-2 trunk cards with the addition of an echo canceller.

The IX-8UNTK card is equipped with eight circuits for analog trunks with Caller ID. Each of the eight trunks can be set as Loop Start or Ground Start as required.

Features

- 8 Ground Start / Loop Start trunks / Caller ID (Loop Start Only) Programmable by Port
- Polarity Reversal Detection
- Make Busy Switch for Power On maintenance
- Echo Cancellation (64 msec) used for isolating and filtering unwanted signals caused by echoes from the main transmitted signal.

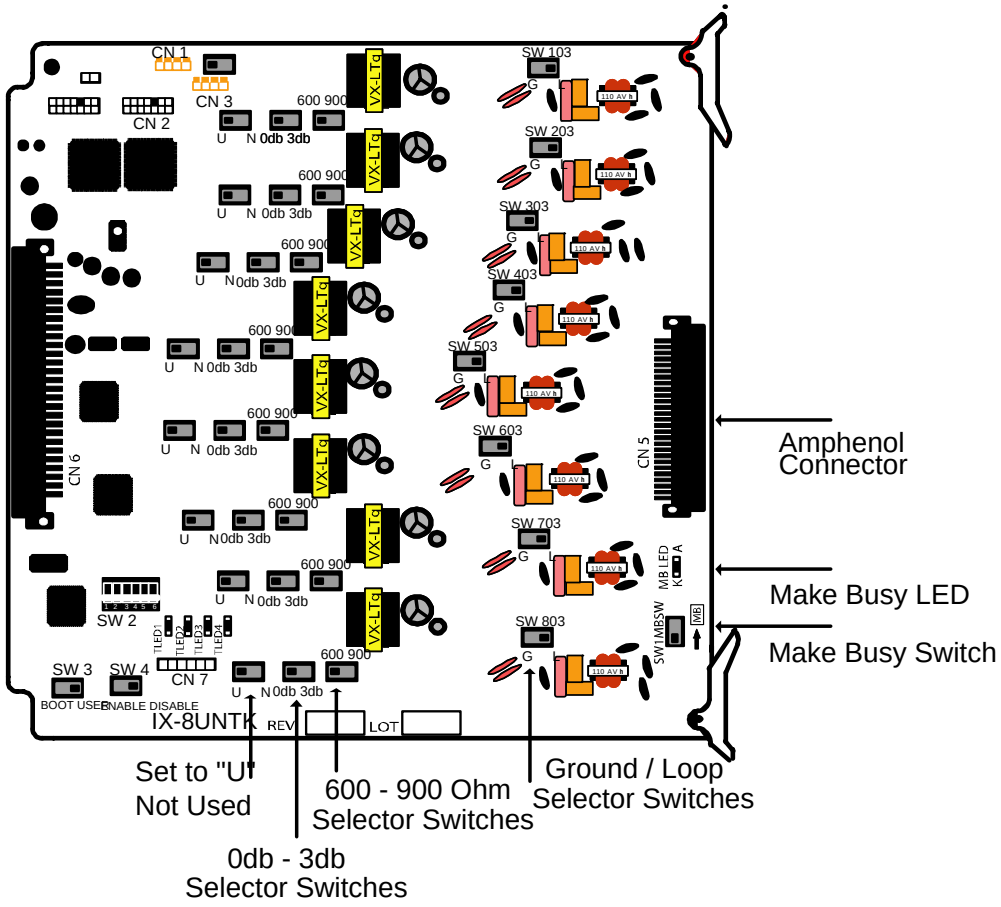
Technical Specifications

Model:	IX-8UNTK	Switches:	
Part No.:	101580	MBSW (SW1)	Make Busy
Location:	Any universal card slot	SW 2	Six Circuit DIP Switch
Ports:	8 Ports per card	SW101- SW801	Normal (0dB)/Short (3dB) distance
Circuit		SW102- SW802	Hybrid Balance Set to U
Protection:	Metal Oxide Varistors	SW103- SW803	Loop/Ground Start selection
Threshold		SW104- SW804	600/900 Ohm impedance selection
Voltage:	220 V	SW 3 SW 4	Boot / User. Factory Use Only Enable / Disable. Factory Use Only
Additional Power Requirements:		Indicators:	MB LED = Busy TLED 1 - 4 = Test LEDs
	None		
Connectors:	CN 1 - DSP1 Firmware CN 3 - DSP2 Firmware	Settings:	signal detection
	CN 5 - Trunks (Amphenol Connector)	Size: Weight:	9” H x 9” W x 0.06” D 1.5 lbs
	CN 6 - Motherboard		
	CN 7 - CPU Firmware		

IX-8UNTK Supported Trunk Port Combinations

Combination	Supported
Loop Start + Ground Start	Yes
Loop Start + Caller ID	Yes
Caller ID + Ground Start	Not Supported

IX-8UNTK

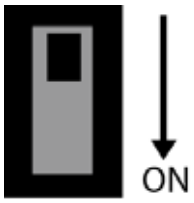

Amphenol Connector
Make Busy LED
Make Busy Switch
Set to "U" Not Used
600 - 900 Ohm Selector Switches
Ground / Loop Selector Switches
0db - 3db Selector Switches
IX-8UNTK
REV
LOT
CN 1
CN 2
CN 3
CN 5
CN 6
CN 7
SW 2
SW 3
SW 4
BOOT USER
ENABLE DISABLE
SW 103
SW 203
SW 303
SW 403
SW 503
SW 603
SW 703
SW 803
600 900
0db 3db
VX-LTg

LED Indicators

LED Name	State	Meaning
MB LED	ON	Busy
	OFF	
	FLASHING	Make Busy
TLED 1 - 4	ON / OFF	Test LEDs

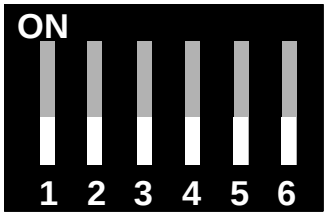
Switch Settings

SW1 Make Busy



Switch Name	Position	Meaning
MBSW	OFF	The IX-8UNTK is able to process calls (Default)
	ON	The IX-8UNTK is made busy for maintenance functions

SW2



Switch Name	Position	Meaning
1	ON	DSP Disabled
	OFF	DSP Enabled (Default)
2	ON	LGTK
	OFF	CITK (Default)
3	ON	Voice Switch Enabled
	OFF	Voice Switch Disabled (Default)
4	OFF	Factory Use. Do Not Modify
5	OFF	Factory Use. Do Not Modify
6	OFF	Factory Use. Do Not Modify

SW3



Switch Name	Position	Meaning
SW3	BOOT	Factory Use. Do Not Modify
	USER	Factory Use. Do Not Modify (Default)

SW4



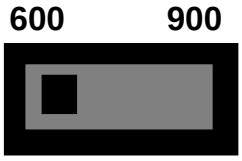
Switch Name	Position	Meaning
SW4	ENABLE	Factory Use. Do Not Modify
	DISABLE	Factory Use. Do Not Modify (Default)

SW103 - SW803



Switch Name	Position	Meaning
GROUND	G	Ground Start Trunks
LOOP	L	Loop Start Trunks(Default)

SW104 - 804



Switch Name	Position	Meaning
600 Ohms	600	600 Ohm Terminated Station (Default)
900 Ohms	900	900 Ohm Terminated Station

SW101 - SW801



Switch Name	Position	Meaning
0 db	0db	0 db Attenuation Pad (Normal) (Default)
3 db	3db	3 db Attenuation Pad (Short Distance)

SW102 - SW802



Switch Name	Position	Meaning
Usual	U	Normal (Default)
Near	N	Do Not Use.

IX-8LGTK-2 Loop/Ground Start Trunk Card

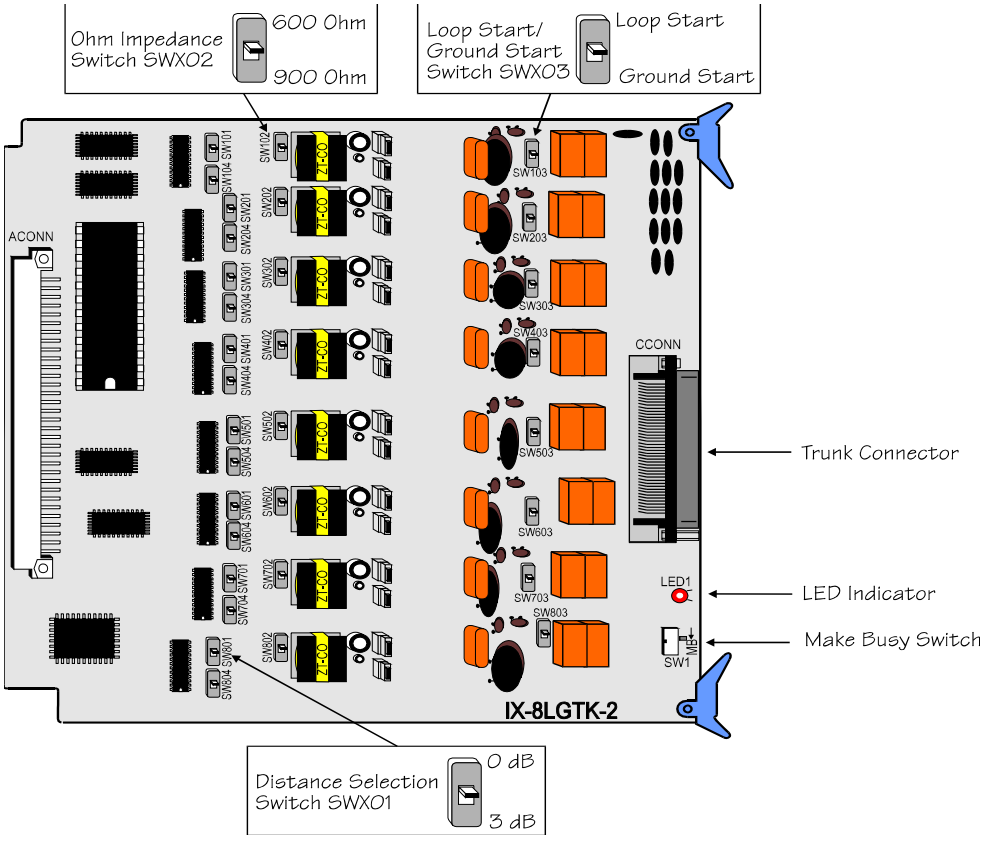
The IX-8LGTK-2 card interfaces up to eight universal ports to central office/PBX circuits. On-board selection allows this card to be used with both loop start trunks and ground start trunks. This card was preceded by the IX-8LGTK and IX-8LGTK-1 cards.

Technical Specifications

Model:	IX-8LGTK-2	On-Board Functions:	
Part No.:	101521	MBSW	Make Busy
Location:	Any universal card slot	SW101- SW801	Long (0dB)/Short (3dB) distance
Ports:	8 per card		selection
Circuit		SW102- SW802	600/900 Ohm impedance selection
Protection:	Metal Oxide Varistors	SW103- SW803	Loop/Ground Start selection
Threshold		SW104- SW804	Not Used - Set to U
Voltage:	220 V	Indicators:	LED1 = Busy
Additional Power Requirements:		Software	Class 01.04: polarity, disconnect
	None	Settings:	signal detection
Connectors:	ACONN - Motherboard	Size:	9.7”H x 9.5”W x 0.75”D
	CCONN - Trunks	Weight:	1.5 lbs.

CO/PBX Line Designation					
IX-8LGTK-2	Amph. Pin No.	MDF Pin No.	CM Wire Color	RJ11 Jack	
				Pin No.	Wire Color
	26	1	W-BL		
NO	1	2	BL-W		
CONNECTION	▼	▼	▼		
	41	31	Y-BL		
	16	32	BL-Y		
1T	42	33	Y-O	2	GN
1R	17	34	O-Y	1	R
2T	43	35	Y-GN	2	GN
2R	18	36	GN-Y	1	R
3T	44	37	Y-BR	2	GN
3R	19	38	BR-Y	1	R
4T	45	39	Y-SL	2	GN
4R	20	40	SL-Y	1	R
5T	46	41	V-BL	2	GN
5R	21	42	BL-V	1	R
6T	47	43	V-O	2	GN
6R	22	44	0-V	1	R
7T	48	45	V-GN	2	GN
7R	23	46	GN-V	1	R
8T	49	47	V-BR	2	GN
8R	24	48	BR-V	1	R
:	:	:	:	:	:
NO	50	49	V-SL		
CONNECTION	25	50	SL-V		

IX-8LGTK


Ohm Impedance Switch SWX02
600 Ohm
900 Ohm
Loop Start/ Ground Start Switch SWX03
Loop Start
Ground Start
ACONN
CCONN
Trunk Connector
LED1
LED Indicator
SW1
Make Busy Switch
IX-8LGTK-2
Distance Selection Switch SWX01
0 dB
3 dB

IX-408 Digital Station/Caller ID Trunk Card

Refer to the Station Card section of this manual for information on the IX-408 card.

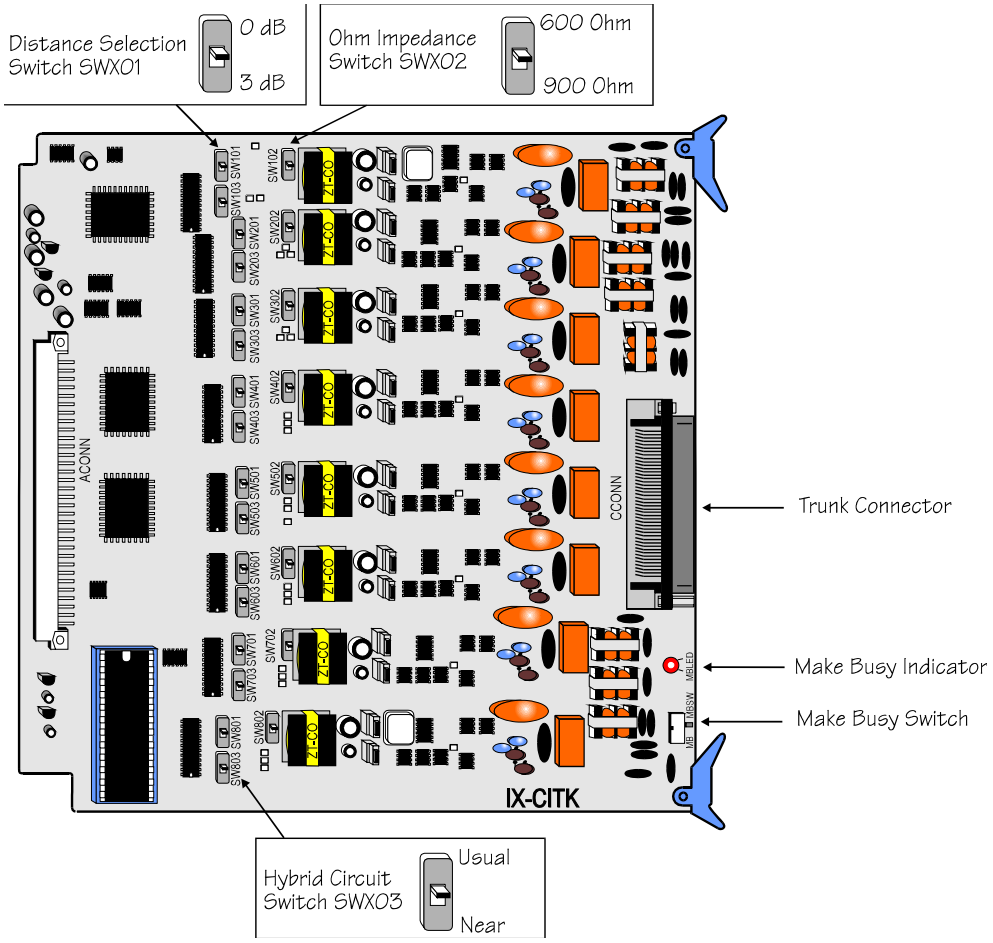
IX-8CITK Loop Start Trunk Card for Caller ID

The IX-8CITK card interfaces up to eight universal ports to loop start central office/ PBX circuits that provide caller ID service. This card is required to use the caller ID feature.

Technical Specifications

Model:	IX-8CITK	On-Board Functions:	
Part No.:	101522	MBSW	Make Busy
Location:	Any universal card slot	SW101- SW801	Long (0dB)/Short (3dB) distance
Ports:	8 per card		selection
Circuit		SW102- SW802	600/900 Ohm impedance selection
Protection:	Metal Oxide Varistors	SW103- SW803	Not Used - Set to U
Threshold		Indicators:	LED1 = Busy
Voltage:	220 V	Software	Class 01.04: polarity, disconnect
Additional Power Requirements:		Settings:	signal detection
	None	Size:	9.7”H x 9.5”W x 0.75”D
Connectors:	ACONN - Motherboard	Weight:	1.5 lbs.
	CCONN - Trunks		

IX-CITK


Distance Selection Switch SWX01
0 dB
3 dB
Ohm Impedance Switch SWX02
600 Ohm
900 Ohm
Trunk Connector
Make Busy Indicator
Make Busy Switch
IX-CITK
Hybrid Circuit Switch SWX03
Usual
Near

IX-400-2 Loop Start Caller ID Daughterboard

The IX-400-2 daughterboard interface central office/PBX circuits that provide caller ID service to the IX-CME Gateway Controller. The IX-400-2 daughterboard supports central office loop start trunks. The IX-400-2 Caller ID Trunk daughterboard is connected to CN1 and CN2 as well as the CN1000 RJ-45 connector on the IX-8PSUB-2 card.

Technical Specifications

Model: IX-400-2

Part No.: 040341

Location: IX-8PSUB-2 card

Ports: 4 per card

Additional Power Requirements:

None

Trunk Impedance:

Fixed at 600 Ohms

Connectors: CN1 and CN2 to IX-8PSUB-2
CN1000 - (RJ-45 to IX-8PSUB-2)

On-Board Switches:

SW101-401 - Normal (0db)/Short (3db) distance

Software Settings:

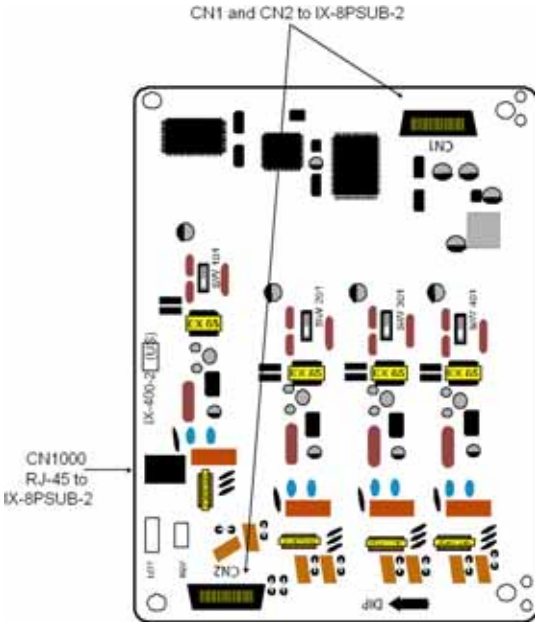
Class 01.03 Port Definition; Class 01.04 Configuration

Size: 6.25"H x 7.5"W x .75"D

Weight: .52 lbs.

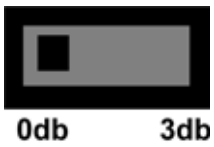
Storage Temperature: 14° to 122°F (-10 to 50°C)

IX-400-2 Daughterboard



SW101 - SW401

Switch Name:	Position:	Meaning:
0 db	0db	0 db Attenuation Pad (Normal(Default)
3 db	3db	3 db Attenuation Pad (Short Distance)



IX-8PSUB-2 Amphenol and MDF Wiring Assignment

Digital Station Ports	Amphenol Pin Number	MDF "66" Pin Number	25-Pair Wire Color	RJ11 Jack	
				Pin Number	Wire Color
1PT	26	1	W-BL	3	GN
1PR	1	2	BL-W	2	R
NC	27	3	W-O	4	Y
NC	2	4	O-W	1	BK
2PT	28	5	W-GN	3	GN
2PR	3	6	GN-W	2	R
NC	29	7	W-BR	4	Y
NC	4	8	BR-W	1	BK
3PT	30	9	W-SL	3	GN
3PR	5	10	SL-W	2	R
NC	31	11	R-BL	4	Y
NC	6	12	BL-R	1	BK
4PT	32	13	R-O	3	GN
4PR	7	14	O-R	2	R
NC	33	15	R-GN	4	Y
NC	8	16	GN-R	1	BK
5PT	34	17	R-BR	3	GN
5PR	9	18	BR-R	2	R
NC	35	19	R-SL	4	Y
NC	10	20	SL-R	1	BK
6PT	36	21	BK-BL	3	GN
6PR	11	22	BL-BK	2	R
NC	37	23	BK-O	4	Y
NC	12	24	O-BK	1	BK
7PT	38	25	BK-GN	3	GN
7PR	13	26	GN-BK	2	R
NC	39	27	BK-BR	4	Y
NC	14	28	BR-BK	1	BK
8PT	40	29	BK-SL	3	GN
8PR	15	30	SL-BK	2	R
NC	41	31	Y-BL	4	Y
NC	16	32	BL-Y	1	BK

When configured with the IX-400-2 Daughterboard

Caller ID	Amphenol	MDF "66"	25-Pair	RJ11 Jack	
Ports	Pin Number	Pin Number	Wire Color	Pin Number	Wire Color
1T	42	33	Y-O	2	GN
1R	17	34	O-Y	1	R
2T	43	35	Y-GN	2	GN
2R	18	36	GN-Y	1	R
3T	44	37	Y-BR	2	GN
3R	19	38	BR-Y	1	R
4T	45	39	Y-SL	2	GN
4R	20	40	SL-Y	1	R

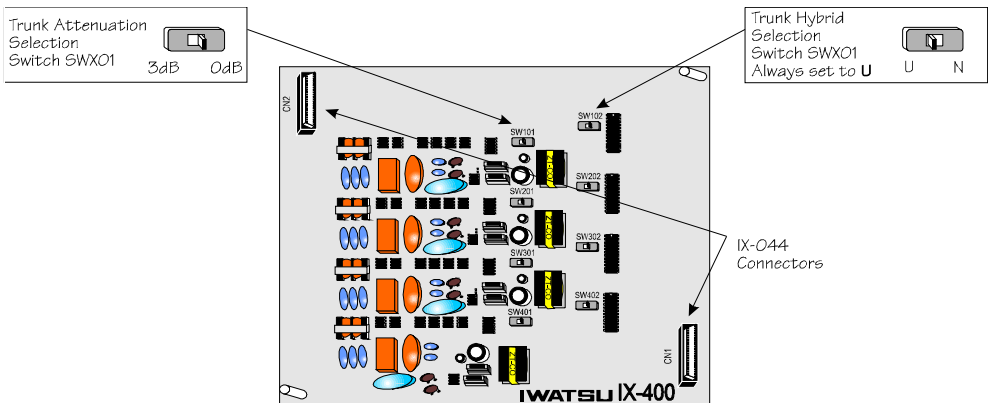
IX-400 Caller ID Daughterboard (CITK Caller ID Trunk Ports)

The IX-400 daughterboard interface central office/PBX circuits that provide caller ID service to the IX-CME Gateway Controller. The IX-400 daughterboard will also support central office loop start trunks. The IX-400 Caller ID Trunk daughterboard is connected to CN1 and CN2 on the IX-044 card. When connected to the IX-044 card, the four CITK ports are terminated on ports 113-116 of card slot 1.

Technical Specifications

Model:	IX-400	Connectors:	CN1 and CN2 - IX-044 Card
Part No.:	040340	On-Board Switches:	
Location:	IX-044 Card CN1 and CN2		SW101-SW401 - Trunk Hybrid Selection
Ports:	4 per card		SW102-SW402 - Trunk Attenuation Selection
Additional Power Requirements:		Software Settings:	
	None		Class 01.03 Port Definition; Class 01.04 Configuration
Trunk Impedance:		Size:	6.0”H x 7.5”W x .75”D
	Fixed at 600 Ohms	Weight:	.52 lbs.

IX-400 Caller ID Daughterboard



IX-4EMTK E&M Tie Line Card

The IX-4EMTK card interfaces up to four universal ports to E&M tie line circuits for inter-system networking. E&M Type I and Type II can be selected as required by the customer. Use *Class 01* to select the communication mode on the E&M trunks. The default condition of this card is 4 trunks and 4 dummy stations. An IX-DCDCM additional power supply must be installed in the system when the IX-4EMTK card is installed. The power supply must be on the same shelf as this card. The IX-4EMTK E&M uses four-wire voice. The FIC is TL31M, TL32M.

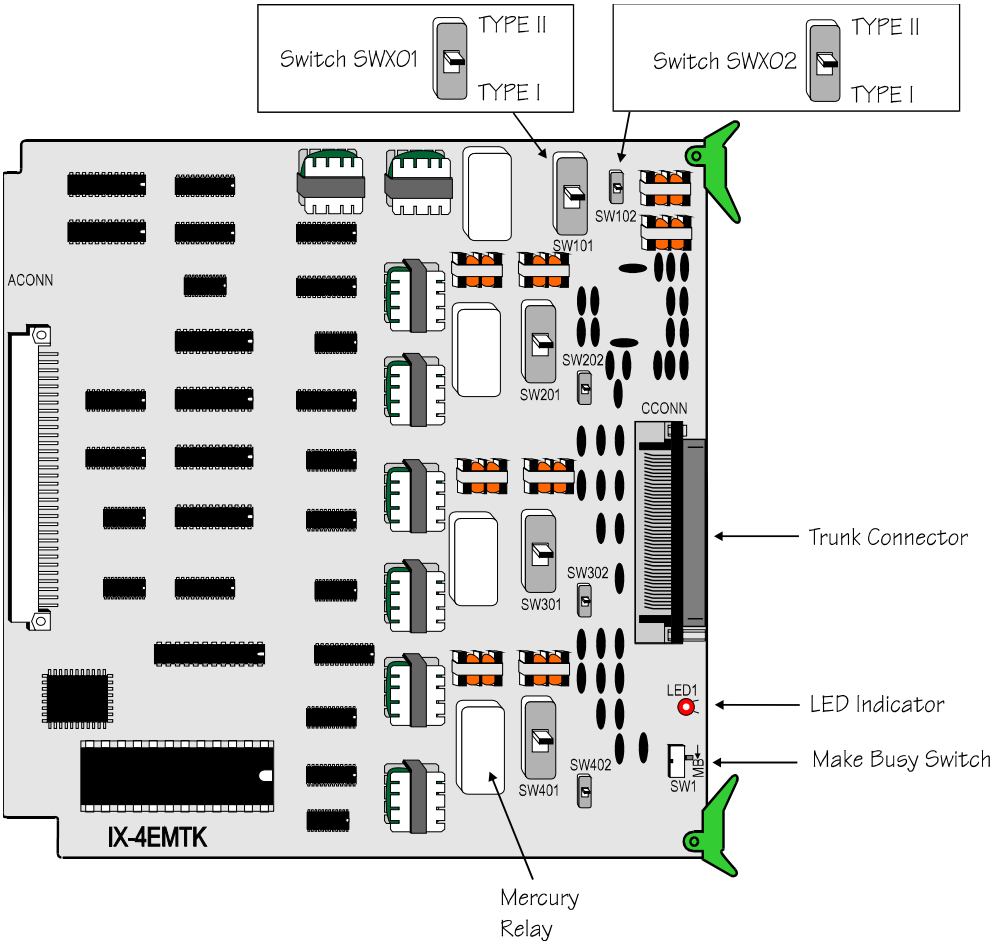
Note: When selecting Type I/Type II both SWX01 and SWX02 must have the same setting.

Technical Specifications

Model:	IX-4EMTK	On-Board Functions:	
Part No.:	101420	MBSW	Make Busy
Location:	Any universal card slot	SW101- SW401	Type I / Type II selection
Ports:	4 per card	SW102- SW402	Type I / Type I selection
Circuit		Indicators:	MBLED = Busy
Protection:	Metal Oxide Varistors	Connectors:	ACONN - Motherboard
Threshold			CCONN - Trunks
Voltage:	220 V	Software	Class 01.04 Attendant, immediate,
Additional Power Requirements:		Settings:	delay, wink
	IX-DCDCM	Size:	9.7”H x 9.5”W x 0.75”D
		Weight:	1.2 lbs.

IX-4EMTK	Amphenol Pin No.	MDF Pin No	CM Wire Color
1M	26	1	W-BL
1SB	1	2	BL-W
1E	27	3	W-O
1SG	2	4	O-W
2M	28	5	W-GN
2SB	3	6	GN-W
2E	29	7	W-BR
2SG	4	8	BR-W
3M	30	9	W-SL
3SB	5	10	SL-W
3E	31	11	R-BL
3SG	6	12	BL-R
4M	32	13	R-O
4SB	7	14	O-R
4E	33	15	R-GN
4SG	8	16	GN-R
5PT	34	17	R-BR
5PR	9	18	BR-R
	35	19	R-SL
	10	20	SL-R
6PT	36	21	BK-BL
6PR	11	22	BL-BK
	37	23	BK-O
	12	24	O-BK
7PT	38	25	BK-GN
7PR	13	26	GN-BK
	39	27	BK-BR
	14	28	BR-BK
8PT	40	29	BK-SL
8PR	15	30	SL-BK
	41	31	Y-BL
	16	32	BL-Y
1PT	42	33	Y-O
1PR	17	34	O-Y
1T1	43	35	Y-GN
1R1	18	36	GN-Y
2PT	44	37	Y-BR
2PR	19	38	BR-Y
2T1	45	39	Y-SL
2R1	20	40	SL-Y
3PT	46	41	V-BL
3PR	21	42	BL-V
3T1	47	43	V-O
3R1	22	44	O-V
4PT	48	45	V-GN
4PR	23	46	GN-V
4T1	49	47	V-BR
4R1	24	48	BR-V
N/C	50	49	V-SL
	25	50	SL-V

IX-4EMTK



Note: Tap down mercury relays before installing the IX-4EMTK in the system.

IX-4DITK DID Trunk Card

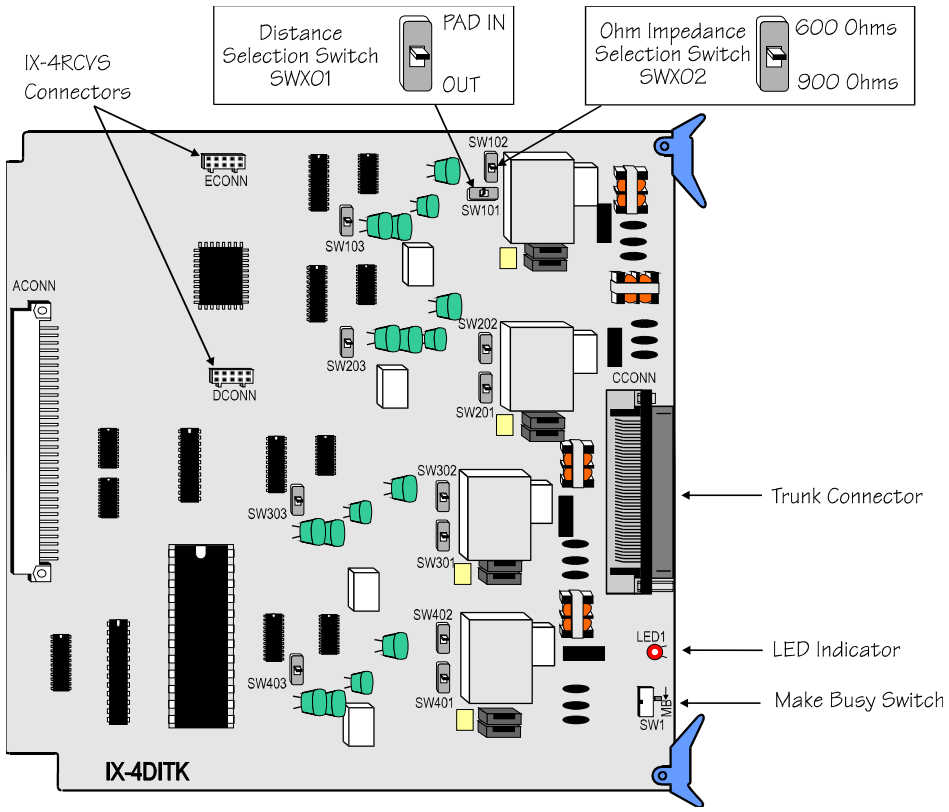
The IX-4DITK card interfaces up to four universal ports to Direct Inward Dial (DID) circuits. Incoming numbers received on these lines can be translated to station numbers using database programming (*Class 9*). Use *Class 01.04* to select the communication mode on the DID trunks. An IX-DCDCA (ADIX), IX-DCDCB (ADIX), or IX-DCDCM (ADIX-M) additional power supply must be installed in the system when the IX-4DITK card is installed. An IX-4RCVS card must be mounted on board if DTMF signal detection is required.

Note: The analog DID is an incoming circuit only.

Technical Specifications

Model:	IX-4DITK	On-Board Functions:	
Part No.:	101430	SW1	Make Busy
Location:	Any universal card slot	SW101- SW401	Distance selection
Ports:	4 per card	SW102- SW402	Ohm impedence selection
Circuit		SW103-SW403	Not Used - Set to U
Protection:	Metal Oxide Varistors	Indicators:	LED1 = Busy
Threshold		Connectors:	ACONN - Motherboard
Voltage:	220 V		CCONN - Trunks
Additional Power Requirements:			DCONN/ECONN - IX-RCVS
	IX-DCDCM	Software Settings:	Mode (Class 01.04) Attendant,
			Immediate, delay, wink
Add-Ons:	IX-RCVS for	Size:	9.7”H x 9.5”W x 0.75”D
	DTMF services	Weight:	1.2 lbs.

IX-4DITK	Amphenol Pin No.	MDF Pin No.	CM Wire Color	RJ11 Jack	
				Pin No.	Wire Color
	26	1	W-BL	3	GN
N/C	1	2	BL-W	2	R
⇓	⇓	⇓	⇓	⇓	⇓
N/C	41	31	Y-BL	4	Y
	16	32	BL-Y	1	BK
1T	42	33	Y-O	3	GN
1R	17	34	O-Y	2	R
2T	43	35	Y-GN	4	GN
2R	18	36	GN-Y	1	R
3T	44	37	Y-BR	3	GN
3R	19	38	BR-Y	2	R
4T	45	39	Y-SL	4	GN
4R	20	40	SL-Y	1	R
⇓	⇓	⇓	⇓	⇓	⇓
N/C	50	49	V-SL	3	GN
	25	50	SL-V	2	R


IX-4RCVS
Connectors
Distance
Selection Switch
SWX01
PAD IN
OUT
Ohm Impedance
Selection Switch
SWX02
600 Ohms
900 Ohms
ECONN
DCONN
ACONN
CCONN
SW101
SW102
SW103
SW201
SW202
SW203
SW301
SW302
SW303
SW401
SW402
SW403
SW1
LED1
Trunk Connector
LED Indicator
Make Busy Switch
IX-4DITK

IX-T1DTI Digital Trunk Card

The IX-T1DTI card directly connects the T1 (DS1) pipe to the ADIX system ports. The IX-T1DTI card provides a maximum of 24 digital channels that can be individually selected through database programming. Available channel types are: loop start trunk, ground start trunk, ANI trunk, DNIS trunk, E&M trunk, DID trunk, E&M tie line, and OPX channel. Using switch S1, the IX-T1DTI card can be assigned for fractional (partial) use of the T1 pipe. The fractional settings are 8 channels, 16 channels, and 24 channels. In the ADIX, this card can only be installed in IX-CM/ IX-EXPM slots 1 and 5. If an IX-T1RCV receiver card is required for DTMF detection, it can only be installed in the slot to the immediate right of the IX-T1DTI card (universal card slots 2, 6). The fractional setting of the IX-T1DTI card affects the availability of the universal card slots following the card. For example, if an IX-T1DTI card is installed in IX-EXPM card slot 1 and the fractional setting is 24, card slot 2 can only contain an IX-T1RCV card and card slot 3 is not available. In the ADIX-M and ADIX APS, this card should be installed in the IX-CMM/L card slot labeled 097-120, or the IX-EXPMM/L card slot labeled 161-184/193-216. Doing so eliminates additional universal card slot loss. The system software must be version 4.1x/5.1x or higher, and an IX-PLLU card must be installed in the system if the IX-T1DTI card is used.

Note: If the system is operating with an ADIX IX-CPU16M CPU card, an IX-PLLU card is not required.

The following on-board setup functions and status indicators are used to provide an interface between the system clock and the various T1 carriers:

Clocking Mode Setup

Switch S1, positions 1 and 2 are used to configure the clocking mode of an IX-T1DTI card as either *master, slave-primary, slave-backup,* or *slave-private.* Master clocking mode must be selected if your local T1 pipe is a private connection. If slave clocking mode is selected, primary slave mode or backup slave mode must be selected. Slave mode must be selected when connecting to a carrier (i.e., MCI, ATT). If you have only one T1 carrier terminating for trunking, select slave-primary. If multiple T1 carriers are terminated for trunking, assign slave-primary to one T1 pipe and slave-backup for the others. Select slave-backup if your local T1 pipe is a satellite switch. In a network setup, use slave-private if an IX-T1DTI card is directly connected to an IX-T1DTI card configured as master. Use slave-backup for other cards in the network.

System Highway Synchronization

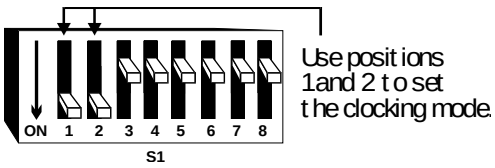
The ADIX synchronizes the system clock to the T1 pipe connected to the IX-T1DTI card assigned as slave-primary. If synchronization between the system clock and T1 pipe clock connected to the IX-T1DTI card assigned as slave-primary fails, the system will select a T1 pipe connected to an IX-T1DTI card assigned as slave-backup and synchronize the system highway clock to it. LED D5 will light on the IX-T1DTI card being used for system highway synchronization. If an IX-T1DTI card is configured as master, system clock synchronization is received from the IX-T1DTI card assigned as slave. If no slave cards are present, the master will provide clock synchronization.

Technical Specifications

Model:	IX-T1DTI	On-Board Functions:	
Part No.:	101530	S1	Clock Mode, SF/ESF Framing, Digital
Location:	ADIX - Universal card slots 1 or 5		Attenuation, Fractional Setting, Blue Alarm
	ADIX-M - 24-port card slot	S2	Distance from CSU
Ports:	Fractional settings 8/16/24 channels	S3	Make Busy
Circuit		Indicators:	
Protection:	Metal Oxide Varistors	D1/ RRED	Steady = T1 link at red alarm,
Threshold			Flashing = Receiving blue alarm
Voltage:	240 V	D2/ RYEL	Steady = Receiving yellow alarm
Additional Requirements:		D3/ ERR	Steady = Bipolar violation error in receiving line
	IX-PLLU installed in the system	D4/M/*S	On = Master Clocking Mode,
Add-Ons:	IX-T1RCV for DTMF services		Off = Slave Clocking Mode
Connectors:	CN1 - T1 line termination	D5/CKM	On - Card is clock source
	CN2 - Motherboard	D6	Busy/Idle Indication
	CN4 - IX-T1RCV	D14/ RMFA	Clock Synchronization Indication
Software		Size:	9.7”H x 9.5”W x 0.75”D
Settings:	T1 trunk type (Class 01.03)	Weight:	0.9 lbs.
	Mode (Class 01.04)		

S1 Switch Selection

Switch Position		Function
1	2	
OFF	OFF	Slave-Backup
ON	OFF	Slave-Primary
OFF	ON	Slave-Private

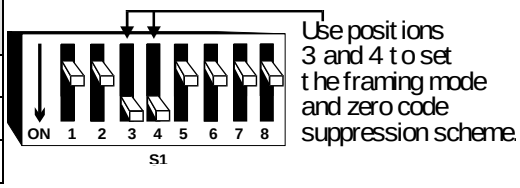


Framing Mode / Zero Code Suppression Scheme

Switch S1, positions 3 and 4 are used to set the *framing mode* and *zero code suppression scheme* used in the T1 pipe connected to the IX-T1DTI card. Framing mode choices are Superframe D4 (SF/D4) and Extended Superframe D5 (ESF). In most cases the zero code suppression scheme is AMI (B7 stuffing) with superframe D4 framing and B8ZS with extended superframe D5 framing.

S1 Switch Selection

Switch Position		Function
3	4	
OFF	OFF	ESF-B8ZS
ON	OFF	ESF-AMI (B7 Stuffing)
OFF	ON	SF/D4-B8ZS



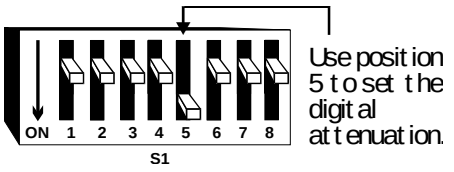
Digital Attenuation

Switch S1, position 5 is used to set the *digital attenuation* to either the digital local office (D/CO), or digital toll office (D/TO) level. Digital attenuation levels are in accordance with EIA standard RS464A.

Note: The digital attenuation of an IX-T1DTI card configured as slave-private must also be configured according to the EIA standard.

S1 Switch Selection

Switch Position	Function
5	
OFF	(-6db) Digital Toll Office (D/TO)
ON	(0db) Digital Local Office (D/LO)
OFF	Slave-Private

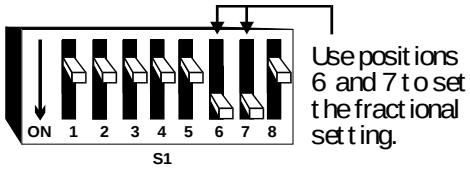


Fractional Setting

Switch S1, positions 6 and 7 are used to set the usage of the IX-T1DTI card for either 8, 16, or 24 channels.

S1 Switch Selection

Switch Position		Function
6	7	
OFF	OFF	24 Channels
ON	OFF	Factory Use Only
OFF	ON	16 Channels



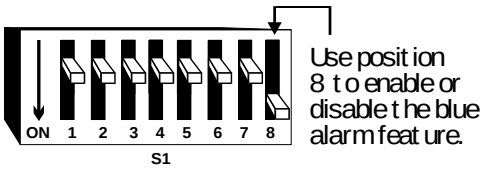
Blue Alarm Enabled/Disabled

Switch S1, position 8 is to enable or disable the blue alarm. This feature is useful when an IX-T1DTI card assigned as the master clock losses the receiving signals from its private T1 pipe. When this condition occurs, LED D1 will flash if S1 position 8 is enabled.

Note: If blue alarm is enabled and a card configured as master, the network circuit goes out of service when the blue alarm is sent on the private T1.

S1 Switch Selection

Switch Position	Function
8	
OFF	Blue Alarm Disabled
ON	Blue Alarm Enabled

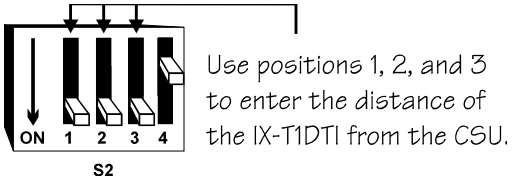


Distance From CSU

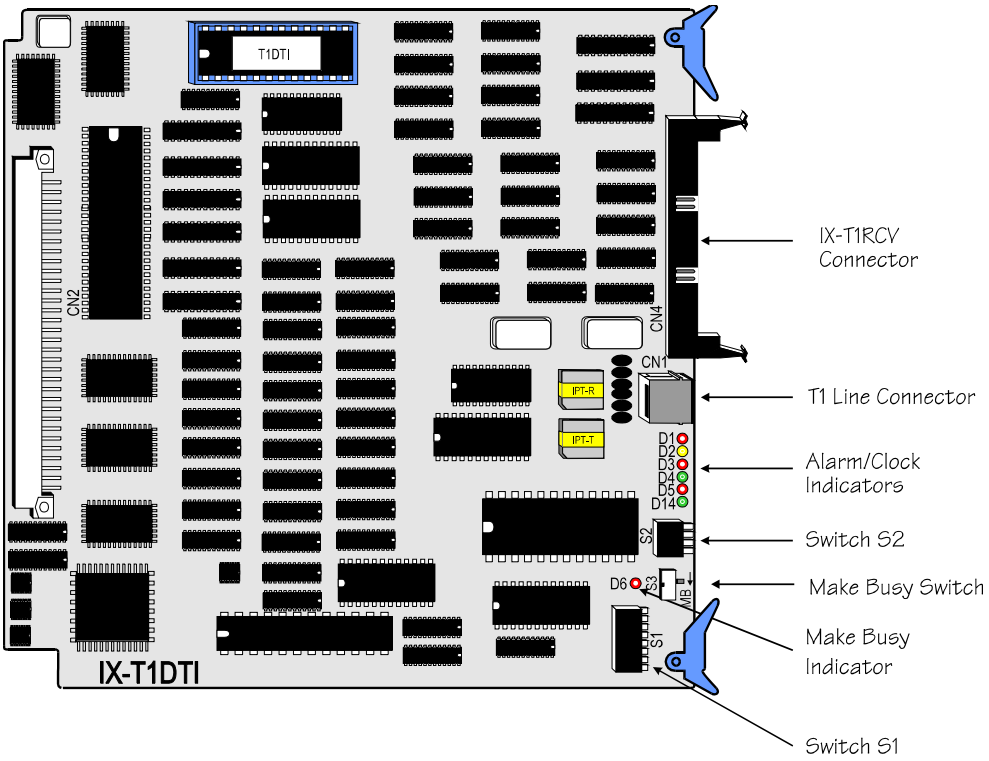
Switch S2, positions 1, 2, and 3 are used to enter the length of the data cable that connects the IX-T1DTI card to the CSU. This setting must be registered on each IX-T1DTI card. The maximum distance permitted from the IX-T1DTI card to the CSU is 660 feet.

S2 Switch Selection

Switch Position			Function
1	2	3	
ON	ON	ON	Up to 110 Feet
ON	ON	OFF	111 to 220 Feet
ON	OFF	ON	221 to 330 Feet
ON	OFF	OFF	331 to 440 Feet
OFF	ON	ON	441 to 550 Feet
OFF	ON	OFF	551 to 660 Feet



IX-T1DTI CARD



IX-DTI-T T1 Interface Card

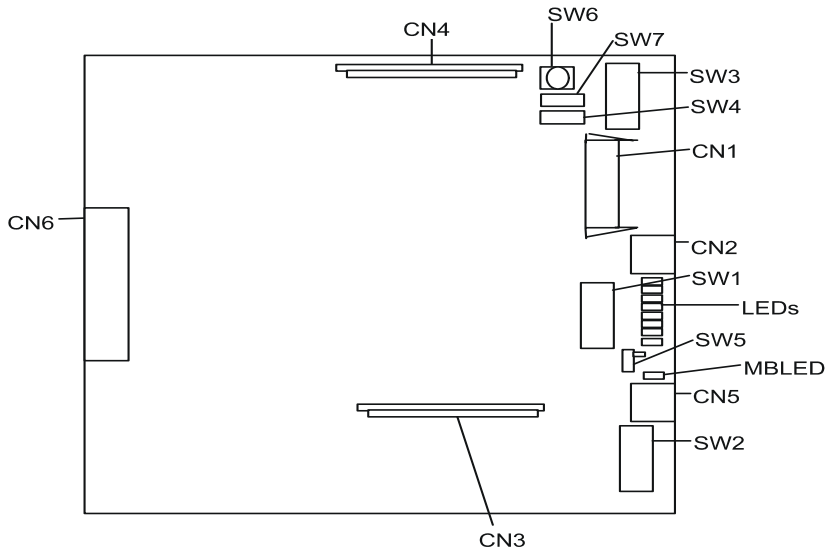
The IX-DTI-T T1 Interface Card is a digital trunk interface card that is a direct replacement for the IX-T1DTI card. The IX-DTI-T T1 Interface Card can also be converted to support ISDN PRI and the T1 Campus Networking function. Its function is determined by switch settings and software loaded on the card.

The IX-DTI-T T1 Interface Card connects the T1 digital circuit to the ECS system. The IX-DTI-T T1 Interface Card provides a maximum of 24 digital channels that can be individually selected through database programming

Technical Specifications

Model:	IX-DTI-T T1 Interface Card	On-Board Functions:	
Part No.:	102210	S1	Distance from CSU, Loopback
Location:	First slot on any highway	S2	Clocking Mode, System Highway;
Ports:	Fractional settings 8/16/24 channels		Digital Attenuation, Fractional
Protection:	Metal Oxide Varistors	S3	Make Busy
Threshold		Connectors:	
Voltage:	240 V		CN1 IX-T1RCV Connector
Additional Requirements:			CN2 T1 Line Termination
	External CSU; IIX-PLLU for systems utilizing a IX-HWCL or IX-HWCE;		CN3 and CN4 IX-VCOMP Connectors
Add-Ons:	IX-T1RCV for DTMF services		CN5 For Factory Use Only
Connectors:	CN1 - T1 line termination		CN6 ECS Connector
	CN2 - Motherboard	Size:	9.7”H x 9.5”W x 0.75”D
	CN4 - IX-T1RCV	Weight:	0.9 lbs.
Software Settings:			
	T1 trunk type (Class 01.03)		
	Mode (Class 01.04)		

Note: IX-T1RCV card is not supported in the ECS IX-CME cabinet.

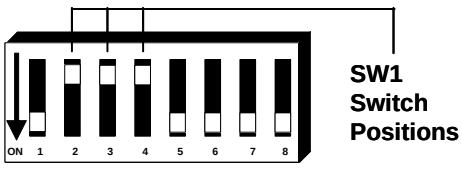


Switch Settings

Distance From CSU: Switch SW1 positions 2, 3 and 4 are used to enter the length of the cable that connects the IX-DTI-T T1 Interface Card to the CSU. This setting must be registered on each IX-DTI-T T1 Interface Card. Switch position 1 is not used and should be set to **OFF**.

SW1 Switch Selection

Switch Positions			
2	3	4	Function
OFF	OFF	OFF	Up to 133 feet
ON	OFF	OFF	133 to 266 feet
OFF	ON	OFF	266 to 399 feet
ON	ON	OFF	399 to 533 feet
OFF	OFF	ON	533 to 655 feet



Loopback Settings

(These settings are used for circuit testing purposes only.)

Switch SW1, positions 5, 6, 7 and 8 are used to enter the Loopback Settings. These settings should be at **OFF** at all times. Loopback settings affect local or remote loopback functions. Following are descriptions of each loopback function:

Remote Line Loopback. Remote Line Loopback loops the digital receiver inputs to the digital transmitter outputs. The loopback provides BPV transparency and the ability to override the looped data with the Alarm Indicator Signal (AIS). The digital receiver data path is not affected by the activation of this loopback.

Remote Payload Loopback. Remote Payload loopback loops all DS0 channels from the digital receiver input to the digital transmitter output. The loopback payload retains time slot integrity so that the numbered time slots from each received frame are transferred to the same numbered time slots in the transmit frame.

Remote Per-Channel Loopback. Remote Per-Channel Loopback loops the digital receiver input DS0 channel to the digital transmitter output DS0 channel.

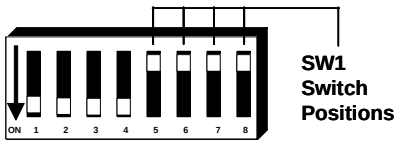
Local Analog Loopback. Local Analog Loopback is provided by a Receive Line Interface Unit and internally routes bipolar data from XTIP/XRING to RTIP/RRING. In the local analog loopback mode, externally applied data on RTIP/RRING inputs are ignored and XTIP/XRING output data is unaffected.

Local Framer Loopback. Local Framer Loopback loops the transmit line encoder outputs to the receive line encoder inputs. The transmit line interface unit output is not affected by the activation of this loopback.

Local Per-Channel Loopback. Local Per-Channel Loopback loops the transmit system bus PCM and signals inputs to the receive system bus PCM on a per-channel basis.

SW1 Switch Selection

Switch Positions				
5	6	7	8	Function
OFF	OFF	OFF	OFF	No Loopback
ON	OFF	OFF	ON	Remote Line Loopback
ON	OFF	OFF	ON	Remote Payload Loopback
OFF	ON	OFF	ON	Remote Per-channel Loopback
OFF	OFF	ON	ON	Local Analog Loopback
ON	OFF	ON	ON	Local Framer Loopback
OFF	ON	ON	ON	Local Per-channel Loopback

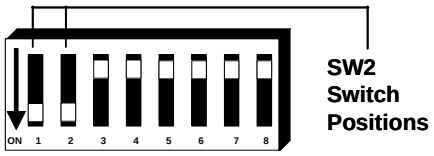


Clocking Mode Setup

Switch SW2 positions 1 and 2 are used with the IX-DTI-T T1 Interface Card. In the IX-DTI-T T1 Interface Card, this switch is used to configure the clocking mode as master, slave primary or slave-backup, slave-private.

SW2 Switch Selection

Switch Positions		Function
1	2	
OFF	OFF	Slave-Backup
ON	OFF	Slave-Primary
OFF	ON	Slave-Private
ON	ON	Master



System Highway Synchronization

The ECS synchronizes the system clock to the T1 circuit connected to the IX-DTI-T T1 Interface Card assigned as slave-primary. If synchronization between the system clock and T1 circuit clock connected to the IX-DTI-T T1 Interface Card assigned as slave-primary fails, the system selects a T1 circuit connected to an IX-DTI-T T1 Interface Card assigned as slave-backup and synchronizes the system highway to clock it. LED D5 lights on the IX-DTI-T T1 Interface Card are being used for system highway synchronization. If an IX-DTI-T T1 Interface Card is configured as master, system clock synchronization is received from the IX-DTI-T T1 Interface Card assigned as slave. If no slave cards are present, the system provides the clock. In a private network setup, use slave-private if an IX-DTI-T T1 Interface Card is directly connected to another IX-DTI-T T1 Interface Card configured as a master.

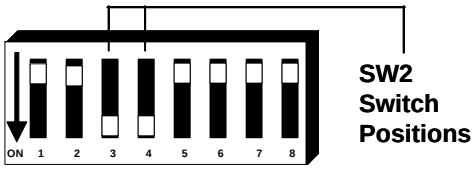
Note: Any IX-DTI-T T1 Interface Card configured with T1 E&M Tie Lines must be set for Master or Slave-Private Clocking.

Framing Mode / Zero Code Suppression Scheme

Switch SW2, positions 3 and 4 are used to set the framing mode and zero code suppression scheme used in the T1 circuit connected to the IX-DTI-T T1 Interface Card. Framing mode choices are Superframe D4 (SF/D4) and Extended Superframe D5 (ESF). In most cases the zero code suppression scheme is AMI (B7 stuffing) with Superframe D4 framing and B8ZS with Extended Superframe D5 framing.

SW2 Switch Selection

Switch Positions		Function
3	4	
OFF	OFF	ESF - B8ZS
ON	OFF	ESF - AMI (B7 stuffing)
OFF	ON	SF/D4 - B8ZS
ON	ON	SF/D4 - AMI (B7 stuffing)



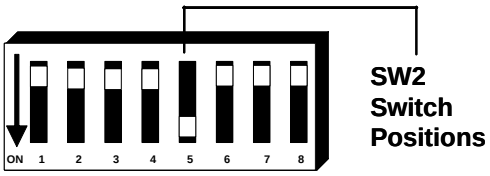
Digital Attenuation

Switch SW2, position 5 is used to set the digital attenuation to either the digital local office (D/CO), or digital toll office (D/TO) level. Digital attenuation levels are in accordance with EIA standard RS464A.

Note: If an IX-DTI-T T1 Interface Card is set for slave-private, SW2 position 5 has no meaning.

SW2 Switch Selection

Switch Position 5	Function
OFF	Digital Toll Office (D/TO)
ON	Digital Local Office (D/LO)

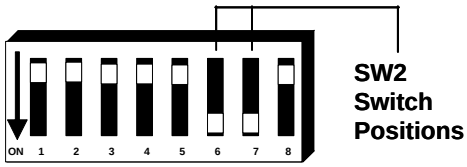


Fractional Setting

Switch SW2, positions 6 and 7 are used to set the usage of the IX-DTI-T T1 Interface Card for 8, 16, or 24 channels.

SW2 Switch Selection

Switch Positions		
6	7	Function
OFF	OFF	24 channels
ON	OFF	Not Used
OFF	ON	16 channels
ON	ON	8 channels



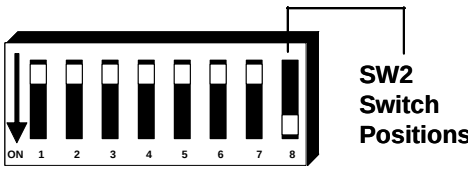
Blue Alarm Enabled/Disabled

Switch SW2, position 8 is to enable or disable the blue alarm. This feature is useful when an IX-DTI-T T1 Interface Card assigned as the master clock losses the receiving signals from its private T1 circuit. When this condition occurs, LED RD ALM flashes if SW2 position 8 is enabled.

Note: If blue alarm is enabled at a card configured as master, the network circuit goes out of service when the blue alarm is sent on the private T1.

SW2 Switch Selection

Switch Position 8	Function
OFF	Blue Alarm disabled
ON	Blue Alarm enabled

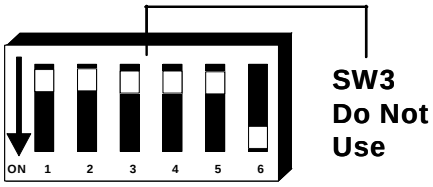


Test Settings

Switch SW3 on the IX-DTI-T T1 Interface Card is for testing purposes only, all positions should be set to **OFF**.

SW3 Switch Selection

Switch Positions					
1	2	3	4	5	6
DO NOT SET					

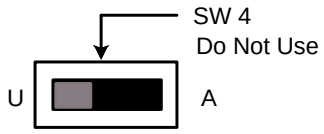


A/μ-Law Setting

Switch SW4 is not used for the IX-DTI-T T1 Interface Card and should always be set to **U**

SW 4 Selection.

Switch Position 1	Function
U	μ-law
A	A-law

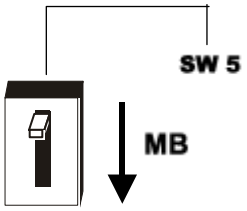


Make Busy Setting

Switch SW5 on the IX-DTI-T T1 Interface Card is used to control the **MAKE BUSY** setting.

SW5 Switch Selection

Switch Position	
1	Function
OFF	Normal
ON	Make Busy



Reset Switch

Switch SW6 is the Reset button on the IX-DTI-T T1 Interface Card. Pressing the Reset button resets the local PPU on the IX-DTI-T T1 Interface Card.

SW6 Switch Selection

Switch Position
1
Press to Reset

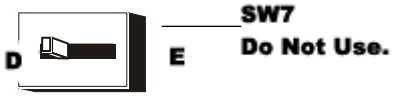


Flash Write Enabling

Switch SW7 on the IX-DTI-T T1 Interface Card is used activate the serial port on the card in order to change the function to an IX-DTI-N or an IX-DTI-P Digital Trunk Card. Do not change this switch from the factory setting; it is defaulted to DISABLE.

SW7 Switch Selection

Switch Position	
1	
E	Enable
D	Disable



IX-T1RCV DTMF Receiver Card

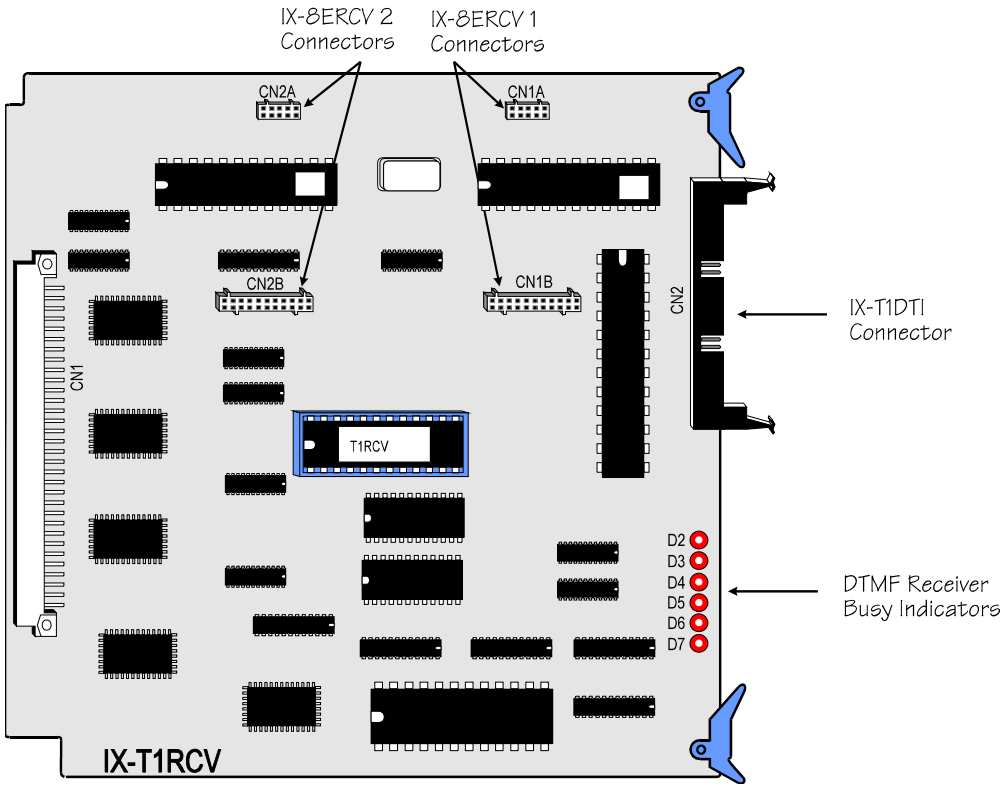
The IX-T1RCV card provides emulated DTMF signal receiving capability to the IX-DTI-T card. This card is required if one or more T1 channels are configured as ANI trunks, DID trunks, DNIS trunks, E&M tie lines, or OPX lines using DTMF signaling. Regardless of the fractional setting of the IX-DTI-T card, the IX-T1RCV card must be installed in the card slot to the immediate right of the IX-DTI-T card. Connect the two cards using the flat cable provided. The T1RCV card provides eight dedicated DTMF receiver circuits for the first eight channels of the T1 pipe. Space is provided on-board to connect two IX-8ERCV daughterboards. The first IX-8ERCV daughterboard provides eight DTMF receiver circuits for channels 9 through 16 of the T1 pipe. The second IX-8ERCV daughterboard provides eight DTMF receiver circuits for channels 17 through 24 of the T1 pipe.

Note:	**Warning!** Do not connect or disconnect this card to the receiver card while the power is on.

Technical Specifications

Model:	IX-T1RCV	Indicators:	D2-D7 = DTMF receiver busy indication
Part No.:	101540	Connectors:	CN1 - Motherboard
Location:	Card Slot to immediate right of IX-DTI-T card		CN2 - IX-DTI-T CN1A/CN1B - IX-8ERCV 1
Ports:	Eight (8) DTMF receivers per card		CN2A/CN2B - IX-8ERCV2
Add-Ons:	2 x IX-8ERCV cards each card adds 8 DTMF receivers	Size: Weight:	9.7”H x 9.5”W x 0.75”D 0.7 lbs

Note:	IX-T1RCV card is not supported in the ECS IX-CME cabinet. For DNIS, CID, and Networking features: The IX-DTI-T and IX-T1RCV cards must be installed in the ADIX-APS, ADIX-M, or the ADIX cabinets connected to the IX-CME via an IX-HWYL card.

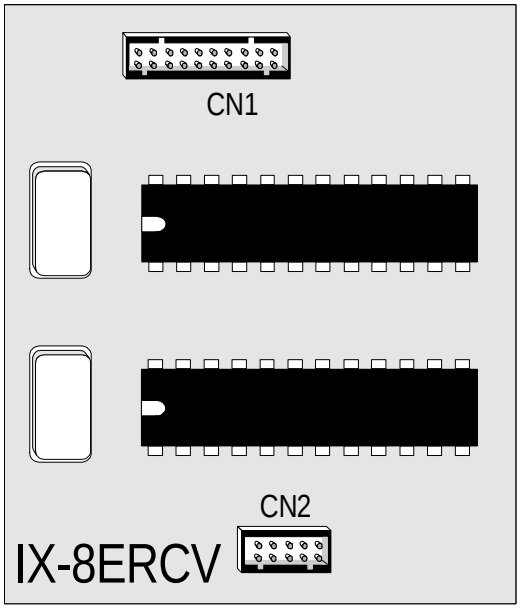

IX-8ERCV 2
Connectors
IX-8ERCV 1
Connectors
CN2A
CN1A
CN2B
CN1B
CN1
CN2
T1RCV
D2
D3
D4
D5
D6
D7
IX-T1DTI
Connector
DTMF Receiver
Busy Indicators
IX-T1RCV

IX-8ERCV DTMF Receiver Daughterboard

The IX-8ERCV daughterboard must be mounted on the IX-T1RCV card to provide additional DTMF signal detection capability to channels of the T1 pipe. Each IX-8ERCV card contains eight DTMF receivers. There is space on-board the IX-T1RCV card for two IX-8ERCV daughterboards. One daughterboard can be connected to CN1A and CN1B to provide DTMF signal detection capability to channels 9-16. A second daughterboard can be connected to CN2A and CN2B to provide DTMF signal detection capability to channels 17-24.

Technical Specifications

Model:	IX-8ERCV	Indicators:	None
Part No.:	101550	Connectors:	CN1/CN2 - IX-DTI-T
Location:	IX-T1RCV card		
Ports:	None	Size:	3.5”H x 2.8”W x 0.75”D
		Weight:	0.1 lbs
Circuits:	8 DTMF receivers per card		

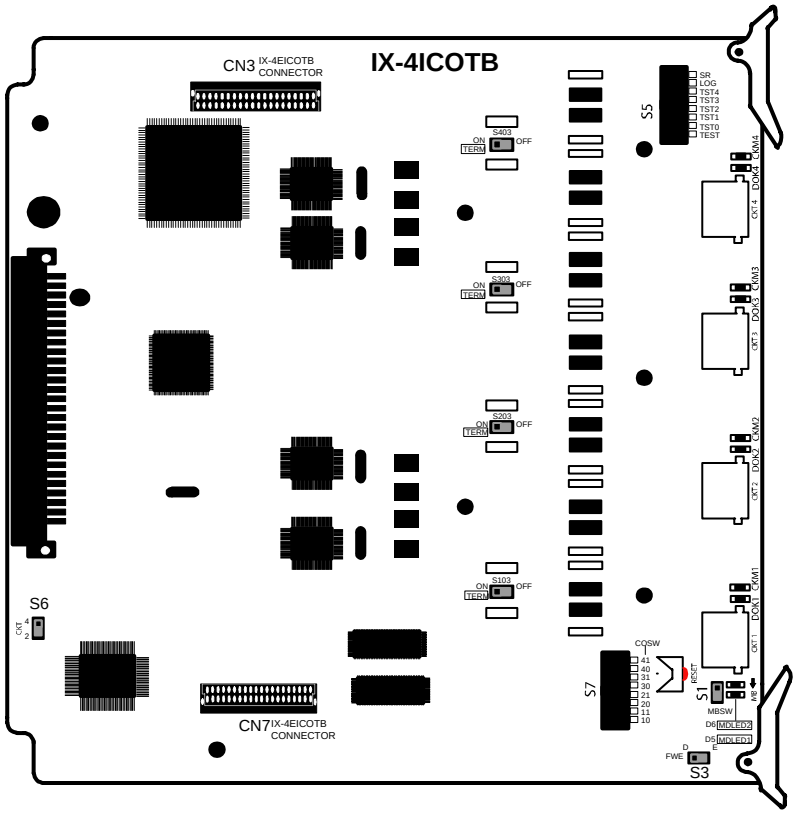


IX-4ICOTB ISDN BRI Interface Card

The IX-4ICOTB ISDN BRI card interfaces four ISDN BRI (Basic Rate Interface) lines to the ECS. Each ISDN BRI line contains two B channels and one D channel.

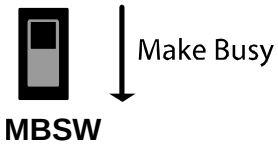
Technical Specifications

Model:	IX-4ICOTB	Indicators:	See IX-4ICOTB LED Indications
Part No.:	102001	Switches	See IX-4ICOTB Switch Settings
Location:	See card location on following pages of this section	Connectors:	
Ports:	8 channels per card		CKT1 - 1st BRI Circuit
Threshold Voltage:			CKT2 – 2ND BRI Circuit
	220 V		CKT3 – 3RD BRI Circuit
Additional Power Requirements:			CKT4 – 4TH BRI Circuit
	None	Software	
Size:	9.25x 9.25 inches		
Weight:	0.8 lbs.		



IX-4ICOTB Switch Settings

Make Busy Switch (MBSW)



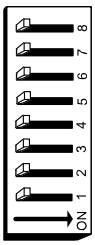
Switch		Settings	Description
Number	Name		
S1	MBSW	OFF	Normal mode; Default position.
		ON	Places both the IX-4ICOTB and the IX-4EICOTB in the make busy mode; all idle trunks are made busy; all trunks in use enter the make busy state upon returning to idle.

FWE Switch (S3



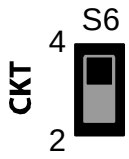
Switch		Settings	Description
Number	Name		
S3	FWE	D	Normal mode; Default position.
		E	For factory use only; do not change.

S5 Switch Bank



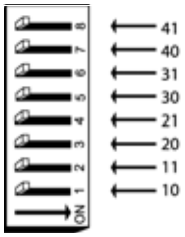
Switch		Settings	Description
Number	Name		
S5	S5	OFF (all)	Normal mode; Default position.
		ON	Factory use only; leave all in the OFF position.

CKT Switch (S6)



Switch		Settings	Description
Number	Name		
S6	CKT	4	Four BRI circuits will be used; **Default position**.
		2	The first two BRI circuits will be used. Not used with the ECS

CO Switch Bank



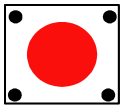
Switch		Settings Switch Position								Description
Number	Name	Circuit 1		Circuit 2		Circuit 3		Circuit 4		
		10	11	20	21	30	31	40	41	
S7	COSW	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	National ISDN-1/2; **Default position**
		ON	OFF	ON	OFF	ON	OFF	ON	OFF	AT&T 5ESS 5E9
		OFF	ON	OFF	ON	OFF	ON	OFF	ON	Nortel DMS-100

Terminator Switches (S103 – S403)



Switch		Settings	Description
Number	Name		
S103	TERM	ON	Onboard network terminator for CKT 1 is used; **Default position**.
		OFF	External network terminator on will be used.
S203	TERM	ON	Onboard network terminator for CKT 2) is used; **Default position**.
		OFF	External network terminator will be used.
S303	TERM	ON	Onboard network terminator for CKT 3 is used; **Default position**.
		OFF	External network terminator will be used.
S403	TERM	ON	Onboard network terminator for CKT 4 is used; **Default position**.
		OFF	External network terminator will be used.

Reset Switch



Switch		Settings	Description
Number	Name		
S8	Reset	Pressed	IX-4ICOTB resets; all calls are dropped.

IX-4ICOTB LED Indications

LED		Status	Description
Number	Name		
D5	MBLED (Lower LED)	OFF	IX-4ICOTB is idle.
		ON	IX-4ICOTB is has a call in progress.
		Flashing	IX-4ICOTB is in the make busy state.
D6	MBLED (Higher LED)	OFF	IX-4EICOTB is idle.
		ON	IX-4EICOTB is has a call in progress.
		Flashing	IX-4EICOTB is in the make busy state.
D107 – D407	DOK1 – DOK4 GREEN LED	OFF	The respective circuit (CKT 1 – 4) has no connection.
		ON	The respective circuit (CKT 1 – 4) is connected.
D1 – D4	CKM1 – CKM4 RED LED	OFF	The respective circuit (CKT 1 – 4) is not used for clock /slave synchronization.
		ON	The respective circuit (CKT 1 – 4) is used for system clocking.
		Flashing	Card is in the initialization process.
		All LEDs Flashing	The ECS configuration is incorrect for the card and/or the card's ports are not configured in the ECS.
		All LEDs ON	The IX-4ICOTB indicated a software process error.

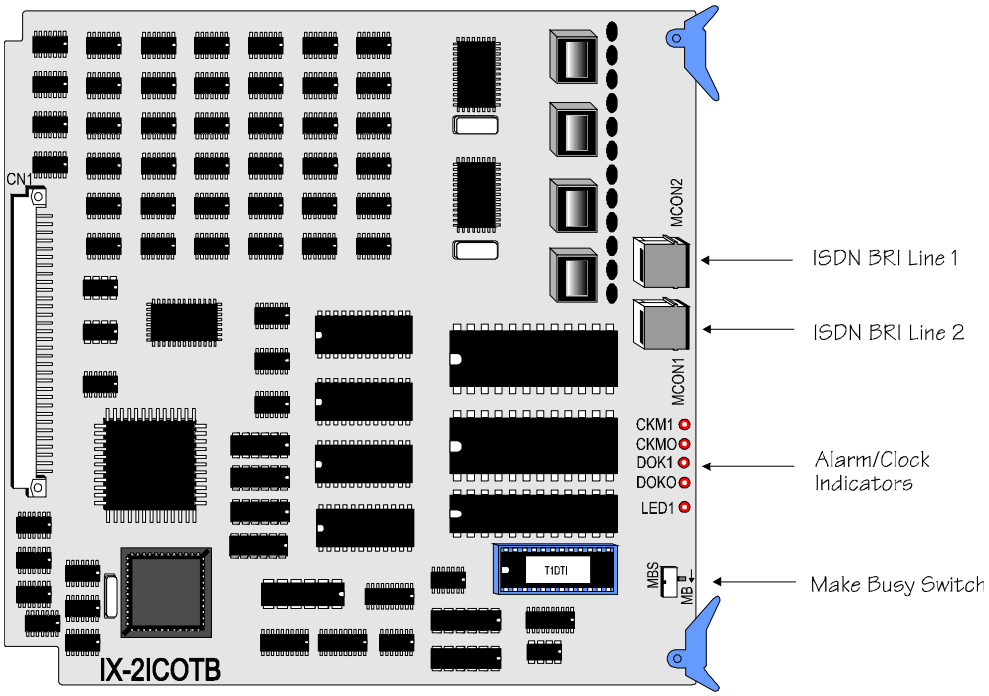
IX-2ICOTB ISDN BRI Interface Card

The IX-2ICOTB card interfaces two ISDN BRI (Basic Rate Interface) lines to the ECS. Each ISDN BRI line contains two B channels and one D channel.

Technical Specifications

Model:	IX-2ICOTB
Part No.:	102000
Location:	
	Any universal card slot
Ports:	6 channels per card
Protection:	Metal Oxide Varisitors
Threshold Voltage:	
	220 V
Additional Requirements:	
	None
On Board Functions:	
MBS	Make Busy Switch
Connectors:	MCON1 - 1st BRI Circuit
	MCONN2 - 2nd BRI Circuit

Indicators:	
CKMK1	Master/Slave Clock mode for 2nd BRI Channel (ON=master, OFF=slave)
CKMK0	Master/Slave Clock mode for 1st BRI Channel (ON=master, OFF=slave)
DOK1	Layer 1 Synchronization Indication for 2nd BRI Channel
	(ON = synchronized, OFF = not synchronized)
DOK0	Layer 1 Synchronization Indication for 1st BRI Channel
LED1	(ON = synchronized, OFF = not synchronized)
	Busy/Idle Indication
Size:	9.7” H x 9.5” W x 0.75” D
Weight:	0.9 lbs.
Additional Hardware Requirements:	
	IX-PLLU (not required with IX-CPU16M)
	External CSU (customer provided)


CN1
MCON2
MCON1
CKM1
CKMO
DOK1
DOKO
LED1
MBS
MB
T1DTI
IX-2ICOTB
ISDN BRI Line 1
ISDN BRI Line 2
Alarm/Clock Indicators
Make Busy Switch

IX-ICOTP ISDN PRI Interface Card (Discontinued)

The IX-ICOTP card interfaces one ISDN PRI (Prime Rate Interface) line to the ECS. Each ISDN PRI line contains 23 B channels voice and one D channel reserved for signaling.

The IX-ICOTP card consumes 24 ports.

Technical Specifications

Model:	IX-ICOTP
Part No.:	102100
Location:	IX-CME- Universal Slot
Ports:	Fractional Settings 8/16/24 channels
Protection:	Metal Oxide Varisitors
Threshold Voltage:	
	24 OV
Additional Requirements:	
	None
On Board Functions:	
S1	Make Busy Switch
S3	Distance from CSU, Telephone Company Switch
Connectors:	CN2 - PRI Circuit Connector

Software Settings:

Channel Type, Interface Type, Class 01.04: Operation Mode

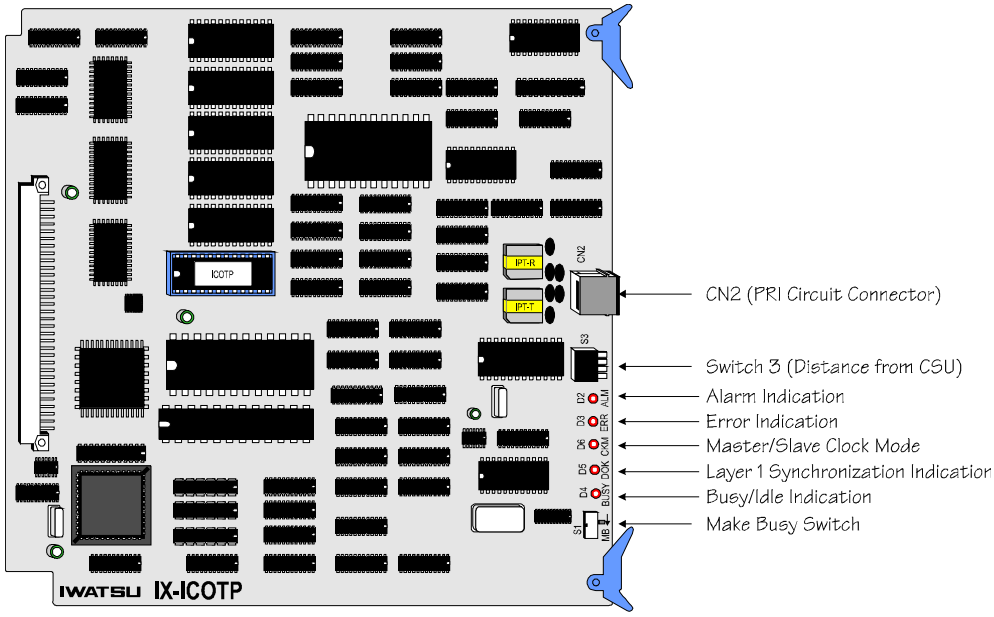
Indicators:

ALM (D2)	Alarm Indication
ERR (D3)	Error Indication (e.g., CRC Error, Framing Error, etc.)
CKM (D6)	Master/Slave Clock Mode (ON=master, OFF=slave)
DOK (D5)	Layer 1 Synchronization Indication (ON = synchronized, OFF = not synchronized)
BUSY (D4)	Busy/Idle Indication
Size:	9.7” H x 9.5” W x 0.75” D
Weight:	0.9 lbs.

Additional Hardware Requirements:

IX-PLLU (not required with IX-CPU16M)

External CSU (customer provided)

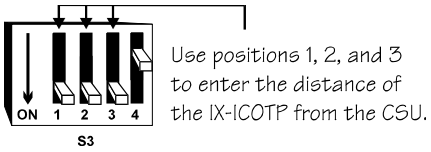


On-Board Functions

Distance From CSU. Switch S3, positions 1, 2, and 3 are used to enter the length of the data cable that connects the IX-ICOTP card to the CSU. This setting must be registered on each IX-ICOTP card. The maximum distance permitted from the IX-ICOTP card to the CSU is 660 feet.

S3 Switch Selection

Switch Position			Function
1	2	3	
ON	ON	ON	Up to 110 feet
ON	ON	OFF	111 to 220 feet
ON	OFF	ON	221 to 330 feet
ON	OFF	OFF	331 to 440 feet
OFF	ON	ON	441 to 550 feet
OFF	ON	OFF	551 to 660



Use positions 1, 2, and 3 to enter the distance of the IX-ICOTP from the CSU.

IX-DTI-P Digital Trunk Card

The IX-DTI-P board is a multibus digital trunk interfaced card. The IX-DTI card can also be converted to support T1 and T1 Campus Networking function. Its function is determined by switch settings and software loaded on the card.

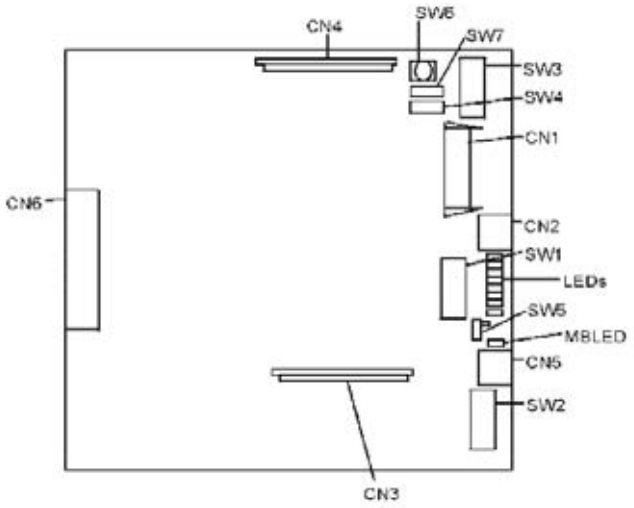
The IX-DTI-P card directly connects the T1 (DS1) pipe to the ECS system ports for use with ISDN PRI lines. The IX-DTI-P card provides a maximum of 24 digital channels that can be individually selected through database programming.

Technical Specifications

Model:	IX-DTI-P
Part No.:	102230
Location:	IX-CME – any Universal Card Slot
Ports:	Fractional Settings 8/16/24 channels
Protection:	Metal Oxide Varisitors
Threshold Voltage:	
	24 Vdc
Additional Requirements:	
	None
Connectors:	CN2 - PRI Circuit Connector
Size:	
Weight:	0.9 lbs.
Additional Hardware Requirements:	
	CSU

On Board Functions:

SW1	Distance from CSU, Loopback
SW2	Clocking Mode, System Highway Synchronization, Framing Mode, Digital Attenuation, Fractional Setting, Blue Alarm
SW3	Test Settings
SW4	Alaw/μlaw Setting
SW5	Make Busy Setting
SW6	Reset
SW7	Flash Write Enabling
Connectors:	CN1 IX-T1RCV Connector
	CN2 T1 Line Termination
	CN3 and CN4 IX-VCOMP Connectors
	CN6 IX-CME Connector



Switch Settings

Note: IMPORTANT! All switches on SW1 and SW2 set to **OFF** on the IX-DTI-P card

Distance From CSU

Switch SW1 positions 2, 3 and 4 are used to enter the length of the data cable that connects the IX-DTI-P card to the CSU. This setting must be registered on each IX-DTI-P card.

Switch positions 1 and 5 through 8 are not used and should be set to OFF.

Switch Position			Function
2	3	4	
OFF	OFF	OFF	Up to 133 feet
ON	OFF	OFF	133 to 266 feet
OFF	ON	OFF	266 to 399 feet
ON	ON	OFF	399 to 533 feet
OFF	OFF	ON	533 to 655 feet



Clocking Mode Setup

Switch SW2 positions 1 and 2 are **not used** with the IX-DTI-P card.

Framing Mode / Zero Code Suppression Scheme

Switch SW2 positions 3 and 4 are **not used** with the IX-DTI-P card.

Digital Attenuation

Switch SW2, position 5 is **not used** for the IX-DTI-P card.

Note: Switch SW2 positions 5, 6, 7, and 8 are not used with an IX-DTI-P card.

IX-DTI-N T1 Campus Card

The IX-DTI-N card directly connects the T1 circuit (DS1) to the ECS system. An IX-VCOMP card must be installed with each IX-DTI-N card at each end of the circuit. The IX-DTI-N card provides a maximum of 23 digital channels for voice and 1 data channel for signaling. The following on-board setup functions and status indicators are used to provide an interface between the system and the various T1 carriers:

- On-board Status Indicators. Eight LEDs show the status of the IX-DTI-N interface card. Indicators include red alarm, master/slave status, master clock, unit status in test mode, and operating status.
- Connector for interface with a personal computer for software updating.
- Switch configuration of operation status.

Technical Specifications

Model:	IX-DTI-N	On Board Functions:	
Part No.:	102230	SW1	Distance from CSU, Loopback
Location:	IX-CME – any Universal Card Slot	SW2	Clocking Mode, System Highway
			Synchronization, Framing Mode,
Ports:			Digital Attenuation, Fractional
Circuit:			Setting, Blue Alarm
Protection:	Metal Oxide Varisitors	SW3	Test Settings
Threshold Voltage:		SW4	Alaw/μlaw Setting
	24 Vdc	SW5	Make Busy Setting
Additional Requirements:		SW6	Reset
	IX-VCOMP installed in the system	SW7	Flash Write Enabling
Size:	9.7H x 9.5W x 0.75D	Connectors:	CN1 IX-T1RCV Connector
Weight:	0.9 lbs.		CN2 T1 Line Termination
			CN3 and CN4 IX-VCOMP Connectors
			CN5 For Factory Use Only
			CN6 IX-CME Connector

IX-DTI-N LED Status

The LED alarms are located to the right of the SW1 Switch Bank. The LEDs function as warnings and indicators for the IX-DTI-N card. The following table includes a description of each LED alarm and an explanation of its status.

LED Description and Status

LED	Description	Status		
		ON	OFF	Flash
REDALM	Red Alarm LED	Red Alarm	No Red or Blue Alarm	AIS (Blue) Alarm
YELALM	Yellow Alarm LED	Yellow Alarm	No Yellow Alarm	N/A
ERRST	Error Status LED	CRC / Framing Error or Bipolar Violation Detected	No Errors	N/A
M/S	Master / Slave Mode Setting Indication LED	Master Mode Setting	Slave Mode Setting	N/A
CLKM	Clock Master Indication	Clock Source (This T1 circuit is the clock source for the ADIX system.)	Not Synchronized	Synchronized (500ms on / 500 ms off)
OPR0	Layer 1 Connection Status 0	Layer 1 connected	Missing	N/A
OPR1	Layer 2 Connection Status	Layer 2 connected	Missing	N/A
OPR2	Initialization Status	N/A	No Data Transmission	Initialization Data Transmission
MB	Make Busy LED	Busy	Idle	Make Busy

Additional Materials Required

There are additional components and tools that are required for installing a T1 Campus Networking system. The vendors and models listed below are based on familiarity and common usage, and should not be interpreted as a recommendation by Iwatsu Voice Networks. Iwatsu Voice Networks makes no warranty or guarantee for performance of any equipment provided by any of the vendors listed.

T1 CSU: Required on both sides of a campus T1 circuit to regenerate and reshape the digital T1 signal.

- Vendor: ADTRAN; Model: ADTRAN ACE
- Vendor:*ADC* KENTROX; Model: T-SERV II

T1 CSUDSU: Required on both sides of a campus T1 circuit if data channels are utilized to regenerate and reshape the digital T1 signal and to allow for Drop and Insert.

- Vendor: ADTRAN; Model: ADTRAN TSU 120

T1/PCM Analyzer: Required for testing and isolating the following T1 circuit problems:

1. T1 circuit framing and coding
2. Verifying clock speed is 1.544 mbps
3. Testing the bandwidth for 64K X N or 56K X N
4. Testing for FRM ER, CRC ERR, Bit Errors and BPVS
5. Isolating problems between network and CPE equipment

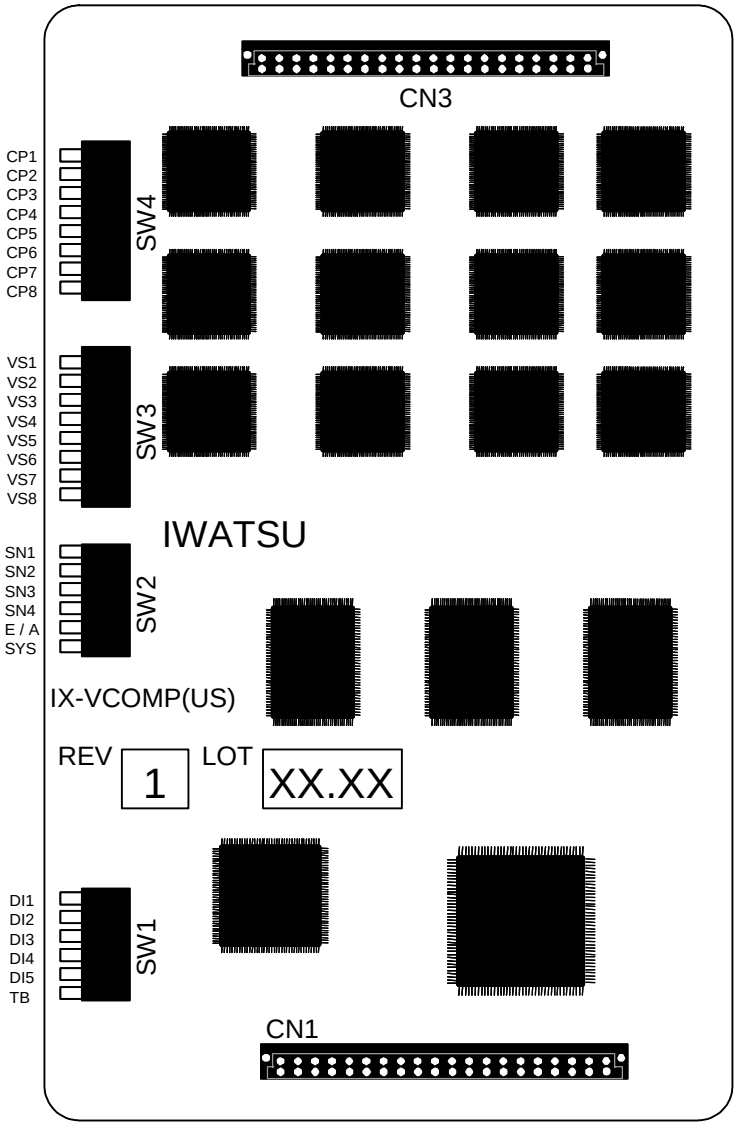
- Vendor: TELECOMMUNICATIONS TECHNIQUES CORP; Model: T-BERD 224
- Vendor: SUNSET TELECOM; Model: SUNSET T1

IX-VCOMP Voice Compression Card

The IX-VCOMP is the Voice Compression Card for T1 Campus Networking. It is a daughterboard that mounts on the IX-DTI-N card. This card is always required for T1 Campus Networking even if compression is not being used.

Technical Specifications

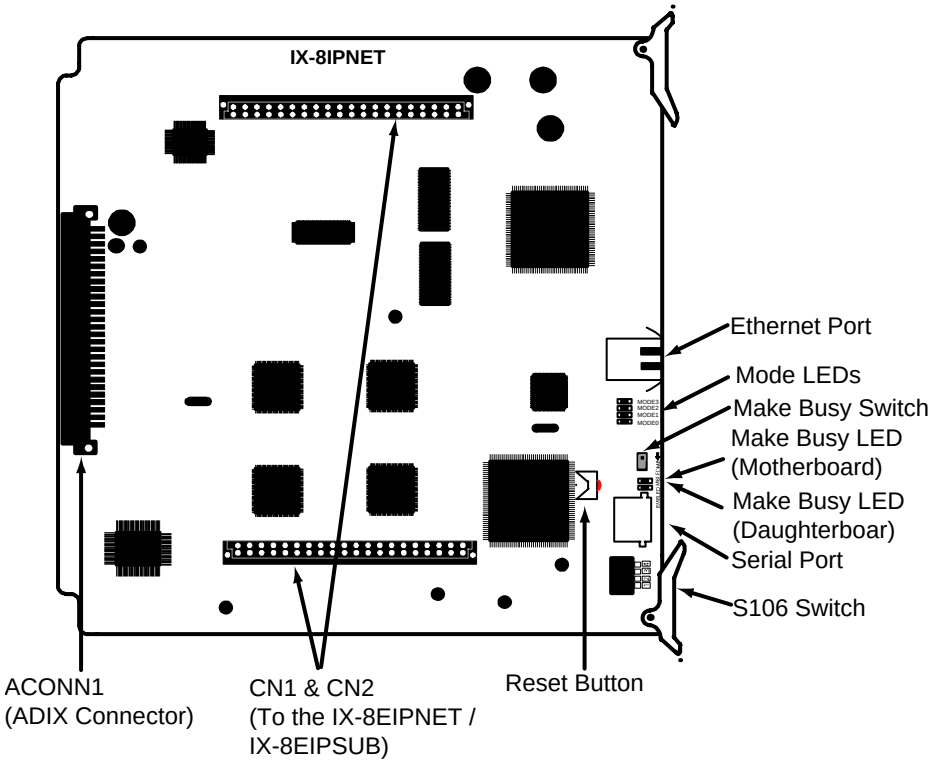
Model:	IX-VCOMP	On Board Functions:		
Part No.:	102240		SW1	Drop and Insert, Channel Drop Order
Location:	Connectors CN3 and CN4 on IX-DTI-N card		SW2	IX-DTI-N Card Serialization, Main Remote System
Voltage:	24 Vdc		SW3	Virtual Slot Selection
			SW4	Compression Setting
Additional Requirements:		Connectors:		CN1 and CN3 IX-DTI-N Connectors
	IX-DTI-N installed in the system	Size:		9.7 H x 9.5 W x 0.75 D
		Weight:		0.9 lbs.

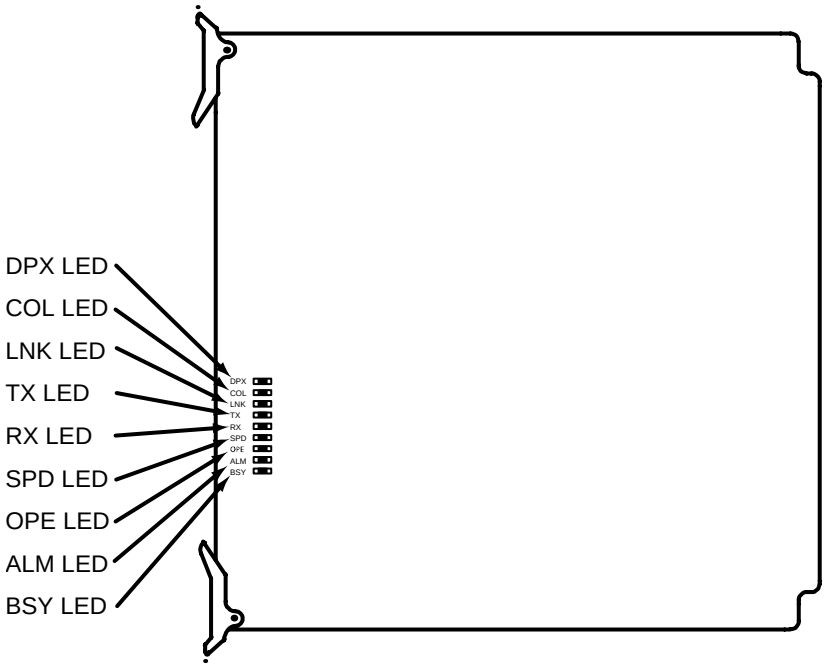

CN3
CP1
CP2
CP3
CP4
CP5
CP6
CP7
CP8
SW4
VS1
VS2
VS3
VS4
VS5
VS6
VS7
VS8
SW3
IWATSU
SN1
SN2
SN3
SN4
E / A
SYS
SW2
IX-VCOMP(US)
REV
1
LOT
XX.XX
DI1
DI2
DI3
DI4
DI5
TB
SW1
CN1

IX-8IPNET IP Networking Card

The IX-8IPNET IP Networking card is an 8 port card that packetizes ECS voice traffic and puts it on a managed IP network. The IX-8IPNET supports the use of the IX-8EIPNET and the IX-8EIPSUB daughterboard. Using the IX-8EIPNET daughterboard adds an additional 8 ports for a total of 16 IP networking ports. Additionally, the IX-8IPNET supports the use of the IX-8EIPSUB daughterboard. With the combination of one IX-8IPNET with an IX-8EIPSUB, 8 IP networking ports are provided with an additional 8 ports for use with the IX-12IPKTD IP Telephone.

The IX-8EIPNET and the IX-8EIPSUB receive power from the IX-8IPNET card using connectors CN1 and CN2 and require no additional power. However, use of a daughterboard requires either an even card slot or a dual highway card slot. Thus, card slot consideration must be made when installing the IX-8IPNET with an IX-8EIPSUB or IX-8EIPNET daughterboard.





Technical Specifications

Model:	IX-8IPNET	On Board Functions:	
Part No.:	101525	S105	See description under Switch Settings
Ports:	8 Ports	Reset (S1)	Resets the card
Protection:		MB (S101)	Makes the card busy
Threshold Voltage:		Connectors:	
Bandwidth Requirements (per Port):		PC (CN_Serial 1)	Serial port for programming
Overhead	16 kbps	Ethernet (CN601)	Ethernet port to the switch/router
G.711	80 kbps total	CN1 & CN2	For the IX-8EIPNET/IX-8EIPSUB daughterboard
G.729	26 kbps total	ACONN1	ADIX Connector
Default IP Address:	192.168.0.1	Size:	9.0” high x 9.0” wide x 1” deep
Subnet Mask:	255.255.255.0	Weight:	.6 lbs
Default Gateway:	0.0.0.0		
Operating Temperature:			
	32°F to 104°F		
Humidity:	90% or less		

IX-8IPNET LED Indication

Mode LEDs Description

The IX-8IPNET has four Mode LEDs. Because the IX-8IPNET and the IX-8IPSUB are differentiated only by firmware, the Mode LEDs are important because they signify how the card is operating. For example, if MODE0 LED is illuminated, the card is an IX-8IPSUB or an IX-8EIPSUB. If MODE2 is illuminated, the card is an IX-8IPNET or an IX-8EIPNET. .

LED Status		Meaning
MODE0	MODE2	
ON	OFF	Indicates the card is a IX-8IPSUB/IX-8EIPSUB
OFF	ON	Indicates the card is a IX-8IPNET/IX-8EIPNET

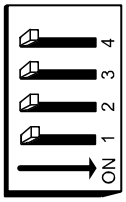
General LED Description

LED Name	Location on Card	Meaning
MBLED	Front	ON = IX-8EIPNET/IX-8EIPSUB card is in use
		OFF = IX-8EIPNET/IX-8EIPSUB card is functional
		Flashing = IX-8IPNET card is in Make Busy Mode
EMBLED	IX-8EIPSUB or IX-8EIPNET	ON = IX-8EIPNET card is in use
		OFF = IX-8EIPNET card is functional
		Flashing = IX-8EIPNET card is in Make Busy Mode
DPX	Back	ON = Full Duplex mode
		OFF = Half Duplex mode
COL	Back	ON = Packet Collision was detected
		OFF = No packet collision detected
LNK	Back	ON = The IX-8IPNET is physically connected to the network
		OFF = The IX-8IPNET in NOT physically connected to the network
TX	Back	ON = Data transmission occurred
		OFF = No data transmission is sent
RX	Back	ON = Receiving IP data
		OFF = Not receiving IP data
SPD	Back	ON = IX-8IPNET sends and receives data at 100 mbps
		OFF = Card sends and receives data at 10 mbps
OPE	Back	ON = Card is operating
		OFF = Card is inoperative
ALM	Back	ON = Hardware is not functioning properly
		OFF = Normal card activity (hardware is functioning properly)
BSY	Back	Factory use only

Note: Because of the rate of incoming and outgoing IP traffic, the COL, TX, and RX LEDs will appear to flash.

IX-8IPNET Switch Settings

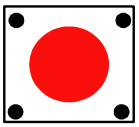
S105 Switch



Switch Number	Position	
	OFF (Default)	ON
4	Normal operation	PPU Program mode for updating IX-8IPNET software
3	Factory Use Only; Remain OFF	Factory Use Only
2	Factory Use Only; Remain OFF	Factory Use Only
1	Normal operation (No Logging)	Normal operation with Logging mode; log data is sent to the serial port

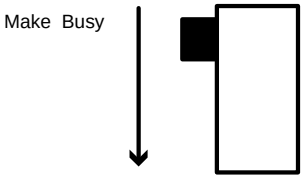
Note: Because of the rate of incoming and outgoing IP traffic, the COL, TX, and RX LEDs will appear to flash.

IX-8IPNET Reset Switch (S1)



Switch Name	Meaning
RESET	Resets the card

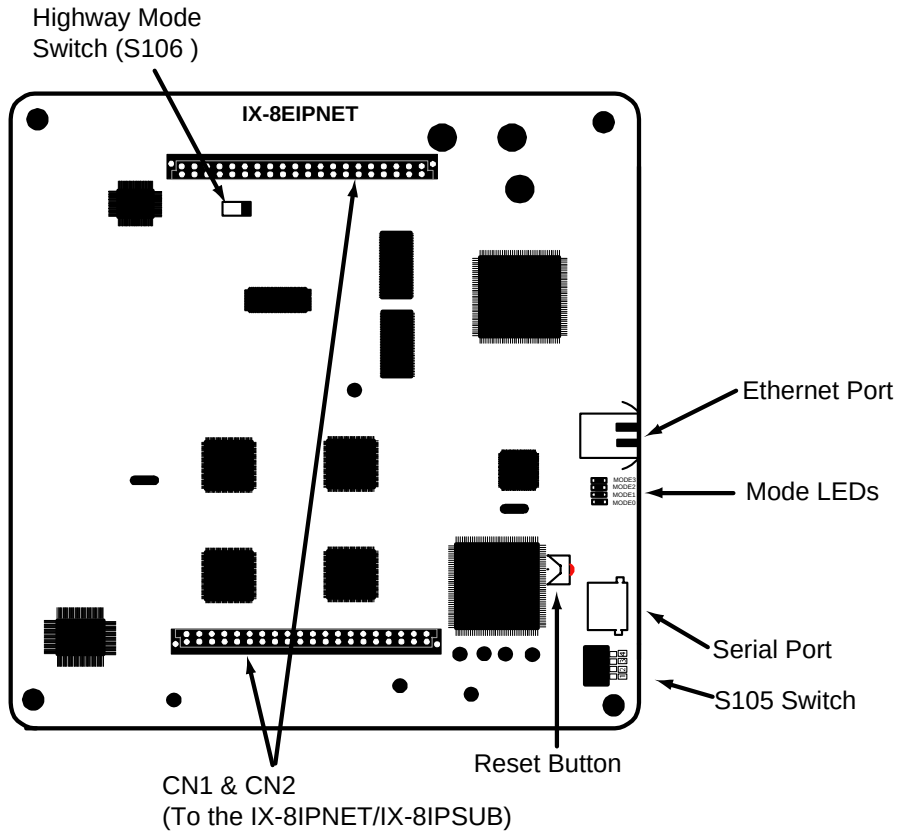
IX-8IPNET Make Busy

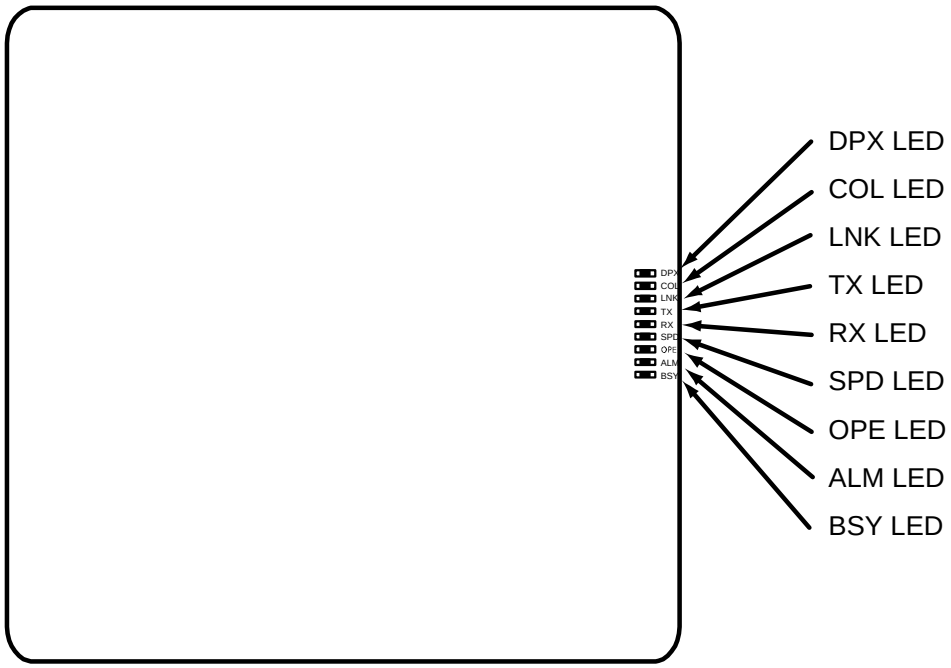


Switch Name	Position	Meaning
MB	UP	Card is able to make and receive calls
	DOWN	Card is made busy for maintenance functions

IX-8EIPNET IP Networking Expansion Card

The IX-8EIPNET is an 8-port IP networking daughterboard. This card may be installed on an IX-8IPNET or an IX-8IPSUB via CN1 and CN2 connectors. Because the IX-8EIPNET receives power from either the IX-8IPNET or an IX-8IPSUB, it is a true daughterboard. The IX-8EIPNET increases the capacity for the IX-8IPNET or the IX-8IPSUB from 8 to 16 ports.





Technical Specifications

Model:	IX-8EIPNET	On Board Functions:	
Part No.:	101526	Reset (S1)	Resets the card
Location:	IX-8IPNET or IX-8IPSUB	S106	Highway mode
Ports:	8 Ports	Connectors:	
Default IP Address:	192.168.0.1	PC (CN_Serial1)	Serial port for programming
Subnet Mask:	255.255.255.0	Ethernet (CN601)	Ethernet port to the switch/router
Default Gateway:	0.0.0.0		
Protection:	None	CN1 & CN2	For the IX-8EIPNET/IX-8EIPSUB daughterboard
Additional Requirements:	None	Size:	9.0” high x 9.0” wide x 1” deep
		Weight:	.6 lbs

IX-8EIPNET LED Indication

Mode LED Description

The IX-8EIPNET has four Mode LEDs. Because the IX-8EIPNET and the IX-8EIPSUB are differentiated only by firmware, the Mode LEDs are important because they signify how the card is operating. For example, if MODE0 LED is illuminated, the card is an IX-8IPSUB or an IX-8EIPSUB. If MODE2 is illuminated, the card is an IX-8IPNET or an IX-8EIPNET. .

LED Status		Meaning
MODE0	MODE2	
ON	OFF	Indicates the card is a IX-8IPSUB/IX-8EIPSUB
OFF	ON	Indicates the card is a IX-8IPNET/IX-8EIPNET

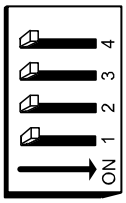
General LED Description

LED Name	Location on Card	Meaning
MBLED	Front	ON = IX-8EIPNET/IX-8EIPSUB card is in use
		OFF = IX-8EIPNET/IX-8EIPSUB card is functional
		Flashing = IX-8IPNET card is in Make Busy Mode
EMBLED	IX-8EIPSUB or IX-8EIPNET	ON = IX-8EIPNET card is in use
		OFF = IX-8EIPNET card is functional
		Flashing = IX-8EIPNET card is in Make Busy Mode
DPX	Back	ON = Full Duplex mode
		OFF = Half Duplex mode
COL	Back	ON = Packet Collision was detected
		OFF = No packet collision detected
LNK	Back	ON = The IX-8IPNET is physically connected to the network
		OFF = The IX-8IPNET in NOT physically connected to the network
TX	Back	ON = Data transmission occurred
		OFF = No data transmission is sent
RX	Back	ON = Receiving IP data
		OFF = Not receiving IP data
SPD	Back	ON = IX-8IPNET sends and receives data at 100 mbps
		OFF = Card sends and receives data at 10 mbps
OPE	Back	ON = Card is operating
		OFF = Card is inoperative
ALM	Back	ON = Hardware is not functioning properly
		OFF = Normal card activity (hardware is functioning properly)
BSY	Back	Factory use only

Note: Because of the rate of incoming and outgoing IP traffic, the COL, TX, and RX LEDs will appear to flash.

IX-8EIPNET Switch Settings

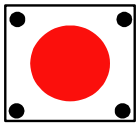
S105 Switch



Switch Number	Position	
	OFF (Default)	ON
4	Normal operation	PPU Program mode for updating IX-8EIPNET software
3	Factory Use Only; Remain OFF	Factory Use Only
2	Factory Use Only; Remain OFF	Factory Use Only
1	Normal operation (No Logging)	Normal operation with Logging mode; log data is sent to the serial port

Note: Unless under guidance of Iwatsu Field Engineering, Switch 1 must remain in the OFF position.

IX-8EIPNET Reset Switch (S1)



Switch Name	Meaning
RESET	Resets the card

IX-8EIPNET S106 Highway Mode



Switch Name	Position	Meaning
S106	Right (Default)	Card is in Single Highway Mode
	Left	Card is in Dual Highway Mode (Not supported in IX-CME)

Chapter 7

Shared Resource Cards

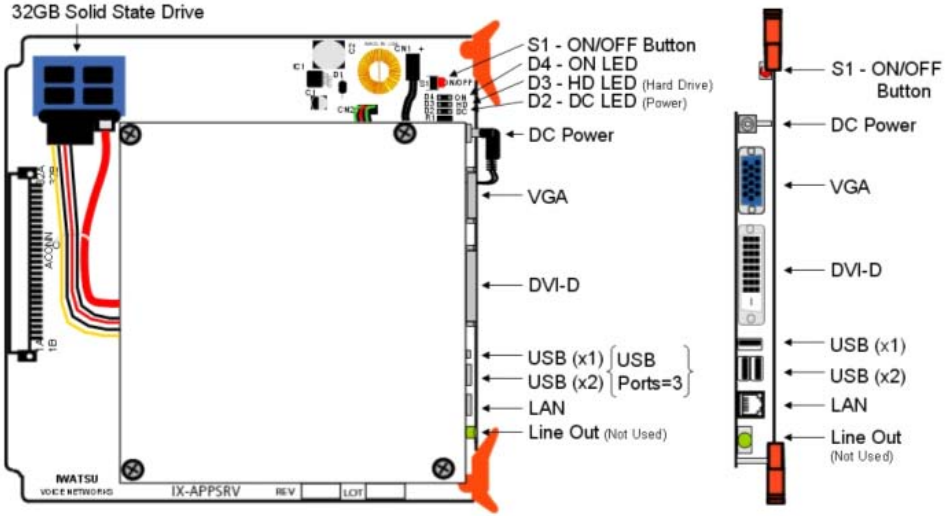
Shared resource cards, which can be identified by their orange tabs, add features to the system that can be shared by the universal ports.

IX-APPSRV Card

The Iwatsu IX-APPSRV Application Server card was specifically designed for the Iwatsu Enterprise-CS and alleviates the need to purchase a stand alone server to run Iwatsu TOL-IVM with SIP voice mail ports and/or Iwatsu Enterprise Services and associated applications.

This card features an Intel® PC board that installs in an ECS card slot and serves as the PC host for the following applications:

- Iwatsu TOL-IVM Embedded Voice Messaging
- Iwatsu Real IP applications including: AccuCall-Web, Call Director, Ticker/ Text Web, Virtual DSS, and PC Attendant.
- ECS Browser Programmer



Technical Specifications

Model:	IX-APPSRV
Part No.:	630001 (32 GB SSD)
Location:	ECS - IX-CME, IX-EXPME1, IX-EXPME2 Cabinet only
Processor:	PC Board with Intel® Atom N270, 1.6GHz
Memory:	2GB SO-DIMM
Solid State Drive:	32 GB Solid State Drive (standard)
Operating System:	Windows XP
Additional Power Required:	None
Indicators:	Refer to LED Function table below
Size:	9 " H x 9 " W x 1" D
Weight:	1 lb. 3 oz.
Operating Conditions:	32° to 95° F (0° to 35° C) 10% to 90% Humidity (non-condensing)

Connectors:	CN1 - 12Vdc output
	DC - 12Vdc input. DC power cable must be connected to the daughter card all the times. You may rotate, to adjust, the cable connector for positioning purposes while connecting a VGA cable.
	VGA - Monitor Connector
	DVI-D - Monitor Connector (Digital Mode)
	USB - 3 USB ports for external keyboard, mouse, monitor, Sentinel, and/or HDD
	LAN/Ethernet - 10/100/1000 Mbs with Realtek 8111 DL Gigabit Ethernet Controller
	Line Out - Not Used
On-Board Functions:	S1 - "On/Off" Switch
	- Press to turn on the card (while the card is off)
	- Press to turn off the card (while the card is on), or choose shutdown from Windows to shutdown.
	- Press and Hold (approx. 5 sec) to force shutdown (Emergency shutdown only)

LED Functions

LED	Silkscreen	LED Color	LED Indication
D2	DC	Green	ON: 12Vdc provided to the daughter card OFF: 1. ECS power is off 2. IX-APPSRV card is not installed in an ECS slot 3. Card Error The LED should be lit when the card is off and ECS is on
D3	HD	Red	ON: HDD/SSD active OFF: HDD/SSD not active LED will periodically flash when card is on.
D4	ON	Green	ON: Card On OFF: Card Off

Supported Applications

Iwatsu TOL-IVM Voice Mail

- 4 VM/AA ports. Max = 16 ports
- 50 Mailboxes and AA Menus. Max = 400 Mailboxes and AA Menus
- Number of Standard UC Clients = 0. Max = 25 UC Clients
- Companies = 1
- Message Forwarding (SMTP Forwarding)
- Voice Message Storage Space: Each 10MB of disk space = one hour of voice message storage
- For an Iwatsu Voice Messaging System side-by-side feature comparison, go to:
  - http://www.iwatsu.biz/distributors/techsupport/documentation/VoiceMessagingComparison.pdf

Important!

As of December 14, 2010, the IX-APPSRV card ships with Iwatsu Enterprise TOL Software Version 8.0. TOL version 8.0 licensing requires constant connection to the internet in order to function. If a system utilizing soft license loses connection to the internet, it will go on a 15 day countdown. If the internet connection is not restored after the countdown has ended, the license will become deactivated and the system will have reduced functionality.

SIP integration on Iwatsu TOL version 7.0 and higher requires an IX-MBU card to be installed in the ECS system and ECS system software version 3.0 or higher.

- ECS System Requirements for Iwatsu TOL-IVM SIP Voice Mail
  - SIP voice mail alleviates the need for any analog board for the Iwatsu TOL-IVM and the Iwatsu Enterprise-CS. All SIP ports require a valid SIP Client License (PN: 000331). SIP voice mail requires ECS software version 3.0 or higher. SIP Fax requires ECS software version 4.0 or higher with a 128 MB or 256 MB IX-CFMU.
  - A SIP voice mail port is used to connect to the Telephony Office Links Unified Messaging server.

Browser-Based ECS Programming

- Included on all IX-APPSRV Cards
- System Settings
- Extension Settings
- Voice Mail Settings
- Trunk Settings
- Diagnostics
- Real-Time View of ECS Resources

Real IP CTI Applications

Iwatsu Enterprise Services is pre-installed on your IX-APPSRV card to support the following applications:

- PC Attendant
- Virtual DSS
- Call Director
- QueVue
- Iwatsu Ticker and Text Web
- TAPI
- **AccuCall-Web Advanced** is **not available / supported** on the **same IX-APPSRV** card when running TOL-IVM.

Conditions

1. The IX-APPSRV card must be shutdown using normal Windows shutdown procedures or by quickly pressing and releasing the S1 switch and then waiting until the D4 "ON" LED turns off before removing power from the ECS system.
   - When using Remote Desktop, The Shutdown command is not available on the Start menu to shut down, restart, or place a remote computer in a sleep state (for example, standby or hibernation) when you are using Remote Desktop. To shut down a remote computer when you are using Remote Desktop, press CTRL+ALT+END, and then click Shutdown. Or, use the shutdown command at a command prompt. For additional information about the shutdown command, type shutdown /? at the command prompt. http://support.microsoft.com/kb/303070
2. It is not required to shutdown IX-APPSRV, when ECS is RESET when using the Iwatsu Programmer. Power is provided to the IX-APPSRV card from the ECS during an ECS reset without an interruption in power to the IX-APPSRV.
3. Time Zone: The IX-APPSRV card is configured for Central Time Zone. It is the responsibility of the distributor/installer to set the correct time zone and current date/time on the IX-APPSRV card.
4. The IX-APPSRV card can be installed in any ECS cabinet (IX-CME, IX-EXPME1, IX-EXPME2). The ECS supports a maximum of two IX-APPSRV cards in a system. The IX-APPSRV card is not supported in any ADIX cabinet.
5. TOL-IVM includes one shared SIP fax port and supports a maximum of two SIP fax ports. Dedicated SIP fax ports are not supported.
   - Iwatsu Enterprise-CS and Iwatsu TOL-IVM do not support faxing over SIP trunks.
6. DND Key Not Supported: Iwatsu TOL-IVM Service Pack 2 (7.1.0.96279) and above do not support the Hold/DND key. If a call is transferred from voice mail to an extension that is in DND via the Hold/DND key, the call is rejected and the TOL voice mail system will not answer the recall. Replace the Hold/DND key with the Hold/Quick Fwd key.
7. The IX-APPSRV card does not ship with keyboard, mouse, monitor, or backup disk drive.
   - Iwatsu recommends the following service tools:

- USB Keyboard
- USB Mouse
- USB or VGA Monitor
- External DVD Drive

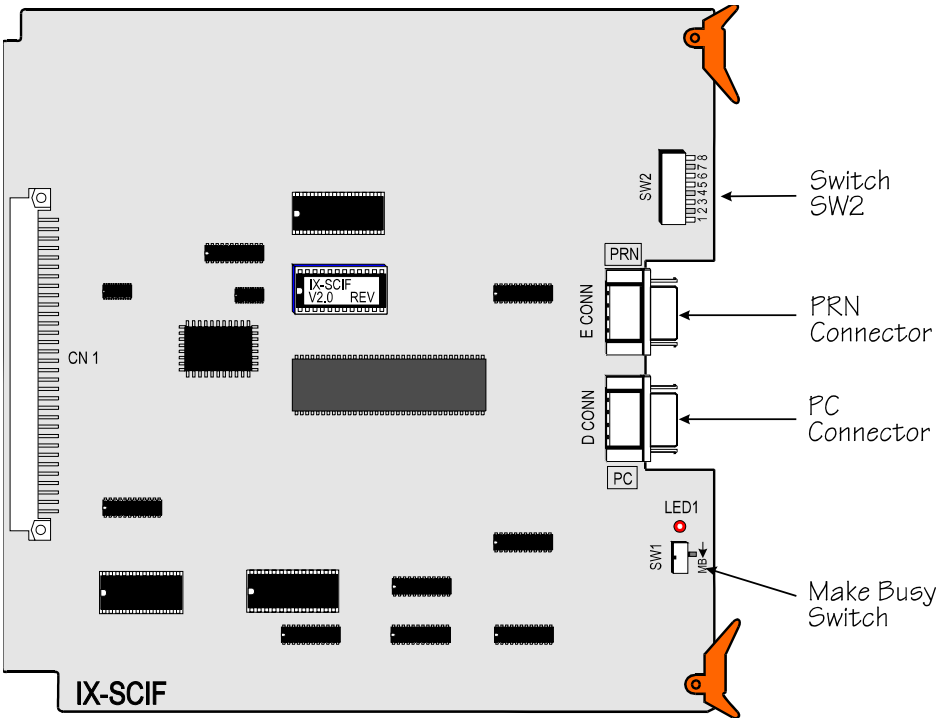
8. Anti-virus software is not pre-installed on the IX-APPSRV card.
9. Remote desktop is shipped preconfigured on the IX-APPSRV card.
10. The IX-APPSRV card operating conditions differ from the operating conditions for the ECS cabinet and other cards that may be installed in the ECS.
    - IX-APPSRV Card Operating Conditions: 32° to 95° F / 0° to 35° C.
    - ECS Operating Conditions: 32° to 104° / 0° to 40° C.

IX-SCIF Card

The IX-SCIF card provides two RS232C serial communication ports. In a system up to 224 ports, the serial port numbers are fixed at 225 and 226. In a system larger than 224 ports the serial port numbers are fixed at 481 and 482. The IX-SCIF card has two connectors. Connector ECONN is used to connect a printer for the purpose of SMDR reporting. Connector DCONN is used to connect a PC or modem for use as the system programming PC. In the IX-CME Gateway Controller, this card is installed in any universal card slot.

Technical Specifications

Model:	IX-SCIF	Connectors:	ECONN - SMDR Printer
Part No.:	101710		DCONN – PC or modem connection
Location:	IX-CME -Any universal slot	On-Board Functions:	
			SW1 - Make Busy
Ports:	2 serial ports		SW2 - (see table)
Data Speed:	SMDR Printer - 300/1200 bps	Indicators:	LED = Busy
	PC - 1200/4800 bps	Size:	9.7”H x 9.5”W x 1.0”D
Additional Power Requirements:		Weight:	0.5 lbs.
	None		


SW2
1 2 3 4 5 6 7 8
Switch
SW2
PRN
E CONN
PRN
Connector
D CONN
PC
PC
Connector
LED1
SW1
MB
Make Busy
Switch
CN 1
IX-SCIF
V2.0 REV
IX-SCIF

IX-SCIF Switch Settings and Pin Locations

The following tables list the on-board settings and pin locations for the serial ports.

Switch SW2 Settings for the SMDR (PRN) Port		
Position (Port)	On	OFF
1* (PRN)	Activate Printer Initialize	Disable Printer Initialize
2 (PRN)	Flow Control On DTR/DTR (x-on/x-off)	Flow Control Off DTR Only
3** (PRN)	Test Mode	Normal Mode
4 (PRN)	8-Bit Data, No Parity Check	7-Bit Data, Even Parity Check
5 (PRN)	300 bps Data	1200 bps Data
6	Not Used	Not Used
7	Not Used	Not Used
8	Not Used	Not Used

Note:	*Only required for IBM printers. (Sends ASCII codes “ESC” + “@”. The decimal equivalent is 27 and 64.).
Note:	**The following printer test pattern is output when the printer is connected and this switch is on: TEST START 0123456789 ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz TEST END

PC/Printer Pinout						
E/DCONN Pin	25 Pin Cable	9 Pin Cable	IX-SCIF Function		PC/PRN Function	
1	2	3	RxD	Receive Data	TxD	Transmit Data
2	3	2	TxD	Transmit Data	RxD	Receive Data
3	4	8	CTS	Clear To Send	RTS	Request To Send
5	5	7	RTS	Request To Send	CTS	Clear To Send
7	6	6	DTR	Data Terminal Ready	DSR	Data Set Ready
12	7	5	SG	Signal Ground	SG	Signal Ground
10	20	4	DSR	Data Set Ready	DTR	Data Terminal Ready
9	8	1	CD	Carrier Detect	CD	Carrier Detect

IX-PSUBMDM-E/A Digital Port Modem

The IX-PSUBMDM Digital Port Modem was designed to be versatile and reduce the cost associated with remote maintenance of the ECS telephone systems. The IX-PSUBMDM Digital Port Modem minimizes the time spent on-site maintaining the ECS telephone system, and the Omega-Voice VMI voicemail cards.

The IX-PSUBMDM uses a universal port on the ECS telephone system for remote programming and does not require a dedicated analog trunk. The Iwatsu Programmer is used as the programming interface that connects to the IX-PSUBMDM.

Iwatsu offers two versions of the IX-PSUBMDM. The IX-PSUBMDM-E (part number 101861-E) ships preconfigured to operate with the ECS system serial connection. The IX-PSUBMDM-A (part number 101861-A) ships preconfigured to operate with the ADIX and ADIX-VS systems.

The difference between the two cards is the default Serial baud rate setting. The ECS requires 19200 kbps and the ADIX/VS requires 9600 kbps. The new **software version 1.04** allows for the baud rate to be changed if the customer changes from one system to the other.

Technical Specifications

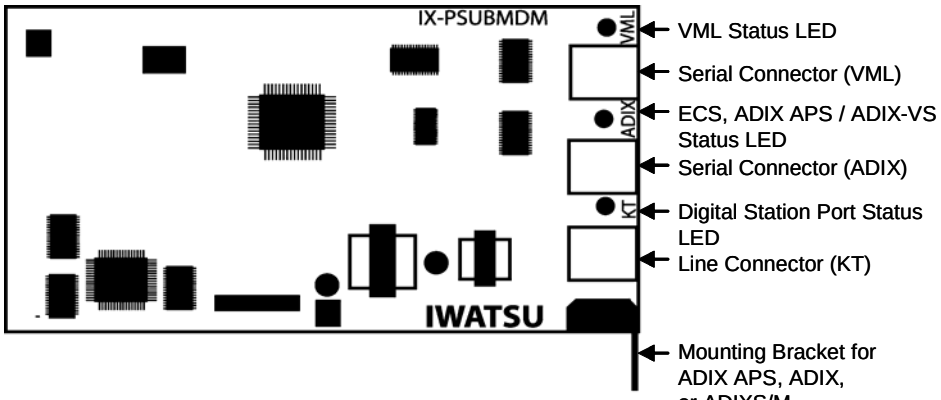
Model:	IX-PSUBMDM-E	Part No.:	101861-E (For ECS)
	IX-PSUBMDM-A		101861-A (For ADIX)
Location:	DCDC or RNGU (Ringer) slot	Connectors:	KT (J1):
Ports:	1 Digital Station port		ADIX (J2)
Additional Power Requirements:			VML (J3):
	None	Operating Temperature:	
ECS Software Version Required:			32° to 104°F (0 to 40°C)
	Software version 1.26 or higher	Size:	8.8 x 7.4 x 4.4 in.
LED Indication:	See table below	Weight:	5 oz.

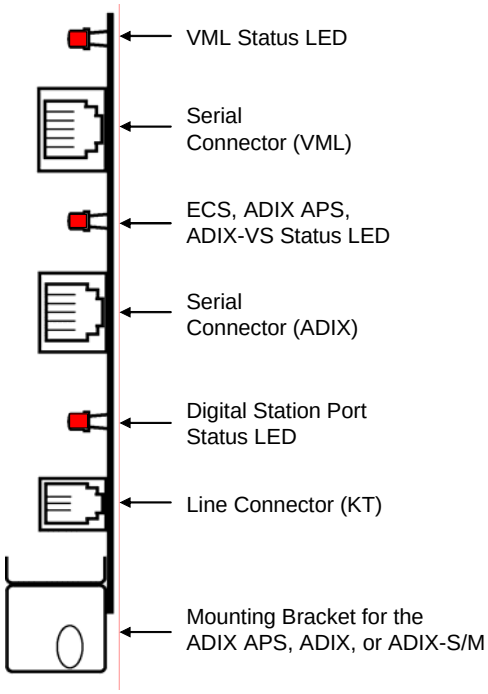
Connectors

Connector Name	Jack Type	Cable Type	ECS / ADIX Connection	Baud Rate	Description
KT (J1)	RJ11	Line	Digital station port	NA	Connects to a digital station port
ADIX (J2)	RJ45	CAT5	232C_1 (IX-CCU) (ECS) SIO (IX-CPUP/HW) (ADIX) PC/Modem (ADIX-VS)	19200 9600	CAT5 connection for programming the telephone systems
VML (J3)	RJ45	CAT5	J2 (IX-4VML) J2 (VS-VML)	19200	CAT5 connection for programming the IX-4EVMC, IX-4VML or the VS-VML

LED Indication

State	LED Name			Meaning
	D2	D3	D4	
	2 flashes followed by a pause, repeat	OFF	ON	IX-PSUBMDM is idle (not in use)
	Flashing	ON	ON	Ringing is detected
	ON	ON	ON	The IX-PSUBMDM is establishing a connection
	ON	Flashing	Off	The IX-PSUBMDM is transferring and receiving data to the ECS, ADIX APS or ADIX-VS
	ON	OFF	Flashing	The IX-PSUBMDM is transferring and receiving data to the IX-4VML or the VS-VML





IX-EDVIF Card

The IX-EDVIF card provides the combined function of the IX-SCIF, IX-EDCTU and IX-MISC cards. This card was designed to save card slots in the ECS, but it can also be used with the ADIX systems. Only one IX-EDVIF card can be installed in the system. However, the system can be configured with an IX-EDVIF card and an IX-SCIF card and IX-MISC card.

Due to physical space limitations, the IX-EDVIF card does not have the exact capacities of the IX-MISC card. In addition to the two serial ports, the IX-EDVIF card provides the following miscellaneous features:

- Two-wire or four-wire paging output.
- BGM input.
- BGM output for page zone BGM.
- Paging relay contact.
- Select BGM by zone.
- A maximum of four paging zones.
- Four general purpose programmable relays.
- Two sensor input relays used for night service.

Physical Port Layout In addition to the two serial ports, the IX-EDVIF card has eight physical ports for miscellaneous functions. The table below lists the physical port layout.

Port	Function
1	Zone 1
2	BGM Source
3	Undefined
4	Relays 1-4
5	Sensor 1-2
6	Zone 2
7	Zone 3
8	Zone 4

Relay Contacts The relay contacts of the general purpose relays provide a dry contact (switch) closure only. They are designed to provide control of external slave relays for any auxiliary device operation. The relays are designed to operate with DC voltage only. Do not connect any AC devices to the relay contacts. Doing so will result in erratic operation of both the relay and the IX-EDVIF card.

Technical Specifications

Model:	IX-EDVIF	Connectors:	CN10 - MDF Interface
Part No.:	101745		CN11 - Motherboard Connection
Location:	Any universal card slot		CN12(PRN) - SMDR Printer
Ports:	8 + 2 serial ports		CN13(PC) - PC Programmer
Data Speed:	SMDR Printer - 300/1200 bps	On-Board Functions:	
	PC - 1200/4800 bps		SW1 - Make Busy
Relays:	Contact Rating: 30 Vdc, @ 1A		SW2 - (see table)
	Power Rating: 30 watts		CN1 - CN9 - (see table)
Additional Power Requirements:			VR1 - BGM volume control
	None	Size:	9.7”H x 9.5”W x 1.0”D
Indicators:	LED1 = Busy	Weight:	0.5 lbs.
	LED2 = Busy		

Switch Settings and Pin Locations The following tables list the on-board settings for serial ports and pin locations for the IX-EDVIF card.

Switch SW2 Settings for the SMDR (PRN)		
Position (Port)	On	OFF
1* (PRN)	Activate Printer Initialize	Disable Printer Initialize
2 (PRN)	Flow Control On DTR/DTR (x-on/x-off)	Flow Control Off DTR Only
3** (PRN)	Test Mode	Normal Mode
4 (PRN)	8-Bit Data, No Parity Check	7-Bit Data, Even Parity Check
5 (PRN)	300 bps Data	1200 bps Data
6	Not Used	Not Used
7	Not Used	Not Used
8	Not Used	Not Used

Note:	*Only required for IBM printers. (Sends ASCII codes “ESC” + “@”. The decimal equivalent is 27 and 64.).
Note:	**The following printer test pattern is output when the printer is connected and this switch is on: TEST START 0123456789 ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz TEST END

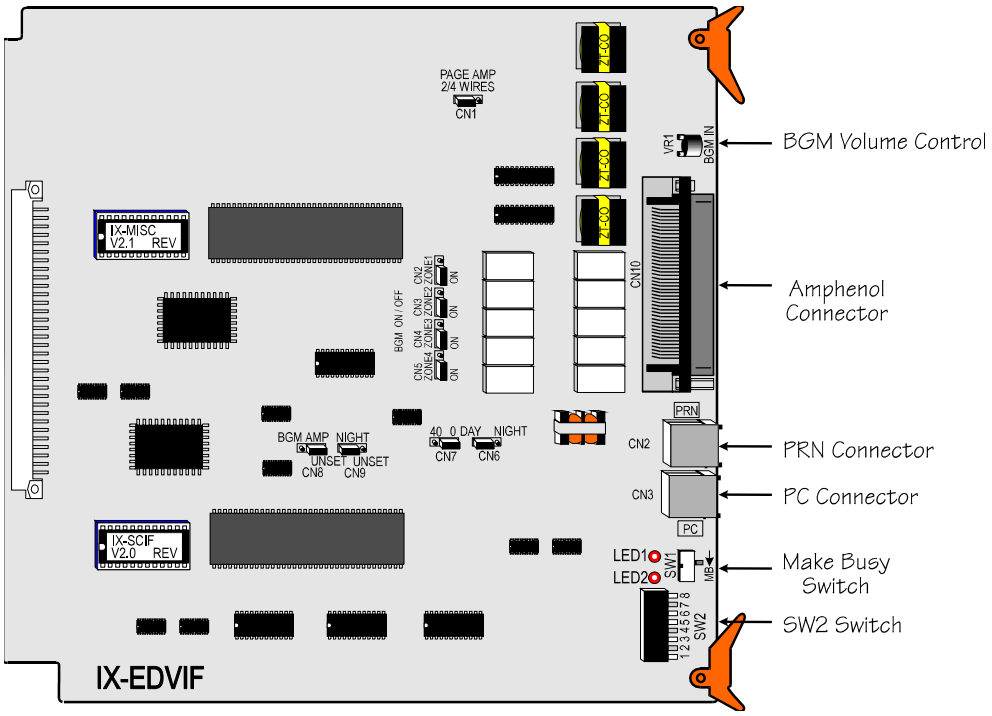
PC/PRN Connector Function				
Modular Jack Pin No.	DB9 Converter Pin No.	Function		Signal Direction
1	1	Carrier Detect	CD	⇨
2	2	Receive Data	RxD	⇨
3	3	Transmit Data	TxD	⇦
4	4	Data Terminal Ready	DTR	⇦
5	5	Signal Ground	SG	
6	6	Data Set Ready	DSR	⇨
7	7	Request To Send	RTS	⇦
8	8	Clear To Send	CTS	⇨

Strapping Options The following strapping jacks are located on the IX-EDVIF card. The table below lists the function of each:

Strap	Designation	Function
CN1	Page Amp, 2/4 Wire	Select Two-Wire or Four-Wire Paging Audio
CN2	Zone1	Enable/Disable BGM to Zone 1
CN3	Zone2	Enable/Disable BGM to Zone 2
CN4	Zone3	Enable/Disable BGM to Zone 3
CN5	Zone4	Enable/Disable BGM to Zone 4
CN6	Day/Night	Not used
CN7	400-0	Not used
CN8	BGM Amp	Select if Zone BGM is supplied by the system input or an external source
CN9	Nights	Not used

IX-EDVIF Pin Assignment The table below lists the pin-out of the connector CN10 on IX-EDVIF card.

Function	CN10 PIN No.	MDF PIN No.
Page In (-)	26	1
Page In (+)	1	2
Page Out (-)	27	3
Page Out (+)	2	4
No Connection	28	5
No Connection	3	6
BGM In (-)	29	7
BGM In (+)	4	8
BGM In (-)	30	9
BGM Out (+)	5	10
No Connection	31	11
No Connection	6	12
Page Control (-)/ (M)	32	13
Page Control (+) (S)	7	14
	33	15
Page Control (-)/ (B)	8	16
Zone/BGM In (-)	34	17
Zone/BGM In (+)	9	18
Zone 1 (-)	35	19
Zone 1 (+)	10	20
Zone 2 (-)	36	21
Zone 2 (+)	11	22
Zone 3 (-)	37	23
Zone 3 (+)	12	24
Zone 4 (-)	38	25
Zone 4 (+)	13	26
Zone Page/BGM In (-)	39	27
Zone Page/BGM In (+)	14	28
No Connection	40	29
No Connection	15	30
Relay Contact 1 (-)/ (M)	41	31
Relay Contact 1 (+)/ (S)	16	32
	42	33
Relay Contact 1 (-)/ (B)	17	34
Relay Contact 2 (-)/ (M)	43	35
Relay Contact 2 (+)/ (S)	18	36
	44	37
Relay Contact 2 (-)/ (B)	19	38
Relay Contact 3 (-)/ (M)	45	39
Relay Contact 3 (+)/ (S)	20	40
	46	41
Relay Contact 3 (-)/ (B)	21	42
Relay Contact 4 (-)/ (M)	47	43
Relay Contact 4 (+)/ (S)	22	44
	48	45
Relay Contact 4 (-)/ (B)	23	46
Sensor 1 (-)	49	47
Sensor 1 (+)	24	48
Sensor 2 (-)	50	49
Sensor 2 (+)	25	50


BGM Volume Control
Amphenol Connector
PRN Connector
PC Connector
Make Busy Switch
SW2 Switch
IX-EDVIF
IX-MISC V2.1 REV
IX-SCIF V2.0 REV
PAGE AMP 2/4 WIRES
CN1
VR1
BGM IN
CN10
PRN
CN2
PC
CN3
LED1
LED2
SW1
MB
SW2
BGM ON / OFF
BGM AMP NIGHT
UNSET UNSET
CN8 CN9
40 0 DAY NIGHT
CN7 CN6

IX-HCIF Card

The IX-HCIF card has two serial ports used to provide interface circuits for ACD LINK Reporting Terminal, Hotel/Motel Property Management System Interface, and IX-LANLINK. This card is required when using the ACD LINK Reporting Package, Hotel/Motel Property Management System Interface and IX-LANLINK. The IX-BUFM may be added to the board to increase the data buffer.

Note: TOL systems that deploy CSTA integration to the ECS via the IX-HCIF card or IX-NICLINK card must be restarted if the CSTA link with the ECS system is lost in order to re-establish the CSTA link.

Output Buffer:

- Without IX-BUFM: 14,336 events.
- With one IX-BUFM: 30,720 events.
- With two IX-BUFMs: 47,104 events.

Cabling:

- Maximum of 450 feet.

On-Board Settings:

Switch	Description
SW1:	Make Busy. Set to BUSY during power-on maintenance
SW2:	Data Speed Setting for the Output TASKE and Event Records Pos. 1 = not used Pos. 2 = 1200 bps Pos. 3 = 2400 bps Pos. 4 = 4800 bps (Factory Setting) Pos. 5 = 9600 bps (TASKE Setting)
SW 3:	Data Speed Setting for the PRN Port Programming

Data Speed	Switch Position			
	1	2	3	4
1200 bps	ON	OFF	OFF	OFF
2400 bps	OFF	ON	OFF	OFF
4800 bps	OFF	OFF	ON	OFF
9600 bps	OFF	OFF	OFF	ON

Data Speed Setting for the PC Port (Hotel/Motel PMS Interface Only)

Position	ON	OFF
1 [1]	Ignore O as Extension Leading Digit	0 valid as Extension Leading Digit
2	Maximum Data Storage 200 Items	Full Capacity Data Storage
3	PMS Connection Mode	Not Used
4	Buffer Memory - Initialize	Buffer Memory - Protect

1. When this switch is ON 000010 = 10. When this switch is OFF 000010 = 000010

SW4: Communication Parameters for Connection to TASKE Systems/IX-LANLINK.

SW4 Settings		
Position	On	OFF
1	8-Bit Data, Non-Parity Check (Factory)	7-Bit Data, Even Parity Check
2	No Output - Data Buffering	Through - Normal
3	Flow Control ON (x-on/x-off)	Flow Control OFF
4	DTR Monitored (Factory)	DTR Disregarded
5	Event Codes Added	Event Codes Not Added
6	Not Used	Not Used
7	Not Used	Not Used
8	Buffer Memory - Initialize	Buffer Memory Protect

SW4: Communication Parameters for Connection to Hotel/Motel PMS

SW4 Settings		
Position	On	OFF
1	1200 bps Data	300 bps Data
2	DTR Disregarded	DTR Monitored
3	7-Bit Data, Even Parity Check	8-Bit Data, No Parity Check
4	Activate Printer Initialize	Disable Printer Initialize
5	Flow Control ON (x-on/x-off)	Flow Control OFF - DTR Only
6	Test Mode [1]	Normal Mode
7	Not Used (Always OFF)	Not Used (Always OFF)
8	Not Used (Always OFF)	Not Used (Always OFF)

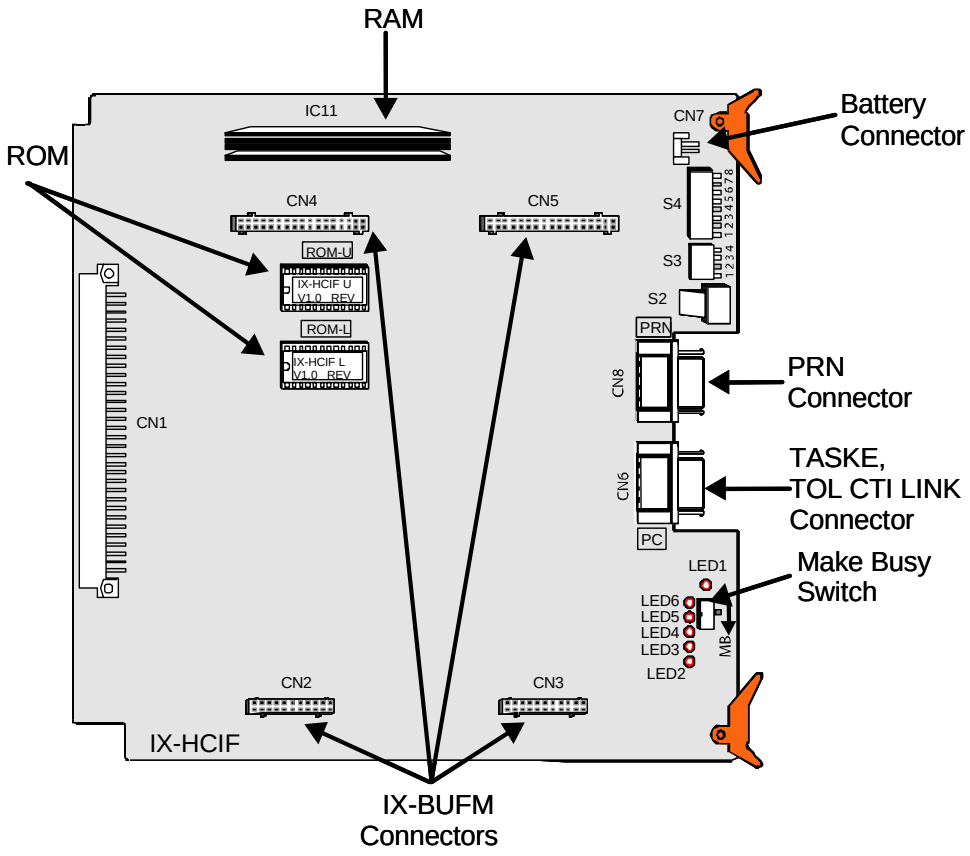
1. The following printer test pattern is output when the printer is connected and this switch is on:
   TEST START
   0123456789
   ABCDEFGHIJKLMNOPQRSTUVWXYZ
   abcdefghijklmnopqrstuvwxyz
   TEST END

On-Board Indicators:

Indication				Buffering Level
LED2	LED3	LED4	LED5	
OFF	OFF	OFF	OFF	0% occupied
ON	OFF	OFF	OFF	Less than 50% occupied
ON	ON	OFF	OFF	50 to 75% occupied
ON	ON	ON	OFF	75 to 100% occupied
ON	ON	ON	ON	Overflow (over 100%)

Technical Specifications

Model:	IX-HCIF	Connectors:	
Order No.:	101850	CN2/CN4	IX-BUFM (1st)
Location:	SIF or Universal Slot	CN3/CN5	IX-BUFM (2nd)
Ports:	Two RS232C ports	CN7	Nickel-cadmium batteries.
Add-Ons:	IX-BUFM (maximum of 2)	CN8 (PRN)	Printer port
	LINK ROM Set, LANLINK	CN9	Not Used
	ROM Set, PMS ROM Set	On-Board Functions:	
Memory Retention:	10 days	S1	Make Busy
Size:	9.7"H x 9.4"W x 0.75"D	S2	Data Speed for Printer Port
Weight:	0.78 lbs.	S3	TASKE, TOL, CTI Port
		S4	Communication Parameters

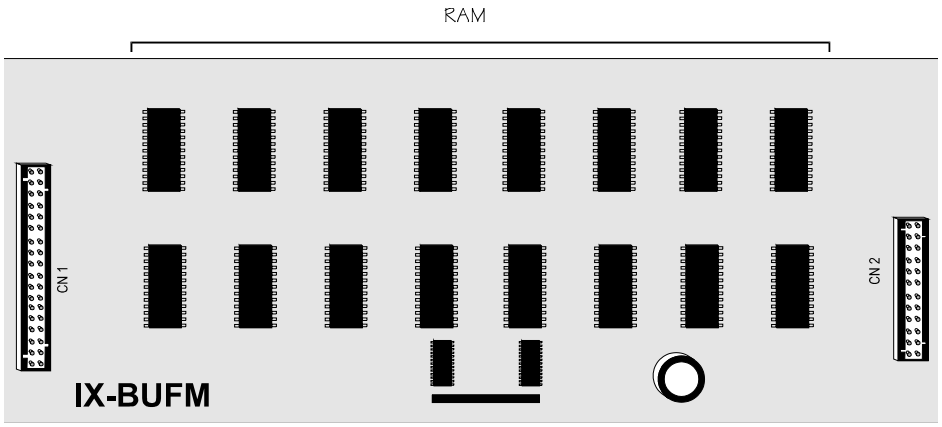


IX-BUFM Card

This is a piggyback card to the IX-HCIF that provides an additional 16, 384-event buffer. Two IX-BUFM cards may be added on the IX-HCIF.

Technical Specifications

Model:	IX-BUFM	Memory Retention:	
Order No.:	101860		approximately 10 minutes
Location:	IX-HCIF	Connectors:	
Ports:	None	CONN1/CONN2	IX-HCIF
Capacity:	16,384 Event Buffer	Add-Ons:	None
Size:	7"H x 3.25"W x 0.75"D	Weight:	0.16 lbs.



IX-RMPU Remote Maintenance and Programming Interface Card

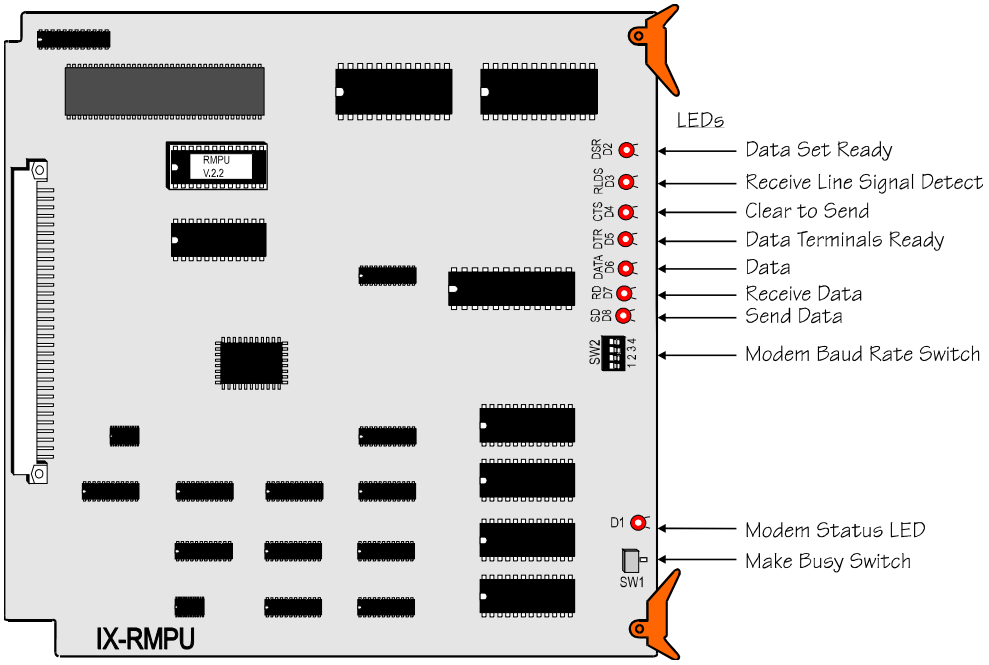
Important: The four DTMF receiver circuits for use with DISA is the only feature capatible with the ECS system.

If the IX-RMPU card is installed in the ECS, the four DTMF receiver circuits can be used for DISA.

Refer to the ADIX Technical Manual, 6th Edition for IX-RMPU use with the ADIX system.

Technical Specifications

Model:	IX-RMPU	Indicators:	
Order No.:	101750		D1 = Modem Status (on = busy)
Location:	Any Universal Card Slot		SD = Send Data
Ports:	4 DTMF receivers (circuits 5-8, 2nd-5th logical port)		RD = Receive Data DATA = DTR = Data Terminals Ready CTS = Clear to Send RLDS = Received Line Signal Detect DSR = Data Set Ready
Communication:			
	2400 bps / 1200 bps / 300 bps	On Board Functions:	SW1 Make Busy SW2 Modem Baud Rate (See Table)
Conditions:	One Card Per System	Size:	9.7”H x 9.5”W x 1.0”D
		Weight:	0.16 lbs.


LEDs
RMPU
V.2.2
DSR D2
RLDS D3
CTS D4
DTR D5
DATA D6
RD D7
SD D8
SW2
1 2 3 4
D1
SW1
Data Set Ready
Receive Line Signal Detect
Clear to Send
Data Terminals Ready
Data
Receive Data
Send Data
Modem Baud Rate Switch
Modem Status LED
Make Busy Switch
IX-RMPU

IX-CNFBOX-1 Conference Card

The IX-CNFBOX-1 card supports a conference call with up to eight-parties. Up to five IX-CNFBOX-1 cards may be installed in the system. When connected together, five IX-CNFBOX-1 cards will support a conference call that includes a maximum of five outside parties connected via analog trunk lines and a maximum combined total of 40 parties.

The IX-CNFBOX-1 card may be installed in any ECS universal card slot. When more than one IX-CNFBOX-1 card is utilized in an ECS system, it is recommended to install the IX-CNFBOX-1 cards in consecutive slots in the same shelf.

In addition to connecting five IX-CNFBOX-1 cards connected in serial, multiple cards may be installed to operate independently. Five independent IX-CNFBOX-1 cards may be programmed to operate in five trunk groups.

Depending on the type of line, the IX-4ETRAN card may be required to connect an outside party to the IX-CNFBOX-1. Each IX-4ETRAN card supports a maximum of four outside parties joined in a conference call. Internal stations joining the IX-CNFBOX-1 do not require the IX-4ETRAN card.

Component Description

The IX-CNFBOX-1 card is configured as a loop start trunk card in the system database. One card supports a conference call of up to eight parties. Up to five IX-CNFBOX-1 cards may be installed in serial to support a conference call of up to 40 parties. The IX-CNFBOX-1 card may be installed in any available ECS universal card slot. When more than one IX-CNFBOX-1 card is utilized in an ECS system, it is recommended to install the IX-CNFBOX-1 cards in consecutive slots in the same shelf.

Technical Specifications

Model: IX-CNFBOX-1

Part No.: 101200

Location: Any universal card slot

Ports: 8 per card

Software Settings:

Class 01.03 Port Definition; Class 01.04 Configuration

Additional Power Requirements:

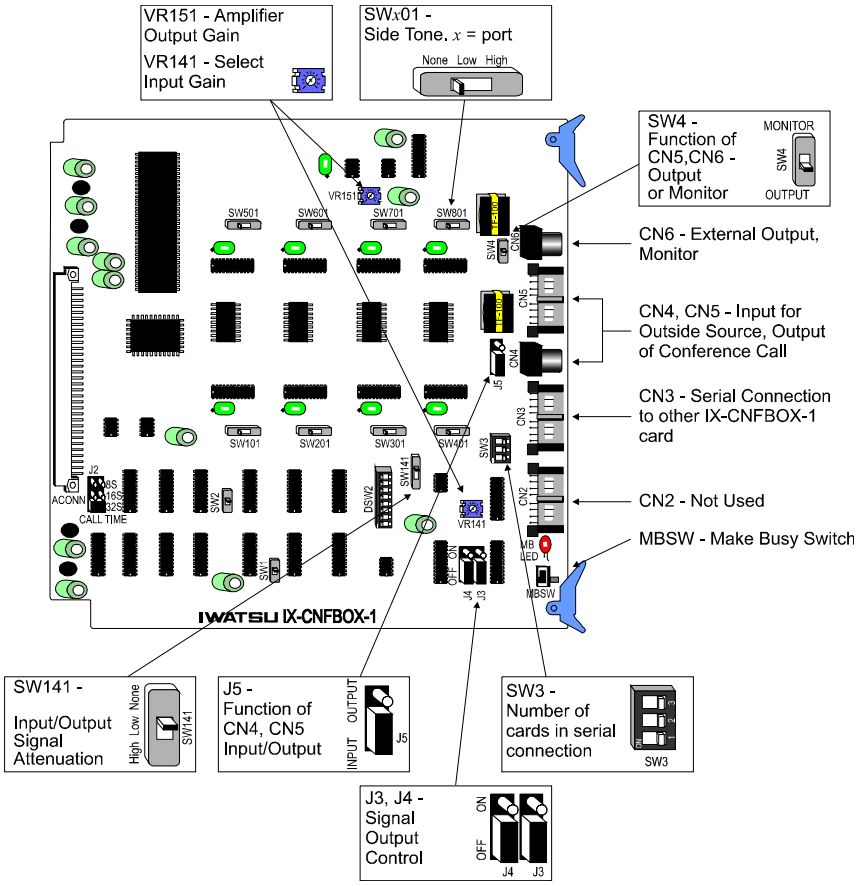
None

Additional Hardware Requirements:

IX-4ETRAN card for external party conference call.

Size: 9.7”H x 9.5”W x .75”D

Weight: 1.05 lbs.


VR151 - Amplifier Output Gain
VR141 - Select Input Gain
SWx01 - Side Tone. x = port
None Low High
SW4 - Function of CN5,CN6 - Output or Monitor
MONITOR
OUTPUT
CN6 - External Output, Monitor
CN4, CN5 - Input for Outside Source, Output of Conference Call
CN3 - Serial Connection to other IX-CNFBOX-1 card
CN2 - Not Used
MBSW - Make Busy Switch
IWATSU IX-CNFBOX-1
SW141 - Input/Output Signal Attenuation
High Low None
J5 - Function of CN4, CN5 Input/Output
OUTPUT
INPUT
SW3 - Number of cards in serial connection
J3, J4 - Signal Output Control
ON
OFF

IX-4ETRAN Requirements

Depending on the type of line, the IX-4ETRAN card may be required to connect an outside party to the IX-CNFBOX-1. Each IX-4ETRAN card supports a maximum of four outside parties joined in a conference call. Internal stations joining the IX-CNFBOX-1 do not require the IX-4ETRAN card. The table below lists the trunk types that require an IX-4ETRAN card.

CO Line Type	Related ECS / ADIX Hardware	IX-4ETRAN * Required	IX-4ETRAN Recommended
Analog Loop Start, Ground Start	IX-8LGTK, IX-8UNTK	YES	YES
Analog Caller ID Lines	IX-8CITK, IX-408, IX-400, IX-8UNTK	YES	YES
Analog E&M Tie Lines	IX-4EMTK	YES	YES
Analog DID	IX-4DITK	YES	YES
Digital T1 E&M Trunk	IX-T1DTI	NO	YES
Digital T1 E&M Tie Trunk	IX-T1DTI	NO	YES
Digital T1 DID Trunk	IX-T1DTI	NO	YES
Digital T1 Two-Way DID	IX-T1DTI	NO	YES
Digital T1 ANI/DNIS	IX-T1DTI	NO	YES
ISDN BRI Line	IX-2ICOTB	NO	YES
ISDN PRI Line	IX-ICOTP	NO	YES

* Voice quality may suffer when the IX-4ETRAN card is not installed with the IX-CNFBOX-1.

On-Board Functions

Number	Function	Number	Function
SW1	Conference mode	MBSW	Make busy
SW2	Answer to conference	CN2	NOT USED
SW3	Number of cards connected in series	CN3	Connection for series connection of multiple cards
SW4	External Output /Monitor for CN4 and CN5	CN4	External Input/External Output
SW101	Side tone level for port1	CN5	External Input, External Output / Monitor
SW201	Side tone level for port2	CN6	External Output / Monitor
SW301	Side tone level for port3	VR141	Select input gain
SW401	Side tone level for port4	VR142 (op)	Signal attenuation
SW501	Side tone level for port5	VR151	Amplifier output gain
SW601	Side tone level for port6	J2	NOT USED
SW701	Side tone level for port7	J3	EXO output control
SW801	Side tone level for port8	J4	EXO output control
SW141	Signal attenuation	J5	EXI / EXO Setting for CN5 and CN6
DSW2	NOT USED	J51	Relay contact mode

Connectors

Connector CN3 is used for the connection of multiple IX-CNFBOX-1 cards. Connectors CN4, CN5 and CN6 may be used to connect external devices to the IX-CNFBOX-1 card. A detailed description of each of these connectors is provided below. SW4 and Strapping Jack J5 are used to control the output of CN4, CN5, and CN6.

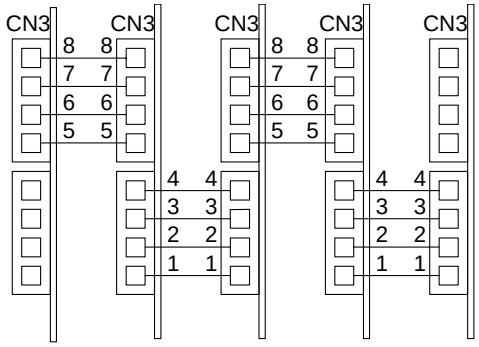
Note: The input and output signals of each connector are electrically isolated by a signal transformer.

CN3 (coupling)

Connector CN3 is used to connect multiple IX-CNFBOX-1 cards. Up to five cards may be connected in series to provide a conference call that includes a maximum of five outside parties and a maximum combined total of 40 parties.

Note: Iwatsu recommends that IX-CNFBOX-1 cards connected in series are located in consecutive card slots.

Illustrated below is a wiring diagram for the connection of five IX-CNFBOX-1 cards using the CN3 connector. Industry standard 24 AWG Twisted Pair cable must be used for the CN3 connections.



CN4

Connector CN4 is a RCA (Phono) Jack that may be used for the signal source input (EXI), or for conference voice output (EXO). Strapping jack J5 is used to define the function of Connector CN4. The tables below further illustrate the relationship of the CN4 terminals and typical input and output signal level.

Terminal	Signal
Inside [+]	Input from sound source or voice output
Outside [-]	Input from sound source or voice output

Signal	Typical Level	Impedance	Note
Input signal	-6 dBm	600 Ω	Default value- J5
Output signal	-25 dBm	600 Ω	

CN5 Pins 1-2 and 3-4 (EXI / EXO)

Connector CN5 Pins 1, 2, 3, and 4 provide the same function as CN4. The table below lists the relationships between the pins and the signals of CN5 Pins 1, 2, 3, and 4 and the typical input and output signal levels.

CN5 pins 1 and 3 correspond to CN4 [+] terminal. CN5 pins 2 and 4 correspond to CN4 [-] terminal.

Pin	Signal
Pins 1, 3 [+]	Input from sound source or voice output
Pins 2, 4 [--]	Input from sound source or voice output

CN6 (EXO / Monitor Out)

Connector CN6 provides conference voice output. Use Switch SW4 to select the function of CN6 as either Amplifier output or Monitor output.

The relationship of the terminals and the signals as well as typical input and output signal levels are illustrated in the tables below.

Terminal	Signal
Inside [+]	Voice output
Outside [-]	Voice output

Signal	Typical Level	Impedance	Note
Amplifier output	-25 dBm	600 Ω	Default output
Monitor output	about 70 mW	8 Ω	

CN5 Pins 5-6 and 7-8 (EXO / Monitor Out)

Connector CN5 Pins 5, 6, 7, and 8 provide the same function as the CN6. The table below lists the relationships between the pins and the signals of CN5 Pins 5, 6, 7, and 8and the typical input and output signal levels.

CN5 pins 5 and 7 correspond to CN6 [+] terminal. CN6 pins 6 and 8 correspond to CN4 [-] terminal.

Pins	Signal
Pins 5, 7	Input from sound source or voice output
Pins 6, 8	Input from sound source or voice output

Switches

MBSW

This is the Make Busy Switch. When this switch is in the ON position, the MBLED will flash. Default position of the MBSW is OFF.

SW*X*01

If acoustic feedback occurs during an eight party conference call, use Switches SW*x*01 (*x*=port 1-8) to adjust the side tone for each individual IX-CNFBOX-1 port as desired. The side tone level may be selected from one of three levels; “NONE - no side tone,” “LOW - low side tone,” and “HIGH - high side tone.” The table below describes each setting:

Position	Side tone loss level	Note
None	Disable send side tone	Default
Low	Enable side tone (-20 dB)	
High	Enable side tone (-12 dB)	

Switch SW3

Switch SW3 defines the number of the cards connected in series using Connector CN3. Up to five IX-CNFBOX-1 cards may be connected together. The table below lists the function of each SW3 setting.

Number of Card(s)	SW3			Number of Parties
	Pos. 1	Pos. 2	Pos. 3	
1	OFF	OFF	OFF	1 - 8 (Default)
2	ON	OFF	OFF	1 - 16
3	OFF	ON	OFF	1 - 24
4	ON	ON	OFF	1 - 32
5	OFF	OFF	ON	1 - 40

Switch SW4

Switch SW4 selects the output of Connectors CN6 and CN5(Pins 5-6/Pins 7-8). The table below lists the function of each setting.

Position	CN6, CN5(Pins 5-6/Pins 7-8)	Note
EXO	amplifier output	Default
MONITOR	monitor output	

SW141

Switch SW141 defines the attenuation level of the IX-CNFBOX-1 signal output. The table below describes the relationship of each SW141 position and the side tone attenuation.

Position	Attenuation Level	Note
Non	0	Default
Low	-20 dB	
High	-12 dB	

Strapping Jacks

J3

Strapping jack J3 determines if the seizure of the 7th port controls the signal output of the card. By default, output is automatic.

Note: The J3 setting is valid if J5 is set to EXO.

Strap Position	Function
OFF – C	No control, automatic output (default)
C – ON	If 7th port is seized, output is stopped at CN4 and CN5.

J4

Strapping jack J4 determines if the seizure of the 8th port controls the signal output of the card. By default, output is automatic.

Strap Position	Function
OFF – C	No control, automatic output (default)
C – ON	If 8th port is seized, output is stopped at CN4 and CN5.

J5

Strapping jack J5 defines the function CN4 and CN5 pins 1-2, 3-4 as either INPUT (EXI) or OUTPUT (EXO).

Strap Position	Function
C – I	Input (EXI) (default)
O – C	Output (EXO)

Potentiometers

VR141

Potentiometer VR141 changes the gain for input signal continuously. The adjustable range is about 25 dB. The table below illustrates the potentiometer position in relation to the gain.

Position	Gain	Note
left limit	0 dB	Default
right limit	about 25 dB	

VR151

Potentiometer VR151 is used to adjust the gain level of signal output. The adjustable range is about 25 dB. The table below illustrates the potentiometer position in relation to the gain.

Position	Gain	Note
left limit	0 dB	Default
right limit	about 25 dB	

Eight-Party Conference Call

The *Eight-Party Conference* feature is available to any system extension when the IX-CNFBOX-1 card is utilized. In order to join a conference call, a station must dial the trunk group access code assigned for the IX-CNFBOX-1 ports in Class 07.03 or press a Float key for the trunk group.

Attending an Eight-Party Conference Call. System extensions may join an eight-party conference call by dialing the trunk group access code designated to access the IX-CNFBOX-1 ports or by pressing a Float key for the trunk group.

Joining an Outside Party in an Eight-Party Conference Call. If the ECS is equipped with an IX-4ETRAN card, up to five outside parties may join an IX-CNFBOX-1 eight party conference call. However, the outside party may be added to the eight party conference call only by an attendant position. To add the outside party, the attendant position presses the [TRAN] key, dials the trunk group access code and [CONNECT] or hang-up.

Forty-Party Conference Call

Up to five IX-CNFBOX-1 cards may be installed in the system and connected together to provide a maximum of 40 parties in one conference call. However, the system will support a maximum of five outside parties on an IX-CNFBOX-1 conference call regardless of the number of cards connected together.

IX-MISC Miscellaneous Card

The IX-MISC card converts the system ports for input/output functions. Miscellaneous functions include connection of external MOH and BGM sources, paging applications, remote control relays and sensor input. An IX-EDCTU board is required on the shelf for external connection. For that reason, this card must be installed in the far right slot of each shelf. The table below lists the physical port layout.

Port	Function
1	Page Zone 1
2	BGM Source
3	MOH Source
4	Relay Control
5	Sensor Input
6	Page Zone 2
7	Page Zone 3
8	Page Zone 4

Note: Circuits 5-8 can also be used for Sensor Input

When using the IX-MCAA 25-Pin Ribbon Adaptor, the IX-MISC Miscellaneous Card installs in any slot of the ECS cabinet. The following are the pin-outs for the IX-MCAA 25-Pin Ribbon Adaptor:

IX-MISC Card To IX-MCAA		
MDF PIN #	FUNCTION	PAIR
1	Page In -	WHT/BLU
2	Page In +	BLU/WHT
3	Page Out -	WHT/ORG
4	Page Out +	ORG/WHT
5	MOH In -	WHT/GRN
6	MOH In +	GRN/WHT
7	BGM In -	WHT/BRN
8	BGM In +	BRN/WHT
9	BGM Out -	WHT/SLT
10	BGM Out +	SLT/WHT
11	Zone 4 -	RED/BLU
12	Zone 4 +	BLU/RED
13	Zone 3 -	RED/ORG
14	Zone 3 +	ORG/RED
15	Page Ctrl -	RED/GRN
16	Page Ctrl +	GRN/RED
17	MOH Ctrl -	RED/BRN
18	MOH Ctrl +	BRN/RED
19	Zone Page BGM In -	RED/SLT
20	Zone Page BGM In +	SLT/RED
21	Zone BGM In -	BLK/BLU
22	Zone BGM In +	BLU/BLK
23	Zone 1 -	BLK/ORG
24	Zone 1 +	ORG/BLK
25	Zone 2 -	BLK/GRN
26	Zone 2 +	GRN/BLK
27	Relay 8 / Sensor 4 -	BLK/BRN
28	Relay 8 / Sensor 4 +	BRN/BLK
29	Relay 7 / Sensor 3 -	BLK/SLT
30	Relay 7 / Sensor 3 +	SLT/BLK
31	Relay 6 / Sensor 2 -	YEL/BLU
32	Relay 6 / Sensor 2 +	BLU/YEL
33	Relay 5 / Sensor 1 -	YEL/ORG
34	Relay 5 / Sensor 1 +	ORG/YEL
35	Relay 4 -	YEL/GRN
36	Relay 4 +	GRN/YEL
37	Relay 3 -	YEL/BRN
38	Relay 3 +	BRN/YEL
39	Relay 2 -	YEL/SLT
40	Relay 2 +	SLT/YEL
41		VLT/BLU
42		BLU/VLT
43		VLT/ORG
44		ORG/VLT
45		VLT/GRN
46		GRN/VLT
47		VLT/BRN
48		BRN/VLT
49	Relay 1 -	VLT/SLT
50	Relay 1 +	SLT/VLT

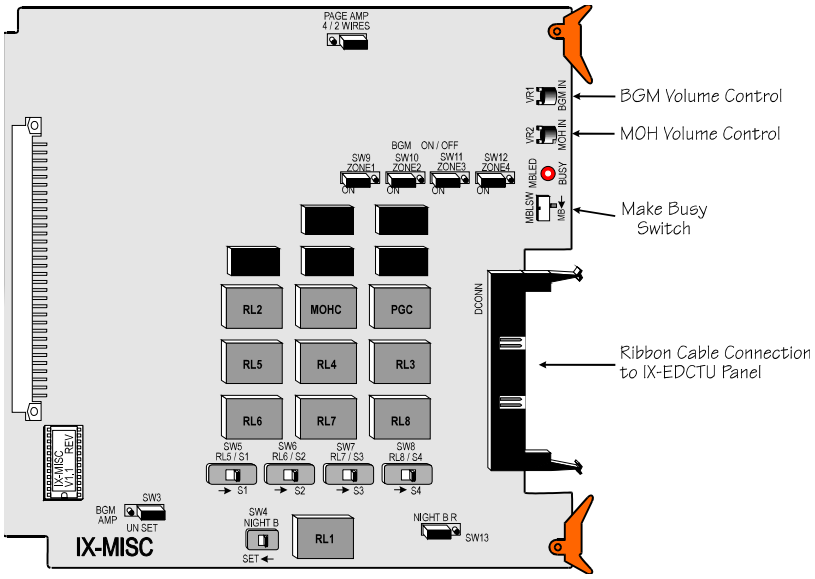
Paging If the same amplifier is shared by the paging and BGM sources, BGM is suspended at all zones when paging is activated. If SW2 is set as 2-WIRE, the signal is bi-directional if the PAGE IN jack is used and mono-directional if the PAGE IN and PAGE OUT jacks are used.

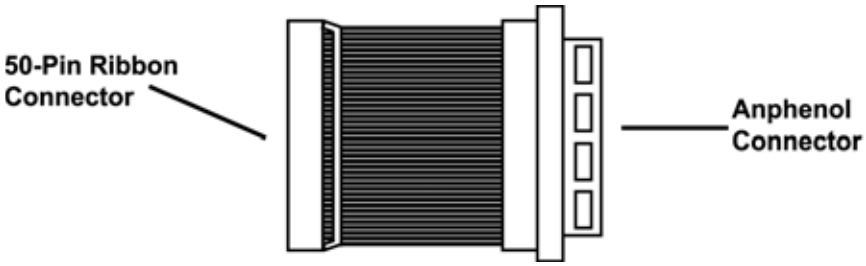
Technical Specifications

Model:	IX-MISC	Connectors:	ACONN - Motherboard
Part No.:	101730		DCONN - IX-EDCTU
Location:	Far right universal card slot of each shelf	On-Board Functions:	(see table)
Ports:	8 ports	Indicators:	MBLED = Busy
Requirement:	IX-EDCTU for external connection	Size:	9.7”H x 9.5”W x 1.0”D
Additional Power Requirements:	None	Weight:	0.9 lbs.

On-Board Functions

Switch	Description
MBSW	Make Busy. Set to BUSY during power-on maintenance
SW2	Select 2-WIRE or 4-WIRE for paging amplifier connection
SW3	Select USED or UNUSED for BGM amplifier
SW4	Not Used
SW5-SW8	Select RELAY CONTROL OUTPUT or SENSOR INPUT
SW9-SW12	Select BGM ON or BGM OFF for each paging zone (1-4)
SW13	Not Used
VR1	BGM volume adjustment
VR2	MOH volume adjustment


PAGE AMP 4 / 2 WIRES
VR1 BGM IN
VR2 MOH IN
MBLED
BUSY
MBLSW
MB
BGM ON / OFF
SW9 ZONE1
SW10 ZONE2
SW11 ZONE3
SW12 ZONE4
ON
BGM Volume Control
MOH Volume Control
Make Busy Switch
RL2
MOHC
PGC
RL5
RL4
RL3
RL6
RL7
RL8
DCONN
Ribbon Cable Connection to IX-EDCTU Panel
SW5 RL5 / S1
SW6 RL6 / S2
SW7 RL7 / S3
SW8 RL8 / S4
S1
S2
S3
S4
IX-MISC REV
SW3
BGM AMP
UN SET
SW4 NIGHT B
SET
RL1
NIGHT B R
SW13
IX-MISC


50-Pin Ribbon Connector
Anphenol Connector

IX-4ETRAN Four-Line Transfer Card

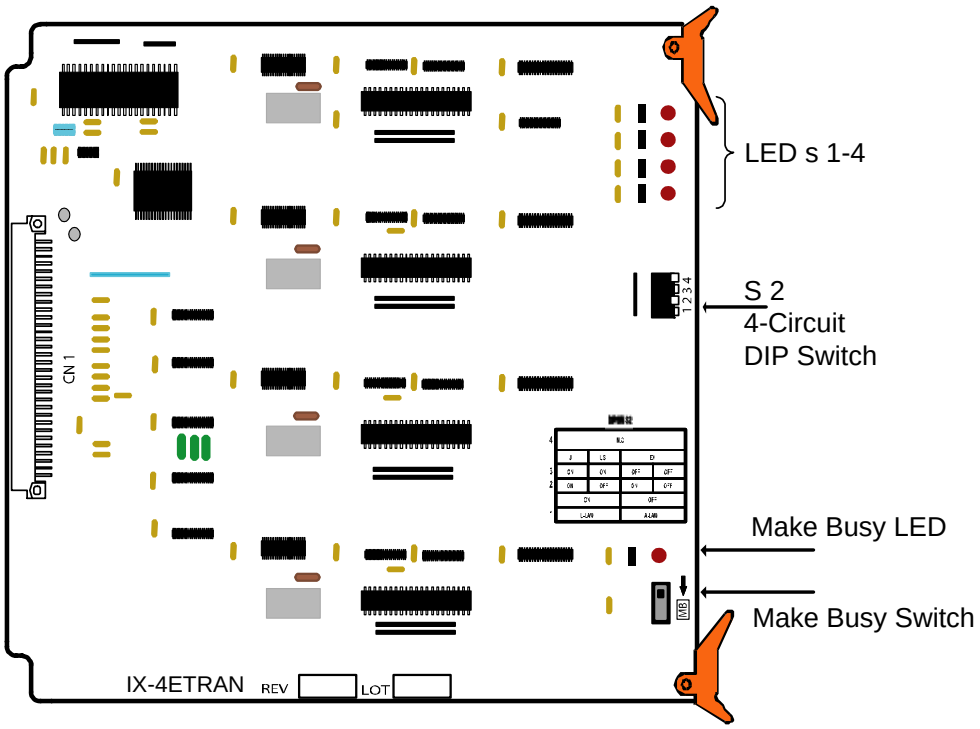
The IX-4ETRAN card provides four circuits that can be used for monitoring trunk-to-trunk conferences, remote CO call forwarding, and making outgoing calls using DISA. This card includes a line tone supervision circuit that is used to monitor the condition of all CO lines engaged in one or more conference calls. Disconnection detection is based on a continuous signal, an interrupted signal or silence. For example, if a signal such as a busy tone, warning tone, or loop open condition is detected on a line, disconnection will occur. There are a number of database programming options for disconnect detection (other than a loop open condition) that can be used with this card. The IX-4ETRAN card also provides automatic amplification of the CO level on each line engaged in the conference. Conferencing is available without the IX-4ETRAN card. Features such as disconnect detect and voice amplification, however, are added when the IX-4ETRAN is installed.

The following table describes when the IX-4ETRAN card is used.

	Analog Trunk					Digital Trunk								
	Loop	Ground	DID	CITK	E&M	T1 Loop	T1 Ground	T1 DID	T1 E&M	T1 2-Way	T1 ANI/ DNIS	ISDN	T1 E&M	IP E&M/ IP E&M Trunk
Loop	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Ground		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
DID			YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
CITK				YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
E&M					NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
T1 Loop						NO	NO	NO	NO	NO	NO	NO	NO	NO
T1 Ground							NO	NO	NO	NO	NO	NO	NO	NO
T1 DID								NO	NO	NO	NO	NO	NO	NO
T1 E&M Trunk									NO	NO	NO	NO	NO	NO
T1 2-Way DID										NO	NO	NO	NO	NO
T1 ANI/DNIS											NO	NO	NO	NO
ISDN												NO	NO	NO
T1 E&M													NO	NO
IP E&M/ IP E&M Trunk														NO

Technical Specifications

Model:	IX-4ETRAN	Connectors:	CN1 - Motherboard
Part No.:	101721	On-Board Functions:	
Location:	Any universal card slot		MB - Make Busy Switch
Ports:	4 ports		S2 - Four Circuit DIP Switch
		Indicators:	Make Busy LED Circuit LEDs 1-4
Additional Power Requirements:		Size:	9.7"H x 9.5"W x 1.0"D
	None	Weight:	0.6 lbs.



S2 DIP Switch Settings

1	2	3	4
ON	OFF	ON	OFF

ON = Mu-Law
OFF = A-Law

Tone Detection
Country Setting:
US = OFF/ON

Not Used

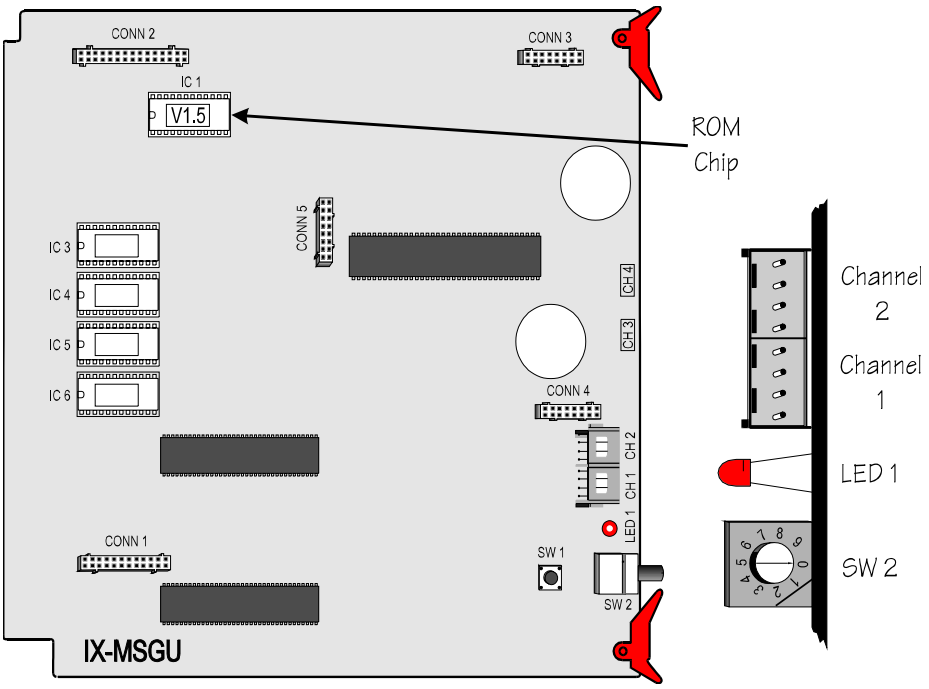
IX-MSGU Message Card

This card provides the announcement-recording interface for the ACD and system messages. The IX-MSGU card has two message channels on-board. Two message channels can be added for a total of four by connecting an IX-EMCH daughterboard. Each message channel requires connection to an IX-8PSUB port, and each IX-8PSUB port is configured as message card channels (040). If customized messages are required, either an IX-CMSG or IX-CMSG-1 daughterboard must be installed. Eight IX-MSGU cards can be installed in the system. If you are installing an IX-CMSG-1 daughterboard, the IX-MSGU card ROM chip must be V1.5 or higher.

Important!	If an IX-MSGU card is added to a system, the RAM must be defaulted using SW1 prior to recording any new messages. **Defaulting the card will erase all previously recorded custom messages.** Card defaulting instructions are provided in this section.

Technical Specifications

Model:	IX-MSGU	Connectors:	
Order No.:	101820	CN1, CN2	IX-CMSG, IX-CMSG-1
Location:	Any unused card slot	CN3, CN4, CN5	IX-EMCH
Ports:	1 IX-8PSUB port for each message	CH1, CH2	IX-8PSUB port through MDF
	channel	Indicators:	LED = Busy
Capacity:	120 seconds fixed with IX-CMSG	Add-Ons:	IX-CMSG
	330 seconds with IX-CMSG-1		IX-CMSG-1
Message Channels:			IX-EMCH
	2 standard,	Size:	9.7”H x 9.4”W x 0.75”D
	expandable to 4 with an IX-EMCH	Weight:	0.8 lbs.
On-Board Functions:			
SW1	Erase RAM on message card		
SW2	Identify MSGU card 1-8		



Station Port Configuration

Port Definition from Class 01.03	Function	Class 01.04 Data Field Entry	Description
0-4-0	Voice Message Unit port connected to an IX-MSGU circuit card	0 0 0	Channel 0 is Record/Playback; N/A; without the IX-CMSG
		0 0 1	Channel 0 is Record/Playback; N/A; with the IX-CMSG
		1 0 0	Channel 1 is playback only; N/A; N/A
		2 0 0	Channel 2 is playback only; N/A; N/A
		3 0 0	Channel 3 is playback only; N/A; N/A

Voice Message Channel Configuration Description

Configuration Data Class 01.04	Description
0 0 0 0 0 1 (IX-CMSG) 1 0 0 2 0 0 3 0 0	IX-MSGU Card 1 Rotary SW 2 = 0
0-1-0 0-1-1 (IX-CMSG) 1-1-0 2-1-0 3-1-0	IX-MSGU Card 2 Rotary SW 2 = 1
0-2-0 0-2-1 (IX-CMSG) 1-2-0 2-2-0 3-2-0	IX-MSGU Card 3 Rotary SW 2 = 2
0-3-0 0-3-1 (IX-CMSG) 1-3-0 2-3-0 3-3-0	IX-MSGU Card 4 Rotary SW 2 = 3

Configuration Data Class 01.04	Description
0-4-0 0-4-1 (IX-CMSG) 1-4-0 2-4-0 3-4-0 4-4-0	IX-MSGU Card 5 Rotary SW 2 = 4
0-5-0 0-5-1 (IX-CMSG) 1-5-0 2-5-0 3-5-0 4-5-0	IX-MSGU Card 6 Rotary SW 2 = 5
0-6-0 0-6-1 (IX-CMSG) 1-6-0 2-6-0 3-6-0	IX-MSGU Card 7 Rotary SW 2 = 6
0-7-0 0-7-1 (IX-CMSG) 1-7-0 2-7-0 3-7-0 4-7-0	IX-MSGU Card 8 Rotary SW 2 = 7

To default the IX-MSGU card:

1. Unplug channel 1.
2. Push and hold SW 1.
3. Plug in channel 1 while holding SW1 until LED 1 lights.
4. When LED 1 lights release SW 1.
5. The IX-MSGU card is defaulted when LED 1 turns off.

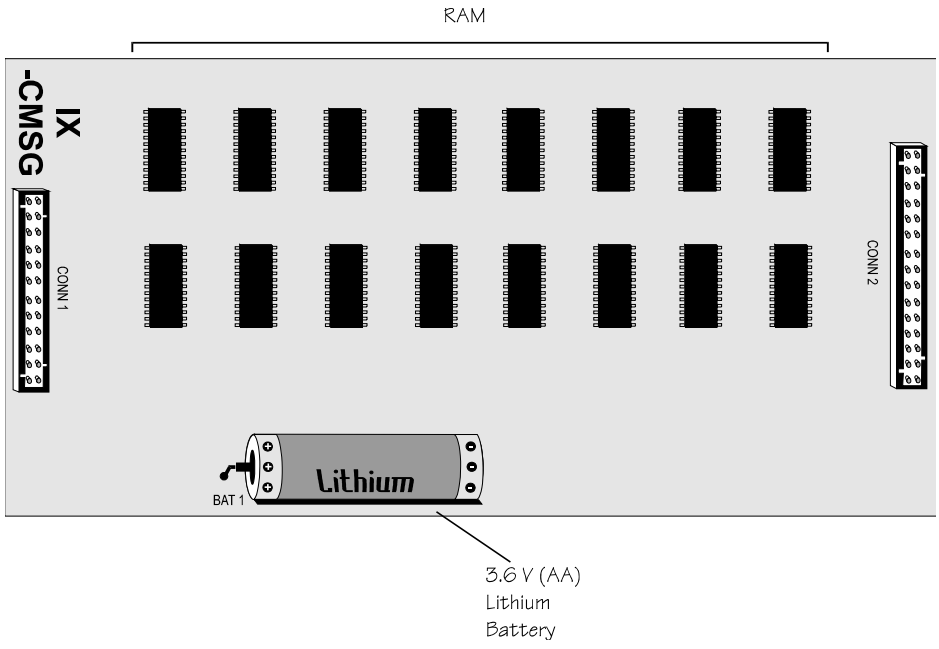
IX-CMSG Custom Message Daughterboard

The IX-CMSG daughterboard is connected to the IX-MSGU card. It stores 120 seconds of customized messages.

Note: The sum of system messages and ACD messages cannot exceed the total capacity of the IX-CMSG daughterboard - 120 seconds. Exceeding this limit will corrupt the message files.

Technical Specifications

Model:	IX-CMSG	Memory	
Order No.:	101840	Retention:	10 days
Location:	IX-MSGU	Connectors:	
Ports:	None	CONN1/CONN2	IX-MSGU
Capacity:	120 seconds of recording time,	Add-Ons:	None
	32 system messages	Size:	7”H x 3.5”W x 0.75”D
		Weight:	0.2 lbs.



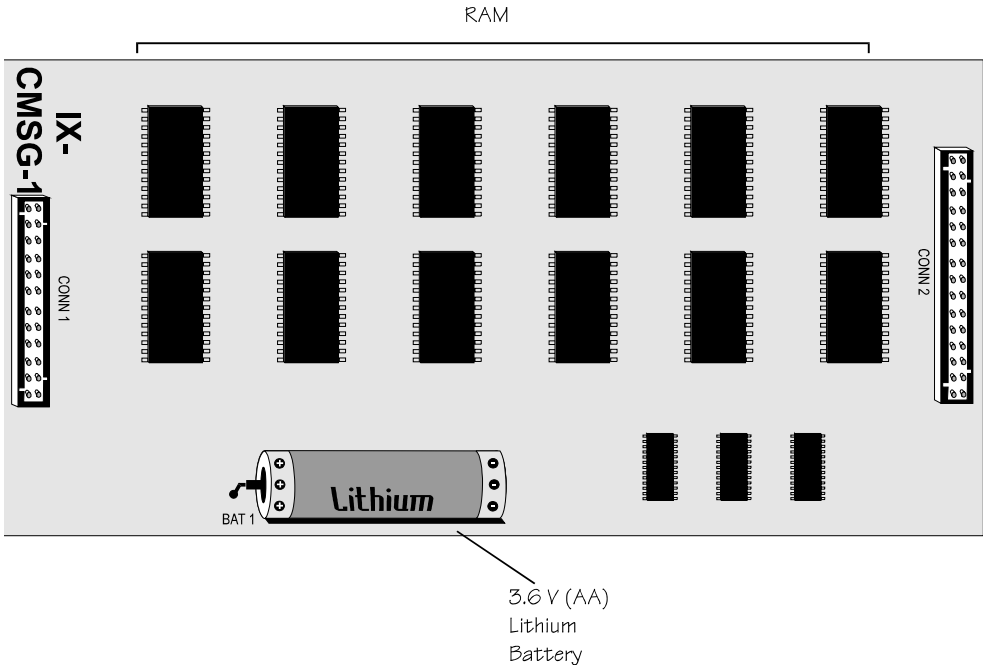
IX-CMSG-1 Custom Message Daughterboard

The IX-CMSG-1 daughterboard connects to the IX-MSGU card. It stores 330 seconds of customized messages.

Note: The sum of system messages and ACD messages cannot exceed the total capacity of the IX-CMSG-1 daughterboard - 330 seconds. Exceeding this limit will corrupt the message files.

Technical Specifications

Model:	IX-CMSG-1	Memory	
Order No.:	101845	Retention:	10 days
Location:	IX-MSGU	Connectors:	
Ports:	None	CONN1/CONN2	IX-MSGU
Capacity:	330 seconds of recording time,	Add-Ons:	None
	32 system messages	Size:	7”H x 3.5”W x 0.75”D
		Weight:	0.2 lbs

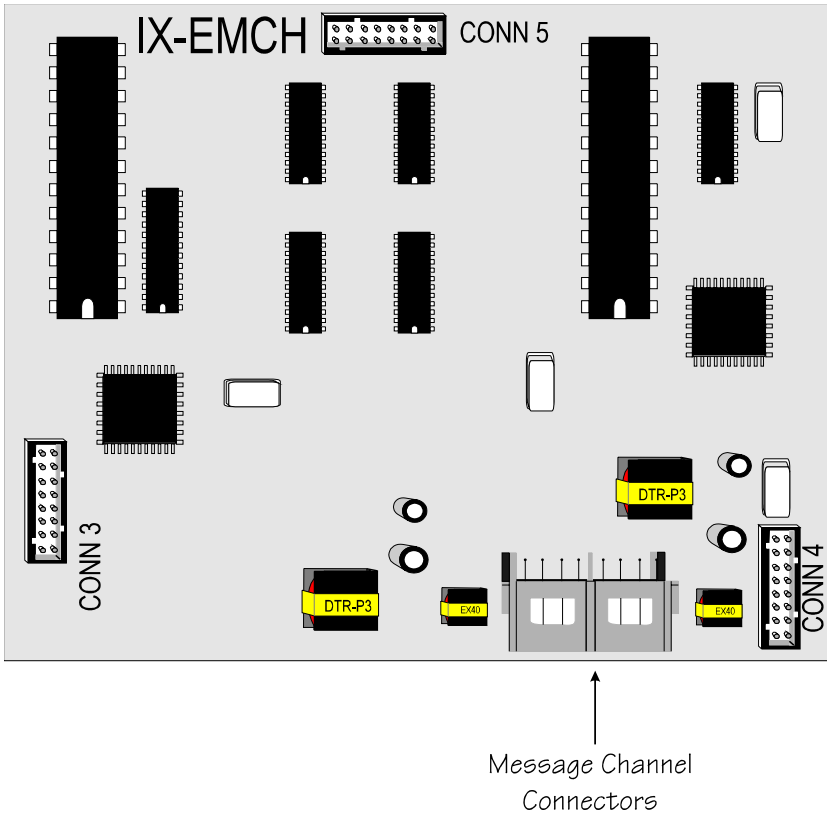


IX-EMCH Message Channel Expansion Daughterboard

The IX-EMCH daughterboard connects to the IX-MSGU card. It provides two additional message channels for systems with heavy message traffic. Each channel of the IX-EMCH daughterboard requires direct connection to an IX-8PSUB port.

Technical Specifications

Model:	IX-EMCH	Connectors:	CONN3/CONN4/CONN5 - IX-MSGU
Order No.:	101830		2 connectors for message channels
Location:	IX-MSGU	Add-Ons:	None
Ports:	None	Size:	4.7”H x 5.5”W x 0.75”D
Message Channels:	2	Weight:	0.3 lbs.



IX-NICLINK Card

The IX-NICLINK enables the ECS for Computer Telephony Integration using an Ethernet connection. IX-NICLINK consists of specially designed hardware and software that interfaces the ECS and the Iwatsu Enterprise TOL Server to allow call processing for a PC connected to a LAN.

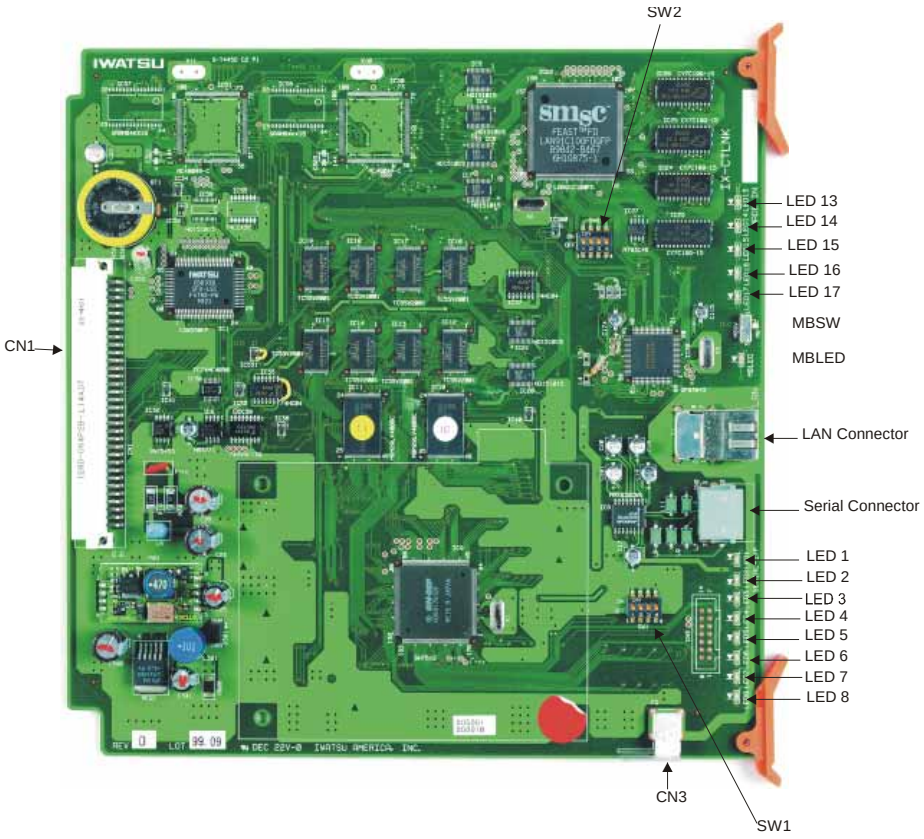
The IX-NICLINK is developed in accordance with the Computer Supported Telecommunication Application (CSTA) interface.

The IX-NICLINK card may be installed in any universal card slot. The card uses the first physical port of the slot into which it is installed.

Note: TOL systems that deploy CSTA integration to the ECS via the IX-HCIF card or IX-NICLINK card must be restarted if the CSTA link with the ECS system is lost in order to re-establish the CSTA link.

Technical Specifications

Model:	IX-NICLINK	Connectors:	
Part Number:	101853	Serial CN	For Serial Connection
Location:	Universal Slot	LAN CN	LAN Connection
Ports:	First Physical Port	CN1	ECS Connector
Memory Retention:	7 Years	CN3	For Factory Use Only
Size:	9.7”H X 9.4”W X 0.75”D	On-Board Functions:	
Weight:	0.78 lbs.		SW1, Ethernet Operation Mode Switch
Indicators:	See Onboard Indicators		SW2, Not Used
			MBSW, Make Busy Switch


SW2
LED 13
LED 14
LED 15
LED 16
LED 17
MBSW
MBLED
CN1
LAN Connector
Serial Connector
LED 1
LED 2
LED 3
LED 4
LED 5
LED 6
LED 7
LED 8
CN3
SW1

IX-NICLINK Onboard Indicators

LED	Application	Operation	Value
1	Hardware Initialization • Device Initialization • ROM/RAM Check	Normal Termination:	Always ON during operation
		Malfunction Detected:	LED 1, 3, 5, and 7 come on. The boot program starts up automatically.
2	Software Initialization Status • Operating System Initialization • Timer Initialization • Application Launch	Normal Termination: Always ON during operation	
		Malfunction Detected:	Flashing at 100 msec intervals
3	MAC Address Storage Status	Normal Value:	ON
		Abnormal Value:	OFF
4	Reserved		
5	Reserved		
6	Run Lamp 3	Running:	ON
		Suspending:	OFF
7	Run Lamp 2	Normal Value:	ON
		Abnormal Value:	OFF
8	Run Lamp 1	Normal Value:	ON
		Abnormal Value:	OFF
13	Collision	A collision has occurred:	ON In half-duplex operation only
		No collision has occurred:	OFF
14	Transmit Data	Transmit Data:	ON
		No Transmit Data:	OFF
15	Receive Data	Receive Data:	ON
		No Receive Data:	OFF
16	Link	Link Establishment with Hub:	ON
		No Link Establishment with Hub:	OFF
17	Full-duplex	Full-duplex Operation:	ON
		Half-duplex Operation:	OFF

Make Busy LED

LED	Status	Operation
MBLED	ON	Server Connection
	Off	No Server Connection
	Flashing	In Make Busy Mode

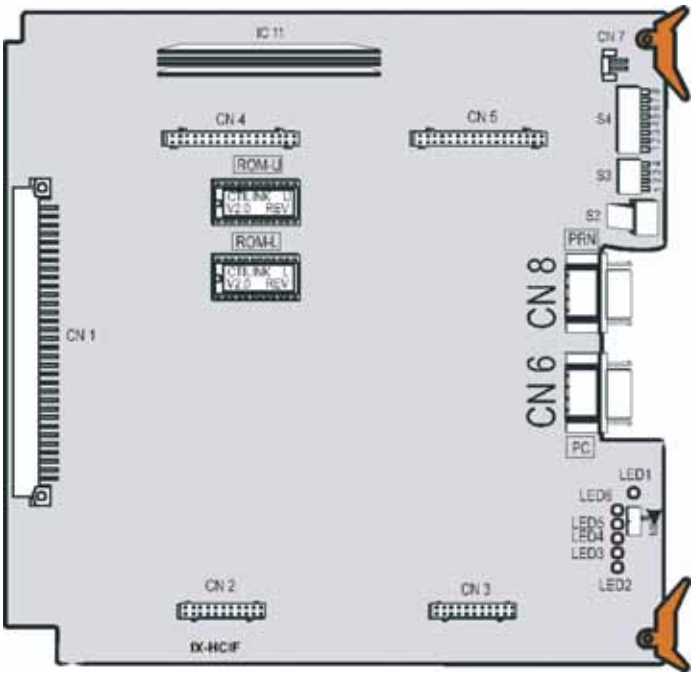
IX-CTILINK Card

The IX-CTILINK card is an IX-HCIF card with the IX-HCIF CSTA Integration Module (Part Number 109174) attached. The IX-CTILINK card has two serial ports that are used to provide interface circuits for Computer Telephony Integration.

When installed in a universal slot, the card will use the first two physical ports of the card slot.

Technical Specifications

Model:	IX-CTILINK	Connectors:	CN2/CN4 IX-BUFM (1st)
Order No.:	101850		CN3/CN5 IX-BUFM (2nd)
Location:	Universal Slot		CN7 Nickel-cadmium batteries
Ports:	Two RS232C ports		CN8 (PRN) RPC port
Memory Retention:	10 days		CN6 (PC) TOL port
Size:	9.7"H x 9.4"W x 0.75"D	On-Board Functions:	
Weight:	0.78 lbs.		S1 Make Busy
Indicators	See On Board Indicators		S2 Data Speed - Printer Port
			S3 Data Speed - PC Port
			S4 COM Parameters



On Board Indicators

Indicators				Buffering Level
LED 1	LED 2	LED 3	LED 4	
OFF	OFF	OFF	OFF	0% occupied
On	OFF	OFF	OFF	Less than 50% occupied
ON	ON	OFF	OFF	50 – 75% occupied
ON	ON	ON	OFF	75 – 100% occupied
ON	ON	ON	ON	Overflow (over 100% occupied)

Switch Settings for the IX-CTILINK Card

Switch	Description
SW1:	Make Busy. Set to BUSY during power-on maintenance.

SW2: Data Speed Setting for the Programming Port. Select 9600 bps.

SW2 Rotary Switch					
	Switch Position				
	1	2	3	4	5
Data Speed (bps)	300	1200	2400	4800	9600

SW 3: Data Speed Setting for the TOL Port. Select 9600 bps.

SW3				
Data Speed	Switch Position			
1200 bps	ON	OFF	OFF	OFF
2400 bps	OFF	ON	OFF	OFF
4800 bps	OFF	OFF	ON	OFF
9600 bps	OFF	OFF	OFF	ON

SW4: Communication Parameters for Connection to ESNA via the CTILINK.

SW4		
Position	ON	OFF (ALL Switches OFF)
1	Loop Back	Normal
2	Not Used	Not Used
3	Not Used	Not Used
4	DTR Monitored	DTR Disregarded
5	Not Used	Not Used
6	Not Used	Not Used
7	Not Used	Not Used
8	Buffer Memory - Initialize	Buffer Memory - Protect

Chapter 8

Station Equipment

Key Telephones and Attendant Consoles

IP and Digital Telephone Components.

IP and Digital Telephones designed for the Iwatsu Enterprise-CS:

- Iwatsu Series IP and Digital Telephones
  - IX-5930 IP Telephone
  - IX-5910 IP Telephone
  - IX-5900 IP Telephone
  - IX-5800 Digital Telephone
  - IX-5810 Digital Telephone
- The Platinum Series IP and Digital Telephones:
  - The Platinum 18i and Platinum 12i IP Telephones
  - The Platinum 18d and Platinum 12d Digital Telephones
- The IX-12IPKTD-E Executive Model IP Telephone
- The IX-6IPKTD-E IP Telephone

Other IP and Digital Telephones and components covered in the section include:

- The IX-12IPKTD-E2
- The IX-12KTD-3 / IX-12KTS-3
- The IX-12KTD-2
- The IX-MKT
- The IX-DCKT970
- The IX-ATT Attendant Console
- Iwatsu ICON Series IX-59DS IP DSS Unit
- The Platinum Series DSS Unit
- The IX-DSS
- The IX-DDPH Digital Doorphone
- Single Line Telephones
- Optional station equipment

Note: Iwatsu highly recommends a managed network connection for IP/SIP-based equipment and applications. Non-managed network connections will result in additional echo or choppy audio quality. These conditions may not be correctible to a level acceptable by the user using a non-managed connection. Iwatsu assumes no liability for the performance of the equipment within a non-managed circuit.

Menu

Component	Description
Self-Labeling Keys	The Iwatsu ICON Series IX-5810, IX-5910, and IX-5930 Telephones are equipped with Self-Labeling keys that support system features.
Multi-Purpose Keys	Programmable for specific functions. For example, outside lines, individual extensions, one-touch feature operation.
Key Lamps (LED)	Light up or flash when someone is using a line or a feature corresponding to that button. Green Indication - You are using that line. Red Indication - Someone else is using that line.
Menu Keys	Allows access to IP Telephone-specific features (Except IX-6IPKTD-E, IX-5800, IX-5900)
Scroll Keys (IX-12IPKTD-E and IX-12IPKTD-E2 only)	Allows navigation to IP Telephone-specific, menu driven features
SPEAKER	Transfer audio output from handset to speaker.
TRANSFER	Transfer a call from your phone to another extension.
FEATURE	Operate certain special and advanced features available through the ECS.
HOLD/DND (Hold/Do Not Disturb)	Put a call on hold, or set the do not disturb function to prevent any calls from ringing at your extension.
Handset/Speaker Volume Control	Pressing the button raises and lowers the handset or speaker volume.
Ringer Volume Control	Adjust the ringer volume to one of five levels.
Mute	Mutes the Station handset, headset, and microphone

IP Telephone Comparison Chart

Supported:	IX-5930	IX-5910	IX-5900	18i	12i	IX-12IPKTD-E
IX-MBU Media Bridge Unit	X	X	X	X	X	X
IX-8IPSUB						
16.5 Volt AC Adapter (IX-59AC)	X	X	X			
18 Volt AC Adapter (IX-IPKTAC-E)				X	X	X
Power Over Ethernet (PoE)	X	X	X	X	X	X
Peer- to-Peer Communication	X	X	X	X	X	X
Multiple Host Connectivity	X	X	X	X	X	X
Layer 2 Switch	X	X	X	X	X	X
DHCP or Static IP Addressing	X	X	X	X	X	X
10/100Base-T Ethernet Connection	X	X	X	X	X	X
Off-Premise Extension	X	X	X	X	X	X
G.711 Voice Compression:	X	X	X	X	X	X
G.729 Voice Compression:	X	X	X	X	X	X
Speakerphone:	X	X	X	X	X	X
Display Menu Keys	X	X		X	X	
Self-Labeling Keys	X	X				

IX-5930 IP Key Telephone

The IX-5930 is equipped with a 15-line, 24-character backlit LCD display, 60 Self-Labeling keys that support up to 52 features, and a full-duplex speakerphone.

The IX-5930 has a Directory feature that allows users to search an Internal Directory and External Speed Dial numbers; also, search and program up to nine Personal Speed Dial Numbers. The enhanced Call Forwarding menu allows the user to program multiple Call Forward destinations to quickly and easily activate call forwarding. A Call Log stores the last 10 incoming and 10 outgoing telephone calls with Caller ID, ANI, or DNIS information. This Call Log lets the user view the number, trunk, and date and time of the call as well as, dial the number or delete record. A Setup menu allows the user to configure an optional Bluetooth headset, change the display contrast, and choose up to five different Ticker displays (If programmed in the system database). The IX-5930 also allows visual navigation of the IX-4EVMC Voice Mail card menus from the LCD.

The IX-5930 includes a three position integrated pedestal. A Bluetooth adapter (IX-59BTINF) is an optional unit available for the IX-5930. The IX-5930 supports power over Ethernet or local power when the optional IX-59AC (PN 505099) is installed.

Note:	**Very Important!** Power Over Ethernet is supported ONLY if the PoE switch is a UL listed “Limited Power Source”.

The IX-5930 IP telephone provides two new features that simplify installation and reduce installation time. Iwatsu Auto-Discovery Mode is a propriety network protocol developed by Iwatsu that allows the ICON series IX-5930 IP telephone to automatically identify itself on the local network and connect to the ECS system. Manual Setup Quick Mode provides a simplified method for manually entering configuration information through the station LCD menu.

Note:	The IX-5930 IP telephone cannot be used to register an Omegatrek IX-PS6 handset. There is not a key number 12 on this station that is required to register the Omegatrek IX-PS6 handset.

IX-5930



Multiple Host Connectivity

The IX-5930 IP telephone allows for connectivity to a remote (secondary) ECS if connectivity is lost to the main (primary) ECS host. A secondary LAN2 and logical port number are programmed in the IX-5930 to enable this feature.

IX-5930 Technical Specifications

Model:	IX-5930	Part Numbers:	505930
Pedestal:	3-position Integrated Pedestal and a wall-mount option	Self-Labeling Menu Keys:	30 keys that support up to 52 features (page 1/page2)
Connection:	10Base-T/100Base-TX Auto-Negotiation Ethernet RJ-45 - LAN	Connectors:	Handset cord connector; Headset cord connector; LAN (10/100) PC (10/100) Local Power (IX-59AC)
Addressing:	DHCP (Default) or Static IP	Optional Module:	IX-59BTINF Bluetooth Interface
Bandwidth Requirements:			
Overhead G.711 G.729 SDRAM Flash ROM	16 kbps 80 kbps total 1 24 kbps total 1 16 MB 8 MB	Volume Level Adjustment:	Ringer: 1-4 Receiver: 1-5 Speaker: 1-11
Quality of Service (QoS):	IEEE802.1p Q-Compliant: Tag configurable TOS DiffServ-Compliant: TOS/DSCP configurable	Display: Viewability:	15 Line x 24 Character Programmable Backlit LCD 0^0 (wall), 37^0,48^0, 60^0 (desk)
Power Consumption:	Idle: Approx. 2.8 Watts In Use: Approx. 5.8 Watts (Max)	Operating Conditions:	32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing)
Power Requirements:	LAN-based Power Supply (IEEE802.3af Compliant) 48 VDC, 120 mA OR IX-59AC Power Supply for local power connection	Size: Weight:	10.75"W x 7.85"H x 1.91"D 2 lbs 2 oz
		Storage Temperature:	14° to 122°F (-10 to 50°C)
Power Supply:	Power over Ethernet or IX-59AC for local power connection	ECSSoftware Version:	ECS version 5.1 or higher

1. Excluding layer 2 header/trailer, preamble, and IFG (Inter Frame Group). The bandwidth including layer 2 header/trailer, preamble, and IFG vary by the medium or encapsulation such as Frame Relay. Ethernet, Ethernet with IEEE 802.1p/q, PPP, etc. For example: G.711 packets for Ethernet with IEEE 802.1p/q require 97 kbps. An additional 1 kbps (typical) may be required for signaling traffic.

IX-5910 IP Key Telephone

The IX-5910 is equipped with a seven-line, 24-character backlit LCD display, 16 multipurpose keys, 10 Self-Labeling keys, and a full-duplex speakerphone.

The IX-5910 has a Directory feature that allows users to search an Internal Directory and External Speed Dial numbers; also, search and program up to nine Personal Speed Dial Numbers. The enhanced Call Forwarding menu allows the user to program multiple Call Forward destinations to quickly and easily activate call forwarding. A Call Log stores the last 10 incoming and 10 outgoing telephone calls with Caller ID, ANI, or DNIS information. This Call Log lets the user view the number, trunk, and date and time of the call as well as, dial the number or delete record. A Setup menu allows the user to configure an optional Bluetooth headset, change the display contrast, and choose up to five different Ticker displays (If programmed in the system database). The IX-5910 also allows visual navigation of the IX-4EVMC Voice Mail card menus from the LCD.

The IX-5910 includes a three position integrated pedestal with a built-in wall-mount option that simplifies installation. A Bluetooth adapter (IX-59BTINF) and a Line Key Expansion (IX-ELK8) are optional units available for the IX-5910. The IX-5910 supports power over Ethernet or local power when the optional IX-59AC (PN 505099) is installed.

Note:	**Very Important!** Power Over Ethernet is supported ONLY if the PoE switch is a UL listed “Limited Power Source”.

The IX-5910 IP telephone provides two new features that simplify installation and reduce installation time. Iwatsu Auto-Discovery Mode is a propriety network protocol developed by Iwatsu that allows the ICON series IX-5910 IP telephone to automatically identify itself on the local network and connect to the ECS system. Manual Setup Quick Mode provides a simplified method for manually entering configuration information through the station LCD menu.

IX-5910



Multiple Host Connectivity

The IX-5910 IP telephone allows for connectivity to a remote (secondary) ECS if connectivity is lost to the main (primary) ECS host. A secondary LAN2 and logical port number are programmed in the IX-5910 to enable this feature.

IX-5910 Technical Specifications

Model:	IX-5910	Part Numbers:	505910
Pedestal:	3-position Integrated Pedestal and two wall-mount options	Self-Labeling Menu Keys:	10 keys that support 20 feature (page 1 / page 2)
Connection:	10Base-T/100Base-TX Auto-Negotiation Ethernet RJ-45 - LAN	Multipurpose Keys:	16 Multipurpose keys or 24 with the IX-ELK8
Volume Level Adjustment:	Ringer: 1-4 Receiver: 1-5 Speaker: 1-11	Connectors:	Handset cord connector; Headset cord connector; LAN (10/100) PC (10/100) Local Power (IX-59AC)
Addressing:	DHCP (Default) or Static IP	Optional Module:	IX-59BTINF Bluetooth Interface
Bandwidth Requirements:			
Overhead G.711 G.729 SDRAM Flash ROM	16 kbps 80 kbps total 1 24 kbps total 1 16 MB 8 MB	Display:	7 Line x 24 Character
		Viewability:	Programmable Backlit LCD 0^0 (wall), 37^0,48^0, 60^0 (desk)
Quality of Service (QoS):	IEEE802.1p Q-Compliant: Tag configurable TOS DiffServ-Compliant: TOS/DSCP configurable	Operating Conditions:	32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing)
Power Consumption:	Idle: Approx. 2.8 Watts In Use: Approx. 5.5 Watts (Max)	Size: Weight:	10.75"W x 7.85"H x 1.91"D 2 lbs 2 oz
Power Requirements:	LAN-based Power Supply (IEEE802.3af Compliant) 48 VDC, 120 mA OR IX-59AC Power Supply for local power connection	Storage Temperature:	14° to 122°F (-10 to 50°C)
Power Supply:	Power over Ethernet or IX-59AC for local power connection	ECSSoftware Version:	ECS version 5.1 or higher

1. Excluding layer 2 header/trailer, preamble, and IFG (Inter Frame Group). The bandwidth including layer 2 header/trailer, preamble, and IFG vary by the medium or encapsulation such as Frame Relay. Ethernet, Ethernet with IEEE 802.1p/q, PPP, etc. For example: G.711 packets for Ethernet with IEEE 802.1p/q require 97 kbps. An additional 1 kbps (typical) may be required for signaling traffic.

Iwatsu ICON Series IX-5900 IP Telephone

The Iwatsu ICON Series IX-5900 is equipped with a two-line, 16-character LCD display, and nine multipurpose keys. The IX-5900 has a large incoming call / MSG indication LED on the top of the telephone and standard full-duplex speakerphone.

Ringer, Handset, and Speaker volume for the IX-5900 are controlled by using the - and + keys and changes based on the state of the telephone. The IX-5900 includes a three-position integrated pedestal and a wall-mount option that simplifies installation. An IX-ELK9 Line Key Expansion is an optional unit for the IX-5900. Also, the Ticker Field Display (TFD) can be programmed in the ECS database to scroll across the IX-5900 display.

The IX-5900 supports Power over Ethernet or local power when the optional IX-59AC (PN: 505099) is installed..

Note:	**Very Important!** Power Over Ethernet is supported ONLY if the PoE switch is a UL listed “Limited Power Source”.

The IX-5900 IP telephone provides two new features that simplify installation and reduce installation time. Iwatsu Auto-Discovery Mode is a propriety network protocol developed by Iwatsu that allows the ICON series IX-5900 IP telephone to automatically identify itself on the local network and connect to the ECS system. Manual Setup Quick Mode provides a simplified method for manually entering configuration information through the station LCD menu.

IX-5900



Multiple Host Connectivity

The IX-5900 IP telephone allows for connectivity to a remote (secondary) ECS if connectivity is lost to the main (primary) ECS host. A secondary LAN2 and logical port number are programmed in the IX-5900 to enable this feature.

IX-5900 Technical Specifications

Model:	IX-5900	Part Numbers:	505900
Pedestal:	3-position Integrated Pedestal and wall-mount options	Multipurpose Keys:	9 Multipurpose keys or 18 with the IX-ELK9
Connection:	10Base-T/100Base-TX Auto-Negotiation Ethernet	Connectors:	
Addressing:	DHCP (Default) or Static IP	Handset:	Handset cord connector
Bandwidth Requirements:		Headset:	To the station headset
Overhead	16 kbps	LAN:	Ethernet connection - LAN
G.711	80 kbps total [1]	PC:	Ethernet connection - PC
G.729	24 kbps total [1]	Volume Level Adjustment:	Ringer: 1-4 Receiver: 1-5 Speaker: 1-11
SDRAM	16 MB		
Flash ROM	8 MB		
Quality of Service (QoS)	IEEE802.1p Q-Compliant: Tag configurable TOS DiffServ-Compliant: TOS/DSCP configurable	Display:	2 Lines x 16 Characters
		Viewability:	0^0 (wall) 37^0,48^0, 60^0 (desk)
Power Consumption:	Idle: Approx. 2.5 Watts In Use: Approx. 3.7 Watts (Max)	Optional Module:	IX-ELK9
Power Requirements:	LAN-based Power Supply (IEEE802.3af Compliant) 48 VDC, 120 mA OR IX-59AC Power Supply	Size:	9.0”W x 7.85”H x 2.0”D (wall mount)/ 5.02“D (desktop max)
		Weight:	2.0 lbs
ECS Software Version:	ECS version 6.0 or higher and a valid Iwatsu IP Station License	Operating Conditions:	32° to 104°F 10 to 90% Humidity (non-condensing)
		Storage Temperature:	14° to 122°F

1. Excluding layer 2 header/trailer, preamble, and IFG (Inter Frame Group). The bandwidth including layer 2 header/trailer, preamble, and IFG vary by the medium or encapsulation such as Frame Relay. Ethernet, Ethernet with IEEE 802.1p/q, PPP, etc. For example: G.711 packets for Ethernet with IEEE 802.1p/q require 97 kbps. An additional 1 kbps (typical) may be required for signaling traffic.

Conditions

1. The Iwatsu ICON Series IX-5800 and IX-5900 telephones do not support the IX-59DS, IX-DSS-3, or Platinum Series DSS units.
2. The IX-5900 requires one IP Station license and one available ECS Port license.

IX-59BTINF Bluetooth Interface

The IX-59BTINF Bluetooth Interface module is an optional module available for the IX-5930 and IX-5910 IP Telephones. This is a Class 2 version 2.0 + EDR Bluetooth module. This optional module attaches to the IX-5930 or IX-5910 circuit board and can be installed by the Iwatsu Authorized installer.

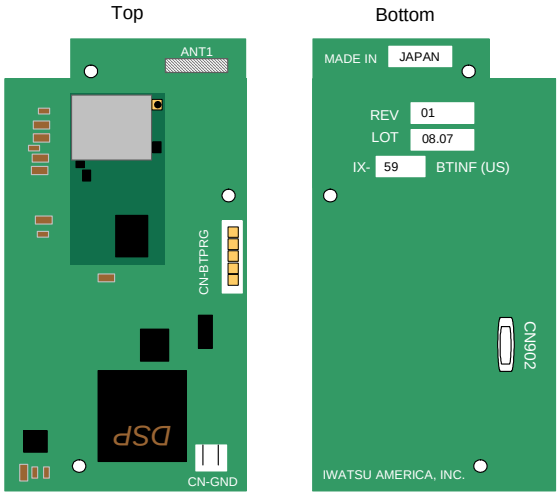
Headset Control Key: For convenience and visibility, Iwatsu recommends placing a Headset Control Key in the key pattern of all telephones with a Bluetooth Interface Module.

Caution! Changes or modifications not expressly approved by Iwatsu Voice Networks could void the user's authority to operate this equipment.

Technical Specifications

Model:	IX-59BTINF	Part Number:	505059
KT Compatability:	IX-5910 IP KT IX-5930 IP KT	Connectors:	CN902 - to the KT CN-BT CN-GND - to the CN-BTGND
Bluetooth Class: Bluetooth Version:	CClass 2 V2.0 + EDR	Line Condition:	100 m or less. Category 5 (Power supplied by PoE or AC Adapter)
Memory:	Flash ROM = 256KB SRAM = 64KB	Size: Weight:	2.2"W x 3.4"D x .16"H 3.53 oz.
Operation Clock:	30MHz		
Voice Packets:	HV1, HV2, HV3, EV3, EV4, EV5, 2-EV3, 3-EV3, 2-EV5, 3-EV5	Operating Temperature:	32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing
Power:	+3.3 V and +1.8V supplied by KT Idle = .17 W Max = .46 W	Storage Temperature:	14° to 122°F (-10 to 50°C)
Line Coding:	16-bit linear		

IX-59BTINF (Top and Bottom)



Bluetooth Headset Interoperability

Refer to the 2009 Bluetooth Headset Interoperability Engineering Bulletin EBA-2009-15 for an updated overview of interoperability between the Iwatsu ICON series Bluetooth enabled telephones and third party Bluetooth® devices.

Disclaimer: Iwatsu has used its best effort testing the performance of the Bluetooth headsets listed in EBA-2009-15. Please note, however, that changes, modifications, and availability of third party equipment is beyond the control of Iwatsu and therefore compatibility and performance for said handsets is subject to change without notice. **THE COMPATIBILITY AND PERFORMANCE OF ANY BLUETOOTH HEADSET NOT MANUFACTURED BY IWATSU IS "AS IS" AND IS NOT SUPPORTED, WARRANTED OR GUARANTEED BY IWATSU IN ANY MANNER, AND IWATSU HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

The Bluetooth headsets achieved the best results during Iwatsu's testing that measured performance based on the following environmental considerations:

1. Number of Bluetooth devices within a 10 meter radius of the Bluetooth enabled Iwatsu ICON Series IX-5910/IX-5930/IX-5810 KT. A maximum of seven simultaneous calls in a ten meter radius are supported.
2. WiFi devices within a 10 meter radius of the Bluetooth enabled Iwatsu ICON Series IX-5910/IX-5930/IX-5810 KT.
3. Distance from the Bluetooth enabled Iwatsu ICON Series IX-5910/IX-5930/IX-5810 KT.

Note: When the Motorola H550 headset is taken out of range and then returned within range of the paired key telephone, the H550 headset LED will flash red and you will hear a beep approximately every 30 seconds. To clear this state, power the headset off and then on and wait for the headset to reconnect.

Iwatsu Enterprise 18i Platinum Series IP Telephone

The 18i IP Telephone is part of the Platinum Series line of telephones from Iwatsu. The Platinum 18i is equipped with eight menu keys, 18 line keys, and a six-line, 20-character backlit LCD display. The Platinum 18i has a large incoming call / MSG indication LED on the top of the telephone.

Frequently used features are now made available through a menu keys on the LCD display. Features that often required a specialized key on the telephone or a series of feature access codes can now be easily accessed using the new menu keys. Menu key features include: Call Forwarding, Voice Mail, Call Conferencing, Call Park, a Call Log for incoming and outgoing call records, and EZDial for access from one to ten direct station selections.

Ringer, Handset, and Speaker volume for the Platinum 18d is controlled by using the *ePod* (easy Point of decision). The Platinum 18d includes a one-step integrated pedestal and a wall mount that simplifies installation.

The Platinum 18i provides complete access to the ECS feature set from an Ethernet connection. Each Platinum 18i Telephone requires an IP address that is either static or dynamically allocated by the network DHCP server.

The Platinum 18i IP Telephone also requires an available channel on an IX-MBU Media Bridge Unit card. to communicate with TDM resources. Platinum 18i to Platinum 18i and Platinum 18i to other Iwatsu IP Telephones (except IX-12IPKTD/-E2) calls are peer-to-peer and do not require an IX-MBU channel. The Platinum 18i may be installed on the internal LAN or may access the ECS system via a WAN connection. This IP Telephone can be configured for a Private Network or VPN routers (No NAT or NAPT translations) or in the non-VPN mode.

The Platinum 18i IP Telephone includes an integrated Layer 2 switch that was designed for the workstation user and allows the switching of data within a LAN via MAC address. Because the Platinum 18i IP Telephone is a Layer 2 switch, one client PC can connect to the back of the Platinum 18i IP Telephone (via the PC jack) and then passes all data through the phone. When using the switching capabilities of the Platinum 18i, voice quality may suffer. It is important to not use the switching capabilities for high-load devices like a file or database server.

The Platinum 18i Telephone packages voice data through the UDP datagram and sends the data on an IP network such as an Ethernet LAN or VPN. Additionally, the Platinum 18i can be powered over the Ethernet, via Power over Ethernet (PoE) Power Sourcing Equipment (PSE). See **Platinum 18i Power** in this section.

Note:	**Very Important!** Power Over Ethernet is supported ONLY if the PoE switch is a UL listed “Limited Power Source”.

Multiple Host Connectivity

The Platinum 18i IP telephone allows for connectivity to a remote (secondary) ECS if connectivity is lost to the main (primary) ECS host. A secondary LAN2 and logical port number is programmed in the Platinum 18i to enable this feature. This feature is detailed in Installation (Section 5) section of this manual.

Technical Specifications

Model:	Platinum 18i	Part Numbers:	104302
Pedestal:	Integrated Pedestal	Menu Keys:	8
Connection:	10Base-T/100Base-TX Auto-Negotiation Ethernet	Connectors:	
		Handset:	To the station handset
Addressing:	DHCP (Default) or Static IP	Headset:	To the station headset
Bandwidth Requirements:		LAN:	Ethernet connection-LAN
Overhead	16 kbps	PC:	Ethernet connection-PC
G.711	80 kbps total [1]	Power:	Via LAN Port (Power over Ethernet) or IX-IPKTAC-E AC Power Adapter (Optional)
G.729	24 kbps total [1]		
SDRAM	16 MB		
Flash ROM	6 MB		
Quality of Service (QoS)	IEEE8021p Q-Compliant: Tag configurable TOS DiffServ-Compliant: TOS/DSCP configurable	Display: Viewability:	Built-in Backlit LCD 6 Lines x 20 Characters (0-180^0) Free-Stop Adjustable
Power Consumption:	Idle: Approx. 2.0 Watts In Use: Approx. 4.5 Watts (Max)	Volume Level Adjustment:	Ringer: 1-4 Receiver: 1-3 Speaker: 1-11
Power Requirements:	LAN-based Power Supply (IEEE802.3af Compliant) 48 VDC, 120 mA *OR* IX-IPKTAC-E Power Supply	Size: Weight: Operating Conditions:	7.5"W x 3.5"H x 11.3"D 2.65 lbs 32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing)
Software Version:	ECS version 2.00 or higher and Valid Iwatsu IP Station License	Storage Temperature:	14° to 122°F (-10 to 50°C)

1. Excluding layer 2 header/trailer, preamble, and IFG (Inter Frame Group). The bandwidth including layer 2 header/trailer, preamble, and IFG vary by the medium or encapsulation such as Frame Relay. Ethernet, Ethernet with IEEE 802.1p/q, PPP, etc. For example: G.711 packets for Ethernet with IEEE 802.1p/q require 97 kbps. An additional 1 kbps (typical) may be required for signaling traffic.

Platinum Series 18i



Iwatsu Enterprise 12i Platinum Series IP Telephone (Discontinued)

The 12i IP Telephone is part of the Platinum Series line of telephones from Iwatsu. The Platinum 12i is equipped with three menu keys, 12 line keys, and a two-line, 20-character LCD display. The Platinum 12i has a large incoming call / MSG indication LED on the top of the telephone. The Platinum 12i includes an integrated pedestal to simplify installation.

Frequently used features are now made available through menu keys on the LCD display. Features that often required a specialized key on the telephone or a series of feature access codes can now be easily accessed using the new menu keys. Menu key features include: Call Forwarding, Voice Mail, Call Conferencing, and Call Park.

The Platinum 12i IP Telephone provides complete access to the ECS feature set from an Ethernet connection. Each Platinum 12i Telephone requires an IP address that is either static or dynamically allocated by the network DHCP server.

The Platinum 12i IP Telephone also requires an available channel on an IX-MBU Media Bridge Unit card. The channel on the IX-MBU card is used to communicate with TDM resources. Platinum 12i to Platinum 12i and Platinum 12i to other Iwatsu IP Telephone (except IX-12IPKTD/-E2) calls are peer-to-peer and do not require an IX-MBU channel. The Platinum 12i may be installed on the internal LAN or may access the ECS system via a WAN connection. This IP Telephone can be configured for a Private Network or VPN routers (No NAT or NAPT translations) or in the non-VPN mode.

The Platinum 12i IP Telephone includes an integrated Layer 2 switch that was designed for the workstation user and allows the switching of data within a LAN via MAC address. Because the Platinum 12i IP Telephone is a Layer 2 switch, one client PC can connect to the back of the Platinum 12i IP Telephone (via the PC jack) and then passes all data through the phone. When using the switching capabilities of the Platinum 12i, voice quality may suffer. It is important to not use the switching capabilities for high-load devices like a file or database server.

The Platinum 12i Telephone packages voice data through the UDP datagram and sends the data on an IP network such as an Ethernet LAN or VPN. Additionally, the Platinum 12i can be powered over the Ethernet, via Power over Ethernet (PoE) Power Sourcing Equipment (PSE). See **Platinum 12i Power** in this section.

Note: **Very Important!** Power Over Ethernet is supported ONLY if the PoE switch is a UL listed “Limited Power Source”.

Multiple Host Connectivity

The Platinum 12i IP telephone allows for connectivity to a remote (secondary) ECS if connectivity is lost to the main (primary) ECS host. A secondary LAN2 and logical port number is programmed in the Platinum 12i to enable this feature. This feature is detailed in Installation (Section 5) section of this manual.

Technical Specifications

Model:	Platinum 12i	Part Numbers:	104303
Pedestal:	Integrated Pedestal	Menu Keys:	3
Connection:	10Base-T/100Base-TX Auto-Negotiation Ethernet	Connectors:	
		Handset:	To the station handset
Addressing:	DHCP (Default) or Static IP	Headset:	To the station headset
Bandwidth Requirements:		LAN:	Ethernet connection-LAN
Overhead	16 kbps	PC:	Ethernet connection-PC
G.711	80 kbps total [1]	Power:	via LAN Port (Power over Ethernet) or IX-IPKTAC-E AC Power Adapter (Optional)
G.729	24 kbps total [1]		
SDRAM	16 MB		
Flash ROM	6 MB		
Quality of Service (QoS)	IEEE802.1p Q-Compliant: Tag configurable TOS DiffServ-Compliant: TOS/DSCP configurable	Display: Viewability:	LCD (Not Backlit) 2 Lines x 20 Characters Fixed
Power Consumption:	Idle: Approx. 2.0 Watts In Use: Approx. 4.0 Watts (Max)	Volume Level Adjustment:	Ringer: 1-4 Receiver: 1-3 Speaker: 1-11
Power Requirements:	LAN-based Power Supply (IEEE802.3af Compliant) 48 VDC, 120 mA *OR* IX-IPKTAC-E Power Supply	Size: Weight: Operating Conditions:	7.5"W x 3.5"H x 8.5"D 2.2 lbs 32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing)
Software Version:	ECS version 2.00 or higher and Valid Iwatsu IP Station License	Storage Temperature:	14° to 122°F (-10 to 50°C)

1. Excluding layer 2 header/trailer, preamble, and IFG (Inter Frame Group). The bandwidth including layer 2 header/trailer, preamble, and IFG vary by the medium or encapsulation such as Frame Relay. Ethernet, Ethernet with IEEE 802.1p/q, PPP, etc. For example: G.711 packets for Ethernet with IEEE 802.1p/q require 97 kbps. An additional 1 kbps (typical) may be required for signaling traffic.

Platinum Series 12i



Optional Station Equipment

The following components may be added to the Iwatsu Enterprise Platinum Series station terminals.

NR-A-SNHD Noise Cancelling Handset

The NR-A-SNHD station noise canceling handset provides comfortable conversation in noisy areas for the Platinum Series telephones.

Model:	NR-A-SNHD
Order No.:	105415

NR-A-SSHD Standard Handset

The NR-A-SSHD is the factory equipped handset for the Platinum Series telephones. It can be used with a hearing aid device that uses a magnetic pick-up coil.

Model:	NR-A-SSHD
Order No.:	106585

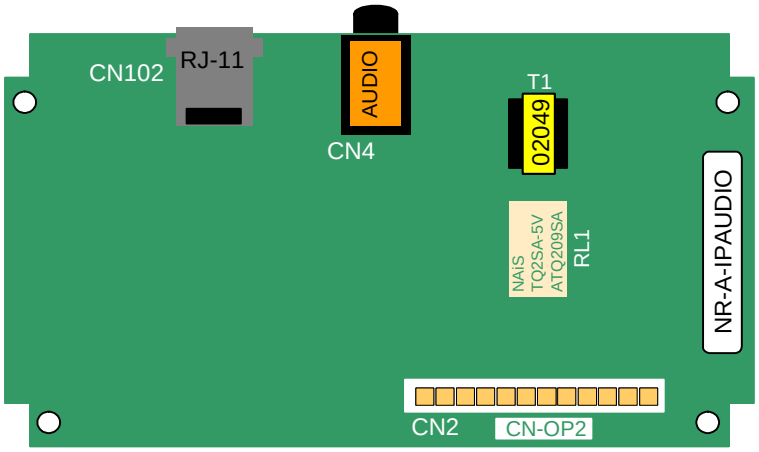
NR-A-IPAUDIO Audio Adapter for the Platinum Series 18/12i IP Telephones

The NR-A-IPAUDIO provides the interface for the Platinum 18/12i IP Telephones to a station loud-ringer and a recording device. The NR-A-IPAUDIO provides an interface to a recording device through a 1/8 inch mini-jack audio connector .

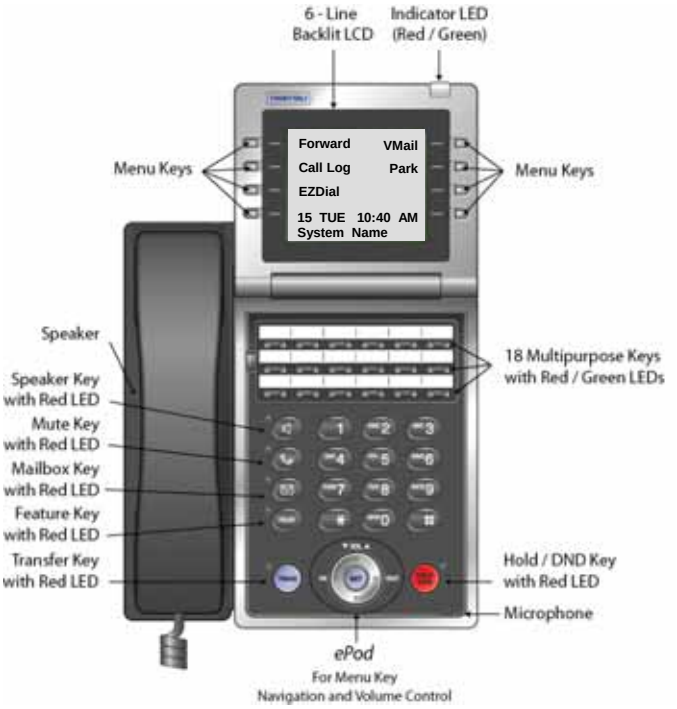
Technical Specifications

Model:	NR-A-IPAUDIO	Part Number:	105130
		Connectors:	CN2 to CN402 on NR-A-IPKTCUM CN4 to Recording Device CN102 to Loud Ringer
Optional Equipment:	None	Size: Weight:	4 x 3 x .75 in .0125 lbs
Additional Power Requirements:	None	Operating Temperature:	32° to 104°F (0 to 40°C)
		Storage Temperature:	14° to 122°F (-10 to 50°C)

NR-A-IPAUDIO



Platinum Series Key Telephone Components



IX-12IPKTD-E Executive IP Telephone

The IX-12IPKTD-E Executive Model IP Telephone provides complete access to the ECS feature set from an Ethernet connection. Each IX-12IPKTD-E IP Telephone requires an IP address (static or dynamically allocated DHCP IP address).

The IX-12IPKTD-E IP Telephones also require an available channel on an IX-MBU Media Bridge Unit card. The channel on the IX-MBU card is used to communicate with TDM resources. IX-12IPKTD-E to IX-12IPKTD-E and IX-12IPKTD-E to other Iwatsu IP telephones (except IX-12IPKTD/-E2) calls are peer-to-peer and do not require an IX-MBU channel (See **Peer-to-Peer Connection** in this section). The IX-12IPKTD-E may be installed on the internal LAN or may access the ECS system via a WAN connection. This IP Telephone can be configured for a Private Network or VPN routers (No NAT or NAPT translations) or in the non-VPN mode.

Many features that often required a specialized key on the telephone or a series of feature access codes can be accessed using a menu. The menu display offers easy-to-read, clear text that guides users through the process of accessing system features through the IX-12IPKTD-E Telephone menu functions.

The IX-12IPKTD-E IP Telephone includes an integrated Layer 2 switch that was designed for the workstation user and allows the switching of data within a LAN via MAC address. Because the IX-12IPKTD-E IP Telephone is a Layer 2 switch, one client PC can connect to the back of the IX-12IPKTD-E IP Telephone (via the PC jack) and then passes all data through the phone. When using the switching capabilities of the IX-12IPKTD-E, voice quality may suffer. It is important to not use the switching capabilities for high-load devices like a file or database server.

The IX-12IPKTD-E IP Telephone packages voice data through the UDP datagram and sends the data on an IP network such as an Ethernet LAN or VPN. Additionally, the IX-12IPKTD-E can be powered over the Ethernet, via Power Over Ethernet (PoE) Power Sourcing Equipment (PSE). See **IX-12IPKTD-E Power** in this section.

Note: **Very Important!** Power Over Ethernet is supported ONLY if the PoE switch is a UL listed “Limited Power Source”.

Multiple Host Connectivity

The IX-12IPKTD-E IP telephone allows for connectivity to a remote (secondary) ECS if connectivity is lost to the main (primary) ECS host. A secondary LAN2 and logical port number is programmed in the IX-12IPKTD-E to enable this feature. This feature is detailed in Installation (Section 5) section of this manual.

Technical Specifications

Model:	IX-12IPKTD-E (BLK) IX-12IPKTD-E (WHT)	Part Numbers:	104290 (BLK) 104291 (WHT)
Pedestal:	Built-in, seven position pedestal	Connectors:	
Connection:	10Base-T/100Base-TX Auto-Negotiation Ethernet	Handset:	To the station handset
Addressing:	DHCP (Default) or Static IP	Headset:	To the station headset
Bandwidth Requirements:		LAN:	Ethernet connection to the LAN
Overhead	16 kbps	PC:	Ethernet connection to PC
G.711	80 kbps total [1]	Power:	IX-IPKTAC-E AC Power Adapter (Optional) or via LAN Port (Power over Ethernet)
G.729	24 kbps total [1]		
SDRAM	16 MB		
Flash ROM	4 MB (Boot) 2 MB (Application)		
Quality of Service (QoS)	IEEE802.1p Q-Compliant: Tag configurable TOS DiffServ-Compliant: TOS/DSCP configurable	Ethernet LEDs: Display LEDs:	2 LEDs x 2 ports Link LED See Table Below
Power Consumption:	Idle: Approx. 2.5 Watts In Use: Approx. 4.5 Watts (Max)		
Power Requirements:	LAN-based Power Supply (IEEE802.3af Compliant) 48 VDC, 120 mA *OR* IX-IPKTAC-E Power Supply	Size: Weight: Operating Conditions:	10.1 x 7.4 x 4.4 in 2.7 lbs 32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing)
Software Version:	ECS version 1.00 or higher and Valid Iwatsu IP Station License	Storage Temperature:	14° to 122°F (-10 to 50°C)

1. Excluding layer 2 header/trailer, preamble, and IFG (Inter Frame Group). The bandwidth including layer 2 header/trailer, preamble, and IFG vary by the medium or encapsulation such as Frame Relay. Ethernet, Ethernet with IEEE 802.1p/q, PPP, etc. For example: G.711 packets for Ethernet with IEEE 802.1p/q require 97 kbps. An additional 1 kbps (typical) may be required for signaling traffic.

IX-12IPKTD-E





IX-6IPKTD-E IP Telephone (Discontinued)

The IX-6IPKTD-E IP Telephone, available in black and platinum gray, provides complete access to the ECS feature set from an Ethernet connection. Each IX-6IPKTD-E IP Telephone requires an IP address that is either dynamically allocated by the network DHCP server or is a static IP address.

The IX-6IPKTD-E IP Telephones also require an available channel on an IX-MBU Media Bridge Unit card. The channel on the IX-MBU card is used to communicate with TDM resources. IX-6IPKTD-E to IX-6IPKTD-E and IX-6IPKTD-E to IX-12IPKTD-E calls are peer-to-peer and do not require an IX-MBU channel (See **Peer-to-Peer Connection** in this section). The IX-6IPKTD-E may be installed on the internal LAN or may access the ECS system via a WAN connection. This IP Telephone can be configured for a Private Network or VPN routers (No NAT or NAPT translations) or in the non-VPN mode.

The IX-6IPKTD-E IP Telephone includes an integrated Layer 2 switch that was designed for the workstation user and allows the switching of data within a LAN via MAC address. Because the IX-6IPKTD-E IP Telephone is a Layer 2 switch, one client PC can connect to the back of the IX-6IPKTD-E IP Telephone (via the PC jack) and then passes all data through the phone. When using the switching capabilities of the IX-6IPKTD-E, voice quality may suffer. It is important to not use the switching capabilities for high-load devices like a file or database server.

The IX-6IPKTD-E IP Telephone packages voice data through the UDP datagram and sends the data on an IP network such as an Ethernet LAN or VPN. Additionally, the IX-6IPKTD-E can be powered over the Ethernet, via Power Over Ethernet (PoE) Power Sourcing Equipment (PSE). See **IX-6IPKTD-E Power** in this section.

Note:	**Very Important!** Power Over Ethernet is supported ONLY if the PoE switch is a UL listed “Limited Power Source”.

Multiple Host Connectivity

The IX-6IPKTD-E IP telephone allows for connectivity to a remote (secondary) ECS if connectivity is lost to the main (primary) ECS host. A secondary LAN2 and logical port number is programmed in the IX-6IPKTD-E to enable this feature. This feature is detailed in Installation (Section 5) section of this manual.

IX-6IPKTD-E Components



Technical Specifications

Model:	IX-6IPKTD-E Black or Platinum Gray	Part Numbers:	104294 (BLK) 104295 (PLA)
Pedestal:	Desktop or wall mount	Connectors:	
Connection:	10Base-T/100Base-TX Auto-Negotiation Ethernet	Handset:	To the station handset
Addressing:	DHCP (Default) or Static IP	Headset:	N/A
Bandwidth Requirements:		LAN:	Ethernet connection to the LAN
Overhead	16 kbps	PC:	Ethernet connection to PC
G.711	80 kbps total [1]	Power:	IX-IPKTAC-E AC Power Adapter (Optional) or via LAN Port (Power over Ethernet)
G.729	24 kbps total [1]		
SDRAM	16 MB		
Flash ROM	4 MB (Boot) 2 MB (Application)		
Quality of Service (QoS)	IEEE802.1p Q-Compliant: Tag configurable TOS DiffServ-Compliant: TOS/DSCP configurable	Ethernet LEDs:	2 LEDs x 2 ports Link LED
		Display:	2 Lines x 16 Characters
Power Consumption:	Idle: Approx. 2.5 Watts In Use: Approx. 4.0 Watts (Max)	Size: Weight:	10.1 x 7.4 x 4.4 in 2.7 lbs
Power Requirements:	LAN-based Power Supply (IEEE802.3af Compliant) 48 VDC, 120 mA *OR* IX-IPKTAC-E Power Supply	Operating Conditions:	32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing)
		Storage Temperature:	14° to 122°F (-10 to 50°C)
Handset: Speakerphone:	Hearing Aid Compatible Full-Duplex Speakerphone	Software Version:	ECS Version 1.00 or higher Valid Iwatsu IP Station License

1. Excluding layer 2 header/trailer, preamble, and IFG (Inter Frame Group). The bandwidth including layer 2 header/trailer, preamble, and IFG vary by the medium or encapsulation such as Frame Relay. Ethernet, Ethernet with IEEE 802.1p/q, PPP, etc. For example: G.711 packets for Ethernet with IEEE 802.1p/q require 97 kbps. An additional 1 kbps (typical) may be required for signaling traffic.

IX-6IPKTD-E



IP Telephone Power

The Iwatsu ICON Series, Platinum Series 18/12i, the IX-12/6IPKTD-E, and the IX-12IPKTD-E2 IP Telephones derive power from a Power over Ethernet (PoE) power supply or from an optional AC power supply.

Power Over Ethernet (PoE)

The primary power source for the Iwatsu ICON Series, Platinum Series 18/12i, the IX-12/6IPKTD-E, and the IX-12IPKTD-E2 IP Telephone is derived from an IEEE 802.3af compliant LAN-based (Power Over Ethernet-PoE) power supply.

For example: Your home telephone is powered from the Central Office through the same twisted pair that carries your voice, now the same can be done for Ethernet (IP) devices.

There is no need for every IP telephone to have a separate power supply. Power is carried Over the Ethernet using either a Mid-Span Ethernet Hub or an End-Span Ethernet Switch. The Platinum Series 18/12i, the IX-12/6IPKTD-E, and the IX-12IPKTD-E2 will accept power from either source. (Refer to the following page for further details)

The Power Sourcing Equipment (PSE) provides 48 VDC and 120 mA to the telephone and runs a “discovery process” to examine the Ethernet cables looking for devices that comply with the 802.3af specification. This discovery process enables standard, non-standard, and un-powered Ethernet devices to be connected on the same Ethernet infrastructure without special wiring or device configurations.

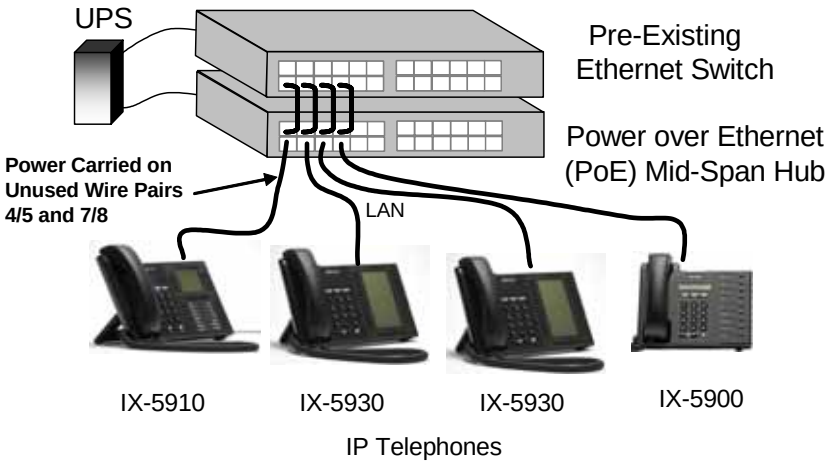
A small current-limited voltage (via a UL approved “Limited Power Source” Power Over Ethernet Switch) is applied to the cable during the “discovery process” to check for the presence of a 25k ohm resistor in the remote device. Only if the resistor is present is the full 48 V applied. This is current-limited to prevent damage to cables and equipment in fault conditions. The powered device must draw a minimum current. For example: When the device is unplugged, the PSE removes the power and the “discovery process” begins again.

Refer to the illustrations on the following page for typical Power Sourcing Equipment (PSE) configurations.

Power Sourcing Equipment (PSE) Configurations

A Mid-Span Ethernet hub can be used to upgrade existing Ethernet switches that do not have embedded Power over Ethernet capability for providing power to the Iwatsu ICON Series, Platinum Series 18/12i, the IX-12/6IPKTD-E, and the IX-12IPKTD-E2 IP telephones. Power is carried on unused wire pairs: 4/5 and 7/8. PoE equipment is not supplied with the IP telephones.

Typical Mid-Span Hub Configuration



OR

An End-Span Ethernet switch with embedded PoE capability is recommended for providing power to the Iwatsu ICON Series, Platinum Series 18/12i, the IX-12/6IPKTD-E, and the IX-12IPKTD-E2 IP telephones. Power and data are carried on unused wire pairs: 4/5 and 7/8, or on wire pairs 1/2 and 3/6 used to transmit data (this is sometimes referred to as “Phantom Power”). The IP telephones will support either method and will adjust automatically without changing the IP telephones configuration. PoE equipment is not supplied with the IP telephones.

Typical End-Span Switch (with PoE) Configuration

IX-59AC Optional AC Power Adapter

The IX-59AC provides power for the optional IX-58EXTENDER Loop Limit Extender for the IX-5800 and IX-5810 Digital Key Telephones. This unit is the optional power source for the IX-5930, IX-5910, and IX05900 IP Telephones when PoE is not available.

The IX-59AC is required when installing the IX-58EXTENDER in an IX-5800 or IX-5810 Digital Key Telephone. The IX-58EXTENDER, along with the IX-59AC Adapter, increases the loop limit distance of the IX-5800 or IX-5810 up to a maximum of 2,100 feet.

IX-59AC Power Adapter Technical Specifications

Model:	IX-59AC	Part Number:	505099
Power Input:	100-240V~,0.5A 50-60Hz	Size:	1.97"H x 4.33"W x 1.2"D
Power Output:	16.5V 0.8A	Weight:	10.6 oz.

Note: Do not turn-off the power to the Iwatsu ICON Series IX-5900, IX-5910 or IX-5930 during initialization. Doing so may corrupt the data stored in memory.

IX-IPKTAC-E Optional AC Adapter

When PoE is not available, the Platinum Series 18/12i, the IX-12/6IPKTD-E, and the IX-12IPKTD-E2 are powered by an IX-IPKTAC-E (optional) power supply. The technical specifications for the IX-IPKTAC-E are listed in the table below.

Note: The Platinum Series 18/12i, the IX-12/6IPKTD-E, and the IX-12IPKTD-E2 are not compatible with the IX-IPKTAC AC Adapter (PN: 104282). Use only the IX-IPKTAC-E (PN: 104292) with the Platinum Series 18/12i, the IX-12/6IPKTD-E, and the IX-12IPKTD-E2 IP Telephones.

Technical Specifications

Model:	IX-IPKTAC-E	Part Number:	104292
Power Input:	120 VAC, 60 Hz	Size:	2" H x 2 1/4" W x 3 1/3" D
Power Output:	18 VDC, 500 mA	Weight:	1.1 lbs

Note: Do not turn-off the power to the Platinum Series 18/12i, the IX-12/6IPKTD-E, and the IX-12IPKTD-E2 during initialization. Doing so may corrupt the data stored in memory.

Peer-to-Peer Connection

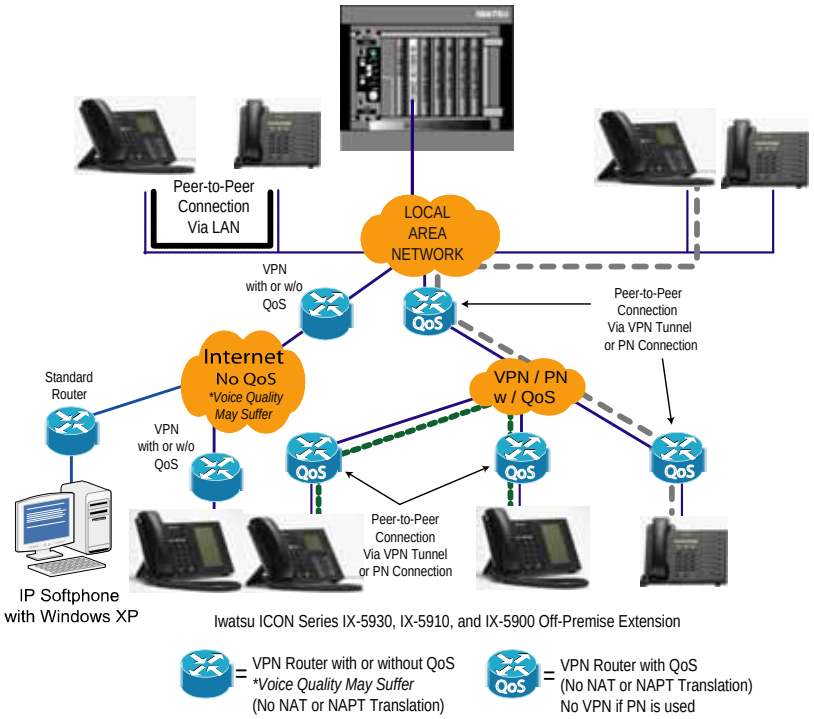
A Private Network (**PN**) or Virtual Private Network (**VPN**) can be used to support off-premise Iwatsu ICON Series, Platinum IP Softphone, IX-6IPKTD-E, IX-12IPKTD-E, and Platinum 18/12i IP telephone extensions. Refer to the Installation section of this manual (Section 5, Chapter 11) to configure your IP telephone in the non-VPN mode.

A **VPN** is a connection between two IP devices on different networks (in this case, two IP Telephones) that allows private communication over a shared or public network. This is done by creating a VPN "**tunnel**". This "tunnel" connects the two networks and allows the two IP Telephones to communicate securely, over the open region of the internet as if they were in the same network.

A **peer-to-peer** connection exists when an IP telephone places a call to another IP telephone in the same Local Area Network or through a VPN "tunnel". The ECS will recognize that IP to TDM conversion is not required and a call between the two phones is established without a channel on the IX-MBU being reserved (conserving ECS resources). The two IP telephones communicate peer-to-peer via the LAN or VPN tunnel connection.

Voice quality will suffer if Off-Premise Extensions do not have Quality of Service (QoS).

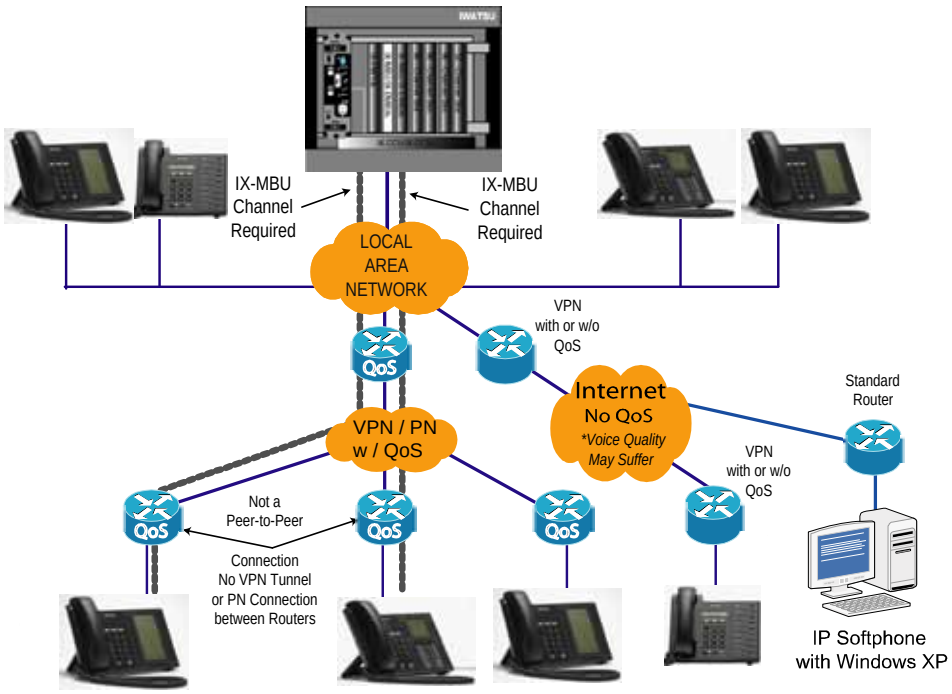
For peer-to-peer connections to exist between Off-Premise Extensions, a VPN tunnel must exist between the Off-Premise Extensions. If a VPN tunnel does not exist between the Off-Premise Extensions, a channel on the IX-MBU card is used to create the connection. One VPN tunnel must be created between each VPN Router for peer-to-peer connectivity.



An IX-MBU Channel is required when:

An Iwatsu ICON Series, IX-12IPKTD-E / IX-6IPKTD-E or Platinum 18/12i IP telephone calls a digital or analog telephone, or accesses a digital or analog CO line; a channel on the IX-MBU is reserved for the duration of the call for IP to TDM conversion. IX-MBU channel is also required if there is no VPN tunnel between two IP Telephones (on different networks) and no peer-to-peer connection is established.

Note:	An IX-MBU channel is also required if an IP telephone calls an IX-12IPKTD IP telephone connected to an IX-8IPSUB card.



Iwatsu ICON Series IX-5930, IX-5910, and IX-5900 Off-Premise Extension

= VPN Router with QoS
(No NAT or NAPT Translation)
No VPN if PN is used

= VPN Router with or without QoS
**Voice Quality May Suffer*
(No NAT or NAPT Translation)

IX-MBU Channel Usage Chart

IX-MBU Channel Usage Chart Based on Connection Type								
	IPKT-VPN	IPKT-Non VPN	Digital KT	SIP KT	SIP Trunk	SIP VM Port	TDM Trunk (PRI/Analog)	SIP Conference Ports
IPKT-VPN	0	2	1	2	2	2	2	2
IPKT-Non VPN	2	2	1	2	2	2	1	2
Digital KT	1	1	0	1	1	1	0	1
SIP KT	2	2	1	2	2	2	1	2
SIP Trunk	2	2	1	2	2	2	1	2
SIP VM Port	2	2	1	2	2	N/A	1	2
TDM Trunk (PRI/Analog)	1	1	0	1	1	1	0	1
SIP Conference Ports	2	2	1	2	2	2	1	N/A
N/A = Connection not supported								

Recommended VPN Routers

For Internet VPN (No QoS through the VPN): Remote Site Use Only.

Note: When VPN routers with **NO** Quality of Service (QoS) are used, voice quality may suffer.

No QoS VPN Routers:	D-Link	D-Link	Linksys	Adtran
Model:	DI-804HV	DI-824VUP	BEFVP41	NetVanta 2054 VPN Firewall (1202363L2)
Interfaces:				
WAN:	10/100Base-T	10/100Base-T	10/100Base-T	10/100Base-T
LAN:	10/100Base-T x4	10/100Base-T x4, 802.11g	10/100Base-T x4	10/100Base-T x4
VPN Module:	N/A	N/A	N/A	N/A
Throughput (MBPS):				2
Price (Street):	$60	$140	$100	$495
Max. Number of Calls:				
G.711:	5	5	7	2
G.729:	6	6	10	4
Max Number of Tunnels:	40	40	50	5
Condition (DRAM, Encryption etc.)	IPSec Tunnel Mode, 3DES, SHA, DH-2	IPSec Tunnel Mode, 3DES, SHA, DH-2	IPSec Tunnel Mode, 3DES, SHA, DH-2	IPSec Tunnel Mode, 3DES, SHA, DH-2
Supported Routing Protocol:	RIP	RIP	RIP	RIP, OSPF

For Managed VPN (QoS through VPN Capable Routers) or Internet VPN: <u>For Main or Remote Site Use.</u>

Table 1 of 2

QoS VPN Routers:	Adtran	Adtran	Kentrox	Kentrox	Kentrox
Model:	NetVanta 1224R with VPN (4200510L2)	NetVanta 3305 with VPN (4500880L2 or 1202880L1+4200368L1)	Q2200	Q2300	Q2400
Interfaces:					
WAN:	10/100Base-T x 24 NIM may be required	10/100Base-T x 2 Optional NIMs available	T1	10/100Base-T 10/100Base-T x4	10/100Base-T T1 x 2 10/100Base-T x4
LAN:			10/100Base-T x4		
VPN Module:	VPN Upgrade	NetVanta VPN Upgrade (4200368L1)	Built-in for DES/3DES	Built-in for DES/3DES	Built-in for DES/5DES
Throughput (MBPS):				4 (3DES)	4 (3DES)
Price (Street):	$1,690	$1,790	$995	$895	$1495
Max. Number of Calls:					
G.711:	24	27	11	11	11
G.729:	26	30	12	12	12
Max Number of Tunnels:	500	500	100	100	100
Condition (DRAM, Encryption etc.)	IPSec Tunnel Mode, 3DES, SHA, DH-2	IPSec Tunnel Mode, 3DES, SHA, DH-2	IPSec Tunnel Mode, 3DES, SHA, DH-2	IPSec Tunnel Mode, 3DES, SHA, DH-2	IPSec Tunnel Mode, 3DES, SHA, DH-2
Supported Routing Protocol:	RIP, OSPF, BGP	RIP, OSPF, BGP	RIP, OSPF	RIP, OSPF	RIP, OSPF

For Managed VPN (QoS through VPN Capable Routers) or Internet VPN: <u>For Main or Remote Site Use.</u> (Continued)

Table 2 of 2

QoS VPN Routers:	Cisco	Cisco	Cisco	Cisco
Model:	1721-VPN/K9	C2611XM-2FE/ VPN/K9	C2691-VPN/K9	C3745-VPN/K9
Interfaces:				
WAN:	10/100Base-T x1 WIC is Required	10/100Base-T x2 Optional WICs/NM available	10/100Base-T x2 Optional WICs/NM available	10/100Base-T x2 Optional WICs/NM available
LAN:				
VPN Module:	MOD1700-VPN	AIM-VPN/BPII	AIM-VPN/EPII	AIM-VPN/HPII
Throughput (MBPS):	8 (3DES)	20 or 22 (3DES/AES128)		180 or 190 (3DES/AES128)
Price (Street):	$2,000	$3,400	$6,000	$9,800
Max. Number of Calls:				
G.711:	12	24	80	180
G.729:	22	27	100	200
Max Number of Tunnels:	100	800	800	2000
Condition (DRAM, Encryption etc.)	98 MB, IPSec Tunnel Mode, 3DES, SHA, DH-2	128 MB, IPSec Tunnel Mode, 3DES, SHA, DH-2	IPSec Tunnel Mode, 3DES, SHA, DH-2	IPSec Tunnel Mode, 3DES, SHA, DH-2
Supported Routing Protocol:	RIP, IGRP, EIGRP, OSPF, IS-IS, BGP	RIP, IGRP, EIGRP, OSPF, IS-IS, BGP	RIP, IGRP, EIGRP, OSPF, IS-IS, BGP	RIP, IGRP, EIGRP, OSPF, IS-IS, BGP

Note:

- With QoS over VPN settings and / or access-lists, the number of the maximum calls may be reduced.
- Additional WAN Interface Card (WIC) or Network Interface Module (NIM) may be required to interface with your media.
- **Kentrox Q series routers cannot be connected with a remote router without a unique end identifier (Static WAN IP address or email address). Therefore they cannot be used with D-Link, Linksys routers with dynamic WAN IP addresses (Kentrox is currently investigating the issue)**.

VPN Router Compatibility Chart

1. IP Campus Scenario
   - Static IP Addresses for both Main and Remote Sites
   - With Quality of Service (QoS)

Option	Model	Main ECS Site with Static WAN IP Address	Model	Remote ECS Sites with Static WAN IP Address
1	Kentrox	Q2300 (V1.30.17-1/7/2005) or Q2400 (V1.30.17-1/7/2005)	Kentrox	Q2300 (V1.30.17-1/7/2005) or Q2400 (V1.30.17-1/7/2005)
2	Kentrox	Q2200 or Q2400	Kentrox	Q2200 or Q2400
3	Adtran	1224R (V08.02.01.E) or 3305 (V08.02.00.E)	Adtran	1224R (V08.02.01.E) or 3305 (V08.02.00.E)
4	Cisco	2611XM (V12.3-4.T4) or 1721 (V12.3-2.XC2)	Cisco	2611XM (V12.3-4.T4) or 1721 (V12.3-2.XC2)

2. Iwatsu ICON Series, Platinum Series 18i/12i, and IX-12/6IPKTD-E Scenarios
   - Dynamic WAN IP Address for both the Remote Site(s) and a Static IP Address for the Main Site
   - No Quality of Service (QoS) (Voice Quality May Suffer)

Option	Model	Main ECS Site with Static WAN IP Address	Model	Remote IPKTD-E Sites with Dynamic WAN IP Address
1	Adtran	1224R (V08.02.01.E) or 3305 (V08.02.00.E)	D-Link	DI-804HV (V1.40-8/12/2004) or DI-824VUP (V1.03-8/26/2004)
2	Adtran	1224R (V08.02.01.E) or 3305 (V08.02.00.E)	Linksys	BEFVP41 (V1.01.04)
3	Adtran	1224R (V08.02.01.E) or 3305 (V08.02.00.E)	Adtran	2054 VPN / Firewall (V08.02.00.E)
4	Cisco	2611XM (V12.3-4.T4) or 1721 (V12.3-2.XC2)	Linksys	BEFVP41 (V1.00.13-4/20/2004)

Note: A Remote-to-Remote call requires two calls for the main router.

1. Iwatsu ICON Series, Platinum Series 18i/12i, and IX-12/6IPKTD-E Scenarios
   - Static IP Addresses for both Main and Remote Sites
   - With Quality of Service (QoS)

Option	Model	Main ECS Site with Static WAN IP Address	Model	Remote IPKTD-E Sites with Static WAN IP Address
1	Kentrox	Q2300 (V1.30.17-1/7/2005) or Q2400 (V1.30.17-1/7/2005)	Kentrox	Q2300 (V1.30.17-1/7/2005) or Q2400 (V1.30.17-1/7/2005)
2	Kentrox	Q2200 or Q2400	Kentrox	Q2200 or Q2400
3	Adtran	1224R (V08.02.01.E) or 3305 (V08.02.00.E)	Adtran	1224R (V08.02.01.E) or 3305 (V08.02.00.E)
4	Cisco	2611XM (V12.3-4.T4) or 1721 (V12.3-2.XC2)	Cisco	2611XM (V12.3-4.T4) or 1721 (V12.3-2.XC2)

IX-12IPKTD-E2 IP Telephone (Discontinued)

The IX-12IPKTD-E2 IP telephone replaces the IX-12IPKTD and provides complete access to the ECS feature set from an Ethernet connection. Each IX-12IPKTD-E2 IP Telephone requires an available port on either the IX-8IPSUB card or IX-8EIPSUB card. In addition, each IX-12IPKTD-E2 IP Telephone requires an IP address. The IP address is either dynamically allocated by the network DHCP server or is a static IP address.

With the introduction of the IX-12IPKTD-E2 IP Telephone, many system features are made available through a menu on the LCD display. Many features that often required a specialized key on the telephone or a series of feature access codes can be accessed using the new menu. The menu display offers easy-to-read, clear text that guides users through the process of accessing system features through the IX-12IPKTD-E2 Telephone menu functions.

The IX-12IPKTD-E2 IP Telephone includes an integrated Layer 2 switch that was designed for the workstation user and allows the switching of data within a LAN via MAC address. Because the IX-12IPKTD-E2 IP Telephone is a Layer 2 switch, the PC connects to the back of the IX-12IPKTD-E2 IP Telephone and passes all data through the phone. When using the switching capabilities of the IX-12IPKTD-E2, voice quality does not suffer. However, it is important to not use the switching capabilities for high-load devices like a file or database Server.

The IX-12IPKTD-E2 IP Telephone packages voice data through the UDP datagram and sends the data on a 10 Base-T, 100 Base-T or 10/100 Base-T switched Ethernet network.

Additionally, the IX-12IPKTD-E2 can be powered over Ethernet, via Power over Ethernet (PoE) Power Sourcing Equipment (PSE). Refer to the **Power over Ethernet (PoE)** section in this chapter.

Note:	**Very Important!** Power Over Ethernet is supported ONLY if the PoE switch is a UL listed “Limited Power Source”.

Technical Specifications

Model:	IX-12IPKTD-E2	Part Number:	104285
Pedestal:	Built-in, seven position pedestal	Connectors:	
Connection:	10Base-T/100Base-TX Auto-Negotiation Ethernet	Handset:	To the station handset
Addressing:	DHCP (Default) or Static IP	Headset:	To the station headset
Bandwidth Requirements:		LAN:	Ethernet connection to the LAN
Overhead	16 kbps	PC:	Ethernet connection to PC
G.711	80 kbps total [1]	Power:	IX-IPKTAC-E AC Power Adapter (Optional) or via LAN Port (Power over Ethernet)
G.729	24 kbps total [1]		
SDRAM	16 MB		
Flash ROM	4 MB (Boot) 2 MB (Application)		
Quality of Service (QoS)	IEEE802.1p Q-Compliant: Tag configurable TOS DiffServ-Compliant: TOS/DSCP configurable	Ethernet LEDs:	2 LEDs x 2 ports Link LED
Power Consumption:	Idle: Approx. 2.5 Watts In Use: Approx. 4.5 Watts (Max)	Size: Weight:	10.1 x 7.4 x 4.4 in 2.7 lbs
Power Requirements:	LAN-based Power Supply (IEEE802.3af Compliant) 48 VDC, 120 mA *OR* IX-IPKTAC-E Power Supply	Operating Conditions:	32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing)
Software Version:	ADIX Software Version 8.1x or higher	Storage Temperature:	14° to 122°F (-10 to 50°C)

IX-12IPKTD-E2



IX-12IPKTD IP Telephone (Discontinued)

The IX-12IPKTD IP Telephone provides complete access to the ECS feature set from an Ethernet connection. Each IX-12IPKTD IP Telephone requires an available port on either the IX-8IPSUB card or IX-8EIPSUB card. In addition, each IX-12IPKTD IP Telephone requires an IP address. The IP address is either dynamically allocated by the network DHCP server or is a static IP address.

Many system features are made available through a menu on the LCD display. Features that often required a specialized key on the telephone or a series of feature access codes can be accessed using the new menu. The menu display offers easy-to-read, clear text that guides users through the process of accessing system features through the IX-12IPKTD Telephone menu functions.

The IX-12IPKTD IP Telephone includes an integrated Layer 2 switch that was designed for the workstation user and allows the switching of data within a LAN via MAC address. Because the IX-12IPKTD IP Telephone is a Layer 2 switch, the PC connects to the back of the IX-12IPKTD IP Telephone and passes all data through the phone. When using the switching capabilities of the IX-12IPKTD, voice quality does not suffer. However, it is important to not use the switching capabilities for high-load devices like a file or database Server.

The IX-12IPKTD IP Telephone packages voice data through the UDP datagram and sends the data on a 10 Base-T, 100 Base-T or 10/100 Base-T switched Ethernet network.

The IX-12IPKTD IP Telephone requires an IX-IPKTAC 12 volt AC power supply. The power supply is included with the telephone.

Technical Specifications

Model:	IX-12IPKTD (BLK) IX-12IPKTD (WHT)	Part Numbers:	IX-12IPKTD (BLK) 104280 IX-12IPKTD (WHT) 104281
Pedestal:	Built-in, seven position pedestal	Connectors:	
Connection:	10 / 100 Base-T Ethernet	Handset:	To the station handset
Addressing:	Static or DHCP	Headset:	To the station headset
Bandwidth Requirements:		LAN:	Ethernet connection to the LAN
Overhead	16 kbps	PC:	Ethernet connection to the PC
G.711	80 kbps total	Power:	To the IX-IPKTAC
G.729	24 kbps total		
Storage Temperature:	14° to 122°F (-10 to 50°C)	Optional Equipment:	
Power Requirements:			
	IX-IPKTAC - 12 volt power supply (included)	Size: Weight:	10.1 x 7.4 x 4.4 in 2.7 lbs
Operating Conditions:	32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing)	Software Version Required:	ADIX Software Version 8.1x or higher

IX-12IPKTD



IX-5800 Digital Telephone

The IX-5800 is equipped with a two-line, 16-character LCD display, and nine multipurpose keys. The IX-5800 has a large incoming call / MSG indication LED on the top of the telephone and standard full-duplex speakerphone.

Ringer, Handset, and Speaker volume for the IX-5800 are controlled by using the - and + keys and changes based on the state of the telephone. The IX-5800 includes a three-position integrated pedestal and a built-in wall-mount option that simplifies installation. An optional IX-58EXTENDER Loop Limit Extender and an IX-ELK9 Line Key Expansion are optional units available for the IX-5800. Also, the Ticker Field Display (TFD) can be programmed in the ECS database to scroll across the IX-5800 display.

Technical Specifications

Model:	IX-5800	Part Numbers:	505800
Pedestal:	3-position Integrated Pedestal with two wall-mount options	Multipurpose Keys:	9 Multipurpose keys or 18 with the IX-ELK9
Connection:	Digital star-wired key telephone using one or two pair telephone wire.	Connectors:	Handset cord connector; Headset cord connector; Line connector [IX-16PSUB-2]
Volume Level Adjustment:	Ringer: 1-4 Receiver: 1-5 Speaker: 1-11	Size: Weight:	9.0"W x 8.25"H x 2.0"D 1lb 6 oz
Display: Viewability:	2 Lines x 16 Characters 0° (wall), 37°,48°, 60° (desk)	Operating Conditions:	32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing)
Software Version:	ECS version 5.0 or higher	Storage Temperature:	14° to 122°F (-10 to 50°C)

IX-5800



Conditions

1. The Iwatsu ICON Series IX-5800 and IX-5900 telephones do not support the IX-59DS, IX-DSS-3, or Platinum Series DSS units.

IX-5810 Digital Telephone

The IX-5810 is equipped with a seven-line, 24-character LCD display, 16 multipurpose keys, 10 Self-Labeling keys, and a full-duplex speakerphone.

The IX-5810 has a Directory feature that allows users to search an Internal Directory and External Speed Dial numbers; also, search and program up to nine Personal Speed Dial Numbers. The enhanced Call Forwarding menu allows the user to program multiple Call Forward destinations to quickly and easily activate call forwarding. A Call Log stores the last 10 incoming and 10 outgoing telephone calls with Caller ID, ANI, or DNIS information. This Call Log lets the user view the number, trunk, and date and time of the call as well as, dial the number or delete record. A Setup menu allows the user to configure an optional Bluetooth headset, change the display contrast, and choose up to five different Ticker displays (If programmed in the system database). The IX-5810 also allows visual navigation of the IX-4EVMC Voice Mail card menus from the LCD.

The IX-5810 includes a three position integrated pedestal with a built-in wall-mount option that simplifies installation. A Bluetooth adapter (IX-58BTINF), Loop Limit Extender (IX-58EXTENDER), and a Line Key Expansion (IX-ELK8) are optional units available for the IX-5810.

IX-5810 Technical Specifications

Model:	IX-5810	Part Numbers:	505810
Pedestal:	3-position Integrated Pedestal and two wall-mount options	Self-Labeling Menu Keys:	10 keys that support 20 feature keys
Connection:	Digital star-wired key telephone using one or two pair telephone wire.	Multipurpose Keys:	16 Multipurpose keys or 24 with the IX-ELK8
Connectors:	Handset cord connector; Headset cord connector; Line connector [IX-16PSUB-2]		
Volume Level Adjustment:	Ringer: 1-4 Receiver: 1-5 Speaker: 1-11	Size: Weight:	10.75”W x 8.25”H x 2.0”D 2 lbs 2 oz
Display:	7 Line x 24 Character	Operating Conditions:	32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing)
Viewability:	Programmable Backlit LCD 0^0 (wall), 37^0,48^0, 60^0 (desk)		
Software Version:	ECS version 5.0 or higher	Storage Temperature:	14° to 122°F (-10 to 50°C)

IX-5810



IX-58BTINF Bluetooth Interface

The IX-58BTINF Bluetooth Interface module is an optional module available for the IX-5810 Digital Telephone. This is a Class 2 version 2.0 + EDR Bluetooth module. This optional module attaches to the IX-5810 circuit board and can be installed by the Iwatsu Authorized installer.

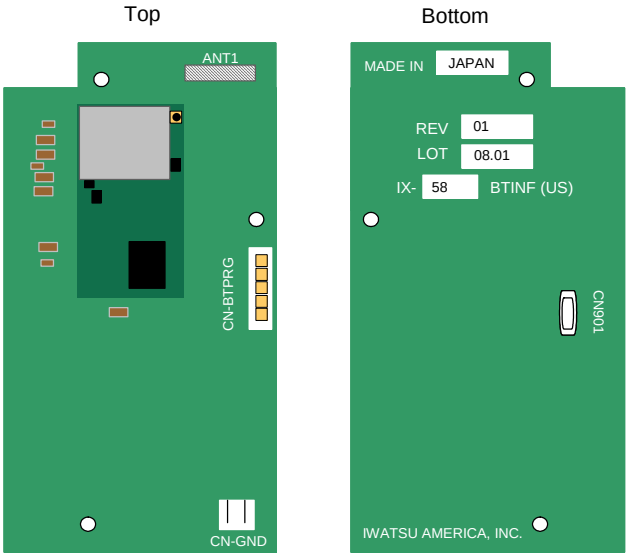
- Headset Control Key: For convenience and visibility, Iwatsu recommends placing a Headset Control Key in the key pattern of all telephones with a Bluetooth Interface Module.

Caution! Changes or modifications not expressly approved by Iwatsu Voice Networks could void the user's authority to operate this equipment.

Technical Specifications

Model:	IX-58BTINF	Part Number:	505058
KT Compatability:	IX-5810 Digital KT	Connectors:	CN901 - to the KT CN-BT CN-GND - to the CN-BTGND
Bluetooth Class:	Class 2	Line Condition:	300 m or less. 40 Ohm DC resistance or less (power supplied by KSU)
Bluetooth Version:	V2.0 + EDR		
Memory:	Flash ROM = 256KB SRAM = 64KB	Size:	2.2"W x 3.4"D x .16"H
		Weight:	3.53 oz.
Operation Clock:	30MHz		
Voice Packets:	HV1, HV2, HV3, EV3, EV4, EV5, 2-EV3, 3-EV3, 2-EV5, 3-EV5	Operating Temperature:	32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing
Power:	+3.3 V from KT Idle = .07 W Max = .36 W	Storage Temperature:	14° to 122°F (-10 to 50°C)
Line Coding:	Mu-Law		

IX-BTINF (Top and Bottom)



Bluetooth Headset Compatibility Chart

Iwatsu Voice Networks has tested the following Bluetooth Headsets for use with the IX-58BTINF. This chart also includes ECS Class 41 database programming changes to optimize Bluetooth headset performance based on make and model of the headset.

Disclaimer: Iwatsu has used its best effort testing the performance of the Bluetooth headsets listed in the compatibility chart below. Please note, however, that changes, modifications, and availability of third party equipment is beyond the control of Iwatsu and therefore compatibility and performance for said handsets is subject to change without notice. **THE COMPATIBILITY AND PERFORMANCE OF ANY BLUETOOTH HEADSET NOT MANUFACTURED BY IWATSU IS "AS IS" AND IS NOT SUPPORTED, WARRANTED OR GUARANTEED BY IWATSU IN ANY MANNER, AND IWATSU HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

The Bluetooth headsets listed below achieved the best results during Iwatsu's testing that measured performance based on the following environmental considerations:

1. Number of Bluetooth devices within a 10 meter radius of the Bluetooth enabled Iwatsu ICON Series IX-5810 KT
2. WiFi devices within a 10 meter radius of the Bluetooth enabled Iwatsu ICON Series IX-5810 KT
3. Distance from the Bluetooth enabled Iwatsu ICON Series IX-5810 KT.

Bluetooth Headset Make:	Bluetooth Headset Model:	Database Programming Transmit Offset (DB=Stations > ICON)	Database Programming Receive Offset (DB=Stations > ICON)
Motorola	H550	8 dB	2 dB
BlueAnt	V12	-2 dB	-1 dB

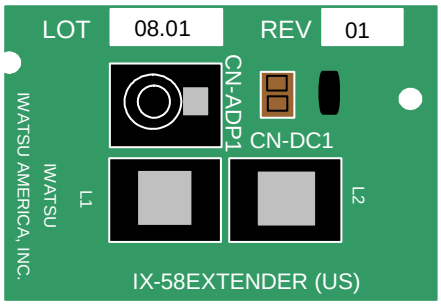
Note: When the Motorola H550 headset is taken out of range and then returned within range of the paired key telephone, the H550 headset LED will flash red and you will hear a beep approximately every 30 seconds. To clear this state, power the headset off and then on and wait for the headset to reconnect.

IX-58EXTENDER

The IX-58EXTENDER provides the interface for the IX-5800 and IX-5810 Digital telephones to increase the loop limit distance for the telephone up to a maximum of 2,100 feet. This unit requires the IX-59AC (PN: 505099) to provide local power to the telephone.

Technical Specifications

Model:	IX-58EXTENDER	Part Number:	505098
Key Telephone Compatability:	IX-5800 / IX-5810	Connectors: Internal - External -	2-pin harnes connector (CN-DC1) EIAJ Class 5 Jack (CN-ADP1)
		Size:	1.1”W x 1.67”D x .67”H
		Weight:	1.76 oz.
Power Supply:	IX-59AC	Operating Temperature:	32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing)
Input:	100-240V , 1.0A 50/60 Hz		
Output:	16.5 V 0.37A		
Line Condition:	AWG 22, 24 Twisted-pair cable 2,100 feet or less	Storage Temperature:	14° to 122°F (-10 to 50°C)



IX-59AC Power Adapter

The IX-59AC provides power for the optional IX-58EXTENDER Loop Limit Extender. The IX-59AC is required when installing the IX-58EXTENDER in an IX-5800 or IX-5810 Digital telephone. The IX-58EXTENDER, along with the IX-59AC Adapter, increases the loop limit distance of the IX5800 or IX-5810 up to a maximum of 2,100 feet.

IX-59AC Power Adapter Technical Specifications

Model:	IX-59AC	Part Number:	505099
Power Input:	100-240V~, 1.0A 50-60Hz	Size:	1.25”H x 4.25”W x 1.8”D
Power Output:	16.5V 0.37A	Weight:	7.2 oz.

Iwatsu Enterprise 18d Platinum Series Digital Key Telephone

With the introduction of the Platinum 18d Digital Telephone, many system features are now made available through menu keys on the display. Many features that often required a specialized key on the telephone or a series of feature access codes can now be accessed using the new menu keys. The menu display offers easy-to-read, clear text that guides users through the process of accessing system features through the Platinum 18d Telephone menu functions.

The Platinum 18d is equipped with a six-line, 20-character backlit LCD display, eight menu keys. The Platinum 18d has a large incoming call / MSG indication LED on the top of the telephone.

Ringer, Handset, and Speaker volume for the Platinum 18d is controlled by using the *ePod* (easy Point of decision). The Platinum 18d includes a one-step integrated pedestal and a wall mount that simplifies installation. An Audio Adaptor is an optional unit available for the Platinum 18d.

Technical Specifications

Model:	Platinum 18d	Part Numbers:	104304
Pedestal:	Integrated Pedestal	Soft Keys:	8
Connection:	Digital star-wired key telephone using one or two pair telephone wire.	Connectors:	Handset cord connector; Headset cord connector; Line connector [IX-PSUB-1]
Volume Level Adjustment:	Ringer: 1-4 Receiver: 1-3 Speaker: 1-11	Size: Weight:	7.5”W x 3.5”H x 11.3”D 2.65 lbs
Display: Viewability:	Built-in Backlit LCD 6 Lines x 20 Characters (0-180^0) Free-Stop Adjustable	Operating Conditions:	32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing)
Software Version:	ECS version 2.0	Storage Temperature:	14° to 122°F (-10 to 50°C)

Platinum 18d



Iwatsu Enterprise 12d Platinum Series Digital Key Telephone

With the introduction of the Platinum 12d Digital Telephone, many system features are now made available through menu keys on the display. Many features that often required a specialized key on the telephone or a series of feature access codes can now be accessed using the new menu keys. The menu display offers easy-to-read, clear text that guides users through the process of accessing system features through the Platinum 12d Telephone menu functions.

The Platinum 12d is equipped with a two-line, 20-character LCD display, and three menu keys. The Platinum 12d has a large incoming call / MSG indication LED on the top of the telephone.

Ringer, Handset, and Speaker volume for the Platinum 12d is controlled by using the volume control located below the keypad. The Platinum 12d includes a one-step integrated pedestal and a wall mount that simplifies installation. An Audio Adaptor is an optional unit available for the Platinum 12d.

Technical Specifications

Model:	Platinum 12d	Part Numbers:	104305
Pedestal:	Integrated Pedestal	Soft Keys:	3
Connection:	Digital star-wired key telephone using one or two pair telephone wire.	Connectors:	Handset cord connector; Headset cord connector; Line connector [IX-PSUB-1]
Volume Level Adjustment:	Ringer: 1-4 Receiver: 1-3 Speaker: 1-11	Size: Weight:	7.5”W x 3.5”H x 8.5”D 2.2 lbs
Display: Viewability:	Built-in LCD 2 Lines x 20 Characters Fixed	Operating Conditions:	32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing)
Software Version:	ECS version 2.0	Storage Temperature:	14° to 122°F (-10 to 50°C)

Platinum 12d T

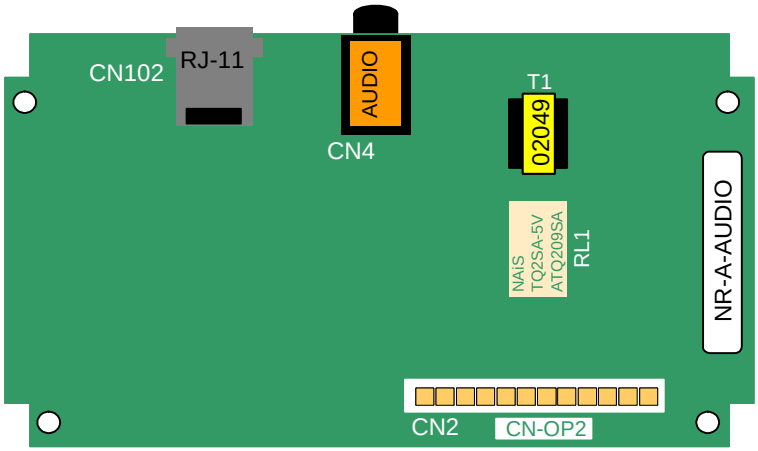


NR-A-AUDIO Audio Adapter for the Platinum 18/12d Digital Telephones

The NR-A-AUDIO provides the interface for the Platinum 18/12d Digital Telephones to a station loud-ringer and a recording device. The NR-A-AUDIO provides an interface to a recording device through a 1/8 inch mini-jack audio connector .

Technical Specifications

Model:	NR-A-AUDIO	Part Number:	105131
		Connectors:	CN-OP2 to CN-OP2 on NR-A-IPKTCUM/L CN4 to Recording Device CN102 to Loud Ringer
Optional Equipment:	None	Size: Weight:	4 x 3 x .75 in .0125 lbs
Additional Power Requirements:	None	Operating Temperature:	32° to 104°F (0 to 40°C)
		Storage Temperature:	14° to 122°F (-10 to 50°C)



IX-12KTD-3 and IX-12KTS-3 Digital Key Telephones

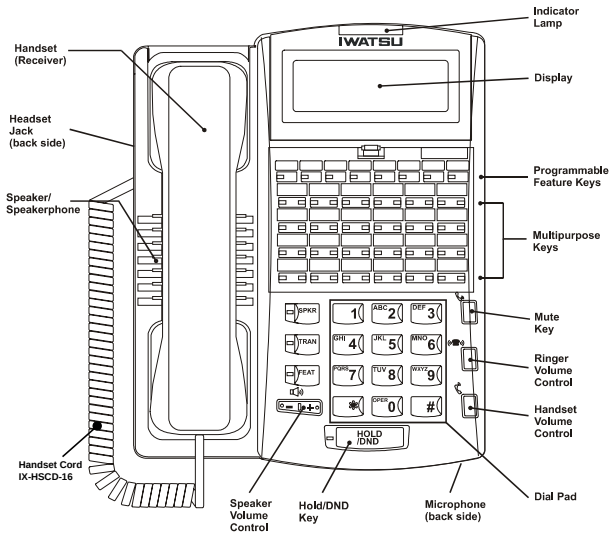
The IX-12KTD-3 is equipped with a backlit LCD display. The IX-12KTS-3 Digital Key Telephone is field upgradeable to receive the backlit LCD. The IX-12KTD-3 and IX-12KTS-3 Digital Key Telephones have a large incoming call / MSG indication LED on the top of the telephone. Each telephone also has a new [Mute] button with a red LED, 4 fixed function keys and 8 multipurpose keys with red LEDs.

The volume control functions of the IX-12KTD / S-3 telephones were designed as independent keys. The speaker volume is a variable position rocker control, and the ringer volume is controlled by a four-position push-button key. The IX-12KTD-3 and IX-12KTS-3 Digital Key Telephones now have an integrated headset jack that is controlled by a three position push-button key.

The new, multi-angle pedestal simplifies installation and improves the versatility of the IX-12KTS-3 and IX-12KTD-3. The pedestal is integrated into to the telephone, and the user can easily adjust the angle of the IX-12KTS-3 and IX-12KTD-3 surface to one of seven positions. The pedestal is also used to mount the telephone to the wall.

Several optional units function with IX-12KTD-3 and IX-12KTS-3 units. These include the IX-12ELK-3 Expansion Line Key Unit, the IX-LRAU Loud Ringer External Speakerphone Unit with call recording the IX-BPCU Internal Busy Bypass Unit, IX-HSHG Heavy Duty Handset Hanger, IX-SNHD Noise Canceling Headset, the IX-SHHD Station Amplification Handset.

Key Telephone Components



Technical Specifications

Model:	IX-12KTD-3 (BLK) IX-12KTD-3 (WHT)	Part Numbers:	IX-12KTD-3 (BLK) 104204 IX-12KTD-3 (WHT) 104205
Pedestal:	Built-in, seven position pedestal with lock mechanism	Connectors:	Handset cord connector; Headset cord connector; Line connector [IX-PSUB]
Connection:	Digital star-wired key telephone using one or two pair telephone wire.	Optional Equipment:	IX-12ELK-3, IX-LRAU or IX-BPCU, and IX-HSHG, IX- KTLCD-3, IX-HSHG, IX- SNHD and IX-SHHD
Storage Temperature:		Size:	8.8 x 7.4 x 4.4 in
	14° to 122°F (-10 to 50°C)	Software Version Required:	
Additional Power Requirements:			
	None	Weight:	2.4 lbs.
Operating Temperature:			
	32° to 104°F (0 to 40°C)		

IX-12KTD-3





IX-12KTS-3



IX-12KTD-2 Digital Multiline Telephones

(Manufacturer Discontinued June 2006)

The IX-12KTD-2 Digital Multiline Display Telephone offers all the functionality of the IX-12KTS-2 with the addition of a 2-line, 16 characters per line liquid crystal display and an incoming call indicator lamp. This display is very helpful for using advanced features and for providing status information. The oversized indicator lamp flashes red for incoming calls and green for a programmable feature such as message waiting.

Technical Specifications

Models:	IX-12KTD-2	Options:	loud ringer/external
Order No.:	Gray - 104200		speakerphone, autodial unit, busy
	Ash - 104202		bypass unit, headset adapter,
	Black - 104203		pedestal, noise canceling handset,
Features:	4 fixed feature keys, 8		amplified handset
	multipurpose keys with red	Related	
	LEDs, 12 multipurpose keys with	Hardware:	1 IX-8PSUB port
	red and green LEDs	Size:	9.0”H x 8.2”W x 4.0”D
		Weight:	2.0 lbs.





IX-MKT Digital Key Telephone (Discontinued)

The IX-MKT Digital Key Telephone is equipped with four Fixed Feature keys with a red LED, eight programmable Multipurpose Keys with a red/green LED and an incoming call indicator lamp that flashes red for incoming calls and green for a programmable feature such as message waiting. The IX-MKT may be upgraded with an optional internal speakerphone unit. In addition, the IX-MKT supports a single line/modem connection (for outgoing calls only) through an in-board modular connector. This feature allows simultaneous use of a modem while on a voice call.

Single-Line Port for Modem Connection (Outgoing Calls Only). The new IX-MKT supports a single-line/modem connection through the added modular connector. This allows simultaneous use of a modem while having full access to ECS system features.

Important!	This function is only supported through the added modular connector when star connected to an IX-8SUBx. It supports outgoing calls only.

Incoming Call Indication / Feature Notification Lamp. It includes four feature buttons with printed labels, and an incoming/message lamp.

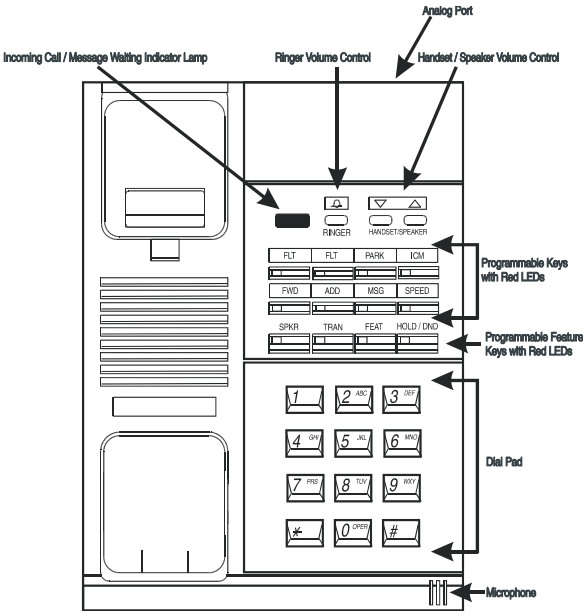
Red and Green LED Indication on 8 Multi-Purpose Keys. The IX-MKT has eight programmable multipurpose buttons with dual color LEDs (red for incoming indication and green for programmable indication).

Tandem Handset and Speaker Volume Control. It allows the user to control the volume of both the handset and the speaker through easy to use volume control buttons.

Optional IX-SSPU Speakerphone Unit Connection Support. The IX-MKT can connect to the IX-SSPU unit to give the user hands-free conversation capability on outside line calls.

The IX-MKT is available in two colors, black and white, and this set is connected to an IX-8PSUB or IX-16PSUB port using one-pair twisted wire. The functionality of the keys can be changed using Class 14.

The IX-MKT is illustrated below:



Technical Specifications

Model:	IX-MKT
Order No.:	104076 (Black) 104077 (White)
Features:	4 fixed feature buttons, 8 programmable buttons with red and green LEDs
Options:	Pedestal, noise canceling handset, amplified handset IX-SSPU Speakerphone.

Related Hardware:	
	1 IX-8PSUB /IX-16PSUB port 1 IX-8SUBx (for single-line)
Size:	9.0”H x 6.5”W x 4.0”D
Weight:	1.7 lbs.

DCKT970 Digital Wireless Key Telephone

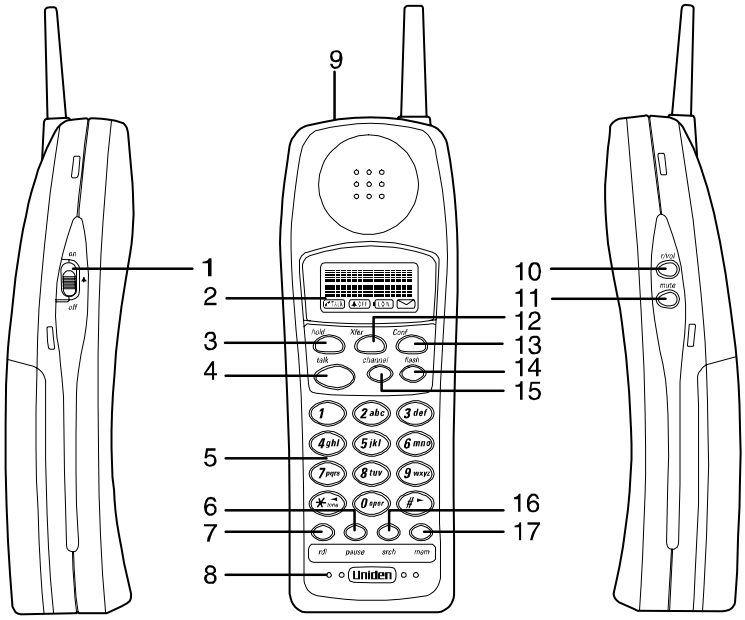
The DCKT970 Digital Wireless Key Telephone replaces the IX-DCKT900. The DCKT970 Digital Wireless Key Telephone has three programmable feature keys without LEDs and four programmable keys with red LEDs. The functionality of the keys can be changed using Class 14 for standard key stations and Class 15 for attendant stations. The DCKT970 Digital Wireless Key Telephone will operate on any ECS digital station port except ports defined as an IX-ATT (Attendant Console) or IX-VT (Versa-Phone).

The DCKT970 must be connected to both the telephone line and an Iwatsu Omega-Phone digital telephone. For installation instructions see the DCKT970 Owner's Manual (Part Number 109530).

Technical Specifications

Model:	DCKT970
Order No.:	109500
Frequency Control:	
	Phase Lock Loop
Modulation:	Spread Spectrum
Operating Temperature:	
	0° to 50° C (+32° F to +122° F)
Frequency:	902 MHz to 928 MHz
Base Unit Specifications:	
Power:	10V DC from supplied AC Adapter
Size:	4 1/4 in. W x 7 1/2 in. D x 2 1/4 in. H
Weight:	Approx. 15.4 oz.
Color	Black

Handset Specifications:	
Power:	Nickel-Cadmium Battery Pack
Size:	2 1/5 in. W x 1 2/3 in. D x 8 2/3 in. H with antenna
Weight:	Approx. 8.8 oz. with battery
Battery:	Capacity 800 mAh, 3.6 V
	6 hours (typical)
	4 days (typical)
Color	Black
Options:	Belt Clip, Backup Power Supply,
	Headset, Leather Case, Extended Life
	Battery, Wall Mount Bracket
Related Hardware:	
	1 IX-8PSUB port, IX-24KTD, 8KTD



1. Ringer ON/OFF switch
2. Message Display
3. Transfer [Tran] Key
4. Talk [Talk] Key
5. Numeric Keypad
6. Flexible [F2] Key
7. Flexible [F1] Key
8. Microphone
9. Head Set Jack
10. Volume [R/Vol] Key
11. Mute [Mute] Key
12. Hold [Hold] Key
13. Feature (Feat) Key
14. Redial [Redial] Key
15. Channel Key
16. Flexible [F3] Key
17. Flexible [F4] Key

IX-ATT Attendant Console / IX-BLF Busy Lamp Field

The IX-ATT attendant console allows the operator to quickly process incoming calls. This unit has 24 feature buttons that can be programmed to activate specific features or for outside line termination. Eight of these 24 buttons have dual-color (red and green) LEDs that are usually reserved for outside line termination. These buttons are frequently referred to as float [FLT] or loop buttons. In addition, there are 30 buttons that can be programmed as direct station selection (DSS) buttons. DSS buttons provide one-touch access to call the system extensions. The IX-ATT attendant console has a 4-line by 40-character LCD that displays call status information, the date, and the time of day. A contrast switch is located on the right side of the IX-ATT. This switch is used to adjust the LCD for different lighting conditions. The IX-ATT attendant console has six soft function buttons. The soft function buttons have no fixed functionality. Their capabilities are interactive with the prompts that appear on the LCD. Pressing a soft function button that corresponds to a prompt on the display will result in a change of the prompts on the display. Handset volume, ringer volume, and speaker volume adjustment buttons are also provided. The IX-ATT attendant console has an alarm panel with three LEDs: Major Alarm, Minor Alarm, and Power Failure. There are also eight LEDs that provide a visual indication of the number of calls waiting to be answered. A handset or headset can be attached to either side of the IX-ATT attendant console. If necessary, a second handset or headset can be attached for training purposes. There is a talk/monitor switch for each handset or headset.

An optional IX-BLF Busy Lamp Field (BLF) can be added to the IX-ATT. The BLF has two screens each containing 200 lamps that provide status indication for the system extensions and outside lines.

The IX-ATT has all the capabilities described in the *Digital Telephone User's Guide*. Unlike feature operation from a KT, the IX-ATT user is not required to press the speaker button [SPKR] to start feature operation. However, the user must press the release [RLS] button to end feature operation. The maximum number of DSS units and attendant consoles thirty-two (32). The attendant console is star connected to two consecutive IX-8PSUB ports using two-pair twisted wire that is split for two channels (See **Section 5 - Installation Guide**). If a BLF is connected to the IX-ATT two-pair twisted wire and a third IX-8PSUB port are required.

Technical Specifications

Model:	IX-ATT/ IX-BLF	Options:	IX-BLF
Order No.:	IX-ATT - 104510	Related	
	IX-BLF - 104550	Hardware:	IX-ATT - 2 consecutive IX-8PSUB
Features:	IX-ATT - 30 DSS buttons, 24 buttons		ports
	programmable feature buttons, 6		IX-BLF - 1 IX-8PSUB port
	soft function keys, line, alarm and	Size:	IX-ATT - 11.4”H x 15.7”W x 4.6”D
	call waiting LEDs, 4-line x 40-		IX-BLF - 3.5”H x 14.5”W x 0.75”D
	character LCD	Weight:	IX-ATT - 4.2 lbs.
	IX-BLF - 200 programmable LEDs		IX-BLF - 1.3 lbs.



Iwatsu ICON Series IX-59DS Direct Station Selection Unit

The Iwatsu ICON Series DSS Unit (IX-59DS) was designed for use with the Iwatsu ICON Series IP and Digital telephones (IX-5930, IX-5910, and IX-5810 only). The IX-59DS is equipped with a 15-line, 24-character backlit LCD display, and 30 Self-Labeling keys that support up to 60 features. One IX-5930, IX-5910, or IX-5810 supports a maximum of two IX-59DS units.

The IX-59DS includes a three position integrated pedestal with a wall-mount option that simplifies installation. The wall mount option requires the IX-59WMS-1 Wall Spacer. The IX-59DS supports Power over Ethernet or local power when the optional IX-59AC (PN 505099) is installed.

Note:	**Very Important!** Power Over Ethernet is supported ONLY if the PoE switch is a UL listed “Limited Power Source”.

The IX-59DS provides two new features that simplify installation and reduce installation time. Iwatsu Auto-Discovery Mode is a propriety network protocol developed by Iwatsu that allows the ICON series IX-59DS to automatically identify itself on the local network and connect to the ECS system. Manual Setup Quick Mode provides a simplified method for manually entering configuration information through the unit's LCD menu.

A Setup menu allows the user to change the display contrast.

Note:	Only the Iwatsu ICON Series IX-5930, IX-5910, and IX-5810 telephones are compatible with the Iwatsu ICON Series IX-59DS unit.

Multiple Host Connectivity

The IX-59DS IP DSS allows for connectivity to a remote (secondary) ECS if connectivity is lost to the main (primary) ECS host. A secondary LAN2 and logical port number are programmed in the IX-59DS to enable this feature.

IX-59DS Technical Specifications

Model:	IX-59DS	Part Numbers:	505959
Pedestal:	3-position Integrated Pedestal and two wall-mount options	Self-Labeling Menu Keys:	30 keys that support up to 60 feature keys (page 1/page2)
Addressing:	DHCP (Default) or Static IP	Option Module:	IX-59WMS-1 Wall Spacer
Connection:	10Base-T/100Base-TX Auto-Negotiation Ethernet RJ-45 - LAN	Connectors:	LAN (10/100) PC (10/100) Local Power (IX-59AC)
Bandwidth Requirements:			
Overhead SDRAM Flash ROM	16 kbps 16 MB 8 MB	Display: Viewability:	15 Lines x 24 Characters (11 characters per key) Programmable Backlit LCD 0^0 (wall), 37^0,48^0, 60^0 (desk)
Quality of Service (QoS):	IEEE802.1p Q-Compliant: Tag configurable TOS DiffServ-Compliant: TOS/DSCP configurable	Size: Weight:	5.16"W x 6.81"H x 2.0"D 2 lbs
Power Consumption:	Idle: Approx. 2.5 Watts In Use: Approx. 4.0 Watts (Max)	Operating Conditions:	32° to 104°F (0 to 40°C) 10 to 90% Humidity (non-condensing)
Power Requirements:	LAN-based Power Supply (IEEE802.3af Compliant) 48 VDC, 120 mA OR Optional IX-59AC Power Supply for local power connection	Storage Temperature:	14° to 122°F (-10 to 50°C)
Power Supply:	Power over Ethernet or optional IX-59AC for local power connection	ECS Software Version:	ECS Version 6.x or higher

IX-59DS



IX-59DS Conditions

The IX-59DS IP DSS allows for connectivity to a remote (secondary) ECS if connectivity is lost to the main (primary) ECS host. A secondary LAN2 and logical port number are programmed in the IX-59DS to enable this feature.

1. An Iwatsu ICON Series IX-5810 that is connected to the IX-59DS must be Revision 6 (Scheduled for release January 2010) or higher in order to support LCD backlight synchronization. Iwatsu ICON Series IX-5810 Revision 5 or lower do not support LCD backlight synchronization with the IX-59DS. When the IX-59DS is paired with an Iwatsu ICON Series IX-5810 Revision 5 or lower telephone the LCD Pairing Mode must be changed from Mode 1 (default) to Mode 2 in ECS database programming under Stations > Attendant > ICON > LCD Pairing Mode (Class 10.70.13). (Default = Mode 1).

Note:	If an IX-5810 (prior to Revision 6) is the master SATT for an IX-59DS, it is necessary to change the LCD Pairing Mode for the SATT position to prevent the IX-59DS LCD backlight from remaining lit. The LCD Pairing Mode must be changed from Mode 1 (default) to Mode 2 in ECS database programming under Stations > Attendant > ICON > LCD Pairing Mode (Class 10.70.13). (Default = Mode 1).

1. The Iwatsu ICON Series IX-59DS is supported with the Iwatsu ICON Series IX-5930, IX-5910, and the IX-5810 telephones only. Iwatsu ICON Series IX-5800 and IX-5900 telephones are not supported with the IX-59DS or legacy DSS units.
2. The station logical number must be 1 to 1023. Number 1024 is out of range for the master SATT due to limitation of data length of the port configuration.
3. ECS system supports a maximum of 64 IX-59DS units.
4. The ECS system supports a maximum of 128 DSS units. This includes the combination of IX-59DS (64 max) and legacy DSS units, and all campus remote systems.
5. Iwatsu ICON Series telephone attendant positions (IX-5930/IX-5910/IX-5810) can attach up to 2 x IX-59DS units.
6. Each IX-59DS unit requires an IP Station license and an ECS port license.
7. The IX-59DS does not require and an IX-MBU channel to operate. However, IX-5910 and IX-5930 IP telephones paired with the IX-59DS do require one or more MBU channels to communicate with TDM, SIP, and remote Non-VPN IP KT ports
8. If the IX-59DS is connected to the PC port of the IX-5910 / IX-5930 or an IX-59DS, PoE is not provided.
9. An Iwatsu ICON Series IX-5930 or IX-5910 that is connected to the IX-59DS requires software version 3.16 or higher.

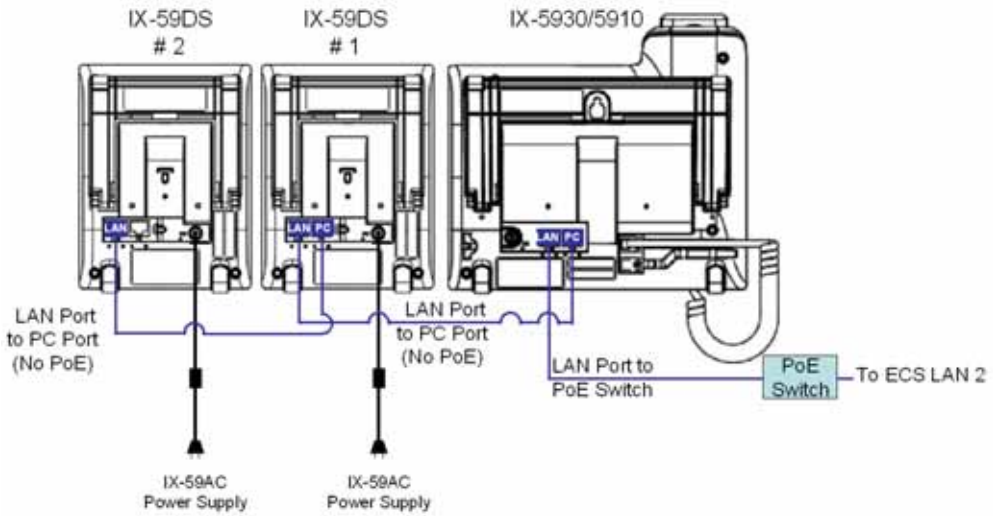
IX-59DS Connectivity

The Iwatsu ICON Series IX-59DS can be powered via PoE or by local power using the optional IX-59AC (PN: 505099). The IX-59DS units do not require separate Ethernet connections and can be cascaded to each other when assigned to an IX-5810 Attendant station or they can be cascaded to each other and an Iwatsu ICON Series IX-5930 / IX-5910 IP Attendant station. Based on the configuration and associated Iwatsu ICON Series Attendant station, the Ethernet cabling and power connectivity will vary.

This section describes the different power and Ethernet cabling scenarios for connecting the IX-59DS to an Iwatsu ICON Series Attendant station. Up to two IX-59DS units can be assigned to one IX-5930, IX-5910, or IX-5810 telephone.

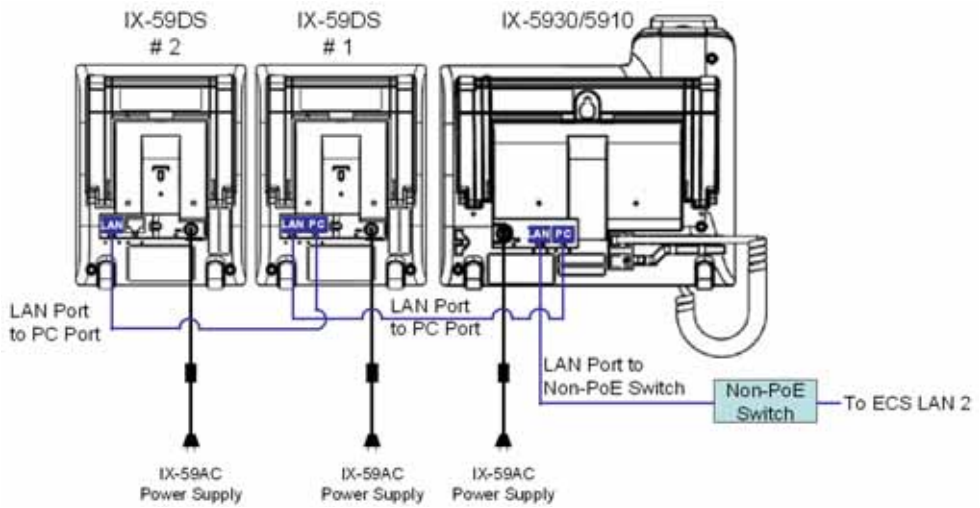
IX-59DS to IX-5930/5910 Cascade Connection with PoE to the Iwatsu ICON IP Telephone

In this configuration, the Iwatsu ICON Series IX-5930/5910 IP telephone is powered via PoE and the Ethernet connections are cascaded from the IP telephone to the IX-59DS units. The Iwatsu ICON IP telephone does not provide PoE to the IX-59DS units. The optional IX-59AC is required to provide local power to the IX-59DS units.



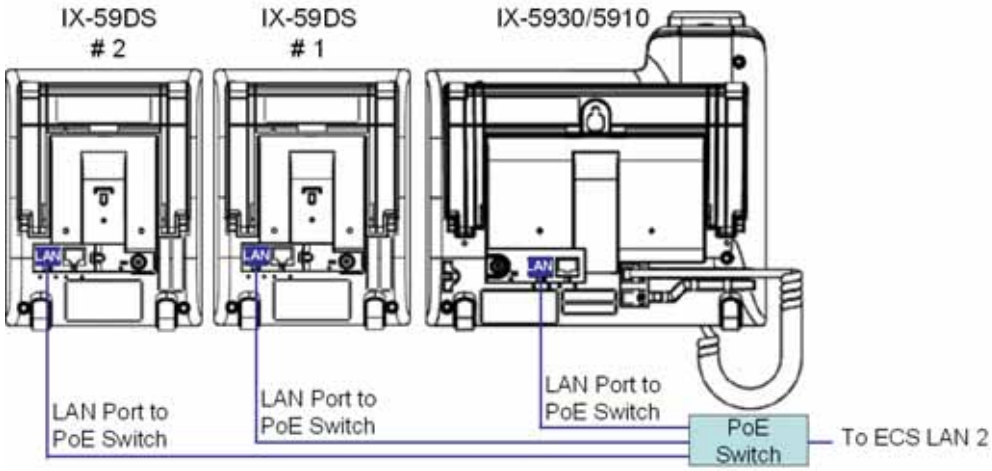
IX-59DS to IX-5930/5910 Cascade Connection without PoE

In this configuration, the Iwatsu ICON Series IX-5930/5910 IP telephone and the IX-59DS units are powered via the optional IX-59AC and the Ethernet connections are cascaded from the IP telephone to the IX-59DS units.



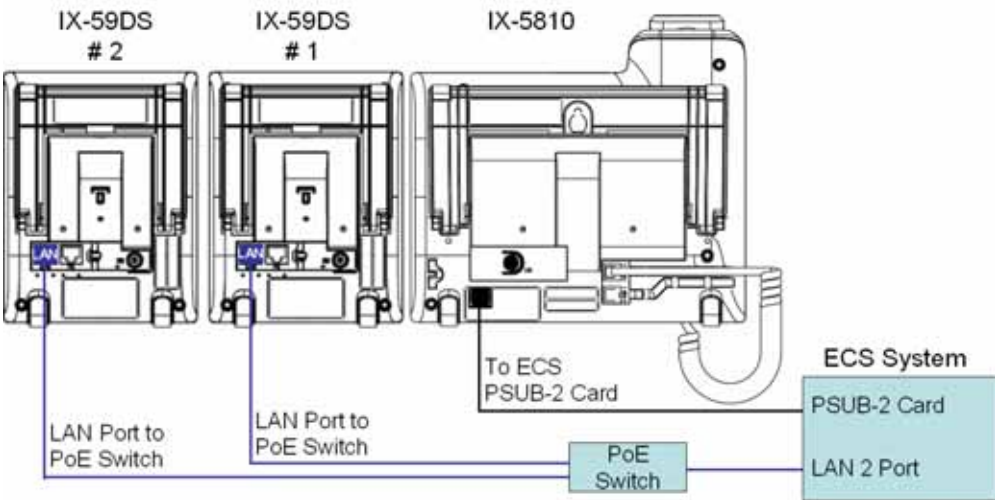
IX-59DS and IX-5930/5910 Direct Connection with PoE

In this configuration, the Iwatsu ICON Series IX-5930/5910 IP telephone and the IX-59DS units are powered via PoE and the Ethernet connections are direct connected to the PoE switch. Each device requires a separate Ethernet connection for power, but do not require a local power supply.



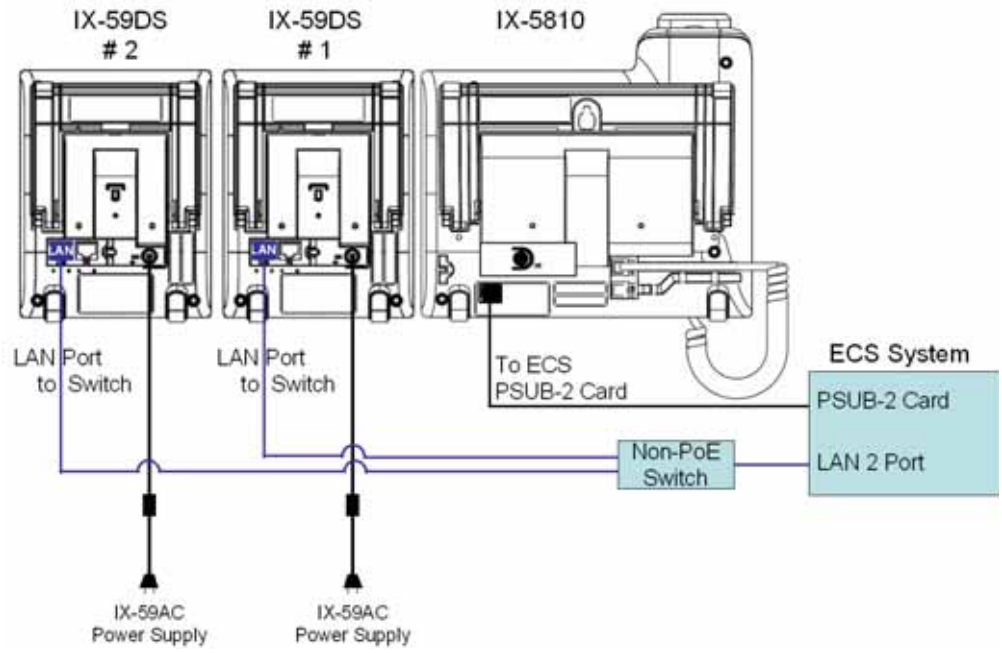
IX-59DS Direct Connection with PoE when Configured with an IX-5810

In this configuration, the Iwatsu ICON Series IX-5810 is connected to the IX-8/16PSUB-2 card in the ECS and the IX-59DS units are powered via PoE and the Ethernet connections are direct connected to the PoE switch. Each IX-59DS requires a separate Ethernet connection for power, but do not require a local power supply.



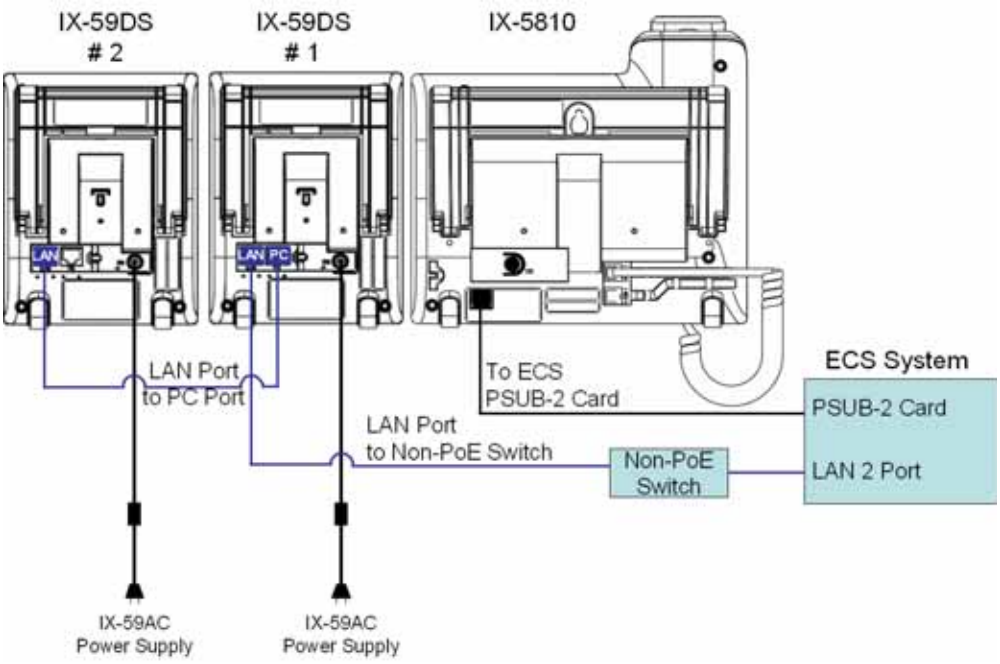
IX-59DS Direct Connection without PoE when Configured with an IX-5810

In this configuration, the Iwatsu ICON Series IX-5810 is connected to the IX-8/16PSUB-2 card in the ECS. The IX-59DS units are powered via the optional IX-59AC and the Ethernet connections are direct connected to a Non-PoE switch. Both IX-59DS units require the optional IX-59AC for local power.



IX-59DS Cascade Connection without PoE when Configured with an IX-5810

In this configuration, the Iwatsu ICON Series IX-5810 is connected to the IX-8/16PSUB-2 card in the ECS. IX-59DS #1 Ethernet connection is directly connected to a Non-PoE switch and has a cascade connection to IX-59DS #2. Both IX-59DS units require the optional IX-59AC for local power.



IX-59DS Supported Keys

Displayed on Iwatsu Programmer	IX-59DS Support (Yes/No)	LCD Backlight Synchronization	
		IX-5810 (< Rev 1)	IX-5810 (Rev 1)/5910/5930
Abandon Call ACD Group (n)	Yes	No	Yes
Abandoned Call/CID at Trunk Group (Flexible)	Yes	No	Yes
Abandoned Call/CID at Trunk Group (Fixed)	Yes	No	Yes
Abandon Call Delete	Yes	No	Yes
Abandon Call at Station	Yes	No	Yes
ACD Group	Yes	No	Yes
ACD Group Night	Yes	No	Yes
Attendant Answering Key	Yes	No	Yes
Call Coverage Delayed Key	Yes	Yes	Yes
Call Coverage Immediate Key	Yes	Yes	Yes
Call Coverage No Ring Key	Yes	Yes	Yes
Direct Station Signaling Key	Yes	Yes	Yes
E911 Display Clear	Yes	No	Yes
Group Night Transfer Key	Yes	No	Yes
Group Park Key	Yes	No	Yes
Headset Control Key	Yes	Yes	Yes
Hunt Group Key	Yes	Yes	Yes
Multiple Mailbox Key	Yes	Yes	Yes
Night Change Key	Yes	No	Yes
None	Yes	No	Yes
Paging Group Key	Yes	No	Yes
Recall Termination Key	Yes	No	Yes
Remote Activation (or Relay Control) Key	Yes	No	Yes
Screen 1 / Screen 2 Toggle Key	Yes (Modified Function)	No	Yes
Silent Key	Yes	No	Yes
Speed Dial Key	Yes	Yes	Yes
Speed Dial (Personal) One-touch	Yes	Yes	Yes
Speed Dial (System) One-touch	Yes	Yes	Yes
Supervisor Log in	Yes	No	Yes
Text Message Key (Flexible)	Yes	No	Yes
Text Message Key (Fixed)	Yes	No	Yes
Text Message Group Key	Yes	No	Yes
Universal Night Answer Key	Yes	No	Yes
Wake-up Call CTRL	Yes	No	Yes
Wake-up Call Key	Yes	No	Yes

Iwatsu Enterprise DSS Platinum Series Direct Station Selection Unit

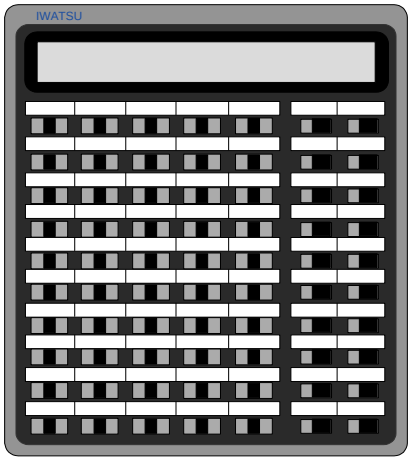
The Iwatsu Enterprise DSS Platinum Series Direct Station Selection Unit was designed to match the Platinum Series18i and 18d Telephones. The Enteprise DSS provides 50 direct station selection keys LED indicators and 20 programmable feature keys.

The Platinum DSS comes with a one-step integrated pedestal and a wall mount unit.

Technical Specifications

Model:	Platinum DSS	Part Number:	104236
Pedestal:	Integrated pedestal and a wall-mount	Connector:	Line connector [IX-PSUB-1]
Connection:	Digital star-wired key telephone using one or two pair telephone wire.	Optional Equipment:	None
Storage Temperature:		Size:	9.6 x 8.3 x 2.3 in
	14° to 122°F (-10 to 50°C)	Weight:	2.35 lbs.
Operating Temperature:			
	32° to 104°F (0 to 40°C)		

Platinum DSS



IX-DSS-3 Direct Station Selection Unit

The IX-DSS-3 Direct Station Selection Unit is available for the ECS in both black and white. The new IX-DSS-3 Direct Station Selection Unit was designed to match the IX-12KTD / S-3. The IX-DSS-3 is a direct replacement for the IX-DSS-2. The ash-colored IX-DSS-2 is now replaced by the white color, and ash is no longer available.

The multi-angle pedestal simplifies installation and improves the versatility of the IX-DSS-3. The pedestal is integrated into the unit, and the user can easily adjust the angle of the IX-DSS-3 surface to seven positions. The pedestal is also used to mount the IX-DSS-3 unit to the wall.

Technical Specifications

Model:	IX-DSS-3 (BLK) IX-DSS-3 (WHT)	Part Numbers:	IX-DSS-3 (BLK) 104234 IX-DSS-3 (WHT) 104235
Pedestal:	Built-in, seven position pedestal with lock mechanism	Connector:	Line connector [IX-PSUB]
Connection:	Digital star-wired key telephone using one or two pair telephone wire.	Optional Equipment:	None
Storage Temperature:		Size:	9.6 x 8.3 x 2.3 in
	14° to 122°F (-10 to 50°C)	Weight:	2.35 lbs.
Operating Temperature:			
	32° to 104°F (0 to 40°C)		





IX-DDPH Digital Doorphone

The IX-DDPH digital doorphone allows visitors to make an intercom call to gain entrance to your building. This unit is connected to an IX-8PSUB port using #22 AWG one-pair twisted wire. One of four doorphone chime tones can be selected through database programming.

Technical Specifications

Model:	IX-DDPH	Options:	None
Order No.:	076900	Related	
Features:	Call button, microphone	Hardware:	1 IX-8PSUB port
	Speaker, Red / Green LED	Size:	5.3”H x 4.0”W x 2.0”D
	Weather Resistant	Weight:	0.7 lbs.



IX-COMLINK TAPI-Compliant Computer Telephony Interface Adapter

IX-COMLINK is a TAPI-compliant Computer Telephony Interface Adapter that combines the features available with your ECS digital telephone and the information processing power of your PC. This device provides a TAPI (Telephony Application Programming Interface) compliant interface that can operate as a stand-alone voice terminal or in parallel with an ECS Digital Key Telephone. This device supports standard TAPI functions as well as TAPI “extended” features which provide access to ECS PBX features. It is connected to an IX-8PSUB-1 port using #22 AWG two-pair twisted wire. This unit has jacks for an ECS Digital Telephone, Headset, ECS Handset/Cradle, and modem.

Note:	Platinum Series Telephones are not compatible with the IX-COMLINK TAPI-Compliant Computer Telephony Interface Adapter.



PC Requirements

- Microsoft® Windows® 2000 or Windows® XP Operating Systems.
- A 486 or higher Microprocessor.
- A 3.5 inch floppy disk drive.
- At least 1MB of free hard disk space for IX-COMLINK drivers. Additional hard disk space is required for your Computer Telephony application.
- Color Monitor with at least 480 x 640 Resolution.
- An RS232C COM port.

ECS Requirements

- ECS Software Versions 1.x.
- An IX-8PSUB-1, IX-408, or IX-044 card digital station port.
- 24 AWG twisted-pair cable to establish the connection between the ECS system and the IX-COMLINK location.

Power Supply Requirements

The IX-COMLINK consumes the same amount of power as an ECS digital telephone. An IX-COMLINK operating with an ECS digital telephone connected, consumes the same amount of power as two ECS digital telephones. The chart below lists the maximum number of IX-COMLINK units and digital telephones the system power supply will support.

System Capacity for ADIX-S and ADIX-M

System	ADIX-S	ADIX-M		
Power Supply	IX-PWSS	IX-PWSM	IX-PWSM	IX-PWSM
Expansion Modules	0	0	1	2
Universal Card Slots	5	5	11	17
Number of Ports[2]	52	72	136	200
Digital Station Ports[3]	24	32	80	120

System Capacity for ADIX

Power Supply	IX-100PWS	IX-200PWS		
Expansion Modules	0	1	2	6
Universal Card Slots	12	20	28	56
Number of Ports	96	160	224	448
Digital Station Ports	88	152	200	400

Note:	This table lists the maximum quantity supported for each component type. The combined total number of ports for each system is limited to the figures listed in the “Number of Ports” category of this table. The capacities listed are based on the total number of card slots available, software restrictions and the power consumption of each component. It is recommended to use the ECS Power Calculator Program to determine the exact power supply required.
Note:	The combined number of Station, Trunk, and Misc ports may not exceed the number of ports listed in this category.

Optional External Power Supply (Future)

(This power supply is not available at this time but will be released in the future.)

The IX-COMLINK was designed to support an external power supply. This power supply is not required for normal operation, but when used, will allow the connection of IX-COMLINK adapters without reducing the port capacity of the system and the number of key telephones that may be equipped. This supply is a Regulated 24VDC (100ma) AC to DC power converter which connects to the back panel of the IX-COMLINK unit. The connector for this power supply is currently covered with a blank panel that may be removed if the use of an external power supply is required in the future.

IX-COMLINK Contents

Before proceeding with the installation of your IX-COMLINK computer telephony interface adapter, make sure you received the following components in the box:

- IX-COMLINK Computer Telephony Interface Adapter (Part Number 104665)
- Six-pin modular cord
- IX-COMLINK SPI, TAPI Driver Installation Disk (Part Number 109175)
- DB9 female/DB9 female serial cable (Part Number 107515)

Optional Equipment

You may also be installing or connecting the following optional equipment:

- IX-CTH/C Handset and Cradle with Hookswitch
- IX-12KTD/S-2 (w or w/o IX-ELK) Digital Key Telephone
- IX-24KTD/S Digital Key Telephone
- Headset
- Modem
- Sound Card or PC Speakers
- Microphone

Connection Options

IX-COMLINK by itself, is not a communication device. However, by connecting your computer to one of the following primary communication devices, its design offers a full range of Computer Telephony (TAPI) features. There are also connectors provided to allow the use of a modem for outgoing calls and Line In/Out jacks for connection of a sound card or PC speakers if supported by your application software. Strapping options are provided to select the primary communication device used with IX-COMLINK.

Primary Communication Devices

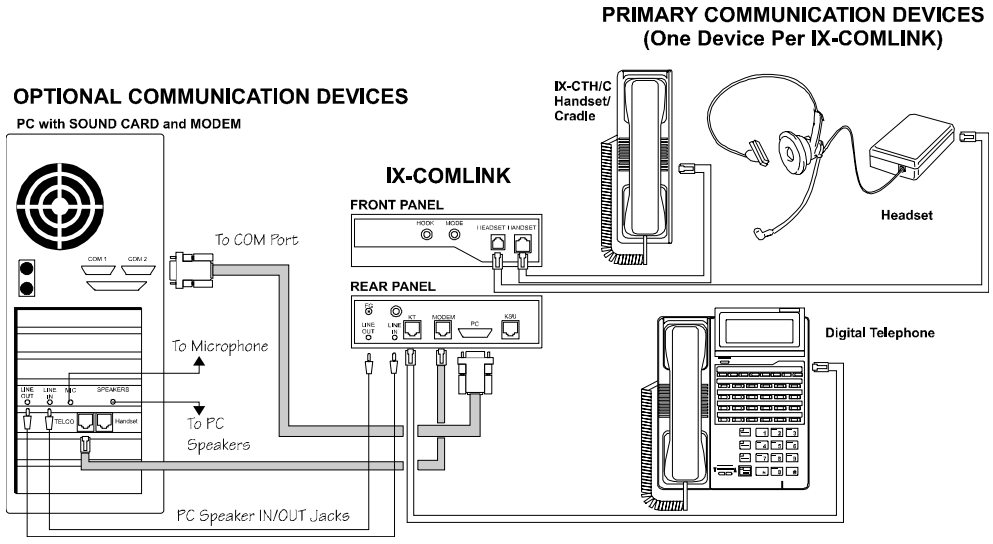
Only one primary communication device may be connected at a time. Simultaneous connection of multiple primary communication devices is not supported.

- An ECS Digital Telephone, model IX-12KT/S-2 or IX-24KTD/S, may be connected to the KT connector. The ECS digital telephone operates in parallel with IX-COMLINK.
- The IX-CTH/C Iwatsu Handset and Cradle with Hookswitch may be connected to the HANDSET connector
- A headset (compatible with ECS telephones) may be connected to the HEADSET connector.

Optional Communication Devices

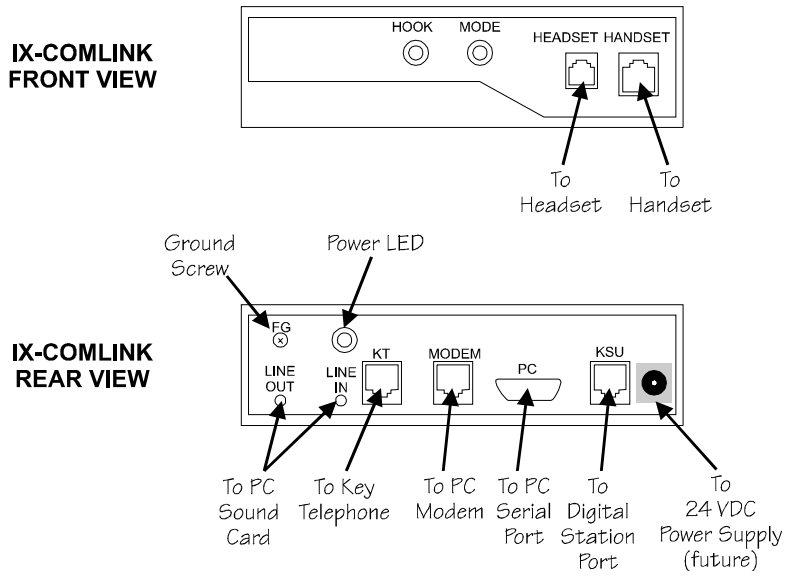
- A connection from the modem LINE jack to the IX-COMLINK MODEM jack may be used for originating outgoing calls.
- A SoundBlaster™ or SoundBlaster™-compatible PC sound card or PC speakers may be connected to the LINE IN/LINE OUT connectors. The speakers must be amplified when connected directly to the IX-COMLINK LINE IN/LINE OUT connectors.

Note: IX-COMLINK is not compatible with all sound cards.



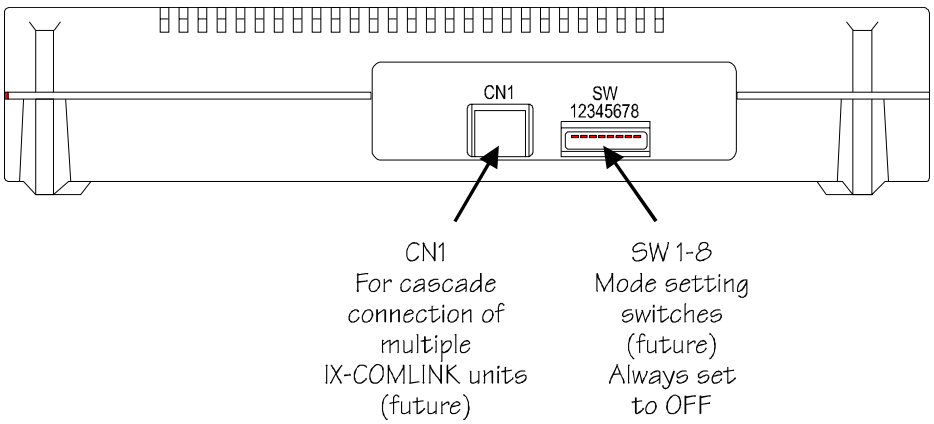
Front And Rear Panel Layout

The drawing below illustrates the location of each IX-COMLINK connector.



Side Panel Layout

The drawing below illustrates the IX-COMLINK side panel. These connectors and switches are reserved for future use.



Connectors

The table below provides an overview of each IX-COMLINK connector:

Connector	Type	Description
KSU	6-pin RJ11	Connection to an IX-8PSUB-1, IX-408, or IX-044 digital station port. Required to operate the IX-COMLINK. This port may be shared with an ECS Digital Telephone or a stand-alone port.
PC	DB9 Male	Connection to the RS232C port of the PC. Required to operate the IX-COMLINK.
MODEM	6-pin RJ11	Connection to a PC modem LINE jack. The modem may only be used to make an outgoing call. When the modem is in use, no other devices connected to IX-COMLINK may be used for call processing. The ECS LCD will display “BUSY!” when the modem is in use.
KT	6-pin RJ11	Connection to an IX-12KTD/S-2 (w or w/o IX-ELK) or IX-24KTD/S Digital Key Telephone. An optional headset may be connected to the digital telephone.
LINE IN / LINE OUT	Audio Jack	Connection to a PC Sound Card or PC Speakers. The functionality of the sound card is dependent upon the capabilities of the computer telephony application and the sound card.
FG	Screw	Ground wire connection. Ground wire connection is not required for normal operation. FG provides a connection to ground the chassis of the PC connector when utilizing a shielded RS232 cable.
24V DC	Power Jack	Connection for Optional External Power Supply. (Not Used, Future) This connector is currently covered, but will be used for locally powering the IX-COMLINK unit with a 24VT DC (100ma) AC to DC power converter in the future.
HEADSET	4-pin RJ11	Connection of a headset for stand-alone operation. Requires a change to jumpers JP1 and JP2 on the IX-COMLINK circuit board. If an ECS Digital Telephone is connected to IX-COMLINK, this connector will not function. Both a headset and handset cannot be connected at the same time.
HANDSET	6-pin RJ11	Connection of an IX-CTH/C Handset/Cradle for stand-alone operation. If a digital telephone is also connected, this connector will not function. Both a handset and headset cannot be connected at the same time.
CN 1	8-pin RJ11	Connection to cascade IX-COMLINK units. (Not Used, Future)

Overview of LEDs and Switches

Hook LED

This LED is the primary hook switch status indicator. This LED does not provide indication when IX-COMLINK rings.

Status	Description
ON	IX-COMLINK is busy, off-hook on a conversation.
OFF	IX-COMLINK is idle or ringing.

Mode LED

This LED provides audio status indication. It only functions when the Hook LED illuminates.

Status	Description
OFF	Digital Key Telephone is in use.
SOLID	IX-CTC/H Handset/Cradle or Headset connected to HEADSET jack is in use.
SLOW FLASH	Microphone connected to PC Sound Card is in use. (0.8 sec. On / 0.2 sec. Off)
FAST FLASH	Modem is in use. (0.1 sec. On / 0.1 sec. Off)

Switch 1-8 (Not Used)

Switches 1-8 must remain in the OFF position (factory setting).

PC Interface

There are three possible interfaces between PC and IX-COMLINK:

- The PC serial interface.
- The audio interface.
- The modem interface.

PC Serial Interface. This is the primary connection between the IX-COMLINK and your computer. The PC serial interface is used to send control data between the PC and the IX-COMLINK.

Audio Interface. If a sound card is connected to the IX-COMLINK LINE IN jack, a device driver is required to control audio through the sound card. The sound card and/or computer telephony application manufacturer supplies this device driver. The computer telephony application software must also support this capability. These drivers are not included with the IX-COMLINK Installation Disk.

Modem Interface. A device driver is required to control the PC modem. Iwatsu recommends using Unimodem (/V) if the application uses TAPI for controlling the modem. Also for controlling the modem, the application must use a driver that supports the modem. Unimodem (/V) is included with Windows® 95 or available from Microsoft Corporation.

IX-COMLINK-2 TAPI-Compliant Computer Telephony Interface Adapter

The IX-COMLINK-2 is a computer telephony interface designed to bridge the gap between your PC and Omega-Phone ECS digital telephone system. This device provides a TAPI (Telephony Application Programming Interface) compliant interface that can operate as a stand-alone voice terminal or in parallel with an ECS Digital Key Telephone. This device supports standard TAPI functions as well as TAPI “extended” features. Extended TAPI provides access to ECS PBX features. Unlike the original IX-COMLINK, the IX-COMLINK-2 does not support signal line pass-through.

Before attempting to install IX-COMLINK-2, it is very important that you have a basic understanding of computer hardware and software as well as an understanding of the ECS system. This bulletin does not cover the installation of the Computer

Telephony application necessary for IX-COMLINK-2 use. Please consult the manual provided with the software for more information.

Your computer must have the following hardware and software in order to install the IX-COMLINK-2 successfully:

ECS Requirements

- ECS Software Versions 1.x.
- An IX-8PSUB-1, IX-16PSUB, IX-408, or IX-044 card digital station port.
- 24 AWG twisted-pair cable to establish the connection between the ECS system and the IX-COMLINK-2 location.

Power Supply Requirements

The IX-COMLINK-2 consumes the same amount of power as an ECS digital telephone. An IX-COMLINK-2 operating with an ECS digital telephone connected consumes the same amount of power as two ECS digital telephones.

IX-COMLINK-2 Contents

The following items are included with the IX-COMLINK-2:

- IX-COMLINK-2 Computer Telephony Interface Adapter (Part Number 104667)
- Six-pin modular cord
- IX-COMLINK SPI, TAPI Driver Installation Disk (Part Number 109175)
- DB9 female/DB9 female serial cable (Part Number 107515)

Optional Equipment

You may also install or connect the following optional equipment:

- ECS IX-12KTD/S-3 Digital Key Telephone
- ECS IX-12KTD/S-2 Digital Key Telephone
- IX-MKT Digital Key Telephone
- Sound Card or PC Speakers
- Microphone

Connection Options

The IX-COMLINK-2 alone is not a communication device. However, by connecting your computer to one of the following primary communication devices, its design offers a full range of Computer Telephony (TAPI) features. Connectors are also provided to allow the use of a modem for outgoing calls, and Line In/Out jacks are included for connecting a sound card or PC speakers (if supported by your application software).

Primary Communication Device

An ECS Digital Key Telephone, model IX-12KTD / S-3, IX-12KT/S-2 or IX-24KTD/S, or an IX-MKT can be connected to the KT connector. The ECS digital telephone operates in parallel with IX-COMLINK-2.

Optional Communication Devices

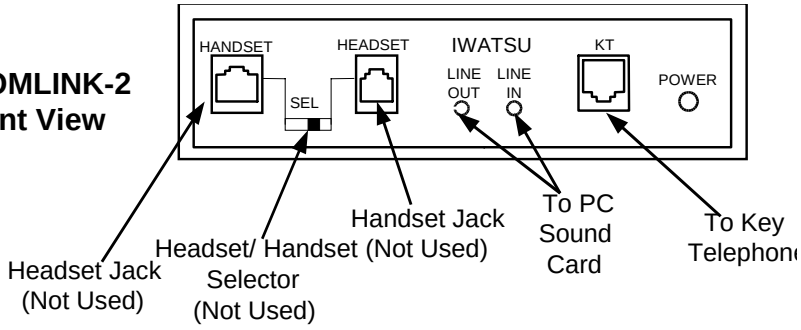
A SoundBlaster™ or SoundBlaster™-compatible PC sound card or PC speakers can be connected to the LINE IN/LINE OUT connectors. The speakers must be amplified when connected directly to the IX-COMLINK-2 LINE IN/LINE OUT connectors.

Note: IX-COMLINK-2 is not compatible with all sound cards.

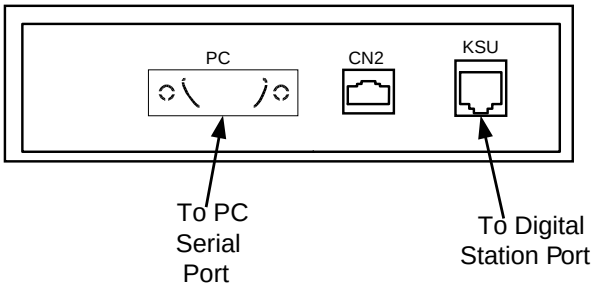
Front And Rear Panel Layout

The drawing below illustrates the location of each IX-COMLINK-2 connector.

IX-COMLINK-2 Front View



IX-COMLINK-2 Rear View



Connectors

The table below provides an overview of each IX-COMLINK-2 connector:

Connector	Type	Description
KSU	6-pin RJ11	Connection to an IX-8PSUB-1, IX-16PSUB, IX-408, or IX-044 digital station port. Required to operate the IX-COMLINK-2. This port may be shared with an ECS Digital Telephone or a stand alone port.
PC	DB9 Male	Connection to the RS232C port of the PC. Required to operate the IX-COMLINK-2.
KT	6-pin RJ11	Connection to an IX-MKT, IX-12KTD/S-2 (w or w/o IX-ELK) or IX-24KTD/S Digital Key Telephone. An optional headset may be connected to the digital telephone.
LINE IN / LINE OUT	Audio Jack	Connection to a PC Sound Card or PC Speakers. The functionality of the sound card is dependent upon the capabilities of the computer telephony application and the sound card.
HEADSET	4-pin RJ11	Not used at this time
HANDSET	6-pin RJ11	Not used at this time
CN 2	8-pin RJ11	Connection to cascade IX-COMLINK-2 units. (Not used at this time)

PC Interface

There are two possible interfaces between PC and IX-COMLINK-2:

- The PC serial interface.
- The audio interface.

PC Serial Interface. This is the primary connection between the IX-COMLINK-2 and your computer. The PC serial interface is used to send control data between the PC and the IX-COMLINK-2.

Audio Interface. If a sound card is connected to the IX-COMLINK-2 LINE IN jack, a device driver is required to control audio through the sound card. This device driver is supplied by the sound card and/or computer telephony application manufacturer. The computer telephony application software must also support this capability. These drivers are not included with the IX-COMLINK-2 Installation Disk.

IX-IP SEGWAY Serial-to-Ethernet Gateway

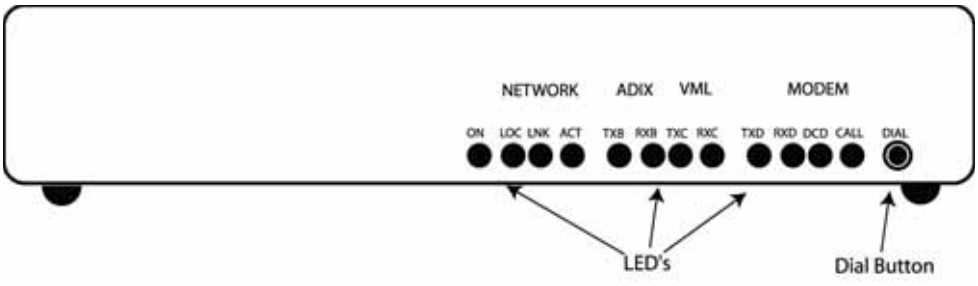
The IX-IP SEGWAY Serial-to-Ethernet Gateway is a connection box that sits outside your ADIX APS telephone system. The Gateway bridges the ADIX APS and Omega-Voice VMI to a local area network (LAN) Ethernet connection for programming. Through the common Transfer Control Protocol / Internet Protocol (TCP / IP) networking, ADIX programmers can use the IX-IP SEGWAY Serial-to-Ethernet Gateway to configure the ADIX APS / VS and the Omega-Voice VMI through a LAN.

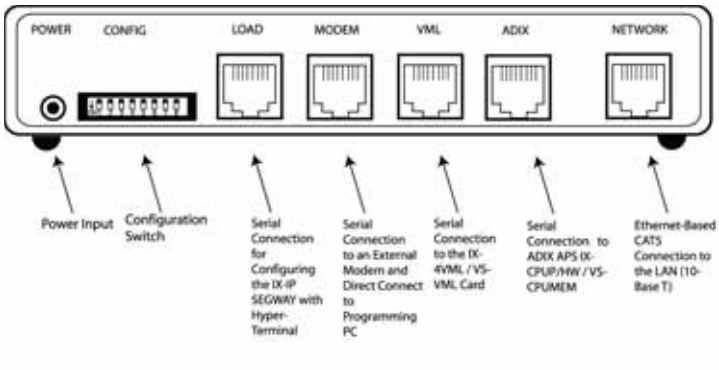
Note:	The IX-IP SEGWAY Serial-to-Ethernet Gateway is a 10 mbps device that operates on 10-BaseT or a 10/100-BaseT Ethernet-based LAN.

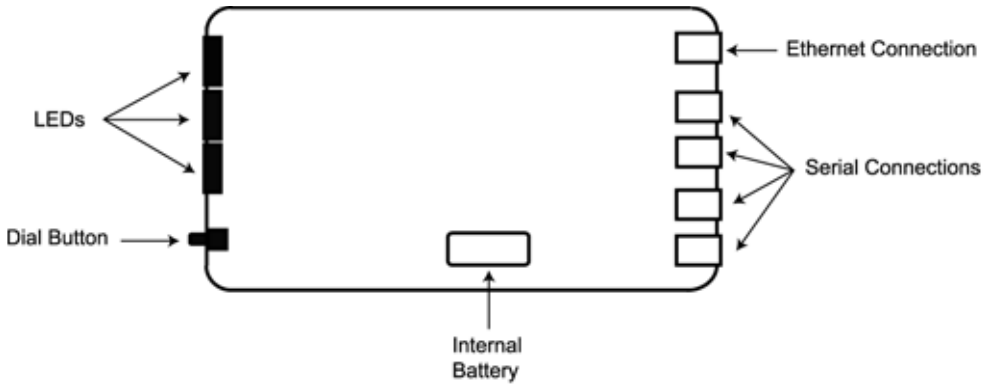
Model:	IX-IP SEGWAY Serial-to-Ethernet Gateway
Part No:	520100
Size:	1.75 x 11 x 7.75 in.
Weight:	1.9 lbs

Battery Backup for Memory

Power Requirements	
Input Voltage:	AC 120 volts 60 Hz
Input Power:	4 watts
Output:	12 volts AC, 200mA
Type:	Lithium
Voltage:	3 volt
Capacity:	1200 mAh


NETWORK
ADIX
VML
MODEM
ON
LOC
LNK
ACT
TXB
RXB
TXC
RXC
TXD
RXD
DCD
CALL
DIAL
LED's
Dial Button


POWER
CONFIG
LOAD
MODEM
VML
ADIX
NETWORK
Power Input
Configuration Switch
Serial Connection for Configuring the IX-iP SEGWAY with Hyper-Terminal
Serial Connection to an External Modem and Direct Connect to Programming PC
Serial Connection to the IX-4VML / VS-VML Card
Serial Connection to ADIX APS (IX-CPUP/HW / VS-CPUMEM
Ethernet-Based CAT5 Connection to the LAN (10-Base T)


LEDs
Dial Button
Ethernet Connection
Serial Connections
Internal Battery

Connectors

The following is the description of connectors and switch settings.

RJ45 Connection Name	Description
Program	Serial connection through CAT5 cable for loading configurations to the IX-IP SEGWAY
Modem	Serial connection through CAT5 cable for a dialup modem and direct connection
VML	Serial connection through CAT5 cable to program the Voice Mail card
ADIX	Serial connection through CAT5 cable to program the ADIX CPU
Ethernet	CAT 5 connection to a 10-base T or 10/100-base T (NOT 100-base T) Ethernet-based LAN
Power:	Connection to AC power pack

Configuration Switch

Note:	All switches must remain set to the OFF position to ensure proper operation of the IX-IP SEGWAY Serial-to-Ethernet Gateway.

Switch 1	Description
Position 1	OFF. For factory use only.
Position 2	OFF. For factory use only.
Position 3	OFF. For factory use only.
Position 4	OFF. For factory use only.
Position 5	OFF. For factory use only.
Position 6	OFF. For factory use only.
Position 7	OFF. For factory use only.
Position 8	OFF. For factory use only.

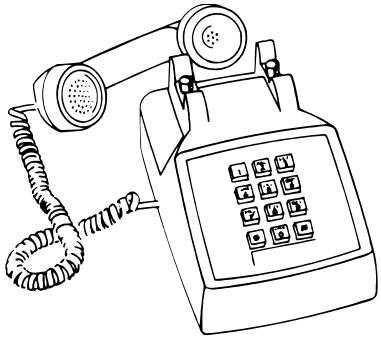
LED Indication

The following is the description of the LEDs appearing on the front of the IX-IP SEGWAY.

LEDs	Status	Description
Network LEDs:		
ON	On	The IX-IP SEGWAY is receiving power. The unit is turned on.
	Off	The IX-IP SEGWAY is not receiving power. The unit is off.
	Flashing	This LED does not flash.
LOC	On	This LED is not currently used.
	Off	This LED is not currently used.
	Flashing	This LED is not currently used.
LNK	On	The IX-IP SEGWAY is currently connected to the network.
	Off	The IX-IP SEGWAY is not connected to the network.
	Flashing	This LED does not flash.
ACT	On	This LED does not remain on.
	Off	The IX-IP SEGWAY is idle (no information is being sent or received to the unit, from the network).
	Flashing	The IX-IP SEGWAY is sending or receiving data.
ADIX LEDs:		
TXB	On	This LED does not remain on.
	Off	The IX-IP SEGWAY is idle. No data is sent to the ADIX.
	Flashing	The IX-IP SEGWAY is sending information to the ADIX.
RXB	On	This LED does not remain on.
	Off	The IX-IP SEGWAY is idle. No data is received from the ADIX.
	Flashing	The IX-IP SEGWAY is receiving information from the ADIX.
VML LEDs:		
TXC	On	This LED does not remain on.
	Off	The IX-IP SEGWAY is idle. No data is sent to the voicemail card.
	Flashing	The IX-IP SEGWAY is sending data to the voicemail card.
RXC	On	This LED does not remain on.
	Off	The IX-IP SEGWAY is idle. No data is received from the voicemail card.
	Flashing	The IX-IP SEGWAY is receiving data from the voicemail card.
MODEM LEDs:		
TXC	On	This LED does not remain on.
	Off	The IX-IP SEGWAY is idle. No data is sent to the modem.
	Flashing	The IX-IP SEGWAY is sending data to the modem.
RXC	On	This LED does not remain on.
	Off	The IX-IP SEGWAY is idle. No data is received from the modem.
	Flashing	The IX-IP SEGWAY is receiving data from the modem.
DCD	On	The IX-IP SEGWAY received a carrier detect signal from the modem.
	Off	The IX-IP SEGWAY is idle. No data is received from the modem.
	Flashing	This LED does not flash.
CALL	On	The IX-IP SEGWAY is connected to the ADIX or the voice mail port.
	Off	The IX-IP SEGWAY is idle. No connection exists.
	Flashing	This LED does not flash.
DIAL Button		
	Press	Pressing the dial button drops the modem connection and forces the IX-IP SEGWAY into and idle state.

Single-Line Telephones

Industry standard single-line telephones (either 500 or 2500 type) can be connected as on-premise or as off-premise extensions. Single line connection varies depending on the type of SLT, the location and the usage. The loop resistance of SLTs connected to the ECS is 600 ohms. #24 AWG one-pair twisted wire is required.



Single-Line Telephone Requirements	
Model:	500 Type, (DP)
Hardware:	IX-8SUBS-3, IX-RNGUM
Model:	2500 Type, (DTMF)
Hardware:	IX-8SUBS-3, IX-RNGUM,
	(IX-4RCVS for IX-8SUBS-3)
Model:	500 Type, off premises (DP)
Hardware:	IX-4SUBL, IX-RNGUM
	IX-DCDCM
Model:	500 Type w/ message lamp, (DP)
Hardware:	IX-8SUBM-3, IX-RNGUM
	IX-DCDCA or external power source
Model:	2500 Type w/ message lamp, (DTMF)
Hardware:	IX-8SUBM-3, IX-RNGUM,
	IX-DCDCM or external power source
	(IX-4RCVS for IX-8SUBS-3)
Model:	2500 Type, off premises (DTMF)
Hardware:	IX-4SUBL, IX-4RCVS, IX-RNGUM
	IX-DCDCM

Optional Station Equipment

The following components may be added to the ECS station terminals.

IX-SNHD Noise Cancelling Handset

The IX-SNHD station noise canceling handset provides comfortable conversation in noisy areas for the ECS telephones.

Model:	IX-SNHD
Order No.:	105410

IX-SHHD Station Amplified Handset

The IX-SHHD station amplified handset provides acoustic receiving voice amplification for the hearing impaired.

Model:	IX-SHHD
Order No.:	105420

IX-SSHD Standard Handset

The IX-SHHD is the factory equipped handset of all ECS telephones. It can be used with a hearing aid device that uses a magnetic pick-up coil.

Model:	IX-SSHD
Order No.:	106581

IX-SSPU Station Speakerphone Unit

The IX-SSPU station speakerphone unit is an add-on to the ECS digital multiline telephones. This unit must be installed to use the hands-free conversation feature on outside line calls to the ECS telephones. This unit cannot be added to the IX-VT Versa-Phone.

Model:	IX-SSPU
Order No.:	105110

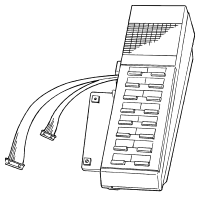
IX-LRSP Station Loud-Ringer / External Speakerphone Adapter

The IX-LRSP allows the connection of an ECS digital telephone to a station loud-ringer or external speakerphone adapter. This unit cannot be connected to a Versa-Phone.

Model:	IX-LRSP
Order No.:	105120

IX-AUTD Autodial Unit

The IX-AUTD station autodial unit is an add-on to the ECS digital multiline telephones This unit adds 16 keys that can be programmed for speed dial or DSS usage.



IX-BPAD Busy Bypass Unit

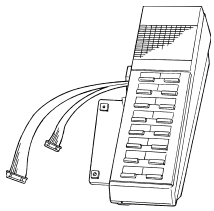
The IX-BPAD station busy bypass/autodial unit is an add-on to the ECS digital multiline telephones. With this unit, a station can use the busy bypass calling feature. The 16 additional keys can be programmed for speed dial or DSS usage. This unit requires one IX-8PSUB port.

Model:	IX-BPAD
Order No.:	105020

IX-PHSAD Station Headset Adapter

The IX-PHSAD station headset adapter/autodial unit is an add-on to the ECS digital multiline telephones It adds a headset adapter and 16 keys that can be programmed for speed dial or DSS usage.

Model:	IX-PHSAD
Order No.:	105030



IX-STPD Station Pedestal

The IX-STPD station pedestal/wall mount is used to wall mount or increase the angle of an ECS digital multiline telephone.

Model:	IX-STPD
Order No.:	Ash - 105210
	Black - 10523

IX-VTPD Station Pedestal

The IX-VTPD station pedestal/wall mount is used to wall mount or increase the angle of an IX-VT Versa-Phone.

Model:	IX-VTPD
Order No.:	105220

IX-ADPD Station Pedestal

The IX-ADPD autodial pedestal/wall mount is used to wall mount or increase the angle of an
IX-AUTD autodial unit.

Model:	IX-ADPD
Order No.:	105230

IX-HSCD Long Handset Cord

The IX-HSCD Long Handset Cord allows an additional 16 feet for the ECS key telephones.

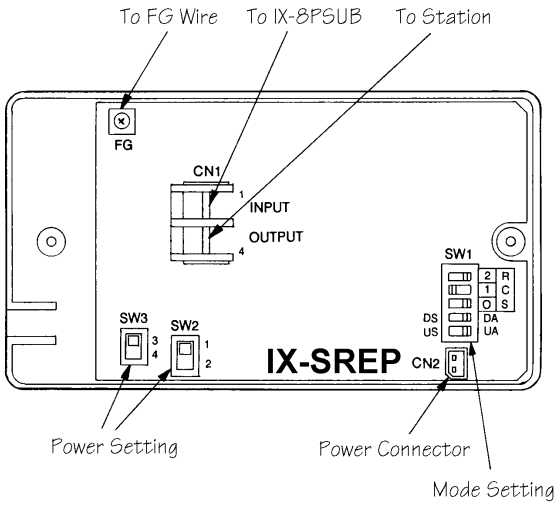
Model:	IX-HSCD
Order No.:	Black - 107343

IX-SREP Station Loop Extender

The IX-SREP star repeater is used to extend the loop limit (distance) from the KSU to an ECS digital telephone, DSS unit, attendant console, or digital doorphone. One star repeater extends the loop limit to 1,500 feet. The second star repeater extends the loop limit by an additional 6,500 feet to a maximum distance of 8,000 feet from KSU to station. An IX-SRWPS is required for local power.

Technical Specifications

Model:	IX-SREP	On-Board Functions
Order No.:	101560	SW1-Operation Mode
		SW2-Without Local Power (IX-SRPWS)
		SW3-With Local Power (IX-SRPWS)



IX-SRPWS Power Supply

The IX-SRPWS star repeater power supply is used to provide local power for loop limit expansion using one or two IX-SREPs.

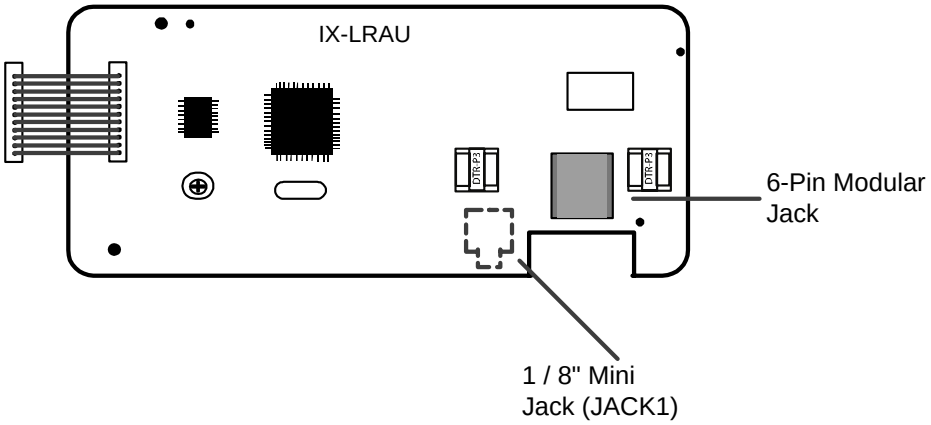
Model:	IX-SRPWS
Order No.:	100470

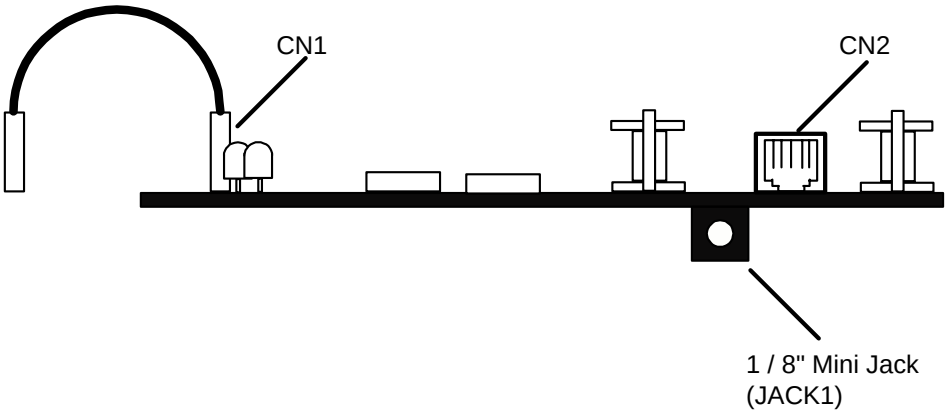
IX-LRAU Loud Ringer / External Speakerphone Adaptor with Call Recording

The IX-LRAU (part number 104243) provides the interface for the IX-12KTD-3 or IX-12KTS-3 Digital Key Telephone to a station loud-ringer, external speakerphone unit and a recording device. The IX-LRAU works the same as the IX-LRSP but provides a new interface to a recording device through a 1 / 8 inch mini-jack audio connector.

Technical Specifications

Model:	IX-LRAU	Part Number:	IX-LRAU 104243
Connection:	CN1 to LRAU on the IX-12KTD / S-3 only	Connectors:	CN1 to LRAU CN2 to Modular plug JACK1 to 1 / 8 in audio jack
Storage Temperature:	14° to 122°F (-10 to 50°C)		
Additional Power Requirements:	None	Optional Equipment:	None; may not be installed in a phone equipped with the IX-BPCU
Operating Temperature:	32° to 104°F (0 to 40°C)	Size:	6 x 2.25 x 1 in
		Weight:	.125 lbs.


IX-LRAU
6-Pin Modular Jack
1 / 8" Mini Jack (JACK1)

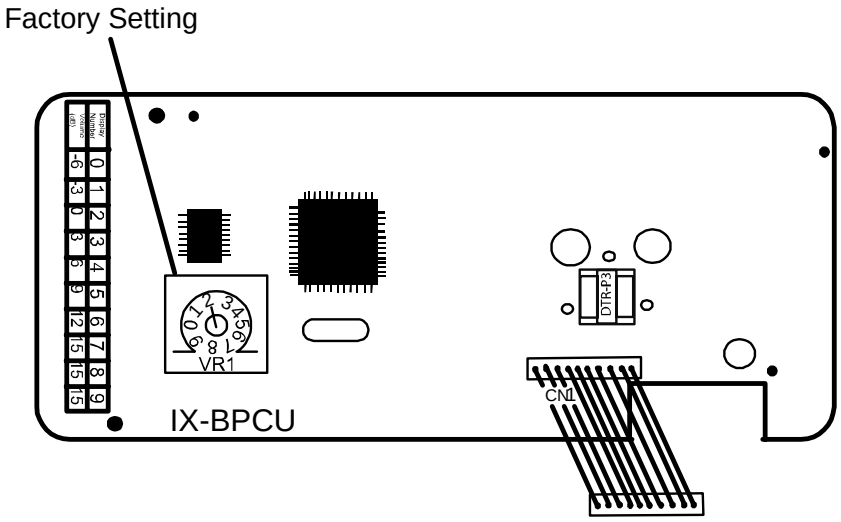

CN1
CN2
1 / 8" Mini Jack (JACK1)

IX-BPCU Internal Busy Bypass Unit

The IX-BPCU (part number 104253) unit allows a caller that calls a busy station with the IX-BPCU unit installed, to make a voice announcement to that busy station. Unlike previous ECS digital key telephones, IX-12KTD-3 and IX-12KTS-3 Digital Key Telephones do not use an additional speaker and MIC for the busy bypass function. The IX-BPCU unit utilizes the speaker and the MIC of the IX-12KTD-3 or IX-12KTS-3 Digital Key Telephone. The IX-BPCU requires an additional digital station port to operate.

Technical Specifications

Model:	IX-BPCU	Part Number:	IX-BPCU 104243
Connection:	CN1 to BPCU on the IX-12KTD / S-3 only	Connectors:	CN1 to BPCU
Storage Temperature:	14° to 122°F (-10 to 50°C)		
Additional Power Requirements:		Optional Equipment:	None; may not be installed in a phone equipped with the IX-LRAU
	None		
Operating Temperature:		Size:	6 x 2.25 x .8 in
	32° to 104°F (0 to 40°C)	Weight:	.125 lbs.



IX-KTLCD-3 (BLK) and IX-KTLCD-3 (WHT) Display Unit

IX-KTLCD-3 units are available in both black (part number 107348) and white (part number 107349) to match the new IX-12KTD / S-3 Digital Key Telephones. The IX-12KTS-3 Digital Key Telephones are field upgradeable to receive the new IX-KTLCD-3 unit.

Model:	IX-KTLCD-3
Order No.:	107348 (Black)
	107349 (White)

IX-12ELK-3 (BLK) and IX-12ELK-3 (WHT) Expansion Line Key Unit

IX-12ELK-3 units are available in both black (part number 104221) and white (part number 104222) to match the new IX-12KTD-3 and IX-12KTS-3 Digital Key Telephones. The buttons on the black telephone are black, and the buttons on the white phone are gray. The IX-12KTD / S-3 Digital Key Telephones are field upgradeable to receive the new IX-12ELK-3.

Model:	IX-12ELK-3
Order No.:	104221 (Black)
	104222 (White)

IX-HSHG (BLK) and IX-HSHG (WHT) Handset Hanger Assembly

The optional IX-HSHG is available in both black (part number 107411) and white (part number 107412) to match the new IX-12KTD-3 and IX-12KTS-3 Digital Key Telephones. The Handset Hanger Assembly provides a more secure station handset cradle for wall-mounted stations.

Model:	IX-HSHG
Order No.:	107411 (Black)
	107412 (White)

IX-SNHD (WHT) and IX-SNHD (BLK) Noise Canceling Handset.

The optional IX-SNHD are available in both black (part number 105413) and white (part number 105414) to match the new IX-12KTD-3 and IX-12KTS-3 Digital Key Telephones. The IX-SNHD Noise Canceling Handset provides noise canceling for noisy environments.

Model:	IX-SNHD
Order No.:	105413 (Black)
	107412 (White)

Miscellaneous Station Equipment

Part No.	Description
107110	IX-KT Strapping Jack
107340	ECS 16 ft. Handset cord
107350	ECS KT Handset Clip
107410	ECS KT Handset Hanger Assembly

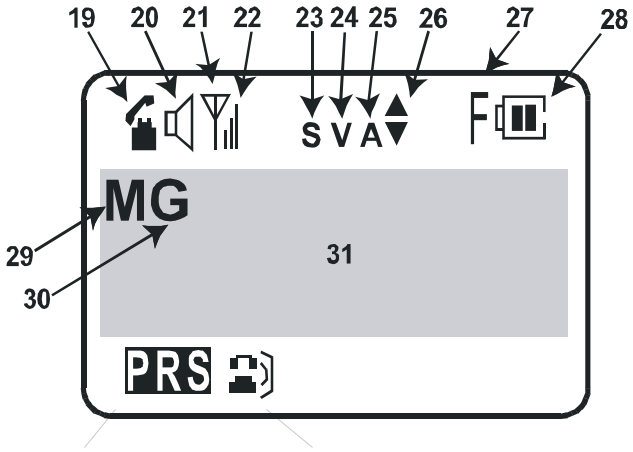
Chapter 9

Omegatrek Station Equipment

Omegatrek Portable Station and Equipment



PS6 PORTABLE STATION FEATURE LOCATOR		
Call-Out	Feature	Description
1	Dual Function Key: Incoming Call Indicator Lamp/ Battery Charging Status Lamp	Incoming Call Indicator - Lights red when a new call rings at the IX-PS6 Portable Station. Battery Charging Status - Indicates the charging status of the battery when the IX-PS6 Portable Station is in the cradle. Red indicates the battery is charging, Green indicates the battery is fully charged.
2	Headset Jack	Used to connect the IX-PSEM Headset for hands free conversation.
3	Multipurpose Keys	Programmed with a specific function during Omegatrek system setup. Examples of multipurpose key functions include outside line access, one-touch feature operation and message waiting.
4	Directory Key	Press to access the IX-PS6 Speed Dial Directory.
5	Send Key	Press to answer an incoming phone call or initiate an outgoing phone call.
6	Alphanumeric Key Pad	Use these keys to enter telephone numbers or alphanumeric characters.
7	Feature Key	Press this key to access ECS and Omegatrek system features.
8	Antenna	Extend the antenna for optimal signal strength.
9	Receiver	Hold to your ear to listen during phone calls.
10	Alphanumeric Display (LCD)	Provides visual indication of handset status, call indication, programming menus, directory lists, and diagnostic status.
11	Dual Function Key: Volume Control/ Search and Scroll	Volume Control - Press the up or down keys to adjust the Ringer Volume when the telephone is idle and the Receiver Volume while on a call. Search and Scroll - When viewing the call history, directory, or programming items, press the up or down keys to scroll forward or back through lists such as Directory Names are programming menu options.
12	Dual Function Key: Hold/Menu Access	Hold - Press while on a call to place a call on Hold Menu Access - Press while the portable station is idle to access programming menus.
13	Dual Function Key: Power/End	Power - Press and hold for three seconds to turn your IX-PS6 Portable Station on or off. End - While on a call press to end the phone call. When accessing a menu or directory press to close the menu or directory.
14	Dual Function Key: Clear/History	Clear - Use this key to correct alphanumeric characters you have entered that appear on the Alphanumeric Display. History - When the IX-PS6 Portable Station is idle press to access the outgoing and incoming call history list.
15	Cable Port	Connect the IX-PS6 Portable Station to a PC using the IX-PSCB Cable. Provides an interface to the ECS Directory Tool.
16	Speaker Key	While on a call press to listen to audio through the IX-PS6 Portable Station speaker (incoming audio only). Press a second time to resume audio feed through the receiver.
17	Microphone	Speak into the microphone during a conversation.
18	Speaker	Use the speaker to listen to voice announcements and to hear station tones and signals.



#	Display Information	Description
19	Telephone Icon	Flashes while the personal station is trying to establish a communication with an IX-BS5 Base Station. Displays steady once a communication channel is established and during a call. Does not display when the IX-PS6 Portable Station is idle.
20	Speaker	Indicates that the speaker is on.
21 & 22	Signal Strength Indicator	Shows the signal strength. Three bars indicate the strongest signal. Calls may not be sent or received in weak signal areas.
23	Silent Mode	Indicates that your IX-PS6 Portable Station is in Personal Ringing mode and the ringer is turned off. When “S” is displayed, your IX-PS6 Portable Station will not ring when a new call is received.
24	Vibrate Mode	Indicates that the IX-PS6 Portable Station Vibrate Alert feature is active. When “V” is displayed your IX-PS6 will vibrate when a new call is received.
25	Alarm	Indicates that the IX-PS6 Portable Station Alarm Clock feature set.
26	Scroll Arrows	Indicates that additional display information may be viewed or selected by pressing an up or down scroll key.
27	Feature	Indicates that you are accessing an Omegatrek or ECS system feature using the Feature Key.
28	Battery Strength Indicator	Shows the level of battery charge. Two bars show a full charge. When you see only the outline of the Battery icon, it is time to recharge the battery. This indicator flashes when there is less than one minute of talk time remaining.
29	Message / Forward	Indicates that you have a message waiting or that Station Fowarding is active on your IX-PS6 Portable Station.
30	Common Keys Active	Indicates that “Common Keys” are available to use.
31	Alphanumeric Display Area	View up to three lines (12 characters per line) of display information.

IX-PS6 Portable Station

The Omegatrek IX-PS6 Portable Station is a small, lithium battery-operated portable telephone that allows users to make and receive calls in a service area. The Omegatrek IX-PS6 Portable Station was designed as a digital wireless key telephone providing access to many Iwatsu Enterprise-CS system features from anywhere within the service area covered by the Omegatrek wireless feature.

The Omegatrek IX-PS6 can also operate in the Transceiver mode. The Transceiver mode allows two IX-PS6 handsets to communicate with each other without using the system.

Some of the features integrated into the Omegatrek IX-PS6 handset include:

- Extensive display capabilities via a three-line LCD
- Access to the majority of ECS system features via eight programmable multi-purpose keys with a red/green LED and seven feature keys
- A unique, industry first feature of an integrated handset speaker used for voice announce and hands free answerback capabilities to the wireless handset!
- Five hundred handset speed dial numbers
- Multiple ringing tones including vibrate mode
- Integrated headset jack
- Designed, engineered and manufactured by Iwatsu

The user can program the IX-PS6 Portable Station to ring, vibrate or to both ring and vibrate when a call is received. He or she may also select a ring tone for the station and raise or lower the volume of the handset.

The IX-PS6 Portable Station includes an integrated headset jack and a PCMCA Connector for programming using the Omegatrek Directory Tool.

Each IX-PS6 Portable Station is assigned a unique logical part number in system programming. This logical port number is based on a unique physical port. The associated physical port can either be a port corresponding with an installed IX-4CSUB-3 card or any available physical port in the system that does not have a card installed.

Technical Specifications

Model:	IX-PS6	Part Number:	109400
Battery:	3.6 V Lithium Ion	LCD Display:	3 lines, 12 character Dot Matrix
Charge Time:	6 hours	Key Pad:	29 Keys
Talk Time:	4.5 hours	Operational Features:	
Standby Time:	320 hours	Auto Answer, Speed Dial, Call Transfer, Call Hold, Dial by Name, Conferencing, Redial, Any Key Answer, Key Lock, Dial Lock, Call Log, Telephone Directory, Call Forwarding	
Memory:	500 Name/Number Entries		
Typical Operating Range from IX-BS5:	150 feet typical indoor	Size:	5.5" (H) x 1.7" (W) x 0.9" (D)
		Weight:	3.7 oz.



IX-4CSUB-3 Station Card

Note: The IX-4CSUB-3 card supports Power-On Maintenance.

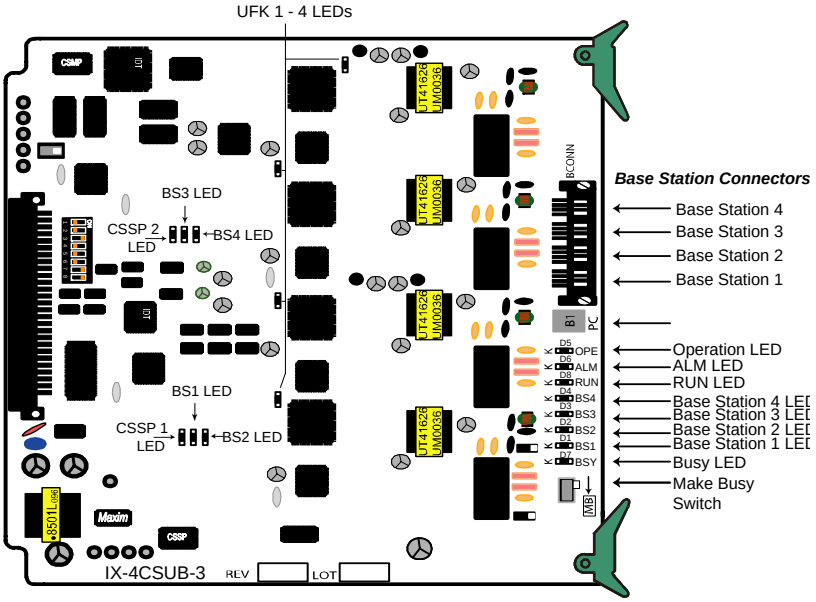
VERY IMPORTANT: Before removing the card or inserting the card into an ECS cabinet, you **must** unplug all IX-BS5 Base Stations attached to the IX-4CSUB-3 card or the IX-BS5 Base Station will be damaged.

The IX-4CSUB-3 card is a required component in ECS for Omegatrek systems. This card connects IX-BS5 Base Stations to Omegatrek IX-PS6 Portable Stations. The IX-4CSUB-3 provides interface circuits for four digital IX-BS5 Base Stations, which can form up to four cells. The IX-4CSUB-3 card also contains an echo canceller.

Unlike an echo suppressor, an echo canceller estimates the amount of feedback in the two-wire/four-wire conversion circuit and generates a pseudo-echo to cancel echo caused by feedback. Therefore, an echo canceller does not lower the volume of the other party's voice.

Technical Specifications

Model:	IX-4CSUB-3	Part Number:	109412
Location:	Universal Card Slot	On-Board	MBSW - Make Busy,
Additional Power Requirements:		Switches:	DSW1, SW1, SW2
	None	Connectors:	ACONN - Motherboard
Indicators:	OPE LED, ALM LED, BS1~BS4 LEDs, BSY LED, RUN LED, CSSP1 LED, CSSP2 LED, BS1-BS4 (Red) LEDs, UFK1-4 LED, Make Busy LED		BCONN - Quick Connector; CCONN – Connector for personal computer
		Size:	9.7"H x 9.5"W x.75”D
		Weight:	0.75 lbs.



Using the IX-CSUB-3 Card in Single Highway and Dual-Highway Card Slots

The IX-4CSUB-3 can be inserted into either a 96 or 32 channel slot within the ECS (IX-CME Gateway Controller).

Note: All Universal card slots in the IX-CME Gateway Controller are single highway slots. In the IX-CME, all switch settings on the IX-CSUB-3 cards must be set for single highway usage.

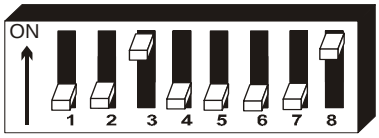
IX-4CSUB-3 Switch Settings

Listed below are illustrations and descriptions for each DSW1 switch and their functions. You must perform a system reset after changing the settings on these switches.

DSW1 Positions 1-2

Positions 1-2 on DSW1 used exclusively for factory updates. These positions **must** be set to the OFF position.

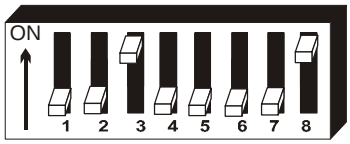
Position Settings		Function
1	2	
OFF	OFF	Factory Use Only



DSW1 Position 3

Position 3 on DSW1 is used to indicate the type of IX-PS6 Portable Station that the Omegatrek system is using. At this time, Position 3 is only functional in the ON position.

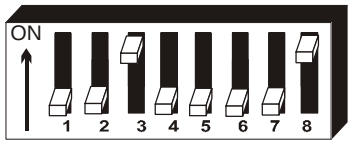
Position Settings	Function
3	
ON	IX-PS6 Handset



DSW1 Positions 4-5

Positions 4-5 on DSW1 are used for factory test purposes only. These positions should be set to the OFF position.

Position Settings		Function
4	5	
OFF	OFF	Factory Use Only



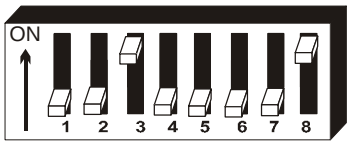
DSW1 Positions 6-7

The IX-4CSUB-3 card switch DSW1 Positions 6 and 7 are used to identify the highway on which each IX-BS5 Base Station terminates. Settings for these positions are determined by the placement of the IX-4 CSUB-3 card in a single or dual highway card slot (dual highway not supported in the ECS).

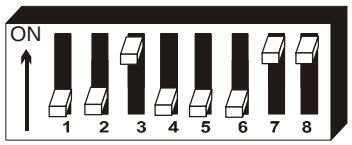
On the IX-4 CSUB-3 card, Switch DSW1, Position 6 controls Primary and Secondary Base Station highway assignments for the four individual circuits on the IX-4SUB-3. Position 6 should be set to take advantage of utilization of all possible card slots in the ECS system.

Position 7 is used for single highway or dual highway placement of the IX-4CSUB-3 card. Since the ECS does not support dual highways, position 7 must be set to OFF for single highway placement.

Position Settings		Circuit 1 & 2	Circuit 3 & 4	Description
6	7			
OFF	OFF	Primary Highway	Primary Highway	Always use this setting when installing the IX-4CSUB-3 Card in an IX-CME Gateway Controller. This setting is also used in configurations with one Primary IX-BS5 Base Station and two or three secondary IX-BS5 base stations.



DSW1 Positions 6 and 7 Set for Single Highway Use

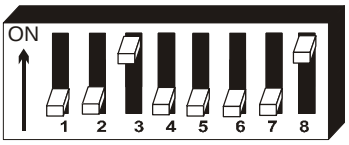


DSW1 Positions 6 and 7 Set for Dual Highway Use. (Not supported in the ECS)

DSW1 Position 8

DSW1 Position 8 controls the echo canceling function of the IX-4CSUB-3 card. This position should always be set to ON.

Position Setting	Function
8	
ON	Echo Canceling On
OFF	Echo Canceling Off



DSW1 Switch 8 Setting

SW2 Positions

SW2 Positions on IX-4CSUB-3 must be in the OFF position. These are not used at this time.

IX-4CSUB-3 Operation Indicator LEDs

Name of LED	Location	Indicated Pattern	Status
OPE	Edge of Card	Slow flashing (0.5sec ON/0.5sec OFF)	Turning ON
		ON	Working
ALM	Edge of Card	Slow flashing (0.5sec ON/0.5sec OFF)	Problem with CSSP
		ON	Problem with one or more IX-BS5 Base Stations or no valid Omegatrek Activation Code
BS1~BS4	Edge of Card	Slow flashing (0.5sec ON/0.5sec OFF)	IX-BS5 Base Station error detected
		OFF	IX-BS5 Base Station not connected or not activated
		Irregular flash pattern (0.1sec ON/0.9 OFF)	Primary Base Station connected but idle (Idle Status)
		Irregular flash pattern (0.1sec ON/0.1sec OFF/0.1 sec ON/1.7 sec OFF)	Secondary Base Station connected but idle (Idle Status)
		ON	IX-BS5 Base Station in use
BSY	Edge of Card	Fast flashing (0.1sec ON/0.1 sec OFF0)	Make busy state
		ON	At least 1 IX-BS5 in use
RUN	Edge of Card	OFF	No traffic
		ON	Lights as traffic increases
CSSP1	Center of Card	ON	CSSP activity is high.
CSSP2		ON	CSSP activity is high.
BS1-BS4 (Red)	Center of Card	ON	Secondary base station without a busy channel
		Flashing (0.1 sec ON/ 1.9 sec OFF)	Primary base station without a busy channel
		OFF	Primary or Secondary Base Station with at least one busy channel
UFK1-4	Center of Card	ON	Multi-frame is synchronized
		OFF	Multi-frame is not synchronized

IX-4CSUB-3 Wiring Distance

The maximum distance between the IX-4CSUB-3 card and an IX-BS5 Base Station varies depending on the gauge of cable used. These distances will also vary depending on whether single pair of two pair wiring is used. Details on single pair and two pair wiring installation are available in the Installation section of this bulletin.

The table below lists the maximum distance from the IX-4CSUB-3 card to the IX-BS5 Base Station. These distances may be increased using one or two IX-BSREP repeaters. Please reference the IX-BSREP Component Description for more information.

Cable Diameter	Number of Cable Pairs	Wire Length
AWG26	1	290 ft.
	2	490 ft.
AWG24	1	460 ft.
	2	790 ft.
AWG22	1	820 ft.
	2	1340 ft.
AWG18	1	1870 ft.
	2	3180 ft.

IX-BS5 Base Station

IX-BS5 Base Stations can be configured as either Primary Base Stations or Secondary Base Stations. A Primary Base Station transmits and receives a control channel that notifies IX-PS6 Portable Stations of incoming calls in addition to its three communication channels. Each cell contains one control channel, so each cell must have a Primary Base Station. Secondary Base Stations use the control channels from the associated Primary Base Station. They are generally used to add to the number of communication channels that a cell can handle. Each Secondary Base Station can transmit four communication channels.

The IX-BS5 can be connected to the IX-4CSUB-3 installed in the ECS with either 2-wire or 4 wire star wiring. An IX-BS5 Base Station is equipped with two antennas. The antenna with higher sensitivity is automatically selected in order to reduce the effect of phasing.

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference using the following methods:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.
5. Changes or modifications to the IX-BS5 not expressly approved by Manufacturer could void the user's authority to operate the product.

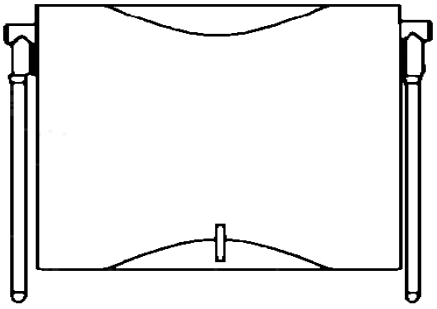
Caution:

The IX-BS5 Base Station was designed for use indoors. If the IX-BS5 Base Station will be installed in an inclement area, the IX-BS5 Base Station Enclosure is required.

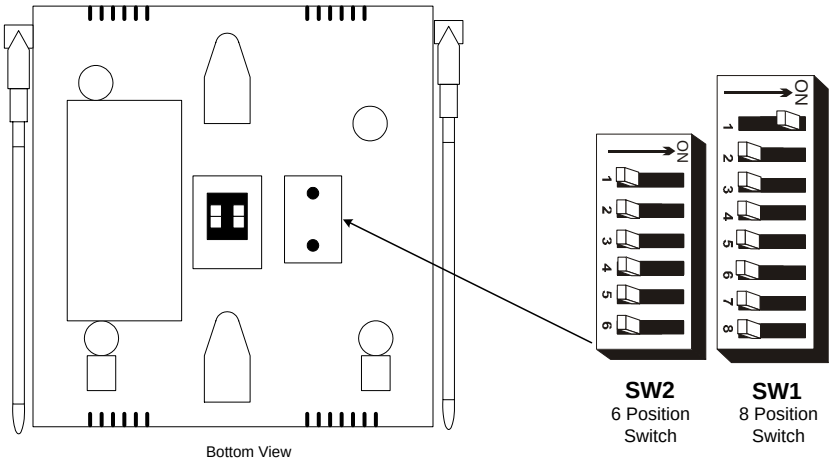
Technical Specifications

Model:	IX-BS5	Part Number:	109410
Channels:	3 Communication Channels, 1 Control Channel	Communication Mode:	4-Channel Multi-Carriers TDMA-TDD (Time Division Multiple Access-Time Division Duplex)
Wired Transmission System:		Frequency Deviation:	±3 ppm
	Ping Pong (1.544 MHz)	Relative Humidity:	10% to 90% (non-condensing)
Wiring:	2-Wire Star Wiring	Channel Spacing:	300 kHz
Power:	Supplied by KSU	Operating Temperature:	32°F to 104°F
Operation Voltage:		Size:	5.25"H x 5.75"W x 1.5"D
	21.6-26.4 V DC	Weight:	10.5 oz

IX-BS5 Base Station Top View



IX-BS5 Base Station Bottom View



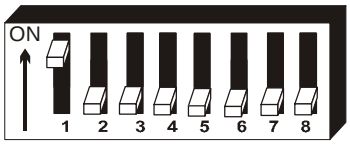
IX-BS5 Switch Positions

Base Station Serial Number Registration

SW1 (the 8-position switch bank) on the IX-BS5 Base Station is used to set the Base Station Serial Number using a unique binary number from 1 to 96 in the ECS. The Base Station Serial Number registered on SW1 will be used in Class 32 of system programming to associate IX-BS5 Base Stations with specific cells. When setting SW1 on a Secondary Base Station, always use the same binary number as registered on Switch SW1 of the associated Primary Base Station. The table below lists how each position of SW1 must be set if a Base Station Serial Number of 1through 19 and 108 is required.

Switch SW1 Examples								
Switch Position	1	2	3	4	5	6	7	8
Binary Number	1	2	4	8	16	32	64	128
Base Station 1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Base Station 2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
Base Station 3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
Base Station 4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
Base Station 5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
Base Station 6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
Base Station 7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
Base Station 8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
Base Station 9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
Base Station 10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
Base Station 11	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
Base Station 12	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
Base Station 13	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
Base Station 14	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
Base Station 15	ON	ON	ON	ON	OFF	OFF	OFF	OFF
Base Station 16	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
Base Station 17	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
Base Station 18	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
Base Station 19	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
:	:	:	:	:	:	:	:	:
Base Station 108	OFF	OFF	ON	ON	OFF	ON	ON	OFF

SW1 IX-BS5 Base Station Serial Number Position Settings

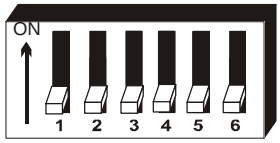


Primary and Secondary Base Station Settings

Switch SW2 (the 6-position switch bank) on the IX-BS5 is used to configure an IX-BS5 Base Station as either a Primary or Secondary Base Station. If the selected IX-BS5 Base Station is to be a Primary Base Station, Positions 1-6 must be set to OFF. If the selected IX-BS5 Base Station is to be a Secondary Base Station, Positions 1-5 must be set to OFF, and Position 6 must be set to ON.

SW2 Position Settings						Function
1	2	3	4	5	6	
OFF	OFF	OFF	OFF	OFF	OFF	Primary Base Station
OFF	OFF	OFF	OFF	OFF	ON	Secondary Base Station

SW2 Primary Base Station Setting



IX-BSREP Repeaters

IX-BSREP Repeaters are used to extend the distance between the IX-4CSUB-3 card installed in the ECS and an IX-BS5 Base Station. The table below lists the distance gained by wire gauge when one or two IX-BSREP Repeaters are utilized.

IX-4CSUB-3 Card With One IX-BSREP Repeater

Cable Diameter	Wire Length 1	Wire Length 2	Total Wire Length
AWG26	3900 ft.	300 ft.	4200 ft.
AWG24	3900 ft.	550 ft.	4450 ft.
AWG22	3900 ft.	950 ft.	4850 ft.
AWG18	3900 ft.	2200 ft.	6100 ft.

IX-4CSUB-3 Card with Two IX-BSREP Repeaters

Cable Diameter	Wire Length 1	Wire Length 2	Wire Length 3	Total Wire Length
AWG26	3200 ft.	6400 ft.	300 ft.	9900 ft.
AWG24	3200 ft.	6400 ft.	550 ft.	10150 ft.
AWG22	3200 ft.	6400 ft.	950 ft.	10550 ft.
AWG18	3200 ft.	6400 ft.	2200 ft.	11800 ft.

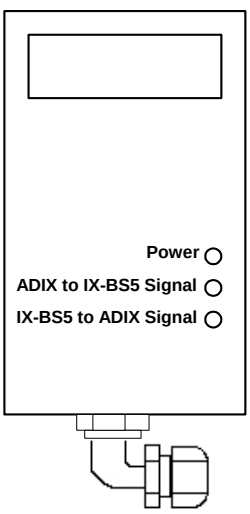
All IX-BSREP units require local power. Use Valcom VP-624B AC/DC Power supply (DC +24V, 600mA).

Each IX-BSREP Repeater includes LEDs indicating power, reverse transmission, and forward transmission. Connectors for the ECS, the motherboard, and an outside power source are also included.

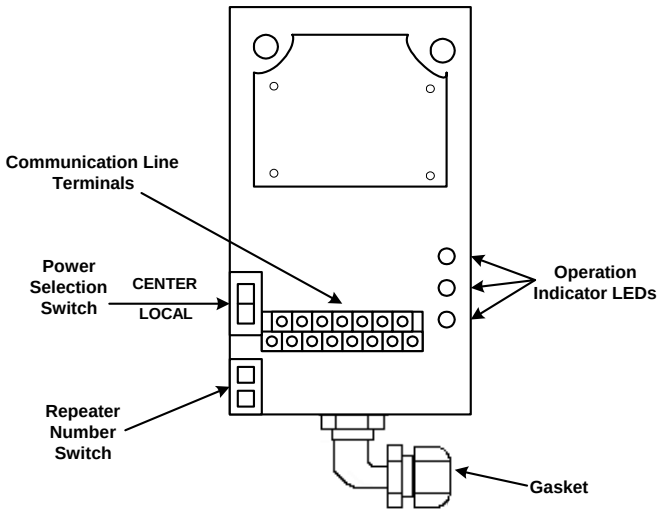
Technical Specifications

Model:	IX-BSREP	Part Number:	109411
Operating Voltage:	+21.6 V to +26.4 V DC	Operating Temperature:	32 F -104 F
Power:	Valcom VP-624B AC/DC Power Supply	Relative Humidity:	10% to 90% (non-condensing)
Additional Power Requirements:	None	Indicators:	Power Indicator Lamp Operation Indicator Lamps
Indicators:	Power LED, Trunk Data LED, Rev Data LED	Connectors:	ACONN – Motherboard CCONN - Station Terminals
		Weight:	.75 lbs

IX-BSREP Repeater



External View



Internal View

IX-PSBP Lithium Ion Battery

The lithium ion battery included with the IX-PS6 Portable Station provides four and a half hours of talk time and up to three hundred twenty hours of standby time when fully charged. It fits snugly into the battery compartment of the IX-PS6 Portable Station and is attached by placing the IX-PSBP battery's connector into the battery connector in the IX-PS6 Portable Station's battery compartment.

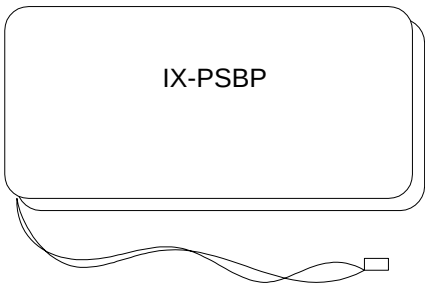
The IX-PSBP battery is rechargeable. Use the IX-PSCG battery charger to recharge the battery.

CAUTION
Replace battery with Iwatsu P/N IX-PSBP only. Use of another battery may present a risk of fire or explosion. See the Omegatrek Owners' Manual for safety instructions.
There is a danger of explosion if the battery is incorrectly replaced.
Replace this battery only with the same or equivalent type recommended by the manufacturer. To comply with applicable laws, dispose of used batteries at any Rechargeable Battery Recycling Corporation (RBRC) disposal site. Call (800) 822-8837 for information concerning the disposal of the IX-PSBP lithium-ion battery.

Technical Specifications

Model:	IX-PSBP	Part Number:	109415
Battery Type:	Lithium Ion Rechargeable Battery	Charge Time:	Approximately 7 Hours for fully discharged battery
Power:	3.6 V, 600 mAH	Talk Time:	4.5 Hours (fully charged)
Charge:	Inductive IX-PSCG Charger	Standby Time:	320 Hours (fully charged)

IX-PSBP Lithium Ion Battery



IX-PSCG Battery Charger

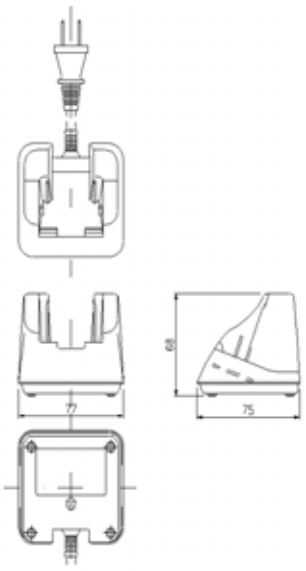
The IX-PSCG battery charger is an inductive battery charger specifically designed for IX-PS6 Portable Station. The battery charger provides visual status of the battery condition in conjunction with the IX-PS6 Portable Station battery charge status indicator. The battery charger status indicator on the IX-PS6 Portable Station displays a steady green light when the charge is complete, a steady red light to indicate that the IX-PS6 Portable Station is charging, and a flashing red light to indicate abnormal battery charging.

Note: The IX-PSCG Battery Charger is not equipped with an ON/OFF switch or disconnect device. Safety standards for equipment not equipped with a disconnect device require the electrical outlet (socket-outlet) shall be installed near the IX-PSCG and must be easily accessible.

Technical Specifications

Model:	IX-PSCG	Part Number:	109416
Input Voltage:	120 V ±12 V AC 57 to 63 Hz		
Power Consumption:	Max. 4 VA	Storage Temperature:	-4° to 140°F
Output Current:	10 mA	Relative Humidity:	90% or less (non-condensing) 95% or Less (non-condensing) for Storage
Charge Temperature:	41° to 95°F	Weight:	5.6 oz
Operating Temperature:	32° to 104°F	Size:	2.9” x 2.2” x 2.9”

IX-PSCG Battery Charger



IX-PSMK Omegatrek Site Measurement Kit

The IX-PSMK Omegatrek Site Measurement Kit is used to measure the EMF signal strength from the mapped position of a IX-BS5 Base Station to anticipated positions of IX-PS6 Portable Stations. It consists of two IX-PS6 Portable Stations that cannot receive voice, with two IX-PSBP Portable Station Batteries and IX-PSCG Portable Station Chargers.

This tool is required when planning an installation of the Omegatrek system.

Technical Specifications

Model:	IX-PSMK	Part Number:	109425
Batteries (2):	3.6 V Lithium Ion	LCD Display:	3 lines, 12 character Dot Matrix
Charge Time:	6 hours	Key Pad:	29 Keys
Test Time:	4.5 hours	Size:	5.5" (H) x 1.7" (W) x 0.9" (D)
Standby Time:	320 hours	Weight:	3.7 oz.

IX-BS5ENC-S Standard Base Station Enclosure

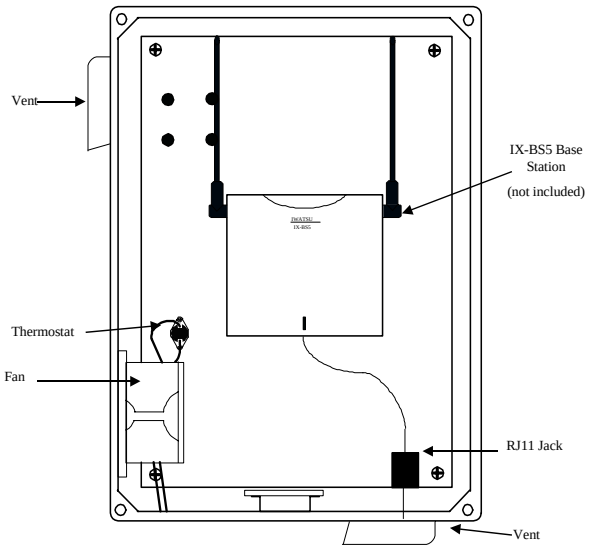
The IX-BS5ENC-S Standard Base Station Enclosure is a specially designed enclosure developed to protect the IX-BS5 Base Station in outdoor environments. Iwatsu Voice Networks designed the IX-BS5ENC-S Standard Base Station Enclosure to operate in many different climates and weather conditions including heat, moisture, rain, wind and other naturally-occurring conditions.

When properly installed, the IX-BS5ENC-S Standard Base Station Enclosure provides a protective enclosure, allowing the installation of the IX-BS5 Base Station in extended areas. The IX-BS5ENC-S Base Station Enclosure has an integrated fan to circulate air in hot environments. The fan, when triggered by the thermostat, circulates air within the enclosure, and it allows the IX-BS5 Base Station to operate within its recommended operating temperatures in most installations.

Technical Specifications

Model:	IX-BS5ENC-S Standard Base Station Enclosure	Part Number:	109430
Power Requirements:			
Voltage:	AC 115 volts	Size:	15 x 19.5 x 6.7 in.
Input Power:	12 watts	Weight:	11.5 lbs

IX-BS5ENC-S Base Station Enclosure



Note: The IX-BS5 Base Station is not included with the IX-BS5ENC-S Standard Base Station Enclosure. It is used here for illustration purposes.

IX-BS5ENC-H Heated Base Station Enclosure

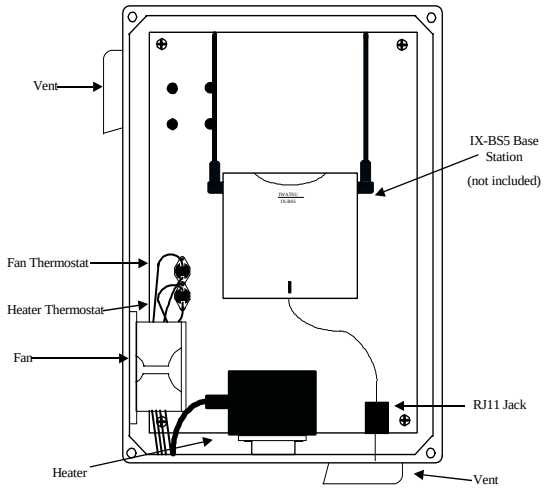
The IX-BS5ENC-H Heated Base Station Enclosure is a specially designed enclosure developed to protect the IX-BS5 Base Station in outdoor environments. Iwatsu Voice Networks designed the IX-BS5ENC-H Heated Base Station Enclosure to operate in many different climates and weather conditions including heat, cold, moisture, rain, wind and other naturally-occurring conditions.

When properly installed, the IX-BS5ENC-H Heated Base Station Enclosure provides a protective enclosure, allowing the installation of the IX-BS5 Base Station in extended areas. The IX-BS5ENC-H Heated Base Station Enclosure has an integrated fan to control temperatures in hot environments. The fan, when triggered by the thermostat, circulates air within the enclosure, allowing the IX-BS5 Base Station to operate within its recommended operating temperatures in most installations.

The IX-BS5ENC-H Heated Base Station Enclosure also includes an integrated heater. The heater is controlled by an internal thermostat and begins heating the IX-BS5ENC-H Heated Base Station Enclosure when the internal temperature drops below 32 degrees Fahrenheit.

Technical Specifications

Model:	IX-BS5ENC-H Heated Base Station Enclosure	Part Number:	109431
Power Requirements:			
Voltage:	AC 115 volts	Size:	15 x 19.5 x 6.7 in.
Input Power:	32 watts	Weight:	12 lbs



Note: The IX-BS5 Base Station is not included with the IX-BS5ENC-H Heated Base Station Enclosure. It is used here for illustration purposes.

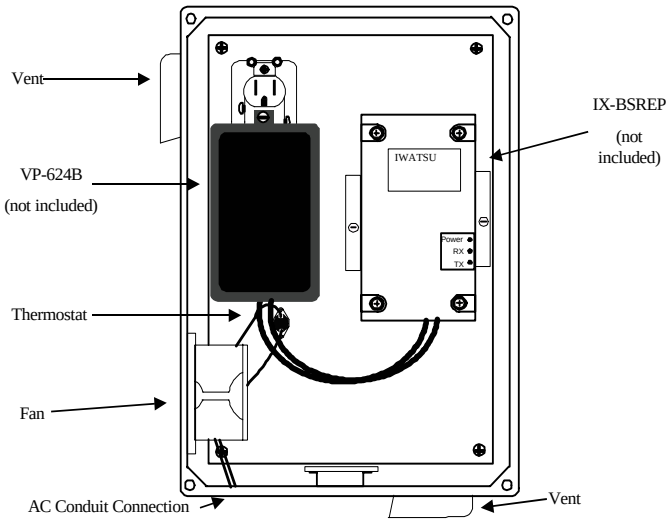
IX-REPENC-S Standard Base Station Repeater Enclosure

The IX-REPENC-S Standard Base Station Repeater Enclosure is a specially designed enclosure developed to protect the IX-BSREP Base Station Repeater in outdoor environments. Iwatsu Voice Networks designed to IX-REPENC-S Standard Base Station Repeater Enclosure to operate in many different climates and weather conditions including heat, moisture, rain, wind and other naturally-occurring conditions.

When properly installed, the IX-REPENC-S Standard Base Station Repeater Enclosure provides a protective enclosure, allowing the installation of the IX-BS6 Base Station Repeater in extended areas. The IX-REPENC-S Standard Base Station Repeater Enclosure has an integrated fan to control temperatures in hot environments. The fan, when triggered by the thermostat, circulates air within the enclosure. This allows the IX-BSREP Base Station Repeater to operated within its recommended operating temperatures in most installations.

Technical Specifications

Model:	IX-REPENC-S Standard Base Station Repeater Enclosure	Part Number:	109432
Power Requirements:			
Voltage:	AC 115 volts	Size:	15 x 19.5 x 6.7 in.
Input Power:	48 watts	Weight:	11.5 lbs



Note: The IX-BSREP Base Station Repeater is not included with the IX-REPENC-S Standard Base Station Repeater Enclosure. It is used here for illustration purposes.

IX-REPENC-H Heated Base Station Repeater Enclosure

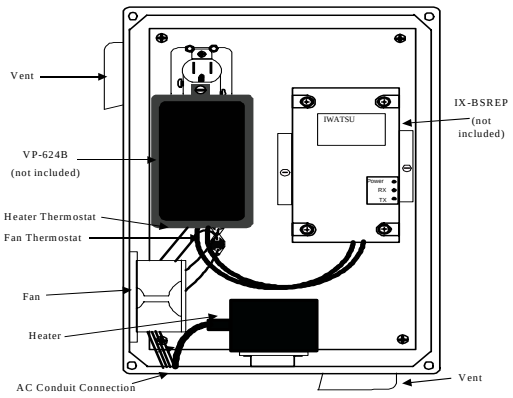
The IX-REPENC-H Heated Base Station Repeater Enclosure is a specially designed enclosure developed to protect the IX-BSREP Base Station Repeater in outdoor environments. Iwatsu Voice Networks designed to IX-REPENC-H Heated Base Station Repeater Enclosure to operate in many different climates and weather conditions including heat, cold, moisture, rain, wind and other naturally-occurring conditions.

When properly installed, the IX-REPENC-H Heated Base Station Repeater Enclosure provides a protective enclosure, allowing the installation of the IX-BSREP Base Station Repeater in extended areas. The IX-REPENC-H Heated Base Station Repeater Enclosure has an integrated fan to control temperatures in hot environments. The fan, when triggered by the thermostat, circulates air within the enclosure, allowing the IX-BSREP Base Station Repeater to operate within its recommended operating temperatures in most installations.

The IX-REPENC-H Heated Base Station Repeater Enclosure also includes an integrated heater. The heater is controlled by in internal thermostat and begins heating the IX-REPENC-H Heated Base Station Repeater Enclosure when the internal temperature drops below 32 degrees Fahrenheit.

Technical Specifications

Model:	IX-BSREP-H Base Station Repeater Enclosure	Part Number:	109433
Power Requirements:			
Voltage:	AC 115 volts	Size:	15 x 19.5 x 6.7 in.
Input Power:	72 watts	Weight:	11.5 lbs



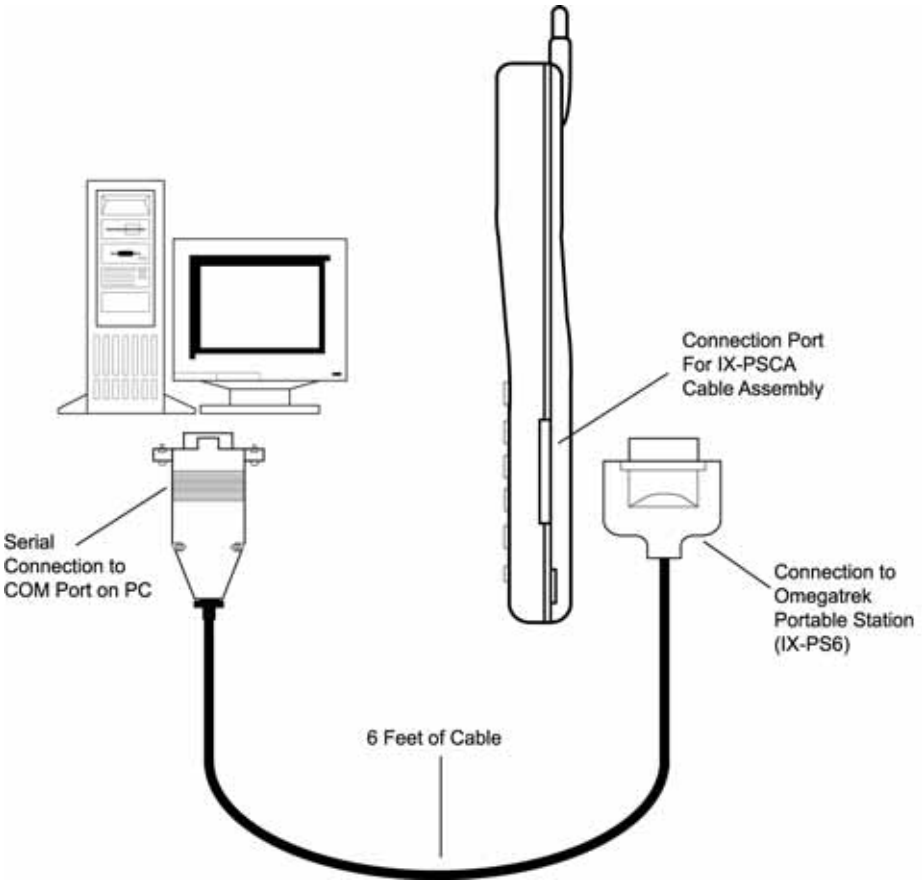
Note: The IX-BSREP Base Station Repeater and the VP-624B Power Supply are not included with the IX-REPENC-H Heated Base Station Repeater Enclosure. They are used here for illustration purposes.

IX-PSCA Omegatrek Cable Assembly

The IX-PSCA Omegatrek Cable Assembly, developed by Iwatsu, is a unique cable that plugs into the side of the Omegatrek Portable Station (IX-PS6) for sending and receiving data to the handset. The IX-PSCA Omegatrek Cable Assembly plugs into any 9-pin serial connection on a PC to provide an interface for the ECS Omegatrek Directory Tool. The following are diagrams and descriptions of the IX-PSCA Omegatrek Cable Assembly.

Technical Specifications

Model:	IX-PSCA Omegatrek Cable Assembly	Part Number:	109426
		DB9:	Serial connection to COM port on PC
Handset Data Link:	Connection to the IX-PS6 handset	Size:	6.0 Feet
		Weight:	3.5 oz



Optional Omegatrek Equipment

The following components may be added to the Omegatrek Portable Station (IX-PS6).

IX-PSCAS

The IX-PSCA is an Omegatrek Portable Station (IX-PS6) protective leather handset case.

Model:	IX-PSCAS
Part Number:	109413

IX-PSSTR

The IX-PSSTR is an Omegatrek Portable Station (IX-PS6) hand strap.

Model:	IX-PSSTR
Part Number:	109414

IX-PSEM

The IX-PSEM is an Omegatrek Portable Station headset with an integrated microphone.

Model:	IX-PSEM
Part Number:	109417

IWATSU enterprise CS

Technical Manual

8th Edition

Volume 2

IWATSU VOICE NETWORKS

Iwatsu America, Inc. has undertaken efforts to make certain that the information presented in this manual is accurate at the time of release. The information is provided "AS IS" without warranties of any kind, either expressed or implied, including but not limited to warranties of merchantability, fitness for a particular purpose or non-infringement, nor does Iwatsu America, Inc. warrant that the information is error free. The information is subject to change without notice.

SPECIAL NOTICES

If the System is equipped with Telephony over Transmission Control Protocol/ Internet Protocol (TCP/IP) and Session Initiation Protocol (SIP) wired and/or wireless facilities, the user may experience certain compromises in performance, reliability and security due to transmission facilities QoS and bandwidth problems, even when the Equipment performs to the specification.

USER(S) ACKNOWLEDGES THAT THEY ARE AWARE OF THESE RISKS AND THAT THEY HAVE DETERMINED THESE RISKS ARE ACCEPTABLE FOR THIER APPLICATION OF THE EQUIPMENT. USER(S) ALSO ACKNOWLEDGE(S) THAT THEY ARE SOLELY RESPONSIBLE FOR ENSURING THAT THEIR NETWORKS AND TRANSMISSION FACILITIES QOS AND BANDWIDTH ARE ADEQUATE FOR THE PURPOSE INTENDED AND THEIR NETWORKS AND TRANSMISSION FACILITIES ARE ADEQUATELY SECURED AGAINST UNAUTHORIZED INTRUSION.

Toll Restriction

The Toll Restriction feature of the Iwatsu Enterprise-CS system is one method of preventing fraud (i.e., the making of unauthorized toll calls) by users of the system. The chance of fraud may be reduced but may not be eliminated. Only a complete program which includes but may not be limited to inspection of telephone call billing, use of call detail recorders and other such call monitoring devices, systematic monitoring of all telephone call activity, and implementing corrective measures can minimize the possibility of fraud. Iwatsu Voice Networks and/or its Third Party manufacturers/suppliers hereby disclaim any express or implied warranty that its equipment is technically immune from or prevents unlawful and/or unauthorized utilization that may result in unauthorized toll calls. Iwatsu Voice Networks hereby warns Distributor that such is possible.

Direct Inward System Access (DISA)

The Direct Inward System Access (DISA) feature, with the ability to allow outside parties to connect to the internal services of the Iwatsu Enterprise-CS, may provide a means for fraudulent calls to occur. Only a complete program which includes, but may not be limited to, inspection of telephone call billing, use of call detail recorders and other such call monitor devices, systematic monitoring of all telephone call activity, frequently changing DISA authorization codes, and implementing corrective measures can minimize the possibility of fraud. Iwatsu Voice Networks and/or its Third Party manufacturers/suppliers hereby disclaim any express or implied warranty that its equipment is technically immune from or prevents unlawful and/or unauthorized utilization that may result in unauthorized calls. Iwatsu Voice Networks hereby warns Distributor that such is possible.

Use Of Call Recorder, Station Monitor, Station Coaching and Voice Mail Record

In certain states it is illegal to intercept, listen to, and/or record telephone calls. In certain states and under certain circumstances it is illegal to intercept for the purposes of listening in and/or recording telephone calls. Because such activity is not illegal in all jurisdictions and may be permitted in training and/or monitoring of personnel, this telephone system can be programmed to permit interception, listening to, and/or recording with or without warning to those on the line. Before utilizing the system for such purposes, you are advised to confirm the laws of the jurisdiction in which you utilize such feature(s). Iwatsu Voice Networks and/or its Third Party manufacturers/suppliers disclaim any responsibility for improper use or illegal of the Call Record, Station Monitor, Station Coaching and VM Record Feature and disclaim any obligations to render legal advice concerning this feature.

Support Of Enhanced 911

In order to comply with regulations for support of Enhanced 911 service that may be in effect in the local jurisdiction that the Iwatsu Enterprise-CS system is installed, the Iwatsu Enterprise-CS system provides for Enhanced E911 support by either using optional third party equipment, or configuring the system to use assigned telephone numbers (ANI) for defined areas, or a station or group of stations. Distributor is hereby warned to check local laws as to Enhanced 911 support requirements, and that the configuration of the Iwatsu Enterprise-CS system not contravene any such statutes, and to properly warn the End User (Purchaser) of the Iwatsu Enterprise-CS system of the possible legal implication of the use of this feature.

Electrical Safety Advisory

It is recommended that an AC surge arrestor of the form and capacity suitable for the model of the Iwatsu Enterprise-CS system purchased be installed in the AC outlet to which the system is connected.

Music-On-Hold

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Note: The UL model name for the Iwatsu Enterprise-CS is ADIX-ECS.

This manual was written for systems with Iwatsu Enterprise-CS Version 8.x software. In some cases, operation of available features may differ from that listed in this manual, depending on the hardware, software and programmed functions in your Iwatsu Enterprise-CS system.

Iwatsu Voice Networks shall not be held responsible for any representation made regarding this information by any individual.

Printed in the United States of America.

Part Number: **108614b**

FCC Registration and Requirements

Instructions to the User:

The Iwatsu Enterprise-CS line of digital telecommunications systems has been registered and approved by the Federal Communications Commission (FCC) for direct connection to your local telephone service. In accordance with FCC rules and regulations regarding telephone equipment, Iwatsu is required to make you aware of your rights and obligations regarding the use of this equipment. In order that we may fulfill our obligations, please take a moment to carefully read the rules and regulations contained herein that apply to you.

FCC Rules and Regulations

1. Notification to the Local Telephone Company

The local Telephone Company may request specific information about the Iwatsu Enterprise-CS system before connection can be made to the local Telephone Company lines. When requested by the Telephone Company, the following information should be provided:

- The FCC Registration Number for all equipment connected to an individual line.
- The largest Ringer Equivalence Number (REN) for each line.
- Information required for compatible operation of the equipment with the Telephone Company communication facilities.

The FCC Registration Number and Ringer Equivalence Number (REN) is printed on the equipment label located on the common equipment cabinet of the system (IX-CME). The largest Ringer Equivalence Number is the sum of the Ringer Equivalence Number (REN) of each FCC registered device that is connected to the same line. The maximum Ringer Equivalence Number that can normally be used without causing faulty operation is 5.0. Check with your local Telephone Company to determine what is the maximum Ringer Equivalence Number for the telephone lines you are using. In order to connect registered terminal equipment to the Telephone Company lines, the terminal equipment must utilize an FCC “standard means of connection”, often referred to as a “registered jack”. The type of jack utilized on the Iwatsu Enterprise-CS system is identified by a USOC code number. Different code numbers are utilized for the various types of services provided by the Telephone Company that the systems use. When requesting new telephone service, the Telephone Company must be informed of the code number for each type of service. The Iwatsu Enterprise-CS system can be configured as either a Private Branch Exchange (PBX) - Fully Protected, Key Telephone System - Fully Protected or a Multi-Function (Hybrid) System - Fully Protected.

The Iwatsu Enterprise-CS systems FCC - Part 68 registered as a fully protected telephone system. The following information must be provided to the local telephone operating company when requesting service terminating to the Iwatsu Enterprise-CS system:

LOOP START TRUNK
Ringer Equivalence No 0.5B
Service Order Code 9.0F
Facility Interface Code 02LS2
Registered Connection RJ21X

GROUND START TRUNK†
Ringer Equivalence No 1.0B
Service Order Code 9.0F
Facility Interface Code 02GS2
Registered Connection RJ21X

CALLER ID TRUNK
Ringer Equivalence No 0.5B
Service Order Code 9.0F
Facility Interface Code 02LS2
Registered Connection RJ21X, RJ11*

E&M TIE LINE CARD
TYPE 1
Facility Interface Codes TL31M
Service Order Code 9.0F
Registered Connection RJ2GX
TYPE 2
Facility Interface Codes TL32M
Service Order Code 9.0F
Registered Connection RJ2HX

T-1 SERVICE (SF)
Facility Interface Code 04DU9-BN
Service order Code 6.0P
Registered Connection RJ48C

T-1 SERVICE (ESF)
Facility Interface Code 04DU9-1KN
Service order Code 6.0P
Registered Connection RJ48C

DID TRUNK*
Facility Interface Codes 02RV2-T
Ringer Equivalence No. 0.0B
Service order Code 9.0F
Registered Connection RJ21X

OPS LINE CARD
Facility Interface Codes. OL13C
Service Order Code 9.0F
Registered Connection RJ21X

ISDN BRI CARD
Facility Interface Codes. 02IS5
Registered Connection RJ49C#

ISDN PRI CARD
Facility Interface Codes. 04DU9-1KN
Registered Connection RJ49C or RJ48X

NOTE:

* Check with local utility or service provider for type of connection allowed.

† Not available for US:BD6KF10BIWATSU1 registration applications.

NT1 required.

2. Restrictions on the Use of Registered Telephone Equipment

FCC rules governing customer owned telephone equipment specifically exclude the use of the ECS system on public coin telephone (pay phone) lines. The connection to party line service is subject to local state tariffs. Contact your state public utility, public service commission or corporate commission for information on this.

3. Incidence of Harm

If for some reason the ECS system causes harm to the Telephone Company network, the Telephone Company will notify you in advance that temporary discontinuance of service may be required. In the event advance notice is not practical, the Telephone Company will notify you of the interruption of service as soon as possible. Also, the Telephone Company will advise you of your right to file a complaint with the FCC if you believe it is necessary. The Telephone Company may also make changes in its facilities, operations or procedures that could affect the operation of your system. If this occurs, the Telephone Company will provide advance notice in order for you to make the necessary modifications to maintain uninterrupted service.

4. Hearing-Aid Compatibility

The ECS system, utilizing telephone station equipment manufactured by Iwatsu, meets all FCC requirements for hearing-aid compatibility.

5. Instruction Regarding the Repair and Refurbishment of Registered Equipment

Only the manufacturer or its authorized agents are permitted under FCC rules to make other than routine repairs to registered telephone equipment. Repairs made to registered telephone equipment by unauthorized entities is a violation of local state tariffs and will void equipment warranties. Routine repairs are classified typically as lamp replacement, fuse replacement, directory label replacement, etc. All other repairs to your ECS telephone equipment should be performed by Iwatsu Voice Networks. When trouble is experienced on any telephone line that your system is connected to and the trouble is causing harm to the network, the Telephone Company may request that you remove the equipment from the telephone line(s) until the problem has been corrected. To contact Iwatsu Voice Networks, for information regarding the repair of your equipment, write or call:

(972) 929-0242
IWATSU Voice Networks
8001 Jetstar Drive
Irving, TX 75063
Attn: Repair Department

6. Use of Other FCC Registered Equipment

Aside from the Ringer Equivalence reporting as explained (above), use of other FCC equipment may provide for specific limitations depending upon the type of equipment. Check the instructions included with such equipment to determine what the limitations are, if any, on the use of such equipment.

7. Automatic Dialers

The ECS system contains features that provide for the automatic dialing of outgoing calls. When programming Emergency Numbers and/or making test calls to Emergency Numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities during off-peak hours such as early morning or late evening.

8. Toll Restriction and Optimized Routing Features

The ECS system provides both Toll Restriction and Optimized Routing features that may be programmed in your system. The software or programming contained in the ECS system may need to be upgraded to allow user access to the network in order to recognize newly established network area codes and exchange codes as they are placed in service. Failure to upgrade the programming or software (if required) to recognize the new codes as they are established will restrict the user from gaining access to the network and to these codes.

9. Direct-Inward-Dialing (DID) Requirements

The ECS system meets all FCC requirements for Direct-Inward-Dialing (DID) service by providing Answer Supervision on incoming DID calls in accordance with FCC regulations. Allowing this equipment to be operated in such a manner as to not provide proper Answer Supervision is a violation of Part 68 of the FCC's rules. The equipment returns proper Answer Supervision to the local telephone exchange when DID calls are: answered by the called station, answered by the attendant, routed to a recorded announcement that can be administered by the system user, routed to a dial prompt (instruction).

10. Radio Frequency Emissions

The ECS system is registered with the FCC as a Class A RF Device, pursuant to Part 15 of the FCC rules, that may radiate radio frequency emissions. This equipment complies with the limits for a Class A device. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. In the event that the system causes interference with another device, steps must be taken to reduce the interference, including possible removal of the equipment. While the probability of such an event is remote, consult Iwatsu Voice Networks for further assistance if this occurs.

11. Equal Access Requirements

This system is capable of providing users access to interstate providers of operator services through the use of equal access codes. Failure to provide equal access capabilities is a violation of the Telephone Operator Consumer Services Improvement Act of 1990 and Part 68 of the FCC rules.

IWATSU VOICE NETWORKS

IWATSU enterprise CS

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Section 5

Installation Guide

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Chapter 1

Installation Tips

This section describes the installation process for the Iwatsu Enterprise-CS (ECS) system. When installing a system, it is very important that you first familiarize yourself with the individual components of the ECS in detail. **Section 4 - Component Descriptions** contains a detailed description of each system component.

Note:	**IMPORTANT**: Only qualified service personnel can install the Iwatsu Enterprise-CS system.

Safety Warning

Keep in mind the following precautions during the installation of the ECS system to ensure personal and public safety:

- Do not install telephone wiring during a lightning storm.
- Do not install telephone jacks in or near water unless the jack is specifically designed for such locations.
- Do not touch telephone wires or terminals that are not insulated unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

Anti-Static Procedures

Make sure to follow proper anti-static procedures whenever handling ECS circuit cards. Anti-static mats and anti-static wrist or heel straps are recommended when handling electronic components. The metal clip connected to the wrist strap should be attached to an external earth ground, such as a grounding screw on the front of the ECS cabinets or grounding panels located between cabinets on the frame of the IX-CME Gateway Controller and expansion cabinets.

Chapter 2

Preparing a Location

The Iwatsu Iwatsu Enterprise-CS (ECS) system is fully converged digital voice and data communication system designed to provide a multitude of voice and data communication features with the reliability for which Iwatsu products are famous. The ECS common module, and power supplies are UL and CSA listed, fulfilling the safety requirements mandated by the United States and Canadian governments. Environmental and structural considerations, AC power and grounding requirements, and CO line characteristics must be met, however, to ensure proper system operation. As with all processor controlled voice and data equipment, the proper operating environment is necessary for reliable operation and long-term system performance. These conditions are explained in this section.

Environmental and Structural Conditions

It is important to satisfy - with careful consideration - the environmental conditions specified for system installation. The environment in which the ECS cabinet and key telephones are located must be free of moisture, fumes, dust, and vibrations. Any deviation from the recommended environment may affect the proper operation of the system. If you expect to operate the system in an extreme environment, you should be aware of these limits:

Technical Specifications

Operating Temperature	0 to 40 degrees Centigrade (32 to 104 degrees Fahrenheit)
Storage Temperature	-10 to 50 degrees Centigrade (14 to 122 degrees Fahrenheit)
Relative Humidity (non condensing)	10 to 90% at 24 degrees Centigrade (75 degrees Fahrenheit)
Static Discharge	10 KV or less
Electromagnetic Interference	0.3 V/ft. or less
Ventilation	At least three inches above and to the sides of the IX-CME and power supply
Floor Strength	200 lbs. per sq. ft.

Gateway Controller Location

The ECS Gateway Controller (IX-CME) unit is designed to be either wall or rack mounted. When selecting the location for the units, be sure that all conditions for AC power and grounding are satisfied. These requirements are specified in the AC Power Requirements section of this chapter. It is recommended that you:

- Mount the gateway controller within five feet of a dedicated three-wire grounded AC outlet.
- Install the gateway controller within 25 feet of the network interface provided by the local telephone company or the cross connect serving the area of the building where the common module unit is installed.
- Allow enough space for air circulation and the installation of additional equipment (e.g. MDF blocks, PFXU, SMDR).

Note:

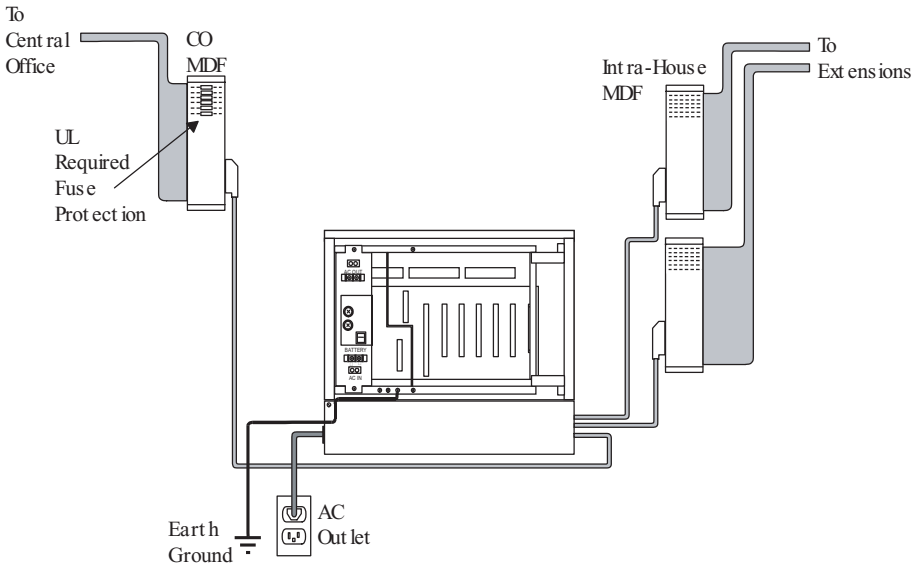
The Iwatsu Enterprise-CS system power supply uses a flexible power supply cord. Use all precautions to prevent damage to the power supply cord:

- The gateway controller should be installed near the AC outlet since it cannot be moved once positioned.
- The power supply cord should be properly routed to prevent excessive strain on the cord and its connections.
- The power supply cord shall not be fixed / secured to the building structure.
- The Iwatsu Enterprise-CS system should be installed to meet all other applicable procedures for stationary equipment in the national electrical codes/standards.

Note: Use of the IX-CMEBU Base Unit is strongly recommended for floor mounted ECS applications.

Do not place the gateway controller in the following areas:

- Near a sprinkler system, sweating pipes, steam pipes, or steam vents.
- In an extremely hot or cold area. Do not install the unit in an environment that does not meet the requirements specified on the previous page.
- In direct sunlight.
- In a passage used for moving equipment.
- In areas where airborne contaminants, corrosive fumes, or exhaust from machinery is present.
- In areas where high power radio frequency transmitters or transmission cables are installed.



Note:	Always connect both cables from the ECS system into the same circuit.

Note:	It is a UL requirement to install protective fuses on all analog CO trunk circuits. Fuses are to be installed by the distributor at the time of system installation. UL listed fuse protectors ITW LINX Model SCP-9 are available through local vendors. Fuses are to be installed in a series connection with tip and ring on each trunk circuit at the CO MDF.

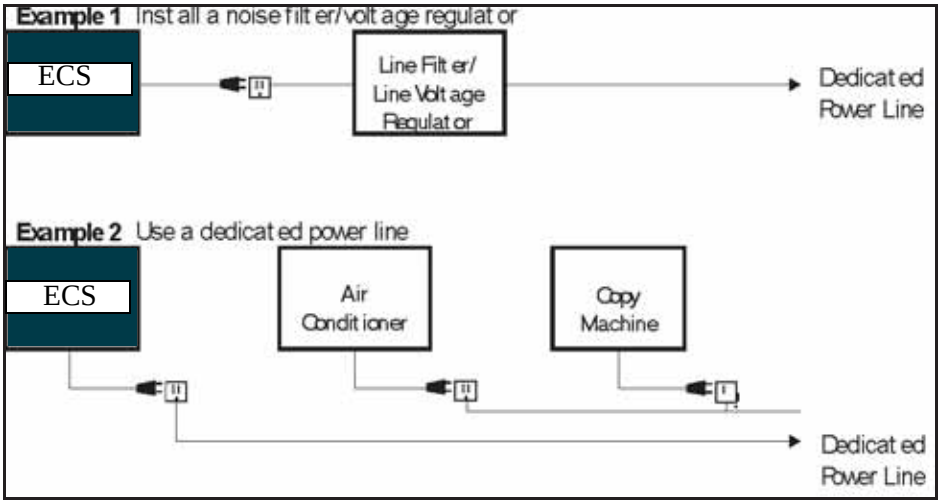
AC Power Requirements

Clean power and proper grounding for Gateway Controller are required to maintain problem free operation. A dedicated single-phase 120 VAC, 60Hz grounded outlet is required for the ECS system. Depending on the type of power supply being used either a conventional NEMA 5-15 electrical outlet or a NEMA 5-20R electrical outlet is required. Power Supply Specifications are listed in this section. Refer to **Section 4 - Component Description** for a detailed description of each power supply.

The AC circuit must conform to National Electrical Code (NEC) standards and be capable of providing noise free power to the power supply unit. Line noise such as electromagnetic interference (EMI) may cause erratic system operation.

To protect the ECS system:

- Install a noise filter on the AC power input line to prevent noise interference through the AC line as illustrated in, example 1.
- If AC voltage fluctuation is greater than the allowable range, install a computer-grade AC line voltage regulator as illustrated in Example 1 below.
- Install battery backup to maintain system power in the event of a power outage or brownout.
- Use a dedicated AC circuit with an isolated ground as illustrated in Example 2 below. Do not use AC outlets that are shared with air conditioners or equipment such as a copy machine.
- Do not place radio frequency, electromagnetic, or inductive devices near the ECS.



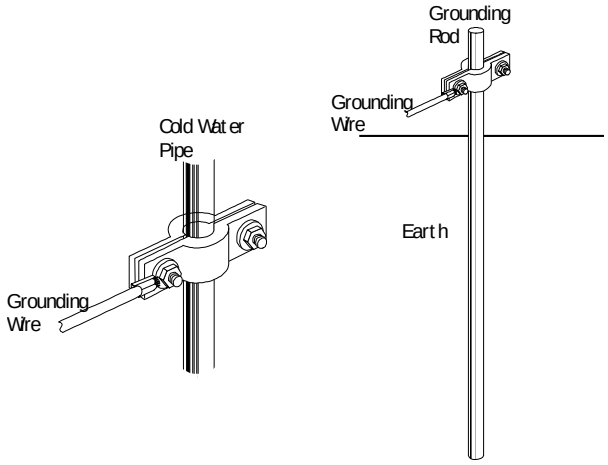
Grounding Requirements

The ECS is a sound and reliable communications system that is not inherently subject to ground related problems. The ECS is, however, a sophisticated electronic CPU-controlled product that is susceptible to environmental factors that will and can affect system performance and component integrity.

The ECS system must be connected to an effective earth ground potential for proper system operation. The system must be properly grounded to dissipate external environmental and electrical interference such as static discharge, radio frequency interference, electromagnetic interference, electrical surges, lightning surges, and transient high voltage.

This is particularly important in any installation that has off premise cabling, networked systems, station repeaters, feeder cables, underground cables and multi-vendor, multi-product installations. All products and equipment connected or integrated to the ECS system must be grounded to the same ground potential.

Earth Ground



Items to consider when grounding the system:

- Request isolated ground receptacles for all telephone equipment in new construction.
- Any rise in ground potential, or power induction of electrical current induced in twisted pair telephone cable when using feeder cables will not be properly drained if the system is not grounded.
- Any transient rise in ground and voltage potential due to lightning or commercial electrical surge will not be properly drained if the system is not grounded.
- The shortest and most direct path to ground provides a lower impedance connection (resistive and inductive) to earth.
- Ground all equipment that is connected to the ECS system. This will provide improved ground equalization between products in a multi-product installation.
- Equipment will be damaged to some degree if the system is subject to adverse electrical surges or spikes if the equipment is not grounded.
- Effective earth potential is required to operate analog, DID, Ground Start, E&M and SLT OPX circuits as earth potential is used as the basic means of signaling.
- Effective ground reference is important in multi-product installations to prevent ground loops from occurring.

Note:	IMPORTANT: When running ground cables, ensure the ground cable/ground wires are not pinched or bent at right angles. Severe bends in the wires/ cables can adversely affect the ability of the ground to function properly.

Note:	An optional lightning arrester unit (Iwatsu ARST-S) installed on CO lines is recommended in areas where lightning is common. This will protect trunk interface cards.

Power Supply Specifications

The main power supply generates the necessary DC voltages required for system operation. The IX-PWSE power supply specifications are listed below.

Technical Specifications

IX-PWSE	
AC Input	
Voltage:	120 VAC +10%, 50-60 Hz
Input Current:	3.4A for each shelf
DC Charger Output	
Voltage:	27.3 VDC
Current:	0.5A

AC Power Testing

Before installing the ECS system, obtain the following information from the customer:

1. During working hours:
   - Frequency of blackouts.
   - Frequency of brownouts.
2. If any other computerized equipment or heavy duty machines are used:
   - Existence of any operating problems.
   - Power line routing.
3. With a multimeter on the AC voltage setting, check:
   - Lowest line voltage.
   - Highest line voltage.
   - Fluctuation of line voltage - when heavy duty machines are turned on/off.
4. When a line monitor is available:
   - Record the line condition of the outlet where the ECS system will be connected for a minimum of one week.

As a result of your testing you may need to install the following line protection devices to prevent the ECS system from malfunctioning:

- Line Surge Protector.
- Line Voltage Stabilizer.
- Uninterrupted Power Supply.

Always select a device that will deliver enough power output capacity to meet the specifications listed in the Power Supply Specifications section of this chapter.

Cabling

General cabling requirements for the ECS system are described in this section. Use the information provided as a reference when terminating CO lines, extensions, and optional equipment.

General Requirements

Before running in-house cable, verify that:

- The system building plan, indicating station locations, extension numbers, and device types, is accurate.
- Home run station cable.
- ZT-D station cable must be home run using two-pair twisted cables. Running ZT-D stations through feeder cables will cause erratic station operation, cross talk, and data noise on the audio path. Three-pair wiring is required for ZT-D stations equipped for off-hook voice announce and hands-free answerback.
- A suitable location has been selected for the common module and expansion module units and MDF.
- Loop limits and wire sizes for KTs, SLTs, and other optional equipment do not exceed the limits listed in the tables below:

Station Wire Size		
Equipment	Cable	
ECS Digital Key Telephones	1-pair (twisted)	#22/24 AWG
ECS IP Key Telephones	Category 5 or better	
ECS Digital KTs used with IX-BPAD or Data Modules	2-pair (twisted)	#22/24 AWG
ECS Direct Station Selection Units	1-pair (twisted)	#22/24 AWG
ZT-D Key Telephones	2-pair (twisted)	#22/24 AWG
ZT-D KTs equipped for off-hook voice announce and hands-free answerback	3-pair (twisted)	#22/24 AWG
Single-Line Telephones (500/2500 type)	1-pair (twisted or quad)	#24 AWG
Doorphones	1-pair (twisted)	#24 AWG

Station Loop Limits		
Station	Loop Limit	Loop Resistance
ECS Digital Stations	1000 feet	40 ohms or less
ECS Attendant Consoles	1000 feet	40 ohms or less
ECS DSS Units	1000 feet	40 ohms or less
ZT-D KT Stations	1000 feet	60 ohms or less
On-Premise SLTs	N/A	600 ohms
Doorphones	1000 feet	1200 ohms
IP Telephones	330 feet from switch	

Note: Distances indicated must be maintained regardless of the wire gauge. Total end-to-end distance can be increased to 1500 feet using one star repeater and 8,000 feet using two star repeaters. Resistance indicated includes internal resistance of the singleline telephone.

Digital Trunk Line Characteristics

The ECS System supports the following digital line circuits:

- T1 if ECS is equipped with an IX-DTI-T
- ISDN Primary Rate Interface (PRI) if ECS is equipped with IX-DTI-P (IX-ICOTP)
- ISDN Basic Rate Interface (BRI) if ECS is equipped with IX-4ICOTB (IX-2ICOTB)

For more information on T1 and ISDN lines see **Section 3 - Features and Operations**. For more information on Digital Trunk Cards see **Section 4 - Component Description**.

Analog CO Line Characteristics

The ECS system supports the following types of analog CO Lines:

- Loop Start Trunks
- Ground Start Trunks (IX-8UNTK card only)
- Caller ID Trunks
- DID Trunks
- E&M Tie Lines

Loop Start Trunks (IX-8LGTK-2 and IX-8UNTK)

- Minimum ring detection is 60 Vrms.
- Recommended T/R current of 25 to 60 mA.

Ground Start Trunks (IX-8UNTK)

- Ring detection by ground signal applied to the tip side of the IX-8UNTK.
- Recommended T/R current of 25 to 60 mA.

Caller ID Trunks (IX-8CITK)

- Minimum ring detection is 60 Vrms.
- Recommended T/R current of 25 to 60 mA.

E & M Trunks (IX-4EMTK)

- Selection between Type I and Type II signaling.
- Four-wire voice circuit.
- System provides negative battery on the M lead to originate (TL31M or TL32M).
- Recommended loop current is 16.2 to 36 mA.
- Wink, delay wink, immediate, or attendant mode

Chapter 3

Common Module Installation

This section describes the installation of the Iwatsu Enterprise-CS IX-CME Gateway Controller cabinet and Iwatsu Enterprise-CS IX-EXPME1 and IX-EXPME2 Expansion Modules. Inspect all system components before beginning the installation process.

IX-CME Gateway Controller Cabinet

The IX-CME is powered by an internally mounted IX-PWSE or IX-PWSES power supply. It contains a dedicated card slot for the IX-CCU Central Control Unit and IX-CCSU daughterboard, and six universal card slots. The first five universal card slots provide 480 single highway ports. The last card slot provides 32 single highway ports.

The table below lists the components shipped with the ECS system:

Component	Quantity
IX-CME Gateway Control Module	1
ECS Programming Overlay	1
ECS 2nd KT Programming Overlay	1
ECS Bracket L	1
ECS Bracket R	1
Pan Head Screws (Gold)	4
Warranty Registration Card	1

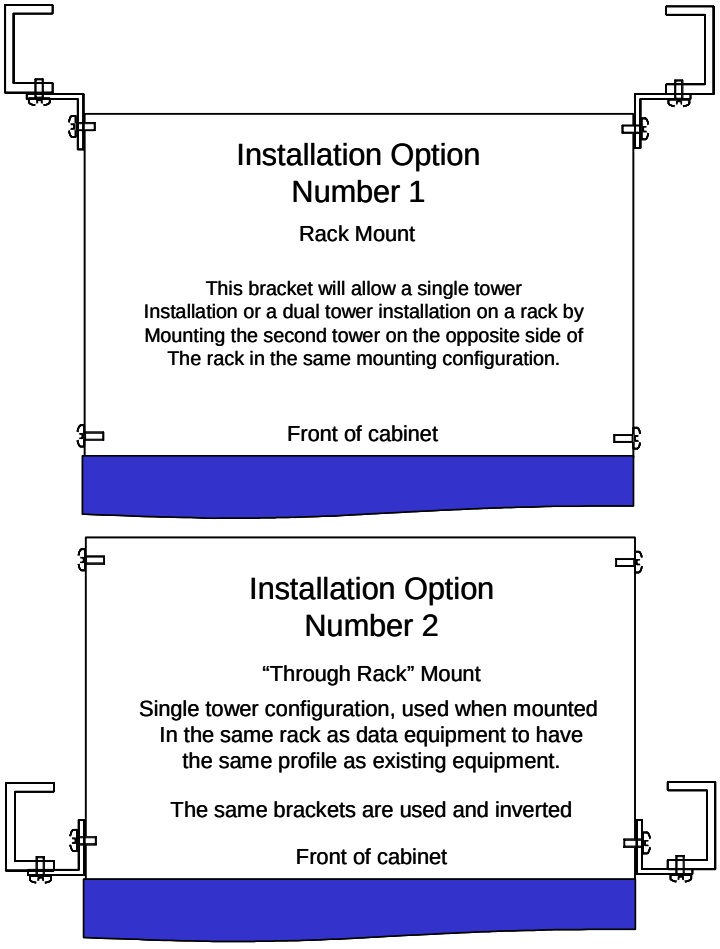
IX-CME Installation

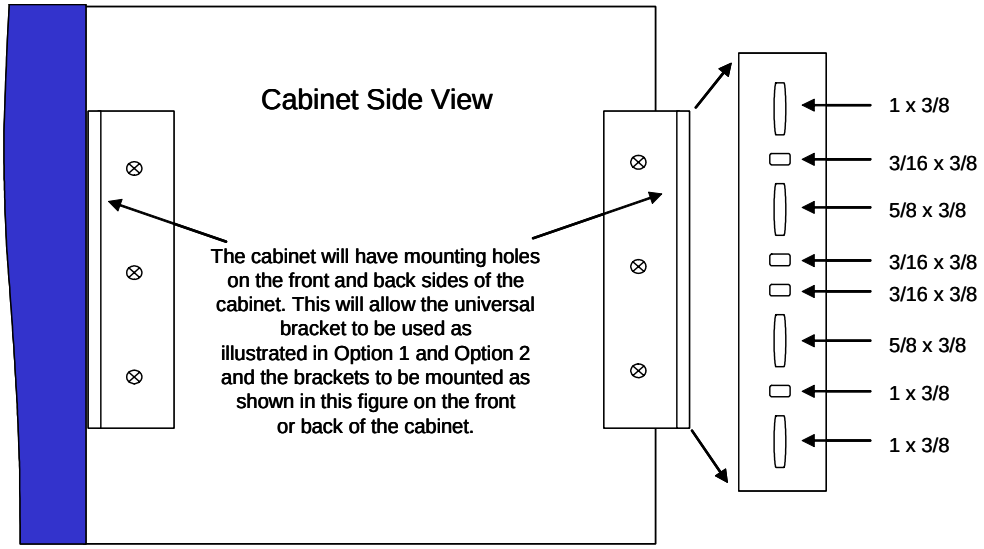
Rack Mounting Options

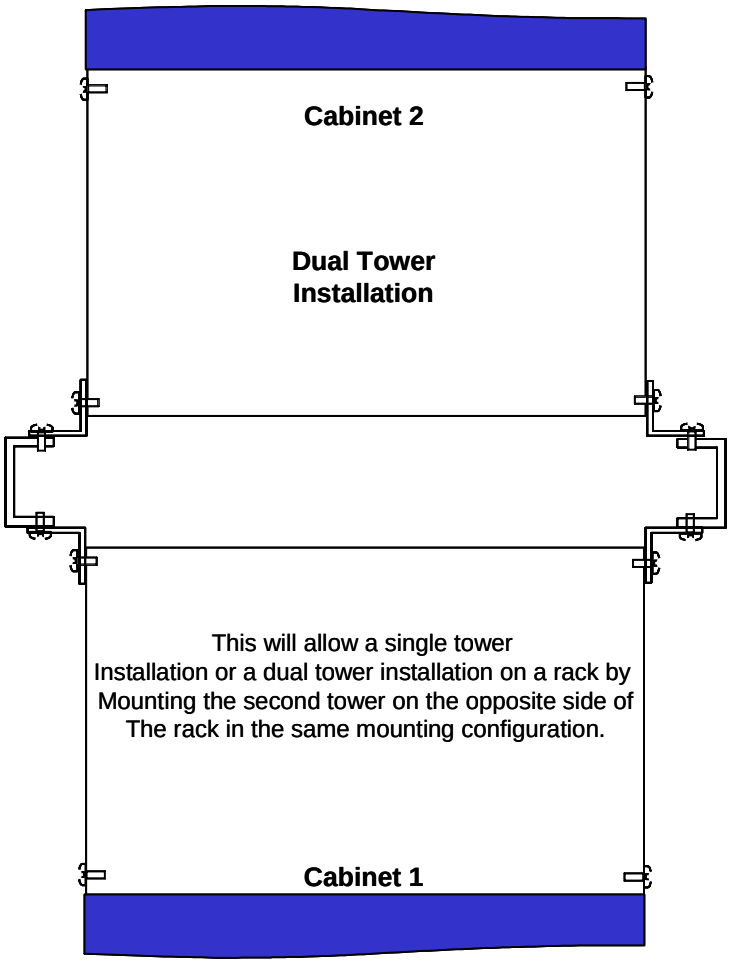
The IX-CME Gateway Controller cabinet is designed to fit in a EIA-310-D compliant 19 inch rack and supports both through rack and surface mounting as illustrated below.

Note:	**CAUTION**: When installing the ECS System in a 19-inch rack, do not exceed the maximum recommended ambient temperature of 104° F. The area surrounding the ECS System should be kept clear to allow sufficient airflow for safe operation of the equipment. Do Not use extension cords to connect the AC power cord. This may cause system overloading and may make grounding unreliable

Rack Mount Options




Cabinet Side View
The cabinet will have mounting holes on the front and back sides of the cabinet. This will allow the universal bracket to be used as illustrated in Option 1 and Option 2 and the brackets to be mounted as shown in this figure on the front or back of the cabinet.
1 x 3/8
3/16 x 3/8
5/8 x 3/8
3/16 x 3/8
3/16 x 3/8
5/8 x 3/8
1 x 3/8
1 x 3/8

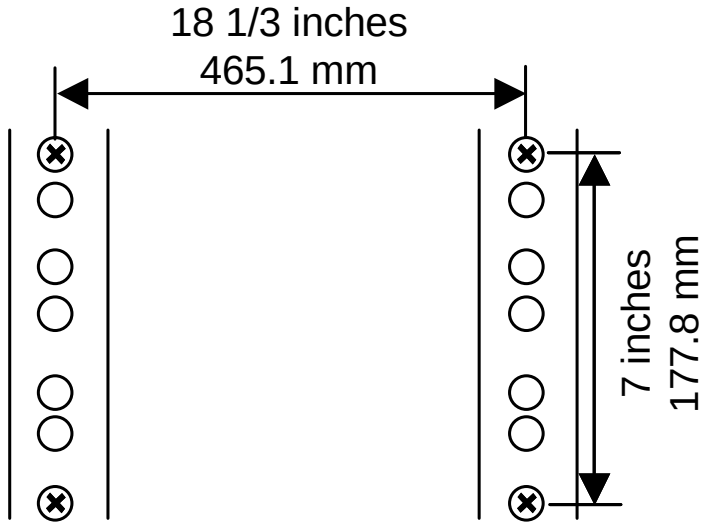

Cabinet 2
Dual Tower Installation
This will allow a single tower Installation or a dual tower installation on a rack by Mounting the second tower on the opposite side of The rack in the same mounting configuration.
Cabinet 1

Open Rack Mounting

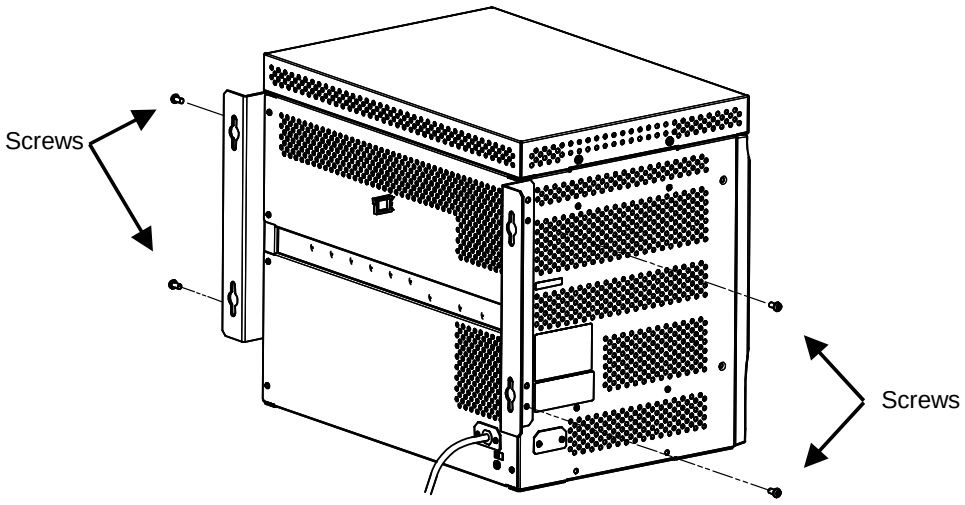
To install IX-CME in an Open Rack:

Note:	Always use the **IX-CMERWM** brackets to secure the ECS cabinet and to prevent a mechanical overload hazard.

1. Insert the screws halfway into the 19-inch open rack in accordance with the diagram below.

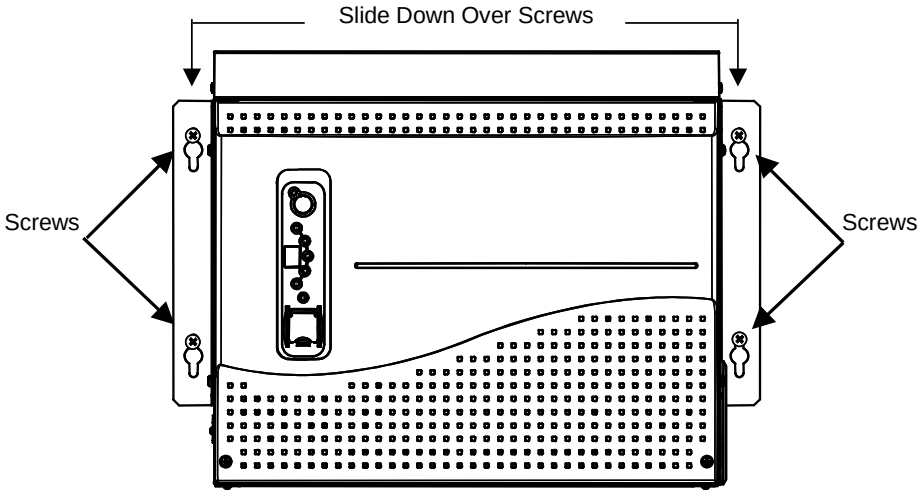


2. Attach the IX-CMERWM brackets to the IX-CME with four screws (Included with the IX-CME).



3. Hang the brackets on the screws attached to the rack and slide down until the cabinet rests on the screws.

4. Tighten Screws to secure the IX-CME cabinet in place.



Expansion Module Installation

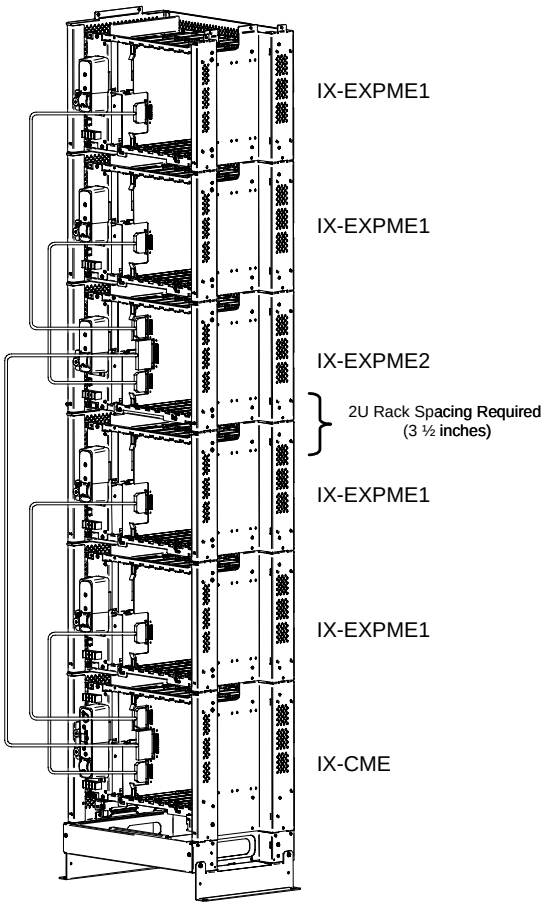
IX-EXPME1 and IX-EXPME2 Module Installation Overview:

The ECS system supports one IX-CME Gateway Controller cabinet and up to five Expansion Modules. A fully expanded ECS system consists of the following modules:

1. One each - IX-CME Gateway Controller with IX-EXPIFCM Expansion Interface Card
2. Four each - IX-EXPME1 Expansion Modules with IX-EXPIFE1 Expansion Interface Cards and IX-EXPMECBL Expansion Cables
3. One each - IX-EXPME2 Expansion Module with IX-EXPIFE2 Expansion Interface Card and IX-CMECBL-L Expansion Cable

Note:	A 2U rack space is required for proper air flow between the third and fourth cabinets. (2U is equal to 3 1/2 inches)

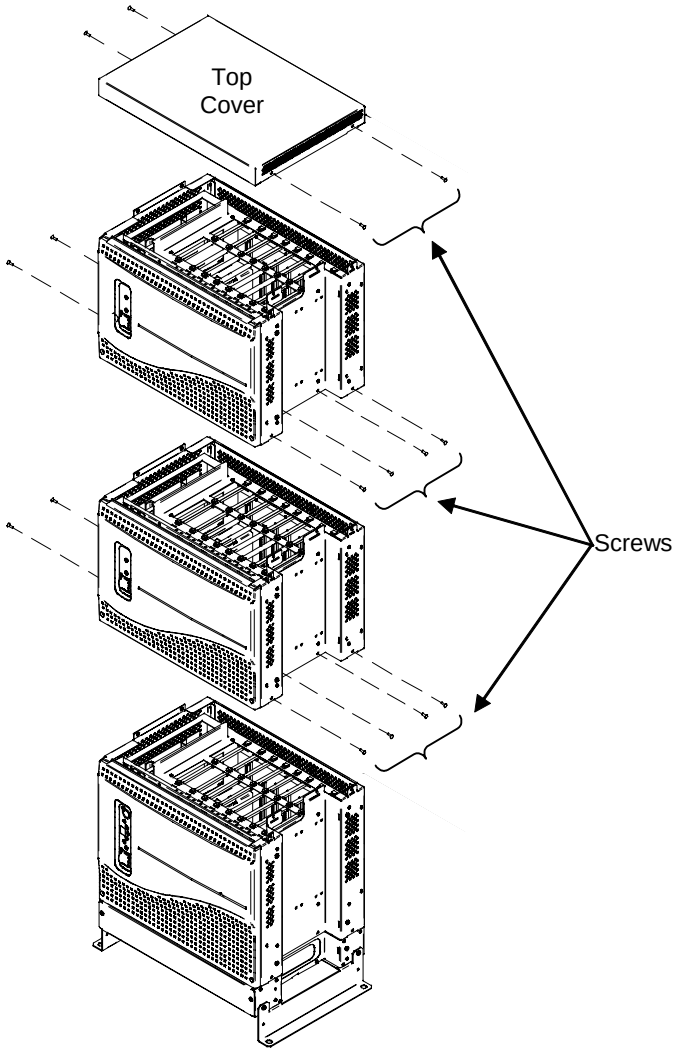
A fully expanded ECS is shown below.



IX-EXPME1 and IX-EXPME2 Module Installation:

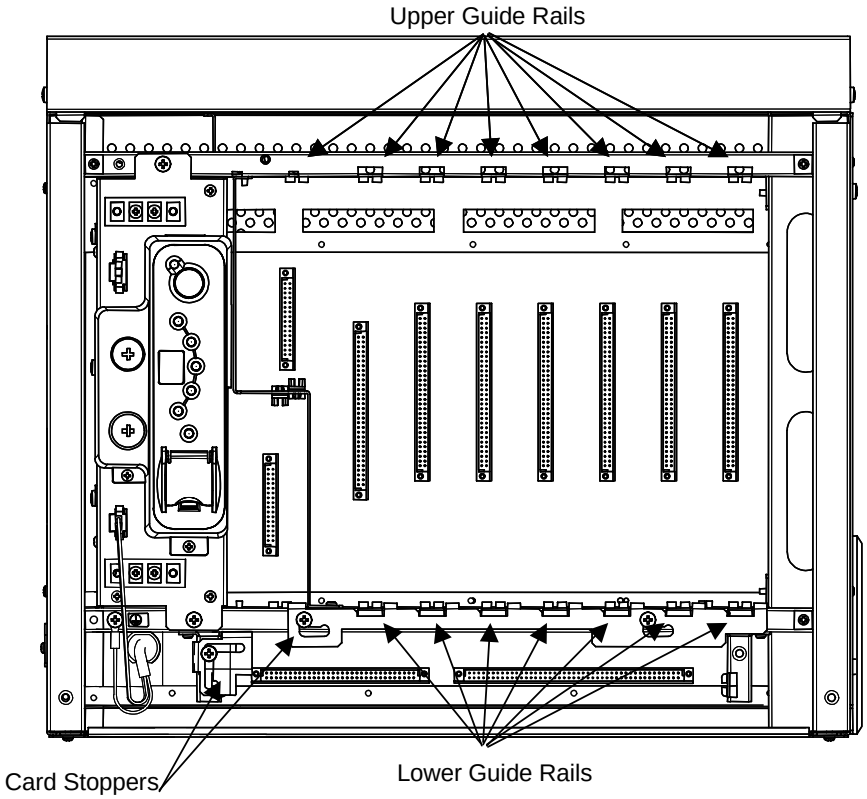
Note: Always use the IX-CMERWM brackets to secure the IX-CME and Expansion cabinets to the rack and to prevent a mechanical overload hazard. The Expansion Modules are secured to the rack utilizing the same procedure listed for the IX-CME Gateway Controller cabinet.

1. Remove the top cover and the front of the IX-CME Gateway Controller and remove the cable cover and the front cover from the Expansion Module.
2. Place the Expansion Module on top of the IX-CME and fasten them together using the screws included with the Expansion Module.
3. Repeat the same procedure to add from one to five Expansion Modules.
4. Replace the top and cable covers when the last Expansion Module installed.



Shelf Assembly

1. Loosen the two screws on each side of the front panel.
2. The front panel is held to the chassis with ball-catches. Pull and remove the front panel from the IX-CME.
3. Insert the circuit cards by sliding them between the guide rails on the upper and lower shelf guide rails.
4. Align the card ejector clips parallel with the card and insert the ejector clips into the corresponding slots on the top and bottom of the frame associated with each card slot.
5. Insert the card until it "snaps" into position by pushing on both ejector clips simultaneously toward the center of the card.

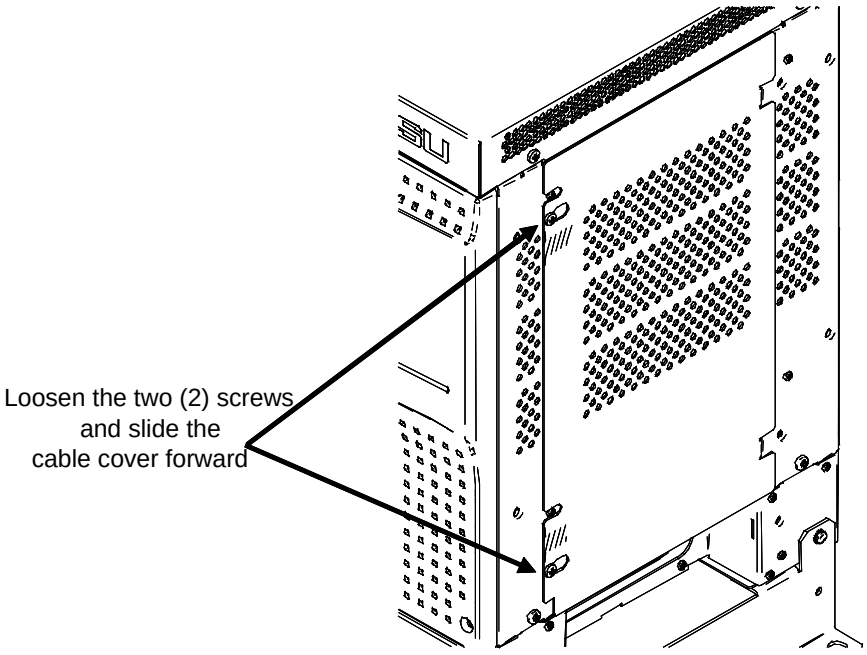


Running Cables

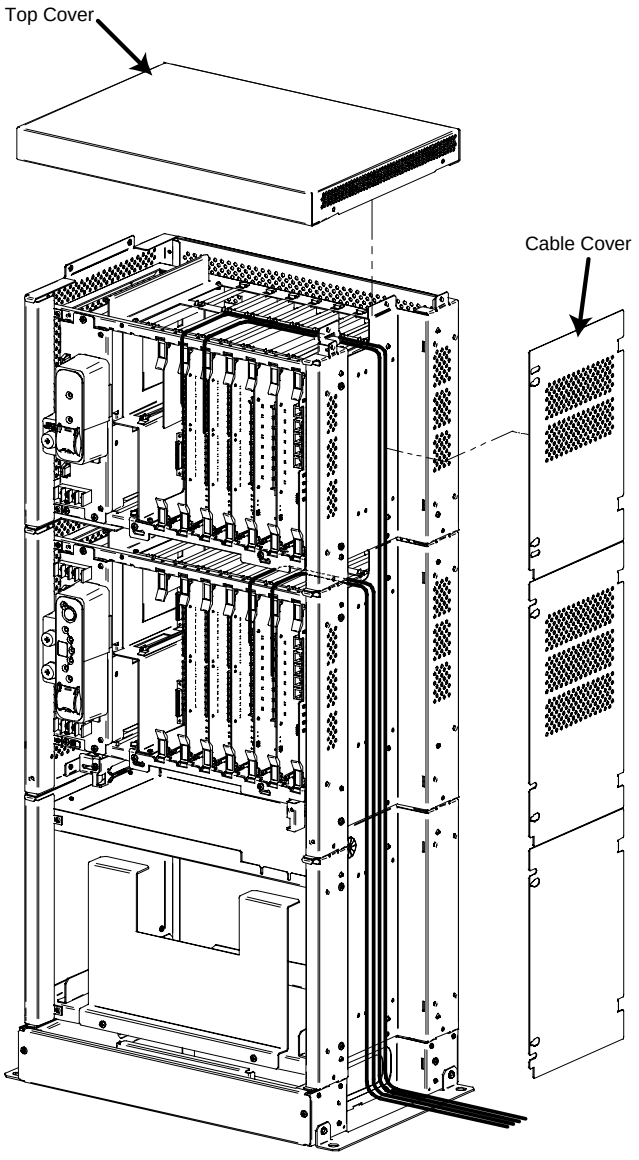
Pull in cables for Central Office (CO), PBX, intercom, and other terminals through the cable inlet on the right side of the IX-CME. Route cables through the cable duct, to the top of each module, and then to each card.

When the IX-CMEBU Base Unit is used, the cables can be routed through the inside and then out of the left side of the Base Unit.

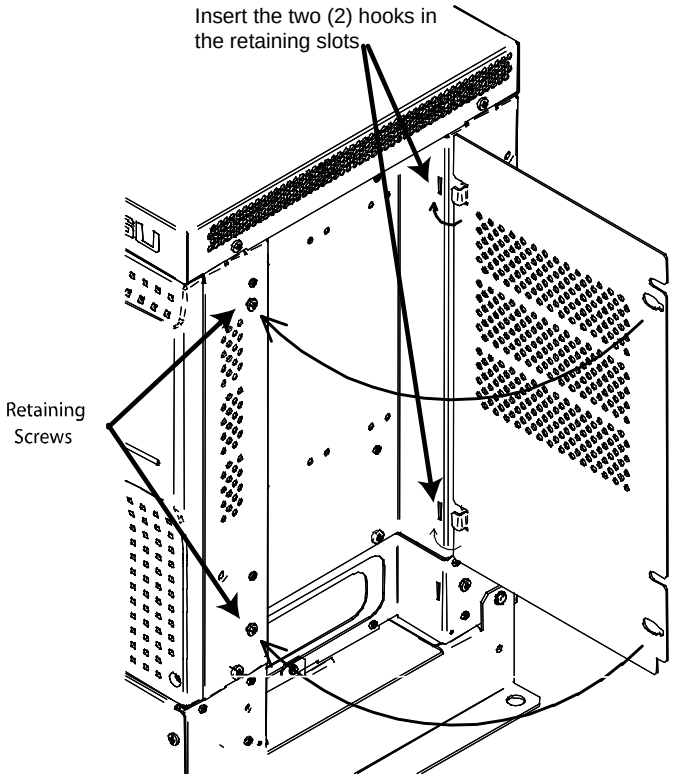
1. Loosen the two screws on the right side of each module, and slide the cable cover forward to remove it.



2. Remove the top cover by unscrewing four screws on the right and left sides.
3. Route the cables through the cable duct on the right side of the modules, then to the top of each module, and then to the front of each card to make the connection.



4. When all connections are complete, insert the two hooks of a cable cover in the slots for each of the modules. Close the cable cover and fasten the cover with the two screws provided.



Chapter 4

Power Supply, Grounding, and Battery Backup Installation

This section describes the installation of the Iwatsu Enterprise-CS Power Supply, Battery backup, Additional Power Supplies, and Grounding. The socket-outlet shall be installed near the equipment and shall be easily accessible. Inspect all system components before beginning the installation process.

Power Supply Installation

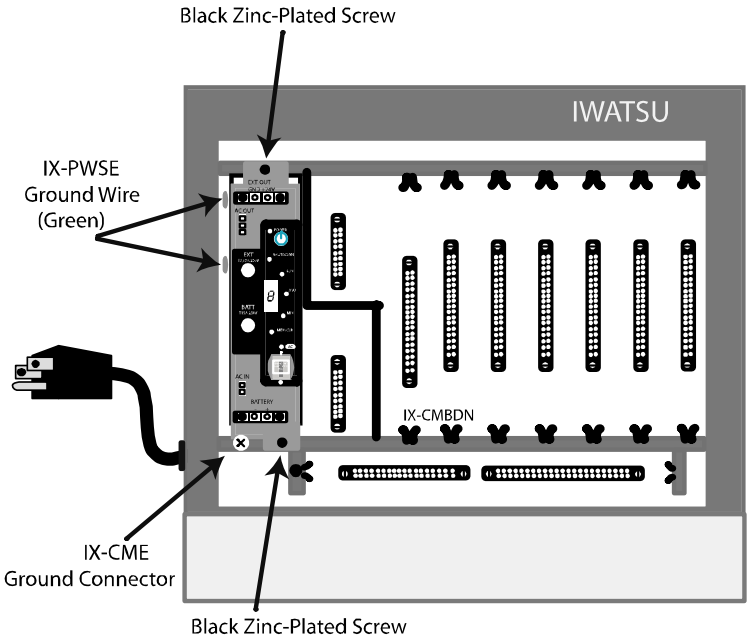
To Install the IX-PWSE Main Power Supply

Note:	Make sure that the main switch is in the OFF position and unplug the AC power cord from the AC outlet before installing the power supply.

Note:	**CAUTION: DOUBLE POLE / NEUTRAL FUSING.** The IX-PWSE primary side fuse is located on the neutral side.

1. Insert the IX-PWSE into the dedicated slot (on the left side of the IX-CME) by sliding it between the left and right guide rails located on the lower shelf bracket. Make sure that the power supply is inserted deep enough so that all of the connector pins make complete contact with those on the motherboard. Make sure the AC power cable attached to the IX-CME is pulled out to the left and for easy access after power supply installation.
2. Secure the IX-PWSE to the upper and lower shelf brackets with two black zinc plated screws provided with the IX-CME.
3. Proceed to Grounding the ECS.

For More information on the IX-PWSE Power Supply refer to **Section 4 - Component Description**.



To Install the IX-PWSES Main Power Supply

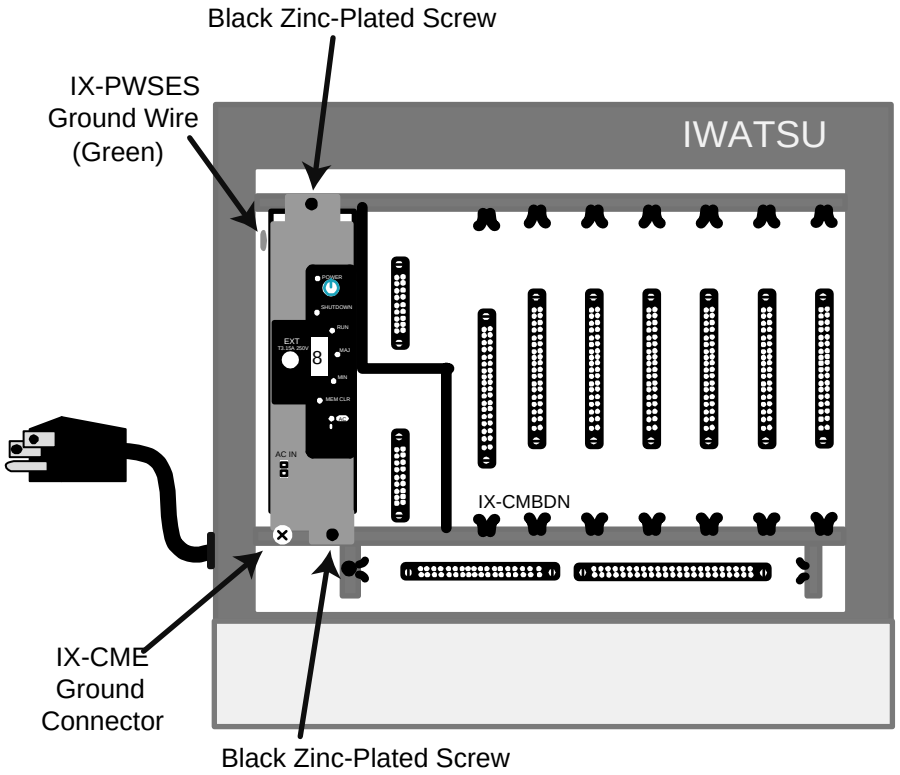
Note: Make sure that the AC power cord is unplugged from the AC outlet before installing the power supply

Note: **CAUTION: DOUBLE POLE / NEUTRAL FUSING.**

The IX-PWSES primary side fuse is located on the neutral side.

1. Insert the IX-PWSES into the dedicated slot (on the left side of the IX-CME) by sliding it between the left and right guide rails located on the lower shelf bracket. Make sure that the power supply is inserted deep enough so that all of the connector pins make complete contact with those on the motherboard. Make sure the AC power cable attached to the IX-CME is pulled out to the left and for easy access after power supply installation.
2. Secure the IX-PWSES to the upper and lower shelf brackets with two black zinc plated screws provided with the IX-CME.
3. Proceed to Grounding the ECS on the next page.

For More information on the IX-PWSES Power Supply refer to **Section 4 - Component Description**.



Grounding the ECS

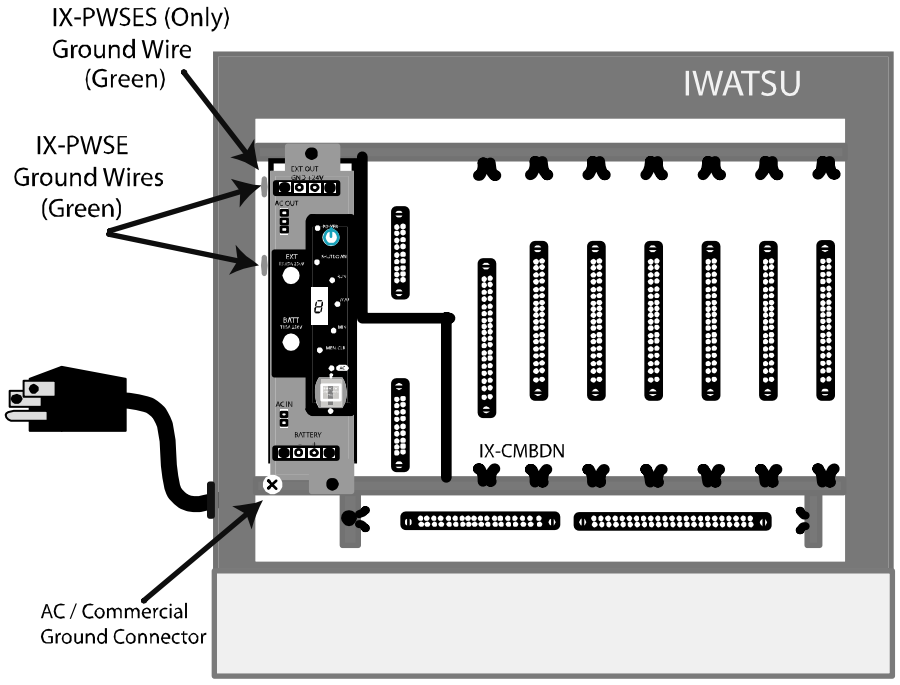
IX-PWSE and IX-PWSES Ground

The following covers the proper ground termination point for the grounding between the IX-PWSE / IX-PWSES Power Supply and the IX-CME Gateway Controller cabinet.

1. Ensure the green ground wires attached to the IX-PWSE, and the green ground wire attached to the IX-PWSES are secured in place with the star washer between the screw and the metal end of the green ground wire (Factory installed).

Note: The IX-PWSE power supply is shown for simplicity, IX-PWSES and IX-PWSE grounding procedures are the same for both power supplies.

IX-PWSE / IX-PWSES Ground



Using the AC Power Cord Ground Conductor

The ground must comply with the general rules for grounding contained in Article 250 of the National Electrical Code, NFPA 70, and Article 607 of the TIA/ EIA Standard.

Once it has been determined and verified that the electrical outlet the system is connected to is a dedicated and isolated telecommunications earth ground as defined by the National Electrical Code and the TIA / EIA as stated above, the AC Power Cord ground conductor can be used as the system's reference to earth ground potential.

This means that the ground receptacle of the outlet is connected directly to a dedicated ground conductor that is secured to an effective earth ground of known potential. This is defined in detail the Articles above.

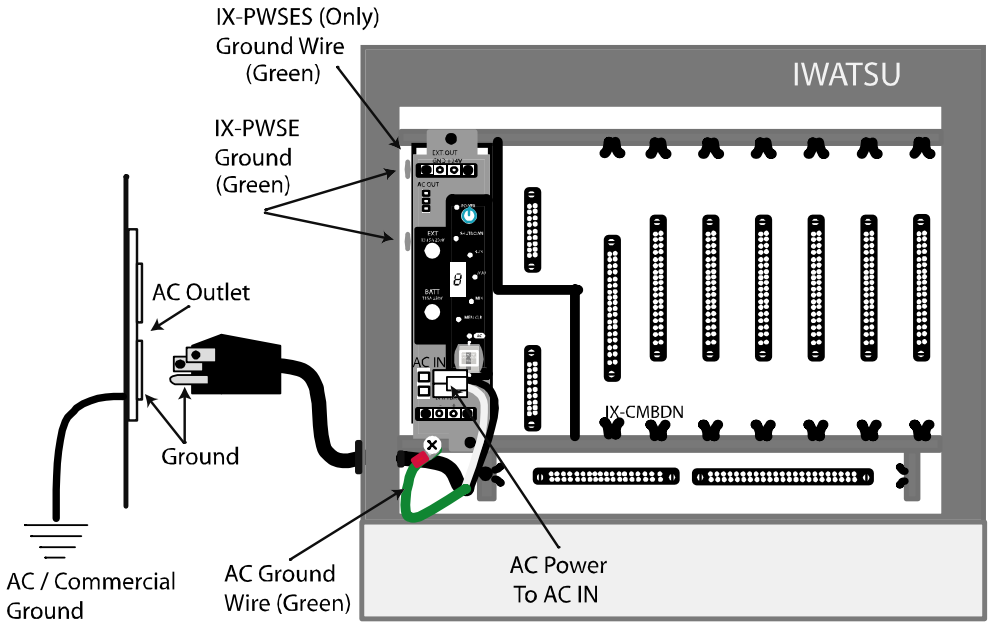
If the origin or quality of the electrical outlet ground is suspect, or is known not to have been wired in accordance with the National Electrical Code and the TIA / EIA as stated above, the AC Power Cord ground is to be considered a poor ground and should not be used. In that case, an external ground conductor must be used.

Note:

WARNING! If the AC Power Cord ground is considered a poor ground and/or when analog trunks are installed in the IX-CME Cabinet, the Field Ground terminal (on the back of the IX-CME) MUST be used. Refer to **Using an External Ground Conductor** in this section.

1. The green ground wire from the AC Power Cord is connected to the IX-CME cabinet with the silver screw on the lower left of the cabinet.
2. Plug the white connector coming from the AC power cord (located at the bottom of the IX-CME) into the mini-AMP type connector marked AC IN on the lower front of the IX-PWSE / IX-PWSES

IX-CME with AC Power Outlet Earth Ground



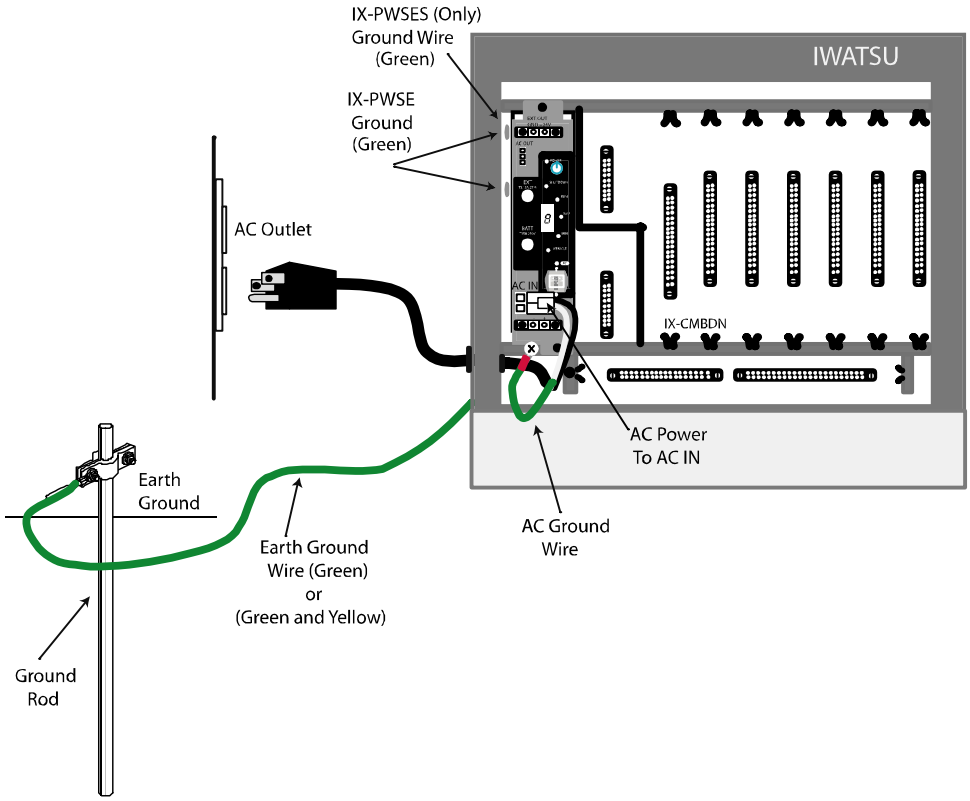
Using an External Ground Conductor

An external ground conductor must be used as the system's reference to an effective earth ground if:

1. It is determined that the AC Power Outlet ground is ineffective or is not a dedicated telecommunications quality ground as defined by National Electrical Code and the TIA / EIA.
2. Analog trunk cards (i.e. IX-8UNTK) are used in the system. This is because the leak current from the analog trunk card and the IX-PWSE / IX-PWSES power supply is greater than 3.5 mA.

Note:	**WARNING!** When analog trunks are installed in the IX-CME Cabinet, the Field Ground terminal (on the back of the IX-CME) MUST be properly grounded. Use AWG 11 (4.17mm) or thicker wire to ground or AWG 13 (2.62mm) or thicker wire when a mechanical protection (i.e. A breaker) device is installed.

Note:	**CAUTION:** The AC power cord ground and the External Ground rod should be grounded in close proximity to one another to avoid a ground loop from occurring.



Use wire that is either green or green and yellow striped. Use crimp terminals for all stranded wire.

The external ground conductor is connected to the IX-CME cabinet with the silver screw on the lower right of the back of the cabinet.

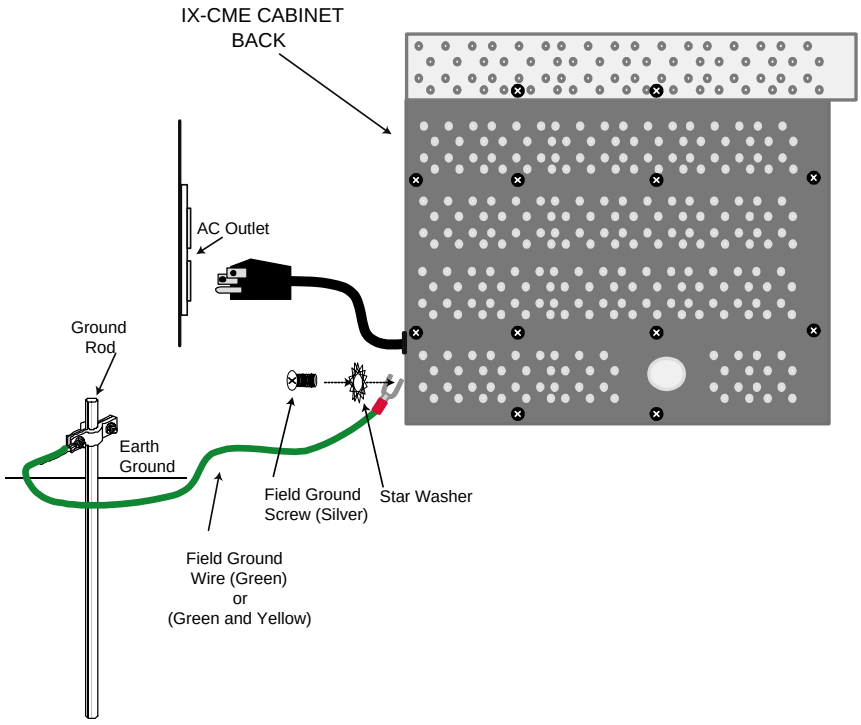
Note: The separate protective earthing terminal provided on this product shall be permanently connected to earth.

The use of cold water pipes that have historically been used for ground reference should be avoided. The prevalent use of PVC pipe in most construction today renders this ground source unreliable. It should also be noted that the use of a copper water pipe is prohibited by many building codes.

Note: All grounding used in the ECS System installation shall comply with the standards defined in National Electrical Code, NFPA 70, Article 250, and the Telecommunication Industry Association / Electrical Industry Association (TIA/ EIA) Telecommunications Ground Procedures, Article 607, including cabinets, feeder cables, network connections, and off-premise stations. Copies of the TIA / EIA, Article 607 may be purchased by contacting the EIA Standards Sales Office, at 202-457-4966.

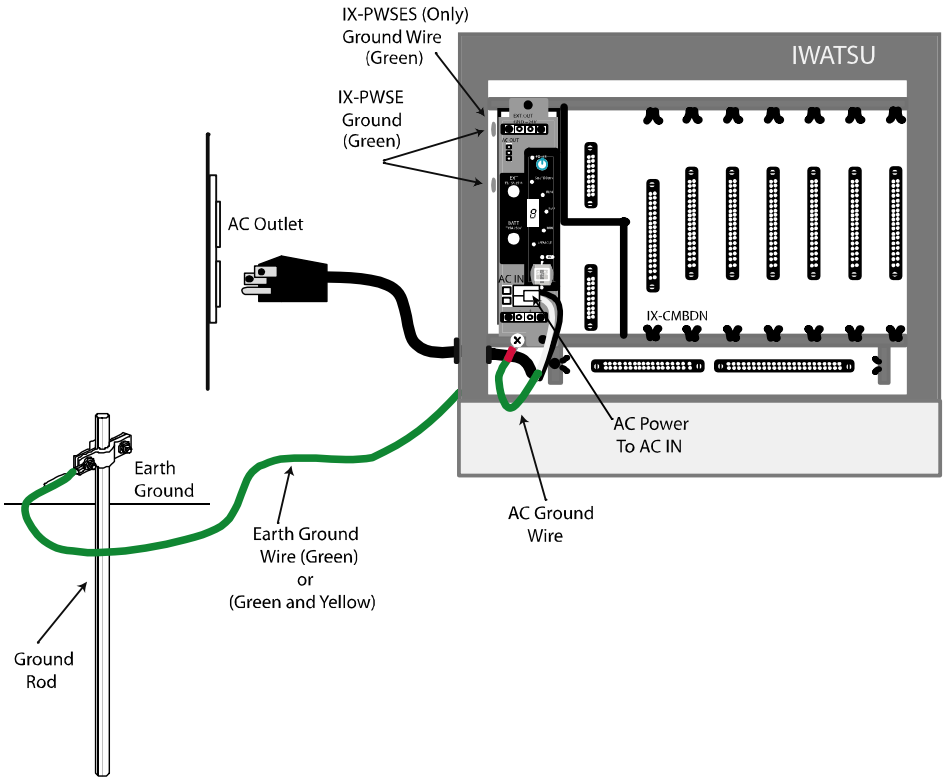
1. Connect the ground wire from the Earth Ground to the IX-CME cabinet with the silver screw connector on the lower right of the back of the cabinet.

IX-CME with External Earth Ground



2. Plug the white connector coming from the AC power cord (located at the bottom of the IX-CME) into the mini-AMP type connector marked AC IN on the lower front of the IX-PWSE / IX-PWSES

AC Power Connection

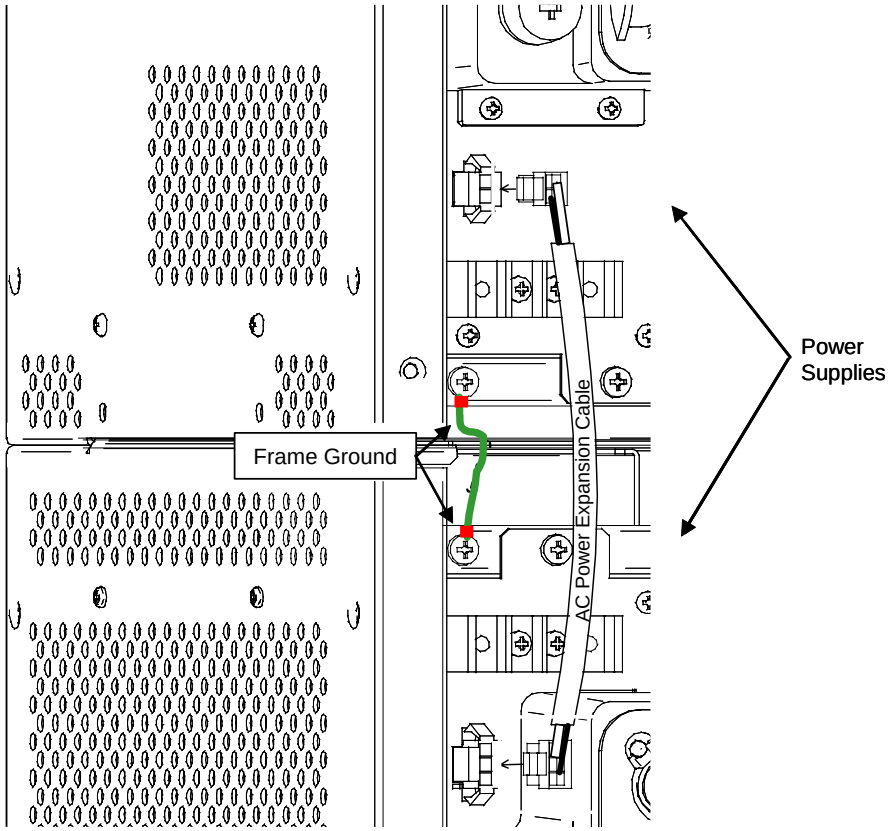


Expansion Module Power and Ground Connections

Frame Ground and AC Power Connections

1. Make a connection with the Frame Ground (FG) wire between cabinets:
   - IX-CME and IX-EXPME1 (1st Exp Module)
   - IX-EXPME1 (1st Exp Module) and IX-EXPME1 (2nd Exp Module)
   - IX-EXPME2 (3rd Exp Module) and IX-EXPME1 (4th Exp Module)
   - IX-EXPME1 (4th Exp Module) and IX-EXPME1 (5th Exp Module)
2. Make a connection with the AC Expansion cable (15 Amp Capacity) between the same modules as listed above.
3. These connections are not required between the IX-EXPME1 (2nd Exp Module) and IX-EXPME2 (3rd Exp Module)

Note: The IX-EXPME2 (3rd Expansion Module) AC power and grounding procedures are the same as the IX-CME Module in this section.



4. For Expansion Card and Cable assembly, refer to **Chapter 6, ECS Expansion.**

Backup Battery Installation

This section describes the correct procedure for connecting backup batteries to the IX-PWSE and the IX-EXPWS power supplies for the ECS. If the backup batteries are not correctly connected to the IX-PWSE or IX-EXPWS power supply as illustrated and described in this document, the power supply will be damaged.

Note:	The IX-PWSES power supply does not support a battery backup connection.

Battery Backup

If full system operation is required during a power failure, a pair of rechargeable gel cell backup batteries must be connected to the power supply. Backup batteries are charged while the system is powered up. In the event of a power failure, the batteries will prevent a system shutdown. The voltage of the batteries connected to the power supply must be between 21.7 VDC and 27.3 VDC.

Note:	**WARNING!** When batteries are connected and the power cable is unplugged, the system remains ON and the external output and battery terminals may be generating more than 240VA power.

Note:	To reduce the risk of fire or injury, follow the instructions listed below: • Use only a UL tested sealed battery. • Do not dispose of the batteries by burning; the cell may explode. Check with local codes for special disposal instructions. • Do not open or mutilate the batteries. Released electrolyte is a corrosive and may cause injury to the eyes or skin. It is toxic if swallowed. • Handle the batteries with care to avoid shorting the battery by touching conducting materials such as rings, bracelets, screwdrivers, and pliers. • Charge the batteries in accordance with the instructions and limitations specified in Chapter 3 of this document • Observe proper polarity orientation between the batteries and battery charger. • Do not mix used and new batteries in this product. • Do not mix batteries of different sizes or from different manufacturers in this product.

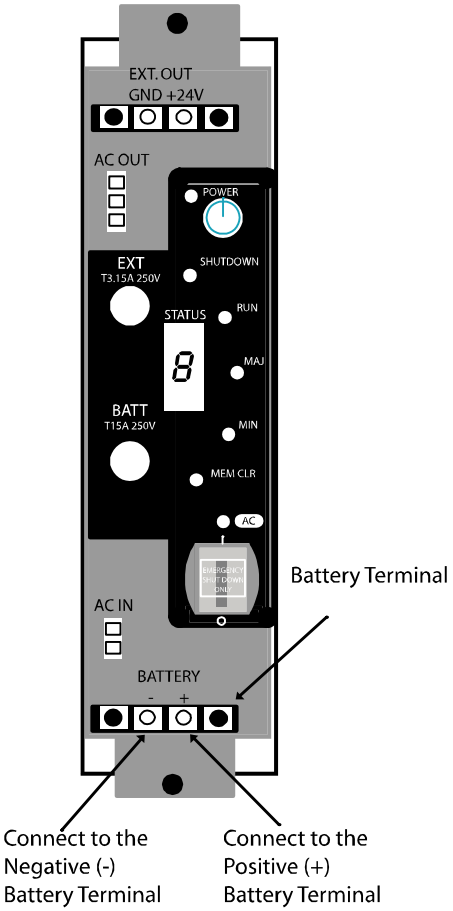
Note:	**CAUTION:** Risk of Explosion if Battery is replaced by an incorrect type. Dispose of Used Batteries According to the Instructions
Note:	In most installations, two 12 volt gel cell batteries are connected in series to provide 24 volts of backup power. Gel cell batteries are available through local vendors.

Identifying the (+) and (-) Backup Battery Terminals

The screw terminals labeled BATTERY (-) and (+) are the only connection points on the IX-PWSE or IX-EXPWS that may be used for backup battery connection.

Note:	Do not use the screw terminals labeled EXT. OUT, GND or +24V for battery backup connection. EXT. OUT screw terminals are not used.

IX-PWSE



The table below lists the backup power consumption of the individual ECS components. Use it as a guide to determine the quantity of backup batteries needed.

Unit	Backup Current Draw	Unit	Backup Current Draw	Unit	Backup Current Draw
Power Supplies		IX-8SUBS-3	100 mA	IX-DSSA	130 mA
IX-DCDCM	170 mA	IX-8SUBM	90 mA	IX-DSSB	81 mA
IX-RNGUM	320 mA	IX-8PSUB	40 mA	IX-DDPH	30 mA
IX-PSMMG	45 mA	IX4SUBL	215 mA	IX-16KTS	70 mA
		IX-8SUBM-3	230 mA	IX-AUTD	30 mA
Common Cards		IX-16PSUB	54 mA	IX-BPAD	42 mA
IX-CCU + IX-CCSU	300 mA	IX-4CSUB-2	263 mA	Voicemail Card	
IX-MBU		IX-408	143 mA	IX-4VML	452 mA
IX-HWYA/L		IX-044	82 mA	VS-VML	146 mA
IX-EDVIF	90 mA	IX-MSGU	60 mA	IX-VMAC	149 mA
IXSCIF	25 mA	IX-EMCH	40 mA	IX-VMBAK-HDD	203 mA
IXHCIF	78 mA	IX-CMSG	10 mA	IX-4EVML	45 mA
IXBUFM	8 mA	IX-SREP	41 mA	IX-VMBAK-ZIP	169 mA
Trunk Cards		IX-CMSG-1	36 mA	IX-VMBAK-ZHD	281 mA
IX-8IPNET	219 mA	IX-4RCVS	23 mA	IX-PSUBMDM	68 mA
IX-8IPNET+ IX-8EIPNET	415 mA	IX-4ETRAN	45 mA		
IX-8LGTK-2	205 mA	IX-MISC	40 mA		
IX-8UNTK		IX-12KTD-3	73 mA		
IX-4EMTK	210 mA	IX-12KTS-2	70 mA		
IX-DTI-T/P/N	100 mA	IX-MKT	45 mA		
IX-T1RCVC	85 mA	IX-12ELK-3	N/A		
IX-8CITK	190 mA	IX-8KTS	70 mA		
IX-400-2	70 mA	IX-8KTD	70 mA		
IX-400	103 mA	IX-ATT	180 mA		
IX-4ICOTB	50 mA	IX-BLF	230 mA		
IX-8DSUB	80 mA	IX-DSS-A-2	130 mA		
IX-8SUBS	90 mA				

Procedure for Connecting Backup Batteries (SMALL) to the IX-PWSE or IX-EXPWS

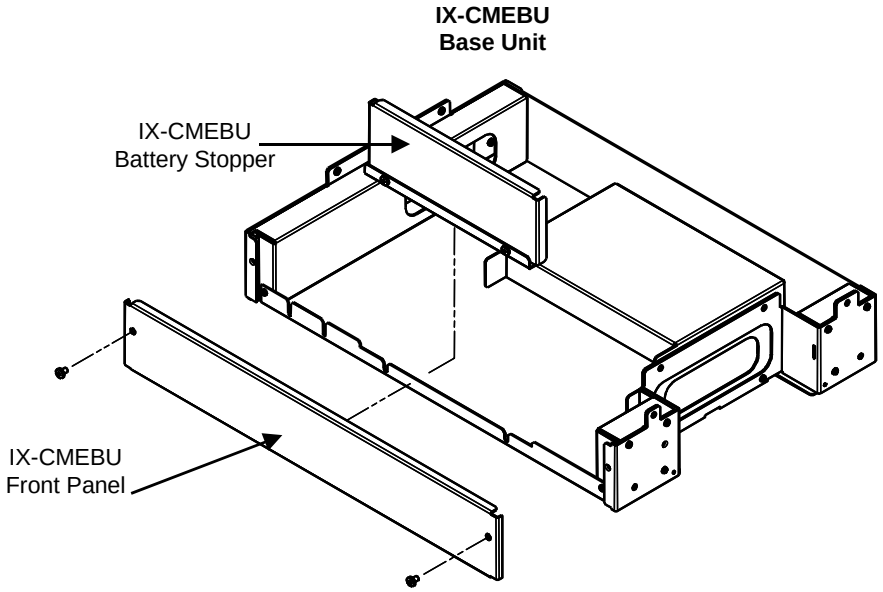
Use the IX-CMEBU Base Unit to install Small-Capacity batteries.

Use the following batteries:

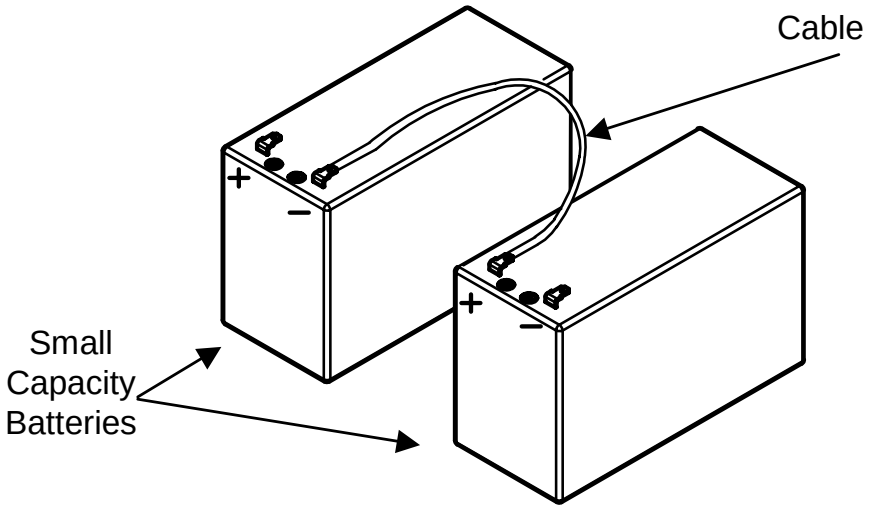
Manufacturer:	Model:	Battery Capacity:
GS Battery	PE12V7.2	12 V, 7.2 AH
Kung Long Battery	WP7.2-12	12 V, 7.2 AH

Follow the procedure listed below to connect backup batteries to the IX-PWSE or IX-EXPWS (in the Third Expansion Module) power supply.

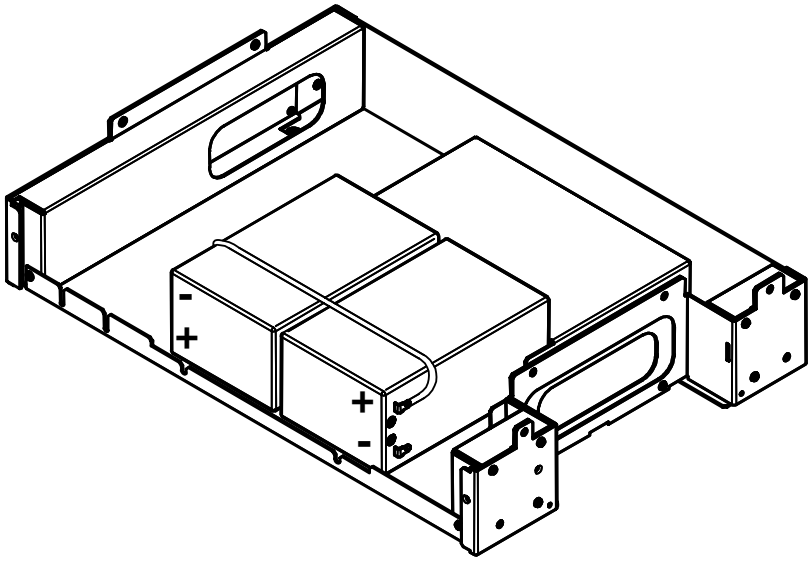
1. Make sure the system power is OFF.
2. Remove the IX-CMEBU Front Panel and the IX-CMEBU Battery Stopper from the Base Unit.



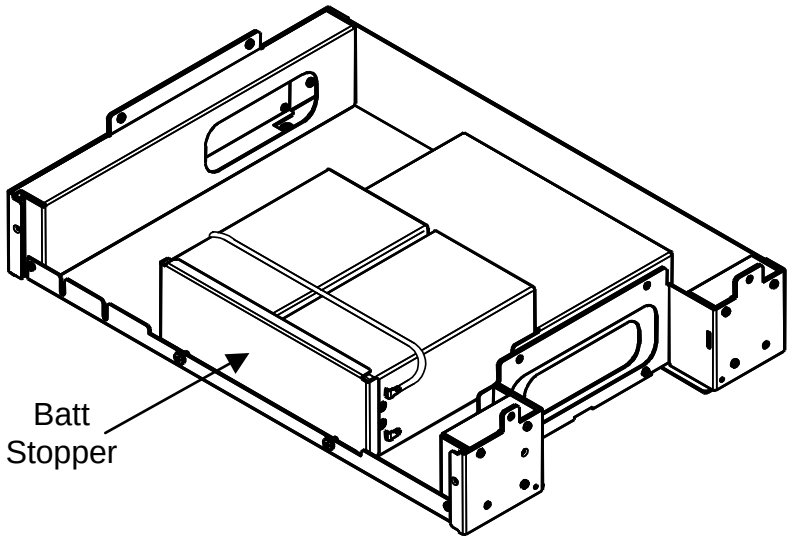
3. Connect the two (2) small batteries with the cables (Included with the IX-CMEBU) as shown in the diagram below.



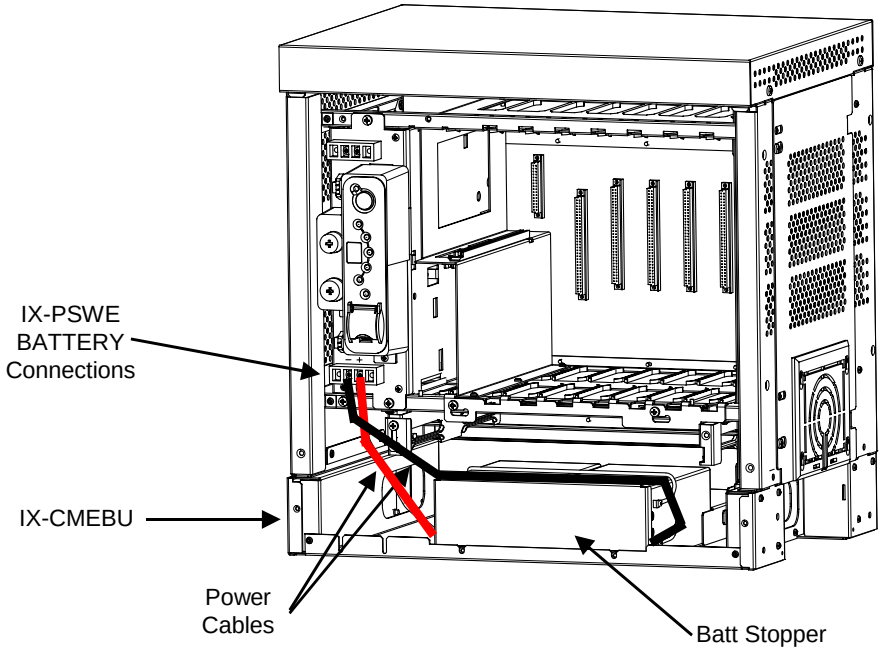
4. Lay the batteries on their side so the bottom of the batteries touch and place them in the IX-CMEBU Base Unit.



5. Secure the small batteries with the IX-CMEBU Batt Stopper.



6. Connect the battery cables to the positive (+) and negative (-) screw terminals on the connector labeled BATTERY on the IX-PWSE or IX-EXPWS power supply as illustrated. Always connect the positive (+) side first.

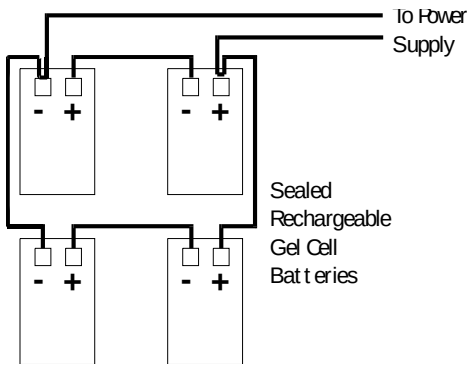


7. Attach the front panels to the IX-CME and the IX-CMEBU

Note: Make sure that the conductors on the battery cables do not touch the chassis or any other metal parts of the power supply or modules.

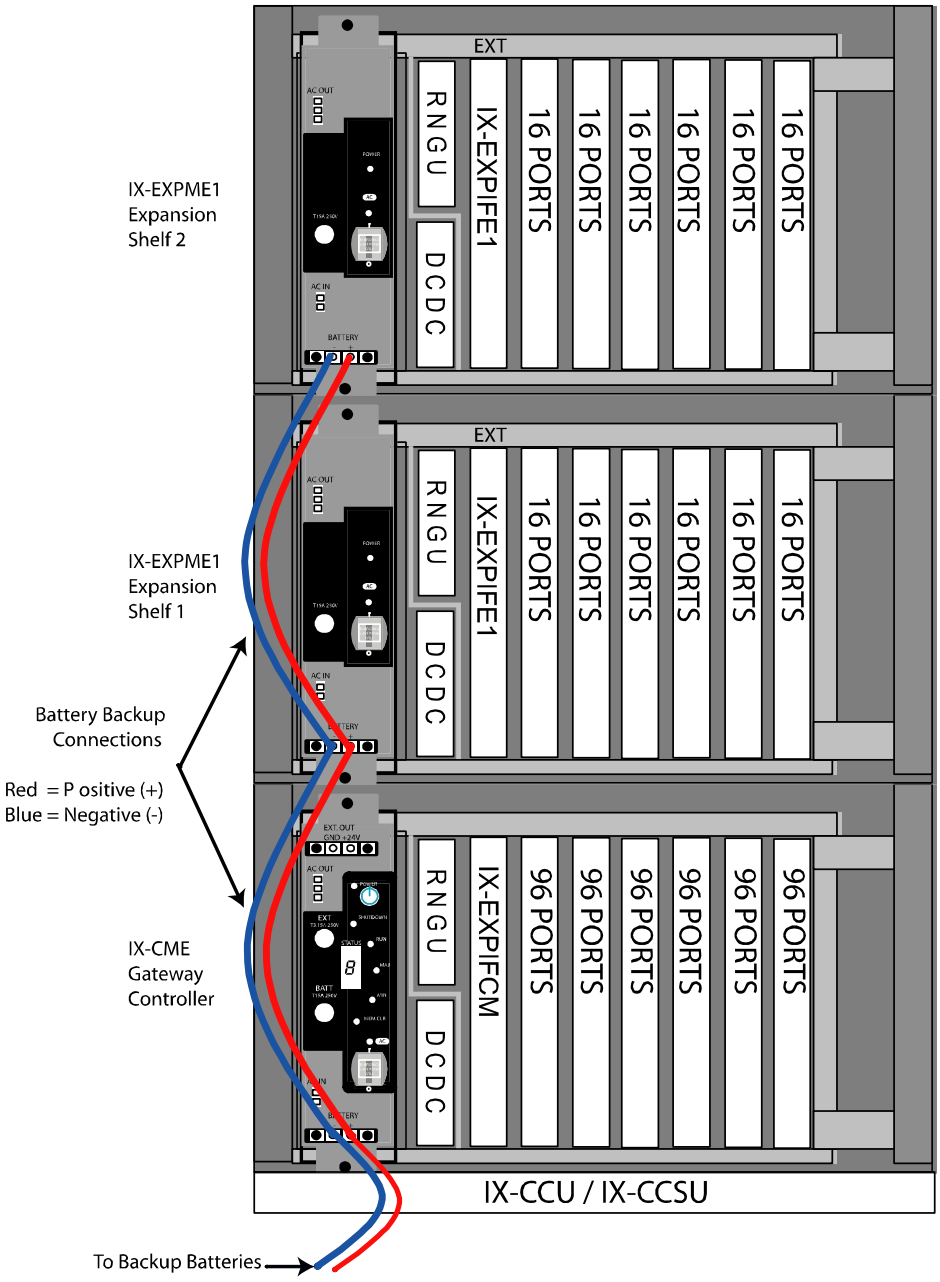
Two-Pair Battery Connection

To increase battery capacity you can connect two pairs of backup batteries in parallel as illustrated below.



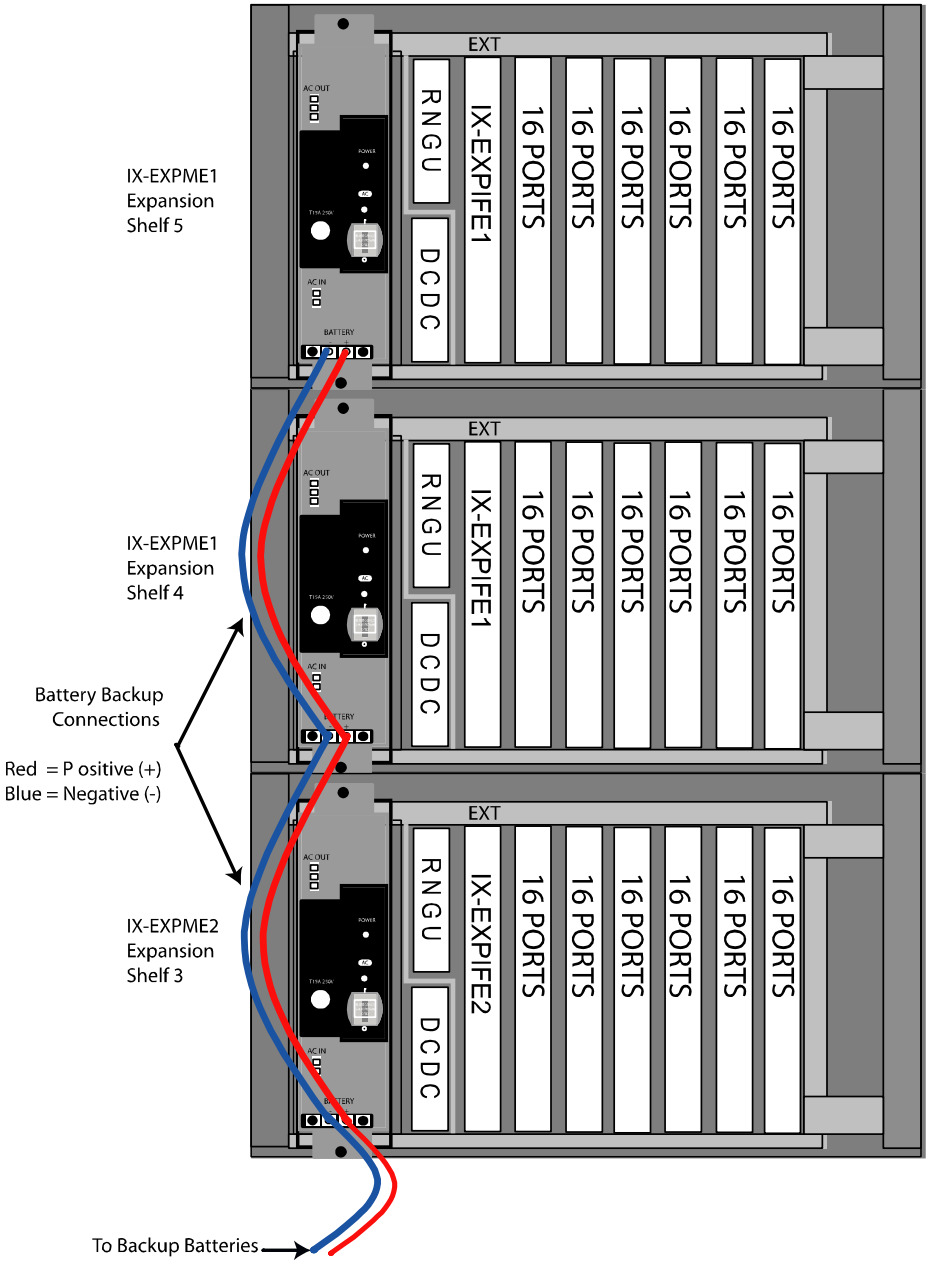
Backup Battery Connections for the IX-EXPWS

1. Make sure the system power is OFF.
2. Connect the Red (positive) and Blue (negative) battery expansion cables from the IX-PWSE battery terminals in the IX-CME Module to the battery terminals on the IX-EXPWS in the First Expansion Module.
3. Connect the Red (positive) and Blue (negative) battery expansion cables from the IX-EXPWS battery terminals in the First Expansion Module to the battery terminals on the IX-EXPWS in the Second Expansion Module.



4. Connect the Red (positive) and Blue (negative) battery expansion cables from the IX-EXPWS battery terminals in the Third Expansion Module to the battery terminals on the IX-EXPWS in the Fourth Expansion Module.
5. Connect the Red (positive) and Blue (negative) battery expansion cables from the IX-EXPWS battery terminals in the Fourth Expansion Module to the battery terminals on the IX-EXPWS in the Fifth Expansion Module.

Note: The IX-EXPWS power supply in the IX-EXPME2 (Third Expansion Module) requires a separate connection to the backup batteries.



Additional Power Supplies

Certain circuit cards and system features require additional power supplies. Refer to **Section 4 - Component Description** for more details. The table below lists the different additional power supplies available and the function of each:

Additional Power Supplies	
Model	Function
IX-DCDCM	Provides -48VDC for ECS
IX-RNGUM	Provides +90VDC for ECS

Installing the IX-DCDCM Power Supply

The IX-DCDCM DC-to-DC converter unit generates -48 VDC. This card is required when IX-8UNTK (with Ground Start Trunks) and / or IX-4SUBL cards are installed in the IX-CME cabinet.

For a detailed description of IX-DCDCM card - see **Section 4 - Component Description**.

IX-DCDCM Card Preparation

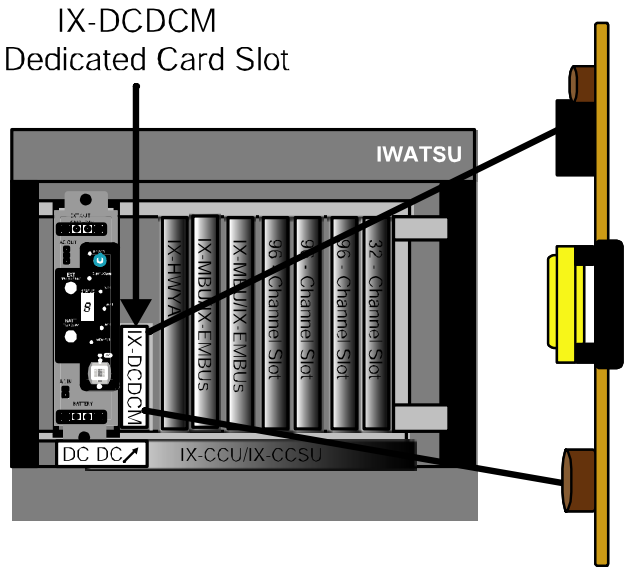
None

IX-DCDCM Card Installation

1. Plug the IX-DCDCM card into the slot marked DC DC at the lower left of the IX-CME.
2. Make sure that the card is inserted deep enough for all connector pins to make complete contact with the CN_DCD connector on the IX-CMBDN motherboard.
3. Secure the card stopper bracket with the two screws if no other cards are to be installed.

Programming

None.



Installing the IX-RNGUM Power Supply

The IX-RNGUM ring generator unit supplies ringing voltage to the ECS shelf by converting +24 VDC from the main power supply to 90 VAC. This voltage is used to ring up to 128 single-line telephones. The IX-RNGUM card is located in the RNGU slot above the DCDC slot in the IX-CME Gateway Controller cabinet. It is connected to CN_RNG connector of the IX-CMBDN motherboard as illustrated below.

For a detailed description of IX-RNGUM card - see **Section 4 - Component Description**.

IX-RNGUM Card Preparation

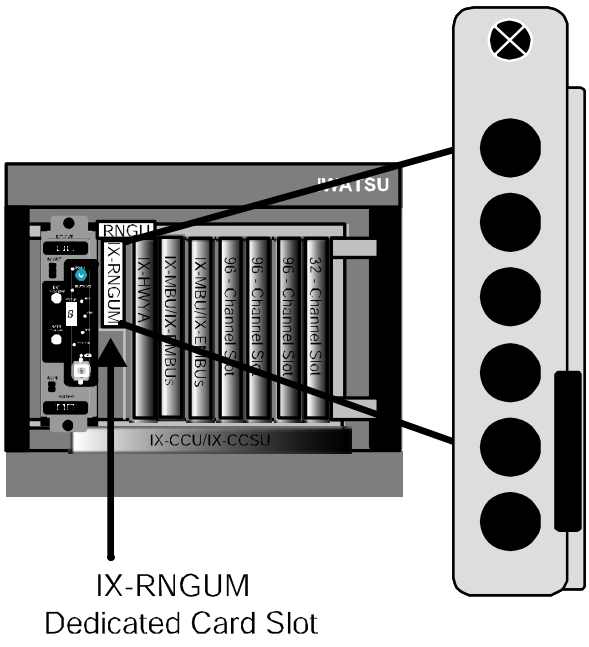
None

IX-RNGUM Card Installation

1. Plug the IX-RNGUM card into the slot marked RNGU at the upper left of the IX-CME.
2. Make sure that the card is inserted deep enough for all connector pins to make complete contact with the CN_RNG connector on the IX-CMBDN motherboard.
3. Secure the IX-RNGUM card to the IX-CME with one screw located at the top of the card.

Programming

None



Chapter 5

Common Control Card Installation

This section covers the installation procedures for the Iwatsu Enterprise-CS Common Control Cards. The cards covered in this section are: The IX-CCU Central Control Unit, the IX-CCSU Central Control Sub Unit, and the IX-MBU Media Bridge Unit cards. For a detailed description of these cards - see **Section 4 - Component Description**.

IX-CCU Central Control Unit and IX-CCSU Central Control Sub Unit Installation

The IX-CCU Central Control Unit card is installed in the bottom of the IX-CME Gateway Controller cabinet. The IX-CCU card slot is the only horizontal card slot in the ECS. The IX-CCU is also mounted with the IX-CCSU Central Control Sub Unit (daughterboard).

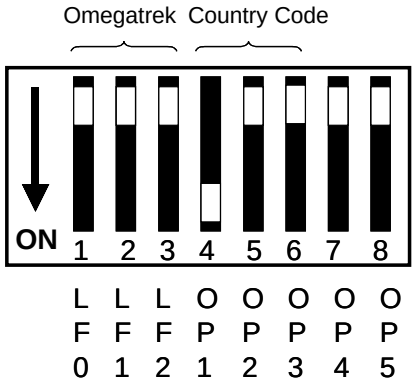
For a detailed description of IX-CCU and IX-CCSU cards - see **Section 4 - Component Description**.

IX-CCU and IX-CCSU Card Preparation

Select Country Code for the ECS system

1. Locate SW4 on the IX-CCU card (eight circuit DIP Switch)
2. Set DIP Switch number 4 (OPE1) to ON for US Country Code

SW4

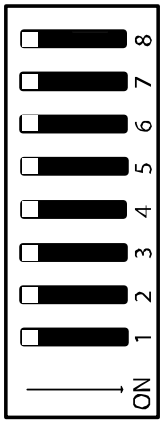


Switch Name	Position	Meaning
LF0 - LF2	OFF	Omegatrek
OP1 - OP3		US Country Code Settings
OP1	ON	
OP2	OFF	
OP3	OFF	
OP4	OFF	Future Use. Not Defined
OP5	OFF	Future Use. Not Defined

SW7 Settings on the IX-CCSU card

1. Locate SW7 on the IX-CCSU card (eight circuit DIP Switch) and set the switches according to the table below:

SW7 Settings



Switch Number	Position	Meaning
1	ON / OFF	Factory Use Only. Do Not Modify
2	ON / OFF	Factory Use Only. Do Not Modify
3	ON / OFF	Not Defined
4	ON	Compact Flash Area = Backup Database
	OFF	Compact Flash Area = Current Database (Default)
5	ON	EXP: = IX-450 or ADIX-M
	OFF	EXP: = IX-R (Default) ADIX APS or ECS
6	ON	Half-Duplex Communications (For LAN 1)
	OFF	Full-Duplex Communications (Default) (For LAN 1)
7	ON	10 Mbps Operation (For LAN 1)
	OFF	100 Mbps Operation (Default) (For LAN 1)
8	ON	SW6, SW7 Effective (For LAN 1)
	OFF	Auto Negotiation in Progress (Default) (For LAN 1)

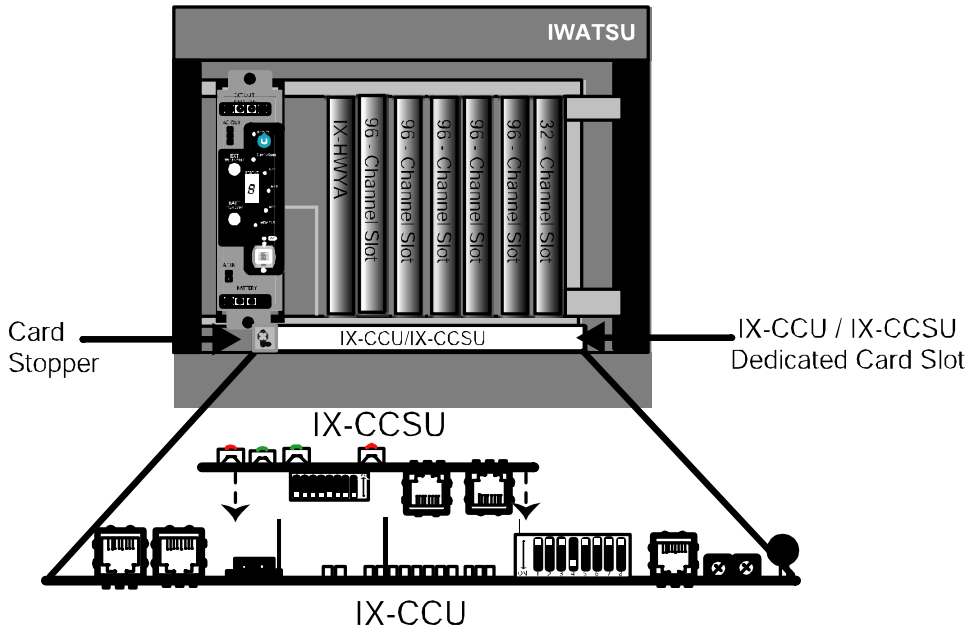
Note: The IX-CCSU LAN 2 Port is Auto-Negotiate ONLY.

IX-CCU and IX-CCSU Card Installation

1. Mount the IX-CCSU daughterboard to the IX-CCU card by matching the CNCCSU1 to CNCCU1 connectors and CNCCSU2 to CNCCU2 connectors on the IX-CCU card and the IX-CCSU cards respectively
2. Insert the 256 MB Compact Flash into the CNCF connector on the IX-CCSU daughterboard
3. With the IX-CCSU card on top, plug the IX-CCU/IX-CCSU cards into the slot marked CCU/CCSU at the bottom of the IX-CME. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the motherboard. Once the cards are installed, the IX-CCU and the IX-CCSU daughterboard are referred to as the IX-CCU card unless otherwise specified.
4. Secure the card stopper bracket (located next to the left locking tab) with the screw provided.
5. Connect the alarm panel cable to the connectors marked MNALM and MJALM (If applicable)

Programming

For initialization, system default, and reset procedures - see **Section 6 - Database Programming Guide**.



IX-MBU Media Bridge Unit Card Installation

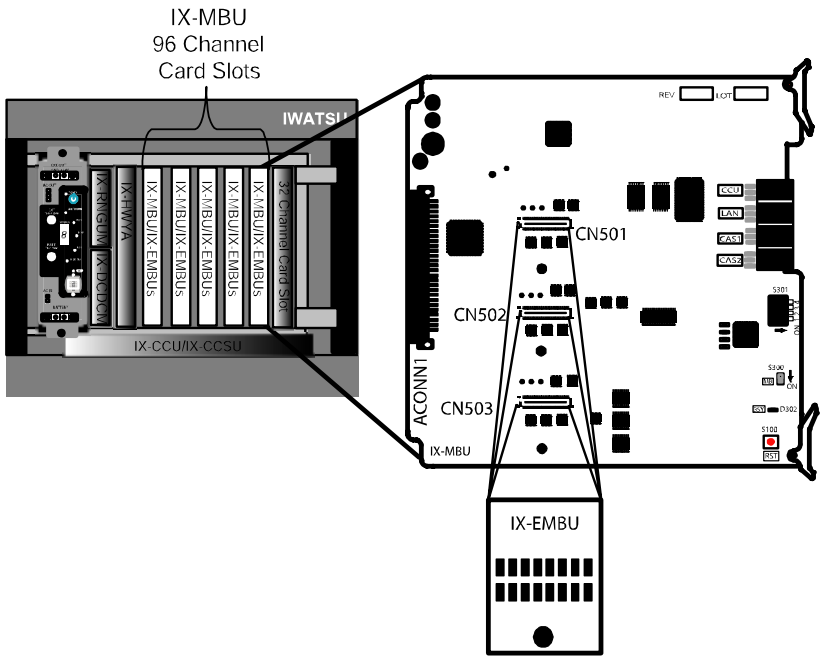
IX-MBU Media Bridge Units can be installed in one of the five 96-channel card slots in the IX-CME. If you are installing an ECS system with the ICON Series IX-5930/ 5910/5900, Platinum 18i/12i or the IX-12/6IPKTD-E IP telephones, an IX-MBU card is required for IP to TDM and TDM to IP conversion. An IX-MBU card is **not** required for ECS systems supporting only TDM resources. The IX-12IPKTD/-E2 IP telephone and related IX-8IPSUB station cards are considered a TDM resource. For a detailed description of the IX-MBU card - see **Section 4 - Component Description**.

Highway Card Preparation

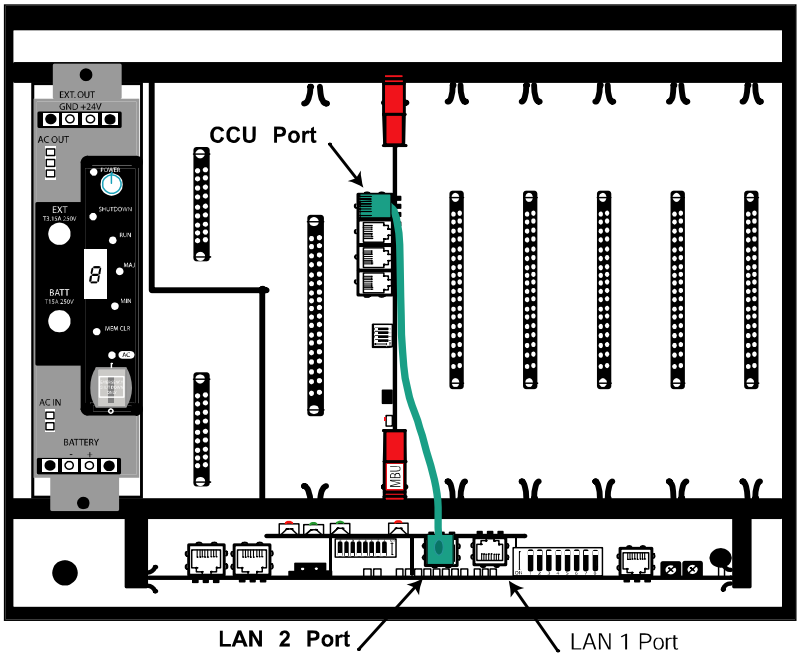
If more than 24 MBU channels are required, one IX-EMBU Expansion Media Bridge Unit must be installed for 24 additional MBU channels. One IX-MBU card will support up to three IX-EMBU Expansion cards for a maximum of 96 MBU channels per IX-MBU card.

IX-MBU and IX-EMBU Installation

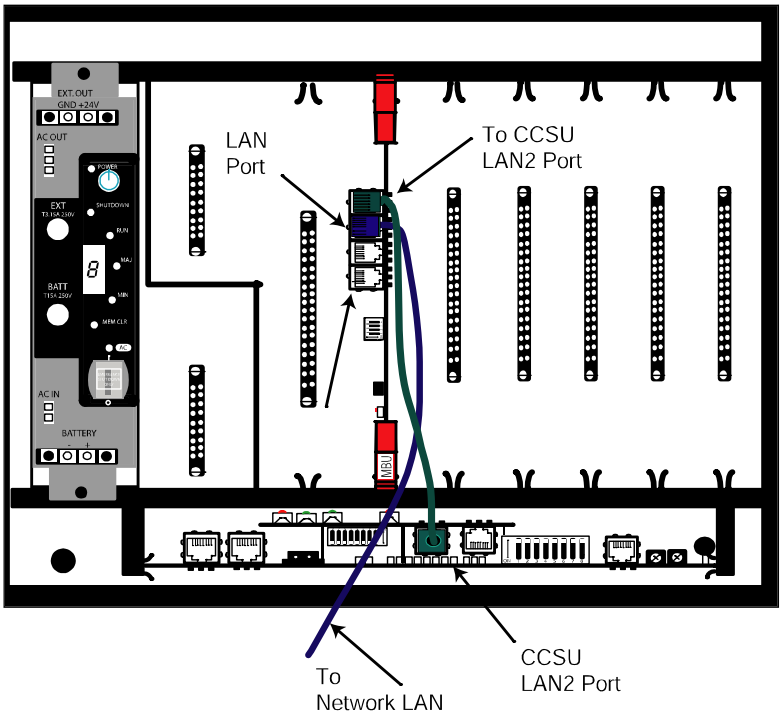
1. If required, insert IX-EMBU cards into the connectors marked CN501, CN502, and CN503 on the IX-MBU. Use connector CN501 for one IX-EMBU and then connector CN502 if two IX-EMBUs are needed.
2. Plug the IX-MBU card into one of the five 96-channel card slots in the IX-CME. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the IX-CMBDN motherboard.



3. Secure the card stopper bracket with the two screws if no other cards are to be installed.
4. Using the Unshielded Twisted-Pair (UTP) Straight-through cable provided with the IX-MBU, connect the CCU port on the IX-MBU card and the LAN2 port on the IX-CCU card.

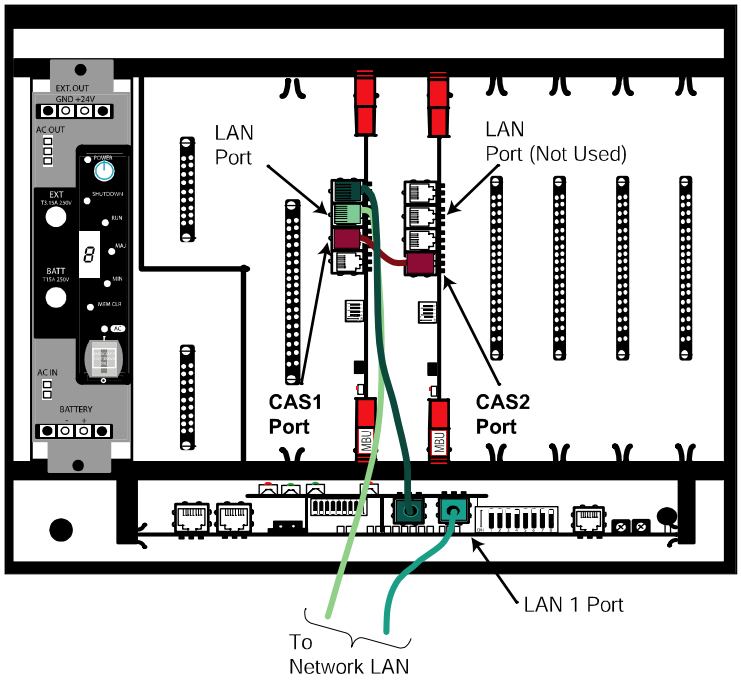


5. Connect LAN 1 port on the IX-CCU card and the LAN port on the IX-MBU card to separate network connections. (UTP Straight-through cables not included)

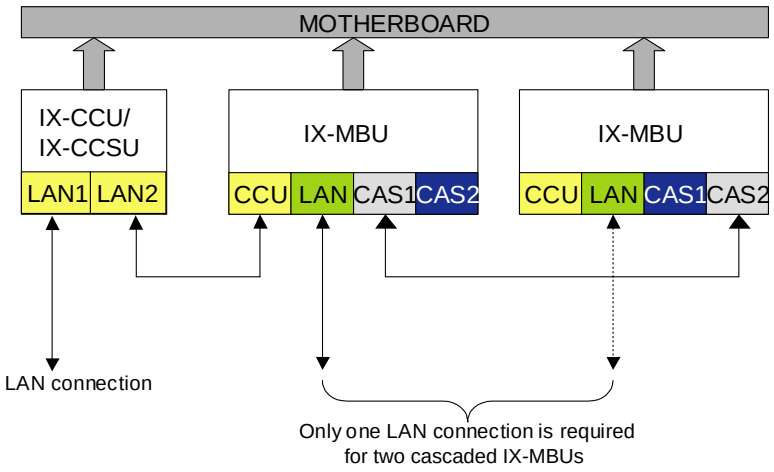


IX-MBU Cascade Connection

1. If two IX-MBUs are required in the system, only one external LAN (network) connection is required.
2. Connect the two IX-MBU cards together via the UTP Straight-through cable that is included with the second IX-MBU.
3. Connect one end of the cable to the CAS1 connector on the first IX-MBU card and the other end to the CAS2 connector on the second IX-MBU card (from left to right).



IX-MBU Block Diagram



Programming

See **Section 6 - Database Programming Guide**.

Chapter 6

ECS Expansion

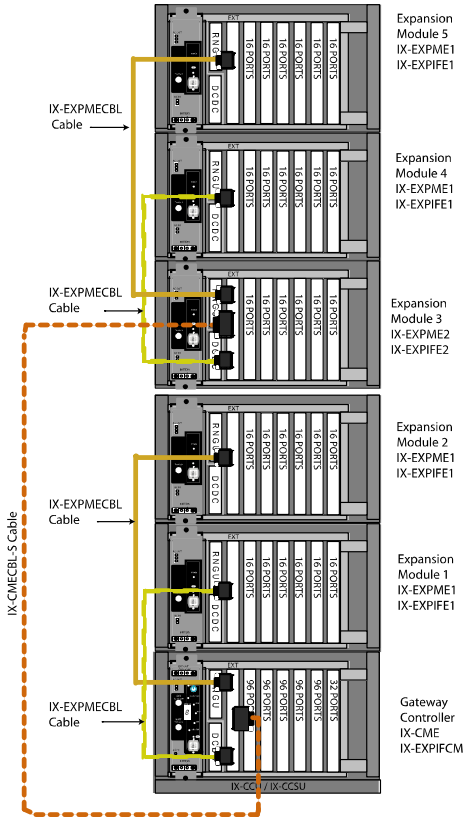
This section covers the procedures for expanding the port capacity of the Iwatsu Enterprise-CS system.

Up to five ECS Expansion Modules can be added to the IX-CME Gateway Controller, increasing the port capacity from 512 ports to 1024 ports. Each Expansion Module adds up to 96 ports to the system.

Note: It is important to note that before performing any expansion procedure on an existing system, a current copy of the database should be downloaded. This database will need to be uploaded to the system once the expansion procedure is complete and a system default has been performed.

All Expansion Modules remain under the control of the IX-CCU Central Control Unit in the IX-CME Gateway Controller.

IX-CME with ECS Expansion Modules

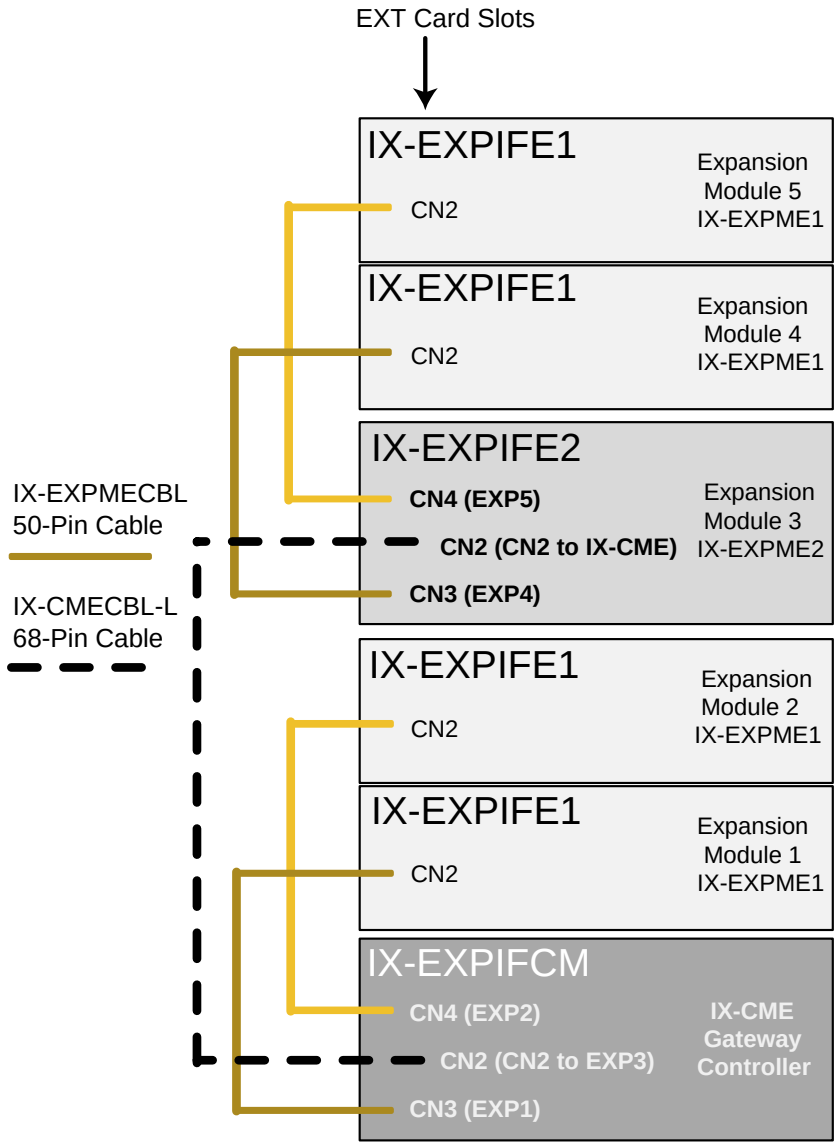


ECS to ECS Expansion:

There are three Expansion Interface cards used to connect the IX-CME to the IX-EXPME1 and the IX-EXPME2 Expansion Modules. For more information regarding the installation of the IX-CME Gateway Controller and/or the IX-EXPME1 and the IX-EXPME2 Expansion Modules, refer to Chapter 3 in this section.

Expansion Cards:

- IX-EXPIFCM - Installed in the EXT slot in the IX-CME Gateway Controller.
- IX-EXPIFE1 - Installed in the EXT slot in the IX-EXPME1 expansion shelves one, two, four, and five.
- IX-EXPIFE2 - Installed in the EXT slot in the IX-EXPME2 expansion shelf three.



IX-EXPIFCM Expansion Card Installation

The IX-EXPIFCM Expansion card is always installed in the slot marked EXT located in the first full slot on the left of the IX-CME. The IX-EXPIFCM card is required when the IX-CME is connected to the IX-EXPME1 or IX-EXPME2 Expansion Module. This procedure also requires the installation of an IX-EXPIFE1 and/or IX-EXPIFE2 Expansion card. These expansion cards enable the IX-CCU and IX-CCSU (located in the IX-CME) to control all expansion modules. For a detailed description of all three expansion cards - see **Section 4 - Component Description**.

Note:	If you are installing a stand alone ECS system, the IX-EXPIFCM, the IX-EXPIFE1, and IX-EXPIFE2 cards are not required

IX-EXPIFCM Expansion Card Preparation

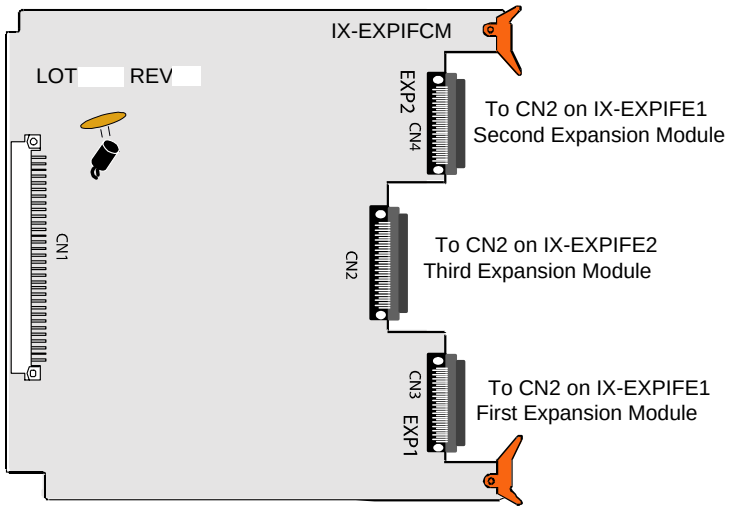
None

IX-EXPIFCM Installation

1. Plug the IX-EXPIFCM Expansion card into the slot marked EXT in the IX-CME. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the IX-CMBDN motherboard.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.
3. Use the IX-EXPCMECBL cable to connect the CN3 connector on the IX-EXPIFCM card to the CN2 connector on the IX-EXPIFE1 card in first Expansion Module.
4. Use the IX-EXPCMECBL cable to connect the CN4 connector on the IX-EXPIFCM card to the CN2 connector on the IX-EXPIFE1 card in second Expansion Module.
5. Use the IX-CMECBL-L cable to connect the CN2 connector on the IX-EXPIFCM card to the CN2 connector on the IX-EXPIFE2 card in third Expansion Module.

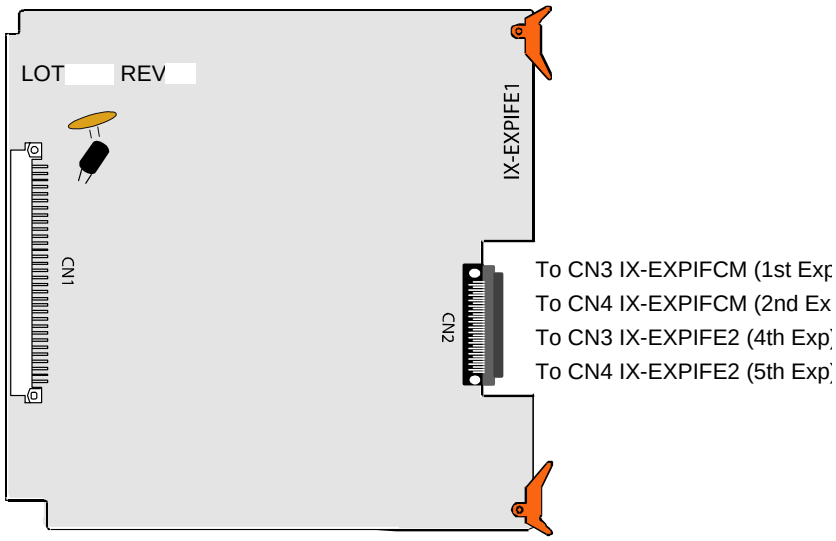
Programming

None.



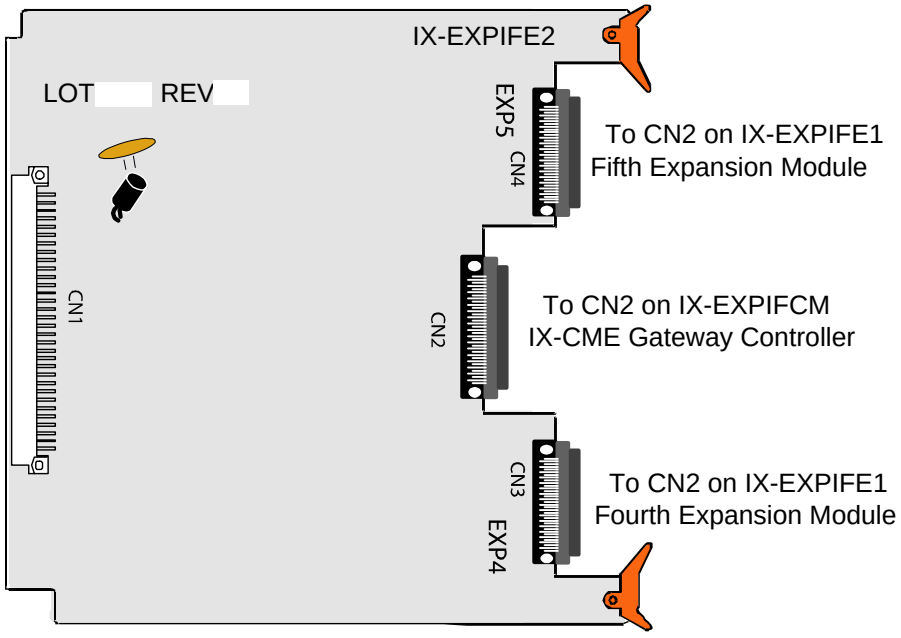
IX-EXPIFE1 Installation

1. Insert the IX-EXPIFE1 card into the EXT slot in the IX-EXPME1 Expansion Module(s) one, two, four, and five. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the motherboard.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.
3. First Expansion Module: Connect the IX-EXPMECBL cable to the CN3 connector on the IX-EXPIFCM card and then to the CN2 connector on the IX-EXPIFE1 card.
4. Second Expansion Module: Connect the IX-EXPMECBL cable to the CN4 connector on the IX-EXPIFCM card and then to the CN2 connector on the IX-EXPIFE1 card.
5. Fourth Expansion Module: Connect the IX-EXPMECBL cable to the CN3 connector on the IX-EXPIFE2 (Third Expansion Module) card and then to the CN2 connector on the IX-EXPIFE1 card.
6. Fifth Expansion Module: Connect the IX-EXPMECBL cable to the CN4 connector on the IX-EXPIFE2 (Third Expansion Module) card and then to the CN2 connector on the IX-EXPIFE1 card.
7. Ensure the IX-EXPMECBL cable is secured to the expansion cards. You should here a click when the cable is secured to the card.



IX-EXPIFE2 Installation

1. Insert the IX-EXPIFE2 card into the EXT slot in the IX-EXPME2 Expansion Module (Third Expansion Module). Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the mother-board.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.
3. Connect the IX-CMECBL-L cable to the CN2 connector on the IX-EXPIFCM card in the IX-CME and then to the CN2 connector on the IX-EXPIFE2 card. Ensure the IX-CMECBL-L cable is secured to the expansion card. You should here a click when the cable is secured to the card.
4. When all expansion cards and cables have been installed, follow the System Default Procedure on the last page of this chapter.

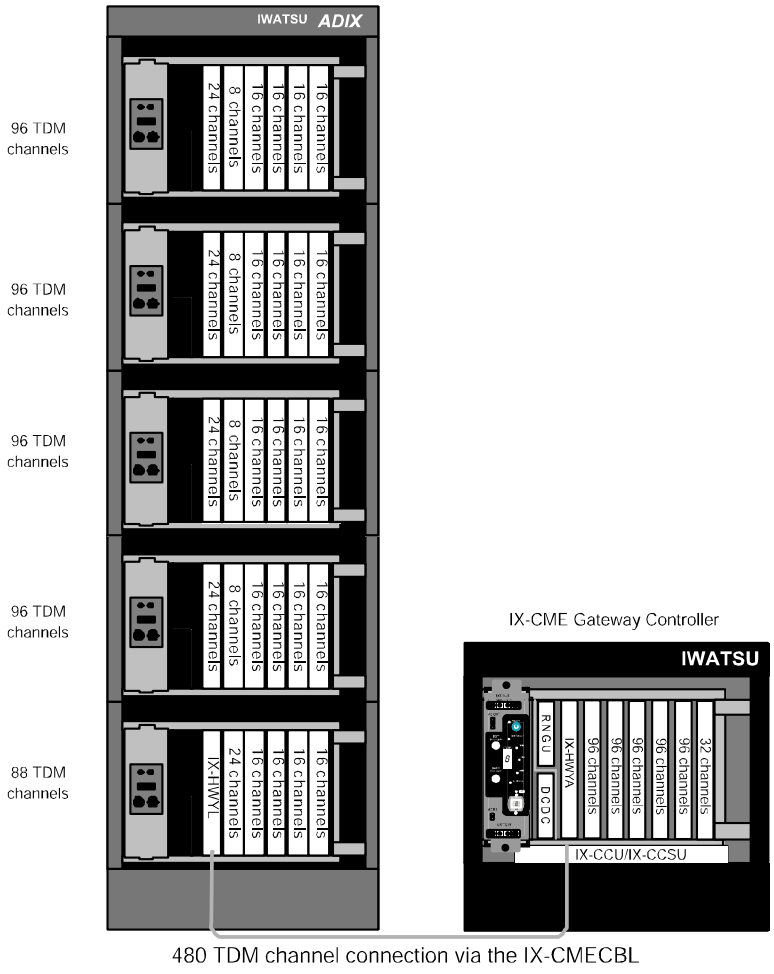


ECS to ADIX Expansion:

This procedure is performed when upgrading any one of the ADIX systems to the ECS or when TDM resources outnumber the available port capacity currently supported by a standalone ECS system.

Note: It is important to note that before performing any expansion procedure on an existing system, a **current copy of the database should be downloaded**. This database will need to be uploaded to the system once the expansion procedure is complete. Also, a database conversion will need to be performed when the expansion procedure is complete (Refer to Chapter 18 for this procedure).

IX-HWYA and IX-HWYL TDM Highway Expansion Cards and the IX-CMECBL Highway Expansion Cable.



IX-HWYA / L TDM Highway Expansion Card Installation

The IX-HWYA TDM Highway Expansion card is always installed in the slot marked EXT located in the first full slot on the left of the IX-CME. The IX-HWYA card is required when the ECS is being connected to one of the ADIX systems. This procedure also requires the use of an IX-HWYL TDM Highway Expansion card to be used in lieu of the CPUP/HW card currently installed in the ADIX system. This allows the IX-CCU and IX-CCSU to assume full control of both systems. For a detailed description of each highway card - see **Section 4 - Component Description**.

Note:	If you are installing a stand alone ECS system, the IX-HWYA / L cards are not required

IX-HWYA / L Highway Card Preparation

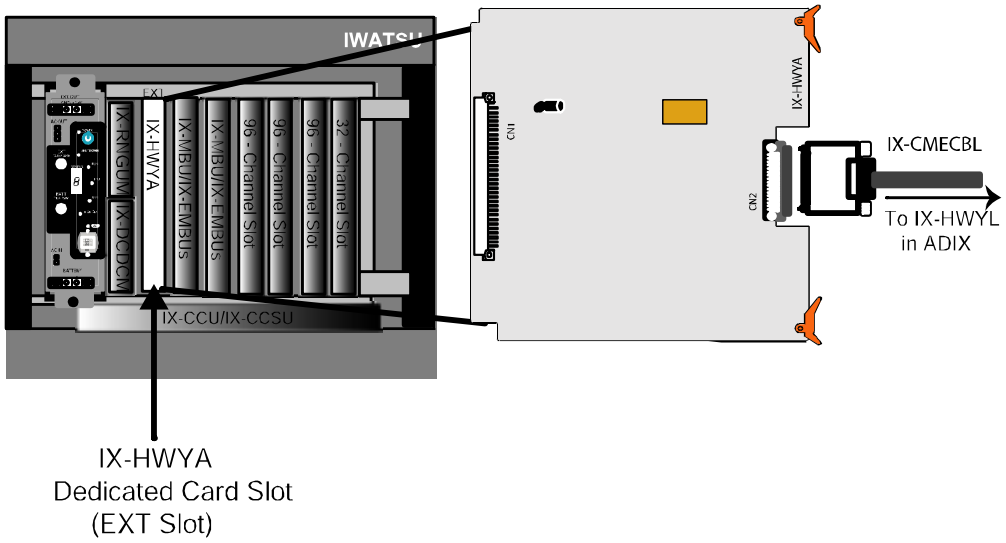
None

IX-HWYA Installation

1. Plug the IX-HWYA TDM Highway card into the slot marked EXT in the IX-CME. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the IX-CMBDN motherboard.
2. Secure the card stopper bracket if no other cards are to be installed.

Programming

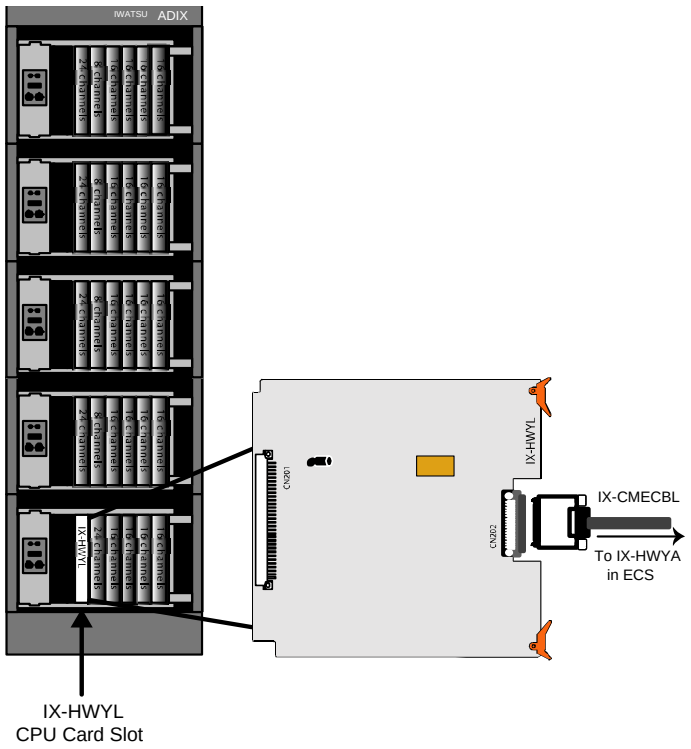
None.



IX-HWYL Installation

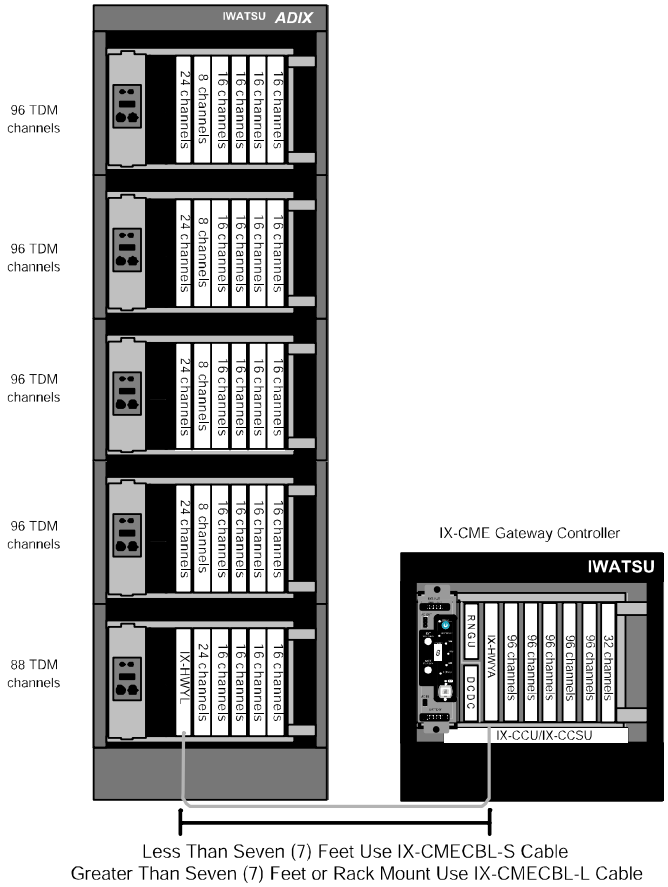
1. Power down the ADIX system being connected to the ECS system.
2. Remove the CPU card from the ADIX Common Module.
3. Replace the CPU card by inserting the IX-HWYL TDM Highway card into the CPU slot in the ADIX Common Module. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the mother-board.
4. Secure the card stopper bracket with the two screws if no other cards are to be installed.
5. Connect the IX-CMECBL cable to the IX-HWYA card and then to the IX-HWYL card to connect the two systems. Ensure the IX-CMECBL cable is secured to the IX-HWYA/L cards by tightening the two retaining screws on both ends of the IX-CMECBL.
6. Once this is complete, follow the **System Default Procedure** on page 66.

Note: When the distance between the IX-HWYA and the IX-HWYL cards is less than seven (7) feet, use the IX-CMECBL-S cable. When the distance between the IX-HWYA and the IX-HWYL cards is greater than seven (7) feet or rack mount, use the IX-CME-L cable.



When all cards are installed in the ECS and ADIX systems follow the Default procedure listed on the last page of this chapter. Ensure that a current copy of the database has been saved before performing a system default.

1. The IX-HWYA and IX-HWYL card installation must be completed before the system expansion procedure can be performed. If complete, continue with Step 2.



2. Power up the ADIX system being connected to the ECS.
3. Power up the ECS
4. Follow System Default Procedure on the following page.

Note:	Once both systems are powered up, the ECS system default procedure must be followed to ensure all cards in both the ADIX and the ECS systems are placed in service by the IX-CCU.

System Default Procedure

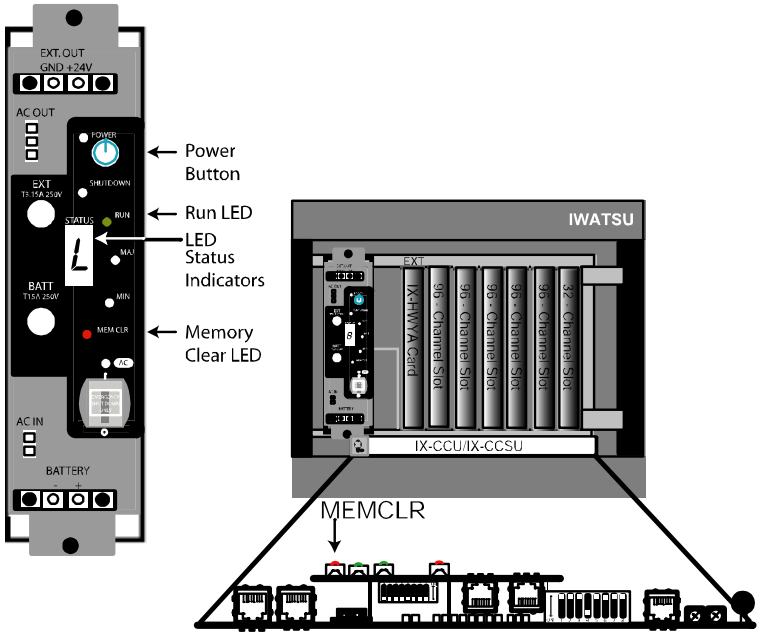
System default procedures are performed to ensure that all cards in the system are recognized by the IX-CCU Central Control Unit and placed in the current database after expansion.

1. While the power is OFF (on the IX-CME), press and hold the MEMCLR switch on the IX-CCU card
2. Press and release the Power Button (Do Not Release the MEMCLR switch)
3. Observe the IX-PWSE Power Supply: The MEMCLR LED will light (Red) and an "*L*" will appear in the STATUS window
4. Release the MEMCLR switch and wait until the LEDs stop flashing and the RUN LED (on the IX-PWSE) remains ON
5. This procedure will take 3-4 minutes to complete

After the default procedure is complete, perform the following steps to verify the system database has been updated:

1. In the ADIX system: Move a Make Busy switch to ON on one of the trunk or station cards. The Make Busy LED on the card should start flashing. If the LED for the card does not go busy (start flashing), repeat steps 1-5.
2. Also, launch the Iwatsu Programmer and download the current system database to make sure all cards appear in the system database.

Note: The database copy that was saved before the expansion procedure was performed may now be uploaded to the system.



Chapter 7

CO Line Installation

This chapter describes the installation process for terminating CO lines to the Iwatsu Enterprise-CS trunk cards. Inspect all system components before beginning the installation process.

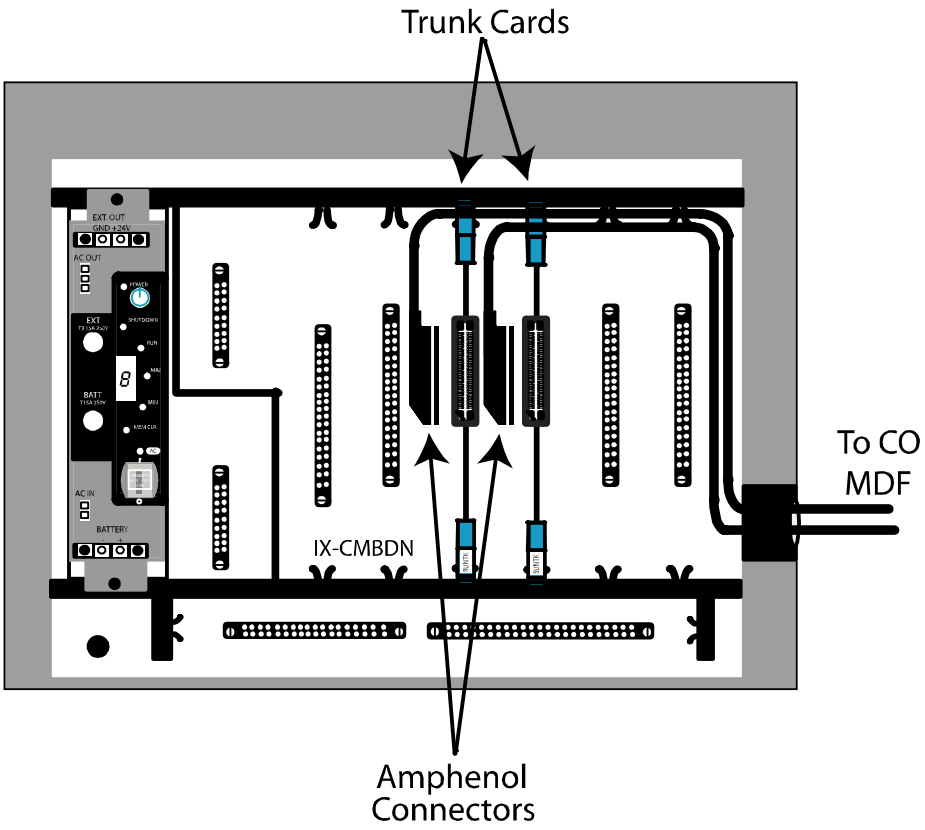
Caution: To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.

Trunk Interface Cards

Trunk interface cards are used to connect both analog and digital trunks to the system. Trunk circuits can be programmed to accommodate either Dial Pulse (DP) or Dual Tone Multi-Frequency (DTMF) lines.

Each trunk card has a make busy LED that works in conjunction with the card's make busy switch. The make busy switch is used to disable (make busy) all of the circuits on the card for power-on maintenance. Make busy LED lamp status is listed in the table below:

LED Status	Description
OFF	All circuits idle
STEADY	Minimum of one circuit busy
FLASHING	All circuits idle and made busy (out of service)


Trunk Cards
To CO
MDF
IX-CMBDN
Amphenol
Connectors

Installing Loop/Ground Start Trunks (IX-8UNTK)

Loop and Ground Start trunks are terminated to the IX-8UNTK card. The IX-8UNTK card contains eight CO/PBX line interface circuits. Each circuit can be used for either a Loop Start or a Ground Start trunk. The trunk type is selected using switches SW103-SW803. A -48 VDC optional power supply (IX-DCDCM or IX-DCDCM) is required with ground start trunks. See **Section 4 - Component Description** for detailed information on the IX-8UNTK card.

Note:	The IX-8UNTK is UL approved for the IX-CME, IX-EXPME1, and IX-EXPME2 expansion cabinets - only.

Preparation

Note:	Set switch SW1 to the MB position and wait until the MB LED starts flashing before removing or inserting a circuit card while the ECS is powered up.

1. Set line loss with switches SW101-SW801. These switches are numbered in order of the CO line circuits on the card. The factory default setting is 0dB. See **Section 4 - Component Description** for setting values.
2. Set each circuit to Loop or Ground with switches SW103 - SW803 (numbered in order of CO line circuits on the card). The factory default setting is Loop.
3. Set the impedance of each circuit to either 600 Ohms or 900 Ohms using switches SW102 - SW802. The factory default setting is 600 Ohms.

Installation

1. Plug the card into any available 96 or 32 channel card slot. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the IX-CMBDN motherboard.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.

MDF Connections

1. Plug a 25-pair male amphenol connector into the IX-8UNTK card.
2. Route the 25-pair cable through the cable raceway.
3. Terminate the 25-pair cable on the MDF according to the table on the following page.
4. Cross connect the central office tip and ring to the desired circuit on the IX-8UNTK card according to the table on the following page.

Note:	Make sure the polarity of the wires is correct when making connections.

CO/PBX Line Designation					
	Amph. Pin	MDF Pin	CM Wire	RJ11 Jack	
IX-8UNTK	No.	No.	Color	Pin No.	Wire Color
	26	1	W-BL		
NO	1	2	BL-W		
CONNECTION	:	:	:		
	41	31	Y-BL		
	16	32	BL-Y		
1T	42	33	Y-O	2	GN
1R	17	34	O-Y	1	R
2T	43	35	Y-GN	2	GN
2R	18	36	GN-Y	1	R
3T	44	37	Y-BR	2	GN
3R	19	38	BR-Y	1	R
4T	45	39	Y-SL	2	GN
4R	20	40	SL-Y	1	R
5T	46	41	V-BL	2	GN
5R	21	42	BL-V	1	R
6T	47	43	V-O	2	GN
6R	22	44	0-V	1	R
7T	48	45	V-GN	2	GN
7R	23	46	GN-V	1	R
8T	49	47	V-BR	2	GN
8R	24	48	BR-V	1	R
	:	:	:		
NO	50	49	V-SL		
CONNECTION	25	50	SL-V		

Database Programming:

System > Hardware; 11.08 Dial Type (DP or DTMF); 11.09 DTMF Dial Speed; 11.11 Dial Pulse Speed; 11.12 Dial Pulse Break Ratio.

Installing Loop/Ground Start Lines (IX-8LGTK-2)

Loop and Ground Start trunks are terminated to the IX-8LGTK-2 card. The IX-8LGTK-2 card contains eight CO/PBX line interface circuits. Each circuit can be used for either a Loop Start or a Ground Start trunk. The trunk type is selected using switches SW103-SW803.

A -48 VDC optional power supply (IX-DCDCM) is required with ground start trunks. See **Section 4 - Component Description** for detailed information on the IX-8LGTK-2 card.

Preparation

Note: Set switch SW1 to the MB position and wait until the MB LED starts flashing before removing or inserting a circuit card while the ECS is powered up.

1. Set line loss with switches SW101-SW801. These switches are numbered in order of the CO line circuits on the card. The factory default setting is 0dB. See **Section 4 - Component Description** for setting values.
2. Set each circuit to Loop with switches SW103 - SW803 (numbered in order of CO line circuits on the card). The factory default setting is Loop. The IX-CME does not support IX-8LGTK-2 for Ground Start trunks.
3. Set the impedance of each circuit to either 600 Ohms or 900 Ohms using switches SW102 - SW802. The factory default setting is 600 Ohms.

Installation

1. Plug the card into any available 96 or 32 channel card slot. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the motherboard.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.

MDF Connections

1. Plug a 25-pair male amphenol connector into the IX-8LGTK-2 card.
2. Route the 25-pair cable through the cable raceway.
3. Terminate the 25-pair cable on the MDF according to the table below.
4. Cross connect the central office tip and ring to the desired circuit on the IX-8LGTK-2 card according to the table below.

Note: Make sure the polarity of the wires is correct when making connections.

CO/PBX Line Designation					
	Amph. Pin	MDF Pin	CM Wire	RJ11 Jack	
IX-8LGTK-2	No.	No.	Color	Pin No.	Wire Color
	26	1	W-BL		
NO	1	2	BL-W		
CONNECTION	:	:	:		
	41	31	Y-BL		
	16	32	BL-Y		
1T	42	33	Y-O	2	GN
1R	17	34	O-Y	1	R
2T	43	35	Y-GN	2	GN
2R	18	36	GN-Y	1	R
3T	44	37	Y-BR	2	GN
3R	19	38	BR-Y	1	R
4T	45	39	Y-SL	2	GN
4R	20	40	SL-Y	1	R
5T	46	41	V-BL	2	GN
5R	21	42	BL-V	1	R
6T	47	43	V-O	2	GN
6R	22	44	0-V	1	R
7T	48	45	V-GN	2	GN
7R	23	46	GN-V	1	R
8T	49	47	V-BR	2	GN
8R	24	48	BR-V	1	R
	:	:	:		
NO	50	49	V-SL		
CONNECTION	25	50	SL-V		

Database Programming:

System > Hardware; 01.07 Number of System Trunk Ports; 11.08 Dial Type (DP or DTMF); 11.09 DTMF Dial Speed; 11.11 Dial Pulse Speed; 11.12 Dial Pulse Break Ratio.

Installing Caller ID Loop Start Lines (IX-8CITK)

Caller ID Loop Start trunks are terminated to the IX-8CITK card which contains eight caller ID trunk interface circuits. See **Section 4 - Component Description** for detailed information on the IX-8CITK card.

Preparation

Note:	Set switch SW1 to the MB position and wait until the MB LED starts flashing before removing or inserting a circuit card while the ECS is powered up.

1. Set line loss with switches SW101-SW801. These switches are numbered in order of the CO line circuits on the card. The factory default setting is 0dB.
2. Set the impedance of each circuit to 600 Ohms or 900 Ohms using switches SW102 - SW802. The factory default setting is 600 Ohms.

Installation

1. Plug the card into any available 96 or 32 channel card slot. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the motherboard.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.

MDF Connections

1. Plug a 25-pair male amphenol connector into the IX-8CITK card.
2. Route the 25-pair cable through the cable raceway.
3. Terminate the 25-pair cable on the MDF according to the table below.
4. Cross connect the central office tip and ring to the desired circuits on the IX-8CITK card according to the table below.

Note:	Make sure the polarity of the wires is correct when making connections.

CO/PBX Line Designation					
	Amph. Pin	MDF Pin	CM Wire	RJ11 Jack	
IX-8CITK	No.	No.	Color	Pin No.	Wire Color
	26	1	W-BL		
NO	1	2	BL-W		
CONNECTION	:	:	:		
	41	31	Y-BL		
	16	32	BL-Y		
1T	42	33	Y-O	2	GN
1R	17	34	O-Y	1	R
2T	43	35	Y-GN	2	GN
2R	18	36	GN-Y	1	R
3T	44	37	Y-BR	2	GN
3R	19	38	BR-Y	1	R
4T	45	39	Y-SL	2	GN
4R	20	40	SL-Y	1	R
5T	46	41	V-BL	2	GN
5R	21	42	BL-V	1	R
6T	47	43	V-O	2	GN
6R	22	44	0-V	1	R
7T	48	45	V-GN	2	GN
7R	23	46	GN-V	1	R
8T	49	47	V-BR	2	GN
8R	24	48	BR-V	1	R
	:	:	:		
NO	50	49	V-SL		
CONNECTION	25	50	SL-V		

Database Programming:

System > Hardware; 01.07 Number of System Trunk Ports; 11.08 Dial Type (DP or DTMF); 11.09 DTMF Dial Speed; 11.11 Dial Pulse Speed; 11.12 Dial Pulse Break Ratio; Class 24 Caller ID/ANI Conversion Data.

Installing the IX-400-2 Caller ID Module

Four caller ID trunk (CITK) ports can be added to the IX-8PSUB-2 card with the addition of an IX-400-2 daughterboard.

The IX-400-2 daughterboard interface central office/PBX circuits that provide caller ID service to the IX-CME Common Module. The IX-400-2 daughterboard also supports central office loop start trunks. The IX-400-2 Caller ID Trunk daughterboard is connected to CN1 and CN2 connectors, as well as, the CN1000 RJ-45 connector on the IX-8PSUB-2 card.

Physical Port Mapping Table (IX-CME)

Card Installed In IX-CME Slot	Caller ID Ports
1	17-20
2	113-116
3	209-212
4	305-308
5	401-404
6	497-500

Preparation

Note: Set switch MBSW1 to the MB position (on the IX-8PSUB-2 card and wait until MBLED1 and the 400 LEDs start flashing before removing or inserting a circuit card while the system is powered up.

1. The IX-8PSUB-2 card (IX-400-2 daughterboard) can be installed in any available 96 or 32 channel card slot in the IX-CME.
2. Set trunk attenuation with switches SW101-SW401 located on the IX-400-2. These switches are numbered in order of the CO line circuits on the card. The factory default setting is 0dB.
3. Connect the CN1 and CN2 connectors on the IX-400-2 card to the CN1 and CN2 connectors on the IX-8PSUB-2 card. Make sure that both connectors are inplace that both standoff posts on the IX-400-2 card snap into place to secure the IX-400-2 to the IX-8PSUB-2 card.
4. Connect the PSTN Line Connection cable (shipped with the IX-400-2 card) to the CN1000 RJ-45 connector on the IX-8PSUB-2 card and then to the CN1000 RJ-45 connector on the IX-400-2 card.

Installation

1. With the Make Busy (MBSW1) switch (on the IX-8PSUB-2 card) in the Make Busy position, insert the card into the card slot determined above. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the motherboard.
2. Secure the card stopper bracket with the two screws on the ECS shelf if no other cards are to be installed.

MDF Connections

1. Plug a 25-pair male amphenol connector into the IX-8PSUB-2 card.
2. Route the 25-pair cable through the cable raceway.
3. Terminate the 25-pair cable on the MDF according to the table below.
4. Cross connect the central office tip and ring to the desired circuits on the IX-8PSUB-2 card according to the table below.

Note: Make sure the polarity of the wires is correct when making connections.

	Amphenol	MDF "66"	25-pair	RJ11 Jack	
CITK	Pin Number	Pin Number	Wire Color	Pin Number	Wire Color
1CT	42	33	Y-O	2	GN
1CR	17	34	O-Y	1	R
2CT	43	35	Y-GN	2	GN
2CR	18	36	GN-Y	1	R
3CT	44	37	Y-BR	2	GN
3CR	19	38	BR-Y	1	R
4CT	45	39	Y-SL	2	GN
4CR	20	40	SL-Y	1	R

Database Programming:

System > Hardware; 01.07 Number of System Trunk Ports; 11.08 Dial Type (DP or DTMF); 11.09 DTMF Dial Speed; 11.11 Dial Pulse Speed; 11.12 Dial Pulse Break Ratio; Class 24 Caller ID/ANI Conversion Data.

Installing the IX-408 Card

The IX-408 card consists of eight digital station (PSUB-1) ports and four Caller ID trunk (CITK) ports. This card may be inserted in any IX-CME Common Module card slot.

Digital Station (PSUB-1) Ports. The eight PSUB-1 ports are terminated on ports 1-8 of the card slot (physical ports 1-8 of card slot 1). They interface ECS digital station terminals to the IX-CME Common Module.

Each PSUB-1 circuit of the IX-408 card is connected to an ECS digital telephone or DSS unit using #22/24 AWG one-pair twisted cable. If a busy bypass unit is used with an ECS digital telephone, #22/24 AWG two-pair twisted cable is required. The loop limit of ECS digital station terminals is 1000 feet. The loop limit can be extended using star repeaters.

Caller ID Trunk (CITK) Ports. The four CITK ports are terminated on ports 9-12 of the card slot (physical ports 9-12 of card slot 1). They interface central office/PBX circuits that provide caller ID service to the IX-CME Common Module.

Physical Port Mapping Table (IX-CME)

Card Installed In IX-CME Slot	Digital Station Ports	Caller ID Ports
1	1-8	9-12
2	97-104	105-108
3	193-200	201-204
4	289-296	297-300
5	385-392	393-396
6	481-488	489-492

Preparation

Note: Set switch MBSW1 to the MB position and wait until MBLED1 and MBLED2 start flashing before removing or inserting a circuit card while the system is powered up.

1. The IX-408 card can be installed in any available 96 or 32 channel card slot in the IX-CME.
2. Set both SW1 and SW2 according to the following table:

Card Position	SW1	SW2
IX-CME (Any 96 or 32 channel card slot)	SLOT 1	SLOT 1
IX-CMM/L Slot 1	SLOT 1	SLOT 1
IX-CMM/L Slot 2-5	SLOT 2	SLOT 2
Any other cabinet (IX-EXPMM, IX-CM, IX-EXPM)	SLOT 1	SLOT 1
IX-EXPML Slot 1 and 2	SLOT 1	SLOT 1
IX-EXPML Slot 3-6	SLOT 2	SLOT 2

3. Set trunk attenuation with switches SW121-SW421. These switches are numbered in order of the CO line circuits on the card. The factory default setting is 0dB.

Installation

1. Plug the card into the card slot determined above. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the IX-CMBDN motherboard.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.

MDF Connections

1. Plug a 25-pair male amphenol connector into the IX-408 card.
2. Route the 25-pair cable through the cable raceway.
3. Terminate the 25-pair cable on the MDF according to the table below.
4. Cross connect the central office tip and ring to the desired circuits on the IX-8CITK card according to the table below.

Note: Make sure the polarity of the wires is correct when making connections.

Digital Station Ports	Amphenol Pin Number	MDF "66" Pin Number	25-Pair Wire Color	RJ11 Jack	
				Pin Number	Wire Color
1PT	26	1	W-BL	3	GN
1PR	1	2	BL-W	2	R
FG	27	3	W-O	4	Y
FG	2	4	O-W	1	BK
2PT	28	5	W-GN	3	GN
2PR	3	6	GN-W	2	R
FG	29	7	W-BR	4	Y
FG	4	8	BR-W	1	BK
3PT	30	9	W-SL	3	GN
3PR	5	10	SL-W	2	R
FG	31	11	R-BL	4	Y
FG	6	12	BL-R	1	BK
4PT	32	13	R-O	3	GN
4PR	7	14	O-R	2	R
FG	33	15	R-GN	4	Y
FG	8	16	GN-R	1	BK
5PT	34	17	R-BR	3	GN
5PR	9	18	BR-R	2	R
FG	35	19	R-SL	4	Y
FG	10	20	SL-R	1	BK
6PT	36	21	BK-BL	3	GN
6PR	11	22	BL-BK	2	R
FG	37	23	BK-O	4	Y
FG	12	24	O-BK	1	BK
7PT	38	25	BK-GN	3	GN
7PR	13	26	GN-BK	2	R
FG	39	27	BK-BR	4	Y
FG	14	28	BR-BK	1	BK
8PT	40	29	BK-SL	3	GN
8PR	15	30	SL-BK	2	R
FG	41	31	Y-BL	4	Y
FG	16	32	BL-Y	1	BK
Caller ID Ports	Amphenol Pin Number	MDF "66" Pin Number	25-Pair Wire Color	RJ11 Jack	
				Pin Number	Wire Color
1T	42	33	Y-O	2	GN
1R	17	34	O-Y	1	R
2T	43	35	Y-GN	2	GN
2R	18	36	GN-Y	1	R
3T	44	37	Y-BR	2	GN
3R	19	38	BR-Y	1	R
4T	45	39	Y-SL	2	GN
4R	20	40	SL-Y	1	R

Database Programming:

System > Hardware; 01.07 Number of System Trunk Ports; 11.08 Dial Type (DP or DTMF); 11.09 DTMF Dial Speed; 11.11 Dial Pulse Speed; 11.12 Dial Pulse Break Ratio; Class 24 Caller ID/ANI Conversion Data.

Installing the IX-044 Card and IX-400 Caller ID Module

The IX-044 card consists of four single-line (SUBS-2) ports and four digital station (PSUB-1) ports. Four caller ID trunk (CITK) ports may be added to the IX-044 with the addition of an IX-400 daughterboard.

Single-Line Station (SUBS-2) Ports. The four SUBS-2 ports are terminated on ports 1-4 of the card slot (physical ports 1-4 of card slot 1). They interface analog station terminal devices to the IX-CME Gateway Controller cabinet.

Digital Station (PSUB-1) Ports. The four PSUB-1 ports are terminated on ports 9-12 of the card slot (physical ports 105-108 of card slot 1). They interface ECS digital station terminals to the IX-CME cabinet.

Each PSUB-1 circuit on the IX-044 card is connected to an ECS digital telephone or DSS unit using #22/24 AWG one-pair twisted cable. If a busy bypass unit is used with an ECS digital telephone, #22/24 AWG two-pair twisted cable is required. The loop limit of ECS digital station terminals is 1000 feet. The loop limit can be extended using star repeaters.

IX-400 Caller ID Daughterboard (CITK Caller ID Trunk Ports)

The IX-400 daughterboard interface central office/PBX circuits that provide caller ID service to the IX-CME Common Module. The IX-400 daughterboard will also support central office loop start trunks. The IX-400 Caller ID Trunk daughterboard is connected to CN1 and CN2 on the IX-044 card. When connected to the IX-044 card, the four CITK ports are terminated on ports 113-116 of card slot 1.

Physical Port Mapping Table (IX-CME)

Card Installed In IX-CME Slot	SLT Ports	Digital Station Ports	Caller ID Ports
1	1-8	9-12	17-20
2	97-100	105-108	113-116
3	193-196	201-204	209-212
4	289-292	297-300	305-308
5	385-388	393-396	401-404
6	481-484	489-492	497-500

Preparation

Note: Set switch MBSW1 to the MB position and wait until MBLED1, MBLED2, and MBLED3 start flashing before removing or inserting a circuit card while the system is powered up.

1. The IX-044 card (IX-400 daughterboard) can be installed in any available 96 or 32 channel card slot in the IX-CME.
2. Set **both** SW1 and SW2 on the IX-044 card according to the following table:

Card Position	SW1	SW2
IX-CME (Any 96 or 32 channel card slot)	SLOT 1	SLOT 1
IX-CMM/L Slot 1	SLOT 1	SLOT 1
IX-CMM/L Slot 2-5	SLOT 2	SLOT 2
Any other cabinet (IX-EXPMM, IX-CM, IX-EXPM)	SLOT 1	SLOT 1
IX-EXPML Slot 1 and 2	SLOT 1	SLOT 1
IX-EXPML Slot 3-6	SLOT 2	SLOT 2

3. Set trunk attenuation with switches SW101-SW401 located on the IX-400. These switches are numbered in order of the CO line circuits on the card. The factory default setting is 0dB.

Installation

1. Plug the card into the card slot determined above. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the motherboard.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.

MDF Connections

1. Plug a 25-pair male amphenol connector into the IX-044 card.
2. Route the 25-pair cable through the cable raceway.
3. Terminate the 25-pair cable on the MDF according to the table below.
4. Cross connect the central office tip and ring to the desired circuits on the IX-8CITK card according to the table below.

Note: Make sure the polarity of the wires is correct when making connections.

Single Line Ports	Amphenol Pin Number	MDF "66" Pin Number	25-pair Wire Color	RJ11 Jack	
				Pin Number	Wire Color
1T	26	1	W-BL	3	GN
1R	1	2	BL-W	2	R
FG	27	3	W-O	4	Y
FG	2	4	O-W	1	BK
2T	28	5	W-GN	3	GN
2R	3	6	GN-W	2	R
FG	29	7	W-BR	4	Y
FG	4	8	BR-W	1	BK
3T	30	9	W-SL	3	GN
3R	5	10	SL-W	2	R
FG	31	11	R-BL	4	Y
FG	6	12	BL-R	1	BK
4T	32	13	R-O	3	GN
4R	7	14	O-R	2	R
FG	33	15	R-GN	4	Y
FG	8	16	GN-R	1	BK

Digital Station Ports	Amphenol Pin Number	MDF Pin Number	CM Wire Color	RJ11 Jack	
				Pin Number	Wire Color
5PT	34	17	R-BR	3	GN
5PR	9	18	BR-R	2	R
FG	35	19	R-SL	4	Y
FG	10	20	SL-R	1	BK
6PT	36	21	BK-BL	3	GN
6PR	11	22	BL-BK	2	R
FG	37	23	BK-O	4	Y
FG	12	24	O-BK	1	BK
7PT	38	25	BK-GN	3	GN
7PR	13	26	GN-BK	2	R
FG	39	27	BK-BR	4	Y
FG	14	28	BR-BK	1	BK
8PT	40	29	BK-SL	3	GN
8PR	15	30	SL-BK	2	R
FG	41	31	Y-BL	4	Y
FG	16	32	BL-Y	1	BK

CITK	Amphenol Pin Number	MDF “66” Pin Number	25-pair Wire Color	RJ11 Jack	
				Pin Number	Wire Color
1CT	42	33	Y-O	2	GN
1CR	17	34	O-Y	1	R
2CT	43	35	Y-GN	2	GN
2CR	18	36	GN-Y	1	R
3CT	44	37	Y-BR	2	GN
3CR	19	38	BR-Y	1	R
4CT	45	39	Y-SL	2	GN
4CR	20	40	SL-Y	1	R

Database Programming:

System > Hardware; 01.07 Number of System Trunk Ports; 11.08 Dial Type (DP or DTMF); 11.09 DTMF Dial Speed; 11.11 Dial Pulse Speed; 11.12 Dial Pulse Break Ratio; Class 24 Caller ID/ANI Conversion Data.

Installing E&M Tie Lines (IX-4EMTK)

E&M tie lines are terminated to the IX-4EMTK card which contains four E&M tie line interface circuits. An IX-DCDCM additional power supply is required when this card is used. See **Section 4 - Component Description** for detailed information on the IX-4EMTK card.

Preparation

Note: Set switch SW1 to the MB position and wait until the MB LED starts flashing before removing or inserting a circuit card while the ECS is powered up.

- Set each circuit to E&M Type I or Type II using switches SW101-SW401 and SW102-SW402. These switches are numbered in order of the E&M tie line circuits on the card. The factory default setting is Type I.

Note: Two switches must be set for each circuit.

On Hook/Off Hook Signal States				
Lead	On-Hook	Off Hook	On Hook	Off Hook
M	GROUND	-48VDC	OPEN	-48VDC
SB	-	-	-48VDC	-48VDC
E	-48VDC	GROUND	-48VDC	GROUND
SG	-	-	GROUND	GROUND

Installation

Note: This card contains mercury relays and should be “tapped down” before installation.

1. Plug the card into any available 96 or 32 channel card slot in the IX-CME. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the IX-CMBDN motherboard.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.

MDF Connections

1. Plug a 25-pair male amphenol connector into the IX-4EMTK card.
2. Route the 25-pair cable through the cable raceway.
3. Terminate the 25-pair cable on the MDF according to the table on the next page.
4. Cross connect the term set interface to the desired circuit on the IX-4EMTK card according to the table on the next page.

Database Programming:

System > Hardware; 01.07 Number of System Trunk Ports; 04.26 Network Plan; 07.05 Network Access Number; 11.08 Dial Type (DP or DTMF); 11.09 DTMF Dial Speed; 11.11 Dial Pulse Speed; 11.12 Dial Pulse Break Ratio; 11.20 E&M On-Hook Detect.

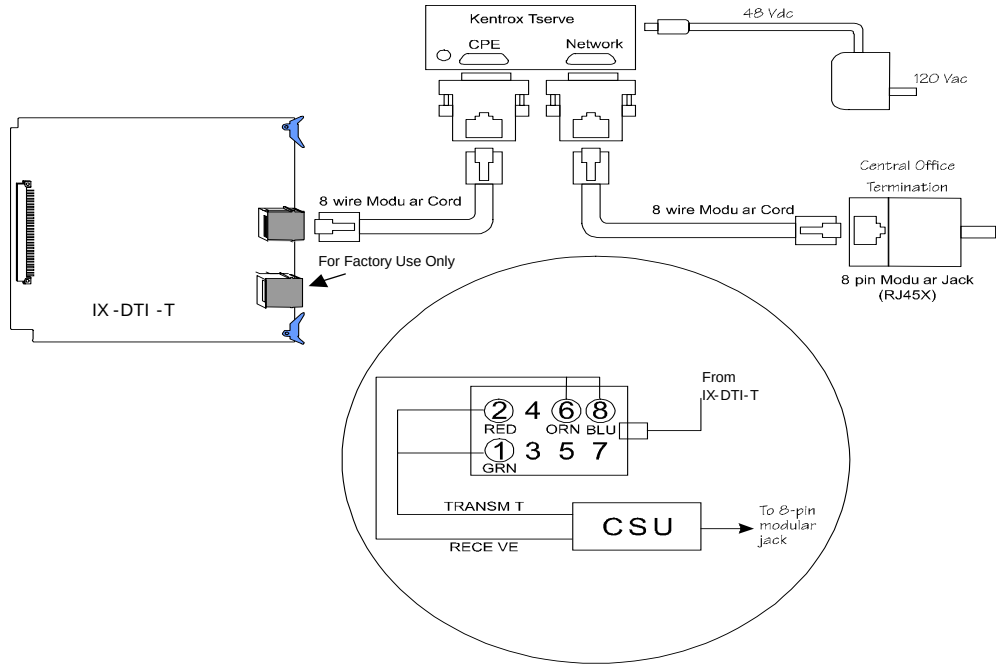
Installing T1 Trunks (IX-DTI-T)

This section describes hardware requirements and installation procedures for terminating T1 trunks to the IX-DTI-T T1 Interface card. See **Section 4 - Component Description** for detailed information on the IX-DTI-T card.

Hardware Requirements

- One IX-DTI-T T1 Interface Card is required for each T1 circuit (24 channels).
- One external CSU per T1 circuit.
- One IX-T1RCV DTMF Receiver Card for each IX-DTI-T T1 Interface Card that requires DTMF signal receiving capability (DTMF signaling is used with DNIS, 2-way DID, E&M tie line, VMOPX and ANI T1 trunks).

Note:	IX-T1RCV card is not supported in the ECS IX-CME cabinet. For DNIS, CID, and Networking features: The IX-DTI-T and IX-T1RCV cards must be installed in the ECS Expansion Modules or the ADIX-APS, ADIX-M, or the ADIX cabinets connected to the IX-CME via an IX-HWYL card.



Running Cable

At least two cables (not provided with the IX-DTI-T T1 Interface Card) must be prepared before installation. Before cutting the cable, inspect the installation site to determine the exact length of the cable. Keep the cable length to a minimum in order to avoid a bipolar violation error caused by dispersion and interference. The following criteria is recommended when connecting T1 circuits:

- Use Two-pair shielded cable.
- Use high-quality connectors.
- Never use a multiple conductor cable that contains more than two-pair.

Note:

There are two types of T1 circuits: Hot and Dry. A *Hot T1* circuit transmits electrical power to drive the CSUs. The voltage may be as high as 220 VDC. A *Dry T1* circuit does not contain VDC. Handle all T1 circuits with proper precaution for your safety.

- Never run T1 cables with other lines, i.e., AC power lines, computer cables, etc.
- Do not run cables near equipment that generates electromagnetic interference.
- Do not run cables near equipment that radiate electromagnetic (radio) waves.
- Do not exceed the distance limit of 660 feet between the ECS and the CSU.

Preparation

1. Set the clock mode of the IX-DTI-T T1 Interface Card to either master, slave-primary, slave-backup, or slave-private using Switch SW2, positions 1 and 2.
2. Set the framing mode and zero code suppression scheme of the IX-DTI-T T1 Interface Card using Switch SW2, positions 3 and 4.
3. Set the digital attenuation of the IX-DTI-T T1 Interface Card using Switch SW2, position 5.
4. Set the fractional setting of the IX-DTI-T T1 Interface Card to 8, 16, or 24 channels using Switch SW2, positions 6 and 7.

Note: The fractional settings affect card slot usage.

5. Enable or disable the blue alarm using Switch SW2, position 8.
6. Use Switch SW1, positions 1, 2, and 3 to enter the distance of the IX-DTI-T T1 Interface Card from the CSU.

ECS Termination

Plug the T1 circuit into connector CN1 on the IX-DTI-T T1 Interface Card. This connection is in accordance with FCC standard DCX-1.

CSU Termination

A channel service unit usually comes with two connectors: one for carrier termination and one for equipment termination. Carrier termination is usually marked **NETWORK** or **LINE**. Equipment termination is usually marked **EQUIPMENT** or **DTE**. With most CSUs either a RJ48C 8-pin modular jack or a DA15S/P 15-pin data connector is used. Confirm your needs and order the proper cables.

Telephone Company Termination

The telephone company always terminates with a RJ48C modular jack as required by the FCC. In some cases a SMART JACK (a variation of RJ48C taking the same modular plug) is used.

Database Programming:

System > Hardware; 01.07 Number of System Trunk Ports; 04.26 Network Plan; 07.05 Network Access Number; Class 09 DID Conversion Data; 11.08 Dial Type (DP or DTMF); 11.09 DTMF Dial Speed; 11.11 Dial Pulse Speed; 11.12 Dial Pulse Break Ratio; Class 24 Caller ID/ANI Conversion Data; Class 25 DNIS Conversion Data.

Installing the IX-T1RCV DTMF Receiver Card

Note:	IX-T1RCV card is not supported in the ECS IX-CME cabinet. For DNIS, CID, and Networking features: The IX-DTI-T and IX-T1RCV cards must be installed in the ECS Expansion Modules or the ADIX-APS, ADIX-M, or the ADIX cabinets connected to the IX-CME via an IX-HWYL card.

(ADIX, ADIX-M, ADIX APS Only)

The IX-T1RCV DTMF Receiver Card is required to support T1 applications utilizing ANI trunks, two-way DID trunks, DNIS trunks, E&M tie lines, VML OPX or OPX lines using DTMF signaling.

In order for the IX-DTI-T T1 Interface Card or the IX-T1DTI Card to operate in any ECS system, it must be installed in the first card slot of any 32-channel highway. The IX-T1RCV DTMF Receiver Card must be installed in the second slot of the same 32-channel highway.

Because IX-CML and IX-CMM card slots 1 and 2 are part of the different highways, the IX-CML and IX-CMM do not support the IX-T1RCV DTMF Receiver card when the IX-DTI-T T1 Interface card is installed in the IX-CML or IX-CMM card slot 1 (physical ports 97-120). The IX-T1RCV DTMF Receiver card is supported in an IX-CML or IX-CMM only if the IX-DTI-T T1 card is installed in card slot 2 (physical ports 001-008/highway 0). In this configuration, the IX-T1RCV DTMF Receiver card is installed in card slot 3 (physical ports 009-016/highway 0) and card slot 4 (physical ports 017-024/highway 0) is not available unless a fractional T1 setting is used.

Installing the IX-DTI-T and the IX-T1RCV Card in an ADIX IX-CM Common Module and IX-EXPM Expansion Module

The full-size, original-type ADIX cabinets (IX-CM and IX-EXPM) were designed with one highway (32 channels) for every four card slots. The IX-T1RCV DTMF Receiver card can be installed in slot two or six of any shelf of the full-size ADIX system. When a T1 application requires the IX-T1RCV DTMF Receiver card, install using these directions:

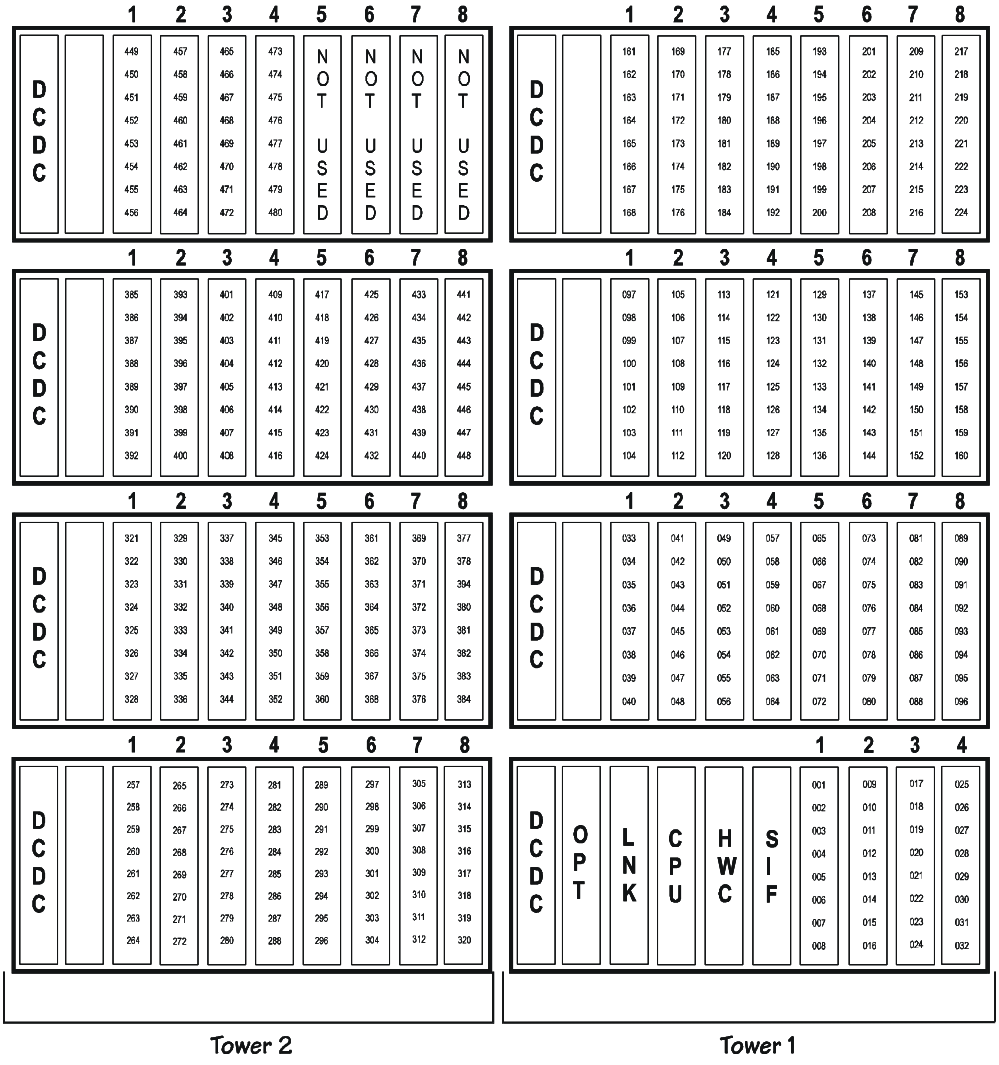
IX-CM: The IX-DTI-T T1 Interface card can be installed in IX-CM slot 1 (physical ports 001-008) of the first shelf. The IX-DTI-T T1 Interface card can be installed in IX-CM slot 1 (physical ports 033-040) or slot 5 (physical ports 065-072) of the second shelf. If an IX-T1RCV DTMF Receiver card is required, the IX-T1RCV DTMF card will be installed directly to the right of the IX-DTI-T T1 card.

IX-EXPM: The IX-DTI-T T1 card can be installed in slot 1 or 5 of any IX-EXPM (physical port numbers are dependent upon shelf location). See the next page for a

complete physical layout. If an IX-T1 RCV DTMF card is required, the IX-T1RCV card installs in the slot directly to the right of the IX-DTI-T T1 card.

The figure on the following page illustrates the physical port layout of an ADIX system using the IX-CM and the IX-EXPMM cabinets.

ADIX physical port layout



Installing the IX-DTI-T and the IX-T1RCV Card in an ADIX IX-CMM/IX-CMM-1 Common Module and IX-EXPMM Expansion Module

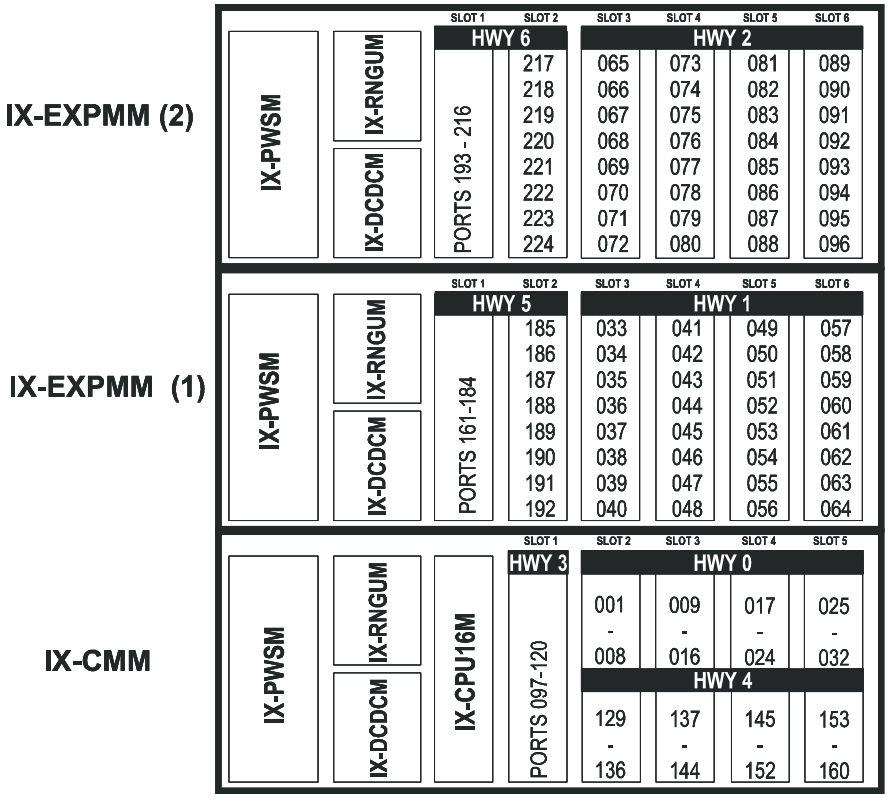
The IX-CMM, IX-CMM-1, and IX-EXPMM were designed with a card slot layout based on reducing physical space and supporting higher density cards. When a T1 application requires the IX-T1RCV DTMF card, follow the directions below:

IX-CMM or IX-CMM-1: The IX-DTI-T T1 card can be installed in the IX-CMM or IX-CMM-1 slot 1 (physical ports 097-120) or slot 2 (physical ports 001-008). If an IX-T1RCV card is required, the IX-DTI-T can only be installed in slot 2 (physical ports 001-008) with the IX-T1RCV card installed in slot 3 (physical ports 009-016).

Note:	An IX-T1RCV DTMF Receiver card cannot be used with an IX-DTI-T T1 Interface card installed in slot 1 (physical ports 097-120) of this cabinet.

IX-EXPMM: The IX-DTI-T card can be installed in slot 1 or 3 of any IX-EXPMM (physical port numbers are dependent on the shelf location). See the illustration below for a complete physical port layout. If an IX-T1RCV card is required, the IX-T1RCV card is installed in the slot immediately to the right of the IX-DTI-T card.

ADIX-S/M highway architecture and physical port layout



Installing the IX-DTI-T and the IX-T1RCV Card in an ADIX IX-CML Common Module and IX-EXPML1 and IX-EXPML2 Expansion Module

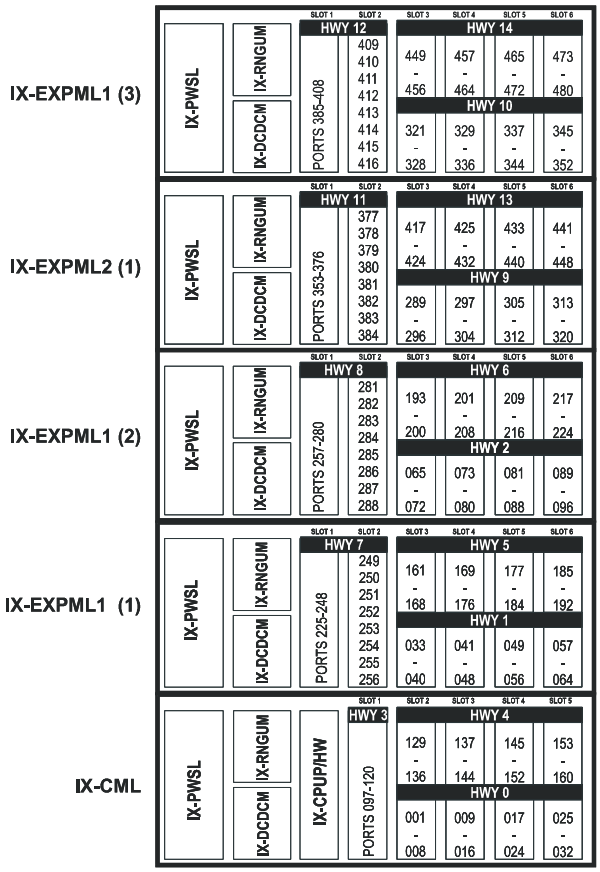
The ADIX APS (IX-CML, IX-EXPML1, and IX-EXPML2) cabinets were designed with an expanded capacity similar to the ADIX S/M system design. When a T1 application requires the IX-T1RCV DTMF Receiver card, follow the directions below:

IX-CML: The IX-DTI-T T1 card can be installed in the IX-CML slot 1 (physical ports 097-120) or slot 2 (physical ports 001-008). If an IX-T1RCV card is required, the IX-DTI-T can only be installed in slot 2 (physical ports 001-008) with the IX-T1RCV card installed in slot 3 (physical ports 009-016).

Note:	An IX-T1RCV DTMF Receiver card cannot be used with an IX-DTI-T T1 Interface card installed in slot 1 (physical ports 097-120) of this cabinet.

IX-EXPML1 and IX-EXPML2: The IX-DTI-T card can be installed in slot 1 or 3 of any IX-EXPML(n) (physical port numbers are dependent on the shelf location). See the illustration below for a complete physical port layout. If an IX-T1RCV card is required, the IX-T1RCV card is installed in the slot immediately to the right of the IX-DTI-T card.

ADIX APS highway architecture and physical port layout



Installing ISDN BRI Subscriber Lines

In order to support ISDN BRI subscriber lines, the ECS system must meet the following hardware and software requirements:

- One IX-4ICOTB (or IX-4EICOTB) card is required for and can support 4 ISDN BRI (2B + D) subscriber lines.
- One NT1 device is required to interface each ISDN BRI line (2B + D) to the IX-4ICOTB / IX-4EICOTB card.
- The table below lists the switch types and protocols supported by the ADIX IX-4ICOTB card:

Switch Type	Protocol Type	Detail Type
DMS-100	National ISDN	Multipoint2
5EES	National ISDN	Multipoint2

- The ECS does not support ISDN BRI installations in Canada. Only in the United States.

Configuring ISDN BRI Lines

Class 01.11 is used to identify and configure ISDN lines.

Physical Port Assignment. The table below illustrates physical port mapping of the IX-2ICOTB ISDN BRI card.

Physical Port	Channel
1	Channel 1 of first ISDN BRI subscriber line
2	Channel 2 of first ISDN BRI subscriber line
3	Channel 1 of second ISDN BRI subscriber line
4	Channel 2 of second ISDN BRI subscriber line
5	Channel 1 of third ISDN BRI subscriber line
6	Channel 2 of third ISDN BRI subscriber line
7	Channel 1 of fourth ISDN BRI subscriber line
8	Channel 2 of fourth ISDN BRI subscriber line

The table below illustrates an example of physical port mapping with ISDN BRI channel usage of the IX-4EICOTB ISDN BRI Expansion card using the default 4-circuit mode.

Physical Port	Channel
9	Channel 1 of fifth ISDN BRI subscriber line
10	Channel 2 of fifth ISDN BRI subscriber line
11	Channel 1 of sixth ISDN BRI subscriber line
12	Channel 2 of sixth ISDN BRI subscriber line
13	Channel 1 of seventh ISDN BRI subscriber line
14	Channel 2 of seventh ISDN BRI subscriber line
15	Channel 1 of eighth ISDN BRI subscriber line
16	Channel 2 of eighth ISDN BRI subscriber line

The table below illustrates an example of physical port mapping with ISDN BRI channel usage of the IX-4ICOTB ISDN BRI card using the default 2-circuit mode.

Physical Port	Channel
1	Channel 1 of first ISDN BRI subscriber line
2	Channel 2 of first ISDN BRI subscriber line
3	Dummy
4	D Channel of first ISDN BRI subscriber line
5	Channel 1 of second ISDN BRI subscriber line
6	Channel 2 of second ISDN BRI subscriber line
7	Dummy
8	D Channel of second ISDN BRI subscriber line

The table below illustrates an example of physical port mapping with ISDN BRI channel usage of the IX-4EICOTB ISDN BRI Expansion card using the default 2-circuit mode.

Physical Port	Channel
9	Channel 1 of third ISDN BRI subscriber line
10	Channel 2 of third ISDN BRI subscriber line
11	Dummy
12	D Channel of third ISDN BRI subscriber line
13	Channel 1 of fourth ISDN BRI subscriber line
14	Channel 2 of fourth ISDN BRI subscriber line
15	Dummy
16	D Channel of fourth ISDN BRI subscriber line

Programming the Protocol Type of the ISDN Carrier

Protocol Type (Class 11.73 <2>) is used to set the ISDN protocol type. The protocol type denotes the type of ISDN service provided by the telephone company. The ISDN protocol type varies by region, and the ISDN service provider is best able to supply the ISDN protocol type they use.

Three ISDN protocol settings are available: **National ISDN**, **DMS-100**. In most installations, National ISDN protocol is applicable. However some installation may require **DMS-100** (custom). **5ESS** (custom) is used in ISDN PRI application and must not be selected.

Setting the SPID for BRI

The Service Profile Identifier (SPID) is an eight to twelve digit number that uniquely identifies the ISDN services ordered from the telephone company. The telephone company designates this number. For each ISDN BRI line, two SPID numbers are assigned, one for each channel. Use Class 11.77 <01> and <02> to enter the SPID numbers.

Note: In most cases, the SPID is the telephone number followed by digits 0101 (For example, *97292902420101*).

The following table illustrates the format for assigning SPIDs to an ISDN circuit. This table is an example and should be used for illustration purposes only.

		77 SPID <1>	77 SPID <2>
Trunk No.	1	SPID of Channel 1, ISDN BRI circuit 1	SPID of Channel 2, ISDN BRI circuit 1
	2	No SPID Entry Required	No SPID Entry Required
	3	SPID of Channel 1, ISDN BRI circuit 2	SPID of Channel 2, ISDN BRI circuit 2
	3	No SPID Entry Required	No SPID Entry Required
	4	SPID of Channel 1, ISDN BRI circuit 3	SPID of Channel 2, ISDN BRI circuit 3
	5	No SPID Entry Required	No SPID Entry Required
	6	SPID of Channel 1, ISDN BRI circuit 4	SPID of Channel 2, ISDN BRI circuit 4
	7	No SPID Entry Required	No SPID Entry Required

Routing ISDN Calls According to ANI or DNIS

The ECS may be programmed to route calls on ISDN BRI lines according to either the ANI or DNIS digits received with the call.

To use this feature, the ECS must be enabled to route a call on the specific ISDN trunk according to the ANI or DNIS. If both ANI and DNIS digits are received with the same call, Class 04.70 <22> Conversion Table Mode determines which data is used to route the call. If the ANI or DNIS conversion table does not contain routing information for the call, the ECS will route the call according to the following programming:

- Class 11.32 - Ringing Station
- Class 11.34 - DIL to Hunt Group
- Class 11.26 - Attendant Intercept Line
- Class 04.55 - True Attendant Position

Call Routing Using ANI

When an incoming call with ANI digits is received on an ISDN trunk and the ISDN trunk is enabled for ANI, the ECS searches Class 24.01 Caller ID/ANI Incoming Number for a match. If a match is found the system searches Class 24.02 Caller ID/ ANI Conversion Number for a ringing assignment. The ringing assignment can be either a station, master hunt group, ACD group or voice mailbox. Additionally, Class 24.03 Caller ID/ANI Number ID can be programmed to provide for an alphanumeric ID for displaying purposes.

Call Routing Using DNIS

When an incoming call with DNIS digits is received on an ISDN trunk and the ISDN trunk is enabled for DNIS, the ECS searches Class 25.01 DNIS Incoming Number for the DNIS digits received. If a match is found, the system searches Class 25.02 DNIS Conversion Number for a ringing assignment. The ringing assignment can be either a station, master hunt group, ACD group or voice mailbox. Class 25.03 DNIS Incoming Digits can be programmed to provide for an alphanumeric ID for displaying purposes.

Conditions:

1. One IX-4ICOTB card supports four ISDN BRI lines.
2. Incoming ISDN calls can be routed according to the ANI or DNIS digits received.
3. A SPID is required for each B channel on an ISDN BRI line. These numbers, designated by the telephone company, are entered in Class 11.77, <NUM 02>=1.

Database Programming:

System > Hardware; Class 04.70 < 22> Conversion Table Mode; Class 04.72 <15> Event Code Output Port; Class 04.77 <01> VM Packet; Class 11.73 <02>Protocol Type; Class 11.74 <02> D Channel ID; Class 11.77 <01> SPID (1); Class 11.77 <02>=SPID (2); Class 24 Caller ID/ANI Conversion Data, Class 25 DNIS Conversion Data.

Hardware Required:

ECS Hardware: IX-4ICOTB / IX-4EICOTB

Customer Provided Equipment: NT1 (External Hardware not provided by Iwatsu).

Installing ISDN PRI Subscriber Lines (IX-DTI-P)

1. Use Switch SW1, positions 1, 2 and 3 to enter the distance of the IX-DTI-P card from the CSU.
2. Refer to Section 4 Component Description: IX-DTI-P Digital Trunk Card for switch definitions
3. Plug the IX-DTI-P card into any 96 or 32 channel card slot.
4. Secure the card stopper bracket with the two screws if no other cards are to be installed.

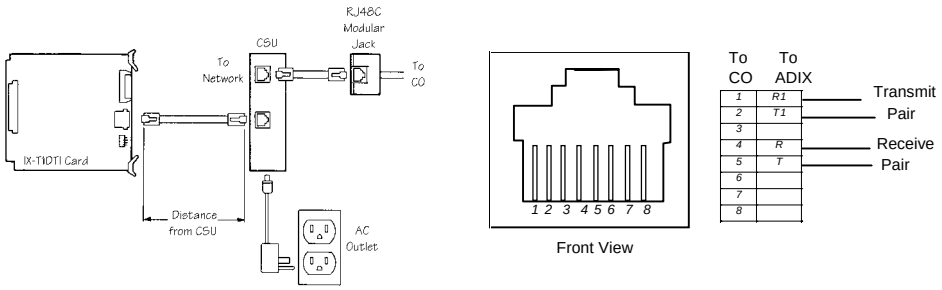
Card Slots for ECS Installation

The tables below list the card slots in which the IX-DTI-P card may be installed.

Iwatsu Enterprise-CS System		
IX-CME Cabinet	Card Slot	Physical Ports
96-Channel Card Slot	1	1-24
96-Channel Card Slot	2	97-120
96-Channel Card Slot	3	193-216
96-Channel Card Slot	4	289-312
96-Channel Card Slot	5	385-408
32-Channel Card Slot	6	481-504

Line Termination

The ISDN PRI line is terminated to three points at each site: Telephone company, CSU, and ECS. CSU connectors vary depending on the manufacturer. It is important to know the type of connector required prior to installation.



ECS Termination Plug the ISDN span into connector CN1 on the IX-DTI-P card. This connection is in accordance with FCC standard DCX-1.

CSU Termination A channel service unit usually comes with two connectors - one for network termination and one for equipment termination. Network termination is usually marked NETWORK or LINE. Equipment termination is usually marked EQUIPMENT or DTE. With most CSUs either a RJ48C 8-pin modular jack or a DA15S/P 15-pin data connector is used. Confirm and order the proper cables.

Telephone Company Termination The telephone company always terminates with a RJ48C modular jack as required by the FCC. In most cases a SMART JACK (which is a variation of RJ48C and takes the same modular plug) is used.

Chapter 8

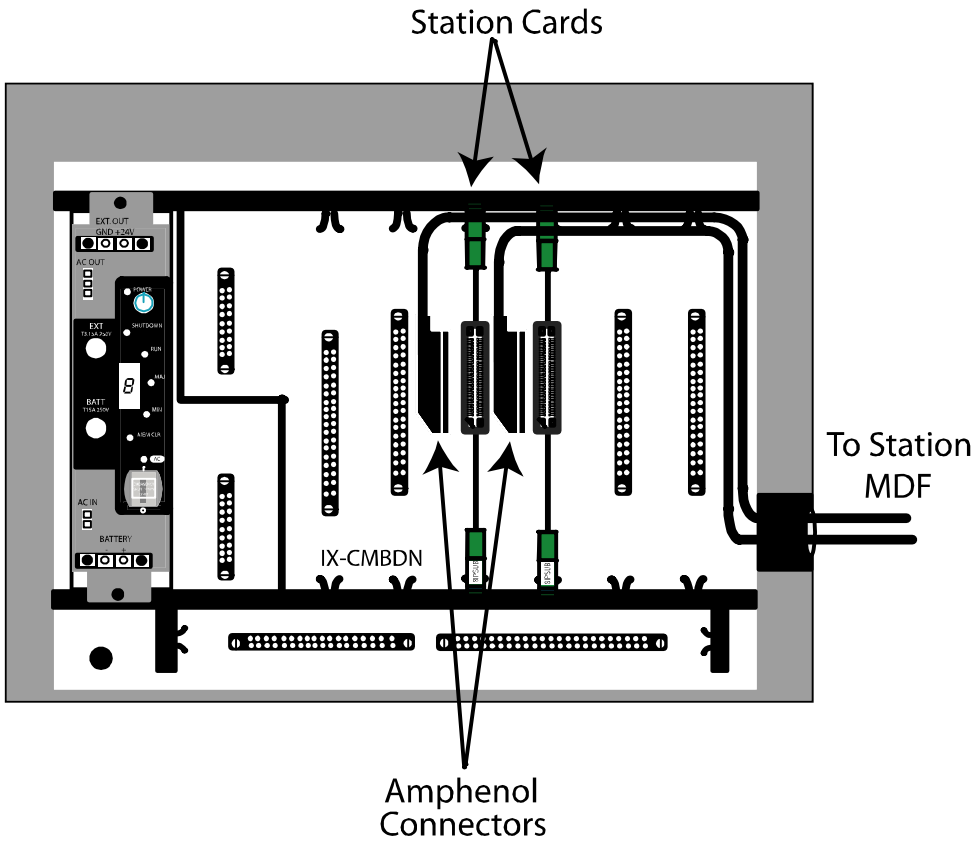
Station Card Installation

This chapter describes the installation process for Iwatsu Enterprise-CS station interface cards. Inspect all system components before beginning the installation process.

Station Interface Cards

Each station card has a make busy LED that works in conjunction with the card's make busy switch. The make busy switch is used to disable (make busy) all of the circuits on the card for power-on maintenance. Make busy LED lamp status is listed in the table below:

LED Status	Description
OFF	All circuits idle
ON	Minimum of one circuit busy
FLASHING	All circuits idle and made busy (out of service)


Station Cards
To Station
MDF
IX-CMBDN
Amphenol
Connectors

IX-8IPSUB / IX-8EIPSUB

For information regarding the installation of the IX-8IPSUB/IX-8EIPSUB, please refer to the Chapter 11, IP Station Installation.

Installing the IX-16PSUB-2

The IX-16PSUB-2 card provides sixteen interface circuits for the IX-5800 and/or IX-5810 digital key telephones. **The IX-8/16PSUB-2 can be installed in the IX-CME, IX-EXPME1, and IX-EXPME2 cabinets only.** See **Section 4 - Component Description** for detailed information on the IX-16PSUB-2 card.

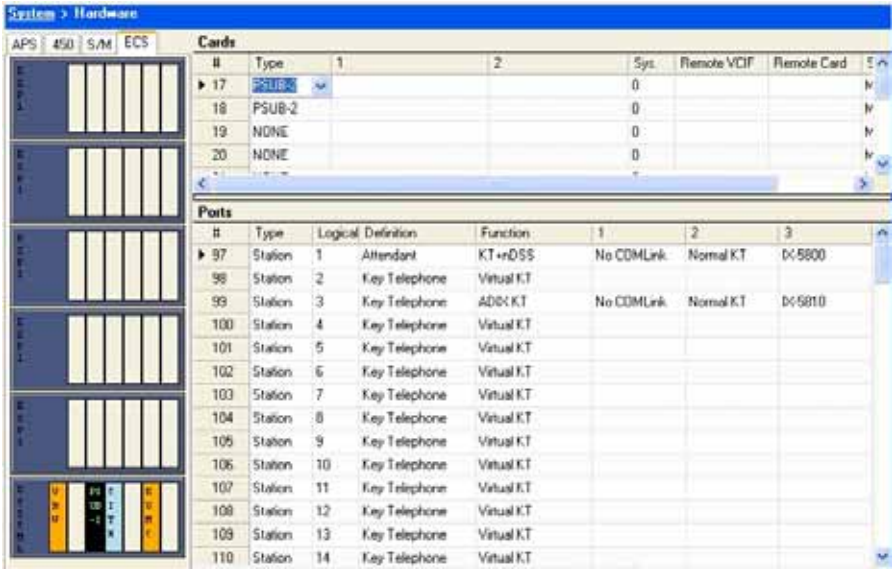
Note: Legacy Iwatsu telephones, including the IX-12KTD-3, Platinum 18d and 12d are not compatible with the IX-8/16PSUB-2. These telephones may only be connected to the IX-8/16PSUB, IX-8PSUB, IX-408, or IX-044 cards.

Preparation

Cabinet	Card Position	Make Busy
IX-CME	Any 96 or 32 Channel Card Slot	ON
IX-EXPME1/2	Any 16 Channel Card Slot	ON

Installation

1. Place the IX-16PSUB-2 card in the Make Busy Mode by sliding the MBSW to the MB position.
2. Insert the IX-16PSUB-2 card into a 96 or 32-channel universal card slot in the IX-CME cabinet or into a 16-channel card slot in an IX-EXPME1/2 cabinet. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the IX-CMBDN motherboard.
3. Secure the card stopper bracket with the two screws if no other cards are to be installed.
4. Take the card out of the Make Busy Mode by sliding the MBSW to the off position.
5. When the IX-16PSUB-2 completes the boot process, connect to the ECS system and download the database.
6. Go to System > Hardware. The IX-16PSUB-2 will appear in the database as a PSUB-2 card in the ECS cabinet graphic. If IX-5800 or IX-5810 telephones are connected to the card at this time, they are labeled as IX-5800 or IX-5810 KTs


System > Hardware
APS
450
S/M
ECS
Cards
Type 1 2 Sys Remote VCIF Remote Card
17 PSUB-1 0
18 PSUB-2 0
19 NONE 0
20 NONE 0
Ports
Type Logical Definition Function 1 2 3
97 Station 1 Attendant KT+nDSS No COMLink Normal KT IX-5800
98 Station 2 Key Telephone Virtual KT
99 Station 3 Key Telephone ADX-KT No COMLink Normal KT IX-5810
100 Station 4 Key Telephone Virtual KT
101 Station 5 Key Telephone Virtual KT
102 Station 6 Key Telephone Virtual KT
103 Station 7 Key Telephone Virtual KT
104 Station 8 Key Telephone Virtual KT
105 Station 9 Key Telephone Virtual KT
106 Station 10 Key Telephone Virtual KT
107 Station 11 Key Telephone Virtual KT
108 Station 12 Key Telephone Virtual KT
109 Station 13 Key Telephone Virtual KT
110 Station 14 Key Telephone Virtual KT

IX-16PSUB-2 Pin Assignment

IX-16PSUB-2	Amphenol Pin Number	MDF Pin Number	CMWire Color	RJ11 Jack	
				Pin Number	Wire Color
1PT	26	1	W-BL	3	GN
1PR	1	2	BL-W	2	R
2PT	27	3	W-O	4	Y
2PR	2	4	O-W	1	BK
3PT	28	5	W-GN	3	GN
3PR	3	6	GN-W	2	R
4PT	29	7	W-BR	4	Y
4PR	4	8	BR-W	1	BK
5PT	30	9	W-SL	3	GN
5PR	5	10	SL-W	2	R
6PT	31	11	R-BL	4	Y
6PR	6	12	BL-R	1	BK
7PT	32	13	R-O	3	GN
7PR	7	14	O-R	2	R
8PT	33	15	R-GN	4	Y
8PR	8	16	GN-R	1	BK
9PT	34	17	R-BR	3	GN
9PR	9	18	BR-R	2	R
10PT	35	19	R-SL	4	Y
10PR	10	20	SL-R	1	BK
11PT	36	21	BK-BL	3	GN
11PR	11	22	BL-BK	2	R
12PT	37	23	BK-O	4	Y
12PR	12	24	O-BK	1	BK
13PT	38	25	BK-GN	3	GN
13PR	13	26	GN-BK	2	R
14PT	39	27	BK-BR	4	Y
14PR	14	28	BR-BK	1	BK
15PT	40	29	BK-SL	3	GN
15PR	15	30	SL-BK	2	R
16PT	41	31	Y-BL	4	Y
16PR	16	32	BL-Y	1	BK
	42	33	Y-O	3	GN
N/C	17	34	0-Y	2	R
?	?	?	?	?	?
N/C	50	49	V-SL	3	GN
	25	50	SL-V	2	R

Installing the IX-16PSUB

The IX-16PSUB card provides sixteen interface circuits for ECS key telephones, Versa-Phones, doorphones, attendant consoles, DSS units, and data modules. See **Section 4 - Component Description** for detailed information on the IX-16PSUB card.

Preparation

Note: SW1 and SW2 must always have the same setting. When installed in the IX-CME, Set to OFF for Single Highway Mode. The IX-CME Gateway Controller cabinet does not support Dual Highway setting.

Cabinet	Card Position	SW1	SW2
IX-CME	Any 96 or 32 Channel Card Slot	OFF	OFF

Installation

1. Plug the card into a 96 or 32-channel universal card slot. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the IX-CMBDN motherboard.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.

IX-16PSUB Pin Assignment

IX-16PSUB	Amphenol Pin Number	MDF Pin Number	CMWire Color	RJ11 Jack	
				Pin Number	Wire Color
1PT	26	1	W-BL	3	GN
1PR	1	2	BL-W	2	R
2PT	27	3	W-O	4	Y
2PR	2	4	O-W	1	BK
3PT	28	5	W-GN	3	GN
3PR	3	6	GN-W	2	R
4PT	29	7	W-BR	4	Y
4PR	4	8	BR-W	1	BK
5PT	30	9	W-SL	3	GN
5PR	5	10	SL-W	2	R
6PT	31	11	R-BL	4	Y
6PR	6	12	BL-R	1	BK
7PT	32	13	R-O	3	GN
7PR	7	14	O-R	2	R
8PT	33	15	R-GN	4	Y
8PR	8	16	GN-R	1	BK
9PT	34	17	R-BR	3	GN
9PR	9	18	BR-R	2	R
10PT	35	19	R-SL	4	Y
10PR	10	20	SL-R	1	BK
11PT	36	21	BK-BL	3	GN
11PR	11	22	BL-BK	2	R
12PT	37	23	BK-O	4	Y
12PR	12	24	O-BK	1	BK
13PT	38	25	BK-GN	3	GN
13PR	13	26	GN-BK	2	R
14PT	39	27	BK-BR	4	Y
14PR	14	28	BR-BK	1	BK
15PT	40	29	BK-SL	3	GN
15PR	15	30	SL-BK	2	R
16PT	41	31	Y-BL	4	Y
16PR	16	32	BL-Y	1	BK
	42	33	Y-O	3	GN
N/C	17	34	0-Y	2	R
?	?	?	?	?	?
N/C	50	49	V-SL	3	GN
	25	50	SL-V	2	R

Installing the IX-8PSUB-2 Card

The IX-8PSUB-2 card provides eight interface circuits for the IX-5800 and/or IX-5810 digital key telephones. **The IX-8/16PSUB-2 can be installed in the IX-CME, IX-EXPME1, and IX-EXPME2 cabinets only.** See **Section 4 - Component Description** for detailed information on the IX-8PSUB-2 card.

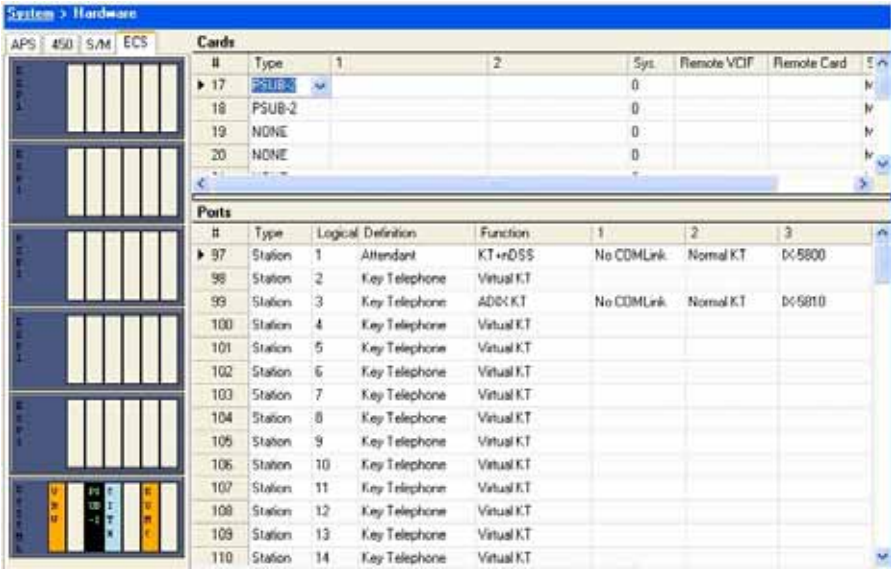
Note: Legacy Iwatsu telephones, including the IX-12KTD-3, Platinum 18d and 12d are not compatible with the IX-8/16PSUB-2. These telephones may only be connected to the IX-8/16PSUB, IX-8PSUB, IX-408, or IX-044 cards.

Preparation

Cabinet	Card Position	Make Busy
IX-CME	Any 96 or 32 Channel Card Slot	ON
IX-EXPME1/2	Any 16 Channel Card Slot	ON

Installation

1. Place the IX-8PSUB-2 card in the Make Busy Mode by sliding the MBSW to the MB position.
2. Insert the IX-8PSUB-2 card into a 96 or 32-channel universal card slot in the IX-CME cabinet or into a 16-channel card slot in an IX-EXPME1/2 cabinet. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the IX-CMBDN motherboard.
3. Secure the card stopper bracket with the two screws if no other cards are to be installed.
4. Take the card out of the Make Busy Mode by sliding the MBSW to the off position.
5. When the IX-8PSUB-2 completes the boot process, connect to the ECS system and download the database.
6. Go to System > Hardware. The IX-8PSUB-2 will appear in the database as a PSUB-2 card in the ECS cabinet graphic. If IX-5800 or IX-5810 telephones are connected to the card at this time, they are labeled as IX-5800 or IX-5810 KTs



MDF Connections

1. Plug a 25-pair male amphenol connector into the IX-8PSUB card.
2. Route the 25-pair cable through the cable raceway.
3. Terminate the 25-pair cable on the MDF according to the table below.
4. Cross connect the station terminals to the desired circuit on the IX-8PSUB card according to the table below.

Note: Make sure the polarity of the wires are correct when making connections.

8PSUB-2	Amphenol Pin Number	MDF Pin Number	CM Wire Color	RJ11 Jack Pin Number	RJ11 Jack Wire Color
1PT	26	1	W-BL	3	GN
1PR	1	2	BL-W	2	R
FG	27	3	W-O	4	Y
FG	2	4	O-W	1	BK
2PT	28	5	W-GN	3	GN
2PR	3	6	GN-W	2	R
FG	29	7	W-BR	4	Y
FG	4	8	BR-W	1	BK
3PT	30	9	W-SL	3	GN
3PR	5	10	SL-W	2	R
FG	31	11	R-BL	4	Y
FG	6	12	BL-R	1	BK
4PT	32	13	R-O	3	GN
4PR	7	14	O-R	2	R
FG	33	15	R-GN	4	Y
FG	8	16	GN-R	1	BK
5PT	34	17	R-BR	3	GN
5PR	9	18	BR-R	2	R
FG	35	19	R-SL	4	Y
FG	10	20	SL-R	1	BK
6PT	36	21	BK-BL	3	GN
6PR	11	22	BL-BK	2	R
FG	37	23	BK-O	4	Y
FG	12	24	O-BK	1	BK
7PT	38	25	BK-GN	3	GN
7PR	13	26	GN-BK	2	R
FG	39	27	BK-BR	4	Y
FG	14	28	BR-BK	1	BK
8PT	40	29	BK-SL	3	GN
8PR	15	30	SL-BK	2	R
FG	41	31	Y-BL	4	Y
FG	16	32	BL-Y	1	BK
NO	42	33	Y-O	3	GN
CONNECTION	17	34	0-Y	2	R
▼	▼	▼	▼	▼	▼
N/O	50	49	V-SL	3	GN
CONNECTION	25	50	SL-V	2	R

Database Programming:

System > Hardware; 10.02 Station Number; Class 10.

Installing the IX-8PSUB Card

The IX-8PSUB card provides eight interface circuits for ECS key telephones, Versa-Phones, doorphones, attendant consoles, DSS units, and data modules. See **Section 4 - Component Description** for detailed information on the IX-8PSUB card.

Preparation

None.

Installation

1. Plug the card into any universal card slot. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the mother-board.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.

MDF Connections

1. Plug a 25-pair male amphenol connector into the IX-8PSUB card.
2. Route the 25-pair cable through the cable raceway.
3. Terminate the 25-pair cable on the MDF according to the table below.
4. Cross connect the station terminals to the desired circuit on the IX-8PSUB card according to the table below.

Note: Make sure the polarity of the wires are correct when making connections.

8PSUB	Amphenol Pin Number	MDF Pin Number	CM Wire Color	RJ11 Jack Pin Number	RJ11 Jack Wire Color
1PT	26	1	W-BL	3	GN
1PR	1	2	BL-W	2	R
FG	27	3	W-O	4	Y
FG	2	4	O-W	1	BK
2PT	28	5	W-GN	3	GN
2PR	3	6	GN-W	2	R
FG	29	7	W-BR	4	Y
FG	4	8	BR-W	1	BK
3PT	30	9	W-SL	3	GN
3PR	5	10	SL-W	2	R
FG	31	11	R-BL	4	Y
FG	6	12	BL-R	1	BK
4PT	32	13	R-O	3	GN
4PR	7	14	O-R	2	R
FG	33	15	R-GN	4	Y
FG	8	16	GN-R	1	BK
5PT	34	17	R-BR	3	GN
5PR	9	18	BR-R	2	R
FG	35	19	R-SL	4	Y
FG	10	20	SL-R	1	BK
6PT	36	21	BK-BL	3	GN
6PR	11	22	BL-BK	2	R
FG	37	23	BK-O	4	Y
FG	12	24	O-BK	1	BK
7PT	38	25	BK-GN	3	GN
7PR	13	26	GN-BK	2	R
FG	39	27	BK-BR	4	Y
FG	14	28	BR-BK	1	BK
8PT	40	29	BK-SL	3	GN
8PR	15	30	SL-BK	2	R
FG	41	31	Y-BL	4	Y
FG	16	32	BL-Y	1	BK
NO	42	33	Y-O	3	GN
CONNECTION	17	34	0-Y	2	R
▼	▼	▼	▼	▼	▼
N/O	50	49	V-SL	3	GN
CONNECTION	25	50	SL-V	2	R

Database Programming:

System > Hardware; 10.02 Station Number; Class 10.

Installing the IX-CNFBOX-1 Card

The IX-CNFBOX-1 card may be installed in any available ECS universal card slot. The ports of the card must be defined in Class 01.11 as loop start trunks. Follow the steps below to install the card in the system.

Preparation

Installing One IX-CNFBOX-1 Card

1. Set all switches, strapping jacks and potentiometers as desired.

Installing 2 to 5 IX-CNFBOX-1 Cards

1. Set all switches, strapping jacks and potentiometers as desired.
2. Set switch SW3 to indicate the total number of IX-CNFBOX-1 cards connected in serial.
3. Connect each IX-CNFBOX-1 card using Connector CN3

Connecting External Devices

Signal Input

External signal sources, such as the output of a microphone amplifier, may be connected to CN4 or CN5 on the IX-CNFBOX-1 card. The input signal level may be adjusted using VR141. The adjustable range of the amplifier gain is from 0 dB to 25 dB. A typical input signal level is -6 dBm. The default is 0 db.

Signal Output to Amplifier.

An external amplifier may be connected to the IX-CNFBOX-1 card for output of the conference call. This device may be connected to either CN5 or CN6. If connected, SW4 must be set to the Output to Amplifier position. The output impedance is 600 Ω. Using Potentiometer VR151, the output level, may be continuously adjusted within the range of 0 dB to 25 dB to adjust the level. The default level is 0 dB.

Note: If an amplifier is connected to CN5, Strapping Jack J5 must be moved from the Input setting (default) to the Output setting.

Signal Output to Monitor.

External speakers may be connected to CN5 or CN6 for output of the conference call. The maximum driving power for an 8-ohm speaker is approximately 0.3 W. The output level cannot be adjusted.

Connector Function Change from Input to Output

The function of the connectors CN4 and CN5 may be changed from the input pins (EXI) to the output pins (EXO). This change is made by the strap J5. The default function is the input pin.

Installing the IX-8DSUB Card

The IX-8DSUB card provides eight interface circuits for ZT-D and ZT-S telephones. See **Section 4 - Component Description** for detailed information on the IX-8DSUB card.

Preparation

None.

Installation

1. Plug the card into any universal card slot. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the mother-board.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.

MDF Connections

1. Plug a 25-pair male amphenol connector into the IX-8DSUB card.
2. Route the 25-pair cable through the cable raceway.
3. Terminate the 25-pair cable on the MDF according to the table below.
4. Cross connect the two-pair cables from the ZT-D or ZT-S key telephones to the desired circuit on the IX-8DSUB card according to the table below.

Note:	Make sure the polarity of the wires is correct when making connections.

IX-8DSUB	Amphenol Pin No.	MDF Pin No.	CM Wire Color	RJ11 Jack Pin No.	RJ11 Jack Wire Color
1PT	26	1	W-BL	3	GN
1PR	1	2	BL-W	2	R
1DT	27	3	W-O	4	Y
1DR	2	4	O-W	1	BK
2PT	28	5	W-GN	3	GN
2PR	3	6	GN-W	2	R
2DT	29	7	W-BR	4	Y
2DR	4	8	BR-W	1	BK
3PT	30	9	W-SL	3	GN
3PR	5	10	SL-W	2	R
3DT	31	11	R-BL	4	Y
3DR	6	12	BL-R	1	BK
4PT	32	13	R-O	3	GN
4PR	7	14	O-R	2	R
4DT	33	15	R-GN	4	Y
4DR	8	16	GN-R	1	BK
5PT	34	17	R-BR	3	GN
5PR	9	18	BR-R	2	R
5DT	35	19	R-SL	4	Y
5DR	10	20	SL-R	1	BK
6PT	36	21	BK-BL	3	GN
6PR	11	22	BL-BK	2	R
6DT	37	23	BK-O	4	Y
6DR	12	24	O-BK	1	BK
7PT	38	25	BK-GN	3	GN
7PR	13	26	GN-BK	2	R
7DT	39	27	BK-BR	4	Y
7DR	14	28	BR-BK	1	BK
8PT	40	29	BK-SL	3	GN
8PR	15	30	SL-BK	2	R
8DT	41	31	Y-BL	4	Y
8DR	16	32	BL-Y	1	BK
NO	42	33	Y-O	3	GN
CONNECTION	17	34	0-Y	2	R
▼	▼	▼	▼	▼	▼
NO	50	49	V-SL	3	GN
CONNECTION	25	50	SL-V	2	R

Database Programming:

System > Hardware; 10.02 Station Number; Class 10.

Installing the IX-8SUBS-4 Card

The IX-8SUBS-4 Single Line Station card supports Caller ID, Caller ID for Call Waiting, Message Waiting notification, and requires no additional power. This is the first Iwatsu single line card that supports Caller ID and Caller ID for Call Waiting and combines all the functionality of the IX-8SUBS, IX-8SUBM, and IX-4SUBL cards.

Because this card is designed with an on-board ring generator and power converters, the IX-DCDC and IX-RNGUM cards are not required with this card.

The IX-8SUBS-4 supports eight on-premise or four on-premise and four off-premise (Ports 5-8) single line telephone extensions, Caller ID, Caller ID for call waiting, and message waiting lamps (neon or LED lamps). An IX-8SUBS-4 can be expanded to support up to 16 single line telephones by adding an IX-8ESUBS-4 single line telephone expansion card. The IX-8SUBS-4 includes the DTMF receivers required for 2500 (touch-tone) type telephones and also provides a hardware loop open feature for Voice Mail Integration.

This card is compatible with the ECS and ADIX systems and replaces the IX-8SUBS, IX-8SUBM, and IX-4SUBL cards.

Note:	This card was tested using a standard 2500 single line telephones. Due to the multitude of single line telephone manufacturers, features, and current draw of your specific telephone, SLT performance may vary.
Note:	Iwatsu Enterprise-CS 2.02 or higher software is required to send caller ID information to the single line telephone.

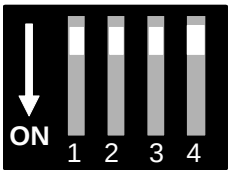
SLTs must be star connected to an IX-8SUBS-4 port using #24 AWG one-pair (twisted or quad) wire. The loop resistance of single-line telephones is fixed at 700 Ohms (including SLT resistance).

Refer to **Chapter 5, Section 4** in the **Component Description** for detailed information on the IX-8SUBS-4 card.

Preparation

Set the S2 DIP Switch Settings as required. The **default** setting for each DIP switch is **OFF**.

S2 - 4 Circuit DIP Switch



S2 Switch Settings

Position:	Function:	Off (Default)	On
1	Ports 1-4 talk battery	-24 volts talk battery (-20v at tip and ring) SUBS/SUBM Mode	SUBL Mode not supported on ports 1-4
2	Ports 5-8 talk battery	-24 volts talk battery (-20v at tip and ring) SUBS/SUBM Mode	SUBL Mode supported on ports 5-8 only -48 volts talk battery (-40v at tip and ring)
3	Voice Compression	Mu Law	A Law (Not Supported)
4	Not Used	Off - Default	Not Used

Single-Line Telephone Compatibility

The message waiting telephones connected to this card can be equipped with neon or LED lamps. Each station circuit of the IX-8SUBS-4 card supplies 130 VDC to light the message (neon) lamps or uses FSK signaling for telephones with LED lamps (typically, cordless telephone use FSK to light the message lamp). Check the single line telephone's specification for this information.

The IX-8ESUBS-4 card increases station ports from eight up to 16 on-premises single-line telephones with message lamps. SLTs must can be star connected to the ECS common module using either one-pair or two-pair (twisted or quad) #24 AWG wire. The loop resistance of single-line telephones is fixed at 700 Ohms (including SLT resistance). The card supplies 65 Vrms @ 20 hertz for SLT ringing.

Installation

1. Plug the card into any ECS universal card slot. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the motherboard.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.

MDF Connections

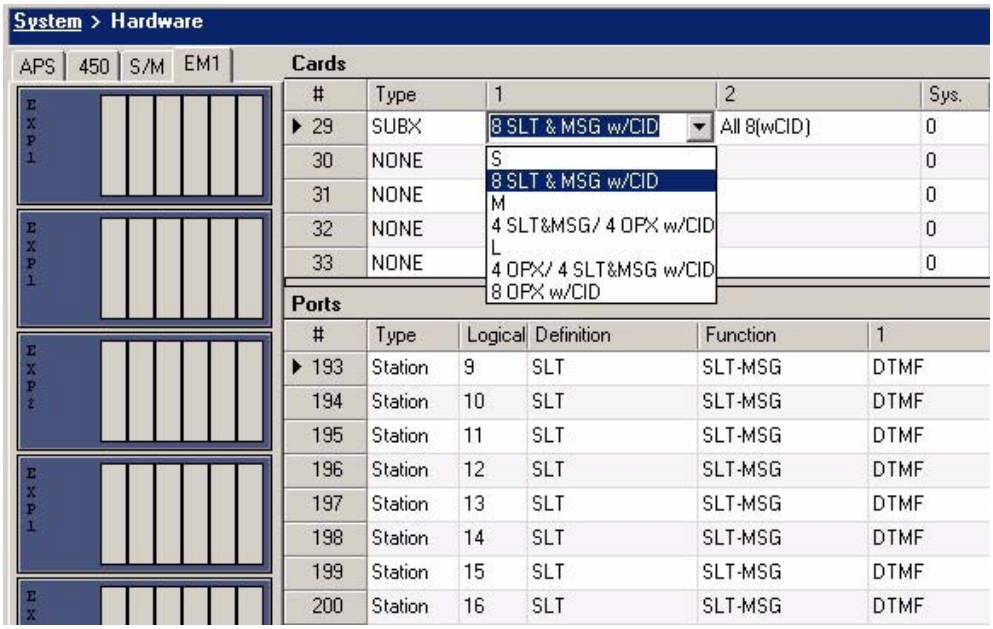
1. Plug a 25-pair male amphenol connector into the IX-8SUBS-4 card.
2. Route the 25-pair cable through the cable raceway.
3. Terminate the 25-pair cable on the MDF according to the table below.
4. Cross-connect the single-line telephones with message lamps to the desired circuit on the IX-8SUBS-4 card according to the table below.

IX-8SUBS-4	Amphenol	MDF	CM	RJ11 Jack	
	Pin No.	Pin No.	Wire Color	Pin No.	Wire Color
1T	26	1	W-BL	4	GN
1R	1	2	BL-W	3	R
2T	27	3	W-O	4	GN
2R	2	4	O-W	3	R
3T	28	5	W-GN	4	GN
3R	3	6	GN-W	3	R
4T	29	7	W-BR	4	GN
4R	4	8	BR-W	3	R
5T	30	9	W-SL	4	GN
5R	5	10	SL-W	3	R
6T	31	11	R-BL	4	GN
6R	6	12	BL-R	3	R
7T	32	13	R-O	4	GN
7R	7	14	O-R	3	R
8T	33	15	R-GN	4	GN
8R	8	16	GN-R	3	R
IX-8ESUBS-4	**Amphenol**	**MDF**	**CM**	**RJ11 Jack**	
	Pin No.	**Pin No.**	**Wire Color**	**Pin No.**	**Wire Color**
1T	34	17	R-BR	4	GN
1R	9	18	BR-R	3	R
2T	35	19	R-SL	4	GN
2R	10	20	SL-R	3	R
3T	36	21	BK-BL	4	GN
3R	11	22	BL-BK	3	R
4T	37	23	BK-O	4	GN
4R	12	24	O-BK	3	R
5T	38	25	BK-GN	4	GN
5R	13	26	GN-BK	3	R
6T	39	27	BK-BR	4	GN
6R	14	28	BR-BK	3	R
7T	40	29	BK-SL	4	GN
7R	15	30	SL-BK	3	R
8T	41	31	Y-BL	4	GN
8R	16	32	BL-Y	3	R
⇓	⇓	⇓	⇓	⇓	⇓
N/C	50	49	V-SL	4	GN
	25	50	SL-V	3	R

IX-8SUBS-4 Database Programming

When the IX-8SUBS-4 card has been installed, use the Iwatsu Programmer to reset the card slot where the IX-8SUBS-4 card resides. Resetting the card slot will ready the IX-8SUBS-4 card for operation.

Select, **System > Hardware** from the Iwatsu Programmer and then select the card slot where the IX-8SUBS-4 resides. The IX-8SUBS-4 card will appear as shown in the screen shot below.

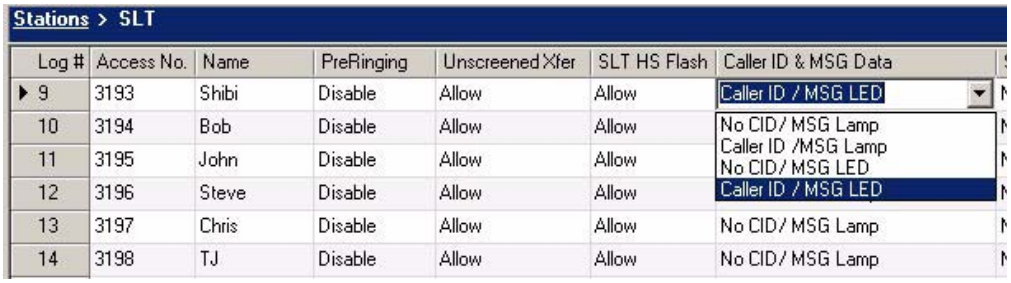


Caller ID Mode and Message Lamp Type

Using the Iwatsu Programmer in the Category mode:

- Select, **Stations > SLT**
- Locate the Logical Ports associated with the IX-8SUBS-4 card and select one of the four settings for the Caller ID (CID) mode and message lamp type for the single line telephone associated with that port.

Note: Make sure you check the single line telephone's specification regarding CID and message lamp type before selecting a setting below.



1. **No CID / MSG Lamp (Default)**
   - No Caller ID.
   - Neon message lamp.
2. **CID / MSG Lamp**
   - Caller ID.
   - Neon message lamp.
3. **No CID / MSG LED**
   - No Caller ID.
   - Frequency Shift Key (FSK) modulation for the message lamp. Typically used for cordless telephones and/or telephones with LED message lamps.
4. **CID / MSG LED**
   - Caller ID.
   - FSK modulation for the message lamp. Typically used for cordless telephones or telephones with LED message lamps.

Database Programming:

System > Hardware; Stations > SLT; Stations.

Installing the IX-8SUBS-3 Card

The IX-8SUBS-3 card provides eight interface circuits for on-premise single-line telephones. This card requires an IX-RNGUM ring generator. See **Section 4 - Component Description** for detailed information on the IX-8SUBS-3 card.

Preparation

Note:	The IX-8ESUBS daughterboard may be attached to this card to increase the SLT port capacity from 8 to 16.

If additional port capacity is required, mount the IX-8ESUBS daughterboard to the IX-8SUBS-3 card using connectors CN1 and CN2.

Installation

1. Plug the card into any universal card slot. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the mother-board.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.

MDF Connections

1. Plug a 25-pair male amphenol connector into the IX-8SUBS-3 card.
2. Route the 25-pair cable through the cable raceway.
3. Terminate the 25-pair cable on the MDF according to the table below.
4. Cross connect the SLTs to the desired circuit on the IX-8SUBS-3 card as shown below:

Connections

IX-8SUBS-3	Amphenol	MDF	CM	RJ11 Jack	
	Pin No.	Pin No.	Wire Color	Pin No.	Wire Color
1T	26	1	W-BL	4	GN
1R	1	2	BL-W	3	R
2T	27	3	W-O	4	GN
2R	2	4	O-W	3	R
3T	28	5	W-GN	4	GN
3R	3	6	GN-W	3	R
4T	29	7	W-BR	4	GN
4R	4	8	BR-W	3	R
5T	30	9	W-SL	4	GN
5R	5	10	SL-W	3	R
6T	31	11	R-BL	4	GN
6R	6	12	BL-R	3	R
7T	32	13	R-O	4	GN
7R	7	14	O-R	3	R
8T	33	15	R-GN	4	GN
8R	8	16	GN-R	3	R
IX-8ESUBS	**Amphenol**	**MDF**	**CM**	**RJ11 Jack**	
	Pin No.	**Pin No.**	**Wire Color**	**Pin No.**	**Wire Color**
1T	34	17	R-BR	4	GN
1R	9	18	BR-R	3	R
2T	35	19	R-SL	4	GN
2R	10	20	SL-R	3	R
3T	36	21	BK-BL	4	GN
3R	11	22	BL-BK	3	R
4T	37	23	BK-O	4	GN
4R	12	24	O-BK	3	R
5T	38	25	BK-GN	4	GN
5R	13	26	GN-BK	3	R
6T	39	27	BK-BR	4	GN
6R	14	28	BR-BK	3	R
7T	40	29	BK-SL	4	GN
7R	15	30	SL-BK	3	R
8T	41	31	Y-BL	4	GN
8R	16	32	BL-Y	3	R
⇓	⇓	⇓	⇓	⇓	⇓
N/C	50	49	V-SL	4	GN
	25	50	SL-V	3	R

Database Programming:

System > Hardware; 10.02 Station Number; Class 10.

Installing the IX-408 Card

For information on installing the IX-408 card see Chapter 7 — CO Line Card Installation.

Installing the IX-044 Card

For information on installing the IX-044 card see Chapter 7 — CO Line Card Installation.

Installing the IX-8SUBM-3 Card

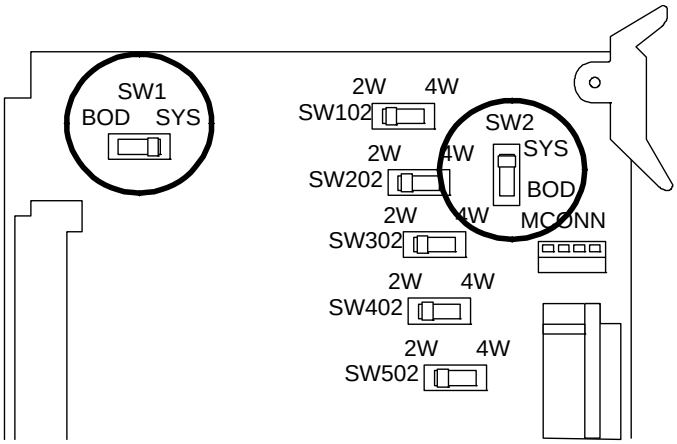
The IX-8SUBM-3 card provides eight interface circuits for on-premise single-line telephones with message lamps. This card requires +90 VDC to light the message waiting lamps. This additional power can be supplied using either the IX-DCDCM optional power supply or by connecting an IX-PMMSG power supply to the MCONN connector on the card. An IX-RNGUM ring generator is also required for the shelf in which the card is installed. This card allows for either two-wire or four-wire SLT connection. See **Section 4 - Component Description** for detailed information on the IX-8SUBM-3 card.

Preparation

Installing the IX-8SUBM-3 When Using the System Power Supply

The IX-8SUBM-3 card is factory set for use with the IX-DCDCM or IX-PMMSG system power supply.

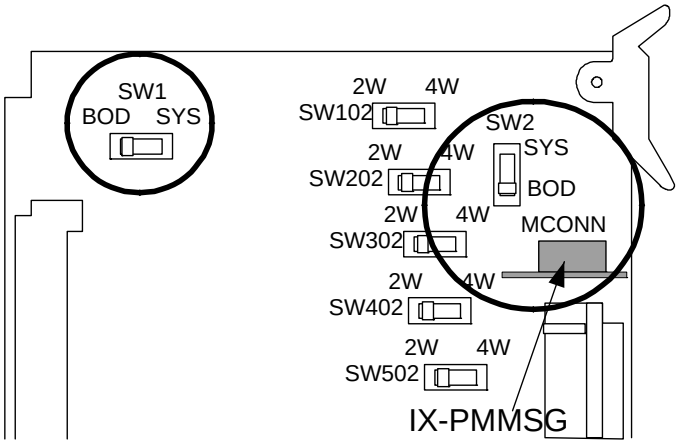
1. Make sure that the IX-DCDCM or IX-PMMSG is installed on the same shelf where the IX-8SUBM-3 card(s) are installed.
2. Make sure that the SW1 and SW2 switches are set to **SYS** as illustrated below.



Installing the IX-8SUBM-3 When Using the IX-PMMSG On-Board Power Supply

Configure the IX-8SUBM-3 card as instructed below for use with the IX-PMMSG power supply.

1. Set both SW1 and SW2 to the **BOD** setting.
2. Connect the IX-PMMSG to the MCONN connector on the IX-8SUBM-3 card.



Single-Line Telephone Compatibility

Each station circuit of the IX-8SUBM-3 card supplies 80 to 90.5 VDC from the IX-DCDCM or IX-MSGPW and 91 to 94 VDC from the IX-PMMSG to light the SLT message lamps. The message waiting telephones connected to this card must be equipped with neon lamps that can light at 80 volts DC. The station message lamp current must not exceed 1 mA per circuit. An industry standard telephone that meets these specifications is ITT model 250044-MBA.

Note: Some telephone models require over 100 VDC to turn on the message lamps. Make sure of the voltage requirements of the telephone model before purchasing.

The IX-8ESUBM card increases station ports from eight up to 16 on-premises single-line telephones with message lamps. With the IX-8SUBM card, if 2500-type SLTs are used, one or two IX-4RCVS DTMF receiver daughterboards must be mounted on board. Either an IX-DCDCM or IX-MSGPW power supply installed in the DCDC card slot on the same shelf as the IX-8SUBM-3 card, or an external power supply connected to the MCONN connector is required to light the message lamps. SLTs must can be star connected to the ECS common module using either one-pair or two-pair (twisted or quad) #24 AWG wire. The loop resistance of single-line telephones is fixed at 600 Ohms (including SLT resistance). An IX-RNGUM additional power supply is required provide 90 VAC for SLT ringing.

Installation

1. Plug the card into any universal card slot. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the mother-board.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.

MDF Connections

1. Plug a 25-pair male amphenol connector into the IX-8SUBM-3 card.
2. Route the 25-pair cable through the cable raceway.
3. Terminate the 25-pair cable on the MDF according to the table below.
4. Cross connect the single-line telephones with message lamps to the desired circuit on the IX-8SUBM-3 card according to the table below.

IX-8SUBM-3	Amphenol	MDF	CM	RJ11 Jack	
	Pin No.	Pin No.	Wire Color	Pin No.	Wire Color
1T	26	1	W-BL	4	GN
1R	1	2	BL-W	3	R
2T	27	3	W-O	4	GN
2R	2	4	O-W	3	R
3T	28	5	W-GN	4	GN
3R	3	6	GN-W	3	R
4T	29	7	W-BR	4	GN
4R	4	8	BR-W	3	R
5T	30	9	W-SL	4	GN
5R	5	10	SL-W	3	R
6T	31	11	R-BL	4	GN
6R	6	12	BL-R	3	R
7T	32	13	R-O	4	GN
7R	7	14	O-R	3	R
8T	33	15	R-GN	4	GN
8R	8	16	GN-R	3	R
	Amphenol	MDF	CM	RJ11 Jack	
IX8ESUBM	Pin No.	Pin No.	Wire Color	Pin No.	Wire Color
1T	34	17	R-BR	4	GN
1R	9	18	BR-R	3	R
2T	35	19	R-SL	4	GN
2R	10	20	SL-R	3	R
3T	36	21	BK-BL	4	GN
3R	11	22	BL-BK	3	R
4T	37	23	BK-O	4	GN
4R	12	24	O-BK	3	R
5T	38	25	BK-GN	4	GN
5R	13	26	GN-BK	3	R
6T	39	27	BK-BR	4	GN
6R	14	28	BR-BK	3	R
7T	40	29	BK-SL	4	GN
7R	15	30	SL-BK	3	R
8T	41	31	Y-BL	4	GN
8R	16	32	BL-Y	3	R
⇓	⇓	⇓	⇓	⇓	⇓
N/C	50	49	V-SL	4	GN
	25	50	SL-V	3	R

Database Programming:

System > Hardware; 10.02 Station Number; Class 10.

Installing the IX-4SUBL Card

The IX-4SUBL card provides four interface circuits for off-premise single-line telephones. An IX-DCDCM must be installed on the same shelf as this card to provide an additional -48 VDC. This card also requires an IX-RNGUM ring generator. See **Section 4 - Component Description** for detailed information on the IX-8SUBM-3 card.

Preparation

1. Set the distance selection switch to either S (1640 feet or less), N (1641-9843 feet), or L (greater than 9843 feet) using switch SW101 to SW401. These switches are numbered in order of the station circuits on the card.
2. Mount the IX-4RCVS to connectors DCONN1/ECONN1 on the IX-4SUBL card if DTMF (2500 type) SLTs are connected.

Installation

1. Plug the card into any universal card slot. Make sure that the card is inserted deep enough for all connector pins to make complete contact with those on the mother-board.
2. Secure the card stopper bracket with the two screws if no other cards are to be installed.

MDF Connections

1. Plug a 25-pair male amphenol connector into the IX-4SUBL card.
2. Route the 25-pair cable through the cable raceway.
3. Terminate the 25-pair cable on the MDF according to the table below.
4. Cross connect each single-line telephone to the desired circuit on the IX-4SUBL card according to the table below.

IX-4SUBL	Amphenol Pin No.	MDF Pin No.	CM Wire Color	RJ11 Jack Pin No.	RJ11 Jack Wire Color
1T	26	1	W-BL	3	GN
1R	1	2	BL-W	2	R
	27	3	W-O	4	Y
	2	4	O-W	1	BK
2T	28	5	W-GN	3	GN
2R	3	6	GN-W	2	R
	29	7	W-BR	4	Y
	4	8	BR-W	1	BK
3T	30	9	W-SL	3	GN
3R	5	10	SL-W	2	R
	31	11	R-BL	4	Y
	6	12	BL-R	1	BK
4T	32	13	R-O	3	GN
4R	7	14	O-R	2	R
	33	15	R-GN	4	Y
	8	16	GN-R	1	BK
▼	▼	▼	▼	▼	▼
N/C	50	49	V-SL	3	GN
	25	50	SL-V	2	R

Database Programming:

System > Hardware; 10.02 Station Number; Class 10.

Installing the IX-4ETRAN Card

The IX-4ETRAN card provides four circuits that can be used for monitoring trunk-to-trunk conferences, remote CO call forwarding, ACD forward to speed dial, off-premise forward transfer, and making outgoing calls using DISA. This card includes a line tone supervision circuit that is used to monitor the condition of all CO lines engaged in one or more conference calls. Disconnection detection is based on a continuous signal, an interrupted signal or silence. For example, if a signal such as a busy tone, warning tone, or loop open condition is detected on a line, disconnection will occur. There are a number of database programming options for disconnect detection (other than a loop open condition) that can be used with this card. The IX-4ETRAN card also provides automatic amplification of the CO level on each line engaged in the conference. Conferencing is available without the IX-4ETRAN card. Features such as disconnect detect and voice amplification, however, are added when the IX-4ETRAN is installed.

IX-4ETRAN Trunk Conference Features:

The following table lists the supported IX-4ETRAN trunk conference features:

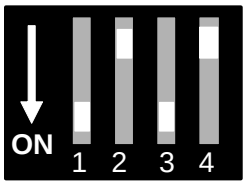
Trunk Conference Features	Analog Trunks	Digital Trunks
IX-CNFBOX-1	Not Supported	Supported
Trunk-to-Trunk	Supported	Supported
Transfer to External Number	Supported	Supported
DISA Outbound	Supported	Supported
ACD Forward to Speed Dial	Supported	Supported
Forward to Speed Dial	Supported	Supported

The IX-4ETRAN card is required for the following:

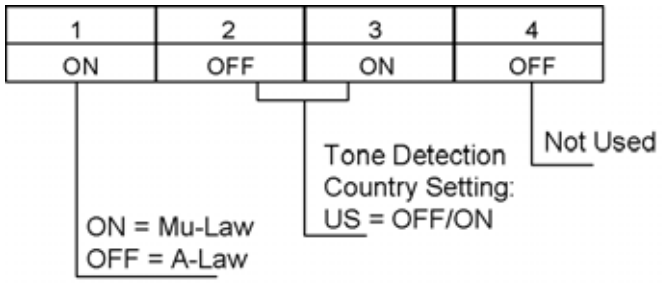
	Analog Trunk					Digital Trunk								
	Loop	Ground	DID	CITK	E&M	T1 Loop	T1 Ground	T1 DID	T1 E&M	T1 2-Way	T1 ANI/ DNIS	ISDN	T1 E&M	IP E&M/ IP E&M Trunk
Loop	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Ground		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
DID			YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
CITK				YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
E&M					NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
T1 Loop						NO	NO	NO	NO	NO	NO	NO	NO	NO
T1 Ground							NO	NO	NO	NO	NO	NO	NO	NO
T1 DID								NO	NO	NO	NO	NO	NO	NO
T1 E&M Trunk									NO	NO	NO	NO	NO	NO
T1 2-Way DID										NO	NO	NO	NO	NO
T1 ANI/DNIS											NO	NO	NO	NO
ISDN												NO	NO	NO
T1 E&M													NO	NO
IP E&M/ IP E&M Trunk														NO

Preparation

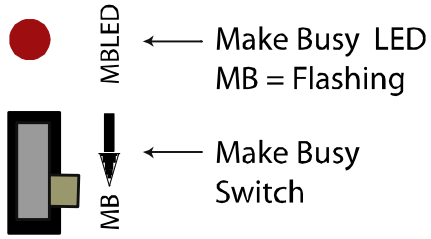
1. Ensure the four DIP switches on th S2 switch are set correctly.



S2 - Switch Settings for the IX-4ETRAN Card



2. Place the Make Busy (MB) switch in the Make Busy position and insert the card into the system.

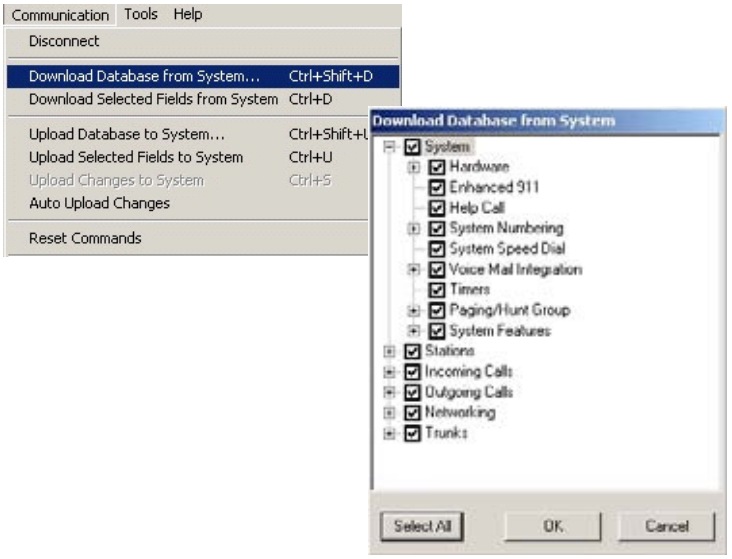


3. When the Make Busy LED starts to flash, slide the Make Busy selector switch to the off (up) position to take the card out of the Make Busy state. The system will auto-configure the IX-4ETRAN card

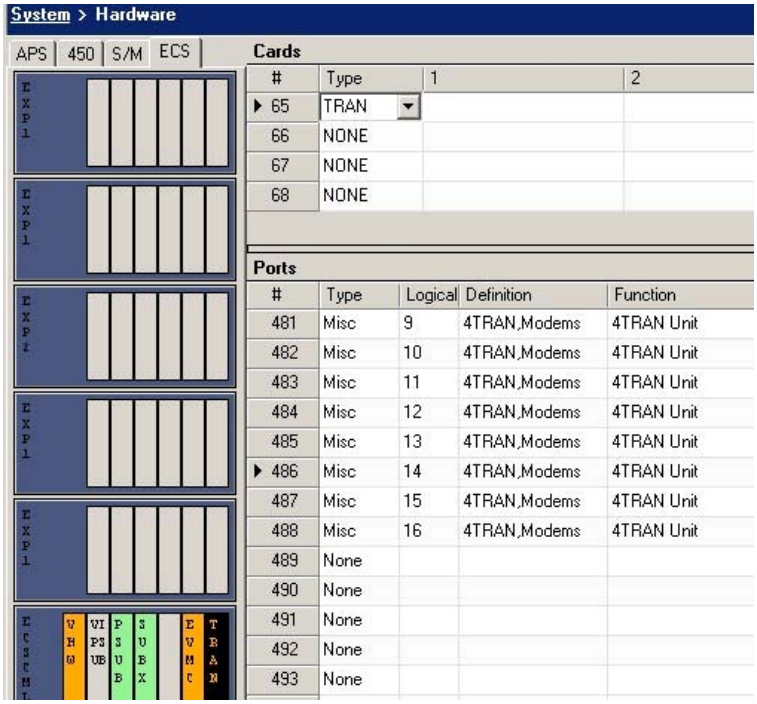
IX-4ETRAN Programming

1. After the IX-4ETRAN card has been installed in the ECS or ADIX, use the Iwatsu Programmer to connect to the system where the card is installed and download the database.
   - Select **Communication > Download Database from System...**

- From the **Download Database from System** window, select **Hardware** (or you may choose to Select All) from the list of categories and then press **OK**.



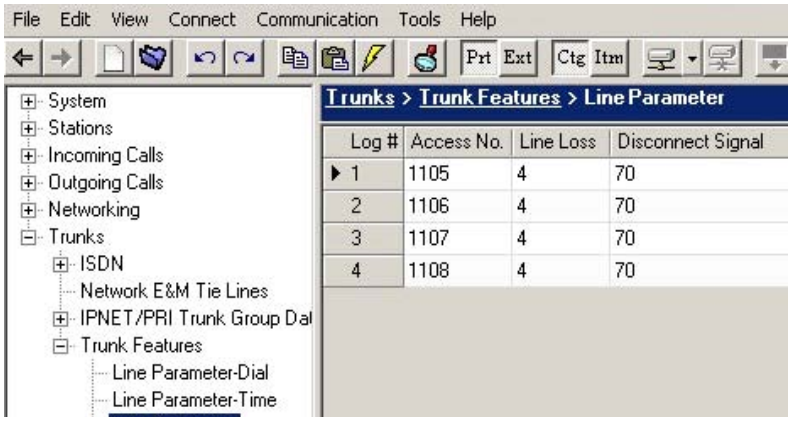
2. When the database download is complete, select **System > Hardware** from the Iwatsu Programmer and then select the card slot where the IX-4ETRAN resides.
   - The IX-4ETRAN card will appear as shown in the screen shot below. The IX-4ETRAN card is now programmed and ready for use.



Additional Programming

Line Loss Setting - Line loss applies to trunk-to-trunk conferences with the IX-4ETRAN card. The built-in amplifier in the card will provide compensation for the line loss based on the defined value of the Line Loss setting in the database. This parameter setting is found under **Trunks > Trunk Features > Line Parameter > Line Loss** (Class 11.18) of the Iwatsu Programmer. The line loss is the loss between the Telco and the ECS system.

- Line Loss **range = 0-7**.
- **Default** Line Loss setting = **4** (-8db).



- The gain of the bidirectional amplifier is set based on the Line Loss setting defined in the Iwatsu Programmer.

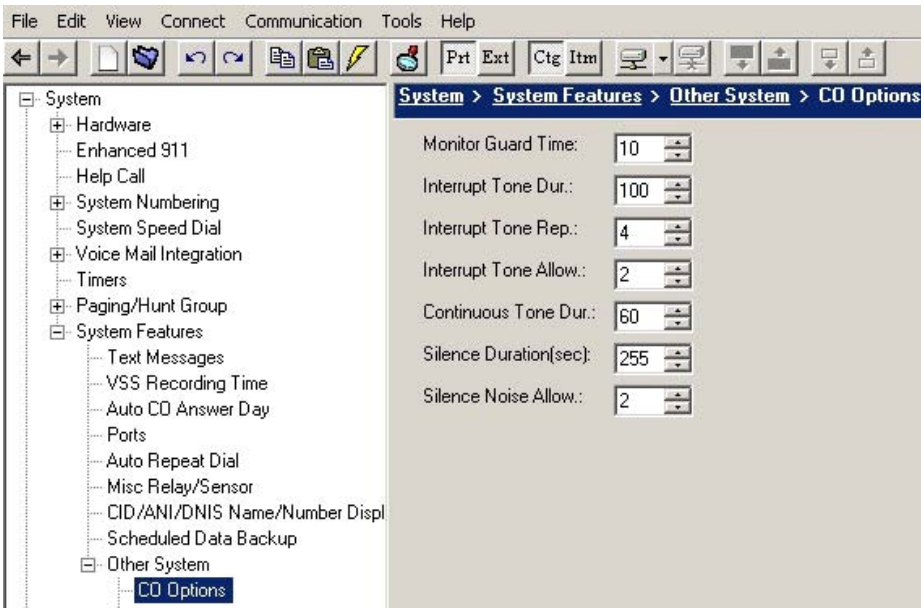
Line Loss Setting	0	1	2	3	4	5	6	7
Total Line Loss	0 db	2 db	4 dB	6 dB	8 dB	10 dB	12dB	14 dB
Gain	5 dB	7 dB	9 dB	11 dB	13 dB	15 dB	17 dB	19 dB

Default Value

CO Options - These parameter settings are found under **System > System Features > Other System > CO Options** (Class 02.10-16) of the Iwatsu Programmer.

- **Monitor Guard Time:** This parameter is used to define the length of time the system will wait after a trunk-to-trunk conference is activated before it begins to monitor the line status. **Range = 0-255 (default = 10)**.
- Interrupt Tone Duration: This parameter is used to establish the maximum length of time in seconds that an interrupt signal can be received before the system will disconnect a trunk-to-trunk conference. **Range = 0-255 (default = 100)**.
- **Interrupt Tone Repetition:** This parameter is used to define the number of times the interrupt signal pattern must be repeated before the system will disconnect a trunk-to-trunk conference. **Range = 0-255 (default = 4)**.
- **Interrupt Tone Allowance:** This parameter is used to define the number if irregular signal cycles the system will ignore when monitoring the status of a trunk-to-trunk conference. **Range = 0-255 (default = 2)**.
- **Continuous Tone Duration:** This parameter is used to define the length of time a continuous signal (i.e. dial tone) must be received before the system will detect the termination of a trunk-to-trunk conference and disconnect the lines. **Range = 0-255 (default = 60)**.
- **Silence Duration (sec):** This parameter is used to define the length of time silence must be maintained on both lines before the system detects the termination of a trunk-to-trunk conference and disconnects the lines. **Range = 0-255 (default = 255)**.

- **Silence Noise Allowance:** This parameter is used to define the number of times the system will disregard noise such as static and line interference while monitoring a trunk-to-trunk conference. **Range = 0-255 (default = 2)**.



Chapter 9

Voice Mail Installation

This chapter describes the installation process for the following voice mail hardware:

- IX-APPSRV Card with Iwatsu TOL-IVM Voice Mail
- IX-4EVMC Four Port Voice Mail card
- IX-SEVMC Four Port Voice Mail card
- IX-4VML Four Port Voice Mail card
- Iwatsu Enterprise TOL
- IX-VMAC
- IX-VMBAK with VS-VML card

Note: Omega-Voice VMI Editor version 3.00.7 or later is required to program an IX-4EVMC, IX-4VML, IX-4VMLCFM, or VS-VSL / IX-VMAC card installed in an ECS system. Omega-Voice VMI Editor version 3.02.13 or later is required to program the IX-4SEVMC

IX-APPSRV Card with Iwatsu TOL-IVM Voicemail

IX-APPSRV Card Installation in a New or Existing ECS System

Follow these instructions when installing the IX-APPSRV card into a new or existing cabinet:

Note:	The IX-APPSRV card ships with the Windows firewall disabled. If the firewall is enabled, you will lose remote access to the card.

Recommended Connection Method

Prior to inserting the IX-APPSRV card into the ECS system, directly connect a USB keyboard, USB mouse, monitor (USB/VGA or DVI-D), and TOL Sentinel (if required) to the card using the USB and/or monitor ports.

- **If connecting four or more USB devices to the card, a USB hub is required**.

Optional Connection Method

Windows® Remote Desktop is enabled on the IX-APPSRV card in the event that a keyboard, mouse, and monitor are not available at the time of installation:

Refer to the Windows® Remote Desktop section for information regarding remote connections.

- The IX-APPSRV card is pre-programmed with a static IP address of 172.30.30.50 and subnet mask of 255.255.0.0.
  - Remote Desktop user name = **TOLVM**
  - Password = **esnatech**

Card Installation

1. Connect a USB keyboard, USB mouse, TOL Sentinel (if required), and a USB or VGA/DVI-D monitor to IX-APPSRV card / **or** if those items are not available, use Windows® Remote Desktop (requires a hub or cross-over cable).
   - **Make sure that you plug-in the keyboard, mouse, and Sentinel (if required) prior to inserting the card into the ECS**.
2. Insert the IX-APPSRV card into an empty slot in an ECS cabinet (IX-CME, IX-EXPME1, or IX-EXPME2).
3. Connect the IX-APPSRV card LAN port to the CAS1 port on the IX-MBU card.

4. If the ON LED (D4) is not already lit, press and release the ON/OFF (S1) button.

Note:	The IX-APPSRV card maintains the status prior to an ECS power loss. If IX-APPSRV card is running when ECS loses power (power failure), then IX-APPSRV card will boot automatically when power is restored to the ECS. If IX-APPSRV card is shutdown when ECS loses power (ECS shutdown), then IX-APPSRV card remains powered-off when power is restored to the ECS. In any other case, check the BIOS setting (press "F2" during the initial boot), and make sure "After Power Failure" is set to "Power on " in "Power" tab.

5. When the IX-APPSRV card is on, the **Windows logon** screen will display on the monitor.
   - Iwatsu TOL-IVM Server login, enter the following Windows user name and password:
   - Username - **TOLVM**
   - Password - **esnatech** (all lower case)



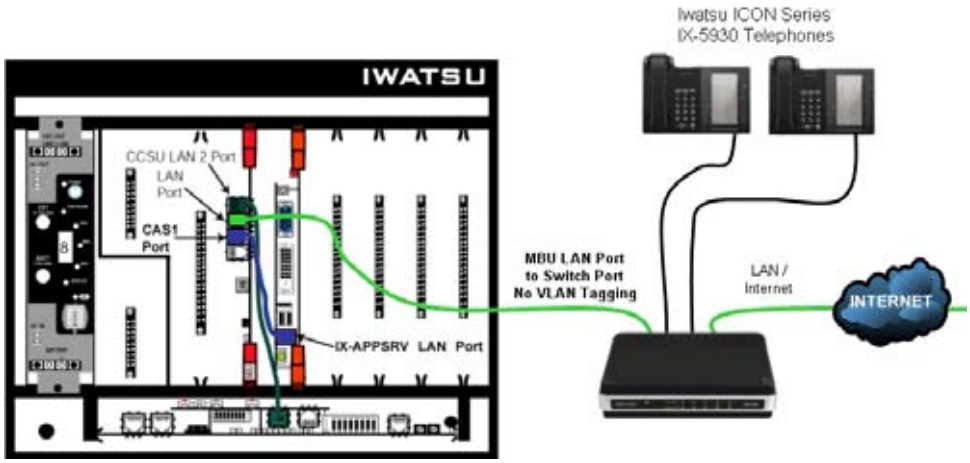
6. Go to the Iwatsu ECS and Iwatsu TOL-IVM Configuration section to configure your ECS and TOL-IVM systems.

LAN Connection without and with VLAN Tagging

LAN Connection without VLAN Tagging

The IX-APPSRV card LAN port can be connected to the CAS 1 port on an IX-MBU card.

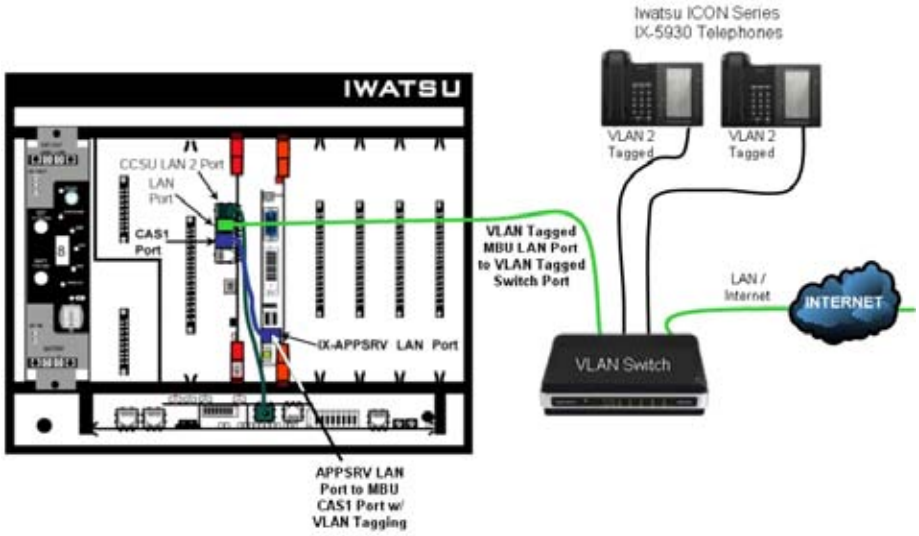
- Connect IX-CCSU LAN 2 port to IX-MBU CCU port.
- Connect IX-MBU LAN port to switch.
- Connect IX-APPSRV LAN port to IX-MBU CAS 1 port.



LAN Connection with VLAN Tagging

When VLAN Tagging is enabled, the IX-APPSRV card must be configured for VLAN Tagging. Refer to the IX-APPSRV VLAN Tagging Instructions on the following page.

- Connect IX-CCSU LAN 2 port to IX-MBU CCU port.
- Connect IX-MBU LAN port to VLAN switch.
- Connect IX-APPSRV LAN port to IX-MBU CAS 1 port.

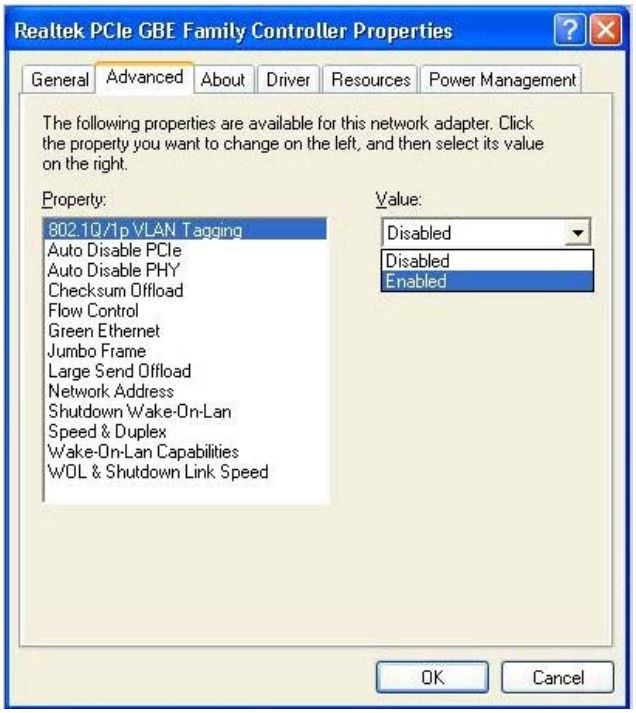


IX-APPSRV Card VLAN Tagging Instructions

Note:	If you have an existing/operational TOL VM system and enable/disable VLAN Tagging: An ECS system reset is required for continued SIP VM operation when changing the TOL IP address, TOL SIP VM port, extensions, or enabling/disabling VLAN Tagging on existing/operational TOL VM systems.

From the IX-APPSRV card:

1. Go to **Network Connections**.
2. Right click on the **Local Area Connection** and select **Properties**.
3. From the **Local Area Connection Properties > General** tab, select **Configure**.
4. From the **Realtek PCIe GBE Family Controller Properties** window, select the **Advanced** tab.
5. From the **Advanced** tab **Property** menu, select **802.1Q/1p VLAN Tagging** and then select **Enabled** from the **Value** drop-down menu.
6. Once you have made your changes, select **OK**.



Note:	The Realtek Controller does not have a setting for a VLAN ID. The VLAN ID setting is not required for this controller. The Realtek PCIe GBE Family Controller driver for this configuration is: V5.764.702.2010 dated 7/2/2010.

Iwatsu ECS and TOL-IVM Configuration

The section has been created to provide assistance and guidance for the configuration of a new Iwatsu TOL-IVM system.

Iwatsu builds all new TOL-IVM systems including the IX-APPSRV card with all software installed before being shipped to your location. These systems have been configured and tested on an Iwatsu Enterprise CS system to insure the software installation is complete for the TOL-IVM system. After testing, Iwatsu removes all local settings for the test system and ships the TOL-IVM system / IX-APPSRV card.

When receiving the complete TOL-IVM system / IX-APPSRV card, it is important to follow this document to configure your ECS and TOL-IVM systems to work together at your site and based on your local settings. After completing this document, your TOL-IVM system will answer calls from the ECS with a default auto attendant greeting. You can then build your required mailboxes and menus based on your customer's application.

Iwatsu Enterprise-CS Configuration

Before proceeding with the configuration of the ECS system, SIP licenses must be installed to accommodate the ports for the Iwatsu TOL-IVM system.

Requirements

- SIP Licenses required on ECS - PN: 000331 = 1 or 000332 = 5 or 000333 = 10 or 000334 = 25 or 000335 = 50 or 000336 = 100. You must have one SIP license for each SIP VM port.

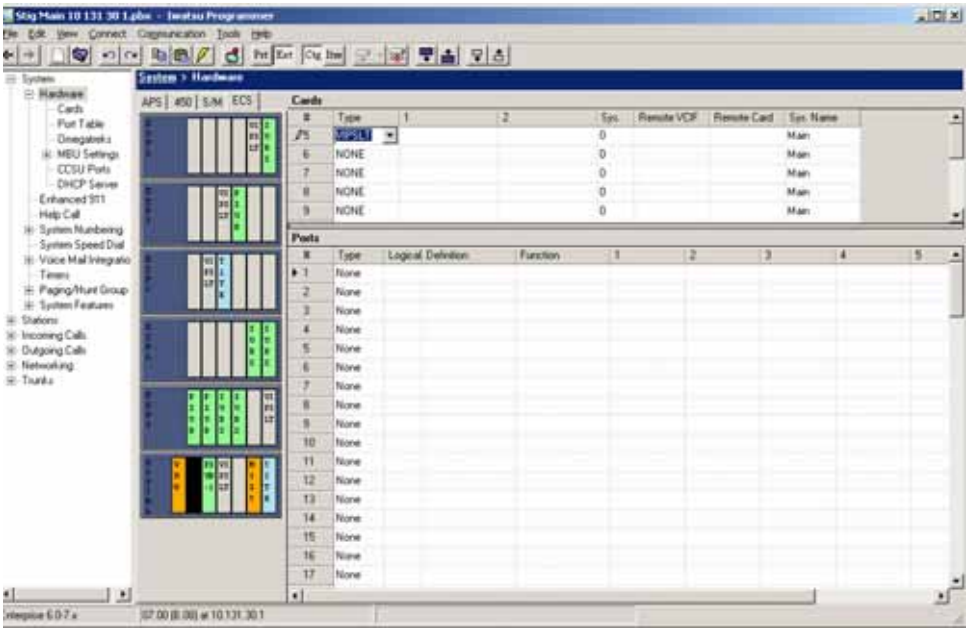
Note:	SIP licenses are included with Iwatsu TOL-IVM.

- ECS Basic system port licenses installed in the system must be equal to or higher than the number of ports configured in the ECS system.
- Valid ECS system software version license 5.2 or higher.
- IX-MBU card: The ECS system should already be connected and configured to operate on the Local Area Network (IX-CCSU LAN 2 and IX-MBU).

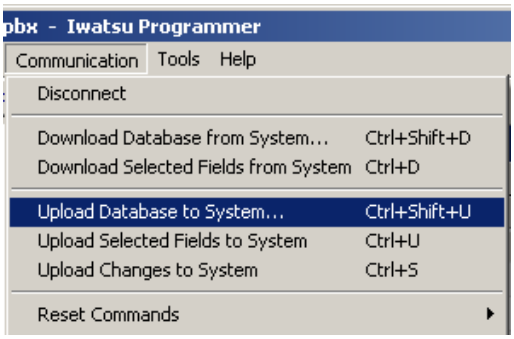
Configure SIP Voice Mail Ports on the ECS System

1. Using the Iwatsu Programmer in the Category (Ctg) mode, connect to the ECS system and download a current copy of the ECS database.
2. Create the VIPSLT card for the configuration of SIP VM ports.
    - Locate an unused card in the ECS database and change the card Type from NONE to VIPSLT. Click the field on the card number Type parameter field to access drop-down card type menu to select the VIPSLT card type.

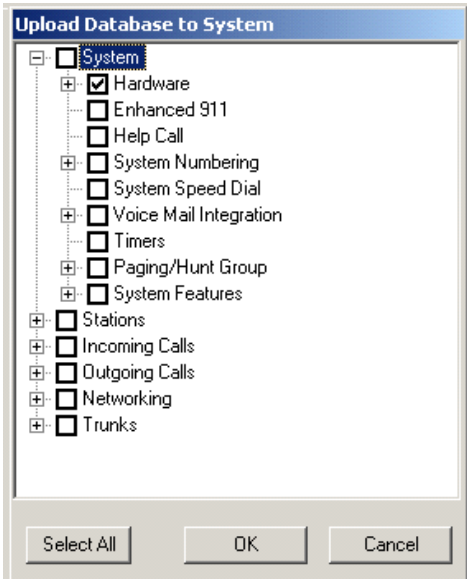
- Do not configure the physical ports of the VIPSLT card, the ECS will configure the physical port automatically when you upload and disconnect from the ECS system.



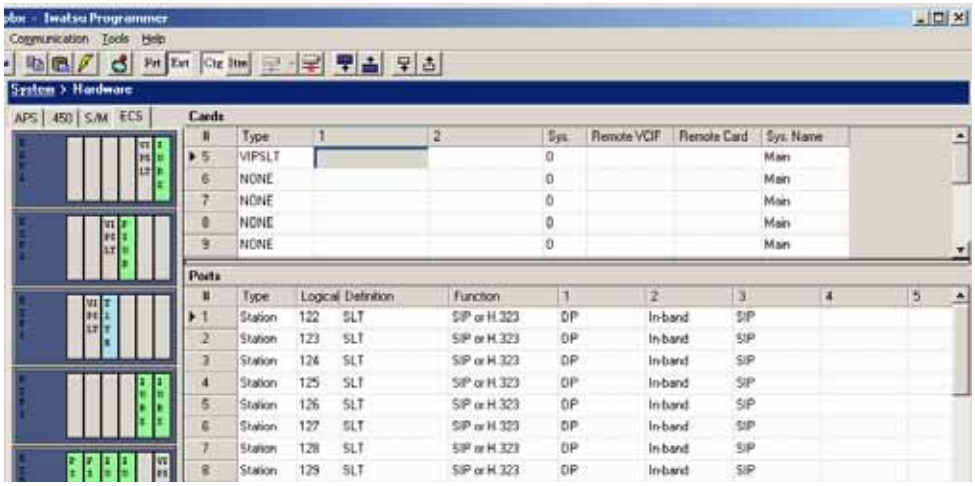
3. Select **Communication > Upload Database to System**.



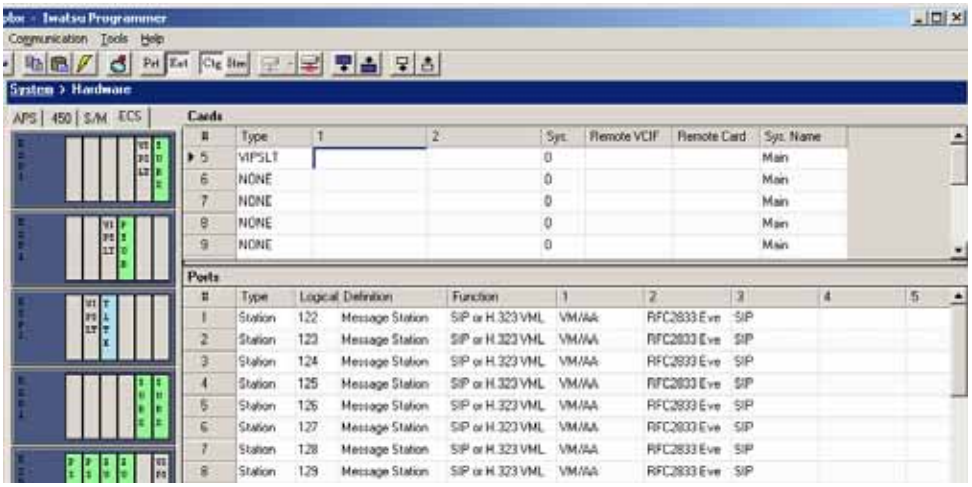
4. Select **Hardware** and **OK**, this action will upload the configuration change to the ECS.



5. Remember to Disconnect from the ECS and then reconnect.
   - Wait ten seconds for the VIPSLT card to be created by the ECS system before reconnecting.
6. After reconnecting to the ECS:
   - Download Hardware, you will see that the ECS configured the physical ports for the VIPSLT shown below on physical ports 1 - 8. The configuration shown is the default for a VIPSLT card type.
   - The SIP SLT ports are not yet configured as VM ports.

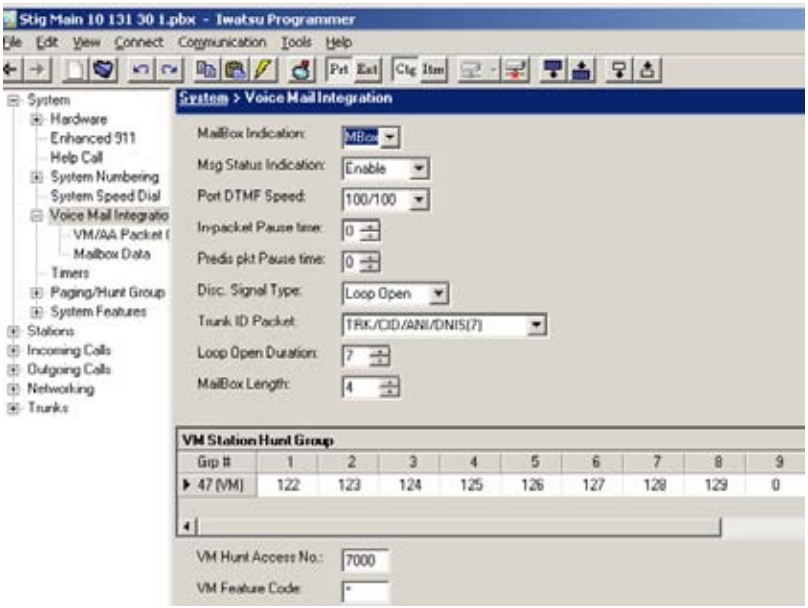


7. Configure the SIP VM ports:
   - Change the **Definition** parameter field from SLT to **Message Station**.
   - Change the **Function** parameter field from to SIP or H.323 to **SIP or H.323 VML**.
   - Parameter fields **1**, **2**, and **3** will automatically change to **VM/AA, RFC2833 Event**, and **SIP**, respectively.

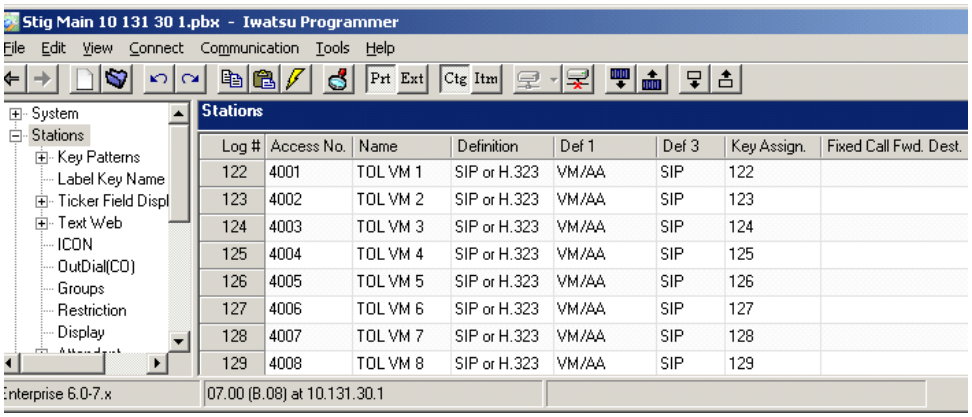


AN ECS RESET IS REQUIRED AFTER YOU UPLOAD YOUR CONFIGURATION CHANGES FOR THE VIPSLT CARD. You can reset the ECS now or continue programming steps 8-10 and perform the ECS reset after you populate Hunt Group 47 and assign extension Access Numbers to the voice mail ports.

8. Go to **System > Voice Mail Integration** and add the VM ports to **Hunt Group 47**:
   - Shown in the example below are the station logical ports 122 - 129 previously configured on the VIPSLT card.



9. Add the station **Access No**. (extension numbers) to the VM ports that we just added to the system for the VIPSLT card.
   - Shown in the example below are extension numbers 4001 - 4008 for logical ports 122 - 129.
   - **Remove the Fixed Call Fwd. Destination from the VM ports**.



Important! This ECS system will be running with a SIP-based Iwatsu TOL-IVM system and requires that all stations and trunks in the ECS system be programmed with an extension number (access code) to operate correctly. This includes all other stations and trunks, not just the ports programmed for SIP VM ports.

10. Make sure you remember to **upload your ECS database changes** and **disconnect** from the ECS system. If you do not, your changes will not be saved to the database.
    - If you did not reset the ECS after completing step 7, you must reset the ECS now.

This completes the ECS programming. Proceed to Iwatsu TOL-IVM Configuration on this page.

Iwatsu TOL-IVM Configuration

When you receive your new Iwatsu TOL-IVM, only the specific information for your system is required. All required software and services have already been installed for you.

Follow the instructions below to configure your new Iwatsu TOL-IVM system.

Requirements

- Local Area Network connection with IP address (Static IP address is highly recommended).
- Internet access from the Local Area Network.

Power-Up and Login to Your Iwatsu TOL-IVM System

1. Power-up your Iwatsu TOL-IVM server / IX-APPSRV card and make sure that you have a LAN and internet connection.
   - If needed, refer to page 7 for information regarding the connection to the IX-APPSRV card.

2. Iwatsu TOL-IVM Server login, enter the following Windows® user name and password:
   - Username - **TOLVM**
   - Password - **esnatech** (all lower case)
   - Press **OK**



Configure Iwatsu Enterprise Services

From the IX-APPSRV card desktop, locate the Iwatsu Services shortcut icon.

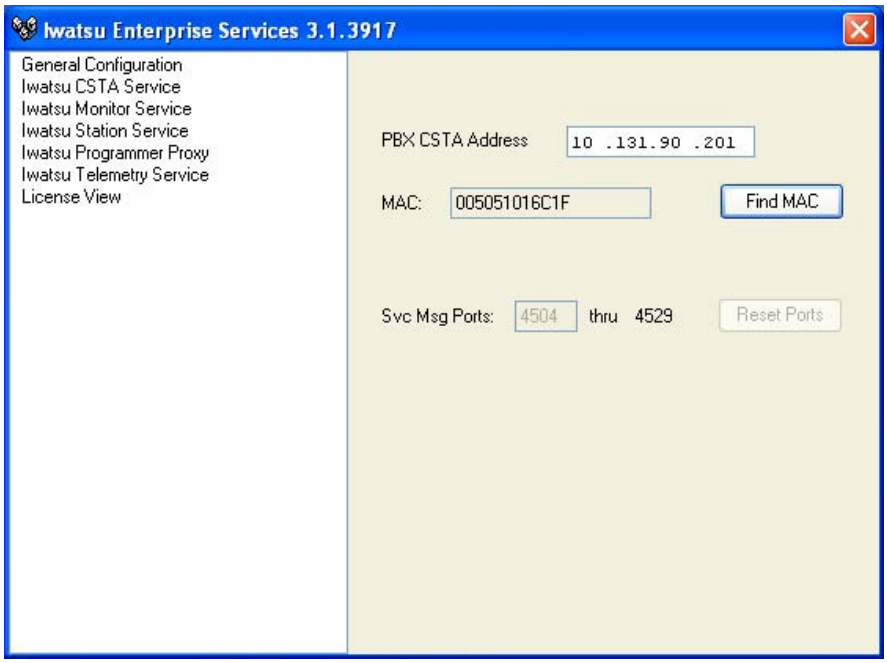
1. **Double-click** on the **Iwatsu Services** icon.



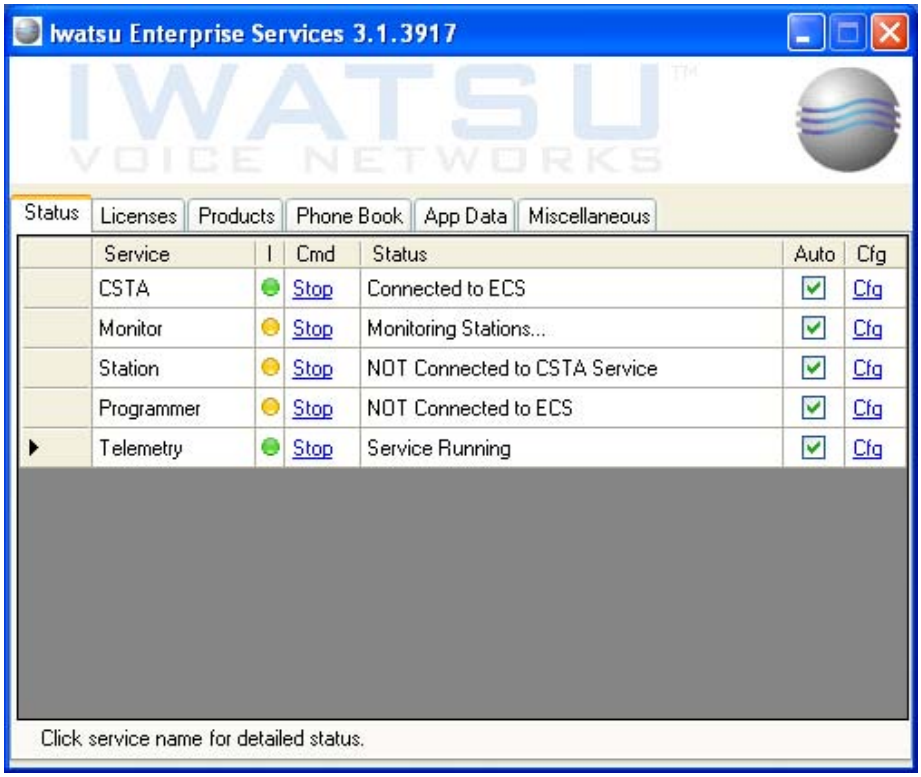
2. When Iwatsu Enterprise Services launches, you are taken to the **General Configuration** screen.

   The **General Configuration** window is used to configure the **PBX CSTA Address** for Iwatsu Enterprise Services.
   - From the General Configuration screen, enter the **PBX CSTA Address** (this is the **IX-CCSU LAN 2 port** on the ECS). Enter the address without leading zeros (default = no address).
   - Once the IP address has been entered, click **Find MAC** to find the MAC address for the **ECS LAN 2** (IX-CCSU) port that will output CSTA information. If the IP address is correct, the LAN 2 MAC address will appear.
   - Requires a valid IP address in the **PBX CSTA ADDR** field.

- Select the **X** in the top right corner to **Close** the window.



- The Iwatsu Enterprise Services Status window will appear and you should see the CSTA, Monitor, Station, Programmer, and Telemetry services starting up.

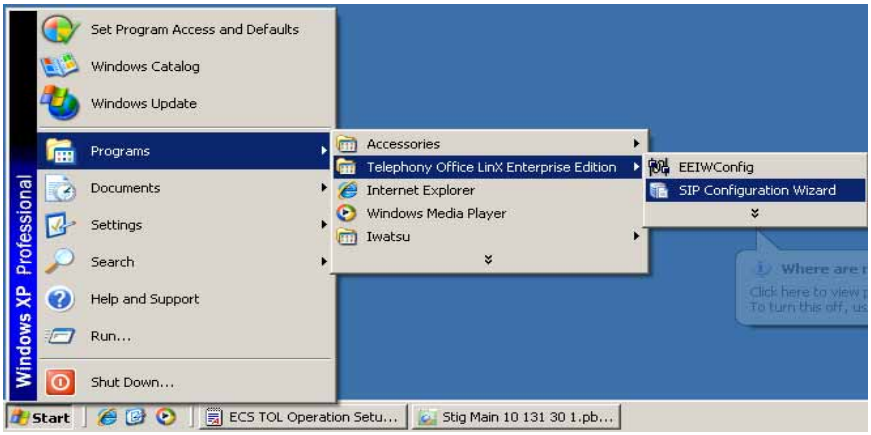


- Once all the services have started, select the **X** in the top right corner to **Close** the window.

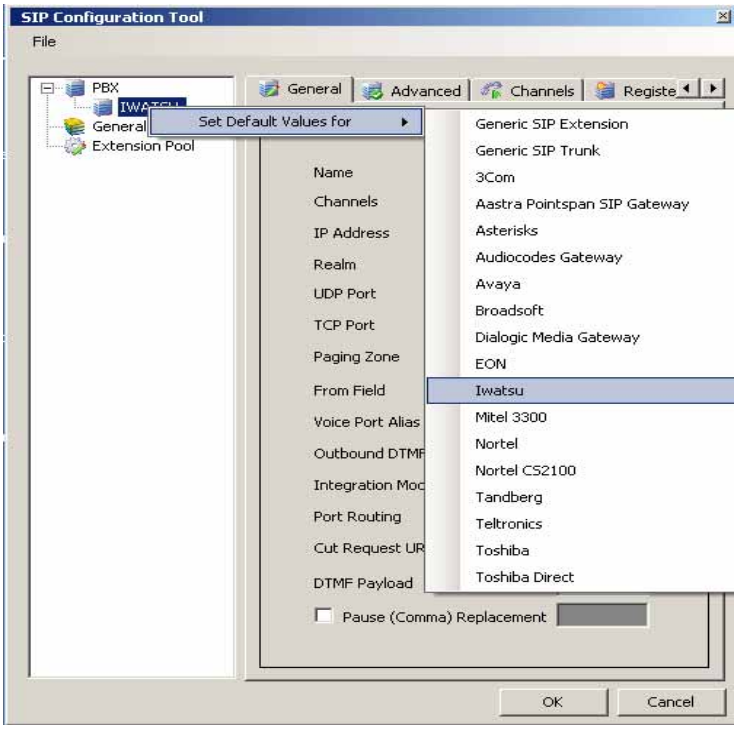
Configure the Iwatsu TOL-IVM System

Iwatsu TOL-IVM Voice Mail configuration setup for the voice mail ports created on the VIPSLT card in the ECS system.

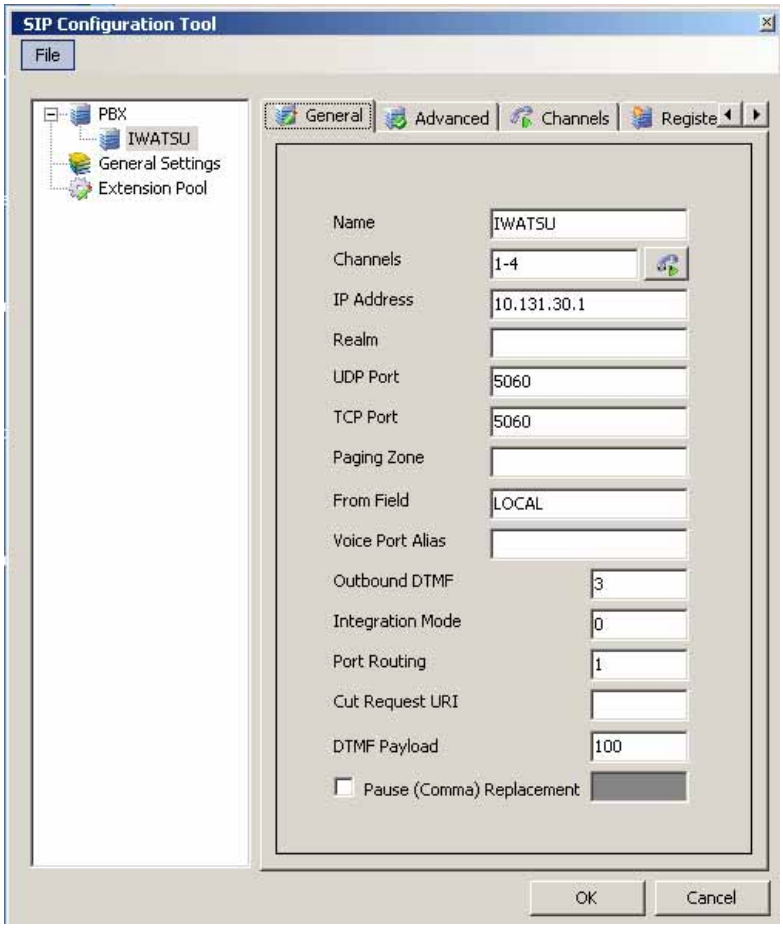
1. Go to **Start > Programs > Telephony Office Linx Enterprise Edition > SIP Configuration Wizard**.



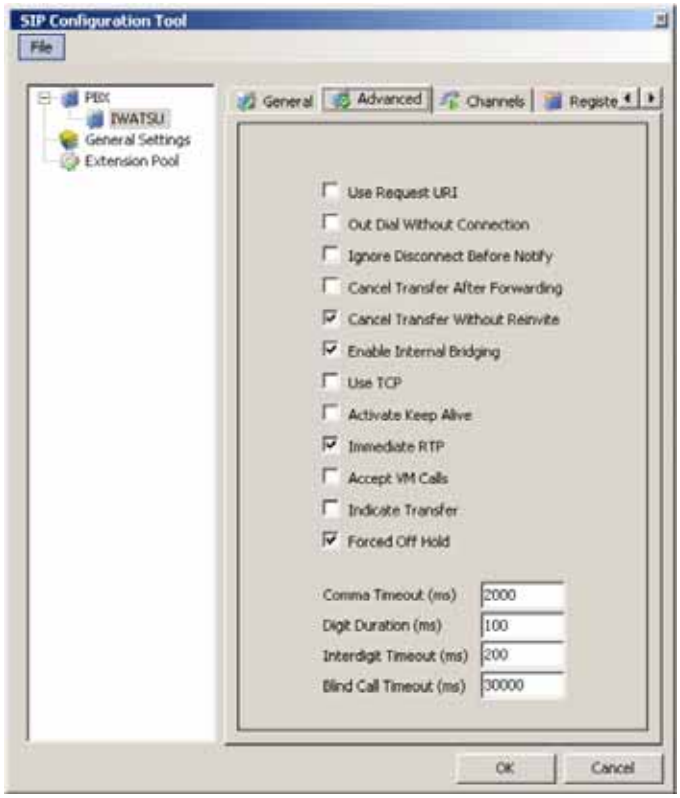
2. When the **SIP Configuration Tool** opens:
   - **Right-click Iwatsu** and **Set the Default Values for > Iwatsu**. This action will default all fields to the correct parameters for an Iwatsu phone system.
   - Depending on your ECS Software Version, you may need to change your DTMF Payload setting in step 3.
     - **DTMF Payload** for ECS system Software Version **6.x and below = 100**.
     - **DTMF Payload** for ECS system Software Version **7.x and higher = 101**.



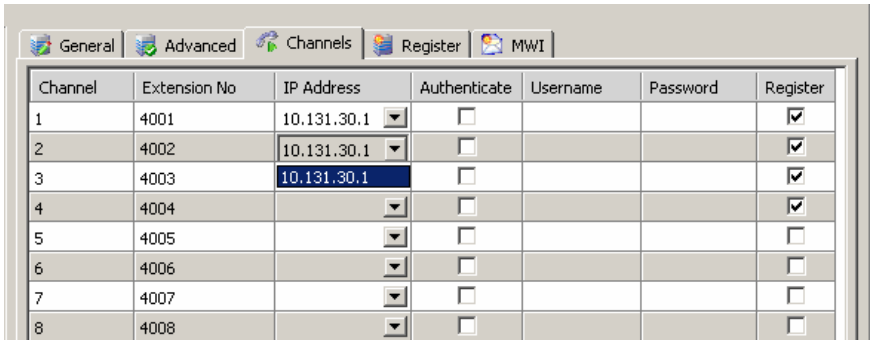
3. **IWATSU** is now displayed in the **Name** field under the **General** tab on the **SIP Configuration Tool**.
   - **Channels** - Enter the number of VM ports.
   - **IP Address** - Enter the ECS LAN2 IP Address. The TOL will register to this IP address.
   - **DTMF Payload**
     - For ECS system Software Version 6.x and below = 100.
     - For ECS system Software Version 7.x and higher = 101.



4. From the **SIP Configuration Tool > Advanced** tab:
   - **Do not make any changes to the Advanced tab parameters**.
   - All parameters were configured correctly when you selected Iwatsu as the default PBX in step 2. Verify values are set as shown.

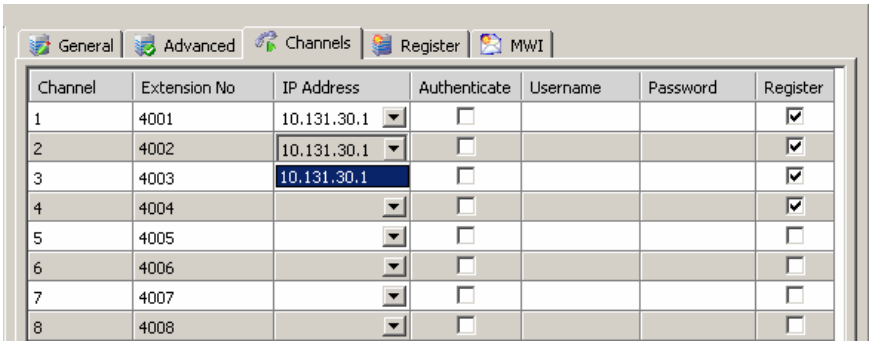


5. From the **SIP Configuration Tool > Channels** tab:
   - Enter the **Extension No.** (Access Numbers) for the **SIP VM** ports that were created on the VIPSLT card in the ECS.

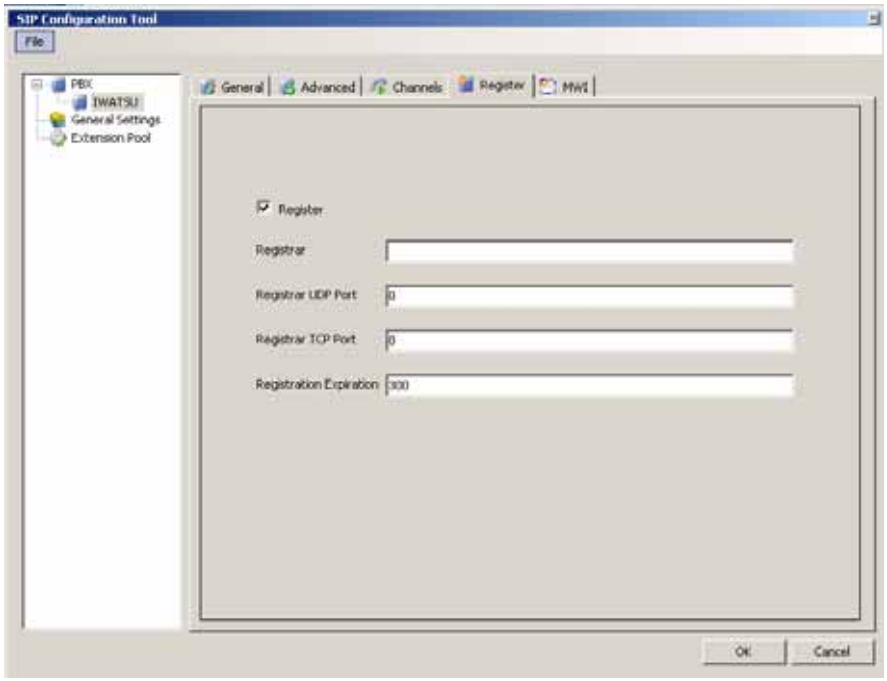


   - **IP Address** - Select the drop-down arrow in the IP Address field. Select the ECS LAN2 IP address entered under the General tab.
     - Select the ECS LAN2 IP address for ALL of the SIP VM port extensions.
   - **Register** - Select the Register checkbox for the extensions programmed.

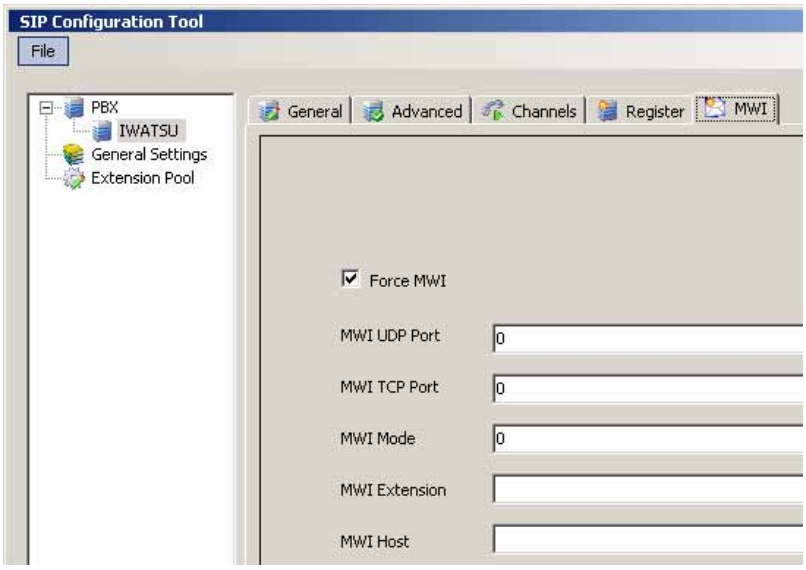
- If not checked, the extensions will not register to the ECS.



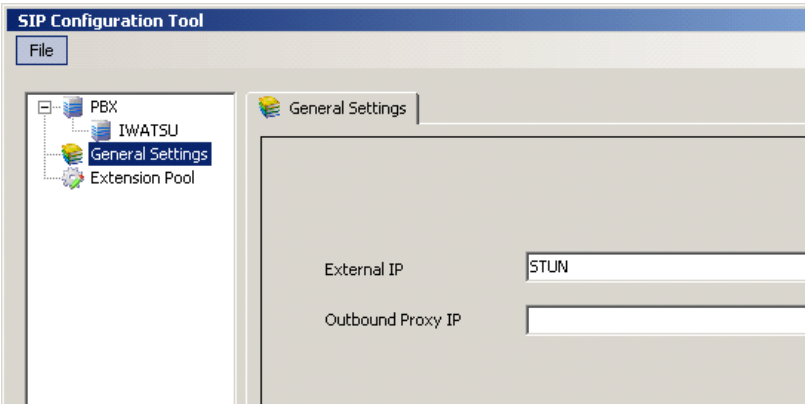
6. From the **SIP Configuration Tool > Register** tab - All fields are configured correctly at default. Verify values are set as shown.
   - **Registration Expiration = 300 seconds** (5 minutes). This parameter value indicates how long the ports are registered to the ECS when the TOL-IVM registers the ports to the ECS.
   - If the **ports do not register** again after **300 seconds** the **ECS will take the ports OUT OF SERVICE**.



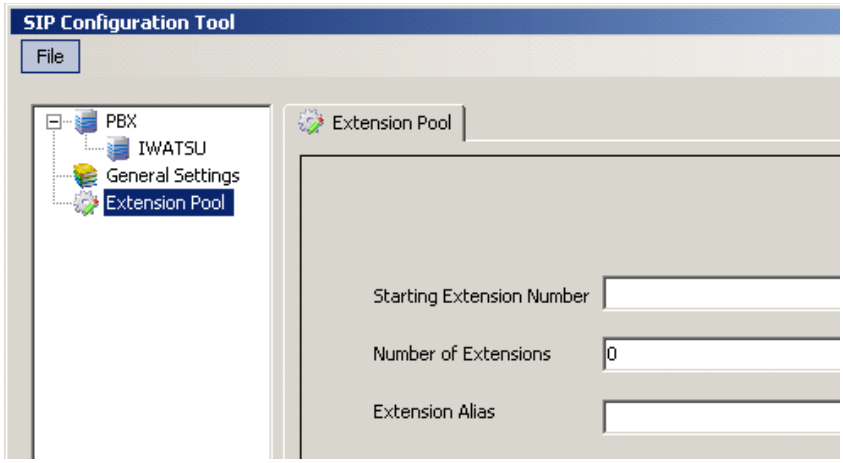
7. From the **SIP Configuration Tool > MWI** tab - All fields are correctly configured at default. No changes are required. Make sure your entries match the entries shown below.



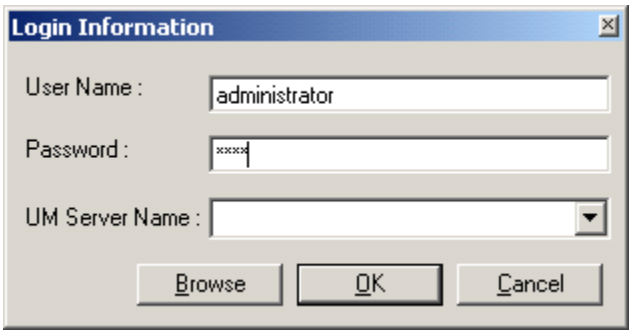
8. Under **PBX > General Settings** - All fields are correctly configured at default. No changes are required. Make sure your entries match the entries shown below.



9. Under **PBX > Extension Pool** - All fields are correctly configured at default. No changes are required. Make sure your entries match the entries shown below.



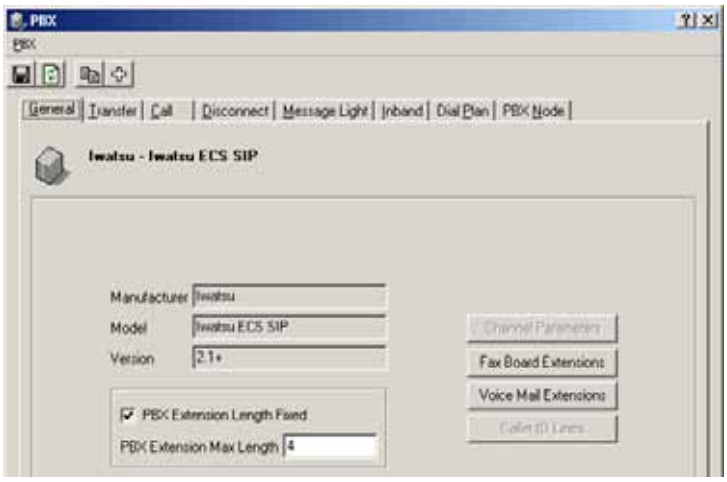
10. Make sure that you select **OK** to save your changes.
11. Configure the **TOL-IVM VM** ports under **PBX Properties**:
    - From the desktop, **double-click** the **Telephony Office Linx Admin** icon.
    - Login:
        - User Name = **administrator** (default)
        - Password = **1111** (default)
12. Select **OK**.



13. From the **TOLAdmin** screen:
    - **Right-click Iwatsu** - Iwatsu ECS SIP and select Properties.

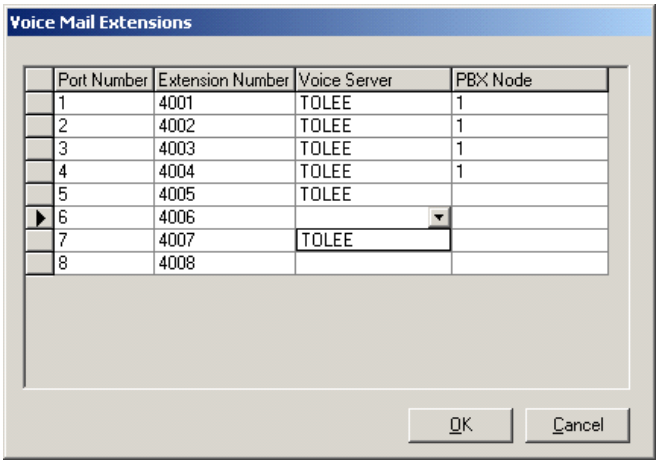


14. From the **PBX** screen:
    - Under the **General** tab - Select the V**oice Mail Extensions** button.



15. At the **Voice Mail Extensions** screen pop, no data will be populated in the data fields.

- **Extension Number** - Enter the VM port extensions.
- **Voice Server** - Enter the computer name (the TOL-IVM system name is selected from a drop-down menu, select TOLEE.
- **PBX Node** - Enter 1 for you PBX Node.
- Select **OK**.



16. Basic Setup of ECS and TOL-IVM are now complete.
17. **Reboot the TOL-IVM**.
    - After the reboot, dial the access number to Hunt Group 47 and the TOL-IVM VM will answer.

There are no mailboxes, feature groups configured so calls ringing a phone that forward to VM will not go to a mailbox because the mailboxes have not been created yet.

The default company greeting will answer for all calls.

IX-APPSRV Backup

The data for this card should be backed up on a regular basis to an external device such as a network drive, USB flash drive, or USB hard disk drive.

- No backup drive ships with the IX-APPSRV card.
- The Backup copy should not be stored within the IX-APPSRV SSD drive.

Important Note

No Defrag

Because IX-APPSRV utilizes a Solid State Drive (SSD) and not a Hard Disk Drive (HDD), defrag is not necessary.

Since Solid State Drives (SSD) are random access by nature and can perform parallel reads on multiple sections of the drive (as opposed to a HDD, which requires seek time for each fragment, assuming a single head assembly), a certain degree of fragmentation is actually better for reading the drive. In fact, defragmenting a SSD is harmful since it adds wear to the SSD with no benefit and should not be performed.

TOL-IVM Logs

Disable TOL-IVM logs and other application logs unless they are specifically required. If TOL-IVM logs are enabled, disable the logs when they are no longer required.

Additional Information

Disable Anti-Virus software and any additional application logs.

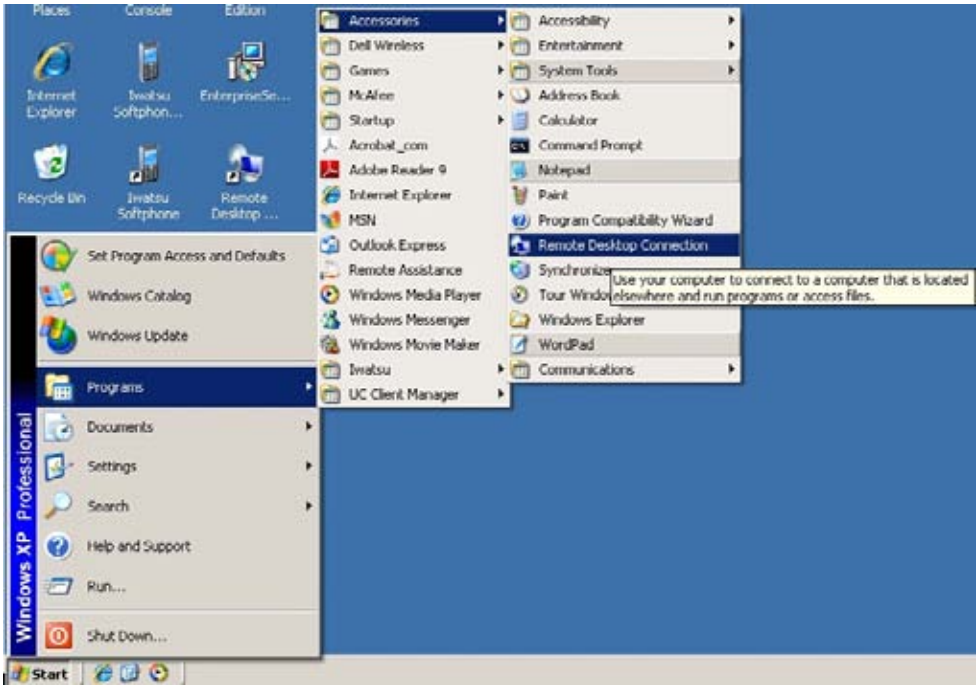
Do not change the Windows Page Executive and Prefetcher settings (DisablePageExecutive=1, EnablePrefetcher=0) and refrain from any other changes that may increase the write/erase process to the SSD.

Windows® Remote Desktop

Windows® Remote Desktop is enabled on the IX-APPSRV card in the event that a keyboard, mouse, and monitor are not available at the time of installation. The remote computer must be on the same network as the IX-APPSRV card.

- The IX-APPSRV card is pre-programmed with:
  - Static IP address of 172.30.30.50
  - Subnet mask of 255.255.0.0.
  - User name = TOLVM
  - Password = esnatech

1. To launch the Windows Remote Desktop Connection from the remote computer:
   - Go to **Start > Programs > Accessories > Remote Desktop Connection**.

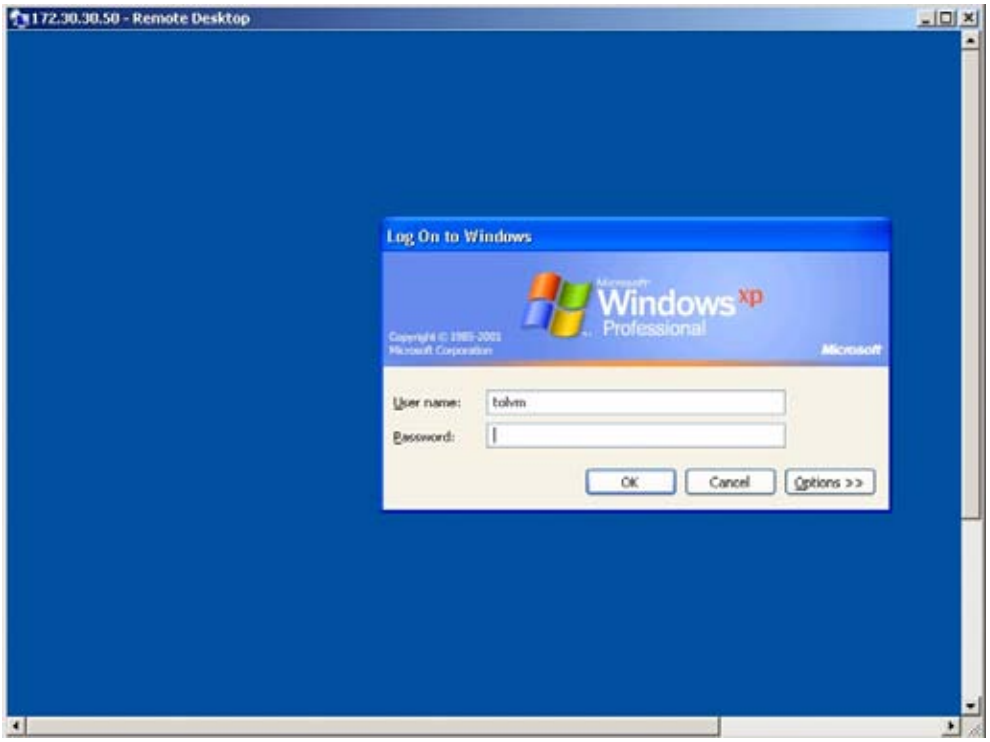


2. From the Remote Desktop Connection, enter the IX-APPSRV card IP address in the Computer field and press Connect.



3. You should now be connected to the IX-APPSRV card and see the Windows® login screen.

4. Enter TOLVM for the User Name and esnatech for the Password and press OK.

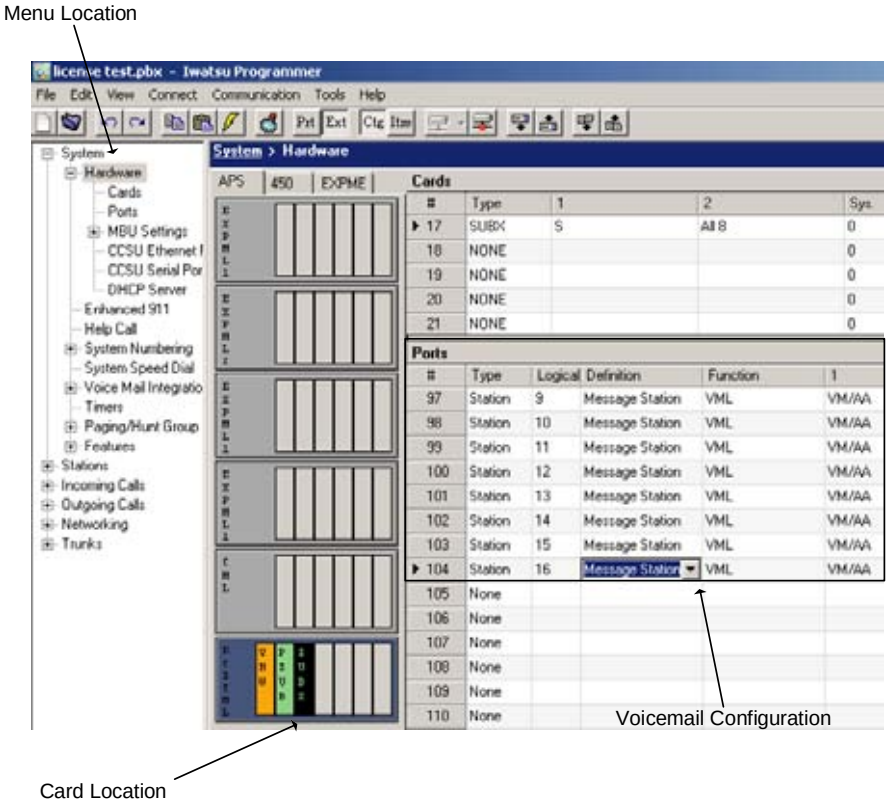


IX-4EVMC Installation

IX-4EVMC Installation in a New ECS System

The following are instructions for installing the Omega-Voice VMI IX-4EVMC into a new ECS system.

1. Insert all circuit cards into their respective slots, including the Omega-Voice VMI IX-4EVMC. The Omega-Voice VMI IX-4EVMC can be installed in any Universal Card slot.
2. Default the ECS system.
3. After the ECS reset is complete, launch the Iwatsu Programmer.
4. Use the Iwatsu Programmer to connect to the ECS system.
5. Using the Iwatsu Programmer in the Category (**Ctg**) View mode
   - Select: **System > Hardware**

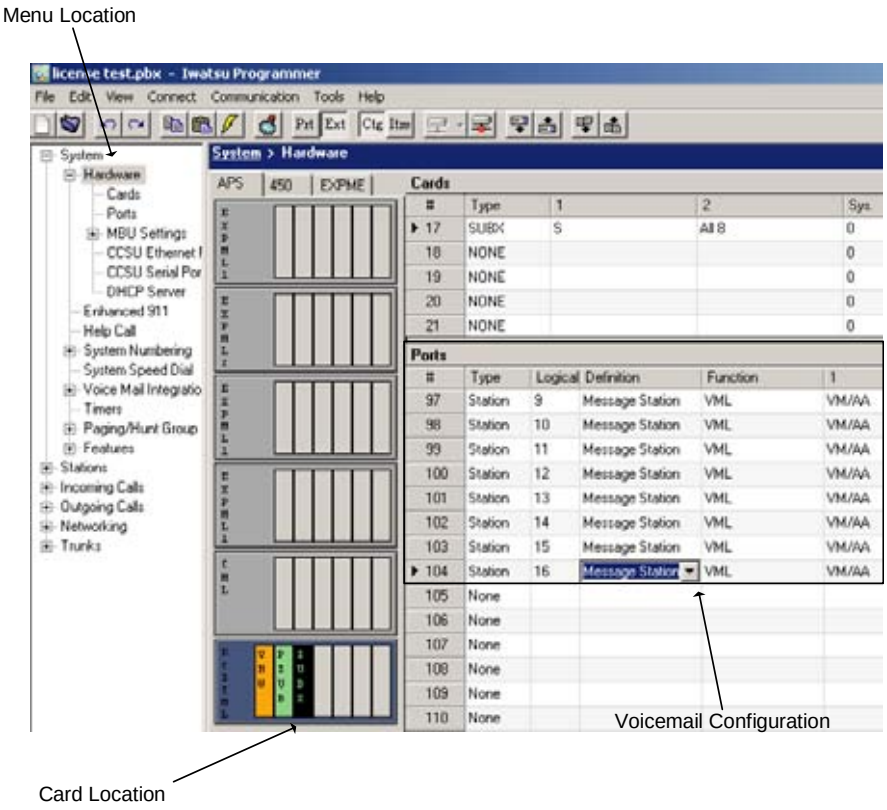


6. Select the IX-4EVMC card location from the ECS system graphic.
7. Using the Ports screen:
   - Define all eight ports as **Message Station** ports.
   - Configure the function of all eight ports as **VML** ports.
8. Upload the configuration changes and wait ten seconds.
9. Proceed to **Database Programming for an IX-4EVMC**.

IX-4EVMC Installation in an Existing ECS System

The following are instructions for installing the Omega-Voice VMI IX-4EVMC into an existing ECS system.

1. Insert all circuit cards into their respective slots, including the Omega-Voice VMI IX-4EVMC. The Omega-Voice VMI IX-4EVMC can be installed in any Universal Card slot.
2. Default the ECS system.
3. After the ECS reset is complete, launch the Iwatsu Programmer.
4. Use the Iwatsu Programmer to connect to the ECS system.
5. Using the Iwatsu Programmer in the Category (**Ctg**) View mode:
   - Select: **System > Hardware**

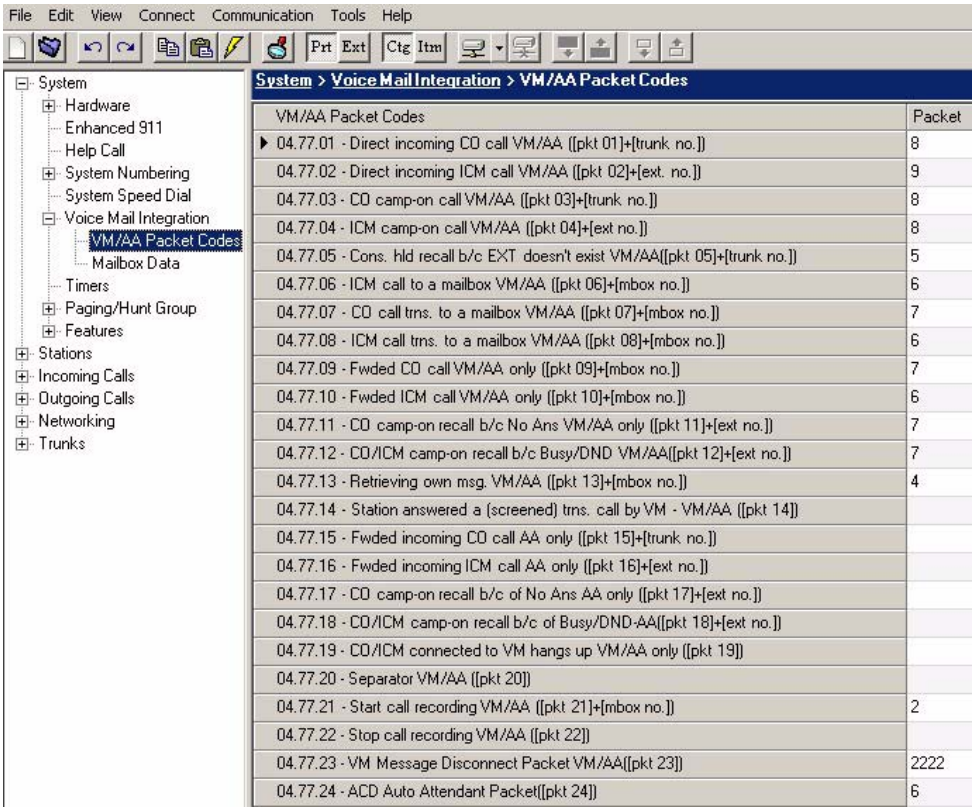


6. Select the IX-4EVMC card location from the ECS system graphic.
7. Using the Ports screen:
   - Define all eight ports as **Message Station** ports.
   - Configure the function of all eight ports as **VML** ports.
8. Upload the configuration changes and wait ten seconds.
9. Proceed to **Database Programming for an IX-4EVMC**.

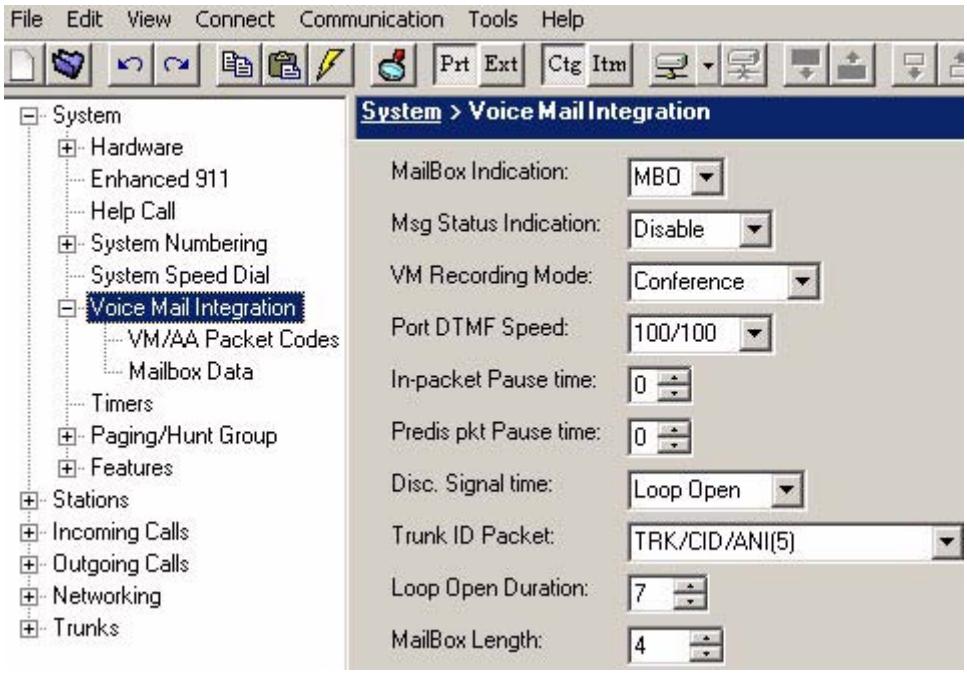
IX-4EVMC Database Programming

The following are instructions for programming the IX-4EVMC.

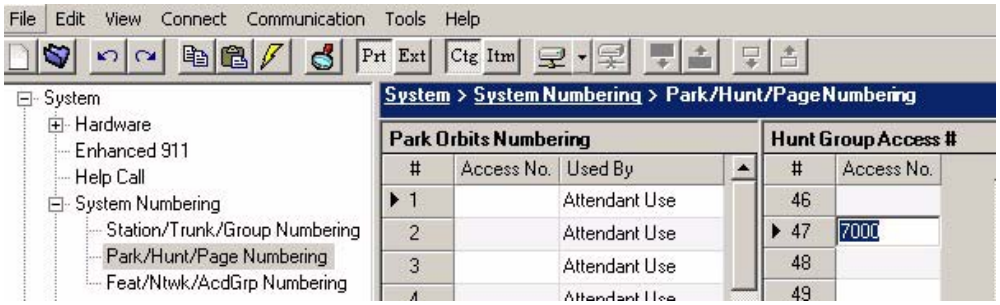
1. Launch the Iwatsu Programmer.
2. Use the Iwatsu Programmer to connect to the ECS system.
3. Using the Iwatsu Programmer in the Category (**Ctg**) View mode
   - Select: **System > Voice Mail Integration > VM/AA Packet Codes.**
   - Program each DTMF packet per the recommendations provided on the Packet Code Description Chart in Section 6 (Database Programming) of the Iwatsu Enterprise-CS Technical Manual or in the Omega-Voice Voicemail Technical Manual.



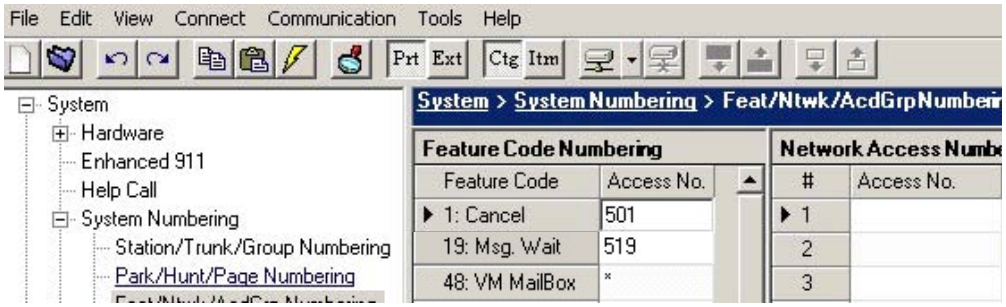
4. Select: **System > Voicemail Integration**
   - Set: **Trunk ID Packet** to **TRK/CID/ANI(5)**.
   - Set: **Disc. Signal time** to **Loop Open**.
   - Set: **Loop Open Duration** to **7 (700 milliseconds)**.



5. Select: **System > System Numbering > Park/Hunt/Page Numbering > Hunt Group Access #**.
   - Assign an access code for Hunt Group **47**.



6. Select: **System > System Numbering > Feat/Ntwk/AcdGrp Numbering > Feature Code Numbering** and assign the following access codes:
   - 1: Cancel = **501**
   - 19: Msg. Wait = **519**
   - 48 VM Mailbox = *



7. Select: **System > Paging/Hunt Group > Station Hunt Group**.
   - Assign all station logical ports defined as voice mail ports to Hunt Group 47.

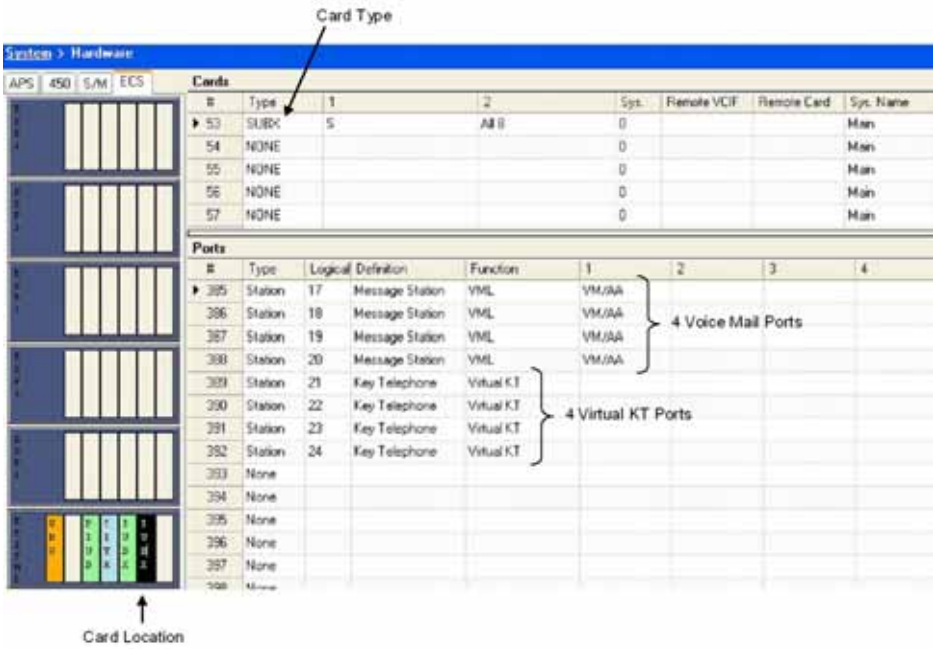
Recommendation:	Setup Attendant All Call feature in **Stations > Attendant > Attendant Positions** and in **System > System Numbering > Feat/Ntwk/AcdGrp Numbering > 30: Attn. All Call**.

IX-4SEVMC Installation

IX-4SEVMC Installation in a New ECS System

Follow these instructions only if you are installing the Omega-Voice VMI IX-4SEVMC into a new ECS or ADIX system:

1. Insert all circuit cards into their respective slots, including the Omega-Voice VMI IX-4SEVMC.
   - The IX-4SEVMC card can be installed only in the IX-CME cabinet of the ECS or in the ADIX APS / ADIX-M in physical ports 97-120 (card slot 17) only. The IX-4SEVMC is not supported in any other system or card slot.
2. Default the ECS / ADIX system.
3. After the ECS / ADIX default process is complete, launch the Iwatsu Programmer.
4. Use the Iwatsu Programmer to connect to the system.
5. Download the database: Select, Communication > Download Database from System. Press Select All and then OK.
6. From the Category View (Ctg) mode, go to System > Hardware.
7. Select the card slot for the IX-4SEVMC from the system graphic.
   - The card will appear as a SUBX Card Type.
   - The first four Ports are configured as Station > Message Station > VML > VM/AA ports.
   - The second four Ports (Not available) are configured as Station > Key Telephone > Virtual KT.

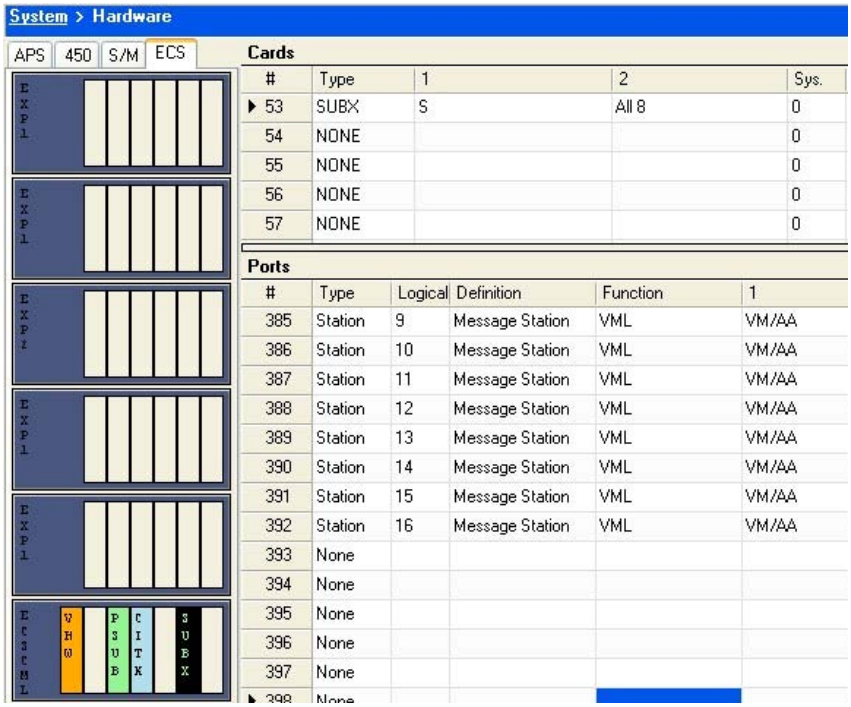


ECS System shown in the example above

8. You must change the second four ports to Station > Message Station > VML > VM/AA.
   - All eight ports must be configured as Station > Message Station > VML > VM/AA ports.

Note: Only the first four ports are active voicemail ports. Only the first four voicemail ports are programmed in the ECS database in System > Paging/Hunt Group > Station Hunt Group (Class 08.02) Hunt Group 47.

   - Remember, when you make changes, upload the database changes.



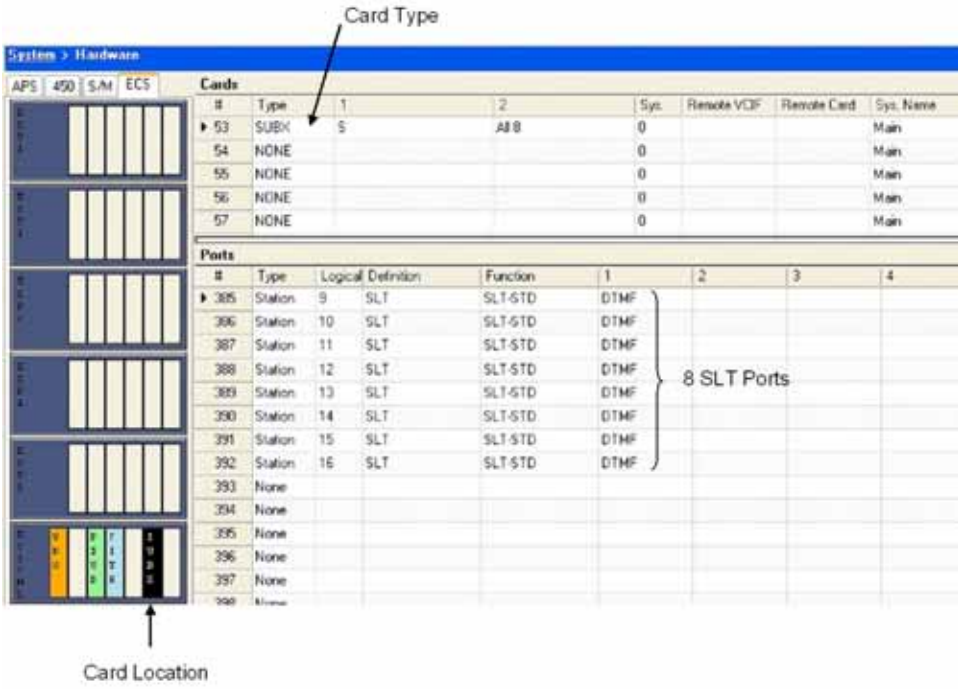
ECS System shown in the example above

9. Reset the IX-4SEVMC card: Select, Communication > Reset Commands > Reset TDM Card. Enter the card number where the IX-4SEVMC resides in the system and then press OK to reset the card.
10. Proceed to IX-4SEVMC Database Programming.

IX-4SEVMC Installation in an Existing ECS System

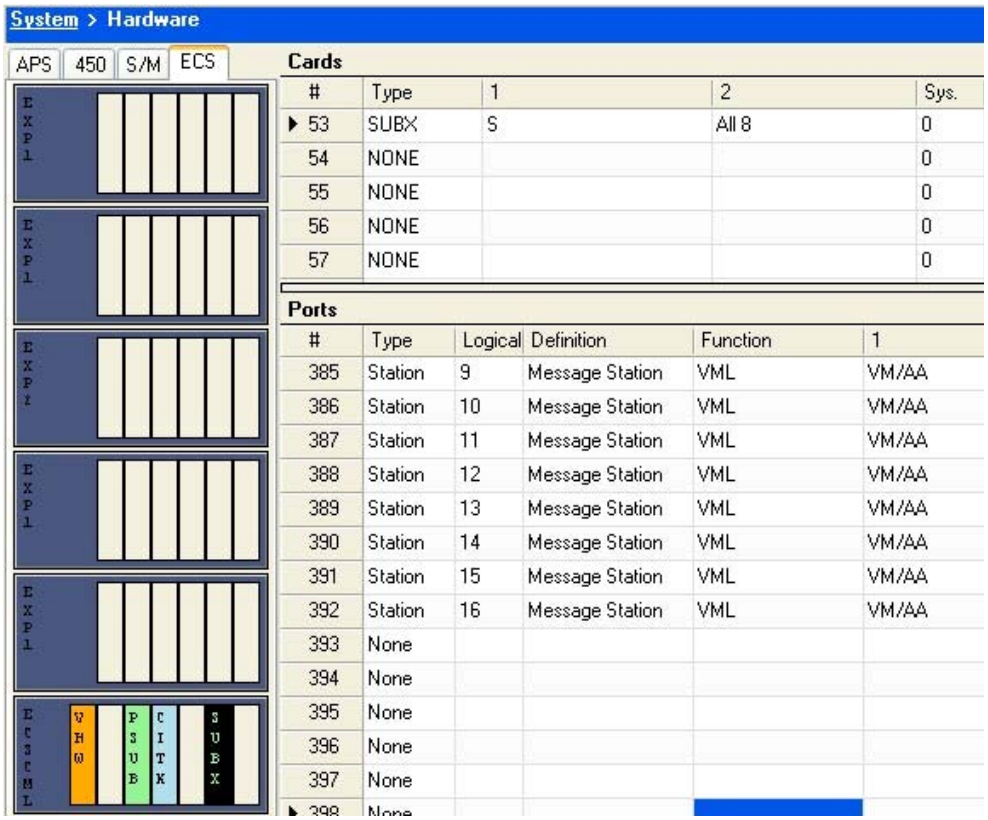
Follow these instructions only if you are installing the Omega-Voice VMI IX-4SEVMC into an existing ECS system. The Omega-Voice VMI IX-4SEVMC is only supported in the ECS when installed in an ECS IX-CME cabinet card slot.

1. Place the IX-4SEVMC card in the Make Busy mode using the S1 Make Busy Switch.
2. Insert the card into the appropriate slot in the IX-CME cabinet.
3. Take the card out of the Make Busy mode using the S1 Make Busy Switch.
4. Wait 10 seconds for the IX-4SEVMC card to come out of the make busy condition.
5. Launch the Iwatsu Programmer.
6. Use the Iwatsu Programmer to connect to the system.
7. Download the database: Select, Communication > Download Database from System. Press Select All and then OK.
8. When download is complete: From the Category (Ctg) mode, go to System > Hardware.
9. Select the card location for the IX-4SEVMC from the system graphic.
   - The card will appear as a SUBX Card Type.
   - The card defaults as eight Station > SLT ports.



10. Change the all eight ports for the card to Station > Message Station > VML > VM/AA.

Note:	Only the first four ports are active voicemail ports. Only the first four voicemail ports are programmed in the ECS database in System > Paging/Hunt Group > Station Hunt Group (Class 08.02) Hunt Group 47.



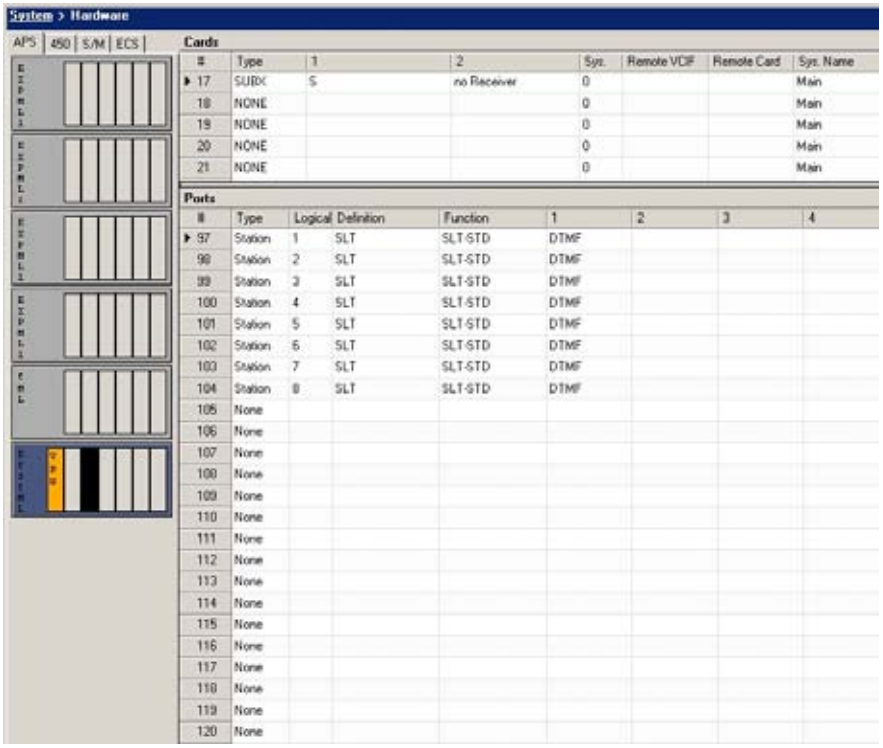
11. Upload the configuration changes.
12. Reset the IX-4SEVMC card: Select, Communication > Reset Commands > Reset TDM Card. Enter the card number where the IX-4SEVMC resides in the system and then press OK to reset the card.
13. Proceed to IX-4SEVMC Database Programming.

IX-4SEVMC Installation in an Existing ADIX APS System

Follow these instructions only when installing the IX-4SEVMC into an existing ADIX APS or ADIX-M system. The IX-4SEVMC can only be installed in physical ports 97-120 (card 17) in the ADIX APS or ADIX-M systems.

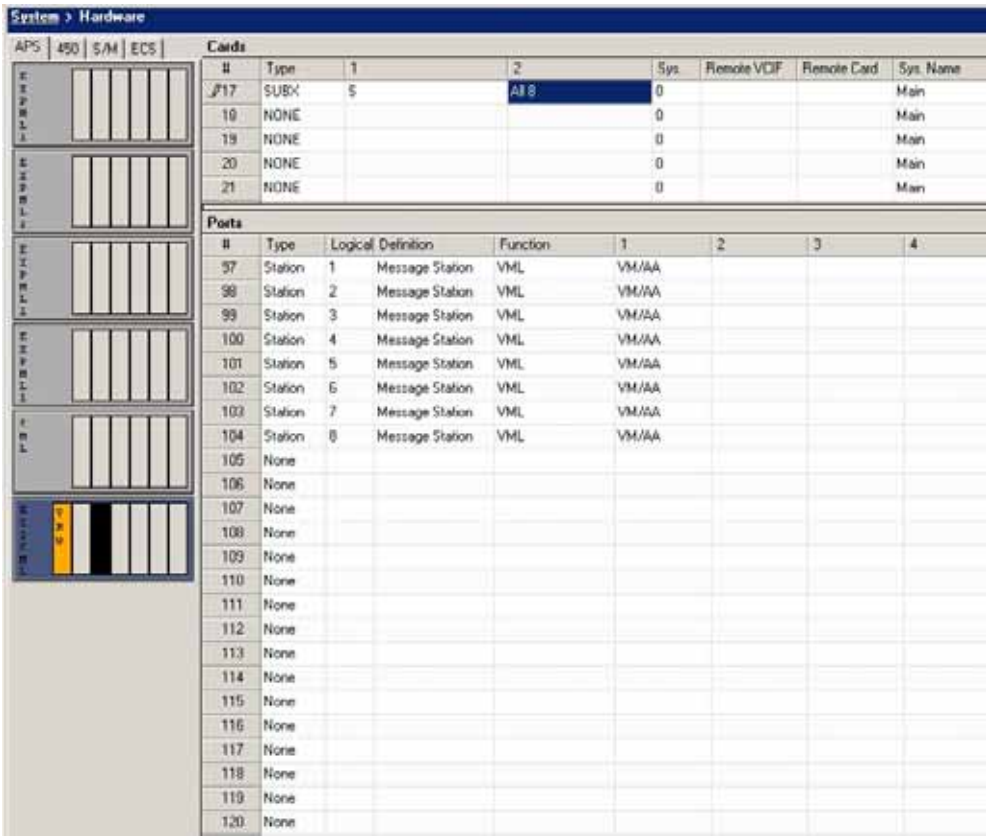
When adding Stations to the ADIX APS/M, the number of stations being added to the system must be changed (added) through an Attendant KT in Class 01.06 for Stations.

1. Through an Attendant KT, go to Class 01 Item 06 and increase the station port count by eight to allow for the increase in station ports for the IX-4SEVMC.
2. Reset the system.
3. Place the IX-4SEVMC card in Make Busy mode using the S1 Make Busy Switch.
4. Insert the card into slot 97-120 in the cabinet.
5. Take the card out of make busy mode.
6. Wait 10 seconds for the IX-4SEVMC card to come out of the make busy condition.
7. Launch the Iwatsu Programmer.
8. Use the Iwatsu Programmer to connect to the system.
9. Download the database: Select, Communication > Download Database from System. Press Select All and then OK.
10. Select the card location for the IX-4SEVMC from the system graphic.
    - The card will appear as a SUBX Card Type.
    - The card defaults as eight Station > SLT ports..



11. Change the all eight ports for the card to Station > Message Station > VML > VM/AA.

Note:	Only the first four ports are active voicemail ports. Only the first four voicemail ports are programmed in the ECS database in System > Paging/Hunt Group > Station Hunt Group (Class 08.02) Hunt Group 47.

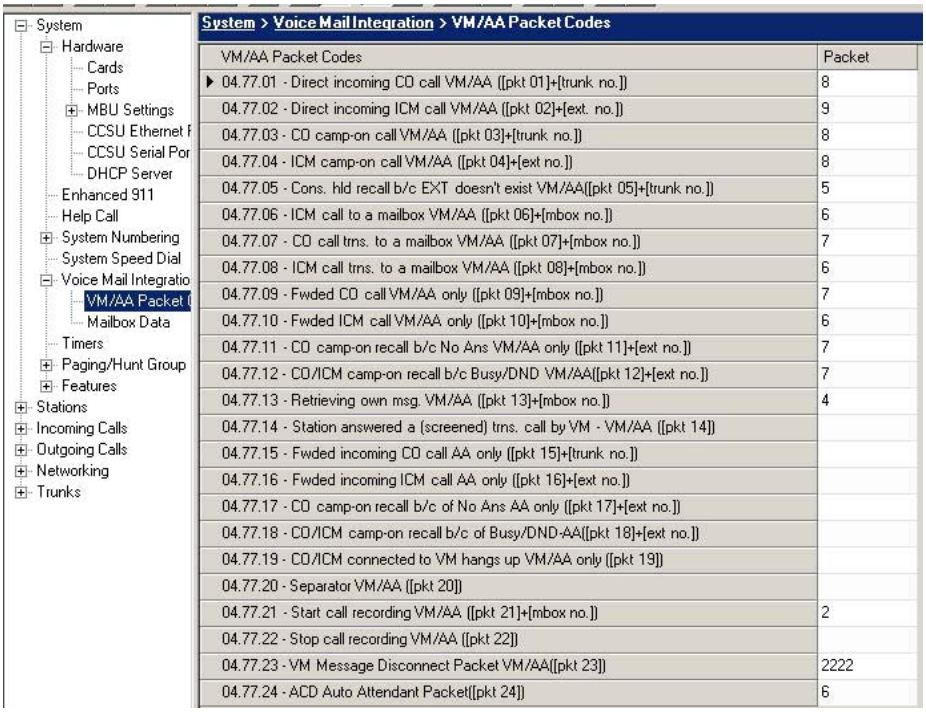


12. Upload the configuration changes.
13. Reset the ADIX system: Select, Communication > Reset Commands > Reset System. Press OK to confirm the reset.
14. Proceed to IX-4SEVMC Database Programming.

IX-4SEVMC Database Programming

Follow these instructions for all IX-4SEVMC installations.

1. Launch the Iwatsu Programmer and connect to the system.
2. Go to System > Voicemail Integration > VM/AA Packet Codes.
3. Program each DTMF packet per the recommendations provided on the Packet Code Description Chart in Section 6 (Database Programming) of the ECS or ADIX APS Technical Manual or in the Omega-Voice Voicemail Technical Manual.
   - The recommended values are provided below:.

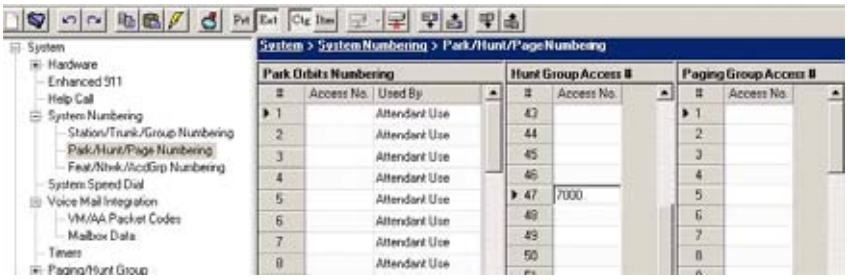


VM/AA Packet Codes	Packet
04.77.01 - Direct incoming CO call VM/AA ([pkt 01]+[trunk no.])	8
04.77.02 - Direct incoming ICM call VM/AA ([pkt 02]+[ext. no.])	9
04.77.03 - CO camp-on call VM/AA ([pkt 03]+[trunk no.])	8
04.77.04 - ICM camp-on call VM/AA ([pkt 04]+[ext no.])	8
04.77.05 - Cons. hld recall b/c EXT doesn't exist VM/AA([pkt 05]+[trunk no.])	5
04.77.06 - ICM call to a mailbox VM/AA ([pkt 06]+[mbox no.])	6
04.77.07 - CO call trns. to a mailbox VM/AA ([pkt 07]+[mbox no.])	7
04.77.08 - ICM call trns. to a mailbox VM/AA ([pkt 08]+[mbox no.])	6
04.77.09 - Fwded CO call VM/AA only ([pkt 09]+[mbox no.])	7
04.77.10 - Fwded ICM call VM/AA only ([pkt 10]+[mbox no.])	6
04.77.11 - CO camp-on recall b/c No Ans VM/AA only ([pkt 11]+[ext no.])	7
04.77.12 - CO/ICM camp-on recall b/c Busy/DND VM/AA([pkt 12]+[ext no.])	7
04.77.13 - Retrieving own msg. VM/AA ([pkt 13]+[mbox no.])	4
04.77.14 - Station answered a (screened) trns. call by VM - VM/AA ([pkt 14])	
04.77.15 - Fwded incoming CO call AA only ([pkt 15]+[trunk no.])	
04.77.16 - Fwded incoming ICM call AA only ([pkt 16]+[ext no.])	
04.77.17 - CO camp-on recall b/c of No Ans AA only ([pkt 17]+[ext no.])	
04.77.18 - CO/ICM camp-on recall b/c of Busy/DND-AA([pkt 18]+[ext no.])	
04.77.19 - CO/ICM connected to VM hangs up VM/AA only ([pkt 19])	
04.77.20 - Separator VM/AA ([pkt 20])	
04.77.21 - Start call recording VM/AA ([pkt 21]+[mbox no.])	2
04.77.22 - Stop call recording VM/AA ([pkt 22])	
04.77.23 - VM Message Disconnect Packet VM/AA([pkt 23])	2222
04.77.24 - ACD Auto Attendant Packet([pkt 24])	6

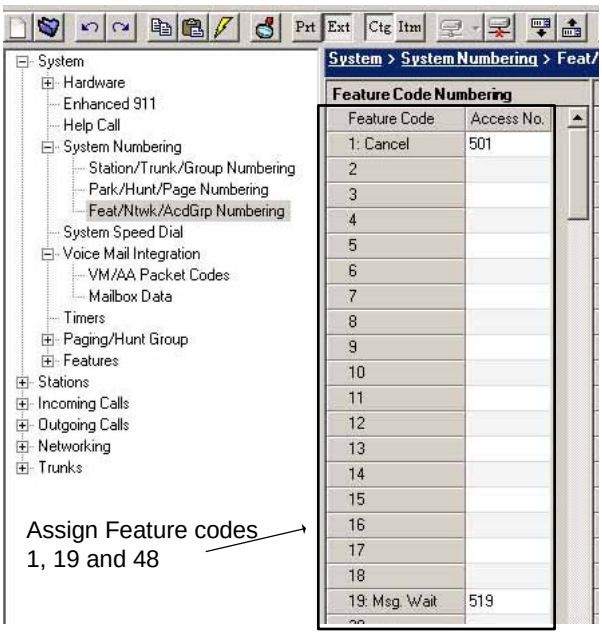
4. Go to System > Voicemail Integration > Trunk ID Packet and select TRK/CID/ANI.
5. Go to System > Voicemail Integration > Disc Signal Type and select Loop Open.
6. Go to System > Voicemail Integration > Loop Open Duration and select 7 (for 700 milliseconds).



7. Go to System > System Numbering > Park/Hunt/Page Numbering > Hunt Group Access Number

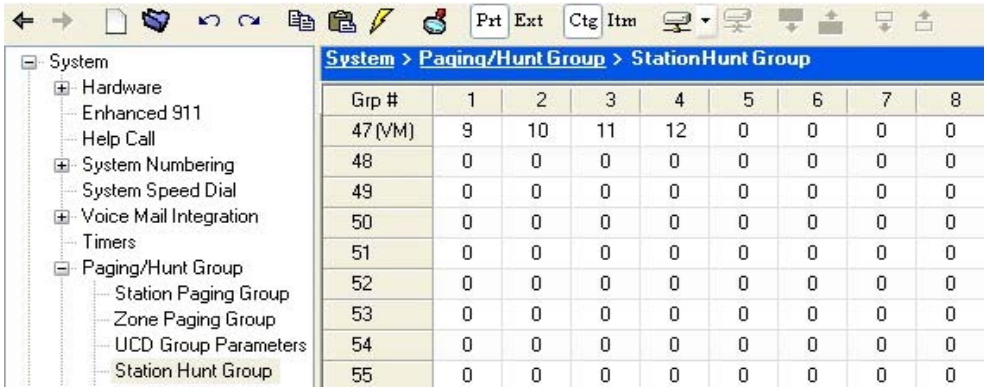


8. Assign an access code for hunt group 47.
9. Go to System > System Numbering > Feat/Ntwk/AcdGrp Numbering > Feature Code Numbering.
10. Assign an access code for the following:
    - 1: Cancel = 501
    - 19 Msg Wait = 519
    - 48 VM Mailbox = *



11. Go to System > Paging/Hunt Group > Station Hunt Group (Class 08.02). Assign the first four IX-4SEVMC ports defined as voice mail ports to Hunt Group 47.

Note:	Only the first four ports are active voicemail ports. Only the first four voicemail ports are programmed in the ECS database in System > Paging/Hunt Group > Station Hunt Group (Class 08.02) Hunt Group 47.



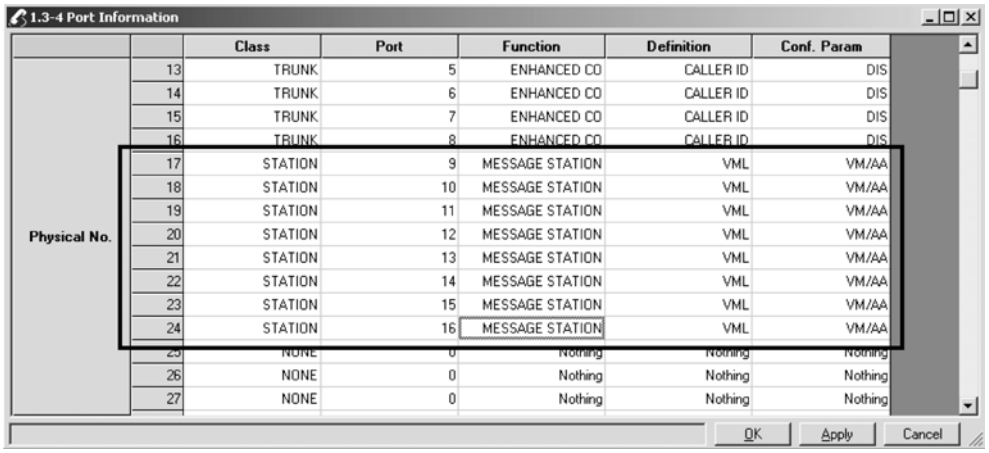
Grp #	1	2	3	4	5	6	7	8
47 (VM)	9	10	11	12	0	0	0	0
48	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0

Recommendation:	Setup Attendant All Call feature in **Stations > Attendant > Attendant Positions** and in **System > System Numbering > Feat/ Ntwk/AcdGrp Numbering > 30: Attn. All Call**.

IX-4VML Installation in an ECS System

The following are instructions for installing the Omega-Voice VMI IX-4VML into a new ECS system.

1. Insert all ECS circuit cards into their respective slots, including the Omega-Voice VMI IX-4VML. The Omega-Voice VMI IX-4VML can be installed in any 96 or 32-channel card slot.
2. Default the ECS system.
3. After the ECS reset is complete, launch the ECS Programmer X.x.
4. Obtain a fresh download of the ECS system database.
5. Once the download is complete, save the database to a secure location.
6. Go to Class 01 Item 03 – Port Definition. Program the eight physical ports corresponding to the Omega-Voice VMI IX-4VML as follows:
   - Under **Class**, configure the port as Station.
   - Under **Definition**, program the card as VML.
   - The **Port**, field was configured at default and should not be modified.
   - Under **Function**, program the card as a Message Station.
   - Leave the **Conf. Param** (Configuration Parameter) at the default VM/AA.



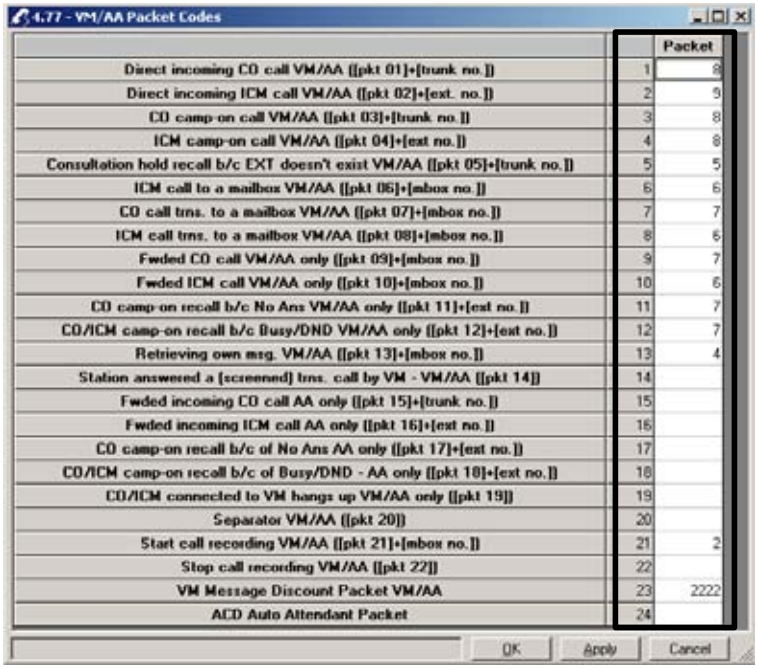
Note: ECS Software will default as VM/AA ports when the ECS is defaulted with the Omega-Voice VMI IX-4VML installed.

7. Save the database file.
8. Upload the database to the ECS telephone system.
9. Exit ECS database programming and wait 10 seconds.
10. Proceed to Database Programming.

IX-4VML Database Programming

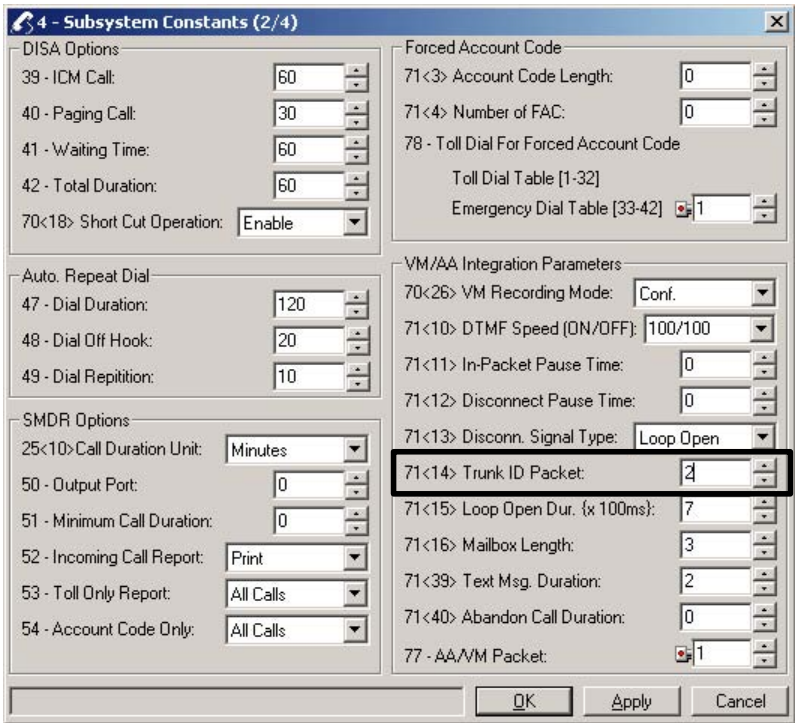
Follow these instructions for IX-4VML installations.

1. Enter ECS database programming mode.
2. Go to Class 04 Item 77 – Packet Programming.

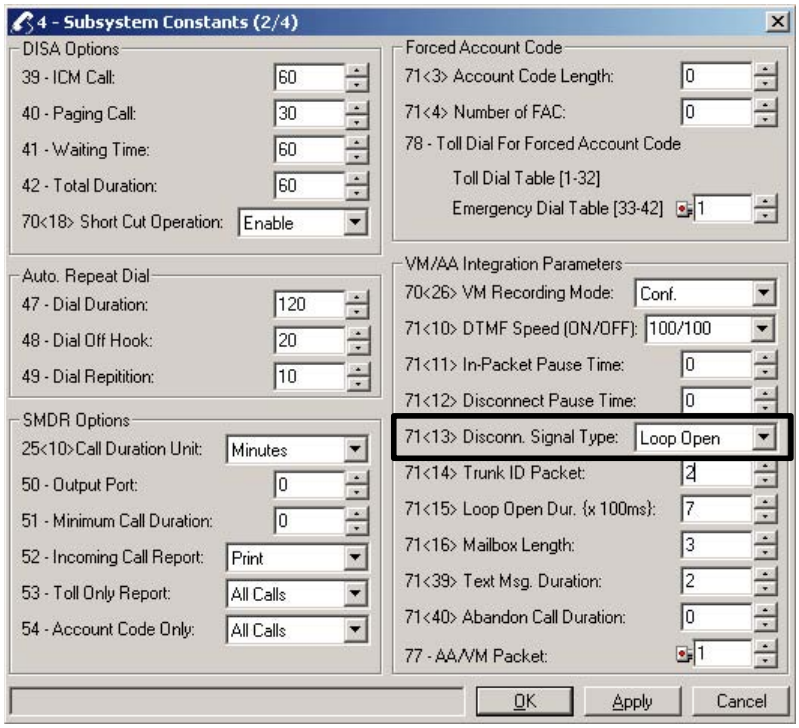


3. Program each DTMF packet. Refer to the recommendations provided in the **Omega-Voice VMI Technical Manual** for DTMF packet code descriptions.

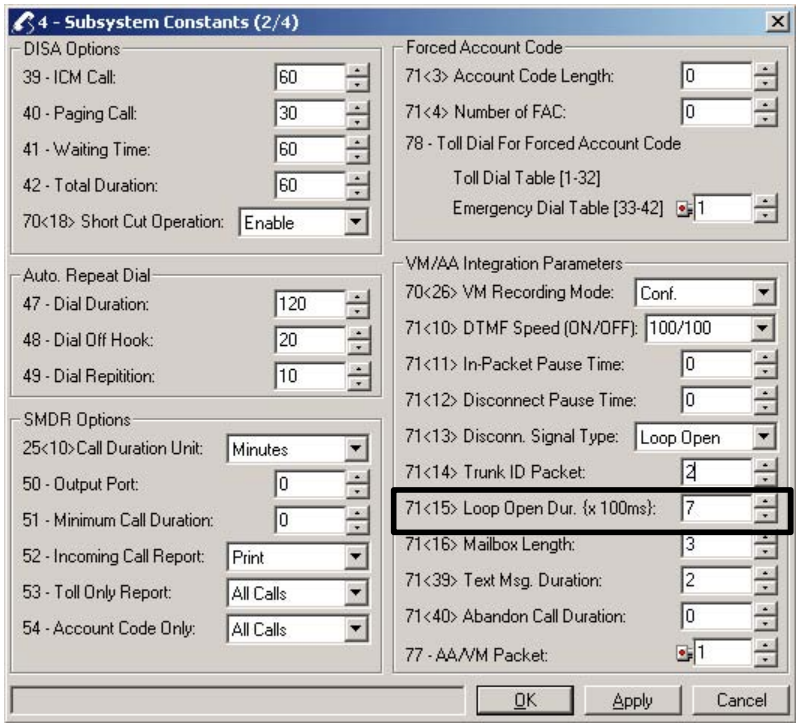
4. Program Class 04 Item 71 <NUM 14> as **2** to program the ECS to send the calling extension and Caller ID/ANI to the Omega-Voice VMI. Or Program Class 04 Item 71 <NUM 14> as **5** to program the ECS to also send trunk information



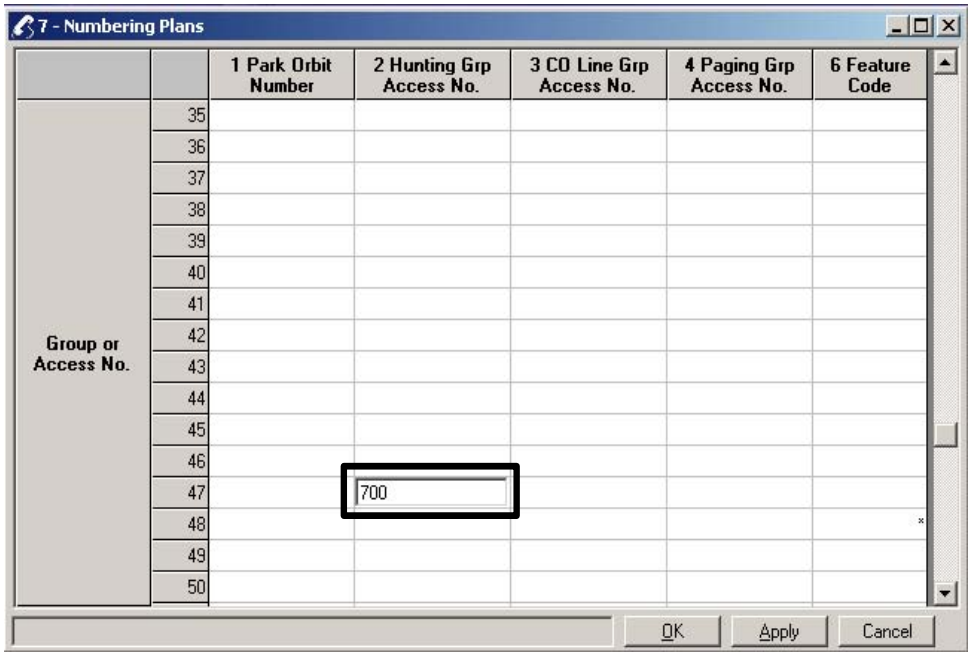
5. Go to Class 04 Item 71 <NUM 13> and program the disconnect signal type for voice mail ports as **Loop Open**.



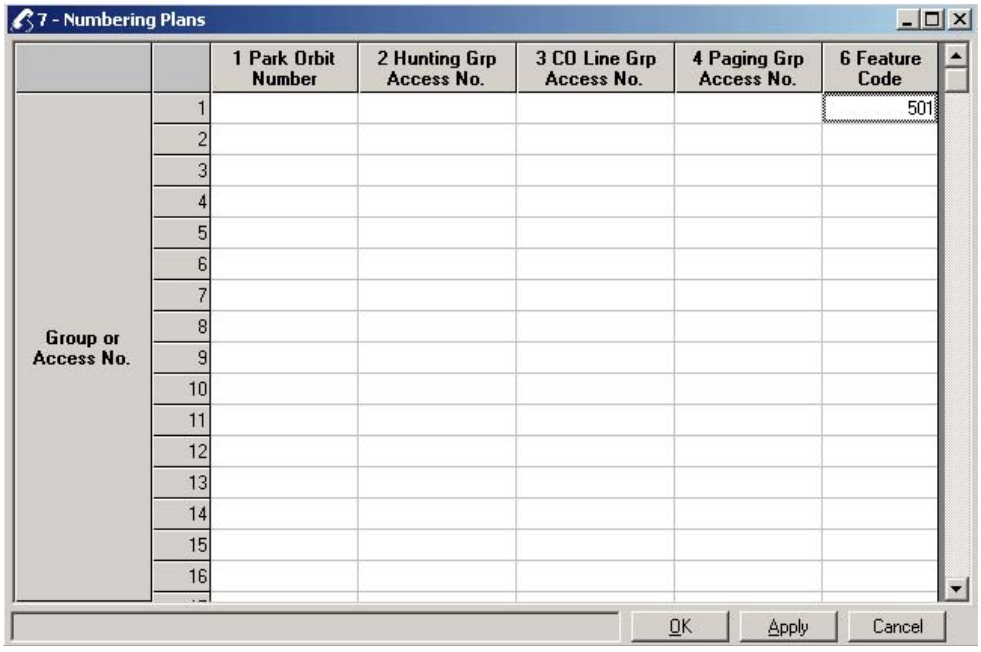
6. Go to Class 04 Item 71 <NUM 15> and program the loop open duration for voice mail ports to **7** (700 milliseconds).



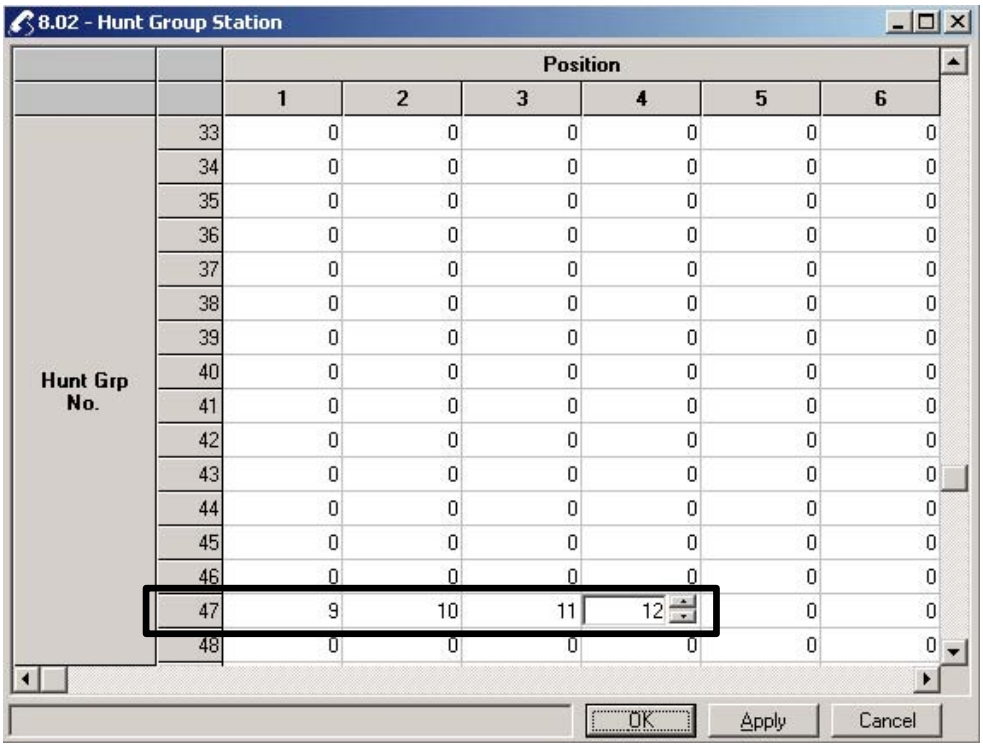
7. Go to Class 07 Item 02 – Hunting Group Access Number. Assign an access code for hunt group 47.



8. Go to Class 07 Item 06 – Feature Access Number. Assign an access code for the following:
   - <NUM 01> - Cancel Code = **501**
   - <NUM 19> - Activate Message Lamp = **519**
   - <NUM 48> - Voice Mail Access Number for Transfer Direct Mailbox Access = *****



9. Go to Class 08 Item 02 – Hunt Group Station. Assign all station logical ports defined as voice mail ports to Hunt Group 47.

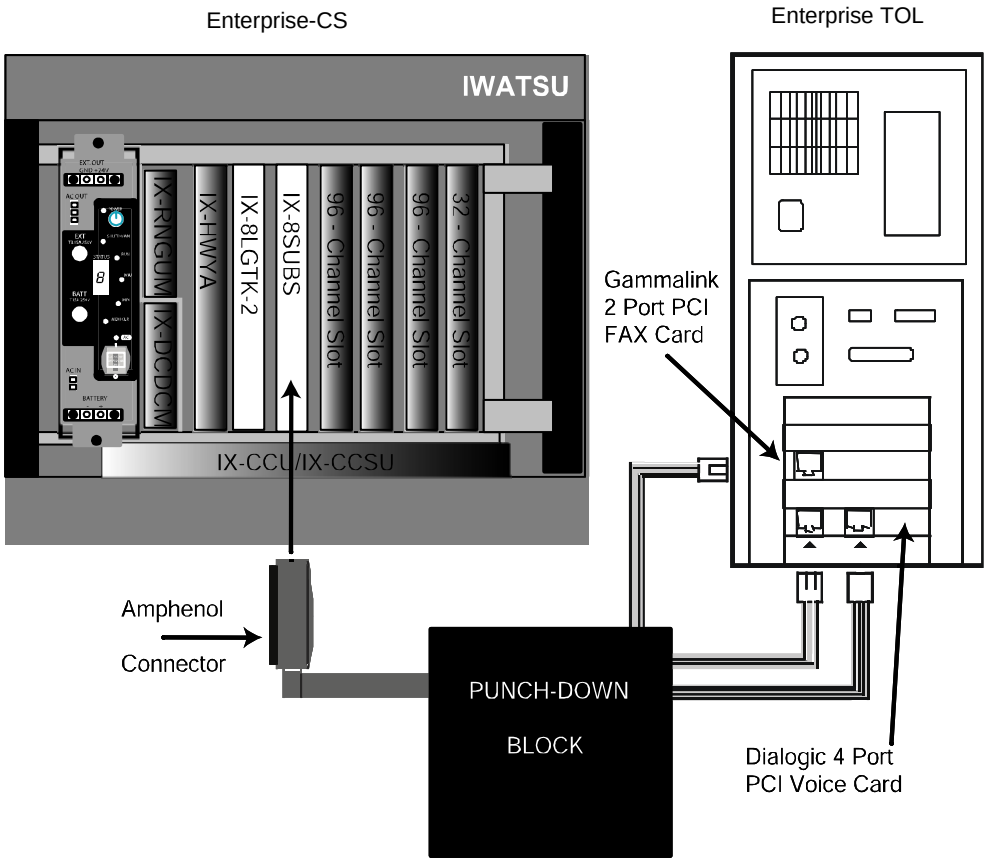


Note:	Setup Attendant All Call feature in Class 04 Item 55 and in Class 07 Item 06 <NUM 30>.

Iwatsu Enterprise TOL Installation Overview

The Iwatsu Enterprise TOL can be configured to work with a new or existing ECS telephone system, and the installation procedure for each differs. This section of the *ECS Technical Manual* will not go into detail with regards to the wiring or the physical connection of the Iwatsu Enterprise TOL to the ECS system. Instead, this document explains the ECS database programming required to communicate with the Iwatsu Enterprise TOL and the Iwatsu Enterprise TOL Fax Mail application.

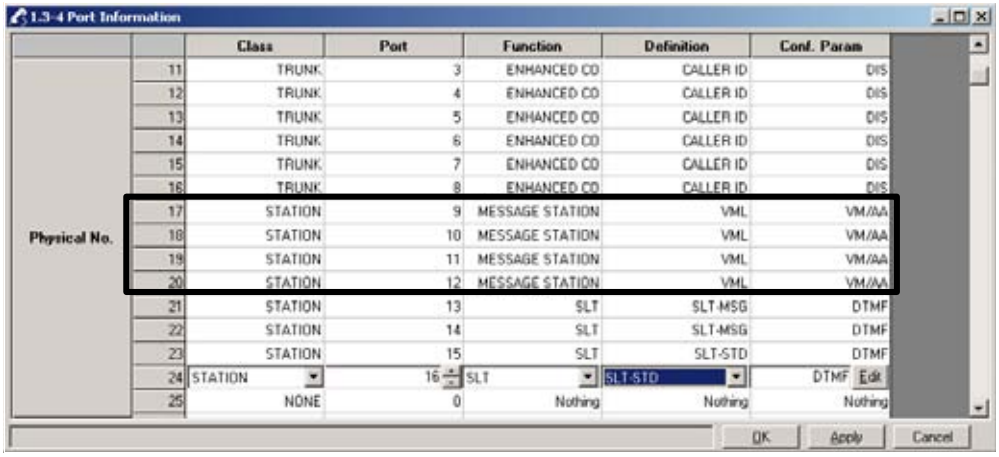
The following example illustrates a macro-level connection schematic.



Iwatsu Enterprise TOL Installation with a New ECS System

Follow these instructions only if you are installing the Iwatsu Enterprise TOL with a new ECS system.

1. Insert all ECS circuit cards into their respective slots.
2. Default the ECS telephone system.
3. After the ECS reset is complete, use the ECS Programmer 5.0.x to obtain a fresh download of the ECS database.
4. Go to Class 01 Item 03 – Port Configuration. Program the respective number of physical ports on the analog card required by the Iwatsu Enterprise TOL as follows:
   - Under **Class**, configure the port as Station.
   - The **Port** field is configured at default and must not be modified.
   - Under **Function**, program the port as a Message Station.
   - Under **Definition**, program the port as VML.
   - Leave the **Conf. Param** (Configuration Parameter) at the default VM/AA.



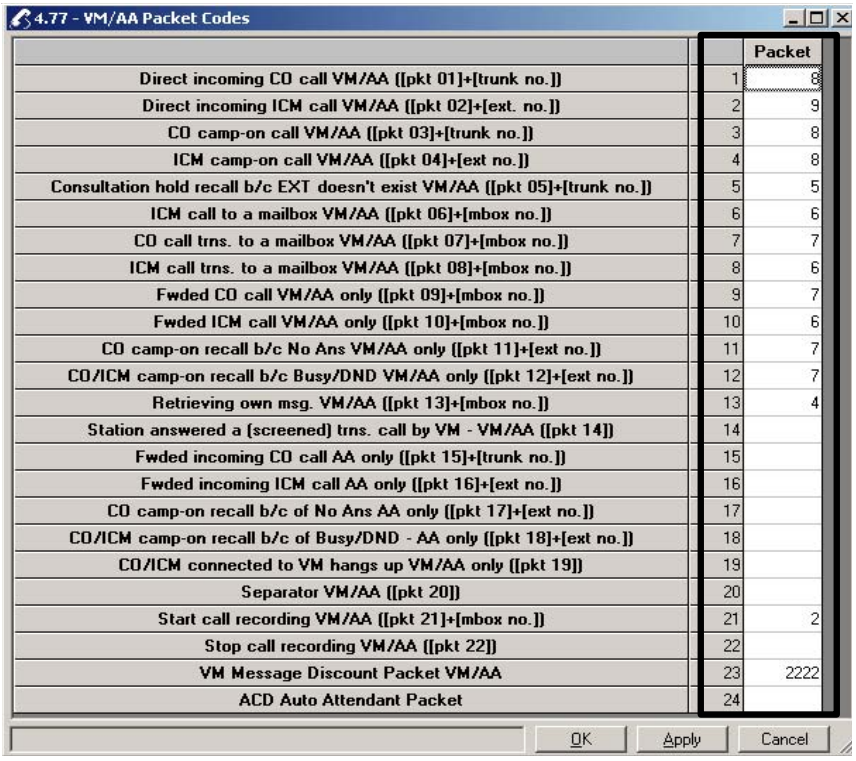
Note: Not all analog ports on a given analog card must be used for the Iwatsu Enterprise TOL. For example: if an IX-8SUBS-3 is installed in an ECS telephone system and the Iwatsu Enterprise TOL requires only four ports, the remaining four ports can be used for other devices such as single line telephones.

1. Save the database file to a secure location.
2. Upload the ECS system database.
3. Exit database programming.
4. Reset the ECS Telephone system.
5. Proceed to ECS Database Programming instructions.

ECS Database Programming Iwatsu Enterprise TOL

These database programming instructions apply to all voicemail installations.

1. Use the ECS Programmer 5.0.x to obtain a fresh download of the ECS database.
2. Go to Class 04.77 – Packet Programming.



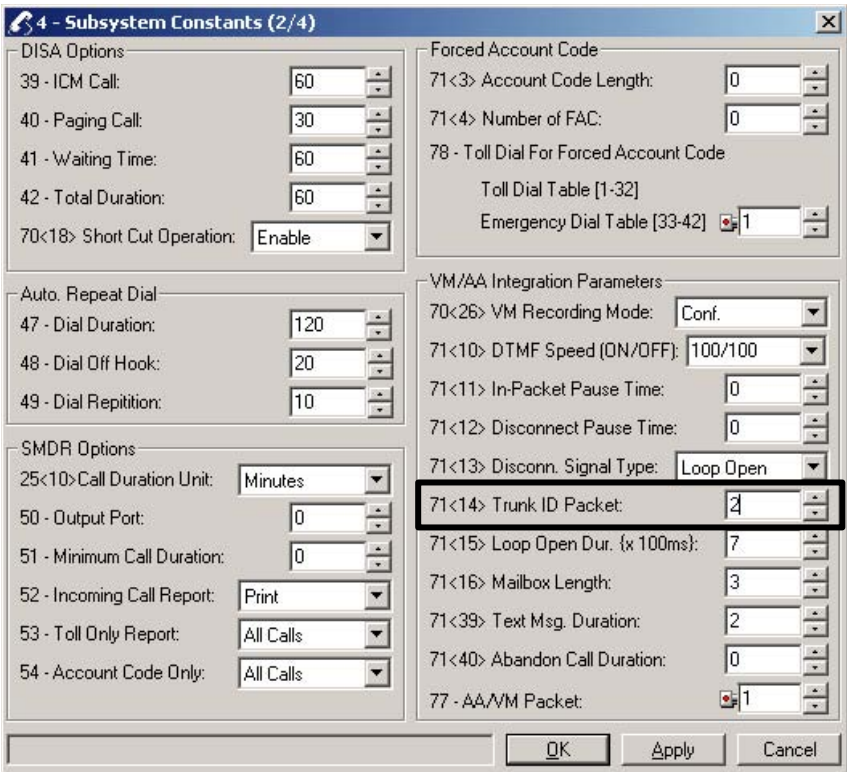
3. Program each DTMF packet per the recommendations provided on the Packet Code Description Chart.

Note:	Little or no voicemail packet programming is required. In most cases, the default settings are correct.

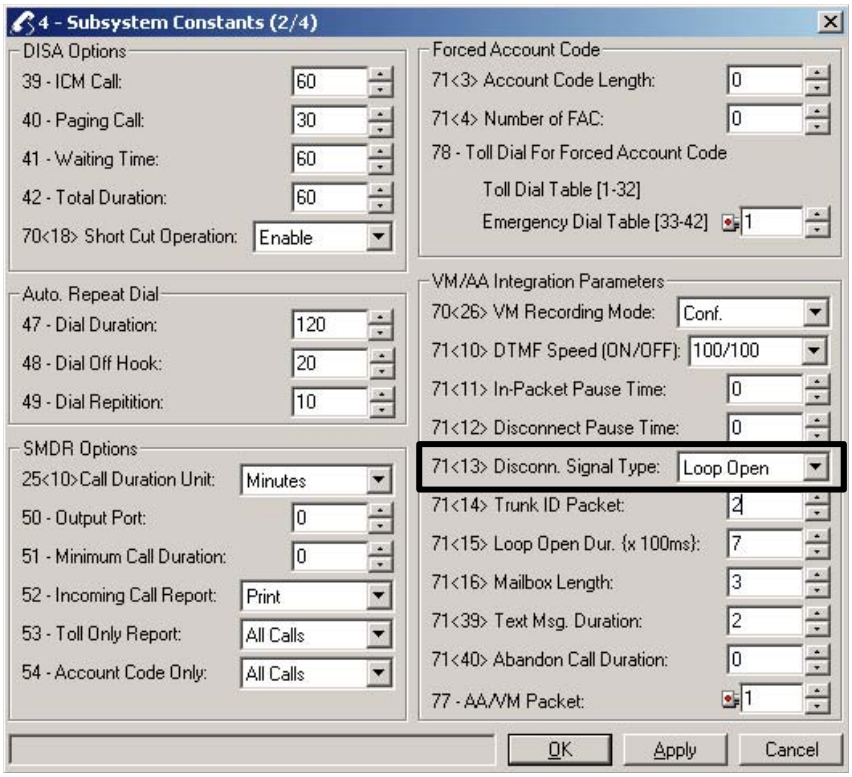
4. Program Class 04.71.14 as **2** to program the ECS to send the calling extension and Caller ID/ANI to the Iwatsu Enterprise TOL.

Or

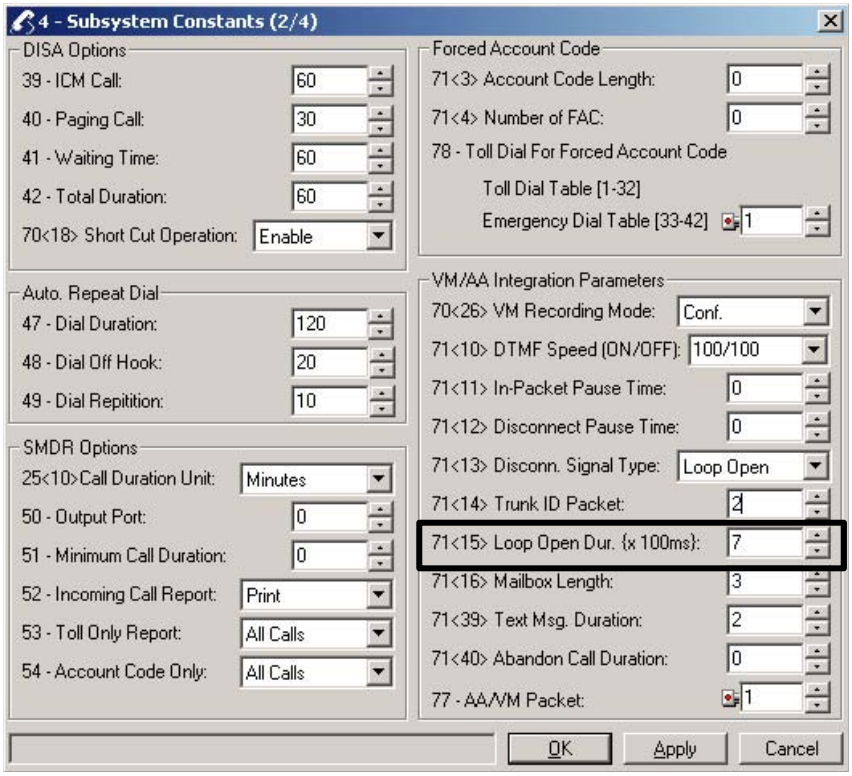
5. Program Class 04.71.14 as **5** to program the ECS to also send trunk information.



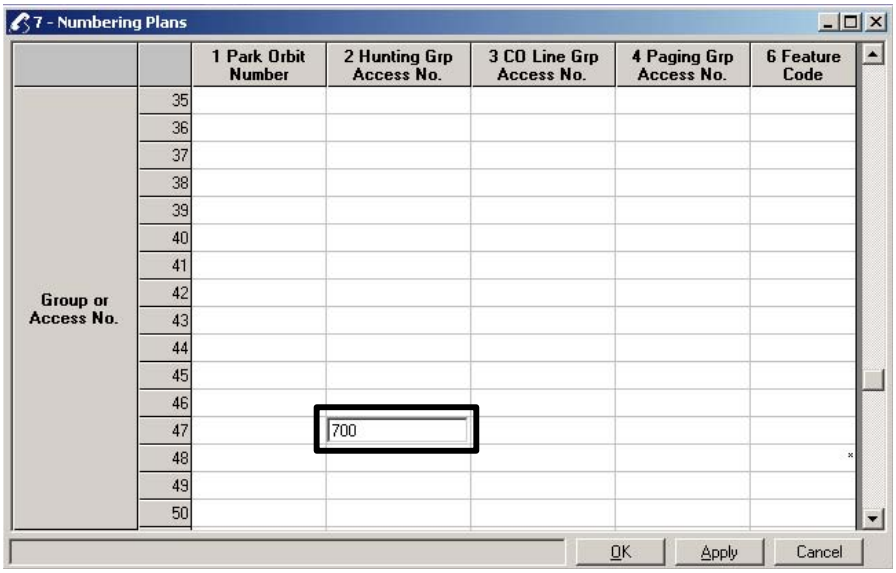
6. Go to Class 04.71.13 and program the disconnect signal type for voice mail ports as Loop Open.



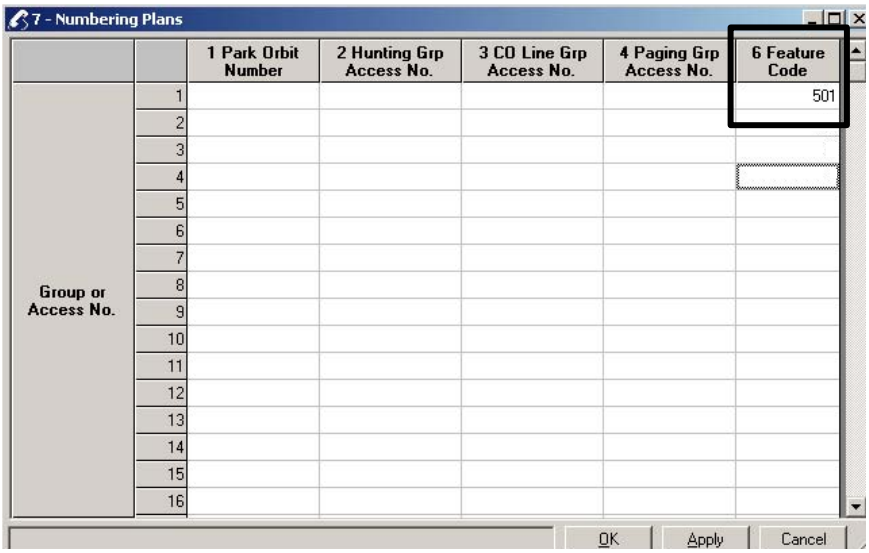
7. Go to Class 04.71.15 and program the loop open duration for voice mail ports to **7** (700 milliseconds).



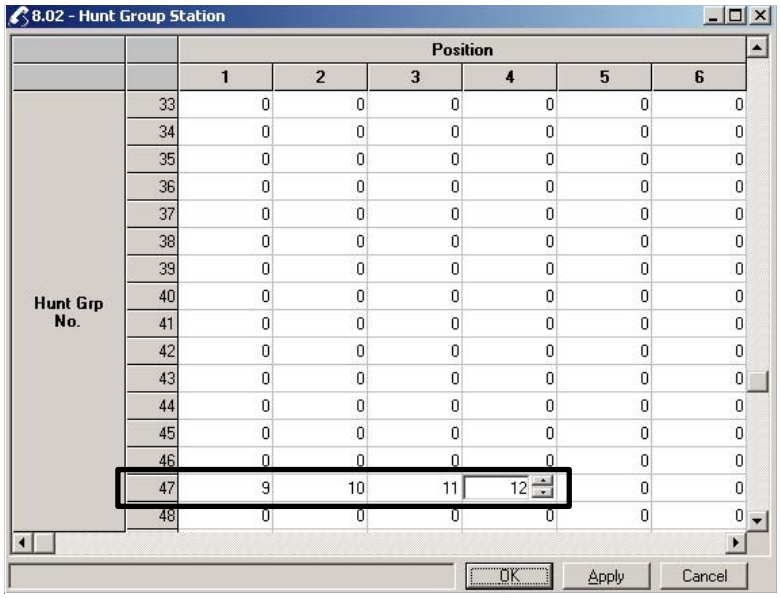
8. Go to Class 07.02 – Hunting Group Access Number. Assign an access code for hunt group 47.



9. Go to Class 07.06 – Feature Access Number. Assign an access code for the following:
   - <NUM 01> - Cancel Code = **501** (default value)
   - <NUM 19> - Activate Message Lamp = **519** (default value)
   - <NUM 48> - Voice Mail Access Number for Transfer Direct Mailbox Access = ***** (default value)

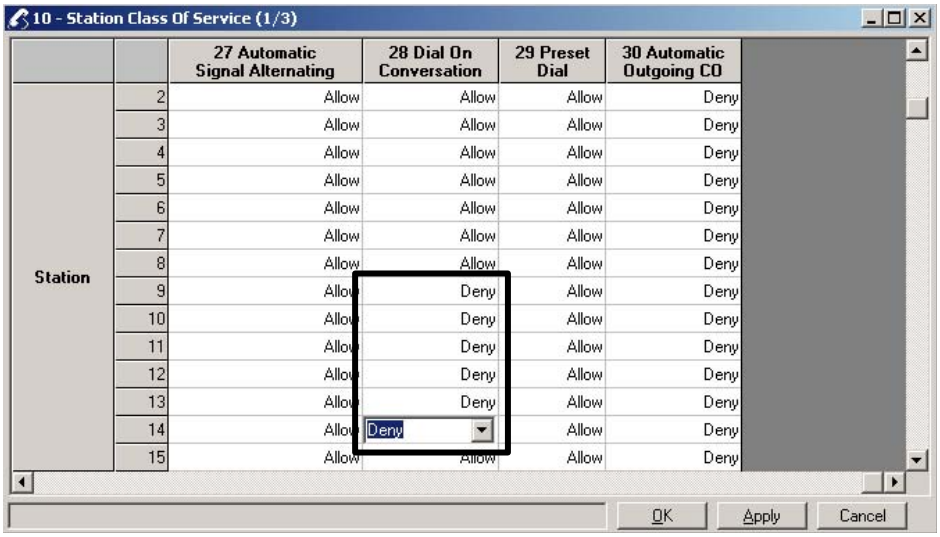


10. Go to Class 08.02 – Hunt Group Station. Assign all station logical ports defined as voice mail ports to Hunt Group 47 in the order in which ports will be used.



Note:	Class 08.02 Group 47 must be used for Mailbox Access, Message Keys and the Call Record feature.

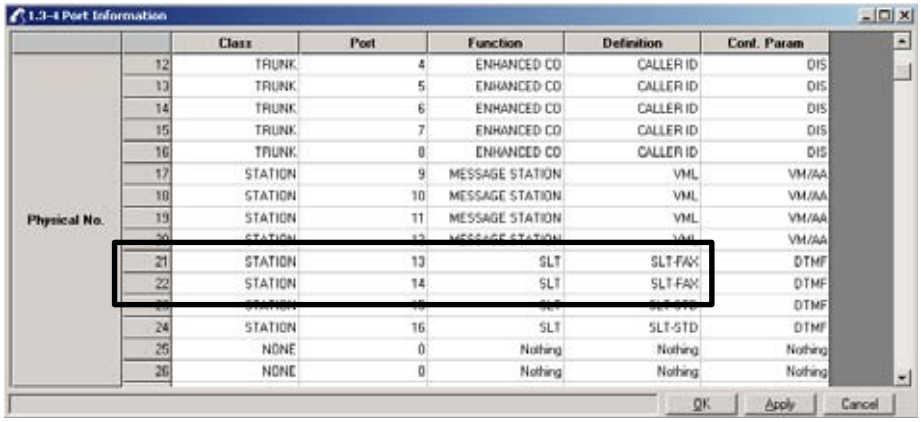
11. Go to Class 10.28 – Dial on Conversation. Set **Dial On Conversation** to Deny for all voicemail, fax and modem ports.



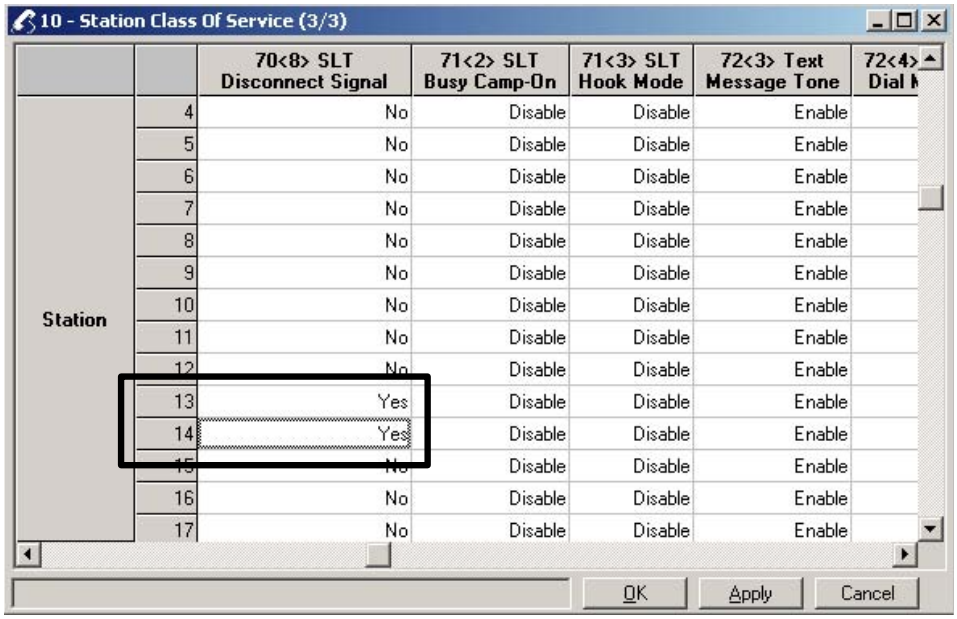
Fax Mail Installation with a New ECS

This section describes the ECS configuration required to receive inbound faxes. Follow these instructions when installing Fax Mail with a new ECS telephone system. These instructions assume Iwatsu installed the Fax Mail in the Iwatsu Enterprise TOL server.

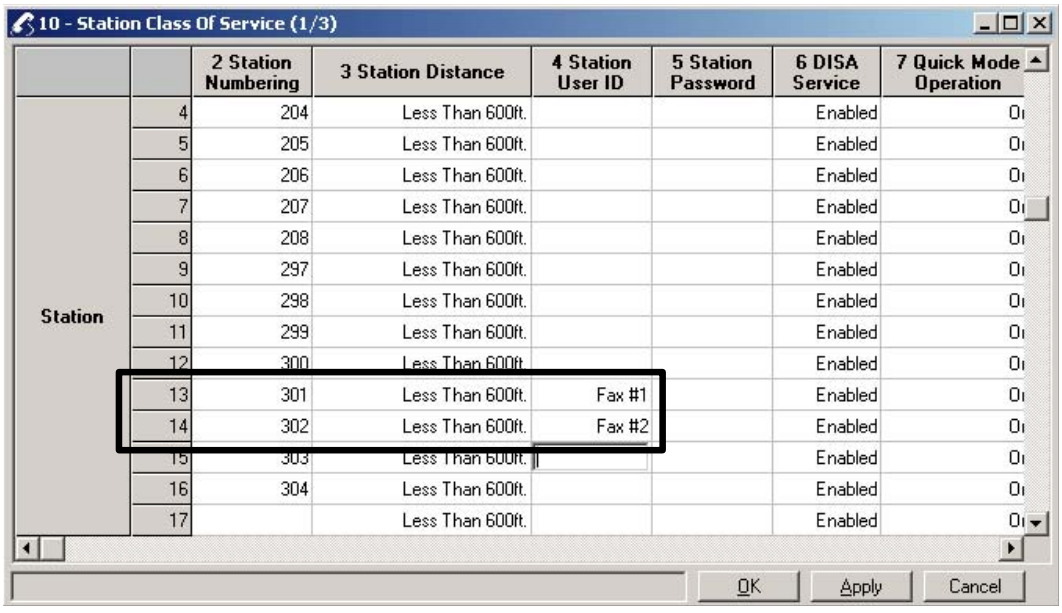
1. Insert all ECS circuit cards into their respective slots.
2. Default the ECS telephone system.
3. After the ECS reset is complete, use the ECS Programmer 5.0.x to obtain a fresh download of the ECS database.
4. Go to Class 01 Item 03 – Port Configuration. Program the respective number of physical ports on the analog card required by the Iwatsu Enterprise TOL Fax Mail as follows:
   - Under **Class**, configure the port as Station.
   - The **Port** field is configured at default and must not be modified.
   - Under **Function**, program the port as an SLT.
   - Under **Definition**, program the port as an SLT-FAX.
   - Leave the **Conf. Param** (Configuration Parameter) at the default DTMF.



1. Go to Class 10.70.08 – SLT Disconnect Signal. Set the **SLT Disconnect Signal** to Yes for those logical ports used by the Fax Mail.



2. Go to Class 10.02 – Station Numbering. Assign a **Station Number** to the logical ports used by the Fax Mail.



3. Save the database to a secure location.
4. Upload the database to the ECS telephone system.
5. Exit ECS database programming and wait 10 seconds.
6. Press the red **Reset** button.

IX-VMBAK Installation Instructions

The IX-VMBAK installs in the DC/DC slot of the cabinet in which the Omega-Voice VMI IX-4VML is installed.

1. Put the Omega-Voice VMI IX-4VML in the Make Busy mode by pressing the MBSW to the “ON” position.
2. Remove the Omega-Voice VMI IX-4VML from the universal card slot.
3. Insert the IDE cable of the IX-VMBAK into the P2 connector of the IX-4VML with consideration to pin one.
4. Insert the IX-VMBAK in to the DC/DC slot.
5. Insert the Omega-Voice VMI IX-4VML into the universal card slot.
6. Take the Omega-Voice VMI IX-4VML out of the Make Busy state.

ECS Packet Code Descriptions

Below is the recommended ECS database programming for the packets in Class 04.77. For optimal integration, refer to the chart below.

CLASS 04.77

Packet	Description
[pkt 01][trunk_no.]	System Function: A CO call that rings directly to the VM. Operation: Direct ringing to VM port.
	To Port: AAVM/AA
	ECS Connection: CO
	VM Connection: AA
	04.71 <e14>: Check
	Value: 8
[pkt 02][ext.no.]	System Function: A station dialed the VM Operation: {on ICM}-[ext. no.]
	To Port: AA AA/VM
	ECS Connection: ICM
	VM Connection: AA
	04.71 <e14>:
	Value: 9
[pkt 03]+[trunk no.]	System Function: A station transferred a CO call to the VM Operation: {on CO}-[TRAN]-[4][7]-[on-hook]
	To Port: AA VM/AA
	ECS Connection: CO
	VM Connection: VM
	04.71 <e14>:Check
	Value: 8
[pkt 04]+[ext. no.]	System Function: A station transferred an ICM call to the VM Operation: {on ICM}-[TRAN]-[4][7]-[on-hook]
	To Port: AA VM/AA
	ECS Connection: ICM
	VM Connection: VM
	04.71 <e14>:
	Value: 8
[pkt 05]+[trunk no.]	System Function: VM transferred a CO call to a station, but it recalled to the VM because the station does no exist Operation: {on CO}-[TRAN]-[4][7]-[on-hook]-{recall}
	To Port: AA VM/AA

	ECS Connection: CO
	VM Connection: AA
	04.71 <e14>:
	Value: 5
[pkt 06]+[mbox no.]	System Function: A station wants to leave a message in a specific voice mailbox.
	Operation: {on ICM}-[*]-[MBOXn]
	To Port: AA VM/AA
	ECS Connection: ICM
	VM Connection: MB
	04.71 <e14>:
	Value: 6
[pkt 07]+[mbox no.]	System Function: A station transferred a CO call to a specific voice mailbox or an overflow condition from a UCD Hunt Group. Operation: {on CO}-[TRAN]- [*]-[MBOXn]-[on-hook]
	To Port: AA VM/AA
	ECS Connection: CO
	VM Connection: MB
	04.71 <e14>: Check
	Value: 7
[pkt 08]+[mbox no.]	System Function: A station transferred an ICM call to a specific voice mailbox. Operation: {on ICM}-[TRAN]- [*]-[MBOXn]-[on-hook]
	To Port: AA VM/AA
	ECS Connection: ICM
	VM Connection: MB
	04.71 <e14>: Check
	Value: 6
[pkt 09]+[mbox no.]	System Function: An incoming CO call to a station is forwarded to VM. Operation:
	To Port: AA VM/AA
	ECS Connection: CO
	VM Connection: MB
	04.71 <e14>: Check
	Value: 7
[pkt 10]+[mbox no.]	System Function: An incoming ICM call to a station is forwarded to VM. Operation: {on fwd}-{called ext. no.}+{calling ext. no.}
	To Port: AA VM
	ECS Connection: ICM
	VM Connection: MB
	04.71 <e14>: Check

	Value: 6
[pkt 11]+[ext. no.]	System Function: VM transferred a call to a station, but it recalled to the VM because the station does not answer. Operation: {on CO}-[hook flash]-[ext. no.]-[on-hook]-{recall}
	To Port: AA VM
	ECS Connection: CO
	VM Connection: AA
	04.71 <e14>:
	Value: 7
[pkt 12]+[ext. no.]	System Function: VM transferred a CO call to a station, but it recalled to the VM because the station is busy or in DND. Operation:
	To Port: AA VM
	ECS Connection: CO
	VM Connection: AA
	04.71 <e14>:
	Value: 7
[pkt 13]+[mbox no.]	System Function: A station wants to retrieve a message from its own voice mailbox. Operation: {on ICM, at own sta.}-[*]-[mbox no.]
	To Port: AA VM/AA
	ECS Connection: ICM
	VM Connection: MB
	04.71 <e14>:
	Value: 4
[pkt 14]	System Function: A station answered during CO (screened) transfer by the VM. Operation:
	To Port: AA VM/AA
	ECS Connection:
	VM Connection:
	04.71 <e14>:
	Value: NOT USED
[pkt 15]+[trunk no.]	System Function: An incoming CO call to a station is forwarded to the AA. Operation:
	To Port: AA
	ECS Connection: CO
	VM Connection: AA
	04.71 <e14>: Check
	Value: NOT USED

[pkt 16]+[ext.no.]	System Function: An incoming ICM call to a station is forwarded to the AA. Operation: {incoming ICM call}-{forwarded}
	To Port: AA
	ECS Connection: ICM
	VM Connection: AA
	04.71 <e14>:
	Value: NOT USED
[pkt 17]+[ext. no.]	System Function: VM transferred a CO call to a station, but it recalled to the AA because the station does not answer. Operation:
	To Port: AA
	ECS Connection: CO
	VM Connection: AA
	04.71 <e14>:
	Value: NOT USED
[pkt 18]+[ext. no.]	System Function: VM transferred a CO call to a station, but it recalled to the AA because the station is busy or in DND. Operation:
	To Port: AA
	ECS Connection: CO
	VM Connection: AA
	04.71 <e14>:
	Value: NOT USED
[pkt 19]	System Function: A party (CO/ICM) connected to the VM hangs up. Operation:
	To Port: AA VM/AA
	ECS Connection:
	VM Connection:
	04.71 <e14>:
	Value: Blank (USE OPEN LOOP ONLY)
[pkt 20]	System Function: A packet separator for the Caller ID information. Operation:
	To Port: AA VM/AA
	ECS Connection:
	VM Connection:
	04.71 <e14>:
	Value: Blank
[pkt 21]+[mbox no.]	System Function: A station started to record a call to its voice mailbox. Operation: {on ICM}-[REC]
	To Port: AA VM/AA
	ECS Connection: ICM/CO

	VM Connection: MB
	04.71 <e14>:
	Value: 2
[pkt 22]	System Function: A station ended conversation recording. Operation: {on ICM, at recording station}-[REC]
	To Port: AA VM/AA
	ECS Connection: ICM/CO
	VM Connection: MB
	04.71 <e14>:
	Value:
[pkt 23]	System Function: A station interrupts / retrieves a caller leaving a message using Answering Machine Emulation Feature, the voice mail system stops record and discards the message. Operation: {on ICM, caller recording message}-[AME]
	To Port: AA VM/AA
	ECS Connection: ICM/CO
	VM Connection: MB
	04.71 <e14>:
	Value: 2222
[pkt 24]	System Function: ECS ACD auto attendant packet Operation: {on ICM, at recording station}-[REC]
	To Port: AA VM/AA
	ECS Connection: ICM/CO
	VM Connection: MB
	04.71 <e14>:
	Value: 7

Chapter 10

Station Installation

This chapter describes the installation process for the following ECS stations:

- Iwatsu ICON Series IX-5800 and IX-5810 Digital Telephones
  - IX-58BTINF Bluetooth Interface
  - IX-58EXTENDER Loop Extender
- 18d and 12d Platinum Series Digital Key Telephones
- IX-12KTD-3 and IX-12KTS-3 Digital Key Telephones
- Omega-Phone multiline key telephones and related optional equipment
- Versa-Phones and related optional equipment
- Attendant Consoles
- Busy Lamp Field Units
- DSS Units
- Data Modules
- Doorphones
- Single-Line Telephones

Inspect all system components before beginning the installation process.

Note: Iwatsu ICON Series IP telephones, Platinum 18i and 12i, the IX-12IPKTD-E and IX-6IPKTD-E, and the IX-12IPKTD/-E2 IP Telephones are discussed in Chapter 11 IP Station Installation.

Installing Iwatsu ICON Series IX-5800 and IX-5810 Digital Telephones

The IX-5800 and IX-5810 Digital Telephones are installed using most of the same installation procedures as described for the IX-12KTD-3 and IX-12KTS-3 telephones.

The new IX-16PSUB-2 card is required to install an IX-5800 or IX-5810 Digital Telephone.

Any unique installation procedures are described on the following pages:

Telephone Models:

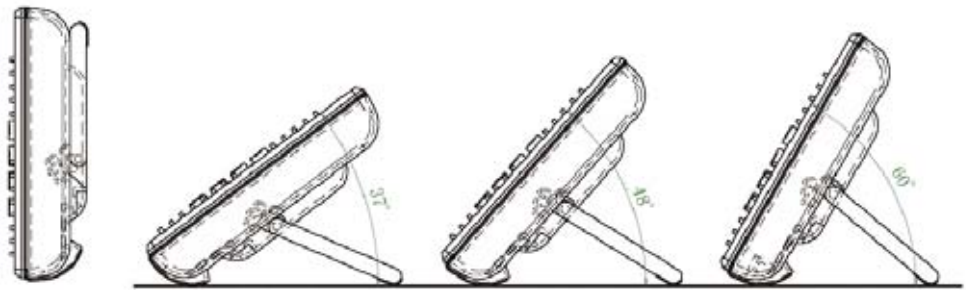
Model	Description	Station Card:	Part Number:
IX-5800	Digital Telephone w/ 2-line LCD	IX-16/8PSUB-2	505800
IX-5810	Digital Telephone w/7-line LCD	IX-16/8PSUB-2	505810

Optional Equipment for the IX-5800/IX-5810 Digital Key Telephones:

Model	Description	Location	Part Number
IX-58BTINF (IX-5810 only)	Bluetooth Headset Interface	CN-BT connector on IX-5810 KT motherboard	505058
IX-58EXTENDER (IX-5800 or IX-5810)	Station Loop Limit Extension Interface	CN-DC connector on IX-5800 or IX-5810 KT motherboard	505098
IX-59AC	AC Power Adapter for the IX-58EXTENDER	IX-5800 and IX-5810	505099
IX-59WMS	Wall Mount Spacer	KT back	505072
IX-ELK9	Exp Line Key for IX-5800 KT	KT face	505009
IX-ELK8	Exp Line Key for IX-5810 KT	KT face	505008

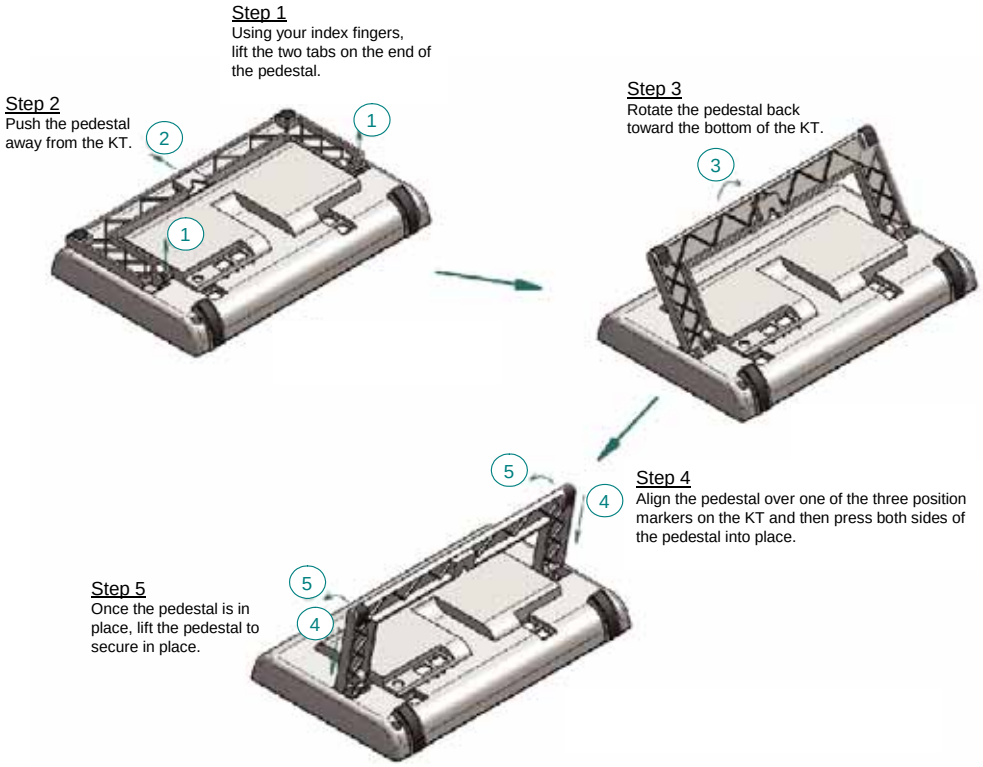
IX-5800 and IX-5810 Integrated Pedestal Adjustment

1. The IX-5800 and IX-5810 Digital telephones have a three-position integrated pedestal that allows you to adjust the viewing angle of the display and keys. This pedestal is also used for wall-mounting when in the upright position.



Wall Mount Position | Low Angle 37° | Mid Angle 48° | High Angle 60°

2. Follow the steps in the illustration below to adjust the pedestal.



3. If you have set your pedestal in the Mid Angle (48°) or the High Angle (60°) position, place the handset hook in the wall mount position.
   - Lift the handset hook from the center of the station's upper cradle and reinsert the handset hook in the slot in the upside-down position.



IX-5800 and IX-5810 Wall Mount Installation

Follow the instructions below to wall mount the IX-5800 and IX-5810 Digital Key Telephones:

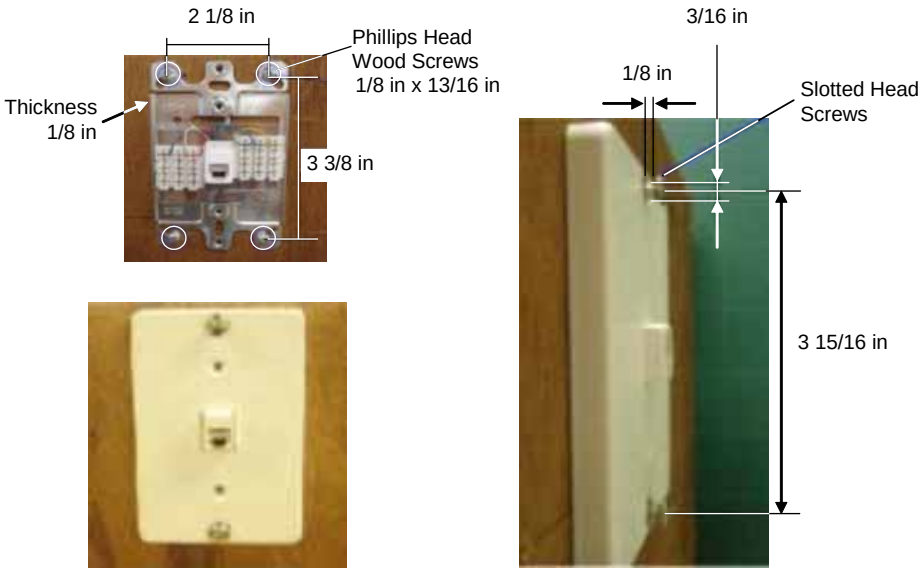
1. Place the pedestal in the upright wall mount position, as shown on the previous page.
2. Lift the handset hook from the center of the station's upper cradle and reinsert the handset hook in the slot in the upside-down position..



3. Install the wall mount plate on the wall. (Shown below: Wall phone jack with plastic wall plate).
   - The wall mount dimensions are shown in the example below:

Note: Wall mount plate dimensions may vary from one manufacturer to another and all wall mounts may not match the IX-5810/5800 wall mount dimensions. Due to this variance, Iwatsu has tested the Leviton 40263-W wall mount and recommends that this wall mount or a wall mount of equal dimensions be used for wall mounting IX-5810/5800 Digital Key Telephone.

A **Leviton 40263-W** wall mount is used in the example below:



4. Attach the telephone line to the wall mount connector and then to the Line connector (located on the back left of the telephone).
5. Match the **top** and **bottom** wall mount cutouts with the wall mount tabs on the wall mount plate. Insert the two wall mount cutouts over the wall mount tabs and push the telephone down to secure the telephone to the wall.

Note: When wall mounting the telephone, ensure that the telephone line is not crimped or pinched by the telephone or wall mount plate.

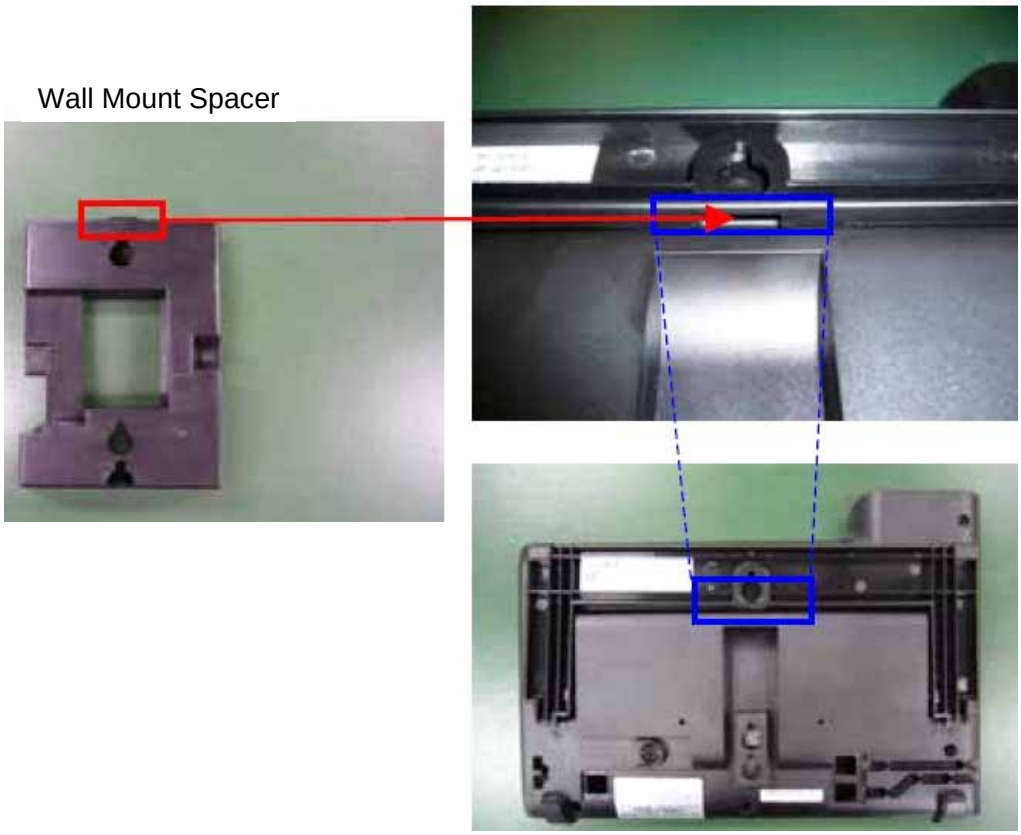


Note:	After installation, ensure that the pedestal is securely mounted on the wall and withstands an overload of at least 5.3 pounds.

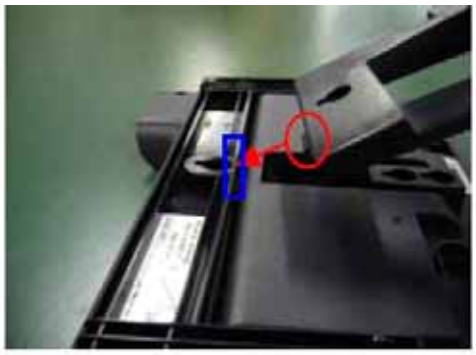
IX-59WMS Wall Mount Spacer Installation

Use the IX-59WMS Wall Mount Spacer to provide relief for the IX-59AC power cord when wall mounting the IX-5800 or IX-5810 with an IX-58EXTENDER installed.

1. With the built-in pedestal locked in the wall mount position, insert the tab (located on the top of the wall mount spacer) into the slot between the telephone lower housing and the built-in pedestal.



2. With the Wall Spacer tab in place, use the two retaining screws (provided with the Wall Spacer) to secure the Wall Spacer to the telephone.



Wall Mount Spacer
Retaining Screws



3. With the Wall Spacer in place, follow the wall mount installation procedure.

Labeling

IX-5800

Remove the plastic key sheet cover by using your fingernail or pen and placing it under the bottom left side of the key sheet tab and lifting. If desired, remove the label shipped with the telephone and replace with the IX-5800 key label.



IX-5810

Remove the plastic key sheet cover by using your fingernail or pen and placing it under the bottom left side of the key sheet tab and lifting. If desired, remove the label shipped with the telephone and replace with the IX-5810 key label.



IX-5800 / IX-5810 Optional Equipment Installation

IX-58BTINF Bluetooth Headset Adapter Installation (The IX-5800 does not support the IX-58BTINF)

This unit allows the connection of an IX-5810 Digital Telephone to a Bluetooth headset.

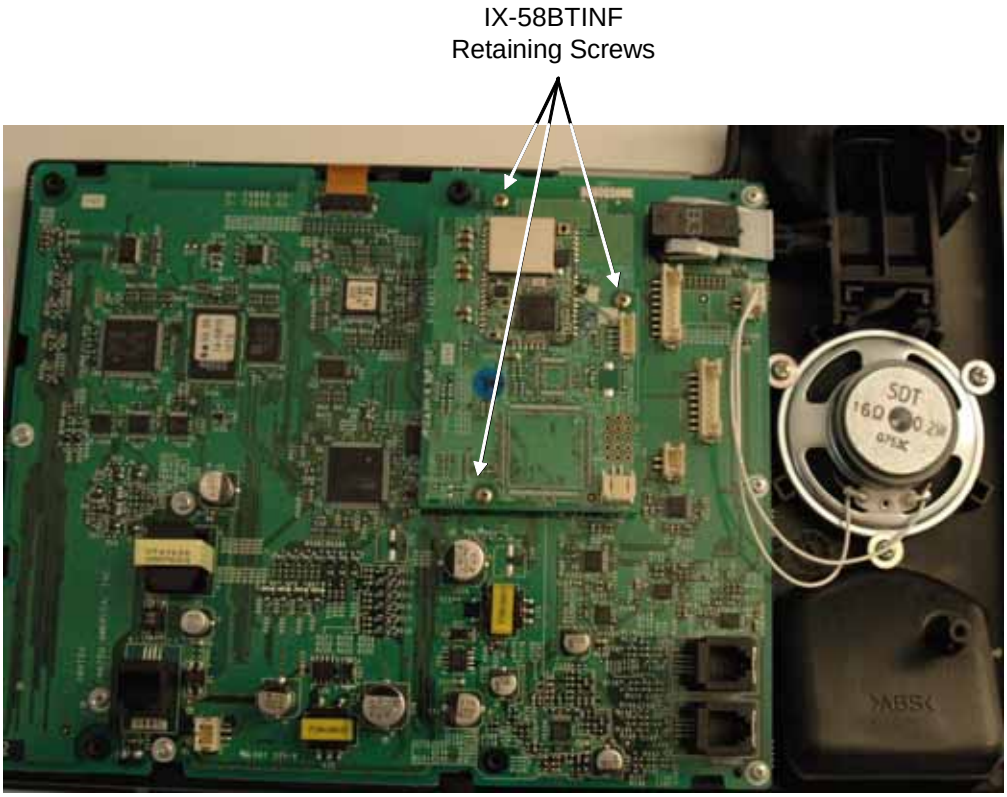
Note:	Attention and / or care should be taken to keep the key telephone with the Bluetooth Module installed at least eight inches from any human contact.

To add an IX-58BTINF unit to an IX-5810 Digital Telephone:

1. Turn the IX-5810 Telephone so that the bottom (pedestal) of the telephone is facing up and disconnect all cords (Headset and Handset).
2. Using a Phillips head screwdriver, remove the six screws from the bottom of the IX-5810 Telephone. Carefully, place the screws aside.
3. With the six screws removed, separate the upper and lower housing from the telephone.



4. Insert the IX-58BTINF CN901 connector into the CN-BT connector on the IX-5810 motherboard (IX-5810KTCU).
5. When the IX-58BTINF board is connected, insert the three retaining screws (provided with the IX-58BTINF) to secure the IX-58BTINF to the IX-5810KTCU motherboard.



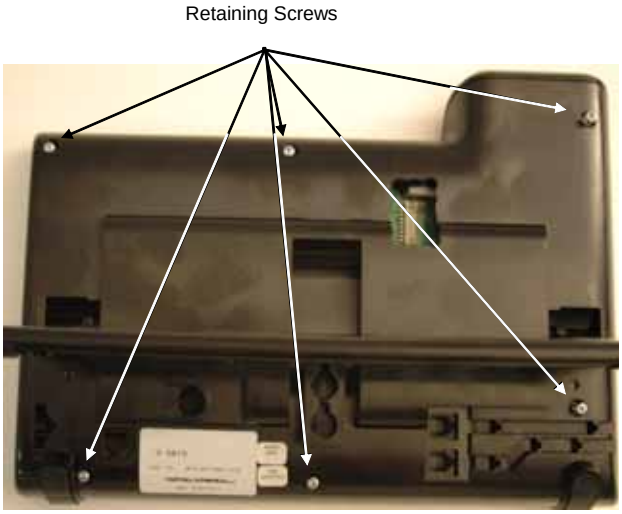
6. Reattach the top and bottom sections of the telephone using the Phillips head screws set aside from the second step.
7. Reconnect all cords.

IX-58EXTENDER Loop Limit Extension Interface Installation

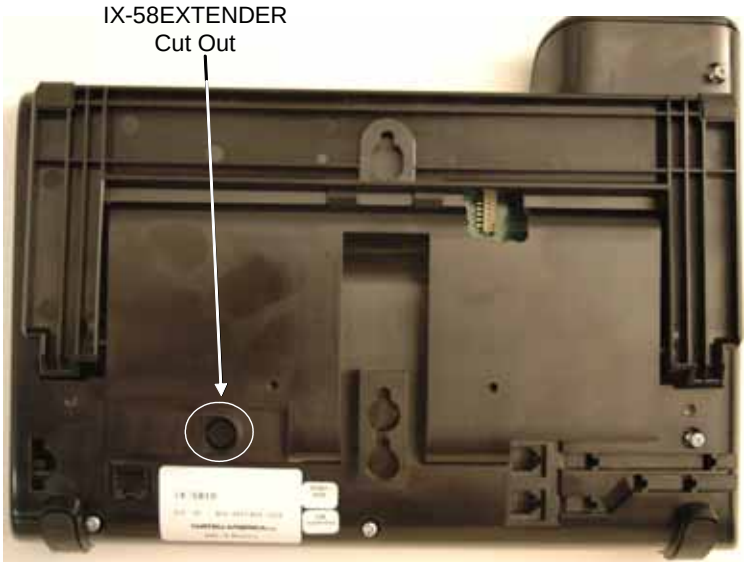
This unit allows the connection of an IX-5800 or IX-5810 Digital Telephone to the IX-58EXTENDER loop extender unit.

To add an IX-58EXTENDER unit to an IX-5800 or IX-5810 Digital Telephone:

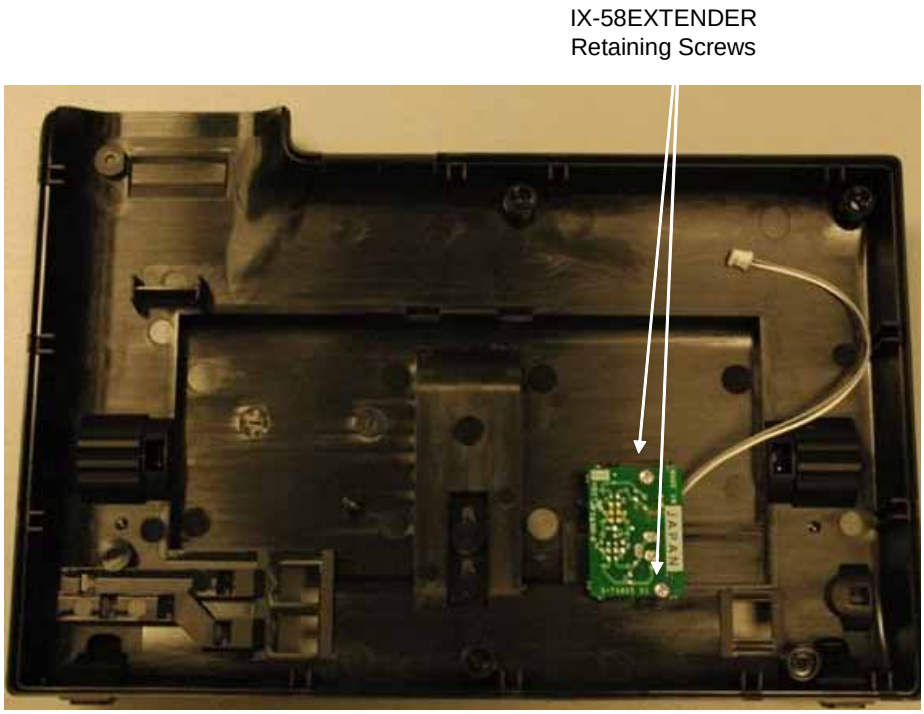
1. Turn the IX-5800/5810 Telephone so that the bottom (pedestal) of the telephone is facing up and disconnect all cords (Line, Headset, and Handset).
2. Using a Phillips head screwdriver, remove the four screws (IX-5800) or six screws (IX-5810) from the bottom of the Telephone. Carefully, place the screws aside.
3. With the screws removed, separate the telephone's upper and lower housings.



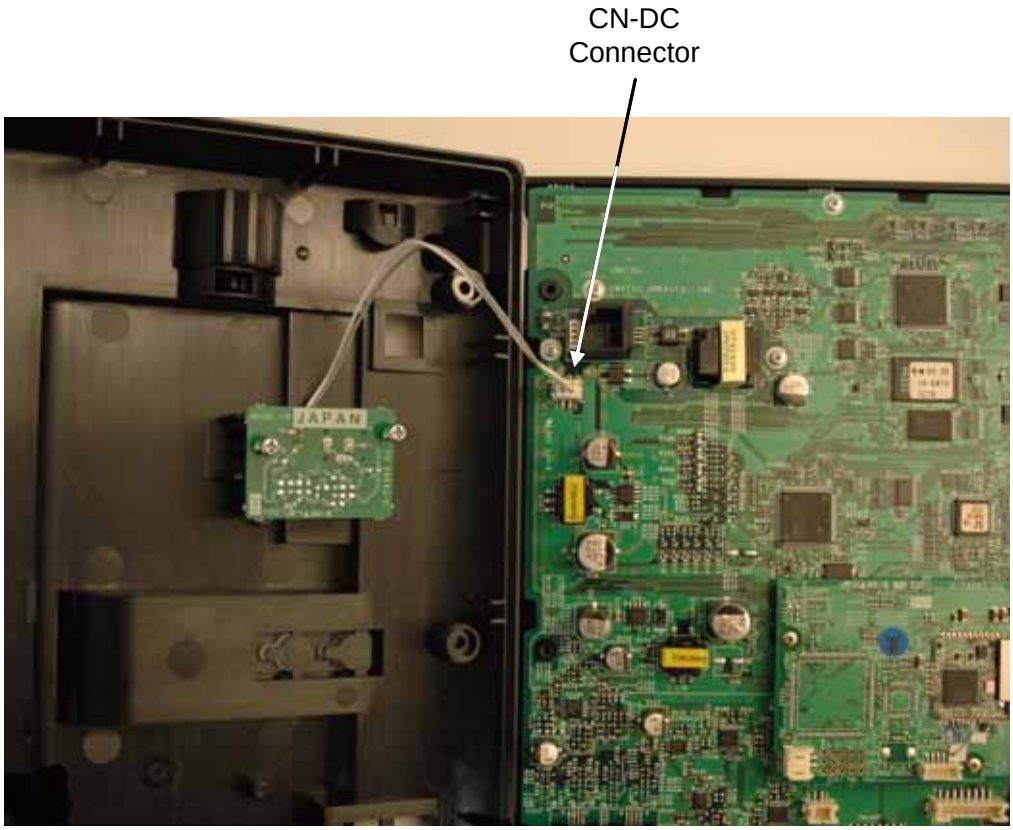
4. Remove the cutout for the IX-58EXTENDER power jack from the lower housing by cutting the retaining tabs. Use snips or other appropriate tool to perform this task.



5. Install the IX-58EXTENDER unit by inserting the jack into the cutout created in step 4.
   - Align the IX-58EXTENDER unit over the two screw standoffs, as shown below.
   - Insert the two Phillips head retaining screws, provided with the EXTENDER unit, to secure the unit to the IX-5800/5810 lower housing.



6. Attach the free end of the EXTENDER cable to the CN-DC connector on the KT motherboard in the upper housing.
   - The connector is keyed and can only be installed in one direction..



7. Reattach the top section of the telephone using the Phillips head screws set aside from the second step.

Note:	While re-assembling the telephone, after installing the IX-58EXTENDER, ensure that the CN-DC connector cable is not crimped or cut by the telephone housing or retaining screws.

1. Reconnect all cords.
2. Attach the IX-59WMS Wall Mount Spacer (PN: 505072) if you are planning to wall-mount this telephone.

Installing the IX-ELK8 8-Key Expansion Unit.

The IX-ELK8 adds 8 multipurpose keys to IX-5810 Standard Digital telephone.

1. Remove the plastic key sheet covering and the paper key label from the IX-5810 telephone.
2. Remove the screw then remove the plate covering the area reserved for the IX-ELK8.
3. Carefully, set the IX-ELK8 in place aligning the pre-drilled hole for the retaining screw.
4. Using the screw that you removed in step 2, secure the IX-ELK8 into place as illustrated below.
5. Replace with a new paper key label and 24-button plastic key sheet covering.



Programming

14.01/15.01 Key Assignment.

Installing the IX-ELK9 9-Key Expansion Unit.

The IX-ELK9 adds 9 multipurpose keys to IX-5800 Economy Digital telephone.

1. Remove the plastic key sheet covering and the paper key label from the IX-5800 telephone.
2. Remove the three retaining screws and then remove the plate covering the area reserved for the IX-ELK9.
3. Carefully, set the IX-ELK9 in place aligning the three pre-drilled holes for the retaining screws.
4. Using the three screws that you removed in step 2, secure the IX-ELK9 into place as illustrated below.
5. Replace with a new paper key label and 18-button plastic key sheet covering.



Programming

14.01/15.01 Key Assignment.

Installing Platinum 18d and 12d Digital Key Telephones

The Platinum 18d and 12d Digital Key Telephones are installed using most of the same installation procedures as described for the IX-12KTD-3 and IX-12KTS-3 telephones.

An IX-PSUB-1 card is required to install a Platinum Series 18d or 12d Digital Key Telephone.

Any unique installation procedures are described on the following pages.

Platinum Series Digital Key Telephone Models:

Model	Description	Part Number
18d	Enhanced Digital Telephone with 6-line LCD	104304
12d	Standard Digital Telephone with 2-line LCD	104305

Optional Equipment for the Platinum Series Digital Key Telephones:

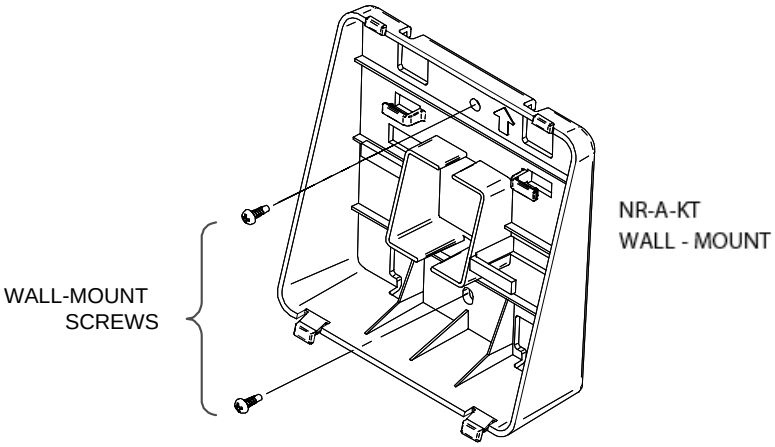
Model	Description	Location	Part Number
NR-A-AUDIO	Internal loud ringer unit	Telephone set motherboard	105131
NR-A-SNHD (Future Release)	Station Noise Canceling Handset	Replaces Standard Handset	105415

Platinum 18d and 12d Wall Mount Installation

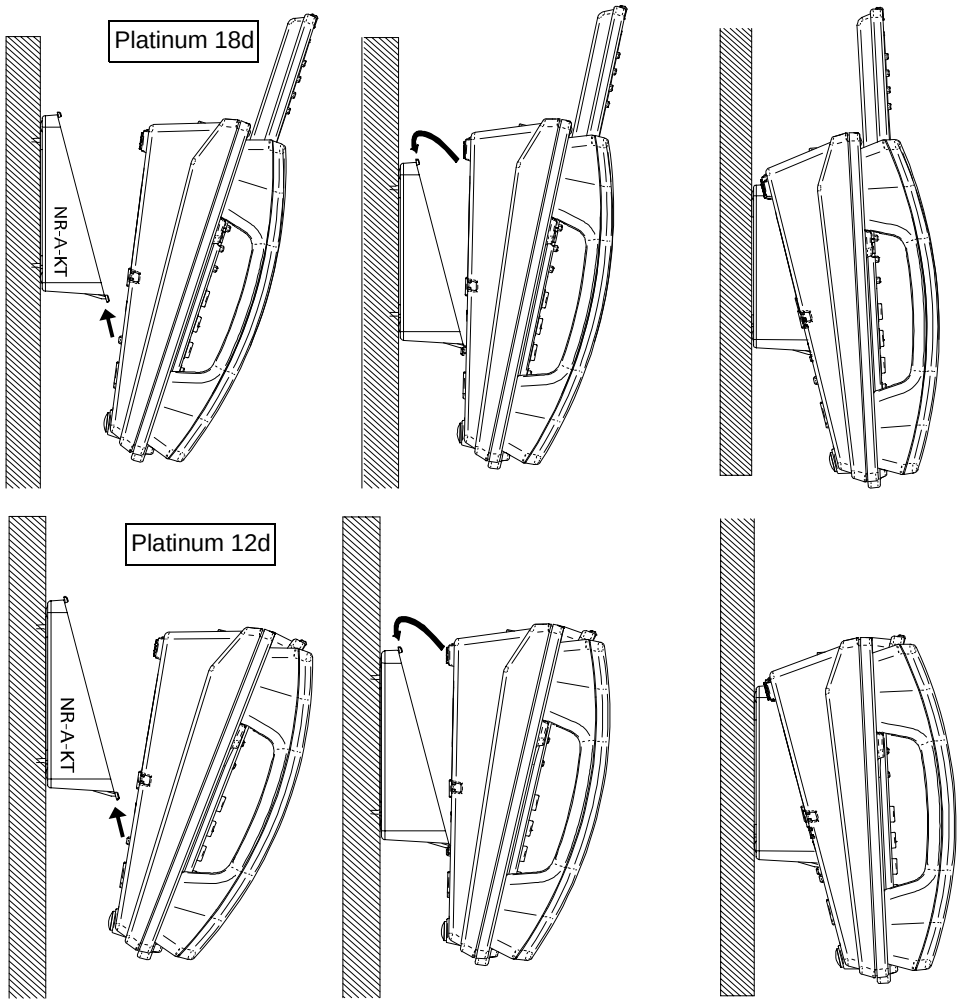
1. Lift the handset hook from the center of the station's upper cradle and reinsert the handset hook in the slot in the upside-down position.



2. Install the Wall Mount Bracket (NR-A-KT) on the wall using the two screws as shown.



3. Insert the two bottom tabs into the two holes in the base of the Platinum 18/12d, then lift the telephone toward the wall mount. The telephone is secure when the top two tabs have snapped in place.



Note: After installation, ensure that the pedestal is securely mounted on the wall and withstands an overload of at least 5.3 pounds.

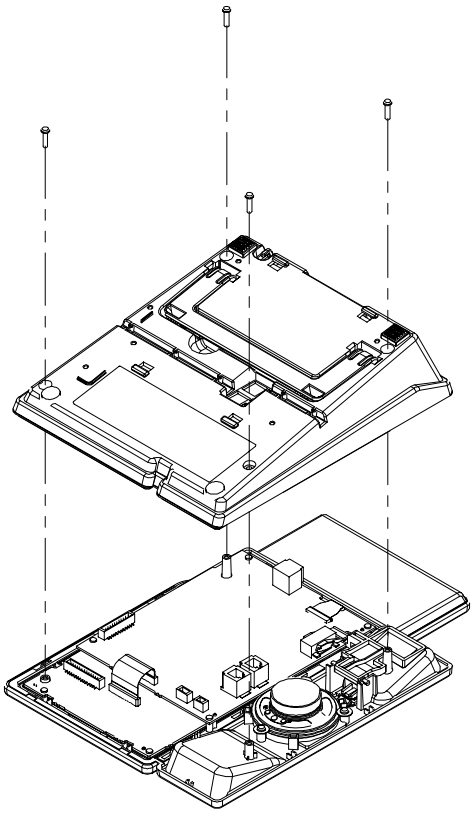
Platinum 18/12d Optional Equipment Installation

NR-A-AUDIO Audio Adapter Installation

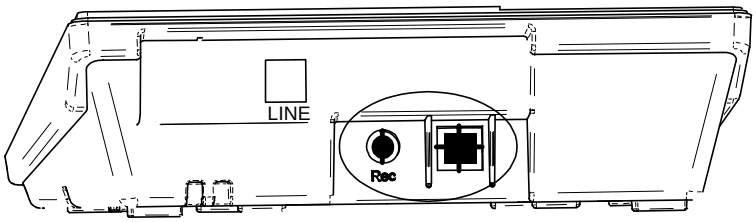
This unit allows the connection of an Platinum 18/12d Digital Telephone to a station loud-ringer and external call recording device.

To add an NR-A-AUDIO unit to an Platinum 18/12d Digital Telephone:

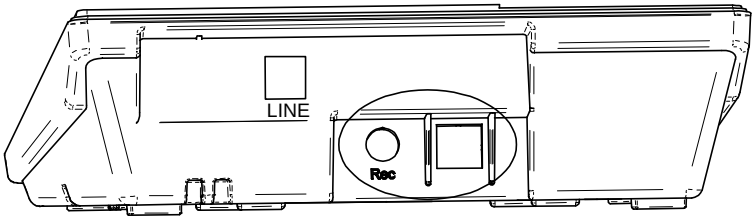
1. Turn the Platinum 18/12d Telephone so that the bottom (pedestal) of the telephone is facing up and disconnect all cords (Headset and Handset).
2. Using a Phillips head screwdriver, remove the four screws from the bottom of the Platinum 18/12d Telephone. Carefully, place the screws aside.
3. With the four screws removed, separate the upper and lower housing from the Platinum 18/12d.



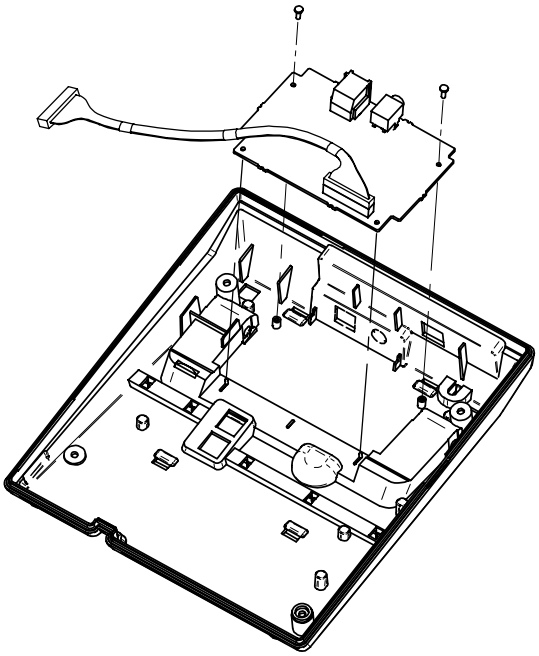
4. Remove the cutouts for the RJ-11 and audio jack from the lower housing by cutting the retaining tabs (from the area circled below). Use snips or other appropriate tool to perform this task.



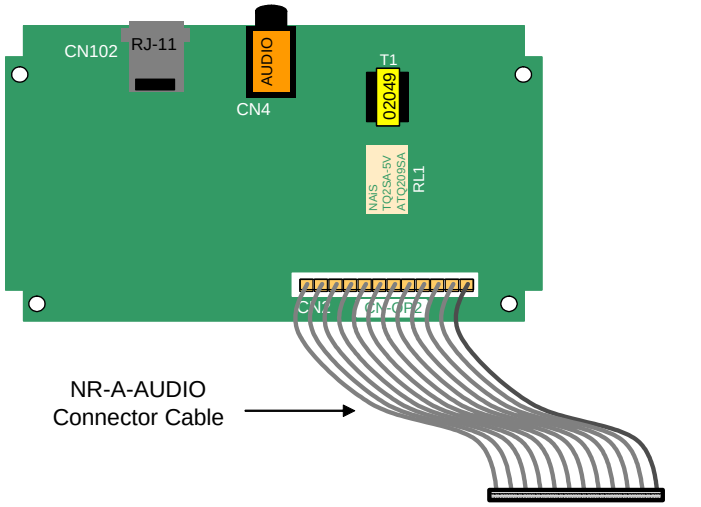
Remove retaining tabs
in the area circled



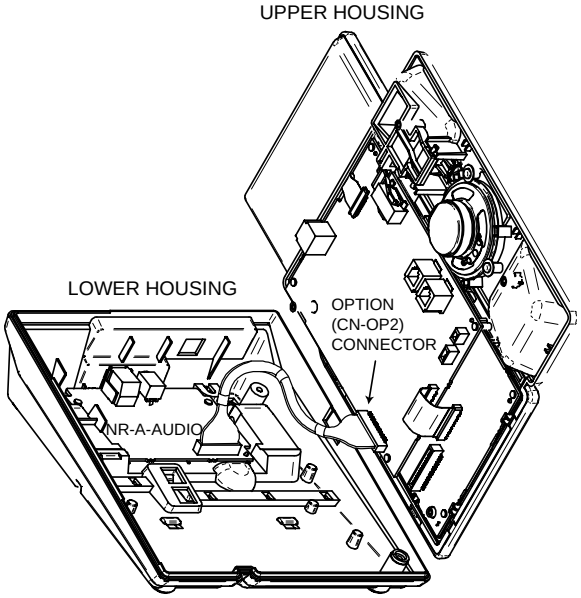
5. Install the NR-A-AUDIO unit by inserting the RJ-11 and audio jack into the cutouts created in step 4.
   - Position the NR-A-AUDIO unit through the retaining pins and align over the screw standoffs, as shown below.
   - Insert the two Phillips head retaining screws, provided with the AUDIO unit, to secure the NR-A-AUDIO unit to the Platinum 18/12d lower housing.



6. Attach one end of the NR-A-AUDIO cable to the CN-OP2 (CN2) connector on the NR-A-AUDIO unit.
   - The connector is keyed and can only be installed in one direction.

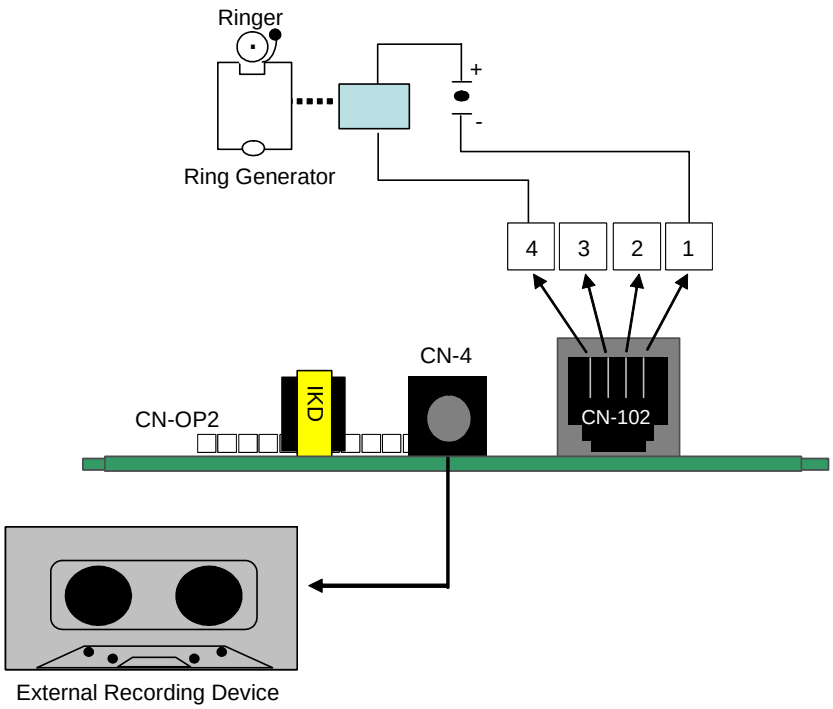


7. Attach the other end of the NR-A-AUDIO cable to the OPTION (CN-OP2) connector on the NR-A-KTCUM/L board located on the Platinum 18/12d upper housing.



8. Reattach the top section of the telephone using the Phillips head screws set aside from the third step.
9. Reconnect all cords.

NR-A-AUDIO Audio Adapter Configuration



Connection

Jack Pin	Wire Color	Designation	Description
1	Green	1T	For KT
2	Red	NC	
3	Yellow	NC	
4	Black	1R	For KT

Labeling

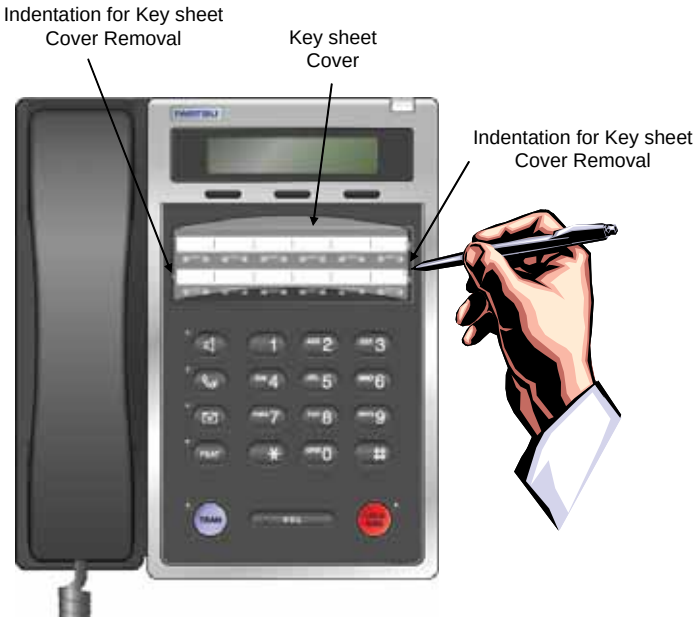
Platinum 18d

Remove the plastic key sheet cover by pressing on the key sheet tab and lifting. If desired, remove the label shipped with the telephone and replace with the Platinum 18d key label. Use the Iwatsu Programmer to print key labels.



Platinum 12d

Remove the plastic key sheet cover by using a pen and placing it in one of the two key sheet indentions and lifting. If desired, remove the label shipped with the telephone and replace with the Platinum 12d key label. Use the Iwatsu Programmer to print key labels.



Installing IX-12KTD-3 and IX-12KTS-3 Digital Key Telephones

The following options are specific to the IX-12KTD/S-3 Digital Key Telephones and can only be connected to the IX-12KTD/S-3 Digital Key Telephones:

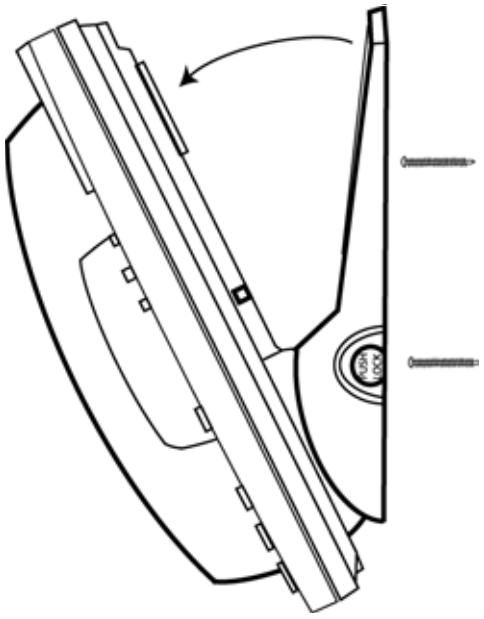
Model	Description	Location
IX-KTLCD-3 (black and white)	Field upgradeable display	Telephone face
IX-12ELK-3	12-button expansion unit	IX-12KTD/S-2 only
IX-LRAU	Internal loud ringer unit	Telephone set motherboard
IX-BPCU	Internal busy bypass unit	Telephone set motherboard

The IX-12KTD-3 and IX-12KTS-3 Digital Key Telephones are installed using most of the same installation procedures as described for the IX-24KTD and IX-12KTD-2 telephones. Any unique installation procedures are described on the following pages.

Wall Mounting IX-12KTD-3 and IX-12KTS-3 Digital Key Telephones

To mount IX-12KTD-3 or IX-12KTS-3 Digital Key Telephones on a wall:

1. Unlock the pedestal from its fixed position.
2. Fully extend the pedestal for wall mounting.
3. Locate the two holes at the center position of the pedestal. Attach screws to the wall in the location where the telephone is to be installed.



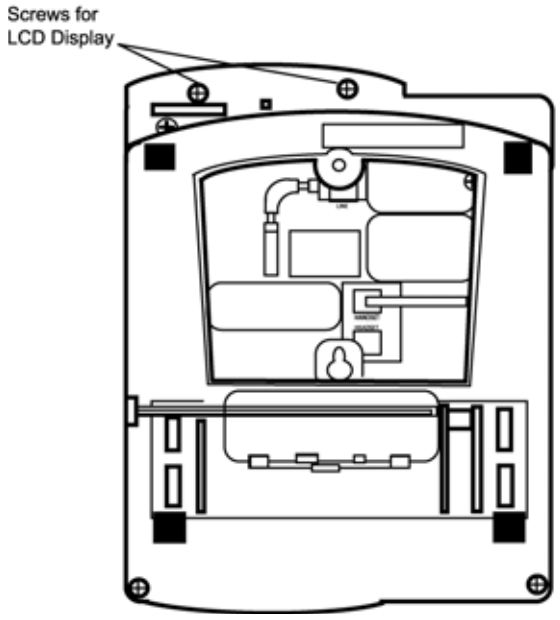
IX-12KTD/S-3 Wall Mounting

1. Fix the pedestal firmly to the wall on pre-mounted screws.
2. Align the phone and re-lock the pedestal.

Installing the Field Upgraded LCD

To install the field upgraded LCD to modify an IX-12KTS-3 to an IX-12KTD-3:

1. Unplug the IX-12KTS-3 Digital Key Telephone from the ECS system.
2. Remove the screws from the LCD area cover at the top of the IX-12KTS-3, then remove the cover.



1. Place the LCD in the uncovered slot, aligning the tabs in the slot with the tabs on the LCD.
2. Press the LCD fully into the slot.
3. On the top of the telephone, locate the screw holes that lock the LCD into place.
4. Attach the screws using a Phillips head screwdriver.

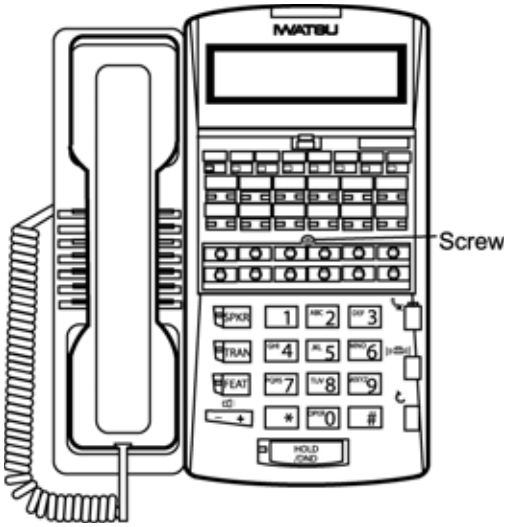
Installing the IX-12ELK-3 Expansion Line Key Unit

The IX-12ELK-3 adds 12 multipurpose buttons to IX-12KTD-3 and IX-12KTS-3 telephones. Use the IX-12ELK-3 (BLK) with the IX-12KTD / S-3 (BLK) telephone and the IX-12ELK-3 (WHT) with the IX-12KTD / S-3 (WHT) telephone.

To add an IX-12ELK-3 to an IX-12KTD-3 or IX-12KTS-3 Digital Key Telephone:

1. Unplug the IX-12KTD-3 or IX-12KTS-3 Digital Key Telephone from the ECS system.
2. Remove the plastic covering and key label from the IX-12KTD-3 or IX-12KTS-3 telephone.

3. Remove the screw, then remove the plate covering the area reserved for the IX-12ELK-3.



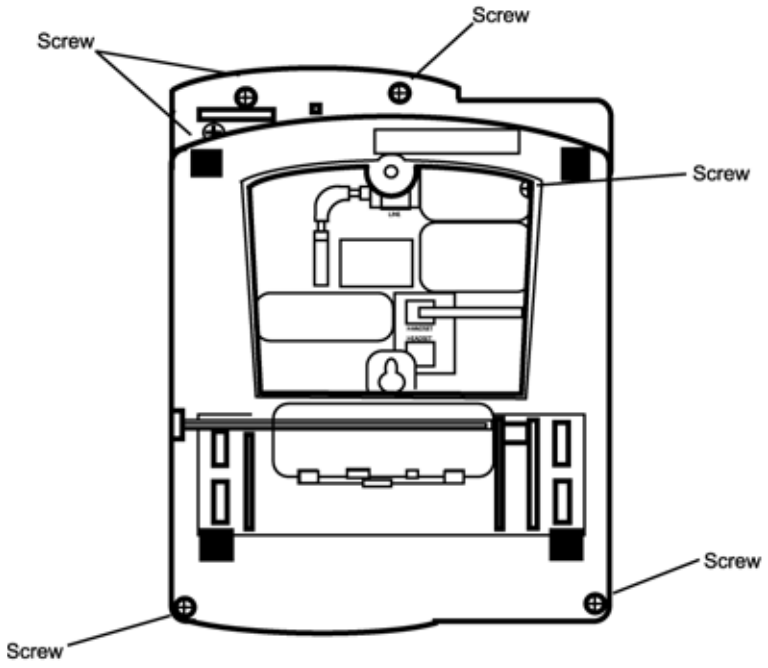
4. Snap the IX-12ELK-3 in place by inserting the left side first and then pushing down the right side.
5. Using the screw that you removed in step 3, screw the IX-12ELK-3 into place.
6. Replace the key label and plastic covering from the IX-12KTD-3 or IX-12KTS-3 telephone.

Installing the IX-LRAU Internal Loud Ringer Unit

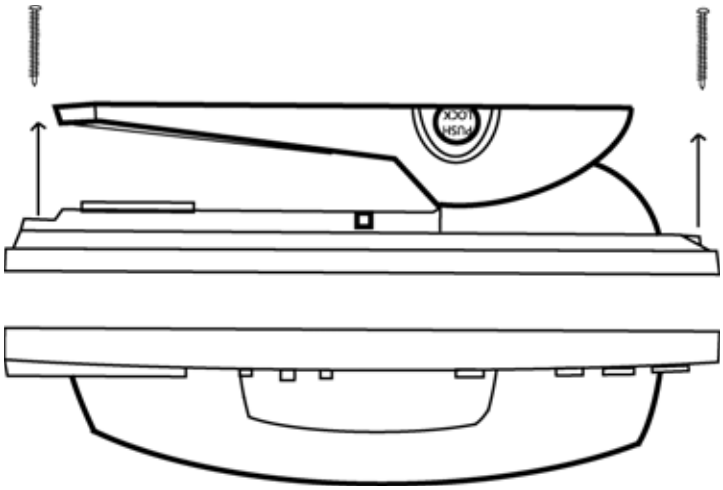
This unit allows the connection of an ECS IX-12KTD-3 or IX-12KTS-3 Digital Key Telephone to a station loud-ringer, external speakerphone unit and external call recording device.

To add an IX-LRAU to an IX-12KTD-3 or IX-12KTS-3 Digital Key Telephone:

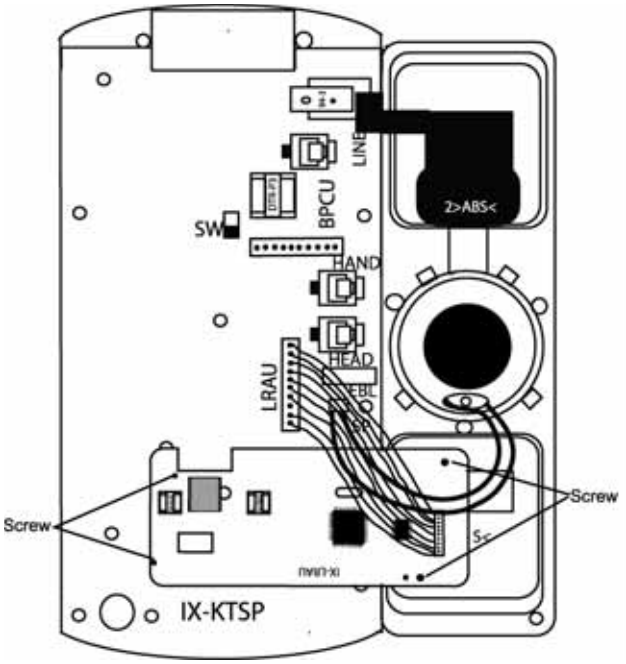
1. Unplug the IX-12KTD-3 or IX-12KTS-3 Digital Key Telephone from the ECS system.
2. Turn the IX-12KTD-3 or IX-12KTS-3 telephone so that the bottom (pedestal) of the telephone is facing up.



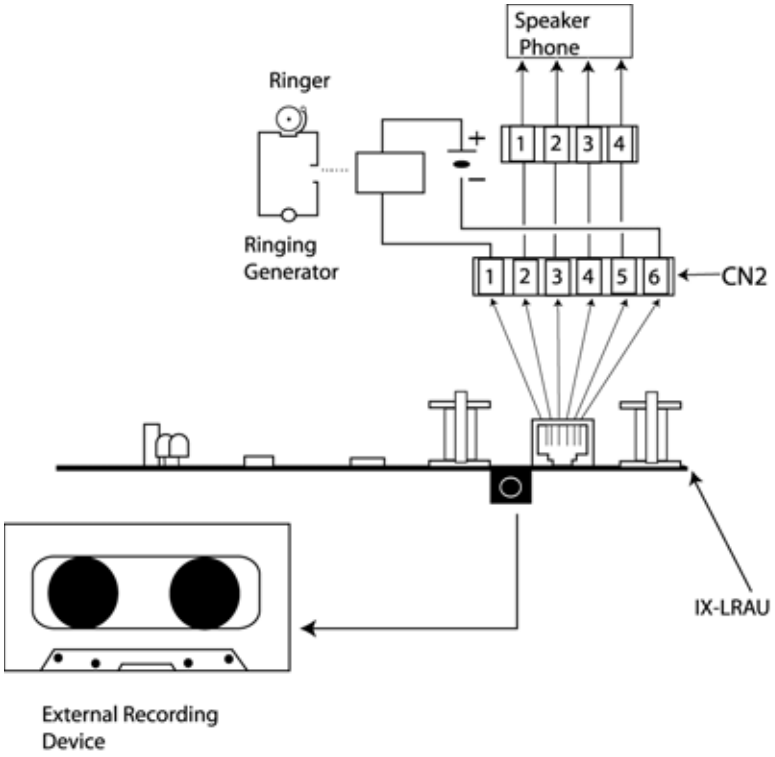
3. Disconnect all cords.
4. Using a Phillips head screwdriver, remove the 6 screws from the bottom of the IX-12KTD-3 or IX-12KTS-3 telephone. Place them aside carefully.
5. Remove the top (keypad / display) section of the telephone from the bottom (pedestal) section.



6. Position the IX-LRAU over the appropriate screw standoffs in the top section of the telephone.



7. Attach the IX-LRAU to the standoffs inside the telephone using the Phillips head screws provided with the IX-LRAU. Attach the ribbon cable of the IX-LRAU to CN3 (labeled LRAU) of the telephone.
8. Reattach the top section of the telephone using the Phillips head screws set aside from the fourth step.
9. Reconnect all cords.

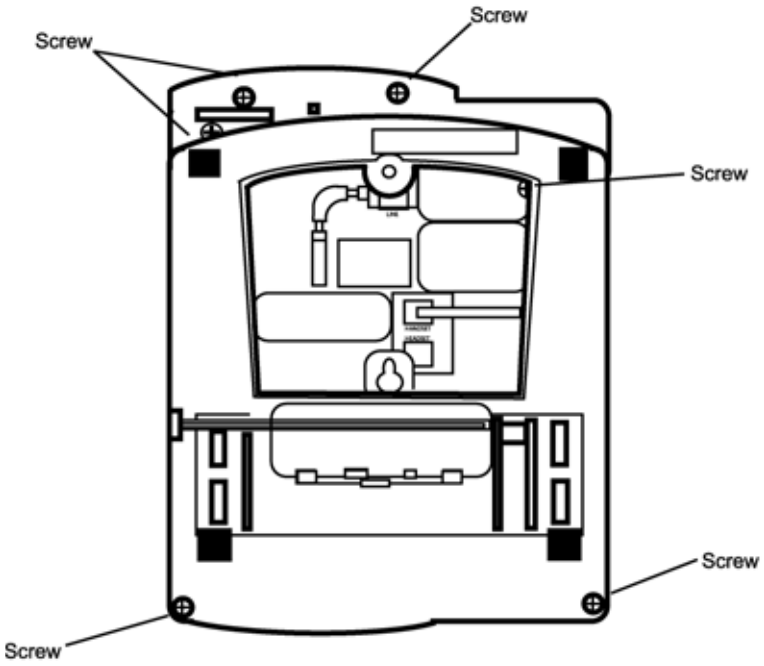


Installing the IX-BPCU Internal Busy Bypass Unit

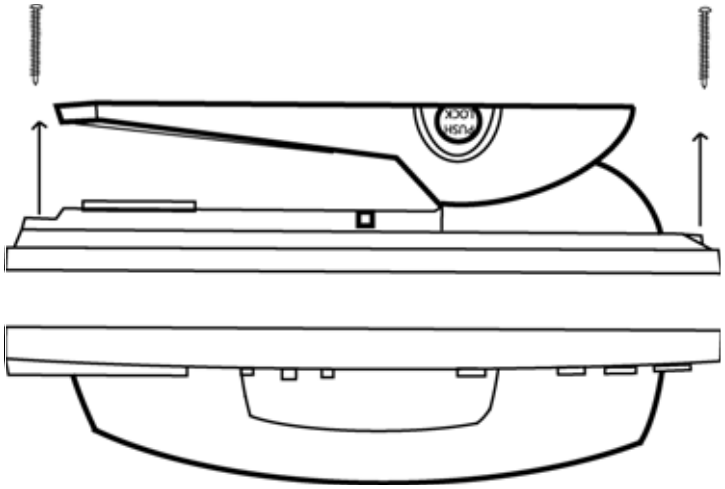
The IX-BPCU unit allows a caller that calls a busy station with the IX-BPCU unit installed to make a voice announcement to that busy station. Unlike previous ECS digital key telephones, IX-12KTD-3 and IX-12KTS-3 Digital Key Telephones do not use an additional speaker and MIC for the busy bypass function. The IX-BPCU unit utilizes the speaker and the MIC of the IX-12KTD- 3 or 12IX-KTS-3 Digital Key Telephone. The IX-BPCU requires an additional digital station port to operate.

To add an IX-BPCU to an IX-12KTD-3 or IX-12KTS-3 Digital Key Telephone:

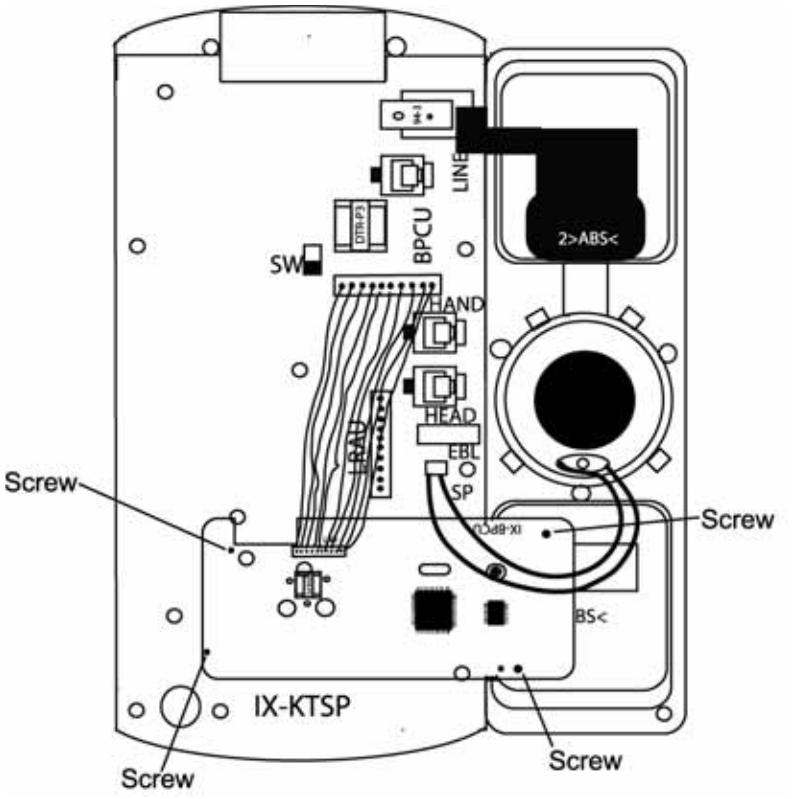
1. Unplug the IX-12KTD-3 or IX-12KTS-3 Digital Key Telephone from the ECS system.
2. Turn the IX-12KTD-3 or IX-12KTS-3 telephone so that the bottom (pedestal) of the telephone is facing up.



3. Disconnect all cords.
4. Using a Phillips head screwdriver, remove the 6 screws from the bottom of the IX-12KTD- 3 or IX-12KTS-3 telephone. Place them aside carefully.



5. Remove the bottom (pedestal) section of the telephone.
6. Position the IX-BPCU over the appropriate screw standoffs in the top section of the telephone.
7. Attach the IX-BPCU to the standoffs on the telephone using the Phillips head screws provided with the IX-BPCU.



8. Attach the ribbon cable of the IX-BPCU to CN4 (labeled BPCU) of the telephone.
9. Reattach the top section of the telephone using the Phillips head screws set aside from the fourth step.
10. Reconnect all cords.

Installing Omega-Phone Multiline Key Telephones

The ECS Omega-Phone multiline key telephone models are listed in table below.

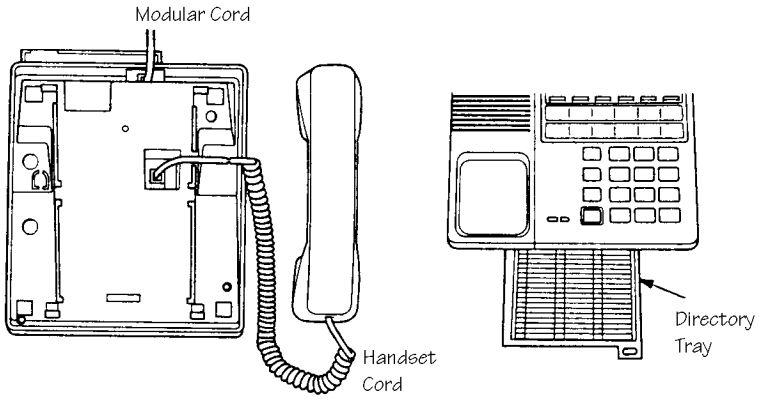
Model	Description
IX-12KTD-3	12-button key telephone with LCD
IX-12KTS-3	12-button key telephone, no LCD
IX-12KTD-2	12-button key telephone with LCD
IX-12KTS-2 (discontinued)	12-button key telephone, no LCD
IX-24KTD/S (discontinued)	24-button key telephone
IX-16KTD/S (discontinued)	16-button key telephone
IX-8KTD/S	8-button key telephone

The following options may be connected to the Omega-Phone multiline key telephone models:

Model	Description	Location
IX-12ELK	12-button expansion unit	IX-12KTD/S-2 only
IX-SSPU	Speakerphone	Telephone set motherboard
IX-AUTD	Autodialer	Right side of KT
IX-BPAD	Busy Bypass/Autodialer	Right side of KT
IX-HSAD	Headset Adapter	Right side of KT`
IX-LRSP	Loud Ringer External Speakerphone	Right side of KT
IX-SNHD	Noise Canceling Handset	Replaces standard handset
IX-SHHD	Amplified Handset	Replaces standard handset

Assembly

Omega-Phone IX-12KT-2 key telephone components are assembled as illustrated.



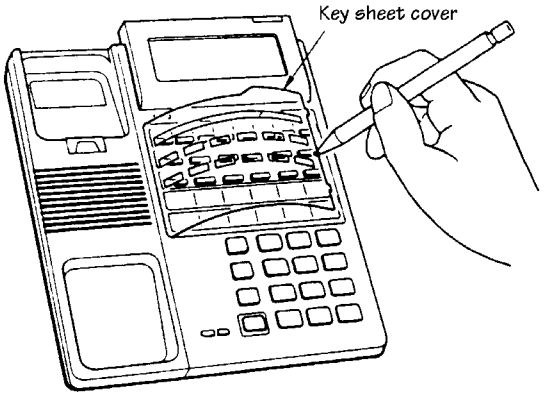
Connection

ECS key telephones are connected to station cable as listed in the following tables:

Jack Pin	Wire Color	Designation	Description
3	Green	1T	For KT
2	Red	1R	For KT
4	Yellow	2T	For IX-BPAD
1	Black	2R	For IX-BPAD

Labeling

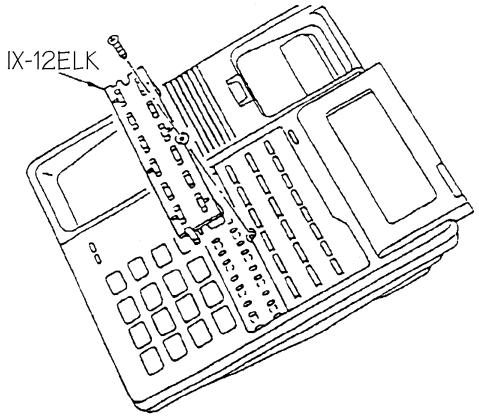
Remove the plastic key sheet cover by bending slightly. If desired, remove the label shipped with the telephone and replace with either the IX-12KT-2 Key Label (Part Number 107861) or IX-24KT-2 Key Label (Part Number 107861). Use the ECS Keysheet Designer V5.1A (Part Number 109202) to enter data and print on these key labels.



Installing the IX-12ELK 12-Key Expansion Unit.

The IX-12ELK adds 12 multipurpose buttons to IX-12KTD-2 and IX-KTS-2 telephones.

1. Remove the key label and plastic covering from the IX-12KTD-2 or IX-KTS-2 telephone.
2. Remove the plate covering the area reserved for the IX-12ELK by removing the screw.
3. Snap the IX-12ELK in place by inserting the left side first and then pushing down the right side.
4. Using the screw that you removed in step 2, screw the IX-12ELK into place as illustrated below.

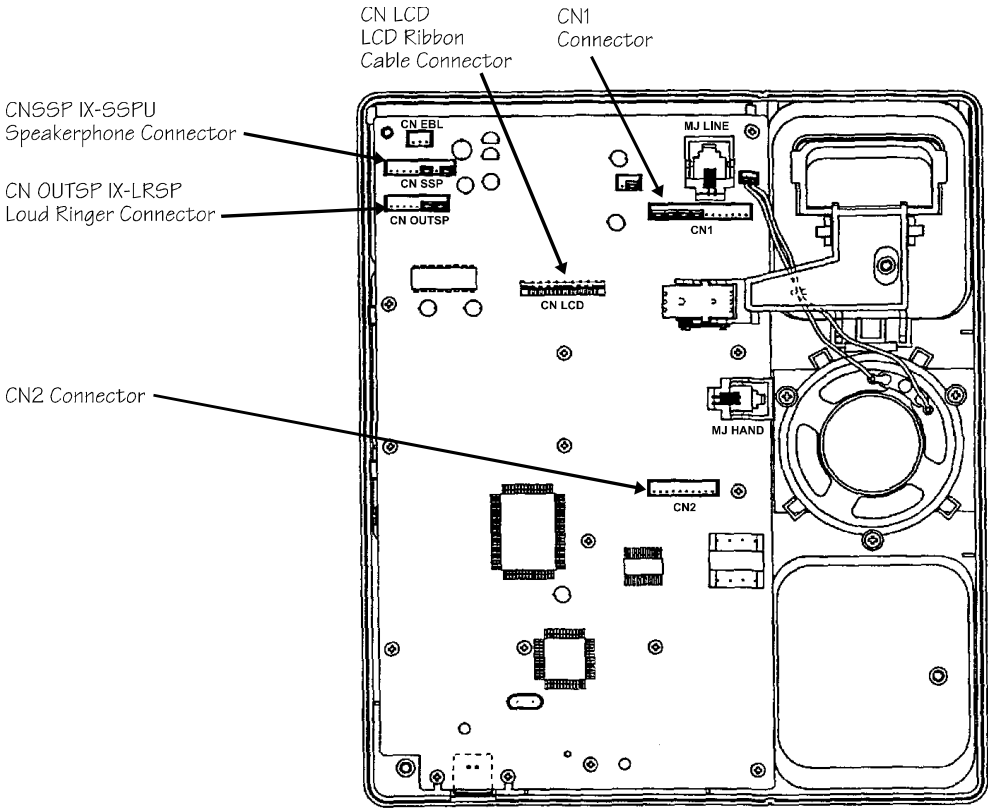


Programming

14.01/15.01 Key Assignment.

Installing Optional Equipment

When optional equipment is connected to an Omega-Phone a connection or an adjustment to the KTs circuit board may be required. The graphic below illustrates the ECS KT internal components.



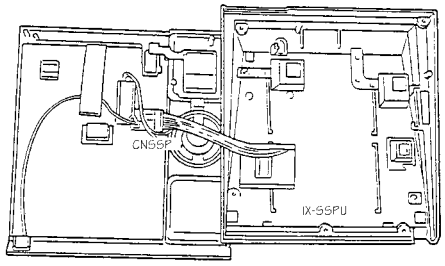
Station Speakerphone Unit

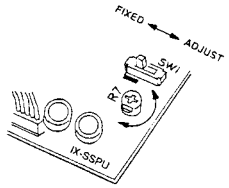
A built-in speakerphone is standard with the IX-12KTD-2 telephone. For IX-24KTD/S, IX-16KTD/S and IX-8KTD/S models the IX-SSPU may be added. The station internal speakerphone card provides an ECS KT with full hands-free operation on CO/PBX lines. This option is not available for Versa-Phones.

Installation

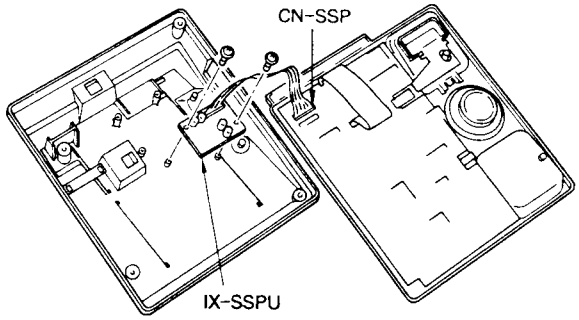
1. Remove the screws from the bottom housing to open the key telephone.
2. Remove the two strapping jacks from connector CNSSP on the station circuit card.
3. Plug the IX-SSPU harness into the CNSSP plug on the station circuit card.
4. If volume adjustment is required, turn switch SW1 to the right position (to the mark SW1) and adjust potentiometer R7 as illustrated.

IX-24KTD/S, IX-8KTD/S





IX-12KTD/S-2



Programming

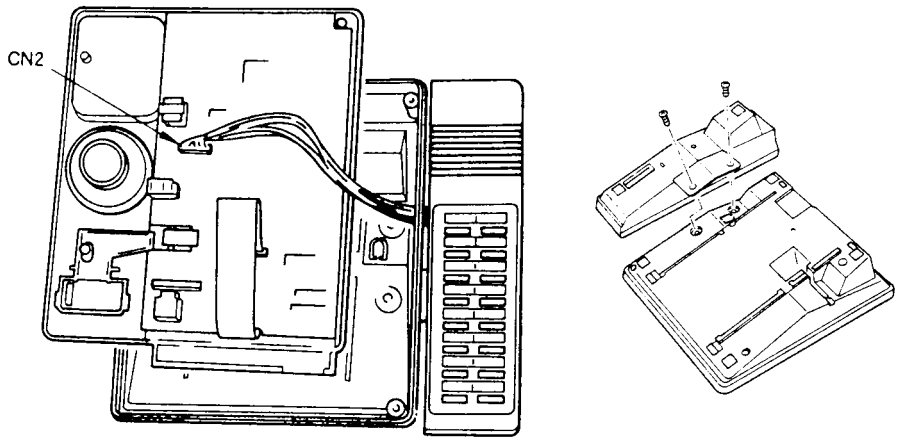
None.

Autodialer Unit Installation

The IX-AUTD station autodialer unit is attached to an ECS key telephone. It provides 16 autodial keys.

Installation

1. Remove the screws from the bottom housing to open the key telephone.
2. Pull up the two stopper tabs of the cutout cover at the right side of the station lower housing and remove the cover.
3. Feed the IX-AUTD cord through the cutout.
4. Plug the female connector from the IX-AUTD cord into connector CN2 on the station circuit card (upper housing).
5. Close the telephone housing.
6. Attach the IX-AUTD to the station lower housing with the three screws provided with the IX-AUTD.



Programming

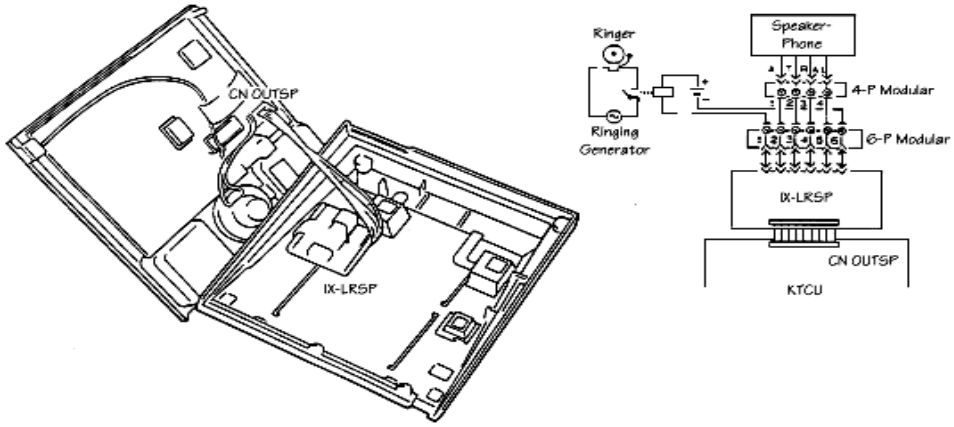
10.12 Key Assignment; 14.01 Flexible Key Assignment.

Loud Ringer/External Speakerphone Installation

The IX-LRSP unit is attached to the ECS key telephone and provides an interface to an external speakerphone and loud ringing bell.

Installation

1. Remove the screws from the bottom housing to open the key telephone.
2. Pull up the two stopper tabs of the cutout cover on the right side of the station lower housing and remove the cover.
3. Feed the IX-LRSP cord through the cutout.
4. Remove the two strapping jacks from connector CN OUTSP on the station circuit card.
5. Plug the IX-LRSP connector cord into connector CN OUTSP on the station circuit card.
6. Attach the IX-LRSP to the station lower housing with four screws provided with the IX-LRSP.
7. Unplug the speaker wire from station circuit card connector CN SSP.
8. Remove the four screws connecting the speaker to the KT.
9. Remove the speaker and replace it with the speaker provided with the IX-LRSP.
10. Plug the speaker wire into CN SSP on the station circuit card.



Programming

None.

Busy Bypass/Autodialer Unit Installation

The IX-BPAD provides off-hook voice announce capability for an Omega-Phone. This unit also has 16 autodial buttons. The IX-BPAD requires one IX-8PSUB port.

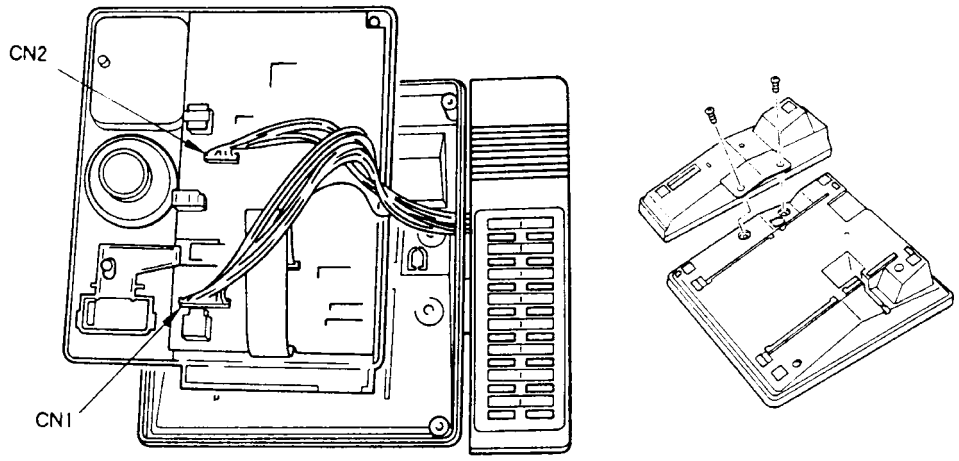
Installation

1. Remove the screws from the bottom housing to open the key telephone.
2. Pull up the two stopper tabs of the cutout cover on the right side of the station lower housing and remove the cover.

Connection

When the IX-BPAD is used, a two-pair twisted cable must be connected the associated KT. Connect the yellow and black leads to a second IX-8PSUB port to provide a second voice channel.

1. Feed the IX-BPAD cord through the cutout.
2. Remove four strapping jacks from connector CN1 on the station circuit card.
3. Plug the two female connectors of the IX-BPAD cord into connectors CN1 and CN2 on the station circuit card.
4. Close the telephone housing.
5. Attach the IX-BPAD to the station lower housing with the screws provided with the IX-BPAD.



Programming

System > Hardware; 10.03 Station Distance; 10.12 Key Assignment; 14.01 Key Assignment

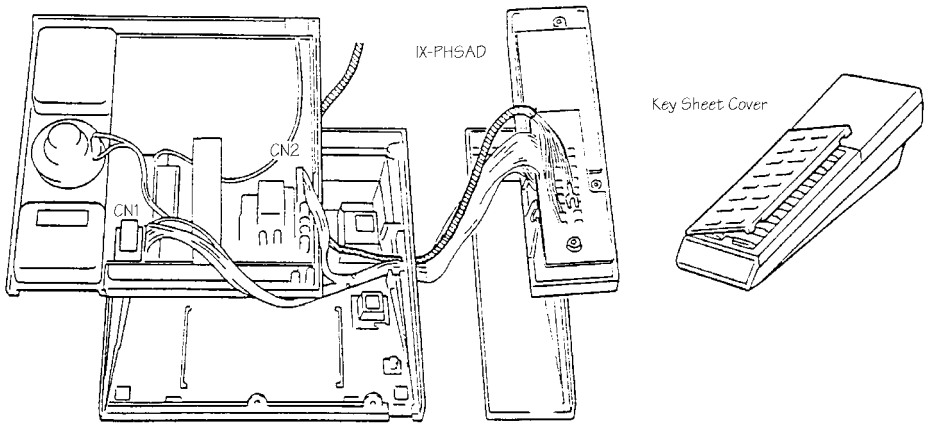
Station Headset Adapter/Autodialer Unit Installation

Note: The IX-12KTD-2 telephone does not support the IX-PHSAD.

The IX-PHSAD provides electrical hookswitch bypass for connection of a multiconductor, jacket-type headset in place of the standard handset. This unit also has 16 autodial buttons.

Installation

1. Remove the five screws from the bottom housing to open the key telephone.
2. Pull up the two stopper tabs of the cutout cover on the right side of the station lower housing and remove the cover.
3. Feed the IX-PHSAD cord through the cutout.
4. Remove four strapping jacks from connector CN1 on the station circuit card.
5. Plug the female connector from the IX-PHSAD cord into connector CN1 on the station circuit card.
6. Close the telephone housing.
7. Attach the IX-PHSAD to the station lower housing with the three screws provided with the IX-PHSAD.



Wiring

8. Open the IX-PHSAD by loosening the two screws.
9. Connect jack-set JS-180 (Plantronics) spade terminals to the terminals on the IX-HSCU card (inside of the IX-PHSAD) following the color coding on the board.
10. Close the IX-PHSAD.

Programming

10.12 Key Assignment; 14.01 Flexible Key Assignment.

Station Pedestal/Wall Mount Unit Installation

The IX-STPD station pedestal is used to either increase the angle of or wall mount an ECS Omega-Phone.

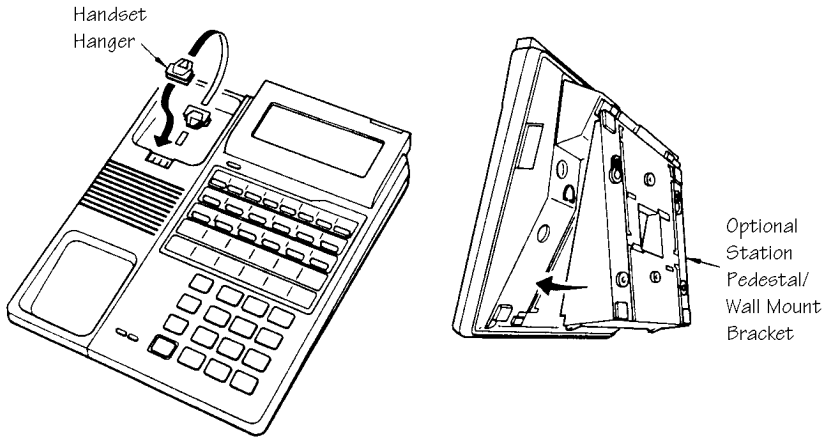
Note: For heavy duty use an optional handset hanger (IX-HSHG) can be installed in place of the standard hanger.

Installation - Pedestal

1. Insert the front two tabs into the holes in the telephone base.
2. Insert the two rear tabs as shown in the figure below.

Installation - Wall mount

3. Mount the station pedestal on the wall using the two screws.
4. Pull up the handset hook from the center of the station upper cradle and reinsert it in the slot in an upside-down position as shown in the figure below.
5. Insert the two top tabs into the back of the key telephone, then insert the two bottom tabs as shown.

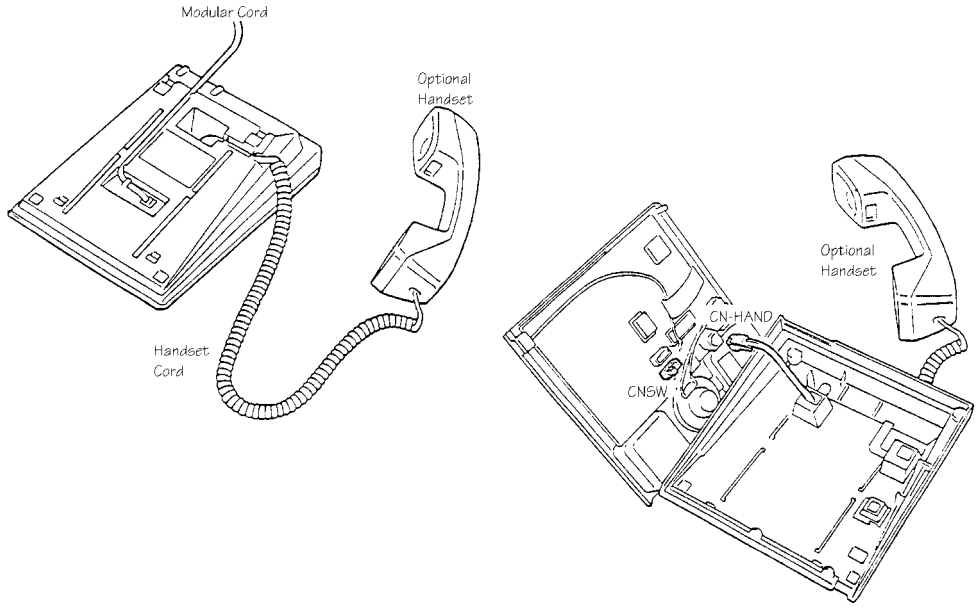


Optional Handset Installation

An optional station noise canceling handset (IX-SNHD) or station amplified handset (IX-SHHD) can be connected to an ECS Omega-Phone.

Installation

1. (IX-SHHD ONLY) Remove the five screws from the bottom housing to open the key telephone. Change the position of strapping jack CNSW from 1-2 to 2-3.
2. Unplug the handset cord from the standard handset and plug it into the optional handset.



Extending the Station Loop Limit (IX-4LSREPU)

Installing the IX-4LSREPU Card

The IX-4LSREPU card is a four-port star repeater unit. It is used to extend the maximum distance from the ECS system to the ECS digital key telephone. Each IX-4LSREPU card may be used to extend the loop limit of four digital telephones. One IX-4LSREPU card port will extend the maximum station distance up to 2000 feet from the ECS system. A second IX-4LSREPU card port will extend the station distance to a maximum of 8500 feet from the ECS system. Depending on the configuration of the IX-4LSREPU, a 24 VDC local power source may be required.

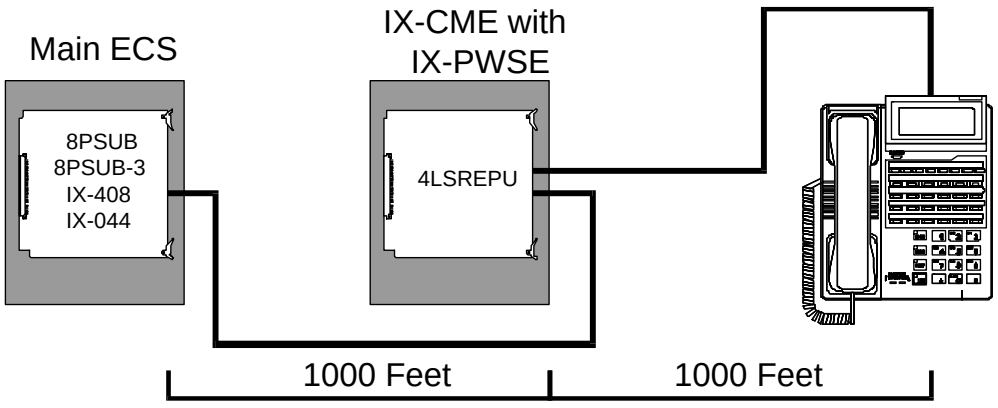
The IX-4LSREPU card may be used in any ECS system. At a remote location, it may be placed in an IX-CME common module and operates without an IX-CCU card. Additionally, the IX-4LSREPU offers several advantages over the IX-SREP Star Repeater:

- Uses the system power supply (IX-PWSE) instead of requiring a individual power supply.
- Each card supports up to four digital station ports.

Installation

Below are diagrams and instructions for extending the station loop limit to 2000, 7500, and 8500 feet from the ECS system. Each of these installations requires different switch settings for the individual IX-4LSREPU circuits. A 24VDC local power source is also required as explained below.

Extending the Station Loop Limit to 2000 Feet

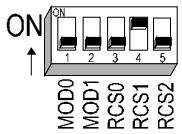


Setting the Synchronization Mode. The IX-4LSREPU synchronization mode required for extending the station loop limit to 2000 feet is asynchronous to asynchronous (AA). The synchronization mode is set using switch SW*x*01 of the specific circuit. The AA mode is programmed by setting switch SW*x*01 as follows:

SW*x*01 Setting AA Mode

Switch Position	Function
MOD0 (bit 1)	OFF
MOD1 (bit 2)	OFF
RCS0 (bit 3)	OFF
RCS1 (bit 4)	ON
RCS2 (bit 5)	OFF

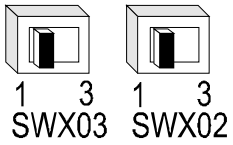
Switch SWX01 set to AA mode



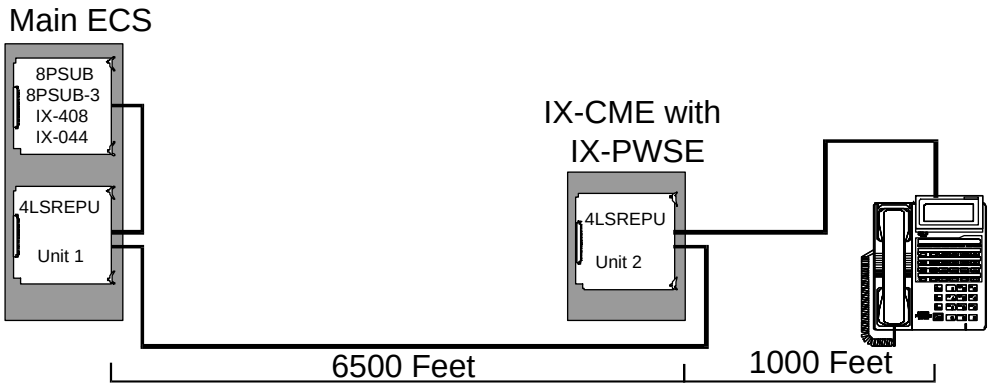
Local Power Requirement. The IX-4LSREPU unit requires local power (24 VDC) when extending the station loop limit to 2000 feet. The local power source may be the IX-PWSE. Switch SW*x*02 and SW*x*03 must be set to 3 to indicate that 24 VDC is being supplied by the local power supply. The required SW*x*02 and SW*x*03 switch settings are listed in the table below.

Switch SWx02	Switch SWx03
3=Local Power Enable	3=Local Power Enable
MOD1 (bit 2)	OFF
RCS0 (bit 3)	OFF
RCS1 (bit 4)	ON
RCS2 (bit 5)	OFF

Switch SWX02 and SWX03
Local Power
Enable/Disable
1 = Disable
3 = Enable



Extending the Station Loop Limit to 7500 Feet

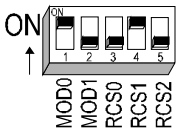


Setting the Synchronization Mode. Each of the circuits on the two IX-4LSREPU units used to extend the station loop limit to 7500 feet require a different synchronization mode setting. The synchronization mode required for IX-4LSREPU unit 1 is asynchronous to synchronous (AS). The synchronization mode required for IX-4LSREPU unit 2 is synchronous to asynchronous (SA). The synchronization mode is set using switch SWx01 of the specific IX-4LSREPU circuit. The AS and SA modes are programmed by setting switch SW*x*01 as follows:

SW*x*01 Setting Unit 1 = AS Mode

Switch Position	Function
MOD0 (bit 1)	ON
MOD1 (bit 2)	OFF
RCS0 (bit 3)	OFF
RCS1 (bit 4)	ON
RCS2 (bit 5)	OFF

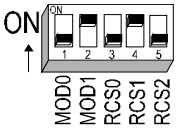
Switch SWX01 set to AS mode



SW*x*01 Setting Unit 2 = SA Mode

Switch Position	Function
MOD0 (bit 1)	OFF
MOD1 (bit 2)	ON
RCS0 (bit 3)	OFF
RCS1 (bit 4)	ON
RCS2 (bit 5)	OFF

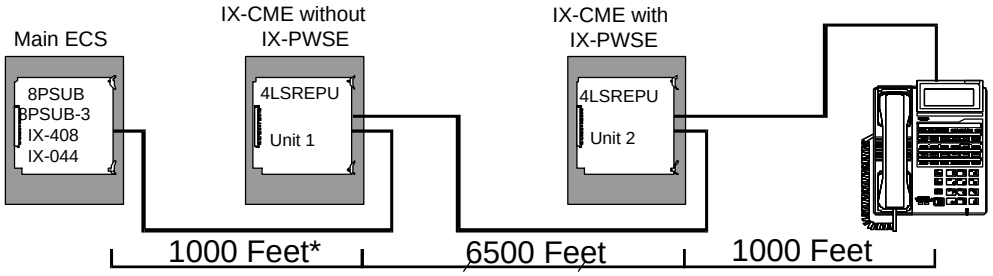
Switch SWX01 set to SA mode



Local Power Requirement. When extending the station loop limit to 7500 feet, the specific circuit of IX-4LSREPU unit 2 requires local power (24 VDC). The local power source is the IX-PWSE. IX-4LSREPU unit 1 does not require local power. Set SWx02 and SWx03 on each specific IX-4LSREPU circuit as listed in the tables below:

Switch SWx02	Switch SWx03
3=Local Power Enable	3=Local Power Enable

Extending the Station Loop Limit to 8500 Feet



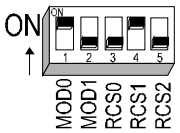
* = Maximum distance from IX-8PSUB to IX-4SLREPU Unit 1 is 500 ft.
Maximum distance from IX-8PSUB-3, IX-408 or IX-044 card to IX-4SLREPU Unit 1 is 1000 ft.

Setting the Synchronization Mode. Each of the circuits on the two IX-4LSREPU units used to extend the station loop limit to 8500 feet require a different synchronization mode setting. The synchronization mode required for IX-4LSREPU unit 1 is asynchronous to synchronous (AS). The synchronization mode required for IX-4LSREPU unit 2 is synchronous to asynchronous (SA). The synchronization mode is set using switch SWx01 of the specific IX-4LSREPU circuit. The AS and SA modes are programmed by setting switch SW*x*01 as follows:

SW*x*01 Setting Unit 1 = AS Mode

Switch Position	Function
MOD0 (bit 1)	ON
MOD1 (bit 2)	OFF
RCS0 (bit 3)	OFF
RCS1 (bit 4)	ON
RCS2 (bit 5)	OFF

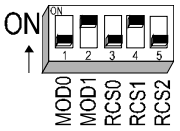
Switch SWX01 set to AS mode



SW*x*01 Setting Unit 2 = SA Mode

Switch Position	Function
MOD0 (bit 1)	OFF
MOD1 (bit 2)	ON
RCS0 (bit 3)	OFF
RCS1 (bit 4)	ON
RCS2 (bit 5)	OFF

Switch SWX01 set to SA mode

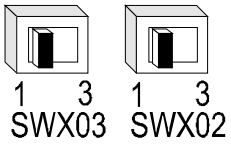


Local Power Requirement. When extending the station loop limit to 8500 feet, the specific circuit of IX-4LSREPU unit 2 requires local power (24 VDC). The local power source is the IX-PWSE. IX-4LSREPU unit 1 does not require local power. Set SWx02 and SWx03 on each specific IX-4LSREPU circuit as listed in the tables below:

IX-4LSREPU Unit 1	
Switch SWx02	Switch SWx03
1 = Local Power Disable	1 = Local Power Disable

IX-4LSREPU Unit 2	
Switch SWx02	Switch SWx03
3 = Local Power Enable	3 = Local Power Enable

Switch SWX02 and SWX03
Local Power
Enable/Disable
1 = Disable
3 = Enable



Setting the IESW Switch

The IESW switch must always be set to IN24. This is the middle position.

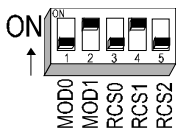
Note: External power source connection is not supported by the IX-4LSREPU.

Wiring

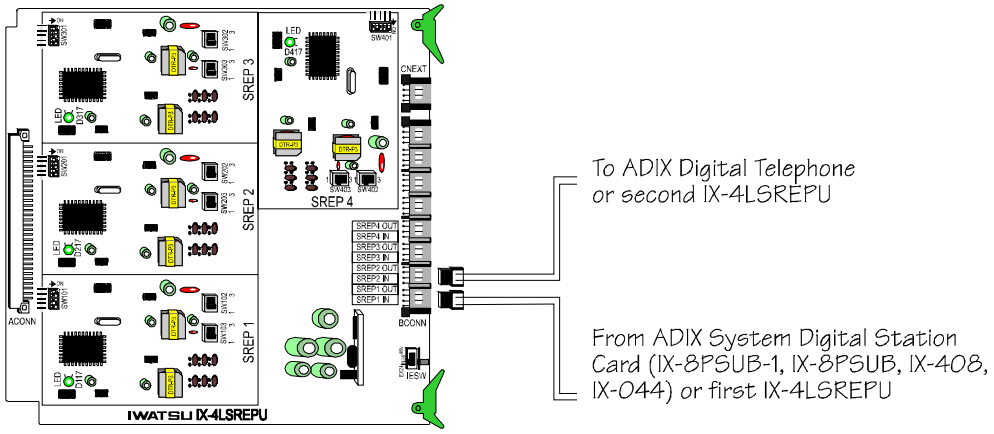
Single-pair wiring is required for each X-4LSREPU circuit. This wire must be configured as illustrated below.

Connector Hole Number	Wire Color	IX-8PSUB Position
1	Green	PR
2	Red	PT
3	Yellow	Ground
4	Black	Ground

Switch SWX01
set to SA mode



The drawing below illustrates the proper connection of a digital station port to the IX-4LSREPU Circuit 1 SREP1 IN and Circuit 1 SREP1 OUT connectors.



Note:	Improper connection of the wires may cause damage to the IX-4LSREPU card.

IX-4LSREPU BCONN Connector Pin Assignment

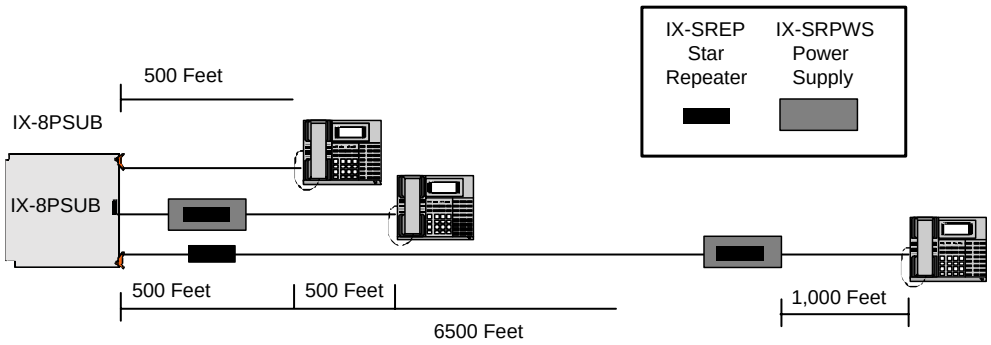
Pin Number	Function	Description
32	Ground	
31	Ground	
30	SREP4 OUT-2	Circuit 4, Wire 2, Out to Digital Telephone or 2nd IX-4LSREPU
29	SREP4 OUT-1	Circuit 4, Wire 1, Out to Digital Telephone or 2nd IX-4LSREPU
28	Ground	
27	Ground	
26	SREP4 IN-2	Circuit 4, Wire 2, From PSUB port or 1st IX-4LSREPU
25	SREP4 IN-1	Circuit 4, Wire 1, From PSUB port or 1st IX-4LSREPU
24	Ground	
23	Ground	
22	SREP3 OUT-2	Circuit 3, Wire 2, Out to Digital Telephone or 2nd IX-4LSREPU
21	SREP3 OUT-1	Circuit 3, Wire 1, Out to Digital Telephone or 2nd IX-4LSREPU
20	Ground	
19	Ground	
18	SREP3 IN-2	Circuit 3, Wire 2, From PSUB port or 1st IX-4LSREPU
17	SREP3 IN-1	Circuit 3, Wire 1, From PSUB port or 1st IX-4LSREPU
16	Ground	
15	Ground	
14	SREP2 OUT-2	Circuit 2, Wire 2, Out to Digital Telephone or 2nd IX-4LSREPU
13	SREP2 OUT-1	Circuit 2, Wire 1, Out to Digital Telephone or 2nd IX-4LSREPU
12	Ground	
11	Ground	
10	SREP2 IN-2	Circuit 2, Wire 2, From PSUB port or 1st IX-4LSREPU
9	SREP2 IN-1	Circuit 2, Wire 1, From PSUB port or 1st IX-4LSREPU
8	Ground	
7	Ground	
6	SREP1 OUT-2	Circuit 1, Wire 2, Out to Digital Telephone or 2nd IX-4LSREPU
5	SREP1 OUT-1	Circuit 1, Wire 1, Out to Digital Telephone or 2nd IX-4LSREPU
4	Ground	
3	Ground	
2	SREP1 IN-2	Circuit 1, Wire 2, From PSUB port or 1st IX-4LSREPU
1	SREP1 IN-1	Circuit 1, Wire 1, From PSUB port or 1st IX-4LSREPU

Extending the Station Loop Limit (IX-SREP)

One IX-SREP Star Repeater can be used to extended the loop limit of an ECS digital station to 1500 feet from the ECS KSU. Two IX-SREP star repeaters can be used to extended the loop limit of an ECS digital station to 8000 feet from the ECS KSU. The IX-SRPWS star repeater power supply is required to supply local power to the IX-SREP to drive the ECS digital station. One IX-SRPWS supplies enough power for two IX-SREPs.

Connection

The diagram below illustrates star repeater connection.



IX-SREP On-Board Settings

Switch SW1 is used to register the IX-SREPs position in the loop.

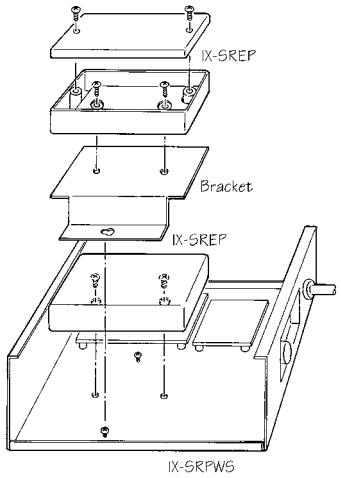
Condition	Switch Position				
	1	2	3	4	5
IX-SREP at 500 feet connected to station terminal	OFF	OFF	OFF	ON	OFF
IX-SREP at 500 feet connected to second IX-SREP	ON	OFF	OFF	ON	OFF
Second IX-SREP at 7,000 feet connected to station terminal	OFF	ON	OFF	ON	OFF

Switches SW2 and SW3 are used to register if the IX-SREP is directly connected to an IX-SRPWS power supply.

Condition	SW2	SW3
Not connected to IX-SRPWS	1	1
Connected to IX-SRPWS	3	3

Assembly

The figure illustrates mounting of the IX-SREP inside the IX-SRPWS. The IX-SREP can be mounted directly to the wall if the IX-SRPWS is not required.

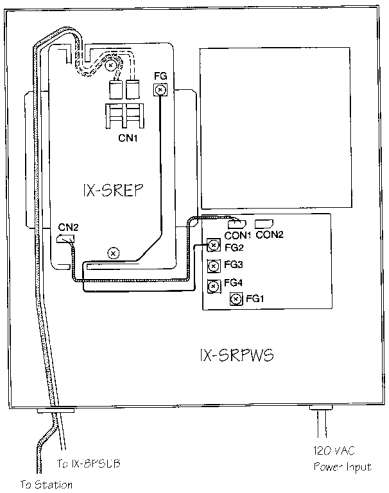


Wiring

IX-SREP with IX-SRPWS wire connections of the IX-SREP to the IX-SRPWS. Three connections are required:

- CN1 INPUT - Connection to the IX-8PSUB or first IX-SREP.
- CN1 OUTPUT - Connection to ECS digital station.
- FG - Connection to the frame ground.

Note: The repeater must be connected to earth ground.



IX-SREP without IX-SRPWS When the IX-SREP is not mounted inside the IX-SRPWS (two star repeater setup) three connections are required:

- CN1 INPUT - Connection to the IX-8PSUB.
- CN1 OUTPUT - Connection to the second IX-SREP/IX-SRPWS.
- FG - Connection to the frame ground.

Note: The repeater must be connected to earth ground.

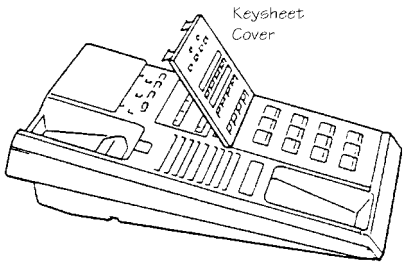
Installing IX-MKT Digital Key Telephones

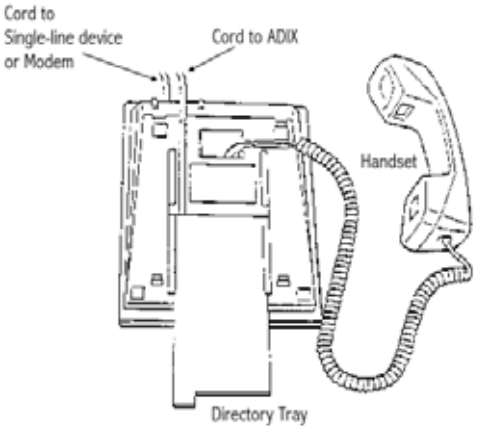
The ECS IX-MKT is a simplified key telephone. Optional hardware for this model is listed below:

- IX-VTPD Station Pedestal/Wall Mount Unit
- IX-HSHG Heavy Duty Handset Hanger
- IX-SNHD and IX-SHHD Optional Handsets
- IX-SSPU Speakerphone unit

Assembly

IX-MKT components are assembled as illustrated below.





Connection

The IX-MKT telephone is connected to station cable from the IX-8PSUB or IX-16PSUB card (and optionally the IX-8SUBS-3) as listed in the following table.

Jack Pin	Wire Color	Designation	Description
3	Green	1T	For PSUB Port
2	Red	1R	For PSUB Port
4	Yellow	2T	For SUBx Port
1	Black	2R	For SUBx Port

Connect a modem or single-line telephone to the single-line/modem jack on the back of the IX-MKT as follows.

Jack Pin	Wire Color	Designation	Description
3	Green	1T	For Modem/SLT

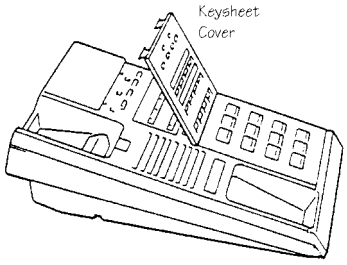
2	Red	1R	For Modem/SLT
4	Yellow	2T	Not Used
1	Black	2R	Not Used

Programming

System > Hardware; 10.12 Key Assignment; 14.01 Key Assignment.

Labeling

Remove the key cover sheets as illustrated below. Use the ECS Key sheet Designer V5.1A (Part Number 109202) to enter data and print on these key labels.



Installing Optional Equipment

Station Pedestal/Wall Mount Unit Installation

The IX-VTPD station pedestal is used to either wall mount or increase the angle of the IX-MKT.

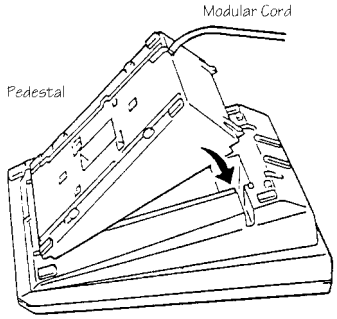
Note: For heavy-duty, use an optional handset hanger (IX-HSHG) can be installed in place of the standard hanger.

Installation - Pedestal

1. Insert the front two tabs into the holes in the telephone base
2. Insert the two rear tabs as shown.

Installation - Wall mount

1. Mount the station pedestal on the wall using the two screws.
2. Pull up the handset hook from the center of the station upper cradle and reinsert it in the slot in an upside-down position as shown.
3. Insert the two top tabs into the back of the key telephone, then insert the two bottom tabs as shown.

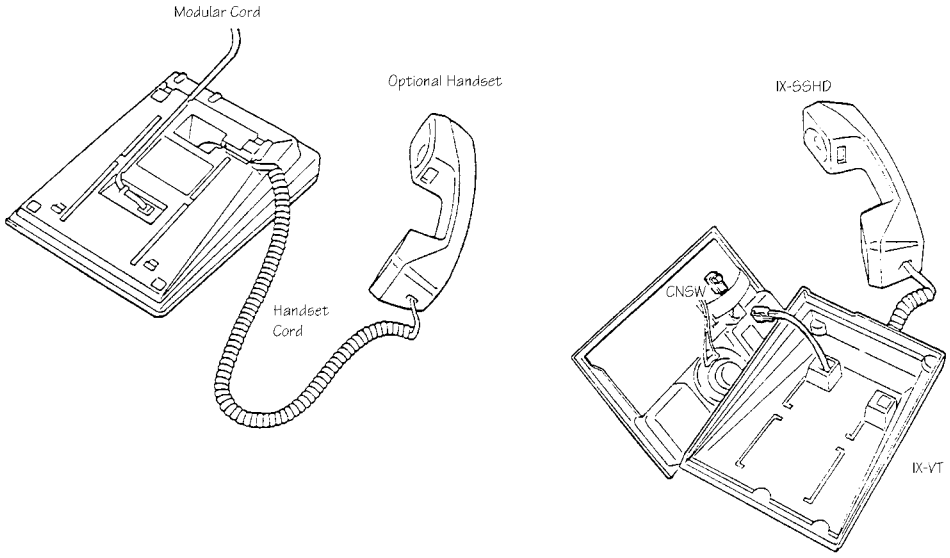


Optional Handset Installation

An optional station noise canceling handset (IX-SNHD) or station-amplified handset (IX-SHHD) can be connected to an IX-MKT.

Installation

1. (IX-SHHD ONLY) Remove the four screws from the bottom housing to open the key telephone. Change the position of strapping jack CNSW from 1-2 to 2-3.
2. Unplug the handset cord from the standard handset and plug it into the optional handset.

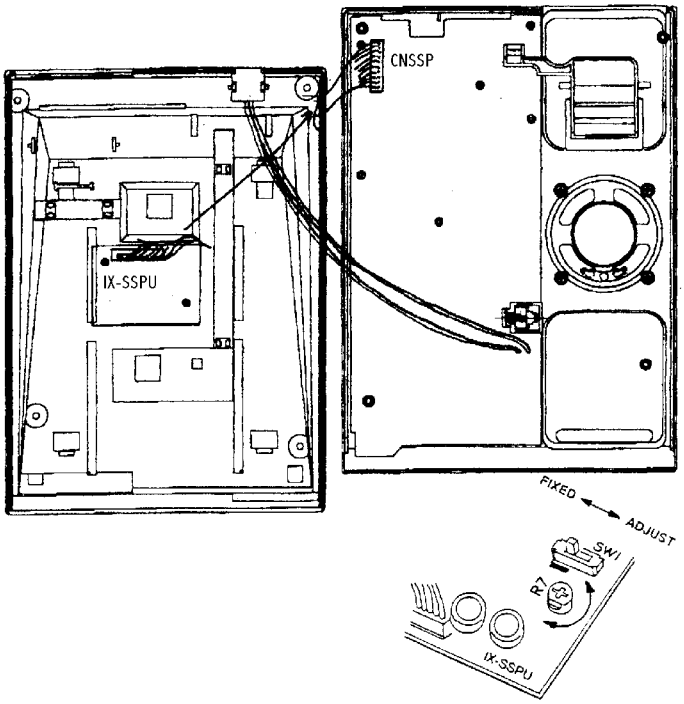


Station Speakerphone Unit

A IX-SSPU Speakerphone unit may be added to the IX-MKT. The station internal speakerphone card provides the IX-MKT with full hands-free operation on CO/PBX lines.

Installation

1. Remove the screws from the bottom housing to open the telephone.
2. Attach the IX-SSPU to the bottom housing with the screws provided as illustrated.
3. Remove the two strapping jacks from connector CNSSP on the station circuit card.
4. Plug the IX-SSPU harness into the CNSSP plug on the station circuit card.
5. If speakerphone adjustment is required, turn switch SW1 to the right position (to the mark SW1) and adjust potentiometer R7 as illustrated.



Programming

None.

Programming the IX-MKT Key Assignment

At system default, the key pattern assigned to the IX-MKT telephone does not match the key layout of the telephones. Use default pattern 7 (14.01) and change the key pattern assignment in Class 10.12 for each IX-MKT.

Class 14 Item 01 - Key Assignment

Key Layout for IX-MKT

#01 003-063 FLOAT	#02 003-063 FLOAT	#03 055-000 PARK	#04 042-000 ICM
#05 038-000 FORWARD	#06 025-000 ADD	#07 176-000 MBOX	#08 071-000 SPEED
Speaker	TRAN	FEAT	HOLD/DND
#025 070-000 SPEAKER	#026 078-000 TRAN	#027 037-000 FEAT	#028 102-000 HOLD/DND
1	2	3	
4	5	6	
7	8	9	

Default Key Pattern 7 for IX-MKT

Key Number (e2)	Default Key Assignment	Key Code (d1-d2)
01	FLOAT	003-063
02	FLOAT	003-063
03	PARK	055-000
04	ICM	042-000
05	FORWARD	038-000
06	ADD	025-000
07	MBOX	176-000
08	SPEED	071-000
25	SPEAKER	070-000
26	TRAN	078-000
27	FEAT	037-000
28	HOLD/DND	102-000

Programming the Green LED on the Display Indicator Lamp

You may associate the green LED on the display indicator lamp of an IX-MKT with the programming of a multipurpose key. For example, at default this button is associated with the message waiting key. Whenever there is a message waiting, the green LED on the display indicator lamp will flash green. The programming for the display indicator lamp may be changed using Class 10.75, Element 1.

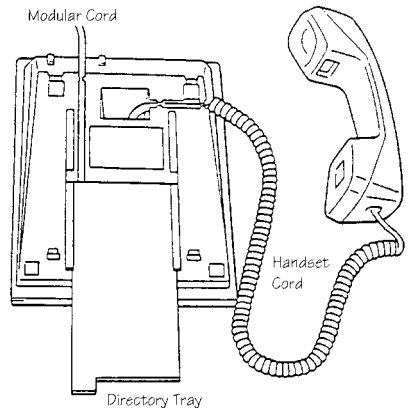
Installing Versa-Phones

ECS Versa-Phones are simplified key telephones. Optional hardware for this model is listed below:

- IX-VTPD Station Pedestal/Wall Mount Unit
- IX-HSHG Heavy Duty Handset Hanger
- IX-SNHD and IX-SHHD Optional Handsets

Assembly

ECS Versa-Phone components are assembled as illustrated below.



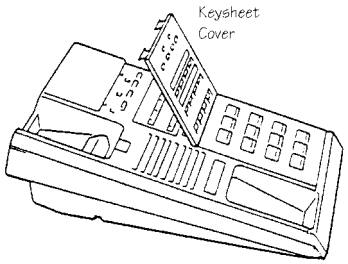
Connection

ECS Versa-Phones are connected to station cable from the IX-8PSUB card as listed in the following table:

Jack Pin	Wire Color	Designation	Description
1	Green	1T	T
2	Red	1R	R
3	Yellow	2T	
4	Black	2R	

Labeling

Remove the key cover sheets as illustrated below. Use the ECS Keysheet Designer, an itegrated utility with Iwatsu Programmer, to enter data and print on these key labels.



Programming

System > Hardware; 10.12 Key Assignment; 14.01 Key Assignment.

Station Pedestal/Wall Mount Unit Installation

The IX-VTPD station pedestal is used to either wall mount or increase the angle of the Versa-Phone.

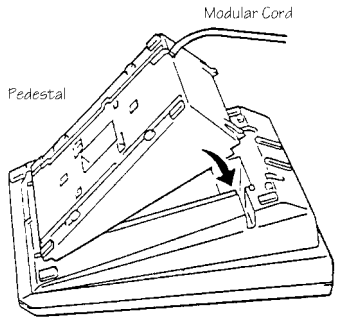
Note: For heavy duty use an optional handset hanger (IX-HSHG) can be installed in place of the standard hanger.

Installation - Pedestal

1. Insert the front two tabs into the holes in the telephone base
2. Insert the two rear tabs as shown.

Installation - Wall mount

1. Mount the station pedestal on the wall using the two screws.
2. Pull up the handset hook from the center of the station upper cradle and reinsert it in the slot in an upside-down position as shown.
3. Insert the two top tabs into the back of the key telephone, then insert the two bottom tabs as shown.

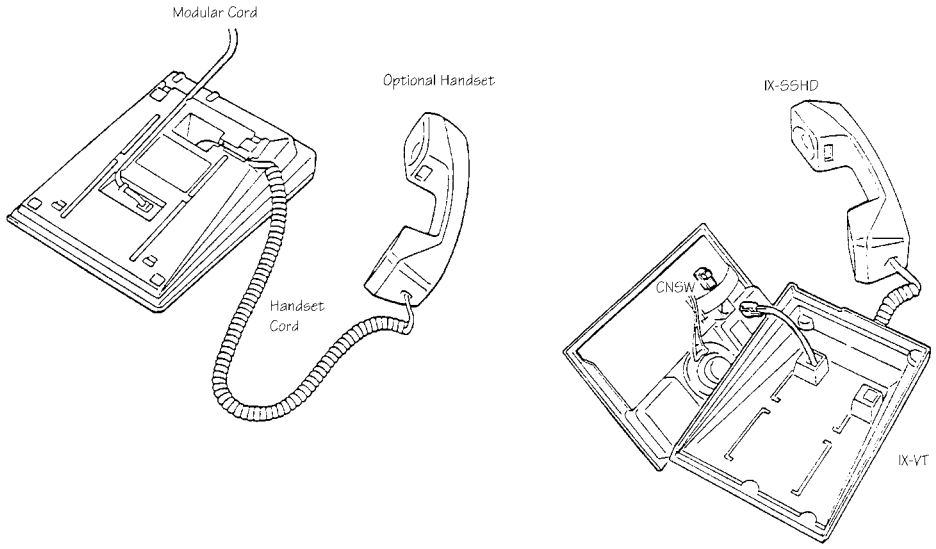


Optional Handset Installation

An optional station noise canceling handset (IX-SNHD) or station amplified handset (IX-SHHD) can be connected to a Versa-Phone.

Installation

1. (IX-SHHD ONLY) Remove the five screws from the bottom housing to open the key telephone. Change the position of strapping jack CNSW from 1-2 to 2-3.
2. Unplug the handset cord from the standard handset and plug it into the optional handset.

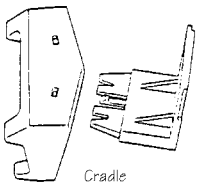


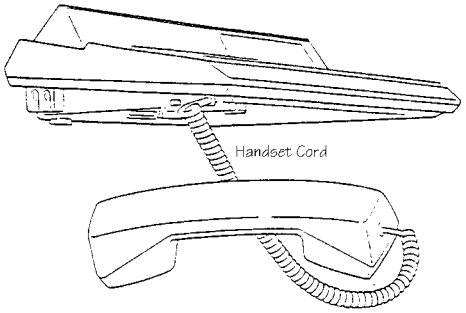
Installing the IX-ATT

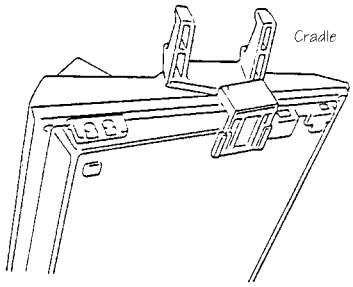
The IX-ATT attendant console provides a PBX-style attendant position for efficient call processing. The attendant console is equipped with 30 DSS keys, 16 programmable feature keys, soft function keys, and a 4-line x 40-character LCD. The ECS can accommodate up to 32 IX-ATTs with a maximum of four DSS units per attendant console. Each IX-ATT requires two consecutive IX-8PSUB ports.

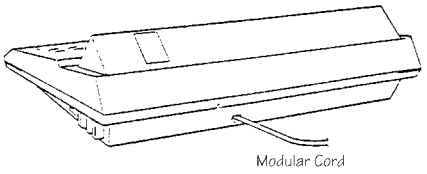
Assembly

1. Assemble the handset cradle for left or right hand operation.
2. Insert the cradle into the slot at the bottom of the IX-ATT.
3. Plug in the handset and modular cord.









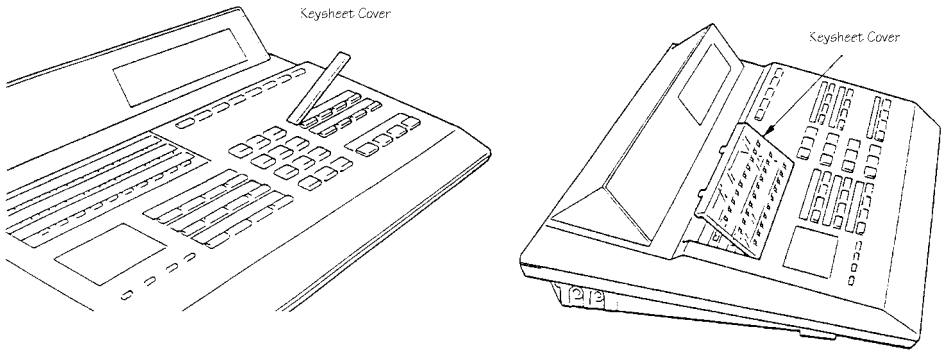
Installation

Connect the IX-ATT as follows:

Jack Pin	Wire Color	Designation	Description
1	Green	1T	Channel
2	Red	1R	1
3	Yellow	2T	Channel
4	Black	2R	2

Labeling

4. Remove the key cover sheets as illustrated below. Use the ECS Keysheet Designer, an itegrated utility with Iwatsu Programmer, to enter data and print on these key labels.



Programming

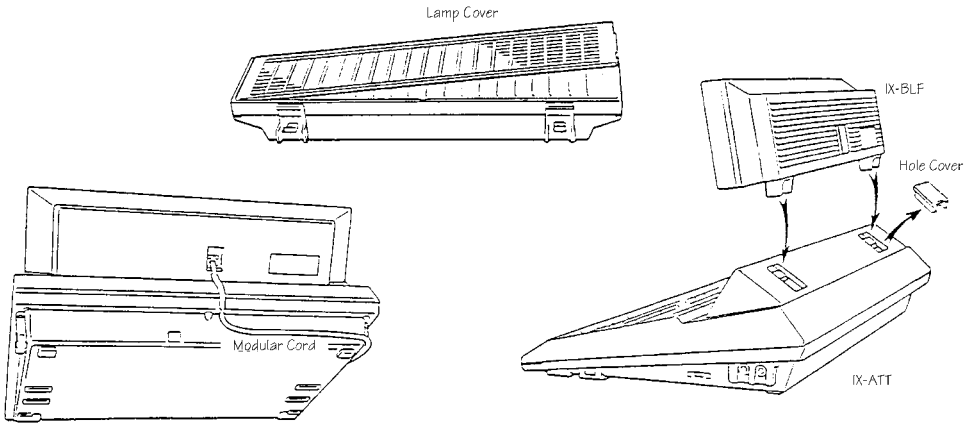
System > Hardware (Physical ports corresponding to Channels 1 and 2, and BLF unit if installed); 10.12 Key Assignment; 15.01 Attendant Key Assignment.

Installing the IX-BLF Busy Lamp Field

The IX-BLF busy lamp field is connected to the IX-ATT. It provides 200 status indicator lamps. The BLF must be defined and configured using the station logical port of the associated attendant console. The BLF pattern must be created under the same pattern number as that used for the associated attendant console.

Assembly

1. Remove the two hole covers at the top of the IX-ATT using a small screwdriver.
2. Mount the BLF unit on top of the IX-ATT by inserting the two BLF tabs into the holes.
3. Plug in the modular cord.



Connection

Connect the IX-ATT/BLF modular cord to an IX8PSUB port as follows:

Jack Pin	Wire Color	Designation	Description
1	Green	DT	Channel
2	Red	DR	3
3	Yellow		
4	Black		

Programming

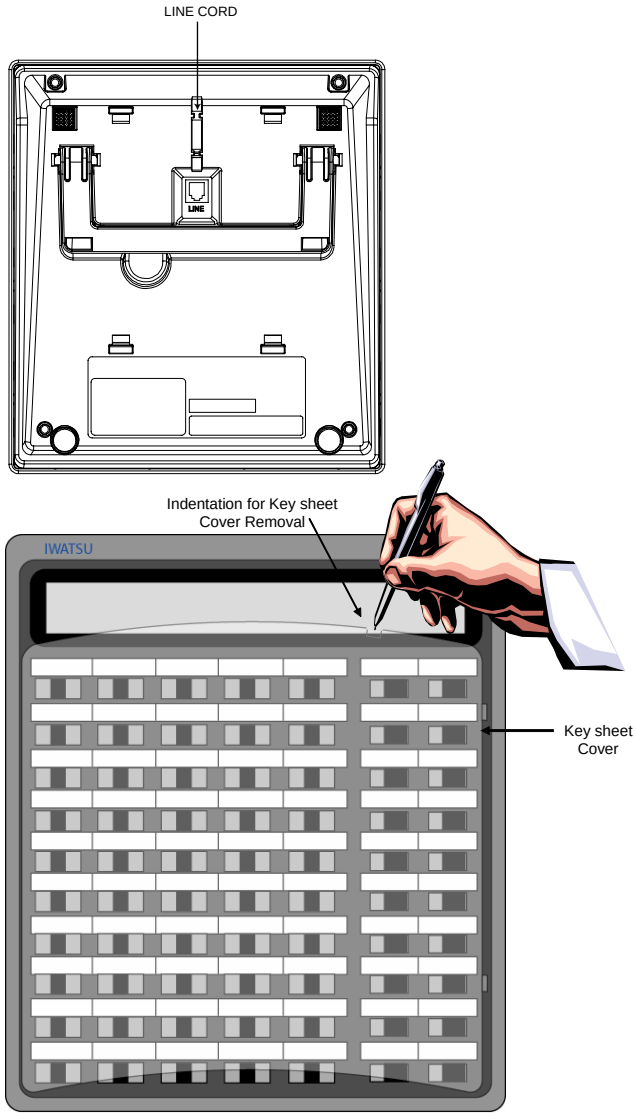
System > Hardware; 16.01 BLF Assignment.

Platinum DSS Direct Station Selection Unit Installation

The Platinum DSS Direct Station Selection Unit combined with a key telephone provides a simplified attendant position. The Platinum DSS has 50 direct station selection keys with indicator LEDs. The Platinum DSS also has an additional 20 programmable feature keys. This DSS unit must be defined and configured using the station logical port of the associated KT. The KT+DSS position must be assigned an attendant key pattern.

Assembly

The Platinum DSS unit is assembled as illustrated below:



Installation

Connect the Platinum DSS unit to the cable from the IX-8PSUB card as listed below:

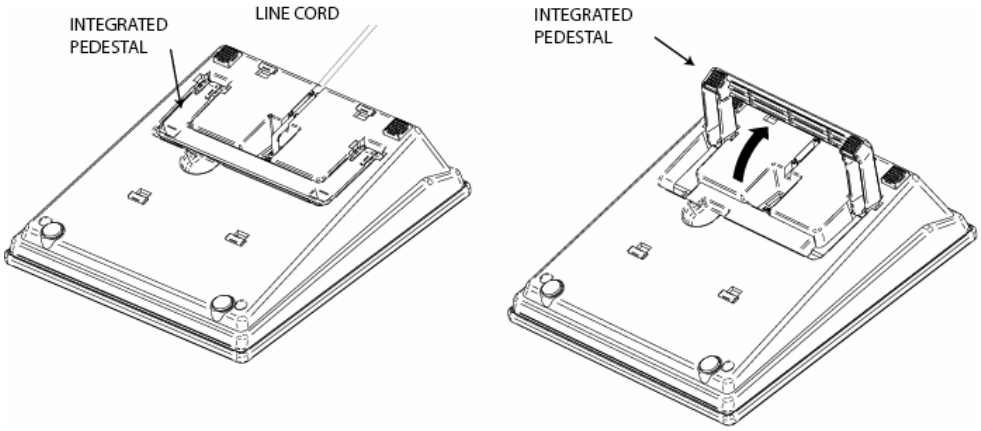
Jack Pin	Wire Color	Designation	Description
1	Green	DT	
2	Red	DR	
3	Yellow		
4	Black		

Programming

System > Hardware; 10.12 Key Assignment; 15.01 Attendant Key Assignment

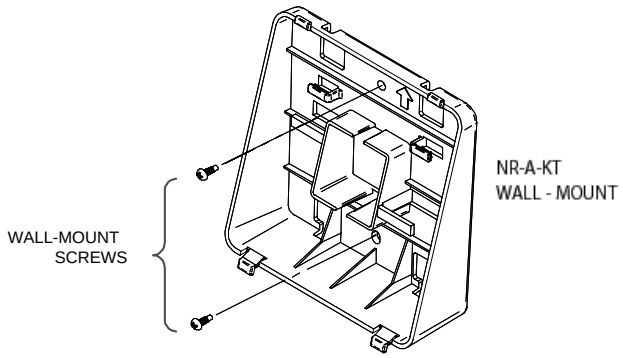
Platinum DSS Integrated Station Pedestal

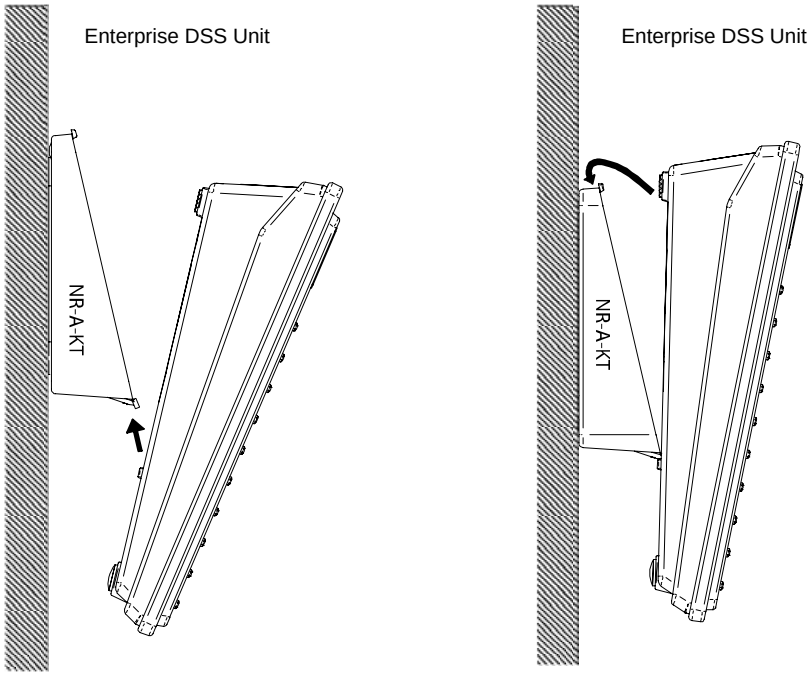
1. Locate the Integrated Station Pedestal on the back of the Platinum DSS.
2. Lift the pedestal to extend.



Wall Mount Bracket (NR-A-KT)

1. Install the NR-A-KT on the wall using the two Phillips head mounting screws.
2. Insert the bottom two tabs on the NR-A-KT bracket into the bottom of the Platinum DSS unit, then insert the two top tabs as shown.



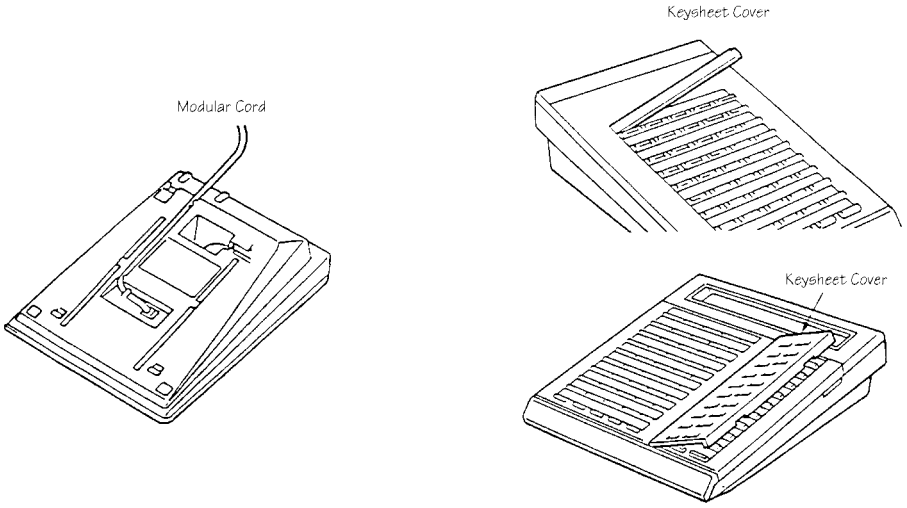


Installing an IX-DSS Unit

The IX-DSS combined with a key telephone provides a simplified attendant position. The IX-DSS-3, IX-DSSA and IX-DSSB have 50 direct station selection keys with indicator LEDs. The IX-DSSA has an additional 20 programmable feature keys. The DSS unit must be defined and configured using the station logical port of the associated KT. The KT+DSS position must be assigned an attendant key pattern.

Assembly

The IX-DSS unit is assembled as illustrated below:



Installation

Connect the DSS unit to the cable from the IX-8PSUB card as listed below:

Jack Pin	Wire Color	Designation	Description
1	Green	DT	
2	Red	DR	
3	Yellow		
4	Black		

Programming

System > Hardware; 10.12 Key Assignment; 15.01 Attendant Key Assignment

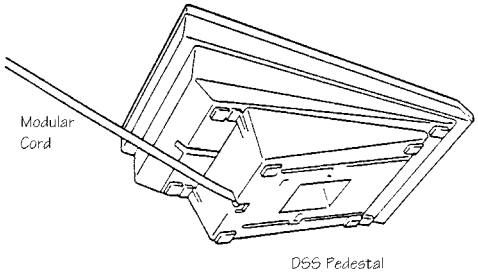
Station Pedestal/Wall Mount Unit (IX-STPD)

Installation - Pedestal

1. Insert the front two tabs into the holes in the DSS base, then insert the two rear tabs.

Installation - Wall mount

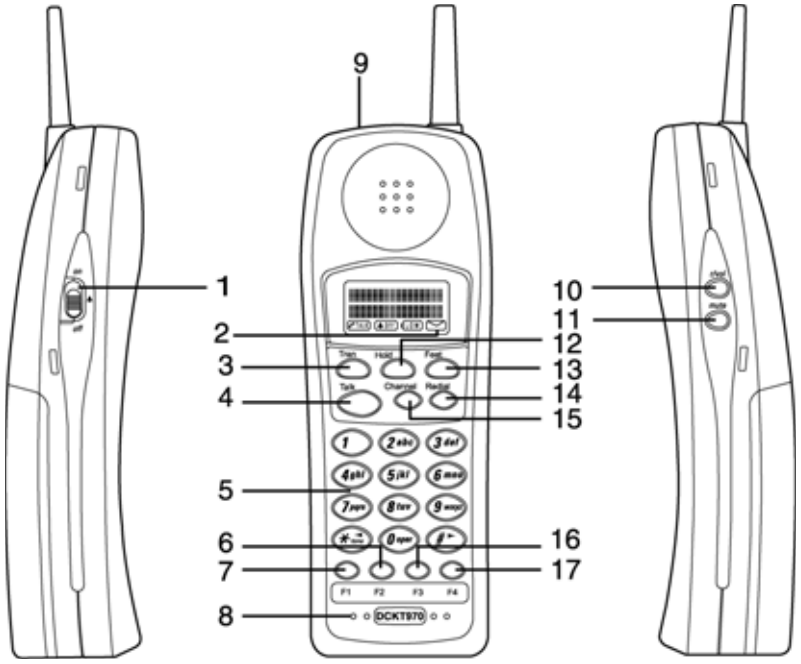
1. Mount the station pedestal (IX-STPD) on the wall using the two screws.
2. Insert the top two tabs on the back of the DSS, then insert the two bottom tabs as shown.



DCKT970 Digital Wireless Key Telephone Installation

This section describes the programming required to install the DCKT970 Digital Wireless Key Telephone. All ECS systems support the DCKT970 Digital Wireless Key Telephone. The DCKT970 Digital Wireless Key Telephone has three programmable feature keys without LEDs and four programmable keys with red LEDs. The functionality of the keys can be changed using **Class 14** for standard key stations and **Class 15** for attendant stations. The DCKT970 Digital Wireless Key Telephone will operate on any ECS digital station port except ports defined as an IX-ATT (Attendant Console) or IX-VT (Versa-Phone).

The DCKT970 Digital Wireless Key Telephone is illustrated below:



1. Ringer ON/OFF switch
2. Message Display
3. Transfer (*Tran*) Key
4. Talk (*Talk*) Key
5. Numeric Keypad
6. Flexible (*F2*) Key
7. Flexible (*F1*) Key
8. Microphone
9. Head Set Jack
10. Volume (*R/Vol*) Key
11. Mute (*Mute*) Key
12. Hold (*Hold*) Key
13. Feature (*Feat*) Key
14. Redial (*Redial*) Key
15. Channel Key
16. Flexible (*F3*) Key
17. Flexible (*F4*) Key

Feature Keys

Six keys, including the [Talk] key, are beneath the display on the DCKT970 Digital Wireless Key Telephone. Each key has a preprinted label that identifies its function. The following explains the DCKT970 key and its corresponding key on the host key telephone.

- The Transfer [Tran] key corresponds with key 25 of the Host Station Port.
- The Hold [Hold] key corresponds with key 28 of the Host Station Port.
- The Feature [Feat] key corresponds with key 26 of the Host Station Port.
- The Redial [Redial] key is a local key and cannot be changed.
- The Channel [Channel] key is a local key and cannot be changed.

Note: Due to labeling constraints, the absence of LEDs and the fixed location of these keys on the Host Telephone, Iwatsu recommends these keys not be changed.

Programmable Keys (F1 - F4) Default Values

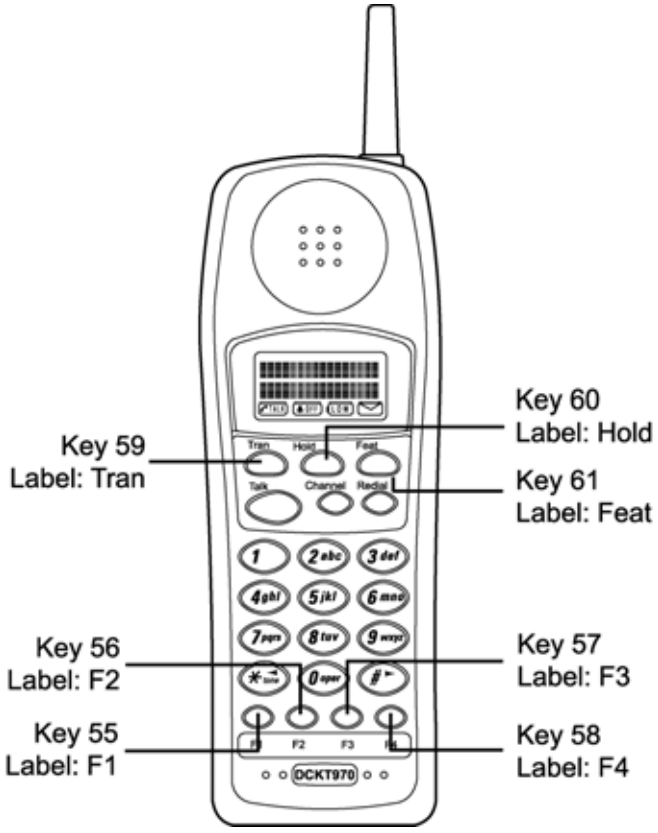
The four keys located below the dial pad (F1 - F4) can be programmed for most of the keys available on the ECS system. Each key has an LED. At default, each key has the following functionality.

- The F1 key corresponds to Key 01 of the Host Telephone.
- The F2 key corresponds to Key 02 of the Host Telephone.
- The F3 key corresponds to Key 03 of the Host Telephone.
- The F4 key corresponds to either Key 33 of an ECS Host Telephone, or Key 133 on an ECS Attendant Key Telephone.

Note: If the Host Telephone is an IX-8KTD / KTS, IX-16KTD / KTS, or IX-24KTD / KTS Key F4 is Intercom (ICM) by default. If, however, the Host Telephone is the IX-12KTD-2 / IX-12KTS-2 or the IX-12-KTD-3 / IX-12-KTS-3, this key is Microphone (MIC) by default. As a result, key 33 in key pattern 4 (Class 14.01) and key 133 in key pattern 132 (Class 15.01) must be changed to ICM when the Host Telephone is an IX-12KTD-2 / IX-12KTS-2 or a IX-12KTD-3 / IX-12KTS-3.

Flexible Key Assignment Using the Wireless Virtual Key

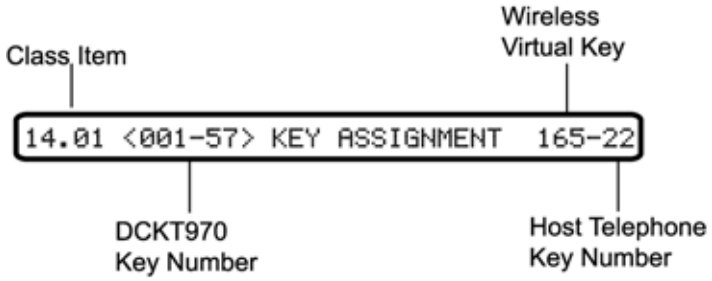
The keys on the DCKT970 Digital Wireless Key Telephone can be associated with any key on the host telephone using a Wireless Virtual Key (Key No. 165) in Class 14.01. Key locations 55 - 61 are reserved for the DCKT970 Digital Wireless Key Telephone as illustrated below.



In order to program a key on the DCKT970 Digital Wireless Key Telephone the desired key number must be entered in the (e2) field. In the (d1) field program a Wireless Virtual key (Key 165). In (d2), enter the number of the key on the host telephone that the DCKT970 Digital Wireless Key Telephone will emulate.

Note: By default, keys 55 – 62 on key patterns 001 and 004 are Wireless Virtual keys.

The following example explains the process of assigning key 22 on the host telephone to key F3 on the DCKT970 Digital Wireless Key Telephone. Programming Class 14.01 through a key telephone is as follows.



Training the DCKT970 Flexible Keys

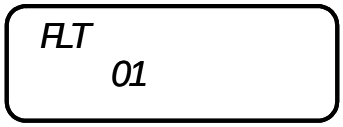
Once the keys on the DCKT970 Digital Wireless Key Telephone are programmed, the wireless key telephone must be trained. The following procedure must be done each time a programming change is made to the DCKT970 Digital Wireless Key Telephone key pattern in Class 14.01 or a change is made to the key pattern in Class 10.12.

To train the DCKT970 Digital Wireless Key Telephone:

1. Press the [CORDLESS] key on the base unit so that the DCKT970 Digital Wireless Key Telephone is active.
2. Simultaneously press and hold [*] and [#].
3. Press [TALK].
4. After the following displays, release all three keys.



5. The display changes to the following.



6. Press [R/VOL] to go to the next key.
7. Continue this procedure for each key.
8. When all keys are trained press [TALK] to end.

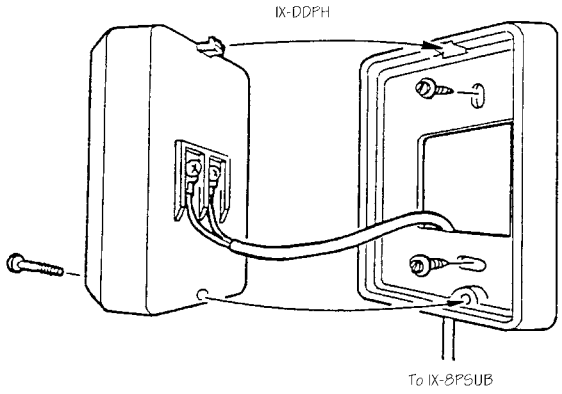
Installing a Doorphone

The IX-DDPH doorphone is connected to the ECS through an IX-8PSUB port in the same manner as a digital station. It provides for hands-free intercom operation to call a designated station or group of stations. An IX-DDPH station must be defined in *Class 01.09*. Doorphone ringing assignment and tone must be defined in *Classes 10.57 and 10.59*.

Connection

The IX-DDPH is connected to the station cable from the IX-8PSUB as follows:

Jack Pin	Wire Color	Designation	Description
1 2	Green Red	T R	
3 4	Yellow Black		



Programming

System > Hardware; 10.57 Doorphone Ringing; 10.59 Doorphone Tone.

IX-COMLINK-2 Installation

Connecting the IX-COMLINK-2 to the Computer

- Connect the DB9 female /DB9 female serial cable (provided with IX-COMLINK-2) from an available serial port on your PC to the connector on the rear panel of IX-COMLINK-2 labeled PC.

Note:	Certain PC models have a DB25 serial connector. These PCs require a DB9/ DB25 converter, which is not provided with IX-COMLINK-2.
Note:	The maximum cable length between the IX-COMLINK-2 and the PC is 10 feet.

- **OPTIONAL PC SOUND CARD CONNECTION:** If the PC is equipped with a sound card, plug the LINE OUT jack on the Sound Card to the LINE IN jack located on the front panel of IX-COMLINK-2. Plug the LINE IN jack on the Sound Card to the LINE OUT jack located on the front panel of IX-COMLINK-2.

Note:	The computer telephony software application must support the operation of the LINE IN /LINE OUT jacks.
Note:	The line impedance of the IX-COMLINK-2 LINE IN and LINE OUT jacks is as follows: LINE IN input impedance = 50 K LINE OUT output impedance = 1K

- **OPTIONAL SPEAKER CONNECTION:** To connect PC speakers, plug the cable from the PC speakers to the LINE OUT jack located on the front panel of the IX-COMLINK-2.

Note:	Only amplified speakers may be connected directly to IX-COMLINK-2.

Connecting the IX-COMLINK-2 to the ECS

1. Connect a digital station port from either an IX-8PSUB-3, IX-16PSUB, IX-408, or IX-044 card to the IX-COMLINK-2 KSU jack.
2. The Power LED on the front panel of the IX-COMLINK-2 lights to indicate IX-COMLINK-2 is active. Confirm that the selected primary communication device is operational.
3. If the primary communication device is not operational, confirm all connections and unplug the line cord connected to the IX-COMLINK-2 KSU connector. Reconnect it.

ECS Database Settings

The following database settings are recommended when using IX-COMLINK-2:

- Class 10.08 — Off-Hook ICM. Set to 1 to allow off-hook ICM.
- Key Pattern (Class 10.12, 14.01, 15.01) — key 25=Speaker, key 26=Transfer, key 27=Feature, key 28=Hold/DND. Also recommended for some applications are ICM, SPEED and ADD.
- Class 10.24 — Enable system speed access. The programming in this item must match the value of the “SwitchDialOnConv” line in the PCKTADPT.INI file.
- Class 10.28 — Enable dial on conversation. The programming in this item must match the value of the “SwtchSystemSpeed=1” line in the PCKTADPT.INI file.
- Class 10.33 — Disable Forced Optimized Routing. This item must be disabled for any port connected to an IX-COMLINK-2. If Class 10.33 is enabled you cannot dial the access codes in Class 10.02 and you will not be able to answer calls or take them off of hold.
- Class 11.02 — Trunk access numbers are used to answer incoming calls and taking calls off of hold. The trunk access number(s) programmed in Class 11.02 must match the value in the “Trunk 1~200” settings in the PCKTADPT.INI file. (Example Trunk 1=101, Trunk 2=102.)
- Class 07.06<NUM63>— The IX-COMLINK-2 uses Optimized Routing for outgoing calls. You must set the access code from Class 07.03<NUM63> in the Windows Dialing Properties box for local calls and long distance calls. To access this window from the control panel click on the telephony icon.

ECS System and Station Feature Limitations

The IX-COMLINK-2 unit and SPI were designed to support most ECS system features. However, some features may not work on certain Computer Telephony Applications.

The following features are not supported when using the IX-COMLINK-2 without an ECS Digital Telephone:

- Receiving page announcements
- ICM Callback
- Call Coverage
- Trunk Queuing
- Timed Trunk Queuing
- Time Reminder
- Wake-up Call

Installing IX-COMLINK-2 SPI Version 1.10

Complete the following steps to install IX-COMLINK SPI Version 1.10.

Note:	Before running the IX-COMLINK SPI Installation program, back-up the TELEPHON.INI file in your c:\windows directory. The installation program modifies this file to accommodate the IX-COMLINK.

1. Disable all programs that utilize TAPI.
2. Insert the IX-COMLINK SPI Version 1.10 Disk into your PC floppy disk drive or CD-ROM drive.
3. Select **Run f**rom the Windows **Start** menu.
4. Type `a:\setup`. (Substitute your correct floppy disk drive letter for a:.) and select **Enter**.
5. The **Setup** screen displays. The COM Port, Baud Rate, Line Name, Phone Name, and Phone Number should meet the following conditions:
   - COM Port. The COM port should correctly match the COM port to which IX-COMLINK-2 is connected.
   - Baud Rate. Use a baud rate of 38400 bps.
   - Line Name. At default, the line name should be IWATSU PC-KT Line Device. This field does not affect operation.
   - Phone Number. At default, the phone number should be (Ext No.). This field does not affect operation.
   - Phone Name. At default, the phone name should be IWATSU PC-KT Line Device. This field does not affect operation.
6. Select **OK** to close the **Setup** window.
7. The installation is complete. A new file, PCKTADPT.INI, has been created in your c:/windows directory. Depending upon the configuration of your ECS system, certain lines in this file will require editing. See the ***Editing the SPI Configuration After Install*** section of this chapter.
8. Remove the IX-COMLINK SPI Version 1.10 Disk from the disk drive.

Editing the SPI Configuration after Install

After completing the installation procedure, the following procedure may be used to confirm or change the configuration.

1. Select **Settings** then **Control Panel** from the Windows Start menu.
2. Double-click the **Telephony** icon and choose the **Telephony Drivers** tab.
3. Select the **Add** button and select the **Iwatsu PC-KT SP** driver.
4. Select the **Setup** button. The COM Port, Baud Rate, Line Name, Phone Name, and Phone Number should meet the following conditions:
   - COM Port. The COM port should correctly match the COM port to which IX-COMLINK-2 is connected.
   - Baud Rate. Use a baud rate between 9600 and 38400.
   - Line Name. At default, the line name should be IWATSU PC-KT Line Device. This field does not affect operation.
   - Phone Number. At default, the phone number should be (Ext No.). This field does not affect operation.
   - Phone Name. At default, the phone name should be IWATSU PC-KT Line Device. This field does not affect operation.
5. Select **OK** then choose **Close** to close the Control Panel.

Editing the PCKTADPT.INI File

After completing the installation procedure, a new file — PCKTADPT.INI — is created in your c:\windows directory. This file contains parameters and instructions for the IX-COMLINK-2. Certain lines in the PCKTADPT.INI file will need editing, depending on how your ECS system is configured. The table below lists each line of the PCKTADPT.INI file and how it affects operation.

All telephony applications must be closed in order to edit the PCKTADPT.INI file. If you are using Windows Dial-Up Networking, you must restart your computer to effect any changes to the file.

Note:	Back-up the PCKTADPT.INI file by copying it to a different directory before making any changes.

PCKTADPT.INI File Contents

The table below lists the contents of the PCKTADPT.INI file.

Item (values in this column are default)	Change Permitted YES/NO	Description
[Pcktadaptor]	NO	File header
Version=1.00.004	NO	Version of SPI driver
Port=COM1	NO	Use Telephony Configuration Window to Change.
Rate=19200	NO	Use Telephony Configuration Window to Change.
Adaptor-KT=1.00	NO	IX-COMLINK-2 ROM Version.
Adaptor-DSS1=	NO	Not supported
Adaptor-DSS2=	NO	Not supported
Adaptor-DSS3=	NO	Not supported
Adaptor-DSS4=	NO	Not supported
RingDevice=Buzzer	Yes	Ringing device without KT Buzzer: a buzzer in IX-COMLINK-2 rings headset: a ringer in headset rings Note that “RingPattern” and “RingFrequency” are ignored if “headset” is selected.
RingPattern=22	Yes	Ringing pattern of the IX-COMLINK-2 buzzer 0 : no ringing 1 : all time ringing 2 : 0.1on/0.1off/0.1on/1.7off 3 : 0.1on/0.1off/0.1on/0.1off/0.1on/1.5off 4 : 0.1on/0.1off/0.1on/0.1off/0.1on/0.1off/0.1on/3.3off 5 : 0.1on/0.1off/0.1on/0.1off/0.1on/0.1off/0.1on/1.3off 6 : 0.2on/3.8off 7 : 0.2on/0.2off/0.2on/1.4off 8 : 0.2on/0.2off/0.2on/0.2off/0.2on/0.2off/0.2on/2.6off 9 : 0.3on/0.1off/0.3on/0.1off/0.3on/2.9off 10 : 0.3on/0.2off 11 : 0.4on/0.2off/0.4on/3off 12 : 0.5on/0.5off 13 : 1.0on/1.0off 14 : 0.3on/0.3off/0.3on/1.1off 15 : 1.2on/2.8off 16 : 0.1on/0.1off/0.1on/0.1off/0.1on/3.5off 17 : 0.2on/0.1off/0.2on/0.1off/0.2on/0.1off/0.2on/2.9off 18 : 0.3on/0.2off/0.3on/0.2off/0.3on/0.2off/0.3on/2.2off 19 : 0.1on/0.1off/0.1on/0.7off/0.1on/0.1off/0.1on/2.7off 20 : 0.2on/0.8off/0.2on/2.8off 21 : 0.5on/3.5off 22 : 1.0on/3.0off 23 : 2.0on/2.0off

RingFrequency=1	Yes	Ringing frequency of the buzzer 0 : 400 Hz 1 : 500 Hz 2 : 667 Hz 3 : 800 Hz 4 : 1000 Hz 5 : 1333 Hz 6 : 1600 Hz 7 : 2000 Hz
RingOnConvDevice=Buzzer	Yes	Ringing device during conversation without KT Buzzer : IX-COMLINK-2 buzzer rings Headset : headset rings Note “RingOnConvPattern” and “RingOnConvFrequency” are ignored if “headset” is selected.
RingOnConvPattern=0	Yes	values are the same as “RingPattern” The buzzer rings even if Protected Station (Class 10.44) is set.
RingOnConvFrequency=1	Yes	values are same as “RingFrequency”
Tone1=	NO	Not supported
Tone2=	NO	Not supported
Tone3=	NO	Not supported
Tone4=	NO	Not supported
Tone5=	NO	Not supported
Tone6=	NO	Not supported
SingleCall=	Yes	0 = Application handles resetting of the call 1 = SPI handles resetting of the call (Set to 1 for ACT!2, Set to 0 for ACT!3)
NullTermination	Yes	0 = SPI does add null character to the end of the Provider Name, Line Name, and Phone Name strings. (Default Setting) 1 = SPI adds null character to the end of the Provider Name, Line Name, and Phone Name strings. In most cases, this should be set to 1.
DialBeforeDialTone	Yes	0 = SPI does not accept digits before dial tone status 1 = SPI does accept digits before dial tone status. In most cases, this should be set to 1 in order to use features such as Transfer and Conference.
DummyStatesOnError=1	NO	
PseudoExternalCallerID=	Yes	1 : for PhoneMax (Must be set to 1 when PhoneMax Is used) : other applications
Switch=IX	NO	It is set automatically.
SwitchName=ADIX	NO	It is set automatically.
ButtonId i=k,l	NO	It is set automatically. “i” is key number. “k” is key function. “l” is key sub-function.
SwitchMessageWait=	NO	Not supported

SwitchSystemSpeed=1	Yes	1 : allow system speed dial : do not allow
SwitchDialOnConv=	Yes	1 : allow dial on conversion : do not allow
SwitchBargeIn=	NO	Not supported
SwitchForward=	NO	Not supported
SwitchDoNotDisturb=	NO	Not supported
SwitchOverrideCall=	NO	Not supported
SwitchFeatDial=1	NO	Not supported
SwitchHotLine=	Yes	1 : Prime line is set : is not set
DialUnhold=	NO	Not Used
DialPickupGroup=	NO	Not Used
DialPickupExt=	NO	Not Used
Terminal=IX-KT	NO	It is set automatically (SW1 at side panel)
Device=Headset	NO	It is set automatically (Jumpers in the adapter)
LineName=IWATSU PC-KT line device	NO	Use Telephony Configuration Window to Change.
LineAddress=(Ext No.)	NO	Use Telephony Configuration Window to Change.
Forward=	NO	It is set automatically
DoNotDisturb=	NO	It is set automatically
PickUpGroup=	NO	It is set automatically
PickUpExt=	NO	It is set automatically
Conference=1	NO	It is set automatically
Hold=1	NO	It is set automatically
Transfer=1	NO	It is set automatically
CampOn=	NO	It is set automatically
CallBack=	NO	It is set automatically
Intrude=	NO	It is set automatically
Message=	NO	It is set automatically
Park=	NO	It is set automatically
GenerateDigitesInternal=1	NO	It is set automatically
GenerateDigitesExternal=1	NO	It is set automatically
NumParkAddress=60	NO	It is set automatically
PhoneName=IWATSU PC-KT phone device	NO	Use Telephony Configuration Window to Change.
Trunk1= ~ Trunk200=	Yes	The trunk access number must be entered manually. This value should match programming in Class 11.02 of the ECS database.

Installing IX-COMLINK

Installation typically requires one hour, but is dependent on the installation time for the application software utilized. (Please consult the manual provided with the application software.)

Before attempting to install IX-COMLINK it is very important that you have a basic understanding of computer hardware and software, as well as an understanding of the ECS system. This manual does not cover the installation of the Computer Telephony application, please consult the manual provided with the software.

Your computer must have the following features to install the IX-COMLINK successfully:

PC Requirements

- Microsoft® Windows® 3.11 or higher.
- 486 or higher Microprocessor.
- Follow Microsoft® recognized RAM requirements. For Windows® 3.11 a minimum of 4MB of RAM (8MB recommended). For Windows® 95 a minimum of 8MB of RAM (16MB recommended). Additional RAM may be required for your Computer Telephony application.
- 3.5 inch floppy disk drive.
- At least 1MB of free hard disk space for IX-COMLINK drivers. Additional hard disk space is required for your Computer Telephony application.
- Color Monitor with at least 480 x 640 Resolution.
- RS232C COM port.

ECS Requirements

- IX-8PSUB-1, IX-408, or IX-044 card digital station port.
- 24 AWG twisted-pair cable to establish the connection between the ECS system and the IX-COMLINK location.

Power Supply Requirements

The IX-COMLINK consumes the same amount of power as an ECS digital telephone. An IX-COMLINK operating with an ECS digital telephone connected, consumes the same amount of power as two ECS digital telephones. The chart below lists the maximum number of IX-COMLINK units and digital telephones the system power supply will support.

System Capacity For ECS

SYSTEM	ECS
Power Supply	IX-PWSE
Expansion Modules	0
Universal Card Slots	6
Number of Ports	1024
Digital Station Ports	624

Note:	The combined number of Station, Trunk, and Misc ports may not exceed the number of ports listed in this category.
Note:	The total number of ECS digital telephones and IX-COMLINK units combined may not exceed the numbers listed in this category.
Note:	This table lists the maximum quantity supported for each component type. The combined total number of ports for each system is limited to the figures listed in the “Number of Ports” category of this table. The capacities listed are based on the total number of card slots available, software restrictions and the power consumption of each component. It is recommended to use the ECS Power Calculator Program to determine the exact power supply required.

Connecting the IX-COMLINK to the Computer

1. Connect the DB9 female /DB9 female serial cable (provided with IX-COMLINK) from an available serial port on your PC to the connector on the rear panel of IX-COMLINK labeled PC. Note: Certain PC models have a DB25 serial connector. These PCs require a DB9/DB25 converter which is not provided with IX-COM-LINK. The maximum cable length between the IX-COMLINK and the PC is 10 feet.
2. **OPTIONAL MODEM CONNECTION:** Plug one end of a telephone line into the PC modem jack labeled LINE or TELCO. Plug the other end of that line into the MODEM connector located on the rear panel of IX-COMLINK.
3. **OPTIONAL PC SOUND CARD CONNECTION:** If the PC is equipped with a sound card, plug the LINE OUT jack on the Sound Card to the LINE IN jack located on the rear panel of IX-COMLINK. Plug the LINE IN jack on the Sound Card to the LINE OUT jack located on the rear panel of IX-COMLINK.

Note:	The computer telephony software application must support the operation of the LINE IN /LINE OUT jacks.
Note:	The line impedance of the IX-COMLINK LINE IN and LINE OUT jacks is as follows: LINE IN input impedance = 50 K LINE OUT output impedance = 1K

1. **OPTIONAL SPEAKER CONNECTION:** To connect PC speakers, plug the cable from the PC speakers to the LINE OUT jack located on the rear panel of the IX-COMLINK.

Note:	Only amplified speakers may be connected directly to IX-COMLINK.

Connecting an ECS Digital Telephone to the IX-COMLINK

1. Connect an ECS Digital Telephone to the KT jack located on the rear panel of IX-COMLINK.

Note: The ECS Digital Telephone must be plugged into the KT jack before connecting the IX-COMLINK to the wall jack or the telephone may not work.

Connecting the IX-COMLINK to the ECS

1. Connect a digital station port from either an IX-8PSUB-3, IX-408, or IX-044 card to the IX-COMLINK KSU jack.
2. The LED on the rear panel of the IX-COMLINK will light to indicate IX-COMLINK is active. Confirm that the selected primary communication device is operational.
3. If the primary communication device is not operational, confirm all connections and unplug the line cord connected to the IX-COMLINK KSU connector, then reconnect it.

Connecting the IX-CTH/C Handset with Cradle and Hookswitch

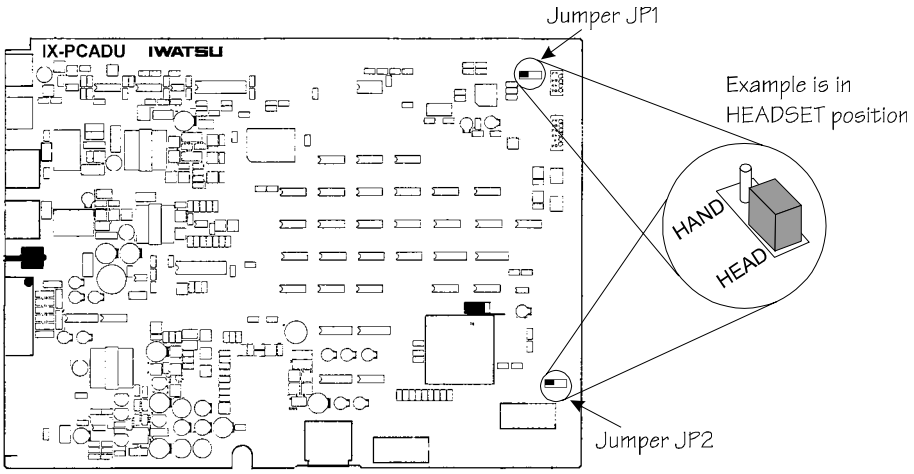
4. Unplug the IX-COMLINK by removing the line cord connected to the KSU connector.
5. Connect the 6 conductor line cord provided with the IX-CTH/C from the bottom of the cradle to the HANDSET jack located on the front panel of IX-COMLINK. By default, the IX-COMLINK is configured with the HANDSET connector enabled. Important: Jumper JP1 and JP2 must be in the HAND position (factory setting) in order for the IX-CTH/C to operate.
6. Replace the line cord for the KSU connector removed in step 1.

Note: The HANDSET and HEADSET connectors cannot be used simultaneously.

Connecting a Headset

1. If you are connecting a headset to the HEADSET jack you must first enable the HEADSET jack. This is done by changing Jumpers JP1 and JP2 to the HEAD position. By default, IX-COMLINK is configured with the HANDSET connector enabled and the HEADSET connector disabled.
2. Unplug the IX-COMLINK by removing the line cord connected to the KSU connector.
3. Unscrew the four screws on the base of the IX-COMLINK. Remove the top of IX-COMLINK.

4. Locate Jumper JP1 and Jumper JP2 on the circuit board. Change **both** of these jumpers to the HEAD position as illustrated below:



5. Replace the IX-COMLINK top cover and the four screws removed in step 3.
6. Connect the headset to the HEADSET jack located on the front panel of IX-COMLINK.
7. Replace the line cord for the KSU connector removed in step 2.

Note: The HANDSET and HEADSET connectors cannot be used simultaneously.

ECS Database Settings

The following program is recommended when using IX-COMLINK:

- Class 10.08 — Off-Hook ICM. Set to 1 to allow off-hook ICM.
- Key Pattern (Class 10.12, 14.01, 15.01) — key 25=Speaker, key 26=Transfer, key 27=Feature, key 28=Hold/DND. Also recommended for some applications are ICM, SPEED and ADD.

Note: The IX-COMLINK does not support the use of the HEADSET key. If a headset is required, it must be connected to the HEADSET connector and used without a KT.

- Class 10.24 — Enable system speed access. The programming in this item must match the value of the “SwitchDialOnConv” line in the PCKTADPT.INI file.
- Class 10.28 — Enable dial on conversation. The programming in this item must match the value of the “SwtchSystemSpeed=1” line in the PCKTADPT.INI file.
- Class 10.33 — Disable Forced Optimized Routing. This item must be disabled for any port connected to an IX-COMLINK. The IX-COMLINK utilizes the access codes programmed in Class 11.02 to access the CO trunks in the ECS system and Class 10.33 disables the access codes. IX-COMLINK does not support optimized routing.
- Class 11.02 — Trunk access numbers for outgoing calls. The trunk access number(s) programmed in Class 11.02 must match the value in the “Trunk 1~200” lines in the PCKTADPT.INI file. (Example Trunk 1=101, Trunk 1=102.)

ECS System and Station Feature Limitations.

The IX-COMLINK unit and SPI were designed to support most ECS system features. However, some features are not available. Consult the lists below and the Computer Telephony Application Compatibility Chart at the end of this bulletin for information on the features compatible with IX-COMLINK. The computer telephony application may provide a solution for features not supported by IX-COMLINK.

The following features are not supported by IX-COMLINK:

- The HEADSET key feature in Class 14 and Class15. If a headset is required, it must be connected to the HEADSET connector and used without a KT.
- The ACD system features. The IX-COMLINK cannot be used to handle calls as an ACD Agent.

The following features are not supported when using the IX-COMLINK without an ECS Digital Telephone:

- Receiving page announcements
- ICM Callback
- Call Coverage
- Trunk Queuing
- Timed Trunk Queuing
- Time Reminder
- Wake-up Call

Running the Installation Program

Once your IX-COMLINK is connected, you need to run the Installation program to load the necessary driver files.

Note: Before running the IX-COMLINK SPI Installation program, back-up the TELEPHON.INI file in your c:\windows directory. The installation program modifies this file to accommodate the IX-COMLINK.

1. Insert the Installation Disk in your PC floppy disk drive.
2. From the Start Menu, choose Run.
3. Type a:\setup. (Substitute your correct floppy disk drive letter for a:.)
4. The Setup Screen will be displayed. Make sure that the COM Port, Baud Rate, Line Name, Phone Name, and Phone Number are correct according to the following conditions:
   - COM Port. Make sure the COM port correctly matches the COM port to which IX-COMLINK is connected.
   - Baud Rate. Use a baud rate between 9600 and 38400.
   - Line Name. At default the line name will be IWATSU PC-KT Line Device. This field will not affect operation.

- Phone Number. At default the phone number will be (Ext No.). This field will not affect operation.
- Phone Name. At default the phone name will be IWATSU PC-KT Line Device. This field will not affect operation.

5. Click OK to close the Setup window.
6. The installation is now complete.
7. Remove the IX-COMLINK SPI Installation Disk from the disk drive.

Editing the SPI Configuration after Install

After completing the installation procedure, the following procedure may be used to confirm or change the configuration.

1. From the Start Menu choose Settings then Control Panel.
2. Double click the Telephony icon and choose the Telephony Drivers tab.
3. Click the Add button and select “Iwatsu PC-KT SP” as the driver.
4. Click the Setup button. Make sure that the COM Port, Baud rate, Line Name, Phone Name and Phone Number are correct according to the following conditions:
   - COM Port. Make sure the COM port correctly matches the COM port to which IX-COMLINK is connected.
   - Baud Rate. Use a baud rate between 9600 and 38400.
   - Line Name. At default, the line name will be IWATSU PC-KT Line Device. This field will not affect operation.
   - Phone Number. At default the phone number will be (Ext No.). This field will not affect operation.
   - Phone Name. At default the phone name will be IWATSU PC-KT Line Device. This field will not affect operation.
   - Click OK then select Close to close the Control Panel.

Editing the PCKTADPT.INI File

After completing the installation procedure, a new file — PCKTADPT.INI — is created in your c:\windows directory. This file contains parameters and instructions for the IX-COMLINK. Certain lines in the PCKTADPT.INI file may need editing depending on how your ECS system is configured. The table below lists each line of the PCKTADPT.INI file and how it affects operation.

All telephony applications must be closed in order to edit the PCKTADPT.INI file. If you are using Windows Dial-Up Networking, you must restart your computer to effect any changes to the file.

Note:	Back-up the PCKTADPT.INI file by copying it to a different directory before making any changes.

PCKTADPT.INI File Contents

The table below lists the contents of the PCKTADPT.INI file.

Item (values in this column are default)	Change Permitted YES/NO	Description
[Pckt adaptor]	NO	File header
Version=1.00.004	NO	Version of SPI driver
Port=COM1	NO	Use Telephony Configuration Window to Change.
Rate=19200	NO	Use Telephony Configuration Window to Change.
Adaptor-KT=1.00	NO	IX-COMLINK ROM Version.
Adaptor-DSS1=	NO	Not supported
Adaptor-DSS2=	NO	Not supported
Adaptor-DSS3=	NO	Not supported
Adaptor-DSS4=	NO	Not supported
RingDevice=Buzzer	Yes	Ringing device without KT Buzzer: a buzzer in IX-COMLINK rings headset: a ringer in headset rings Note that “RingPattern” and “RingFrequency” are ignored if “headset” is selected.
RingPattern=22	Yes	Ringing pattern of the IX-COMLINK buzzer 0 : no ringing 1 : all time ringing 2 : 0.1on/0.1off/0.1on/1.7off 3 : 0.1on/0.1off/0.1on/0.1off/0.1on/1.5off 4 : 0.1on/0.1off/0.1on/0.1off/0.1on/0.1off/0.1on/3.3off 5 : 0.1on/0.1off/0.1on/0.1off/0.1on/0.1off/0.1on/1.3off 6 : 0.2on/3.8off 7 : 0.2on/0.2off/0.2on/1.4off 8 : 0.2on/0.2off/0.2on/0.2off/0.2on/0.2off/0.2on/2.6off 9 : 0.3on/0.1off/0.3on/0.1off/0.3on/2.9off 10 : 0.3on/0.2off 11 : 0.4on/0.2off/0.4on/3off 12 : 0.5on/0.5off 13 : 1.0on/1.0off 14 : 0.3on/0.3off/0.3on/1.1off 15 : 1.2on/2.8off 16 : 0.1on/0.1off/0.1on/0.1off/0.1on/3.5off 17 : 0.2on/0.1off/0.2on/0.1off/0.2on/0.1off/0.2on/2.9off 18 : 0.3on/0.2off/0.3on/0.2off/0.3on/0.2off/0.3on/2.2off 19 : 0.1on/0.1off/0.1on/0.7off/0.1on/0.1off/0.1on/2.7off 20 : 0.2on/0.8off/0.2on/2.8off 21 : 0.5on/3.5off 22 : 1.0on/3.0off 23 : 2.0on/2.0off

RingOnConvDevice=Buzzer	Yes	Ringing device during conversation without KT Buzzer: IX-COMLINK buzzer rings Headset: headset rings Note “RingOnConvPattern” and “RingOnConvFrequency” are ignored if “headset” is selected.
RingOnConvPattern=0	Yes	values are the same as “RingPattern” The buzzer rings even if Protected Station (Class 10.44) is set.
RingOnConvFrequency=1	Yes	values are same as “RingFrequency”
Tone1=	NO	Not supported
Tone2=	NO	Not supported
Tone3=	NO	Not supported
Tone4=	NO	Not supported

Tone5=	NO	Not supported
Tone6=	NO	Not supported
SingleCall=	Yes	0 = Application handles resetting of the call 1 = SPI handles resetting of the call (Set to 1 for ACT!2, Set to 0 for ACT!3)
NullTermination	Yes	0 = SPI does add null character to the end of the Provider Name, Line Name, and Phone Name strings. (Default Setting) 1 = SPI adds null character to the end of the Provider Name, Line Name, and Phone Name strings. In most cases, this should be set to 1.
DialBeforeDialTone	Yes	0 = SPI will not accept digits before dial tone status 1 = SPI will accept digits before dial tone status. In most cases, this should be set to 1 in order to use features such as Transfer and Conference.
DummyStatesOnError=1	NO	
PseudoExternalCallerID=	Yes	1 : for PhoneMax (Must be set to 1 when PhoneMax Is used) : other applications
Switch=IX	NO	It is set automatically.
SwitchName=ADIX	NO	It is set automatically.
ButtonId i=k,l	NO	It is set automatically. “i” is key number. “k” is key function. “l” is key sub-function.
SwitchMessageWait=	NO	Not supported
SwitchSystemSpeed=1	Yes	1 : allow system speed dial : do not allow
SwitchDialOnConv=	Yes	1 : allow dial on conversion : do not allow
SwitchBargeIn=	NO	Not supported
SwitchForward=	NO	Not supported
SwitchDoNotDisturb=	NO	Not supported

SwitchOverrideCall=	NO	Not supported
SwitchFeatDial=1	NO	Not supported
SwitchHotLine=	Yes	1 : Prime line is set : is not set
DialUnhold=	NO	Not Used
DialPickupGroup=	NO	Not Used
DialPickupExt=	NO	Not Used
Terminal=IX-KT	NO	It is set automatically (SW1 at side panel)
Device=Headset	NO	It is set automatically (Jumpers in the adapter)
LineName=IWATSU PC-KT line device	NO	Use Telephony Configuration Window to Change.
LineAddress=(Ext No.)	NO	Use Telephony Configuration Window to Change.
Forward=	NO	It is set automatically
DoNotDisturb=	NO	It is set automatically
PickUpGroup=	NO	It is set automatically
PickUpExt=	NO	It is set automatically
Conference=1	NO	It is set automatically
Hold=1	NO	It is set automatically
Transfer=1	NO	It is set automatically
CampOn=	NO	It is set automatically
CallBack=	NO	It is set automatically
Intrude=	NO	It is set automatically
Message=	NO	It is set automatically
Park=	NO	It is set automatically
GenerateDigitesInternal=1	NO	It is set automatically
GenerateDigitesExternal=1	NO	It is set automatically
NumParkAddress=60	NO	It is set automatically
PhoneName=IWATSU PC-KT phone device	NO	Use Telephony Configuration Window to Change.
Trunk1= ~ Trunk200=	Yes	The trunk access number must be entered manually. This value should match programming in Class 11.02 of the ADIX database.

IX-NICLINK Card Installation

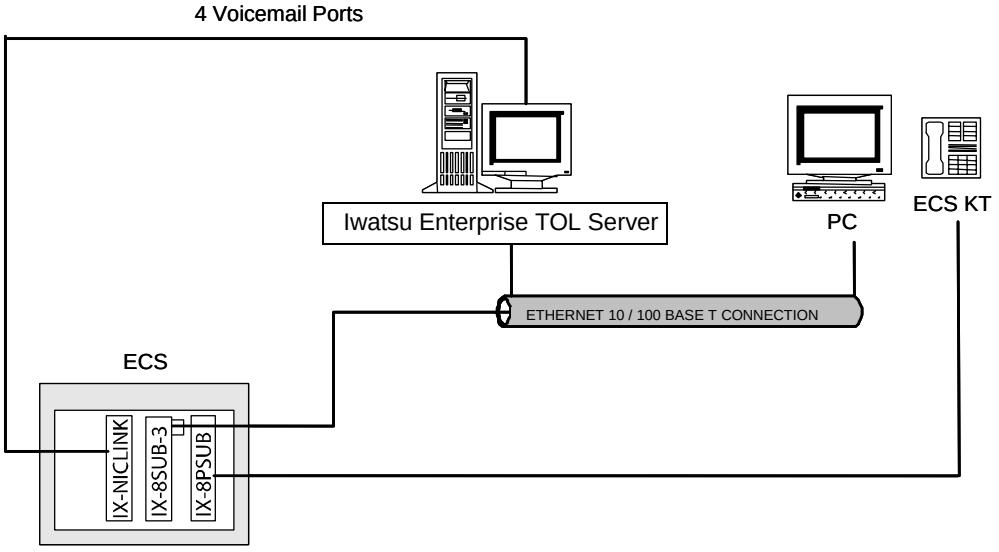
Note: By default, ECS Software Version 1.5 and higher programs Miscellaneous Logical Port number 4 as the CSTA port for the LAN1 and LAN2 Ethernet ports. If an IX-NICLINK card is installed in the system, Miscellaneous Logical Port number 4 must be deleted prior to IX-NICLINK card installation.

Installation Overview

An Iwatsu Enterprise TOL Server, connected to an ECS Lan-LinX Plus-Ethernet system card, is set up by inserting an IX-NICLINK card to into any universal card slot in an ECS system. The IX-NICLINK card then connects to the LAN via an Ethernet connection. The LAN is networked to individual client PCs. Key telephones are always connected to a digital station card (IX-8PSUB-1, IX-16PSUB, IX-408 or IX-044) in the ECS.

Note: TOL systems that deploy CSTA integration to the ECS via the IX-HCIF card or IX-NICLINK card must be restarted if the CSTA link with the ECS is lost in order to re-establish the CSTA link.

Below is an example of a working ECS Lan-LinX Plus-Ethernet system using an IX-NICLINK card.



Note: The above diagram illustrates the ECS system interfacing with the Iwatsu Enterprise TOL Server through the IX-NICLINK card using an Ethernet connection. The IX-8SUBS-3 interfaces the voicemail ports with the Iwatsu Enterprise TOL Server. The diagram also illustrates the connection of an ECS Digital Key Telephone to the ECS through the use of an IX-8PSUB card.

IX-NICLINK Card Configuration

Before setting SW1 on the IX-NICLINK, determine the speed that will be used for your connection. Ethernet transmits data at speeds of 10 and 100 million bits per second (Mbps). 100-Mbps transmission results in a speed ten times faster than that of 10 Mbps transmission. After the speed is decided, determine whether half-duplex or full-duplex switching will be used.

When half-duplex Ethernet is implemented, the TX circuit is always active at the transmitting station. When another station is transmitting, the station's RX circuit is always active.

Full-duplex Ethernet provides a connection wired directly to the receiver circuit at the other end of the connection. This two station connected environment creates a collision-free situation on the circuit.

You must meet the following requirements to use full-duplex transmission:

- Both end stations have full 10 Mbps or 100 Mbps data paths.
- Full-duplex Ethernet controllers are available.
- Loop-back and collision detection is disabled.
- Software drivers support two simultaneous data paths.
- Ethernet distance constraint for 10/100 Base T is 100 meters.

After making these decisions, set SW1 using the following table. Iwatsu Voice Networks recommends setting all switches to OFF (Automatic Negotiation).

1	2	3	4	Operation
OFF	Not Used	Not Used	Not Used	Automatic Negotiation (by default)
ON	OFF	OFF	Not Used	10 Mbps Half-duplex
ON	OFF	ON	Not Used	10 Mbps Full-duplex
ON	ON	OFF	Not Used	100 Mbps Half-duplex
ON	ON	ON	Not Used	100 Mbps Full-duplex

Note: In order to change a switch setting, you must remove the card, reinstall it or power down the ECS and power it back up again.

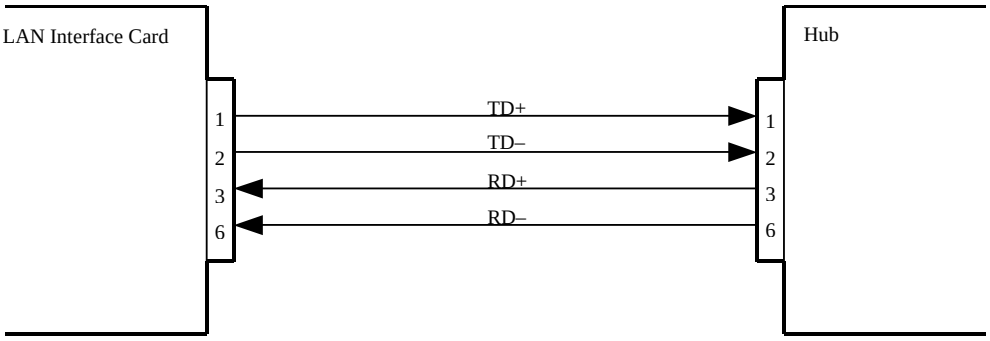
Installation Initialization

When installing this card for the first time, follow the procedure below. Initialization is completed while the ECS system’s power is ON. The following is an overview of what must be done to complete the installation.

1. Set up an IP address and a subnet mask by configuring the user data of the ECS system.
2. Select the ON position on the Make-Busy switch.
3. Insert the card into a universal card slot.
4. When the Make-Busy LED flashes, select the OFF position on the Make-Busy switch.
5. When the Make-Busy LED goes out, the card is ready for use.

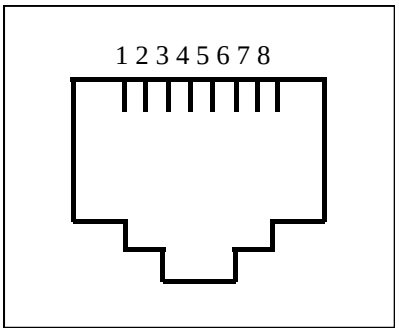
Installation Instructions

1. Connect the IX-NICLINK Card and the hub.
   - Use a Cat 5, twisted-pair cable to connect the IX-NICLINK card and hub.



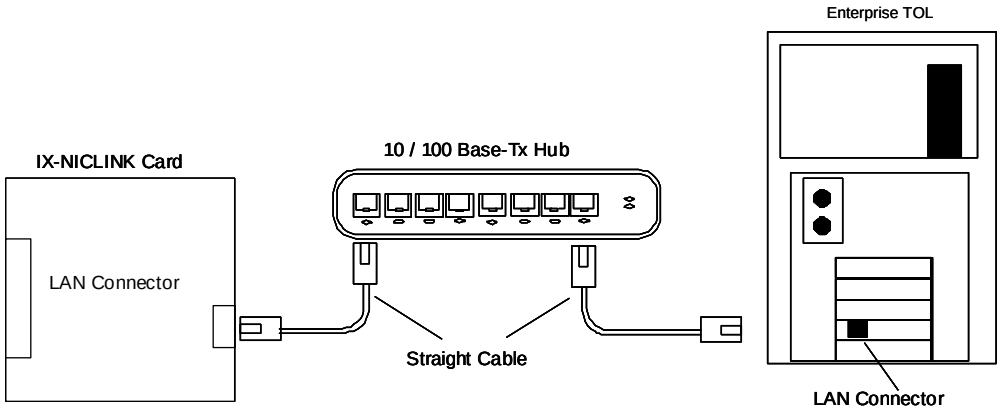
   - The LAN connector is an eight-conductor modular plug called an RJ-45.

Pin Number	Signal
1	TD+
2	TD-
3	RD+
4	Not Used
5	Not Used
6	RD-
7	Not Used
8	Not Used



   - To connect the IX-NICLINK card with a 10Base T/100Base-T hub, use a Cat 5 straight cable. Cables for LAN connections are not included.

1. Connect the hub to the ECS TOL 2000 Server.
   - Use a Cat 5 twisted-pair cable to connect a hub and a Iwatsu Enterprise TOL Server.



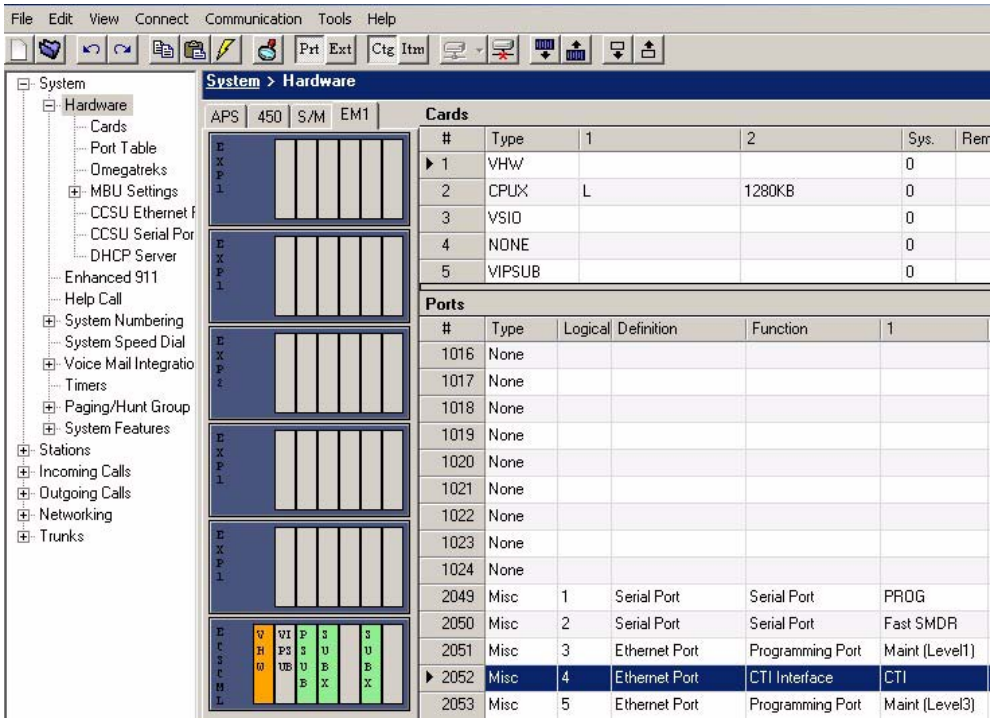
Note: Refer to the server owner's manual when connecting the server to a LAN.

Initializing the IX-NICLINK Card

1. The initialization process needs to be performed when the IX-NICLINK card is present in the ECS system at default.
2. Set up an IP address and a subnet mask by configuring the user data of the ECS system.
3. Select the ON position on the Make-Busy switch.
4. When the Make-Busy LED flashes, remove the IX-NICLINK card from the slot.
5. Without changing the position of the Make-Busy switch, put the IX-NICLINK card back in the slot.
6. When the Make-Busy LED flashes, select the OFF position on the Make-Busy switch.
7. When the Make-Busy LED goes out, the card is ready for use.

IX-NICLINK Card Installation with ECS Software Version 1.5

By default, ECS Software Version 1.5 programs Miscellaneous Logical Port number 4 as the CSTA port for the LAN1 and LAN2 Ethernet ports. Since system software does not allow multiple CSTA ports, Miscellaneous Logical Port number 4 must be deleted prior to IX-NICLINK card installation.

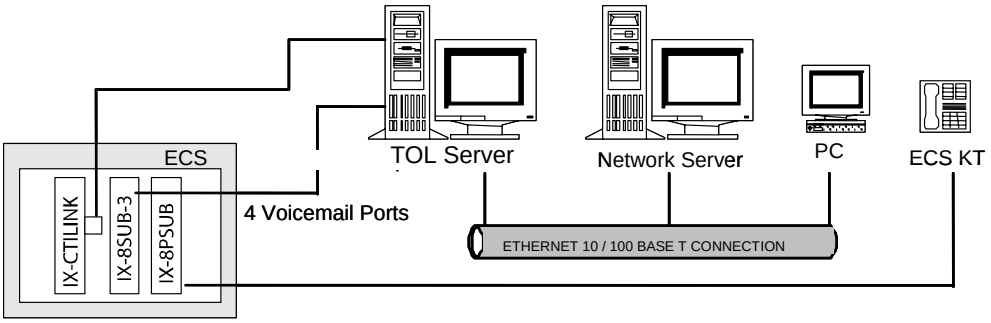


IX-CTILINK Card Installation

Installation Overview

An Iwatsu Enterprise TOL Server, connected to an ECS Lan-LinX Plus-Serial system card, is set up by inserting the IX-CTILINK card into any universal card slot in an ECS system. The card then connects via an RSC32C serial cable to the ECS TOL 2000 Server. The server then connects individual client's PC's via the LAN. Key telephones are always connected to a digital station card (IX-8PSUB-3, IX-16PSUB, IX-408 or IX-044) in the ECS.

An ECS Lan-LinX Plus-Serial system using an IX-CTILINK card is shown below:

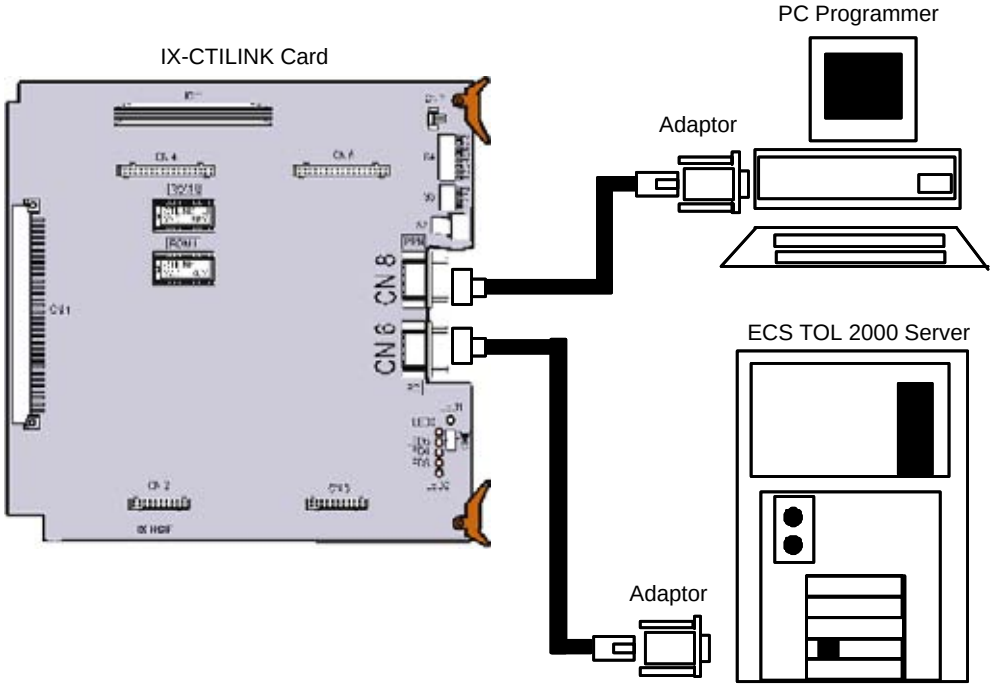


Note: The connections in both systems use the IX-8SUBS-3 card. This connection is maintained for use with the voice mail system. Currently, the IX-8SUBS-3 card handles voice mail functions for both setups.

The above diagram illustrates the ECS system interfacing with the Iwatsu Enterprise TOL Server through the IX-CTILINK card using a serial connection. The IX-8SUBS-3 interfaces the voicemail ports with the Iwatsu Enterprise TOL Server. The diagram also illustrates the connection of an ECS Digital Key Telephone to the ECS through the use of an IX-8PSUB card.

Installing the IX-CTILINK Card

1. Set the switches on the IX-CTILINK card as indicated in the Switch Settings for the IX-CTILINK Card section of this document.
2. Install the IX-CTILINK card into an unused common module or expansion module card slot.
3. Connect a serial cable to the connector marked PC on the IX-CTILINK.
4. Connect the other end of the cable to the COM1 port on the Iwatsu Enterprise TOL Server. If necessary, use an extension cable or loop extender.
5. Connect the terminal components as illustrated below.



Initializing the IX-CTILINK Card

1. Unplug the connecting cable from the connector on the PC on the IX-CTILINK card.
2. Make sure that SW4 is set properly. See Switch Settings for the IX-CTILINK Card in this document for more details.
3. Move SW1s to the Make Busy position.
4. Move SW4, Position 8 to the ON position.
5. Move the SW1 Make Busy switch to OFF.
6. Make sure that LED2, LED3, LED4, LED5, and LED6 are OFF.
7. Turn SW4, Position 8 to the OFF position.

Installing Single-Line Telephones

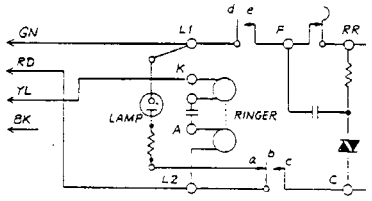
Both Dial Pulse (DP) and Dual Tone Multi-frequency (DTMF) Single-Line Telephones (SLTs) can operate many of the ECS features. Some internal rewiring is required for SLTs with message lamps. The following hardware is required depending on the type of SLT being installed:

Type of SLT	Hardware Required
500-Type, on premises	IX-8SUBS-3, IX-RNGUM
2500-Type, on premises	IX-8SUBS-3, IX-RNGUM, (IX-4RCVS if IX-8SUBS -3 is used)
500-Type with message lamp, on premises	IX-8SUBM-3, IX-DCDCM or external power source, IX-RNGUM
2500-Type with message lamp, on premises	IX-8SUBM-3, IX-DCDCM or external power source, IX-RNGUM, (IX-4RCVS if IX-8SUBM is used)
500-Type, off premises	IX-4SUBL, IX-DCDCM, IX-RNGUM
2500-Type, off premises	IX-4SUBL, IX-4RCVS, IX-DCDCM, IX-RNGUM

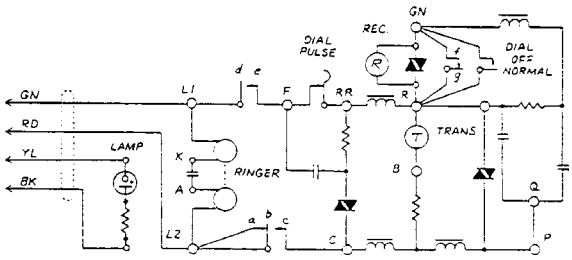
Installation - (SLT with Message Lamp Only)

- The IX-8SUBM-3 supports both one-pair and two-pair wire connection of SLTs with message lamps.
- The IX-8SUBM requires two cable pairs: one pair for tip and ring, and one pair for the message lamp. Rewiring on the SLT varies depending on the manufacturer and model.
- Most SLTs have the message lamp connected across the tip and ring lines while on-hook.
- Remove the two lamp leads, including the resistor, and connect it to the second pair of modular cords (black and yellow).

Jack Pin	Wire Color	Designation	Description
1	Green	T	
2	Red	R	
3	Yellow	L1	
4	Black	L2	



Standard Wiring



After Rewiring

Chapter 11

IP Station Installation

Introduction

This section of the ECS Installation Guide includes the required information for a successful installation of ECS IP Stations.

The ECS system supports the Iwatsu ICON Series, Platinum Series, IX-12IPKTD/-E2, IX-12IPKTD-E, and IX-6IPKTD-E IP telephones.

As mentioned in Section 4, the Component Description section of this manual, the ECS system considers the IX-12IPKTD/-E2 telephone and related IX-8IPSUB station cards as TDM resources.

The Iwatsu ICON Series, Platinum Series, IX-12IPKTD-E, and the IX-6IPKTD-E are recognized as an IP device because they can communicate peer-to-peer over the LAN with other Iwatsu ICON Series, Platinum Series, IX-12IPKTD-E, and IX-6IPKTD-E IP Telephones.

The ECS system also supports the use of Windows Messenger as a station. The Windows Messenger uses the Session Initiated Protocol (SIP) to setup and teardown of all calls. The ECS IX-CCU/CCSU has an integrated SIP server that is used for this purpose. Once configured, any station can call a Windows Messenger agent.

Before installing, you must be aware that improper installation and/or configuration of the IX-8IPSUB/IX-8EIPSUB and the IX-12IPKTD-E2 IP Telephone, as well as, IX-MBU cards and Iwatsu ICON Series, Platinum Series, IX-12IPKTD-E, and IX-6IPKTD-E IP Telephones may result in the temporary and/or permanent removal of the customer's network (LAN, WAN or otherwise) from service. To ensure this does not happen, Iwatsu Voice Networks suggests installers work closely with the network administrators.

For more information on **IP Stations**, refer to **Chapter 8, Section 4-Component Descriptions** in this technical manual.

Important Information Regarding E911 Features

WARNING: The Iwatsu ICON Series, Platinum Series, IX-12IPKTD/-E2, IX-12IPKTD-E, and IX-6IPKTD-E IP telephones use Voice-over-Internet-Protocol (VoIP) technology, which does not support Enhanced 911 operation. A user may be able to dial 911 and talk to the 911 operator. However, an improper Automatic Location Identification (ALI) information may be displayed at the 911 operator position, thereby dispatching the emergency response personnel to the wrong location.

Enhanced 911 provides for location information of the 911 caller based upon the emergency Response Location (ERL) of the caller. Each ERL is identified by an ELIN – Emergency Location Identification Number that is transported to the 911 operator at the Public Safety Answering Point (PSAP), the ELIN being used to access the Automatic Location Identification (ALI) information of the caller. This information contains the location as well as the callback number.

Two precautions must be observed when using the Iwatsu IP telephones:

1. For systems with more than one ERL, an Iwatsu IP telephones installed at the main location should not be moved from one LAN connection to a different location connection on the system. This may mean that the Station Emergency Response Location (ERL) may change, using a different ELIN – Emergency Location Identification Number. The caller will send the ELIN for the location (ERL) that the station was originally assigned to. Therefore, this may result in emergency response personnel being dispatched to a location that the station was originally assigned to rather than the location the caller is at if the 911 caller cannot communicate the location the call was made from.

   FOR SYSTEMS THAT CONTAIN MORE THAN ONE ERL, THE END USER SHOULD BE NOTIFIED AND ADVISED THAT THE (CCC) STATION SHOULD NOT BE MOVED ABOUT THE SYSTEM. THIS ISSUE MUST BE INCLUDED IN ALL TRAINING OF SYSTEM OPERATION PROVIDED TO THE END USER. SPECIFIC INSTRUCTIONS, IN THE FORM OF CARDS OR LABELS, SHOULD BE PROVIDED TO THE END USER ADVISING THEM OF THIS.
2. For any Iwatsu IP telephone installed at a remote location and for 911 calls connected through the main system, the wrong ELIN will be sent as the system if the system is not properly configured to send an ELIN for the ERL of the station. Emergency personnel would be dispatched to the wrong location. This would occur if the remote station user moves from location to location. The system cannot identify **the remote physical location the call was made from.**

THE END USER SHOULD BE NOTIFIED AND ADVISED THAT ALTERNATIVE MEANS FOR CALLING 911 SHOULD BE PROVIDED. THIS ISSUE MUST BE INCLUDED IN ALL TRAINING ON SYSTEM OPERATION. SPECIFIC INSTRUCTIONS, IN THE FORM OF CARDS OR LABELS, SHOULD BE PROVIDED TO THE END USER.

In addition, it is recommended that the “local notification” feature be utilized on the ECS system. This feature provides an alarm indication on designated extensions to indicate that a 911 call has been made. Procedures should be put in place to respond to 911 calls when they are made from Iwatsu IP telephones.

Important Information Regarding Power Over Ethernet (PoE)

The IX-8IPNET, IX-8EIPNET, IX-8IPSUB, IX-8EIPSUB cards and the IX-12IPKTD IP Telephone do not support Power over Ethernet (PoE).

Only the Iwatsu ICON Series, Platinum Series, IX-12IPKTD-E, IX-6IPKTD-E, and IX-12IPKTD-E2 IP Telephones support PoE.

One obvious requirement for providing PoE is to prevent damage to devices that do not accept PoE. The Power Sourcing Equipment (PSE) runs a “discovery process” to examine the Ethernet cables looking for devices that comply with the 802.3af specification. A small current-limited voltage is applied to the cable to check for the presence of a 25k ohm resistor in the remote device. Only if the resistor is present is the full 48V applied. This voltage is still current-limited to prevent damage to cables and equipment in fault conditions.

The powered device must draw a minimum current. For example: When the device is unplugged, the PSE will remove power and the “discovery process” will begin again.

For more information on PoE, refer to Chapter 8, Section 4, Component Description of this manual.

Note:

When a Power Over Ethernet Switch is not used:

Platinum 18i and 12i, IX-12IPKTD-E, IX-6IPKTD-E, and the IX-12IPKTD-E2 are intended to be powered by a UL Listed Power Supply, marked “Class 2” and output rated 18 VDC, 500 mA.

Iwatsu ICON Series IP Telephones are intended to be powered by a UL Listed Power Supply, marked “Class 2” and output rated 16.5VDC, 0.8A.

Optional AC Power Supply:

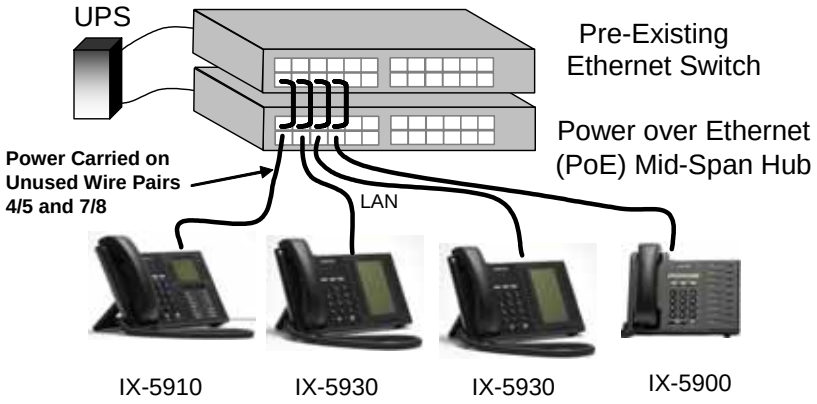
Refer to Chapter 8, in the Component Description section of this manual for information regarding optional power supplies for IP Telephones:

- IX-59AC power supply for the Iwatsu ICON Series IP Telephones.
- IX-IPKTAC-E power supply for the Platinum 18i and 12i, IX-12IPKTD-E, IX-6IPKTD-E, and IX-12IPKTD-E2.

PoE Configuration Examples

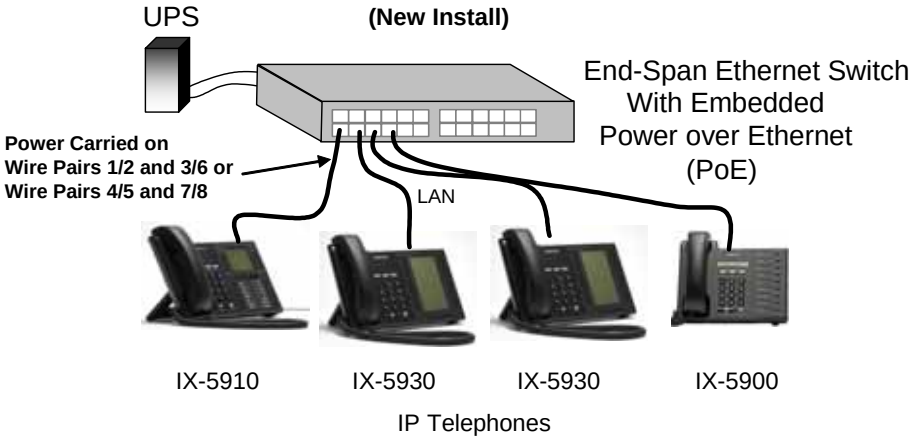
Typical Mid-Span Hub Installation

(Upgrade Existing Equipment)



Typical End-Span Switch with Embedded PoE Installation

(New Install)



VoIP Network Readiness

To determine if a customer's network is capable of supporting Voice Over IP, refer to the procedures, requirements, and recommendations for performing network readiness testing on a customer's existing or planned local (LAN) or wide area network (WAN) in **Chapter 13, IP Campus Networking Installation**.

Iwatsu IP Telephone Installation Requirements

Before installing the Iwatsu ICON Series, Platinum Series, IX-12IPKTD-E, and IX-6IPKTD-E IP Telephones, The ECS IX-CME cabinet must have at least one IX-MBU Media Bridge Unit installed (Except IX-12IPKTD/-E2).

IX-MBU Media Bridge Unit

Each IX-MBU provides 24-channels for IP to TDM and TDM to IP conversion for the IP Telephones. Each IX-MBU must be installed and have a static IP address assigned before installing any of the above listed IP Telephones. For programming information refer to **Section 6 - Programming Guide**.

Requirements

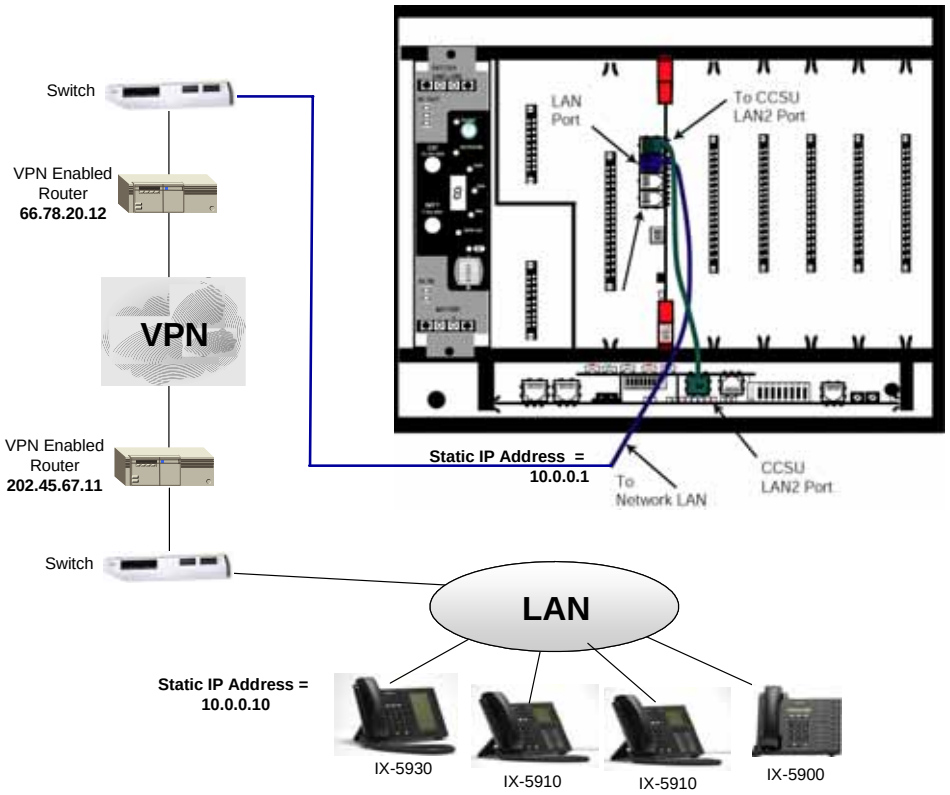
Before attempting to configure and install the Iwatsu ICON Series, Platinum Series, IX-12IPKTD-E, or IX-6IPKTD-E IP Telephones on the LAN, read and understand the entire installation procedure. The entire process should take no more than 30 minutes per phone.

The following are required for the installation of an IP Telephone on the LAN. Make sure all are available before attempting to configure and install the IP Telephones listed above. Some items must be obtained from the LAN Administrator.

- Windows-based PC with the following:
  - Microsoft Internet Explorer Version 6.0 or higher
  - Iwatsu Programmer
  - 10/100 Base-T Network Interface Card (NIC)
- 2 Category 5 (CAT 5) Ethernet cables
- IP address of the LAN 2 Port on the IX-CCU / IX-CCSU card (Default=10.0.0.1)(LAN Administrator provided)
- Subnet mask of the network (Default=255.255.0.0)(LAN Administrator provided)
- IP address of the default gateway (No Default)(LAN Administrator provided)
- IP Telephone station logical port number (Class 01.09)
- DHCP or Static IP addressing (Default=DHCP)

The data listed below is an example. Your network topology and IP addressing will vary. Your Network Administrator will need to provide the actual IP addresses for your network.

Iwatsu IP Telephone Network Topology Example



NOTE: Each ICON IX-5930/5910/5900, IX-IPKTD-E or Enterprise 18/12i will have a unique IP Address. IP Addresses may be Static or DHCP

ECS Database Configuration

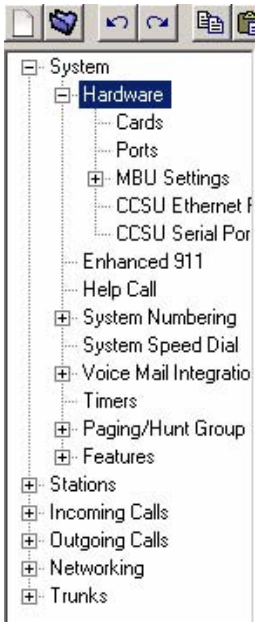
Iwatsu ICON Series IX-5930, IX-5910, IX-5900, and IX-59DS; Platinum 18i and 12i; and IX-12IPKTD-E and IX-6IPKTD-E stations require an ECS virtual port. This section explains the database configuration process. This section assumes that the ECS system successfully resides on the network and the IX-MBU card is installed in the ECS system.

Note:	It is important to download a current copy of the database before beginning any operation that requires a database change.

Card Configuration

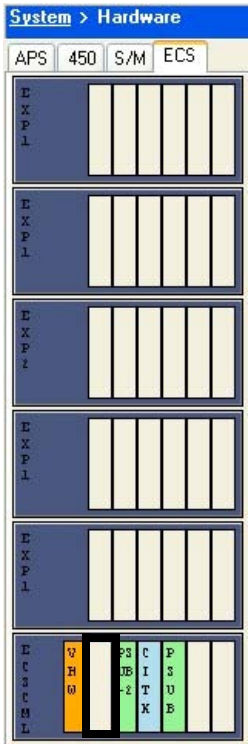
Connect to the ECS system using the Iwatsu Programmer in the **Category** view mode:

1. Select: **System** > **Hardware**

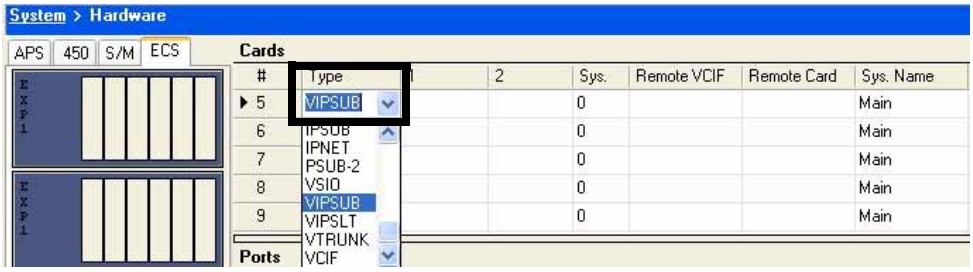


- The **Hardware** screen displays.

2. Use the mouse to select an available card slot from the graphical representation of the ECS system.
   - The virtual card slot can be any available card slot in the ECS system.



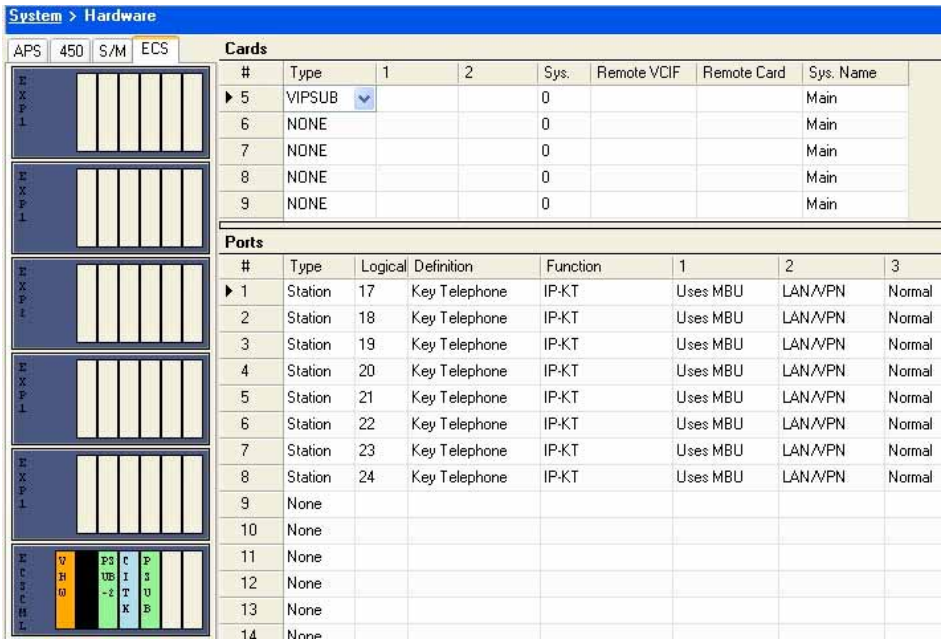
3. Under the **Cards** section, select the card slot to be used for IP telephones and/or IP DSS units.
4. Using the drop-down menu, configure the card as a **VIPSUB**.



   - The ECS system number (**Sys.**) is **0**. If the IX-5930/5910/5900, IX-59DS, Platinum 18/12i or IX-12/6IPKTD-E is installed in an IP Campus Network and physically located at the Main IP Campus site or a Remote IP Campus site, the IP phone must be programmed on the Main IP Campus location.
5. Deselect the card using the PC mouse.
6. Connect and Upload **System > Hardware** and then disconnect from the ECS.
   - Wait 10 seconds for each card to be created (Example: 3 cards = 30 seconds).

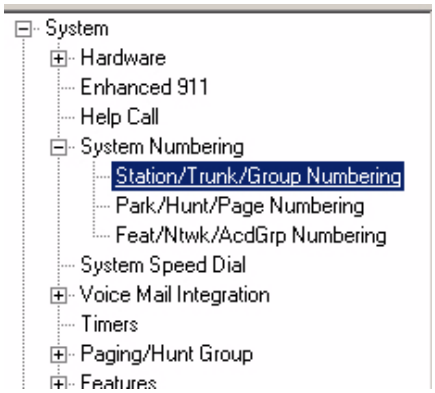
Station Configuration

7. Re-connect to the ECS and download **System > Hardware**. The port configuration will look similar to the configuration shown below.
8. Ports automatically configured for a **VIPSUB** card will display **Normal** in the Parameter **3** field (after ECS database download).
   - When Iwatsu ICON Series Telephones are configured and connected to the ECS system, Station Parameter **3** will automatically change from Normal to IX-5930, IX-5910 or IX-5900. The IX-59DS requires additional database programming which is covered later in this section.

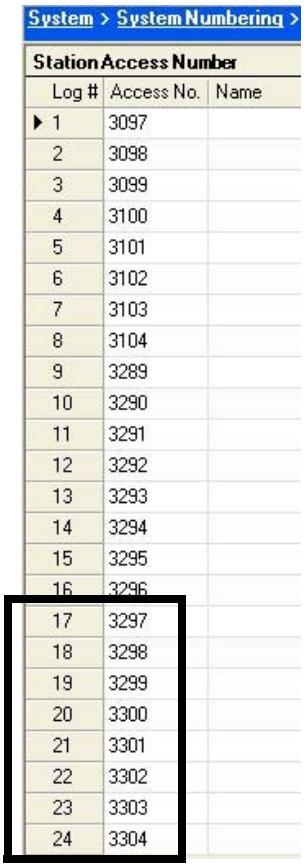


Station Assignment

9. Select: **System > System Numbering > Station/Trunk/Group Numbering.**



10. Scroll to the logical port numbers for the stations programmed in step 8 on the previous page.



- Enter **Station Access Number**(s) (extension numbers) for the IP station(s).

Connect and Upload

1. Connect to the ECS system.
2. Upload the database to the ECS system.

IX-59DS and SATT Database Configuration

Follow the database configuration procedure below to assign an IX-59DS to an Iwatsu ICON Series telephone (IX-5930, IX-5910, or IX-5810 only).

Attendant Telephone Database Configuration

An Iwatsu ICON Series telephone (IX-5930, IX-5910, or IX-5810) must be programmed as an Attendant before you can assign an IX-59DS to the Attendant station.

IX-5930, IX-5910, or IX-5810 must appear in the parameter **3** field, this only occurs after the telephone is configured and connected to the ECS system and **System > Hardware** data has been downloaded from the ECS database.

- If **Normal** appears in the parameter **3** field, you cannot assign an IX-59DS unit to this Attendant station. This means that the Iwatsu ICON station has not connected to the ECS system or this is not an Iwatsu ICON station.

Iwatsu ICON Series IX-5930 IP Attendant example:

Ports

#	Type	Logical	Definition	Function	1	2	3
▶ 1	Station	17	Attendant	IP-SATT	Uses MBU	LAN/VPN	IX-5930

Iwatsu ICON Series IX-5810 Attendant example:

Ports

#	Type	Logical	Definition	Function	1	2	3
97	Station	1	Attendant	KT+nDSS	No COMLink	Normal KT	IX-5810
98	Station	2	Key Telephone	ADIX KT	No COMLink	Normal KT	IX-5800
99	Station	3	Key Telephone	Virtual KT			
100	Station	4	Key Telephone	Virtual KT			

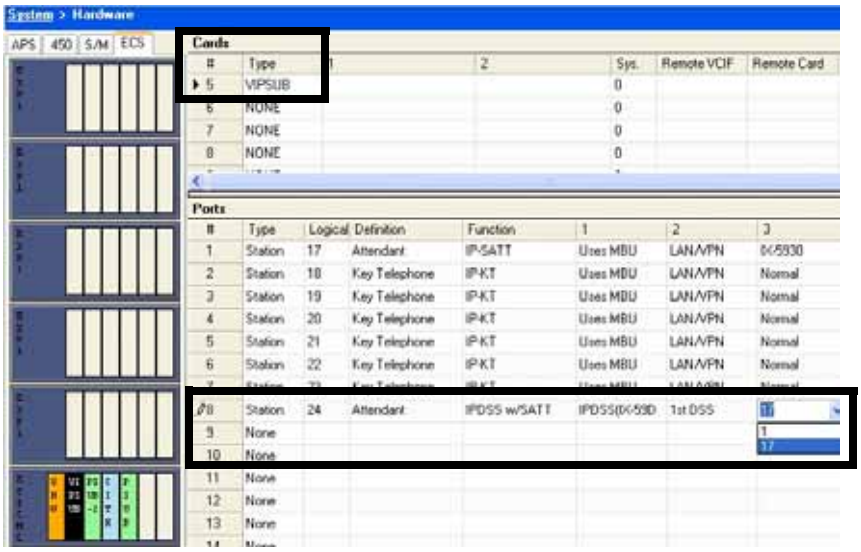
IX-59DS Database Configuration

Make the following database configuration changes to assign an IX-59DS to an Iwatsu ICON Series telephone (IX-5930, IX-5910, or IX-5810 only) that has been configured as an Attendant.

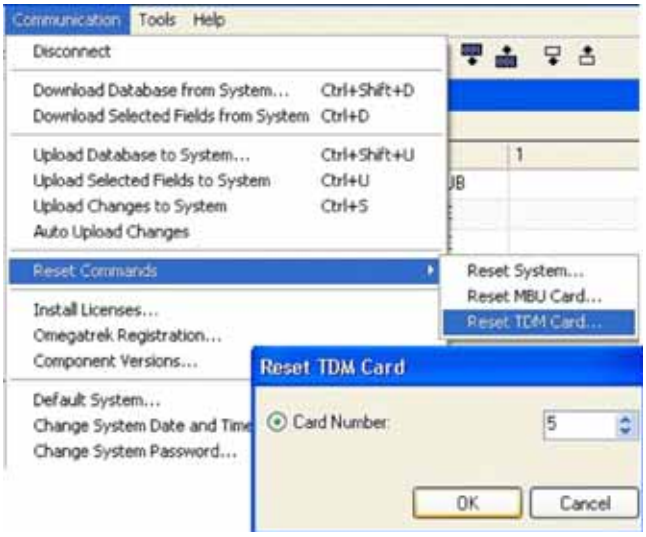
1. Connect to the ECS system and go to **System > Hardware**.
2. Select an available Station port on a **VIPSUB** card.
3. Make the following Station parameter changes:
   - Use the drop-down menu to change the Station **Definition** parameter from Key Telephone to **Attendant**.
   - Use the drop-down menu to change the **Function** parameter from IP-KT to **IPDSS w/SATT**.
   - Use the drop-down menu to change parameter **1** from Uses MBU to **IPDSS (IX-59DS)**.
   - Use the drop-down menu to change parameter **2** from LAN VPN to **1st DSS** or **2nd DSS**.
     - If this is the first IX-59DS that you are assigning to this ICON station, select 1st DSS.

- If there is an IX-59DS unit already assigned to the ICON station, then select 2nd DSS.

- Use the drop-down menu to change parameter **3** from Normal to the Station **Logical** port number of the **Attendant** station.
  - This parameter drop-down menu will only display the ICON stations that are configured as Attendants.



4. When you have completed making the necessary database changed, **upload** your changes to the ECS database.
5. You must **Reset** the **VIPSUB card** after making configuration changes for those changes to take effect.



Iwatsu ICON Series IP Telephone Configuration

The Iwatsu ICON Series IP telephones and IX-59DS units can be configured through the station using one of three modes: Iwatsu Auto-Discovery, Manual Setup Quick Mode, and Manual Setup Advanced Mode. You can also use the integrated web server to connect to and configure your Iwatsu ICON Series IP telephones / IP DSS units.

DHCP Server Setup for Iwatsu Auto-Discovery

Before you can configure your Iwatsu ICON Series IP telephones and IX-59DS units using the Iwatsu Auto-Discovery Mode, you must have a DHCP Server that is configured for Option 43 and Option 60. Follow the directions below to configure these options for a Windows 2003 Server, Windows 2008 Server, and a Cisco router/ switch (except ASA/Pix).

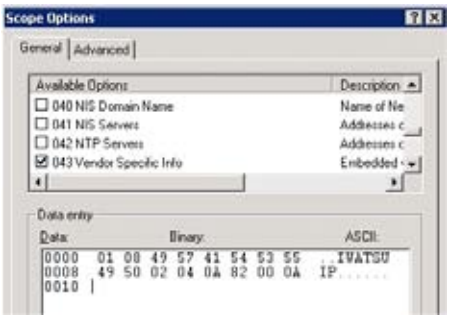
Note:	Not all DHCP Servers have Options 43 and 60 available. Some servers may have Option 43 and Option 60 available, but will not allow you to enter Hex values. Refer to your DHCP Server manufacturer specifications for DHCP settings and programmable options. The ECS system internal DHCP Server does not support the Auto-Discovery feature. **ADTRAN** DHCP Servers: Due to the limited length of the hexadecimal field, the ADTRAN DHCP Servers do not support Option 43.

Note:	**Windows XP Service Pack 3 (SP3)** - Some DHCP Options are not recognized on a Windows XP SP3-based client computer when the DHCP Server offer includes Option 43. Refer to the Microsoft support website for information, resolution, and hotfix download information at: http://support.microsoft.com/kb/953761

Windows 2003 Server - Entering Option 43

1. Launch the DHCP manager from Administrative Tools and go to the Scope Options after creating a scope.
2. Check **Option 43** and enter the data for this option: (Required Codes: 01 08 and 02 04)

- **Example data**: 01 08 49 57 41 54 53 55 49 50 02 04 0a 82 00 0a
  - **Required**: 01 08 - Code 1 data (Vendor Name) and Length (8 bytes)
    - 49 57 41 54 53 55 49 50 - IWATSUIP data
  - **Required**: 02 04 - Code 2 data (Primary Address) and Length (4 bytes)
    - 0a 82 00 0a - IX-CCSU LAN 2 IP Address (example = 10.130.0.10)
- Please note the data is entered in hex WITHOUT any spaces. (The spaces and underlining above are for easier viewing only)



  - **Optional:** 04 02 xx xx - Assigns VLAN ID
    - Range: 0000 ~ 0FFF
    - Example: 04 02 00 02 > Assigns VLAN 2

Note: After IPKT receives the DHCP offer with this option set to other than "0", IPKT sets this option and reboots itself. After the reboot, all packets from the IPKT are tagged. Therefore, if the connected switchport is an access port, it will not be able to communicate with the IPKT. It is required to set the switchport as a trunk.

  - **Optional**: 05 02 03 xx - Assigns IEEE 802.1p Class of Service (CoS). IPKT displays this item in "VLAN Priority"
    - Range: 00~07
    - Example: 05 02 03 05 - Assigns CoS value 5

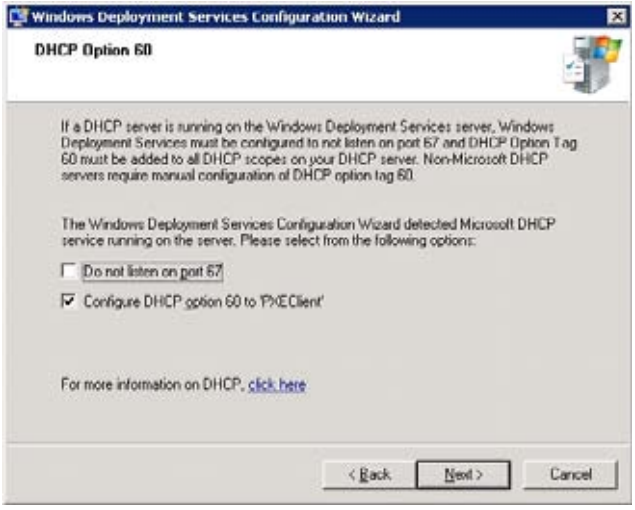
Note: After IPKT receives the DHCP offer with this option set to other than "0", IPKT sets this option and reboots itself. After the reboot, all packets from the IPKT are tagged. Therefore, if the connected switchport is an access port, it will not be able to communicate with the IPKT. It is required to set the switchport as a trunk.

  - **Optional**: 06 - Assigns Quality of Service (QoS) values. 06 04 00 xx 01 yy - Assigns voice payload DSCP value (xx) and voice signaling DSCP value (yy)
    - Range: Valid DSCP values
    - Example: 06 04 00 B8 01 68 - Assigns DSCP EF (Expedited forwarding) to voice payloads and AF31 (Assured Forwarding 31) to voice signaling traffic.

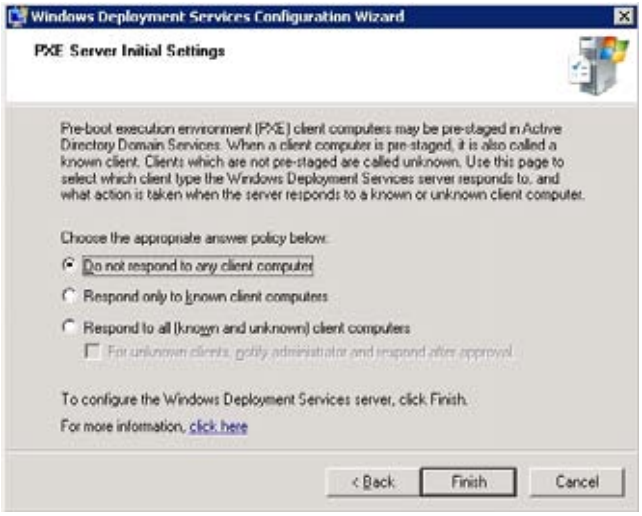
Windows 2003 Server - Entering Option 60

Note:	If you have Windows Small Business Server 2003 with Remote Installation Service (RIS) instead of Windows Deployment Services (WDS), refer to page 44 for entering Option 60. To install WDS, the DHCP server may be required to be a member of a domain. WDS is available on Small Business Server (SBS2003) Service Pack 2.

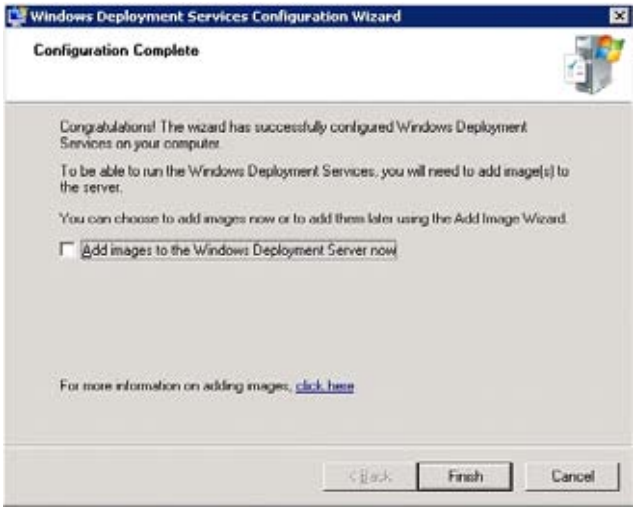
1. Go to **Add or Remove Programs** > **Add or Remove Component**.
2. Install **Windows Deployment Services (WDS)**.
3. Launch **Windows Deployment Services Configuration Wizard** from A**dministrative Tools**.
4. Right-click on the server and choose **Configure Server**.
5. Choose **Configure DHCP option 60 to PXE Client** and select **Next**.



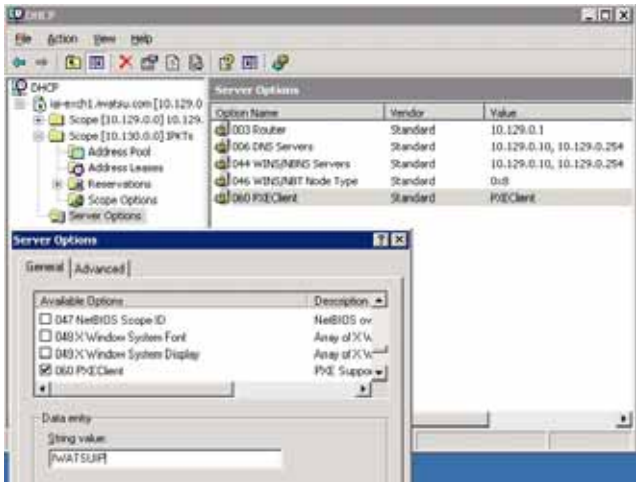
6. Select **Finish** with the default value (shown below).



7. There is no need to add images. **Uncheck** this box and select **Finish**.



8. In the DHCP Manager change **Option 60** data from **PXEClient** to **IWATSUIP**.



9. You will be prompted to reboot after the Windows Deployment Services (WDS) installation.

Entering Option 60 for Windows Small Business Server 2003 (With Remote Installation Service)

For Windows Small Business Server 2003 (when it has Remote Installation Service (RIS) instead of WDS), please use the following steps: Remote Installation Service installation is not required.

1. From the command prompt, type the following shown below: (Please note the server name \\sbs2003 is an example.)

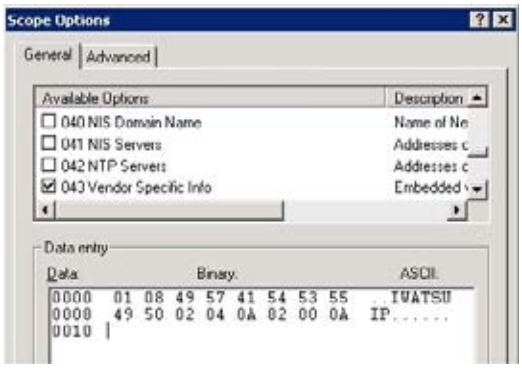
   C:\Documents and Settings\Administrator>netsh
   netsh>dhcp
   netsh dhcp>server \\sbs2003
   netsh dhcp server>add option 60 "Vendor Specific Identifier" STRING
   Command completed successfully.
   netsh dhcp server>set optionvalue 60 STRING IWATSUIP
   Command completed successfully.
2. Stop and then Start DHCP server. (Wait for a few minutes, before re-launching DHCP console. Otherwise, you may see DHCP not started.)
3. Option 60 with "IWATSUIP" should appear in the Scope Option.

Windows 2008 Server - Entering Option 43

Note:	**Windows XP Service Pack 3 (SP3)** - Some DHCP Options are not recognized on a Windows XP SP3-based client computer when the DHCP Server offer includes Option 43. Refer to the Microsoft support website for information, resolution, and hotfix download information at: http://support.microsoft.com/kb/953761

1. Launch the DHCP manager from Administrative Tools and go to the Scope Options after creating a scope.
2. Check Option 43 and enter the data for this option:

- Example data: 01 08 49 57 41 54 53 55 49 50 02 04 0a 82 00 0a
  - 01 08 - Code 1 data (Vendor Name) and Length (8 bytes)
    - 49 57 41 54 53 55 49 50 - IWATSUIP data
  - 02 04 - Code 2 data (Primary Address) and Length (4 bytes)
    - 0a 82 00 0a - IX-CCSU LAN 2 IP Address (example = 10.130.0.10)
- Please note the data is entered in hex WITHOUT any spaces. (The spaces and underlining above are for easier viewing only)



Windows 2008 Server - Entering Option 60

Follow the procedure below to add Option 60 in the Windows Servers.

1. From the Initial Configuration Tasks screen, select Add Roles.
2. From the Select Server Roles screen, check Windows Deployment Services and follow the instructions to install.
3. Depending on the options you selected during the WDS installation, you may be required to type: wdsutil /set-server /DHCPoption60:yes at the command prompt, such as C:\Users\Administrator>
4. Then launch the DHCP manager and change Option 60 from PXEClient to IWAT-SUIP in text format at the Server Options.

Note: After setting Option 60 in the DHCP server, disable the Windows Deployment Services (WDS). It is not necessary for WDS to run after Option 60 is set.

Cisco Router/Switch (Except ASA/Pix) - Entering Option 60 and Option 43

1. Add a DHCP pool.
2. Add option 60 in the pool by typing: option 60 ascii IWATSUIP
3. Add option 43 in the pool by typing such as option 43 hex 0108495741545355495002040a86000b
   - Please note that the CCSU address in this example is 10.134.0.11
4. The example of the DHCP configuration is shown below:

```
ip dhcp excluded-address 10.135.200.1 10.135.200.221
!
ip dhcp pool POOL2
network 10.135.200.0 255.255.255.0
default-router 10.135.200.1
dns-server 10.129.0.10
option 60 ascii "IWATSUIP"
option 43 hex 0108.4957.4154.5355.4950.0204.0a86.000b
```

Cisco Router/Switch (ASA/Pix) - Entering Option 60 and Option 43

ASA/PIX DHCP servers do not add pad to their DHCP offer packets. Additional data size is required to make it functional for Iwatsu Auto-Discovery. Increase the size of the DHCP offer packets by adding additional code in option 43 (code 4 Vlan ID), DNS servers, and a WINS server, option 3. Example:

```
dhcpd auto_config outside
dhcpd option 60 ascii IWATSUIP
dhcpd option 43 hex 0108495741545355495002040a86000b04020000
dhcpd address 10.134.0.100-10.134.0.149 inside
dhcpd dns 10.1.0.100 4.2.2.1 interface inside
dhcpd wins 10.1.0.100 interface inside
dhcpd option 3 ip 10.134.0.1 interface inside
dhcpd enable inside
```

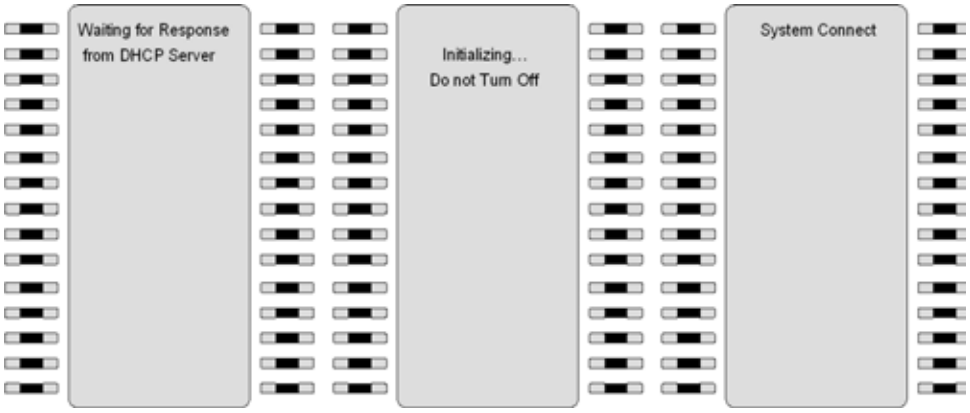
IX-5930/IX-5910 Configuration

Iwatsu Auto-Discovery Mode is a propriety network protocol developed by Iwatsu that allows the ICON series IX-5930, IX-5910, IX-5900 IP telephones and IX-59DS DSS unit to automatically identify itself on the local network and connect to the ECS system. Iwatsu Auto-Discovery is available when the IP telephone or IP DSS is in the factory default configuration. If the IP telephone / IP DSS unit has been previously configured, the IP telephone / IP DSS unit can be defaulted or can be configured using either the Manual Quick Setup or the Manual Setup Advanced Modes.

- Your DHCP Server must be configured correctly to allow this feature to work. Refer to the DHCP Server Setup for Iwatsu Auto-Discovery section to configure your DHCP Server for this feature.
- The IP telephone / IP DSS unit must be configured in the ECS database before attempting this procedure.

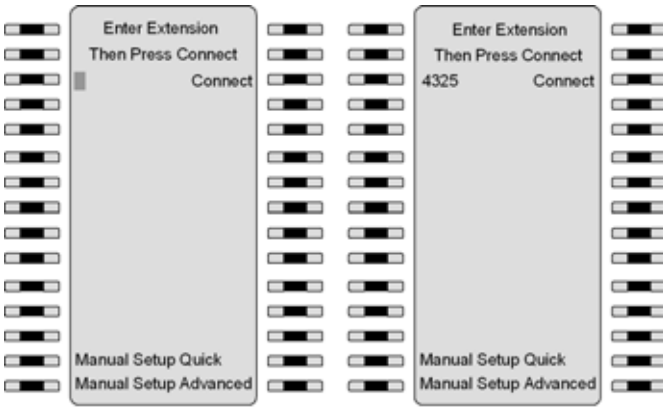
Iwatsu ICON Series IX-5930/IX-5910 Auto-Discovery

1. Connect your Ethernet cable to the LAN port on the back of your IX-5930/IX-5910 IP Telephone.
2. If PoE is not used, connect the IX-59AC power adapter to the IX-5930/IX-5910 IP Telephone. The IP Telephone will begin the initialization process. Do not disconnect power to the phone during this process.



3. When the IP Telephone finishes the boot process, you are prompted to enter the extension number for this station.
4. When you have entered telephone's extension number, press the Self-labeling key next to **Connect**. If you have entered a programmed/non-duplicated extension number, the IP Telephone is automatically configured and operational.

5. If further programming is required, you can press and hold the Setup key (approx. five seconds) to enter the IPKT Setup mode and then select Manual Setup Quick or Manual Setup Advanced.

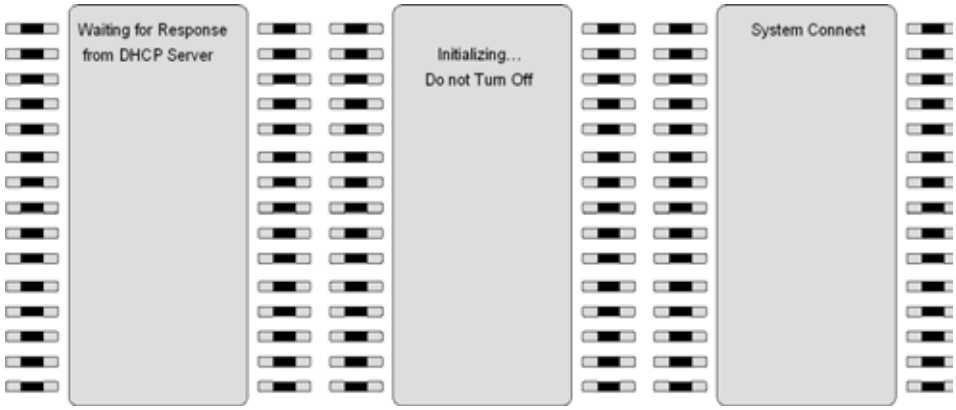


Iwatsu ICON Series IX-5930/IX-5910 Manual Setup Quick

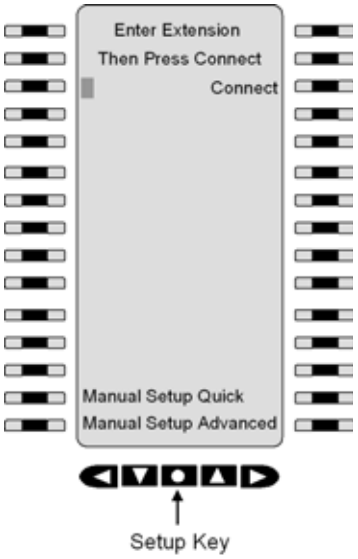
When Auto-Discovery is not available or if the IP telephone is not in the factory default configuration you can configure your Iwatsu ICON Series IP Telephone using the Manual Setup Quick mode. If the IP telephone has been previously configured, the IP telephone can be configured using the Manual Quick Setup or the Manual Setup Advanced. After the initial configuration, the Manual Setup Quick mode can be accessed by pressing and holding the Setup key (approx. five seconds).

To enter the **Manual Setup Quick** mode:

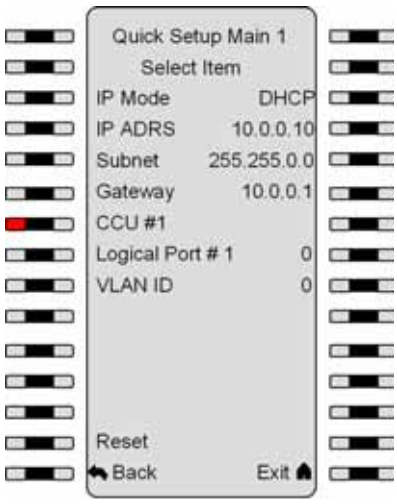
1. Connect your Ethernet cable to the LAN port on the back of your IX-5930/5910 IP Telephone.
2. If PoE is not used, connect the IX-59AC power adapter to the IX-5930/5910 IP Telephone. The IP Telephone will begin the initialization process. Do not disconnect power to the phone during this process.



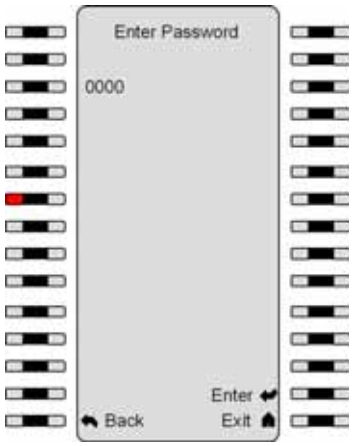
3. Select the left Self-labeling key that corresponds to **Manual Setup Quick**.
   - If you do not have a DHCP Server, the IP Telephone will not connect and you will need to enter a Static IP Address, Subnet Mask, and Gateway when you enter the **Manual Setup Quick** mode.



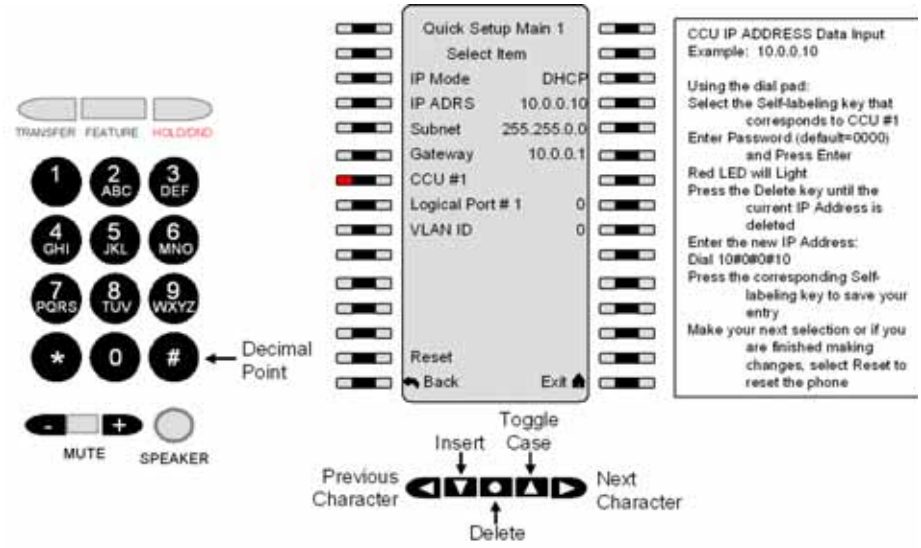
4. **Quick Setup Main 1** Screen: If your DHCP was able to assign an IP Address to your station, you will notice that the IP Address, Subnet Mask, and Gateway Addresses have been configured. You must now input the ECS LAN 2 IP Address (CCU #1) and the station's Logical Port number (Logical Port #1). If configured, the DHCP Sever may be setup to configure the ECS LAN 2 IP Address. If the LAN 2 IP Address appears on your display, you only need to enter the station's Logical Port number.



5. To enter the **ECS LAN 2 IP Address** (CCU #1):
   - Select the Self-labeling key that corresponds to **CCU #1**.
   - When you have selected a key, you are prompted to enter a **Password**, input **0000** (Default Password = 0000) and press **Enter**. You will be returned to the setup menu. (The selected key LED will light solid).



   - Use the Dial Pad and the Navigation keys (located below the LCD) to enter the ECS LAN 2 IP Address. Press the # key to insert decimal points.
   - When you have completed entering the IP Address, select the corresponding Self-labeling key to save your data.
6. To enter the **Station's Logical Port** number (Logical Port #1):
   - Select the Self-labeling key that corresponds to **Logical Port #1**. (The selected key LED will light solid).
   - Use the Dial Pad and the Navigation keys (located below the LCD) to enter the station's Logical Port number.
   - When you have completed entering the Logical Port number, select the corresponding Self-labeling key to save your data.



7. When you have completed entering your data, press **Reset** to reset the IP Telephone.

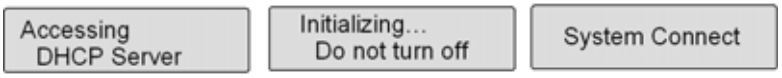
IX-5900 Configuration

Iwatsu ICON Series IX-5900 Auto-Discovery

Your DHCP Server must be configured correctly to allow this feature to work. Refer to the DHCP Server Setup for Iwatsu Auto-Discovery section to configure your DHCP Server for this feature.

The IP telephone / IP DSS unit must be configured in the ECS database before attempting this procedure.

1. Connect your Ethernet cable to the LAN port on the back of your IX-5900.
2. If PoE is not used, connect the IX-59AC power adapter to the IX-5900. The IP telephone will begin the initialization process. Do not disconnect power to the phone during this process.



3. When the IP telephone finishes the boot process, select **Mode Auto Conn.** (Connect) will appear on the telephone display. Press the **Enter** (Feature) key.



4. You are then prompted to enter the IP telephone's **Extension** number. Using the telephone dial pad, enter the extension number for the telephone and press **Enter** (Feature).



   - If you have entered a programmed/non-duplicated extension number, the IP telephone is automatically configured and operational.
5. If further programming is required, you can press and hold the **Setup** (Feature) key (approx. five seconds) to enter the **IPKT Setup Mode** and then select **Quick Mode** or Advanced Mode.

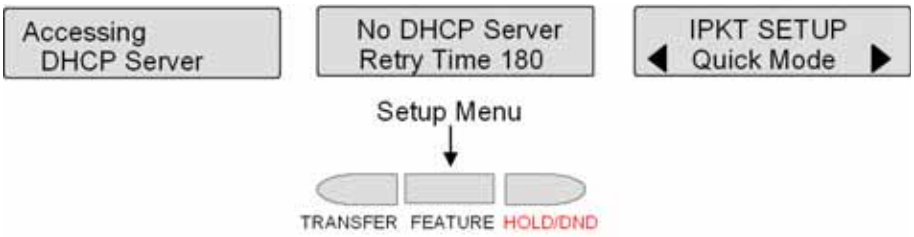


Iwatsu ICON Series IX-5900 IP Telephone Manual Setup Quick Mode

When Auto-Discovery is not available or if the IP telephone is not in the factory default configuration you can configure your Iwatsu ICON Series IP telephone using the Manual Setup Quick mode. If the IP telephone has been previously configured, the IP telephone can be configured or reconfigured using the Manual Quick Setup or the Manual Setup Advanced. After the initial configuration, the Manual Setup Quick mode can be accessed by pressing and holding the **Setup** (Feature) key (approx. five seconds).

To enter the **Manual Setup Quick Mode**:

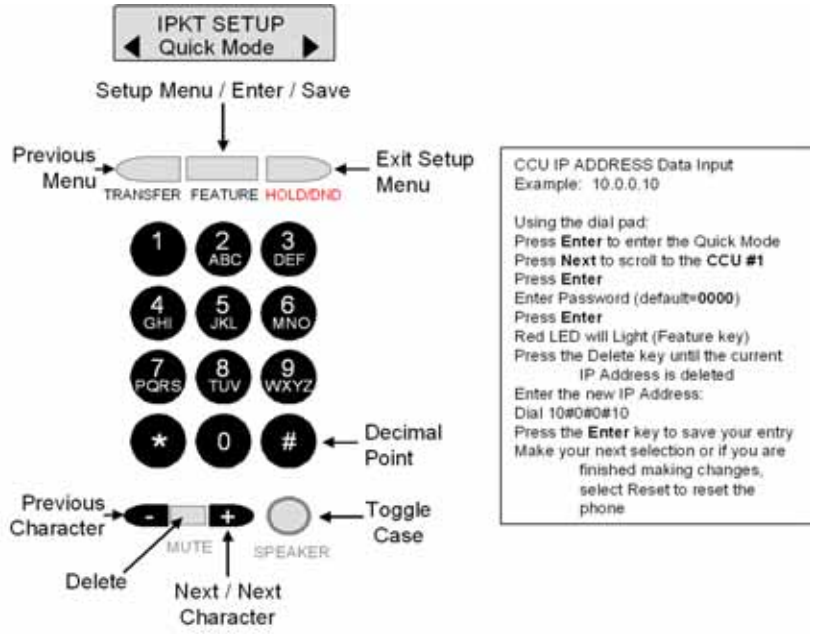
1. Connect your Ethernet cable to the LAN port on the back of your IX-5900.
2. If PoE is not used, connect the IX-59AC power adapter to the IX-5900. The IP telephone will begin the initialization process. Do not disconnect power to the phone during this process.
3. **Press** and **hold** the **Setup Menu** (Feature) **key** for five seconds to enter the **IPKT Setup**.
   - If you do not have a DHCP Server, the IP telephone will not connect and you will need to enter the following information when you enter the **IPKT Setup Quick Mode:**
   - Static IP Address
   - Subnet Mask
   - Gateway
   - ECS LAN 2 IP Address
   - ECS Station Logical Port Number



4. **Quick Mode**: If your DHCP server was able to assign an IP address to your station, the IP address, Subnet Mask, and Gateway addresses have been configured. You must also input the ECS LAN 2 IP Address (CCU #1) and the station's Logical Port number (Logical Port #1). If configured, the DHCP Sever may be setup to configure the ECS LAN 2 IP address. If the LAN 2 IP address appears on your display, you only need to enter the station's Logical Port number.
5. Enter a **Static IP Address**, Subnet Mask, and Gateway:
   - From the **Quick Mode**, press **Enter** (Feature key) to access the **IP Mode**.
   - Press **Enter** (Feature) again and enter the **password** (default = **0000**) and press **Enter**.
   - From the **IP Mode**, press the **+** key to change the mode from DHCP to **Static** and press **Enter** (Feature) to save the selection.

- Press the + key to scroll to the I**P Address** and press **Enter**. Press the **Delete** (Mute) key until the current IP address is deleted.
  - Use the telephone dial pad to enter a new IP address. The # key is used to enter the decimal point between IP address octets. Press **Enter** (Feature) to save your changes.
- Press the + key to scroll to the **Subnet Mask** and press **Enter**. Enter the **Subnet Mask IP address**. Remember to **save** your changes before moving to the next programming field.
- Press the + key to scroll to the **Gateway** and enter the **Gateway IP address**. Remember to **save** your changes before moving to the next programming field.

6. To enter the **ECS LAN 2 IP Address** (CCU #1):
   - Use the + key to scroll through the menu to **CCU #1** and press **Enter** (Feature).
   - From the **CCU #1** screen, use the dial pad to enter the **ECS LAN 2 IP address**. The **#** key is used to enter the decimal point between IP address octets. Press **Enter** (Feature) to **save** your changes.



7. To enter the **Station's Logical Port** number (Logical Port #1):
   - Use the + key to scroll through the menu to **Logical #1** and press **Enter** (Feature).
   - Use the **Delete** (Mute) key to delete any previously programmed logical port number and then use the telephone dial pad to enter the station's Logical Port number. Remember to press **Enter** (Feature) to **save** your changes.
8. When you have completed entering your all of your telephone configuration data you must **reset** the telephone for the changes to take effect.
   - Use the + key to scroll through the menu to **Reset** and press **Enter** (Feature) to reset the IP telephone. It will take a few seconds before you notice the telephone reset taking place - be patient.

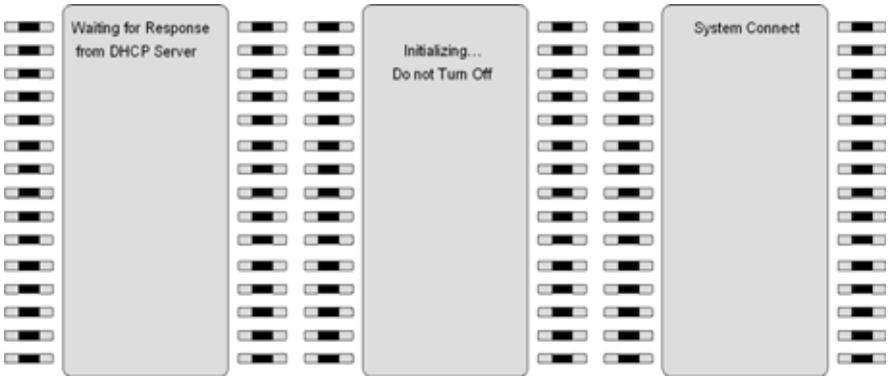
IX-59DS Configuration

Iwatsu ICON Series IX-59DS Auto-Discovery

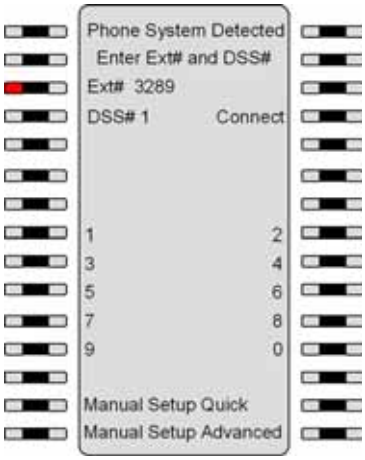
Your DHCP Server must be configured correctly to allow this feature to work. Refer to the DHCP Server Setup for Iwatsu Auto-Discovery section to configure your DHCP Server for this feature.

The IP telephone / IP DSS unit must be configured in the ECS database before attempting this procedure.

1. Connect your Ethernet cable to the LAN port on the back of your IX-59DS IP DSS unit.
2. If PoE is not used, connect the IX-59AC power adapter to the IX-59DS IP DSS unit. The IX-59DS will begin the initialization process. Do not disconnect power to the phone during this process.



3. When the IX-59DS IP DSS unit finishes the boot process, you are prompted to enter the extension number for the host Iwatsu ICON Attendant station and the DSS # 1 or 2 (default = 1).
   - Use the numbers on the IX-59DS display to enter the host Iwatsu ICON Attendant station extension number.



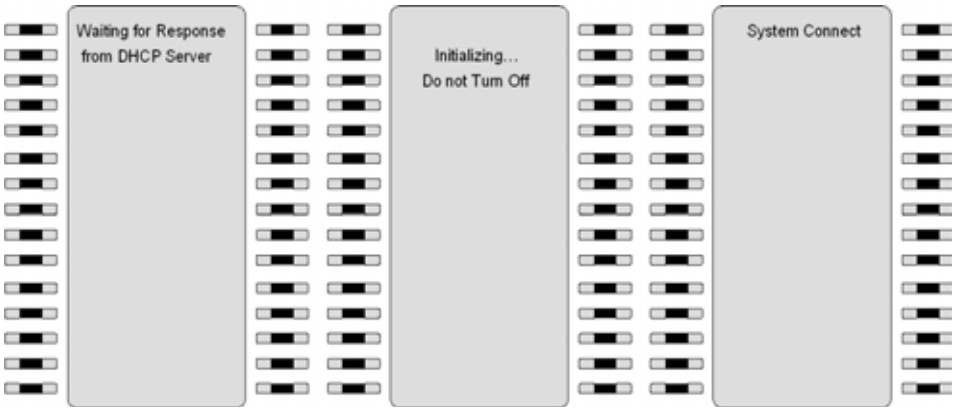
4. When you have entered the host Attendant station extension number and selected the DSS number 1 or 2, press the Self-labeling key next to **Connect**.
   - If you have entered a programmed/non-duplicated extension number, the IX-59DS is automatically configured and operational.
5. If further programming is required, you can press and hold the **Setup** (Feature) key (approx. five seconds) to enter the IPKT Setup mode and then select Manual Setup Quick or Manual Setup Advanced.

Iwatsu ICON Series IX-59DS Manual Setup Quick

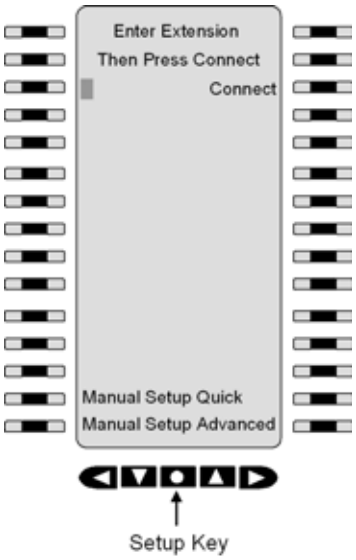
When Auto-Discovery is not available or if the IP telephone / IP DSS unit is not in the factory default configuration you can configure your Iwatsu ICON Series IP telephone / IP DSS unit using the Manual Setup Quick mode. If the IP telephone / IP DSS unit has been previously configured, the IP telephone / IP DSS unit can be configured or reconfigured using the Manual Quick Setup or the Manual Setup Advanced. After the initial configuration, the Manual Setup Quick mode can be accessed by pressing and holding the **Setup** (Feature) key (approx. five seconds).

To enter the **Manual Setup Quick** mode:

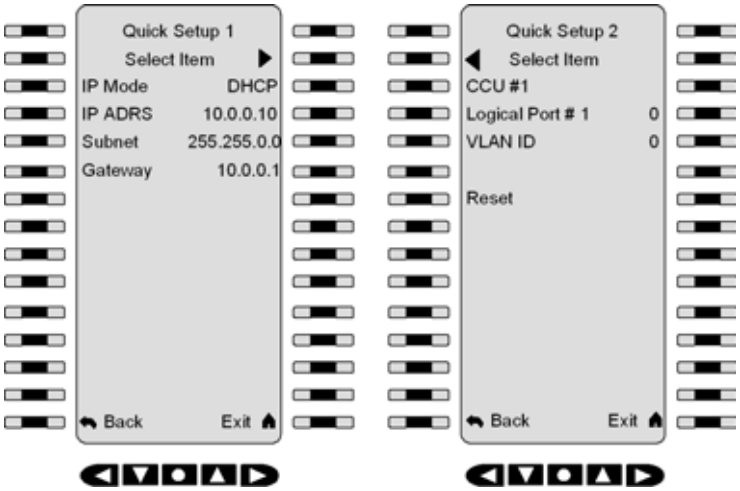
1. Connect your Ethernet cable to the LAN port on the back of your IX-59DS DSS unit.
2. If PoE is not used, connect the IX-59AC power adapter to the IX-59DS IP DSS unit. The IX-59DS will begin the initialization process. Do not disconnect power to the phone during this process.
3. **Press** and **hold** the **Setup Menu** (Feature) key for five seconds to enter the IPKT Setup.
   - If you do not have a DHCP Server, the IP telephone will not connect and you will need to enter the following information when you enter the **IPKT Setup Quick Mode**:
   - Static IP Address
   - Subnet Mask
   - Gateway
   - ECS LAN 2 IP Address
   - ECS Station Logical Port Number



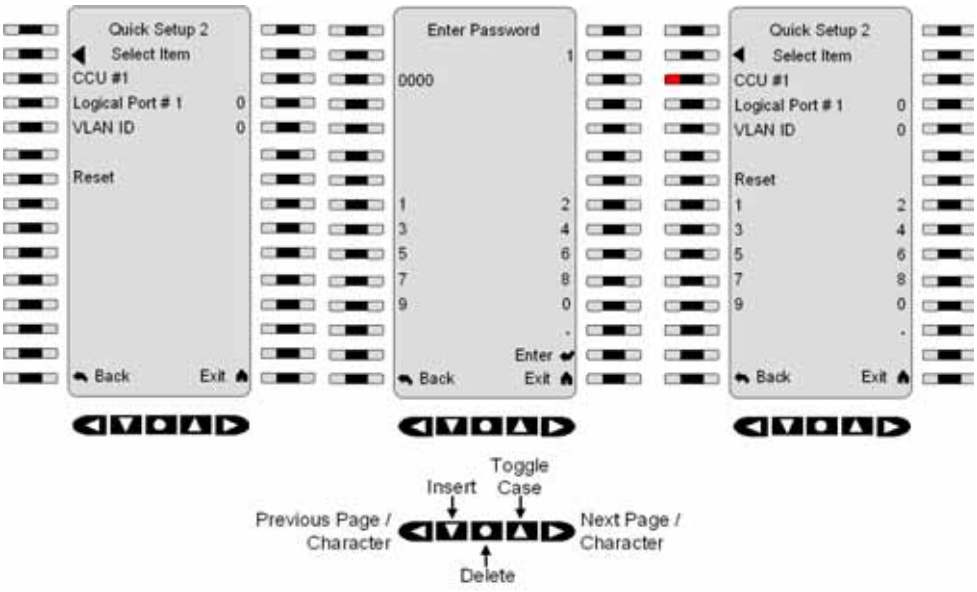
4. Select the **left Self-labeling key** that corresponds to **Manual Setup Quick**.
   - If you do not have a DHCP Server, the IX-59DS will not connect and you will need to enter a Static IP Address, Subnet Mask, and Gateway when you enter the **Manual Setup Quick** mode.
   - To access the **Manual Setup Quick Mode**, **press** and **hold** the **Setup** key for five seconds.



5. **Quick Setup 1 / 2 Screens**: If your DHCP was able to assign an IP Address to your station, you will notice that the IP Address, Subnet Mask, and Gateway Addresses have been configured. You must now input the ECS LAN 2 IP Address (CCU #1) and the station's Logical Port number (Logical Port #1). If configured, the DHCP Sever may be setup to configure the ECS LAN 2 IP Address. If the LAN 2 IP Address appears on your display, you only need to enter the station's Logical Port number.



6. To enter the **ECS LAN 2 IP Address** (CCU #1):
   - Press the **Next Page** (right arrow) key to move to the **Quick Setup 2** screen.
   - Select the Self-labeling key that corresponds to **CCU #1**.
   - When you have selected a key, you are prompted to enter a **Password**, input **0000** (Default Password = 0000) and press **Enter**. You will be returned to the setup menu. (The selected key LED will light solid).



   - Use the number keys (located on the LCD) to enter the ECS LAN 2 IP Address.
   - When you have completed entering the IP Address, select the corresponding Self-labeling key to save your data.
7. To enter the **Station's Logical Port** number (Logical Port #1):
   - Select the Self-labeling key that corresponds to **Logical Port #1**. (The selected key LED will light solid).
   - Use the number keys (located on the LCD) to enter the station's Logical Port number.
   - When you have completed entering the Logical Port number, select the corresponding Self-labeling key to save your data.
8. When you have completed entering your data, press **Reset** to reset the **IX-59DS**.

Iwatsu ICON Series IP Telephone Integrated Web Server Access

Your Iwatsu ICON Series IP telephone can be configured using the Integrated Web Server. The programming PC must be configured with an IP address that is compatible with the Iwatsu ICON Series IP telephone being programmed. Consult your Network Administrator if needed.

Follow the instructions below to connect to an Iwatsu ICON Series IP telephone using the Integrated Web Server:

Note: To configure the Iwatsu ICON Series IP telephone, cookies must be enabled. Use Internet Explorer's integrated help file for instructions on enabling cookies.

1. Launch Internet Explorer version 6.0 or higher.
   - Type the **DHCP** or **Static** IP address of the IP telephone in the address bar.



   - The **IPKT Login** screen appears.
2. Enter the **case-sensitive Username** and **Password** on the **IPKT Login** screen.
   - Enter **manage** or **ECS** for the username.
   - Enter **0000** for the password.
   - Select **Login**.

Note: The above username and password are for Iwatsu Voice Networks distributor use only.



Note: If the above page does not display, there is a TCP/IP configuration settings conflict. Make certain both devices reside on the same subnet and network and the programming PC's IP settings are correct.

Iwatsu ICON Series Default Procedure

Iwatsu ICON Series IP Telephone Default Procedure

To return an Iwatsu ICON Series IP telephone to its factory default setting:

1. Remove power to the telephone.
2. Hold down the SPEAKER key + [6] key (do not release).
3. Reapply power to the telephone.
4. When the screen displays the software version number, release the SPEAKER + [6] keys.
5. The telephone will automatically reboot and return the telephone to a default state.

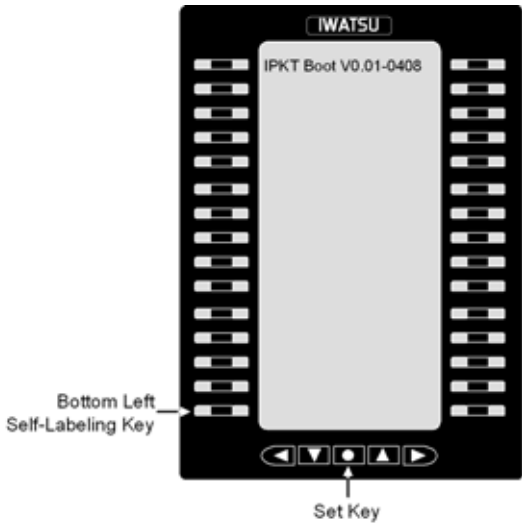
Note:	DO NOT disconnect / remove power from the IP Telephone during the reboot process.

Iwatsu ICON Series IX-59DS IP DSS Default Procedure

To return an Iwatsu ICON Series IX-59DS to its factory default setting:

1. Remove power to the IX-59DS.
2. Press and Hold the Set key and the bottom left Self-labeling key.
3. Reapply power to the IX-59DS.
4. When the screen displays the software version number, release the Set and Self-Labeling keys.
5. The IX-59DS will automatically reboot and return the telephone to a default state.

Note:	DO NOT disconnect / remove power from the IX-59DS during the reboot process.



Iwatsu ICON Series IP Telephone Connection Error Messages

If your Iwatsu ICON Series IP Telephone is unable to connect to the network or to the ECS system, you will receive an error message on the telephone display. The Iwatsu ICON Series IP Telephone may detect multiple errors, but will display the error message that is detected first. Error messages are based on data settings and/or network status.

Connection error messages are detailed below:

No Extension Found Check Configuration

The ECS software cannot convert the entered extension number to a station logical port number.

- No port configuration is entered in the ECS database under System > Hardware (Class 01).
- No extension number is entered in the ECS database under Station > Station Numbering (Class 10).
- There is a numbering plan conflict with other devices such as a Trunk Access number.



Already Used

This error indicates that the entered extension number is already used for another IP telephone.

- This error may also occur right after rebooting the telephone or the ECS system. Please allow up to two minutes for this error to clear. If the error does not clear, please reboot the telephone.



KT Data Error

This error indicates that the entered extension number is already used by another non-IP telephone.

- The same extension number is used for a TDM KT, TDM and SIP SLT, TDM and SIP VML, or Omegatrek.



No System Found Check Network

This error indicates that your Iwatsu ICON Series IP Telephone cannot make a TCP connection with the ECS system. There is a retry process before this error is indicated. There is also a multi host system selection process along with a retry process before this error is indicated if the CCU selection method is set for Auto.

- The CCU IP address provided by a DHCP server is incorrect.
- There is a network problem.



No DHCP or System Info Use Manual Setup

This error indicates that your Iwatsu ICON Series IP Telephone did not receive the proper response from the DHCP server. The IP telephone may have received DHCP information from the DHCP server, but did not receive ECS system information.

- No DHCP server exists.
- The DHCP server is not configured for Option 43.



Invalid Data Check CCU Selection

This error indicates that the Iwatsu ICON Series IP Telephone detected a data conflict with the CCU selection.

- If the CCU selection method is set to Manual and the CCU selection is set to Primary - No valid station logical port number or CCU IP address for the primary ECS.
- If the CCU selection method is set to Manual and the CCU selection is set to Secondary - No valid station logical port number or CCU IP address for the secondary ECS.
- The CCU IP address dispensed by Option 43 is incorrect.



Iwatsu ICON Series Hardware Installation Instructions

Follow the instructions below for installing the Iwatsu ICON Series IX-5930, IX-5910, IX-5900, and IX-59DS:

Cleaning Tip:

The rubber feet on the bottom of the Iwatsu ICON Series telephone base and pedestal may occasionally get dirty from setting on the desktop and could cause the telephone to slide when in use. If sliding should occur, simply clean the rubber feet using a cloth and mild (ph neutral) detergent diluted with water (1 part per 100). Dry the rubber feet before use.

Do Not Use: Benzine, thinner, or alcohol could cause discoloration or deformation.

Iwatsu ICON Series IP Telephone Models:

Model	Description	Part Number:
IX-5900	IPTelephone w/ 2-line LCD	505900
IX-5910	IPTelephone w/7-line LCD	505910
IX-5930	IP Telephone w/15-line LCD	505930
IX-59DS	IP DSS w/15-line LCD	505959

Optional Equipment for Iwatsu ICON Series IP Telephones:

Model	Description	Location	Part Number
IX-59BTINF (IX-5910/5930 only)	Bluetooth Headset Interface	CN-BT1 connector on IX-5910/5930 KT motherboard	505059
IX-59AC	AC Power Adapter for ICON stations when PoE is not available	IX-5930, IX-5910, IX-5900, and IX-59DS	505099
IX-59WMS	Wall Mount Spacer (IX-5800/5810/5910/5930)	KT back	505072
IX-59WMS-1	Wall Mount Spacer (IX-5900/IX-59DS)	KT back	505073
IX-ELK9	Exp Line Key for IX-5900 KT	KT face	505009

IX-5900 Desktop Ethernet Cabling

Iwatsu recommends using an Ethernet cable with a soft or flexible stress relief boot to connect to the Iwatsu ICON Series IX-5900 when desk mounted. Due to the placement of the RJ45 connectors for the LAN and PC ports, the front anti-slip footers may not set firmly on the desk if an Ethernet cable with a stiff stress relief boot is used when the telephone pedestal is placed in the lowest position (37 degree angle). An Ethernet cable without the stress relief boot can also be used.

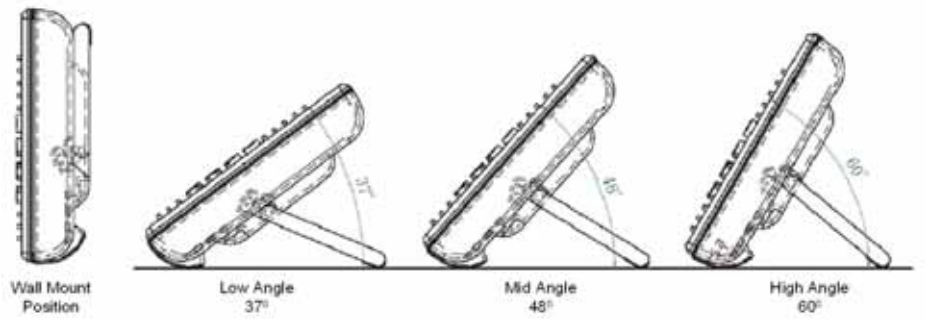
RJ45 Connector with Stiff Boot **RJ45 Connector with Soft Boot**



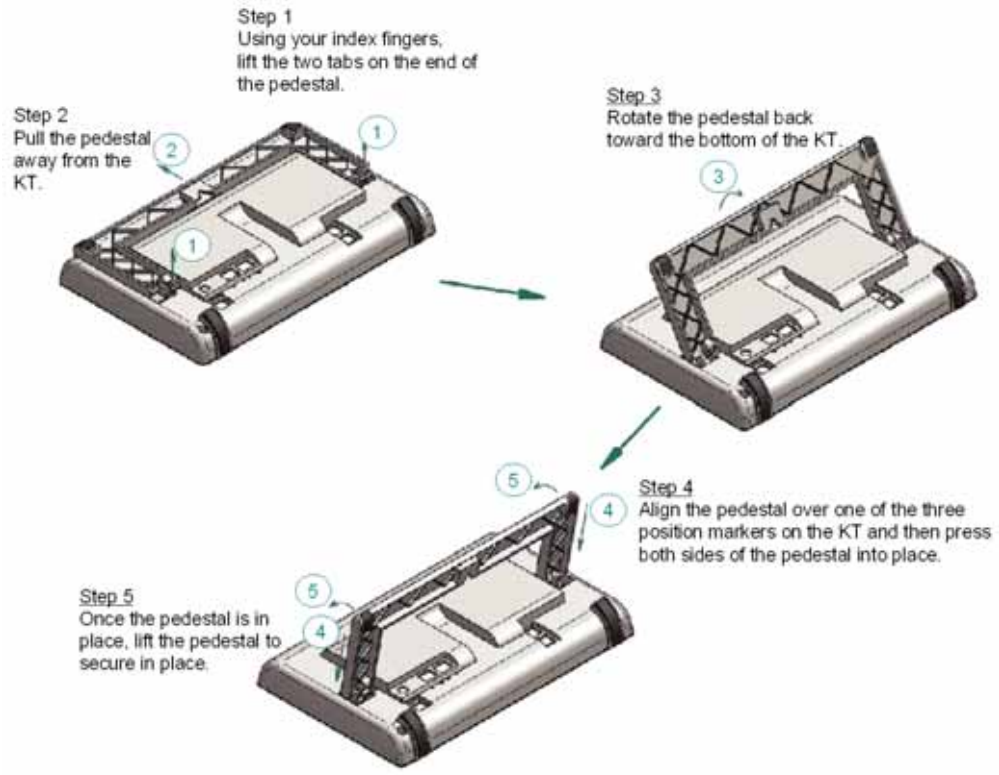
Iwatsu ICON Series Telephone Pedestal Adjustment

Follow the instructions below to adjust the pedestal:

1. The Iwatsu ICON Series telephones and DSS Units have a three-position integrated pedestal that allows you to adjust the viewing angle of the display and keys. This pedestal is placed in the upright position when attaching the optional wall mount spacer.



2. Follow the steps in the illustration below to adjust the pedestal.



3. If you have set your pedestal in the Mid Angle (48°) or the High Angle (60°) position, place the handset hook in the wall mount position.
   - Lift the handset hook from the center of the station's upper cradle and reinsert the handset hook in the slot in the upside-down position.



Wall Mounting - IX-5900 and IX-59DS

The Wall Mount Installation section details wall mounting the Iwatsu ICON Series IX-5900 or IX-59DS to a Leviton 4108W-SP switch plate and standard switch box. Wall mounting the IX-5900 or IX-59DS requires the **optional IX-59WMS-1** Wall Mount Spacer (part number 505073).

Warning!	**When wall mounting the Iwatsu ICON Series IX-5900 or the IX-59DS:** Due to the limited space between the RJ45 connectors on the IX-5900 / IX-59DS and the IX-59WMS-1 Wall Mount Spacer, Iwatsu recommends using **only** RJ45 connectors **without** the strain-relief / snag-free boot on the Ethernet cable.

RJ45 Connector with Boot



RJ45 Connector without Boot



Follow the instructions below to wall mount an Iwatsu ICON Series IX-5900 IP telephone or IX-59DS DSS unit:

1. Install a Leviton 4108W-SP wall mount plate on the wall or install a standard switch box into the wall.

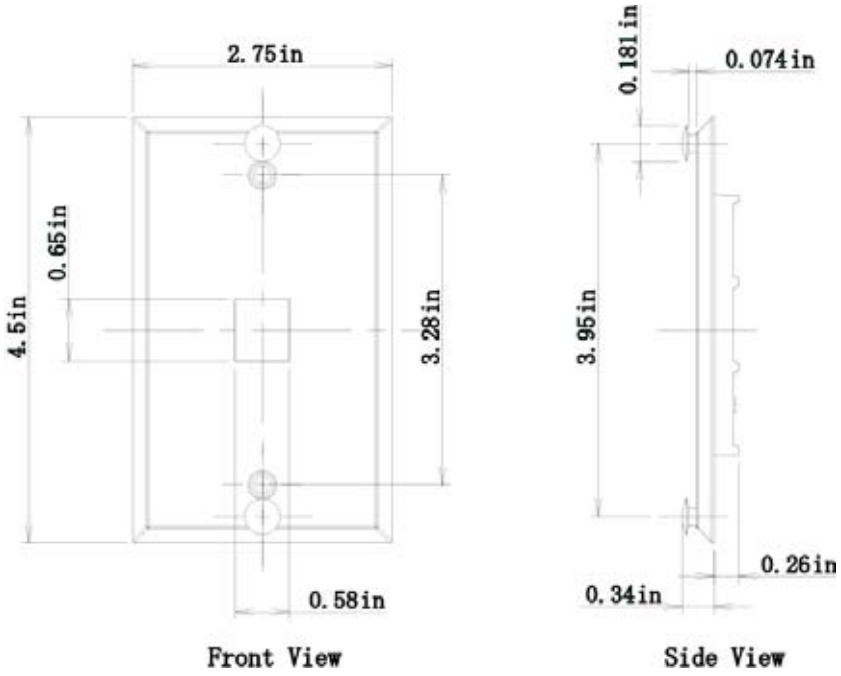
Note:	Wall mount plate dimensions and pin depth may vary from one manufacturer to another and all wall mounts may not match the Iwatsu ICON Series wall mount dimensions. Due to this variance, Iwatsu recommends using a wall mount equal to the dimensions shown on the following page for wall mounting Iwatsu ICON Series telephones and DSS units. The Iwatsu ICON Series telephones were engineered for compatibility with Leviton wall mounts as they are commonly available. Leviton is a high-quality manufacturer and part of BICSI.

Wall Mounting Requirements

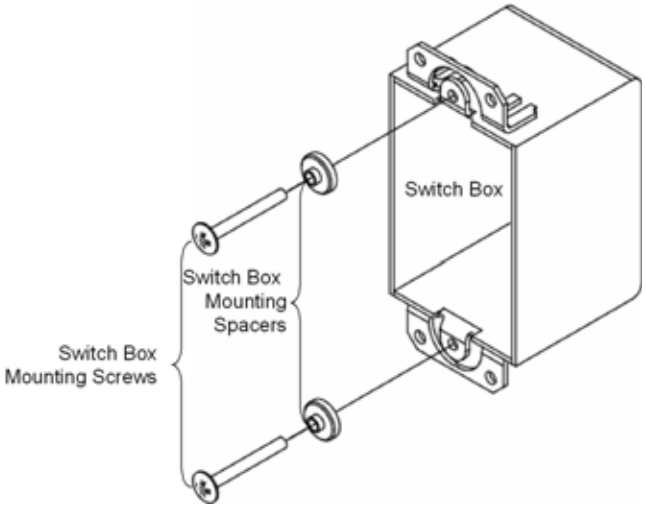
Telephone / DSS	IX-59WMS or IX-59WMS-1	Wall Mount Plate / Switch Box
IX-5900	IX-59WMS-1 Required	Leviton 4108W-SP + RJ45 Quick Port / Standard Switch Box
IX-59DS	IX-59WMS-1 Required	Leviton 4108W-SP + RJ45 Quick Port / Standard Switch Box
IX-5910	IX-59WMS Required	Leviton 4108W-SP + RJ45 Quick Port
IX-5930	IX-59WMS Required	Leviton 4108W-SP + RJ45 Quick Port

- Wall mount plate dimensions are shown in the example on the following page.

The wall mount plate dimensions are shown in the example



- When using a standard switch box to mount the Iwatsu ICON Series IX-5900 or IX-59DS, screw the two switch box mounting screws with screw spacers (included with the IX-59WMS-1 Wall Mount Spacer) into the switch box as shown in the drawing below.



2. Place the IX-5900 / IX-59DS pedestal in the upright wall mount position. The IX-5900 is shown below:



3. **For the IX-5900**, lift the handset hook from the center of the station's upper cradle and reinsert the handset hook in the slot in the upside-down position.



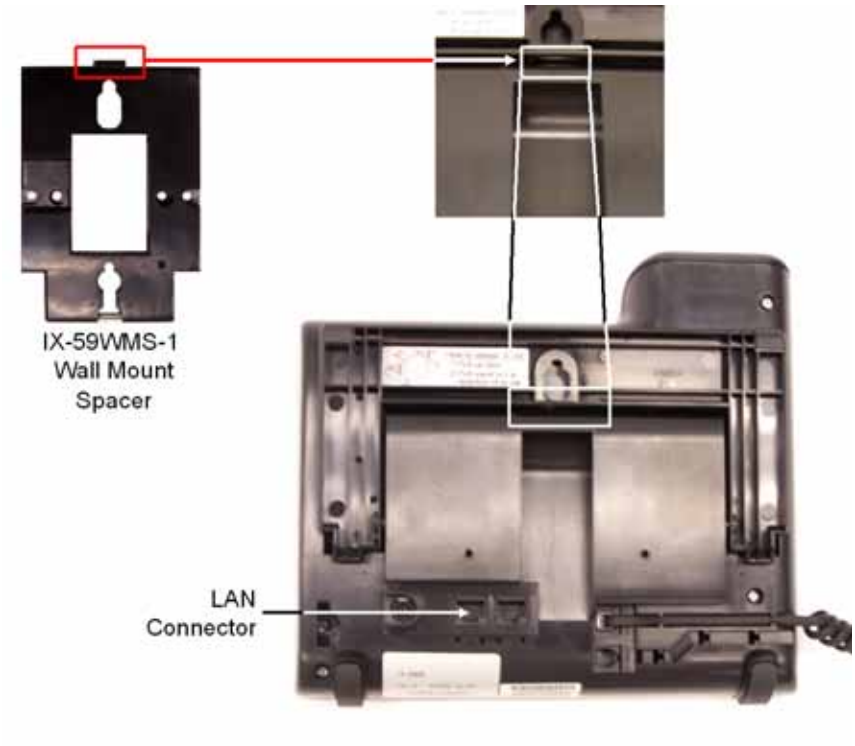
IX-59WMS-1 Wall Mount Spacer Installation

The optional IX-59WMS-1 Wall Mount Spacer (PN: 505073) is required to provide relief for the Ethernet cable and IX-59AC power cord (optional) when wall mounting the IX-5900 or IX-59DS.

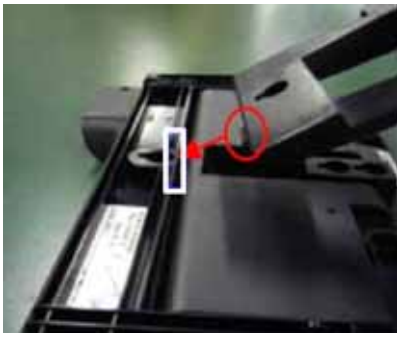
1. With the built-in pedestal locked in the wall mount position:
   - Attach the Ethernet cable to the LAN connector (located on the back left of the telephone / DSS unit).
   - If you are not using PoE, also connect the IX-59AC power cord to the IX-5900 or IX-59DS before securing the IX-59WMS-1 Wall Mount Spacer to the telephone or DSS unit.

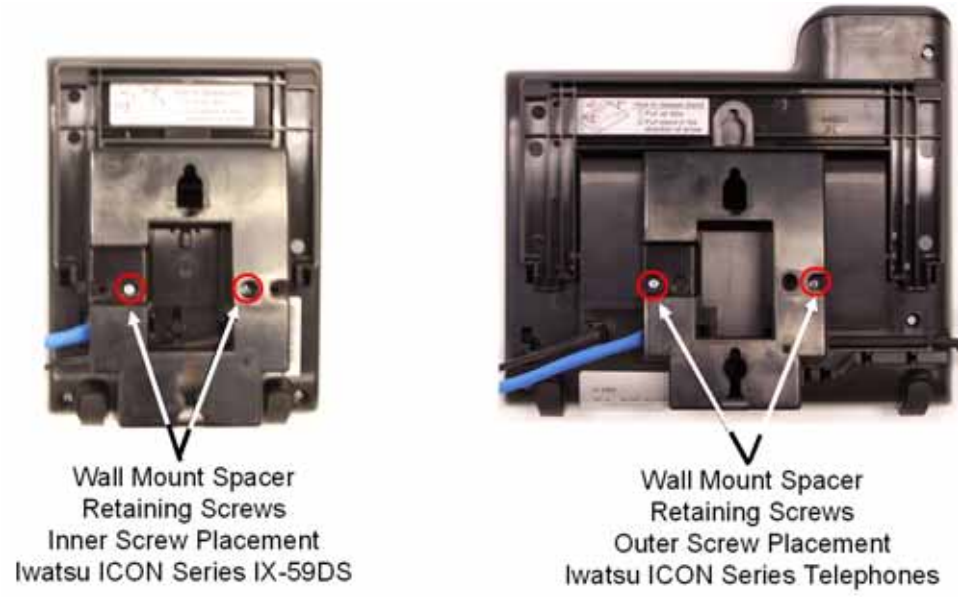
Warning!	**When wall mounting the Iwatsu ICON Series IX-5900 or the IX-59DS:** Due to the limited space between the RJ45 connectors on the IX-5900 / IX-59DS and the IX-59WMS-1 Wall Mount Spacer, Iwatsu recommends using **only** RJ45 connectors **without** the strain-relief / snag-free boot on the Ethernet cable. Due to the space limitation, if you attach the IX-59WMS-1 Wall Mount Spacer to the IX-5900 or IX-59DS prior to connecting the Ethernet cable to the LAN connector on the telephone or DSS unit, you may have to remove the IX-59WMS-1 Wall Mount Spacer to connect the Ethernet cable to the LAN connector on the IX-5900 or the IX-59DS

2. Insert the tab (located on the top of the wall mount spacer) into the slot between the telephone / DSS unit lower housing and the built-in pedestal (pedestal must be in the upright locked position).



3. With the IX-59WMS-1 Wall Mount Spacer tab in place, use the two retaining screws (provided with the Wall Spacer) to secure the wall mount spacer to the telephone / DSS unit.
   - There are two sets of pre-drilled holes in the back of the IX-59WMS-1 Wall Mount Spacer:
     - The two outer pre-drilled holes are used for attaching the IX-59WMS-1 to the Iwatsu ICON Series IX-5900 telephone.
     - The two inner pre-drilled holes are used to attach the IX-59WMS-1 to the Iwatsu ICON Series IX-59DS DSS unit.





   - With the IX-59WMS-1 in place, follow the wall mounting procedure on the following page.

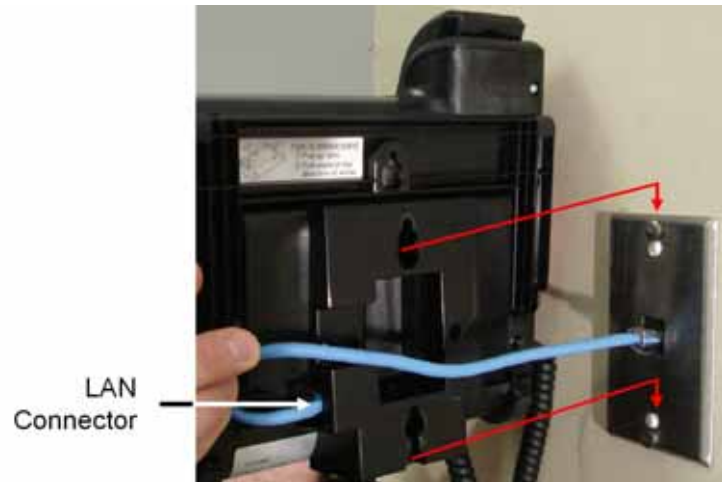
Attach an Iwatsu ICON Series IX-5900 / IX-59DS to a Wall Mount

The wall mount procedure detailed in this section, apply to both the Iwatsu ICON Series IX-5900 and the IX-59DS.

Note:	The IX-59WMS-1 has a dual lower cutout to accommodate the Leviton 4108W-SP wall mount plate or switch box mounting. When wall mounting the telephone, ensure that the Ethernet cable is not crimped or pinched by the telephone or wall mount plate. After installation, ensure that the IX-5900 or IX-59DS unit is securely mounted to the wall and withstands a load of at least 5.3 pounds.

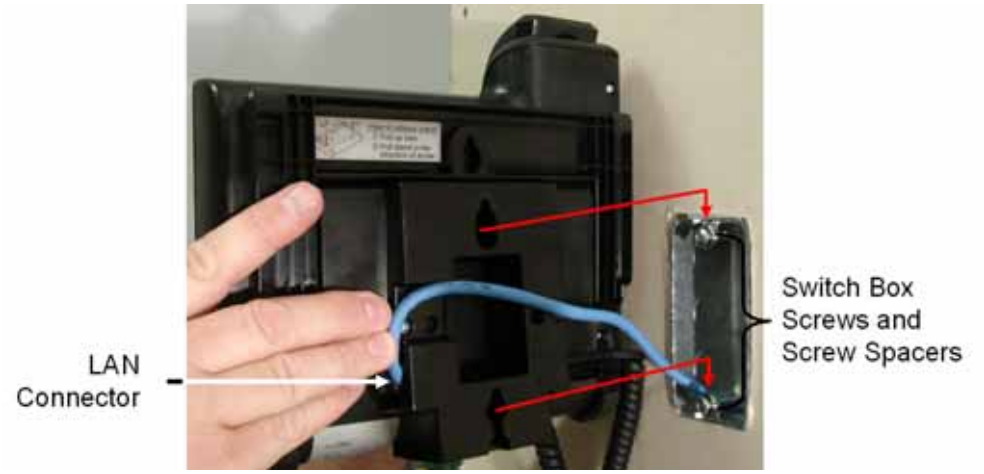
Wall Mount Plate Mounting Procedure

- **When using the wall mount plate:** Match the **upper** and **lower** wall mount cutouts on the IX-59WMS-1 with the wall mount tabs on the wall mount plate. Insert the two wall mount cutouts over the wall mount tabs and push the telephone down to secure the telephone / DSS unit to the wall.



Switch Box Mounting Procedure

When using the switch box: Match the upper and the lower wall mount cutouts on the IX-59WMS-1 with the mounting screws on the switch box. Insert the two wall mount cutouts over the switch box screws with screw spacers (included with the IX-59WMS-1) and push the telephone down to secure the telephone / DSS unit to the wall.



Wall Mounting - IX-5930 and IX-5910

The Wall Mount Installation section details wall mounting the Iwatsu ICON Series IX-5930 or IX-5910 to a Leviton 4108W-SP switch plate. Wall mounting the IX-5930 or IX-5910 requires the **IX-59WMS** Wall Mount Spacer (part number 505072).

Follow the instructions below to wall mount an Iwatsu ICON Series IX-5930 or IX-5919 IP telephone:

1. Install a Leviton 4108W-SP wall mount plate on the wall.

Note:

Wall mount plate dimensions and pin depth may vary from one manufacturer to another and all wall mounts may not match the Iwatsu ICON Series wall mount dimensions. Due to this variance, Iwatsu recommends using a wall mount equal to the dimensions shown on the following page for wall mounting Iwatsu ICON Series telephones and DSS units.

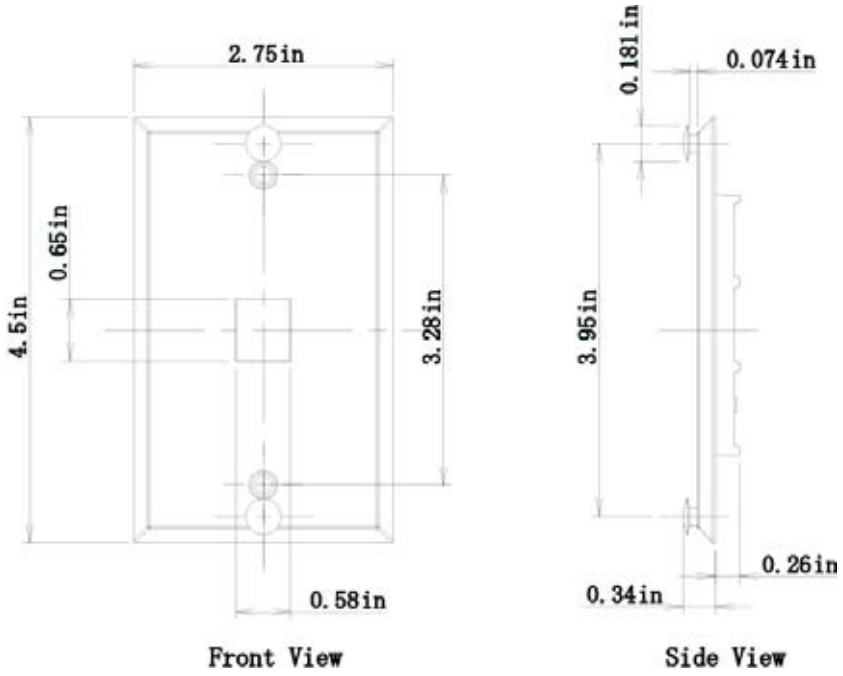
The Iwatsu ICON Series telephones were engineered for compatibility with Leviton wall mounts as they are commonly available. Leviton is a high-quality manufacturer and part of BICSI.

Wall Mounting Requirements

Telephone / DSS	IX-59WMS or IX-59WMS-1	Wall Mount Plate / Switch Box
IX-5910	IX-59WMS Required	Leviton 4108W-SP + RJ45 Quick Port
IX-5930	IX-59WMS Required	Leviton 4108W-SP + RJ45 Quick Port
IX-5900	IX-59WMS-1 Required	Leviton 4108W-SP + RJ45 Quick Port / Standard Switch Box
IX-59DS	IX-59WMS-1 Required	Leviton 4108W-SP + RJ45 Quick Port / Standard Switch Box

- Wall mount plate dimensions are shown in the example on the following page.

The wall mount plate dimensions are shown in the example



2. Place the IX-5930 / IX-5910 pedestal in the upright wall mount position.



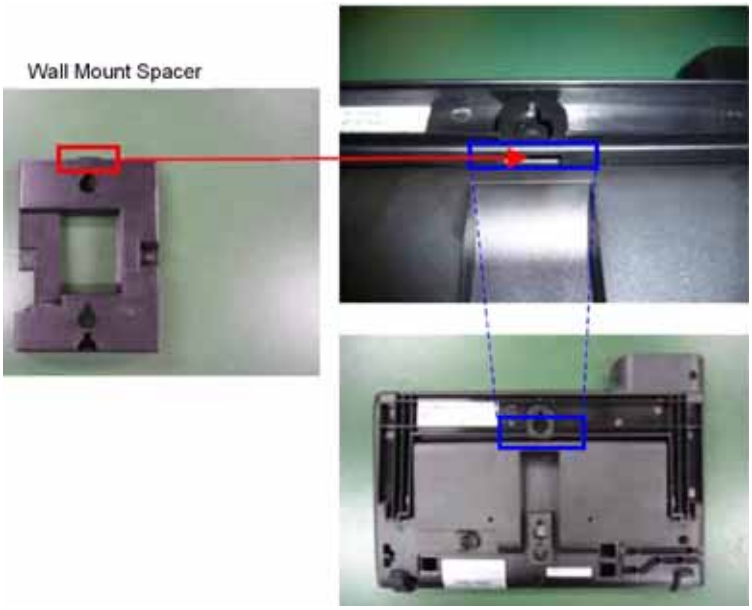
3. Lift the handset hook from the center of the station's upper cradle and reinsert the handset hook in the slot in the upside-down position.



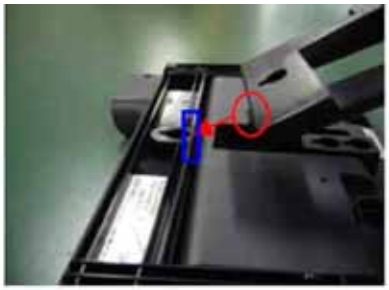
IX-59WMS Wall Mount Spacer Installation

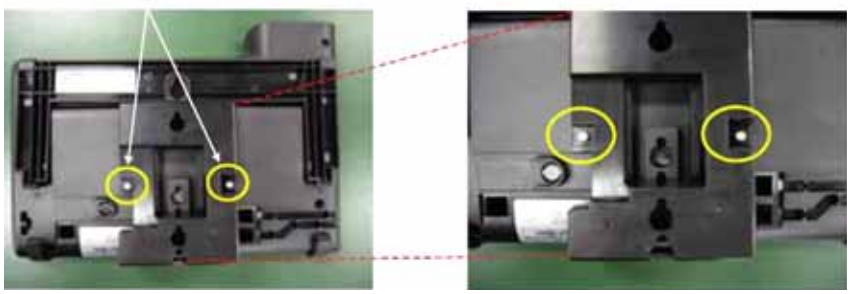
Use the IX-59WMS Wall Mount Spacer to provide relief for the IX-59AC power cord and the Ethernet cable when wall mounting the IX-5930 or IX-5910 IP telephone.

1. With the built-in pedestal locked in the wall mount position, insert the tab (located on the top of the wall mount spacer) into the slot between the telephone lower housing and the built-in pedestal.



2. With the Wall Spacer tab in place, use the two retaining screws (provided with the Wall Spacer) to secure the Wall Spacer to the telephone.





3. With the IX-59WMS in place, follow the wall mounting procedure on the following page.

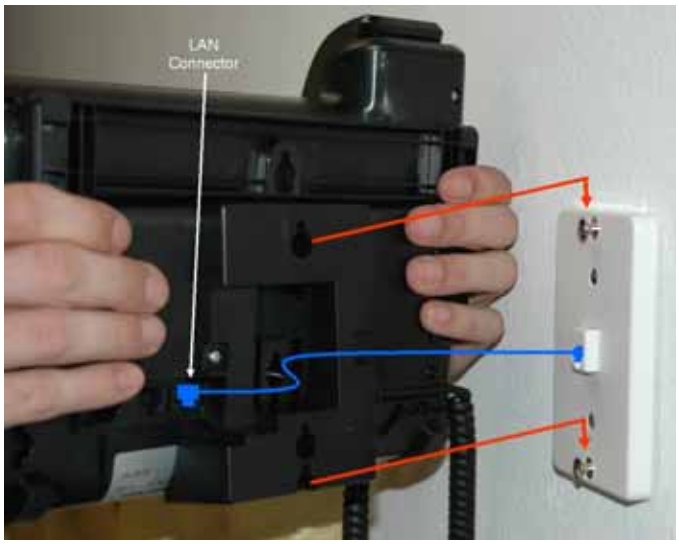
Attach an Iwatsu ICON Series IX-5930 / IX-5910 to a Wall Mount

The wall mount procedure detailed in this section, apply to both the Iwatsu ICON Series IX-5930 and the IX-5910.

Note:	When wall mounting the telephone, ensure that the Ethernet cable is not crimped or pinched by the telephone or wall mount plate. After installation, ensure that the IX-5930 or IX-5910 unit is securely mounted to the wall and withstands a load of at least 5.3 pounds.

Wall Mount Plate Mounting Procedure

1. Attach the Ethernet cable to the wall mount connector and then to the LAN connector (located on the back left of the telephone). Also, if you are not using PoE, connect the IX-59AC power cord to the IX-5930 or IX-5910 before securing the telephone to the wall mount.



2. Match the **top** and **bottom** wall mount cutouts on the IX-59WMS with the wall mount tabs on the wall mount plate. Insert the two wall mount cutouts over the wall mount tabs and push the telephone down to secure the telephone to the wall.

Key Labeling

Key patterns can be printed directly from the Iwatsu Programmer under **Tools > Key Labels** or **My ECPhone** users can print their key patterns from the program. To print the individual key labels, the user requires the key sheet label appropriate for his or her phone, Microsoft Word, or the DESI Plus program which can be downloaded from the Iwatsu Distributor website at: http://www.iwatsu.biz/Distributors/TechSupport/Downloads.cfm

IX-5910

Remove the plastic key sheet cover by using your fingernail or pen and placing it under the bottom left side of the key sheet tab and lifting. If desired, remove the label shipped with the telephone and replace with the IX-5910 key label.



IX-5930

The IX-5930 IP Key Telephone feature keys are 100% self-labeling and do not have a key sheet cover or require the use of paper labels.

IX-5900

Remove the plastic key sheet cover by using your fingernail or pen and placing it under the bottom left side of the key sheet tab and lifting. If desired, remove the label shipped with the telephone and replace with the IX-5900 key label..



IX-59DS

The IX-59DS feature keys are 100% self-labeling and do not have a key sheet cover or require the use of paper labels.



Optional Equipment Installation

Follow the instructions below to install IX-5930, IX-5910, IX-5900 Optional Equipment.

IX-59BTINF Bluetooth Headset Adapter Installation

(The IX-5810 Digital Key Telephone requires the IX-58BTINF)

This unit allows the connection of an IX-5930 or IX-5910 IP Key Telephone to a Bluetooth headset.

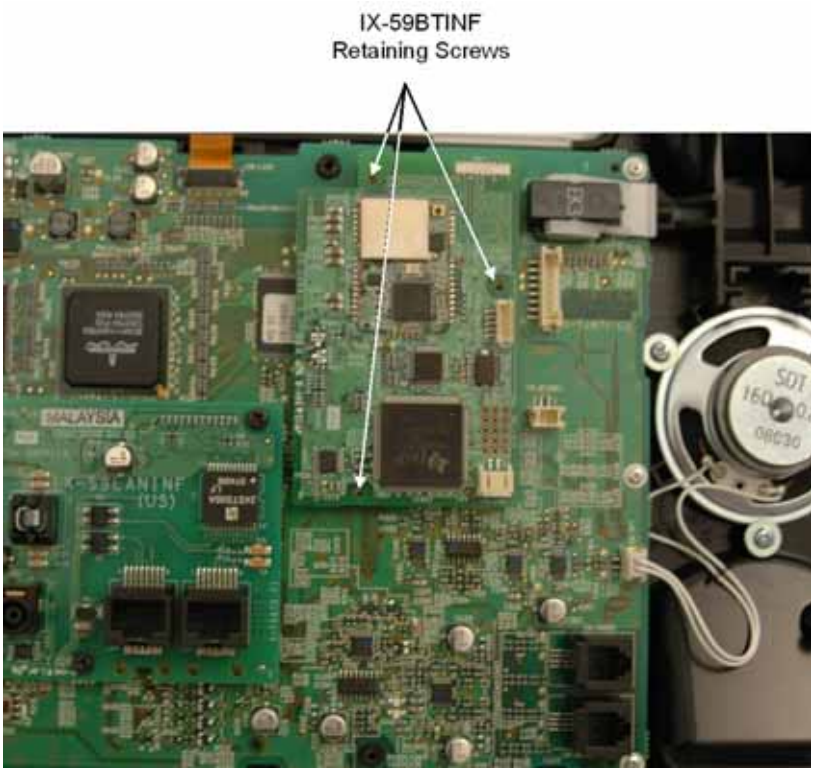
To add an IX-59BTINF unit to an IX-5930 or IX-5910 IP Key Telephone:

1. Turn the IX-5930/IX-5910 Telephone so that the bottom (pedestal) of the telephone is facing up and disconnect all cords (Headset and Handset).
2. Using a Phillips head screwdriver, remove the six screws from the bottom of the IX-5930/IX-5910 Telephone. Carefully, place the screws aside.
3. With the six screws removed, separate the upper and lower housing from the telephone.



4. Insert the IX-59BTINF CN902 connector into the CN-BT1 connector on the IX-5930 motherboard (IX-5930IPKTCU) or the IX-5910 motherboard (IX-5910IPKTCU).

5. When the IX-59BTINF board is connected, insert the three retaining screws (provided with the IX-59BTINF) to secure the IX-59BTINF to the IX-5930IPKTCU/ IX-5910IPKTCU motherboard.



6. Reattach the top and bottom sections of the telephone using the Phillips head screws set aside from the second step.
7. Reconnect all cords.

IX-ELK9

The Iwatsu ICON Series IX-5900 has an optional IX-ELK9 Key Expansion Unit. The IX-ELK9 doubles the number of multipurpose keys for the IX-5900 from 9 to 18 keys.

To install the IX-ELK9:

1. Remove the plastic key sheet covering and the paper key label from the IX-5900 telephone.
2. Remove the three retaining screws and then remove the plate covering the area reserved for the IX-ELK9.
3. Carefully, set the IX-ELK9 in place aligning the three pre-drilled holes for the retaining screws.
4. sing the three screws that you removed in step 2, secure the IX-ELK9 into place as illustrated below.
5. Replace with a new paper key label and 18-button plastic key sheet covering.



Platinum 18i Configuration

The Platinum 18i menu display or the integrated web server interface can be used to configure the Platinum 18i IP Telephone. Both procedures are listed in this section.

By factory default, the Platinum 18i IP Telephone is setup for DHCP IP addressing. If your network does not have a DHCP server on your network, you will need to program a static IP address on your Platinum 18i IP Telephone.

Platinum 18i Configuration using the Web Interface

Follow the procedure for configuring the Platinum 18i IP Telephone for either **DHCP** or **Static** IP addressing.

During this procedure, some programming through the Platinum 18i Display Menu is necessary to retrieve the DHCP IP address or change the IP Telephone's IP address from DHCP to Static.

The procedure is noted where DHCP and Static programming deviates.

Web Interface Configuration Overview

Step 1 - Connect Power to the Platinum 18i.

Step 2 - Login to the Platinum 18i using the Display Menu.

Step 3 - Retrieve the assigned DHCP IP address using the Display Menu.

Step 4 - Change Mode from DHCP to Static IP addressing using the Display Menu.

Step 5 - Configure the Programming PC.

Step 6 - Login and Configure the Platinum 18i using the Web Interface.

Step 7 - Input the IX-CCU/IX-CCSU LAN 2 IP address (Primary / Secondary) using the Web Interface.

Step 8 - Change Mode from DHCP to Static IP addressing using the Web Interface.

Step 9 - Input the ECS Station Logical Port number (Primary / Secondary) using the Web Interface.

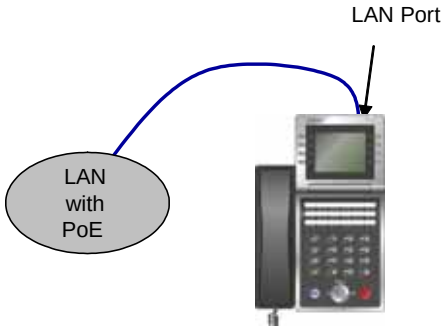
Step 10- Set Time Difference 1 and Time Difference 2.

Step 11- Reset the Platinum 18i using the Web Interface.

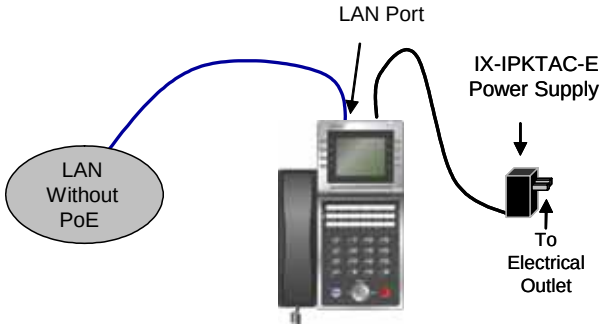


Step 1 - Connect power to the Platinum 18i

1. For **Power over Ethernet (PoE)**, connect the CAT5 cable to the LAN Port on the Platinum 18i and then to the LAN.



- If **Power over Ethernet (PoE)** is **not used**: First, connect the CAT5 cable to the LAN Port on the Platinum 18i and then to the LAN. Second, connect the IX-IPKTAC-E power supply to an electrical outlet and then to the Platinum 18i.



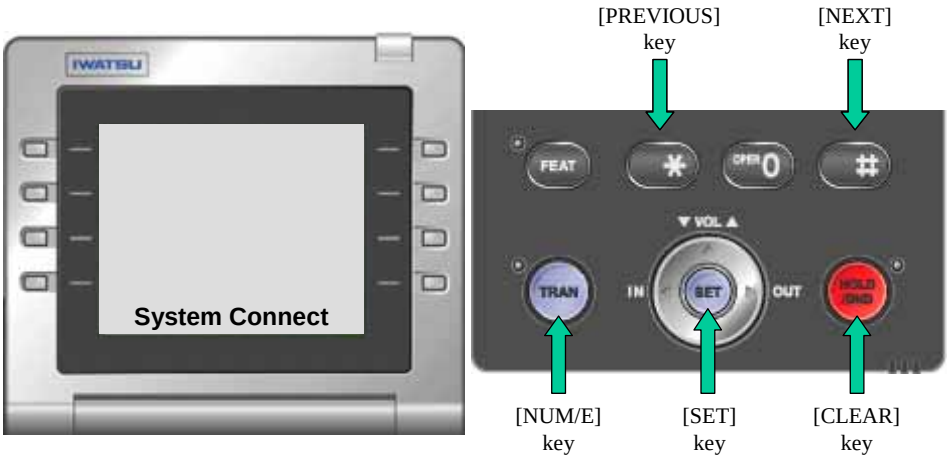
- *Once power is applied to the Platinum 18i, the telephone will attempt to negotiate with the network DHCP server. If you do not have a DHCP server on your network, the Platinum 18i will still go through the negotiation process. This process will take a few minutes to complete.*
- ***(For DHCP)*** The DHCP server will negotiate with the Platinum 18i and will be assigned an IP address.
- If there is no DHCP server on your network the error message shown (below right) will display on your Platinum 18i display.



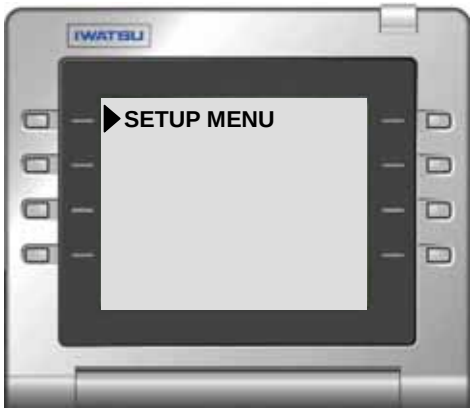


Step 2 - Login to the Platinum 18i using the Display Menu

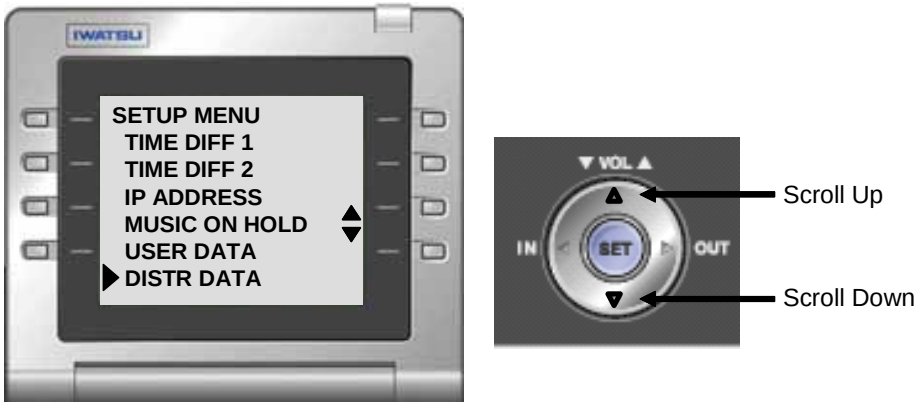
1. After the Platinum 18i has completed the DHCP negotiation process: Press and hold the [**SET**] key below the dial pad of the Platinum 18i for **5 seconds** - until the **Setup Menu** appears.



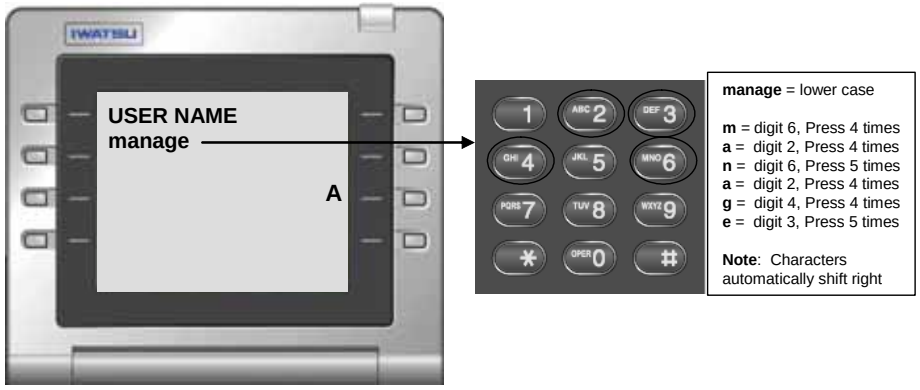
2. At the **SETUP MENU** screen, press [**SET**].

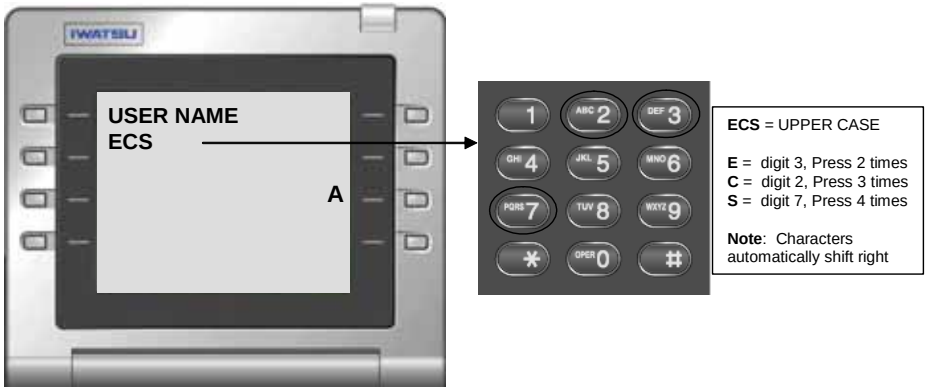


3. From the **SETUP MENU**, scroll down and select [**DISTR DATA**].
   - Press [**SET**].

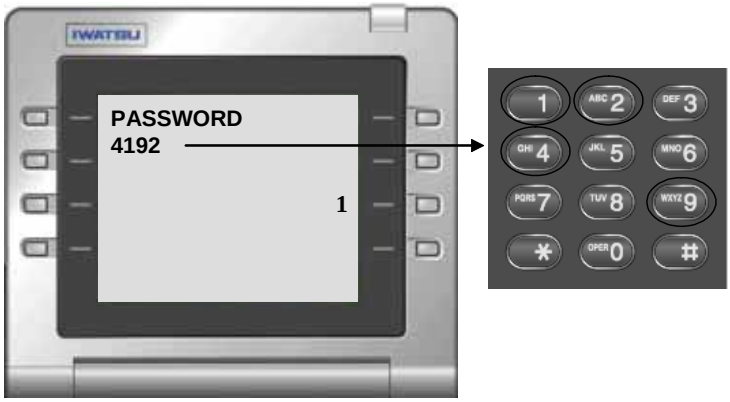


4. Input ***USER NAME*** using the dial pad.
   - Enter the Default User Name = **manage** (lower case) or **ECS** (UPPER CASE).
   - Press [**SET**].





5. Input ***PASSWORD*** using the dial pad.
   - Default password = **4192**.
   - Press [**SET**].



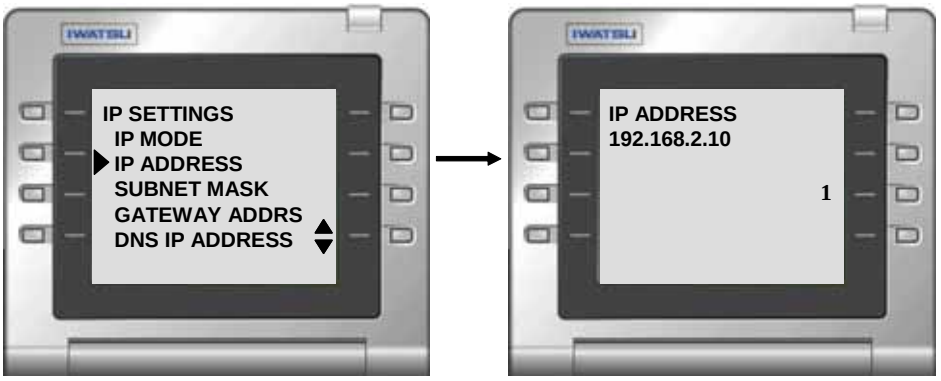
Step 3 is only required for DHCP IP addressing. For Static IP addressing - Skip to Step 4

Step 3 - Retrieve the assigned DHCP IP address using the Platinum 18i Display Menu

1. In the **SYS DATA PROG** Menu, select [**IP SETTINGS**].
   - Press [**SET**].



   - **IP SETTINGS** Screen appears.
2. Select [**IP ADDRESS**] and press [**SET**].
   - Write down the IP address the DHCP server has assigned to the Platinum 18i.



3. **Go to Step 5** - Login to the Platinum 18i using the Web Interface.

Step 4 is only required if changing IP Mode from DHCP to Static IP addressing

Step 4 - Change Mode from DHCP to Static IP addressing using the Platinum 18i Display Menu

1. In the **SYS DATA PROG** Menu, select [**IP SETTINGS**].
   - Press [**SET**].



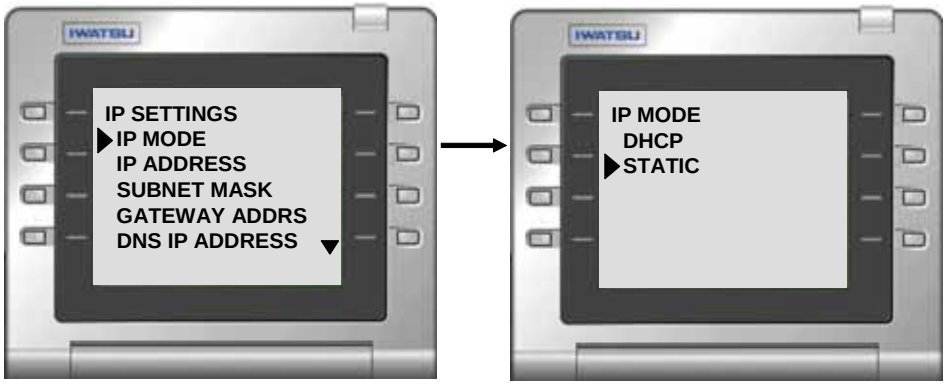
   - **IP SETTINGS** screen appears.
2. Select [**IP MODE**] and press [**SET**].



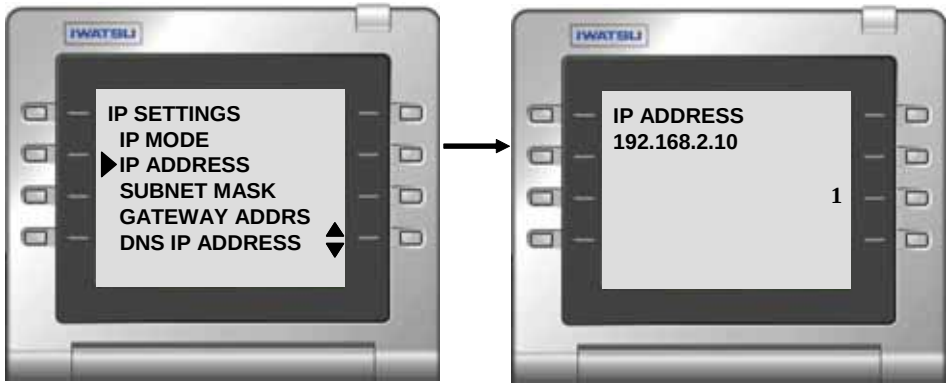
IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = **DHCP**)
2. **IP ADDRESS:** Insert the NR-A-12/18IPKTD IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (When changed to Static - Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (When changed to Static - Default = 255.255.0.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

- Select [**STATIC**] and press [**SET**].



3. Select [**IP SETTINGS**] and press [**SET**].
   - Select [**IP ADDRESS**] and press [**SET**].



   - Use the * key to move the cursor left or the # key to move the cursor right and push [**CLEAR**] to delete the Default IP Address.
   - Input the IP Address using the dial pad and the [**NUM/E**] button.
   - Once the correct IP Address is inserted, press [**SET**].



IP ADDRESS Data Input
Example: 192.168.2.10

Using the dial pad:
Dial [192] + Press [NUM/E] + Dial [0 0] = **192.**
Press [NUM/E] + Dial [168] + Press [NUM/E] + Dial [0 0] = **192.168.**
Press [NUM/E] + Dial [2] + Press [NUM/E] + Dial [0 0] = **192.168.2.**
Press [NUM/E] + Dial [10] = **192.168.2.10**

Press [SET]
Returns to SYSTEM DATA PROG Menu

4. From the **SYS DATA PROG** Menu, select [**IP SETTINGS**] and press [**SET**].
   - From the **IP SETTINGS** Menu:
   - Select [**SUBNET MASK**]. Enter Subnet Mask address
   - Select [**GATEWAY ADDRS**]. Enter Gateway Address, if required.

(Refer to the above IP Address data input example above for entering an IP Address)



IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

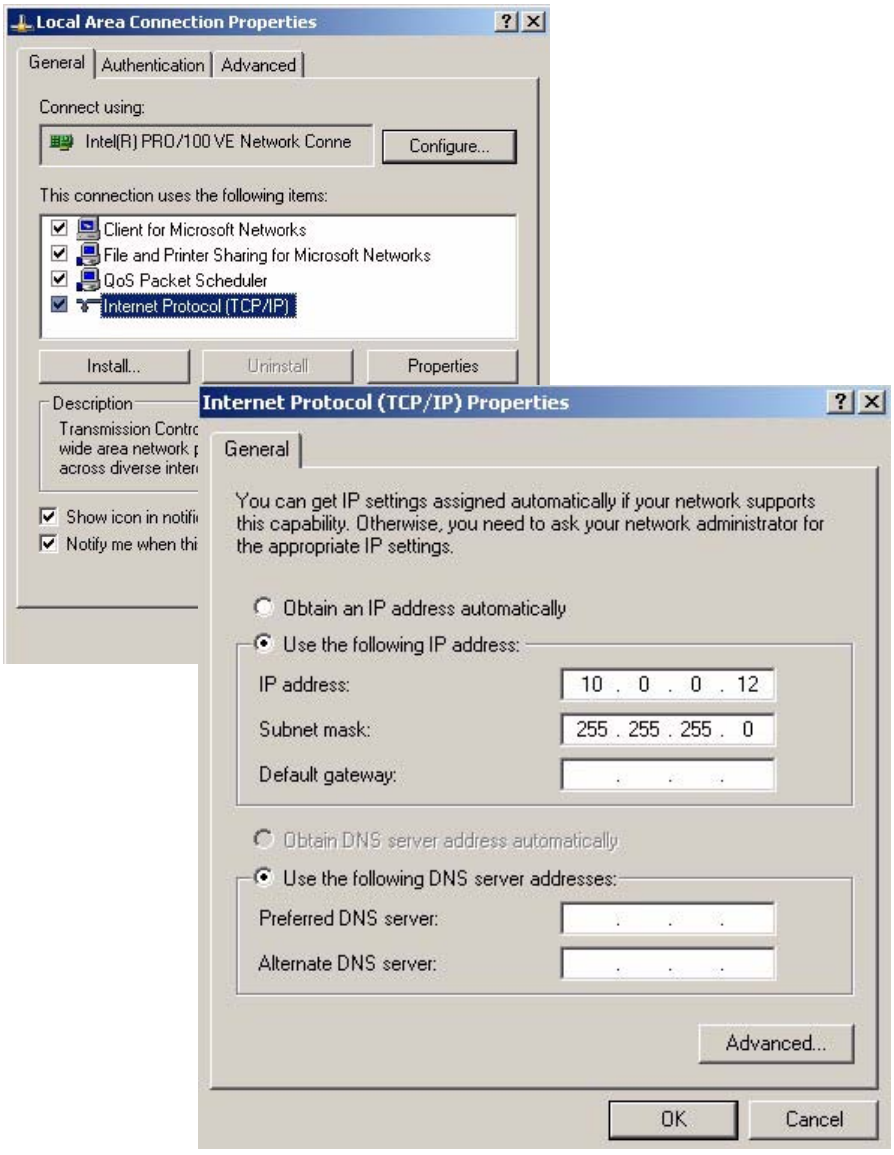
1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = **DHCP**)
2. **IP ADDRESS:** Insert the NR-A-18IPKTD IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (When changed to Static - Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (When changed to Static - Default = 255.255.0.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

- Remember to press [**SET**] after making any changes.

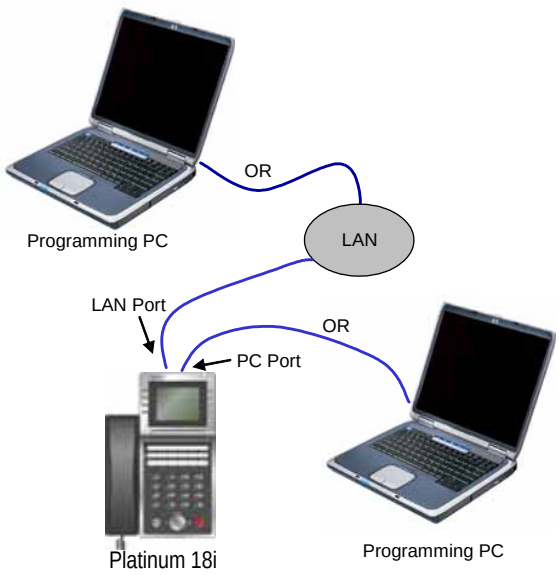
Step 5 - Configure the Programming PC

The programming PC must be configured with an IP address that is compatible with the Platinum 18i being programmed. Consult your Network Administrator if needed.

1. From the programming PC's **Control Panel**, select: **Network Connections** then **Properties**.
   - In the Local Area Connection Properties screen. Select: **Internet Protocol (TCP/IP)** then **Properties**.
   - Input an IP address and Subnet mask that is compatible with the Platinum 18i being programmed. For example: An IP address of 10.0.0.2 and a Subnet mask of 255.255.255.0 is compatible with an Platinum 18i IP address of 10.0.0.10.
   - Remember to press **OK** for changes to take effect.



2. Connect the programming PC to the LAN or directly to the PC port on the back of the Platinum 18i.



Step 6 - Login and Configure the Platinum 18i using the Web Interface

Note:	To configure the Platinum 18i IP Telephone, cookies must be enabled. Use Internet Explorer's integrated help file for instructions on enabling cookies.

1. Launch Internet Explorer version 6.0 or higher.
   - Type the **DHCP** or **Static** IP address of the IP telephone in the address bar.



   - The **IPKT Login** screen appears.

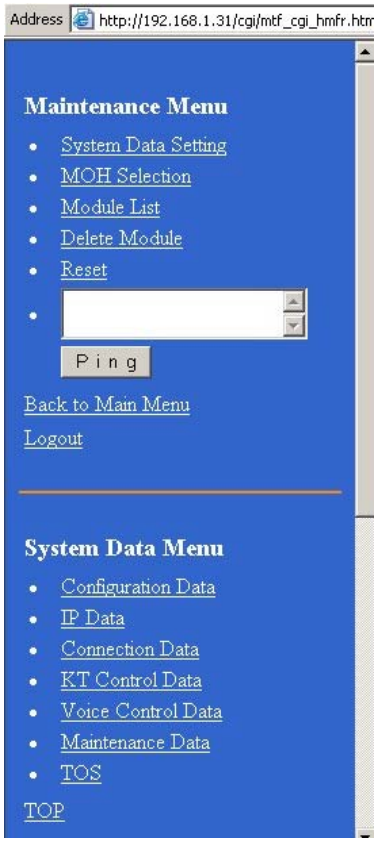


Note:	If the above page does not display, there is a TCP/IP configuration settings conflict. Make certain both devices reside on the same subnet and network and the programming PC's IP settings are correct.

2. Enter the case-sensitive Username and Password on the **IPKT Login** screen.
   - Use '**manage**' or '**ECS**' as the username.
   - Use '**4192**' as a password.
   - Select the **Login** button.

Note:	The above username and password are for Iwatsu Voice Networks distributor use only.

3. Upon a successful Login, the **Main Menu** screen will display.



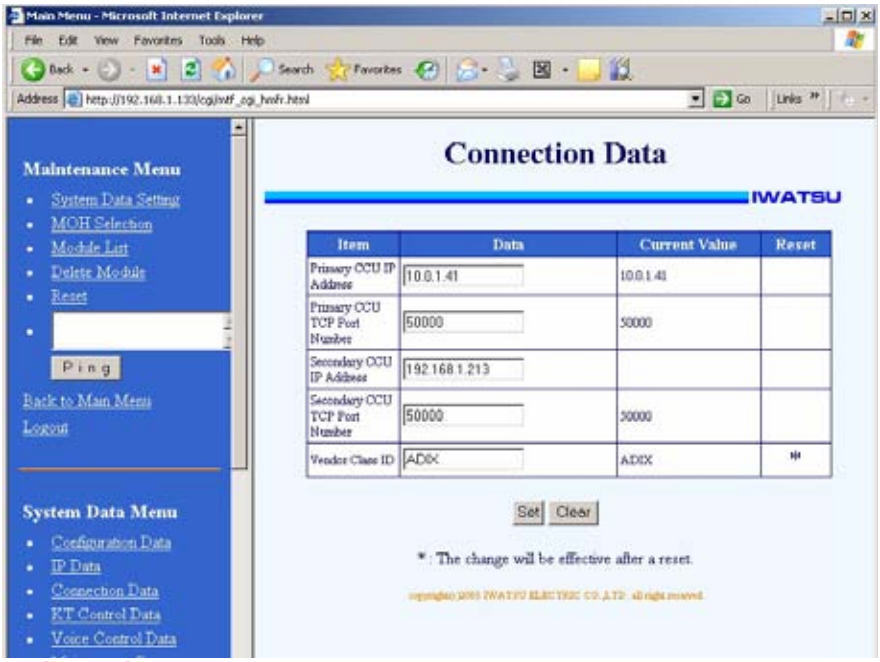
Step 7 - Input the IX-CCU/IX-CCSU LAN 2 IP address for the Primary and Secondary ECS systems using the Web Interface

(The Secondary IX-CCU/IX-CCSU LAN2 IP address is required for multiple host connectivity)

1. From the **System Data Menu,** select **Connection Data**.
2. From the **Connection Data** screen, enter the IP address of the primary IX-CCU/CCSU LAN2 port in the **Primary CCU IP Address** textbox. To provision a **Secondary CCU IP Address**, enter the LAN2 IP address of the secondary (or backup) IX-CCU/CCSU.

Note: The default address of the LAN2 port is **10.0.0.1**.

3. Enter the primary and secondary TCP port numbers in the **Primary CCU TCP Port Number** and **Secondary CCU TCP Port Number** textbox.
   - This value will rarely change. However because some network administrators only open specific ports on the firewall, some remote users may need to change the default TCP port number to an open port on the firewall.



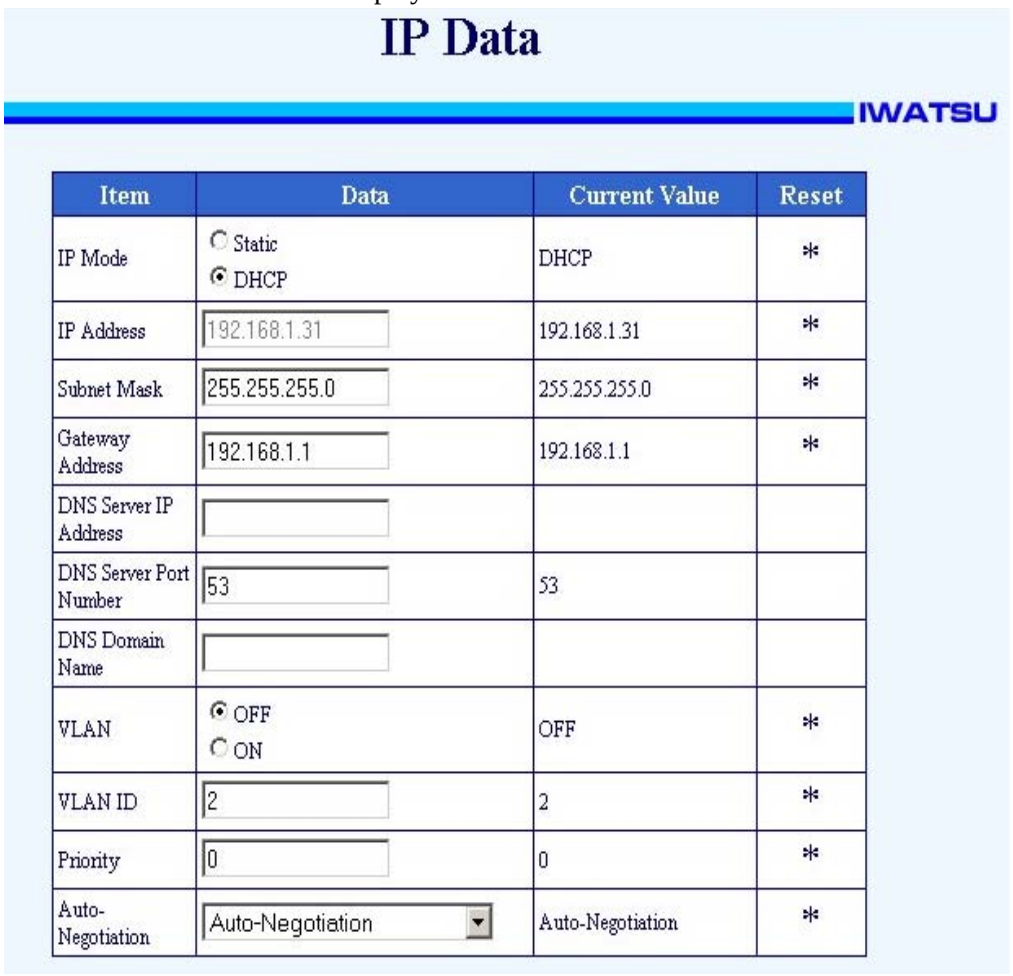
4. Select the **Set** button.
   - Confirm the setting change.



   - Select the **OK** button.

Step 8 - Change Mode from DHCP to Static IP addressing using the Web Interface

1. Select **IP Data** from the **System Data Menu**.
   - The **IP Data** screen displays.



2. Select either the **Static** or **DHCP** radio button in the **IP Mode** field.
   - If **Static** is selected, enter the IP address of the Platinum 18i in the **IP Address** field.

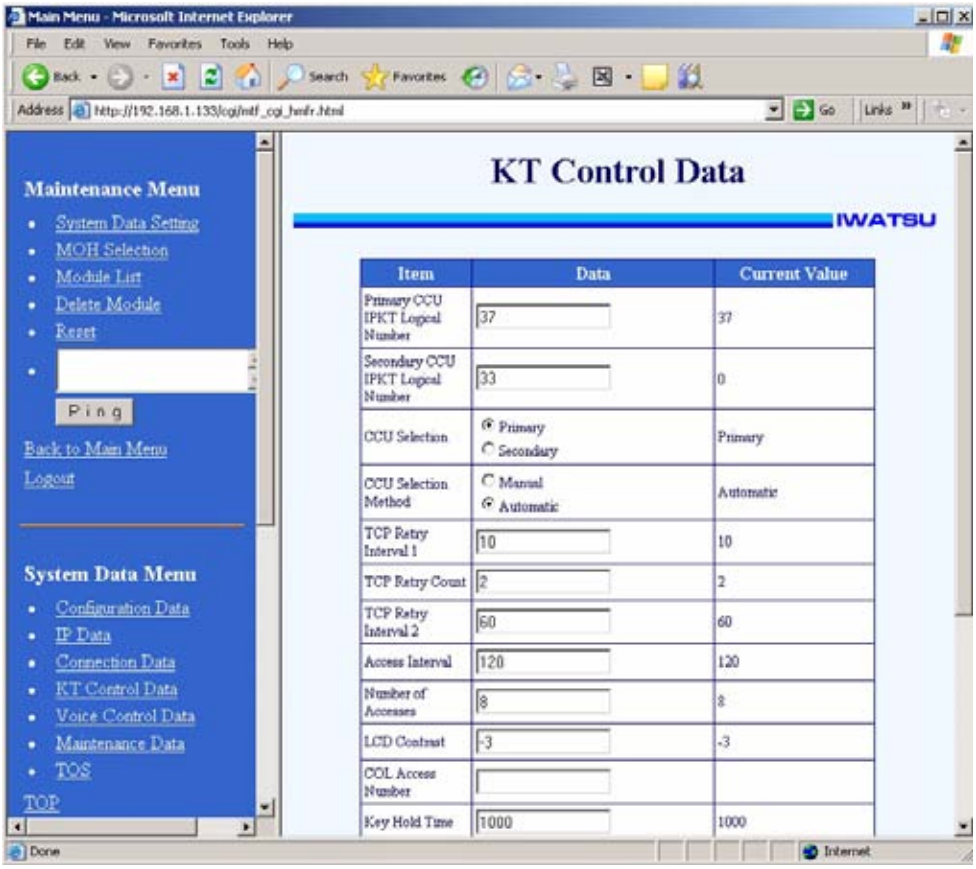
Note:	The Network Administrator will supply the Static IP address, Subnet Mask, and Gateway IP Addresses.

3. Enter the network **Subnet Mask**.
4. Enter the network **Gateway Address**.
   - The **Gateway Address** field is the IP address of the router used by remote users to connect to the ECS system.
   - When using either of the IP Telephones as a layer 2 switch, the PC connected to the IP Telephone must have the correct gateway address to access networks outside the LAN (i.e. the Internet).
5. Select the **Set** button.

Step 9 - Input the ECS Station Logical Port number for the Primary and Secondary ECS system using the Web Interface

(The Secondary station logical port number is required for multiple host connectivity)

1. Select **KT Control Data** from the **System Data Menu**.
   - The **KT Control Data** window displays.
2. Enter the logical port number(s) from **System > Hardware > Port Table** (Class 01.09) from the ECS system database the 18i will use in the **Primary CCU IPKT Logical Number** and the optional **Secondary CCU IPKT Logical Number** field.
3. Set the **CCU Selection**: **Primary** or **Secondary**. This is the CCU IP address the phone will try to connect to first. (Default = Primary)
4. Set the **CCU Selection Method**: **Manual** or **Automatic**. (Default = Automatic)
   - **Automatic**: The telephone will automatically try to connect to the secondary CCU selection when there is no connectivity to the primary CCU selection.
   - **Manual**: The manual selection allows the user to manually switch from one ECS to another based on the programmed information. This is also used to force a re-connect to the same ECS.
5. Select the **Set** button.

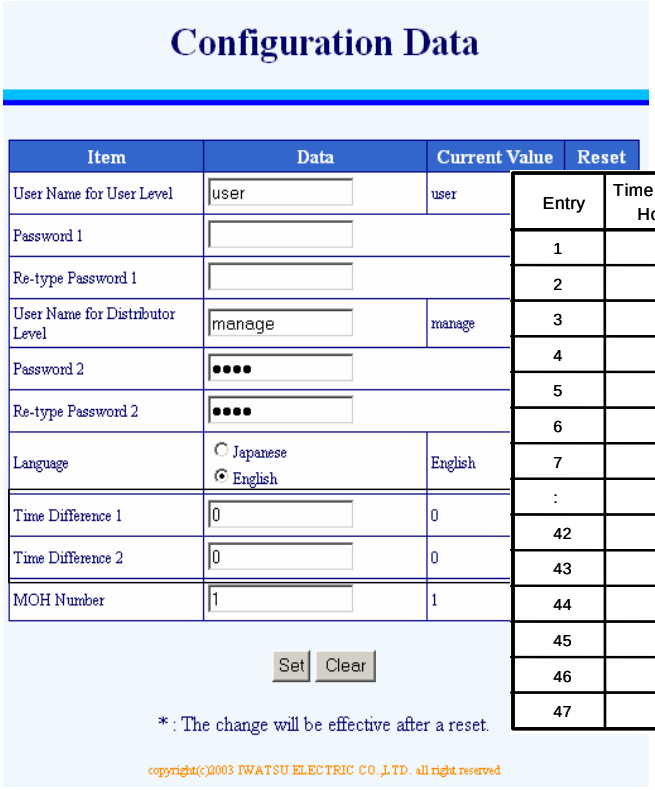


Step 10 - Set Time Difference 1 and Time Difference 2

(Time Difference 2 is an optional setting for multiple host connectivity)

The Time Difference Settings are used to adjust the time of day when the telephone and the ECS system are located in different time zones. The time difference on the telephone can be adjusted from 30 minutes to 23 ½ hours ahead or behind the ECS system time.

1. Enter Time Difference 1 and / or Time Difference 2 offset: Time Difference 1 is associated with the Primary ECS IX-CCU/IX-CCSU LAN2 IP address and Time Difference 2 is associated with the Secondary ECS IX-CCU/IX-CCSU LAN2 IP address.
   - Default = 0 (No time difference).
   - Range = 0 to 47 and -1 to -47. Each whole number represents 30 minutes. For example, if you enter a 2 as the time difference, the telephone time would be 1 hour ahead of the ECS system time.

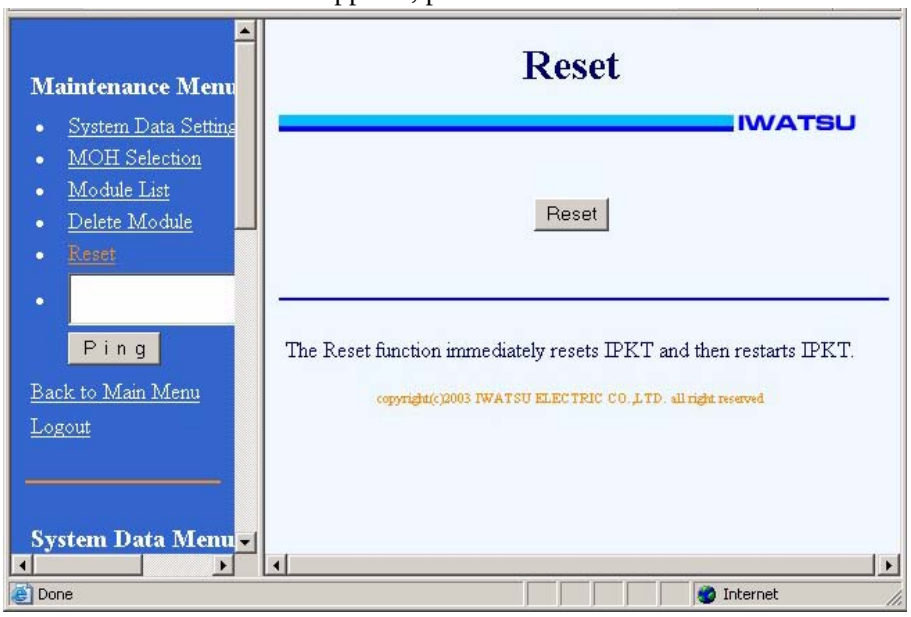


Entry	Time Difference Hour : Min	Entry	Time Difference Hour : Min
1	:30	-1	-:30
2	1:00	-2	-1:00
3	1:30	-3	-1:30
4	2:00	-4	-2:00
5	2:30	-5	-2:30
6	3:00	-6	-3:00
7	3:30	-7	-3:30
:	:	:	:
42	21:00	-42	-21:00
43	21:30	-43	-21:30
44	22:00	-44	-22:00
45	22:30	-45	-22:30
46	23:00	-46	-23:00
47	23:30	-47	-23:30

2. Remember to press the **Set** button after making any change.

Step 11 - Reset the Platinum 18i using the Web Interface

1. From the Maintenance Menu, select **Reset**.
2. When the Reset window appears, press **Reset**.



3. At the **Do you want to reset?** confirmation screen, select **OK** to reset the telephone..



Note: To reset a large number of telephones, you can choose to reset the ECS system. Resetting the ECS will reset each telephone.

Note: An Iwatsu IP Station License is required for all Platinum 18i IP Telephones.

Platinum 18i Configuration Using the Display Menu

Follow the procedure for configuring the Platinum 18i IP Telephone for either **DHCP** or **Static** IP addressing using the IP Telephone's Display Menu.

The procedure is noted where DHCP and Static programming deviates.

Display Menu Configuration Overview

Step 1 - Connect Power to the Platinum 18i

Step 2 - Login to the Platinum 18i using the Display Menu

Step 3 - Change Mode from DHCP to Static IP addressing

Step 4 - Input the IX-CCU/IX-CCSU LAN 2 IP address (Primary / Secondary)

Step 5 - Input the ECS Station Logical Port number (Primary / Secondary)

Step 6 - Set the IX-CCU/IX-CCSU Selection (Primary / Secondary)

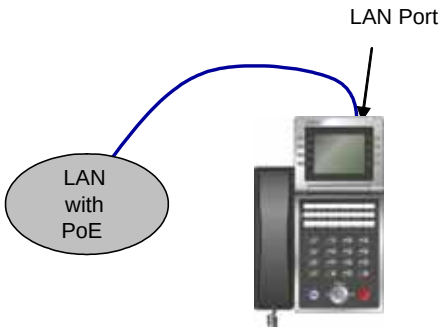
Step 7 - Set the IX-CCU/IX-CCSU Selection Method (Automatic / Manual)

Step 8 - Set Time Difference 1 and Time Difference 2

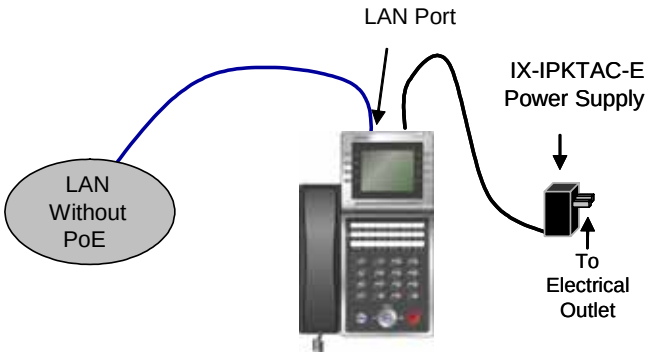
Step 9 - Reset the Platinum 18i

Step 1 - Connect power to the Platinum 18i

1. For **Power over Ethernet (PoE)**, connect the CAT5 cable to the LAN Port on the Platinum 18i and then to the LAN.



2. If **Power over Ethernet (PoE)** is **not used**: First, connect the CAT5 cable to the LAN Port on the Platinum 18i and then to the LAN. Second, connect the IX-IPK-TAC-E power supply to an electrical outlet and then to the Platinum 18i.



- *Once power is applied to the Platinum 18i, the telephone will attempt to negotiate with the network DHCP server. If you do not have a DHCP server on your network, the Platinum 18i will still go through the negotiation process. This process will take a few minutes to complete.*
- ***(For DHCP)*** The DHCP server will negotiate with the Platinum 18i and will be assigned an IP address.
- If there is no DHCP server on your network the error message shown (below right) will display on your Platinum 18i display.

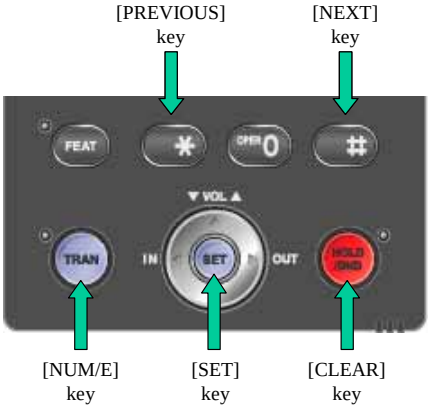




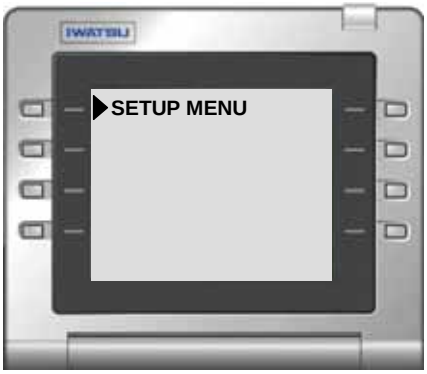
Step 2 - Login to the Platinum 18i using the Display Menu

1. After the Platinum 18i has completed the DHCP negotiation process: Press and hold the [**SET**] key under the key pad of the Platinum 18i for **5 seconds** - until the **Setup Menu** appears.

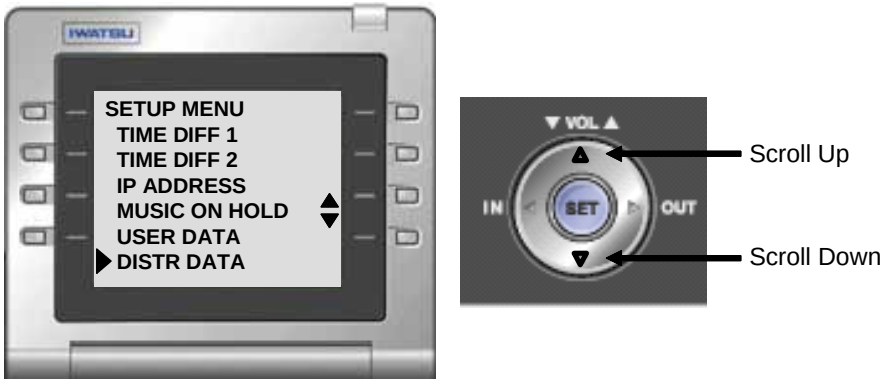




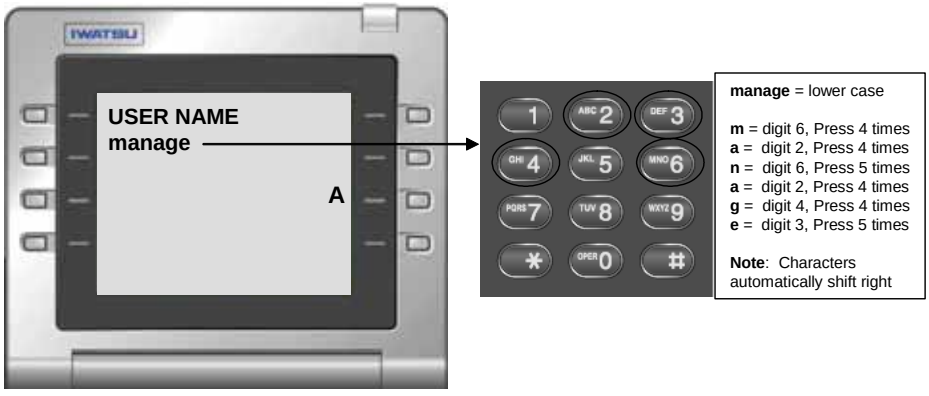
2. At the **SETUP MENU** screen, press [**SET**].

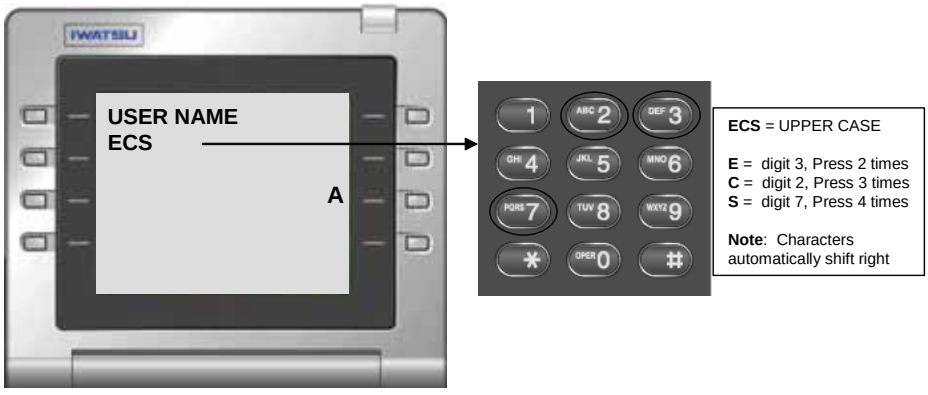


3. From the **SETUP MENU**, scroll down and select [**DISTR DATA**].
   - Press [**SET**].

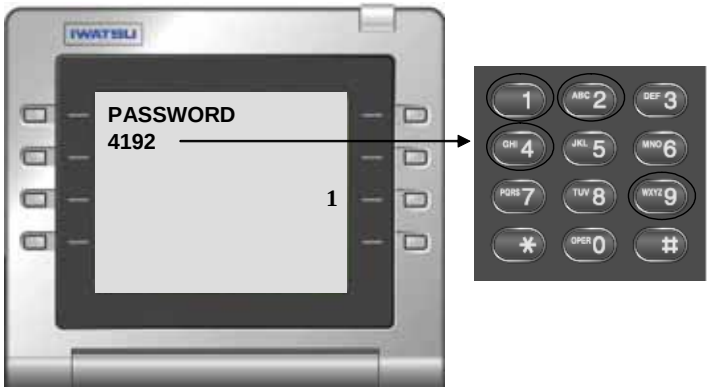


4. Input ***USER NAME*** using the dial pad.
   - Enter the Default User Name = **manage** (lower case) or **ECS** (UPPER CASE).
   - Press [**SET**].





5. Input ***PASSWORD*** using the dial pad.
   - Default password = **4192**.
   - Press [**SET**].



Step 3 is only required if changing IP Mode from DHCP to Static IP addressing - If DHCP Skip to Step 4

Step 3 - Change Mode from DHCP to Static IP addressing using the Platinum 18i Display Menu

1. In the **SYS DATA PROG** Menu, select [**IP SETTINGS**].
   - Press [**SET**].



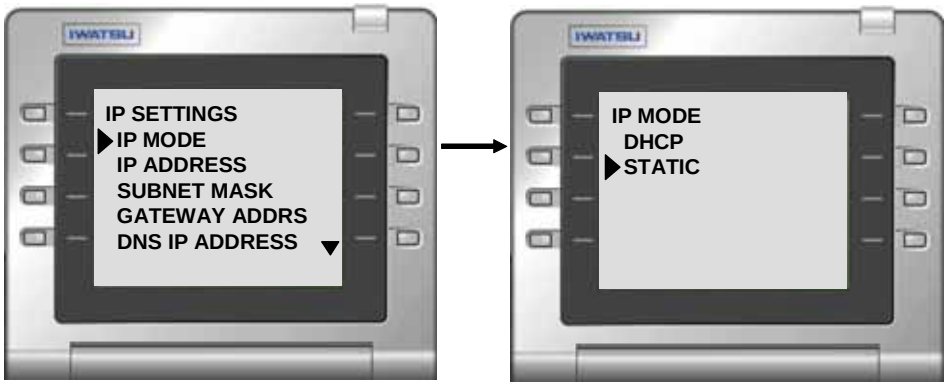
   - **IP SETTINGS** screen appears.
2. Select [**IP MODE**] and press [**SET**].



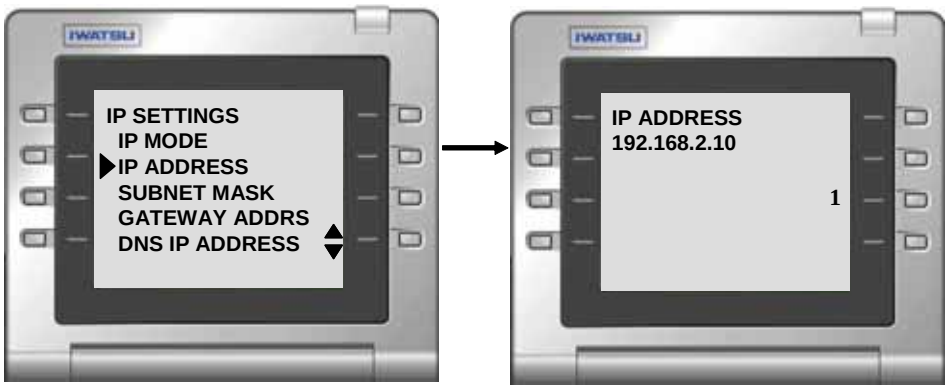
IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = **DHCP**)
2. **IP ADDRESS:** Insert the NR-A-12/18IPKTD IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (When changed to Static - Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (When changed to Static - Default = 255.255.0.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

   - Select [**STATIC**] and press [**SET**].



3. Select [**IP SETTINGS**] and press [**SET**].
   - Select [**IP ADDRESS**] and press [**SET**].



   - Use the * key to move the cursor left or the # key to move the cursor right and push [**CLEAR**] to delete the Default IP Address.
   - Input the IP Address using the dial pad and the [**NUM/E**] button.
   - Once the correct IP Address is inserted, press [**SET**].



IP ADDRESS Data Input
Example: 192.168.2.10

Using the dial pad:
Dial [192] + Press [NUM/E] + Dial [0 0] = **192.**
Press [NUM/E] + Dial [168] + Press [NUM/E] + Dial [0 0] = **192.168.**
Press [NUM/E] + Dial [2] + Press [NUM/E] + Dial [0 0] = **192.168.2.**
Press [NUM/E] + Dial [10] = **192.168.2.10**

Press [SET]
Returns to SYSTEM DATA PROG Menu

4. From the **SYS DATA PROG** Menu, select [**IP SETTINGS**] and press [**SET**].
   - From the **IP SETTINGS** Menu:
   - Select [**SUBNET MASK**]. Enter Subnet Mask address
   - Select [**GATEWAY ADDRS**]. Enter Gateway Address, if required.

(Refer to the above IP Address data input example above for entering an IP Address)



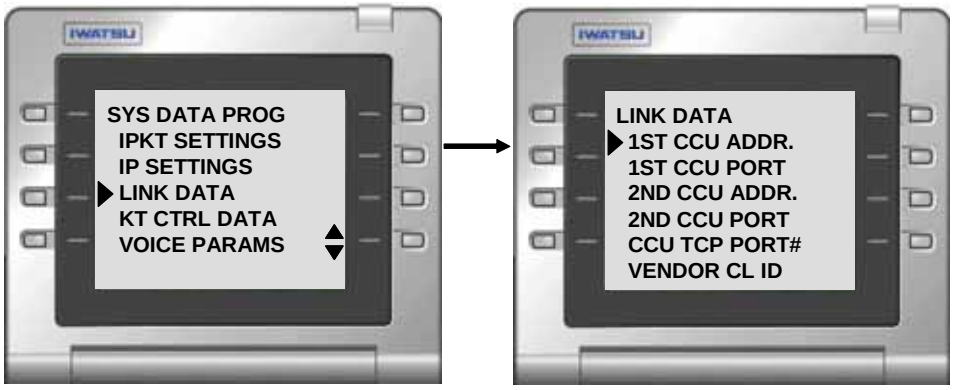
IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = **DHCP**)
2. **IP ADDRESS:** Insert the NR-A-18IPKTD IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (When changed to Static - Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (When changed to Static - Default = 255.255.0.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

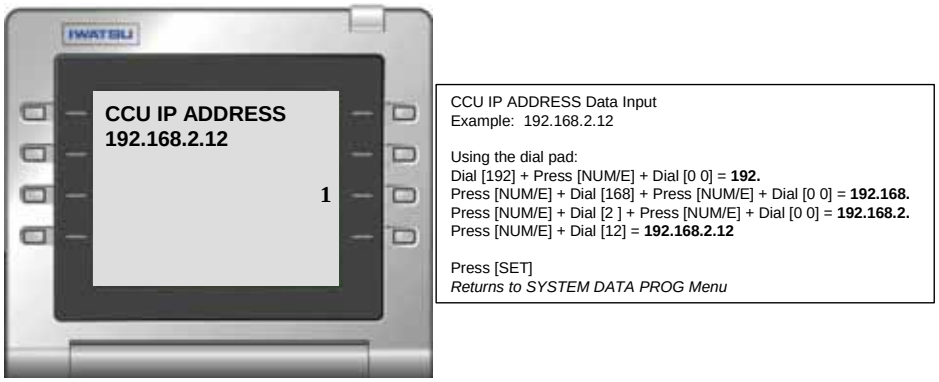
   - Remember to press [**SET**] after making any changes.

Step 4 - Input the ECS IX-CCU/IX-CCSU LAN 2 IP address for the Primary and Secondary ECS system (The secondary ECS IX-CCU/IX-CCSU LAN2 IP address is required for multiple host connectivity)

1. From the **SYS DATA PROG** Menu, select [**LINK DATA**].
   - Press [**SET**].



2. Select [**1ST CCU IP ADDR.**] and press [**SET**].
   - Enter the IP Address of the LAN 2 port on the IX-CCU/IX-CCSU card. This is the primary / main ECS where you are connecting the Platinum 18i.
   - Press [**SET**].



   - In the example, the IP Address of the IX-CCU/IX-CCSU card is 192.168.2.12.

3. Select [**2ND CCU IP ADDR.**] and press [**SET**].
   - Enter the IP Address of the LAN 2 port on the IX-CCU/IX-CCSU card. This is the secondary / remote ECS where the Platinum 18i will connect if connectivity to the primary ECS is lost.
   - Press [**SET**].



SECOND CCU IP ADDRESS Data Input
Example: 192.168.2.13

Using the dial pad:
Dial [192] + Press [NUM/E] + Dial [0 0] = **192.**
Press [NUM/E] + Dial [168] + Press [NUM/E] + Dial [0 0] = **192.168.**
Press [NUM/E] + Dial [2] + Press [NUM/E] + Dial [0 0] = **192.168.2.**
Press [NUM/E] + Dial [13] = **192.168.2.13**

Press [SET]
Returns to SYSTEM DATA PROG Menu

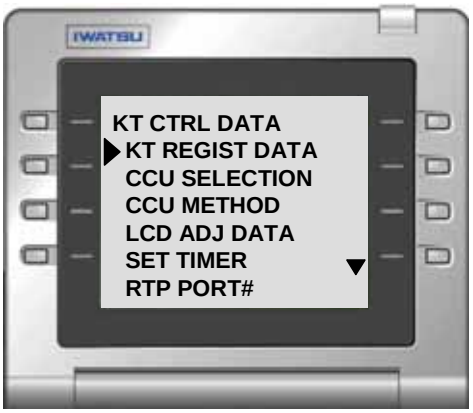
   - In the example, the IP Address of the IX-CCU/IX-CCSU card is 192.168.2.13.

Step 5 - Input the ECS Station Logical Port number for the Primary and Secondary ECS system. (The Secondary station logical port number is required for multiple host connectivity)

1. From the **SYS DATA PROG** Menu, select [**KT CTRL DATA**] and press [**SET**].



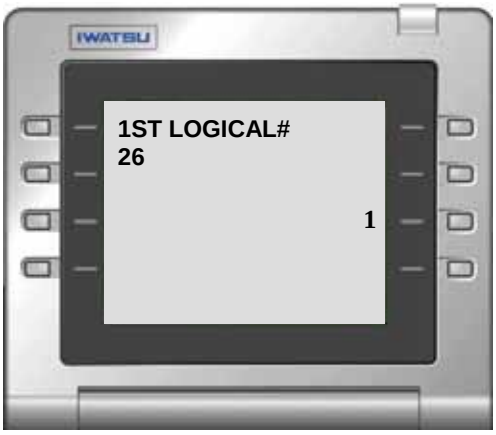
2. Select [**KT REGIST DATA**] and press [**SET**].



3. Select [**1ST LOGICAL#**] and press [**SET**].



4. Input the **1ST Logical#** (example = port 26). Enter the primary station logical port number to the ECS system where the Platinum 18i will connect.
   - Use the key pad as in previous steps to delete and enter the correct port number.
   - Press [**SET**].



Enter [**2 6**] + [**SET**]
Note: Do not enter leading zeros. If there is a zero in the display, press [**CLEAR**]

5. Select [**2ND LOGICAL#**] and press [**SET**].



6. Input the **2ND Logical#** (example = port 30). Enter the secondary station logical port number to the ECS system where the Platinum 18i will connect if the connection is lost to the primary ECS.
   - Use the key pad as in previous steps to delete and enter the correct port number.
   - Press [**SET**].

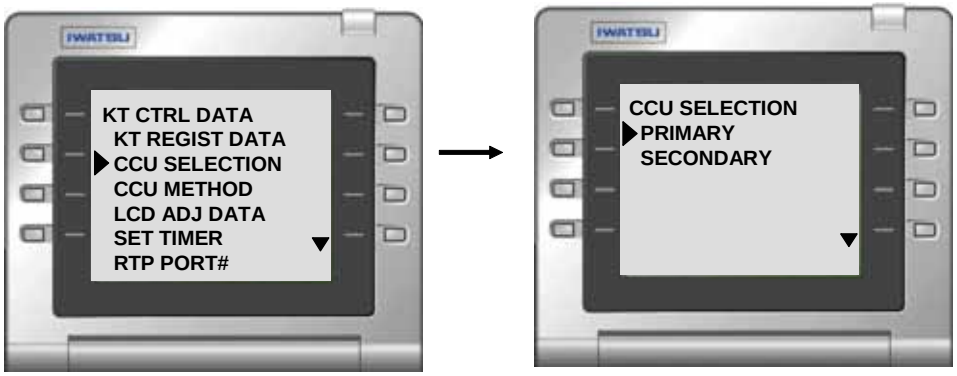


Enter [**30**] + [**SET**]
Note: Do not enter leading zeros. If there is a zero in the display, press [**CLEAR**]

Step 6 - Set the ECS IX-CCU/IX-CCSU Selection (This step is required when Primary and Secondary CCU/CCSU LAN2 Ports are configured)

The CCU selection determines which ECS LAN2 IP address the telephone will connect to first. (Default = Primary)

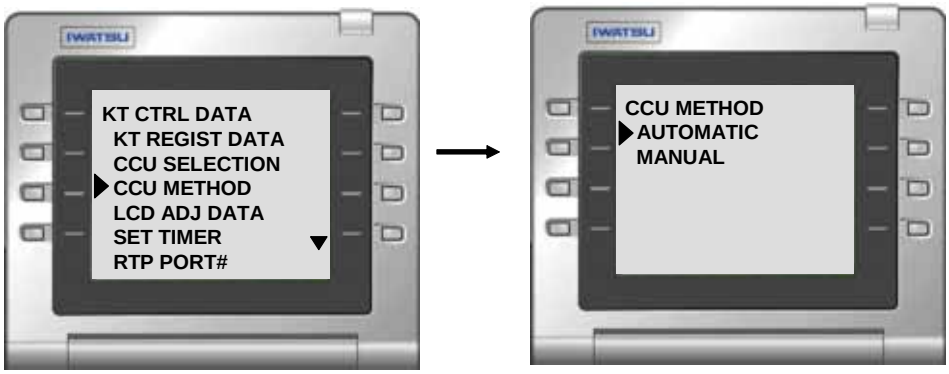
1. From the **SYS DATA PROG** menu, select [**KT CTRL DATA**] and press [**SET**].
2. Select [**CCU SELECTION**].
   - Select [**PRIMARY**] or [**SECONDARY**] to set which ECS LAN2 IP address the Platinum 18i telephone will connect to first.
   - Press [**SET**].



Step 7 - Set the ECS IX-CCU/IX-CCSU Selection Method (This step is required when Primary and Secondary CCU/CCSU LAN2 Ports are configured)

The CCU Selection Method determines how the telephone will connect to the primary or secondary LAN2 IP address if connectivity is lost. (Default = Automatic)

1. From the **SYS DATA PROG** menu, select [**KT CTRL DATA**] and press [**SET**].
2. Select [**CCU METHOD**].
   - Select [**AUTOMATIC**] or [**MANUAL**] to set the switching method.
   - Press [**SET**].



Step 8 - Set Time Difference 1 and Time Difference 2

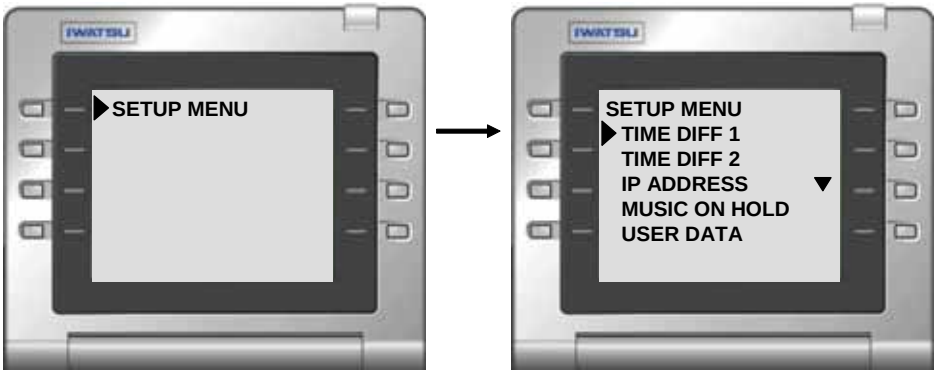
(Time Difference 2 is an optional setting for multiple host connectivity)

The Time Difference Settings are used to adjust the time of day when the telephone and the ECS system are located in different time zones. The time difference on the telephone can be adjusted from 30 minutes to 23 ½ hours ahead or behind the ECS system time.

Time Difference 1 and / or Time Difference 2 offset: Time Difference 1 is associated with the Primary ECS IX-CCU/IX-CCSU LAN2 IP address and Time Difference 2 is associated with the Secondary ECS IX-CCU/IX-CCSU LAN2 IP address.

- Default = 0:00 (No time difference).
- Range = 0:00 to +23:30 and -0:30 to -23:30.

1. From the telephone's main screen, press and hold the [**SET**] key until the [**SETUP MENU**] appears.
   - At the [**SETUP MENU**], press [**SET**].



2. Scroll to select [**TIME DIFF 1**] or [**TIME DIFF 2**] and press [**SET**].
   - Scroll up or down to choose the correct time difference.
   - Press [**SET**] when the correct time difference has been selected.



Note:	All essential parameters are now set. However, you may have to change additional settings such as TOS, or CCSU TCP port number, depending on your network environment. Consult with your Network Administrator.

Step 9 - Reset the Platinum 18i

1. Reset the Platinum 18i IP Telephone by removing and reapplying power.

Note:	An Iwatsu IP Station License is required for all Platinum 18i IP Telephones.

Platinum 18i Default Procedure

To return the Platinum 18i to its factory default setting:

1. Remove power to the Platinum 18i.
2. Hold down the [**SPKR**] + [**6**] keys (do not release).
3. Reapply power to the Platinum 18i.
4. When the screen displays the software version number, release the [**SPKR**] + [**6**] keys.
5. The Platinum 18i will automatically reboot at this time.

Warning:	DO NOT disconnect / remove power from the IP Telephone during the reboot process.

Platinum 12i Configuration

The Platinum 12i menu display or the integrated web server interface can be used to configure the Platinum 12i IP Telephone. Both procedures are listed in this section.

By factory default, the Platinum 12i IP Telephone is setup for DHCP IP addressing. If your network does not have a DHCP server on your network, you will need to program a static IP address on your Platinum 12i IP Telephone.

Platinum 12i Configuration using the Web Interface

Follow the procedure for configuring the Platinum 12i IP Telephone for either **DHCP** or **Static** IP addressing.

During this procedure, some programming through the Platinum 12i Display Menu is necessary to retrieve the DHCP IP address or change the IP Telephone's IP address from DHCP to Static.

The procedure is noted where DHCP and Static programming deviates.

Web Interface Configuration Overview

Step 1 - Connect Power to the Platinum 12i.

Step 2 - Login to the Platinum 12i using the Display Menu.

Step 3 - Retrieve the assigned DHCP IP address using the Display Menu.

Step 4 - Change Mode from DHCP to Static IP addressing using the Display Menu.

Step 5 - Configure the Programming PC.

Step 6 - Login and Configure the Platinum 12i using the Web Interface.

Step 7 - Input the IX-CCU/IX-CCSU LAN 2 IP address (Primary / Secondary) using the Web Interface.

Step 8 - Change Mode from DHCP to Static IP addressing using the Web Interface (If required).

Step 9 - Input the ECS Station Logical Port number (Primary / Secondary) using the Web Interface.

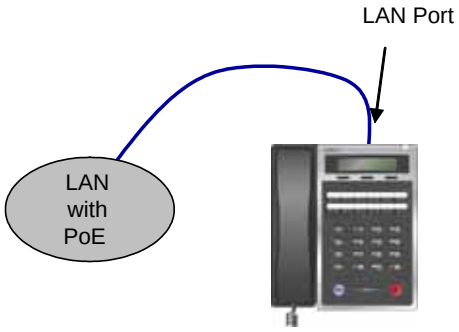
Step 10- Set Time Difference 1 and Time Difference 2.

Step 11- Reset the Platinum 12i using the Web Interface.

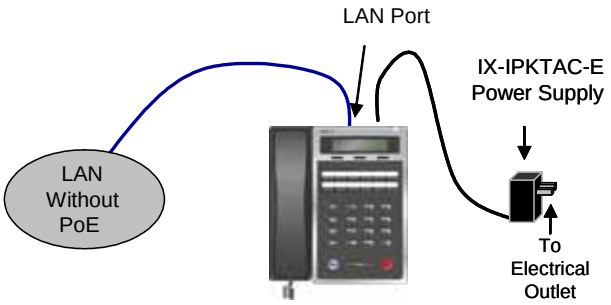


Step 1 - Connect power to the Platinum 12i

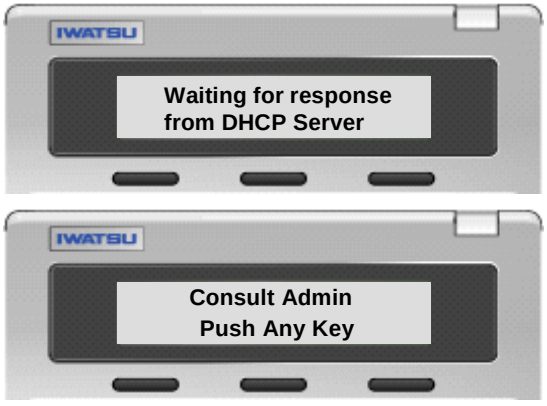
1. For **Power over Ethernet (PoE)**, connect the CAT5 cable to the LAN Port on the Platinum 12i and then to the LAN.



- If **Power over Ethernet (PoE)** is **not used**: First, connect the CAT5 cable to the LAN Port on the Platinum 12i and then to the LAN. Second, connect the IX-IPKTAC-E power supply to an electrical outlet and then to the Platinum 12i.

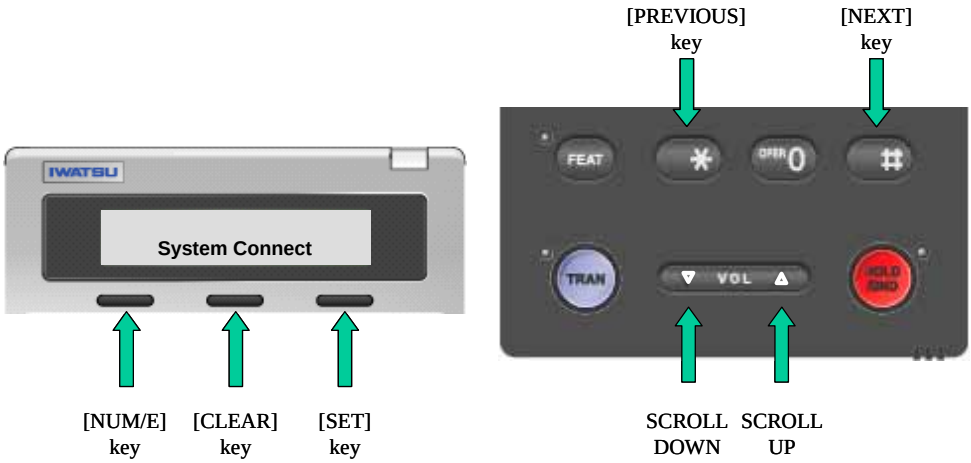


- *Once power is applied to the Platinum 12i, the telephone will attempt to negotiate with the network DHCP server. If you do not have a DHCP server on your network, the Platinum 12i will still go through the negotiation process. This process will take a few minutes to complete.*
- ***(For DHCP)*** The DHCP server will negotiate with the Platinum 12i and will be assigned an IP address.
- If there is no DHCP server on your network the error message shown (below right) will display on your Platinum 12i display.

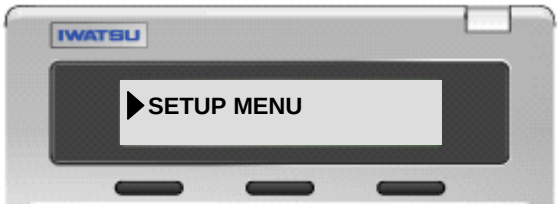


Step 2 - Login to the Platinum 12i using the Display Menu

1. After the Platinum 12i has completed the DHCP negotiation process: Press and hold the [**SET**] key below the dial pad of the Platinum 12i for **5 seconds** - until the **Setup Menu** appears.



2. At the **SETUP MENU** screen, press [**SET**].

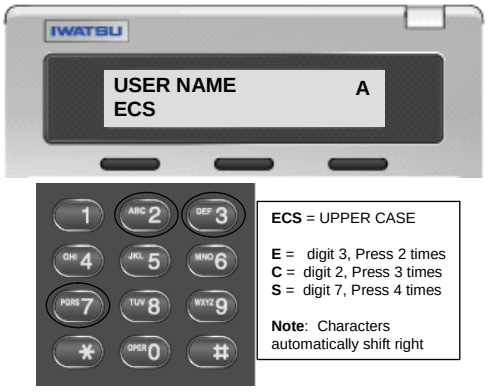


3. From the **SETUP MENU**, scroll down and select [**DISTR DATA**].
   - Press [**SET**].



4. Input ***USER NAME*** using the dial pad.
   - Enter the Default User Name = **manage** (lower case) or **ECS** (UPPER CASE).
   - Press [**SET**].





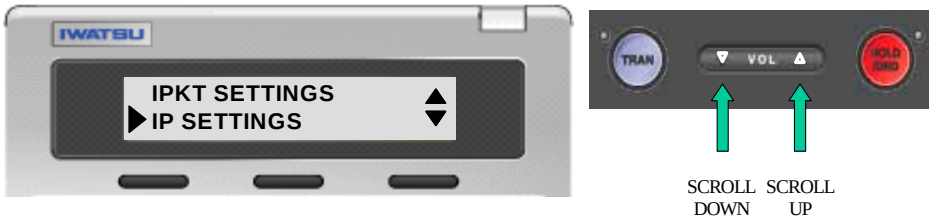
5. Input ***PASSWORD*** using the dial pad.
   - Default password = **4192**.
   - Press [**SET**].



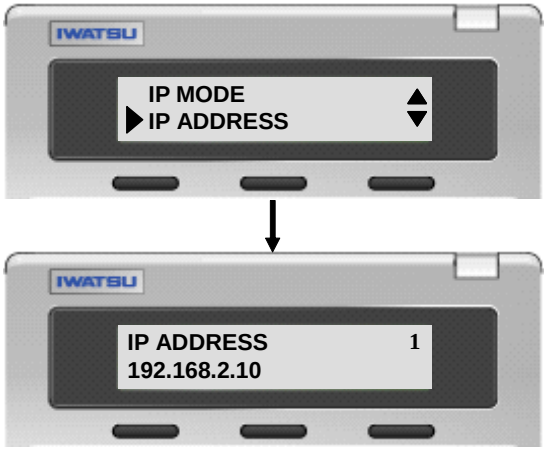
Step 3 is only required for DHCP IP addressing. For Static IP addressing - Skip to Step 4

Step 3 - Retrieve the assigned DHCP IP address using the Platinum 12i Display Menu

1. In the **SYS DATA PROG** Menu, select [**IP SETTINGS**].
   - Press [**SET**].



   - **IP SETTINGS** Screen appears.
2. Select [**IP ADDRESS**] and press [**SET**].
   - Write down the IP address the DHCP server has assigned to the Platinum 12i.



3. **Go to Step 5** - Login to the Platinum 12i using the Web Interface.

Step 4 is only required if changing IP Mode from DHCP to Static IP addressing

Step 4 - Change Mode from DHCP to Static IP addressing using the Platinum 12i Display Menu

1. In the **SYS DATA PROG** Menu, select [**IP SETTINGS**].
   - Press [**SET**].



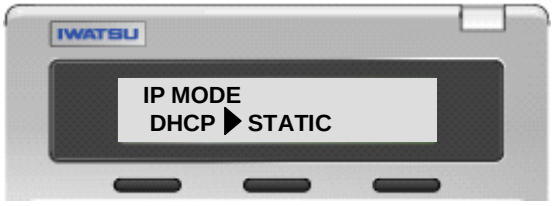
   - **IP SETTINGS** screen appears.
2. Select [**IP MODE**] and press [**SET**].



IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = **DHCP**)
2. **IP ADDRESS:** Insert the NR-A-12IPKTD IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (When changed to Static - Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (When changed to Static - Default = 255.255.0.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

   - Select [**STATIC**] and press [**SET**].



3. Select [**IP SETTINGS**] and press [**SET**].
   - Select [**IP ADDRESS**] and press [**SET**].



   - Use the ***** key to move the cursor left or the **#** key to move the cursor right and push [**CLEAR**] to delete the Default IP Address.
   - Input the IP Address using the dial pad and the [**NUM/E**] button.
   - Once the correct IP Address is inserted, press [**SET**].



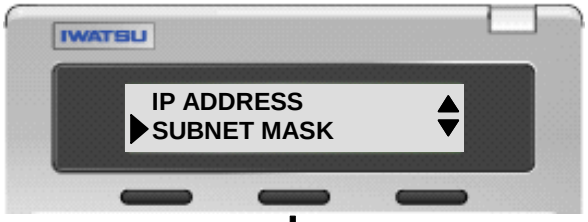
IP ADDRESS Data Input
Example: 192.168.2.10

Using the dial pad:
Dial [192] + Press [NUM/E] + Dial [0 0] = **192.**
Press [NUM/E] + Dial [168] + Press [NUM/E] + Dial [0 0] = **192.168.**
Press [NUM/E] + Dial [2] + Press [NUM/E] + Dial [0 0] = **192.168.2.**
Press [NUM/E] + Dial [10] = **192.168.2.10**

Press [SET]
Returns to SYSTEM DATA PROG Menu

4. From the **SYS DATA PROG** Menu, select [**IP SETTINGS**] and press [**SET**].
   - From the **IP SETTINGS** Menu:
   - Select [**SUBNET MASK**]. Enter Subnet Mask address
   - Select [**GATEWAY ADDRS**]. Enter Gateway Address, if required.

(Refer to the above IP Address data input example above for entering an IP Address)



IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

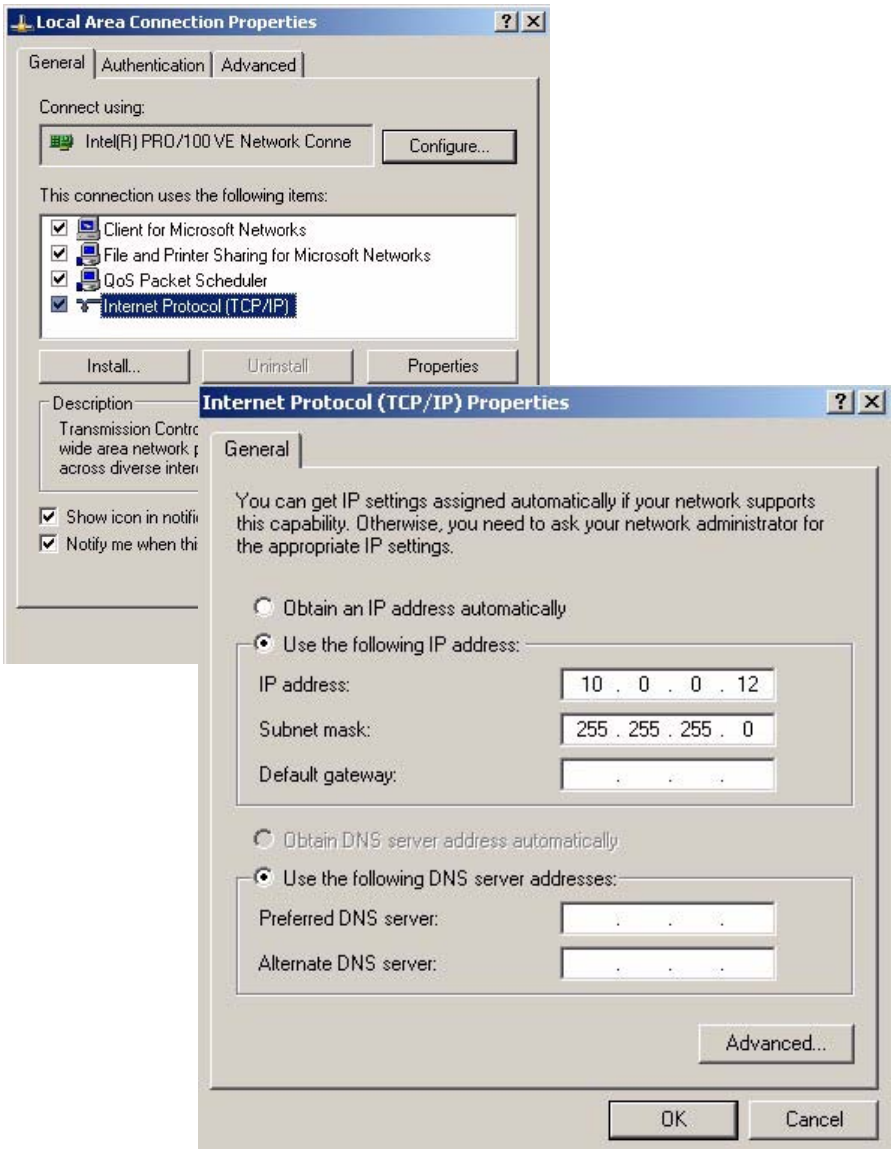
1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = **DHCP**)
2. **IP ADDRESS:** Insert the NR-A-12IPKTD IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (When changed to Static - Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (When changed to Static - Default = 255.255.0.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

- Remember to press [**SET**] after making any changes.

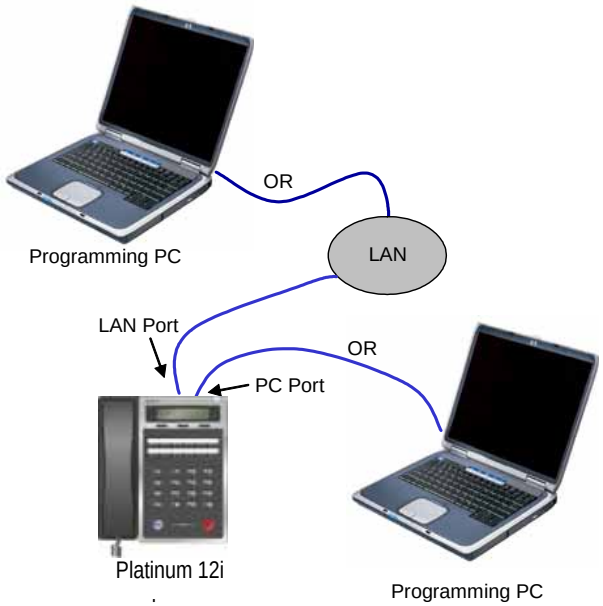
Step 5 - Configure the Programming PC

The programming PC must be configured with an IP address that is compatible with the Platinum 12i being programmed. Consult your Network Administrator if needed.

1. From the programming PC's **Control Panel**, select: **Network Connections** then **Properties**.
   - In the Local Area Connection Properties screen. Select: **Internet Protocol (TCP/IP)** then **Properties**.
   - Input an IP address and Subnet mask that is compatible with the Platinum 12i being programmed. For example: An IP address of 10.0.0.2 and a Subnet mask of 255.255.255.0 is compatible with an Platinum 12i IP address of 10.0.0.10.
   - Remember to press **OK** for changes to take effect.



2. Connect the programming PC to the LAN or directly to the PC port on the back of the Platinum 12i.



Step 6 - Login to the Platinum 12i using the Web Interface

Note:	To configure the Platinum 12i IP Telephone, cookies must be enabled. Use Internet Explorer's integrated help file for instructions on enabling cookies.

1. Launch Internet Explorer version 6.0 or higher.
   - Type the **DHCP** or **Static** IP address of the IP telephone in the address bar.



   - The **IPKT Login** screen appears.

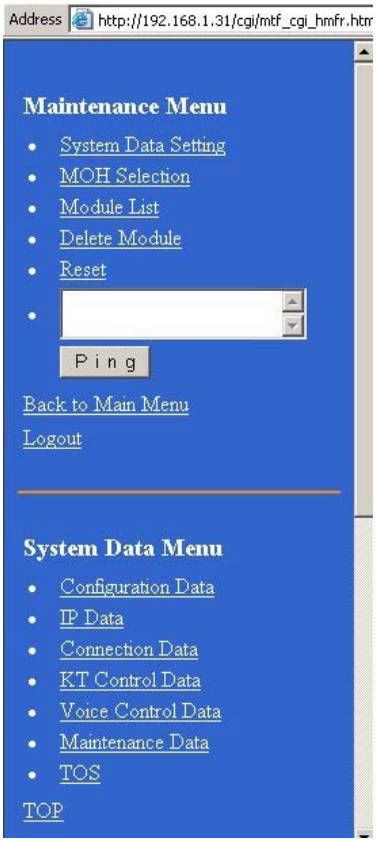


Note:	If the above page does not display, there is a TCP/IP configuration settings conflict. Make certain both devices reside on the same subnet and network and the programming PC's IP settings are correct.

2. Enter the case-sensitive Username and Password on the **IPKT Login** screen.
   - Use '**manage**' or '**ECS**' as the username.
   - Use '**4192**' as a password.
   - Select the **Login** button.

Note:	The above username and password are for Iwatsu Voice Networks distributor use only.

3. Upon a successful Login, the **Main Menu** screen will display.



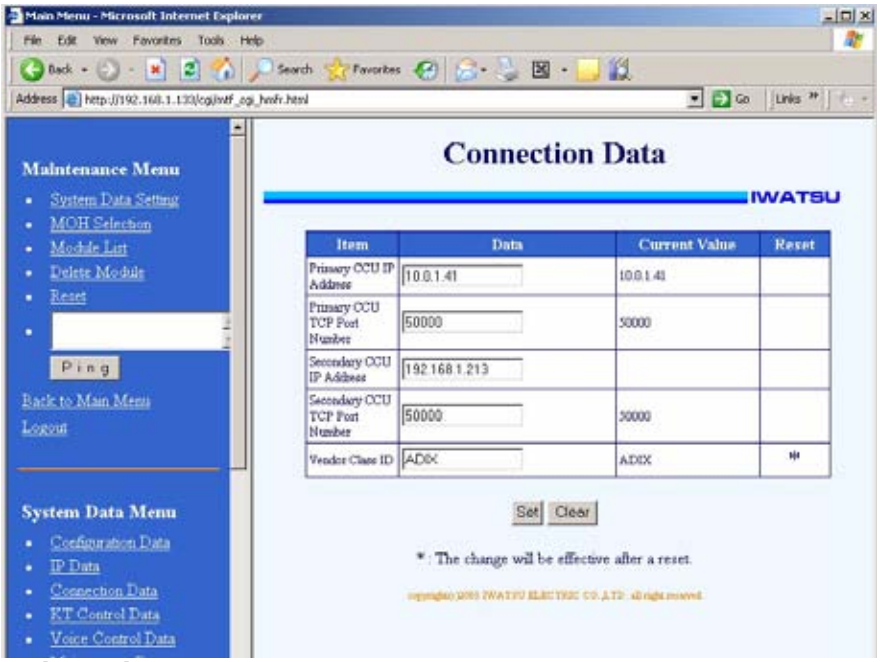
Step 7 - Input the IX-CCU/IX-CCSU LAN 2 IP address for the Primary and Secondary ECS systems using the Web Interface

(The Secondary IX-CCU/IX-CCSU LAN2 IP address is required for multiple host connectivity)

1. From the **System Data Menu,** select **Connection Data**.
2. From the **Connection Data** screen, enter the IP address of the primary IX-CCU/CCSU LAN2 port in the **Primary CCU IP Address** textbox. To provision a **Secondary CCU IP Address**, enter the LAN2 IP address of the secondary (or backup) IX-CCU/CCSU.

Note: The default address of the LAN2 port is **10.0.0.1**.

3. Enter the primary and secondary TCP port numbers in the **Primary CCU TCP Port Number** and **Secondary CCU TCP Port Number** textbox.
   - This value will rarely change. However because some network administrators only open specific ports on the firewall, some remote users may need to change the default TCP port number to an open port on the firewall.



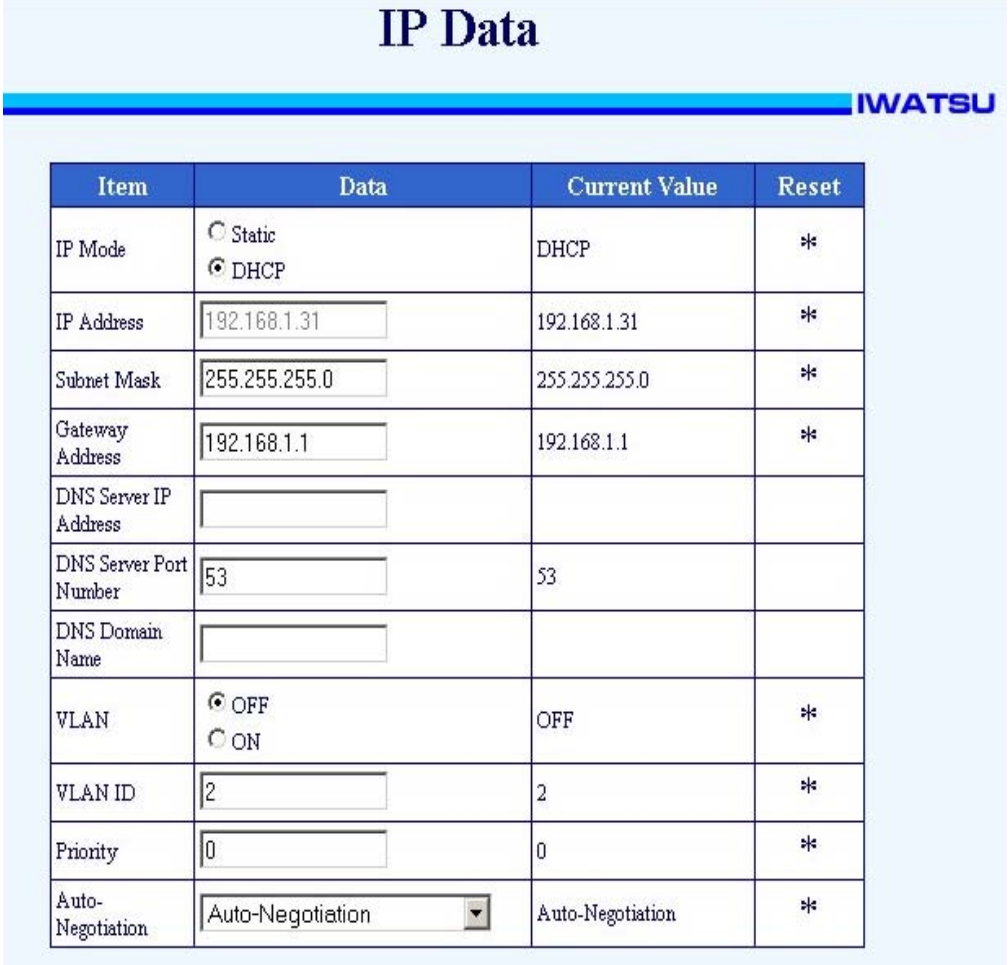
4. Select the **Set** button.
   - Confirm the setting change.



   - Select the **OK** button.

Step 8 - Change Mode from DHCP to Static IP addressing using the Web Interface

1. Select **IP Data** from the **System Data Menu**.
   - The **IP Data** screen displays.



2. Select either the **Static** or **DHCP** radio button in the **IP Mode** field.
   - If **Static** is selected, enter the IP address of the Platinum 12i in the **IP Address** field.

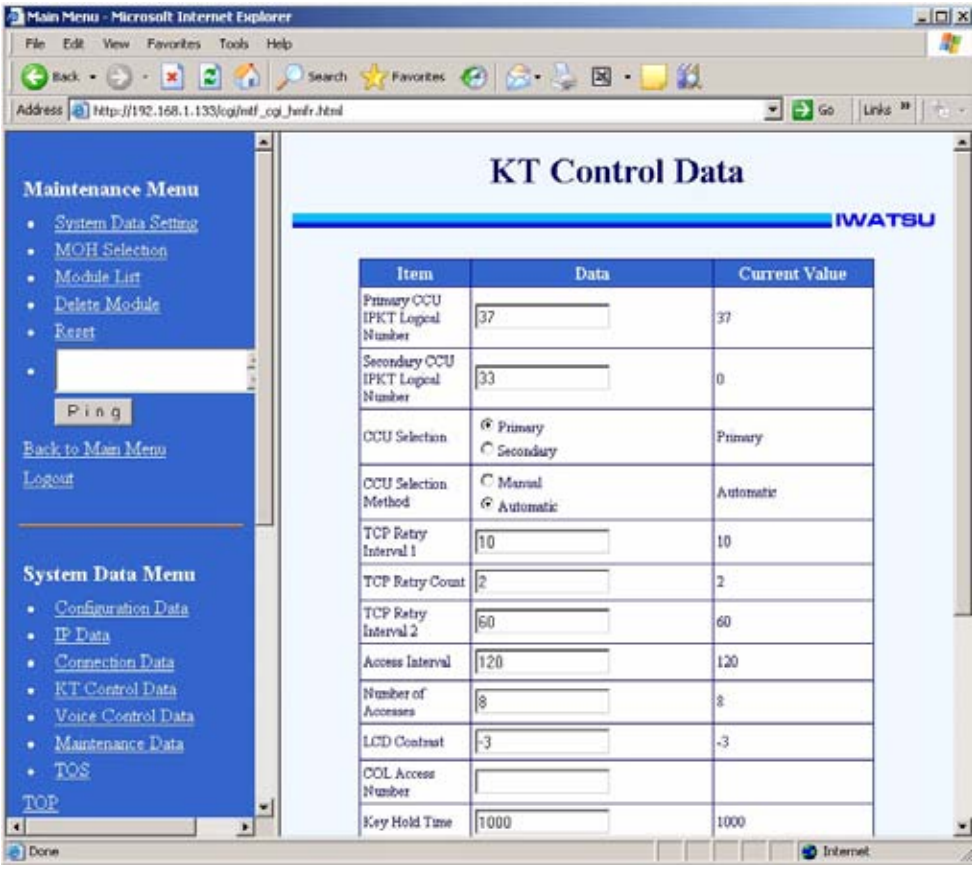
Note: The Network Administrator will supply the Static IP address, Subnet Mask, and Gateway IP Addresses.

3. Enter the network **Subnet Mask**.
4. Enter the network **Gateway Address**.
   - The **Gateway Address** field is the IP address of the router used by remote users to connect to the ECS system.
   - When using either of the IP Telephones as a layer 2 switch, the PC connected to the IP Telephone must have the correct gateway address to access networks outside the LAN (i.e. the Internet).
5. Select the **Set** button.

Step 9 - Input the ECS Station Logical Port number for the Primary and Secondary ECS system using the Web Interface

(The Secondary station logical port number is required for multiple host connectivity)

1. Select **KT Control Data** from the **System Data Menu**.
   - The **KT Control Data** window displays.
2. Enter the logical port number(s) from **System > Hardware > Port Table** (Class 01.09) from the ECS system database the 12i will use in the **Primary CCU IPKT Logical Number** and the optional **Secondary CCU IPKT Logical Number** field.
3. Set the **CCU Selection**: **Primary** or **Secondary**. This is the CCU IP address the phone will try to connect to first. (Default = Primary)
4. Set the **CCU Selection Method**: **Manual** or **Automatic**. (Default = Automatic)
   - **Automatic**: The telephone will automatically try to connect to the secondary CCU selection when there is no connectivity to the primary CCU selection.
   - **Manual**: The manual selection allows the user to manually switch from one ECS to another based on the programmed information. This is also used to force a re-connect to the same ECS.
5. Select the **Set** button.

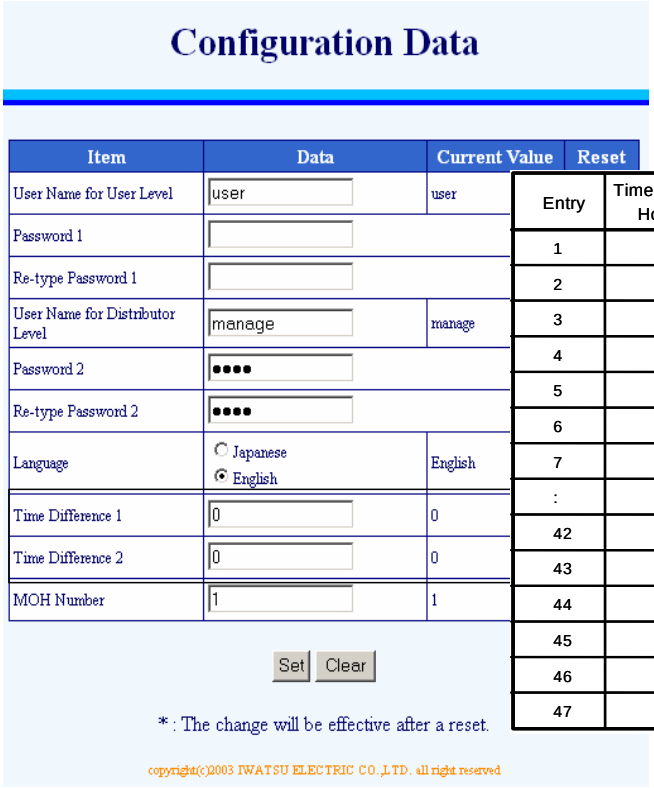


Step 10 - Set Time Difference 1 and Time Difference 2

(Time Difference 2 is an optional setting for multiple host connectivity)

The Time Difference Settings are used to adjust the time of day when the telephone and the ECS system are located in different time zones. The time difference on the telephone can be adjusted from 30 minutes to 23 ½ hours ahead or behind the ECS system time.

1. Enter Time Difference 1 and / or Time Difference 2 offset: Time Difference 1 is associated with the Primary ECS IX-CCU/IX-CCSU LAN2 IP address and Time Difference 2 is associated with the Secondary ECS IX-CCU/IX-CCSU LAN2 IP address.
   - Default = 0 (No time difference).
   - Range = 0 to 47 and -1 to -47. Each whole number represents 30 minutes. For example, if you enter a 2 as the time difference, the telephone time would be 1 hour ahead of the ECS system time.

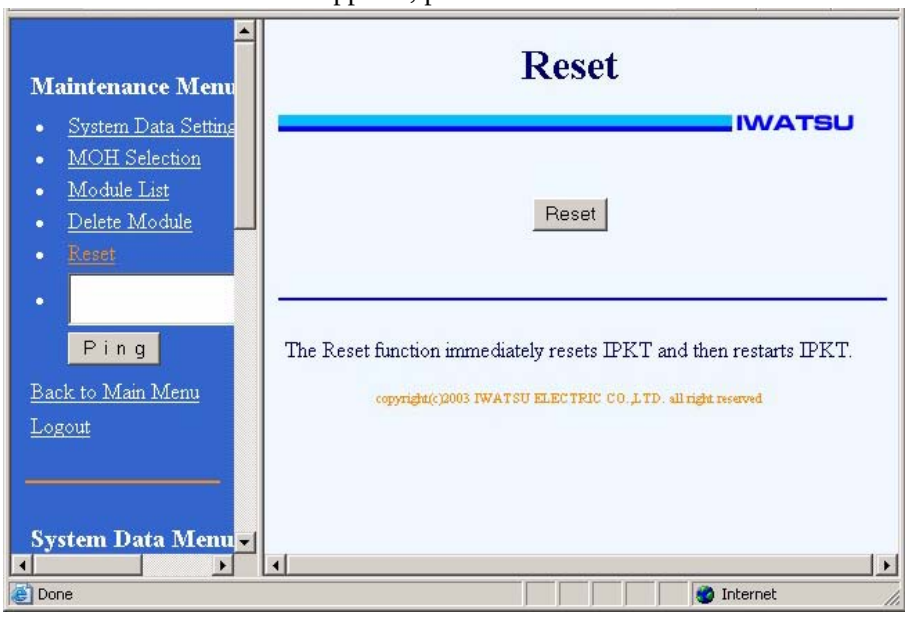


Entry	Time Difference Hour : Min	Entry	Time Difference Hour : Min
1	:30	-1	-:30
2	1:00	-2	-1:00
3	1:30	-3	-1:30
4	2:00	-4	-2:00
5	2:30	-5	-2:30
6	3:00	-6	-3:00
7	3:30	-7	-3:30
:	:	:	:
42	21:00	-42	-21:00
43	21:30	-43	-21:30
44	22:00	-44	-22:00
45	22:30	-45	-22:30
46	23:00	-46	-23:00
47	23:30	-47	-23:30

2. Remember to press the **Set** button after making any change.

Step 11 - Reset the Platinum 12i using the Web Interface

1. From the Maintenance Menu, select **Reset**.
2. When the Reset window appears, press **Reset**.



3. At the **Do you want to reset?** confirmation screen, select **OK** to reset the telephone..



Note: To reset a large number of telephones, you can choose to reset the ECS system. Resetting the ECS will reset each telephone.

Note: An Iwatsu IP Station License is required for all Platinum 12i IP Telephones.

Platinum 12i Configuration Using the Display Menu

Follow the procedure for configuring the Platinum 12i IP Telephone for either **DHCP** or **Static** IP addressing using the IP Telephone's Display Menu.

The procedure is noted where DHCP and Static programming deviates.

Display Menu Configuration Overview

Step 1 - Connect Power to the Platinum 12i.

Step 2 - Login to the Platinum 12i.

Step 3 - Change Mode from DHCP to Static IP addressing.

Step 4 - Input the IX-CCU/IX-CCSU LAN 2 IP address (Primary / Secondary).

Step 5 - Input the ECS Station Logical Port number (Primary / Secondary).

Step 6 - Set the IX-CCU/IX-CCSU Selection (Primary / Secondary).

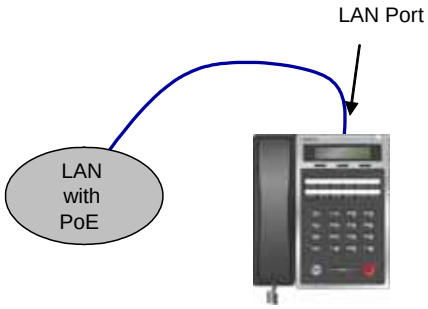
Step 7 - Set the IX-CCU/IX-CCSU Selection Method (Automatic / Manual).

Step 8 - Set Time Difference 1 and Time Difference 2.

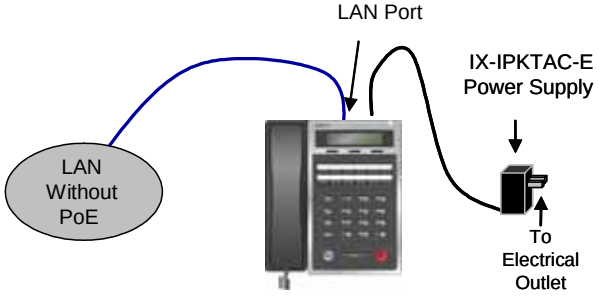
Step 9 - Reset the Platinum 12i.

Step 1 - Connect power to the Platinum 12i

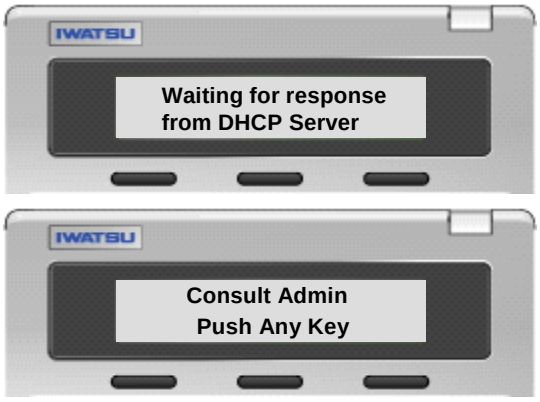
1. For **Power over Ethernet (PoE)**, connect the CAT5 cable to the LAN Port on the Platinum 12i and then to the LAN.



2. If **Power over Ethernet (PoE)** is **not used**: First, connect the CAT5 cable to the LAN Port on the Platinum 12i and then to the LAN. Second, connect the IX-IPK-TAC-E power supply to an electrical outlet and then to the Platinum 12i.

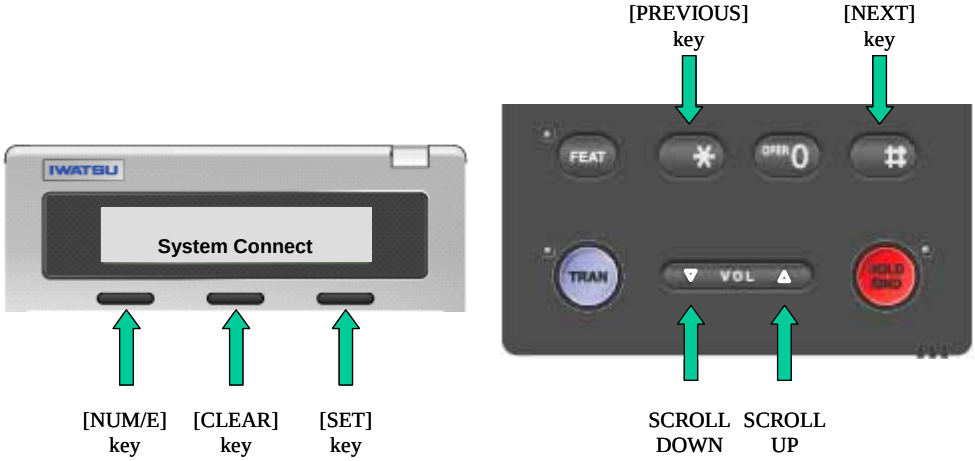


- *Once power is applied to the Platinum 12i, the telephone will attempt to negotiate with the network DHCP server. If you do not have a DHCP server on your network, the Platinum 12i will still go through the negotiation process. This process will take a few minutes to complete.*
- ***(For DHCP)*** The DHCP server will negotiate with the Platinum 12i and will be assigned an IP address.
- If there is no DHCP server on your network the error message shown (below right) will display on your Platinum 12i display.



Step 2 - Login to the Platinum 12i using the Display Menu

1. After the Platinum 12i has completed the DHCP negotiation process: Press and hold the [**SET**] key under the key pad of the Platinum 12i for **5 seconds** - until the **Setup Menu** appears.



2. At the **SETUP MENU** screen, press [**SET**].

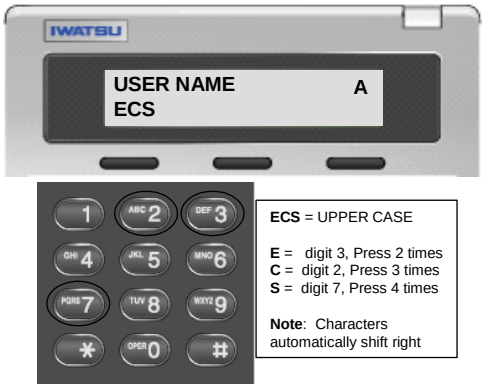


3. From the **SETUP MENU**, scroll down and select [**DISTR DATA**].
   - Press [**SET**].



4. Input ***USER NAME*** using the dial pad.
   - Enter the Default User Name = **manage** (lower case) or **ECS** (UPER CASE).
   - Press [**SET**].





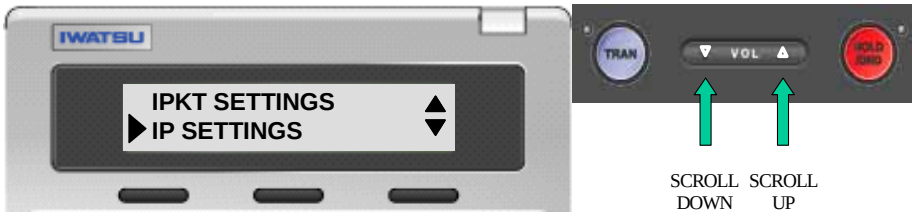
5. Input ***PASSWORD*** using the dial pad.
   - Default password = **4192**.
   - Press [**SET**].



Step 3 is only required if changing IP Mode from DHCP to Static IP addressing - If DHCP Skip to Step 4

Step 3 - Change Mode from DHCP to Static IP addressing using the Platinum 12i Display Menu

1. In the **SYS DATA PROG** Menu, select [**IP SETTINGS**].
   - Press [**SET**].



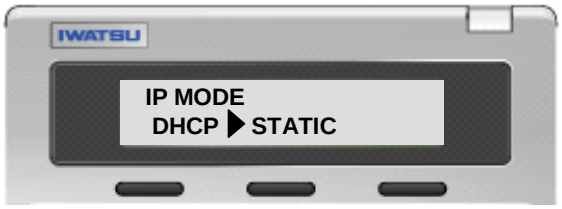
   - **IP SETTINGS** screen appears.
2. Select [**IP MODE**] and press [**SET**].



IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = **DHCP**)
2. **IP ADDRESS:** Insert the NR-A-12IPKTD IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (When changed to Static - Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (When changed to Static - Default = 255.255.0.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

   - Select [**STATIC**] and press [**SET**].



3. Select [**IP SETTINGS**] and press [**SET**].
   - Select [**IP ADDRESS**] and press [**SET**].



   - Use the * key to move the cursor left or the # key to move the cursor right and push [**CLEAR**] to delete the Default IP Address.
   - Input the IP Address using the dial pad and the [**NUM/E**] button.
   - Once the correct IP Address is inserted, press [**SET**].



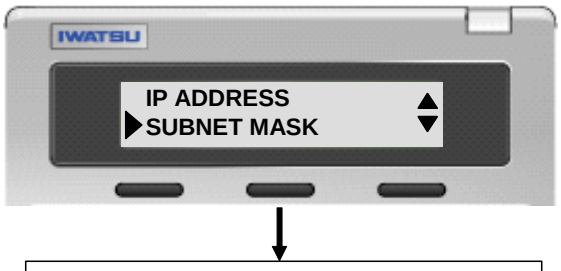
IP ADDRESS Data Input
Example: 192.168.2.10

Using the dial pad:
Dial [192] + Press [NUM/E] + Dial [0 0] = **192.**
Press [NUM/E] + Dial [168] + Press [NUM/E] + Dial [0 0] = **192.168.**
Press [NUM/E] + Dial [2] + Press [NUM/E] + Dial [0 0] = **192.168.2.**
Press [NUM/E] + Dial [10] = **192.168.2.10**

Press [SET]
Returns to SYSTEM DATA PROG Menu

4. From the **SYS DATA PROG** Menu, select [**IP SETTINGS**] and press [**SET**].
   - From the **IP SETTINGS** Menu:
   - Select [**SUBNET MASK**]. Enter Subnet Mask address
   - Select [**GATEWAY ADDRS**]. Enter Gateway Address, if required.

(Refer to the above IP Address data input example above for entering an IP Address)



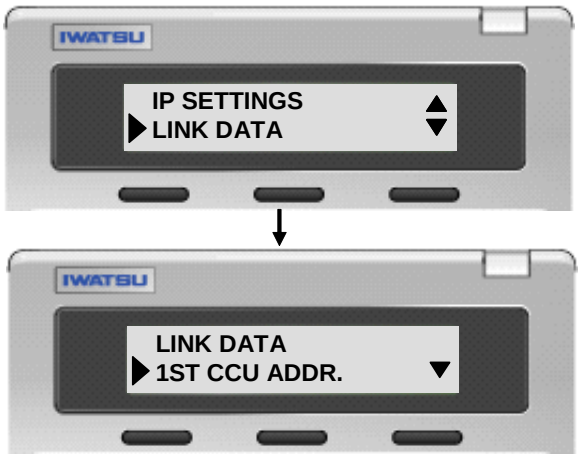
IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = **DHCP**)
2. **IP ADDRESS:** Insert the NR-A-12IPKTD IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (When changed to Static - Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (When changed to Static - Default = 255.255.0.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

- Remember to press [**SET**] after making any changes.

Step 4 - Input the ECS IX-CCU/IX-CCSU LAN 2 IP address for the Primary and Secondary ECS system (The secondary ECS IX-CCU/IX-CCSU LAN2 IP address is required for multiple host connectivity)

1. From the **SYS DATA PROG** Menu, select [**LINK DATA**].
   - Press [**SET**].



2. Select [**1ST CCU ADDR.**] and press [**SET**].
   - Enter the IP Address of the LAN 2 port on the IX-CCU/IX-CCSU card. This is the primary / main ECS where you are connecting the Platinum 12i.
   - Press [**SET**].



CCU IP ADDRESS Data Input
Example: 192.168.2.12

Using the dial pad:
Dial [192] + Press [NUM/E] + Dial [0 0] = **192.**
Press [NUM/E] + Dial [168] + Press [NUM/E] + Dial [0 0] = **192.168.**
Press [NUM/E] + Dial [2] + Press [NUM/E] + Dial [0 0] = **192.168.2.**
Press [NUM/E] + Dial [12] = **192.168.2.12**

Press [SET]

   - In the example, the IP Address of the IX-CCU/IX-CCSU card is 192.168.2.12.

3. Select [**2ND CCU ADDR.**] and press [**SET**].
   - Enter the IP Address of the LAN 2 port on the secondary IX-CCU/IX-CCSU card. This is the secondary / remote ECS where the Platinum 12i will connect if connectivity to the 1st (primary) ECS is lost.
   - Press [**SET**].



IP ADDRESS Data Input
Example: 192.168.2.13

Using the dial pad:
Dial [192] + Press [NUM/E] + Dial [0 0] = **192.**
Press [NUM/E] + Dial [168] + Press [NUM/E] + Dial [0 0] = **192.168.**
Press [NUM/E] + Dial [2] + Press [NUM/E] + Dial [0 0] = **192.168.2.**
Press [NUM/E] + Dial [10] = **192.168.2.13**

Press [SET]
Returns to LINK DATA Menu

   - In the example, the IP Address of the IX-CCU/IX-CCSU card is 192.168.2.13.

Step 5 - Input the ECS Station Logical Port number for the Primary and Seondary ECS system. (The Secondary station logical port number is required for multiple host connectivity)

1. From the **SYS DATA PROG** Menu, select [**KT CTRL DATA**] and press [**SET**].



2. Select [**KT REGIST DATA**] and press [**SET**].



3. Select [**1ST LOGICAL #**] and press [**SET**].



4. Input the **1ST** (Primary) **Station Logical Port Number** (example = port 26).
   - Use the key pad as in previous steps to delete and enter the correct port number.
   - Press [**SET**].



Enter [**26**] + [**SET**]

Note: Do not enter leading zeros. If there is a zero in the display, press [CLEAR].

5. Select [**2ND LOGICAL #**] and press [**SET**].



6. Input the **2ND** (Secondary) **Station Logical Port Number** (example = port 30).
   - Use the key pad as in previous steps to delete and enter the correct port number.
   - Press [**SET**].



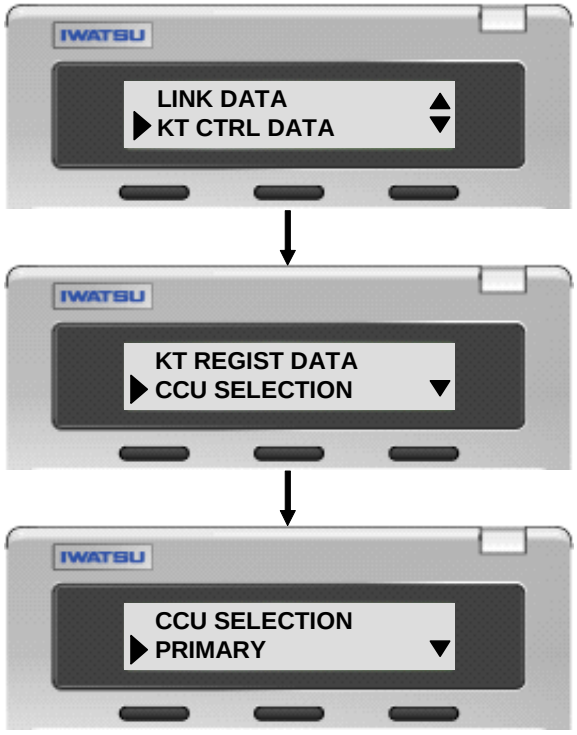
Enter [**30**] + [**SET**]

Note: Do not enter leading zeros. If there is a zero in the display, press [CLEAR].

Step 6 - Set the ECS IX-CCU/IX-CCSU Selection (This step is required when Primary and Secondary CCU/CCSU LAN2 Ports are configured)

The CCU selection determines which ECS LAN2 IP address the telephone will connect to first. (Default = Primary)

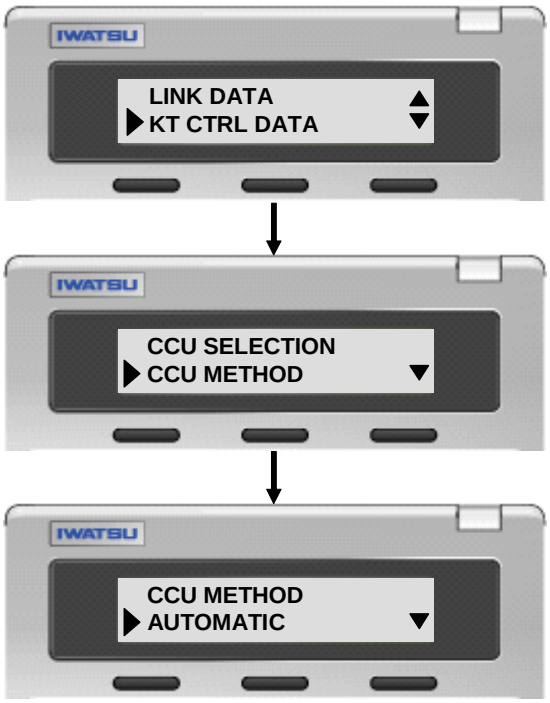
1. From the **SYS DATA PROG** menu, select [**KT CTRL DATA**] and press [**SET**].
2. Select [**CCU SELECTION**].
   - Select [**PRIMARY**] or [**SECONDARY**] to set which ECS LAN2 IP address the Platinum 18i telephone will connect to first.
   - Press [**SET**].



Step 7 - Set the ECS IX-CCU/IX-CCSU Selection Method (This step is required when Primary and Secondary CCU/CCSU LAN2 Ports are configured)

The CCU Selection Method determines how the telephone will connect to the primary or secondary LAN2 IP address if connectivity is lost. (Default = Automatic)

1. From the **SYS DATA PROG** menu, select [**KT CTRL DATA**] and press [**ENTER**].
2. Select [**CCU METHOD**].
   - Select [**AUTOMATIC**] or [**MANUAL**] to set the switching method.
   - Press [**SET**].



Step 8 - Set Time Difference 1 and Time Difference 2

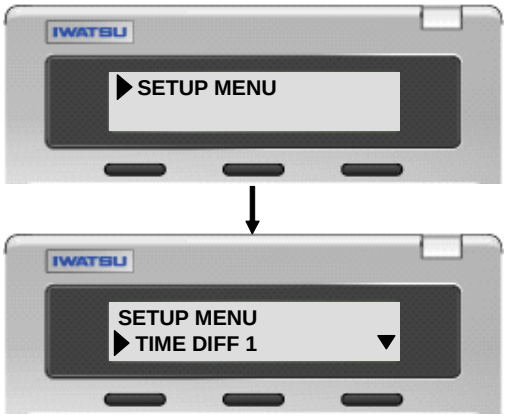
(Time Difference 2 is an optional setting for multiple host connectivity)

The Time Difference Settings are used to adjust the time of day when the telephone and the ECS system are located in different time zones. The time difference on the telephone can be adjusted from 30 minutes to 23 ½ hours ahead or behind the ECS system time.

Time Difference 1 and / or Time Difference 2 offset: Time Difference 1 is associated with the Primary ECS IX-CCU/IX-CCSU LAN2 IP address and Time Difference 2 is associated with the Secondary ECS IX-CCU/IX-CCSU LAN2 IP address.

- Default = 0:00 (No time difference).
- Range = 0:00 to +23:30 and -0:30 to -23:30.

1. From the telephone's main screen, press and hold the [**SET**] key until the [**SETUP MENU**] appears.
   - At the [**SETUP MENU**], press [**SET**].



2. Scroll to select [**TIME DIFF 1**] or [**TIME DIFF 2**] and press [**SET**].
   - Scroll up or down to choose the correct time difference.
   - Press [**SET**] when the correct time difference has been selected.



Note:	All essential parameters are now set. However, you may have to change additional settings such as TOS, or CCSU TCP port number, depending on your network environment. Consult with your Network Administrator.

Step 9 - Reset the Platinum 12i

1. Reset the Platinum 12i IP Telephone by removing and reapplying power.

Note: An Iwatsu IP Station License is required for all Platinum 12i IP Telephones.

Platinum 12i Default Procedure

To return the Platinum 12i to its factory default setting:

1. Remove power to the Platinum 12i.
2. Hold down the [**SPKR**] + [**6**] keys (do not release).
3. Reapply power to the Platinum 12i.
4. When the screen displays the software version number, release the [**SPKR**] + [**6**] keys.
5. The Platinum 12i will automatically reboot at this time.

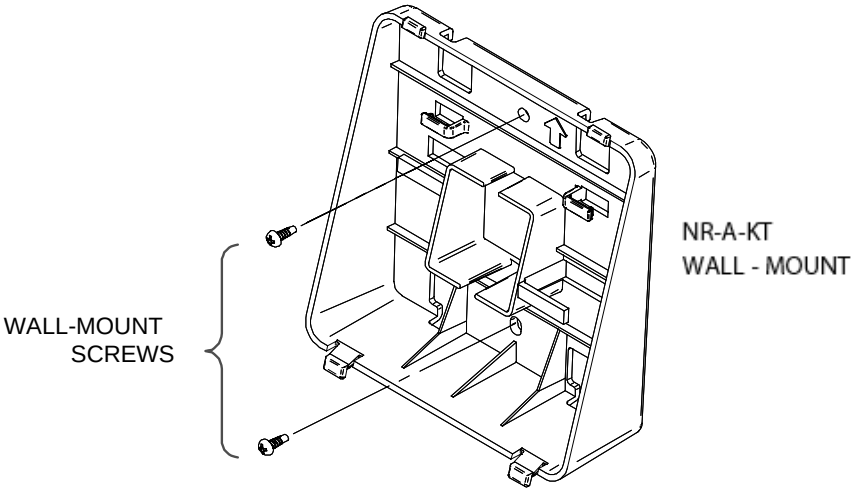
Warning: DO NOT disconnect / remove power from the IP Telephone during the reboot process.

Platinum 18/12i Wall Mount Installation

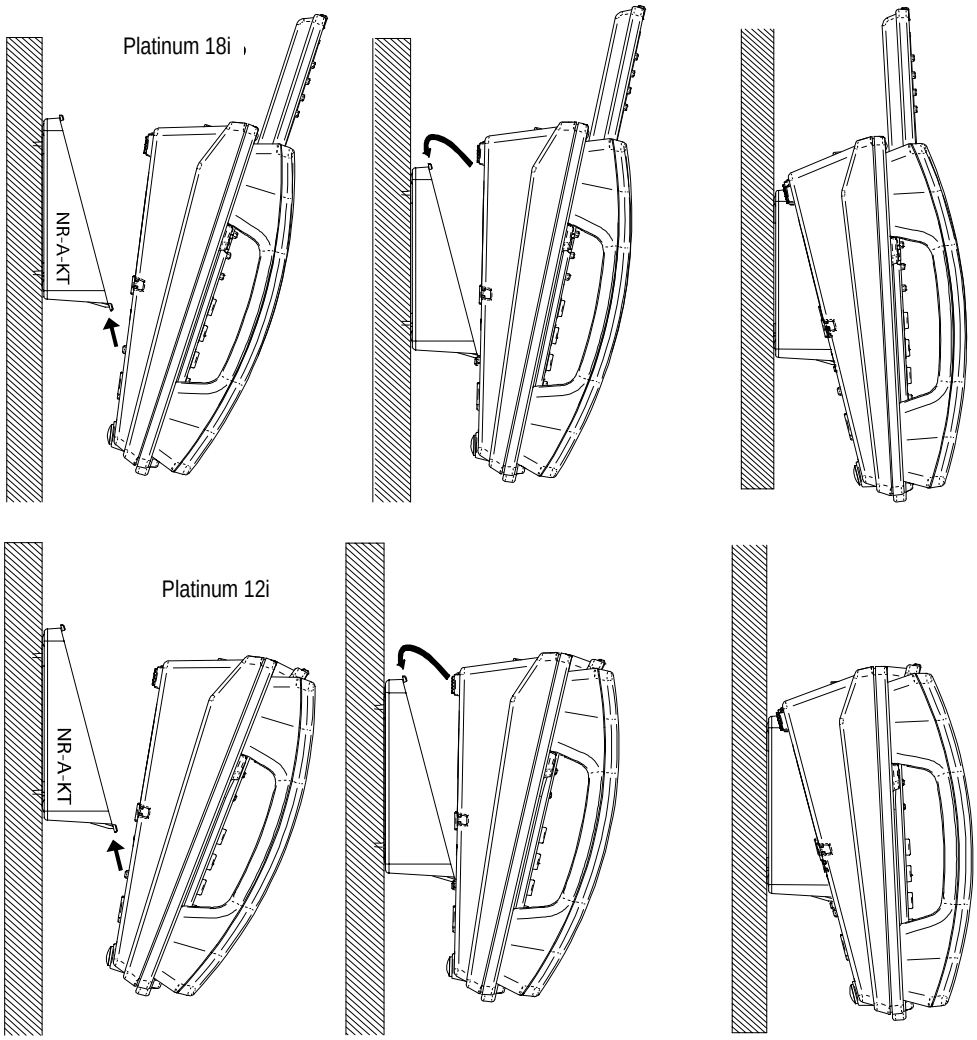
1. Lift the handset hook from the center of the station's upper cradle and reinsert the handset hook in the slot in the upside-down position.



2. Install the Wall Mount Bracket (NR-A-KT) on the wall using the two screws as shown.



3. Insert the two bottom tabs into the two holes in the base of the Platinum 18/12i, then lift the telephone toward the wall mount. The telephone is secure when the top two tabs have snapped in place.



Note: After installation, ensure that the pedestal is securely mounted on the wall and withstands an overload of at least 5.3 pounds.

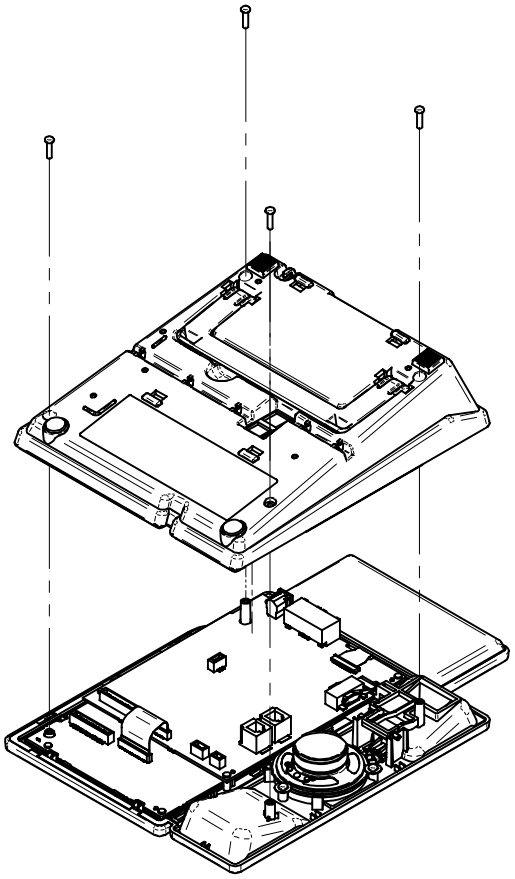
Platinum 18/12i Optional Equipment Installation

NR-A-IPAUDIO Audio Adapter Installation

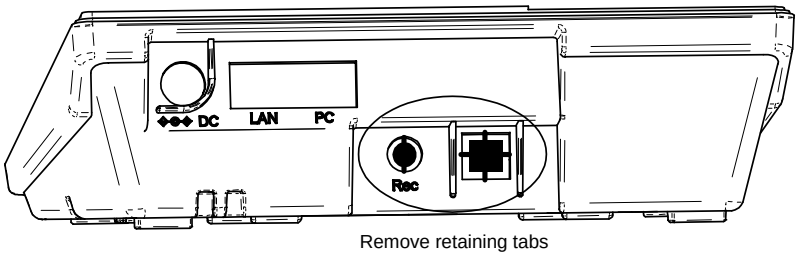
This unit allows the connection of an ECS Platinum 18/12i Enhanced IP Telephone to a station loud-ringer and external call recording device.

To add an NR-A-IPAUDIO unit to an Platinum 18/12i IP Telephone:

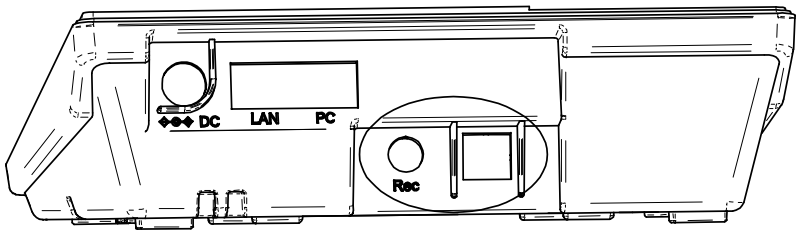
1. Disconnect the Platinum 18/12i IP Telephone from the LAN, PC, and AC power adapter (if used).
2. Turn the Platinum 18/12i IP Telephone so that the bottom (pedestal) of the telephone is facing up and disconnect all cords (Headset and Handset).
3. Using a Phillips head screwdriver, remove the four screws from the bottom of the Platinum 18/12i IP Telephone. Carefully, place the screws aside.
4. With the four screws removed, separate the upper and lower housing from the Platinum 18/12i.



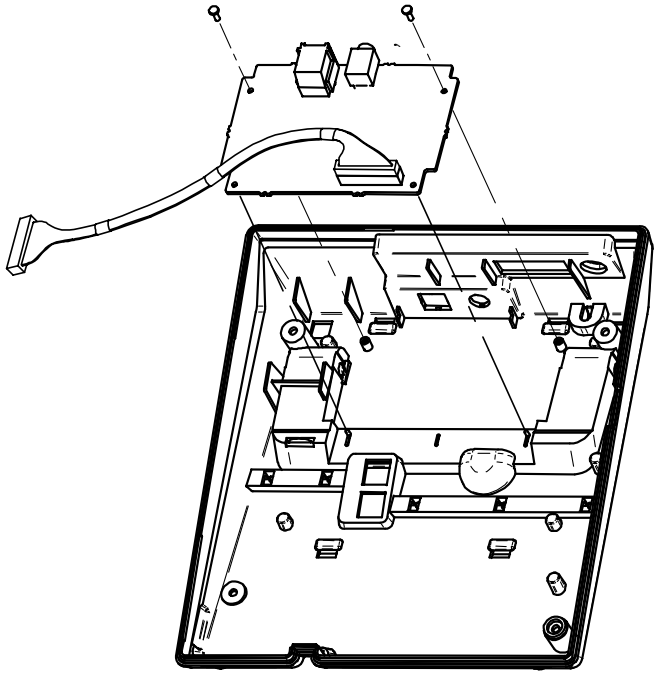
5. Remove the cutouts for the RJ-11 and audio jack from the lower housing by cutting the retaining tabs (from the area circled below). Use snips or other appropriate tool to perform this task.



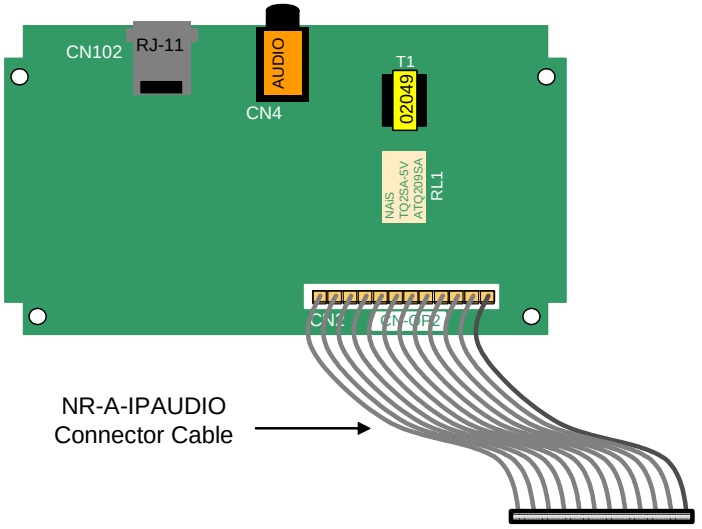
Remove retaining tabs
in the area circled



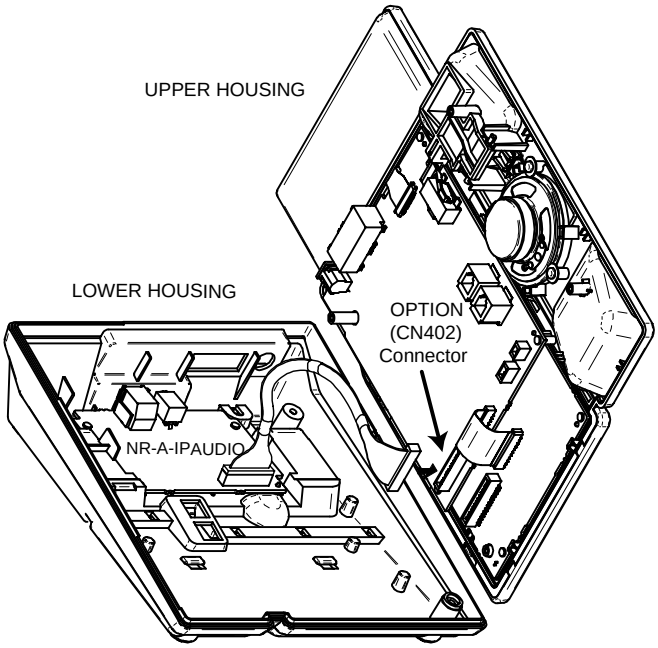
6. Install the NR-A-IPAUDIO unit by inserting the RJ-11 and audio jack into the cutouts created in step 5.
   - Position the NR-A-IPAUDIO unit through the retaining pins and align over the screw standoffs, as shown below.
   - Insert the two Phillips head retaining screws, provided with the IPAUDIO unit, to secure the NR-A-IPAUDIO unit to the Platinum 18/12i lower housing.



7. Attach one end of the NR-A-IPAUDIO cable to the CN-OP2 (CN2) connector on the NR-A-IPAUDIO unit.
   - The connector is keyed and can only be installed in one direction.

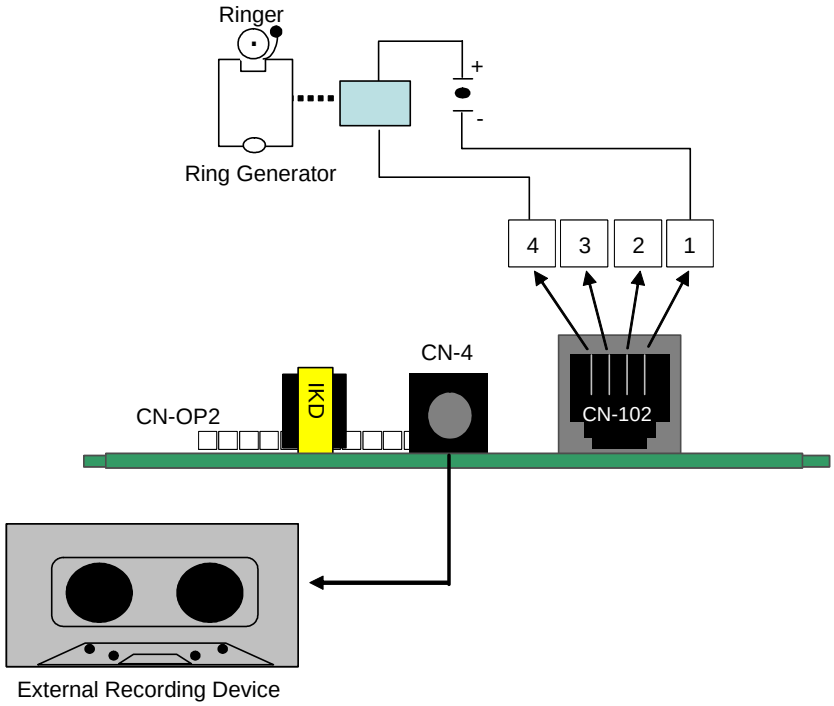


8. Attach the other end of the NR-A-IPAUDIO cable to the OPTION (CN402) connector on the NR-A-IPKTCUM board located on the Platinum 18/12i upper housing.



9. Reattach the top section of the telephone using the Phillips head screws set aside from the third step.
10. Reconnect all cords.

NR-A-IPAUDIO Audio Adapter Configuration



Labeling

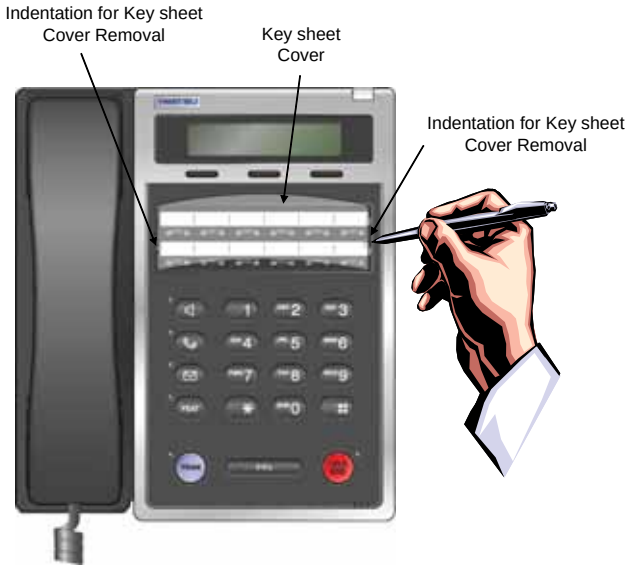
Platinum 18i

Remove the plastic key sheet cover by pressing on the key sheet tab and lifting. If desired, remove the label shipped with the telephone and replace with either the Platinum 18i key label. Use the Iwatsu Programer print key labels.



Platinum 12i

Remove the plastic key sheet cover by using a pen and placing it in one of the two key sheet indentions and lifting. If desired, remove the label shipped with the telephone and replace with either the Platinum 12i key label. Use the Iwatsu Programmer to print key labels.



IX-12IPKTD-E Configuration

The IX-12IPKTD-E menu display or the integrated web server interface can be used to configure the IX-12IPKTD-E IP Telephone. Both procedures are listed in this section.

By factory default, the IX-12IPKTD-E IP Telephone is setup for DHCP IP addressing. If your network does not have a DHCP server on your network, you will need to program a static IP address on your IX-12IPKTD-E IP Telephone.

IX-12IPKTD-E Configuration using the Web Interface

Follow the procedure for configuring the IX-12IPKTD-E IP Telephone for either **DHCP** or **Static** IP addressing.

During this procedure, some programming through the IX-12IPKTD-E Display Menu is necessary to retrieve the DHCP IP address or change the IP Telephone's IP address from DHCP to Static.

The procedure is noted where DHCP and Static programming deviates.

Web Interface Configuration Overview

Step 1 - Connect Power to the IX-12IPKTD-E.

Step 2 - Login to the IX-12IPKTD-E using the Display Menu.

Step 3 - Retrieve the assigned DHCP IP address using the Menu Display.

Step 4 - Change Mode from DHCP to Static IP addressing using the Display Menu.

Step 5 - Configure the Programming PC.

Step 6 - Login and Configure the IX-12IPKTD-E using the Web Interface.

Step 7 - Input the IX-CCU/IX-CCSU LAN 2 IP address (Primary / Secondary) using the Web Interface.

Step 8 - Change Mode from DHCP to Static IP addressing using the Web Interface.

Step 9 - Input the ECS Station Logical Port number (Primary / Secondary) using the Web Interface.

Step 10- Set Time Difference 1 and Time Difference 2.

Step 11- Reset the IX-12IPKTD-E using the Web Interface.

Step 1 - Connect power to the IX-12IPKTD-E

1. For **Power over Ethernet (PoE)**, connect the CAT5 cable to the LAN Port on the IX-12IPKTD-E and then to the LAN.



- If **Power over Ethernet (PoE)** is **not used**: First, connect the CAT5 cable to the LAN Port on the IX-12IPKTD-E and then to the LAN. Second, connect the IX-IPKTAC-E power supply to an electrical outlet and then to the IX-12IPKTD-E.



- *Once power is applied to the IX-12IPKTD-E, the telephone will attempt to negotiate with the network DHCP server. If you do not have a DHCP server on your network, the IX-12IPKTD-E will still go through the negotiation process. This process will take a few minutes to complete.*
- ***(For DHCP)*** The DHCP server will negotiate with the IX-12IPKTD-E and will be assigned an IP address.
- If there is no DHCP server on your network the error message shown below will display on your IX-12IPKTD-E display.



Step 2 - Login to the IX-12IPKTD-E using the Display Menu

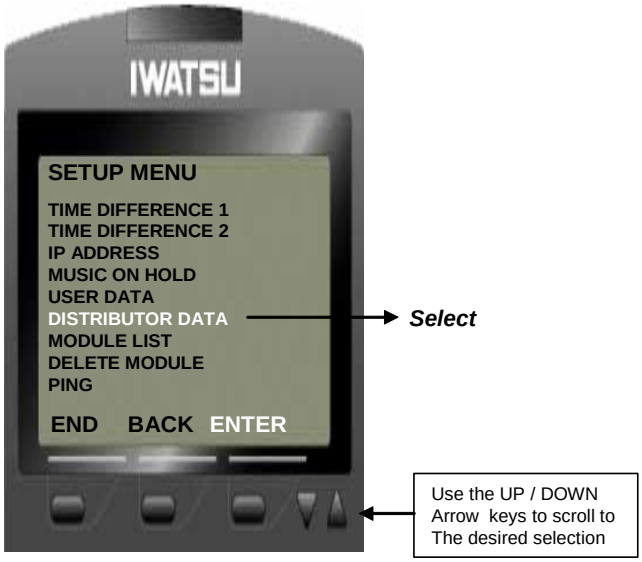
1. After the IX-12IPKTD-E has completed the DHCP negotiation process: Press and hold the [**MENU**] key under the LCD of the IX-12IPKTD-E for 5 seconds - until the **Setup Menu** appears.



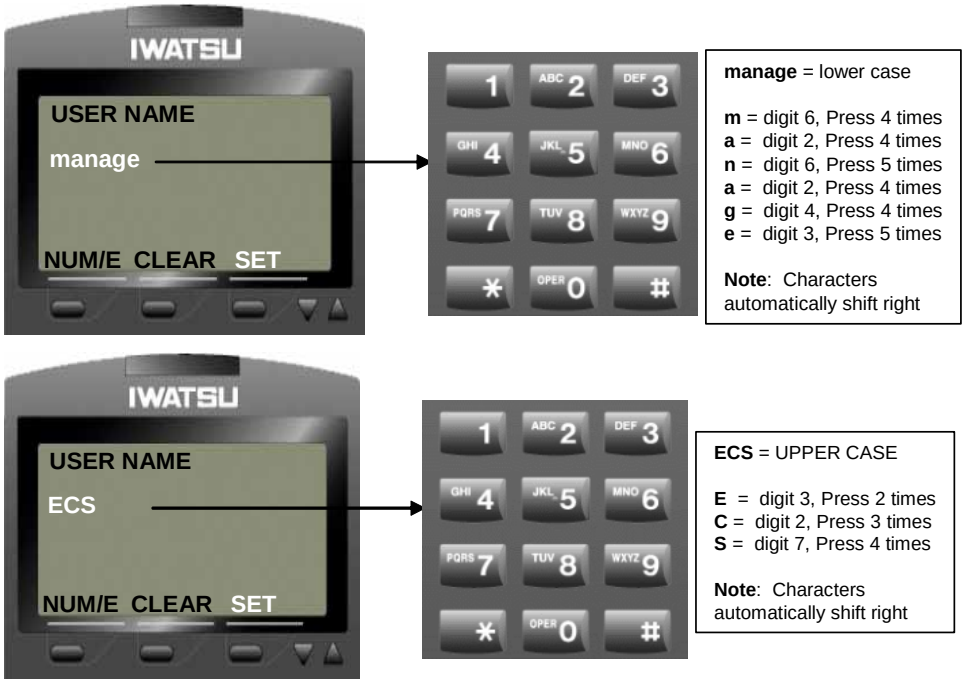
2. At the **SETUP MENU** screen, press [**ENTER**].



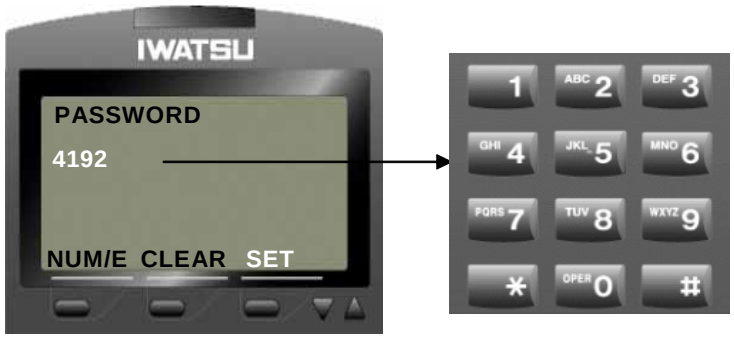
3. From the **SETUP MENU**, select [**DISTRIBUTOR DATA**].
   - Press [**ENTER**].



4. Input the **USER NAME** using the dial pad.
   - Enter the Default **User Name** = **manage** (lower case) or **ECS** (UPPER CASE).
   - Press [**SET**].



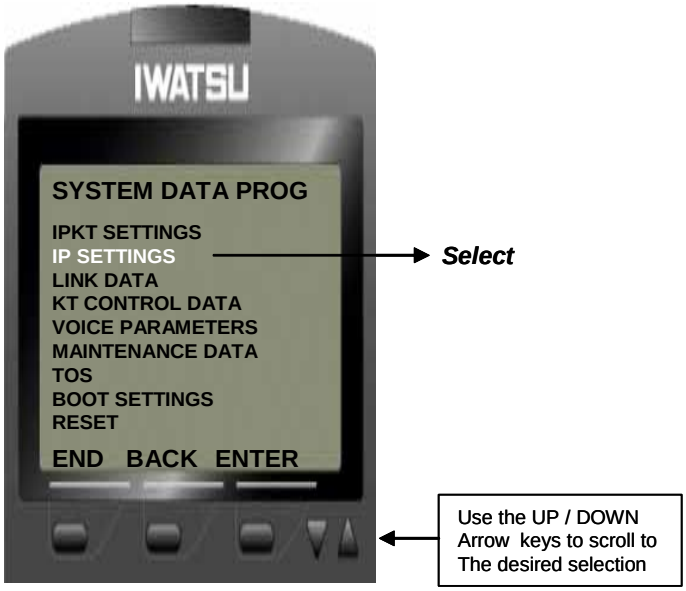
5. Input ***PASSWORD*** using the dial pad.
   - Default password = **4192**.
   - Press [**SET**].



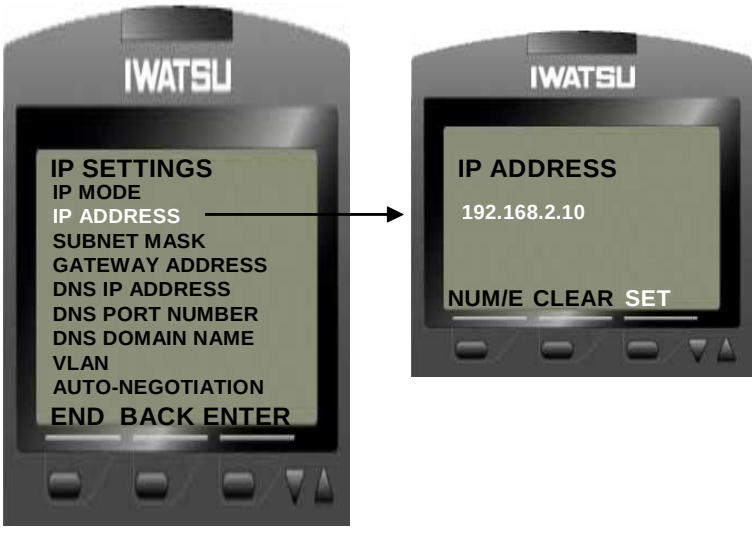
Step 3 is ONLY required for DHCP IP addressing. For Static IP addressing - Skip to Step 4

Step 3 - Retrieve the assigned DHCP IP address using the IX-12IPKTD-E Display Menu

1. In the **SYSTEM DATA PROG** menu, select [**IP SETTINGS**].
   - Press [**ENTER**].



   - **IP SETTINGS** screen appears.
2. Select [**IP ADDRESS**] and press [**ENTER**].
   - Write down the IP address the DHCP server has assigned to the IX-12IPKTD-E.

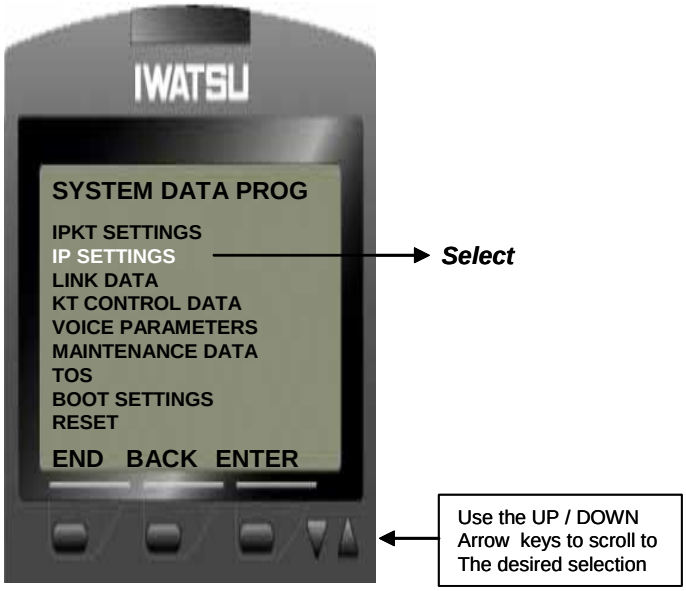


3. **Go to Step 5** - Configure the Programming PC.

Step 4 is only required if changing IP Mode from DHCP to Static IP addressing

Step 4 - Change Mode from DHCP to Static IP addressing using the IX-12IPKTD-E Display Menu

1. In the **SYSTEM DATA PROG** menu, select [**IP SETTINGS**].
   - Press [**ENTER**].



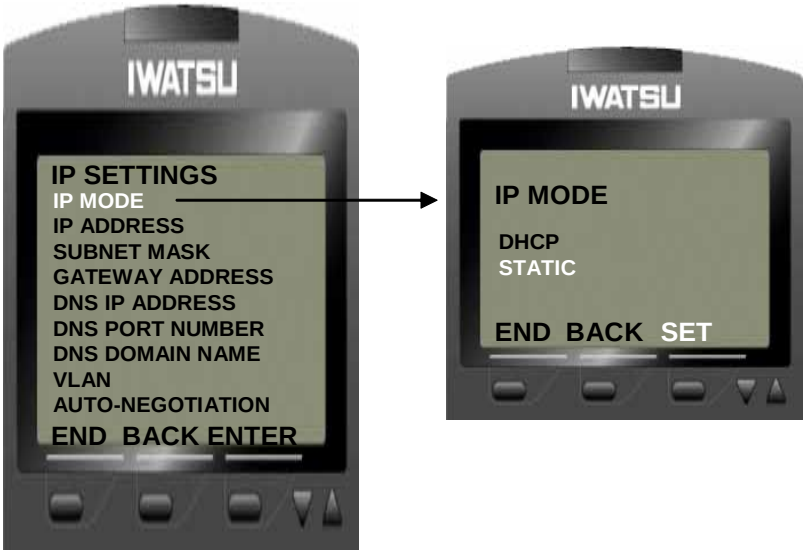
   - **IP SETTINGS** screen appears.
2. Select [**IP MODE**] and press [**ENTER**].



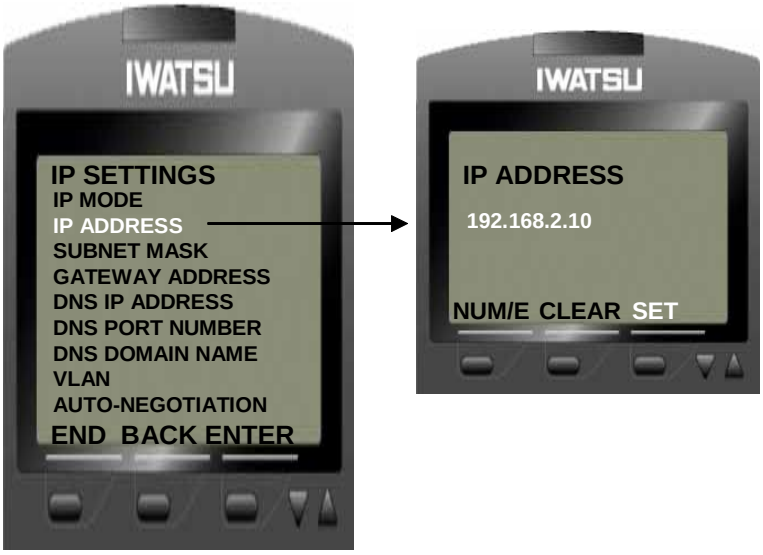
IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = **DHCP**)
2. **IP ADDRESS:** Insert the IX-12IPKTD-E IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (When changed to Static - Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (When changed to Static - Default = 255.255.255.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

- Select [**STATIC**] and press [**SET**].



3. Select [**IP SETTINGS**] and press [**ENTER**].
   - Select [**IP ADDRESS**] and press [**ENTER**].



- Use the ***** key to move the cursor left or the **#** key to move the cursor right and push [**CLEAR**] to delete the Default IP Address.
- Input the IP Address using the dial pad and the [**NUM/E**] button.
- Once the correct IP Address is inserted, press [**SET**].



IP ADDRESS Data Input
Example: 192.168.2.10

Using the dial pad:
Dial [192] + Press [NUM/E] + Dial [0 0] = **192.**
Press [NUM/E] + Dial [168] + Press [NUM/E] + Dial [0 0] = **192.168.**
Press [NUM/E] + Dial [2] + Press [NUM/E] + Dial [0 0] = **192.168.2.**
Press [NUM/E] + Dial [10] = **192.168.2.10**

Press [SET]
Returns to IP SETTINGS Menu

4. From the **SYSTEM DATA PROG** menu, select [**IP SETTINGS**] and press [**ENTER**].
   - From the **IP SETTINGS** menu:
   - Select [**SUBNET MASK**]. Enter Subnet Mask address
   - Select [**GATEWAY ADDRESS**]. Enter Gateway Address, if required.

(Refer to the above IP Address data input example above for entering an IP Address)



IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

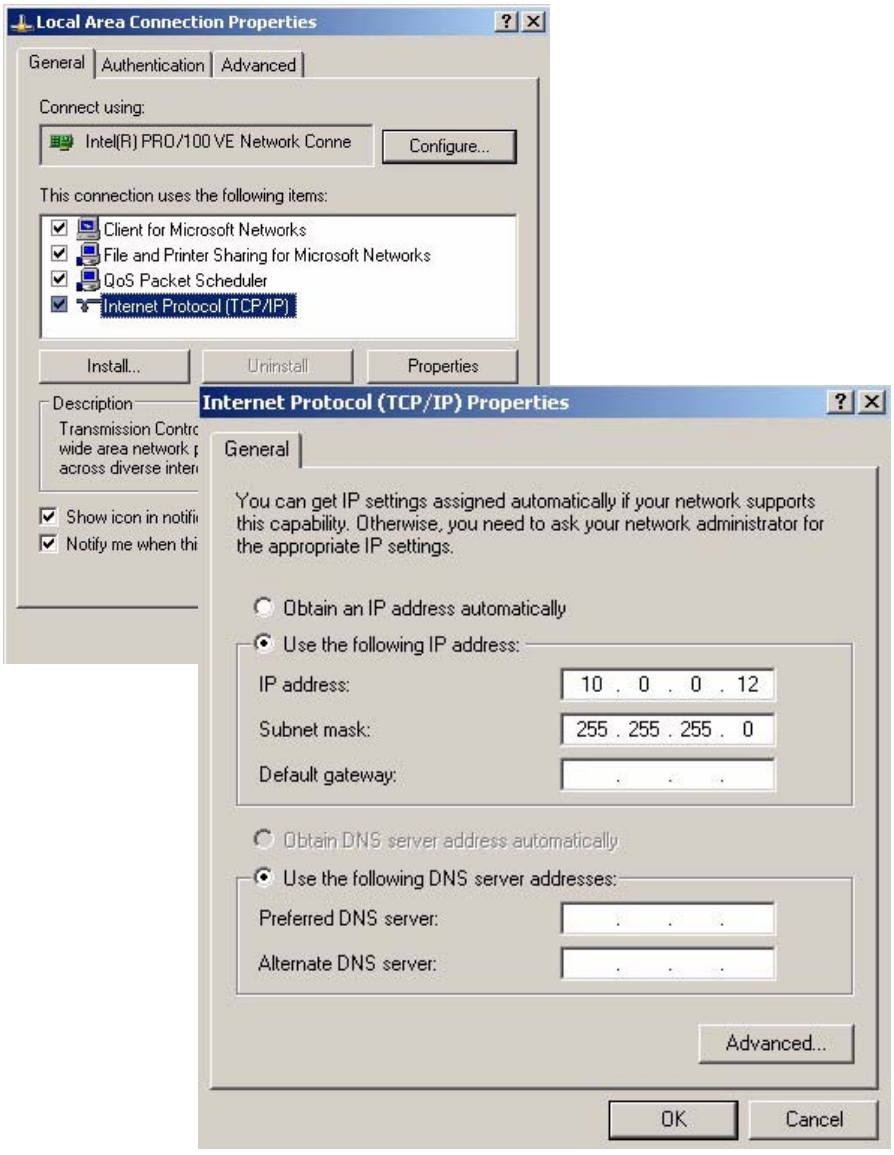
1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = **DHCP**)
2. **IP ADDRESS:** Insert the IX-12IPKTD-E IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (When changed to Static - Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (When changed to Static - Default = 255.255.255.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

- Remember to press [**SET**] as required after making any changes.

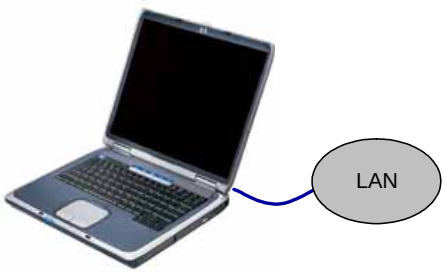
Step 5 - Configure the Programming PC

The programming PC must be configured with an IP address that is compatible with the IPKTD-E being programmed. Consult your Network Administrator if needed.

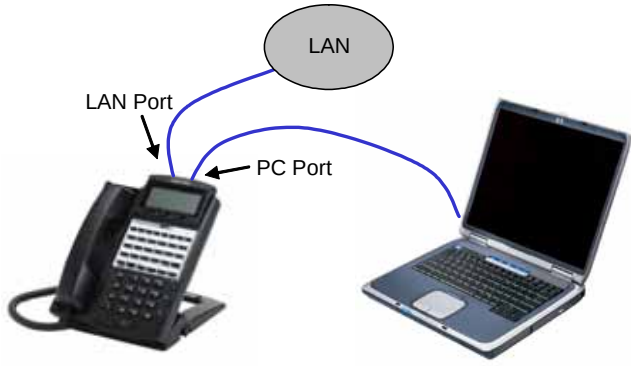
1. From the programming PC's **Control Panel**, select: **Network Connections** then **Properties**.
   - In the Local Area Connection Properties screen. Select: **Internet Protocol (TCP/IP)** then **Properties**.
   - Input an IP address and Subnet mask that is compatible with the IPKTD-E being programmed. For example: An IP address of 10.0.0.2 and a Subnet mask of 255.255.255.0 is compatible with an IX-12IPKTD-E IP address of 10.0.0.10.
   - Remember to press **OK** for changes to take effect.



2. Connect the programming PC to the LAN or directly to the PC port on the back of the IX-12IPKTD-E.



Programming PC



IX-12IPKTD-E

Programming PC

Step 6 - Login to the IX-12IPKTD-E using the Web Interface

Note: To configure the IX-12IPKTD-E IP Telephone, cookies must be enabled. Use Internet Explorer's integrated help file for instructions on enabling cookies.

1. Launch Internet Explorer version 6.0 or higher.
   - Type the DHCP or Static **IP address** of the IP telephone in the address bar.



   - The **IPKT Login** screen appears.

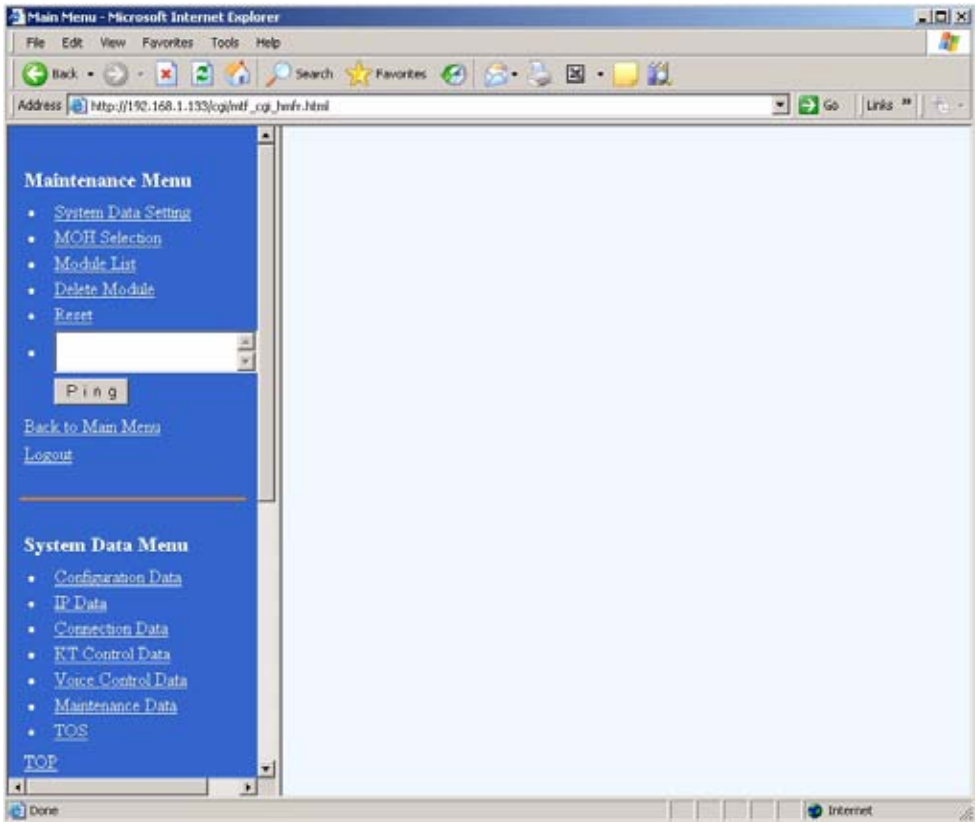


Note: If the above page does not display, there is a TCP/IP configuration settings conflict. Make certain both devices reside on the same subnet and network and the programming PC's IP settings are correct.

2. Enter the case-sensitive Username and Password on the **IPKT Login** screen.
   - Use '**manage**' or **'ECS**' as the username.
   - Use '**4192**' as a password.
   - Select the **Login** button.

Note: The above username and password are for Iwatsu Voice Networks distributor use only.

3. Upon a successful Login, the **Main Menu** screen will display.



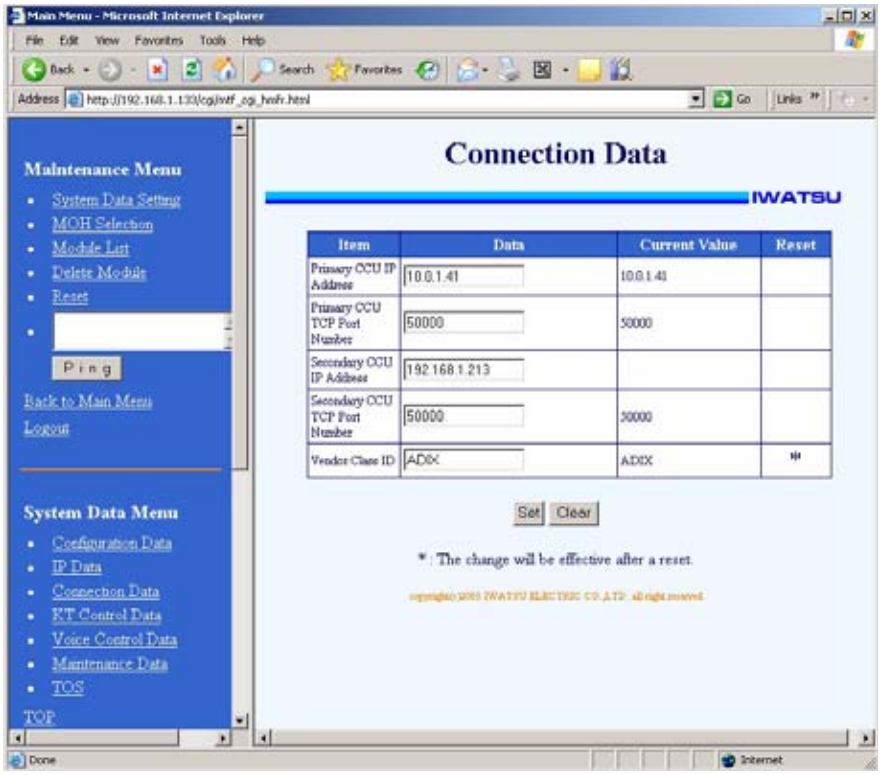
Step 7 - Input the IX-CCU/IX-CCSU LAN2 IP address for the Primary and Secondary ECS System using the Web Interface

(The Secondary IX-CCU/IX-CCSU LAN2 IP address is required for multiple host connectivty)

1. From the **System Data Menu,** select **Connection Data**.
2. From the **Connection Data** screen, enter the IP address of the primary IX-CCU/CCSU LAN2 port in the **Primary CCU IP Address** textbox. To provision a **Secondary CCU IP Address**, enter the LAN2 IP address of the secondary (or backup) IX-CCU/CCSU.

Note: The default address of the ECS LAN2 port is **10.0.0.1**.

3. Enter the primary and secondary TCP port numbers in the **Primary CCU TCP Port Number** and **Secondary CCU TCP Port Number** textbox.
   - This value will rarely change. However, because some network administrators only open specific ports on the firewall, some remote users may need to change the default TCP port number to an open port on the firewall.



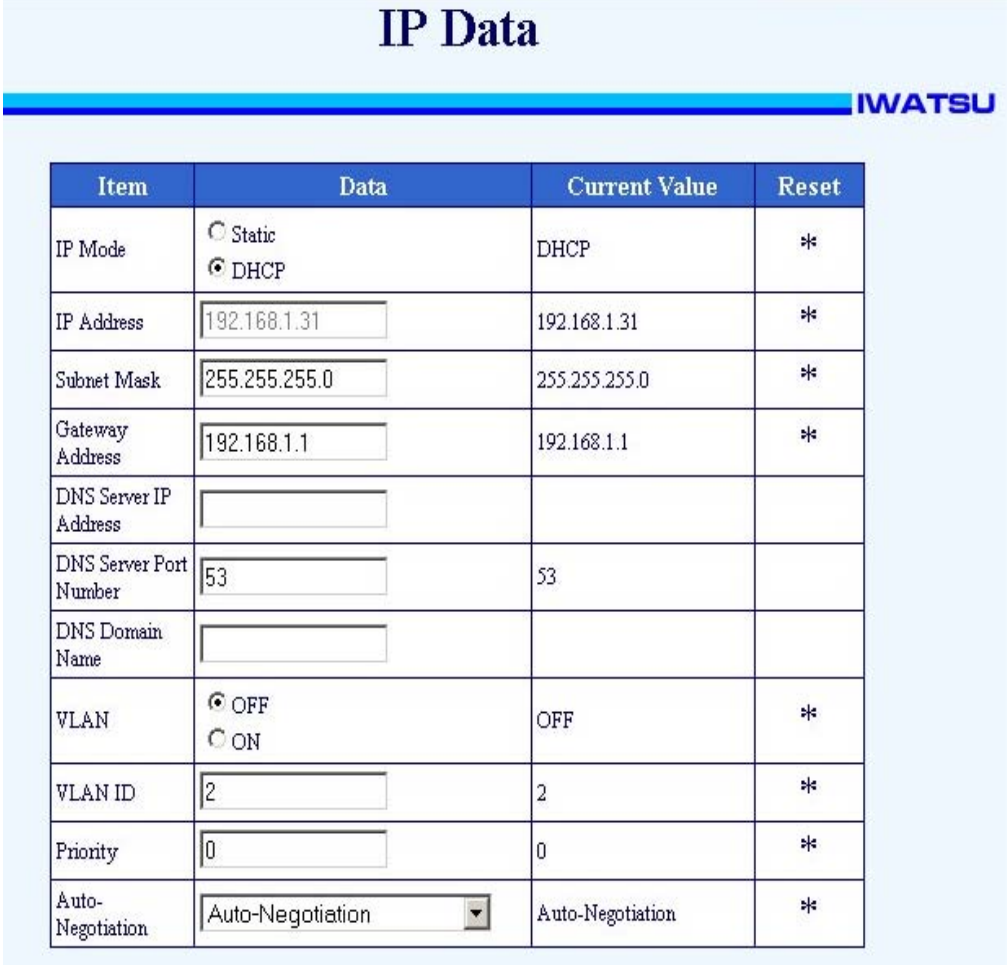
4. Select the **Set** button.
   - Confirm the setting change.



   - Select the **OK** button.

Step 8 - Change Mode from DHCP to Static IP addressing using the Web Interface

1. Select **IP Data** from the **System Data Menu**.
   - The **IP Data** screen displays.



2. Select either the **Static** or **DHCP** radio button in the **IP Mode** field.
   - If **Static** is selected, enter the IP address of the IX-12IPKTD-E in the **IP Address** field.

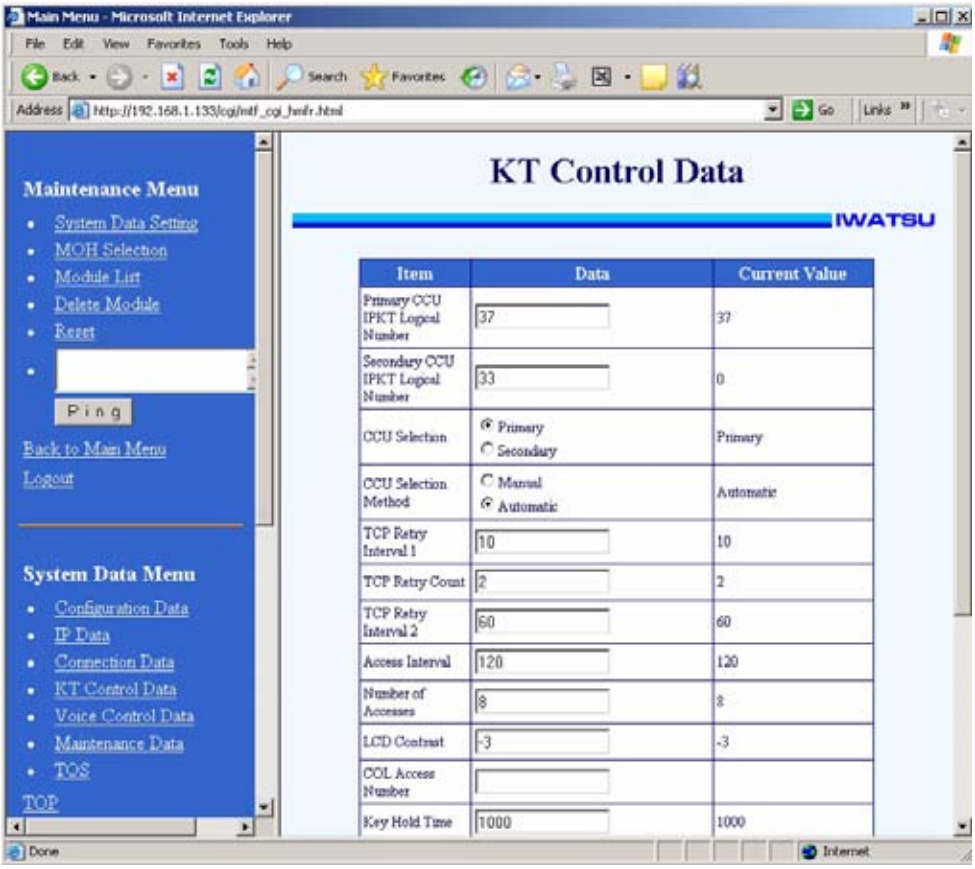
Note:	The Network Administrator will supply the Static IP address, Subnet Mask, and Gateway IP Addresses.

3. Enter the network **Subnet Mask**.
4. Enter the network **Gateway Address**.
   - The **Gateway Address** field is the IP address of the router used by remote users to connect to the ECS system.
   - When using either of the IP Telephones as a layer 2 switch, the PC connected to the IP Telephone must have the correct gateway address to access networks outside the LAN (i.e. the Internet).
5. As an option, enter the DNS server information in the **DNS Server IP Address** field, the **DNS Server Port Number** field and the **DNS Domain Name** field.
6. Select the **Set** button.

Step 9 - Input the ECS Station Logical Port number for the Primary and Secondary ECS System using the Web Interface

(The Secondary station logical port number is required for multiple host connectivity)

1. Select **KT Control Data** from the **System Data Menu**.
   - The **KT Control Data** window displays.
2. Enter the logical port number(s) from **System > Hardware > Port Table** (Class 01.09) from the ECS system database the IX-12IPKTD-E will use in the **Primary CCU IPKT Logical Number** and the optional **Secondary CCU IPKT Logical Number** field.
3. Set the **CCU Selection**: **Primary** or **Secondary**. This is the CCU IP address the phone will try to connect to first. (Default = Primary)
4. Set the **CCU Selection Method**: **Manual** or **Automatic**. (Default = Automatic)
   - **Automatic**: The telephone will automatically try to connect to the secondary CCU selection when there is no connectivity to the primary CCU selection.
   - **Manual**: The manual selection allows the user to manually switch from one ECS to another based on the programmed information. This is also used to force a re-connect to the same ECS.
5. Select the **Set** button.

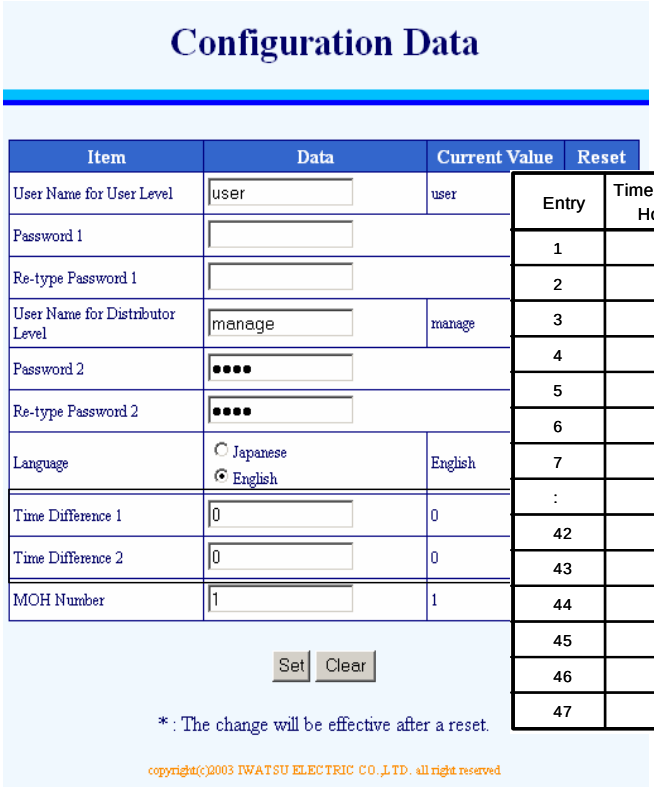


Step 10 - Set Time Difference 1 and Time Difference 2

(Time Difference 2 is an optional setting for multiple host connectivity)

The Time Difference Settings are used to adjust the time of day when the telephone and the ECS system are located in different time zones. The time difference on the telephone can be adjusted from 30 minutes to 23 ½ hours ahead or behind the ECS system time.

1. Enter Time Difference 1 and / or Time Difference 2 offset: Time Difference 1 is associated with the Primary ECS IX-CCU/IX-CCSU LAN2 IP address and Time Difference 2 is associated with the Secondary ECS IX-CCU/IX-CCSU LAN2 IP address.
   - Default = 0 (No time difference).
   - Range = 0 to 47 and -1 to -47. Each whole number represents 30 minutes. For example, if you enter a 2 as the time difference, the telephone time would be 1 hour ahead of the ECS system time.

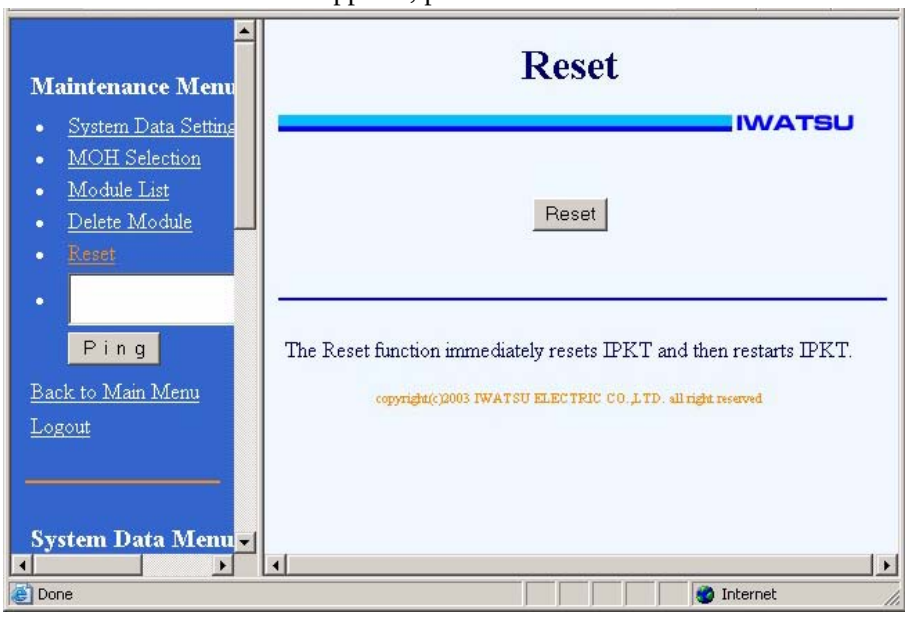


Entry	Time Difference Hour : Min	Entry	Time Difference Hour : Min
1	:30	-1	-:30
2	1:00	-2	-1:00
3	1:30	-3	-1:30
4	2:00	-4	-2:00
5	2:30	-5	-2:30
6	3:00	-6	-3:00
7	3:30	-7	-3:30
:	:	:	:
42	21:00	-42	-21:00
43	21:30	-43	-21:30
44	22:00	-44	-22:00
45	22:30	-45	-22:30
46	23:00	-46	-23:00
47	23:30	-47	-23:30

2. Remember to press the **Set** button after making any change.

Step 11 - Reset the IX-12IPKTD-E using the Web Interface

1. From the Maintenance Menu, select **Reset**.
2. When the Reset window appears, press **Reset**.



3. At the **Do you want to reset?** confirmation screen, select **OK** to reset the telephone..



Note: To reset a large number of telephones, you can choose to reset the ECS system. Resetting the ECS will reset each telephone.

Note: An Iwatsu IP Station License is required for all IX-12IPKTD-E IP Telephones.

IX-12IPKTD-E Configuration Using the Display Menu

Follow the procedure for configuring the IX-12IPKTD-E IP Telephone for either **DHCP** or **Static** IP addressing using the IP Telephone's Display Menu.

The procedure is noted where DHCP and Static programming deviates.

Display Menu Configuration Overview

Step 1 - Connect Power to the IX-12IPKTD-E.

Step 2 - Login to the IX-12IPKTD-E.

Step 3 - Change Mode from DHCP to Static IP addressing.

Step 4 - Input the IX-CCU/IX-CCSU LAN 2 IP address (Primary / Secondary).

Step 5 - Input the ECS Station Logical Port number (Primary / Secondary).

Step 6 - Set the IX-CCU/IX-CCSU Selection (Primary / Secondary).

Step 7 - Set the IX-CCU/IX-CCSU Selection Method (Automatic / Manual).

Step 8 - Set Time Difference 1 and Time Difference 2.

Step 9 - Reset the IX-12IPKTD-E.

Step 1 - Connect power to the IX-12IPKTD-E

1. For **Power over Ethernet (PoE)**, connect the CAT5 cable to the LAN Port on the IX-12IPKTD-E and then to the LAN.



2. If **Power over Ethernet (PoE)** is **not used**: First, connect the CAT5 cable to the LAN Port on the IX-12IPKTD-E and then to the LAN. Second, connect the IX-IPKTAC-E power supply to an electrical outlet and then to the IX-12IPKTD-E.



- *Once power is applied to the IX-12IPKTD-E, the telephone will attempt to negotiate with the network DHCP server. If you do not have a DHCP server on your network, the IX-12IPKTD-E will still go through the negotiation process. This process will take a few minutes to complete.*
- ***(For DHCP)*** The DHCP server will negotiate with the IX-12IPKTD-E and will be assigned an IP address.
- If there is no DHCP server on your network the error message shown below will display on your IX-12IPKTD-E display.



Step 2 - Login to the IX-12IPKTD-E using the Display Menu

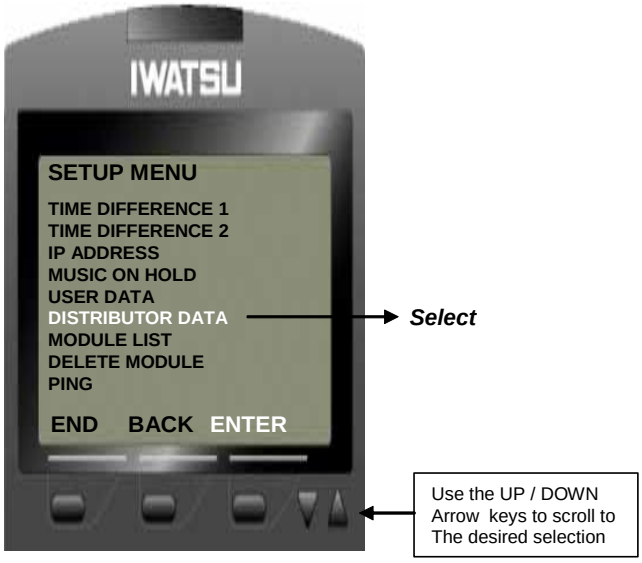
1. After the IX-12IPKTD-E has completed the DHCP negotiation process: Press and hold the [**MENU**] key under the LCD of the IX-12IPKTD-E for 5 seconds - until the **Setup Menu** appears.



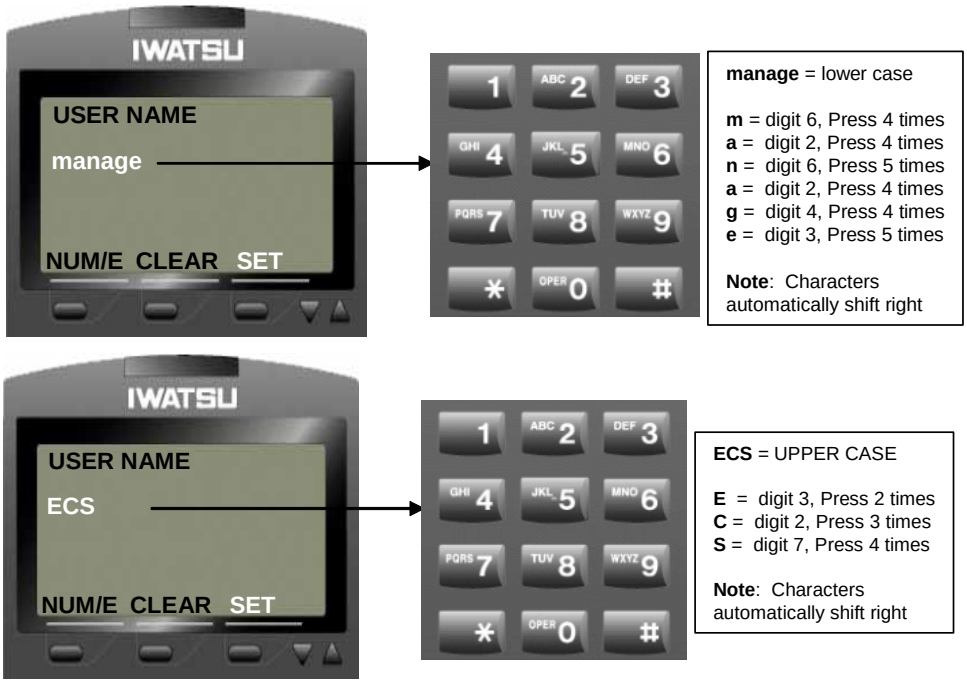
2. At the **SETUP MENU** screen, press [**ENTER**].



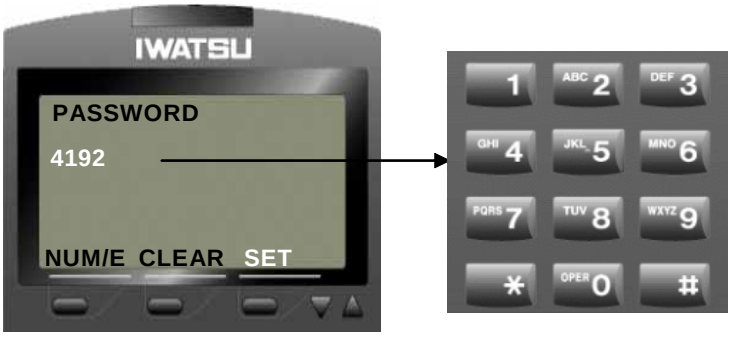
3. From the **SETUP MENU**, select [**DISTRIBUTOR DATA**].
   - Press [**ENTER**].



4. Input **USER NAME** using the dial pad.
   - Enter the Default User Name = **manage** (lower case) or **ECS** (upper case).
   - Press [**SET**].



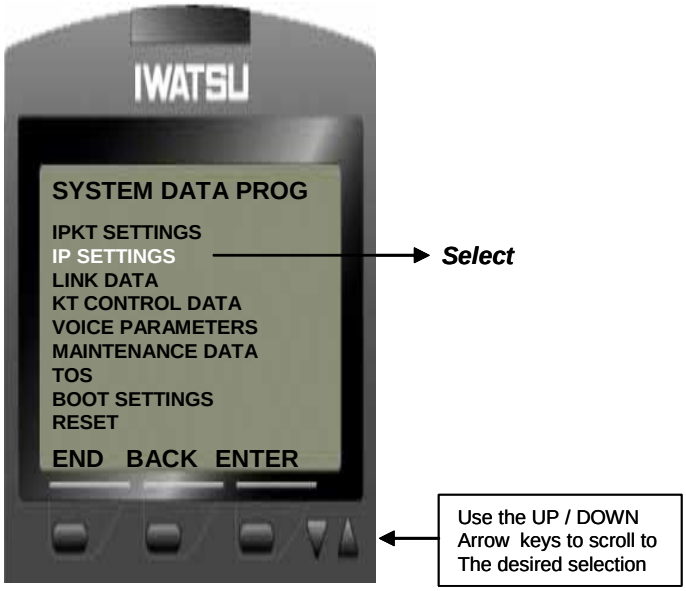
5. Input **PASSWORD** using the dial pad.
   - Default password = **4192**.
   - Press [**SET**].



Step 3 is not required if changing IP Mode from DHCP to Static IP addressing - Skip to Step 4

Step 3 - Change Mode from DHCP to Static IP addressing using the IX-12IPKTD-E Display Menu

1. In the **SYSTEM DATA PROG** Menu, select [**IP SETTINGS**].
   - Press [**ENTER**].



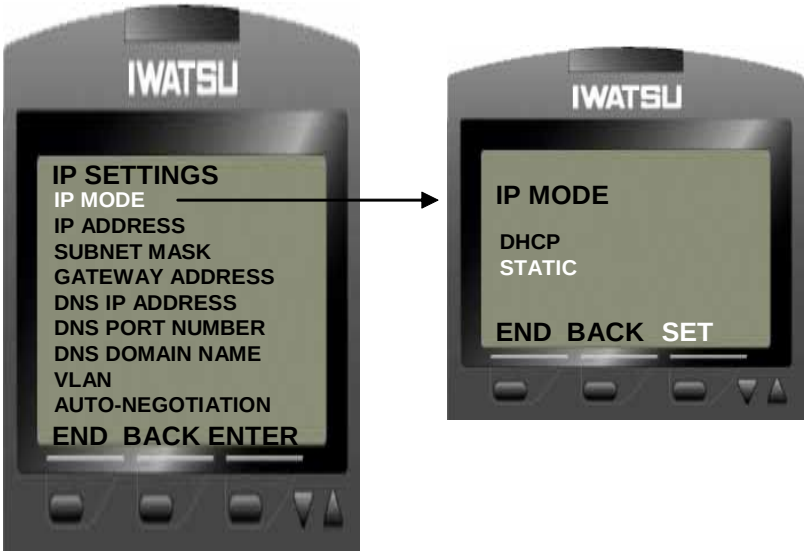
   - **IP SETTINGS** screen appears.
2. Select [**IP MODE**] and press [**ENTER**].



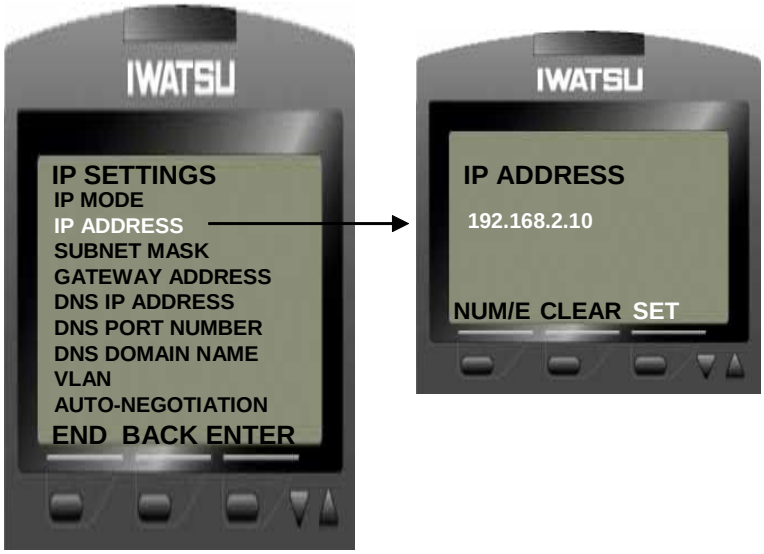
IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = **DHCP**)
2. **IP ADDRESS:** Insert the IX-12IPKTD-E IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (When changed to Static - Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (When changed to Static - Default = 255.255.255.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

- Select [**STATIC**] and press [**SET**].



3. Select [**IP SETTINGS**] and press [**ENTER**].
   - Select [**IP ADDRESS**] and press [**ENTER**].



- Use the ***** key to move the cursor left or the **#** key to move the cursor right and push [**CLEAR**] to delete the Default IP Address.
- Input the IP Address using the dial pad and the [**NUM/E**] button.
- Once the correct IP Address is inserted, press [**SET**].



IP ADDRESS Data Input
Example: 192.168.2.10

Using the dial pad:
Dial [192] + Press [NUM/E] + Dial [0 0] = **192.**
Press [NUM/E] + Dial [168] + Press [NUM/E] + Dial [0 0] = **192.168.**
Press [NUM/E] + Dial [2] + Press [NUM/E] + Dial [0 0] = **192.168.2.**
Press [NUM/E] + Dial [10] = **192.168.2.10**

Press [SET]
Returns to IP SETTINGS Menu

4. From the **SYSTEM DATA PROG** Menu, select [**IP SETTINGS**] and press [**ENTER**].
   - From the **IP SETTINGS** Menu:
   - Select [**SUBNET MASK**]. Enter Subnet Mask address
   - Select [**GATEWAY ADDRESS**]. Enter Gateway Address, if required.

(Refer to the above IP Address data input example above for entering an IP Address)



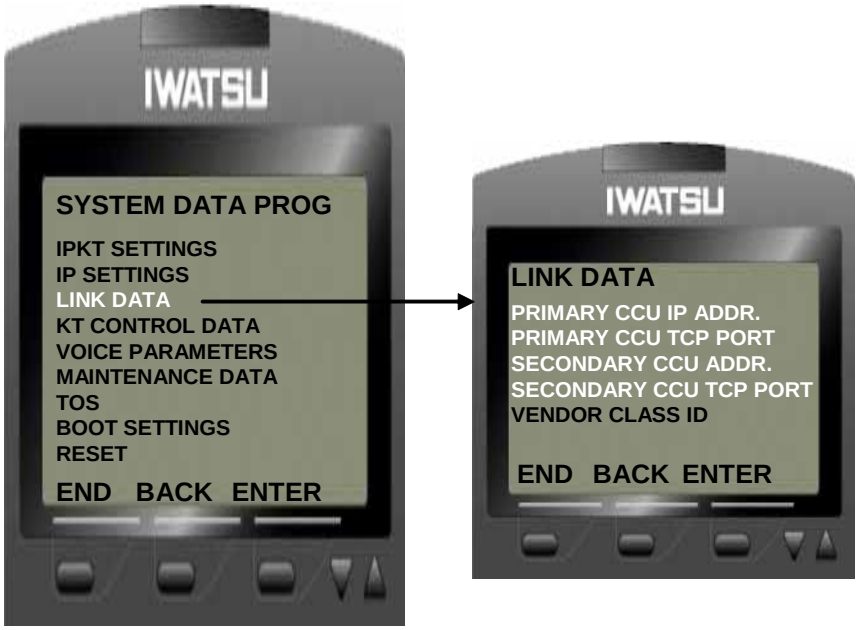
IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = **DHCP**)
2. **IP ADDRESS:** Insert the IX-12IPKTD-E IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (When changed to Static - Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (When changed to Static - Default = 255.255.255.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

- Remember to press [**SET**] as required after making any changes.

Step 4 - Input the ECS IX-CCU/IX-CCSU LAN 2 IP address for the Primary and Secondary ECS System (The secondary ECS IX-CCU/IX-CCSU LAN2 IP address is required for multiple host connectivity)

1. From the **SYSTEM DATA PROG** menu, select [**LINK DATA**].
   - Press [**ENTER**].



2. Select [**Primary CCU IP ADDR.**] and press [**ENTER**].
   - Enter the IP Address of the LAN 2 port on the IX-CCU/IX-CCSU card. This is the primary / main ECS where you are connecting the IX-12IPKTD-E.
   - Press [**SET**].



IX-CCU/IX-CCSU IP ADDRESS Data Input
Example: 192.168.2.12

Using the dial pad:
Dial [192] + Press [NUM/E] + Dial [0 0] = **192.**
Press [NUM/E] + Dial [168] + Press [NUM/E] + Dial [0 0] = **192.168.**
Press [NUM/E] + Dial [2] + Press [NUM/E] + Dial [0 0] = **192.168.2.**
Press [NUM/E] + Dial [12] = **192.168.2.12**

Press [SET]
Returns to LINK DATA Menu

   - In the example, the IP Address of the primary IX-CCU/IX-CCSU card is 192.168.2.12.

3. Select [**Secondary CCU ADDR.**] and press [**ENTER**].
   - Enter the IP Address of the LAN 2 port on the secondary IX-CCU/IX-CCSU card. This is the secondary / remote ECS where the IX-12IPKTD-E will connect to if connectivity to the primary ECS is lost.
   - Press [**SET**].



IX-CCU/IX-CCSU IP ADDRESS Data Input
Example: 192.168.2.13

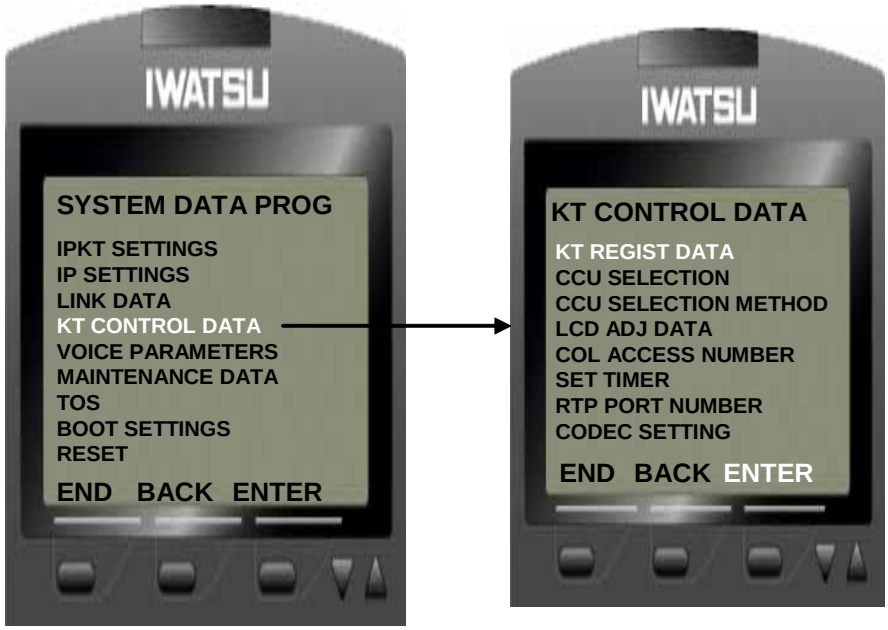
Using the dial pad:
Dial [192] + Press [NUM/E] + Dial [0 0] = **192.**
Press [NUM/E] + Dial [168] + Press [NUM/E] + Dial [0 0] = **192.168.**
Press [NUM/E] + Dial [2] + Press [NUM/E] + Dial [0 0] = **192.168.2.**
Press [NUM/E] + Dial [13] = **192.168.2.13**

Press [SET]
Returns to LINK DATA Menu

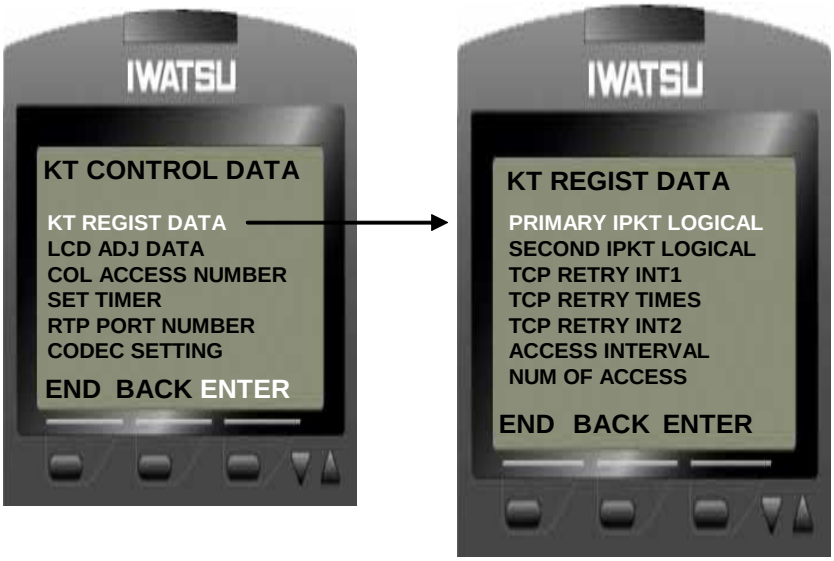
   - In the example, the IP Address of the secondary IX-CCU/IX-CCSU card is 192.168.2.20.

Step 5 - Input the ECS Station Logical Port number for the Primary and Secondary ECS System. (The Secondary station logical port number is required for multiple host connectivity)

1. From the **SYSTEM DATA PROG** menu, select [**KT CONTROL DATA**] and press [**ENTER**].



2. Select [**KT REGIST DATA**] and press [**ENTER**].



3. Select [**PRIMARY IPKT LOGICAL**]. Enter the logical port number for the primary IPKT logical port number.
   - Use the key pad as in previous steps to delete and enter the correct port number.
   - Input the **Station Logical Port Number** (example = port 26).
   - Press [**SET**].



Enter [**2 6**] + [**SET**]
Note: Do not enter leading zeros. If there is a zero in the display, press [**CLEAR**]

4. Select [**KT REGIST DATA**] and [**SECOND IPKT LOGICAL**]. Enter the logical port number for the [**SECONDARY IPKT LOGIC**] port number.
   - Use the key pad as in previous steps to delete and enter the correct port number.
   - Input the **Secondary Station Logical Port Number** (example = port 30).
   - Press [**SET**].

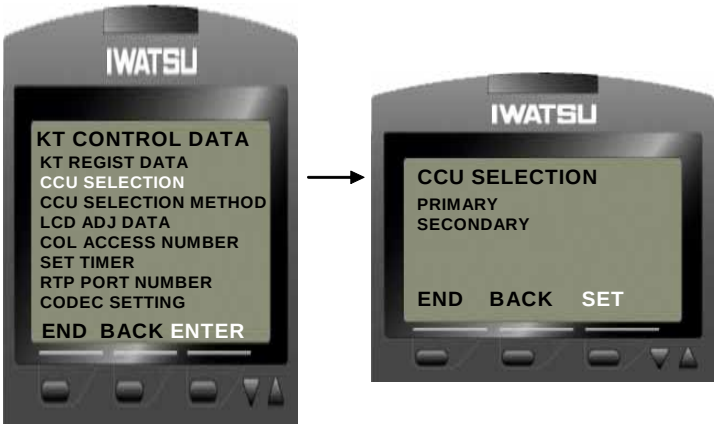


Enter [**30**] + [**SET**]
Note: Do not enter leading zeros. If there is a zero in the display, press [**CLEAR**]

Step 6 - Set the ECS IX-CCU/IX-CCSU Selection (This step is required when Primary and Secondary CCU/CCSU LAN2 Ports are configured)

The CCU selection determines which ECS LAN2 IP address the telephone will connect to first. (Default = Primary)

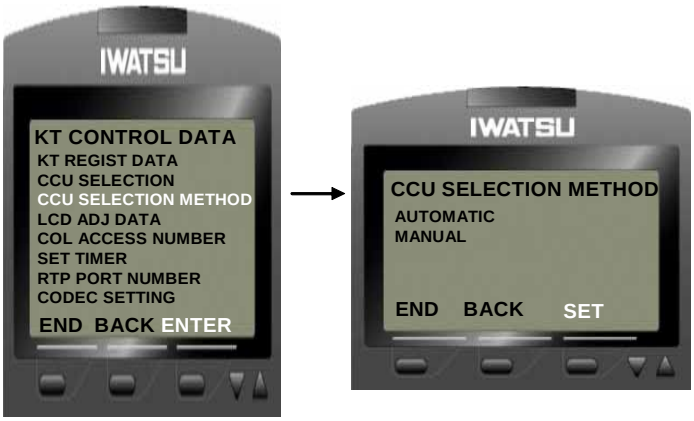
1. From the **SYSTEM DATA PROG** menu, select [**KT CONTROL DATA**] and press [**ENTER**].
2. Select [**CCU SELECTION**].
   - Select [**PRIMARY**] or [**SECONDARY**] to set which ECS LAN2 IP address the IX-12IPKTD-E telephone will connect to first.
   - Press [**SET**].



Step 7 - Set the ECS IX-CCU/IX-CCSU Selection Method (This step is required when Primary and Secondary CCU/CCSU LAN2 Ports are configured)

The CCU Selection Method determines how the IX-12IPKTD-E will connect to the primary or secondary LAN2 IP address if connectivity is lost. (Default = Automatic)

1. From the **SYSTEM DATA PROG** menu, select [**KT CONTROL DATA**] and press [**ENTER**].
2. Select [**CCU SELECTION METHOD**].
   - Select [**AUTOMATIC**] or [**MANUAL**] to set the switching method.
   - Press [**SET**].



Step 8 - Set Time Difference 1 and Time Difference 2

(Time Difference 2 is an optional setting for multiple host connectivity)

The Time Difference Settings are used to adjust the time of day when the telephone and the ECS system are located in different time zones. The time difference on the telephone can be adjusted from 30 minutes to 23 ½ hours ahead or behind the ECS system time.

Time Difference 1 and / or Time Difference 2 offset: Time Difference 1 is associated with the Primary ECS IX-CCU/IX-CCSU LAN2 IP address and Time Difference 2 is associated with the Secondary ECS IX-CCU/IX-CCSU LAN2 IP address.

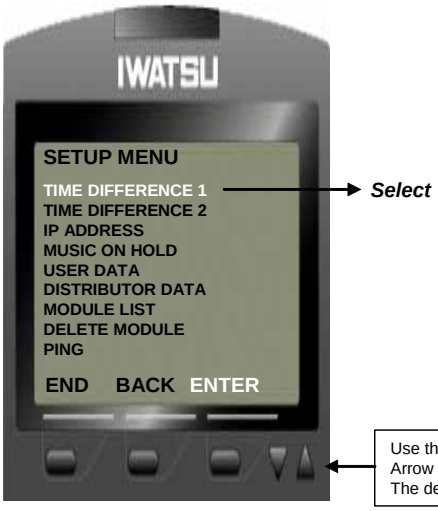
- Default = 0:00 (No time difference).
- Range = 0:00 to +23:30 and -0:30 to -23:30.

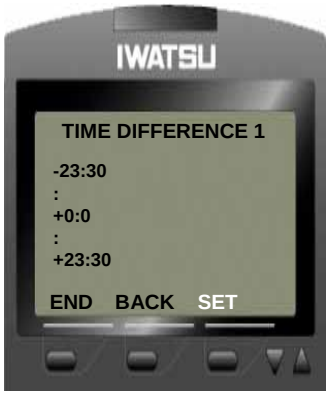
1. From the telephone's main screen, press and hold the [**MENU**] key until the [**SETUP MENU**] appears.
   - At the [**SETUP MENU**], press [**ENTER**].





2. Scroll to select [**TIME DIFFERENCE 1**] or [**TIME DIFFERENCE 2**] and press [**ENTER**].
   - Scroll up or down to choose the correct time difference.
   - Press [**SET**] when the correct time difference has been selected.





Note:	All essential parameters are now set. However, you may have to change additional settings such as TOS, or CCSU TCP port number, depending on your network environment. Consult with your Network Administrator.

Step 9 - Reset the IX-12IPKTD-E

1. Reset the IX-12IPKTD-E IP Telephone by removing and reapplying power.

Note:	To reset a large number of telephones, you can choose to reset the ECS system. Resetting the ECS will reset each telephone.

Note:	An Iwatsu IP Station License is required for all IX-12IPKTD-E IP Telephones.

IX-12IPKTD-E Default Procedure

To return the IX-12IPKTD-E to its factory default setting:

1. Remove power to the IX-12IPKTD-E
2. Hold down the [**SPKR**] + [**6**] keys (do not release)
3. Reapply power to the IX-12IPKTD-E
4. When the screen displays the software version number, release the [**SPKR**] + [**6**] keys

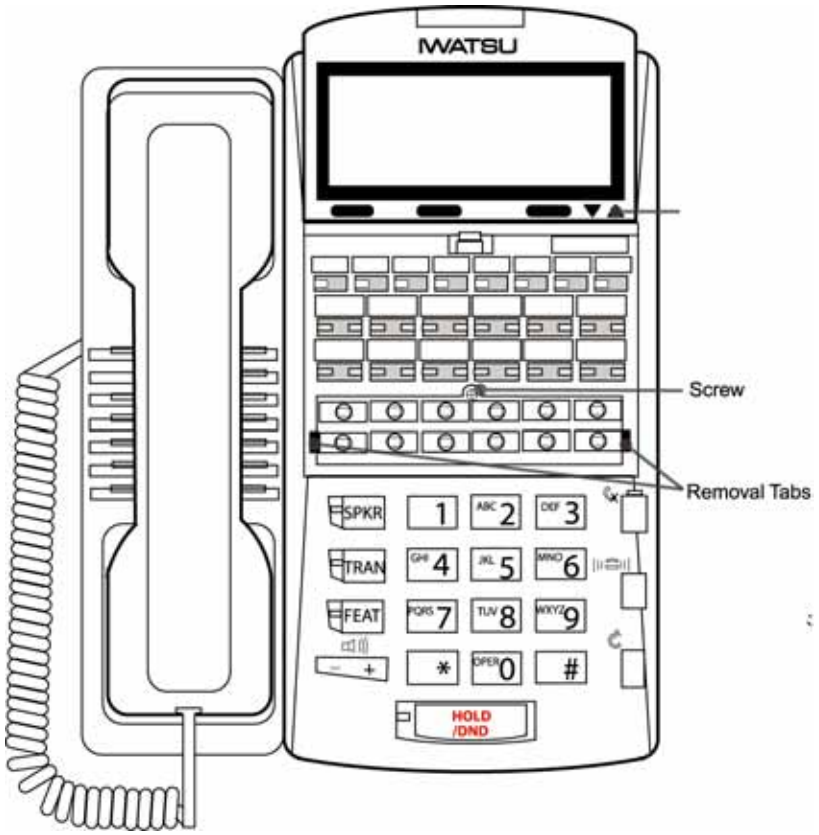
Installing the IX-12ELK-3 (Optional)

The IX-12ELK-3 adds 12 multipurpose buttons to IX-12IPKTD-E IP Telephones. Use the IX-12ELK-3 (BLK) with the black IX-12IPKTD-E IP Telephones and the IX-12ELK-3 (WHT) with the white IX-12IPKTD-E IP Telephones.

- To add an IX-12ELK-3 to an IX-12IPKT-ED IP Telephone:

1. Unplug the IX-12IPKTD-E IP Telephone from the local area network and the PC (if used).
2. Remove the plastic covering and key label from the IX-12IPKTD-E IP Telephone.
3. Remove the screw, then remove the plate covering the area reserved for the IX-12ELK-3.

Screw and plate covering location

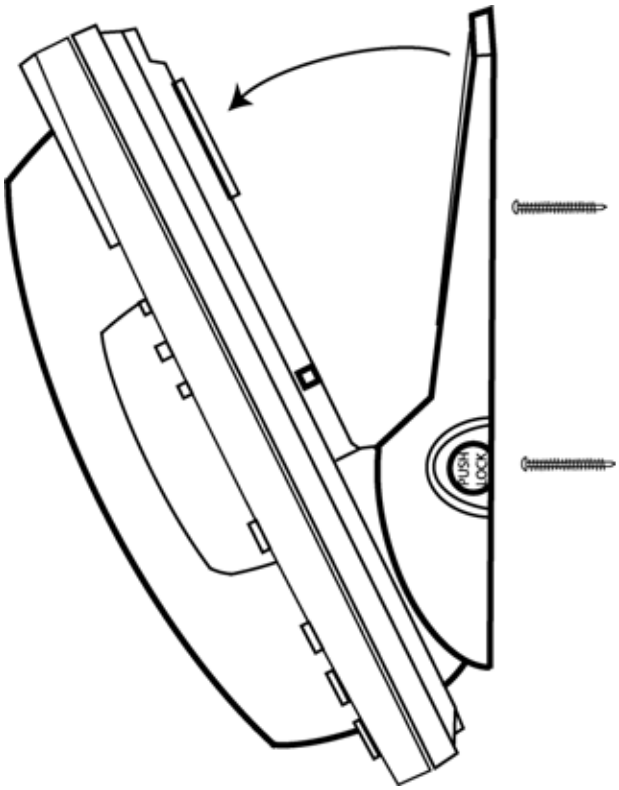


4. Snap the IX-12ELK-3 in place by inserting the left side first and then pushing down the right side.
5. Using the screw that you removed in step 3, screw the IX-12ELK-3 into place.
6. Replace the key label and plastic covering from the IX-12IPKTD-E IP Telephone.
7. Test all keys to make sure there is nothing impeding on their use.

IX-12IPKTD-E Wall Mount Installation

1. Unlock the pedestal of the IX-12IPKTD-E IP Telephone from its fixed position.
2. Fully extend the pedestal for wall mounting.
3. Locate the two holes at the center position of the pedestal. Attach screws to the wall in the location where the telephone is to be installed.

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IX-6IPKTD-E Configuration

The IX-6IPKTD-E menu display or the integrated web server interface can be used to configure the IX-6IPKTD-E IP Telephone. Both procedures are listed in this section.

By factory default, the IX-6IPKTD-E IP Telephone is setup for DHCP IP addressing. If your network does not have a DHCP server on your network, you will need to program a static IP address on your IX-6IPKTD-E IP Telephone.

IX-6IPKTD-E Configuration using the Web Interface

Follow the procedure for configuring the IX-6IPKTD-E IP Telephone for either **DHCP** or **Static** IP addressing using the Web Interface.

During this procedure, some programming through the IX-6IPKTD-E Display Menu is necessary to retrieve the DHCP IP address or change the IP Telephone's IP address from DHCP to Static.

The procedure is noted where DHCP and Static programming deviates.

Web Interface Configuration Overview

Step 1 - Connect Power to the IX-6IPKTD-E

Step 2 - Login to the IX-6IPKTD-E using the Display Menu

Step 3 - Retrieve the assigned DHCP IP address using the Menu Display

Step 4 - Change Mode from DHCP to Static IP addressing using the Display Menu

Step 5 - Configure the Programming PC

Step 6 - Login and Configure the IX-6IPKTD-E using the Web Interface

Step 7 - Input the IX-CCU/IX-CCSU LAN 2 IP address using the Web Interface

Step 8 - Change Mode from DHCP to Static IP addressing using the Web Interface

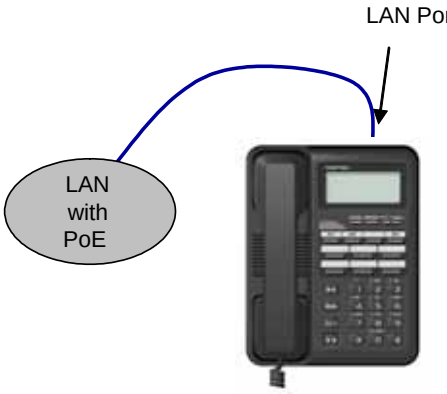
Step 9 - Input the ECS Station Logical Port number using the Web Interface

Step 10- Set Time Difference 1 and Time Difference 2

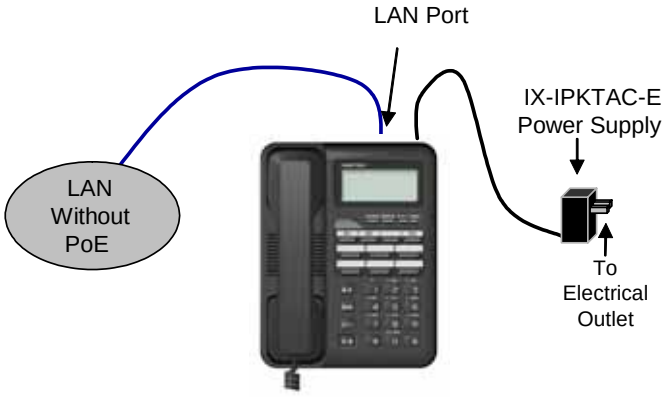
Step 11- Reset the IX-6IPKTD-E using the Web Interface

Step 1 - Connect Power to the IX-6IPKTD-E

- For **Power over Ethernet (PoE)**, connect the CAT5 cable to the LAN Port on the IX-6IPKTD-E and then to the LAN.



- When **Power over Ethernet (PoE)** is **not used**. First, connect the CAT5 cable to the LAN Port on the IX-6IPKTD-E and then to the LAN. Second, connect the IX-IPKTAC-E power supply to an electrical outlet and then to the IX-6IPKTD-E.



- *Once power is applied to the IX-6IPKTD-E, the telephone will attempt to negotiate with the network DHCP server. If you do not have a DHCP server on your network, the IX-6IPKTD-E will still go through the negotiation process, this will take a few minutes to complete.*
- ***(For DHCP)*** The DHCP server will negotiate with the IX-6IPKTD-E and will be assigned an IP address.

- If there is no DHCP server on your network the error message shown below will display on your IX-6IPKTD-E display.



Step 2 - Login to the IX-6IPKTD-E using the Display Menu

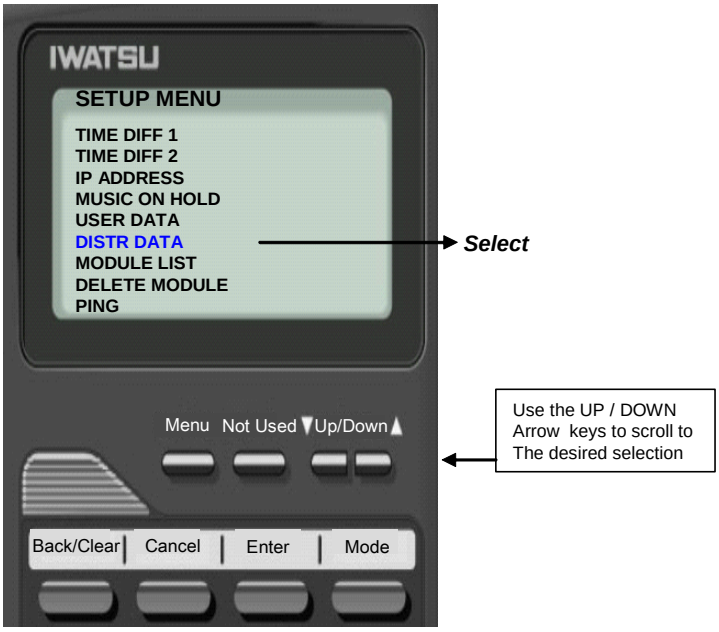
1. After the IX-6IPKTD-E has completed the DHCP negotiation process: Press and hold the [**MENU**] key under the LCD of the IX-6IPKTD-E for 5 seconds - until the **Setup Menu** appears.



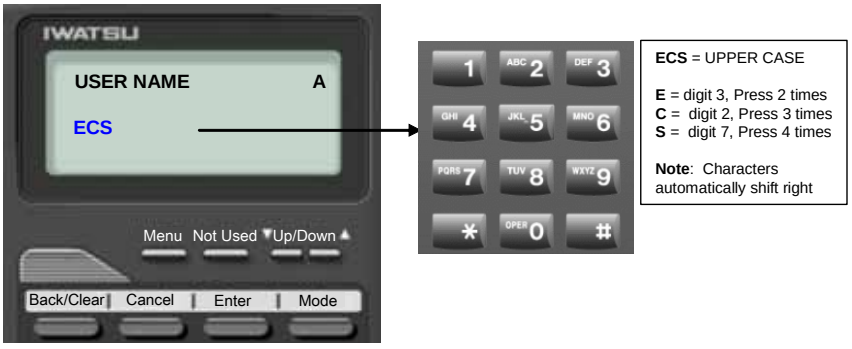
2. At the **SETUP MENU** screen, press [**ENTER**]

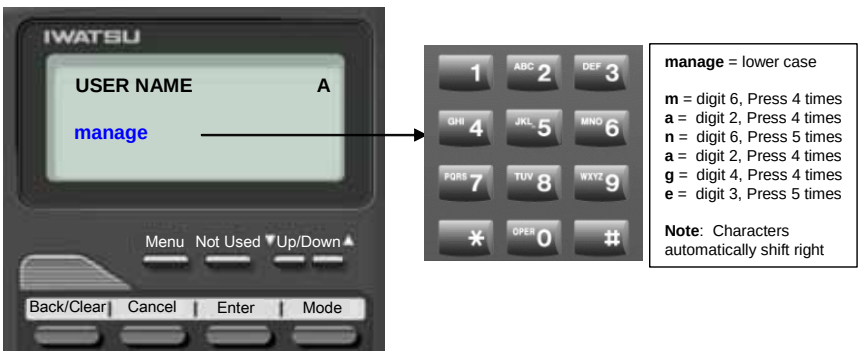


3. From the **SETUP MENU**, Select [**DISTRIBUTOR DATA**].
   - Press [**ENTER**].

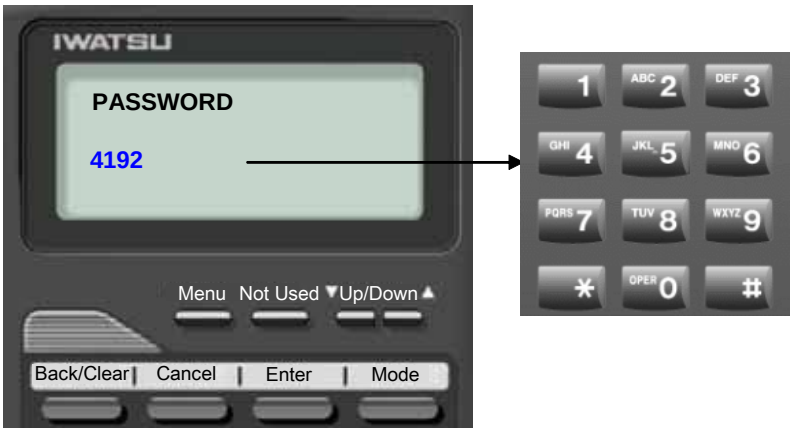


4. Input ***USER NAME*** using the dial pad.
   - Enter the Default User Name = **ECS** (upper case) or **manage** (lower case).
   - Press [**ENTER**].





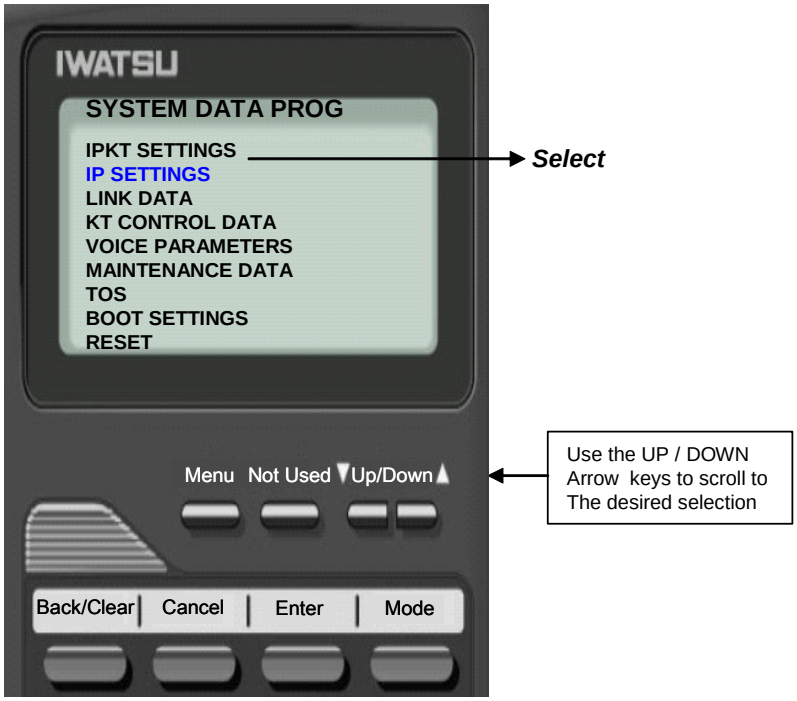
5. Input ***PASSWORD*** using the dial pad.
   - Default password = **4192.**
   - Press [**ENTER**].



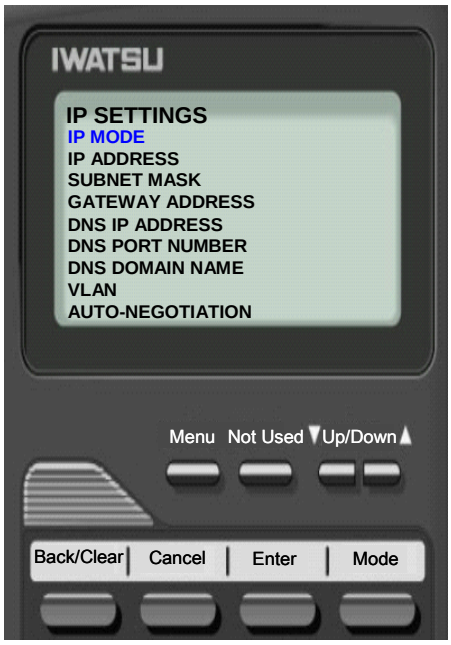
(Step 3 is only required for DHCP IP addressing. For Static IP addressing - Skip to Step 4)

Step 3 - Retrieve the assigned DHCP IP address using the Display Menu

1. In the **SYSTEM DATA PROG** Menu, select [**IP SETTINGS**].
   - Press [**ENTER**].



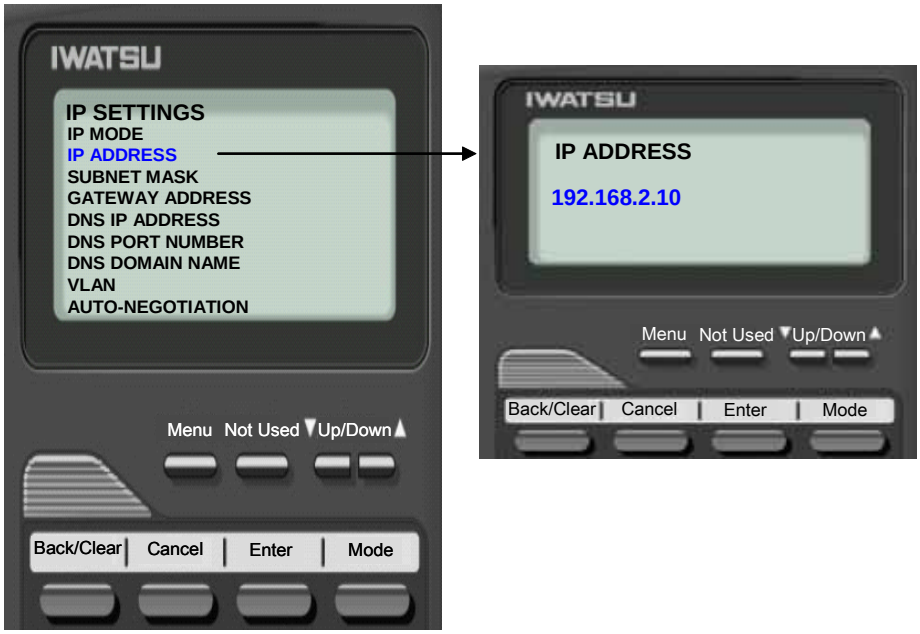
- **IP SETTINGS** Screen appears.



IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = DHCP)
2. **IP ADDRESS:** Insert the IX-6IPKTD-E IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (Static Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (Static Default = 255.255.255.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

2. Select [**IP ADDRESS**] and press [**ENTER**].
   - Write down the IP address the DHCP server has assigned the IX-6IPKTD-E.

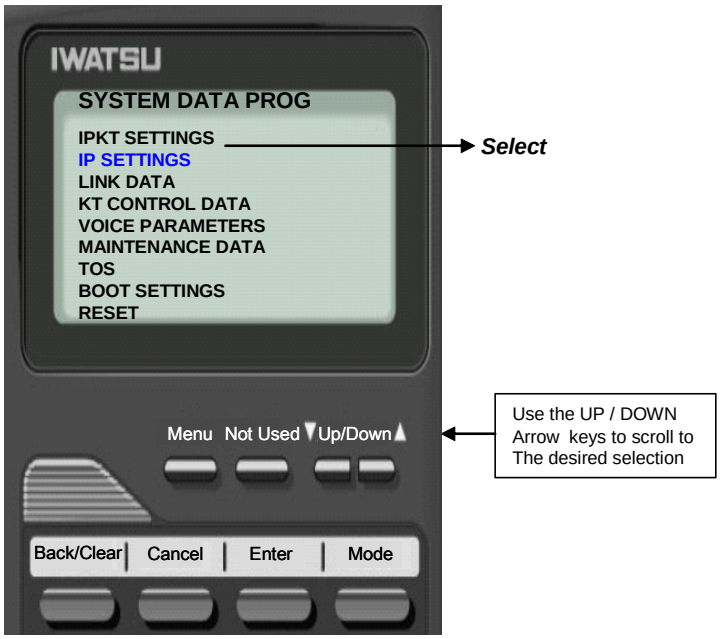


3. **Go to Step 5** - Login to the IX-6IPKTD-E using the Web Interface.

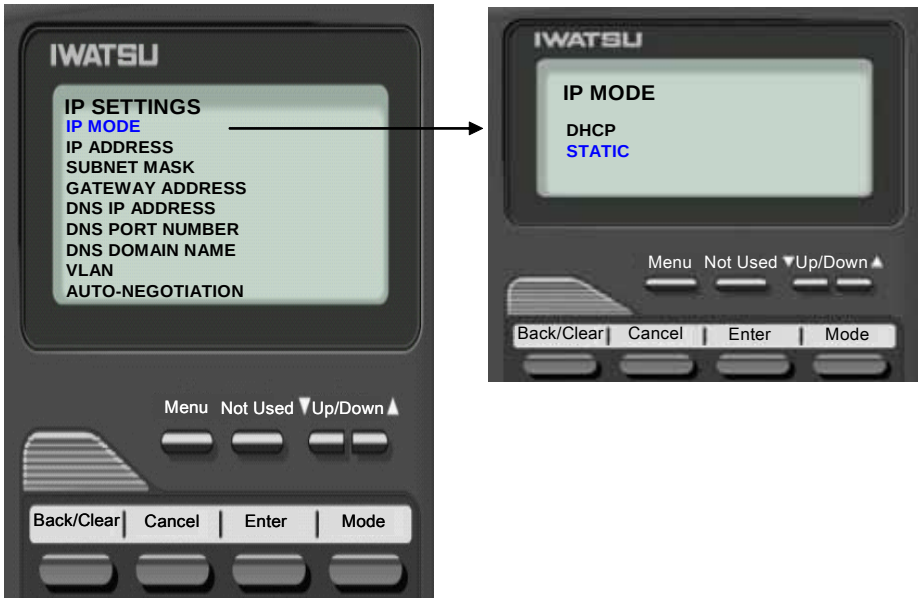
(Step 4 is only required if changing IP Mode from DHCP to Static IP addressing)

Step 4 - Change Mode from DHCP to Static IP addressing using the Display Menu

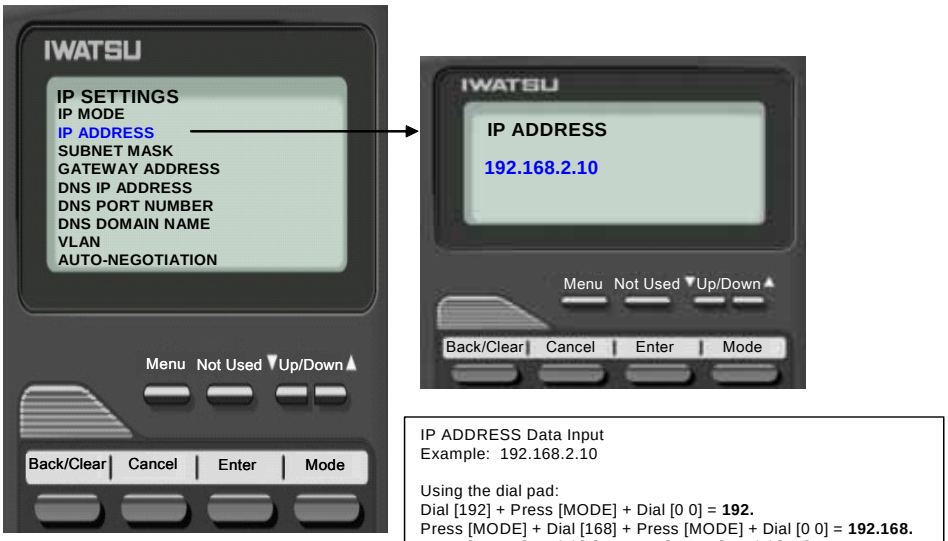
1. In the **SYSTEM DATA PROG** Menu, select [**IP SETTINGS**].
   - Press [**ENTER**].



   - **IP SETTINGS** screen appears.
2. Select [**IP MODE**] and press [**ENTER**].
   - Select [**STATIC**] and press [**ENTER**].



3. Select [**IP SETTINGS**] and press [**ENTER**].
   - Select [**IP ADDRESS**] and press [**ENTER**].

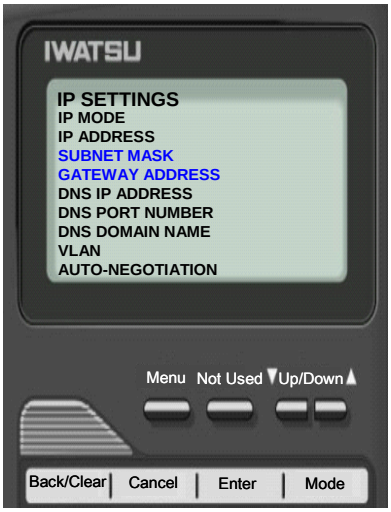


IP ADDRESS Data Input
Example: 192.168.2.10

Using the dial pad:
Dial [192] + Press [MODE] + Dial [0 0] = **192.**
Press [MODE] + Dial [168] + Press [MODE] + Dial [0 0] = **192.168.**
Press [MODE] + Dial [2] + Press [MODE] + Dial [0 0] = **192.168.2.**
Press [MODE] + Dial [10] = **192.168.2.10**

Press [ENTER]
Returns to SYSTEM DATA PROG Menu

   - Use the ***** key to move the cursor left, and the **#** key to move the cursor right, and push [**BACK/CLEAR**] to delete the Default IP Address.
   - Input the IP Address using the dial pad and the [**MODE**] button.
   - Once the correct IP address is inserted, press [**ENTER**].
4. From the **SYSTEM DATA PROG** Menu, select [**IP SETTINGS**].
   - From the **IP SETTINGS** Menu:
   - Select [**SUBNET MASK**]. Enter Subnet Mask address and press [**ENTER**].
   - Select [**GATEWAY ADDRESS**]. Enter Gateway Address, if required and press [**ENTER**].



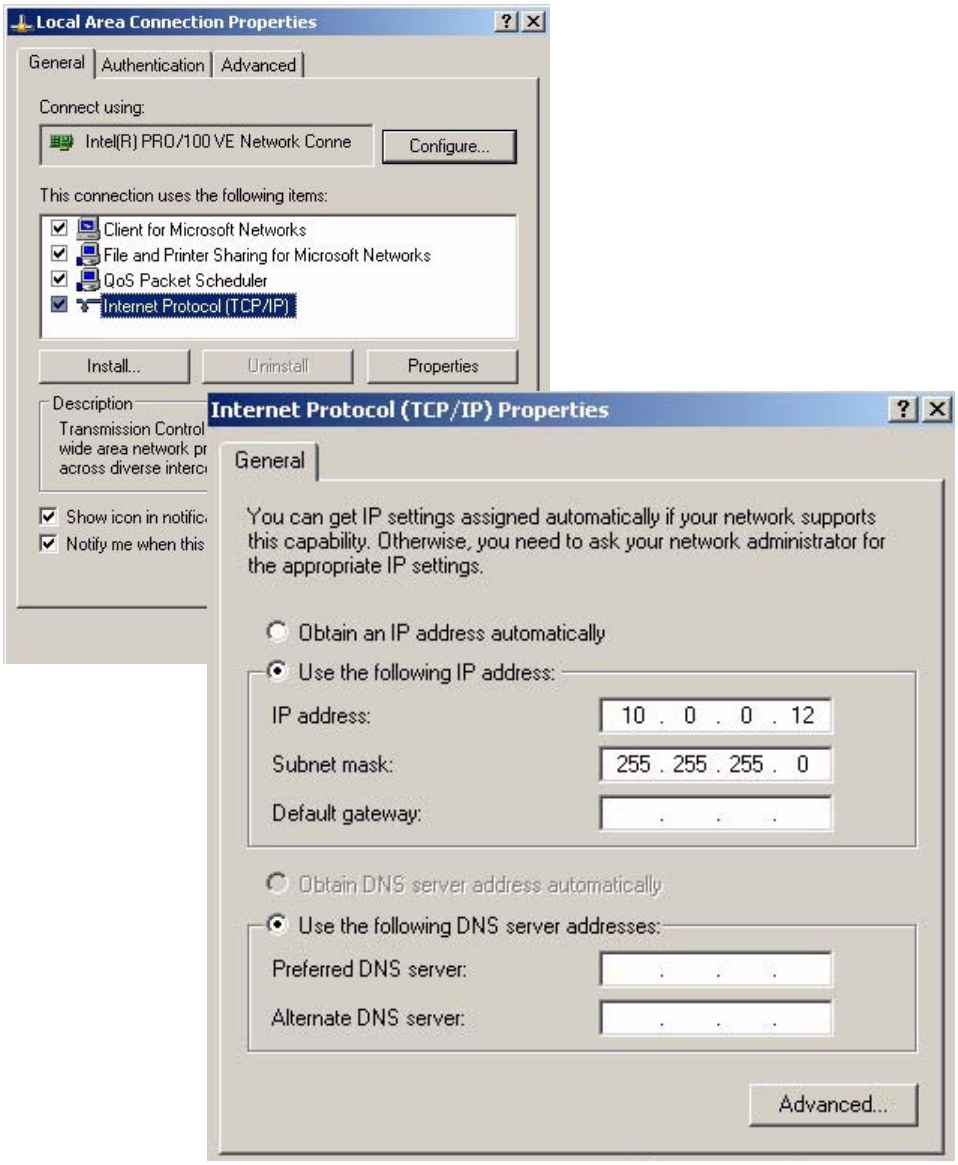
IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = DHCP)
2. **IP ADDRESS:** Insert the IX-6IPKTD-E IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (Static Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (Static Default = 255.255.255.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

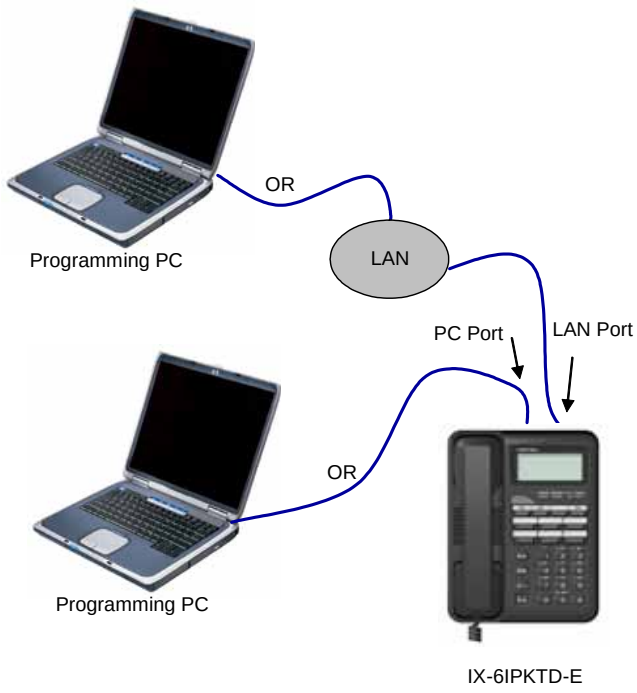
STEP 5 - Configure the Programming PC

The Programming PC must be configured with an IP address that is compatible with the IX-6IPKTD-E being programmed. Consult your Network Administrator if needed.

1. From the programming PC's **Control Panel**, select: **Network Connections** then **Properties**.
   - In the Local Area Connection Properties screen. Select: **Internet Protocol (TCP/IP)** then **Properties**.
   - Input an IP address and Subnet mask that is compatible with the IX-6IPKTD-E being programmed. For example: IP address: 10.0.0.12 and Subnet mask: 255.255.255.0 is compatible with the IX-6IPKTD-E IP address of 10.0.0.10.
   - Remember to press **OK** for changes to take effect.



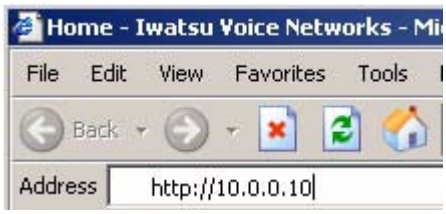
2. Connect the programming PC to the LAN or directly to the PC port on the back of the IPKTD-E.



Step 6 - Login to the IX-6IPKTD-E using the Web Interface

Note: To configure the IX-6IPKTD-E IP Telephone, cookies must be enabled. Use Internet Explorer's integrated help file for instructions on enabling cookies.

1. From the Programming PC, Launch Internet Explorer version 6.0 or higher.
   - Type the **DHCP** or **Static** IP address of the IP telephone in the address bar.



- The **IPKT Login** screen appears.

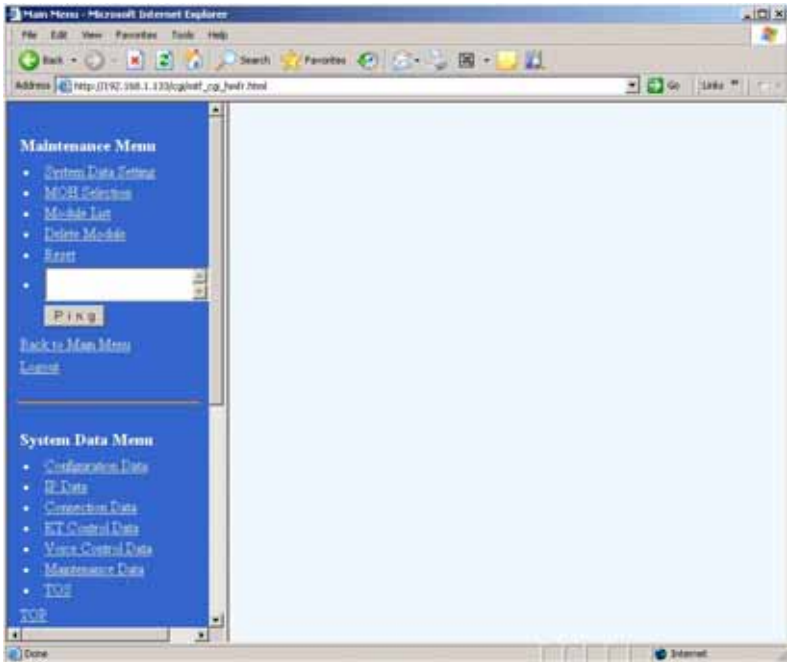


Note: If the above page does not display, there is a TCP/IP configuration settings conflict. Make certain both devices reside on the same subnet and network and the programming PC's IP settings are correct.

2. Enter the case-sensitive Username and Password on the **IPKT Login** screen.
   - Use '**ECS**' or '**manage**' as the username.
   - Use '**4192**' as a password.
   - Select the **Login** button.

Note: The above username and password are for Iwatsu Voice Networks distributor use only.

3. The **Main Menu** screen displays.



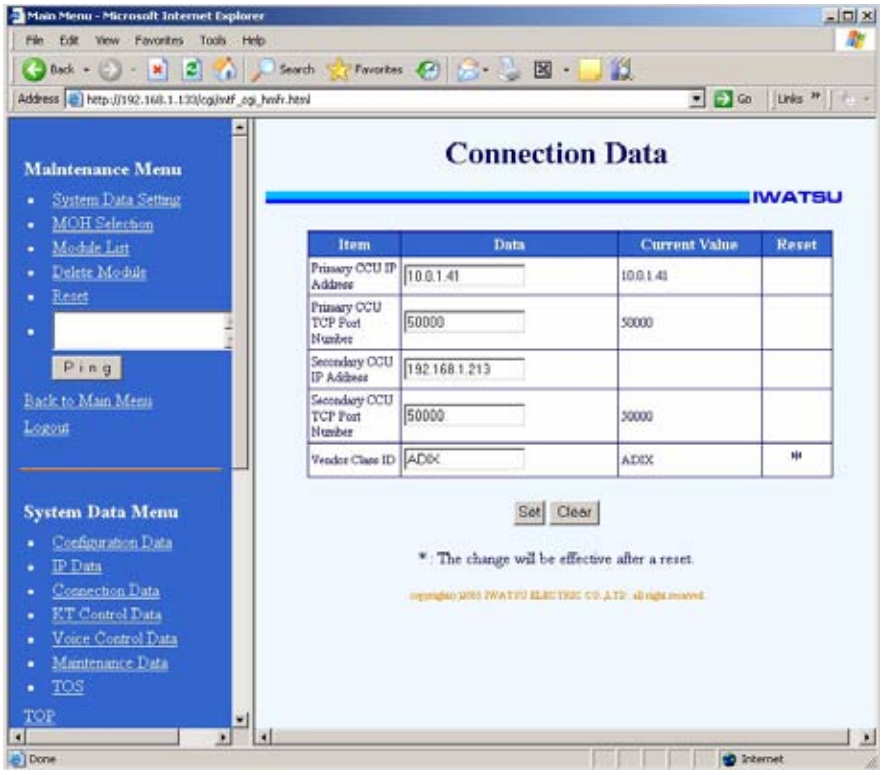
Step 7 - Input the IX-CCU/IX-CCSU LAN2 IP address for the Primary and Secondary ECS System using the Web Interface

(The Secondary IX-CCU/IX-CCSU LAN2 IP address is required for multiple host connectivty)

1. From the **System Data Menu,** select **Connection Data**.
2. From the **Connection Data** screen, enter the IP address of the primary IX-CCU/CCSU LAN2 port in the **Primary CCU IP Address** textbox. To provision a **Secondary CCU IP Address**, enter the LAN2 IP address of the secondary (or backup) IX-CCU/CCSU.

Note: The default address of the ECS LAN2 port is **10.0.0.1**.

3. Enter the primary and secondary TCP port numbers in the **Primary CCU TCP Port Number** and **Secondary CCU TCP Port Number** textbox.
   - This value will rarely change. However, because some network administrators only open specific ports on the firewall, some remote users may need to change the default TCP port number to an open port on the firewall.



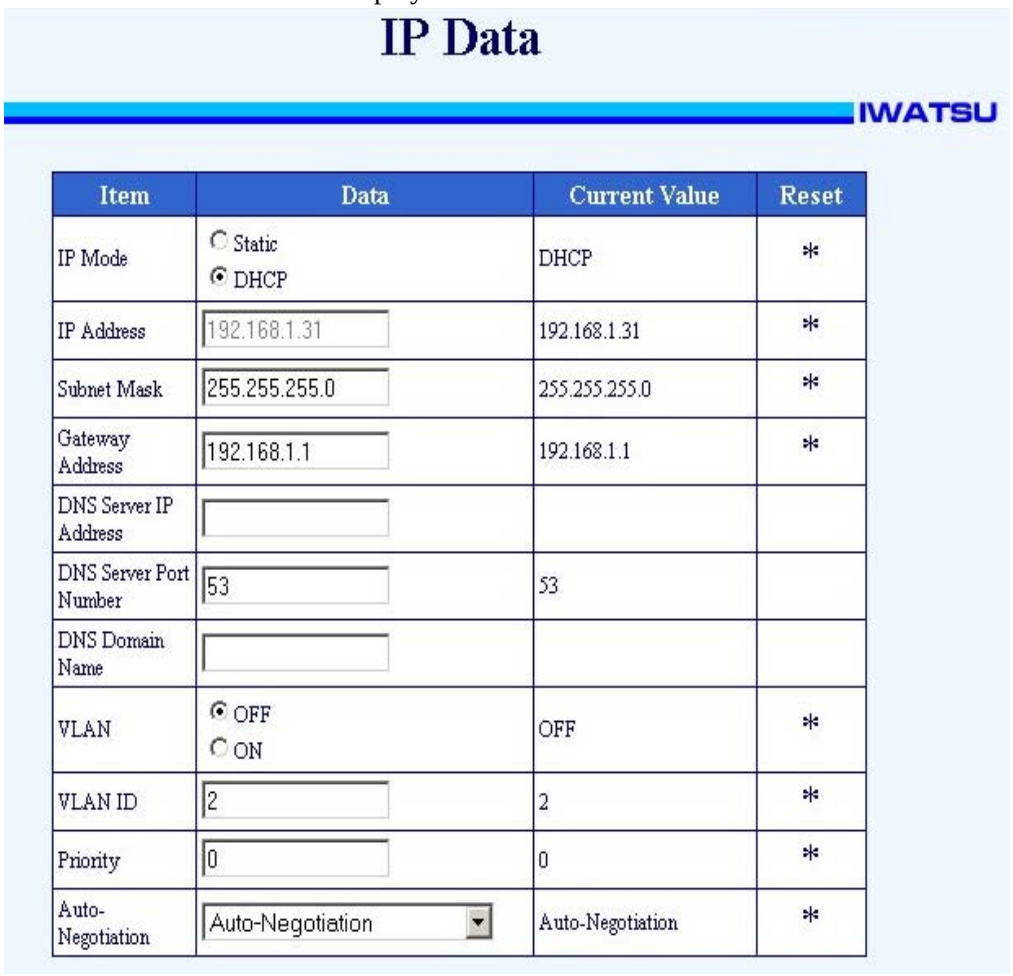
4. Select the **Set** button.
   - Confirm the setting change.



   - Select the **OK** button.

Step 8 - Change Mode from DHCP to Static IP addressing using the Web Interface

1. Select **IP Data** from the **System Data Menu**.
   - The **IP Data** screen displays.



2. Select either the **Static** or **DHCP** radio button in the **IP Mode** field.
   - If **Static** is selected, enter the IP address of the IX-6IPKTD-E in the **IP Address** field.

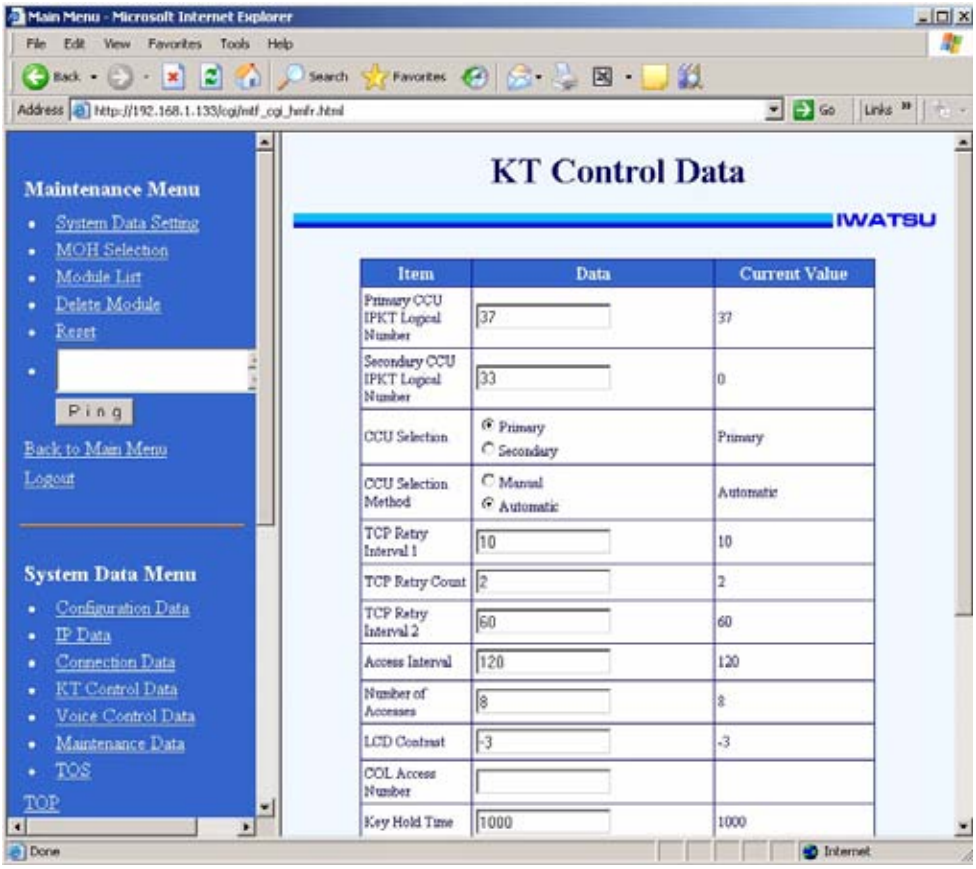
Note:	The Network Administrator will supply the Static IP address, Subnet Mask, and Gateway IP Addresses.

3. Enter the network **Subnet Mask**.
4. Enter the network **Gateway Address**.
   - The **Gateway Address** field is the IP address of the router used by remote users to connect to the ECS system.
   - When using either of the IP Telephones as a layer 2 switch, the PC connected to the IP Telephone must have the correct gateway address to access networks outside the LAN (i.e. the Internet).
5. As an option, enter the DNS server information in the **DNS Server IP Address** field, the **DNS Server Port Number** field and the **DNS Domain Name** field.
6. Select the **Set** button.

Step 9 - Input the ECS Station Logical Port number for the Primary and Secondary ECS System using the Web Interface

(The Secondary station logical port number is required for multiple host connectivity)

1. Select **KT Control Data** from the **System Data Menu**.
   - The **KT Control Data** window displays.
2. Enter the logical port number(s) from **System > Hardware > Port Table** (Class 01.09) from the ECS system database the IX-6IPKTD-E will use in the **Primary CCU IPKT Logical Number** and the optional **Secondary CCU IPKT Logical Number** field.
3. Set the **CCU Selection**: **Primary** or **Secondary**. This is the CCU IP address the phone will try to connect to first. (Default = Primary)
4. Set the **CCU Selection Method**: **Manual** or **Automatic**. (Default = Automatic)
   - **Automatic**: The telephone will automatically try to connect to the secondary CCU selection when there is no connectivity to the primary CCU selection.
   - **Manual**: The manual selection allows the user to manually switch from one ECS to another based on the programmed information. This is also used to force a re-connect to the same ECS.
5. Select the **Set** button.

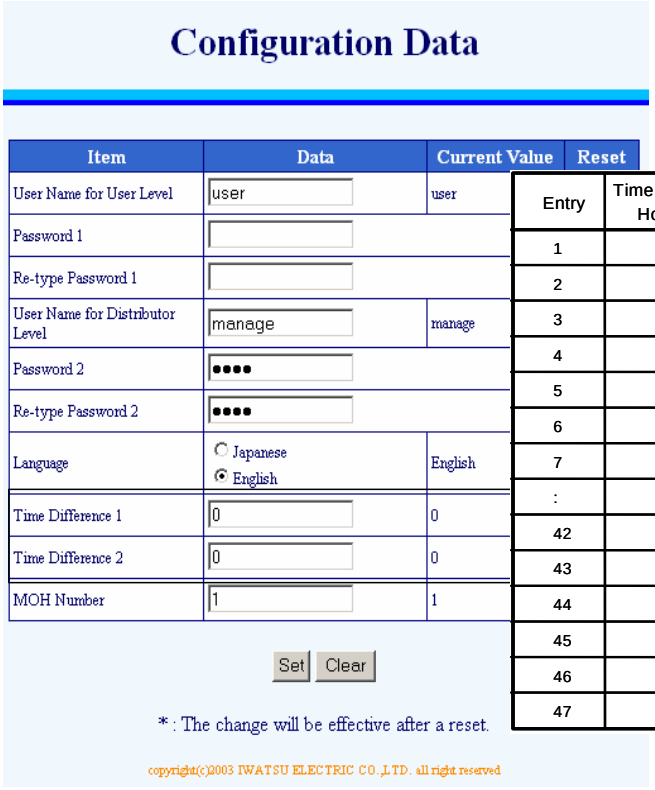


Step 10 - Set Time Difference 1 and Time Difference 2

(Time Difference 2 is an optional setting for multiple host connectivity)

The Time Difference Settings are used to adjust the time of day when the telephone and the ECS system are located in different time zones. The time difference on the telephone can be adjusted from 30 minutes to 23 ½ hours ahead or behind the ECS system time.

1. Enter Time Difference 1 and / or Time Difference 2 offset: Time Difference 1 is associated with the Primary ECS IX-CCU/IX-CCSU LAN2 IP address and Time Difference 2 is associated with the Secondary ECS IX-CCU/IX-CCSU LAN2 IP address.
   - Default = 0 (No time difference).
   - Range = 0 to 47 and -1 to -47. Each whole number represents 30 minutes. For example, if you enter a 2 as the time difference, the telephone time would be 1 hour ahead of the ECS system time.

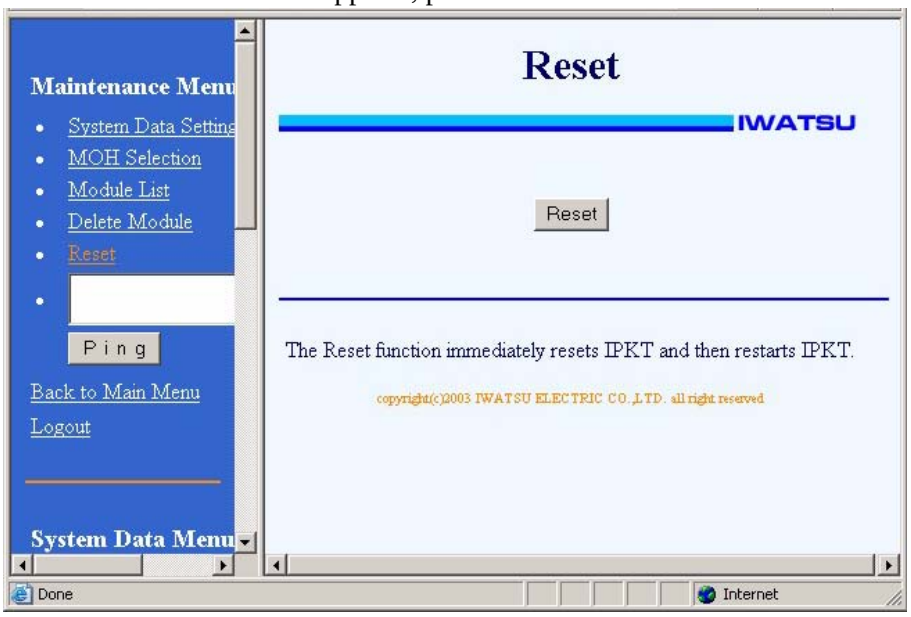


Entry	Time Difference Hour : Min	Entry	Time Difference Hour : Min
1	:30	-1	-:30
2	1:00	-2	-1:00
3	1:30	-3	-1:30
4	2:00	-4	-2:00
5	2:30	-5	-2:30
6	3:00	-6	-3:00
7	3:30	-7	-3:30
:	:	:	:
42	21:00	-42	-21:00
43	21:30	-43	-21:30
44	22:00	-44	-22:00
45	22:30	-45	-22:30
46	23:00	-46	-23:00
47	23:30	-47	-23:30

2. Remember to press the **Set** button after making any change.

Step 11 - Reset the IX-6IPKTD-E using the Web Interface

1. From the Maintenance Menu, select **Reset**.
2. When the Reset window appears, press **Reset**.



3. At the **Do you want to reset?** confirmation screen, select **OK** to reset the telephone..



Note: To reset a large number of telephones, you can choose to reset the ECS system. Resetting the ECS will reset each telephone.

Note: An Iwatsu IP Station License is required for all IX-6IPKTD-E IP Telephones.

IX-6IPKTD-E Configuration Using the Display Menu

Follow the procedure for configuring the IX-6IPKTD-E IP Telephone for either **DHCP** or **Static** IP addressing using the IP telephone's Display Menu.

The procedure is noted where DHCP and Static programming deviates.

Display Menu Configuration Overview

Step 1 - Connect Power to the IX-6IPKTD-E.

Step 2 - Login to the IX-6IPKTD-E.

Step 3 - Change Mode from DHCP to Static IP addressing.

Step 4 - Input the IX-CCU/IX-CCSU LAN 2 IP address (Primary / Secondary).

Step 5 - Input the ECS Station Logical Port number (Primary / Secondary).

Step 6 - Set the IX-CCU/IX-CCSU Selection (Primary / Secondary).

Step 7 - Set the IX-CCU/IX-CCSU Selection Method (Automatic / Manual).

Step 8 - Set Time Difference 1 and Time Difference 2.

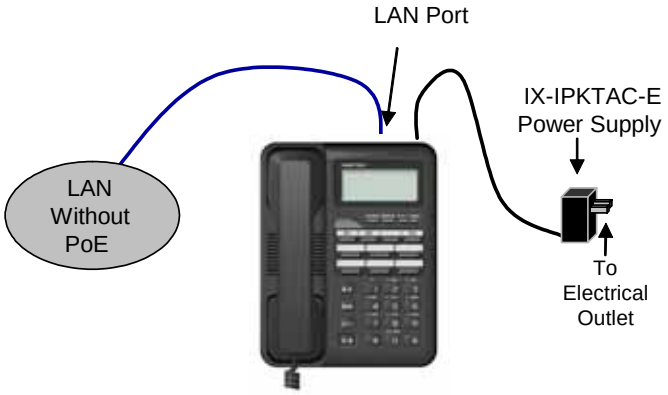
Step 9 - Reset the IX-6IPKTD-E.

Step 1 - Connect Power to the IX-6IPKTD-E

1. For **Power over Ethernet (PoE)**, connect the CAT5 cable to the LAN Port on the IX-6IPKTD-E and then to the LAN.



2. When **Power over Ethernet (PoE)** is **not used**. First, connect the CAT5 cable to the LAN Port on the IX-6IPKTD-E and then to the LAN. Second, connect the IX-IPKTAC-E power supply to an electrical outlet and then to the IX-6IPKTD-E.



- *Once power is applied to the IX-6IPKTD-E, the telephone will attempt to negotiate with the network DHCP server. If you do not have a DHCP server on your network, the IX-6IPKTD-E will still go through the negotiation process, this will take a few minutes to complete.*
- ***(For DHCP)*** The DHCP server will negotiate with the IX-6IPKTD-E and will be assigned an IP address.
- If there is no DHCP server on your network the error message shown below will display on your IX-6IPKTD-E display.



Step 2 - Login to the IX-6IPKTD-E using the Display Menu

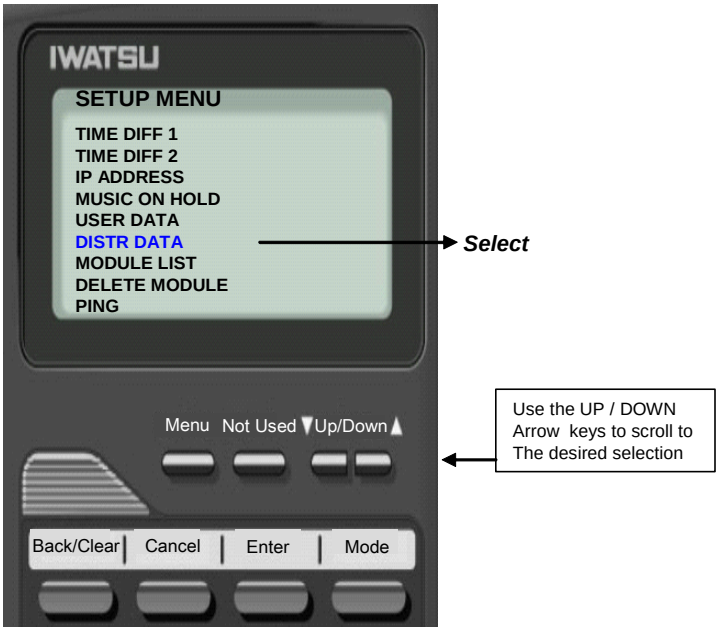
1. After the IX-6IPKTD-E has completed the DHCP negotiation process: Press and hold the [**MENU**] key under the LCD of the IX-6IPKTD-E for 5 seconds - until the **Setup Menu** appears.



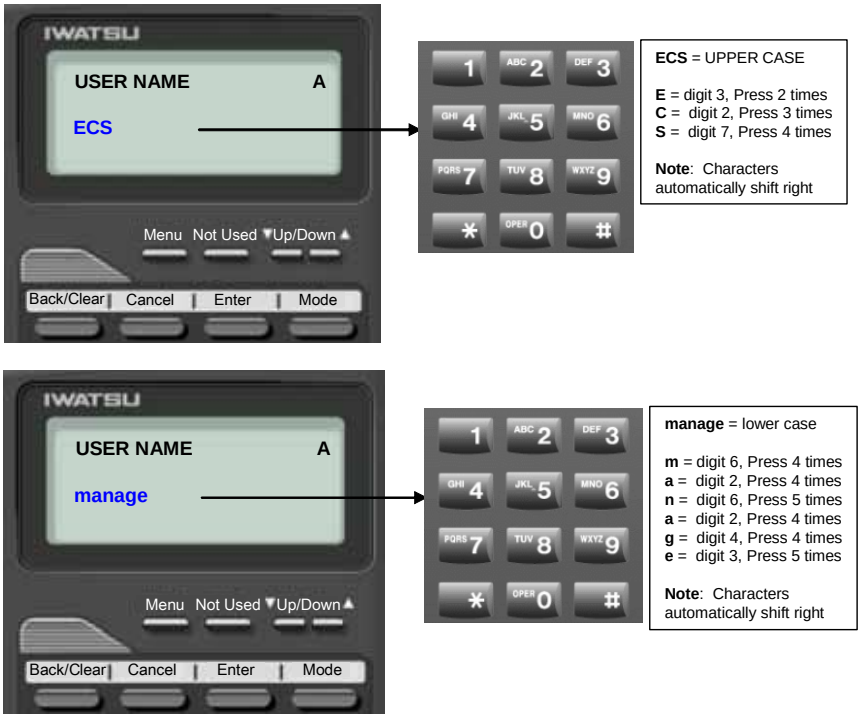
2. At the **SETUP MENU** screen, press [**ENTER**]



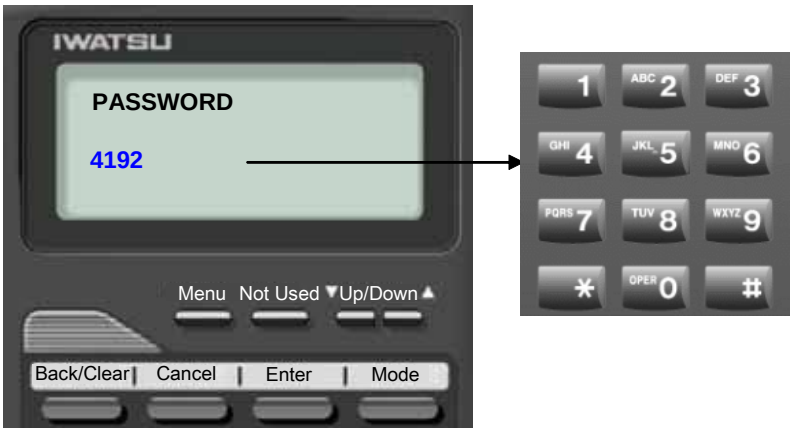
3. From the **SETUP MENU**, select [**DISTRIBUTOR DATA**].
   - Press [**ENTER**].



4. Input ***USER NAME*** using the dial pad.
   - Enter the Default User Name = **ECS** (upper case) or **manage** (lower case).
   - Press [**ENTER**].



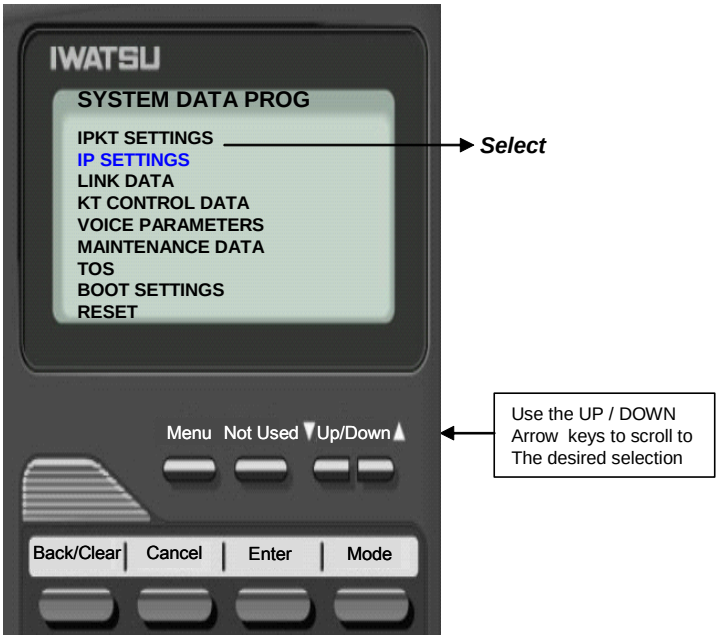
5. Input ***PASSWORD*** using the dial pad.
   - Default password = **4192.**
   - Press [**ENTER**].



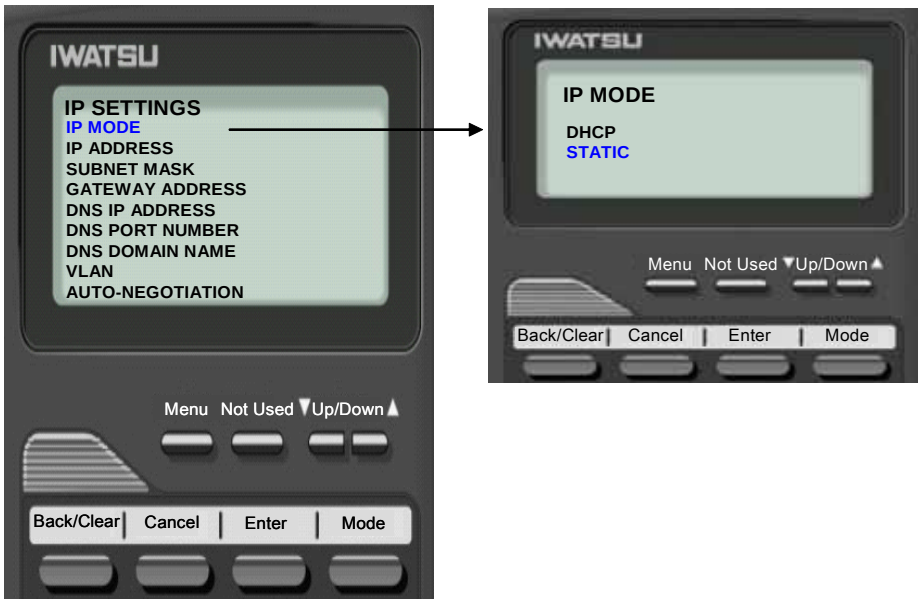
(Step 3 is only required if changing IP Mode from DHCP to Static IP addressing)

Step 3 - Change Mode from DHCP to Static IP addressing

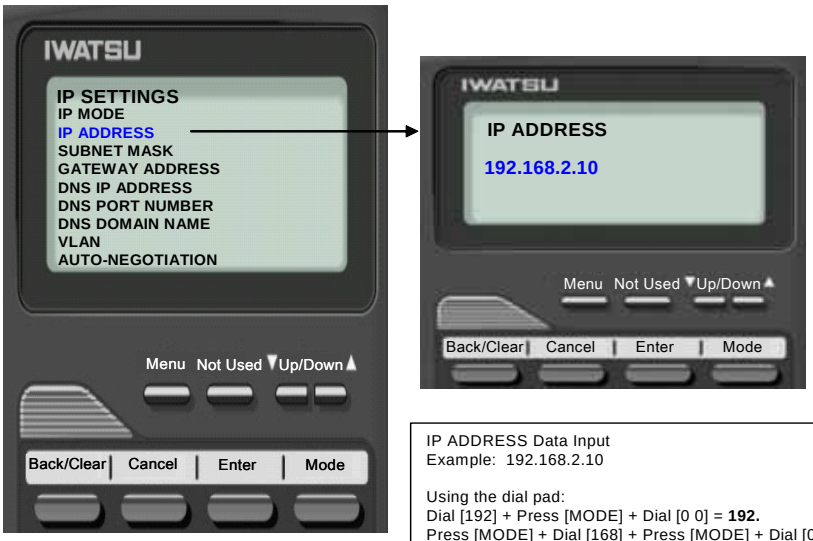
1. In the **SYSTEM DATA PROG** Menu, select [**IP SETTINGS**].
   - Press [**ENTER**].



   - **IP SETTINGS** screen appears.
2. Select [**IP MODE**] and press [**ENTER**].
   - Select [**STATIC**] and press [**ENTER**].



3. Select [**IP SETTINGS**] and press [**ENTER**].
   - Select [**IP ADDRESS**] and press [**ENTER**].

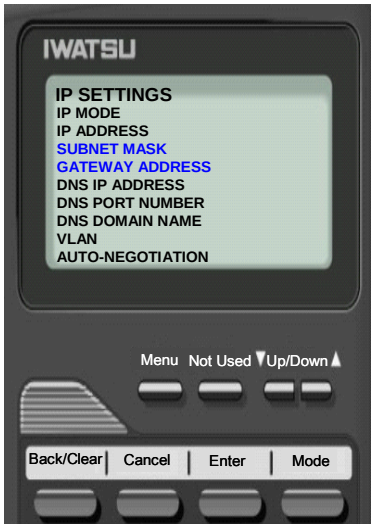


IP ADDRESS Data Input
Example: 192.168.2.10

Using the dial pad:
Dial [192] + Press [MODE] + Dial [0 0] = **192.**
Press [MODE] + Dial [168] + Press [MODE] + Dial [0 0] = **192.168.**
Press [MODE] + Dial [2] + Press [MODE] + Dial [0 0] = **192.168.2.**
Press [MODE] + Dial [10] = **192.168.2.10**

Press [ENTER]
Returns to SYSTEM DATA PROG Menu

   - Use the ***** key to move the cursor left, and the **#** key to move the cursor right, and push [**BACK/CLEAR**] to delete the Default IP Address.
   - Input the IP Address using the dial pad and the [**MODE**] button.
   - Once the correct IP address is inserted, press [**ENTER**].
4. From the **SYSTEM DATA PROG** Menu, select [**IP SETTINGS**].
   - From the **IP SETTINGS** Menu:
   - Select [**SUBNET MASK**]. Enter Subnet Mask address and press [**ENTER**].
   - Select [**GATEWAY ADDRESS**]. Enter Gateway Address, if required and press [**ENTER**].



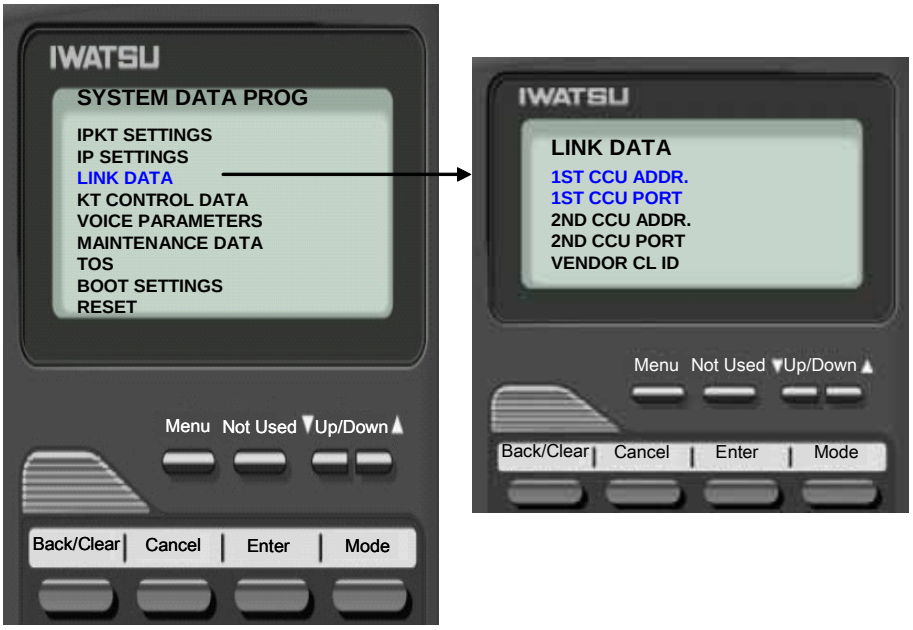
IP SETTINGS: Essential Parameters
(This is for the network where the phone resides)

1. **IP MODE:** Determines DHCP or STATIC IP address
   (Assigned by Network Administrator)
   (Default = DHCP)
2. **IP ADDRESS:** Insert the IX-6IPKTD-E IP Address
   (Assigned by the Network Administrator)
   (DHCP = IP Address obtained from DHCP Server)
   (Static Default = 10.0.0.10)
3. **SUBNET MASK:** Set the SUBNET MASK
   (Assigned by the Network Administrator)
   (Static Default = 255.255.255.0)
4. **GATEWAY IP ADDRESS:** Set the DEFAULT GATEWAY IP ADDRESS
   (Assigned by the Network Administrator)

Step 4 - Input the IX-CCU/IX-CCSU LAN 2 IP address for the Primary and Secondary ECS Systems

(The Secondary ECS IX-CCU/IX-CCSU LAN2 IP address is required for multiple host connectivity)

1. From the **SYSTEM DATA PROG** Menu, select [**LINK DATA**].
   - Press [**ENTER**].



2. Select [**1ST CCU ADDR.**] and press [**ENTER**]. Enter the IP address of the **LAN 2 port** on the IX-CCU/IX-CCSU card. This is the primary / main ECS where you are connecting the IX-6IPKTD-E.



IP ADDRESS Data Input
Example: 192.168.2.12

Using the dial pad:
Dial [192] + Press [MODE] + Dial [0 0] = **192.**
Press [MODE] + Dial [168] + Press [MODE] + Dial [0 0] = **192.168.**
Press [MODE] + Dial [2] + Press [MODE] + Dial [0 0] = **192.168.2.**
Press [MODE] + Dial [12] = **192.168.2.12**

Press [ENTER]
Returns to SYSTEM DATA PROG Menu

   - In the example, the IP Address of the IX-CCSU card is 192.168.2.12.

3. Select [**2ND ADDR.**] and press [**ENTER**]. Enter the IP address of the **LAN 2 port** on the IX-CCU/IX-CCSU card.
   - Enter the IP address of the LAN2 port on the secondary IX-CCU/IX-CCSU card. This is the secondary / remote ECS where the IX-6IPKTD-E will connect if connectivity to the primary ECS is lost.



IP ADDRESS Data Input
Example: 192.168.2.13

Using the dial pad:
Dial [192] + Press [MODE] + Dial [0 0] = **192.**
Press [MODE] + Dial [168] + Press [MODE] + Dial [0 0] = **192.168.**
Press [MODE] + Dial [2] + Press [MODE] + Dial [0 0] = **192.168.2.**
Press [MODE] + Dial [13] = **192.168.2.13**

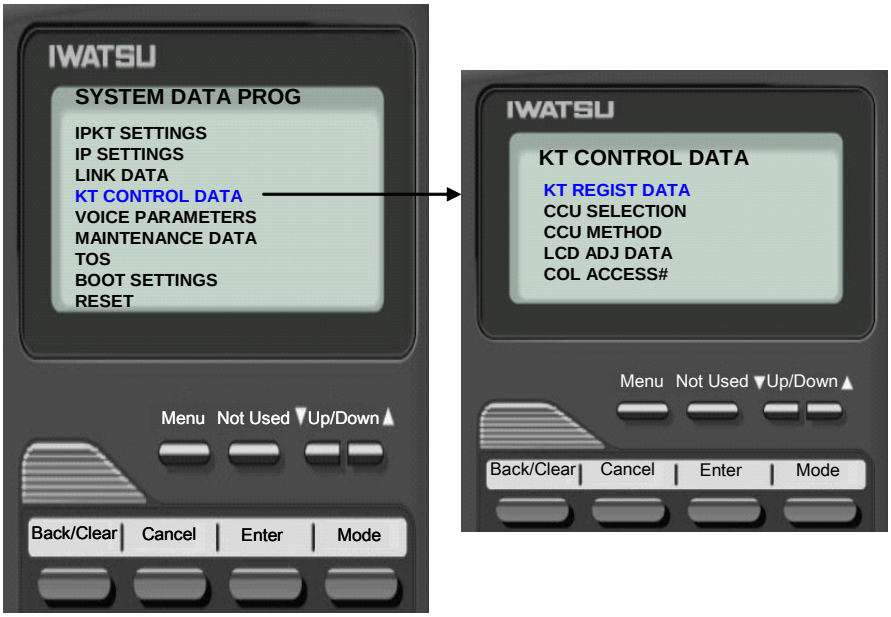
Press [ENTER]
Returns to SYSTEM DATA PROG Menu

   - In the example, the IP Address of the IX-CCSU card is 192.168.2.13.

Step 5 - Input the ECS Station Logical Port number for the Primary and Secondary ECS Systems

(The Secondary station logical port number is required for multiple host connectivity)

1. From the **SYSTEM DATA PROG** Menu, select [**KT CONTROL DATA**] and press [**ENTER**].

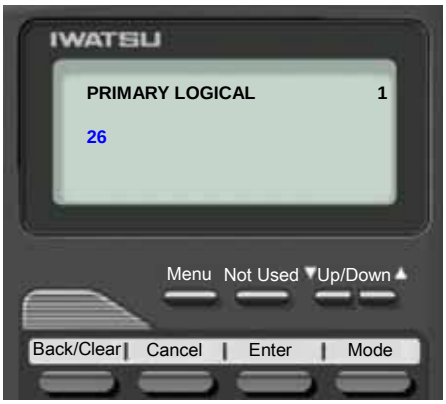


2. Select [**KT REGIST DATA**] and press [**ENTER**].



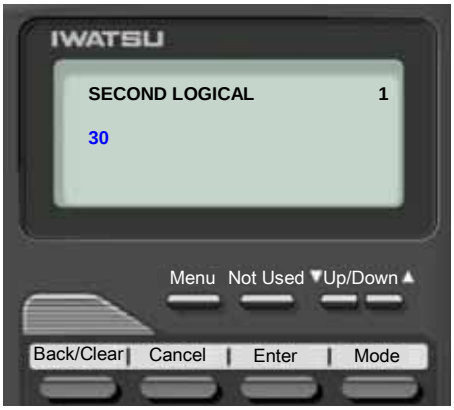


3. Select [**1ST LOGICAL #**].
   - Use the key pad as in previous steps to delete and enter the correct port number.
   - Input the **Primary Station Logical Port** number (example = port 26).
   - Press [**ENTER**].



Enter [**26**] + [**ENTER**]
Note: Do not enter leading zeros. If there is a zero in the display, press [**CLEAR**]

4. Select [**2ND LOGICAL #**].
   - Use the key pad as in previous steps to delete and enter the correct port number.
   - Input the **Secondary Station Logical Port** number (example = port 30).
   - Press [**ENTER**].

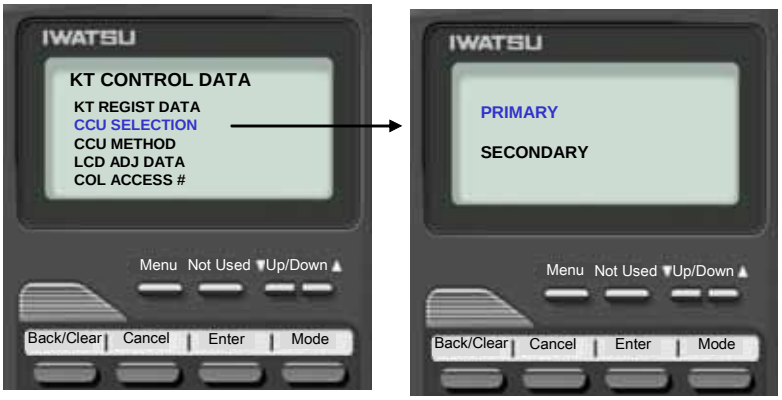


Enter [**30**] + [**ENTER**]
Note: Do not enter leading zeros. If there is a zero in the display, press [**CLEAR**]

Step 6 - Set the ECS IX-CCU/IX-CCSU Selection (This step is required when Primary and Secondary CCU/CCSU LAN2 Ports are configured)

The CCU selection determines which ECS LAN2 IP address the telephone will connect to first. (Default = Primary)

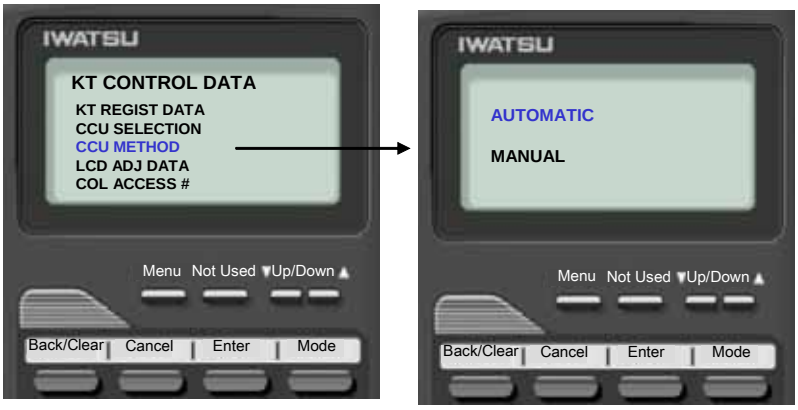
1. From the **SYSTEM DATA PROG** menu, select [**KT CONTROL DATA**] and press [**ENTER**].
2. Select [**CCU SELECTION**].
   - Select [**PRIMARY**] or [**SECONDARY**] to set which ECS LAN2 IP address the IX-6IPKTD-E telephone will connect to first.
   - Press [**ENTER**].



Step 7 - Set the ECS IX-CCU/IX-CCSU Selection Method (This step is required when Primary and Secondary CCU/CCSU LAN2 Ports are configured)

The CCU Selection Method determines how the IX-6IPKTD-E will connect to the primary or secondary LAN2 IP address if connectivity is lost. (Default = Automatic)

1. From the **SYSTEM DATA PROG** menu, select [**KT CONTROL DATA**] and press [**ENTER**].
2. Select [**CCU METHOD**].
   - Select [**AUTOMATIC**] or [**MANUAL**] to set the switching method.
   - Press [**ENTER**].



Step 8 - Set Time Difference 1 and Time Difference 2

(Time Difference 2 is an optional setting for multiple host connectivity)

The Time Difference Settings are used to adjust the time of day when the telephone and the ECS system are located in different time zones. The time difference on the telephone can be adjusted from 30 minutes to 23 ½ hours ahead or behind the ECS system time.

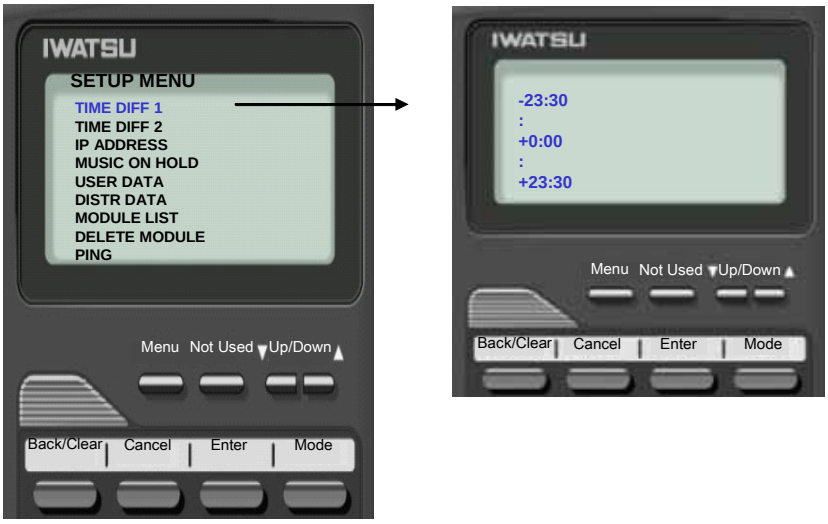
Time Difference 1 and / or Time Difference 2 offset: Time Difference 1 is associated with the Primary ECS IX-CCU/IX-CCSU LAN2 IP address and Time Difference 2 is associated with the Secondary ECS IX-CCU/IX-CCSU LAN2 IP address.

- Default = 0:00 (No time difference).
- Range = 0:00 to +23:30 and -0:30 to -23:30.

1. From the telephone's main screen, press and hold the [**MENU**] key until the [**SETUP MENU**] appears.
   - At the [**SETUP MENU**], press [**ENTER**].



2. Select [**TIME DIFF 1**] or [**TIME DIFF 2**] and press [**ENTER**].
   - Scroll up or down to choose the correct time difference.
   - Press [**ENTER**] when the correct time difference has been selected.



Note:	All essential parameters are now set. However, you may have to change additional settings such as TOS, or CCSU TCP port number, depending on your network environment. Consult with your Network Administrator.

Step 9 - Reset the IX-6IPKTD-E

1. Reset the IX-6IPKTD-E IP Telephone by removing and reapplying power.

Note:	An Iwatsu IP Station License is required for all IX-6IPKTD-E IP Telephones.

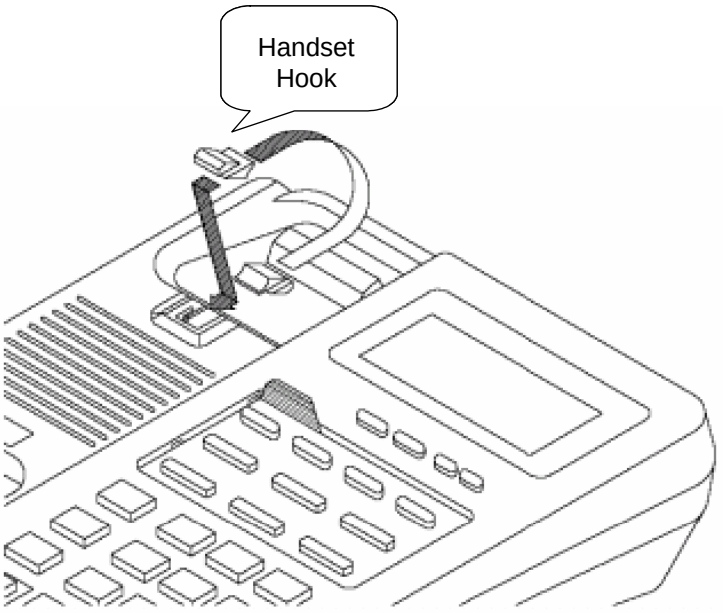
IX-6IPKTD-E Default Procedure

To return the IX-6IPKTD-E to its factory default settings:

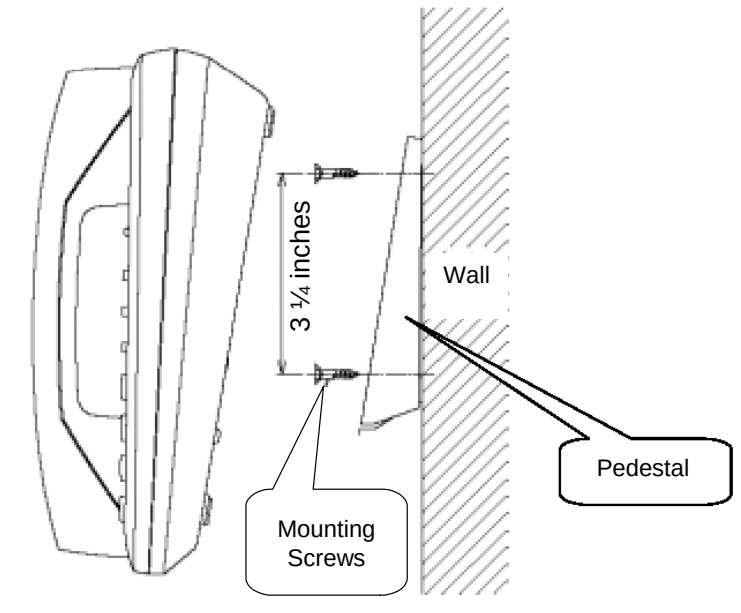
1. Remove power to the IX-6IPKTD-E
2. Hod down the [SPKR] + [6] keys (do not release)
3. Reapply power to the IX-6IPKTD-E
4. When the screen displays the software version number, release the [SPKR] +[6] keys

IX-6IPKTD-E Wall Mount Installation

1. Lift the handset hook from the center of the station's upper cradle and reinsert the handset hook in the slot in an upside-down position.



2. Mount the station pedestal on the wall using the two screws as shown.



Note: After installation, ensure that the pedestal is securely mounted on the wall and withstands an overload of at least 5.3 pounds.

IX-12IPKTD-E2 Station Card Installation

This section covers the installation of the IX-8IPSUB/IX-8EIPSUB Station Cards required for the IX-12IPKTD-E2 IP Telephone. (The IX-12IPKTD-E2 replaces the IX-12IPKTD IP Telephone)

IX-8IPSUB / IX-8EIPSUB Overview

Note:

Iwatsu's IP products utilize Voice Over IP (VoIP) technology to transmit voice traffic over an IP network. The term IP network includes Local Area Networks (LAN) Wide Area Networks (WAN), Virtual Private Network (VPN), managed IP network, and the Internet.

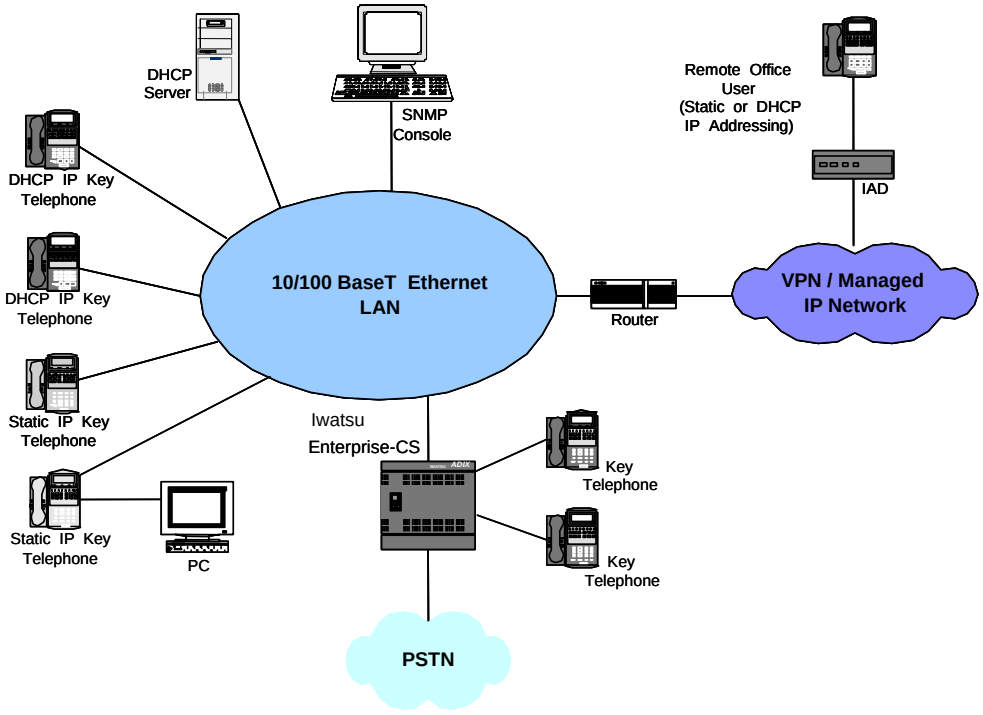
The voice quality of Iwatsu's IP-based applications is dependant upon variables such as available bandwidth, network latency and quality of service (QOS). Each of these variables is controlled by the LAN/WAN administrator and/or carrier. Because these variables are not under Iwatsu's control, Iwatsu cannot guarantee the performance of an Iwatsu IP product deployed on an IP network. Iwatsu does, however, recommend minimum network requirements in the VoIP Network Readiness section if this chapter.

The IX-8IPSUB card is an 8-port card that accepts the 8-port IX-8EIPSUB card for a combined total of sixteen telephone ports. The IX-8IPSUB card connects to either a new or existing LAN (Local Area Network) and adds proprietary headers to the IP ‘stack’ to seemlessly provide support for the IX-12IPKTD-E2 IP Telephone.

The IX-8IPSUB card enables users to migrate their existing telephone systems to an IP-based systems without discarding their previously purchased equipment.

Although the IX-8IPSUB card must use a static IP address, it supports DHCP addressing of the IX-12IPKTD-E2s (discussed later). Depending on the network’s DHCP renewal time, an IX-12IPKTD-E2 can be connected anywhere on the subnet and maintain its class of service; thus, the IX-8IPSUB renders moves, adds and changes obsolete.

IX-8IPSUB/IX-8EIPSUB Network Topology



Network topology using the IX-8IPSUB and the IX-12IPKTD-E2

In the above illustration, the LAN (Local Area Network) consists of a combination of PCs, servers, IX-12IPKTD-E2 IP telephones and an ECS. For addressing purposes, the LAN uses a DHCP server for dynamic addressing for some devices. For other devices, the LAN is configured for static IP addressing.

In this example, the LAN's firewall, as well as other network devices such as switches are assumed as part of the 10/100 BaseT Ethernet LAN. The ECS connects to the LAN via the IX-8IPSUB card. The IX-8IPSUB card uses one port on the switch for every 8 IX-12IPKTD-E2 ports. (In the above example, one IX-8IPSUB card is required). Each IX-8IPSUB card must have one static IP address; DHCP is supported for the IX-12IPKTD-E2's, not the IX-8IPSUB.

The IX-12IPKTD-E2 is a true Layer 2 switch. It is this functionality that allows the IX-12IPKTD-E2 to operate without consuming additional ports on the LAN's switch. Each desk that uses a PC connected to the LAN can add an IX-12IPKTD-E2 (or replace a digital key telephone) by connecting the Ethernet cable from their PC to the IX-12IPKTD-E2 IP Telephone and plugging the IX-12IPKTD-E2 into the network.

When an IX-12IPKTD-E2 makes a call, the voice traffic travels through the LAN, to the switch and finally through the IX-8IPSUB card to the ECS. When the ECS receives a call initiated by the IX-12IPKTD-E2, it distributes the call.

Because the IX-8IPSUB card uses IP addressing, it is possible for remote users to use an IX-12IPKTD-E2 to connect to the ECS telephone system. For remote users, this means complete feature transparency. Remote users use a managed service with guaranteed QoS (Quality of Service) to connect from a remote location to the office ECS telephone system. The remote user can then make calls using the IX-12IPKTD-E2 as though they are in the office.

Note: Remote users using the IX-12IPKTD-E2 IP Telephone to connect to the ECS must not use the IX-12IPKTD-E2 to make emergency 911 calls. Using the IX-12IPKTD-E2 to make emergency 911 calls will send help personnel to the location of the ECS telephone system, not to the location of the remote IX-12IPKTD-E2.

IX-8IPSUB / IX-8EIPSUB Support

As mentioned earlier, the IX-8IPSUB/IX-8EIPSUB card adds Iwatsu Voice Networks proprietary headers to the IP stack to pass voice over an IP network. Because the Internet Protocol was designed to support the passing of data over any type of network, it is inherently flexible. However the Internet Protocol was designed for data—not voice—and data is not time-dependent. That is, if users receive their email 500 milliseconds late, they never know (nor care). But if voice packets are consistently 500 milliseconds late, users immediately hear latency.

When using the IX-8IPSUB/IX-8EIPSUB card in the typical 10/100-Base T LAN environment, latency should never become an issue. These environments often have enough bandwidth to support many IX-8IPSUB/IX-8EIPSUB cards. However, remote users may experience latency issues such as jitter and delay when attempting to connect through the Internet. For this reason, Iwatsu Voice Networks supports only remote users connecting to their ECS through a quality-of-service (QoS) controlled VPN, managed network or over a wired point-to-point connection.

IX-8IPSUB Physical Specifications

Voice Compression /Bandwidth Requirements

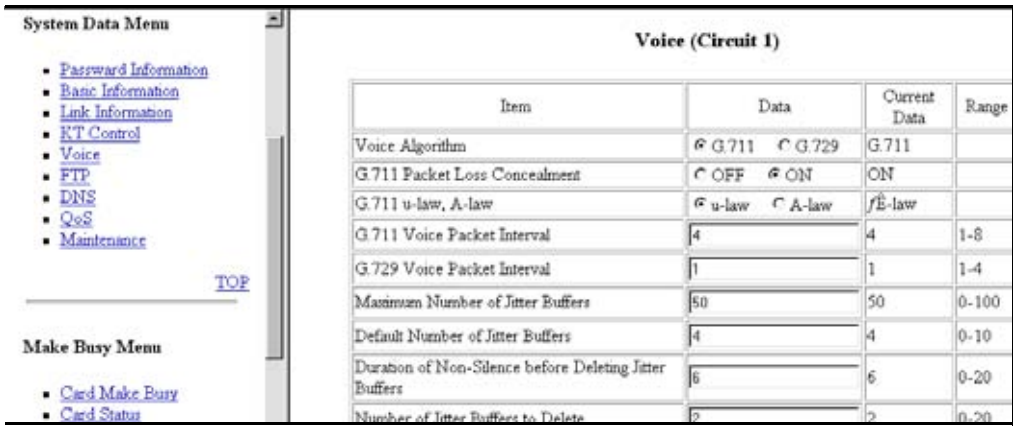
The IX-8IPSUB card can be configured using one of two CODECs: G.711 and G.729A. The CODEC used depends entirely on the environment in which the IX-8IPSUB card is installed. If bandwidth is limited, G.729 should be selected. For those environments in which bandwidth is less of an issue, G.711 should be selected. The following table describes the available voice compression settings.

Compression	Bandwidth per port (Including Overhead)	Bandwidth per card (Including Overhead)
G.729A	24 kbps	192 kbps
G.711	80 kbps	640 kbps

The table above shows the compression schemes and the bandwidth per port and per card they introduce to a network. Note that each IX-8IPSUB card uses this bandwidth. For example, if an ECS telephone system has two IX-8IPSUB cards plus two IX-8EIPSUB daughterboard cards for a total of 4 cards (32 ports) and G.729 is used as a compression scheme, the ECS telephone system will introduce 768 kbps (.768 mbps) to the LAN when all ports simultaneously become active.

The following is an illustration of the webscreen in which to configure the voice compression. In this example, the user logged in using the ‘manage’ level login and selected the **Circuit 1** button from the **Voice** option on the **System Data Menu**.

Voice option from the System Data Menu



Installing the IX-8EIPSUB cards

If installing an IX-8EIPSUB eight port expansion card on an IX-8IPSUB card, follow the procedure below before installing the IX-8IPSUB card in the IX-CME cabinet.

1. Position the IX-8EIPSUB card over the IX-8IPSUB.
   - Make sure both card's serial and Ethernet connections face the same direction.
2. With CN1 and CN2 on both cards properly aligned, gently press down.
   - If resistance occurs, stop and realign the connectors before pressing down.

Once the above process is complete, both cards are ready for installation in the ECS IX-CME cabinet.

IX-8IPSUB Installation in a New System

The procedure listed below is the only procedure supported by Iwatsu Voice Networks to add station cards to a new system.

1. Insert the IX-CCU card in the IX-CME cabinet.
2. Install the existing hardware interfaces for Station, Trunk and Miscellaneous cards.
   - The IX-8IPSUB can be installed into any available card slot.
   - When installing an IX-8IPSUB and an IX-8EIPSUB card combination in the ECS system, the 16 port combination can go in any available slot in the cabinet.
3. After installing all required hardware, default the system.
   - The IX-8IPSUB/8EIPSUB each default as 8 IPKTs with an appropriate station logical port number based on it's physical location within the ECS system.
   - The IX-8EIPNET defaults as 8 Digital IP E&M Tie Lines with an appropriate trunk logical port number based on its physical location within the ECS system.

Note:	When using the IX-8EIPNET card for centralized voicemail applications, a configuration change from the default Digital IP E&M Tie Lines (trunks) to Voicemail OPX (station).

After the ECS System is initialized and comes up in default, normal programming of the system database is then required in addition to the necessary programming for the newly added data items for the IX-8IPSUB and the IX-8EIPSUB.

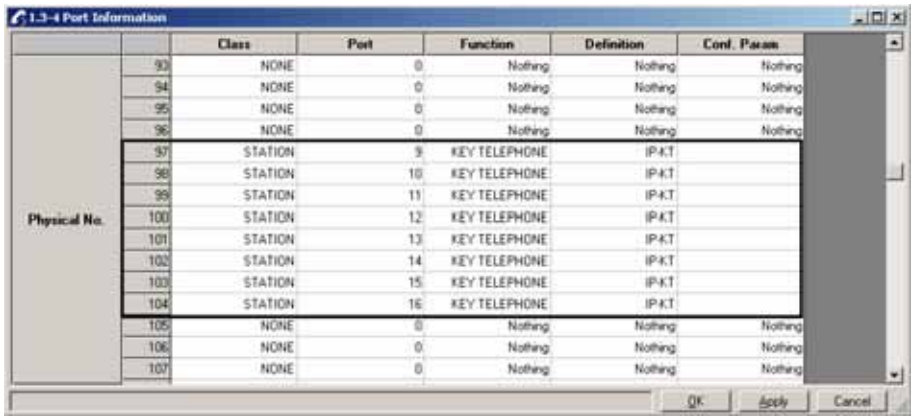
IX-8IPSUB Installation in an Existing System

The procedure listed below is the only procedure supported by Iwatsu Voice Networks to add station cards to a live system.

Note:	**Important!** Read through this entire procedure before attempting to add a the IX-8IPSUB

Procedure

1. Using the Iwatsu Programmer, obtain a fresh download of the database.
2. Make a copy of the downloaded database and store in a safe place.
3. Using the Iwatsu Programmer, go to Class 01.09 - Station Port Definition to add the new station ports.
   - Under the **Class** column, define the physical ports of the IX-8IPSUB (or IX-8EIPSUB) card as **Station**.
   - Under the **Function** column, define the physical ports of the IX-8IPSUB (or IX-8EIPSUB) card as **Key Telephone**.
   - Under the **Definition** column, define the physical ports of the IX-8IPSUB (or IX-8EIPSUB) card as **IPKT**.



4. Upload the Class 01 configuration changes and break the communication link.
5. Exit database programming.
6. After exiting programming, wait 10 seconds then power down the ECS telephone system.
7. Insert the IX-8IPSUB into the IX-CME cabinet.
8. Power up the ECS telephone system.

LAN Installation

Before attempting to configure and install the IX-8IPSUB/IX-8EIPSUB on the LAN, read the entire installation instructions. The entire process should take no more than 30 minutes.

Requirements:

The following are required for the installation of the IX-8IPSUB/IX-8EIPSUB on the LAN. Make sure all are available before attempting to configure and install the IX-8IPSUB/IX-8EIPSUB. Some of the items must be obtained from the LAN administrator.

1. Windows-based Programming PC with the following:
   - Microsoft Internet Explorer Version 6.0 or higher (with cookies enabled)
   - 10/100 Base-T NIC
2. 1 Category 5 Ethernet cable
3. 1 crossover cable
4. 1 free port on a switch connected to the LAN backbone
5. Static IP address for each IX-8IPSUB (or IX-8EIPSUB if used)
6. Subnet mask of the network
7. IP address of the default gateway

Connection

Note:	No part of the LAN Installation section can be completed until all instructions in the **Installation** section are properly completed.

The IX-8IPSUB/IX-8EIPSUB ships from the factory with a default IP address of 192.168.0.1 and an subnet mask of 255.255.255.0. Often, these addresses must change to make the IX-8IPSUB/IX-8EIPSUB work on the LAN. To connect the programming PC to the IX-8IPSUB/IX-8EIPSUB, do the following.

1. Connect one end of the required crossover cable to the NIC on the programming PC and the other end to the Ethernet port on the IX-8IPSUB/IX-8EIPSUB.
2. Make certain the programming PC is on the same subnet and network as the IX-8IPSUB/IX-8EIPSUB. Although not always the case, often the IP address of the programming PC needs to change. For example if the programming PC uses 192.168.**1**.32 as the static IP address, the PC will be unable to communicate with the IX-8IPSUB because the phone has a default IP address of 192.168.**0**.1. In this example, a valid static IP address for the programming PC is 192.168.**0**.3. These settings must be configured before moving to the **Configuration** step.

Configuration

Because the default TCP/IP setting of the IX-8IPSUB/IX-8EIPSUB may cause conflicts when installed on the LAN, the IX-8IPSUB/IX-8EIPSUB must be properly configured before installing the card on the LAN. The IX-8IPSUB/IX-8EIPSUB uses an integrated web server to provide the web-based programming interface.

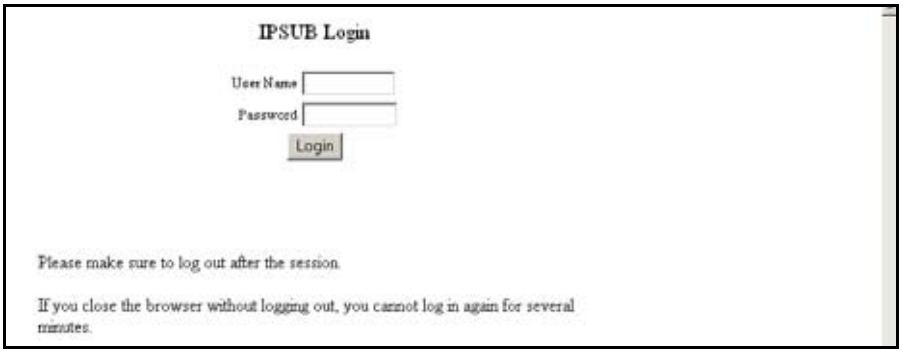
To configure the IX-8IPSUB/IX-8EIPSUB, the following instructions apply.

Note: To configure the IX-8IPSUB/IX-8EIPNET card, cookies must be enabled. Use Internet Explorer's integrated help file for instructions on enabling cookies.

1. Launch Internet Explorer version 6.0 or higher
   - Type **http://192.168.0.1** (the default address) in the address bar



   - The **IPSUB Login** screen displays



Note: If the above page does not display, the TCP/IP configuration settings most likely conflict. Make certain both devices reside on the same subnet and network and the programming PC's IP settings are correct

2. Enter the case sensitive Username and Password on the **IPSUB Login** screen
   - Use 'manage' (all lowercase) or 'ECS' (ALL UPPER CASE) as the username
   - Use '4192' as a password
   - Select **Login**

Note: **Important!** The above username and password are for Iwatsu Voice Networks distributor use only

3. The **Maintenance Top Menu** screen displays



4. Select **System Data Setting** under the **Maintenance Top Menu**
5. Select **Basic Information**
   - The **Basic Information Screen** displays



6. Enter the network administrator-supplied static IP address for the IX-8IPSUB/IX-8EIPSUB card in the **IP Address** field.
7. Enter the network administrator-supplied default gateway address for the IX-8IPSUB/IX-8EIPSUB card in the **Default Gateway** field.
8. Enter the network administrator-supplied subnet mask for the IX-8IPSUB/IX-8EIPSUB card in the **Subnet Mask** field.
9. If already in use, enter the network administrator-supplied TCP port number for the IX-8IPSUB/IX-8EIPSUB card in the **TCP Port Number** field.
10. Press the **Set** button.

Note:	If the IX-8IPSUB/IX-8EIPSUB card is moved from one network to another OR from one subnet to another, pressing the **Set** button changes the network settings. If this is the case, the programming PC's network settings must be reconfigure to reflect the changes.

11. Logout of the IX-8IPSUB/IX-8EIPSUB.



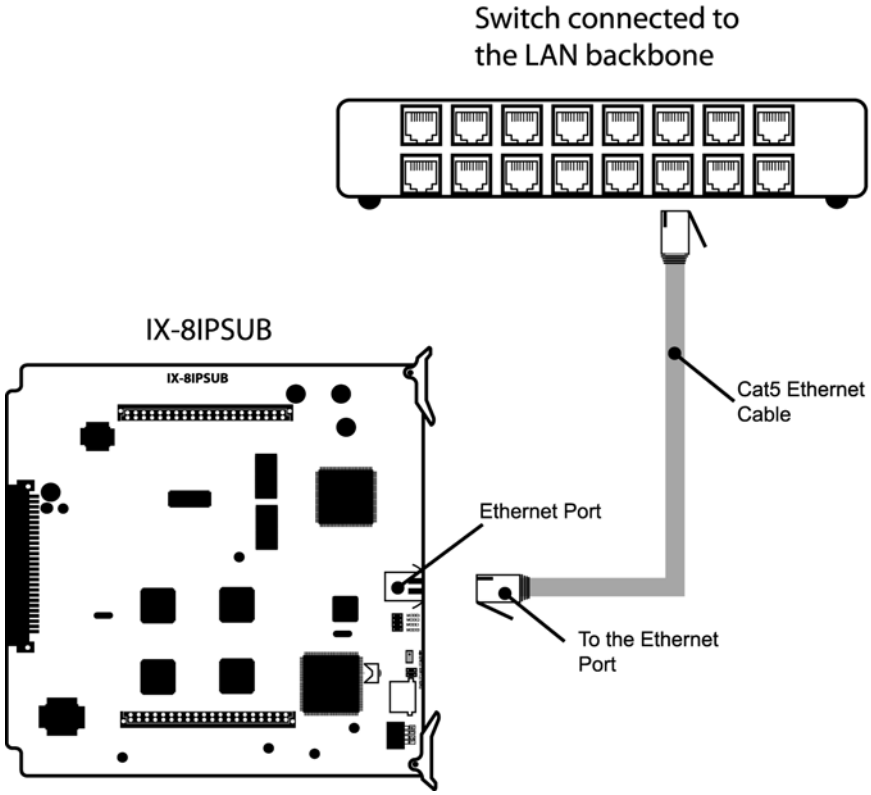
12. Press the red **Reset** button.

Physical LAN Installation

Note:	The IX-8IPSUB/IX-8EIPSUB does not support Power Over Ethernet (PoE). Should either card receive electrical current through either the serial or Ethernet connectors, serious damage can occur

This section describes the process of installing the IX-8IPSUB/IX-8EIPSUB on an Ethernet LAN.

1. With the IX-8IPSUB/IX-8EIPSUB card installed in the ECS telephone system, insert one end of the CAT5 (Ethernet) cable RJ-45 jack into the port labeled **Ethernet** on the IX-8IPSUB/IX-8EIPSUB card.
2. Insert the free RJ-45 jack from the above cable into a free port of a switch connected to the network backbone.



IX-8IPSUB/IX-8EIPSUB LAN connection

IX-12IPKTD-E2 IP Telephone Overview

Note:

Iwatsu's IP products utilize Voice Over IP (VoIP) technology to transmit voice traffic over an IP network. The term IP network includes Local Area Networks (LAN) Wide Area Networks (WAN), Virtual Private Network (VPN), managed IP network, and the Internet.

The voice quality of Iwatsu's IP-based applications is dependant upon variables such as available bandwidth, network latency and quality of service (QOS). Each of these variables is controlled by the LAN/WAN administrator and/or carrier. Because these variables are not under Iwatsu's control, Iwatsu cannot guarantee the performance of an Iwatsu IP product deployed on an IP network. Iwatsu does, however, recommend minimum network requirements in the VoIP Network Readiness section of this chapter.

The IX-12IPKTD-E2 IP Telephone provides complete access to the ECS feature set from an Ethernet connection. Each IX-12IPKTD-E2 IP Telephone requires an available port on either the IX-8IPSUB card or IX-8EIPSUB card. In addition, each IX-12IPKTD-E2 IP Telephone requires an IP address. The IP address is either dynamically allocated by the network DHCP server or is a static IP address.

The IX-12IPKTD-E2 IP Telephone can be configured as an ECS station or as a Simplified Attendant (SATT). This can be accomplished in system programming mode as explained below:

Definition	Programming Instructions	
	Iwatsu Programmer V. 4.x	DSS or Programming KT
ECS Station	Function = Key Telephone	Class 01.09 Data = 0-1-0
	Definition = IP-KT	
Simplified Attendant	Function = ATTENDANT	Class 01.09 Data = 0-0-2
	Definition = IP-SATT	

Note:

The IX-12IPKTD-E2 IP Telephone does not support a Busy Bypass Unit (IX-BPAD) or a DSS Unit. Additionally, the IX-12IPKTD-E2 IP Telephone does not support the use of background music (BGM).

IX-12IPKTD-E2 IP Telephone Power Requirement

The IX-12IPKTD-E2 IP Telephone supports Power over Ethernet or power from the optional IX-IPKTAC-E adapter. (The IX-12IPKTD IP Telephone does not support PoE)

IX-12IPKTD-E2 Layer 2 Switch

The IX-12IPKTD-E2 IP Telephone is versatile with the integration of the Layer 2 switch. The integrated Layer 2 switch was designed for the workstation user and allows the switching of data within a LAN via MAC address. Because the IX-12IPKTD-E2 IP Telephone is a Layer 2 switch, the PC connects to the back of the IX-12IPKTD-E2 IP Telephone and passes all data through the phone. When using the switching capabilities of the IX-12IPKTD-E2, voice quality does not suffer. However, it is important to not use the switching capabilities for high-load devices like a file or database server.

The IX-12IPKTD-E2 IP Telephone packages voice data through the UDP datagram and sends the data on a 10 Base-T, 100 Base-T or 10/100 Base-T switched Ethernet network.

IX-12IPKTD-E2 Installation

Before attempting to configure and install the IX-12IPKTD-E2 IP Telephone on the LAN, read the entire installation instructions. The entire process should take no more than 30 minutes per phone.

Requirements

The following are required for the installation of the IX-12IPKTD-E2 IP Telephone on the LAN. Make sure all are available before attempting to configure and install the IX-12IPKTD-E2. Some of the items must be obtained from the LAN administrator.

- Windows-based PC with the following:
- Microsoft Internet Explorer Version 6.0 or higher
- Iwatsu Programmer
- 10/100 Base-T NIC
- 2 Category 5 Ethernet cables
- IP address of the IX-8IPSUB/IX-8EIPSUB if used (obtain from the LAN administrator)
- TCP port of the IX-8IPSUB/IX-8EIPSUB (LAN Administrator provided)
- Subnet mask of the network (LAN Administrator provided)
- IP address of the default gateway (LAN Administrator provided)
- IX-12IPKTD-E2 logical port number (Class 01.09)

Static or DHCP IP addressing (LAN Administrator provided)

OR

If static IP addressing will be used, obtain an unused IP address from the network administrator

Connection

The IX-12IPKTD-E2 IP Telephone ships from the factory with a default IP address of 192.168.0.5 and an subnet mask of 255.255.255.0. Often, this address must change to make the IX-12IPKTD-E2 IP Telephone work on the LAN. To connect the programming PC to the IX-12IPKTD-E2, the following instructions apply.

1. Connect one end of the supplied Ethernet cable to the NIC on the programming PC and the other end to the LAN port on the back of the IX-12IPKTD-E2.
2. Power up the IX-12IPKTD-E2 by inserting the connector on the IX-IPKTAC and plugging the powerpack into the wall unit.

Make certain the programming PC is on the same subnet and network as the IX-12IPKTD-E2. Although not always the case, often the IP address of the programming PC needs to change. For example if the programming PC uses 192.168.**1**.32 as the static IP address, the PC will be unable to communicate with the IX-12IPKTD-E2 because the phone has a default IP address of 192.168.**0**.5. In this example, a valid static IP address for the programming PC is 192.168.**0**.3. These settings must be configured before moving to the **Configuration** step.

Configuration using the Web Interface

Because the default TCP/IP setting may cause conflicts when installed on the LAN, the IX-12IPKTD-E2 must be properly configured before installing the phone on the LAN. The IX-12IPKTD-E2 uses an integrated web server to provide the web-based programming interface.

To configure the IX-12IPKTD-E2 IP Telephone, the following instructions apply:

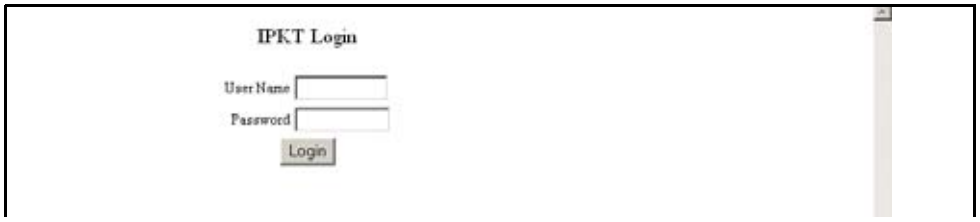
Note:	To configure the IX-12IPKTD-E2 IP Telephone, cookies must be enabled. Use Internet Explorer's integrated help file for instructions on enabling cookies.

1. Launch Internet Explorer version 6.0 or higher.
   - Type the default IP address of the IX-12IPKTD-E2 in the address bar.

Note:	The default address of the IX-12IPKTD-E2 is **192.168.0.5**. Most likely, this address will need to change.



   - The **Authentication** screen displays.

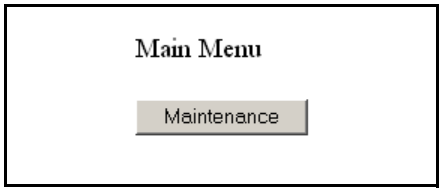


Note:	If the above page does not display, either the Ethernet cable is plugged into the PC port on the back of the IX-12IPKTD-E2 or the TCP/IP configuration settings conflict. Make certain both devices reside on the same subnet and network and the programming PC's IP settings are correct.

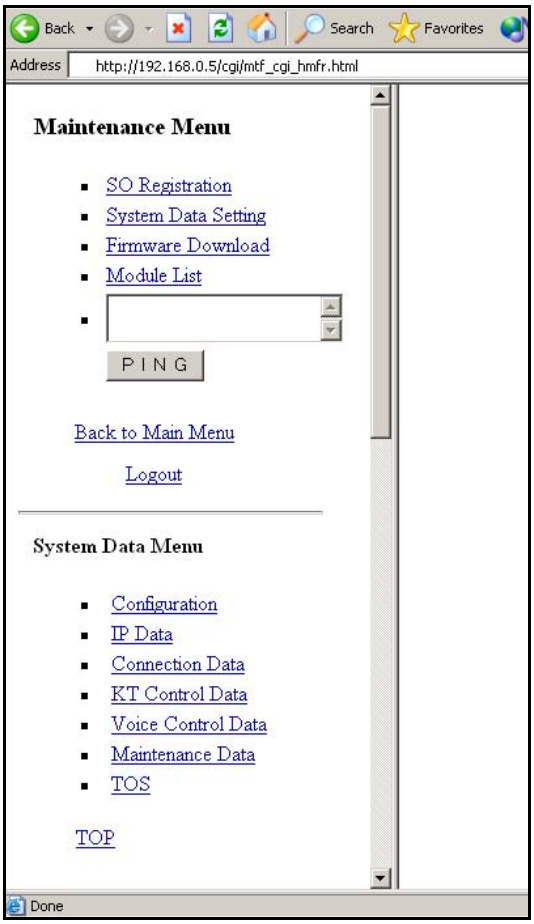
1. Enter the case-sensitive Username and Password on the **IPKT Login** screen.
   - Use 'manage' as the username.
   - Use '4192' as a password.
   - Select the **Login** button.

Note:	The above username and password are for Iwatsu Voice Networks distributor use only.

1. The **Main Menu** screen displays.

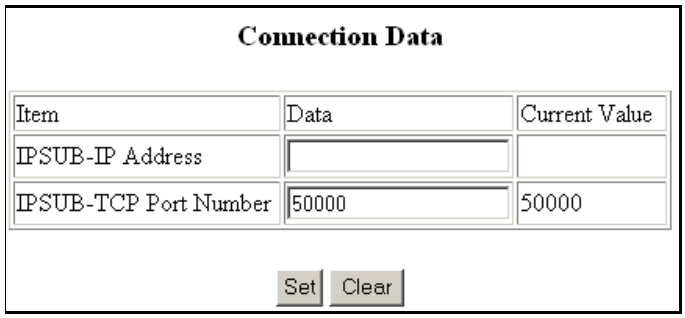


2. Select the **Maintenance** button.
   - The **Maintenance Menu** screen displays.



3. Select the **System Data Setting** hyperlink.
4. Select the **Connection Data** hyperlink.

- The following screen displays.



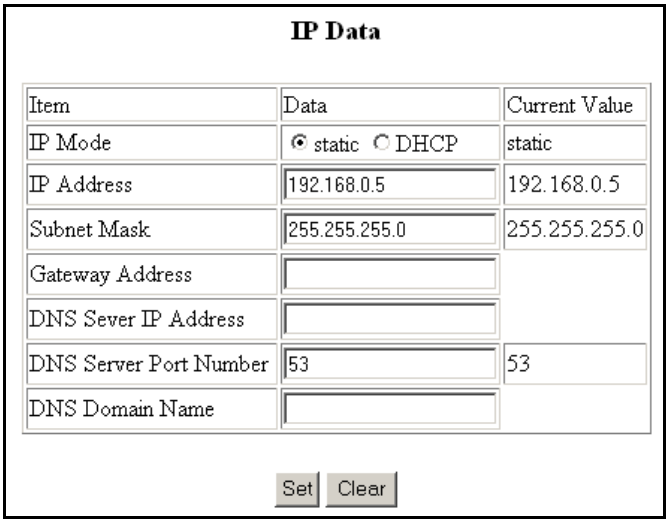
5. In the **IPSUB-IP Address** textbox, enter the IP address of the IX-8IPSUB/IX-8EIPSUB.

Note: The default address of the IX-8IPSUB / IX-8EIPSUB is **192.168.0.1**

6. Enter the TCP port number in the **IPSUB-TCP Port Number** textbox.
   - This value will rarely change. However because some network administrators only open specific ports on the firewall, some remote users may need to change the default TCP port number to an open port on the firewall.
7. Select the **Set** button.
   - Confirm the setting change.



   - Select the **OK** button.
8. Select the **IP Data** hyperlink.
   - The following screen displays.

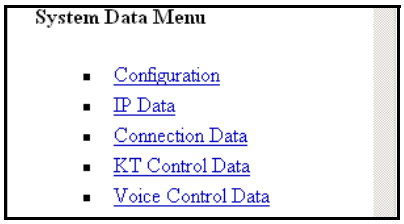


9. Select either the **Static** or **DHCP** radio button in the **IP Mode** field.

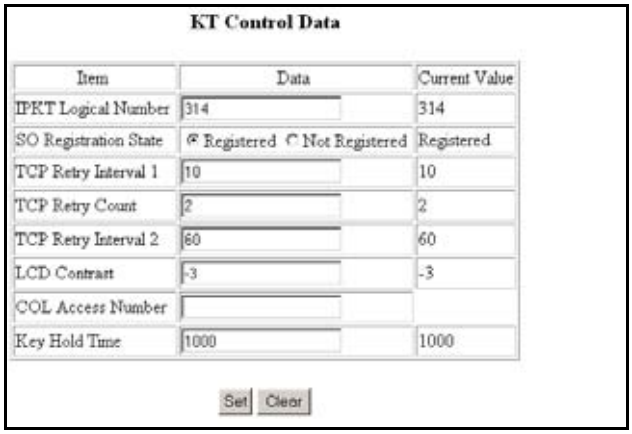
- If **Static** is selected, enter the IP address of the IX-12IPKTD-E2 in the **IP Address** field.

Note: The network administrator will supply the static IP address

10. Enter the network **Subnet Mask**
11. Enter the network **Gateway Address**
    - The **Gateway Address** field is the IP address of the router used by remote users to connect to the ECS system.
    - When using the IX-12IPKTD-E2 IP Telephone as a layer 2 switch, the PC connected to the IX-12IPKTD-E2 must have the correct gateway address to access networks outside the LAN (i.e. the Internet).
12. As an option, enter the DNS server information in the **DNS Server IP Address** field, the **DNS Server Port Number** field and the **DNS Domain Name** field.
13. Select the **Set** button.
14. Select **KT Control Data**.



- The **KT Control Data** window displays.



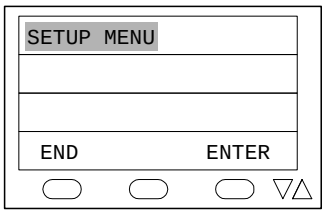
15. Enter the logical port number from Class 01.09 from the ECS system database the IX-12IPKTD-E2 will use in the **IPKT Logical Number** field.
16. Select the **Set** button
17. Select **Logout**
18. Power down, then power up the IX-12IPKTD-E2

Configuration using the LCD display

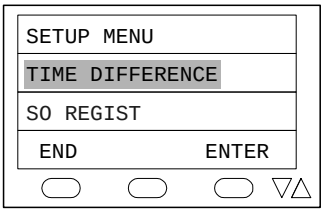
Although the web-based programming interface is the preferred method for configuring an IX-12IPKTD-E2 IP Telephone, there may be some circumstances that do not allow for configuration using the web-based programming screens. For this reason, the IX-12IPKTD-E2 is capable of being configured using the display and the dial pad.

The following is the process for configuring the IX-12IPKTD-E2 IP Telephone to be installed on the LAN.

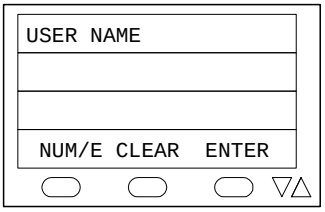
1. Press and hold the **Menu** key on the LCD of the IX-12IPKTD-E2 for 5 seconds.
   - The **SETUP MENU** option displays.



2. Press the **ENTER** key.
   - The **SETUP MENU** displays.



3. Use the arrow keys to the right of the **ENTER** key and scroll to the **DISTRIBUTOR DATA** option.
4. Press the **ENTER** key.
   - The **USER NAME** field displays.



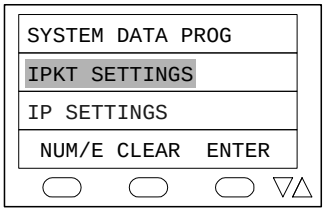
5. In the **USER NAME** field, use the alphanumeric dial pad to login to the IX-12IPKTD-E2 IP Telephone with the manage level username and press the **SET** key.

Note: To quickly enter the default username, press the following keys the listed number of times: **6** (4 times), **2** (4 times), **6** (5 times), **2** (4 times), **4** (4 times) and **3** (5 times).

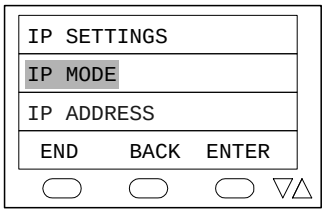
6. In the **PASSWORD** field, use the alphanumeric dial pad to login to the IX-12IPKTD-E2 IP Telephone with the manage level password and press the **SET** key.

Note: The default, case-sensitive username is 'manage' and the password is '4192'.

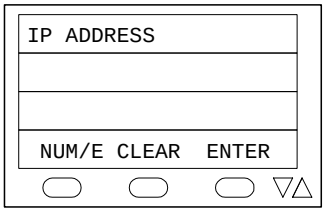
- The **SYSTEM DATA PROG** menu displays.



7. Select the **IP SETTINGS** option.
8. The **IP SETTINGS** menu displays.

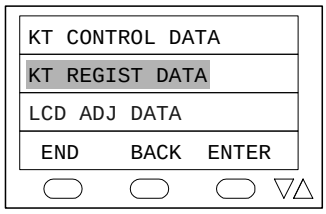


9. Select the **IP MODE** option and enter the mode (Static or DHCP) the IX-12IPKTD-E2 will use.
   - Proceed to *step 10* for static IP users or skip to *step 15* for DHCP users.
10. Select the **IP SETTINGS** option.
    - The **IP SETTINGS** menu displays.
11. Select the **IP ADDRESS** option.
    - The **IP ADDRESS** menu displays.

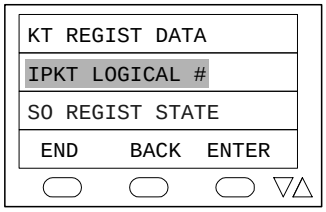


12. Use the dial pad to enter the numeric IP address and press **ENTER**.
    - The ***** character is used to scroll backwards.
    - The **#** character is used to scroll forwards.
    - Mistakes are corrected using the **CLEAR** key near the LCD.
    - Use **NUM/E** key (near the LCD) + **0 0** to enter a decimal (4 are required).
13. Enter the **IP SETTINGS** menu and select the **SUBNET MASK** option.
    - Enter the subnet mask used for the network.
14. Enter the **IP SETTINGS** menu and select the **Gateway ADDRESS** option.
    - Enter the IP address of the gateway used by the network.

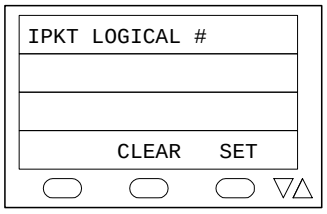
15. Scroll to the **SYSTEM DATA PROG** menu and select the **KT CONTROL DATA** option.
    - The **KT CONTROL DATA** menu displays.



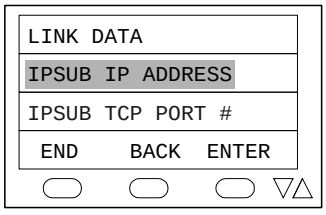
16. Select the **KT REGIST DATA** option.
    - The **KT REGIST DATA** menu displays.



17. Select the **IPKT LOGICAL #** option.
18. **IPKT LOGICAL #** menu displays.



    - Use the dial pad to enter the logical port number (Class 01.09) of the IX-12IPKTD-E2.
    - Press the **SET** key.
19. Scroll to the **SYSTEM DATA PROG** menu and select the **LINK DATA** option.
        - The **LINK DATA** menu displays.



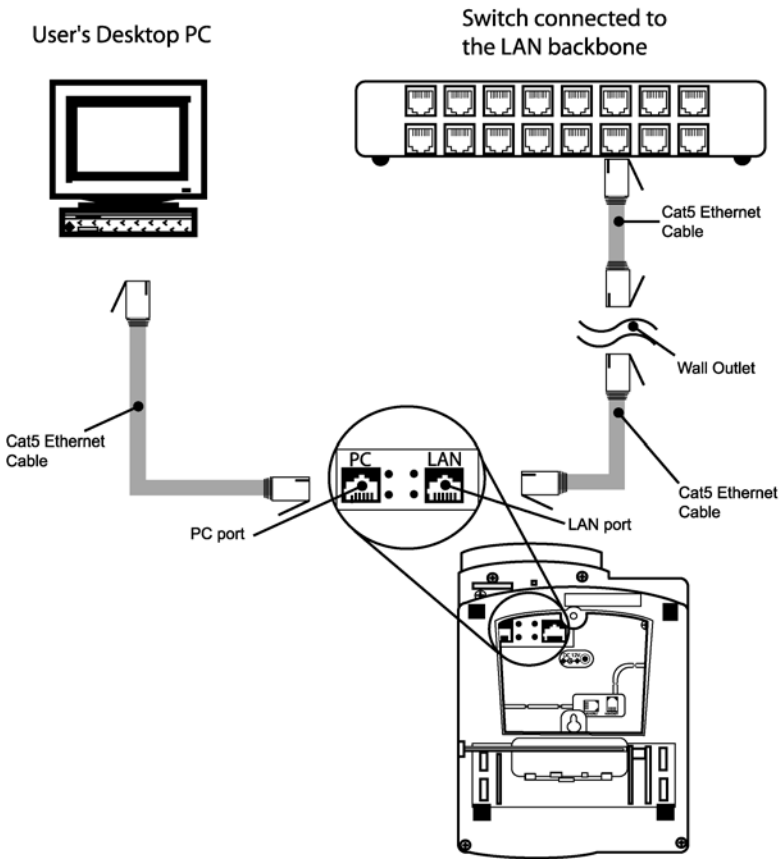
20. Select the **IPSUB IP ADDRESS** option.
    - Enter the IP address of the IX-8IPSUB/IX-8EIPSUB associated with the IX-12IPKTD-E2.
21. Although rarely changed from default, use the **IPSUB TCP PORT #** option to enter the TCP port used by the IX-8IPSUB/IX-8EIPSUB.
22. Power down, then power up the IX-12IPKTD-E2.

Physical LAN Installation

After properly configuring the IX-12IPKTD-E2 IP Telephone, the phone can now be installed on the LAN. To install the IX-12IPKTD-E2 on the LAN, the following instructions apply.

Note: If not using the IX-12IPKTD-E2 IP Telephone as a layer 2 switch, skip to step 3.

1. Insert one end of the CAT5 (Ethernet) cable RJ-45 jack into the port labeled **PC** (see the following illustration).
2. Insert the free RJ-45 jack from the above cable into the NIC card on the desktop user's PC.
3. Insert one end of the CAT5 (Ethernet) cable RJ-45 jack into the port labeled **LAN**.
4. Insert the free RJ-45 jack from the above cable into a free port of a switch connected to the network backbone (see the following illustration).



SO Registration

The final installation process of the IX-12IPKTD-E2 IP Telephone is the Service Order Registration or SO Registration for short. During the SO Registration process, the MAC address and ECS logical port number of the IX-IPKTD registers to memory

the IP address of the IX-8IPSUB/IX-8EIPSUB programmed in the connection data window. It is very important to complete the following listed steps.

IX-8IPSUB Installation

1. Installation in an Existing System
2. Connection
3. Configuration
4. Physical LAN Installation

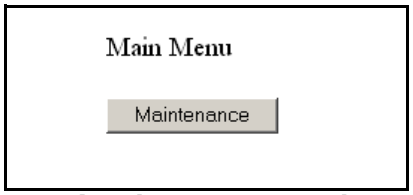
IX-12IPKTD-E2 LAN Installation

1. Physical LAN Installation
2. Connection
3. Configuration
4. Physical LAN Installation

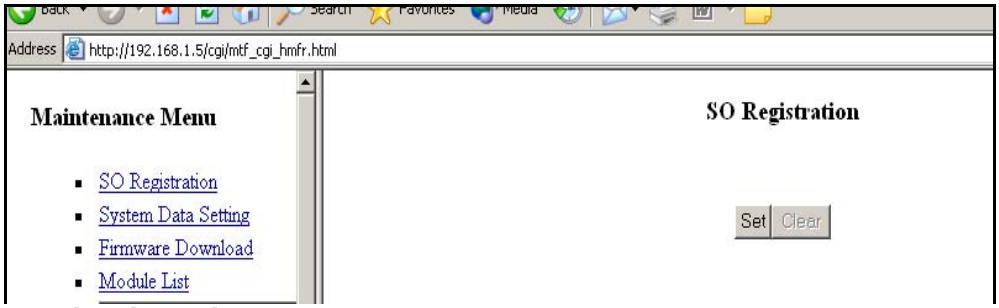
Once each of the above steps are complete, the IX-12IPKTD-E2 IP Telephone is ready for SO Registration. If any data in the above steps are incorrect, the SO Registration process will not occur. To SO register the IX-12IPKTD-E2 IP Telephone with a static IP address, do the following.

SO Registration Using Static IP Addressing

1. Open the web interface by typing the assigned IP address.
   - The **Main Menu** screen displays.



2. Select the **Maintenance** button.
3. Select the **SO Registration** hyperlink.
   - The following screen displays.



4. Select the **Set** button.
   - The MAC address and ECS logical port number of the IX-12IPKTD-E2 IP Telephone registers to the IX-8IPSUB/IX-8EIPSUB card.

SO Registration using DHCP Addressing

To SO register an IX-12IPKTD-E2 IP Telephone that uses DHCP addressing, do the following.

1. Press and hold the **Menu** key on the LCD of the IX-12IPKTD-E2 IP Telephone for 5 seconds.
2. Press **ENTER** to enter the **Setup Menu**.
   - Using the arrow keys, scroll down and select the **SO REGIST**.
   - Press the **ENTER** key.
3. Making sure the **YES** is highlighted, select the **ENTER** key.
   - The SO Registration process is complete.

Determining the IX-12IPKTD-E2 IP Address

To determine the IP address of an IX-12IPKTD-E2 IP Telephone, do the following.

1. Press and hold the **Menu** key on the LCD of the IX-12IPKTD-E2 for 5 seconds.
   - Press the **ENTER** key when the **SETUP MENU** option displays.
2. Using the arrow keys, scroll down and select the **DISTRIBUTOR DATA**.
3. Press the **ENTER** key.
   - In the **USER NAME** field, use the alphanumeric dial pad to login to the IX-12IPKTD-E2 IP Telephone with the manage level username and press the **SET** key.

Note:	The default, case-sensitive username is ‘manage’ and the case sensitive password is ‘4192’.

Note:	To quickly enter the default username, press the following keys the listed number of times: **6** (4 times), **2** (4 times), **6** (5 times), **2** (4 times), **4** (4 times) and **3** (5 times).

1. In the **PASSWORD** field, use the alphanumeric dial pad to login to the IX-12IPKTD-E2 IP Telephone with the manage level password and press the **SET** key.
2. Using the arrow keys, scroll down and select the **IP SETTINGS** menu.
   - Press the **ENTER** key.
3. Using the arrow keys, scroll down and select the **IP ADDRESS** menu.
   - Press the **ENTER** key.
   - The IP address of the IX-12IPKTD-E2 IP Telephone displays.
4. Go off hook to exit programming.

Returning the IX-12IPKTD-E2 to Default

The following instructions erase all configuration data and returns the IX-12IPKTD-E2 IP Telephone to the factory default setting. If possible, delete the SO registration prior to defaulting the IX-12IPKTD-E2.

Note:

Removing power before the initialization process is complete renders the IX-12IPKTD-E2 inoperative. Should this occur, the IP telephone must be returned to Iwatsu Voice Networks Repair Department to be recovered.

The initialization process is not complete until the displays shows 'SO Regist Reqd.'

Initializing a IP Phone Using Static IP Addressing

1. Disconnect power from the IX-12IPKTD-E2 IP Telephone by unplugging the IX-IPKTAC from the phone.
2. While holding the **SPKR** key and the **6** key, connect power to the IX-12IPKTD-E2 by plugging the IX-IPKTAC in the phone.
3. When IPKT BOOT Vx.xx-sextets (where the x's are the firmware version number) displays, release the **SPKR** key and the **6** key.

After approximately 90 seconds, the IX-12IPKTD-E2 IP Telephone returns to the factory default.

Initializing a IP Phone Using DHCP Addressing

1. Disconnect power from the IX-12IPKTD-E2 IP Telephone by unplugging the IX-IPKTAC from the phone.
2. While holding the **SPKR** key and the **6** key, connect power to the IX-12IPKTD-E2 by plugging the IX-IPKTAC-E into the phone.
3. When IPKT BOOT Vx.xx-xxxx (where the x's are the firmware version number) displays, release the **SPKR** key and the **6** key.
4. After 3 minutes, the Consult Network Administrator - Push Any Key displays.
   - Press any key on the dial pad.

The IX-12IPKTD-E2 begins the initialization process. After approximately 90 seconds, the IX-12IPKTD-E2 IP Telephone returns to the factory default.

Optional Equipment: Installing the IX-12ELK-3

To install the IX-12ELK-3 in the IX-12IPKTD-E2 IP Telephone, follow the instructions listed with the IX-12IPKTD-E2-E IP Telephone at the beginning of this chapter.

Wall Installation

For Wall Mount installation instructions for the IX-12IPKTD-E2 IP Telephone, follow the instructions listed with the IX-12IPKTD-E2-E IP Telephone at the beginning of this chapter.

IP Key Telephone Non-VPN Mode

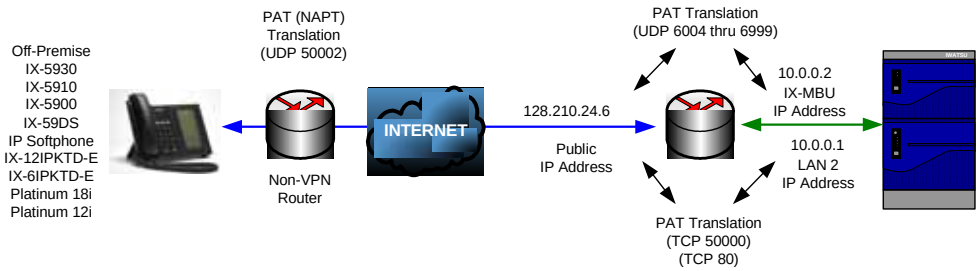
The IP Key telephone Non-VPN Mode feature enables Iwatsu IP Key telephones to operate off-premise without a Virtual Private Network or Private Network connection. This feature also requires IX-MBU software version 1.21 or higher.

The Non-VPN Mode is supported on the following Iwatsu IP telephones:

- Iwatsu ICON Series IX-5930 with software version 3.16 or higher.
- Iwatsu ICON Series IX-5910 with software version 3.16 or higher.
- Iwatsu ICON Series IX-5900 with software version 3.00 or higher.
- Iwatsu ICON Series IX-59DS with software version 3.00 or higher.
- IX-12IPKTD-E with software version 2.12 or higher.
- IX-6IPKTD-E with software version 2.12 or higher.
- Platinum Series 18i with software version 2.11 or higher.
- Platinum Series 12i with software version 2.10 or higher.
- IP Softphone version 2.21.xx or higher.

Single Station Non-VPN Mode Example

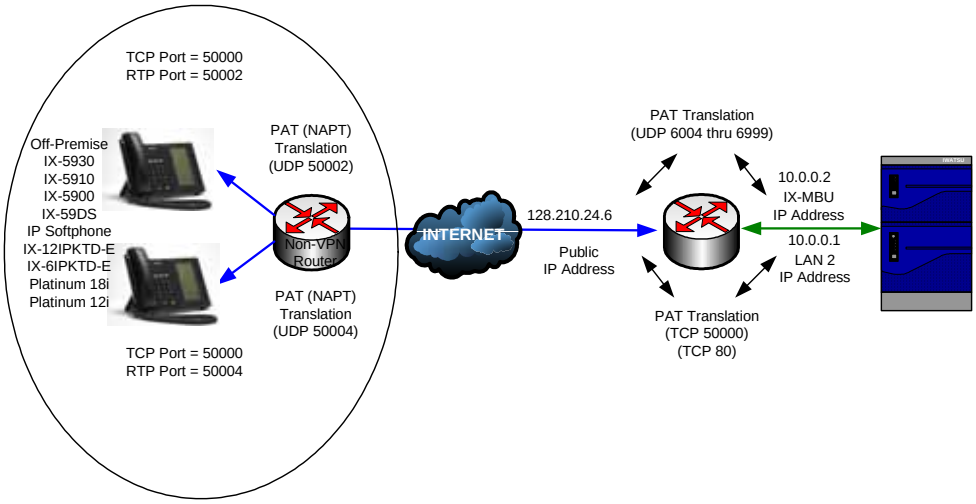
- Must use PAT (NAPT) translation for UDP forwarding (UDP 50002) on the off-premise (phone side) router.
- Must use PAT translation for UDP forwarding (UDP) 6004 thru 6999 on the ECS (system side) router to the IX-MBU private IP address.
- Must use PAT translation for TCP forwarding 50000 on system side router to the ECS LAN 2 port private IP address.
- Must use PAT translation for TCP forwarding 80 on the system side router to the ECS LAN 2 port private IP address when the IP Auto-Update setting is set to yes in the ECS database. This port is only required to be open when updating the Non-VPN station.



Multiple Non-VPN Stations with One Public IP Address Example

There is only one telephone programming change that is required for each off-premise IP telephone when multiple Non-VPN stations are assigned to one public IP address. The telephone programming change can be made using the IPKT Configurator or through KT programming.

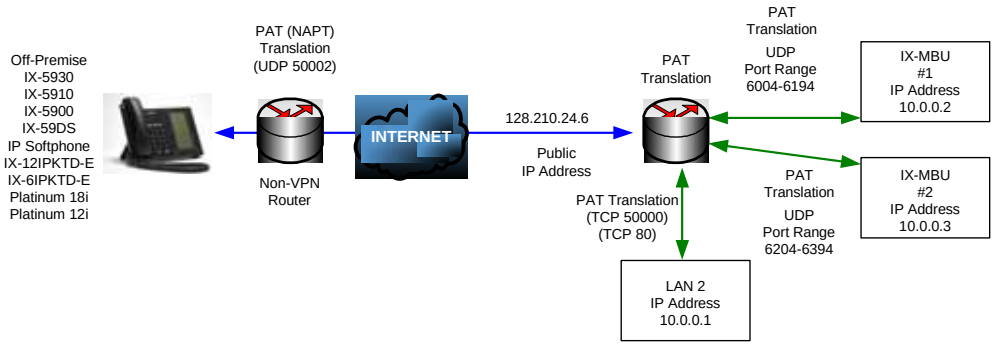
1. KT Control Data > RTP Port Number: This port number must be changed to a unique port for each IP station and must be an even number. Odd numbered ports are automatically assigned as the RTCP port (e.g. Station 1 = 50002, station 2 = 50004, etc.).
   - Connection Data > TCP Port Number: The port number remains the same for each IP station (Default TCP Port Number = 50000).



- Must use PAT (NAPT) translation for UDP forwarding (UDP 50002) on the off-premise (phone side) router.
- Must use PAT translation for UDP forwarding (UDP) 6004 thru 6999 on the ECS (system side) router to the IX-MBU private IP address.
- Must use PAT translation for TCP forwarding 50000 on system side router to the ECS LAN 2 port private IP address.
- Must use PAT translation for TCP forwarding 80 on the system side router to the ECS LAN 2 port private IP address when the IP Auto-Update setting is set to yes in the ECS database. This port is only required to be open when updating the Non-VPN station.

Multiple IX-MBU (Media Bridge Units) Example

When multiple IX-MBU Media Bridge Units are installed in the ECS each IX-MBU IP address must be translated in the system side router. Each IX-MBU has a fixed range of RTP ports based on the location of the IX-MBU in the ECS system. Refer to the graphic and screen shot below for port ranges:



IX-MBU RTP Port Start and Stop Ranges

System › Hardware › MBU Settings › Additonal Settings

	Slot (Ports)	S/W Version Comp.	Software Version	MBU Revision	IP Addr. Acq Method	JB Minimal Delay	RTP Port Range Start	RTP Port Range End	Rem. Prg Port Start
IX-MBU 1	1 (1-96)	No	1	19	Static	30	6004	6194	6004
IX-MBU 2	2 (97-192)	No	1	19	Static	30	6204	6394	6004
	3 (193-288)	No	0	0	Static	30	6404	6594	6004
	4 (289-384)	No	0	0	Static	30	6604	6794	6004
	5 (385-480)	No	0	0	Static	30	6804	6994	6004

Conditions:

1. Non VPN stations must use a static IP address, so the router can send the Address Translation to the correct device.
2. IX-MBU cards (Non-Rev and Rev 1 hardware) must have software version 1.19 or higher.
3. IP Stations must be programmed as Non VPN in the ECS database under System > Hardware (Class 01).
4. The Public IP Address that is translated to the IX-MBU IP Address must be programmed in the ECS database under Stations > IP Station Settings > Non-VPN IP Address.
    - Must use PAT (NAPT) translation for UDP forwarding (UDP 50002) on the off-premise (phone side) router. For multiple IP stations, the TCP and RTP port numbers must be unique port for each IP station. The RTP port number must also be an even number. Odd numbered ports are automatically assigned as the RTCP port.
    - Must use PAT translation for UDP forwarding (UDP 6004-6999) on the ECS (system side) router. When multiple IX-MBU cards are used in an ECS, the RTP port ranges for each IX-MBU must be mapped to the IX-MBU's private IP address on the system side router.
    - In the rare case when PAT (Port Address Translation) or NAPT (Network Address Port Translation) is not available, NAT (Network Address Translation) can be used. NAT is not recommended based on the following issues:
        - NAT can only be used in installations when you have a single IX-MBU and no IP Campus.
        - NAT requires multiple public IP addresses for installation. Two public IP addresses are used for connecting to the system. The first public IP address is assigned to the private IP address of the IX-MBU and is programmed in Stations > IP Stations > Non VPN IP Address. The second public IP address is assigned to the private IP address of the LAN 2 port and is programmed as the CCSU IP address in the Non VPN IPKT.
5. A maximum of 64 IP telephones can be programmed as Non-VPN stations. The ECS will reject the 65th IP telephone that tries to register as a non-VPN station. The ECS supports a total of 1024 VPN and Non-VPN IP telephones.
    - Non-VPN station limitations are based on the bandwidth of the voice dedicated (no data) public data circuit used for Non-VPN IPKT stations.

CONNECTION TYPE	DATA RATE	MAXIMUM NUMBER OF NON-VPN STATIONS	
		G.711	G.729
DSL	768 kbs Up/Down	8	16
T1	1.54 Mbps Up/Down	16	32
FIBER	10 Mbps Up/Down	64	64
Estimates based on: G.711 = 95 kbps per voice call. G.729 = 48 kbps per voice call.			

6. Phones connected by direct route (Point-to-Point T1, Fiber, etc.), LAN, or VPN are programmed as VPN stations.
7. All guidelines for IPKTD (IPSUB) must be followed for bandwidth.
8. IX-MBU Channel usage:
   - Two IX-MBU channels are required for Non-VPN to Non-VPN calls (No Peer-to-Peer connectivity).
   - Two IX-MBU channels are required for Non-VPN to VPN calls.
   - Three IX-MBU channels are required when a Non-VPN IP telephone calls a TDM telephone in a remote system (2 x Main IX-MBU channels and 1 x Remote IX-MBU channel).

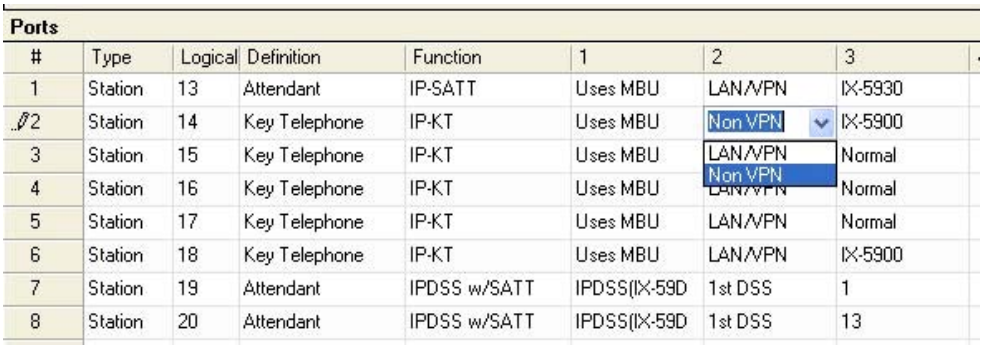
Note: The quality of Iwatsu's IP/SIP-based applications is dependant upon variables such as available bandwidth, network latency, and quality of service (QoS). Each of these variables is controlled by the LAN/WAN administrator and/or carrier. Because these variables are not under Iwatsu's control, Iwatsu cannot guarantee the performance of an Iwatsu IP/SIP product deployed on an IP network.

Non-VPN IP Station Database Programming:

Non-VPN IP Station programming follows standard IP Station programming with two exceptions:

Note: The IX-59DS does not have a Non-VPN database setting because there is no audio transmitted to the DSS unit. The IX-59DS can be used as a VPN or Non-VPN DSS.

1. After programming a VIPSUB card, change the parameter 2 setting from VPN to Non-VPN for the specific IP Stations you want to program as Non-VPN. This database item is programmed in the database under System > Hardware (Class 01).



2. Input the Public IP Address that is translated to the IX-MBU IP Address in the ECS database under Stations > IP Station Settings > Non-VPN IP Address (IP 1.01.02.01.01).

Note:	You will use this Non-VPN IP Address in the CCU IP Address field when programming your IP telephone.



Chapter 12

SIP Integration

Introduction

This section of the ECS Installation Guide includes SIP Integration information for the ECS.

SIP Station Configuration

Note:	Many SIP station vendors use the digit # to signify the end of a dialing string. For this reason, you may not be able to use the # key as a dialing digit (i.e.: You may not be able to use the # key as a pickup code).

Conditions and Considerations:

1. All SIP ports require a valid SIP Client License (PN: 000331).
2. G.711 CODEC supported. G.729 CODEC not supported.
3. A VPN connection is required for off-premise SIP stations. SIP phones require the same VPN router configuration as off-premise IPKTs.
4. Known Issues with Polycom IP SoundPoint 601 SIP Station. A blind transfer from a SIP Voicemail port or other SIP device to the Polycom IP SoundPoint 601 SIP station will ring once at the SIP station then ringing will be cancelled. The transferring party will hear continuous ringback tone.

Disclaimer:	The quality of Iwatsu's IP/SIP-based applications is dependant upon variables such as available bandwidth, network latency, and quality of service (QoS). Each of these variables is controlled by the LAN/WAN administrator and/or carrier. Because these variables are not under Iwatsu's control, Iwatsu cannot guarantee the performance of and assumes no liability for third party IP/SIP products deployed on an IP network that are connected to an ECS system. Due to the multitude of SIP station, soft phone, ATA, and WiFi handset manufacturers, SIP features and functionality on your SIP device may vary. Changes, modifications, and availability of third party equipment and services are beyond the control of Iwatsu Voice Networks.

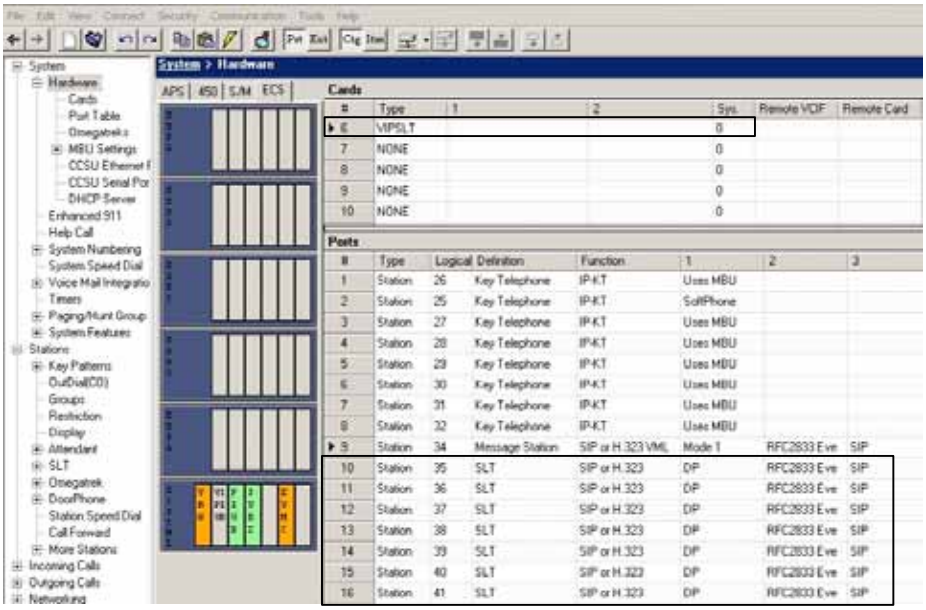
Configuring the ECS for SIP Stations

Operation:

SIP Station ports are configured in the ECS database as shown below:

1. Create a VIPSLT card:

1. From the Iwatsu Programmer, select **System > Hardware**.
2. Select an unused card and change the card type to **VIPSLT**.
   - Upload Hardware database changes and disconnect from the ECS. (Wait ten seconds per VIPSLT card created before reconnecting).
3. Reconnect to the ECS and download Hardware database items.
   - There are now eight SLT station ports created under the VIPSLT card created in step 2.
4. Change **Parameter 2** from In-band to **RFC2833 Event**.
5. **Upload** Hardware database changes.

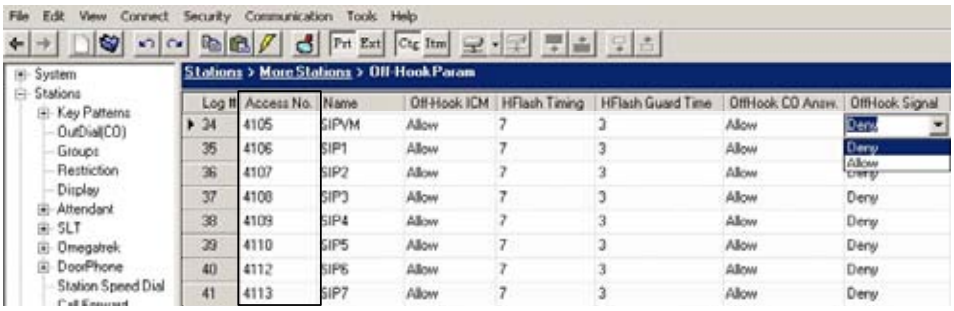


2. Station Settings

Currently, SIP stations do not support call waiting. Call waiting must be disabled on all SIP stations (to include SIP voice mail).

1. Go to: **Stations > More Stations > Off-Hook Parameters > Off-Hook Signaling** and change the setting from Allow to Deny and upload your changes to the ECS.
2. Each SIP station must have an **Access No**. If you have not done so, assign an access number (extension) for each SIP station port.

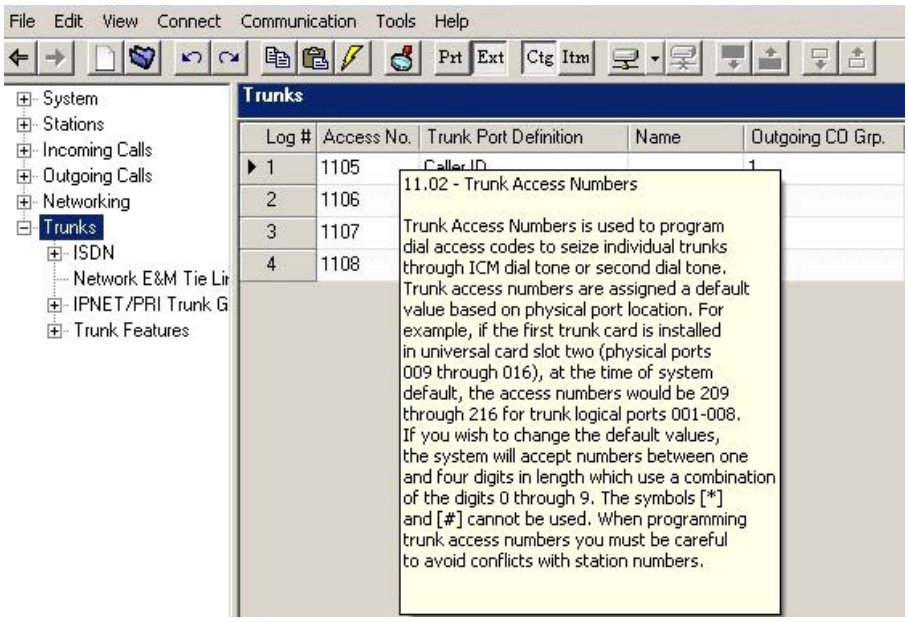
3. **Upload** your database changes.



3. Trunk Access Numbers

Each trunk must have an associated **Trunk Access Number**. Incoming calls without Caller ID will fail if there is not an assigned Access Number on the trunk.

1. To assign Trunk Access Numbers: Select **Trunks > Access No**.
2. **Upload** your database changes.



SIP Voice Mail Port Integration

The SIP Voice Mail feature alleviates the need for the Dialogic board for the Iwatsu Enterprise TOL and the SUBS and Ring Generator in the ECS. All SIP ports require a valid SIP Client License (PN: 000331).

A SIP voice mail port is used to connect to the Telephony Office Links Unified Messaging server.

Important! IX-MBU software version 1.21 and Iwatsu Enterprise TOL 7.0 is required for SIP Voice Mail integration.

Note: Many SIP station vendors use the digit # to signify the end of a dialing string. For this reason, you may not be able to use the # key as a dialing digit (i.e.: You may not be able to use the # key as a pickup code).

Configuring the ECS for SIP Voice Mail

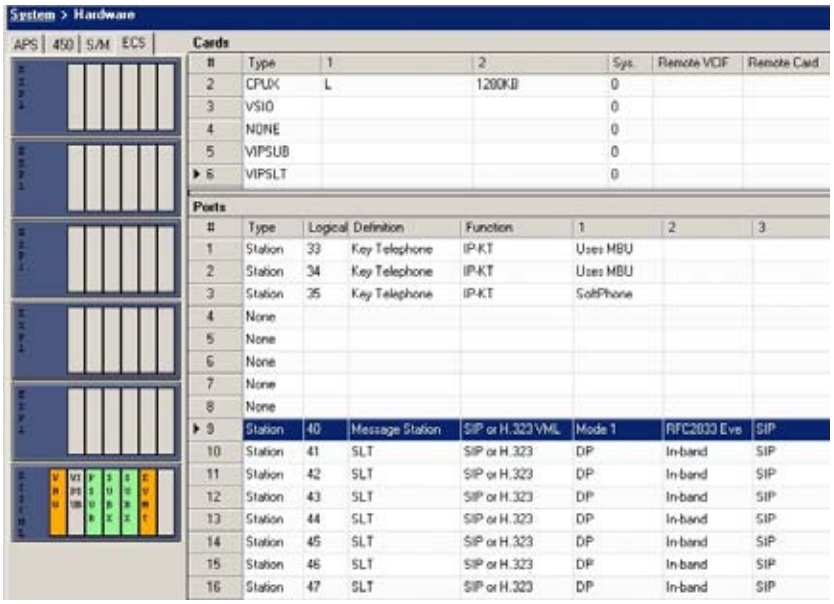
Operation:

A SIP Voice Mail port is configured in the ECS database as shown below:

1. Create a VIPSLT card:

1. From the Iwatsu Programmer, select **System > Hardware**.
2. Select an unused card and change the card type to **VIPSLT**.
   - Upload Hardware database changes and disconnect from the ECS. (Wait ten seconds per VIPSLT card created before reconnecting).
3. Reconnect to the ECS and download Hardware database items.
   - There are now eight SLT station ports created under the VIPSLT card created in step 2.
4. Change the port Definition from SLT to **Message Station**.
5. Change the port Function from SIP or H.323 to **SIP or H.323 VML**.
6. Change **Parameter 1** from DP to **Mode 1**.
7. Change **Parameter 2** from In-band to **RFC2833 Event**.

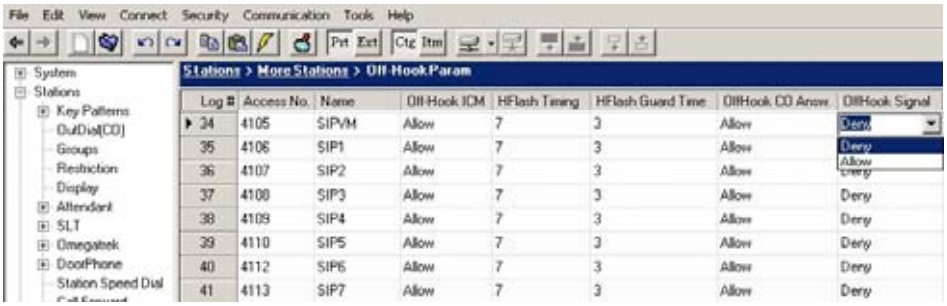
8. Upload Hardware database changes.



2. Station Settings:

Currently, SIP stations do not support call waiting. Call waiting must be disabled on all SIP stations (to include SIP voice mail).

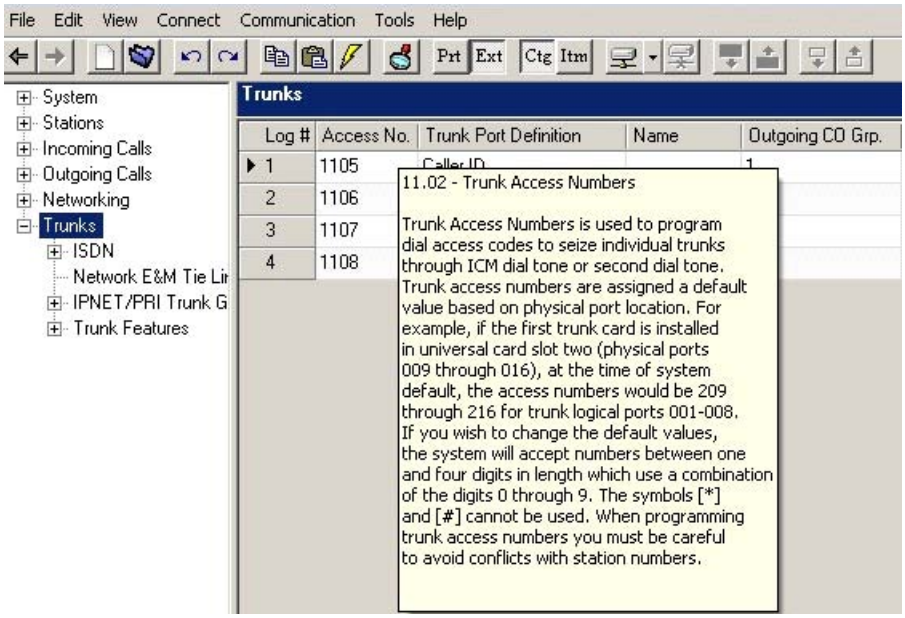
1. Go to: **Stations > More Stations > Off-Hook Parameters > Off-Hook Signaling** and change the setting from Allow to **Deny** and **upload** your changes to the ECS.
2. Each SIP station must have an **Access No**. If you have not done so, assign an access number (extension) for each SIP station port.
3. **Upload** your database changes.



3. Trunk Access Numbers:

Each trunk must have an associated **Trunk Access Number**. Incoming calls without Caller ID will fail if there is not an assigned Access Number on the trunk.

1. To assign Trunk Access Numbers: Select **Trunks > Access No**.
2. **Upload** your database changes.



SIP Fax Configuration

The SIP Fax (Soft fax) feature which enables faxing over dedicated SIP-Fax ports. This feature requires Iwatsu Enterprise TOL software version 7.10 or higher. All SIP ports require a valid SIP Client License (PN: 000331).

A SIP Fax port is used to connect to the Iwatsu Enterprise TOL server.

Important! IX-MBU software version 1.21 and Iwatsu Enterprise TOL 7.10 is required for SIP Fax integration.

Conditions:

1. **Fax over SIP/IP** - Due to the nature of IP / SIP transmissions, fax services over IP / SIP cannot be guaranteed. A **dedicated fax circuit using conventional analog or digital circuits other than IP/ SIP is required for all mission critical / core business faxes.**
   - Fax over SIP trunks is dependant upon the SIP Provider's fax support policy. Many simply DO NOT support fax. If the provider does support fax, the circuit on the transmission must not use any compression and must be configured for G.711. Iwatsu has successfully tested incoming and outgoing fax between a fax machine connected to an ECS analog fax port and a SIP trunk provider when the two conditions above are true. ECS does not support T.38 fax detection. T.38 is a fax relay standard that was adopted to permit fax over conventional IP networks operating at G.729. Implementation of compression by VoIP providers renders poor quality or no service on fax calls.
2. Consult Enterprise TOL documentation for information on upgrading. **The Iwatsu Enterprise TOL softfax feature does not support inbound nor outbound fax over SIP trunks.**
3. Microsoft Fax Client must be installed before installing the UC Client Manager. If the UC Client Manager is already installed, uninstall the UC Client Manager.
4. The echo canceller on the IX-MBU card is turned-off for any calls involving the SIP Fax port.

Configuring the ECS for SIP FAX

Operation:

A SIP Fax port is configured in the ECS database as shown below:

1. Create a VIPSLT card:

1. From the Iwatsu Programmer, select **System > Hardware**.
2. Select an unused card and change the card type to **VIPSLT**.
   - Upload Hardware database changes and disconnect from the ECS. (Wait ten seconds per VIPSLT card created before reconnecting).
3. Reconnect to the ECS and download Hardware database items.
   - There are now eight SLT station ports created under the VIPSLT card created in step 2.

4. Change the default setting for the Port Function from SIP or H.323 to **SIP Facsimile**.
5. Change the default setting for **Parameter 1** from DP to **RFC2833 Event**.
6. **Upload** Hardware database changes.

Cards

#	Type	1	2	Sys.	Remote VCIF	Remote Card
5	VIPSUB			0		
▶ 6	VIPSLT			0		
7	VIPSUB			0		
8	NONE			0		
9	NONE			0		

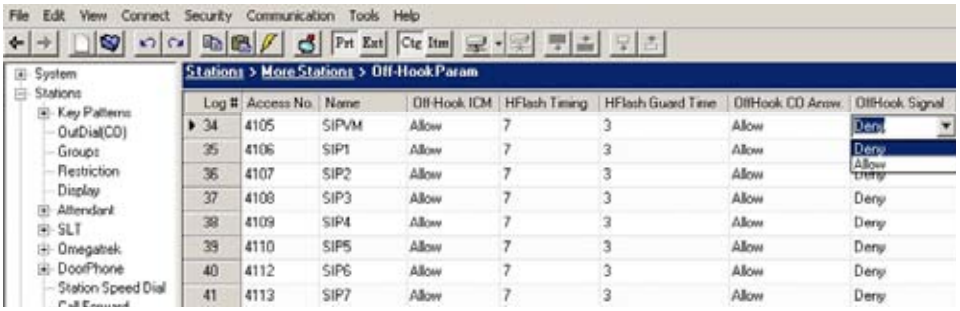
Ports

#	Type	Logical	Definition	Function	1	2	3
▶ 9	Station	40	SLT	SIP Facsimile	RFC2833 Event		
10	Station	41	SLT	SIP or H.323	DP	In-band	SIP
11	Station	42	SLT	SIP or H.323	DP	In-band	SIP
12	Station	43	SLT	SIP or H.323	DP	In-band	SIP
13	Station	44	SLT	SIP or H.323	DP	In-band	SIP
14	Station	45	SLT	SIP or H.323	DP	In-band	SIP
15	Station	46	SLT	SIP or H.323	DP	In-band	SIP
16	Station	47	SLT	SIP or H.323	DP	In-band	SIP

2. Station Settings

Currently, SIP stations do not support call waiting. Call waiting must be disabled on all SIP stations (to include SIP Fax).

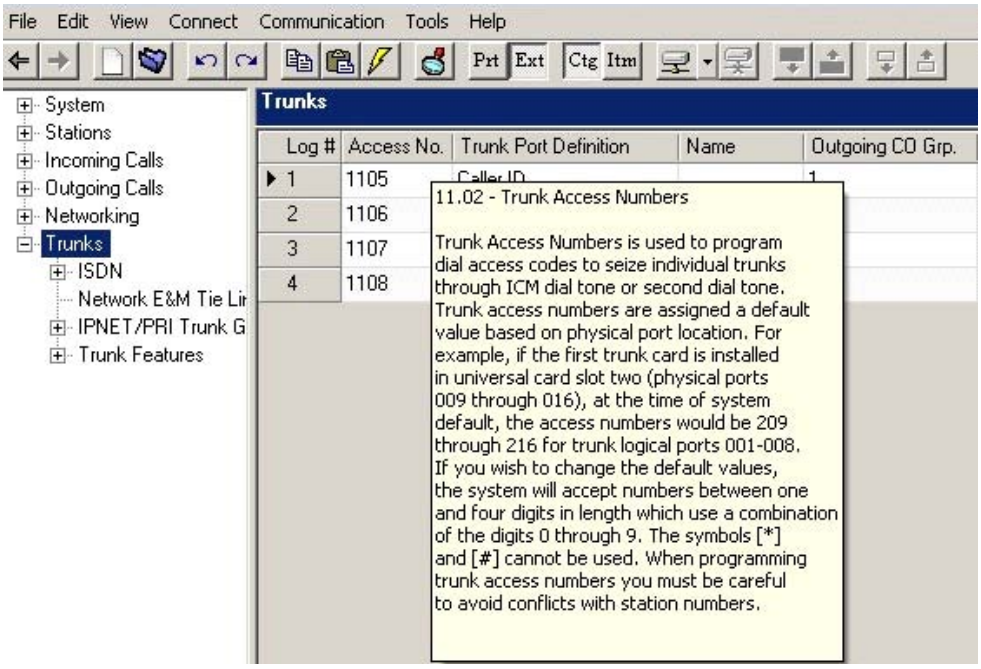
1. Go to: **Stations > More Stations > Off-Hook Parameters > Off-Hook Signaling** and change the setting from Allow to **Deny** and **upload** your changes to the ECS.
2. Each SIP station must have an **Access No.** If you have not done so, assign an access number (extension) for each SIP station port.
3. **Upload** your database changes.



3. Trunk Access Numbers

Each trunk must have an associated **Trunk Access Number**. Incoming calls without Caller ID will fail if there is not an assigned Access Number on the trunk.

1. To assign Trunk Access Numbers: Select **Trunks > Access No.**
2. **Upload** your database changes.



Configuring Enterprise TOL for SIP FAX

Important! **The Iwatsu Enterprise TOL softfax feature does not support inbound nor outbound fax over SIP trunks**.

Operation:

SIP Fax is configured in the Enterprise TOL Server as shown below:

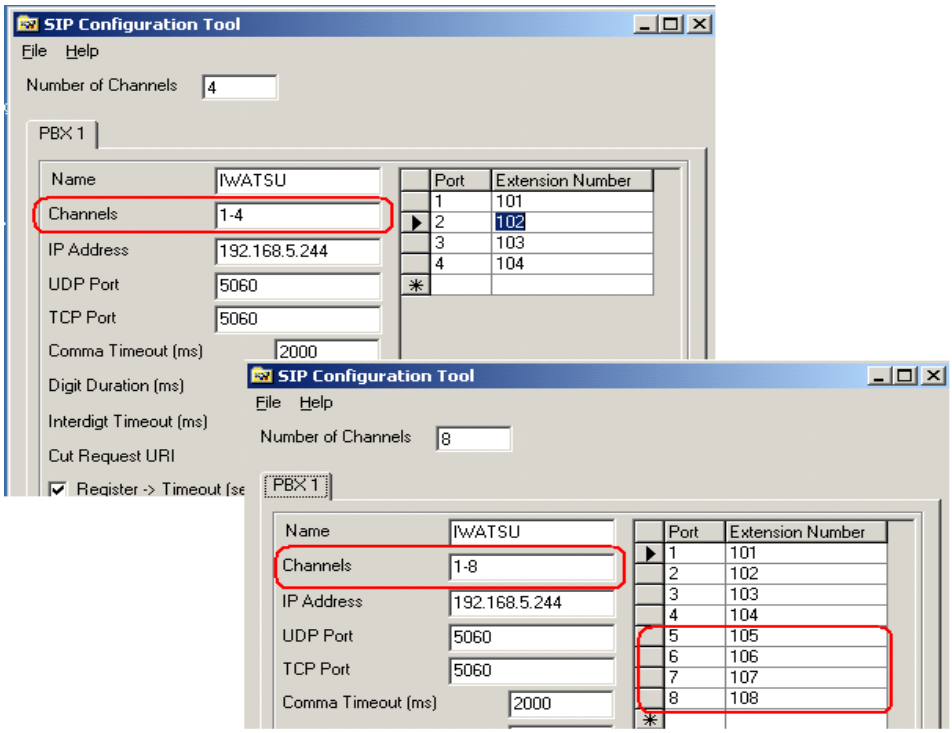
In order to enable SIP fax for the Enterprise TOL Server you must have SoftFax licenses.

Example: If you want to have four voice ports and four fax ports you must have eight voice ports (Four dedicated fax ports) and four SOFTFAX ports.

1. SIP Configuration Tool:

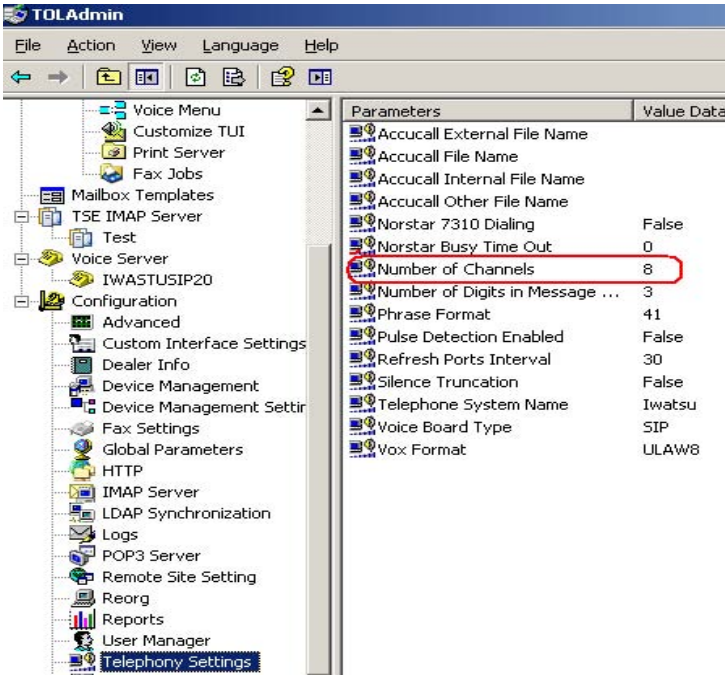
Perform the following steps to configure Enterprise TOL for SIP fax:

1. Go to **Start > Program Files > Telephony Office Linx > SIP Configuration Wizard** and change the **Channels** value to include the additional ports.
   - In this example we will change the number of ports from four to eight in the highlighted area. In the second picture, the number of ports are changed and the four extra ports needed for faxing are added.

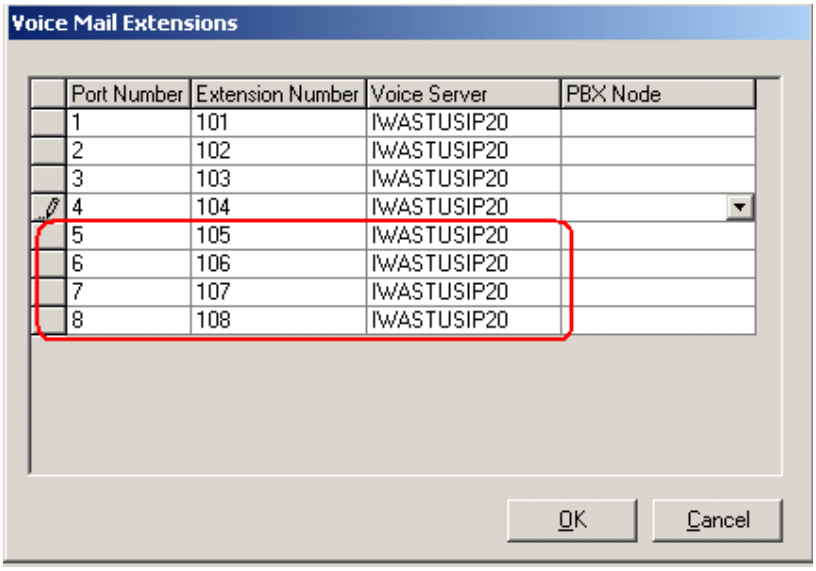


2. TOL Administrative Settings:

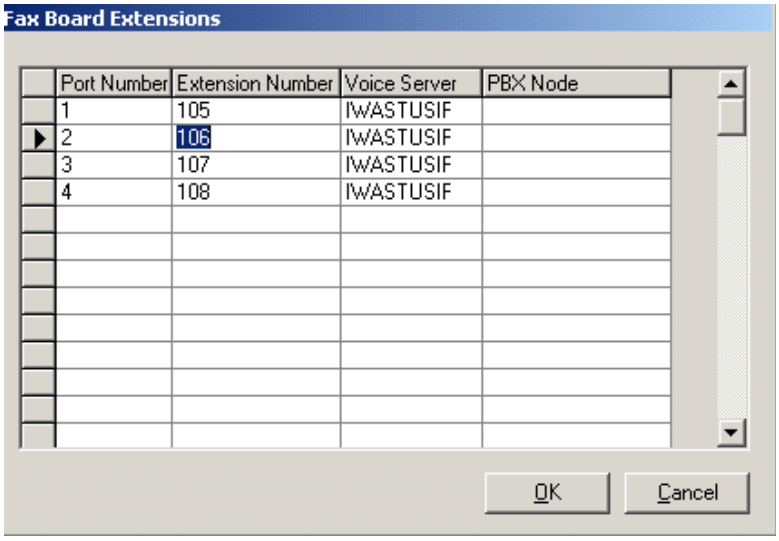
1. Next go to the **ADMIN > Configuration> Telephony Settings** and change the number of ports in your system to include the additional ports.



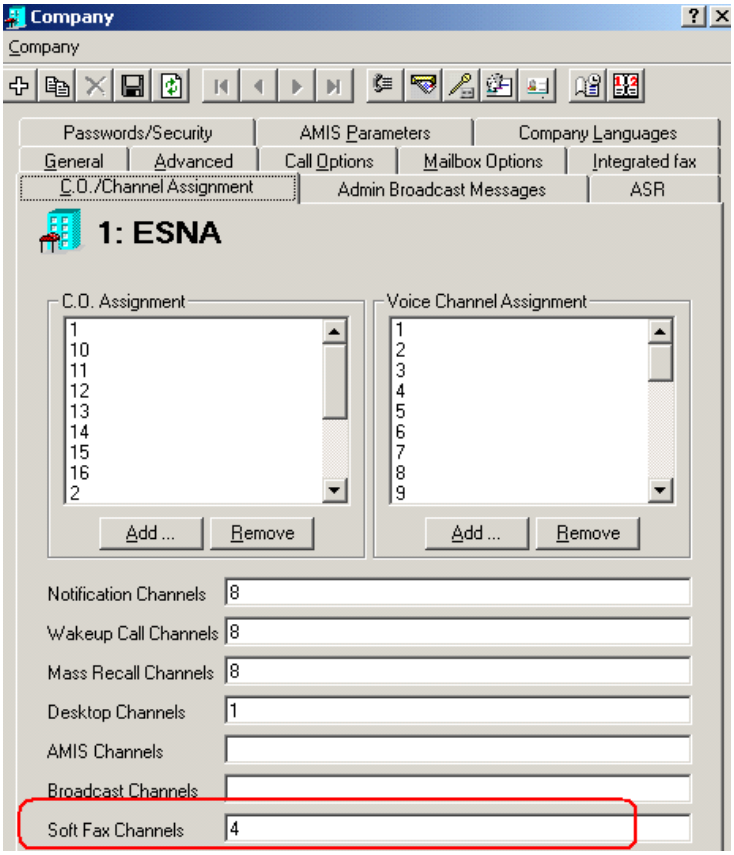
2. Go to **ADMIN > PBX > Voice Mail Extensions** button enter the additional ports.



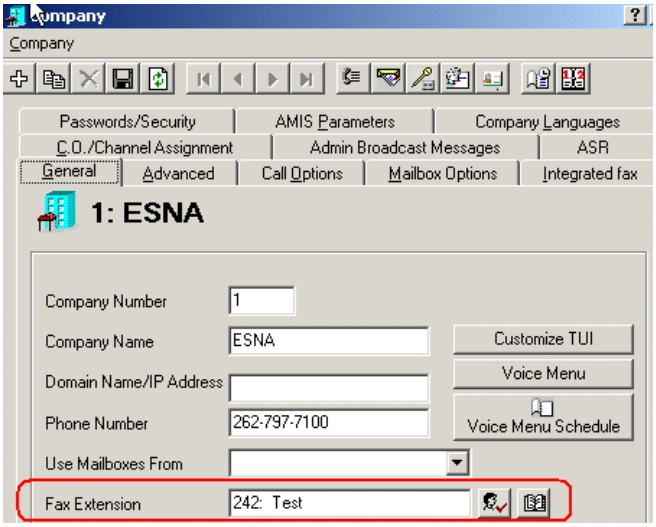
3. The four additional ports are added to the Voice mail extensions.
   - You also have to add the four extra ports to the Fax Board Extensions.



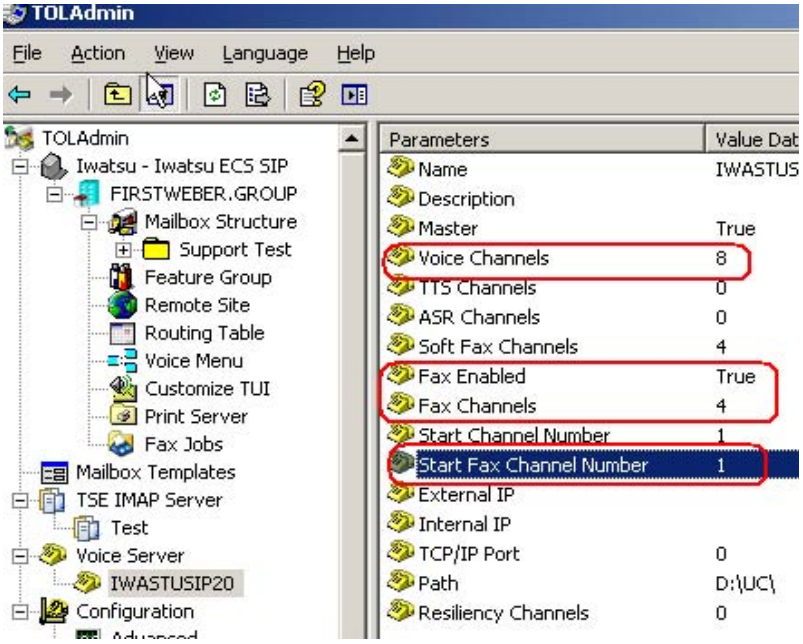
4. Go to the **ADMIN > Company > CO Channel Assignment > Softfax Channels** field and enter the number of Softfax ports allowed on your license.



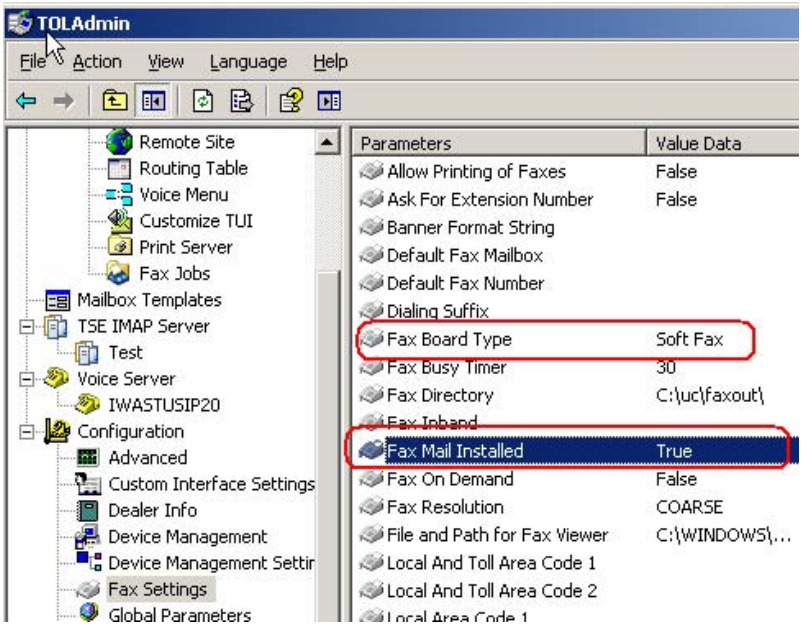
5. Go to **ADMIN > General** Tab and add a mailbox in the Fax Extension field.



6. Go to **ADMIN > VOICE SERVER** and change all the values as follows:
   - Voice Channels = Number of voicemail ports plus the added fax ports.
   - Fax Channels = As allowed on your license
   - Start Fax Channel = Must be set to 1
   - Fax Enabled = True.



7. Go to **ADMIN > Fax Settings** and fill in the following values.
   - Fax board type = Soft Fax
   - Faxmail installed = True



8. Please reboot the voicemail after changing these parameters.

SIP Station Installation

The Iwatsu Enterprise-CS system supports the use of Windows Messenger as a station. The Windows Messenger uses Session Initiated Protocol (SIP) to setup and teardown calls. The ECS IX-CCU/CCSU has an integrated SIP server that is used for this purpose.

This section assumes that the ECS system successfully resides on the network and the IX-MBU card is installed in the ECS system.

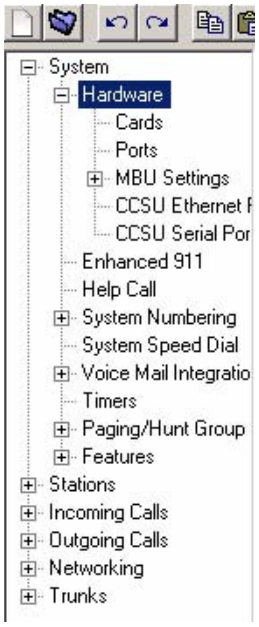
Iwatsu Enterprise-CS Database Configuration

The Windows Messenger stations require a virtual port on the IX-MBU/EMBU. This section explains the database configuration process.

Card Configuration

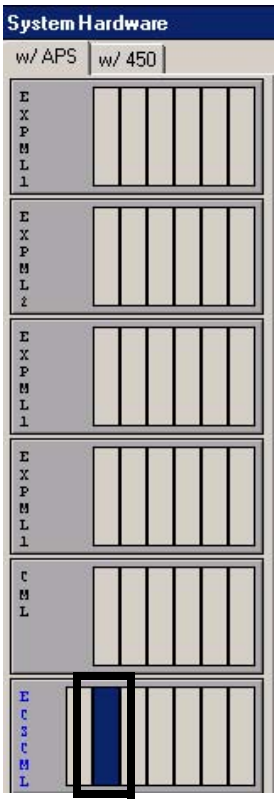
Using the Iwatsu Programmer in the **Category** view mode:

1. Select: **System > Hardware**

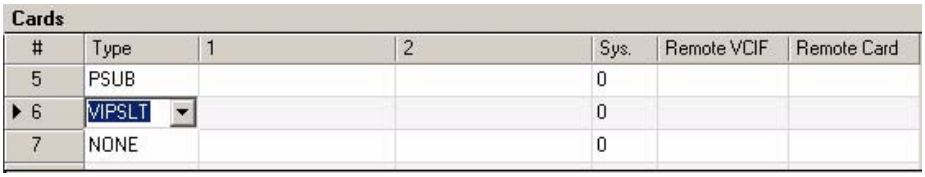


- The **Hardware** screen displays.

2. Use the mouse to select an available card slot on the graphical representation of the ECS system.



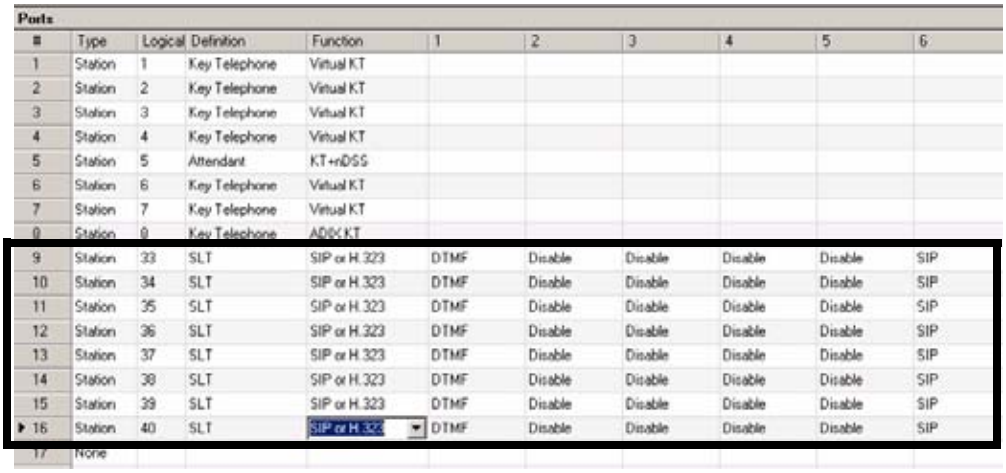
   - The available card slot can be any available card slot in the ECS system.
3. Under the **Card** section, select the card slot to be used as a SIP station.



4. Configure the card as a **VIPSLT**.
5. Select the ECS system number.
   - If the SIP will reside in the main system.
6. Click the mouse off the card.

Station Configuration

1. On the **Ports** section of the screen, program eight ports that correspond to the VIPSLT card as shown below.

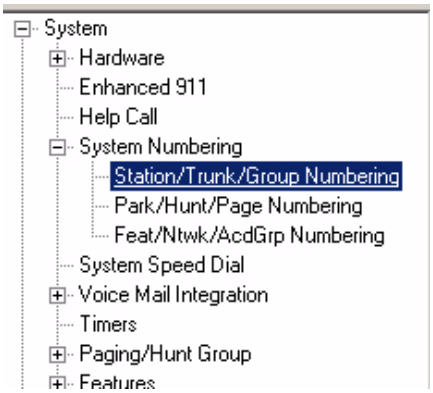


Ports

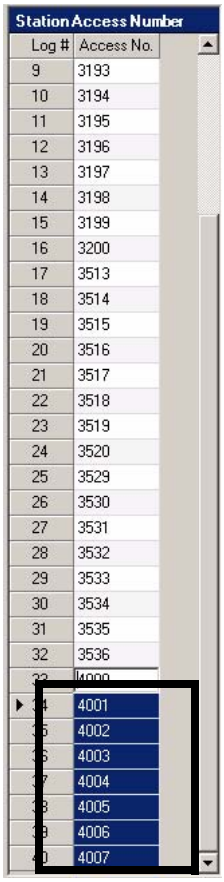
#	Type	Logical	Definition	Function	1	2	3	4	5	6
1	Station	1	Key Telephone	Virtual KT						
2	Station	2	Key Telephone	Virtual KT						
3	Station	3	Key Telephone	Virtual KT						
4	Station	4	Key Telephone	Virtual KT						
5	Station	5	Attendant	KT+nDSS						
6	Station	6	Key Telephone	Virtual KT						
7	Station	7	Key Telephone	Virtual KT						
8	Station	8	Key Telephone	ADDC KT						
9	Station	33	SLT	SIP or H.323	DTMF	Disable	Disable	Disable	Disable	SIP
10	Station	34	SLT	SIP or H.323	DTMF	Disable	Disable	Disable	Disable	SIP
11	Station	35	SLT	SIP or H.323	DTMF	Disable	Disable	Disable	Disable	SIP
12	Station	36	SLT	SIP or H.323	DTMF	Disable	Disable	Disable	Disable	SIP
13	Station	37	SLT	SIP or H.323	DTMF	Disable	Disable	Disable	Disable	SIP
14	Station	38	SLT	SIP or H.323	DTMF	Disable	Disable	Disable	Disable	SIP
15	Station	39	SLT	SIP or H.323	DTMF	Disable	Disable	Disable	Disable	SIP
16	Station	40	SLT	SIP or H.323	DTMF	Disable	Disable	Disable	Disable	SIP
17	None									

Station Assignment

1. Select: **Station/Trunk/Group Numbering** option from the system screen.



2. Scroll to the logical port numbers of the SIP stations programmed above.



3. Enter extension number for the SIP station.

Connection and Upload

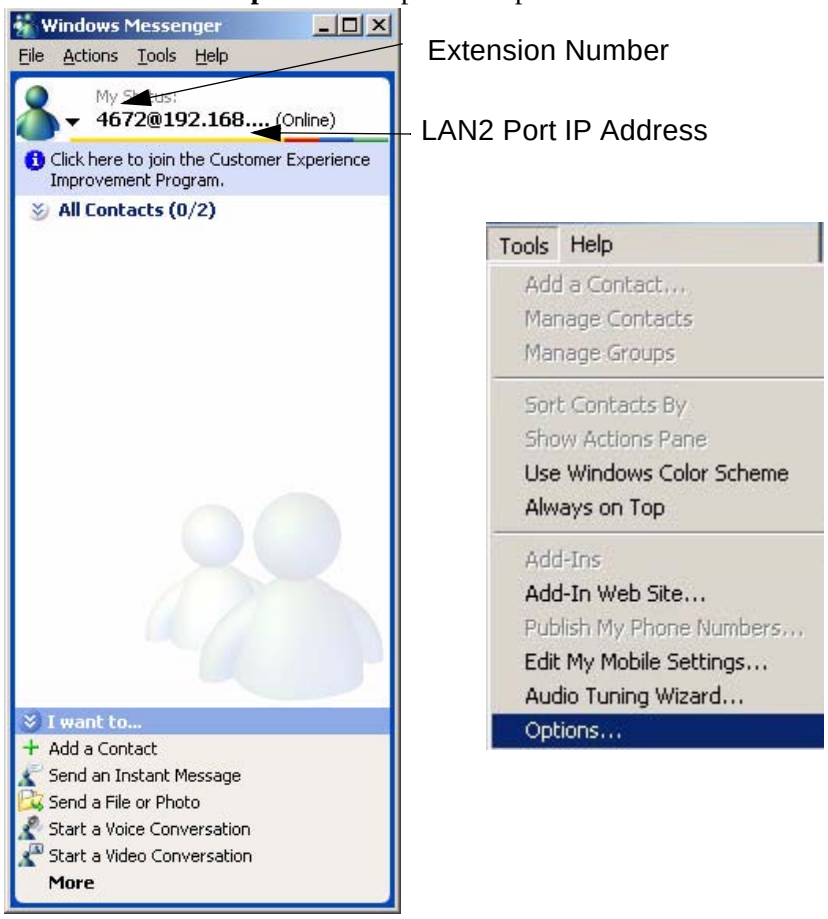
1. Connect to the ECS system.
2. Upload the database to the ECS system.
3. Use the Programmer to reset the ECS system.

Windows Messenger (SIP)

Windows Messenger Version 5.0 will be used as a SIP-based IP phone. When Windows Messenger is launched, the following screen appears.

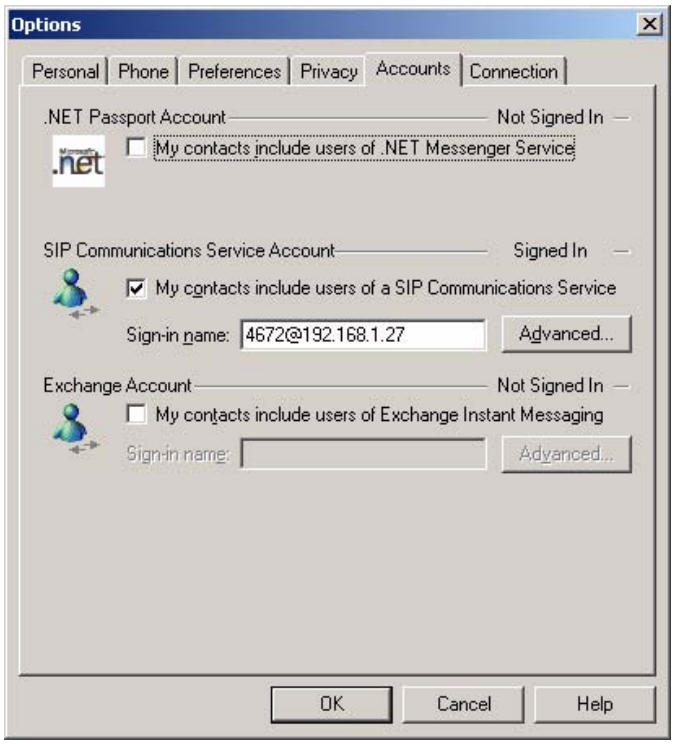
Windows Messenger Configuration

1. Select: **Tools** > **Options...** to open the Options menu.

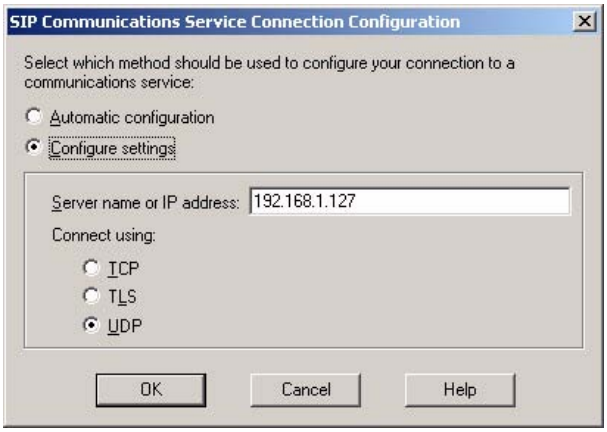


   - Windows Messenger default window displays.
2. Select **Tools** > **Options** to open the **Options** menu.

3. Select **Accounts** tab.



4. Select the **My contacts include users of SIP Communications Service** check-box.
5. In the **Sign-in name:** checkbox, enter the extension number, followed by the '@' sign and the IP address of the LAN2 port on the IX-CCU/CCSU.
   - 3012@10.0.1.120 for example.
6. Select the **Advanced...** button.
7. Select the **Configure Settings** radio button.



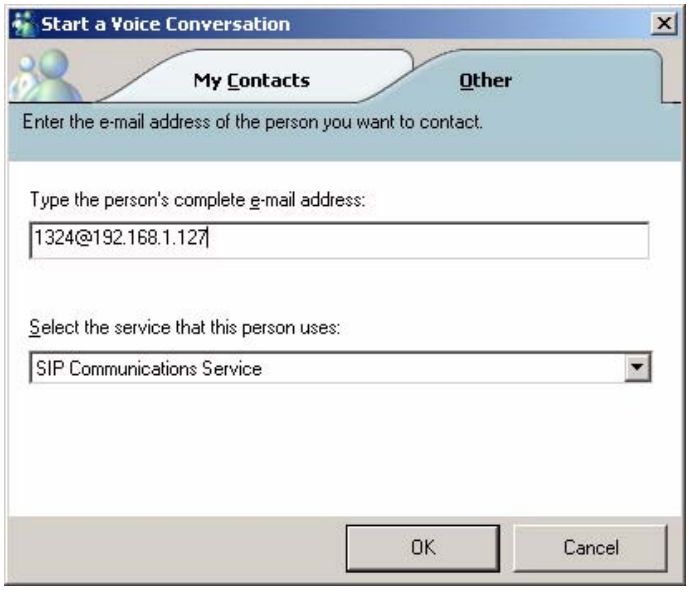
8. In the **Server name or IP address:** field, enter the IP address of the LAN2 port on the IX-CCU/CCSU.
9. Select the **UDP** radio button.
10. Select the **OK** button.

Using Windows Messenger: Voice Conversation

1. To use Windows Messenger, select the **Start a Voice Conversation** hyperlink.



   - The **Start a Voice Conversation** screen displays.



2. Enter the extension to call.
   - The extension can be another SIP / H.323 station or IP Key Telephone, Key Telephone or SLT.

Using Windows Messenger: Video Conversation

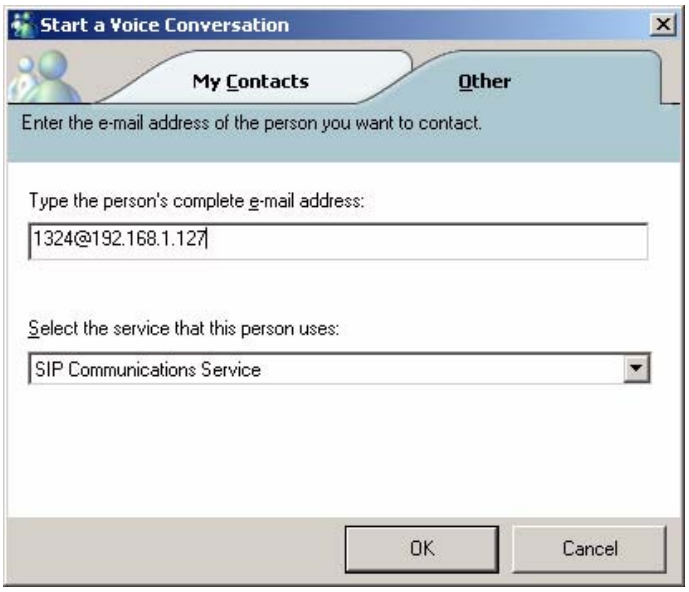
Windows Messenger has a built-in feature that allows a video conversation. To use this feature, Windows Messenger must be properly configured. This is described in the *Windows Messenger Configuration* section.

A video camera must be properly installed and configured to the computer. Reference the camera's documentation for instructions on how to properly install and configure the camera. These instructions assume that both Windows Messenger and the video camera are properly installed and configured.

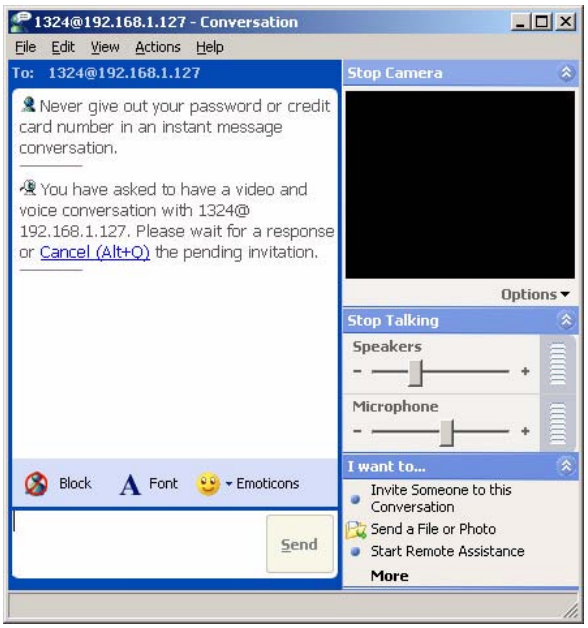
1. To use Windows Messenger, select the **Start a Video Conversation** hyperlink.



- The **Start a Voice Conversation** screen displays.



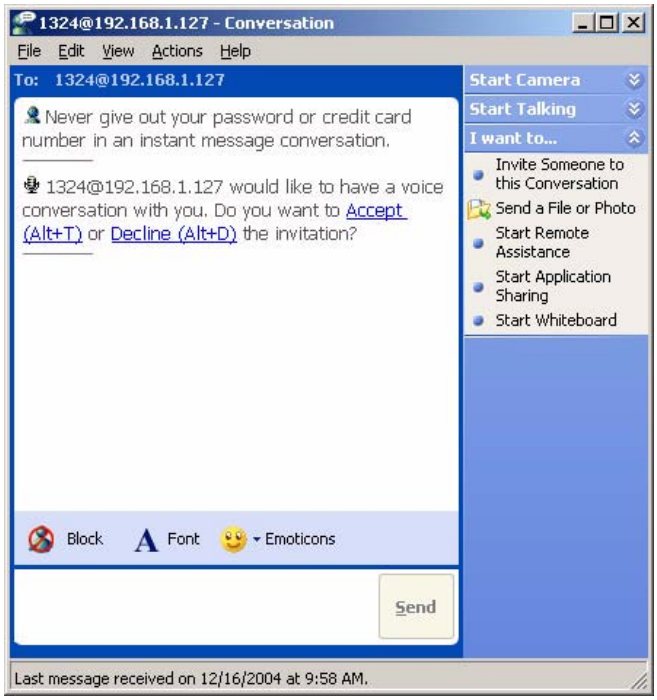
2. Enter the extension to call.
   - The extension can be another SIP station or IP Key Telephone, Key Telephone or SLT.



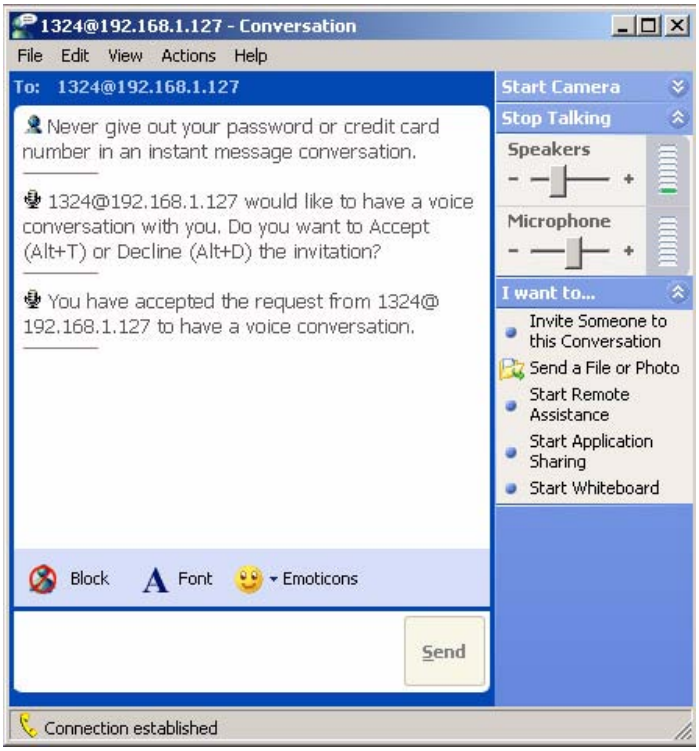
Accepting a Conversation Request

When another station calls a Windows Messenger station, they are send a conversation invitation. The called party can either accept or decline the invitation.

When the called party is sent an invitation, the called party sees the following display.



When the **Send** button is selected, the call is established and the audio conversation begins.



SIP Trunk Programming Guide for ECS Direct Connect

Follow the steps below to program SIP trunks for direct connection to the ECS:

Note:	The SIP trunk programming for direct connection to the ECS is meant as a guideline. Please refer to the Feature Guide section of this manual for more information regarding the SIP Trunk Direct Connect feature.

Step 1: Gather the Following Information from the Carrier

1. Register Domain
2. Invite Domain (Register and Invite domain are usually the same)
3. Trunk Username (This is usually the first DID phone number)
4. Trunk Password (If authentication is necessary)
5. Incoming Domain in To: header (This is usually your static public IP address)
6. How many total calls?
7. What are the DNIS numbers?
8. Do the calls have to be sent as ENUM? (i.e., +12145551212)
9. Are you using an Ingate?
10. Is this a fixed trunk ?(i.e., SPA 3102 is a fixed trunk circuit)

Step 2: ECS Database Programming

System > Hardware

1. Create the **VTRUNK** Card.
   - Set the card **Type** to **VTRUNK** (The number is automatically programmed).
   - Upload Hardware (Communication > Upload Database to System).
   - Disconnect (Communication > Disconnect).
   - Wait 10 seconds.
   - Reconnect to the ECS and download Hardware (Communication > Download Database from System).
   - 8 Trunk ports are created for you.
2. Configure the SIP Trunk Ports.
   - **Parameter 1**: This is the DTMF mode. ECS software version 7.0 and higher supports all three modes (In-band, RFC 2833, and SIP Info Event).
     - **RFC 2833** is most common and allows for the "flash" feature.
     - **In-band** is supported by all carriers and all versions of ECS software.

Note:	Set Parameter 1 for In-band to send DTMF when transferring off-premise or performing a trunk-to-trunk conference.

   - **Parameter 3**: VPN or Non-VPN.
   - **Non-VPN** assumes the trunks will use public IP addresses. This setting is used for direct connections to the SIP carrier. This mode is only supported in ECS software version 8.0 or higher.

- **VPN** assumes that the trunks will use private IP addresses. This setting is used for SPA 3102 or Ingate Siparator installations.

Cards

#	Type	1	2	Sys.	Remote VCIF	Remote Card	Sys. Na
▶ 33	VTRUNK	1		0			Main
34	VTRUNK	2		0			Main
35	VTRUNK	3		0			Main
36	VTRUNK	4		0			Main
37	VTRUNK	5		0			Main

Ports

#	Type	Logical	Definition	Function	1	2	3
▶ 225	Trunk	29	IP Trunk	SIP Trunk	RFC2833 Eve	SIP	Non-VPN
226	Trunk	30	IP Trunk	SIP Trunk	RFC2833 Eve	SIP	Non-VPN
227	Trunk	31	IP Trunk	SIP Trunk	RFC2833 Eve	SIP	Non-VPN
228	Trunk	32	IP Trunk	SIP Trunk	RFC2833 Eve	SIP	Non-VPN
229	Trunk	33	IP Trunk	SIP Trunk	RFC2833 Eve	SIP	Non-VPN
230	Trunk	34	IP Trunk	SIP Trunk	RFC2833 Eve	SIP	Non-VPN
231	Trunk	35	IP Trunk	SIP Trunk	RFC2833 Eve	SIP	Non-VPN
232	Trunk	36	IP Trunk	SIP Trunk	RFC2833 Eve	SIP	Non-VPN

Step 3: VTRUNK Carrier Information Programming

Trunks > SIP Settings

1. Set the **Protocol 1** parameter to **SIP** for each of the SIP Trunk Cards.
2. If required, set the **DNS Server** table number.

SIP Virtual Trunk Cards

VTrunk Card #	Protocol 1	DNS Server	Invite Primary Server	Registrar Primary Server	Register
1	SIP	0	72.32.58.125	72.32.58.125	Disable
2	SIP	0	64.199.64.220	64.199.64.220	Enable
3	SIP	0	10.129.0.9	10.129.0.9	Disable
4	SIP	0	204.138.56.246	204.138.56.246	Disable
5	SIP	0	208.65.240.133	208.65.240.133	Enable
6	SIP	0	10.133.25.63	10.133.25.63	Disable
7	SIP	1	mobileoffice.obtssolutions.net	mobileoffice.obtssolutions.net	Enable
8	SIP	1	dfw01-01.fs.broadvox.net	dfw01-01.fs.broadvox.net	Enable
9	SIP	1	dal01a.netlogic.net	dal01a.netlogic.net	Enable
10	SIP	1	las-sip.commpartners.us	las-sip.commpartners.us	Enable

3. Program the **DNS Primary** server and the **Secondary** server in **Trunks > SIP Settings > SIP DNS Settings**.

Trunks > SIP Settings > SIP DNS Settings

#	DNS Primary IP	DNS Primary Port	DNS Secondary IP	DNS Secondary Port
▶ 1	4 .2 .2 .1	53	4 .2 .2 .2	53
2	. . .	53	. . .	53
3	. . .	53	. . .	53
4	. . .	53	. . .	53

4. Program the **Invite Primary Server**. This is the **Invite Domain** setting from Step 1.
5. Program the **Registrar Primary Server**. This is the **Register Domain** from Step 1.

SIP Virtual Trunk Cards					
VTrunk Card #	Protocol 1	DNS Server	Invite Primary Server	Registrar Primary Server	Register
1	SIP	0	72.32.58.125	72.32.58.125	Disable
2	SIP	0	64.199.64.220	64.199.64.220	Enable
3	SIP	0	10.129.0.9	10.129.0.9	Disable
4	SIP	0	204.138.56.246	204.138.56.246	Disable
5	SIP	0	208.65.240.133	208.65.240.133	Enable
6	SIP	0	10.133.25.63	10.133.25.63	Disable
7	SIP	1	mobileoffice.obtssolutions.net	mobileoffice.obtssolutions.net	Enable
8	SIP	1	dfw01-01.fs.broadvox.net	dfw01-01.fs.broadvox.net	Enable
9	SIP	1	dal01a.netlogic.net	dal01a.netlogic.net	Enable
10	SIP	1	las-sip.commpartners.us	las-sip.commpartners.us	Enable

6. **If** the **IP trunk requires Registration**, then set **Register** to **Enable**.
7. **If** the **IP trunk requires a password** when registering, then set **Auth. Register** to **Enable**.
8. **If** the I**P trunk requires a password** when calling, then set **Auth. INVITE** to **Enable**.

Registrar Primary Server	Register	Auth. Register	Auth. INVITE
72.32.58.125	Disable	Disable	Disable
64.199.64.220	Enable	Enable	Disable
10.129.0.9	Disable	Disable	Disable
204.138.56.246	Disable	Disable	Disable
208.65.240.133	Enable	Enable	Enable
10.133.25.63	Disable	Disable	Disable
mobileoffice.obtssolutions.net	Enable	Enable	Enable
dfw01-01.fs.broadvox.net	Enable	Enable	Disable
dal01a.netlogic.net	Enable	Enable	Disable
las-sip.commpartners.us	Enable	Enable	Enable

Step 4: SIP Trunk Programming

Trunks > SIP Settings > Virtual Trunk Card "N" Channels

1. Program **VTRUNK** card settings (make sure you are displaying the correct card).
2. Verify the logical port number. If the port is set to zero, you did not program your VTRUNK card correctly.
3. **Port Activation**: Each trunk that is set to **Enabled** requires and will use a **SIP license**.
   - If you have 8 "trunks" from the SIP carrier, you will need 8 licenses and need to enable 8 SIP trunks.
   - If you have 48 "trunks" from the carrier, you will need 48 SIP licenses and need to enable 48 SIP trunks. You will also need 48 MBU channels.
4. **User ID-1**: Set the Username given by the SIP carrier or programmed in the SPA 3102. This is usually the main or first DID from the carrier.
5. **Password-1**: If you set Auth. Registration or Auth. Invite to Enable, program the password for your account here.
6. **Domain Name: VERY IMPORTANT!** The ECS will v**erify incoming SIP trunk calls** based on this Domain name in the To: header.
   - **Domain Name** -In most cases and depending on the SIP carrier, this is the same IP address as the **Public IP Address** programmed in **Trunks > SIP Settings > SIP IP Settings**.
   - If incoming calls are failing, this is probably programmed incorrectly.

Virtual Trunk Card 1 Channels

Channel #	Log.	Port Activation	User ID-1	Password-1	Domain Name	DID Feature	Registration
1	29	Enable	2145551212	password	71.97.234.12	DID	Enable
2	30	Enable	2145551212	password	71.97.234.12	DID	Disable
3	31	Enable	2145551212	password	71.97.234.12	DID	Disable
4	32	Enable	2145551212	password	71.97.234.12	DID	Disable
5	33	Enable	2145551212	password	71.97.234.12	DID	Disable
6	34	Enable	2145551212	password	71.97.234.12	DID	Disable
7	35	Enable	2145551212	password	71.97.234.12	DID	Disable
8	36	Enable	2145551212	password	71.97.234.12	DID	Disable

7. **DID Feature**: If the setting is **DID**, then the incoming call is checked against the Domain only and routed via the DNIS or ANI table.
   - **DID** setting is used when connecting to SIP carriers.
   - If the setting is set to **Line**, the user ID-1 is checked with the Domain name and the call is routed via the logical port number programming in Class 11.32 and Class 11.34.
   - **Line** setting is used for connecting to the SPA 3102 or Ingate Siparator.

Virtual Trunk Card 1 Channels

Channel #	Log.	Port Activation	User ID-1	Password-1	Domain Name	DID Feature	Registration
1	29	Enable	2145551212	password	71.97.234.12	DID	Enable
2	30	Enable	2145551212	password	71.97.234.12	DID	Disable
3	31	Enable	2145551212	password	71.97.234.12	DID	Disable
4	32	Enable	2145551212	password	71.97.234.12	DID	Disable
5	33	Enable	2145551212	password	71.97.234.12	DID	Disable
6	34	Enable	2145551212	password	71.97.234.12	DID	Disable
7	35	Enable	2145551212	password	71.97.234.12	DID	Disable
8	36	Enable	2145551212	password	71.97.234.12	DID	Disable

8. **Registration**: If Registration is set to Enable, a Register request will be sent for this trunk. If it is set to Disable a Register request will not be sent for this trunk.
   - **Both Register** (IP 1.02.14.3) and **Registration** (IP 1.02.19.2) M**ust Be Enabled** for the line to send a Register request.
   - **In most cases** - Only one line per carrier needs to register.

Step 5: ENUM Programming

Trunks > Trunk Features

1. If the trunks are required to send + in front of the call, then set the ENUM format to "Add + sign to calling/called number.
   - **Outgoing calls** will automatically be modified when this is set.
   - **Incoming calls** do not require this setting.

Trunks > Trunk Features

Log #	Access No.	E&M On-Hook Detect	Forced Rel. Condition	E911 Trunk	Short Flash Time	Short Flash Guard Time	MOH Input Port	ENUM Format
85	1085	1	Loop Close	Normal	4	2	0	Add '+' sign to calling/called number
86	1086	1	Loop Close	Normal	4	2	0	Add '+' sign to calling/called number
87	1087	1	Loop Close	Normal	4	2	0	Add '+' sign to calling/called number
88	1088	1	Loop Close	Normal	4	2	0	Add '+' sign to calling/called number
89	1089	1	Loop Close	Normal	4	2	0	None

Step 6: General trunk programming

1. **Program DNIS or ANI Routing**: The carrier usually sends the DNIS and ANI as 10 or 11 digits.
2. **Program Optimized Routing**:In some instances the carrier will require all calls to be sent as 11 digits. ALL carriers who use ENUM format REQUIRE the number to be 11 digits. If you set the ENUM Format setting, then you MUST send all calls as 11 digits.
3. **Program CNIS**: You can program the caller ID number (Class 10.79) sent to the carrier. If the number is not programmed there, we send the number in Class 29.09 (Trunk Group). If neither are programmed, we send the TRUNK ACCESS NUMBER. Some carriers route this, so you will send a four digit access code as your caller ID.

Important! **Iwatsu only support modification to the From: header. Other methods of sending CNIS are not supported**. Also, we do not send a different name. If you need these services, use the Ingate Siparator.

SIP Trunking Disclaimers

The information published in this document is intended to provide a general overview of Iwatsu Enterprise-CS interoperability with third party SIP products and services. Iwatsu has tested the performance of the SIP stations, soft phones, Wifi handsets and ATAs listed in this document. Please note, however, that since changes, modifications and availability of third party equipment and services are beyond the control of Iwatsu, interoperability and/or compatibility with said products and services are subject to change without notice.

Due to the changes in service offering by various alternate carriers and the lack of a unified interoperability standard, Iwatsu Voice Networks recommends that the Distributor contact Iwatsu Engineering to verify interoperability with a specific carrier or to request interoperability testing with any carrier not included in this document.

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Distributors are advised to include similar disclaimers in their sales agreements with their customers. When using equipment providing telephony over Transmission Control Protocol/Internet Protocol (TCP/IP) and Session Initiation Protocol (SIP) wired and/or wireless facilities, a user may experience certain compromises in performance, reliability and security, even when the equipment performs to the specifications. Distributor's customer should be advised of these risks and acknowledge, under its purchase agreement with the Distributor, that it aware of these risks and that it has determined that they are acceptable for its application of the equipment. In addition, if the customer is solely responsible for ensuring that its networks and transmission facilities QoS and security are adequate for the purpose intended, the customer should acknowledge the same in its purchase agreement with the Distributor. Confer with your legal advisor as to the wording and the requirements when making disclaimers in your jurisdiction.

Chapter 13

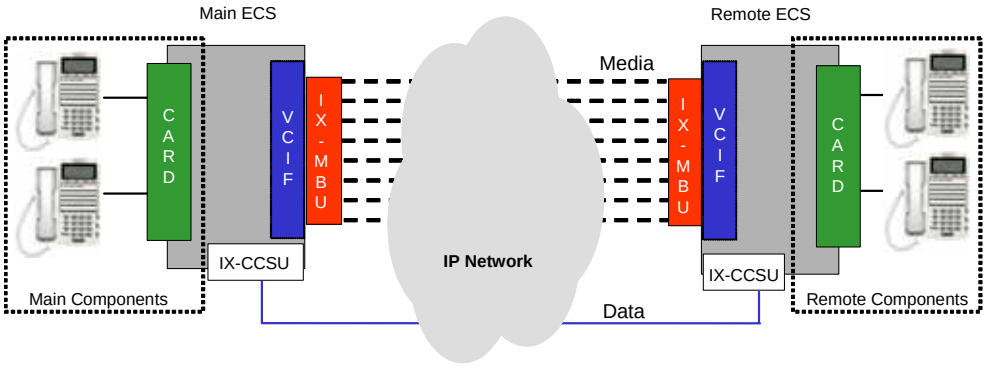
IP Campus Networking Installation

This chapter provides an Iwatsu Enterprise-CS IP Campus networking overview and the installation process. Also included in this chapter is a troubleshooting guide and IP Campus worksheets.

Review the following pages for IP Campus Networking Terminology.

Inspect all system components before beginning the installation process.

IP Campus System Configuration Example



IP Campus Networking Terminology

The following is a list of technical terms and acronyms used throughout this chapter with the appropriate meaning for IP Campus Networking:

Main System:

The main system is the system that controls all devices including the remote systems. The main system uses virtual resources to mirror resources in the remote systems and must be created before the creation of the IP Campus Network. There can be only one main system in the network.

Remote System:

Remote systems pass control messages from connected devices to the main system. The remote system works as both a networked system and a local system. The remote also manages all locally connected devices, independent of the main system, when working as a local system. Up to 24 Remote systems can exist in one network.

VCIF (Virtual Campus Interface):

The VCIF is a virtual card that is required to create an IP Campus Network. In the main system, the VCIF acts as if there is a remote card installed and passes the messages to and from the remote system. In the remote system, the VCIF is associated with a physical card and transfers the messages of that card to and from the main system. The VCIF has to be configured in a one to one relationship between the main and the remote system.

IX-MBU (Media Bridge Unit):

The IX-MBU provides a media stream (such as voice) to the IP devices. In the IP Campus configuration, the IX-MBU is required to make voice connections between the main and remote systems. Each ECS IX-CME Gateway Controller cabinet supports up to two IX-MBU cards (192 MBU channels).

IX-CCU/IX-CCSU (Central Control Unit and Sub Unit):

The IX-CCU/IX-CCSU manages all system resources. Control data communications between the main and remote systems VCIF is controlled by the IX-CCU card in the main system.

Remote Card:

The physical card(s) installed in the remote systems are assigned a VCIF virtual card to handle all messaging to and from the main system.

Remote Component:

A remote component is a device installed in a remote system and controlled by the main IP Campus node.

Main Component:

A main component is a device installed in the main IP Campus node.

Local Switching:

The B (Bearer) channel connections that are made within a remote system or within the main system. The switching that can be handled within that local IP Campus node.

Intersystem Conversation:

Conversations between a main and a remote system or conversations between two remote systems.

Intersystem Data Communications:

Data communications between the main and a remote system. IP Campus configuration data and UTAM data communications are passed between the systems.

System Configuration

Configuration Assistance and Programming

IP Campus Networking is a complex enhancement that requires a thorough reading and comprehension of this chapter and associated resources for successful configuration and installation. Iwatsu is offering programming assistance in order to circumvent the anticipated demand for Iwatsu technical support resources. To facilitate IP Campus Networking, Iwatsu requires the minimum of the following.

Iwatsu offers three options for programming assistance:

- Technical Certification.
- IP Campus Configuration Assistance and Programming.
- On-site Support.

Contact Customer Service at 1-800-866-6342 and provide the applicable Part Number for the programming assistance option you choose.

Technical Certification

Technical certification is required before technical assistance is available. This certification will be part of the regularly scheduled classes offered in the Irving, Texas Support Center. This training will consist of 5 days of class and associated labs.

IP Campus Configuration Assistance and Programming

IP Campus Configuration Assistance and Programming (IPCCAP) is a service offered to those distributors that elect not to send technicians to Iwatsu's Support Center for Technical Certification. With this program, Iwatsu will provide the system configuration programming requirements for customer-specific IP Campus Networking applications.

This option would require from the distributor:

- The ECS database (existing systems that are upgrading to IP Campus).
- Configuration information for new installations.

In turn, Iwatsu will provide:

- A system configuration that maximizes the port capacity.
- The database programming for Classes 1 and 31.
- Necessary scheduled telephone support to assist with the installation.

On-site Support

On-site support can be provided during the installation of an ECS IP Campus Networking system and can be used as Technical Certification.

IP Campus Remote Expansion

IP Campus has been enhanced to support up to 24 Remote ECS systems. The total port capacity of an IP Campus network remains 1024. Please note that if you have an opportunity to propose an IP Campus application with more than 16 remote systems, you must contact Iwatsu SILO (1-866-440-SILO (7456)) prior to proposing for assistance with the planning of your application. Iwatsu IP Campus applications with more than 16 remote systems require Iwatsu Professional Services to validate the application. Services will include a review of the application, a network assessment, and a call traffic analysis.

Licensing

- Requires IP Campus Remote license (PN: 000390) for each remote 17 and higher.

Professional Services

- Contact Iwatsu Professional Services at: 1-866-440-7456.

Conditions

1. Requires an IP Campus Remote license (PN: 000390) for each remote ECS system (remotes 17 and higher).
2. Requires Iwatsu Professional Services support.

911 Dialing Considerations

Due to the complexities of an IP Campus Networking system, including the possibility of systems located in various locations and multiple cities, the Enhanced 911 Service feature must be given careful consideration. Before installing an ECS system in an IP Campus Networking application, confirm the local laws and regulations regarding 911 calling.

In an IP Campus Networking system, the following issues must be addressed to ensure proper functionality and use of 911 service:

1. From each remote system location, 911 calls must go through whether the remote system is operating in campus networking mode or as a standalone system.
2. From any location in a campus networking system, the outside line(s) through which a 911 call is made, should identify the caller's actual location at the terminating Public Safety Answering Point (PSAP). This requires you to verify the Automatic Location Information (ALI) database information for the lines that are used for 911 calls at each remote location.
3. Any changes that are made to the system hardware, trunking and programming of any system in a campus environment should be reviewed to determine the effect on 911 dialing.
4. Written 911 dialing instructions and training should be provided to all users at all locations in a campus networking system.

In order to provide proper 911 functionality from all locations, it is Iwatsu's determination that it is mandatory to install local trunks at all remote locations. This will provide the ability to dial 911 from any remote location in the event of a T1 circuit loss between the main and remote system(s), or if the remote location is served by a different PSAP than the main system. In addition, 911 calls from the remote system(s) should not go through the main system if it is served by a different PSAP from that of the caller.

Because the main system provides all call processing, the remote system locations must be programmed in order for the system to recognize the remote locations as a different location for 911 purposes. For example, a 911 call originating from a remote system using a trunk from the main system would be traced to the main system's location. (Refer to EBA-98012 for specific information of the Enhanced 911 Service feature.)

Note:	In order for the Enhanced 911 Service feature to operate properly, it is important that all system programming and cabling are correct. It is very important that you check and test your work thoroughly when programming 911 features in the ECS system. Failure to do so may result in the 911 call not going through or not being properly routed.

IP Network Readiness Assessment Guidelines

The purpose of this section is to provide you with a basic overview of procedures and requirements for performing network readiness assessment testing on a customer's existing or planned local or wide area network. By following the requirements listed in this section, Iwatsu distributors will determine if the customer's network is capable of supporting Voice over IP (VoIP). A network readiness assessment is required prior to installation of Iwatsu IP telephony equipment.

This section includes the following:

1. Network Hardware Requirements

2. Recommended Network Diagnostics Tools

3. VoIP Readiness Assessment, Implementation, and Post-Assessment Procedures

4. VoIP Conditions and Considerations

Iwatsu Professional Services VoIP Network Testing

The distributor may contact Iwatsu Professional Services (1-866-440-SILO (7456)) to perform the VoIP network readiness assessment testing. This is a fee based service offered by Iwatsu Voice Networks comprised of the following tests:

Local Area Network VoIP Test - Remote deployment of network stress test to measure the VoIP readiness of a LAN. Provides MOS score and measures delay, jitter and packet loss on the network.

- LAN VoIP Test - First five segments (part number: 000868).
- LAN VoIP Test - Additional segment (part number: 000869).
    - Part number 000869 can only be ordered concurrently with part number 000868.

IP Campus Main and Remote Network Test - Remote deployment of network stress test between one IP Campus main system and one IP Campus remote system. Provides MOS score and measures delay, jitter and packet loss on the network..

- IP Campus Network Test - IP Campus main system plus one remote system (part number: 000866).
- IP Campus Network Test - Additional remote system test (part number: 000867).
    - Part number 000867 can only be ordered concurrently with part number 000866.

1. Network Hardware Requirements

The following are minimum network requirements for Voice over IP (VoIP) deployment.

Ethernet and Switch Requirements

- Iwatsu IP telephony products must be deployed on a network (LAN) that conforms to the rules of Ethernet (or Ethernet) as defined by IEEE 802.3u and 802.3 for local-area networks.
- All traffic generated by Iwatsu IP telephony products must pass through network cabling that meets or exceeds IEEE requirements to transmit data at 100 Mbps. This requires that the cabling be CAT5, CAT5e or better with all four pairs terminated on jacks and patch panels.
- All traffic generated by Iwatsu IP telephony products must pass through manageable switches that support auto negotiation, manual speed setting (100 Mbps) and duplex mode (full or half duplex).
- Switches are highly recommended for all voice traffic. Iwatsu Voice Networks discourages the use of hubs for voice traffic.
- Throughput should never fall below 3.6 Mpps (packets-per-seconds) on any segment.
- Port mirroring should be supported for monitoring purposes.
- Switches should support SNMP. SNMP allows you to collect useful information such as traffic and CPU utilization which helps analyzing, designing, and troubleshooting the network.
- Iwatsu IP telephony products must be deployed on a network using switches that support 802.1Q VLANs and 802.1p Prioritization. Switches should have multiple queues to support prioritization.
- The Ethernet segment should not exceed 40 percent network utilization including the estimated voice traffic. Broadcast/multicasts should not be more than 20 percent of overall traffic. There should be no more than one CRC error per million bytes of data on any network segment.

WAN and Router Requirements

- When traffic generated by Iwatsu IP telephony products passes outside the LAN all routers in the path must support Layer 3 quality of service (QoS), specifically TOS or DiffServ (or DSCP). Service providers may support TOS and DiffServ using Multiprotocol Label Switching (MPLS) and/or Resource Reservation Protocol (RSVP). However, it is important to emphasize that any routers in the path between any Iwatsu IP Stations must also support TOS/DiffServ in order to support QoS from endpoint to endpoint. If not, QoS will be affected by heavy network traffic.
- WAN links should not exceed 70 percent network utilization including the estimated voice traffic. Router CPU utilization should not exceed 40 percent prior to an Iwatsu IP telephony installation and 75 percent following implementation.
- For optimum use, all routers though which IP telephony traffic passes should support Low Latency Queuing (LLQ).
- If wireless building-to-building bridges or wireless LAN bridges are used to implement an IP Networking or Remote IP station installation, QoS is not supported between endpoints. Therefore, QoS is not supported.

2. Recommended Network Diagnostic Tools

In order to effectively perform the pre and post-installation diagnostic evaluation tests described in Section 4 of this document, network capture and diagnostic tools are required. For network capture and diagnostic tools to be effective, they must allow you to capture and analyze the following information:

- Network Delay
- LAN Utilization
- Jitter
- Packet Loss
- Round Trip Delay
- LAN / WAN Utilization
- WAN Throughput
- In / Out Errors

Iwatsu Voice Networks recommends the two products described below. All of these products have been field tested by Iwatsu Voice Network's Engineering Department.

Note: Iwatsu Voice Networks makes no warranty regarding the use of or the performance of, nor does Iwatsu Voice Networks provide technical support for the network diagnostic and troubleshooting software products listed below. Please contact the respective software company for information and support on these products.

Fluke NetAlly® or Equivalent

NetAlly® by Fluke Networks (www.flukenetworks.com) network assessment, readiness, and troubleshooting software extends the ability to troubleshoot networks by helping eliminate risk associated with deploying or expanding VoIP services by assessing the current state of the network and previewing the service before it is deployed on that network.

NetAlly® allows you to inject voice packets into your network without IP telephony equipment and generate management reports of response time, throughput, MOS, delay, loss, availability, plus over a dozen other measurements. Other features include:

- Measure real application performance with library of applications including HTTP, FTP, DNS, email, VoIP, ping, or define your own with flexible settings.
- Monitor performance of all key sites and applications in one simple screen.

Iwatsu distributors may also contact Iwatsu Professional Services to perform the VoIP Network readiness Assessment testing using NetAlly®.

Wireshark or Equivalent

Wireshark (www.wireshark.org) is an open source network protocol analyzer that allows you to perform network diagnostics and frame decoding in real time, during capture. Wireshark allows you to analyze, diagnose and isolate network data. This tool also helps to detect symptoms and diagnose problems. However, this is a passive tool and does not inject voice packets or generate reports like NetAlly®. Therefore, more effort and time are required to evaluate your network.

3. VoIP Readiness Assessment, Implementation, and

Post-Assessment Procedures

This section takes you step-by-step through the three phases of a VoIP installation and includes an overview of distributor hardware requirements:

1. Network Readiness Assessment.
2. Implementation.
3. Post-Assessment.

Following these requirements and guidelines will aid Iwatsu distributors in the Iwatsu IP Telephony installation.

Network Performance Test - Required Equipment

Listed below are Iwatsu's recommended requirements to effectively evaluate the customer's local and wide area networks for VoIP readiness and complete the Network Performance Test.

- Windows PC with an Ethernet network interface card.
- TCP / IP Protocol installed on PC.
- NetAlly® Traffic Agent and Wireshark software (or equivalent network analysis software) installed on the PC.
- Open port to the customer's LAN. If evaluating a port from a switch, the appropriate port must be mirrored by the switch setting. If the switch does not support the port mirror feature or no available port from the switch, you may insert a small hub in the appropriate path and evaluate.
- Wireshark can be installed on other PCs to allow you to capture data from multiple segments simultaneously.
- Use a softphone or voice application (preferably using G.711/G.729) to measure VoIP sensitive characteristics such as jitter and packet loss. Set two PCs with a softphone or voice application installed and then make a call while capturing the packets.

VoIP Readiness Assessment Phase

Follow the procedures below to capture and analyze network data.

1. Gather current LAN/WAN infrastructure documentation, network equipment configuration, network topology diagrams and other network diagrams that include IP subnets and VLAN information.
2. Confirm the number of Iwatsu VoIP devices the customer plans to implement.
3. Determine the customers planned maximum call traffic for each segment.
4. Determine the voice compression type to be used (G.729 / G.711).
5. Review documentation and drawings.
6. Request additional customer information as needed.
7. Identify existing and future LAN protocols. (Such as TCP/IP, IPX/SPX, Apple Talk etc.)
8. Identify existing and future WAN transport protocols.
9. Identify the current voice environment, call routing, traffic flow, congestion points and confirm how VoIP will integrate into the existing voice environment.
10. Identify existing applications that already set QoS parameters.

11. Identify existing applications that do not allow IP fragmentation.
12. Identify existing VLAN(s) and evaluate Iwatsu's recommendation of VLAN use with Iwatsu IP Telephony implementation.
13. Identify peak LAN/WAN utilization periods and utilization values based on customer input.
14. Measure Network Latency across the proposed VoIP path.
15. Measure Packet Loss across the proposed VoIP path.
16. Measure peak utilization on each LAN segment for at least 72 hours, scattered over a one week period. Examine customer's existing Network Management System (NMS) data, if available.
17. Measure peak utilization on each WAN connection that will transport VoIP traffic for at least 72 hours, scattered over a one week period. Examine customer's existing NMS data, if available.
18. Capture traffic on each LAN segment and perform detailed analysis to identify existing problems that could affect VoIP, and to confirm customer input.
19. Calculate VoIP Delay Budget **[1]**.
20. Provide LAN/WAN hardware upgrade/tuning recommendations.
21. Optimize the network based on the final VoIP network infrastructure.
22. Re-test any problem points that were identified during the assessment to ensure all hardware upgrades/tuning exhibit the desired behavior.

Notes:

[1] The Delay Budget is equal to the sum of all delay components in the end-to-end path. To calculate the true end-to-end delay between the generation of a sound at one end of a call and its reception at the other end, you must understand the delay introduced by every component as described below.

[1.1]. Codec processing delay for encoding and decoding speech, collecting the voice data into packets, DSP features such as echo cancellation, noise suppression, silence suppression and packet loss concealment. These numbers are dependent on Codec and DSP specs and the functionality that is actually enabled.

[1.2]. Queuing and Buffering delay in edge routers. This is typically moderated by having adequate hardware resources available and a proper QoS design.

[1.3]. Serialization Delay on WAN links. Serialization Delay is based on link speed and packet size, and is defined as the amount of time a router will take to place a packet on the wire for transmission.

[1.4]. Network Propagation Delay. This is the end-to-end delay of the WAN link itself.

[1.5]. De-Jitter Buffer Delay. This is a function of the IP Telephony device and is typically determined by manufacturer specs.

VoIP Implementation and Post-Assessment Phase

1. Implement and configure the Iwatsu IP Networking and/or IP telephone application.
2. Test Perceived Voice Quality.
3. Measure LAN/WAN:
   - Network Latency from IP phone to IP phone.
   - Packet Loss from IP phone to IP phone.
   - Jitter from IP phone to IP phone.
   - Out of Sequence packet count from IP phone to IP phone.
   - Peak Utilization with VoIP traffic.
4. Capture VoIP traffic between at least five IP phones for detailed packet analysis. If the VoIP implementation is LAN and WAN based, at least ten VoIP conversations should be captured and examined - five LAN and five WAN.
5. Based on results - turn system over to the customer.[2]
6. Schedule Quarterly Network Health Checks to compare the baseline data gathered during the assessment to the actual conditions that exist on the network over time.

Notes:

It is very common to measure end-to-end round-trip delay between a node on one network and a second node on a remote network. When you start reaching the high end of the recommended latency limits for VoIP, all of these components can come into play.

[2]. At this point Iwatsu strongly recommends that the Iwatsu distributor have the customer sign a VoIP Implementation Acceptance Form verifying the testing that has been done and confirmation that the customer has accepted the installed product "as is".

Iwatsu IP Network Requirement Summary

[MBU/IP-KT]	Recommended	Minimum requirement
One-way Delay Total:	50ms	100ms
Jitter:	30ms	80ms
Packet loss (random):	0.5% or less	1% or less
Packet loss (burst):	0.5% or less	1% or less

[IP Campus]	Recommended	Minimum requirement
One-way Delay Total:	50ms	100ms
Jitter:	30ms	80ms
Packet loss (random):	0.5% or less	1% or less
Packet loss (burst):	0.5% or less	1% or less

[IPSUB/IPKT]	Recommended	Minimum requirement
One-way Delay Total:	50ms	100ms
Jitter:	30ms	80ms
Packet loss (random):	0.5% or less	1% or less
Packet loss (burst):	0.5% or less	1% or less

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[IPNET]	Recommended	Minimum requirement
One-way Delay Total:	50ms	100ms
Jitter:	30ms	80ms
Packet loss (random):	0.5% or less	1% or less
Packet loss (burst):	0.5% or less	1% or less

[MBU]	Recommended	Minimum requirement
One-way Delay Total:	50ms	100ms
Jitter:	30ms	80ms
Packet loss (random):	0.5% or less	1% or less
Packet loss (burst):	0.5% or less	1% or less

5. VoIP Conditions and Considerations

1. **Fax over IP** - Due to the nature of IP / SIP transmissions, fax services over IP / SIP cannot be guaranteed. A dedicated fax circuit using conventional analog or digital circuits other than IP/ SIP is required for all mission / critical core business faxes.
2. **VoIP and Echo** - Echo is an unavoidable phenomenon on VoIP calls for all IP devices and carriers. Iwatsu products are equipped with echo cancellers, but that does not guarantee the elimination of echo in all cases. Echo is a common occurrence during the first few seconds of a VoIP call. When echo is eliminated or greatly reduced after the first few seconds of a conversation, the echo canceller in the equipment is working properly.

- The perception of echo may not be completely eliminated due to the following conditions:
  - Network delay - greater than 150 msec.
  - Higher than normal volume of echo.
  - In some cases, echo may not be completely eliminated due to voice characteristics. The perception of echo can persist even when there is no significant network delay.

Intersystem Connection Conditions

When planning an IP Campus Networking system, consider the following:

- Only one main system can exist in the IP Campus Network
- One main system can manage up to 24 remote systems
- Total number of ports in the network (1 main + up to 16 remotes) cannot exceed 1024
- IP Campus requires a VCIF (Virtual Campus Interface) card on the main and remote to manage one remote (physical) card.
- One VCIF supports one, eight port, physical card. If a resource card is installed that supports more than eight ports (i.e. PRI or CSUB cards) then multiple VCIFs are required to support that one resource card.

Important!

When programming three or more virtual cards (such as VIPSUB, VTRUNK, or VIPSLT) it is important that those cards are programmed in higher card slot numbers that the VCIF cards used for the remote system. This applies to the remote side of an IP Campus installation. Failure to follow this programming guideline will result in the remote system timing out on boot and will the system will not recover do to the amount of time taken to initialize the virtual cards before bringing over the VCIF cards.

- The VCIF does not use a physical card slot in the ECS, but it is logically installed in the software as if there were a physical card slot being used. The physical card slot cannot be used to support another card when the VCIF is virtually taking up the same slot with the exception of the IX-MBU.
- Multiple VCIF connections can exist between the same main and remote systems.
- One remote system can support up to 512 ports. One remote system is capable of supporting a maximum of 64 VCIF virtual cards.
- Daisy chain connections are not permitted.
- The IX-MBU Media Bridge Unit is required to create an IP Campus Network. Connections between systems (main and remote / remote and remote) utilize the IP network through available MBU channels.
- Up to 96 simultaneous conversations can exist in the IP Campus Network configuration using one IX-MBU plus three IX-EMBU cards. Call blocking will occur after the 96th simultaneous call attempt.
- The connections between systems are dynamically created only when needed via the IX-MBU cards. Thus, the number of MBU channels does not limit the number of supported resources in the remote system.
- The intersystem conversation is created directly between two systems even if the conversation is between two remote systems.
- A conversation in one system, either in the main or remote system does not require MBU channels. The conversation is handled completely by that local system (Local Switching). The exception being an IP to TDM call within that local system requires the local use of an MBU channel.
- The tone for the remote components are generated by the remote systems.
- There is no limitation on data communications, no Call Blocking will occur. Data communication between systems utilizes the IP Network through the IX-CCSU.

- Remote system reset is required when the configuration or database changes in the main system.
- Omegatrek systems are supported in the remote systems.

Disclaimer: Iwatsu recommends against paging over IP. Should Iwatsu authorized distributors or end users choose to configure ECS systems with paging over IP, they do so at their own risk. Iwatsu Voice Networks does not support and is not responsible for the degradation of network performance or quality of paging over IP.

IP Campus Bandwidth Requirements

The IP Campus bandwidth requirements listed in this section should be used as a guideline to determine resource usage and availability.

Required Bandwidth Summary

No.:	Packet Type:	No. of Packets (pps)	Number of Bytes (byte)	Total Bytes (byte)	Max Bits Per Second (kbps)	Typical Bits Per Second (kbps)
1	IP Campus (RTC) Signaling Packets	2.6	120	312	2.5	0.02 (includes IP Campus Keep Alive (No. 4))
2	RTP Packets	50	242	12100	96.8	96.8
3	RTCP Packets	0.2	138	27.6	0.2	0.02
4	Other Packets	5	120	600	4.8	(Included in No. 1)
	Total (With Conversation)				105 - G.711 49 - G.729	98 - G.711 41 - G.729
	Total when Idle				8[1]	1
	Voice Only Path				97 - G.711 41 - G.729	97 - G.711 41 - G.729

[1] The requirement is up to 4 kbps, when the remote device is non-KT (SLT, CO etc).

Note: One-way bandwidth including layer 2 header (Ethernet with IEEE802.1p/q: Layer 2 QoS (COS) and VLAN tagging.

Note: Bandwidth is dependent on the medium used. The values listed in the table above are based on Ethernet bandwidth calculations:

For Frame Relay: 83 kbps (G.711) / 27 kbps (G.729).

IP Campus Bandwidth Calculations

Typical Required Bandwidth

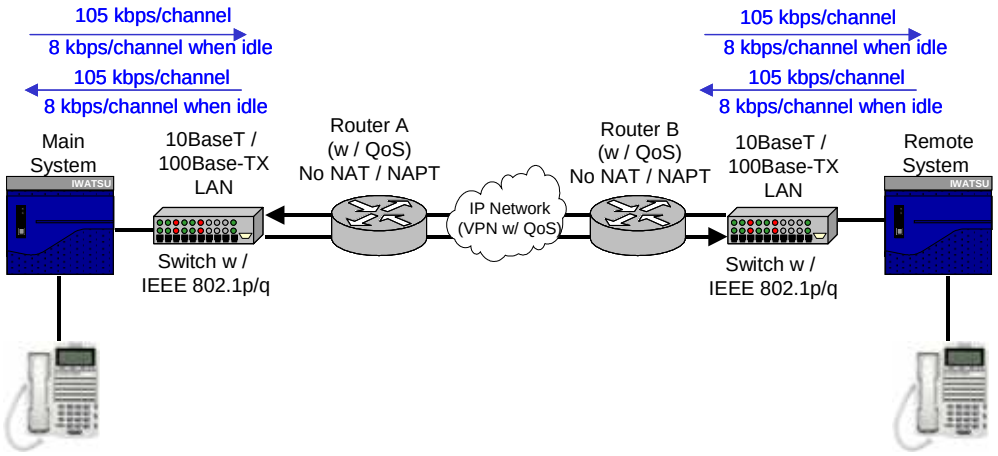
Use the table below to calculate required bandwidth for both main-to-remote and remote-to-remote connections. This is for one-way bandwidth calculations. Bandwidth must be calculated for both up and down stream connections.

Number:	Calculation:	Example:
Number of Stations:	# X 8 kbps	5 KTs X 8 kbps = 40 kbps
Number of Trunks:	# X 8 kbps	2 Trunks X 8 kbps = 16 kbps
Number of Misc. Ports:	# X 8 kbps	2 Misc Ports X 8 kbps = 16 kbps
Number of Simultaneous IP Campus Calls: (G.711)	# X 97 kbps (G.711)	2 Calls X 97 kbps = 194 kbps (G.711)
Required Bandwidth (kbps): G.711 (One-way only)	Total Bandwidth Required (One-Way)	40 + 16 + 16 + 194 = 266 kbps (One-Way Required Bandwidth)
Number of Simultaneous IP Campus Calls: (G.729)	# X 41 kbps (G.729)	2 Calls X 41 kbps = 82 kbps (G.729)
Required Bandwidth (kbps): G.729 (One-way only)	Total Bandwidth Required (One-Way)	40 + 16 + 16 + 41 = 113 kbps (One-Way Required Bandwidth)

Note: Each IX-MBU with a maximum of three IX-EMBU cards can handle a maximum of 96 simultaneous IP Campus Calls.

Required Bandwidth when a Main-to-Remote call is established

(G.711 bandwidth is used in the example below)

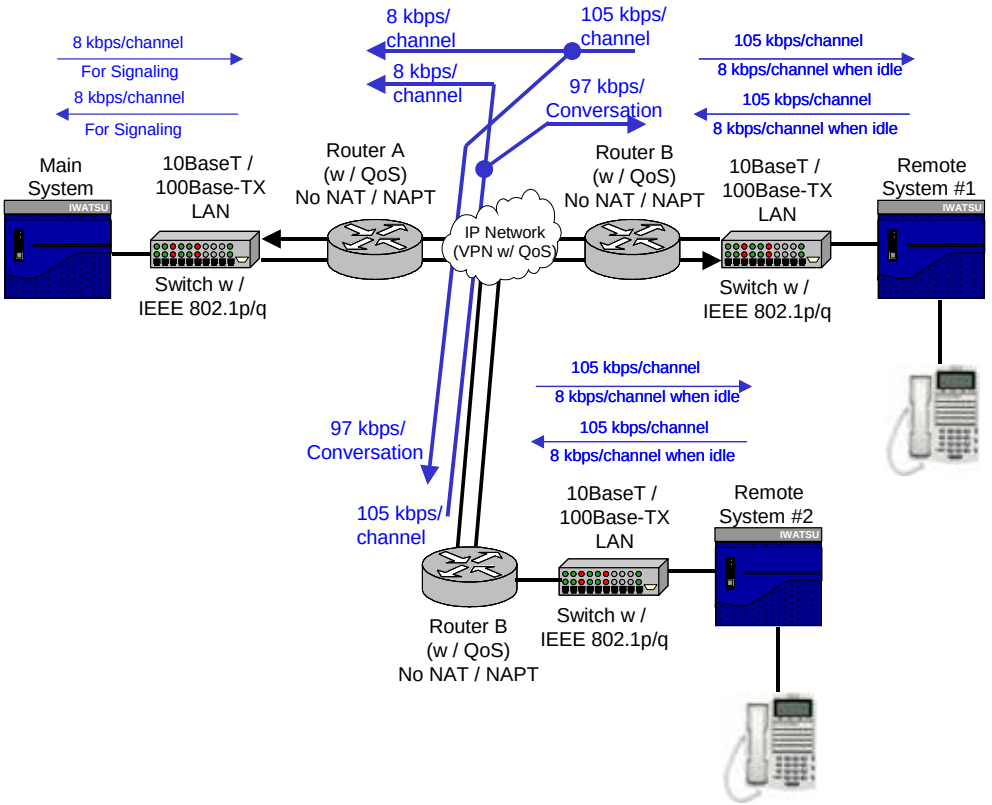


Required Bandwidth for the Main site when a Remote-to-Remote call is established

When two phones from remote nodes are connected, the main site only sends and receives the signaling packets (8 kbps). Use the table below to calculate the required bandwidth.

Number:	Calculation:	Example:
Number of Stations:	# of Stations X 8 kbps	2 KT X 8 kbps = 16 kbps
Number of Trunks:	# of Trunks X 8 kbps	1 Trunk X 8 kbps = 8 kbps
Number of Misc. Ports:	# Misc. Ports X 8 kbps	0 Misc Port X 8 kbps = 0 kbps
Required Bandwidth (kbps): (One-way only)	Total Bandwidth Required (One-Way)	16 + 8 + 0 = 24 kbps (One-Way Required Bandwidth)

(G.711 bandwidth is used in the example below)



IP Campus Network Examples

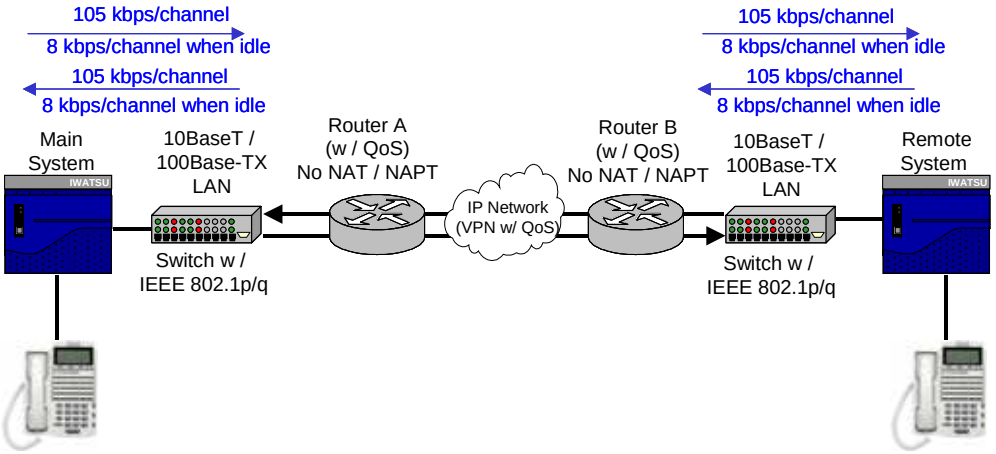
Simple Main System to Remote System

In a main and remote site connection, IP Campus requires 105 kbps (G.711) or 49 kbps (G.729) for each channel (one-way). 97 kbps (G.711) or 41 kbps (G.729) is required for voice packets and 8 kbps is required for signaling (one-way) for a total of 105 kbps (G.711) or 49 kbps (G.729). 97 kbps (G.711) or 41 kbps (G.729) is only required when a conversation (connection) is present, 8 kbps of signaling bandwidth is required from the time a KT port is configured.

Any configured KT port requires up to 8 kbps of bandwidth for signaling regardless of physical KT presence. When a KT port is configured in the main system, the system sends LED information and requires bandwidth. Eliminate any unnecessary KT port configurations from the system to avoid using unnecessary bandwidth.

Call Progress Tones (CPT, i.e. DT, RBT, BT, Call Coverage, etc...)for the remote systems are served by the remote system and do not require bandwidth for voice packets.

(G.711 bandwidth is used in the example below)



Remote to Remote Conversations

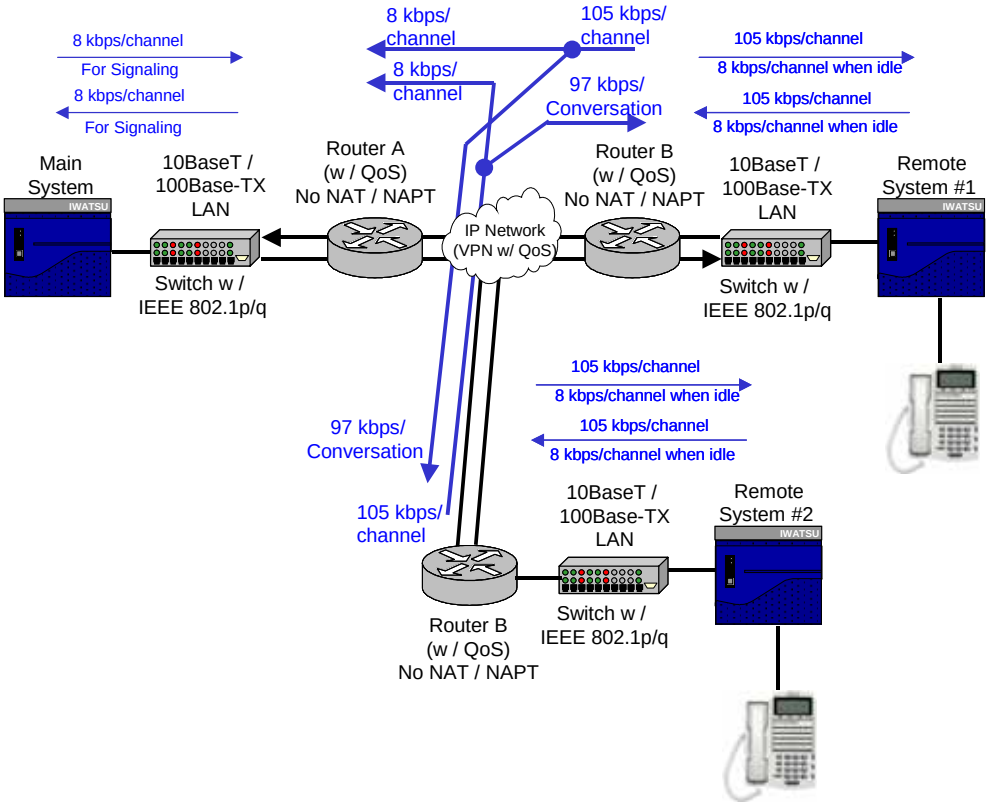
When a call is made between remote systems, the main system only requires bandwidth for the signaling packets once the call is established.

A Remote system sends 105 kbps (G.711) or 49 kbps (G.729) for each channel it uses. 97 kbps (G.711) or 41 kbps (G.729) of bandwidth is used to transmit to the distant remote system as voice packets (RTP and RTCP) and 8 kbps of bandwidth is transmitted to the main system for signaling. Voice packets are only sent to and from the remote systems.

Any KT port requires up to 8 kbps of bandwidth for signaling regardless of physical KT presence. When a KT port is configured in the main system, the system sends LED information and requires bandwidth. Eliminate any unnecessary KT port configurations from the system to avoid using unnecessary bandwidth.

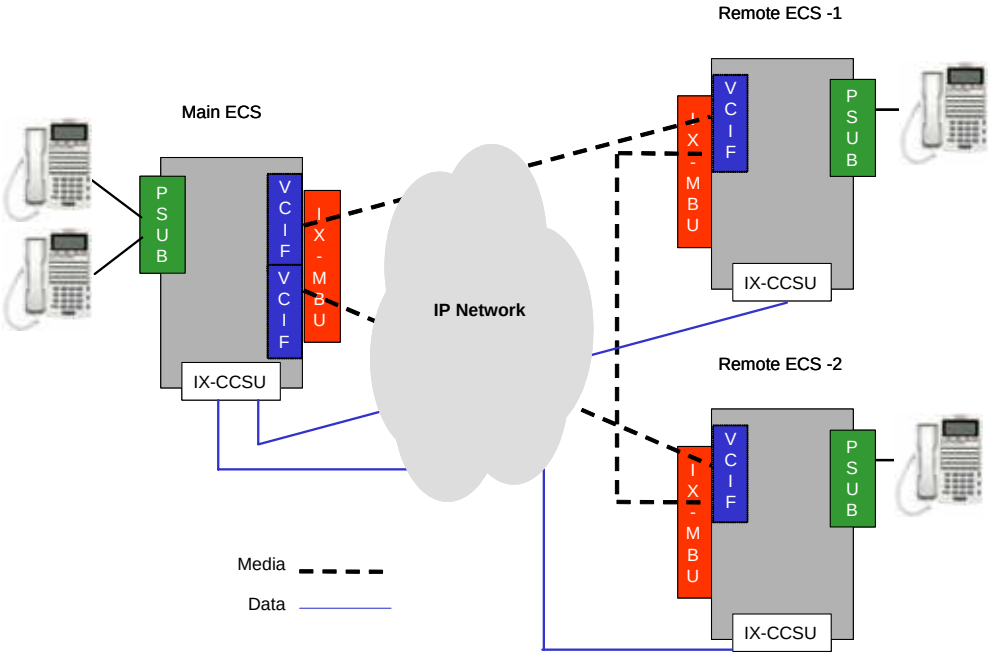
Call Progress Tones (CPT, i.e. DT, RBT, BT, Call Coverage, etc...)for the Remote systems are served by the remote system and do not require bandwidth for voice packets.

(G.711 bandwidth is used in the example below)

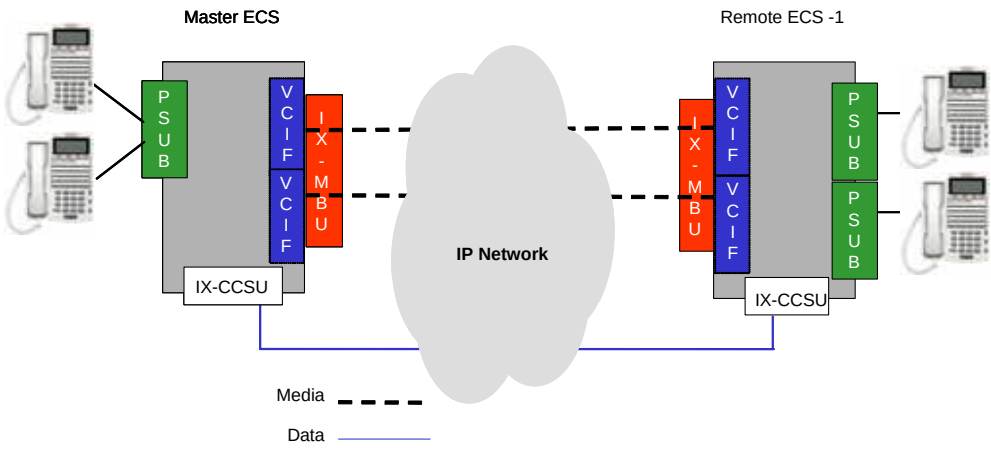


The figures below illustrate typical configurations for an IP Campus Networking system and the required hardware components.

Multiple Remote System and Media (Voice) Connections



Multiple Network Connections in the Same Main - Remote Connection



IP Campus Physical Capacities

IP Campus Networking supports one Main ECS System and a maximum of 24 Remote ECS Systems. Each ECS system supports up to two IX-MBU cards for a maximum of 192 MBU channels (Up to 96 MBU channels per card). At least one IX-MBU card must be installed in the main IP Campus system and at least one in each remote IP Campus node.

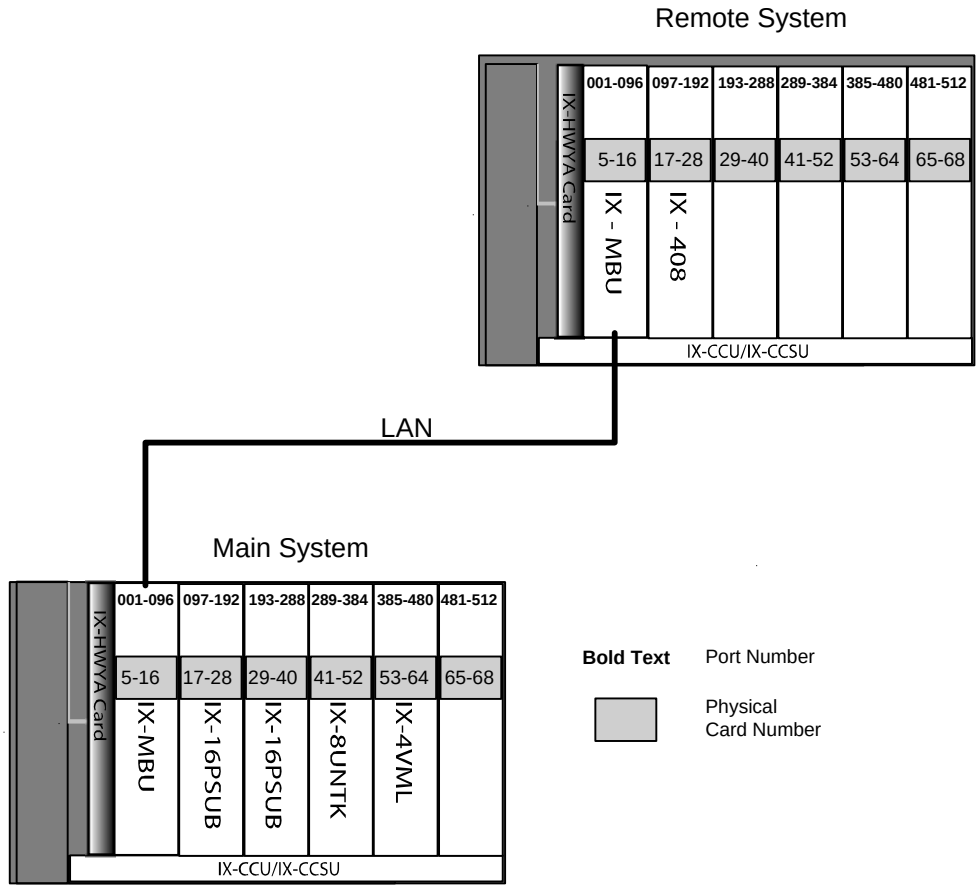
Required Components

- Software: ECS Software Version 7.x or higher.
- Programmer: Iwatsu Programmer 5.0.3757 or higher.
- IX-CCU/IX-CCSU Central Control Unit and Central Control Sub Unit
- IX-MBU Media Bridge Unit with software version 1.21 or higher.

Determining the System Layout

The first step in planning an IP Campus Networking system is to determine the number of remote locations (up to 24). In addition, you must know the cards and their physical location and logical port assignments in the main system and in each remote system. These three items are a must in planning prior to setting up an IP Campus Network.

The illustration below shows a simple IP Campus Network configuration with one remote system:



Virtual Campus Interface (VCIF)

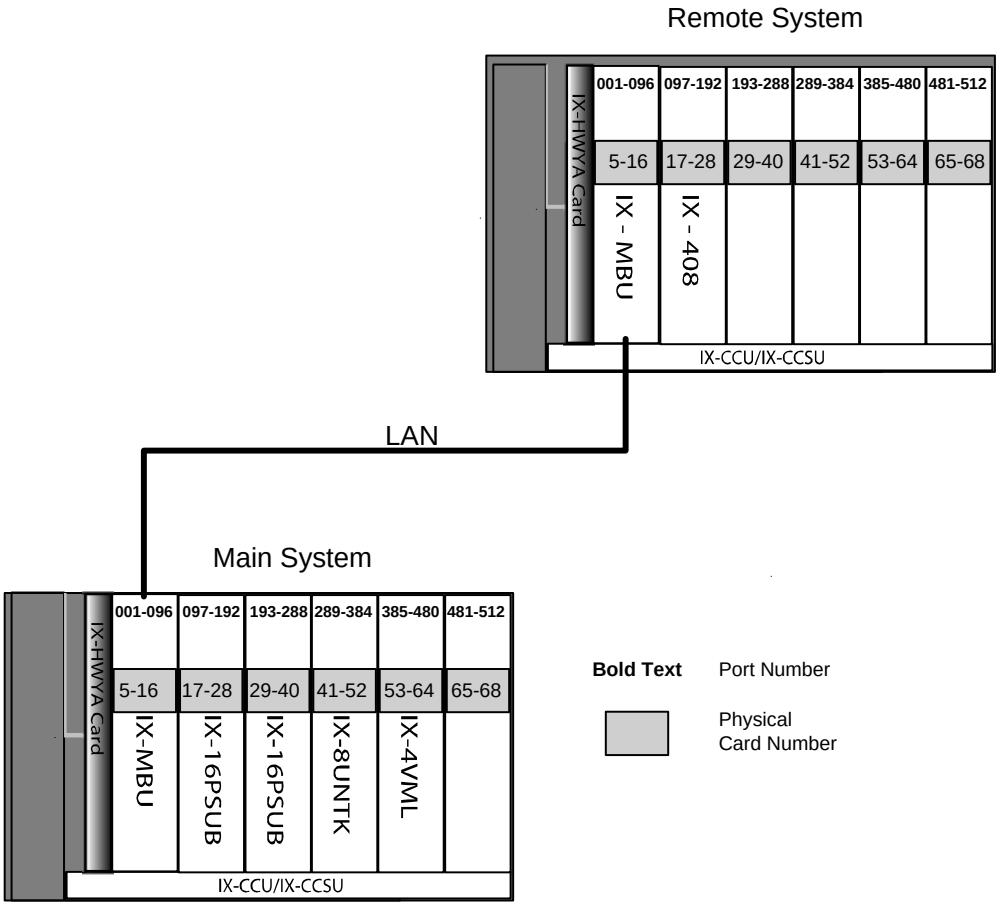
The main IP Campus system uses virtual resources to mirror resources in the remote systems and must be created before the creation of the IP Campus Network.

The VCIF is used to pass messages to and from the remote systems. In the remote systems, a VCIF card is associated with a physical card and transfers the messages of that card to and from the main system. The VCIF has to be configured in a one to one relationship between the main and the remote system.

Unassigned logical ports are assigned as VCIF ports in the main system to mirror resources in each remote node. One VCIF card is needed for every eight logical ports mirrored from a remote system.

In the example below, an IX-408 card is installed in the remote system. The IX-408 card supports eight subscriber ports and four trunk ports, this card requires two x eight port VCIF cards to be configured in the main system.

IX-MBU cards do not use logical ports/cards associated with the cards physical location, it is recommended that those 96 logical ports / 12 cards be used first when creating VCIF cards. In the example below, the IX-MBU cards are located in port numbers 001-096 and card numbers 5-16.



This simple IP Campus Network example will be used in the **Database Programming** section on the following page.

Database Programming

This section describes the database items, settings, and procedures used to set up an IP Campus Network system.

Prerequisite Programming Requirements:

The Main IP Campus system and each of the Remote IP Campus systems must have the following database items programmed as a prerequisite to IP Campus Network programming:

- IX-MBU MAC address (printed on the IX-MBU cards)
- IX-MBU static IP address
- LAN 1 and LAN 2 ports on the IX-CCSU must have a static IP address

Main System IP Campus Database Programming

Main system data programming covers the required programming items to establish a Main IP Campus Network system. There can be only one Main system in the IP Campus Network.

Main IP Campus Prerequisite Programming

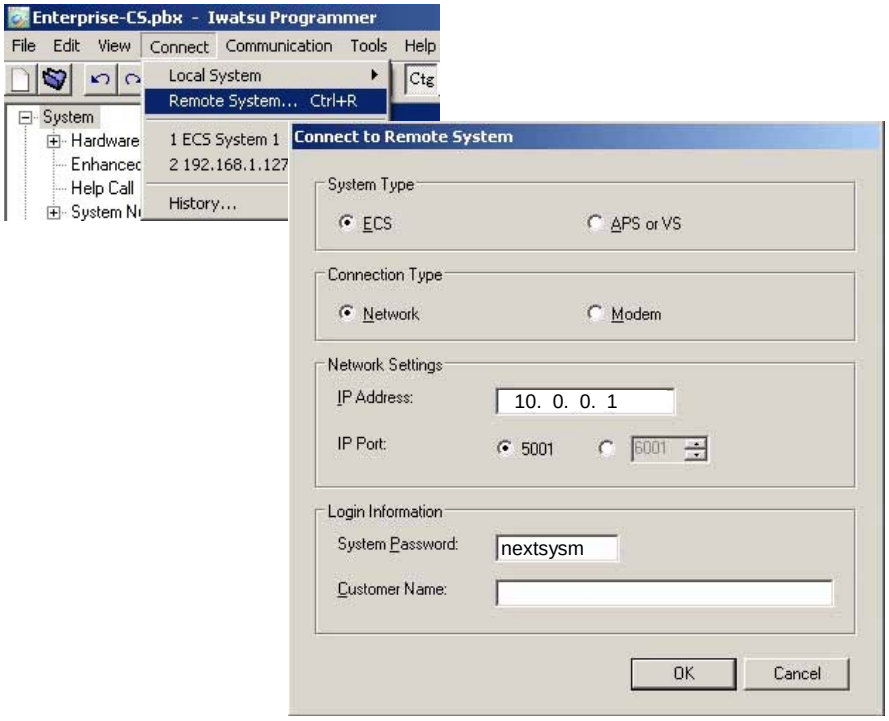
The table below shows the default addresses for each database item that must be programmed in the Main IP Campus system. The information in this table will be used in the following steps to configure the Main IP Campus system. Also, use this table as a worksheet to input addresses assigned by your Network Administrator.

IP CAMPUS SYSTEM MAIN:			SYSTEM NUMBER: 0
Address Type:	IX-CCSU (LAN1)	IX-CCSU (LAN2)	IX-MBU
IP Address: (Default)	172.30.30.30	10.0.0.1	No Default
Assigned IP Address:			
Subnet Mask: (Default)	255.255.0.0	255.255.0.0	No Default
Assigned Subnet Mask:			
Default Gateway: (Default)	N/A	0.0.0.0	No Default
Assigned Default Gateway:			
MAC Address:	N/A	N/A	005051xxxxxx
Printed on IX-MBU Card:	N/A	N/A	005051_ _ _ _ _ _

The following programming is shown using the **Iwatsu Programmer**.

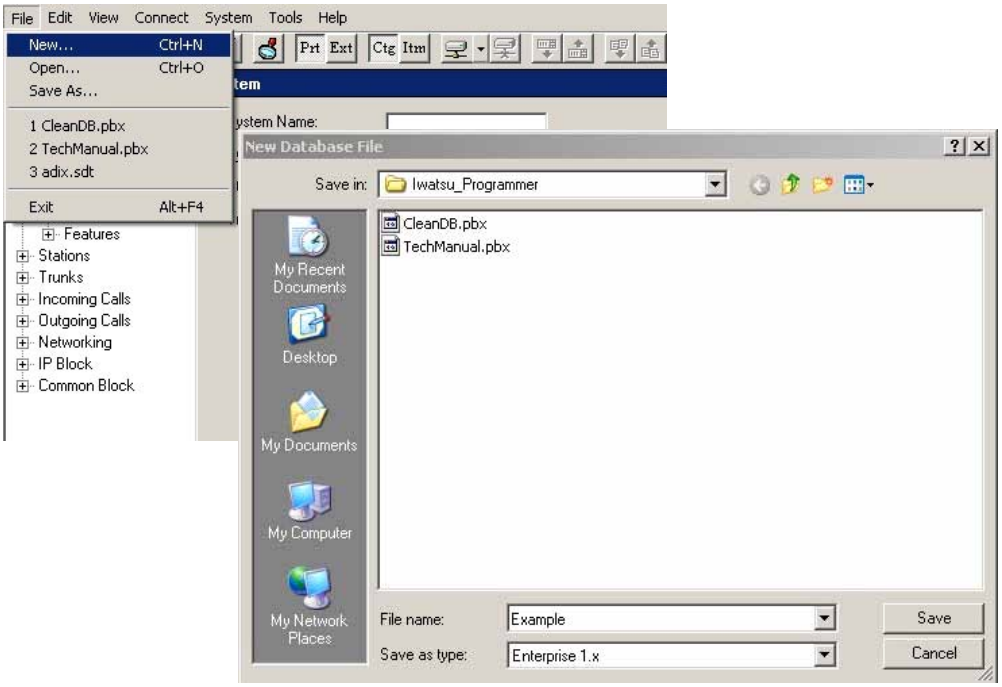
Connect to the ECS System:

- Launch the **Iwatsu Programmer**
- From the Menu Bar: Select: **Connect > Remote System**
- Select: **System Type > ECS**
- Select **Connection Type > Network**
- Enter the **IP Address** for the ECS system you are programming
- Enter **System Password: (Default = nextsysm)**
- Select: **OK**



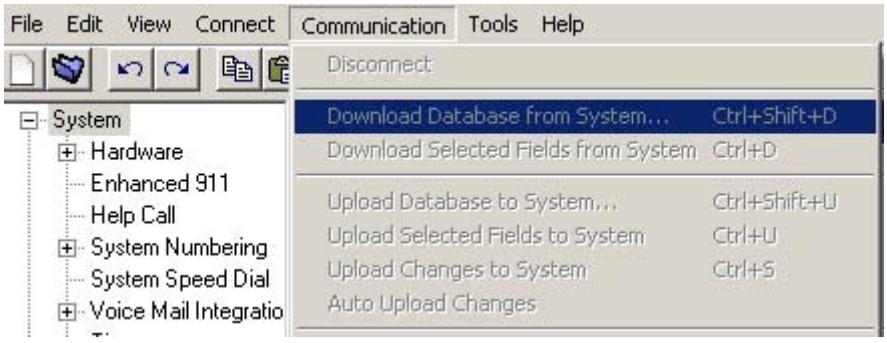
Create a New Database File

- From the Menu Bar: Select: **File > New** to create a new database file
- Input a new **File Name** and Select: **Save**



Download the Main System Database:

- From the Menu Bar: Select: **Communication > Download Database from System**
- Select all database Classes to download



- Once the download is complete, continue with Database Programming

The following programming is shown using the **Iwatsu Programmer** in the **Category View (Ctg)** mode with references to **Class and Item numbers (Itm)**

Set Main System IX-CCSU LAN1 and LAN2 Addresses:

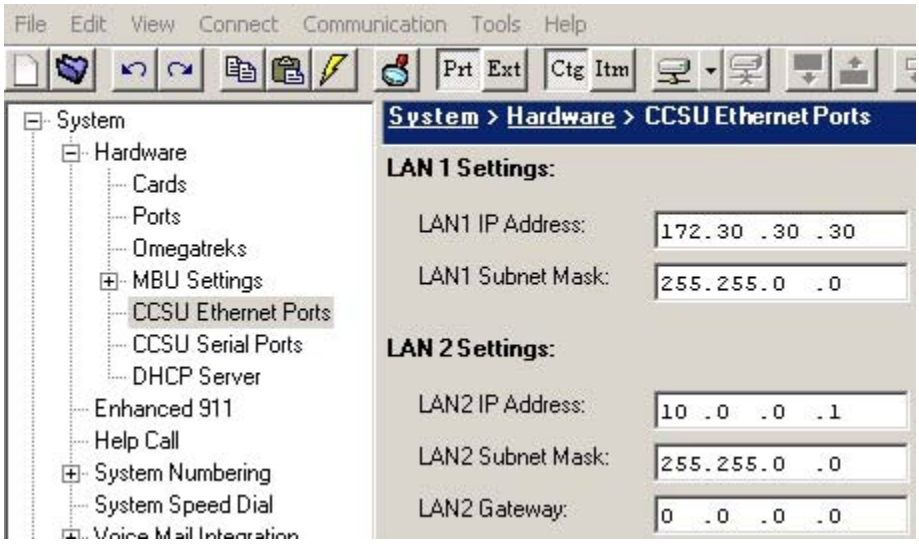
Follow the steps listed below using the information from the table on the previous page:

1. Select: **System > Hardware > CCSU Ethernet Ports**

- **Maintenance Port Settings (LAN1 on CCSU):**
  - Input the **IP Address:**
  - Input the **Subnet Mask:**
  - Select the **LAN Protocol:**
  - Select the **LAN Speed:**
- **Signaling Port Settings (LAN2 on CCSU):**
  - Input the **IP Address:**
  - Input the **Subnet Mask:**
  - Select the **LAN Protocol:**
  - Select the **LAN Speed:**
  - Input the **Default Gateway:**

Note:	When selecting LAN Protocol and LAN Speed, consult your Network Administrator for the optimum settings. If a network Hub is used in the system, it is important to note that it is a half-duplex device and could affect your network. It is recommended that only switches are used.

Each LAN1 and LAN2 Port must have a unique Static IP Address. LAN1 and LAN2 must be on a separate network or different Subnetwork. The IP Address, Default Gateway, and Subnet Mask are provided by the Network Administrator.



Set Main System IX-MBU Addresses:

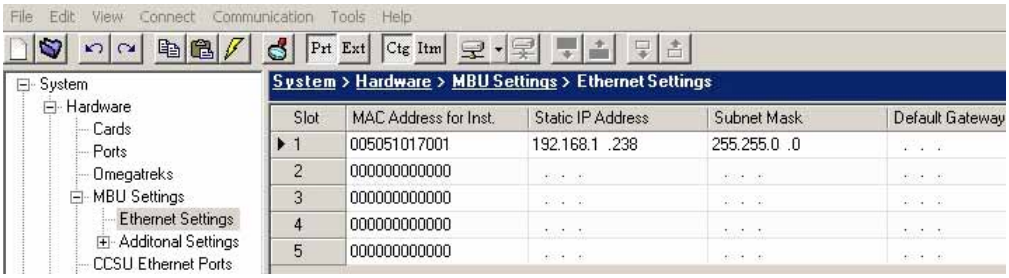
Follow the steps listed below:

1. Select: **System > Hardware > MBU Settings > Ethernet Settings**
2. Select: **MBU 1**
   - Input the **MAC Address for Inst:**
   - Input the **Static IP Address:**
   - Input the **Default Gateway:**
   - Input the **Subnet Mask:**

Each IX-MBU card in the IP Campus network must have a Default Gateway, Subnet Mask, Static IP Address. The MAC Address is found on each IX-MBU card. The IX-MBU Subnet Mask should be the same as the LAN2 address on the IX-CCSU card. The IP, Default Gateway, and Subnet are provided by the Network Administrator.

For a second IX-MBU:

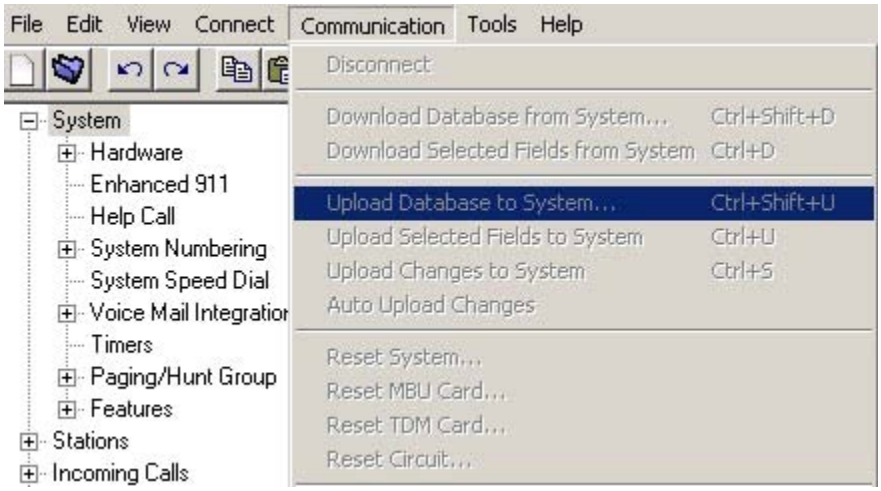
Select: **MBU 2** and repeat the steps for **MBU 1**



Upload the Main System Database

Once the changes to the main system database are complete:

- Upload the database to the ECS
  - Upload changes made to the **IP Block** and **Common Block**
  - From the Menu Bar: Select: **Communication > Upload Database to System** or **Ctrl+Shift+U**

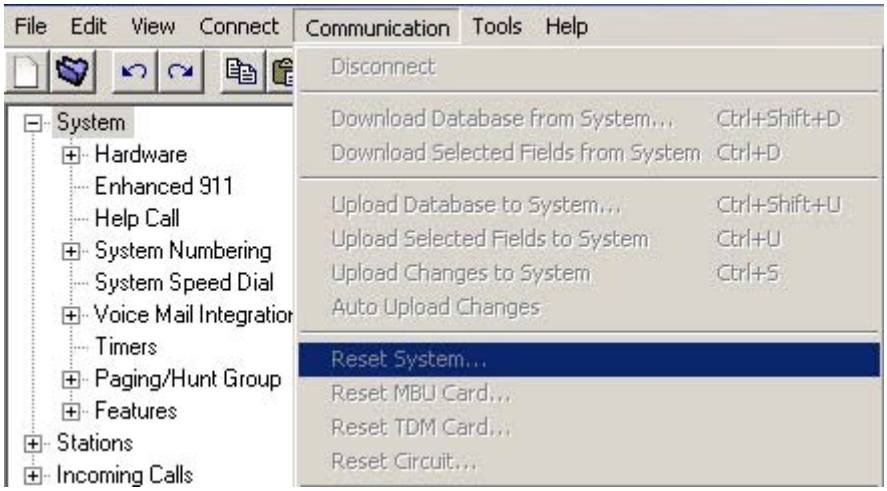


Reset the Main System

- From the Menu Bar: Select: **Communication > Reset System** (Recommended) to reset the system. This action will automatically disconnect your PC from the ECS system.

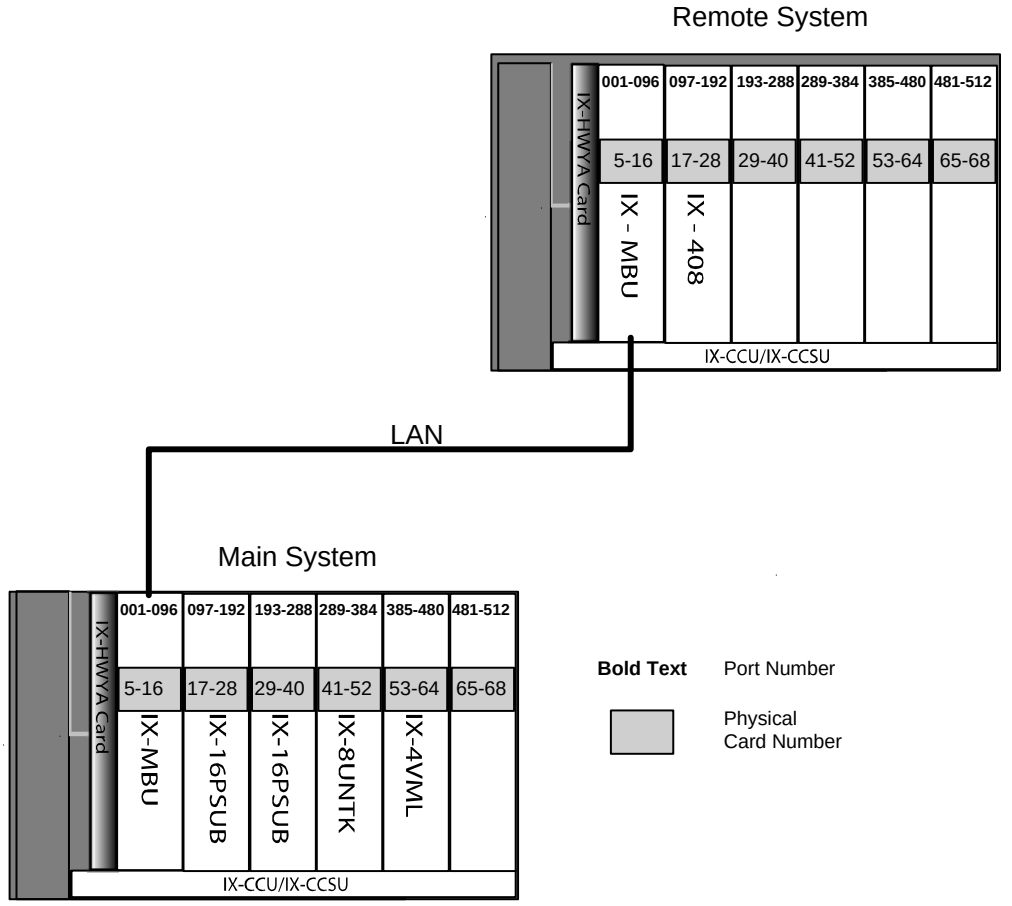
OR

- From the Menu Bar: Select: **Communication > Disconnect**
- Then, from an Attendant Key Telephone (KT) Select: **FEAT + # 46246** to reset the system
- Changes to the database take affect when the system restarts



Main System IP Campus Configuration

Using the IP Campus Network example below, follow the steps to assign (VCIF) Virtual Campus Interface cards in the main system to mirror resources at the remote system site:



Note: A VCIF (Virtual Campus Interface) Card is a virtual card that is used on the main and remote sides of an IP Campus Network for the purpose of transporting remote resources to the main system. Virtual cards can be flexibly assigned using any logical ports in the system.

Important! When programming three or more virtual cards (such as VIPSUB, VTRUNK, or VIPSLT) it is important that those cards are programmed in higher card slot numbers that the VCIF cards used for the remote system. This applies to the remote side of an IP Campus installation. Failure to follow this programming guideline will result in the remote system timing out on boot and will the system will not recover do to the amount of time taken to initialize the virtual cards before bringing over the VCIF cards.

Main System Card Configuration:

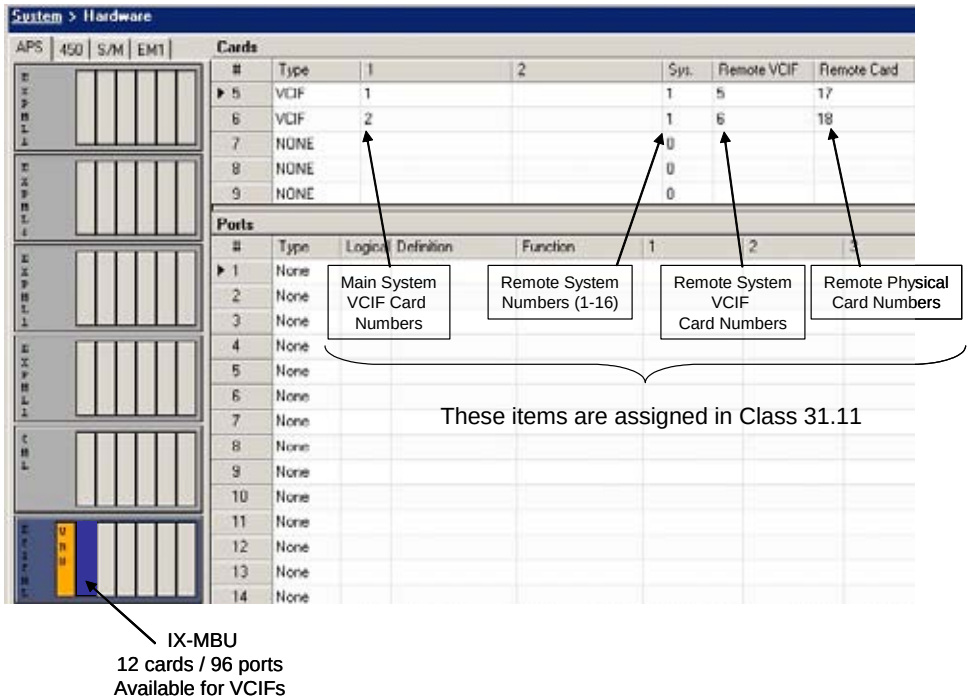
Configure the VCIF cards using the (Ctg) Category View in the Iwatsu Programmer.

Note: When configuring an IP Campus Network where a T1 Campus network is also configured, the VCIF card numbers must be higher than the T1 serial numbers used in the T1 Campus configuration. For example: In a T1 Campus Network, two T1's are assigned with serial numbers 1 and 2, the first VCIF card assigned in the IP Campus Network will be VCIF card number 3.

1. Select: **System** > **Hardware**
2. Select the physical card slot where an IX-MBU or other available slot to assign virtual cards. Using an IX-MBU will make available twelve (12), eight (8) port slots
   - In the example below, the first IX-MBU in the main system will be used to assign virtual cards to support remote IP Campus system number 1

Note: One VCIF card is required for each card (8 Ports) on the remote system. In the IP Campus Network example on the previous page: One IX-408 card will require two VCIF cards in the main system, one VCIF for the 8 subscriber ports and one VCIF for the 4 trunk ports.

3. Select the **Card #**'s you want to use as VCIFs (Card #s 5-16 are available)
4 Select the Card **Type** as **VCIF** from the drop-down menu
5. Under the [**1**] column, enter the VCIF card number
   - The first VCIF card assigned will be number 1. (Except if T1 Campus is also configured in this system).
   - (The exception) If T1 Campus also used in this system, VCIF card numbering will begin after the last T1 Campus Remote number. Example: If there are 2 T1 Campus Remotes, then the first VCIF card will begin with number 3.

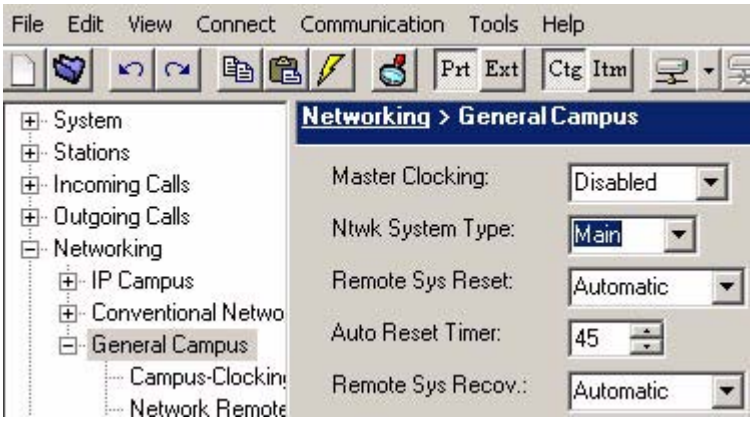


6. Select **Sys.** (Remote System Number) (range = 1-24)
   - The same Remote System Number will most likely have multiple VCIF cards
   - Every eight ports requires one VCIF card. In the example, the IX-408 card will have two entries with the same Remote System Number.
7. Select the corresponding **Remote VCIF** Card Number for the remote system
   - The IX-MBU card in the remote system has card numbers **5-16** available
   - The IX-408 card in the network example requires two VCIF cards
   - Enter **5** and **6** as the first two VCIF cards for **Remote System Number 1**
8. Select the corresponding **Remote** Physical **Card** Number(s) for the remote system
   - The actual IX-408 card in the remote system resides in the slot for card numbers 17-28 and requires two physical card slots
   - Enter card numbers **17** and **18** (the first two physical cards available)

Set the Network System Type, Reset, and Recovery Modes:

1. Select: **Networking** > **General Campus**
   - Set the **Ntwk System Type**: **Main** (Default)
   - Set the **Ntwk System Reset** mode to **Automatic**
   - Set the **Auto Reset Timer** to **45** Seconds
   - Set the **Remote Sys Recov** mode to **Automatic**

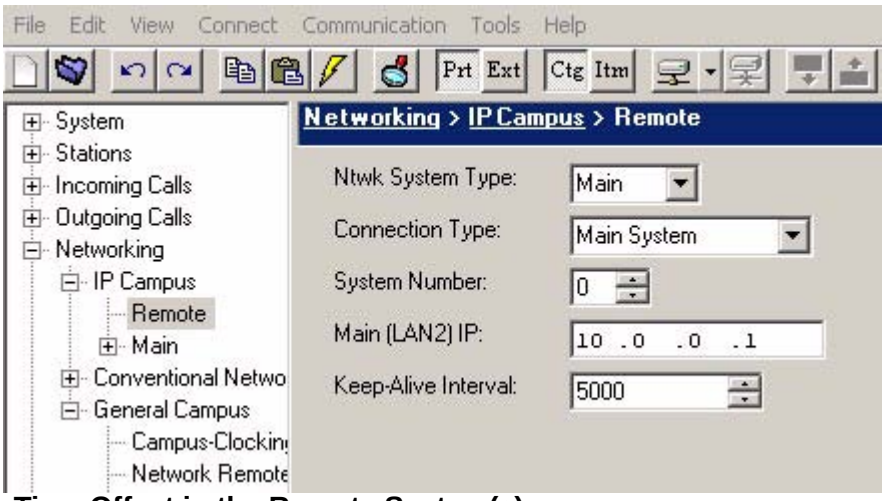
Automatic recommended for **Remote System Reset** and **Remote System Recovery**



Set Network System Number:

The **Main** IP Campus network **System Number** is always set to **0**

1. Select: **Networking > IP Campus > Remote**
   - Set the **System Number** to **0**: (Class 31.10)

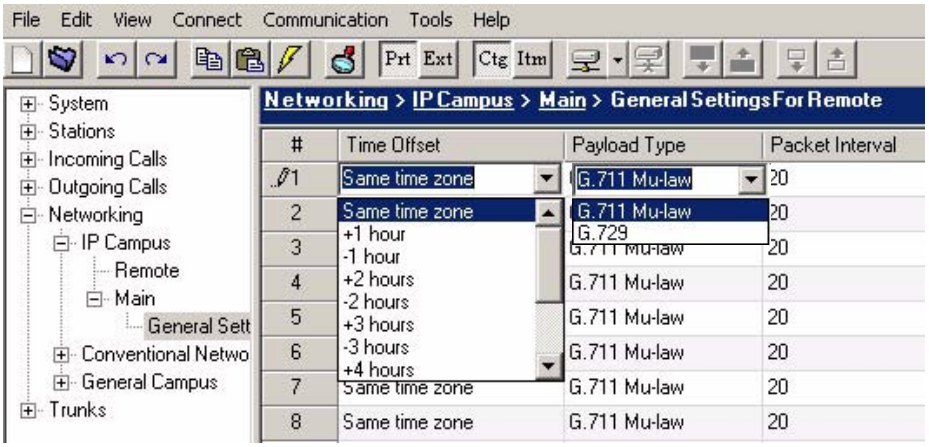


Set the Time Offset in the Remote System(s):

Follow the steps listed below:

1. Select: **Networking > IP Campus > Main > General Settings for Remote**
   - Select the **Time Offset:** (Class 31.14) for the remote IP Campus nodes (1-24)
   - The Time Offset is used to set the time zone difference in relation to the main IP Campus system.

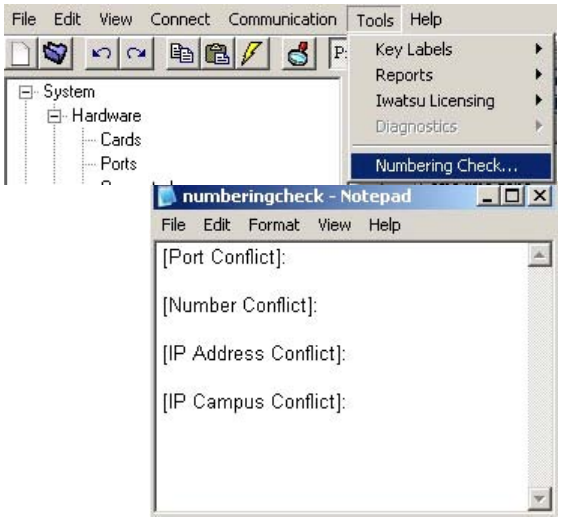
Time Offset example: If the main IP Campus system is located in Dallas, TX (Central Time Zone) and a remote IP Campus system is located in Raleigh, NC (Eastern Time Zone), the Time Offset for the remote system would be set to +1. The Time Offset can be set from +1 to +6 hours or from -1 to -6 hours, in one hour increments. At default, remotes are set to Same Time Zone.



Run Database Numbering Check

The Numbering Check is used to ensure conflicts in the database do not exist before Uploading

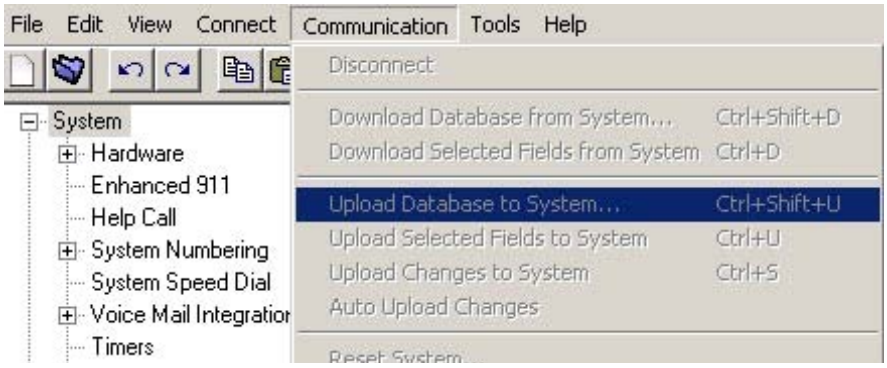
- From the Menu Bar: Select: **Tools > Numbering Check...**
- The Numbering Check Notepad screen will display any Number, IP Address, or IP Campus conflict in the database



Upload the Main System Database

Once the changes to the main system database are complete:

- Upload the database to the ECS
  - Upload changes made to **Class 1** and **Class 31**
  - From the drop down menu tool bar: Select: **Communication > Upload Database to System** or **Ctrl+Shift+U**



Note: Main System reset is not required after upload

The IP Campus Main system is now programmed, proceed to Remote System Data Programming on the next page.

Remote System IP Campus Data Programming

Remote system IP Campus data programming covers basic programming for remote IP Campus nodes. There can be 1 to 24 remote systems in the IP Campus Network. The following programming is done for each remote node in the IP Campus Network.

Remote IP Campus Prerequisite Programming

The table below shows the default addresses for each database item that must be programmed in a Remote IP Campus system. The information in this table will be used in the following steps to configure any Remote IP Campus system. Also, use this table as a worksheet to input addresses assigned by your Network Administrator.

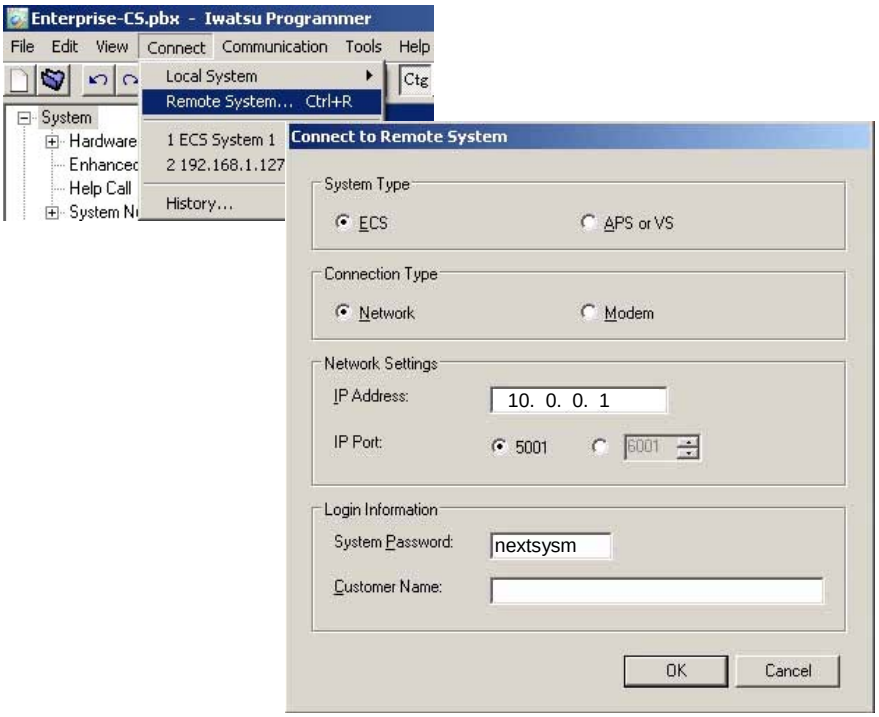
This table can be copied and used for each Remote IP Campus system in the network.

IP CAMPUS SYSTEM REMOTE:			SYSTEM NUMBER (1-16): _____
Address Type:	IX-CCSU (LAN 1)	IX-CCSU (LAN2)	IX-MBU
IP Address: (Default)	172.30.30.30	10.0.0.1	No Default
Assigned IP Address:			
Subnet Mask: (Default)	255.255.0.0	255.255.0.0	No Default
Assigned Subnet Mask:			
Default Gateway: (Default)	N/A	0.0.0.0	No Default
Assigned Default Gateway:			
MAC Address:	N/A	N/A	005051xxxxxx
Printed on IX-MBU Card:	N/A	N/A	005051_ _ _ _ _ _
IP CAMPUS MAIN SYSTEM LAN2 IP ADDRESS: ___.___.___.___			

The following programming is shown using the **Iwatsu Programmer**.

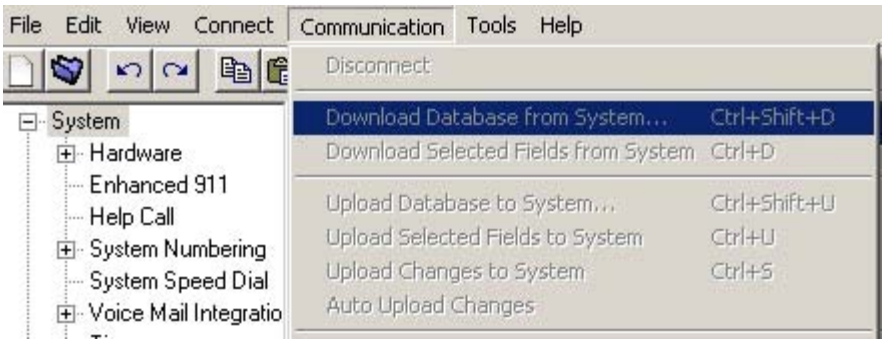
Connect to the ECS System:

- Launch the **Iwatsu Programmer**
- From the Menu Bar: Select: **Connect > Remote System**
- Select: **System Type > ECS**
- Select **Connection Type > Network**
- Input **IP Address** for the ECS system
- Enter **System Password** (Default = nextsysm)
- Select: **OK**



Download the Remote System Database:

- From the Menu Bar: Select: **Communication > Download Database from System**
- Select all database Classes to download



- Once the download is complete, continue with Database Programming

The following programming is shown using the **Iwatsu Programmer** in the **Category View (Ctg)** mode with references to **Class and Item numbers (Itm)**.

Set Remote System IX-CCSU LAN1 and LAN2 Addresses:

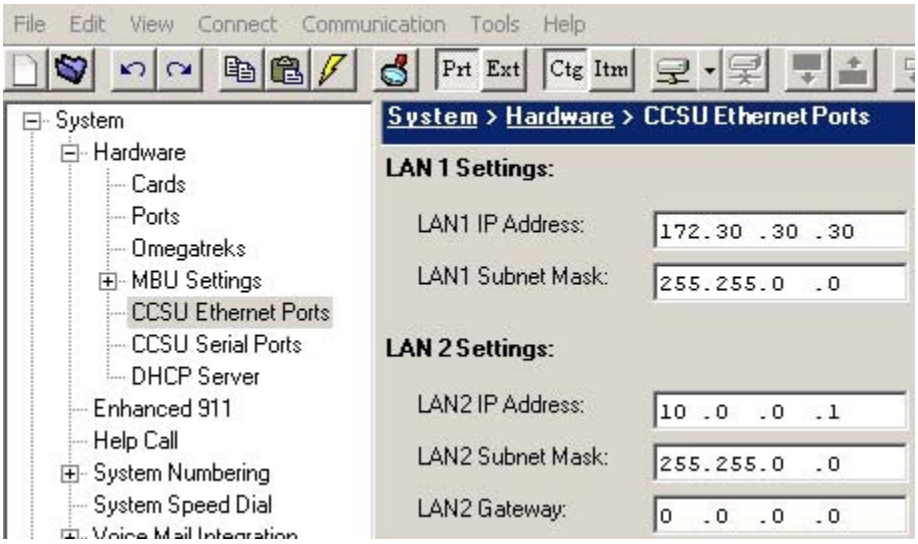
Follow the steps listed below using the information from the table on the previous page:

1. Select: **System > Hardware > CCSU Ethernet Ports**

- **Maintenance Port Settings (LAN1 on CCSU):**
  - Input the **IP Address:**
  - Input the **Subnet Mask:**
- **Signaling Port Settings (LAN2 on CCSU):**
  - Input the **IP Address:**
  - Input the **Subnet Mask:**
  - Input the **Default Gateway:**

Note:	When selecting LAN Protocol and LAN Speed, consult your Network Administrator for the optimum settings. If a network Hub is used in the system, it is important to note that it is a half-duplex device and could affect your network. It is recommended that only switches are used.

Each LAN1 and LAN2 Port must have a unique Static IP Address. LAN1 and LAN2 ports must be on separate network or different Subnetworks. The IP Address, Default Gateway, and Subnet Mask are provided by the Network Administrator.



Set Remote System IX-MBU Addresses:

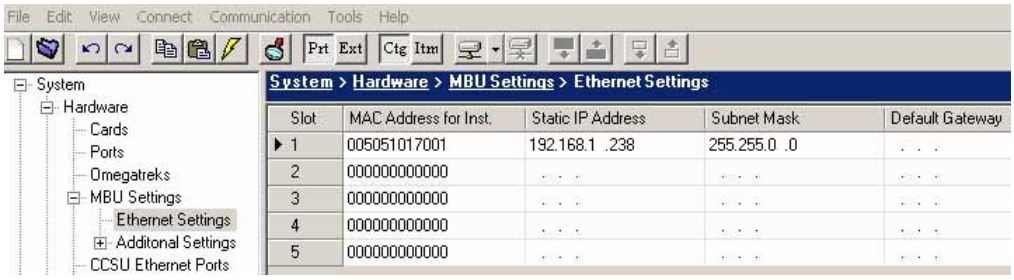
Follow the steps listed below:

1. Select: **System > Hardware > MBU Settings > Ethernet Settings**
2. Select: **MBU 1**
   - Input the **MAC Address for Inst:**
   - Input the **Static IP Address:**
   - Input the **Subnet Mask:**
   - Input the **Default Gateway:**

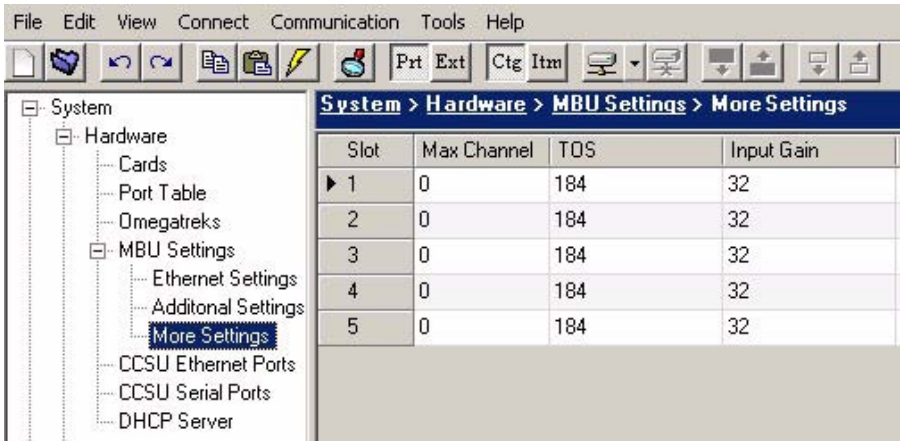
Each IX-MBU card in the IP Campus network must have a Default Gateway, Subnet Mask, Static IP Address. The MAC Address is found on each IX-MBU card. The IX-MBU Subnet Mask should be the same as the LAN2 address on the IX-CCSU card. The IP, Default Gateway, and Subnet are provided by the Network Administrator.

For a second IX-MBU:

Select: **MBU 2** and repeat the steps 1 and 2 for **MBU 1**

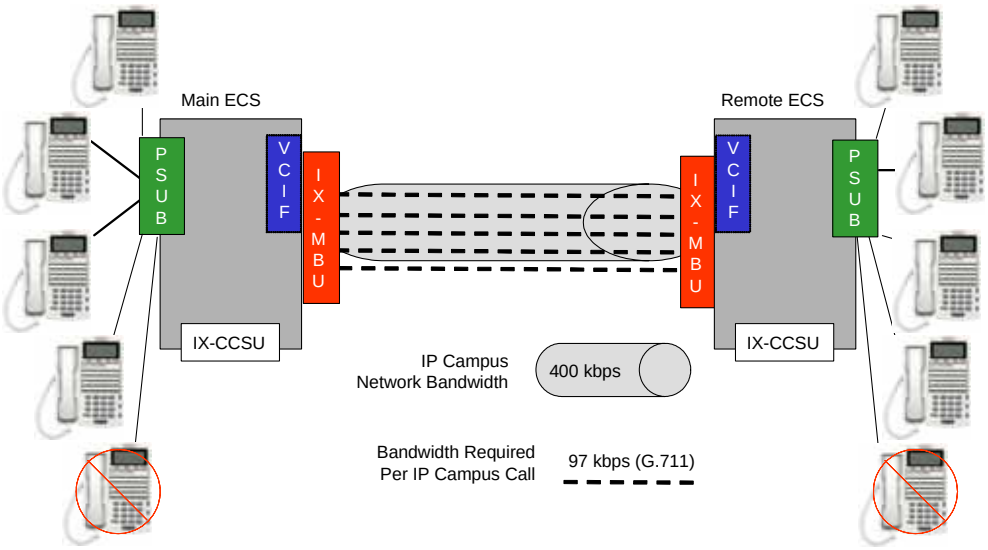


3. Select: **MBU Settings > More Settings**
   - Input the **Max Channels** value:
   - The Max Channels number is determined based on IP Campus bandwidth:



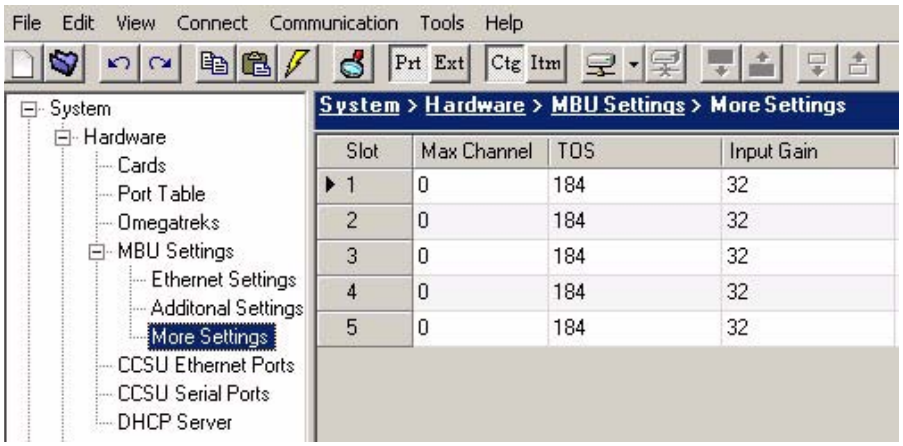
Max Channels Example: (G.711 bandwidth is used as the example) If the network bandwidth is 400 kbps and each call across the IP Campus Network requires 97 kbps (G.711), signal degradation and audio quality will occur if a fifth simultaneous call is placed across the network. This degradation is due to the network bandwidth being exceeded. For this example, the Max Channels value would be set to four and the fifth simultaneous call attempted across the IP Campus Network is blocked.

(G.711 is used in the example below)



For G.729: Bandwidth required per IP Campus call is calculated at 41 kbps.

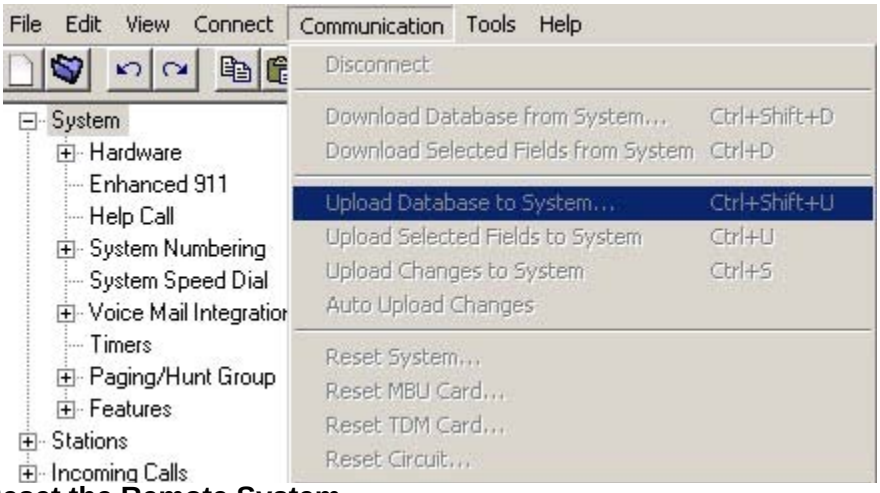
- Input the **TOS** value:
- The **TOS** (Type of Service) value should be set to **184** (default)



Upload the Remote System Database

Once the changes to the remote system database are complete:

- Upload the database to the ECS.
  - Upload changes made to the **IP Block** and **Common Block**
  - From the drop down menu tool bar: Select: **Communication > Upload Database to System** or **Ctrl+Shift+U**

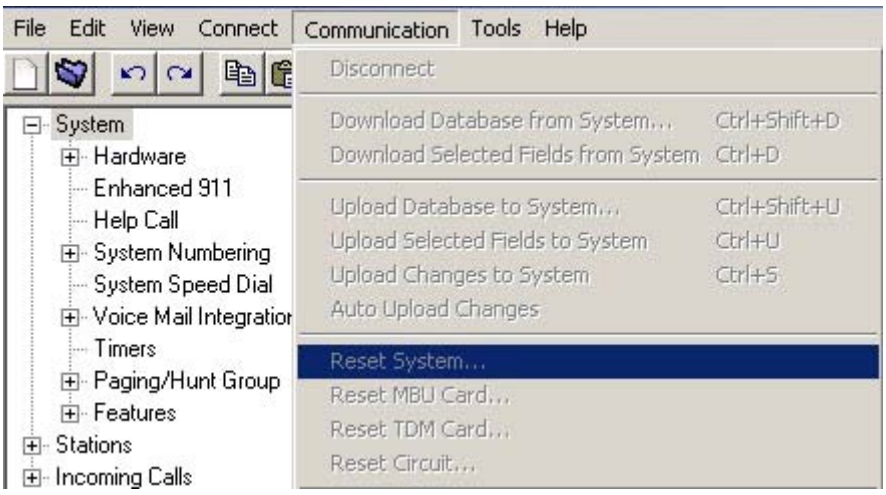


Reset the Remote System

- From the Menu Bar: Select: **Communication > Reset System** (Recommended) to reset the system. This action will automatically disconnect your PC from the ECS system.

OR

- Select: **Communication > Disconnect** from the Menu Bar
- Then, from an Attendant Key Telephone (KT) Select: **FEAT + # 46246** to reset the system.
- Changes to the database take affect when the system restarts.

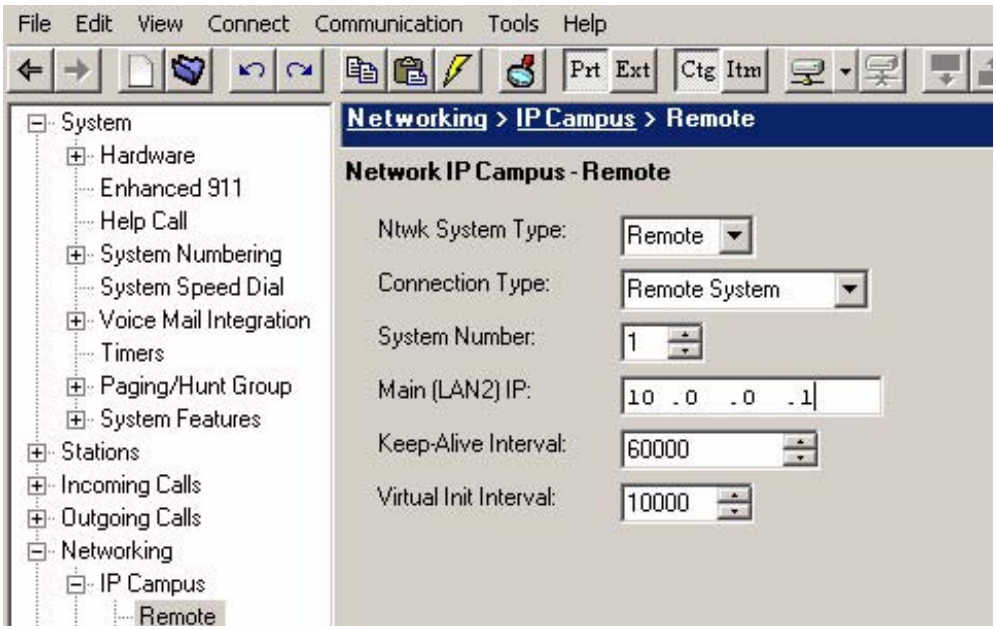


Set Network System Type, Connection Type, System Number, and Main IP Address:

Select: **Networking** > **IP Campus** > **Remote**.

1. The Remote IP Campus **Network System Type** is always set to **Remote**
   - Set the **Ntwk System Type** to **Remote** (Class 31.03)
   - Set the **Connection Type** to **Remote System**
2. The Each Remote IP Campus node must have a unique **System Number**
   - Set the Remote **System Number** Range = **1** to **24**: (Class 31.10).
3. Set the **Main IP Address**:
   - Set the **Main (LAN2) IP** address:

The Main IP address is the IP address for the LAN2 port on the main system IX-CCSU card (Both entries above must have the same IP address). IP address is provided by the Network Administrator.



Important!

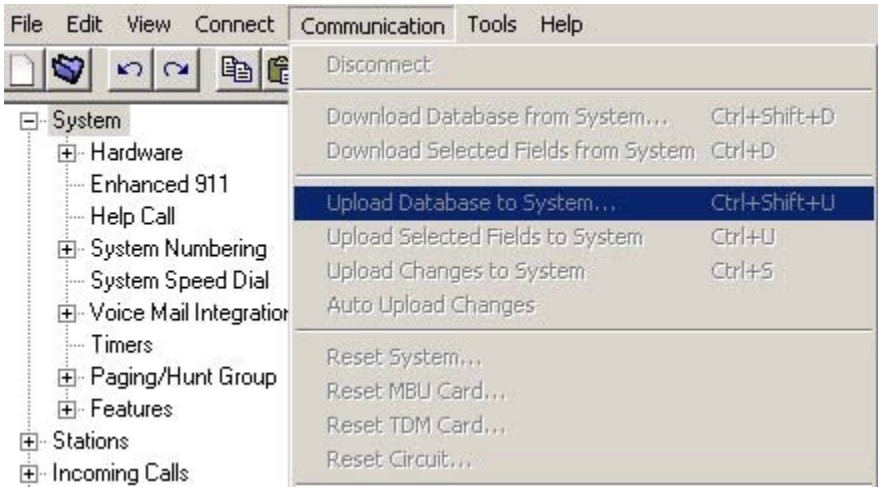
When programming three or more virtual cards (such as VIPSUB, VTRUNK, or VIPSLT) it is important that those cards are programmed in higher card slot numbers that the VCIF cards used for the remote system. This applies to the remote side of an IP Campus installation. Failure to follow this programming guideline will result in the remote system timing out on boot and will the system will not recover do to the amount of time taken to initialize the virtual cards before bringing over the VCIF cards.

Upload the database changes and reset the remote system when the changes to the remote system are complete.

Upload the Remote System Database

Once the changes to the remote system database are complete:

- Upload the database to the ECS
  - Upload changes made to the **IP Block** and **Common Block**
  - From the drop down menu tool bar: Select: **Communication > Upload Database to System** or **Ctrl+Shift+U**

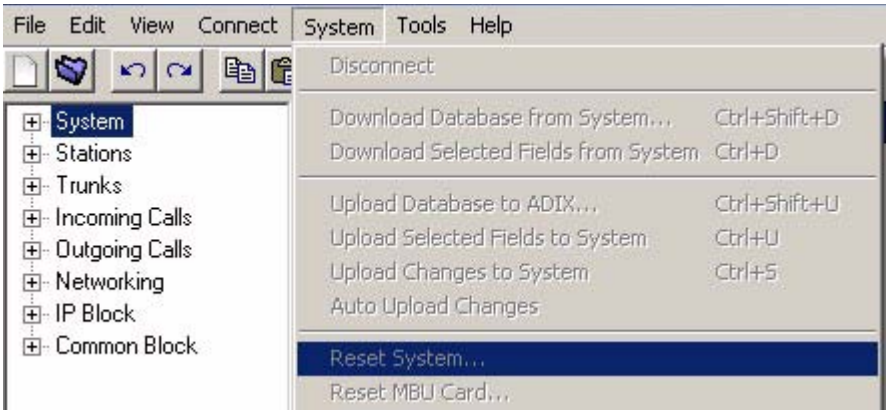


Reset the Remote System

- From the Menu Bar: Select: **Communication > Reset System** (Recommended) to reset the system. This action will automatically disconnect your PC from the ECS system.

OR

- From the Menu Bar: Select: **Communication > Disconnect**
- From an Attendant Key Telephone (KT) Select: **FEAT + # 46246** to reset the system
- Changes to the database take affect when the system restarts



When the remote system restarts, the remote system will come up in the IP Campus mode. See results on the following page.

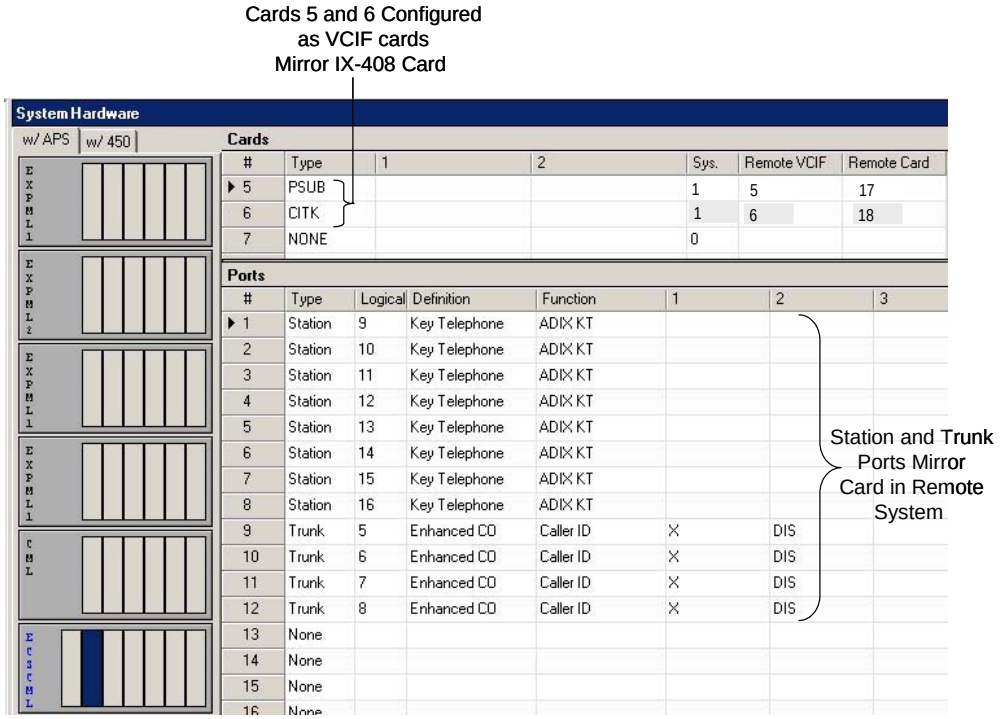
IP Campus Configuration Results

The following system changes occur when IP Campus Networking is configured properly:

Main System

The VCIF card(s) configured in the main IP Campus system will appear as the mirrored image of the actual card(s) in the remote system.

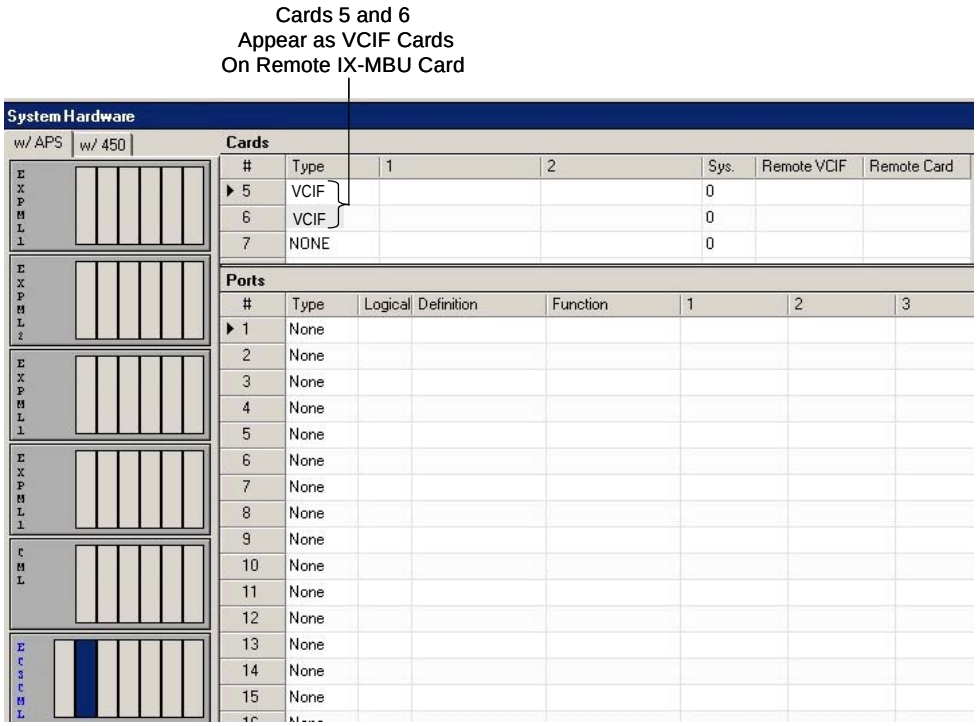
1. Select: **System > Hardware**
   - Select the **IX-MBU** card used to provision the VCIF card(s) for the remote system



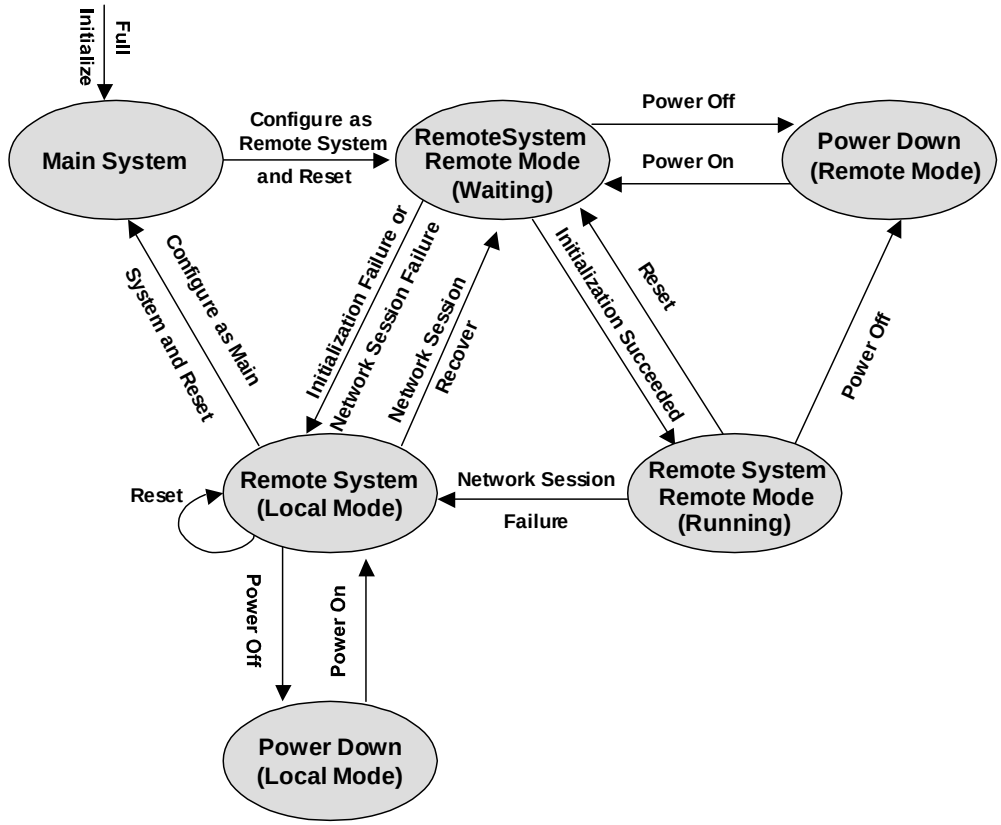
Remote System

The remote IX-MBU Card Numbers used to configure the VCIF card(s) in the main IP Campus system will appear as VCIF card(s) in the remote system.

1. Select: **System > Hardware**
   - Select the **IX-MBU** used to provision the VCIF card(s)
   - Card Numbers 5 and 6 now appear as VCIF cards



Remote System State Transition Diagram



Adding a Card to a Remote IP Campus System

When adding a card to an IP Campus System, it is first necessary to add the card to the remote system. Adding a card to a remote system is the same as adding a card to a stand alone system. The remote system must be in the standalone mode before adding a card(s). Follow procedure below to add a card(s) to a remote system and then add the card(s) to the IP Campus environment.

Remote IP Campus System

1. Disconnect the IP connection at the remote. Disconnecting the IP connection will cause the remote to reboot into Local mode (Stand alone).
2. Connect to the remote system and download the complete database.
3. Verify that no devices are programmed in the intended location of the new card(s).
4. Do not power the system down.
5. Set the make busy switch of the card(s) to make their position busy and insert them into their intended slot with the power still on.
6. When all of the make busy lamps of the added card(s) start to flash, turn off the make busy switch(s).
7. The added cards will auto configure and will now show up in the configuration. Connect with the ECS Programmer and get a fresh download of the system to verify the programming of the new devices.
8. Make any necessary programming changes such as Key Patterns, Names, Extension Numbers, Trunk Groups, etc.
9. Upload the changes and disconnect.

It is important to test all devices in Local mode. Do not continue to the next step until the new cards function in the Local (Stand Alone) mode.

Main IP Campus System

1. Connect to the main system and download the complete database.
2. Create the new VCIF cards in the configuration using the next available VCIF card numbers. If as an example, you have already programmed 5 VCIF's the number should be a 6. It is IMPORTANT to complete the programming for each VCIF before proceeding to the next VCIF entry. It is recommended that you write down the information including the System Number, Remote VCIF and Remote card number before making these entries.
3. Upload this information then disconnect from the Main System.
4. Step one of programming the remote system had you disconnect the IP connection of the remote side. Restore that connection and allow the remote side to reboot in IP Campus mode. When the remote system sees that the IP connection is available the remote system will reboot and come up in the IP Campus mode. This is assuming you left the systems in automatic mode.
5. The configuration of the main system automatically updates the previously programmed VCIF slots to reflect the cards of the remote site that just came up. It is very important that you download Systems Hardware (Class 01)
6. Make any necessary programming changes such as Key Patterns, Names, Extension Numbers, Trunk Groups, etc.
7. Upload the changes and disconnect.

ECS System Upgrade Conditions for IP Campus Networks

The following applies to all Iwatsu Enterprise-CS systems in an IP Campus network:

Important!:	All Iwatsu Enterprise-CS systems in an IP Campus network (Main and Remote systems) must have the same ECS software version. IP Key Telephones installed in an IP Campus environment require that all ECS systems (Main and Remote) have the same ECS software version. All Iwatsu Enterprise-CS systems must have the same software version when IP telephones are programmed for multi-host connectivity.

IP Campus Upgrade Process for ECS version 8.0

Iwatsu Voice Networks highly recommends updating of your Remote IP Campus systems prior to updating the main IP Campus site.

- **Remote IP Campus Systems**: Upgrade all remote IP Campus systems to ECS version 8.0 before upgrading the Main IP Campus system.
- **Main IP Campus System**: Upgrade the Main IP Campus system after all remote IP Campus systems have been upgraded.
  - Upload all licenses and the ECS database. Once this is complete, set the IPKT Automatic Update flag to YES (ECS database setting: Stations > IP Station Settings) before resetting the main IP Campus system. The final step for IP Campus upgrades should be a reset of the main system to confirm all remote systems recover properly.
- If you lose connectivity to the main IP Campus system before the IP telephones have upgraded, IP telephones addressed to the main IP Campus system will not function in the local mode because they have not been upgraded to the latest version of software until the main IP Campus system is upgraded and the IPKT Auto-Update flag is set to YES. Setting the Auto-Update flag to YES will allow these telephones to upgrade to a software version that is compatible with ECS software version 8.0 and higher.
- When the Iwatsu Enterprise-CS is upgraded to ECS Software Version 8.0 and higher software, all the IX-MBU Media Bridge Units in the IP Campus network must also be upgraded.

G.711 Automatic Selection for FAX and MODEM Calls

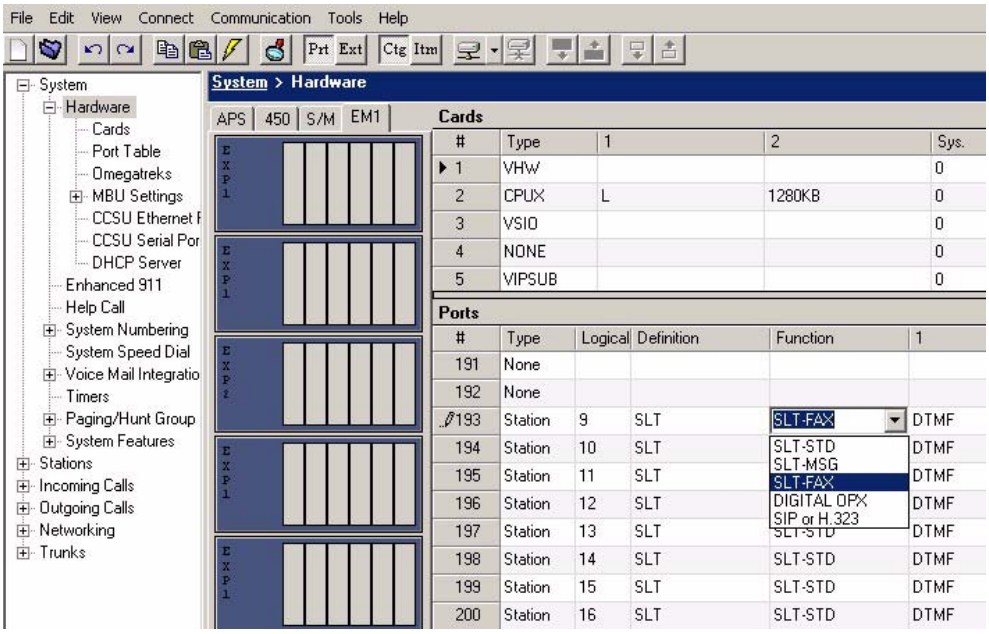
When G.729 compression is selected in order to conserve bandwidth, the system software will automatically select G.711 to support fax calls and modem calls across the network. This automatic G.711 compression selection is programmed on a per port basis by programming a Single Line Telephone (SLT) station port as an SLT-FAX port.

SLT-FAX Station Programming

To program a Single Line Telephone port to enable automatic G.711 compression for fax lines and modems:

Note: A system reset must be performed to complete this procedure.

1. Program a Single Line Telephone station as you would any other SLT.
2. Select SLT-FAX (default = SLT STD) from the Function column drop-down menu for the port being programmed.
3. After the change to the database has been uploaded to the ECS, a system reset must be performed for the change to take affect.



Database Programming Exceptions

This section covers exceptions to typical data programming for the IP Campus Network. Omegatrek, T1 and PRI circuits, and the IX-EDVIF card require additional programming considerations when in an IP Campus Network configuration.

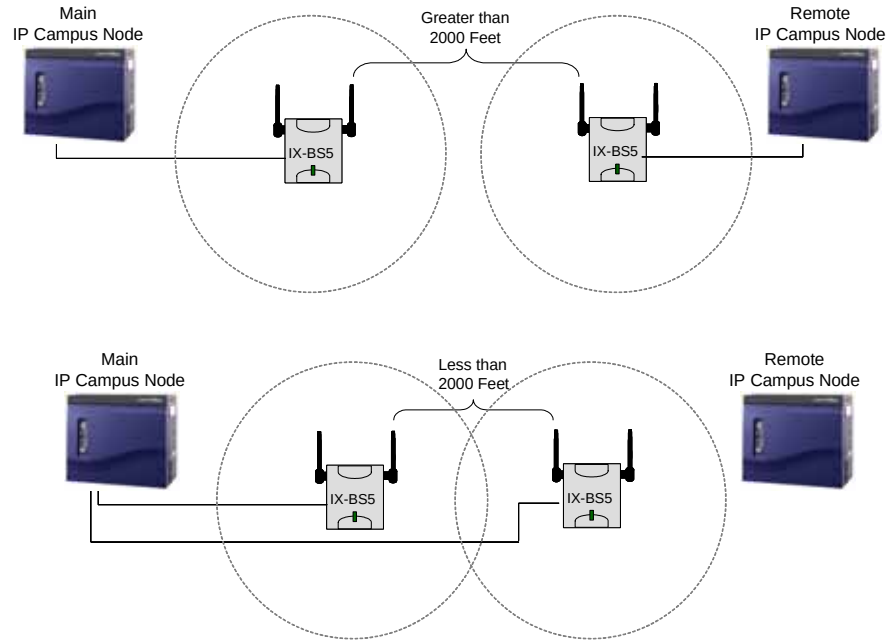
Omegatrek Programming / Installation

IP Campus Networking supports Omegatrek Wireless Handset roaming across the network. Omegatrek handsets can be used at any IP Campus site (main or remote) that is equipped with an Omegatrek Base Station. All features and extension numbers remain the same across the network.

Special considerations with regards to programming and licensing must be followed for the Omegatrek handsets to function properly in an IP Campus Network.

When installing Omegatrek Base Stations in an IP Campus environment:

The minimum distance between an Omegatrek Base Station on the Main IP Campus system and an Omegatrek Base Station on Remote IP Campus system must be at least 2000 feet apart.



Note: For more information, refer to the Omegatrek Installation Section in Chapter 13.

T1 /T1 Receiver Cards and PRI Programming

T1 with T1 Receiver cards are not supported in the IX-CME shelf and must be installed the IX-EXPME1 or IX-EXPME2 ECS expansion modules or in the ADIX APS, ADIX-M, or ADIX cabinets installed as expansion modules with the ECS IX-CME..

Note: T1 and PRI cards must be installed at the beginning of a PCM Highway.

IX-EDVIF Card

The IX-EDVIF card is supported in the IP Campus network and must be installed in physical ports 224 or lower for Miscellaneous and SMDR/Programming ports to function. More than one IX-EDVIF card is supported in the network, but only Miscellaneous ports can be used.

Remote System Data

System ID (IP Block)

Used for identifying the system

Self IP Address (IP Block)

System's own IP address

Main System IP Address (IP Block)

Sets up an IP address for the main system

IP Campus Inbound Port (IP Block)

Inbound port number for the main system. The port is equipped in the main system for use in IP Campus. A remote system accesses this port to initiate a session.

Link Error Reset Mode (AP Block)

Specifies whether a system reset should be done manually or automatically when an IP Campus link error occurs in the Remote system

Automatic Link Error Reset Timer (AP Block)

Specifies the duration between the moment an IP Campus link error occurs and the moment an automatic system reset begins.

Error Display Station (AP Block)

Specifies a station to display the status of an IP Campus link error in a remote system. The station must be in the remote system. The logic number to set is the station logic number to be assigned to the station if the slave system starts up as a local system.

Automatic Recovery Setting (AP Block)

Specifies whether a slave system (operating as a local system after a reset because of an IP Campus link error) should automatically go back to normal Remote system operation when an IP Campus link error is detected.

IP Session Management

Link Establishment and Session

The physical connection between systems are implemented by the network interfaces on the IX-CCSU cards, but that is unrelated to the actual link of the IP Campus Network.

A logic session is established between the main system and the remote. Synchronization between systems is constituted by the establishment of a logic session. The main system and the remote systems exchange messages at constant intervals “Keep Alive” signals for synchronization. Control messages for all VCIF cards in the IP Campus system are exchanged over the logic session. When the session is cut off or when no response is received for synchronization messaging, that is considered to be a link error.

Link Error Detection and Recovery Functions

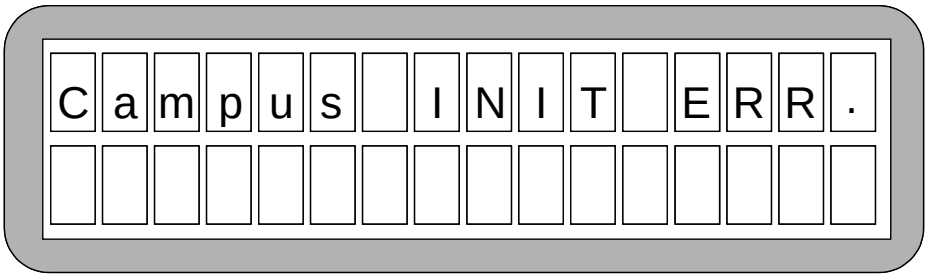
Link Error at Initialization

This error indicates that the network failed to start up because of a configuration mismatch between the main and a remote system or a logic session establishment at network initialization.

- Intersystem Data Communications Error: The communications session in intersystem data communications has been cut off for some reason or the main system has rejected the communications because of a communication data error. The remote system’s AP detects and registers the error. The error will be registered only in the remote system.
- Component Mismatch: The port definition of a remote component is already in the main system and it does not match the remote card information identified by the VCIF card. The main system’s AP detects the error and notifies the remote system. The error is registered in both the main and remote systems.

Message Display

The Error Display station notifies the user of the error with the message shown below when the error is detected during network initialization.



Error Log

When an error is detected at network initialization it is recorded in the error log.

The format for the error entries are shown below:

- Intersystem Data Communications Error
  Error Type: Intersystem Data Communications Error
  Error Code: TBD

15 8	7 0
Detail Code	
Parameter 1	
Parameter 2	

Parameter 1:

Detail Code = 0: Preparation Method, 1: Requested Method

Parameter 2:

Detail Code = 0: None, 1: Error Reason

- Network Initialization Error
  Error Type: Network Initialization Error
  Error Code: 4-13

15 8	7 0
PPU Number	Status
0	

Status: 0 = Initialization Link Error, 1 = Component Mismatch at Initialization

Error Handling in Main System

- Component Mismatch
  - The remote component will not be activated
  - The MIN lamp comes on
  - A system event is produced
  - The error is recorded in the error log

  Status: Component Mismatch
  Parameter 1: VCIF Identification Number
  Parameter 2: Card class of the remote card corresponding to the VCIF card
  - The Error Display station shows the error message.

Error Handling in a Remote System

- Session Disconnect
  - AP detects the end of a session
  - The remote system will not be activated
  - The MAJ lamp comes on
  - A system event is produced
  - The error is recorded in the error log

  Error Type: Intersystem Data Communications Error
  Detail Code: Session Disconnected
  Parameter 1: Preparation Method
  Parameter 2: None
  - The remote system performs a retry
  - The remote system performs a system reset in accordance with the reset mode setting. The system reset is recorded in the error log. The reset type is "Network Link Down".
- Intersystem Data Communications Error
  - The error is detected by means of an error response from the master system.
  - The remote system will not be activated
  - The MAJ lamp comes on
  - A system event is produced
  - The error is recorded in the error log

  Error Type: Intersystem Data Communications Error
  Status: Data Error
  Parameter 1: Requested Code
  Parameter 2: Error Reason
  - The remote system performs a system reset in accordance with the reset mode setting. The system reset is recorded in the error log. The reset type is "Network Link Down".

  <Automatic Reset Mode>
  A system reset is performed on the remote system when the preset timer expires and the remote system starts up as a local system
  <Manual Reset Mode>
  If a manual reset is not performed on the remote system when the preset timer expires, the remote system does not start up as a local system, maintaining its original status
- Component Mismatch
  - The error is detected by means of a notification from the main system
  - The remote card will not be activated
  - The MIN lamp comes on
  - A system event is produced
  - The error is recorded in the error log

  Status: Component Mismatch
  Parameter 1: VCIF Identification Number
  Parameter 2: Card class of the remote card corresponding to the VCIF card

Error Recovery Procedure

- Session Disconnect
  - Check the physical network connections between the main and the remote systems
  - The remote system turns off the MAJ lamp after it establishes a session with the main system
- Intersystem Data Communications Error
  - Check the remote system's database
  - Check the main system's database
- Component Mismatch
  - Match the component configuration definitions in the main and remote systems and reset the remote system. The remote starts up normally

Sync Error

Error Descriptions

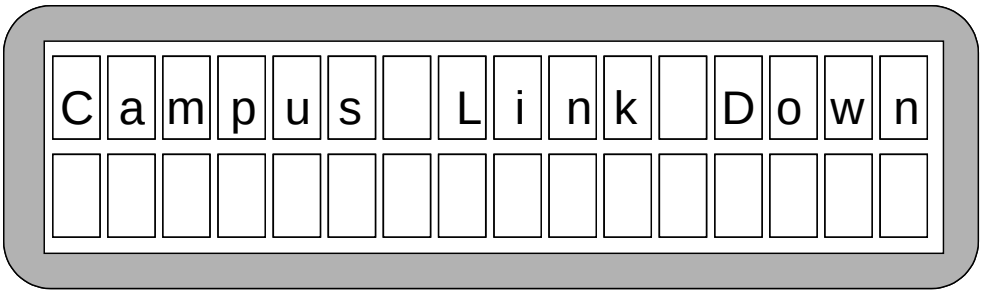
The Sync Error indicates that there has been a "keep alive" miscommunication between the main and remote systems

- IP Campus Link
  A sync error has occurred in the session between the main system and the remote system. This error is detected by both the IP block of the main and remote systems. Each system's AP is notified of the error. IP Campus cannot detect a short disconnection and disconnection in that order.
- IP Campus Short Disconnection
  When a sync error occurs, the error is registered in the VCIF to make existing tasks work properly. There is no "Short Disconnection"
- IP Campus Link Disconnection Recovery
  Sync has been reestablished after a link disconnection or a short disconnection. A session is recovered by both the IP block of the main and the remote systems. Each system's AP is notified of the recovery

Message Display

The Error Display station notifies the user of the error with the message shown below when a sync error is detected during operation.

- Link Disconnection



Error Log

When a sync error is detected during operation, it is recorded in the error log.

The format for the error entries are shown below:

- Network Link Disconnection
  Error Type: Network Link Disconnection
  Error Code: 4-15

15 8	7 0
PPU Number	Related Card Class
Related PPU Number	

- Network Link Short Interruption
  Error Type: Network Link Short Interruption
  Error Code: 4-16

15 8	7 0
PPU Number	Related Card Class
Related PPU Number	0

- Network Link Recovery
  Error Type: Network Link Recovery
  Error Code: 4-14

15 8	7 0
PPU Number	Related Card Class
Related PPU Number	0

Error Handling in Main System

- Link Disconnection
  - Put all VCIF cards in the remote system into make-busy mode while it is still in operation
  - Disconnect the components accessing the VCIF in the remote system
  - A warning tone is heard when a new attempt is made to access the VCIF in the remote system
  - The MAJ lamp comes on
  - The error is recorded in the error log. (The latest error entry overwrites the last entry)
  - The Error Display station shows the error message
- Short Disconnection

- Put all VCIF cards in the remote system into make-busy mode while it is still in operation
- Disconnect the components accessing the VCIF in the remote system
- A warning tone is heard when a new attempt is made to access a VCIF in the remote system

Error Handling in a Remote System

- Link Disconnection
  - Remote components do not operate
  - The error is recorded in the error log
  - The MAJ lamp comes on
  - The Error Display station shows the error message
  - The IP block in the remote system starts to monitor the network for the purpose of link recovery
  - The remote system performs a system reset in accordance with the reset mode setting. The system reset is recorded in the error log. The reset type is "Network Link Down" when an automatic reset is performed or "Manual Reset, Other" when a manual reset is performed

  <Automatic Reset Mode>

  A system reset is performed on the remote system when the preset timer expires and the remote system starts up as a local system

  <Manual Reset Mode>

  If a manual reset is not performed on the remote system when the preset timer expires, the remote system does not start up as a local system, maintaining its original status
- Short Disconnection
  - Remote components do not operate
  - The error is recorded in the error log. (The latest entry overwrites the last entry)
  - The IP block of the remote stem starts to monitor the network for the purpose of link recovery
- Link Disconnection Recovery
  - The error is recorded in the error log
  - One of the following procedures is followed in accordance with the pre-selected reset mode

  <Automatic Reset Mode>

  - Before the Timer Expires -

  When a link recovery is detected before the preset timer expires, the MAJ lamp is turned off, the error message on the Error Display station is cleared, and all remote cards are reset. The remote system is recovered when the main system activates the remote cards

  - After the Preset Timer Expires -

  Because the remote system is operating in local mode, one of the following procedures is followed in accordance with the automatic recovery setting

<Automatic Recovery Setting: ON>
A system reset is automatically performed and the remote system starts up in remote mode
<Automatic Recovery Setting: OFF>
If a manual reset is not performed, the remote system does not start up in remote mode, maintaining its local system operation
<Manual Reset Mode>
When a link recovery is detected before the preset timer expires, the MAJ lamp is turned off, the error message on the Display Station is cleared, and all the remote cards are reset. The remote system is recovered when the main system activates the remote cards

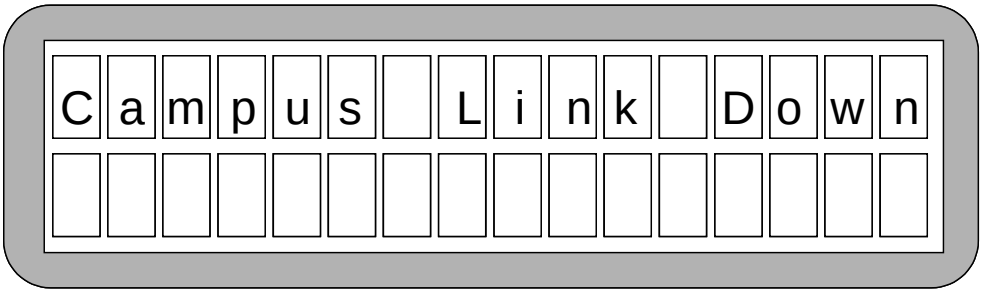
Link Status Detection in a Local System

Error Descriptions

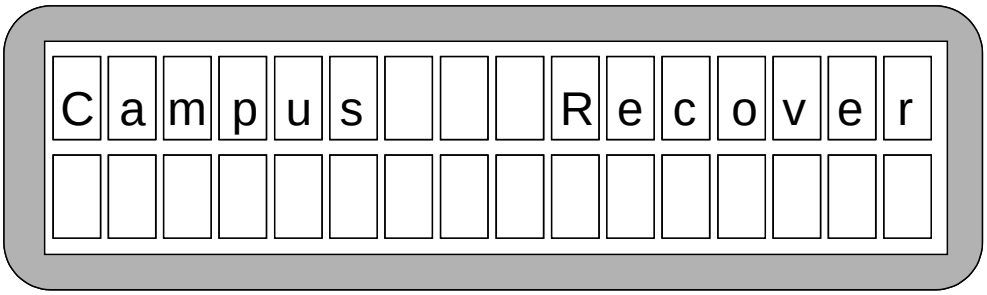
- IP Campus Link Disconnection
  A sync error has occurred in the session between the main and remote systems. The error is detected by the IP block in the main and remote systems. Each system's AP is notified of the error. IP Campus cannot detect short disconnections. To make existing tasks work properly, notifications from the VCIFs are registered as "short disconnection" and "disconnection", in that order.
- IP Campus Short Disconnection
  When a sync error occurs, the error is registered in the VCIF to make existing tasks work properly. There is no actual "short disconnection".
- IP Campus Link Disconnection Recovery
  Sync has been reestablished after a link disconnection or a short disconnection. A session is recovered by the IP block of the main and remote systems. Each system's AP is notified of the recovery.

Message Display

- IP Campus Link Disconnection



- IP Campus Short Disconnection
  None
- IP Campus Link Disconnection Recovery



Error Log

When a sync error is detected during operation, it is recorded in the error log.

The format for the error entries are shown below:

- Network Link Disconnection
  Error Type: Network Link Disconnection
  Error Code: 4-15

15 8	7 0
PPU Number	Related Card Class
Related PPU Number	

- Network Link Short Interruption
  Error Type: Network Link Short Interruption
  Error Code: 4-16

15 8	7 0
PPU Number	Related Card Class
Related PPU Number	0

- Network Link Recovery
  Error Type: Network Link Recovery
  Error Code: 4-14

15 8	7 0
PPU Number	Related Card Class
Related PPU Number	0

Error Handling in a Local System

- Link Disconnection
  - The Error Display station shows the link disconnection status message
  - The IP block starts to monitor the network for the purpose of link recovery
  - The error is recorded in the error log
- Short Disconnection
  - The link recovery status message on the Error Display is cleared
  - The error is recorded in the error log. (The latest entry overwrites the last entry)
- Link Recovery Detection
  - The error is recorded in the error log
  - The Error Display station shows the link recovery message
  - One of the following procedures is followed in accordance with the pre-selected reset mode.

  <Automatic Reset Mode>

  A system reset is performed immediately. The remote system starts up in remote system mode.

  <Manual Reset Mode>

  The remote system starts up in remote system mode after a manual reset. If a short disconnection is detected before the reset, the remote system will start up as a local system after the reset.

Channel Blocking of IP Devices

One IX-MBU Media Bridge Unit allows a maximum of 24 concurrent calls. With only one IX-MBU card in the system, channel blocking will occur when more than 24 calls are attempted at the same time.

Originating a call

Individual Call

A channel on an IX-MBU is reserved for an individual outgoing call or a group incoming Central Office (CO) call. Origination takes place only when communication conditions are met.

Group Call

An IX-MBU is reserved for a group outgoing call or a group incoming Central Office (CO) call. Origination is allowed for a station available for communications. When communication conditions are not met for a group outgoing call, origination is denied.

Answering

Individual or Group Call

When a call is answered by a user, an IX-MBU channel is reserved. Answering takes place only when communication conditions are met. If an IX-MBU channel has already been reserved, the channel is used for answering. When communication conditions are not met, answering is denied.

Hold

Putting a Call on Hold

When a call is put on hold, the IX-MBU channel in use is reserved.

Hold Pickup

Pickup by Station on Hold

When a user who put the call on hold picks up the call again, the IX-MBU channel is already reserved for the call and no channel blocking occurs.

Pickup by Another Station

When a call is answered by another station other than the user who put the call on hold, an IX-MBU channel is reserved. However, a hold pickup takes place only when communication conditions are met. When a call is answered with a different channel from the reserved channel, the reserved channel is released. When communication conditions are not met, a hold pickup is denied and the call is kept on hold.

Recall

Hold Recall

When a call is being recalled back to the station on hold, a new IX-MBU channel is not reserved.

ATT Recall

When a user who put a call on hold does not pick up the recall, the call is recalled back to an ATT station. A new IX-MBU channel is reserved. However, an ATT recall takes place only when communication conditions are met. When communication conditions are not met, the call is not recalled back to an ATT station, and the primary station will ring.

Chapter 14

IP Networking

Introduction

This section of the Iwatsu Enterprise-CS Technical Manual includes the required information for a successful installation of IP Networking.

Before installing, you must be aware that improper installation and/or configuration of the IX-8IPSUB/IX-8EIPSUB, the IX-8IPNET/IX-8EIPNET and/or the IX-12IPKTD/-E2 IP Telephones may result in the temporary and/or permanent removal of the customer's network (LAN, WAN or otherwise) from service. To ensure this does not happen, Iwatsu Voice Networks suggests installers work closely with the network administrators.

Note: The IX-MBU Media Bridge Unit is not required for IP Networking using the IX-8IPNET card. The IX-8IPNET card is a TDM resource in the ECS system.

IP Networking Overview

Note: Iwatsu's IP products utilize Voice Over IP (VoIP) technology to transmit voice traffic over an IP network. The term IP network includes Local Area Networks (LAN) Wide Area Networks (WAN), Virtual Private Network (VPN), managed IP network, and the Internet.

The voice quality of Iwatsu's IP-based applications is dependant upon variables such as available bandwidth, network latency and quality of service (QOS). Each of these variables is controlled by the LAN/WAN administrator and/or carrier. Because these variables are not under Iwatsu's control, Iwatsu cannot guarantee the performance of an Iwatsu IP product deployed on an IP network. Iwatsu does, however, recommend minimum network requirements in the VoIP Network Readiness section in this chapter.

To support IP Networking, the IX-8IPNET or IX-8EIPNET card is required. IP Networking supports all of the features and operations associated with T1 / E&M networking. However, instead of voice and data traffic between the two systems being transmitted over a a T1 or E&M tie line, voice and data traffic is transmitted over a data channel such as a VPN or managed IP network. For this reason, IP Networking does not require a point-to-point relationship between the tie lines at each end. Additionally, IP Networking does not require an Telephone system acting as hub, containing dedicated networking hardware for each node. With IP Networking, a single IX-8IPNET and/or IX-8EIPNET card installed in an ECS system is free to communicate with any networked system that contains an IX-8IPNET/IX-8EIPNET card. The only requirement is adequate bandwidth.

Note: IP Networking is not associated with IP or T1 Campus networking

SIP Explained

The IX-8IPNET/IX-8EIPNET card packetizes data and uses the Session Initiated Protocol (SIP) to network two or more ECS systems. SIP is a set of rules that SIP-enabled devices use to establish a variety of telephony features.

SIP functions occur in terms of sessions. These can be broken down into the following:

- **Locate an Agent** - The ability to locate another user with whom a user wishes to communicate.
- **Session Establishment** - The ability of the called party to accept a call, reject a call or redirect the call to another location or service.
- **Session Setup Negotiation** - The ability of the communicating parties to negotiate the set of parameters to use during the session. In this case the parameters include audio encoding.
- **Modify a Session** - The ability to change a session’s parameters such as using a different audio encoding, adding/removing a session participant, etc.
- **Session Teardown** - The ability to end a session.

In terms of the IX-8IPNET/IX-8EIPNET card, these five processes occur each time a User Agent (an IX-8IPNET/IX-8EIPNET card) places a call.

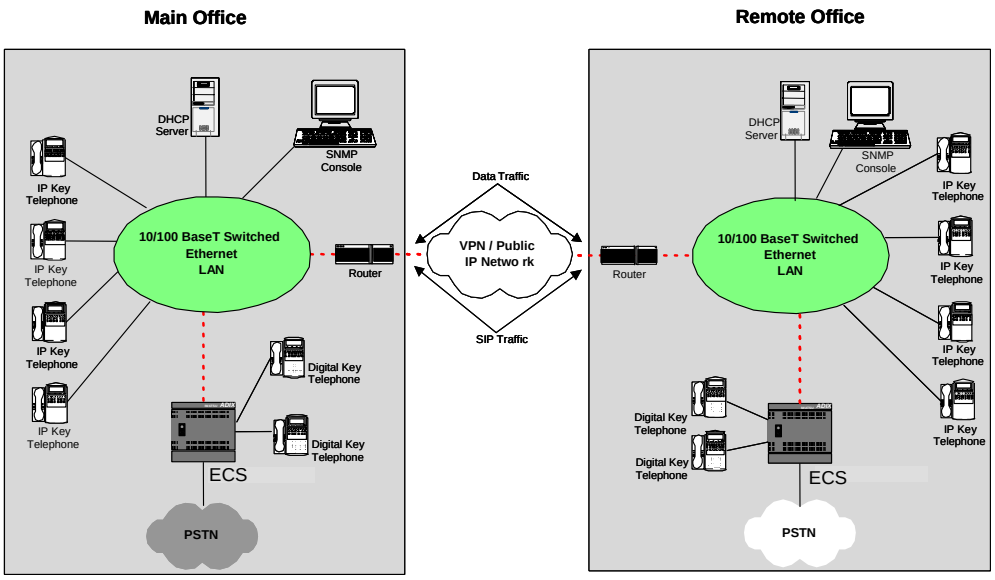
The value of SIP lies in its flexibility. The IX-8IPNET/IX-8EIPNET card is able to packetize voice traffic and pass it over a data network. Additionally, unless a SIP session is initiated, no bandwidth is used. The lean nature of SIP devices allow users to leverage burstable data channels as well as free up bandwidth for other nodes.

SIP addressing is very similar to IP addressing in that both use URLs. However IP addressing uses a URL (Uniform Resource Locator) such as 192.168.1.1 and SIP sessions use SIP URLs that differ a bit. **SIP:AgentA@MyCompany'sIPAddress** is an example of a SIP URL.

- **SIP:** - Packet will be a SIP packet, not a typical IP packet
- **AgentA** - SIP username
- **@MyCompany'sIPAddress** - host name

IP Networking Topology

The following is an example of the IX-8IPNET card tying two ECS telephone systems over a single channel. Immediately following the illustration is an in-depth explanation of the topology.



Note:	In this example, both the Main and the Remote Offices use exactly the same equipment are configured the same.

Each of these offices has an ECS that is equipped with an IX-8IPNET card. The IX-8IPNET card is connected directly to the LAN. WAN access for voice and data is provided through the router at each end. In both offices a combination of IP Telephones (IX-12IPKTD) and digital key telephones (e.g., IX-12KTD-3) are used. Each IP Telephone is connected directly to the LAN via an internal Layer 2 switch. Inside the ECS cabinet is an IX-8IPSUB card. Each IX-8IPSUB card provides TDM to IP and IP to TDM conversion for up to eight IP Telephones. This allows the IP Telephones to access all TDM resources (e.g., intercom dialing, ECS features, PSTN). In addition, this card allows the ECS resources to communicate with the IP Telephones.

Voice networking between the two sites is achieved via an IX-8IPNET card at each end linked through a VPN / Managed IP Network. These offices use an ECS to integrate with the Local Area Network (LAN). On the LAN, an IX-12IPKTD IP Telephone (fully explained later in this manual) interfaces with the ECS. Furthermore, traditional Key Telephones are used by some users. In this example, some or all users are DHCP-enabled, although the IX-8IPNET card must have at least one static address.

Notice that the Main and Remote Office are tied together using a single data channel. In this example, the data channel is a VPN (Virtual Private Network) or a Managed IP Network. Of course, the data channel can also be a leased or point-to-point T1 line.

Each ECS connects to the office router via an IX-8IPNET card. All office-to-office calls originate in the respective office’s ECS, travels through the IX-8IPNET card, to the switched LAN, to the router and through the data channel. They are then received in the inverse.

Notice that voice and data traffic travel through the same channel. Notice also, that ECS telephone systems using traditional key telephones can leverage the flexibility of the IX-8IPNET card. That is, users are not forced to purchase IP-enabled telephones.

The above configuration illustrates the use of the traditional networking using the IX-8IPNET card. When properly implemented, users have the ability to use 2 to 4 digit dialing, centralized voicemail and centralized SMDR reporting.

IP Networking Database Description

The IP Networking Database is comprised of programming items in Class 01, Class 10, Class 28 and Class 36. The purpose of each of these programming classes and items is described below:

Class.Item. Description	Description
Class 01	
Class 01.09 Port Definition	Ports on the IX-8IPNET/IX-8EIPNET card may be defined as described below: Digital E&M Tie Line CLASS=TRUNK, FUNCTION=E&M TIE LINE, DEFINITION=DIGITAL E&M TIE LINE Digital E&M Trunk CLASS=TRUNK, FUNCTION=STANDARD CO, DEFINITION=DIGITAL E&M TRUNK Off Premise Voice Mail Port CLASS=STATION, FUNCTION=MESSAGE STATION, DEFINITION=DIGITAL VM OPX Off Premise SLT Port IWATSU PROGRAMMER: CLASS=STATION, FUNCTION=SLT, DEFINITION=DIGITAL OPX Digital Loop Start Trunk CLASS=TRUNK, FUNCTION=STANDARD CO, DEFINITION=DIGITAL LOOP START
Class 01.09 Port Configuration	The line type for ports on the IX-8IPNET/IX-8EIPNET card must be configured as IP in the 1.3-4 PORT INFORMATION window. This is accomplished by selecting Conf. Param from the 1.3-4 PORT INFORMATION window, pressing EDIT, then defining Line Type as IP in the Port Edit Parameters dialog box.
Class 10	
Class 10.75 Element <03> Station IP Device Handler	Station IP Device Handler is used for ports on the IX-8IPNET/IX-8EIPNET card configured as VOICE MAIL / OPX or OFF-PREMISE SLT / OPX Ports. The programming in this item (0-128) points to a Class 36 IP Device Handler Number associated with the centralized voice mail system or off premise extension. If 0 is programmed in Class 10.75 <03>, this item is ignored.
Class 28	
28.01 Conversion Number	Conversion Number is used to program network access numbers. The entries in this table are not dialed out on the call. To add any digits or to redial the access code on the call, the data must be entered in Class 28.03 for internal conversions, Class 28.04 for feature access code conversions and Class 28.05 for external conversions. Each data entry in Class 28.01 can be 1 to 4 digits in length. When the a network access code programmed in Class 28.01, the Conversion No. is dialed by an extension and the system looks to Attribute field (Class 28.02) to determine the type of conversion (internal, external or feature access), number of digits, and conversion table to use.

28.02 Network Attribute	**Attribute** is used to determine the attributes of each entry in the Conversion No. field (Class 28.01). The Attribute field is a one-to-one relation with the Conversion Number in Class 28.01. The **Attribute** field can be set to one of three entries: Internal (for conversations internal to the system), Feature (for feature access codes) and External (for conversations external to the systems). The value entered in the **Digit** field is used to identify the number of digits that will follow each conversion entry. This is the number of digits the user will dial in conjunction with the conversion entry. The value entered in **Table No.** is dependant on the selection in the **Attribute** field and points to one of three Table Numbers: Class 28.03 Internal Table, 28.05 External Table and 28.04 Feature Access Table. Likewise, the range in **Table No.** is determined by the programming selection in the **Attribute** field. For example, Internal is the selection in the **Attribute** field, the Class 28.03 Internal Table range is 1-200. If Feature is selected, the Class 28.04 Feature Access Table range is 1-60. Finally, if External is selected, the Class 28.05 External Table range is 1-600.
28.03 Network Internal	**Internal Network** is the internal network conversion table. The table number listed in Class 28.03 corresponds to the number entered in **Table No.** field of Class 28.02 Network Attribute (Internal). There are 16 possible translations per entry based on the network class of service programmed for the station. The network class of service is programmed in Class 10.75 <04>.
28.04 Network Feature	**Class 28 Item 04 - Feature Access Table** is the feature conversion table. Currently, the feature access table may only be used to turn on and off Message Waiting Lamps at the local location. The table number listed in Class 28.04 corresponds to the number entered in **Table No.** field of Class 28.02 Network Attribute (Feature). The value entered in the **Feature** field corresponds to the feature access codes in Class 07.06. Set the **Action** field to 0 to activate the feature, and a 1 to cancel the feature.
28.05 Network External	**External Network Table** is used to route external calls determined by the Attribute field (External) in the Class 28.01 Network Table. The CO Group field is the IX-8IPNET/IX-8EIPNET trunk group programmed in the 38 Outgoing CO Group field in Class 11 Line Class of Service. The Proc (Processing) Method field uses the data entered in the Add Dial Data field, plus the digits entered by the user (the allowed digits are entered in the Digit field of the Class 28 Network Table). Add Dial Only can also be selected from the Proc (Processing) Method field, resulting in the sending of digits entered in the Add Dial field. The Inband Signal field can be enabled to allow the sending of ANI/DNIS/Caller-ID and extension number information across the said CO Group field. This feature should be disabled for systems not requiring calling party display information. The External Network Table allows three entries, allowing alternative call routing should all circuits in the CO Group field become busy or disabled.
28.06 Network Route Advance	**Network Route Advanced Table** is used to set the route advance step for each network class of service. Route advance steps are only used when the outgoing trunk group in the Network Route Step field of the Class 28.05 External Network Table is busy. The route advance step used is based on the Network Class of Service programmed for the station in Station Class of Service (Class 10.75 <04>). If the advance step is set to 0 the station user cannot advance to the next step. If the advance step is 1 then the station user can advance to the second route. An advance step of 2 will allow the user to use all three routes.

28.07 Networking IP Device Handler	Networking IP Device Handler is used to route IP Networking Calls by referencing an entry in Class 36 which identifies the function and SIP URL of an IX-8IPNET/IX-8EIPNET card at the distant end. The destination of a network call using IP Networking is determined dynamically, i.e., on a call-by-call basis, using the IP Device Handler Number stored in Class 28.07. The Class 28.07 programming is a specific number from 000 through 128. If zero is programmed in this item, Class 28.07 has no function.
Class 29	
Class 29.11 Trunk Group IP Device Handler	Trunk Group IP Device Handler provides the same function as Class 28.07 - Network IP Device Handler but is referenced only when direct trunk group access is permitted on a tie line call. The programming in this item (0-128) points to a Class 36 IP Device Handler Number associated with the centralized voice mail system or off premise extension. If 0 is programmed in Class 29.11, this item is ignored.
Class 36	
Class 36.01 IP Device Routing Steps	IP Device Routing Steps is used to assign route steps for each IP Device Handler referenced in Class 28.07. Up to four route steps may be programmed. Each route step identifies a table reference in Class 36.04. The Class 36.04 table contains the 8-bit URL (e.g., 192.168.0.5) and the function of the associated distant trunk (e.g., Tie Line, OPX).
Class 36.02 Load Balancing	Load Balancing is used to assign the hunting method of the Class 36.01 IP Device Routing Steps. When Load Balancing is programmed as OFF in this item, a new IP NEtworking Call will always start with Class 36.01 Route Step 1. If Step 1 is busy, the ECS will automatically move to additional route steps in sequence: 2, 3, 4. If load balancing is programmed as ON in this item, the ECS will automatically choose from one of the available Class 36.01 route steps based on which step was used last
Class 36.03 Compression	Compression is used to select the CODEC scheme for the IX-8IPNET/IX-8EIPNET card. Two choices are available: G.729 (24kbps including overhead) and G.711 (80kbps including overhead).
Class 36. 04 IPNET URL	IP Networking URL / Distant Trunk Setting is used to assign the 8-bit URL (e.g., 192.168.0.5) and the function of the associated distant trunk. Function of the distant trunk may be selected as follows: EM = Used to make an E&M Tie Line call TK = Used to make an E&M Trunk call from an Off-Premise (Centralized) VM LS = Used to make a Loop Trunk call from an Off-Premise SLT / OPX VM = Used to ring an OPX/VML from an E&M Trunk SL - Used to ring an OPX/SLT from a Loop Trunk

Card Locations

The IX-8IPNET and the IX-8IPSUB without the IX-8EIPSUB or IX-8EIPNET daughterboards can be installed in any card slot. However because of the highway architecture (single/dual), consideration must be taken when installing the IX-8EIPSUB or IX-8EIPNET daughterboards in an ADIX system. The ECS IX-CME cabinet only supports single highway architecture (No dual highways are supported).

The table below details the card location when using the IX-8IPNET and the IX-8IPSUB with either the IX-8EIPNET daughterboard or the IX-8EIPSUB daughterboard. Note the S106 (Highway Mode settings).

System	Cabinet	Card Position	S106(Highway Mode)	Card Slots Required
ECS	IX-CME	Slot 1-6	Only Single Mode is Supported	1
ADIX APS	IX-CML	Slot 1	Single	1
	IX-CML	Slot 2-5	Dual	1
	IX-EXPML	Slot 1	Single	1
	IX-EXPML	Slot 2	Slot not available for use with the IX-8EIPSUB/NET cards	
	IX-EXPML	Slot 3-6	Dual	1
ADIX-M	IX-CMM	Slot 1	Single	1
	IX-CMM	Slot 2-5	Dual	1
	EXPMM	Slot 1	Single	1
	IX-EXPMM	Slot 3, 5	Single	2
	IX-EXPMM	Slot 2, 4, 6	Slot not available for use with the IX-8EIPSUB/NET cards	
ADIX-450	IX-CM (Shelf 1)	Slot 1, 3	Single	2
	IX-CM (Shelf 1)	Slot 2, 4	Slot not available for use with the IX-8EIPSUB/NET cards	
	IX-CM (Shelf 2)	Slot 1, 3, 5, 7	Single	2
	IX-CM (Shelf 2)	Slot 2, 4, 6, 8	Slot not available for use with the IX-8EIPSUB/NET cards	
	IX-EXPM	Slot 1, 3, 5, 7[a]	Single	2
	IX-EXPM	Slot 2, 4, 6, 8	Slot not available for use with the IX-8EIPSUB/NET cards	

a. When using the 6th IX-EXPM of an ADIX-450 system, only slots 1 and 3 can be used.

IX-8IPNET Support

As mentioned earlier, the IX-8IPNET uses SIP to pass voice over an IP network. Because the Internet Protocol was designed to support the passing of data over any type of network, it is inherently flexible. However, the Internet Protocol was designed for data—not voice—and data is not time dependent. That is, if users receive their email 900 milliseconds late, they never know (nor care). But if voice packets are consistently 900 milliseconds late, users immediately hear latency.

Since latency could become an issue in some network topologies, Iwatsu Voice Networks currently supports the passing of IX-8IPNET/IX-8IPSUB traffic only over a wired point-to-point connection, a VPN or managed IP network with guaranteed quality of service. Furthermore, the IX-8IPNET will ideally be wired to the network backbone through fully-switched (Layer 2 switched) Ethernet with minimal hops to the border router.

Because of the inherent limitations with hub and the latency they introduce to the network, passing IX-8IPNET traffic only through fully-switched Ethernet is supported by Iwatsu Voice Networks.

IX-8IPNET Specifications

Voice Compression /Bandwidth Requirements

The voice compression of the IX-8IPNET card can be configured using one of two Codecs: G.711 and G.729. The compression scheme used depends entirely on the environment in which the IX-8IPNET card is installed, and it is configured on a card-by-card basis in Class 35.03. If bandwidth is limited, G.729 should be selected. For those environments in which bandwidth is less of an issue, G.711 should be selected. The following table describes the available voice compression settings:

Compression	Bandwidth per port (Including Overhead)	Bandwidth per card (Including Overhead)
G.729	24 kbps	192 kbps
G.711	80 kbps	640 kbps

The table above shows the compression schemes and the bandwidth per port and per card they introduce to a network. Note that each IX-8IPNET card uses this bandwidth. For example, if an ECS telephone system has two IX-8IPNET cards plus two IX-8EIPNET daughterboard cards for a total of 4 cards (32 ports) and G.729 is used as a compression scheme, the ECS telephone system will introduce 768 kbps (.768 mbps) to the network.

Daughterboard Use

The IX-8IPNET supports the use of the IX-8EIPNET and the IX-8EIPSUB daughterboard. Using the IX-8EIPNET daughterboard adds an additional 8 ports for a total of 16 IP networking ports. Additionally, the IX-8IPNET supports the use of the IX-8EIPSUB daughterboard. With the combination of one IX-8IPNET with an IX-8EIPSUB, 8 IP networking ports are provided with an additional 8 ports for use with the IX-12IPKTD IP Telephone.

Both the IX-8EIPNET and the IX-8EIPSUB receive power from the IX-8IPNET card using connectors CN1 and CN2 and require no additional power. However use of a daughterboard requires either an even card slot or a dual highway system (ADIX APS), thus card slot consideration must be made when installing the IX-8IPNET with an IX-8EIPSUB or IX-8EIPNET daughterboard.

IP Networking Installation Overview

Before installing the IX-8IPNET/IX-8EIPNET card in the ECS telephone system, careful planning and consideration must be done. Planning for the installation of the IX-8IPNET/IX-8EIPNET card can be broken into two main sections: IP Network Planning and ECS Planning. The IP Network Planning involves the network infrastructure in which the packetized voice traffic will travel—primarily the LAN/WAN environment. The ECS Planning consists of home and remote ECS programming and which configuration best suits what the trunk will be used for.

The installation process consists of a series of sequential steps. The following outlines all steps required to install an IX-8IPNET.

- Step 1: IP Network Planning
- Step 2: IX-8IPNET Installation in an Existing System
- Step 3: LAN Installation

Depending on the type of ECS system and desired configuration, installation times may vary.

VPN

The bandwidth bottleneck of the IX-8IPNET/IX-8EIPNET card is the WAN. For this reason, the WAN connection must be carefully analyzed. The easiest implementation of networking two ECS telephone systems together via the IX-8IPNET/IX-8EIPNET cards is using a dedicated, point-to-point T1 circuit. Of course networking the ECS telephone systems over this medium is expensive.

Often the two or more ECS telephone systems will be networked using a VPN. Because their cost can be kept reasonable, VPNs are used for security and scalability purposes. However when choosing a VPN provider, careful consideration must be made.

The term ‘VPN’ is used loosely in the service provider industry. To some providers, a VPN is nothing more than a secure tunnel through the Internet, not the ideal VPN through which to pass voice traffic. Other providers will sell a VPN service that is simply a high bandwidth dedicated circuit that has some of the bandwidth segmented for another user. While each are extreme examples of what some in the industry consider a VPN, the following questions should be kept in mind when ordering a VPN service.

- Is the VPN service fully managed?
- Does the VPN service guarantee end-to-end QoS?
- What is the guaranteed bandwidth and is it enough for the network?

The above is just an example of questions to ask the VPN provider. Each site will require different VPN services. However all sites must have timely, accurate and secure packet delivery. Make certain the VPN service connecting the ECS telephone systems can accommodate these needs.

Border Routers

Configuration of border routers is another topic that must be considered. Most newer routers allow packet priority based on IP address or TCP port. At a minimum, routers used must have the capability to provide priority to the ECS-generated voice traffic.

IX-8IPNET, IX-8EIPNET SIP (UDP), RTP and RTCP Port Overview

The IX-8IPNET and IX-8EIPNET cards use specific UDP ports (consisting of SIP, RTP and RTCP ports) for bi-directional communication across the network. The UDP port is used as a traffic medium through which the Session Initiated Protocol (SIP) and Real Time Protocol (RTP) application layer passes. Coinciding with RTP is the Real-time Transport Control Protocol (RTCP). Because SIP and the RTP/RTCP uses UDP transport data on an IP network, the SIP, RTP or RTCP port will at times be referred to as simply UDP port. This becomes important when discussing the necessity of opening ports on the firewall.

RTP, defined by IETF Proposed standard RFC 1889, was developed to enable the transport of real-time packets containing voice, video or other time-sensitive information over an IP network. Because of the OSI layer in which RTP operates, RTP does not provide any quality of service over the IP network. However, RTP allows for the detection of some of the inherent impairments introduced to an IP network, including the following:

- Packet loss
- Variable transport delay
- Out of sequence packet arrival

With the IX-8IPNET and IX-8EIPNET cards, the SIP port is used for call control, the RTP port is used for audio transmission, and the RTCP port is used for audio control. For each circuit of the IX-8IPNET and IX-8EIPNET cards, the RTCP port should always be equal to the respective RTP port plus 1. In most cases, the RTP port is an even numbered port and the RTCP port is an odd numbered port. The default SIP (UDP) port is always 5060. The following table illustrates the default SIP, RTP, and RTCP ports for the IX-8IPNET/IX-8EIPNET cards.

IX-8IPNET / IX-8EIPNET			
Circuit Number	UDP Ports		
	SIP	RTP	RTCP
1	5060	5004	5005
2	5060	5006	5007
3	5060	5008	5009
4	5060	5010	5011
5	5060	5012	5013
6	5060	5014	5015
7	5060	5016	5017
8	5060	5018	5019

Opening Ports for Firewalls

If voice traffic generated by the IX-8IPNET/IX-8EIPNET cards will pass through a firewall, the associated incoming and outgoing TCP and UDP (SIP, RTP, and RTCP) ports for that card must be open. This will allow access to the correct network device. Refer to the router or firewall manufacturer's documentation for specific information on port assignment.

Note: When the IX-8IPNET/IX-8EIPNET cards are protected by a firewall, the firewall must be open for generated bi-directional UDP (SIP, RTP and RTCP) traffic. Often, installation of IP Networking over a VPN does not utilize a firewall. In this case, it is not necessary to open UDP (SIP, RTP and RTCP) ports.

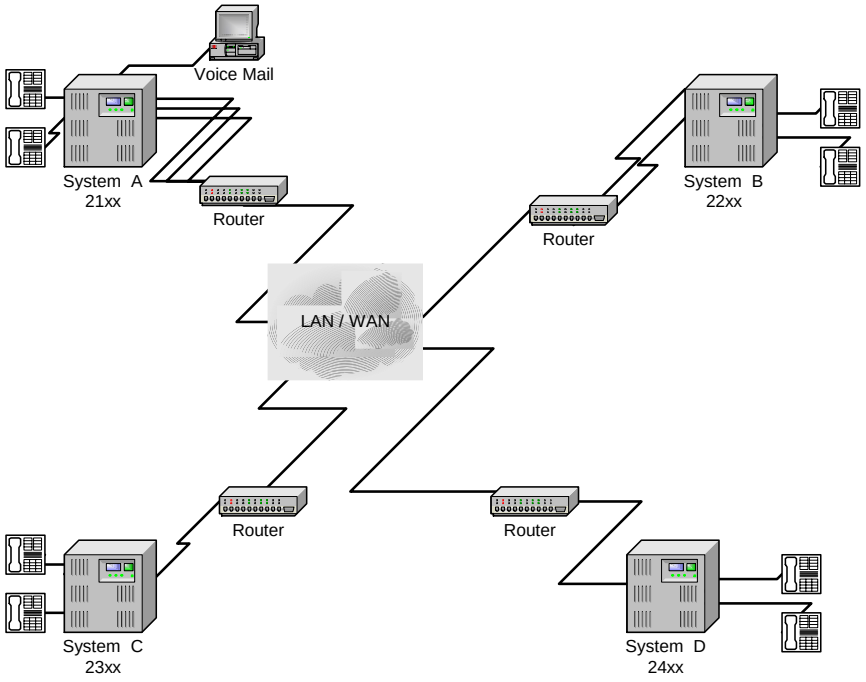
IP Networking Planning

When configuring an IP Network solution utilizing the IX-8IPNET/IX-8EIPNET card, ECS ports are configured in the same way as if they were T1 circuits, with the exception that 'IP' is selected as a configuration parameter. Supported ECS port configurations for IX-8IPNET/IX-8EIPNET are:

- Digital E&M Tie Line
- Digital Loop Start Trunk
- Digital E&M Trunk
- Digital Voice Mail / OPX (Voicemail)
- Digital OPX / SLT (Single Line Telephone)

IP Networking Configuration

In the example on the following page, the network consists of four systems labeled 'System A' through 'System D'. System A is the main location and has the centralized voice mail system. System A is configured with two IX-8IPNET cards. Each of these cards is configured with four Digital E&M tie lines for voice traffic and four Digital E&M tie trunks for the centralized voice mail. System B, System C and System D each has one IX-8IPNET card that is configured with four E&M tie lines for voice traffic and four Digital Voice Mail / OPX channels for accessing the centralized voice mail system located in System A.



In the above example, System A has the ability to make and receive eight simultaneous network calls, utilizing the eight IX-8IPNET channels configured as Digital E&M tie lines. Systems B, C and D have the ability to make four simultaneous network calls, using the four IX-8IPNET channels configured as Digital E&M tie lines. The four IX-8IPNET channels configured as Digital Voice Mail / OPX ports will be used to make four simultaneous calls to access the voice mail system at System A. These calls will obtain one of the eight ports configured at System A as Digital E&M Tie Trunks.

Calls from System B, C or D to System A will have two route choices programmed in Class 36.01. Each of these route choices will be associated with one of two IX-8IPNET cards installed in System A. Calls from System B to System C, System B to System D, System C to System D will use the same four IX-8IPNET trunks configured as E&M tie lines. The main difference with IP Networking is that these calls will not be required to pass through system A in order to ring at a node (B, C or D).

Voicemail Calls from Systems B, C and D will share the eight E&M Trunks in System A for voicemail access. A one to one ratio of E&M trunks is not required. The only requirement is that there are enough channels in the main system to support anticipated traffic from the remote sites.

Installing the IX-8EIPSUB/IX-8EIPNET cards

The IX-8EIPSUB and the IX-8EIPNET cards can be installed on either the IX-8IPSUB or the IX-8IPNET card, and the cards can be mixed. For example, an IX-8IPSUB can receive an IX-8IPNET. The following is the procedure for installing the IX-8EIPSUB/IX-8EIPNET card on an IX-8IPSUB/IX-8IPNET card.

1. Position the IX-8EIPSUB/IX-8EIPNET card over the IX-8IPSUB/IX-8IPNET.
   - Make sure both card's serial and Ethernet connections face the same direction.
2. With CN1 and CN2 on both cards properly aligned, gently press down.
   - If resistance occurs, stop and realign the connectors before pressing down.

Once the above process is complete, both cards are ready for installation in the ECS telephone system.

IX-8IPNET Installation in a New System

The procedure listed below is the only procedure supported by Iwatsu Voice Networks to add trunk cards to a new system.

1. Insert the IX-CCU card.
2. Install the existing hardware interfaces for Station, Trunk and Miscellaneous cards.
   - The 8 port IX-8IPNET can be installed into any available 8 port card slot.
   - When installing an IX-8IPNET card combined with the IX-8EIPSUB/IX-8EIPNET, the 16 port combination can go in any slot in the cabinet.
3. After installing all required hardware, default the system.
   - The IX-8EIPSUB defaults as 8 IPKTs with an appropriate station logical port number based on it's physical location within the ECS system.
   - The IX-8IPNET/8EIPNET each defaults as 8 Digital IP E&M Tie Lines with an appropriate trunk logical port number based on its physical location within the ECS system.

Note: Centralized voicemail applications require a configuration change from the default Digital IP E&M Tie Lines (trunks) to Voicemail OPX (station). In this case, increase the number of Class 01.06 - Number of System Station Ports to reflect the needed new station ports.

Note: Class 01.06 and 01.07 cannot be changed using the Iwatsu Programmer. However, the Iwatsu Programmer must be set to match the changes programmed to Classes 01.06 and 01.07.

After the ECS System is initialized and comes up in default, normal programming of the system database is then required in addition to the necessary programming for the newly added data items for the IX-8IPNET and the IX-8EIPSUB /IX-8EIPNET.

IX-8IPNET Installation in an Existing System

The procedure listed below is the only procedure supported by Iwatsu Voice Networks to add trunk cards to a live system

Note: Read through this entire procedure before attempting to add the IX-8IPNET card to an ECS telephone system

Procedure

1. Using the Iwatsu Programmer, obtain a fresh download of the database.
2. Make a copy of the downloaded database and store in a safe place.
3. Access the programming database using a programming KT or programming KT + DSS Unit.
4. Increase the desired number of trunk ports in Class 01.07 - Number of System Trunk Ports to reflect the needed new trunks.
   - If centralized voicemail will be used, increase the number of Class 01.06 - Number of System Station Ports to reflect the needed new station ports.

Note: Class 01.06 and 01.07 cannot be changed using the Iwatsu Programmer. However, the Iwatsu Programmer must be set to match the changes programmed to Classes 01.06 and 01.07 in Step 4.

5. Close the communication link and exit database programming.
6. After exiting programming, wait 10 seconds then reset the system.

Note: **Important!** Do not upload any ECS system database changes without a fresh download.

   - Make sure the number of stations and trunks displayed through the Iwatsu Programmer matches the changes made above.
7. Using the Iwatsu Programmer, go to Class 01.09 - Port Configuration and define the new IX-8IPNET ports according to the table listed below:

PORT CONFIGURATION	CLASS	FUNCTION	DEFINITION
Digital E&M Tie Line	TRUNK	E&M TIE LINE	DIGITAL E&M TIE LINE
Digital E&M Trunk	TRUNK	STANDARD CO	DIGITAL E&M TRUNK
Off Premise Voice Mail Port	STATION	MESSAGE STATION	DIGITAL VM OPX
Off Premise SLT Port	STATION	SLT	DIGITAL OPX
Digital Loop Start Trunk	TRUNK	STANDARD CO	DIGITAL LOOP START

8. In the **Conf. Param** field select edit to open the **Port Edit Parameters** window. Change the **Line Type** to **IP**.
9. Upload the Class 01 configuration changes and break the communication link.
10. Exit database programming.
11. After exiting programming, wait 10 seconds then power down the ECS telephone system.
12. Insert the IX-8IPNET into the ECS cabinet.
13. Power up the ECS telephone system.

LAN Installation

Before attempting to configure and install the IX-8IPNET on the LAN, read the entire installation instructions. The entire process should take no more than 60 minutes. The process described herein must be performed at all network locations and for each card installed on the LAN.

Requirements:

The following are required for the installation of the IX-8IPNET on the LAN. Make sure all are available before attempting to configure and install the IX-8IPNET. Some of the items must be obtained from the LAN administrator.

1. Windows-based Programming PC with the following:
   - Microsoft Internet Explorer Version 6.0 or higher (with cookies enabled)
   - 10/100 Base-T NIC
2. 1 Category 5 Ethernet cable
3. 1 crossover cable
4. 1 free port on a switch connected to the LAN backbone
5. Static IP address for the IX-8IPNET (or IX-8EIPNET if used)
6. TCP port for the IX-8IPNET (or IX-8EIPNET if used)
7. Subnet mask of the network
8. IP address of the default gateway

In addition to the above requirements, some firewall configuration maybe necessary for the IX-8IPNET/IX-8EIPNET to work properly.

Note:	The IX-8IPNET / IX-8EIPNET does not support Power Over Ethernet (POE). Should either card receive electrical current through the serial or Ethernet connectors, serious damage can occur.

Connection:

Note: Before connecting the IX-8IPNET/IX-8EIPNET card to the LAN, read the entire Installation section of this bulletin.

The IX-8IPNET/IX-8EIPNET ships from the factory with a default IP address of 192.168.0.1 and an subnet mask of 255.255.255.0. Often, these addresses must change to make the IX-8IPNET/IX-8EIPNET work on the LAN. To connect the programming PC to the IX-8IPNET/IX-8EIPNET, do the following.

1. With the card/s installed in the ECS cabinet and the power on, connect one end of the required crossover cable to the NIC on the programming PC and the other end to the Ethernet port on the IX-8IPNET/IX-8EIPNET.
2. Make certain the programming PC is on the same subnet and network as the IX-8IPNET. Although not always the case, often the IP address of the programming PC needs to change. For example if the programming PC uses 192.168.**1**.32 as the static IP address, the PC will be unable to communicate with the IX-8IPNET because the card has a default IP address of 192.168.**0**.1. In this example, a valid static IP address for the programming PC is 192.168.**0**.32. These settings must be configured before moving to the Configuration step.

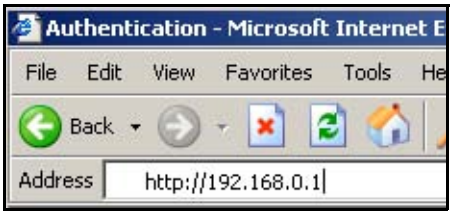
Configuration

Because the default TCP/IP settings of the IX-8IPNET may cause conflicts when installed on the LAN, the IX-8IPNET must be properly configured before installing the card on the LAN. The IX-8IPNET uses an integrated web server to provide the web-based programming interface.

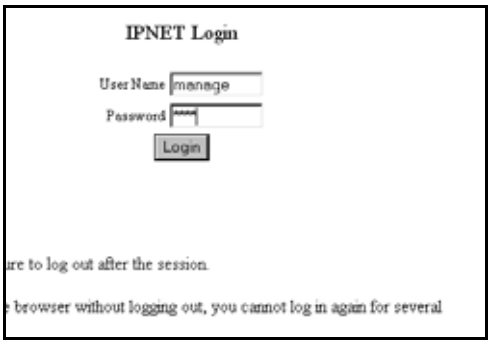
To configure the IX-8IPNET, the following instructions apply.

Note: To configure the IX-8IPNET/IX-8EIPNET card, cookies must be enabled. Use Internet Explorer's integrated help file for instructions on enabling cookies.

1. Launch Internet Explorer version 6.0 or higher.
   - Type **http://192.168.0.1** (the default address) in the address bar.



- The **IPNET Login** screen displays

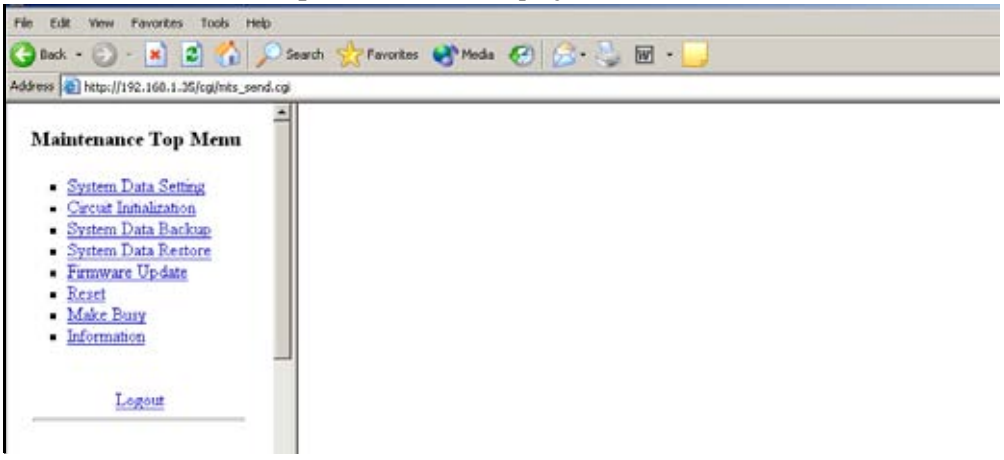


Note:	If the above page does not display, the TCP/IP configuration settings most likely conflict. Make certain both devices reside on the same subnet and the programming PC's IP settings are correct.

2. Enter the case sensitive Username and Password on the **IPNET Login** screen.
   - Use 'manage' (all lowercase) as the username.
   - Use '4192' as a password.
   - Press the **Login** button.

Note:	**Important**! The above username and password are for Iwatsu Voice Networks distributor use only.

3. The **Maintenance Top Menu** screen displays.



4. Select the **System Data Setting** hyperlink.
5. Select the **Basic Information** hyperlink.

- The **Basic Information Screen** displays.



6. Enter the network administrator-supplied static IP address for the IX-8IPNET (or IX-8EIPNET) card in the **IP Address** field.
7. Enter the network administrator-supplied default gateway address for the IX-8IPNET (or IX-8EIPNET) card in the **Default Gateway** field.
8. Enter the network administrator-supplied subnet mask for the IX-8IPNET (or IX-8EIPNET) card in the **Subnet Mask** field.
9. If already in use, enter the network administrator-supplied TCP port number for the IX-8IPNET (or IX-8EIPNET) card in the **TCP Port Number** field.
10. Press the **Set** button.

Note: **Important**! If the IX-8IPNET (or IX-8EIPNET) card is moved from one network to another OR from one subnet to another, pressing the **Set** button changes the network settings. If this is the case, the programming PC's network settings must be reconfigured to reflect the changes

11. Logout of the IX-8IPNET (or IX-8EIPNET).

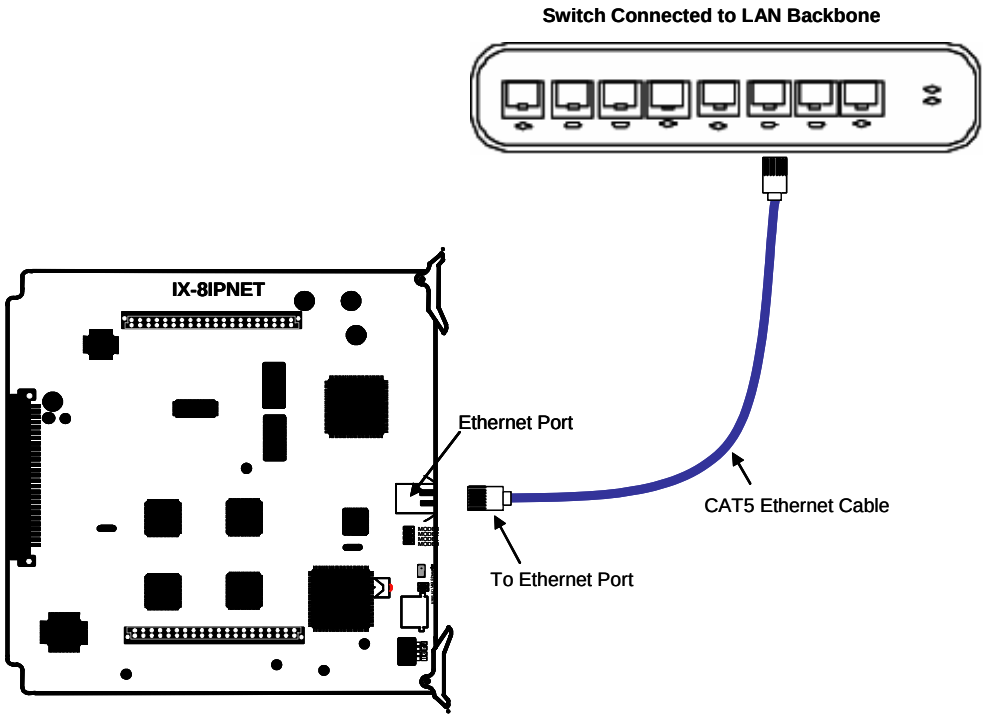


12. Press the red **Reset** button.
    - For the **Reset** button position on the IX-8IPNET card.
    - For the **Reset** button position on the IX-8EIPNET card.

Physical LAN Installation

This section describes the process of installing the IX-8IPNET/IX-8EIPNET on an Ethernet LAN.

1. With the IX-8IPNET card installed in the ECS telephone system, insert one end of the CAT5 (Ethernet) cable RJ-45 plug into the port labeled **Ethernet** on the IX-8IPNET card.
2. Insert the free RJ-45 plug from the above cable into a free port of a switch connected to the network backbone.



IX-8IPSUB / IX-8EIPSUB Overview

Note:

Iwatsu's IP products utilize Voice Over IP (VoIP) technology to transmit voice traffic over an IP network. The term IP network includes Local Area Networks (LAN) Wide Area Networks (WAN), Virtual Private Network (VPN), managed IP network, and the Internet.

The voice quality of Iwatsu's IP-based applications is dependant upon variables such as available bandwidth, network latency and quality of service (QOS). Each of these variables is controlled by the LAN/WAN administrator and/or carrier. Because these variables are not under Iwatsu's control, Iwatsu cannot guarantee the performance of an Iwatsu IP product deployed on an IP network. Iwatsu does, however, recommend minimum network requirements in the VoIP Network Readiness section if this chapter.

The IX-8IPSUB card is an 8-port card that accepts the 8-port IX-8EIPSUB card for a combined total of sixteen telephone ports. The IX-8IPSUB card connects to either a new or existing LAN (Local Area Network) and adds proprietary headers to the IP ‘stack’ to seemlessly provide support for the IX-12IPKTD/-E2 IP Telephone.

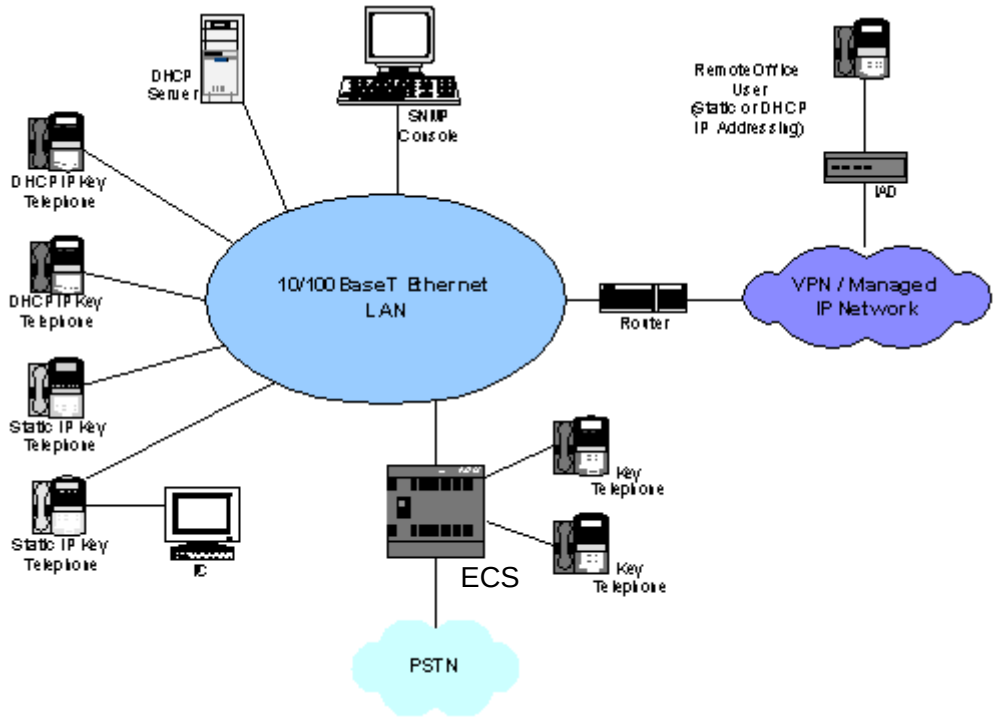
The IX-8IPSUB card enables users to migrate their existing telephone systems to an IP-based systems without discarding their previously purchased equipment.

Although the IX-8IPSUB card must use a static IP address, it supports DHCP addressing of the IX-12IPKTD/-E2s (discussed later). Depending on the network’s DHCP renewal time, an IX-12IPKTD/-E2 can be connected anywhere on the subnet and maintain its class of service; thus, the IX-8IPSUB renders moves, adds and changes obsolete.

Note:

The IX-MBU Media Bridge Unit is not required for IP Networking using the IX-8IPSUB card. The IX-8IPSUB card is a TDM resource in the ECS system.

IX-8IPSUB/IX-8EIPSUB Network Topology



Network topology using the IX-8IPSUB and the IX-12IPKTD/-E2

In the above illustration, the LAN (Local Area Network) consists of a combination of PCs, servers, IX-12IPKTD/-E2 IP telephones and an ECS. For addressing purposes, the LAN uses a DHCP server for dynamic addressing for some devices. For other devices, the LAN is configured for static IP addressing.

In this example, the LAN's firewall, as well as other network devices such as switches are assumed as part of the 10/100 BaseT Ethernet LAN. The ECS connects to the LAN via the IX-8IPSUB card. The IX-8IPSUB card uses one port on the switch for every 8 IX-12IPKTD/-E2 ports. (In the above example, one IX-8IPSUB card is required). Each IX-8IPSUB card must have one static IP address; DHCP is supported for the IX-12IPKTD/-E2's, not the IX-8IPSUB.

The IX-12IPKTD/-E2 is a true Layer 2 switch. It is this functionality that allows the IX-12IPKTD/-E2 to operate without consuming additional ports on the LAN's switch. Each desk that uses a PC connected to the LAN can add an IX-12IPKTD/-E2 (or replace a digital key telephone) by connecting the Ethernet cable from their PC to the IX-12IPKTD/-E2 IP Telephone and plugging the IX-12IPKTD/-E2 into the network.

When an IX-12IPKTD/-E2 makes a call, the voice traffic travels through the LAN, to the switch and finally through the IX-8IPSUB card to the ECS. When the ECS receives a call initiated by the IX-12IPKTD/-E2, it distributes the call.

Because the IX-8IPSUB card uses IP addressing, it is possible for remote users to use an IX-12IPKTD/-E2to connect to the ECS telephone system. For remote users, this means complete feature transparency. Remote users use a managed service with

guaranteed QoS (Quality of Service) to connect from a remote location to the office ECS telephone system. The remote user can then make calls using the IX-12IPKTD/-E2 as though they are in the office.

Note: Remote users using the IX-12IPKTD/-E2 IP Telephone to connect to the ECS must not use the IX-12IPKTD/-E2 to make emergency 911 calls. Using the IX-12IPKTD/-E2 to make emergency 911 calls will send help personnel to the location of the ECS telephone system, not to the location of the remote IX-12IPKTD/-E2.

IX-8IPSUB / IX-8EIPSUB Support

As mentioned earlier, the IX-8IPSUB/IX-8EIPSUB card adds Iwatsu Voice Networks proprietary headers to the IP stack to pass voice over an IP network. Because the Internet Protocol was designed to support the passing of data over any type of network, it is inherently flexible. However the Internet Protocol was designed for data—not voice—and data is not time-dependent. That is, if users receive their email 500 milliseconds late, they never know (nor care). But if voice packets are consistently 500 milliseconds late, users immediately hear latency.

When using the IX-8IPSUB/IX-8EIPSUB card in the typical 10/100-Base T LAN environment, latency should never become an issue. These environments often have enough bandwidth to support many IX-8IPSUB/IX-8EIPSUB cards. However, remote users may experience latency issues such as jitter and delay when attempting to connect through the Internet. For this reason, Iwatsu Voice Networks supports only remote users connecting to their ECS through a quality-of-service (QoS) controlled VPN, managed network or over a wired point-to-point connection.

IX-8IPSUB Physical Specifications

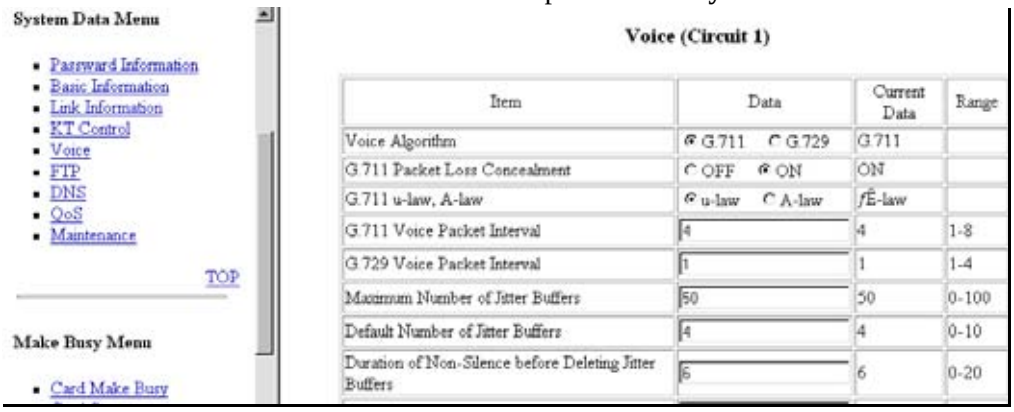
Voice Compression /Bandwidth Requirements

The IX-8IPSUB card can be configured using one of two CODECs: G.711 and G.729A. The CODEC used depends entirely on the environment in which the IX-8IPSUB card is installed. If bandwidth is limited, G.729 should be selected. For those environments in which bandwidth is less of an issue, G.711 should be selected. The following table describes the available voice compression settings.

Compression	Bandwidth per port (Including Overhead)	Bandwidth per card (Including Overhead)
G.729A	24 kbps	192 kbps
G.711	80 kbps	640 kbps

The table above shows the compression schemes and the bandwidth per port and per card they introduce to a network. Note that each IX-8IPSUB card uses this bandwidth. For example, if an ECS telephone system has two IX-8IPSUB cards plus two IX-8EIPSUB daughterboard cards for a total of 4 cards (32 ports) and G.729 is used as a compression scheme, the ECS telephone system will introduce 768 kbps (.768 mbps) to the LAN when all ports simultaneously become active.

The following is an illustration of the webscreen in which to configure the voice compression. In this example, the user logged in using the ‘manage’ level login and selected the **Circuit 1** button from the **Voice** option on the **System Data Menu**.



Voice option from the System Data Menu

IX-8IPSUB Installation in a New System

The procedure listed below is the only procedure supported by Iwatsu Voice Networks to add station cards to a new system.

1. Insert the IX-CCU card in the IX-CME cabinet.
2. Install the existing hardware interfaces for Station, Trunk and Miscellaneous cards.
   - The IX-8IPSUB can be installed into any available card slot.
   - When installing an IX-8IPSUB and an IX-8EIPSUB/IX-8EIPNET card combination in the ECS system, the 16 port combination can go in any available slot in the cabinet.
3. After installing all required hardware, default the system.
   - The IX-8IPSUB/8EIPSUB each default as 8 IPKTs with an appropriate station logical port number based on it's physical location within the ECS system.
   - The IX-8EIPNET defaults as 8 Digital IP E&M Tie Lines with an appropriate trunk logical port number based on its physical location within the ECS system.

Note: When using the IX-8EIPNET card for centralized voicemail applications, a configuration change from the default Digital IP E&M Tie Lines (trunks) to Voicemail OPX (station). In this case, increase the number of Class 01.06 - Number of System Station Ports to reflect the needed new station ports.

Note: Class 01.06 and 01.07 cannot be changed using the Iwatsu Programmer. However, the Iwatsu Programmer must be set to match the changes programmed to Classes 01.06 and 01.07

After the ECS System is initialized and comes up in default, normal programming of the system database is then required in addition to the necessary programming for the newly added data items for the IX-8IPSUB and the IX-8EIPSUB/IX-8EIPNET.

IX-8IPSUB Installation in an Existing System

The procedure listed below is the only procedure supported by Iwatsu Voice Networks to add station cards to a live system.

Note:	**Important!** Read through this entire procedure before attempting to add a the IX-8IPSUB

Procedure

1. Using the Iwatsu Programmer, obtain a fresh download of the database.
2. Make a copy of the downloaded database and store in a safe place.
3. Access the programming database using a programming KT or programming KT + DSS Unit.
4. Increase the desired station ports in Class 01.06 - Number of System Station Ports.

Note:	Class 01.06 cannot be changed using the Iwatsu Programmer. However, the Iwatsu Programmer must be set to match the changes programmed to Classes 01.06 in Step 4.

1. Break the communication link and exit database programming.
2. Wait 10 seconds then reset the system.
3. When the system is running following the reset, use the Iwatsu Programmer to download the ECS system size.

Note:	**Important!** Do not upload any ECS system database changes without a fresh download.

   - Make sure the number of stations and trunks displayed through the Iwatsu Programmer matches the changes made above.

1. Using the Iwatsu Programmer, go to Class 01.09 - Port Configuration and define the new station ports.
   - Under the **Class** column, define the physical ports of the IX-8IPSUB (or IX-8EIPSUB) card as **Station**.
   - Under the **Function** column, define the physical ports of the IX-8IPSUB (or IX-8EIPSUB) card as **Key Telephone**.

- Under the **Definition** column, define the physical ports of the IX-8IPSUB (or IX-8EIPSUB) card as **IPKT**.

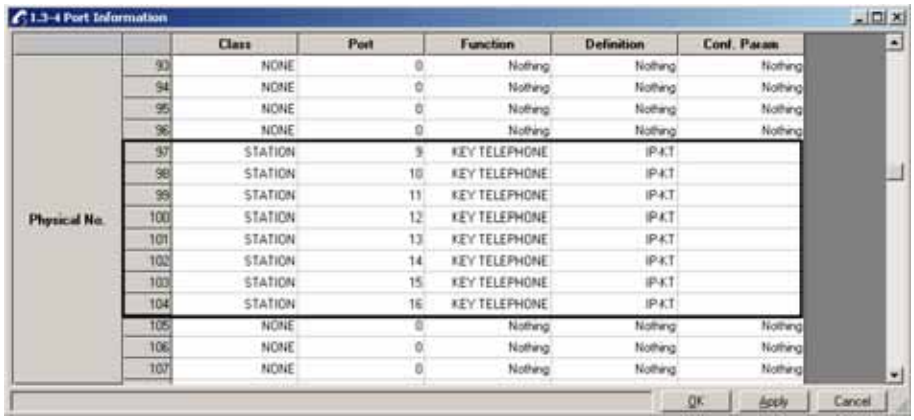


FIGURE 5.14-1 PORT INFORMATION WINDOW

2. Upload the Class 01 configuration changes and break the communication link.
3. Exit database programming.
4. After exiting programming, wait 10 seconds then power down the ECS telephone system.
5. Insert the IX-8IPSUB into the IX-CME cabinet.
6. Power up the ECS telephone system.

LAN Installation

Before attempting to configure and install the IX-8IPSUB/IX-8EIPSUB on the LAN, read the entire installation instructions. The entire process should take no more than 30 minutes.

Requirements:

The following are required for the installation of the IX-8IPSUB/IX-8EIPSUB on the LAN. Make sure all are available before attempting to configure and install the IX-8IPSUB/IX-8EIPSUB. Some of the items must be obtained from the LAN administrator.

1. Windows-based Programming PC with the following:
   - Microsoft Internet Explorer Version 6.0 or higher (with cookies enabled)
   - 10/100 Base-T NIC
2. 1 Category 5 Ethernet cable
3. 1 crossover cable
4. 1 free port on a switch connected to the LAN backbone
5. Static IP address for each IX-8IPSUB (or IX-8EIPSUB if used)
6. Subnet mask of the network
7. IP address of the default gateway

Connection

Note: No part of the LAN Installation section can be completed until all instructions in the **Installation** section are properly completed.

The IX-8IPSUB/IX-8EIPSUB ships from the factory with a default IP address of 192.168.0.1 and an subnet mask of 255.255.255.0. Often, these addresses must change to make the IX-8IPSUB/IX-8EIPSUB work on the LAN. To connect the programming PC to the IX-8IPSUB/IX-8EIPSUB, do the following.

1. Connect one end of the required crossover cable to the NIC on the programming PC and the other end to the Ethernet port on the IX-8IPSUB/IX-8EIPSUB.
2. Make certain the programming PC is on the same subnet and network as the IX-8IPSUB/IX-8EIPSUB. Although not always the case, often the IP address of the programming PC needs to change. For example if the programming PC uses 192.168.**1**.32 as the static IP address, the PC will be unable to communicate with the IX-8IPSUB because the phone has a default IP address of 192.168.**0**.1. In this example, a valid static IP address for the programming PC is 192.168.**0**.3. These settings must be configured before moving to the **Configuration** step.

Configuration

Because the default TCP/IP setting of the IX-8IPSUB/IX-8EIPSUB may cause conflicts when installed on the LAN, the IX-8IPSUB/IX-8EIPSUB must be properly configured before installing the card on the LAN. The IX-8IPSUB/IX-8EIPSUB uses an integrated web server to provide the web-based programming interface.

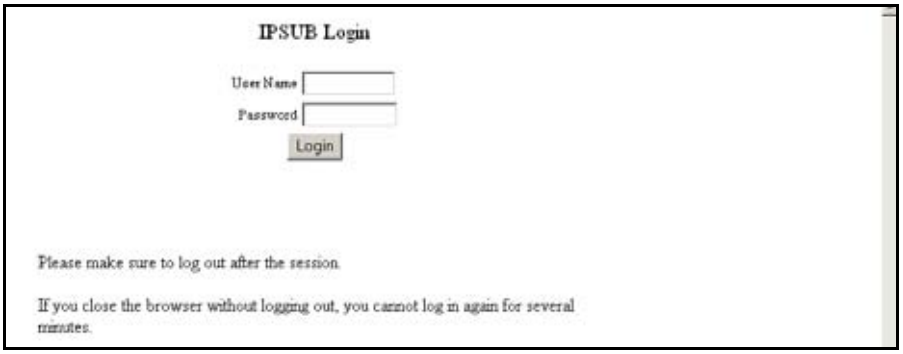
To configure the IX-8IPSUB/IX-8EIPSUB, the following instructions apply.

Note: To configure the IX-8IPSUB/IX-8EIPNET card, cookies must be enabled. Use Internet Explorer's integrated help file for instructions on enabling cookies.

1. Launch Internet Explorer version 6.0 or higher.
   - Type **http://192.168.0.1** (the default address) in the address bar.



   - The **IPSUB Login** screen displays



Note: If the above page does not display, the TCP/IP configuration settings most likely conflict. Make certain both devices reside on the same subnet and network and the programming PC's IP settings are correct

1. Enter the case sensitive Username and Password on the **IPSUB Login** screen.
   - Use 'manage' (all lowercase) as the username.
   - Use '4192' as a password.
   - Press the **Login** button.

Note: **Important!** The above username and password are for Iwatsu Voice Networks distributor use only

1. The **Maintenance Top Menu** screen displays.



2. Select the **System Data Setting** hyperlink.
3. Select the **Basic Information** hyperlink.
   - The **Basic Information Screen** displays.



4. Enter the network administrator-supplied static IP address for the IX-8IPSUB/IX-8EIPSUB card in the **IP Address** field.
5. Enter the network administrator-supplied default gateway address for the IX-8IPSUB/IX-8EIPSUB card in the **Default Gateway** field.
6. Enter the network administrator-supplied subnet mask for the IX-8IPSUB/IX-8EIPSUB card in the **Subnet Mask** field.
7. If already in use, enter the network administrator-supplied TCP port number for the IX-8IPSUB/IX-8EIPSUB card in the **TCP Port Number** field.

8. Press the **Set** button.

Note:	If the IX-8IPSUB/IX-8EIPSUB card is moved from one network to another OR from one subnet to another, pressing the **Set** button changes the network settings. If this is the case, the programming PC's network settings must be reconfigure to reflect the changes.

1. Logout of the IX-8IPSUB/IX-8EIPSUB.



2. Press the red **Reset** button.

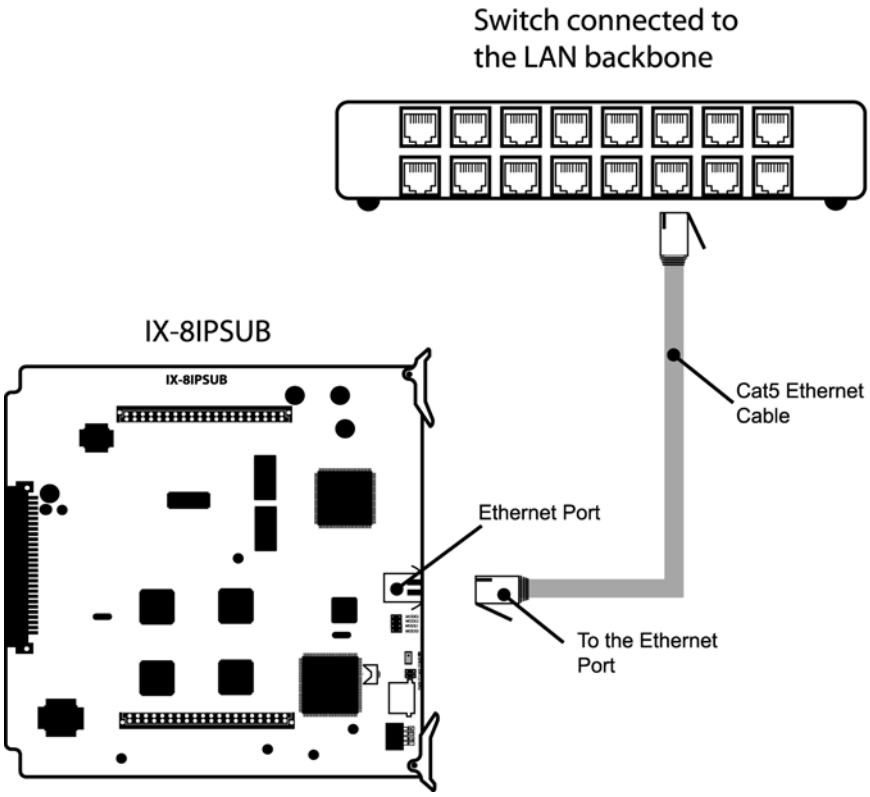
Physical LAN Installation

Note:	The IX-8IPSUB/IX-8EIPSUB does not support Power Over Ethernet (POE). Should either card receive electrical current through either the serial or Ethernet connectors, serious damage can occur

This section describes the process of installing the IX-8IPSUB/IX-8EIPSUB on an Ethernet LAN.

1. With the IX-8IPSUB/IX-8EIPSUB card installed in the ECS telephone system, insert one end of the CAT5 (Ethernet) cable RJ-45 jack into the port labeled **Ethernet** on the IX-8IPSUB/IX-8EIPSUB card.

2. Insert the free RJ-45 jack from the above cable into a free port of a switch connected to the network backbone.



IX-8IPSUB/IX-8EIPSUB LAN connection

Chapter 15

IP Networking

Introduction

This section of the Iwatsu Enterprise-CS Technical Manual includes the required information for a successful installation of IP Networking.

Before installing, you must be aware that improper installation and/or configuration of the IX-8IPSUB/IX-8EIPSUB, the IX-8IPNET/IX-8EIPNET and/or the IX-12IPKTD/-E2 IP Telephones may result in the temporary and/or permanent removal of the customer's network (LAN, WAN or otherwise) from service. To ensure this does not happen, Iwatsu Voice Networks suggests installers work closely with the network administrators.

Note: The IX-MBU Media Bridge Unit is not required for IP Networking using the IX-8IPNET card. The IX-8IPNET card is a TDM resource in the ECS system.

IP Networking Overview

Note: Iwatsu's IP products utilize Voice Over IP (VoIP) technology to transmit voice traffic over an IP network. The term IP network includes Local Area Networks (LAN) Wide Area Networks (WAN), Virtual Private Network (VPN), managed IP network, and the Internet.

The voice quality of Iwatsu's IP-based applications is dependant upon variables such as available bandwidth, network latency and quality of service (QOS). Each of these variables is controlled by the LAN/WAN administrator and/or carrier. Because these variables are not under Iwatsu's control, Iwatsu cannot guarantee the performance of an Iwatsu IP product deployed on an IP network. Iwatsu does, however, recommend minimum network requirements in the VoIP Network Readiness section in this chapter.

To support IP Networking, the IX-8IPNET or IX-8EIPNET card is required. IP Networking supports all of the features and operations associated with T1 / E&M networking. However, instead of voice and data traffic between the two systems being transmitted over a a T1 or E&M tie line, voice and data traffic is transmitted over a data channel such as a VPN or managed IP network. For this reason, IP Networking does not require a point-to-point relationship between the tie lines at each end. Additionally, IP Networking does not require an Telephone system acting as hub, containing dedicated networking hardware for each node. With IP Networking, a single IX-8IPNET and/or IX-8EIPNET card installed in an ECS system is free to communicate with any networked system that contains an IX-8IPNET/IX-8EIPNET card. The only requirement is adequate bandwidth.

Note: IP Networking is not associated with IP or T1 Campus networking

SIP Explained

The IX-8IPNET/IX-8EIPNET card packetizes data and uses the Session Initiated Protocol (SIP) to network two or more ECS systems. SIP is a set of rules that SIP-enabled devices use to establish a variety of telephony features.

SIP functions occur in terms of sessions. These can be broken down into the following:

- **Locate an Agent** - The ability to locate another user with whom a user wishes to communicate.
- **Session Establishment** - The ability of the called party to accept a call, reject a call or redirect the call to another location or service.
- **Session Setup Negotiation** - The ability of the communicating parties to negotiate the set of parameters to use during the session. In this case the parameters include audio encoding.
- **Modify a Session** - The ability to change a session’s parameters such as using a different audio encoding, adding/removing a session participant, etc.
- **Session Teardown** - The ability to end a session.

In terms of the IX-8IPNET/IX-8EIPNET card, these five processes occur each time a User Agent (an IX-8IPNET/IX-8EIPNET card) places a call.

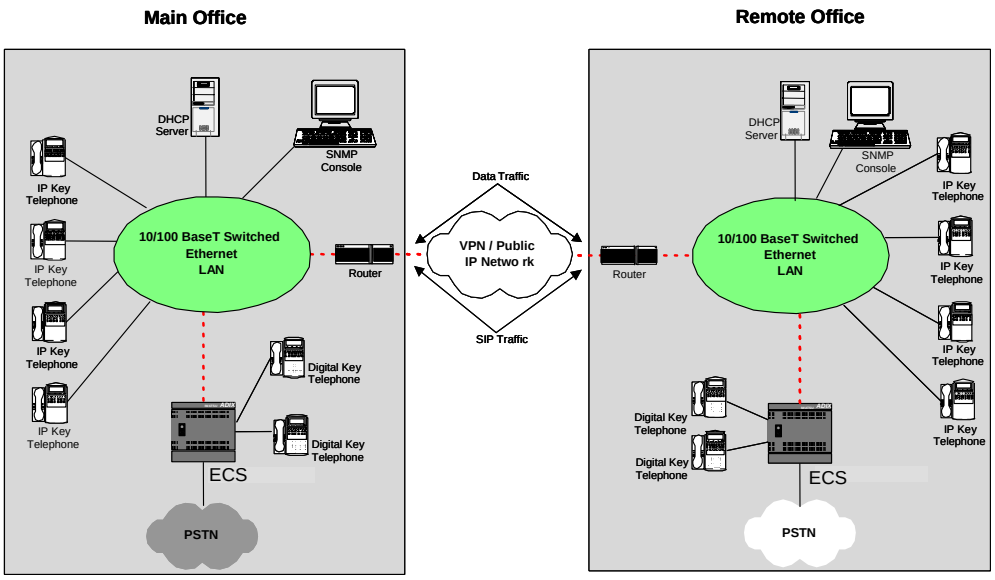
The value of SIP lies in its flexibility. The IX-8IPNET/IX-8EIPNET card is able to packetize voice traffic and pass it over a data network. Additionally, unless a SIP session is initiated, no bandwidth is used. The lean nature of SIP devices allow users to leverage burstable data channels as well as free up bandwidth for other nodes.

SIP addressing is very similar to IP addressing in that both use URLs. However IP addressing uses a URL (Uniform Resource Locator) such as 192.168.1.1 and SIP sessions use SIP URLs that differ a bit. **SIP:AgentA@MyCompany'sIPAddress** is an example of a SIP URL.

- **SIP:** - Packet will be a SIP packet, not a typical IP packet
- **AgentA** - SIP username
- **@MyCompany'sIPAddress** - host name

IP Networking Topology

The following is an example of the IX-8IPNET card tying two ECS telephone systems over a single channel. Immediately following the illustration is an in-depth explanation of the topology.



Note:	In this example, both the Main and the Remote Offices use exactly the same equipment are configured the same.

Each of these offices has an ECS that is equipped with an IX-8IPNET card. The IX-8IPNET card is connected directly to the LAN. WAN access for voice and data is provided through the router at each end. In both offices a combination of IP Telephones (IX-12IPKTD) and digital key telephones (e.g., IX-12KTD-3) are used. Each IP Telephone is connected directly to the LAN via an internal Layer 2 switch. Inside the ECS cabinet is an IX-8IPSUB card. Each IX-8IPSUB card provides TDM to IP and IP to TDM conversion for up to eight IP Telephones. This allows the IP Telephones to access all TDM resources (e.g., intercom dialing, ECS features, PSTN). In addition, this card allows the ECS resources to communicate with the IP Telephones.

Voice networking between the two sites is achieved via an IX-8IPNET card at each end linked through a VPN / Managed IP Network. These offices use an ECS to integrate with the Local Area Network (LAN). On the LAN, an IX-12IPKTD IP Telephone (fully explained later in this manual) interfaces with the ECS. Furthermore, traditional Key Telephones are used by some users. In this example, some or all users are DHCP-enabled, although the IX-8IPNET card must have at least one static address.

Notice that the Main and Remote Office are tied together using a single data channel. In this example, the data channel is a VPN (Virtual Private Network) or a Managed IP Network. Of course, the data channel can also be a leased or point-to-point T1 line.

Each ECS connects to the office router via an IX-8IPNET card. All office-to-office calls originate in the respective office’s ECS, travels through the IX-8IPNET card, to the switched LAN, to the router and through the data channel. They are then received in the inverse.

Notice that voice and data traffic travel through the same channel. Notice also, that ECS telephone systems using traditional key telephones can leverage the flexibility of the IX-8IPNET card. That is, users are not forced to purchase IP-enabled telephones.

The above configuration illustrates the use of the traditional networking using the IX-8IPNET card. When properly implemented, users have the ability to use 2 to 4 digit dialing, centralized voicemail and centralized SMDR reporting.

IP Networking Database Description

The IP Networking Database is comprised of programming items in Class 01, Class 10, Class 28 and Class 36. The purpose of each of these programming classes and items is described below:

Class.Item. Description	Description
Class 01	
Class 01.09 Port Definition	Ports on the IX-8IPNET/IX-8EIPNET card may be defined as described below: Digital E&M Tie Line CLASS=TRUNK, FUNCTION=E&M TIE LINE, DEFINITION=DIGITAL E&M TIE LINE Digital E&M Trunk CLASS=TRUNK, FUNCTION=STANDARD CO, DEFINITION=DIGITAL E&M TRUNK Off Premise Voice Mail Port CLASS=STATION, FUNCTION=MESSAGE STATION, DEFINITION=DIGITAL VM OPX Off Premise SLT Port IWATSU PROGRAMMER: CLASS=STATION, FUNCTION=SLT, DEFINITION=DIGITAL OPX Digital Loop Start Trunk CLASS=TRUNK, FUNCTION=STANDARD CO, DEFINITION=DIGITAL LOOP START
Class 01.09 Port Configuration	The line type for ports on the IX-8IPNET/IX-8EIPNET card must be configured as IP in the 1.3-4 PORT INFORMATION window. This is accomplished by selecting Conf. Param from the 1.3-4 PORT INFORMATION window, pressing EDIT, then defining Line Type as IP in the Port Edit Parameters dialog box.
Class 10	
Class 10.75 Element <03> Station IP Device Handler	Station IP Device Handler is used for ports on the IX-8IPNET/IX-8EIPNET card configured as VOICE MAIL / OPX or OFF-PREMISE SLT / OPX Ports. The programming in this item (0-128) points to a Class 36 IP Device Handler Number associated with the centralized voice mail system or off premise extension. If 0 is programmed in Class 10.75 <03>, this item is ignored.
Class 28	
28.01 Conversion Number	Conversion Number is used to program network access numbers. The entries in this table are not dialed out on the call. To add any digits or to redial the access code on the call, the data must be entered in Class 28.03 for internal conversions, Class 28.04 for feature access code conversions and Class 28.05 for external conversions. Each data entry in Class 28.01 can be 1 to 4 digits in length. When the a network access code programmed in Class 28.01, the Conversion No. is dialed by an extension and the system looks to Attribute field (Class 28.02) to determine the type of conversion (internal, external or feature access), number of digits, and conversion table to use.

28.02 Network Attribute	**Attribute** is used to determine the attributes of each entry in the Conversion No. field (Class 28.01). The Attribute field is a one-to-one relation with the Conversion Number in Class 28.01. The **Attribute** field can be set to one of three entries: Internal (for conversations internal to the system), Feature (for feature access codes) and External (for conversations external to the systems). The value entered in the **Digit** field is used to identify the number of digits that will follow each conversion entry. This is the number of digits the user will dial in conjunction with the conversion entry. The value entered in **Table No.** is dependant on the selection in the **Attribute** field and points to one of three Table Numbers: Class 28.03 Internal Table, 28.05 External Table and 28.04 Feature Access Table. Likewise, the range in **Table No.** is determined by the programming selection in the **Attribute** field. For example, Internal is the selection in the **Attribute** field, the Class 28.03 Internal Table range is 1-200. If Feature is selected, the Class 28.04 Feature Access Table range is 1-60. Finally, if External is selected, the Class 28.05 External Table range is 1-600.
28.03 Network Internal	**Internal Network** is the internal network conversion table. The table number listed in Class 28.03 corresponds to the number entered in **Table No.** field of Class 28.02 Network Attribute (Internal). There are 16 possible translations per entry based on the network class of service programmed for the station. The network class of service is programmed in Class 10.75 <04>.
28.04 Network Feature	**Class 28 Item 04 - Feature Access Table** is the feature conversion table. Currently, the feature access table may only be used to turn on and off Message Waiting Lamps at the local location. The table number listed in Class 28.04 corresponds to the number entered in **Table No.** field of Class 28.02 Network Attribute (Feature). The value entered in the **Feature** field corresponds to the feature access codes in Class 07.06. Set the **Action** field to 0 to activate the feature, and a 1 to cancel the feature.
28.05 Network External	**External Network Table** is used to route external calls determined by the Attribute field (External) in the Class 28.01 Network Table. The CO Group field is the IX-8IPNET/IX-8EIPNET trunk group programmed in the 38 Outgoing CO Group field in Class 11 Line Class of Service. The Proc (Processing) Method field uses the data entered in the Add Dial Data field, plus the digits entered by the user (the allowed digits are entered in the Digit field of the Class 28 Network Table). Add Dial Only can also be selected from the Proc (Processing) Method field, resulting in the sending of digits entered in the Add Dial field. The Inband Signal field can be enabled to allow the sending of ANI/DNIS/Caller-ID and extension number information across the said CO Group field. This feature should be disabled for systems not requiring calling party display information. The External Network Table allows three entries, allowing alternative call routing should all circuits in the CO Group field become busy or disabled.
28.06 Network Route Advance	**Network Route Advanced Table** is used to set the route advance step for each network class of service. Route advance steps are only used when the outgoing trunk group in the Network Route Step field of the Class 28.05 External Network Table is busy. The route advance step used is based on the Network Class of Service programmed for the station in Station Class of Service (Class 10.75 <04>). If the advance step is set to 0 the station user cannot advance to the next step. If the advance step is 1 then the station user can advance to the second route. An advance step of 2 will allow the user to use all three routes.

28.07 Networking IP Device Handler	Networking IP Device Handler is used to route IP Networking Calls by referencing an entry in Class 36 which identifies the function and SIP URL of an IX-8IPNET/IX-8EIPNET card at the distant end. The destination of a network call using IP Networking is determined dynamically, i.e., on a call-by-call basis, using the IP Device Handler Number stored in Class 28.07. The Class 28.07 programming is a specific number from 000 through 128. If zero is programmed in this item, Class 28.07 has no function.
Class 29	
Class 29.11 Trunk Group IP Device Handler	Trunk Group IP Device Handler provides the same function as Class 28.07 - Network IP Device Handler but is referenced only when direct trunk group access is permitted on a tie line call. The programming in this item (0-128) points to a Class 36 IP Device Handler Number associated with the centralized voice mail system or off premise extension. If 0 is programmed in Class 29.11, this item is ignored.
Class 36	
Class 36.01 IP Device Routing Steps	IP Device Routing Steps is used to assign route steps for each IP Device Handler referenced in Class 28.07. Up to four route steps may be programmed. Each route step identifies a table reference in Class 36.04. The Class 36.04 table contains the 8-bit URL (e.g., 192.168.0.5) and the function of the associated distant trunk (e.g., Tie Line, OPX).
Class 36.02 Load Balancing	Load Balancing is used to assign the hunting method of the Class 36.01 IP Device Routing Steps. When Load Balancing is programmed as OFF in this item, a new IP NEtworking Call will always start with Class 36.01 Route Step 1. If Step 1 is busy, the ECS will automatically move to additional route steps in sequence: 2, 3, 4. If load balancing is programmed as ON in this item, the ECS will automatically choose from one of the available Class 36.01 route steps based on which step was used last
Class 36.03 Compression	Compression is used to select the CODEC scheme for the IX-8IPNET/IX-8EIPNET card. Two choices are available: G.729 (24kbps including overhead) and G.711 (80kbps including overhead).
Class 36. 04 IPNET URL	IP Networking URL / Distant Trunk Setting is used to assign the 8-bit URL (e.g., 192.168.0.5) and the function of the associated distant trunk. Function of the distant trunk may be selected as follows: EM = Used to make an E&M Tie Line call TK = Used to make an E&M Trunk call from an Off-Premise (Centralized) VM LS = Used to make a Loop Trunk call from an Off-Premise SLT / OPX VM = Used to ring an OPX/VML from an E&M Trunk SL - Used to ring an OPX/SLT from a Loop Trunk

Card Locations

The IX-8IPNET and the IX-8IPSUB without the IX-8EIPSUB or IX-8EIPNET daughterboards can be installed in any card slot. However because of the highway architecture (single/dual), consideration must be taken when installing the IX-8EIPSUB or IX-8EIPNET daughterboards in an ADIX system. The ECS IX-CME cabinet only supports single highway architecture (No dual highways are supported).

The table below details the card location when using the IX-8IPNET and the IX-8IPSUB with either the IX-8EIPNET daughterboard or the IX-8EIPSUB daughterboard. Note the S106 (Highway Mode settings).

System	Cabinet	Card Position	S106(Highway Mode)	Card Slots Required
ECS	IX-CME	Slot 1-6	Only Single Mode is Supported	1
ADIX APS	IX-CML	Slot 1	Single	1
	IX-CML	Slot 2-5	Dual	1
	IX-EXPML	Slot 1	Single	1
	IX-EXPML	Slot 2	Slot not available for use with the IX-8EIPSUB/NET cards	
	IX-EXPML	Slot 3-6	Dual	1
ADIX-M	IX-CMM	Slot 1	Single	1
	IX-CMM	Slot 2-5	Dual	1
	EXPMM	Slot 1	Single	1
	IX-EXPMM	Slot 3, 5	Single	2
	IX-EXPMM	Slot 2, 4, 6	Slot not available for use with the IX-8EIPSUB/NET cards	
ADIX-450	IX-CM (Shelf 1)	Slot 1, 3	Single	2
	IX-CM (Shelf 1)	Slot 2, 4	Slot not available for use with the IX-8EIPSUB/NET cards	
	IX-CM (Shelf 2)	Slot 1, 3, 5, 7	Single	2
	IX-CM (Shelf 2)	Slot 2, 4, 6, 8	Slot not available for use with the IX-8EIPSUB/NET cards	
	IX-EXPM	Slot 1, 3, 5, 7[a]	Single	2
	IX-EXPM	Slot 2, 4, 6, 8	Slot not available for use with the IX-8EIPSUB/NET cards	

a. When using the 6th IX-EXPM of an ADIX-450 system, only slots 1 and 3 can be used.

IX-8IPNET Support

As mentioned earlier, the IX-8IPNET uses SIP to pass voice over an IP network. Because the Internet Protocol was designed to support the passing of data over any type of network, it is inherently flexible. However, the Internet Protocol was designed for data—not voice—and data is not time dependent. That is, if users receive their email 900 milliseconds late, they never know (nor care). But if voice packets are consistently 900 milliseconds late, users immediately hear latency.

Since latency could become an issue in some network topologies, Iwatsu Voice Networks currently supports the passing of IX-8IPNET/IX-8IPSUB traffic only over a wired point-to-point connection, a VPN or managed IP network with guaranteed quality of service. Furthermore, the IX-8IPNET will ideally be wired to the network backbone through fully-switched (Layer 2 switched) Ethernet with minimal hops to the border router.

Because of the inherent limitations with hub and the latency they introduce to the network, passing IX-8IPNET traffic only through fully-switched Ethernet is supported by Iwatsu Voice Networks.

IX-8IPNET Specifications

Voice Compression /Bandwidth Requirements

The voice compression of the IX-8IPNET card can be configured using one of two Codecs: G.711 and G.729. The compression scheme used depends entirely on the environment in which the IX-8IPNET card is installed, and it is configured on a card-by-card basis in Class 35.03. If bandwidth is limited, G.729 should be selected. For those environments in which bandwidth is less of an issue, G.711 should be selected. The following table describes the available voice compression settings:

Compression	Bandwidth per port (Including Overhead)	Bandwidth per card (Including Overhead)
G.729	24 kbps	192 kbps
G.711	80 kbps	640 kbps

The table above shows the compression schemes and the bandwidth per port and per card they introduce to a network. Note that each IX-8IPNET card uses this bandwidth. For example, if an ECS telephone system has two IX-8IPNET cards plus two IX-8EIPNET daughterboard cards for a total of 4 cards (32 ports) and G.729 is used as a compression scheme, the ECS telephone system will introduce 768 kbps (.768 mbps) to the network.

Daughterboard Use

The IX-8IPNET supports the use of the IX-8EIPNET and the IX-8EIPSUB daughterboard. Using the IX-8EIPNET daughterboard adds an additional 8 ports for a total of 16 IP networking ports. Additionally, the IX-8IPNET supports the use of the IX-8EIPSUB daughterboard. With the combination of one IX-8IPNET with an IX-8EIPSUB, 8 IP networking ports are provided with an additional 8 ports for use with the IX-12IPKTD IP Telephone.

Both the IX-8EIPNET and the IX-8EIPSUB receive power from the IX-8IPNET card using connectors CN1 and CN2 and require no additional power. However use of a daughterboard requires either an even card slot or a dual highway system (ADIX APS), thus card slot consideration must be made when installing the IX-8IPNET with an IX-8EIPSUB or IX-8EIPNET daughterboard.

IP Networking Installation Overview

Before installing the IX-8IPNET/IX-8EIPNET card in the ECS telephone system, careful planning and consideration must be done. Planning for the installation of the IX-8IPNET/IX-8EIPNET card can be broken into two main sections: IP Network Planning and ECS Planning. The IP Network Planning involves the network infrastructure in which the packetized voice traffic will travel—primarily the LAN/WAN environment. The ECS Planning consists of home and remote ECS programming and which configuration best suits what the trunk will be used for.

The installation process consists of a series of sequential steps. The following outlines all steps required to install an IX-8IPNET.

- Step 1: IP Network Planning
- Step 2: IX-8IPNET Installation in an Existing System
- Step 3: LAN Installation

Depending on the type of ECS system and desired configuration, installation times may vary.

VPN

The bandwidth bottleneck of the IX-8IPNET/IX-8EIPNET card is the WAN. For this reason, the WAN connection must be carefully analyzed. The easiest implementation of networking two ECS telephone systems together via the IX-8IPNET/IX-8EIPNET cards is using a dedicated, point-to-point T1 circuit. Of course networking the ECS telephone systems over this medium is expensive.

Often the two or more ECS telephone systems will be networked using a VPN. Because their cost can be kept reasonable, VPNs are used for security and scalability purposes. However when choosing a VPN provider, careful consideration must be made.

The term ‘VPN’ is used loosely in the service provider industry. To some providers, a VPN is nothing more than a secure tunnel through the Internet, not the ideal VPN through which to pass voice traffic. Other providers will sell a VPN service that is simply a high bandwidth dedicated circuit that has some of the bandwidth segmented for another user. While each are extreme examples of what some in the industry consider a VPN, the following questions should be kept in mind when ordering a VPN service.

- Is the VPN service fully managed?
- Does the VPN service guarantee end-to-end QoS?
- What is the guaranteed bandwidth and is it enough for the network?

The above is just an example of questions to ask the VPN provider. Each site will require different VPN services. However all sites must have timely, accurate and secure packet delivery. Make certain the VPN service connecting the ECS telephone systems can accommodate these needs.

Border Routers

Configuration of border routers is another topic that must be considered. Most newer routers allow packet priority based on IP address or TCP port. At a minimum, routers used must have the capability to provide priority to the ECS-generated voice traffic.

IX-8IPNET, IX-8EIPNET SIP (UDP), RTP and RTCP Port Overview

The IX-8IPNET and IX-8EIPNET cards use specific UDP ports (consisting of SIP, RTP and RTCP ports) for bi-directional communication across the network. The UDP port is used as a traffic medium through which the Session Initiated Protocol (SIP) and Real Time Protocol (RTP) application layer passes. Coinciding with RTP is the Real-time Transport Control Protocol (RTCP). Because SIP and the RTP/RTCP uses UDP transport data on an IP network, the SIP, RTP or RTCP port will at times be referred to as simply UDP port. This becomes important when discussing the necessity of opening ports on the firewall.

RTP, defined by IETF Proposed standard RFC 1889, was developed to enable the transport of real-time packets containing voice, video or other time-sensitive information over an IP network. Because of the OSI layer in which RTP operates, RTP does not provide any quality of service over the IP network. However, RTP allows for the detection of some of the inherent impairments introduced to an IP network, including the following:

- Packet loss
- Variable transport delay
- Out of sequence packet arrival

With the IX-8IPNET and IX-8EIPNET cards, the SIP port is used for call control, the RTP port is used for audio transmission, and the RTCP port is used for audio control. For each circuit of the IX-8IPNET and IX-8EIPNET cards, the RTCP port should always be equal to the respective RTP port plus 1. In most cases, the RTP port is an even numbered port and the RTCP port is an odd numbered port. The default SIP (UDP) port is always 5060. The following table illustrates the default SIP, RTP, and RTCP ports for the IX-8IPNET/IX-8EIPNET cards.

IX-8IPNET / IX-8EIPNET			
Circuit Number	UDP Ports		
	SIP	RTP	RTCP
1	5060	5004	5005
2	5060	5006	5007
3	5060	5008	5009
4	5060	5010	5011
5	5060	5012	5013
6	5060	5014	5015
7	5060	5016	5017
8	5060	5018	5019

Opening Ports for Firewalls

If voice traffic generated by the IX-8IPNET/IX-8EIPNET cards will pass through a firewall, the associated incoming and outgoing TCP and UDP (SIP, RTP, and RTCP) ports for that card must be open. This will allow access to the correct network device. Refer to the router or firewall manufacturer's documentation for specific information on port assignment.

Note: When the IX-8IPNET/IX-8EIPNET cards are protected by a firewall, the firewall must be open for generated bi-directional UDP (SIP, RTP and RTCP) traffic. Often, installation of IP Networking over a VPN does not utilize a firewall. In this case, it is not necessary to open UDP (SIP, RTP and RTCP) ports.

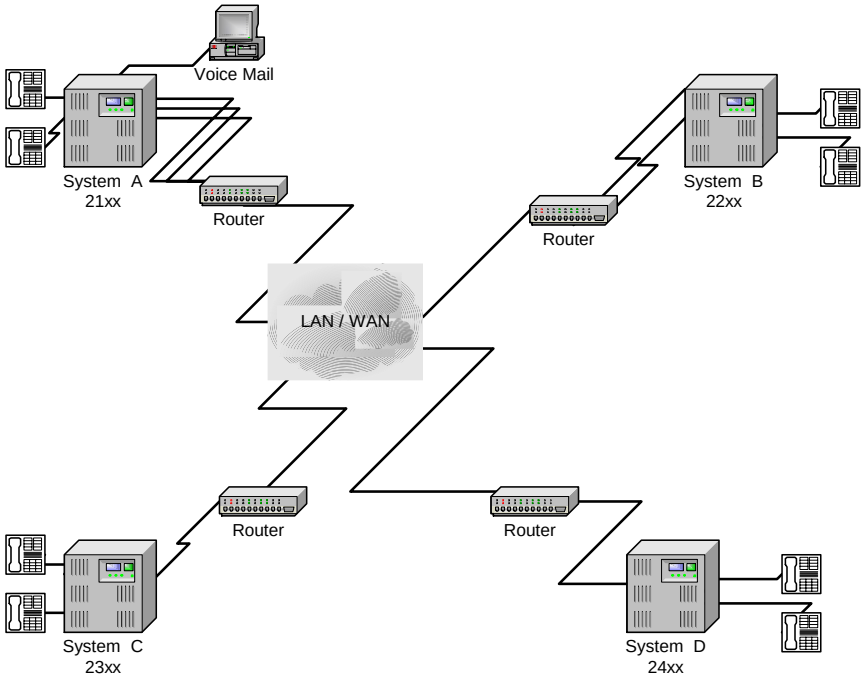
IP Networking Planning

When configuring an IP Network solution utilizing the IX-8IPNET/IX-8EIPNET card, ECS ports are configured in the same way as if they were T1 circuits, with the exception that 'IP' is selected as a configuration parameter. Supported ECS port configurations for IX-8IPNET/IX-8EIPNET are:

- Digital E&M Tie Line
- Digital Loop Start Trunk
- Digital E&M Trunk
- Digital Voice Mail / OPX (Voicemail)
- Digital OPX / SLT (Single Line Telephone)

IP Networking Configuration

In the example on the following page, the network consists of four systems labeled 'System A' through 'System D'. System A is the main location and has the centralized voice mail system. System A is configured with two IX-8IPNET cards. Each of these cards is configured with four Digital E&M tie lines for voice traffic and four Digital E&M tie trunks for the centralized voice mail. System B, System C and System D each has one IX-8IPNET card that is configured with four E&M tie lines for voice traffic and four Digital Voice Mail / OPX channels for accessing the centralized voice mail system located in System A.



In the above example, System A has the ability to make and receive eight simultaneous network calls, utilizing the eight IX-8IPNET channels configured as Digital E&M tie lines. Systems B, C and D have the ability to make four simultaneous network calls, using the four IX-8IPNET channels configured as Digital E&M tie lines. The four IX-8IPNET channels configured as Digital Voice Mail / OPX ports will be used to make four simultaneous calls to access the voice mail system at System A. These calls will obtain one of the eight ports configured at System A as Digital E&M Tie Trunks.

Calls from System B, C or D to System A will have two route choices programmed in Class 36.01. Each of these route choices will be associated with one of two IX-8IPNET cards installed in System A. Calls from System B to System C, System B to System D, System C to System D will use the same four IX-8IPNET trunks configured as E&M tie lines. The main difference with IP Networking is that these calls will not be required to pass through system A in order to ring at a node (B, C or D).

Voicemail Calls from Systems B, C and D will share the eight E&M Trunks in System A for voicemail access. A one to one ratio of E&M trunks is not required. The only requirement is that there are enough channels in the main system to support anticipated traffic from the remote sites.

Installing the IX-8EIPSUB/IX-8EIPNET cards

The IX-8EIPSUB and the IX-8EIPNET cards can be installed on either the IX-8IPSUB or the IX-8IPNET card, and the cards can be mixed. For example, an IX-8IPSUB can receive an IX-8IPNET. The following is the procedure for installing the IX-8EIPSUB/IX-8EIPNET card on an IX-8IPSUB/IX-8IPNET card.

1. Position the IX-8EIPSUB/IX-8EIPNET card over the IX-8IPSUB/IX-8IPNET.
   - Make sure both card's serial and Ethernet connections face the same direction.
2. With CN1 and CN2 on both cards properly aligned, gently press down.
   - If resistance occurs, stop and realign the connectors before pressing down.

Once the above process is complete, both cards are ready for installation in the ECS telephone system.

IX-8IPNET Installation in a New System

The procedure listed below is the only procedure supported by Iwatsu Voice Networks to add trunk cards to a new system.

1. Insert the IX-CCU card.
2. Install the existing hardware interfaces for Station, Trunk and Miscellaneous cards.
   - The 8 port IX-8IPNET can be installed into any available 8 port card slot.
   - When installing an IX-8IPNET card combined with the IX-8EIPSUB/IX-8EIPNET, the 16 port combination can go in any slot in the cabinet.
3. After installing all required hardware, default the system.
   - The IX-8EIPSUB defaults as 8 IPKTs with an appropriate station logical port number based on it's physical location within the ECS system.
   - The IX-8IPNET/8EIPNET each defaults as 8 Digital IP E&M Tie Lines with an appropriate trunk logical port number based on its physical location within the ECS system.

Note: Centralized voicemail applications require a configuration change from the default Digital IP E&M Tie Lines (trunks) to Voicemail OPX (station). In this case, increase the number of Class 01.06 - Number of System Station Ports to reflect the needed new station ports.

Note: Class 01.06 and 01.07 cannot be changed using the Iwatsu Programmer. However, the Iwatsu Programmer must be set to match the changes programmed to Classes 01.06 and 01.07.

After the ECS System is initialized and comes up in default, normal programming of the system database is then required in addition to the necessary programming for the newly added data items for the IX-8IPNET and the IX-8EIPSUB /IX-8EIPNET.

IX-8IPNET Installation in an Existing System

The procedure listed below is the only procedure supported by Iwatsu Voice Networks to add trunk cards to a live system

Note: Read through this entire procedure before attempting to add the IX-8IPNET card to an ECS telephone system

Procedure

1. Using the Iwatsu Programmer, obtain a fresh download of the database.
2. Make a copy of the downloaded database and store in a safe place.
3. Access the programming database using a programming KT or programming KT + DSS Unit.
4. Increase the desired number of trunk ports in Class 01.07 - Number of System Trunk Ports to reflect the needed new trunks.
   - If centralized voicemail will be used, increase the number of Class 01.06 - Number of System Station Ports to reflect the needed new station ports.

Note: Class 01.06 and 01.07 cannot be changed using the Iwatsu Programmer. However, the Iwatsu Programmer must be set to match the changes programmed to Classes 01.06 and 01.07 in Step 4.

5. Close the communication link and exit database programming.
6. After exiting programming, wait 10 seconds then reset the system.

Note: **Important!** Do not upload any ECS system database changes without a fresh download.

   - Make sure the number of stations and trunks displayed through the Iwatsu Programmer matches the changes made above.
7. Using the Iwatsu Programmer, go to Class 01.09 - Port Configuration and define the new IX-8IPNET ports according to the table listed below:

PORT CONFIGURATION	CLASS	FUNCTION	DEFINITION
Digital E&M Tie Line	TRUNK	E&M TIE LINE	DIGITAL E&M TIE LINE
Digital E&M Trunk	TRUNK	STANDARD CO	DIGITAL E&M TRUNK
Off Premise Voice Mail Port	STATION	MESSAGE STATION	DIGITAL VM OPX
Off Premise SLT Port	STATION	SLT	DIGITAL OPX
Digital Loop Start Trunk	TRUNK	STANDARD CO	DIGITAL LOOP START

8. In the **Conf. Param** field select edit to open the **Port Edit Parameters** window. Change the **Line Type** to **IP**.
9. Upload the Class 01 configuration changes and break the communication link.
10. Exit database programming.
11. After exiting programming, wait 10 seconds then power down the ECS telephone system.
12. Insert the IX-8IPNET into the ECS cabinet.
13. Power up the ECS telephone system.

LAN Installation

Before attempting to configure and install the IX-8IPNET on the LAN, read the entire installation instructions. The entire process should take no more than 60 minutes. The process described herein must be performed at all network locations and for each card installed on the LAN.

Requirements:

The following are required for the installation of the IX-8IPNET on the LAN. Make sure all are available before attempting to configure and install the IX-8IPNET. Some of the items must be obtained from the LAN administrator.

1. Windows-based Programming PC with the following:
   - Microsoft Internet Explorer Version 6.0 or higher (with cookies enabled)
   - 10/100 Base-T NIC
2. 1 Category 5 Ethernet cable
3. 1 crossover cable
4. 1 free port on a switch connected to the LAN backbone
5. Static IP address for the IX-8IPNET (or IX-8EIPNET if used)
6. TCP port for the IX-8IPNET (or IX-8EIPNET if used)
7. Subnet mask of the network
8. IP address of the default gateway

In addition to the above requirements, some firewall configuration maybe necessary for the IX-8IPNET/IX-8EIPNET to work properly.

Note:	The IX-8IPNET / IX-8EIPNET does not support Power Over Ethernet (POE). Should either card receive electrical current through the serial or Ethernet connectors, serious damage can occur.

Connection:

Note: Before connecting the IX-8IPNET/IX-8EIPNET card to the LAN, read the entire Installation section of this bulletin.

The IX-8IPNET/IX-8EIPNET ships from the factory with a default IP address of 192.168.0.1 and an subnet mask of 255.255.255.0. Often, these addresses must change to make the IX-8IPNET/IX-8EIPNET work on the LAN. To connect the programming PC to the IX-8IPNET/IX-8EIPNET, do the following.

1. With the card/s installed in the ECS cabinet and the power on, connect one end of the required crossover cable to the NIC on the programming PC and the other end to the Ethernet port on the IX-8IPNET/IX-8EIPNET.
2. Make certain the programming PC is on the same subnet and network as the IX-8IPNET. Although not always the case, often the IP address of the programming PC needs to change. For example if the programming PC uses 192.168.**1**.32 as the static IP address, the PC will be unable to communicate with the IX-8IPNET because the card has a default IP address of 192.168.**0**.1. In this example, a valid static IP address for the programming PC is 192.168.**0**.32. These settings must be configured before moving to the Configuration step.

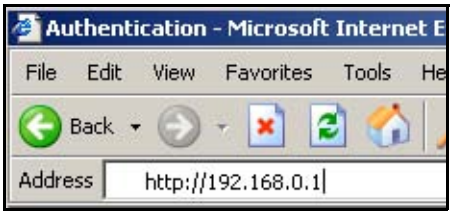
Configuration

Because the default TCP/IP settings of the IX-8IPNET may cause conflicts when installed on the LAN, the IX-8IPNET must be properly configured before installing the card on the LAN. The IX-8IPNET uses an integrated web server to provide the web-based programming interface.

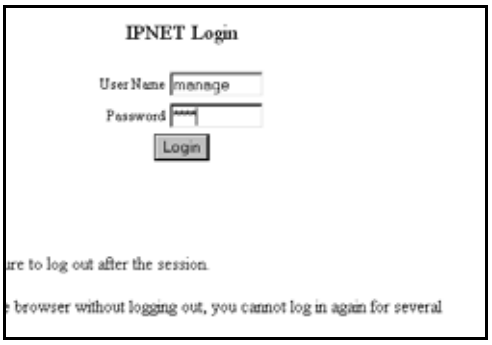
To configure the IX-8IPNET, the following instructions apply.

Note: To configure the IX-8IPNET/IX-8EIPNET card, cookies must be enabled. Use Internet Explorer's integrated help file for instructions on enabling cookies.

1. Launch Internet Explorer version 6.0 or higher.
   - Type **http://192.168.0.1** (the default address) in the address bar.



- The **IPNET Login** screen displays

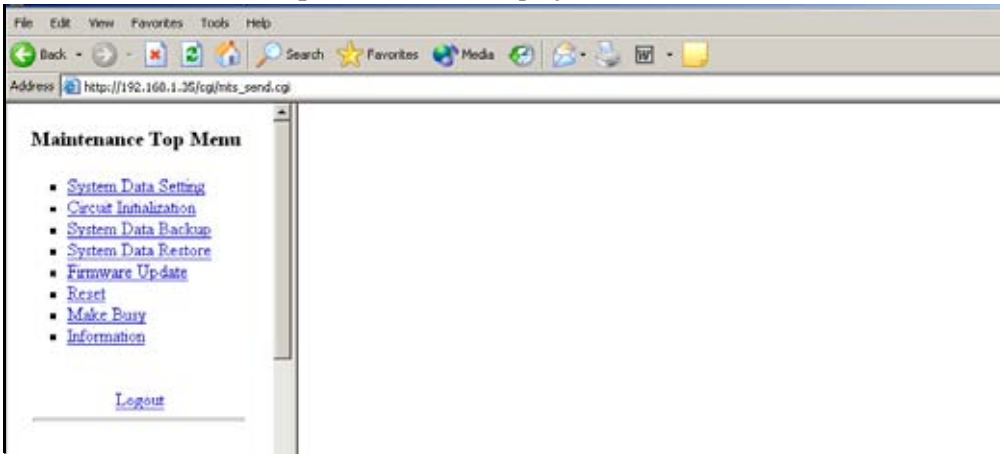


Note:	If the above page does not display, the TCP/IP configuration settings most likely conflict. Make certain both devices reside on the same subnet and the programming PC's IP settings are correct.

2. Enter the case sensitive Username and Password on the **IPNET Login** screen.
   - Use 'manage' (all lowercase) as the username.
   - Use '4192' as a password.
   - Press the **Login** button.

Note:	**Important**! The above username and password are for Iwatsu Voice Networks distributor use only.

3. The **Maintenance Top Menu** screen displays.



4. Select the **System Data Setting** hyperlink.
5. Select the **Basic Information** hyperlink.

- The **Basic Information Screen** displays.



6. Enter the network administrator-supplied static IP address for the IX-8IPNET (or IX-8EIPNET) card in the **IP Address** field.
7. Enter the network administrator-supplied default gateway address for the IX-8IPNET (or IX-8EIPNET) card in the **Default Gateway** field.
8. Enter the network administrator-supplied subnet mask for the IX-8IPNET (or IX-8EIPNET) card in the **Subnet Mask** field.
9. If already in use, enter the network administrator-supplied TCP port number for the IX-8IPNET (or IX-8EIPNET) card in the **TCP Port Number** field.
10. Press the **Set** button.

Note: **Important**! If the IX-8IPNET (or IX-8EIPNET) card is moved from one network to another OR from one subnet to another, pressing the **Set** button changes the network settings. If this is the case, the programming PC's network settings must be reconfigured to reflect the changes

11. Logout of the IX-8IPNET (or IX-8EIPNET).

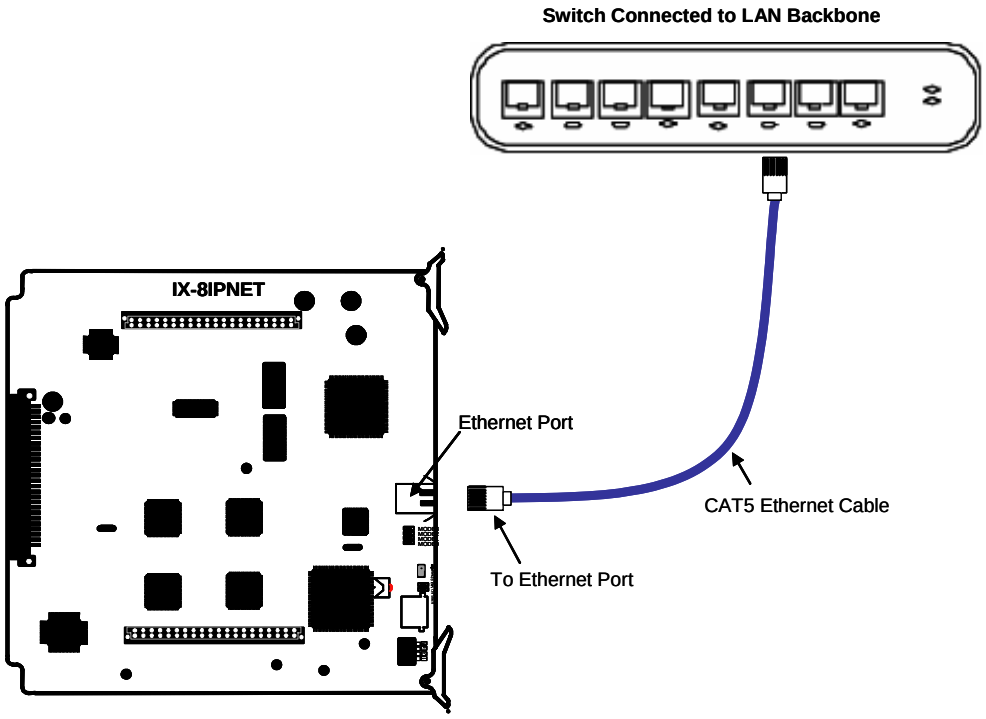


12. Press the red **Reset** button.
    - For the **Reset** button position on the IX-8IPNET card.
    - For the **Reset** button position on the IX-8EIPNET card.

Physical LAN Installation

This section describes the process of installing the IX-8IPNET/IX-8EIPNET on an Ethernet LAN.

1. With the IX-8IPNET card installed in the ECS telephone system, insert one end of the CAT5 (Ethernet) cable RJ-45 plug into the port labeled **Ethernet** on the IX-8IPNET card.
2. Insert the free RJ-45 plug from the above cable into a free port of a switch connected to the network backbone.



IX-8IPSUB / IX-8EIPSUB Overview

Note:

Iwatsu's IP products utilize Voice Over IP (VoIP) technology to transmit voice traffic over an IP network. The term IP network includes Local Area Networks (LAN) Wide Area Networks (WAN), Virtual Private Network (VPN), managed IP network, and the Internet.

The voice quality of Iwatsu's IP-based applications is dependant upon variables such as available bandwidth, network latency and quality of service (QOS). Each of these variables is controlled by the LAN/WAN administrator and/or carrier. Because these variables are not under Iwatsu's control, Iwatsu cannot guarantee the performance of an Iwatsu IP product deployed on an IP network. Iwatsu does, however, recommend minimum network requirements in the VoIP Network Readiness section if this chapter.

The IX-8IPSUB card is an 8-port card that accepts the 8-port IX-8EIPSUB card for a combined total of sixteen telephone ports. The IX-8IPSUB card connects to either a new or existing LAN (Local Area Network) and adds proprietary headers to the IP ‘stack’ to seemlessly provide support for the IX-12IPKTD/-E2 IP Telephone.

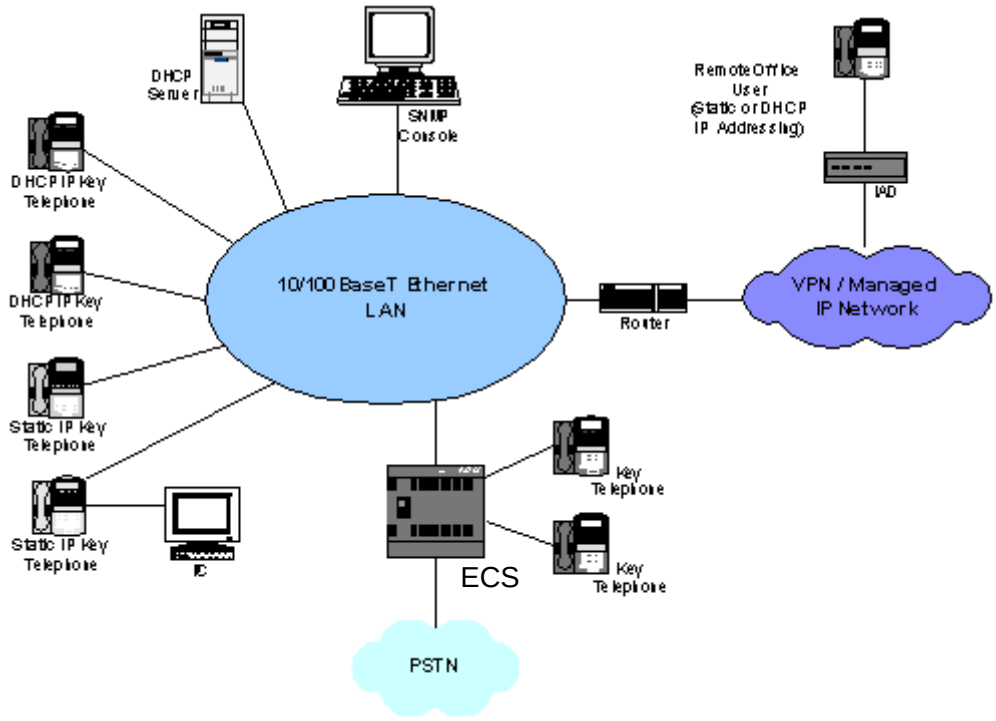
The IX-8IPSUB card enables users to migrate their existing telephone systems to an IP-based systems without discarding their previously purchased equipment.

Although the IX-8IPSUB card must use a static IP address, it supports DHCP addressing of the IX-12IPKTD/-E2s (discussed later). Depending on the network’s DHCP renewal time, an IX-12IPKTD/-E2 can be connected anywhere on the subnet and maintain its class of service; thus, the IX-8IPSUB renders moves, adds and changes obsolete.

Note:

The IX-MBU Media Bridge Unit is not required for IP Networking using the IX-8IPSUB card. The IX-8IPSUB card is a TDM resource in the ECS system.

IX-8IPSUB/IX-8EIPSUB Network Topology



Network topology using the IX-8IPSUB and the IX-12IPKTD/-E2

In the above illustration, the LAN (Local Area Network) consists of a combination of PCs, servers, IX-12IPKTD/-E2 IP telephones and an ECS. For addressing purposes, the LAN uses a DHCP server for dynamic addressing for some devices. For other devices, the LAN is configured for static IP addressing.

In this example, the LAN's firewall, as well as other network devices such as switches are assumed as part of the 10/100 BaseT Ethernet LAN. The ECS connects to the LAN via the IX-8IPSUB card. The IX-8IPSUB card uses one port on the switch for every 8 IX-12IPKTD/-E2 ports. (In the above example, one IX-8IPSUB card is required). Each IX-8IPSUB card must have one static IP address; DHCP is supported for the IX-12IPKTD/-E2's, not the IX-8IPSUB.

The IX-12IPKTD/-E2 is a true Layer 2 switch. It is this functionality that allows the IX-12IPKTD/-E2 to operate without consuming additional ports on the LAN's switch. Each desk that uses a PC connected to the LAN can add an IX-12IPKTD/-E2 (or replace a digital key telephone) by connecting the Ethernet cable from their PC to the IX-12IPKTD/-E2 IP Telephone and plugging the IX-12IPKTD/-E2 into the network.

When an IX-12IPKTD/-E2 makes a call, the voice traffic travels through the LAN, to the switch and finally through the IX-8IPSUB card to the ECS. When the ECS receives a call initiated by the IX-12IPKTD/-E2, it distributes the call.

Because the IX-8IPSUB card uses IP addressing, it is possible for remote users to use an IX-12IPKTD/-E2to connect to the ECS telephone system. For remote users, this means complete feature transparency. Remote users use a managed service with

guaranteed QoS (Quality of Service) to connect from a remote location to the office ECS telephone system. The remote user can then make calls using the IX-12IPKTD/-E2 as though they are in the office.

Note: Remote users using the IX-12IPKTD/-E2 IP Telephone to connect to the ECS must not use the IX-12IPKTD/-E2 to make emergency 911 calls. Using the IX-12IPKTD/-E2 to make emergency 911 calls will send help personnel to the location of the ECS telephone system, not to the location of the remote IX-12IPKTD/-E2.

IX-8IPSUB / IX-8EIPSUB Support

As mentioned earlier, the IX-8IPSUB/IX-8EIPSUB card adds Iwatsu Voice Networks proprietary headers to the IP stack to pass voice over an IP network. Because the Internet Protocol was designed to support the passing of data over any type of network, it is inherently flexible. However the Internet Protocol was designed for data—not voice—and data is not time-dependent. That is, if users receive their email 500 milliseconds late, they never know (nor care). But if voice packets are consistently 500 milliseconds late, users immediately hear latency.

When using the IX-8IPSUB/IX-8EIPSUB card in the typical 10/100-Base T LAN environment, latency should never become an issue. These environments often have enough bandwidth to support many IX-8IPSUB/IX-8EIPSUB cards. However, remote users may experience latency issues such as jitter and delay when attempting to connect through the Internet. For this reason, Iwatsu Voice Networks supports only remote users connecting to their ECS through a quality-of-service (QoS) controlled VPN, managed network or over a wired point-to-point connection.

IX-8IPSUB Physical Specifications

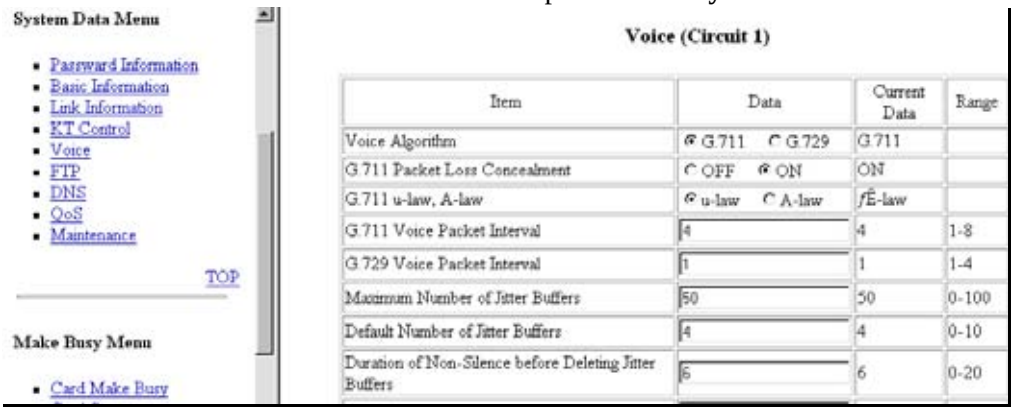
Voice Compression /Bandwidth Requirements

The IX-8IPSUB card can be configured using one of two CODECs: G.711 and G.729A. The CODEC used depends entirely on the environment in which the IX-8IPSUB card is installed. If bandwidth is limited, G.729 should be selected. For those environments in which bandwidth is less of an issue, G.711 should be selected. The following table describes the available voice compression settings.

Compression	Bandwidth per port (Including Overhead)	Bandwidth per card (Including Overhead)
G.729A	24 kbps	192 kbps
G.711	80 kbps	640 kbps

The table above shows the compression schemes and the bandwidth per port and per card they introduce to a network. Note that each IX-8IPSUB card uses this bandwidth. For example, if an ECS telephone system has two IX-8IPSUB cards plus two IX-8EIPSUB daughterboard cards for a total of 4 cards (32 ports) and G.729 is used as a compression scheme, the ECS telephone system will introduce 768 kbps (.768 mbps) to the LAN when all ports simultaneously become active.

The following is an illustration of the webscreen in which to configure the voice compression. In this example, the user logged in using the ‘manage’ level login and selected the **Circuit 1** button from the **Voice** option on the **System Data Menu**.



Voice option from the System Data Menu

IX-8IPSUB Installation in a New System

The procedure listed below is the only procedure supported by Iwatsu Voice Networks to add station cards to a new system.

1. Insert the IX-CCU card in the IX-CME cabinet.
2. Install the existing hardware interfaces for Station, Trunk and Miscellaneous cards.
   - The IX-8IPSUB can be installed into any available card slot.
   - When installing an IX-8IPSUB and an IX-8EIPSUB/IX-8EIPNET card combination in the ECS system, the 16 port combination can go in any available slot in the cabinet.
3. After installing all required hardware, default the system.
   - The IX-8IPSUB/8EIPSUB each default as 8 IPKTs with an appropriate station logical port number based on it's physical location within the ECS system.
   - The IX-8EIPNET defaults as 8 Digital IP E&M Tie Lines with an appropriate trunk logical port number based on its physical location within the ECS system.

Note: When using the IX-8EIPNET card for centralized voicemail applications, a configuration change from the default Digital IP E&M Tie Lines (trunks) to Voicemail OPX (station). In this case, increase the number of Class 01.06 - Number of System Station Ports to reflect the needed new station ports.

Note: Class 01.06 and 01.07 cannot be changed using the Iwatsu Programmer. However, the Iwatsu Programmer must be set to match the changes programmed to Classes 01.06 and 01.07

After the ECS System is initialized and comes up in default, normal programming of the system database is then required in addition to the necessary programming for the newly added data items for the IX-8IPSUB and the IX-8EIPSUB/IX-8EIPNET.

IX-8IPSUB Installation in an Existing System

The procedure listed below is the only procedure supported by Iwatsu Voice Networks to add station cards to a live system.

Note:	**Important!** Read through this entire procedure before attempting to add a the IX-8IPSUB

Procedure

1. Using the Iwatsu Programmer, obtain a fresh download of the database.
2. Make a copy of the downloaded database and store in a safe place.
3. Access the programming database using a programming KT or programming KT + DSS Unit.
4. Increase the desired station ports in Class 01.06 - Number of System Station Ports.

Note:	Class 01.06 cannot be changed using the Iwatsu Programmer. However, the Iwatsu Programmer must be set to match the changes programmed to Classes 01.06 in Step 4.

1. Break the communication link and exit database programming.
2. Wait 10 seconds then reset the system.
3. When the system is running following the reset, use the Iwatsu Programmer to download the ECS system size.

Note:	**Important!** Do not upload any ECS system database changes without a fresh download.

   - Make sure the number of stations and trunks displayed through the Iwatsu Programmer matches the changes made above.

1. Using the Iwatsu Programmer, go to Class 01.09 - Port Configuration and define the new station ports.
   - Under the **Class** column, define the physical ports of the IX-8IPSUB (or IX-8EIPSUB) card as **Station**.
   - Under the **Function** column, define the physical ports of the IX-8IPSUB (or IX-8EIPSUB) card as **Key Telephone**.

- Under the **Definition** column, define the physical ports of the IX-8IPSUB (or IX-8EIPSUB) card as **IPKT**.

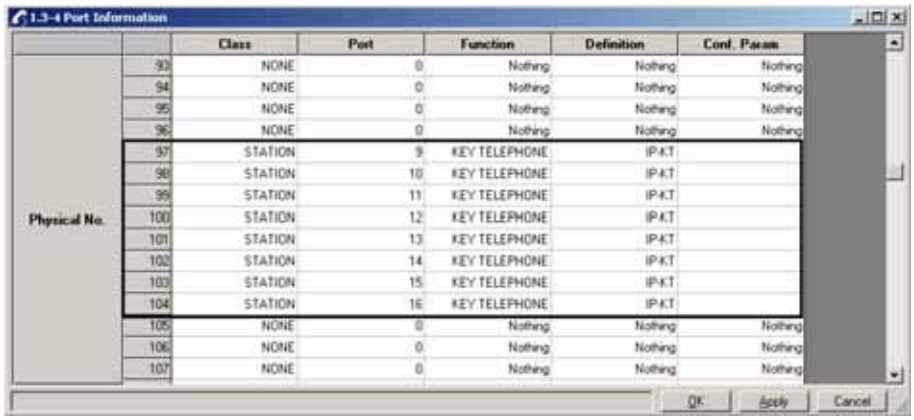


FIGURE 5.14-1 PORT INFORMATION WINDOW

2. Upload the Class 01 configuration changes and break the communication link.
3. Exit database programming.
4. After exiting programming, wait 10 seconds then power down the ECS telephone system.
5. Insert the IX-8IPSUB into the IX-CME cabinet.
6. Power up the ECS telephone system.

LAN Installation

Before attempting to configure and install the IX-8IPSUB/IX-8EIPSUB on the LAN, read the entire installation instructions. The entire process should take no more than 30 minutes.

Requirements:

The following are required for the installation of the IX-8IPSUB/IX-8EIPSUB on the LAN. Make sure all are available before attempting to configure and install the IX-8IPSUB/IX-8EIPSUB. Some of the items must be obtained from the LAN administrator.

1. Windows-based Programming PC with the following:
   - Microsoft Internet Explorer Version 6.0 or higher (with cookies enabled)
   - 10/100 Base-T NIC
2. 1 Category 5 Ethernet cable
3. 1 crossover cable
4. 1 free port on a switch connected to the LAN backbone
5. Static IP address for each IX-8IPSUB (or IX-8EIPSUB if used)
6. Subnet mask of the network
7. IP address of the default gateway

Connection

Note: No part of the LAN Installation section can be completed until all instructions in the **Installation** section are properly completed.

The IX-8IPSUB/IX-8EIPSUB ships from the factory with a default IP address of 192.168.0.1 and an subnet mask of 255.255.255.0. Often, these addresses must change to make the IX-8IPSUB/IX-8EIPSUB work on the LAN. To connect the programming PC to the IX-8IPSUB/IX-8EIPSUB, do the following.

1. Connect one end of the required crossover cable to the NIC on the programming PC and the other end to the Ethernet port on the IX-8IPSUB/IX-8EIPSUB.
2. Make certain the programming PC is on the same subnet and network as the IX-8IPSUB/IX-8EIPSUB. Although not always the case, often the IP address of the programming PC needs to change. For example if the programming PC uses 192.168.**1**.32 as the static IP address, the PC will be unable to communicate with the IX-8IPSUB because the phone has a default IP address of 192.168.**0**.1. In this example, a valid static IP address for the programming PC is 192.168.**0**.3. These settings must be configured before moving to the **Configuration** step.

Configuration

Because the default TCP/IP setting of the IX-8IPSUB/IX-8EIPSUB may cause conflicts when installed on the LAN, the IX-8IPSUB/IX-8EIPSUB must be properly configured before installing the card on the LAN. The IX-8IPSUB/IX-8EIPSUB uses an integrated web server to provide the web-based programming interface.

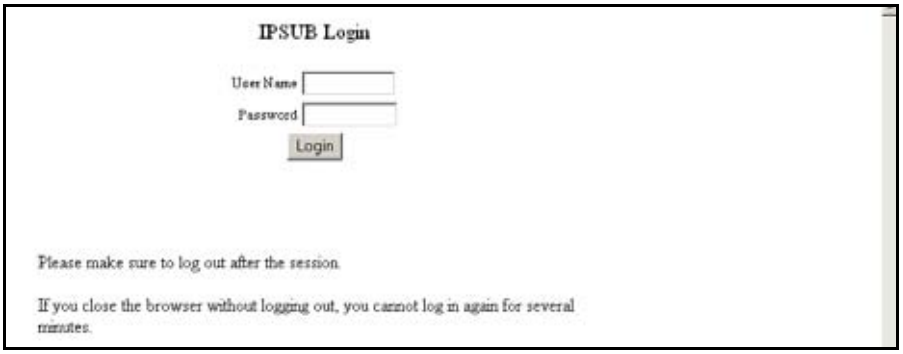
To configure the IX-8IPSUB/IX-8EIPSUB, the following instructions apply.

Note: To configure the IX-8IPSUB/IX-8EIPNET card, cookies must be enabled. Use Internet Explorer's integrated help file for instructions on enabling cookies.

1. Launch Internet Explorer version 6.0 or higher.
   - Type **http://192.168.0.1** (the default address) in the address bar.



   - The **IPSUB Login** screen displays



Note: If the above page does not display, the TCP/IP configuration settings most likely conflict. Make certain both devices reside on the same subnet and network and the programming PC's IP settings are correct

1. Enter the case sensitive Username and Password on the **IPSUB Login** screen.
   - Use 'manage' (all lowercase) as the username.
   - Use '4192' as a password.
   - Press the **Login** button.

Note: **Important!** The above username and password are for Iwatsu Voice Networks distributor use only

1. The **Maintenance Top Menu** screen displays.



2. Select the **System Data Setting** hyperlink.
3. Select the **Basic Information** hyperlink.
   - The **Basic Information Screen** displays.



4. Enter the network administrator-supplied static IP address for the IX-8IPSUB/IX-8EIPSUB card in the **IP Address** field.
5. Enter the network administrator-supplied default gateway address for the IX-8IPSUB/IX-8EIPSUB card in the **Default Gateway** field.
6. Enter the network administrator-supplied subnet mask for the IX-8IPSUB/IX-8EIPSUB card in the **Subnet Mask** field.
7. If already in use, enter the network administrator-supplied TCP port number for the IX-8IPSUB/IX-8EIPSUB card in the **TCP Port Number** field.

8. Press the **Set** button.

Note:	If the IX-8IPSUB/IX-8EIPSUB card is moved from one network to another OR from one subnet to another, pressing the **Set** button changes the network settings. If this is the case, the programming PC's network settings must be reconfigure to reflect the changes.

1. Logout of the IX-8IPSUB/IX-8EIPSUB.



2. Press the red **Reset** button.

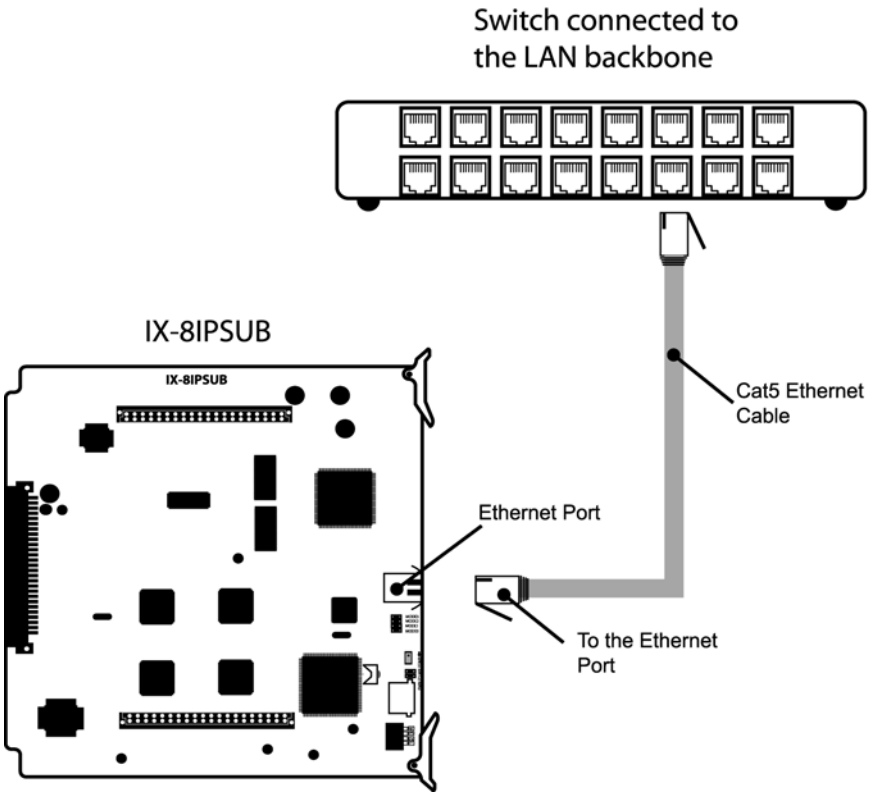
Physical LAN Installation

Note:	The IX-8IPSUB/IX-8EIPSUB does not support Power Over Ethernet (POE). Should either card receive electrical current through either the serial or Ethernet connectors, serious damage can occur

This section describes the process of installing the IX-8IPSUB/IX-8EIPSUB on an Ethernet LAN.

1. With the IX-8IPSUB/IX-8EIPSUB card installed in the ECS telephone system, insert one end of the CAT5 (Ethernet) cable RJ-45 jack into the port labeled **Ethernet** on the IX-8IPSUB/IX-8EIPSUB card.

2. Insert the free RJ-45 jack from the above cable into a free port of a switch connected to the network backbone.



IX-8IPSUB/IX-8EIPSUB LAN connection

Chapter 16

T1 Campus Networking Installation

This chapter provides an T1 Campus networking overview and the installation process. A T1 Campus troubleshooting guide and worksheets are also included in this chapter. Inspect all system components before beginning the installation process.

T1 Campus Networking Terminology

The following is a list of technical terms and acronyms used throughout this chapter with the appropriate meaning for the T1 Campus Networking application:

ADPCM: Adaptive Differential Pulse Code Modulation is a speech coding method that uses fewer bits than the traditional PCM. ADPCM calculates the difference between two consecutive speech samples in standard PCM coded telecom voice signals. This calculation is encoded using an adaptive filter and therefore, is transmitted at a lower rate than the standard 64 Kbps technique [32Kbps].

Alternate Mark Inversion (AMI): The line-coding format in T1 transmission systems, in which successive binary ones are represented by signal elements that are normally of alternating, positive and negative polarity but equal in amplitude, and in which binary zeros are represented by signal elements that have zero amplitude.

Attenuation: The decrease in power of a signal, either absolutely or as a fraction of a reference value, usually as a result of absorption, reflection, diffusion, scattering, deflection or dispersion from an original level.

Binary 8 Zero Substitution (B8ZS): A technique used to accommodate the ones density requirement for digital T-carrier facilities in the public network, while allowing 64 Kbps clear data per channel. Rather than inserting a one for every seven consecutive zeros, B8ZS inserts two violations of the bipolar line encoding technique for digital transmission links.

Clocking: The T1 circuit is a high-speed digital line running at 1.544 MBPS. The line requires a clock source for end-to-end synchronization. The Telephone Network, a CSU/DSU or the telephone system may provide the T1 clock. The order of preference for the clock source is, first: the Telephone Network; second: the ECS system; last: a CSU/DSU. In the Campus Network, the preference is the telephone network to provide the clock to T1 circuit so that both systems can synchronize to the network. This is especially important when other digital trunk circuits are terminated in the systems.

Compression: Compression provides the ability to decrease the number of channels required to transfer ports across the T1 circuit. In a T1 Campus Networking system, this function is provided by the IX-VCOMP card. For example, 8 ports can be compressed within 4 channels of the T1 circuit. The maximum compression for T1 Campus Networking is 46 ports within 23 channels. To determine the maximum number of ports with compression, use the following formula:

[(number of T1 channels – 1 D channel) x2] = maximum number of ports

CPE: Customer Provided Equipment refers to telephone equipment – key systems, PBXs, etc. – which reside on the customer's premises.

CSU: Channel Service Unit is a devise to terminate a digital channel on a customer's premises. It performs certain line coding, line conditioning and equalization functions, and responds to loopback commands sent from the central office. A CSU is found on every digital link and allows the transfer of data at a range greater than 56 Kbps.

CSU/DSU: Channel Service Unit/Data Service Unit is a device used to access digital data channels. At the send end of the telephone connection, this device takes data from terminals and computers, encode it, and transmit it down the T1 circuit. At the receive end, another CSU/DSU equalizes the received signal, filters it, and decodes it for interpretation by the end-user.

D Channel: In Campus Networking, the D channel (Data channel) is used to carry control signals. The D channel provides the signaling information for all other channels of the campus T1 circuit. The D channel is always the last (highest) active channel used for campus.

DIP (Dual In-Line Package) Switch: A switch, usually attached to a printed circuit board, with On/Off (or 1/0) settings that are used to configure the board in a semi-permanent way.

Drop and Insert: That process wherein a part of the information carried in a transmission system is demodulated (dropped) at an intermediate point and different information is entered (inserted) for subsequent transmission.

DTE: Data Terminal Equipment such as personal computers, data terminals, or peripherals such as printers.

Dual Highway Shelf: The ECS system does not support dual highways, dual highway structure always refers to an ADIX system that may be used as an expansion system for an ECS cabinet.

A dual highway shelf contains four unique card slots that support 16 ports each. These four card slots are supported by two system highways. The first highway (Primary) supports the first 8 ports of each slot. The second highway (Secondary) supports the second 8 ports of each slot. This type of shelf also contains a T1 slot that is supported by 1 system highway. The ADIX APS has 5 dual highway shelves. The ADIX-S/M have 1 dual highway shelf.

Extended Super Frame (ESF): A T1 format that uses the 193rd bit as a framing bit. ESF provides frame synchronization, cyclic redundancy checking and data link bits. Frames consist of 24 bits. The standard allows error information to be stored and retrieved easily, facilitating network performance monitoring and maintenance.

LAP-D Protocol: Link Access Procedure-D is link-level protocol for the D channel devised for ISDN connections.

Latency: The time it takes to get information through a network. Also referred to as waiting time or time delay.

Loopback: Type of diagnostic test in which the transmitted signal is returned to the sending device after passing through a data communications link or network.

MBPS: MegaBits Per Second (Million bits per second).

Physical Card Number: A physical card number is the unique number assigned to a specific card slot in a system. This number identifies the actual physical location (specific highway slot and shelf) where a card resides in the remote system so that the main system can locate it.

Point to Point: A private circuit, conversation or teleconference in which there is one person at each end, usually connected by some dedicated transmission line (a connection with only two endpoints).

Port Number: A port number is the assigned address that corresponds to a line (ex: digital, trunk, etc.) defined by the card that resides in that slot.

PPU: The Peripheral Processing Unit is the integrated chip on a circuit card that allows that card to communicate with the IX-CCU.

Primary Highway: In a dual highway shelf, there are four unique card slots that support 16 ports each. The primary highway is a 32-channel highway that supports the first 8 ports of each slot.

Secondary Highway: In a dual highway shelf, there are four unique card slots that support 16 ports each. The secondary highway is a 32-channel highway that supports the second 8 ports of each slot.

Sidetone: A part of the design of a telephone circuit which allows you to hear your own voice while speaking. The idea is to let you know that the telephone you're speaking on is working. Too much sidetone can become an echo.

Single Highway Shelf: The ECS cabinet only supports a single highway structure. Each of the five 96-channel card slots support three single highways and the sixth 32-channel card slot supports one highway.

In the ADIX, a single highway shelf contains one 32-channel highway for every 4 single card slots supporting a maximum of 64 ports. In an ADIX-M system, there is a T1/BRI type slot (3-card slot) at the far left of the shelf that supports 24 ports and a single card type slot (1-card slot) that supports 8 ports all within the first 32-channel highway. The next 4 slots in the shelf are all single card type slots (1-card slots), supporting 8 ports each, all within the second 32-channel highway of the shelf. In an ADIX IX-CM (Classic or Full Size 450) system, the first 4 single card type slots (1-card slots), supporting 8 ports each, are all within the first 32-channel highway. The second 4 single card type slots (1-card slots), supporting 8 ports each, are all within the second 32-channel highway.

Slot Number: The slot number is an actual universal card slot location in the ECS cabinet where any station, trunk or miscellaneous card can be placed. The slots are numbered from left to right.

Smart Jack: Industry term for the device to test integrity of T1 circuits remotely from the central office. Installed on customer premises at demarcation point, the smart jack is completely passive until activated remotely by a digital code sent down the T1 circuit.

Superframe (SF): A DS1 framing format in which 24 DSO timeslots plus a coded framing bit are organized into a frame which is repeated 12 times to form the superframe.

T1 Circuit: Refers to the digital transmission link that connects two offices.

Virtual Slot: The virtual slot number is a designation given for programming purposes to associate physical card numbers in the remote system with the port numbers assigned by the main system. To set up the ability to program the actual cards supported in a remote system, the virtual slot number is used to associate the slots reserved by the IX-DTI-N card in the remote system with the actual physical location of the cards being supported.

System Configuration

Configuration Assistance and Programming

T1 Campus Networking is a complex enhancement that requires a thorough reading and comprehension of this chapter and associated resources for successful configuration and installation. Iwatsu is offering programming assistance in order to circumvent the anticipated demand for IAI technical support resources. In order to purchase an IX-DTI-N / IX-VCOMP card combination, which would facilitate campus networking, Iwatsu requires the minimum of the following.

Iwatsu offers three options for programming assistance:

- Technical Certification (P/N 000820).
- Campus Configuration Assistance and Programming (P/N for new system 000821; P/N for existing system 000822).
- On-site Support (P/N 000823).

Contact Customer Service at 1-800-866-6342 to order the IX-DTI-N and IX-VCOMP cards, and provide the applicable Part Number for the programming assistance option you choose.

Technical Certification

Technical certification is required before an IX-DTI-N / IX-VCOMP card combination can be purchased. This certification will be part of the regularly scheduled classes offered in the Irving, Texas Support Center. This training will consist of a 1 day class and associated lab.

Campus Configuration Assistance and Programming

Campus Configuration Assistance and Programming (CCAP) is a service offered to those distributors that elect not to send technicians to Iwatsu's Support Center for Technical Certification. With this program, Iwatsu will provide the system configuration and IX-DTI-N / IX-VCOMP programming requirements for customer-specific Campus APS Networking applications.

This option would require from the distributor:

- The ECS database (existing systems that are upgrading to campus).
- Configuration information for new installations.

In turn, Iwatsu will provide:

- A system configuration that maximizes the port capacity.
- The database programming for Classes 1 and 31.
- The switch settings for the IX-DTI-N and IX-VCOMP cards.
- Necessary scheduled telephone support to assist with the installation.

On-site Support

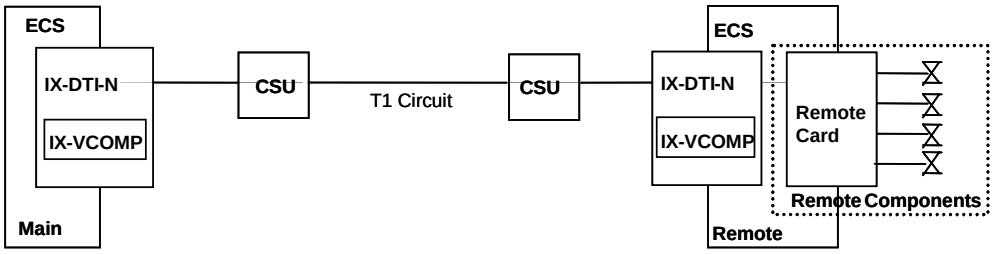
On-site support can be provided during the installation of a T1 Campus Networking system and can be used as Technical Certification.

General Considerations

When planning a T1 Campus Networking system, consider the following:

- There can be only one main system in a T1 Campus Network
- Multiple remote systems can be connected in a star configuration to the main system
- The number of remote systems in a T1 Campus Network is limited to the main system's capacity for containing resources and network interface cards.
- Multiple T1 circuits can be used to link between the main system and a remote system
- A remote system cannot be connected in series with another remote system.
- The networked system is limited to the number of ports built into the main system (Up to 1024)
- Shared resources, such as the voice-mail, message (IX-MSGU) cards, and conference (IX-CNFBOX-1) cards, should be mounted in the main system. This reduces the cost of duplicate cards at each remote station
- The IX-VCOMP card provides data compression from 64kbps PCM to 32kbps ADPCM and card assignment switch settings. One IX-VCOMP is required for each IX-DTI-N in the campus environment
- One or more consecutive channels of the T1 circuit can be dropped out utilizing a CSU/DSU device, and then used for a different purpose. Those channels can be selected from the highest channel numbers only, by setting DIP switches on the IX-VCOMP cards of the main and remote systems
- When ordering the IX-VCOMP card, the customer service department will inquire and should be made aware if you are installing the T1 Campus feature in an IX-CME
- Iwatsu Customer Service at 1-800-866-6342 (P/N 103070)

Typical configuration for a T1 Campus Networking system and the required hardware components.



911 Dialing Considerations

Due to the complexities of a Campus Networking system, including the possibility of systems located in various locations and multiple cities, the Enhanced 911 Service feature must be given careful consideration. Before installing an ECS system in a T1 Campus Networking application, confirm the local laws and regulations regarding 911 calling.

In a T1 Campus Networking system, the following issues must be addressed to ensure proper functionality and use of 911 service:

1. From each remote system location, 911 calls must go through whether the remote system is operating in campus networking mode or as a standalone system.
2. From any location in a campus networking system, the outside line(s) through which a 911 call is made, should identify the caller's actual location at the terminating Public Safety Answering Point (PSAP). This requires you to verify the Automatic Location Information (ALI) database information for the lines that are used for 911 calls at each remote location.
3. Any changes that are made to the system hardware, trunking and programming of any system in a campus environment should be reviewed to determine the effect on 911 dialing.
4. Written 911 dialing instructions and training should be provided to all users at all locations in a campus networking system.

In order to provide proper 911 functionality from all locations, it is Iwatsu's determination that it is mandatory to install local trunks at all remote locations. This will provide the ability to dial 911 from any remote location in the event of a T1 circuit loss between the main and remote system(s), or if the remote location is served by a different PSAP than the main system. In addition, 911 calls from the remote system(s) should not go through the main system if it is served by a different PSAP from that of the caller.

Because the main system provides all call processing, the remote system locations must be programmed in order for the system to recognize the remote locations as a different location for 911 purposes. For example, a 911 call originating from a remote system using a trunk from the main system would be traced to the main system's location. (Refer to EBA-98012 for specific information of the Enhanced 911 Service feature.)

Note:	In order for the Enhanced 911 Service feature to operate properly, it is important that all system programming and cabling is correct. It is very important that you check and test your work thoroughly when programming 911 features in the ECS system. Failure to do so may result in the 911 call not going through or not being properly routed.

Capacities

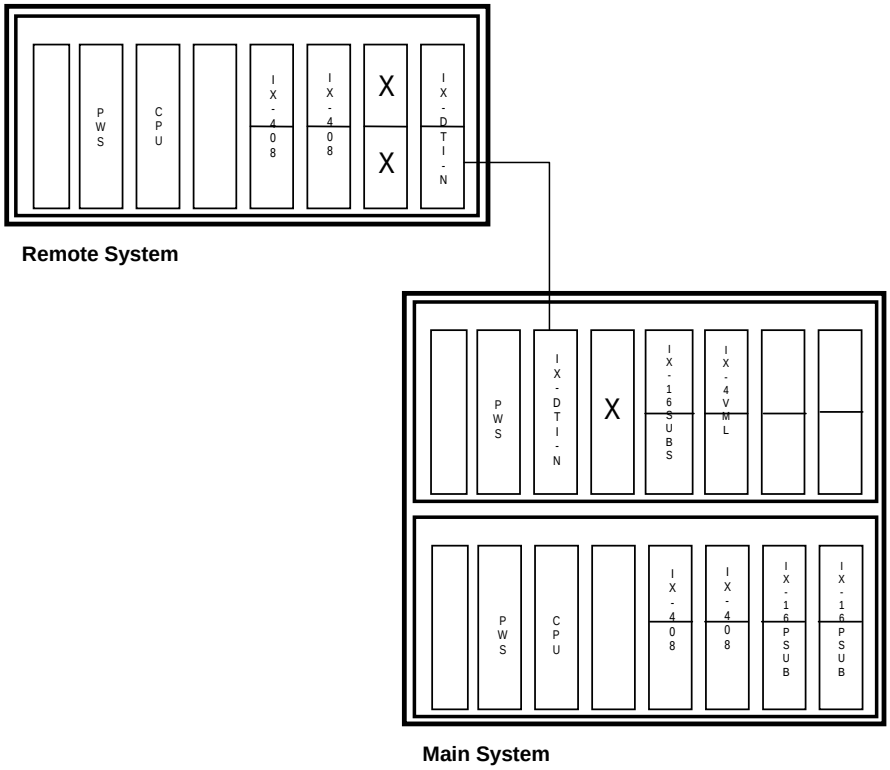
T1 Campus Networking supports a maximum of 16 IX-DTI-N cards in software. The ECS system can support all 16 cards.

The IX-DTI-N card can be configured from 8 to a maximum of 46 ports.

Determining the System Layout

The first step in planning a T1 Campus Networking system is to determine the number of remote locations. In addition, you must know the cards that are required for the main system and each remote system. In order to determine compression requirements, you should also know the number of T1 channels that are available.

Once it is known which cards are at each location, the slots for the main system cards should be planned. After the main system layout is determined, it is necessary to calculate the number of additional physical slots in the main system that are required to support the cards in the remote systems. For every 8 ports in the remote system that must be supported, you will need to allow for 8 ports in the main system.



In the previous illustration, the main system supports 2 IX-408 cards, 2 IX-16PSUB cards, 1 IX-16SUBS card, and 1 IX-4VML card. In addition, the main system must support the 2 IX-408 cards that reside in the remote system. A total of 4 card slots are required, 2 for each IX-408 card. (As illustrated, the dual highway shelf provides 2 card slots per physical slot for the 4 slots on the right of each shelf.) To provide that support, an IX-DTI-N card, with an IX-VCOMP card attached, is installed in both the remote system and the main system. Each IX-DTI-N card is programmed to define the slots that are reserved for those 2 cards. (Refer to the **Determining Campus Card Settings** section on the following page.)

As illustrated, the remote system utilizes one 2-card slot for the IX-DTI-N card and reserves another 2-card slot. In the main system, the IX-DTI-N card is placed in a 3-card slot and another 1-card slot is reserved. Each system now has the required 4 card slots reserved for the 2 IX-408 cards in the remote system. The card slots where the IX-DTI-N cards reside in each system and the reserved slots in each system are called the virtual slots. The virtual sots are assigned to transport the configuration between the main and remote systems.

Note: IX-DTI-N cards used for T1 Campus can be placed in any slot in the system. In the main system, the card must be placed in a slot of a highway that has the required available virtual slots required to support the cards in the remote system. In the remote system, the card must also be placed in a slot of a highway that has the required available virtual slots required to support the cards in the remote system. In the example in Figure 5.14-2, the slot used for the IX-DTI-N card in the main system is the same slot that is usually used for a TI/PRI card. This slot was selected to allow for main system expansion reasons only.

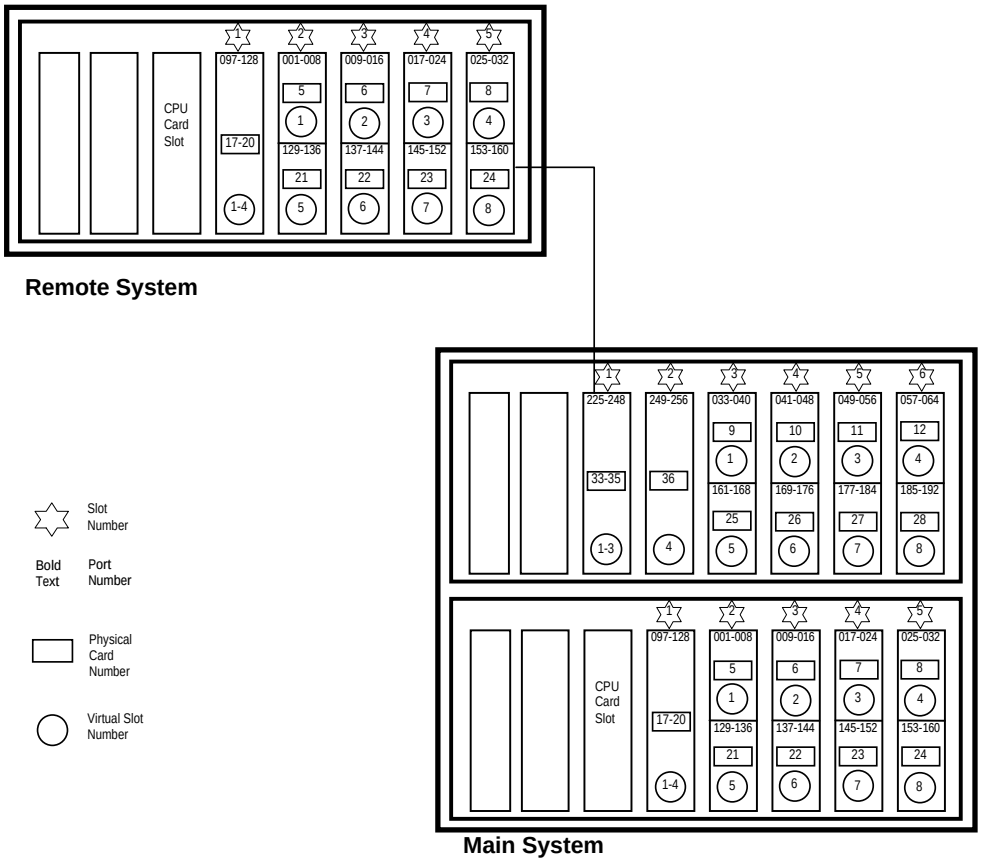
To maximize the capacity of the IX-DTI-N card in larger applications, which has a maximum of 46 remote ports with compression, a double highway slot must be used for the IX-DTI-N card location. If the IX-DTI-N is used in single highway slot, it can utilize only 4 virtual slots. This usage limits the remote port capacity to 32 ports.

When selecting IX-DTI-N virtual slots for T1 Campus, assign them in the following order to maximize efficiency:

1. Select IX-DTI-N virtual slot numbers where the IX-DTI-N card is located.
2. Select IX-DTI-N virtual slot number associated with a secondary highway of a slot whenever possible. This assignment allows a standard 8-port card to use the primary highway of a slot. For example, if 5 virtual slots are required, use the primary and secondary highway of 1 slot for 2 of the virtual slots, and use 3 secondary highways for the 3rd, 4th, and 5th virtual slot.
3. Select any unused slot.

Determining Campus Card Settings

In determining the campus card settings, it is necessary to understand the system highway structure, as well as the functional relationships between slot numbers, port numbers, physical card numbers, and virtual slot numbers.)



A **dual highway shelf** contains three (3) 32-channel highways. There are two (2) different types of cabinets that contain dual highway shelves.

The ADIX-APS IX-CML and ADIX-S/M IX-CMM cabinets provide the first type of dual highway shelf. This type shelf provides a T-1/BRI type slot (3-card slot) at the far left of the shelf that supports 24 ports and 8 additional ports in the same 32-channel highway that are available to support IX-DTI-N ports for Campus networking. There is no physical card slot associated with these 8 ports. The next 4 slots are all 16-port card slots (2-card slots) supported by two 32-channel highways. One 32-channel highway (**Primary Highway**) supports the first 8 ports on each of the 4 slots (Virtual Slots 1-4). The other 32-channel highway (**Secondary Highway**) supports the second 8 ports on each of the 4 slots (Virtual Slots 5-8).

The ADIX-APS IX-EXPML cabinet provides the second type of dual highway shelf. This type shelf provides a T-1/BRI type slot (3-card slot) at the far left of the shelf that supports 24 ports and a single card type slot (1-card slot) that supports 8 ports all within the first 32-channel highway. The next 4 slots are all 16-port card slots (2-card slots) supported by two 32-channel highways. One 32-channel highway (**Primary Highway**) supports the first 8 ports on each of the 4 slots (Virtual Slots 1-4). The other 32-channel highway (**Secondary Highway**) supports the second 8 ports on each of the 4 slots (Virtual Slots 5-8).

A **single highway shelf** contains one 32-channel highway for every 4 single card slots supporting a maximum of 64 ports.

In an ADIX-M system, there is a T-1/BRI type slot (3-card slot) at the far left of the shelf that supports 24 ports and a single card type slot (1-card slot) that supports 8 ports all within the first 32-channel highway. The next 4 slots in the shelf are all single card type slots (1-card slots), supporting 8 ports each all within the second 32-channel highway of the shelf.

In an ADIX IX-CM (Classic or Full Size 450) system, the first 4 single card type slots (1 card slots), supporting 8 ports each are all within the first 32-channel highway. The second 4 single card type slots (1-card slots), supporting 8 ports each are all within the second 32-channel highway.

The **slot number** is an actual universal card slot location in the ADIX cabinet where any station, trunk or miscellaneous card can be placed. The slots are numbered from left to right. Each ADIX cabinet type has a different number of slots. See figures 9, 10 and 11 in this section for the slot numbers in each ADIX cabinet.

The **physical card number** is the unique number assigned to a specific card slot in a system. This number identifies the actual physical location (specific highway slot and shelf) where a card resides in the system.

The **virtual slot number** is a designation given for programming purposes to associate physical card numbers in the remote system with the port numbers assigned by the main system. To set up the ability to program the actual cards supported in the remote system, the virtual slot number is used to associate the slots reserved by the IX-DTI-N card in the remote system with the actual physical location of the cards being supported.

Main System Slots

The IX-VCOMP card on the IX-DTI-N in the main system is programmed to recognize the port numbers reserved for the remote system cards. In Figures 5.14-2 and 5.14- 3, the IX-DTI-N card is installed in slot 1 of the second shelf of the main system. This is a 3-card slot that is used to support a total of 3 cards requiring a maximum of 24 ports. The actual port numbers for this slot are 225-248. Slot 2 of the main system is a 1-card slot that is used to support 1 card requiring a maximum of 8 ports. The actual port numbers for this slot are 249-256. Slots 1 and 2 are within the same 32-channel highway. These are the locations where the remote system ports are assigned in the main system and transported to the remote system through the T1 circuit.

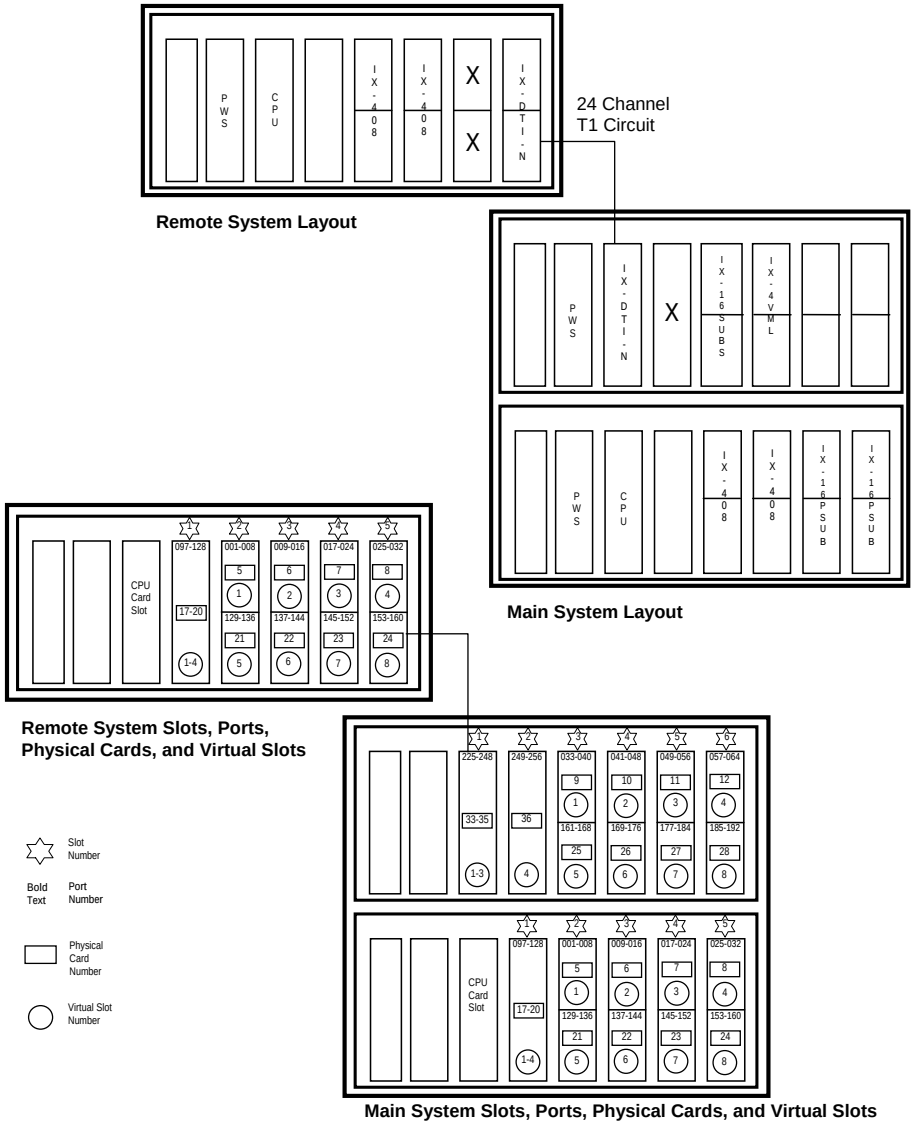
Remote System Slots

The IX-VCOMP card in the remote system is set to program the physical cards that the IX-DTI-N card corresponds to, and to transport them to the main system through the T1 circuit. The IX-DTI-N card is installed in slot 5 of the remote system. Slot 5 is a 2-card slot that is used to support 2 cards requiring a maximum or 16 ports. Slot 4 is a 2-card slot that is reserved to support the additional 16 ports of the remote system. In the remote system it is necessary to program the association of the IX-DTI-N card and the cards in the remote system that it supports.

IX-VCOMP Card Settings

By using the proper settings for the IX-VCOMP card in both systems, the main system knows what cards are used in the remote system, where they reside, and how to find them.

To understand how to set the IX-VCOMP cards for the main and remote systems, refer to the following example.



In the main system, the IX-VCOMP card is set as Main to define that it resides in the main system (SW2 position 6 = ON). Next, the virtual slots are set to identify the physical ports that are used to support the remote system cards. In this example, you would set the virtual slots as 1, 2, 3, and 4 (SW3 position 1, 2, 3, and 4 = ON) to identify physical ports 225-256 as the ports used to support the 2 IX-408 cards in the remote system.

In the remote system, the IX-VCOMP card is set as Remote to define that it resides in the remote system (SW2 position 6 = OFF). Then, the virtual slots are set to provide the ability to program the actual cards supported in the remote system. In this example, you would set the virtual slots as 3, 4, 7, and 8 (SW3 position 3, 4, 7, and 8 = ON) because of the location of the IX-DTI-N / IX-VCOMP.

Virtual slot numbers 3, 4, 7 and 8 are planned to represent physical card numbers 5, 6, 21 and 22 in the remote system. It is necessary to program this association. In Class 31.04, the following will be programmed:

- Virtual slot number 3 as physical card number 5
- Virtual slot number 4 as physical card number 6
- Virtual slot number 7 as physical card number 21
- Virtual slot number 8 as physical card number 22

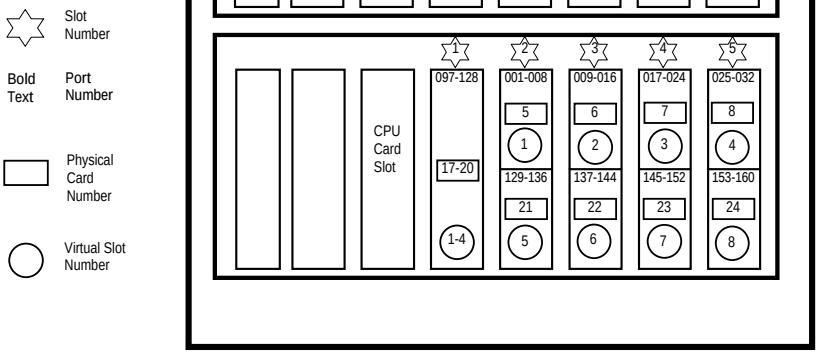
With the campus cards set as described in the above example, at initialization the main system recognizes the following equipment supported by ports 225-256:

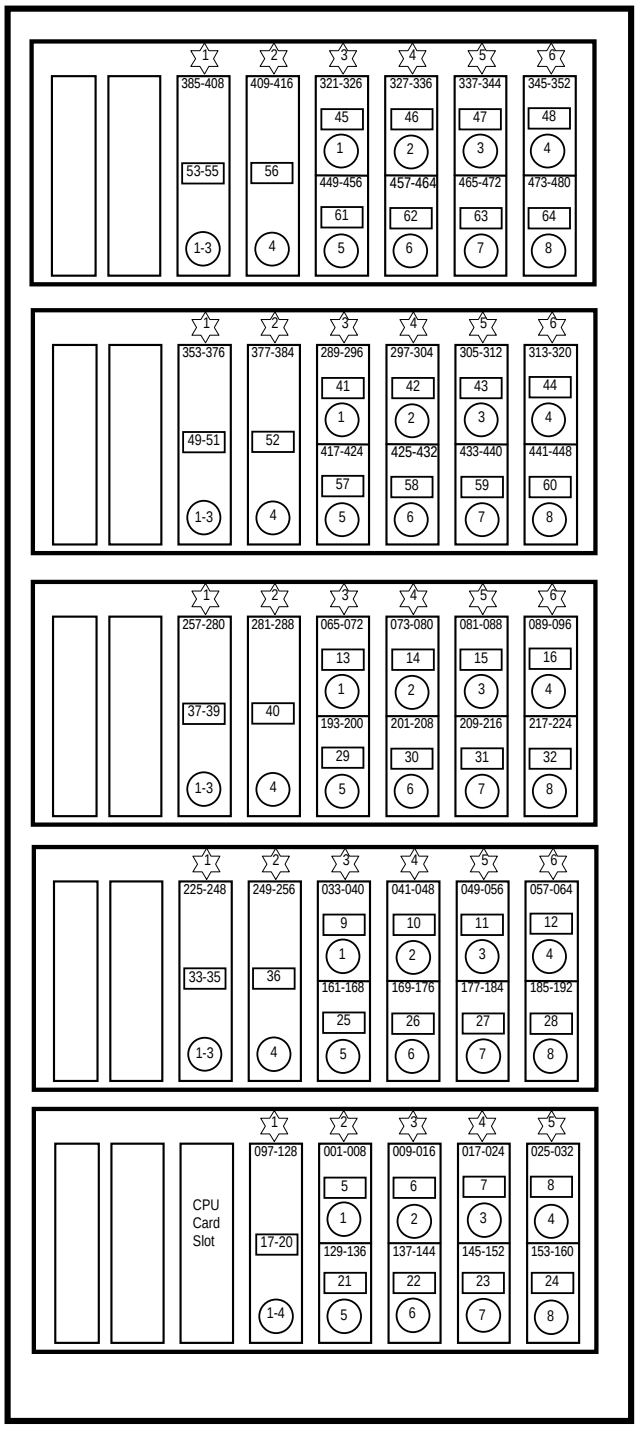
Ports 225-232 correspond to physical card number 5 consisting of 8 digital lines:		Ports 233-240 correspond to physical card number 6 consisting of 8 digital lines:		Ports 241-248 correspond to physical card number 21 consisting of 4 trunk lines:		Ports 249-256 correspond to physical card number 22 consisting of 4 trunk lines:	
225	KT	233	KT	241	TRK	249	TRK
226	KT	234	KT	242	TRK	250	TRK
227	KT	235	KT	243	TRK	251	TRK
228	KT	236	KT	244	TRK	252	TRK
229	KT	237	KT	245	Not Used	253	Not Used
230	KT	238	KT	246	Not Used	254	Not Used
231	KT	239	KT	247	Not Used	255	Not Used
232	KT	240	KT	248	Not Used	256	Not Used

ADIX APS Virtual Card Slots

The virtual slot number is referenced in the ADIX database Class 31 Item 04.

Virtual slots and physical card numbers of each shelf in an ADIX-APS.





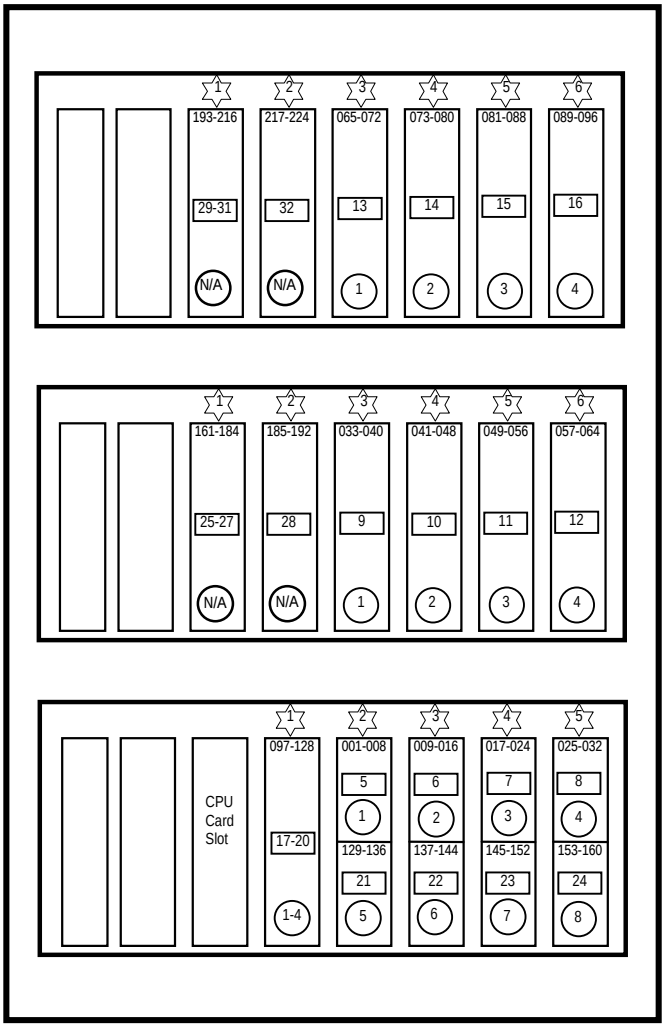
Note:	In the ADIX APS IX-CML, the 8-port card slot for physical ports 121-128 is not visible but can be used as virtual slot number 4 for that highway for T1 Campus Networking.

ADIX-M Virtual Card Slots

The virtual slot number is referenced in the ADIX database Class 31 Item 4.

lists the virtual slots and physical card numbers of each shelf in an ADIX-M.

Note: Not all slots are available for IX-DTI-N cards on the ADIX-M. The slots marked with N/A in the virtual number area cannot support the IX-DTI-N card for Campus Networking. These slots can be used for other cards in the system.

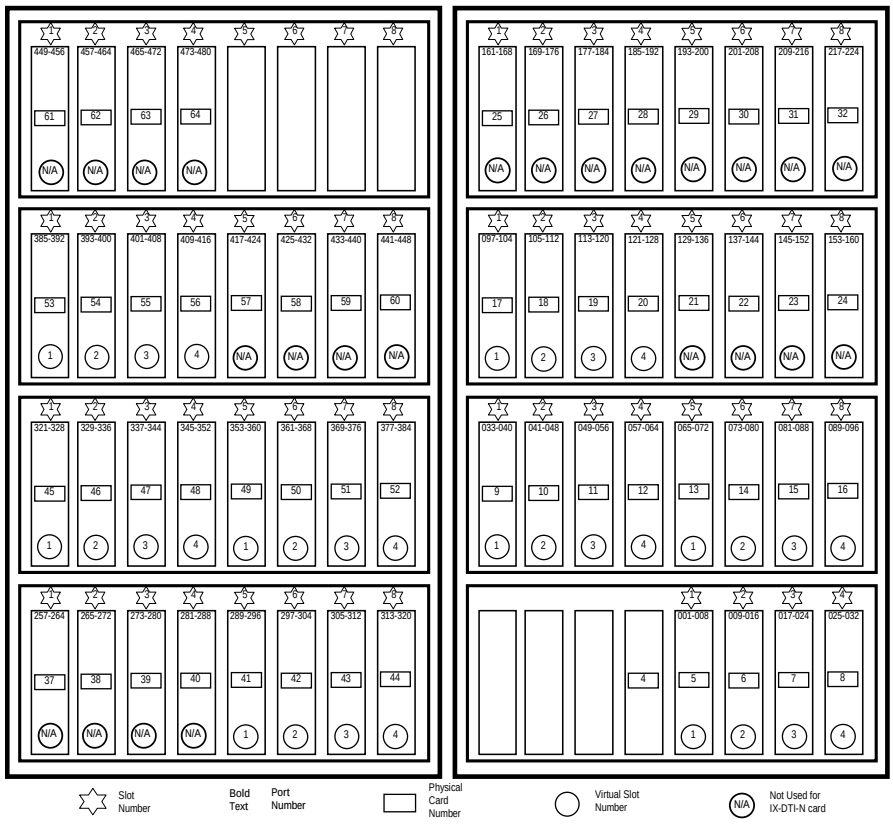


ADIX 450 Virtual Card Slots

The virtual slot number is referenced in the ADIX database Class 31 Item 4.

lists the virtual slots and physical card numbers of each shelf in an ADIX 450.

Note:	Not all slots are available for IX-DTI-N cards on the ADIX 450. The slots marked with N/A in the virtual number area cannot support the IX-DTI-N card for Campus Networking. These slots can be used for other cards in the system.



Determining Compression

The 24-channel T1 circuit, without compression, provides 23 ports and 1 D-channel. In order to accommodate the port requirements of the remote system in our example (see Figure 5.14-4), it is necessary to set 2 compression switches. This results in the expansion of the 23 ports to 31 ports. (Refer to the table below.) The first 8 ports expand to 16 ports to accommodate the ports associated with physical card numbers 5 and 6. The next 8 ports will accommodate physical card number 21. The remaining 7 ports accommodate physical card number 22.

Note: There are only 7 ports remaining because there is 1 D-channel.

Maximum Port Capability		Minimum Port Requirements	
Channels	Ports	Channels	Ports
8 compressed	8	8 compressed	8 (physical card 5)
	8		8 (physical card 6)
8 compressed	8	8 not compressed	8 (physical card 21)
	8		
7 compressed	8	7 not compressed	7 (physical card 22)
	6		
Total: 23 compressed	46	23 (8 compressed/ 15 not compressed)	31

The maximum number of switches that can be set for compression is six. If the maximum number of switches is set, forty-six channels can be supported by one IX-DTI-N card. Forty-six channels are available instead of forty-eight because 1 uncompressed channel (compressed would equal 2) is used as IX-DTI-N's D channel.

In the case of a single highway, a maximum number of four switches can be set. A maximum of thirty-two channels are available. The D channel would be on the 17th channel of the T-1 circuit. If only 16 channels are available for the campus application, then only thirty ports would be available and the 16th channel would be the D channel.

To determine the maximum number of ports with compression, use the following formula:

[(number of T1 channels –1 D channel) x 2] = maximum number of ports

Note: The D-channel is never compressed and will always require 1 T1 channel.

Note: The number of compressed channels must be set the same at both ends of the T1 circuit. There is also a corresponding relationship between the switch settings for SW3 and SW4 on the IX-VCOMP card. Only switch positions enabled on SW3 are available for compression settings on SW4. Also, the same number of switches must be enabled for compression on both the remote and main side. Failure to follow these directions prevents the T1 circuit from initializing.

Drop and Insert

In order to take full advantage of T1 Campus Networking, one or more consecutive channels of the T1 circuit can be dropped out utilizing a CSU/DSU device, and then used for a different purpose. Those channels must be selected from the highest channel numbers by setting switches on the IX-VCOMP cards of the main and remote systems. Channels used for Drop and Insert cannot be compressed. As a result, if you are dropping channels for another purpose, use the following formula to determine the maximum number of ports with compression:

[(number of T1 channels – number of channels dropped – 1 D channel) x 2]

Limitations

There are limitations on the usage and/or performance of some cards in a remote system of a Campus Network environment. Refer to the table below for specific information on each card.

The following hardware is supported in a remote system, but may be affected by a timing conflict between network clocking in the main system and provided clocking in the remote system:

- IX-ICOTP
- IX-DTI-P
- IX-2COTB

To insure proper operation of the cards listed above, the telephone network must provide clocking for the T-1 circuit linking the systems together.

The following hardware is supported in a remote system, but may be affected by compression:

- IX-8SUBS/M (potentially reduces the modem transmission speed by 50% as compared to a non-compressed IX-8SUBS/M port)
- IX-EDVIF (data through PC and SMDR ports may be affected)
- IX-HCIF (data through PC and SMDR ports may be affected)
- IX-SCIF (data through PC and SMDR ports may be affected)
- IX-RMPU (data through the modem may be affected)

The following hardware is supported in a remote system, but is affected by latency:

- IX-408
- IX-444
- IX-044
- IX-8CITK
- IX-8LGTK
- IX4DITK
- IX-CNFBOX-1
- IX-8SUBS-3
- IX-8SUBM-3
- IX-8SUBS-2
- IX-8SUBM-2
- IX-4SUBL

CARD TYPE	USE IN REMOTE SYSTEM	COMPRESSION AVAILABLE	VIRTUAL SLOTS REQ'D	NUMBER OF T1 CHANNELS		LIMITATIONS AREA(S)
				NOCOMP	COMP	
IX-408	YES	YES	2	16	8	Side Tone for CITK
IX-400	YES	YES	1	8	4	N/A
IX-044	YES	YES	2	16	8	Modem Speed for SLT Side Tone for SLT
IX-DTI-T	YES	YES	1/2/3	8/16/24	4/8/12	Modem Speed
IX-T1DTI	YES	YES	1/2/3	8/16/24	4/8/12	Modem Speed
IX-8CITK	YES	YES	1	8	4	Side Tone
IX-8LGTK-2	YES	YES	1	8	4	Side Tone
IX-4EMTK	YES	YES	1	8	4	N/A
IX-4DITK	YES	YES	1	8	4	Side Tone
IX-DTI-P	NO	N/A				Possible Clock/Sync
IX-ICOTP	NO	N/A				Possible Clock/Sync
IX-2/COTB	NO	YES	1	8	4	Possible Clock/Sync
IX-16PSUB	YES	YES	2	16	8	N/A
IX-8SUBS	YES	YES	2	16	8	Modem Speed for SLT Side Tone for SLT
IX-8SUBS-3	YES	YES	1	8	4	Modem Speed Side Tone for SLT
IX-8ESUBS	YES	YES	1	8	4	Modem Speed Side Tone for SLT
IX-8SUBM	YES	YES	2	16	8	Modem Speed Side Tone for SLT
IX-8SUBM-3	YES	YES	1	8	4	Modem Speed Side Tone for SLT
IX-8ESUBM	YES	YES	1	8	4	Modem Speed Side Tone for SLT
IX-8PSUB-1	YES	YES	1	8	4	N/A
IX-8DSUB	YES	YES	1	8	4	Side Tone for ZT-D
IX-4SUBL	YES	YES	1	8	4	Modem Speed Side Tone for SLT
IX-4ETRAN	YES	YES	1	8	4	N/A
IX-RMPU	YES	YES	1	8	4	Modem Speed
IX-EDVIF	YES	YES	2	16	8	SMDR/PC Port
IX-MISC	YES	YES	1	8	4	N/A
IX-HCIF	YES	YES	1	8	4	SMDR/PC Port
IX-SCIF	YES	YES	1	8	4	SMDR/PC Port
IX-RCVPMD	YES	YES	1	8	4	Modem Speed
IX-RCVRCV	YES	YES	1	8	4	N/A
IX-4CSUB	NO	N/A				N/A

T1 Circuit Pre-Installation Preparation

If you plan to use T1 Campus Networking with a T1 connection from the telephone company, use the following guidelines when ordering:

1. The T1 circuit should be ordered based on the following Facility Interface Codes:
2. Recommended T1 Circuit: 04DU9.1SN: 4 WIRE 1.544 MBPS (DS1) with ESF, B8ZS, and No Line Power 100 OHMS Impedance.
3. Optional T1 Circuit: 04DU9.BN: 4 WIRE 1.544 MBPS (DS1) With SF, AMI, and No Line Power 100 OHMS Impedance.
4. The T1 circuit must be requested and designed as Point to Point only.
5. The T1 circuit must provide complete transparency toward the CPE equipment. All channels are 64k channels only with no bit robbing.
6. Determine whether clocking is provided on the circuit. Network clocking is recommended.
7. Retain the telephone ordering information. The information that you will receive about this order is critical for maintaining proper IX-DTI-N hardware settings.
8. Have proper testing equipment to ensure that the measurement of the T1 circuit being provided is correct.

Software Components

The following database tools are required for ECS Software Version 1.x or higher:

- Iwatsu Programmer Version 4.x or higher.

Note: 1MB of hard disk space or a 1.44MB floppy disk drive, and 580KB of conventional memory are required to run either version.

- The Iwatsu Programmer version compatible with the current ECS software version running on your system (refer to the Software Setup section under Installation Procedures).
- One or more database conversion programs may be required depending upon the current ECS software version running on your system (refer to the Software Setup section under Installation Procedures).
- Database check program (CHK9U).

Note: This program scans the ECS databases and checks for numbering plan conflicts and duplicate logical port numbers.

Required Components

- Software: ECS Software Version 1.x or higher.
- Programmer: Iwatsu Programmer Version 4.x or higher.
- IX-CCU.
- IX-DTI-N (Digital Trunk Interface–Network) (one for each T1 circuit – 24 channels): An IX-DTI-N card supplies the new functions for T1 Campus Networking. Though the hardware is identical to that of IX-DTI-P (Digital Trunk Interface–PRI) and IX-DTI-T (Digital Trunk Interface–T1 circuit), the installed software is specifically designed for network interface. The software can be updated through the card's serial interface port. A cable and jack are included to connect IX-DTI-N cards to the ECS APS systems.
- IX-VCOMP (Digital Trunk Interface–Voice Compression, one per IX-DTI-N card): An IX-VCOMP card with digital voice compression is a daughter board for an IX-DTI-N card. This card must be installed on the IX-DTI-N card in order to make Campus Networking possible.
- CSU (Channel Service Unit) (one per T1 circuit): A CSU serves as an interface for the network provider's T1 circuit and a network interface card.

Component	Part Number
IX-CCU	101115
IX-DTI-N	102230
IX-VCOMP	102240

There are additional components and tools that are required for installing a T1 Campus Networking system. The vendors and models listed below are based on familiarity and common usage, and should not be interpreted as a recommendation by Iwatsu Voice Networks, Inc. Iwatsu Voice Networks, Inc. makes no warranty or guarantee for performance of any equipment provided by any of the vendors listed.

T1 CSU: Required on both sides of a campus T1 circuit to regenerate and reshape the digital T1 signal.

- Vendor: ADTRAN; Model: ADTRAN ACE.
- Vendor: *ADC* KENTROX; Model: T-SERV II.

T1 CSUDSU: Required on both sides of a campus T1 circuit if data channels are utilized to regenerate and reshape the digital T1 signal and to allow for Drop and Insert.

- Vendor: ADTRAN; Model: ADTRAN TSU 120.

T1/PCM Analyzer: Required for testing and isolating the following T1 circuit problems:

1. T1 circuit framing and coding
2. Verifying clock speed is 1.544 mbps
3. Testing the bandwidth for 64K X N or 56K X N
4. Testing for FRM ER, CRC ERR, Bit Errors and BPVS
5. Isolating problems between network and CPE equipment

- Vendor: TELECOMMUNICATIONS TECHNIQUES CORP; Model: T-BERD 224
- Vendor: SUNSET TELECOM; Model: SUNSET T1

Hardware Setup

Running Cable

At least two cables (not provided with the IX-DTI-N card) must be prepared before installation. Before cutting the cable, inspect the installation site to determine the exact length of the cable. Keep the cable length to a minimum in order to avoid a bipolar violation errors caused by dispersion and interference. The following cable is recommended when connecting T1 circuits:

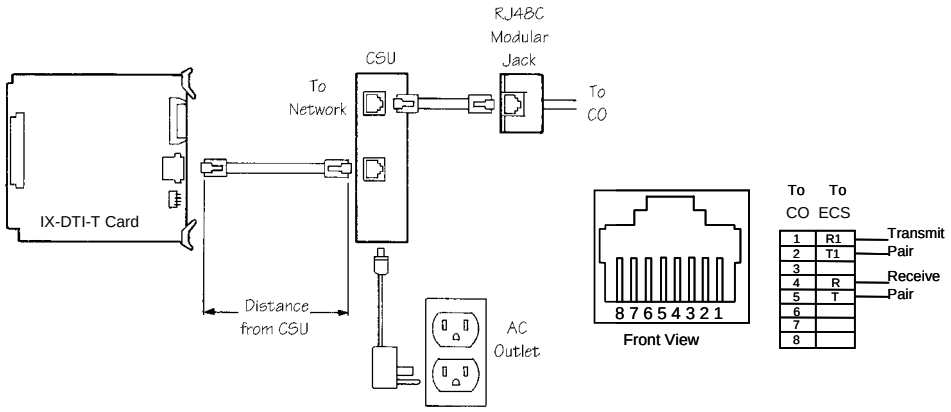
- Use a high-speed data cable.
- Specify that you are connecting a 1.544 mega-bps digital transmission line.
- Two-pair shielded cable is recommended.
- Never use a multiple conductor cable that contains more than two-pair.
- Choose high-quality connectors.

Note: There are two types of T1 circuits - hot and dry. A hot T1 circuit transmits electrical power to drive the CSUs. The voltage may be as high as 220 VDC. A dry T1 circuit does not contain VDC. Handle all T1 circuits with proper precaution for your safety.

- Layout the ECS, CSU, and telephone company jack in order to keep cable distance to a minimum.
- Never run T1 cables with other lines, i.e., AC power lines, computer cables, etc.
- Do not run cables close to equipment that generates electromagnetic interference.
- Do not run cables close to equipment that radiates electromagnetic (radio) waves.
- Do not exceed the distance limit of 660 feet between the ECS and CSU.

Line Termination

The T1 circuit is terminated to three in-house points: the telephone company, the CSU, and the ECS. CSU connectors vary depending on the manufacturer. It is important to know the type of connector that is used when installing.



ECS Termination

Plug the T1 circuit into connector CN1 on the IX-DTI-N card. This connection is in accordance with FCC standard DCX-1.

CSU Termination

A channel service unit usually comes with two connectors - one for carrier termination and one for equipment termination. Carrier termination is usually marked NETWORK or LINE. Equipment termination is usually marked EQUIPMENT or DTE. With most CSUs either a RJ48C 8-pin modular jack or a DA15S/P 15-pin data connector is used. Confirm and order the proper cables.

Telephone Company Termination

The telephone company always terminates with a RJ48C modular jack as required by the FCC. In some cases a SMART JACK (which is a variation of RJ48C and takes the same modular plug) is used.

Switch Settings

IX-DTI-N Switch Settings

Distance From CSU

Switch SW1 positions 2, 3 and 4 are used to enter the length of the data cable that connects the IX-DTI-N card to the CSU. This setting must be registered on each IX-DTI-N card. Switch positions 1 and 5 through 8 are not used and should be set to OFF.

Switch Positions			Function
2	3	4	
OFF	OFF	OFF	Up to 133 Feet
ON	OFF	OFF	133 to 266 Feet
OFF	ON	OFF	266 to 399 Feet
ON	ON	OFF	299 to 533 Feet
OFF	OFF	ON	533 to 265 Feet



Loopback Settings (These settings are used for circuit testing purposes only.)

Switch SW1, positions 5, 6, 7 and 8 are used to enter the Loopback Settings. These settings should be at OFF at all times. Loopback settings affect local or remote loopback functions. Following are descriptions of each loopback function:

Remote Line Loopback loops the digital receiver inputs to the digital transmitter outputs. The loopback provides BPV transparency and the ability to override the looped data with the Alarm Indicator Signal (AIS). The digital receiver data path is not affected by the activation of this loopback.

Remote Payload Loopback loops all DS0 channels from the digital receiver input to the digital transmitter output. The loopback payload retains time slot integrity so that the numbered time slots from each received frame are transferred to the same numbered time slots in the transmit frame.

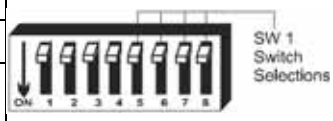
Remote Per-Channel Loopback loops the digital receiver input DS0 channel to the digital transmitter output DS0 channel.

Local Analog Loopback is provided by a Receive Line Interface Unit and internally routes bipolar data from XTIP/XRING to RTIP/RRING. In the local analog loopback mode, externally applied data on RTIP/RRING inputs are ignored and XTIP/XRING output data is unaffected.

Local Framer Loopback loops the transmit line encoder outputs to the receive line encoder inputs. The transmit line interface unit output is not affected by the activation of this loopback.

Local Per-Channel Loopback loops the transmit system bus PCM and signals inputs to the receive system bus PCM on a per-channel basis.

Switch Positions				Function
5	6	7	8	
OFF	OFF	OFF	OFF	No Loopback
ON	OFF	OFF	OFF	Remote Line Loopback
ON	OFF	OFF	ON	Remote Payload Loopback
ON	OFF	ON	OFF	Remote Per-Channel Loopback
ON	OFF	ON	ON	Remote Per-Channel Loopback
ON	ON	OFF	OFF	Local Analog Loopback
ON	ON	OFF	ON	Local Framer Loopback
ON	ON	ON	OFF	Local Per-Channel Loopback
ON	ON	ON	ON	Local Per-Channel Loopback



SW1 POSITIONS 5-8 SELECTION

Clocking Mode Setup

Switch SW2 positions 1 and 2 are used to configure the clocking mode of an IX-DTI-N card as either *master* or *slave-private*. The following table defines the required settings for the different types of T1 circuits.

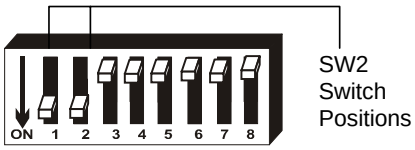
	Main System	Remote System	CSU	CSU/DSU Main	CSU/DSU Remote
Point to Point Network Clock Provided[1] 04DU9.BN [SF/AMI] 04DU9.1SN [ESF/ B8ZS]	Slave Private [DTI-N SW2 Positions 1-2] OFF/ON	Slave Private [DTI-N SW2 Positions 1-2] OFF/ON	Framing and Coding to match T1 circuit.	Enable Network Timing. Disable Robbed Bit Signaling.	Enable Network Timing. Disable Robbed Bit Signaling.
Point to Point No Network[1] Clock Provided 04DU9.BN [SF/AMI] 04DU9.1SN [ESF/ B8ZS]	Master [DTI-N SW2 Positions 1-2] ON/ON	Slave Private [DTI-N SW2 Positions 1-2] OFF/ON	Framing and Coding to match T1 circuit.	Enable DSX-1 Timing. Disable Robbed Bit Signaling.	Enable Network Timing. Disable Robbed Bit Signaling.
Private Connection	Master [DTI-N SW2 Positions 1-2] ON/ON	Slave Private [DTI-N SW2 Positions 1-2] OFF/ON	Framing and Coding to match ADIX.	Enable for DSX-1 Timing. Disable Robbed Bit Signaling.	Enable Network Timing. Disable Robbed Bit Signaling.
Data Channels present in Circuit[2]	Set number of Drop and Insert Channels from back. [VCOMP SW1]	Set number of Drop and Insert Channels from back. [VCOMP SW1]	N/A	Voice and Data Mapping Required. Disable Robbed Bit Signaling.	Voice and Data Mapping Required. Disable Robbed Bit Signaling.

1. This must be verified both when ordering the T1 circuit and following installation of the circuit.
2. All voice channels used for T1 Campus Networking must be 64K.

System Highway Synchronization

Clocking at the main system will either be Maser if no clock is provided by the Telco, or Slave-Private if the Telco is supplying the T1-clock. The remote system IX-DTI-N cards will always be Slave-Private. The IX-DTI-N cards configured as Master receive the system clock synchronization from the PLLU on the IX-CCU. This clock synchronization is sent to the remote end and received by the IX-DTI-N cards assigned as Slave-Private. The remote ECS synchronizes the system clock to the T1 circuit connected to the IX-DTI-N card assigned as Slave-Private.

Switch Positions		Function
1	2	
OFF	ON	Slave-Private
ON	ON	Master

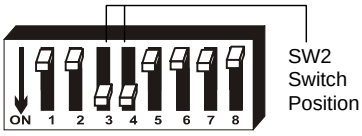


SW2 POSITIONS 1 AND 2 SELECTION

Framing Mode / Zero Code Suppression Scheme

Switch SW2 positions 3 and 4 are used to set the *framing mode* and *zero code suppression scheme* used in the T1 circuit connected to the IX-DTI-N card. Framing mode choices are Superframe D4 (SF/D4) and Extended Superframe D5 (ESF). In most cases the zero code suppression scheme is AMI (B7 stuffing) with superframe D4 framing and B8ZS with extended superframe D5 framing.

Switch Positions		Function
3	4	
OFF	OFF	ESF-B8ZS
ON	OFF	ESF-AMI (B7 Stuffing)
OFF	ON	SF/D4-B8ZS
ON	ON	SF/D4-AMI (B7 Stuffing)



Digital Attenuation

Switch SW2, position 5 is **not used** for the IX-DTI-N with Campus Networking.

Note:	Switch SW2, position 5 must be left in the OFF position for T1 Campus Networking. Switch SW2 positions 5, 6, 7, and 8 are not used with an IX-DTI-N card.

Test Settings

Switch SW3 on the IX-DTI-N card is for test use only, all positions should be set to OFF.

Switch Position					
1	2	3	4	5	6

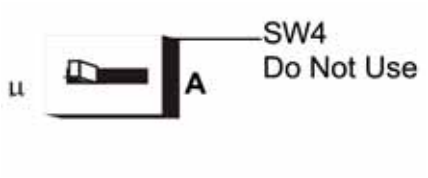


A/μ-Law Setting

Switch SW4 is **not used** for the IX-DTI-N with Campus Networking.

Note:	Switch SW4 must be left in the μ position for Campus Networking.

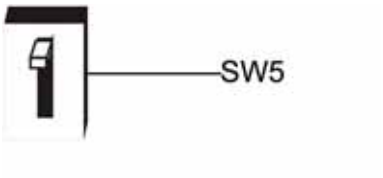
Switch Position	Function
1	
OFF	μ-Law
ON	A-Law



Make Busy Setting

Switch SW5 on the IX-DTI-N card is used to control the Make Busy setting.

Switch Position	Function
1	
OFF	Normal
ON	Make Busy



Reset Setting

Switch SW6 is the Reset button on the IX-DTI-N card. Pressing the Reset button allows the local PPU on the IX-DTI-N card to reset. The PPU must be reset to enable certain hardware switch changes. Please reference the table below to determine if specific switch changes require a local reset of the IX-DTI-N card or a full system reset.

Location#	Switch Bank	Switch	System	SW 6	Note
IX-VCOMP	SW 4	CP 1-8		X	REMOVE T1 CABLE BEFORE RESET
IX-VCOMP	SW 3	VS 1-8	X		
IX-VCOMP	SW 2	SN 1-8	X		
IX-VCOMP	SW1	DI 1-5		X	
IX-VCOMP	SW1	TB 6		X	
IX-VCOMP	SW 2	SYS 6	X		
IX-DTI-N	SW 1	PLS 0-2		X	REMOVE T1 CABLE BEFORE RESET
IX-DTI-N	SW 2	MS 0-1		X	REMOVE T1 CABLE BEFORE RESET
IX-DTI-N Code T1	SW 2	CD 3		X	REMOVE T1 CABLE BEFORE RESET
IX-DTI-N FrameT1	SW 2	FM 4		X	REMOVE T1 CABLE BEFORE RESET
IX-DTI-N	SW 2	AIS 8		X	REMOVE T1 CABLE BEFORE RESET

SWITCH CHANGE RESET TYPES ON THE IX-DTI-N and IX-VCOMP CARDS

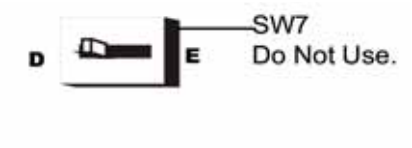
Switch Position
1
Press to Reset



Flash Write Enabling

Switch SW7 on the IX-DTI-N card is used activate the serial port on the card in order to change the function to an IX-DTI-T or an IX-DTI-P card. Do not change this switch from the factory setting, which should be to DISABLE.

Switch Position	
1	
OFF	Disabled
ON	Enabled



SW7 SELECTION

IX-VCOMP Switch Settings

Drop and Insert Settings

When installing the T1 circuit, you may need to drop some of the channels for data. Switch SW1 allows you to drop one or more consecutive channels from the end (Back) of the T1 circuit. Switches DI1 through DI5 are used to set the number of active channels. In default, with all of the switches set to OFF, all 24 channels are active. Set the switches to the ON position to activate the drop and insert mode.

Note:	With the following setting, channels 1-20 are active, channels 21-24 are unused, and channel 20 is used for D-channel signaling.
Note:	The highest active channel is always used as the D-channel for T1 Campus Networking.

OFF	OFF	ON	OFF	ON
DI1	DI2	DI3	DI4	DI5

See the chart below for the proper switch settings for dropping from 1 to 23 channels.

Switch Position	Name	Description
1	DI1	Drop and Insert Setting (See SW1 Switch Selection table below)
2	DI2	
3	DI3	
4	DI4	
5	DI5	
6	TB	



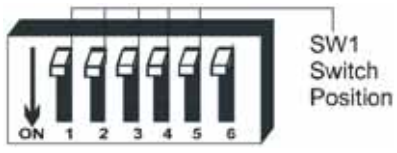
SW1 POSITIONS 1-5 SELECTION

DI1	DI2	DI3	DI4	DI5	Channels Active

1	2	4	8	16	
ON	OFF	OFF	OFF	OFF	1 Channel Active
OFF	ON	OFF	OFF	OFF	2 Channels Active
ON	ON	OFF	OFF	OFF	3 Channels Active
OFF	OFF	ON	OFF	OFF	4 Channels Active
ON	OFF	ON	OFF	OFF	5 Channels Active
OFF	ON	ON	OFF	OFF	6 Channels Active
ON	ON	ON	OFF	OFF	7 Channels Active
OFF	OFF	OFF	ON	OFF	8 Channels Active
ON	OFF	OFF	ON	OFF	9 Channels Active
OFF	ON	OFF	ON	OFF	10 Channels Active
ON	ON	OFF	ON	OFF	11 Channels Active
OFF	OFF	ON	ON	OFF	12 Channels Active
ON	OFF	ON	ON	OFF	13 Channels Active
OFF	ON	ON	ON	OFF	14 Channels Active
ON	ON	ON	ON	OFF	15 Channels Active
OFF	OFF	OFF	OFF	ON	16 Channels Active
ON	OFF	OFF	OFF	ON	17 Channels Active
OFF	ON	OFF	OFF	ON	18 Channels Active
ON	ON	OFF	OFF	ON	19 Channels Active
OFF	OFF	ON	OFF	ON	20 Channels Active
ON	OFF	ON	OFF	ON	21 Channels Active
OFF	ON	ON	OFF	ON	22 Channels Active
ON	ON	ON	OFF	ON	23 Channels Active
OFF	OFF	OFF	OFF	OFF	24 Channels Active

SW1 – 6 Set this switch to OFF to have the channels dropped starting with the highest channel. Presently, Iwatsu can only support dropping channels from the highest channel number. Do not set the switch to ON.

TB	Lowest / Highest Setting
OFF	Channels dropped from the highest channel number
ON	Do not set switch to the ON position



SW1 POSITION 6 SELECTION

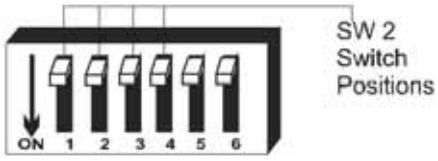
IX-DTI-N Card Serialization

IX-DTI-N cards must be serialized when installed in the ECS. The first card is always Card 1. If more than one card is installed, additional cards must be identified by

switch settings on SW2 switches 1 through 4. The switch settings below require a card reset using SW6.

Switch Position	Name	Description
1	SN1	Serial Number of IX-DTI-N card: If only one IX-DTI-N card is in a system, set the serial number to 1 (all positions OFF). If there is more than one IX-DTI-N card in any system (main or remote), set the serial numbers consecutively within that system.
2	SN2	
3	SN3	
4	SN4	
5	SN5	Not used
6	SYS	Main / Remote System Selection

Serial Number	SN1 1	SN2 2	SN3 4	SN4 8
1	OFF	OFF	OFF	OFF
2	ON	OFF	OFF	OFF
3	OFF	ON	OFF	OFF
4	ON	ON	OFF	OFF
5	OFF	OFF	ON	OFF
6	ON	OFF	ON	OFF
7	OFF	ON	ON	OFF
8	ON	ON	ON	OFF
9	OFF	OFF	OFF	ON
10	ON	OFF	OFF	ON
11	OFF	ON	OFF	ON
12	ON	ON	OFF	ON
13	OFF	OFF	ON	ON
14	ON	OFF	ON	ON
15	OFF	ON	ON	ON
16	ON	ON	ON	ON



SW2 POSITION 1-4 SELECTION

Main / Remote System Setting

Switch SW2 position 6 designates the system as either the Main or a Remote System. This switch must be set before the system is defaulted. When set for Remote, the IX-DTI-N card defaults as T1 E&M Tie Lines in the remote system local database. For every switch position of SW2 (IX-VCOMP) that is turned on, the remote system will define 8 T-1 E&M Tie Lines in configuration. The configuration of the T-1 E&M Tie Lines must be set to (Class 01.11) to 000 (No polarity reversal, No disconnect, ATT mode). When adding a IX-DTI-N to existing remote system, these trunks must be added to the local database Installation and Initialization. When set for Main, the IX-DTI-N ports are not assigned as additional trunks in the local database. The ports associated with the location of the IX-DTI-N card in the main system as defined based on the hardware supported in the remote system.

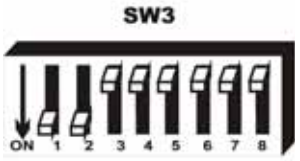
SYS	Main / Remote System Selection
ON	Main System
OFF	Remote System

SW2 POSITION 6 SELECTION

Virtual Slot Selection

This switch enables you to select the virtual slots used for IX-DTI-N card. A virtual card slot is a physical card slot in the main system that is defined in Class 01.11 based on the hardware installed in the remote system. These card slots then become usable for the main system hardware. You must select one slot for every 8 ports associated with the IX-DTI-N card on both ends of the campus network T-1 circuit.

Switch Position	Name	Virtual Slot Number
1	VS1	1
2	VS2	2
3	VS3	3
4	VS4	4
5	VS5	5
6	VS6	6
7	VS7	7
8	VS8	8



SW3 POSITIONS 1-8 SELECTION

Voice Compression Settings

Switch 4 is used to set Voice Compression for T1 Campus Networking. By setting a switch to the ON position, you can compresses eight channels to four channels. The maximum number of switches that can be set to ON for SW4 are six if utilizing a dual highway and four if utilizing a single highway. If the maximum number of switches is set, forty-six channels can be used by just one IX-DTI-N card. Forty-six channels are available instead of forty-eight because 1 uncompressed channel is used as IX-DTI-N's D channel.

In the case of a single highway, a maximum number of four channels can be set. Thirty channels are available instead of thirty-two because 1 uncompressed channel is used as a D channel.

To determine the maximum number of ports with compression, use the following formula:

[(number of T1 channels –1) x 2] = maximum number of ports

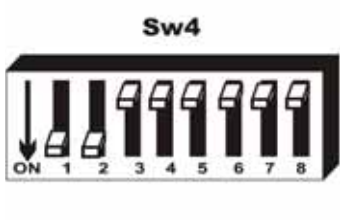
Note: The D-channel is never compressed and will always require 1 T1 channel.

The compression feature limits the performance of some cards in a remote system of a Campus Network.

Note: The number of compressed channels must be the same at both ends of the T1 circuit. There is also a corresponding relationship between the switch settings for SW3 and SW4. Do not set any switches to ON for SW4 that are set to OFF in SW3. SW3 must be set to ON to set SW4 ON. Only switches enabled for SW3 are available for compression settings for SW4. Also, the same number of switches must be enabled for compression on both the remote and main side. The maximum number of switches that can be set to ON for SW4 are six if utilizing a dual highway, and four if utilizing a single highway. Failure to follow these directions prevents the T1 circuit from initializing.

Switch Position	Name	Virtual Slot Number	Description Compression Setting
1	CP1	1	Ports 1-8 on Primary Highway
2	CP2	2	Ports 9-16 on Primary Highway
3	CP3	3	Ports 17-24 on Primary Highway
4	CP4	4	Ports 25-32 on Primary Highway
5	CP5	5	Ports 1-8 on Secondary Highway
6	CP6	6	Ports 9-16 on Secondary Highway
7	CP7	7	Ports 17-24 on Secondary Highway
8	CP8	8	Ports 25-32 on Secondary Highway

CP	Compression Settings
ON	Compressed
OFF	Not Compressed



SW4 POSITIONS 1-8 SELECTION

Installation and Initialization

The installation and initialization procedures for a T1 Campus Network, including startup procedures of the main and remote systems, are described below. Because the T1 Campus Network initialization process requires that the software and hardware settings be precise, strict adherence to these steps is recommended.

Failure to follow these steps precisely will prevent the T1 Campus Network from initializing properly.

New System Installation

Installing a New Remote System

Complete the following steps to install a new Remote system on T1 circuit in which the Network does *not* provide clocking:

1. Set the following switches on the remote system IX-DTI-N card:

Note:	Refer to **Switch Settings** for additional information on the switch settings for SW1 and SW5.

- **Clocking.** On SW2 of the IX-DTI-N card, set position 1 to OFF and position 2 to ON.
- **T1 Circuit Type.** On SW2 of the IX-DTI-N card, set positions 3 and 4 for either D4/AMI or ESF/B8ZS.

1. Set the following switches on the remote system IX-VCOMP card:

- **Main/Remote.** On SW2 of the IX-VCOMP card, set position 6 to OFF for remote.
- **Virtual Slot Address Selection.** On SW3 of the IX-VCOMP card, set VS 1-8.
- **Compression/Non-Compression.** On SW4 of the IX-VCOMP card, set CP 1-8.

Note:	Only dip switches that were enabled for virtual slots for SW3 can be a choice selection for SW4.

- **Network Card Serial Number.** On SW2 of the IX-VCOMP card, set SN 1-4.
- **Drop and Insert Settings.** On SW1 of the IX-VCOMP card, set DI1-DI5 and TB.

1. Connect the IX-VCOMP card to the IX-DTI-N card.
2. Insert the IX-DTI-N card into your planned card slot in the ADIX APS.
3. Default the remote system.
4. Check the settings in Class 01.06 and Class 01.07. Eight additional trunks should display for every switch enabled on SW2 of the IX-VCOMP card.
5. Set the system data settings in Class 31.03 for the remote system to REMOTE.
6. Set the system data settings for Resources Assignment in Class 31.04 based on hardware settings from IX-VCOMP card SW 2 SN 1-8 and IX-VCOMP card SW 3 VS 1-8.

Note: If IX-DTI-N card designated SN 1 in the remote system has switches 1, 2, 6, and 8 set to ON, then the system data settings in Class 31.04 must be made within the following parameters:

(XX = Virtual Slot Number)

- 01-1 XX (Card 1, Switch 1)
- 01-2 XX (Card 1, Switch 2)
- 01-6 XX (Card 1, Switch 6)
- 01-8 XX (Card 1, Switch 8)

1. Verify that the T1 circuit from the T1 circuit provider is fully operational by using a T1 analyzer.
2. Reset the remote system with the T1 Campus Networking T1 circuit unplugged. The remote system will be inoperative until the T1 circuit between the main system and remote system is operational. Wait for the minor alarm indication (D8 and D3) on the remote IX-CCU to display. It is critical that the system be in waiting mode with the above alarm indications.
3. If the proper LED sequence is not present, go back and verify hardware settings on the IX-VCOMP card, and database settings in Class 31.03 and 31.04 for the correct entries.

Installing a New Main System

Complete the following steps to install the Main system on T1 circuit that does *not* have network clocking:

1. Set the following switches on the main system IX-DTI-N card:

Note: Refer to **Switch Settings** for additional information on the switch settings for SW1 and SW5.

- **Clocking.** On SW2 of the IX-DTI-N card, set position 1 to ON and position 2 to ON.
- **T1 Type.** On SW2 of the IX-DTI-N card, set position 3 and 4 for either D4/AMI or ESF/B8ZS. (Make sure it matches the remote system settings.)

1. Set the following switches on the main system IX-VCOMP card:

- **Main/Remote.** On SW2 of the IX-VCOMP card, set position 6 to OFF for remote.
- **Virtual Slot Address Selection.** On SW3 of the IX-VCOMP card, set VS 1-8.
- **Compression/Non-Compression.** On SW4 of the IX-VCOMP card, set CP 1-8.
- **Network Card Serial Number.** On SW2 of the IX-VCOMP card, set SN 1-4.
- **Drop and Insert Settings.** On SW1 of the IX-VCOMP card, set DI1-DI5 and TB.

2. Insert the IX-DTI-N card into your planned card slot in the ADIX APS.
3. Attach T1 cables to connect the T1 circuit.
4. Default the main system.
5. The T1 circuit is established when the main system starts up properly. The remote system(s) configuration is now in the main system.
6. The Campus APS Network is established.

Adding a Remote System

Complete the following steps to add a Remote system to an existing network:

1. Set the following switches on the remote system IX-DTI-N card:

Note:	Refer to **Switch Settings** for additional information on the switch settings for SW1 and SW5.

- **Clocking.** On SW2 of the IX-DTI-N card, set position 1 to OFF and position 2 to ON.
- **T1 Circuit Type.** On SW2 of the IX-DTI-N card, set positions 3 and 4 for either D4/AMI or ESF/B8ZS.

2. Set the following switches on the remote system IX-VCOMP card:

- **Main/Remote.** On SW2 of the IX-VCOMP card, set position 6 to OFF for remote.
- **Virtual Slot Address Selection.** On SW3 of the IX-VCOMP card, set VS 1-8.
- **Compression/Non-Compression.** On SW4 of the IX-VCOMP card, set CP 1-8.

Note:	Only dip switches that were enabled for virtual slots for SW3 can be a choice selection for SW4.

- **Network Card Serial Number.** On SW2 of the IX-VCOMP card, set SN 1-4.
- **Drop and Insert Settings.** On SW1 of the IX-VCOMP card, set DI1-DI5 and TB.

3. Connect the IX-VCOMP card to the IX-DTI-N card.
4. Install the IX-DTI-N card into your planned card slot in the ADIX APS.
5. If a new remote system is being added, start it up in the default mode with the Campus APS Networking T1 circuit unplugged.
6. Set the system data settings in Class 31.03 for the remote system to REMOTE.
7. Set the system data settings for Resources Assignment in Class 31.04 based on hardware settings from IX-VCOMP card SW 2 SN 1-8 and IX-VCOMP card SW 3 VS 1-8.

Note:	If IX-DTI-N card designated SN 1 in the remote system has switches 1, 2, 6, and 8 set to ON, then the system data settings in Class 31.04 must be made within the following parameters: (XX = Virtual Slot Number) • 01-1 XX (Card 1, Switch 1) • 01-2 XX (Card 1, Switch 2) • 01-6 XX (Card 1, Switch 6) • 01-8 XX (Card 1, Switch 8)

8. Expand the number of stations and number of trunks in Class 01.06 and Class 01.07 at the main location to reflect the additional ports at the remote system. Only add the ports that will be used by the remote system in the campus mode. Do not include the T1 E & M Tie Line circuits for the remote IX-DTI-N card.
9. Reset the main system.
10. Change the configuration of the main system to reflect the new ports being added from the remote system. The definitions will be based on the Virtual Slot settings from SW3.
11. Upload the configuration and reset the Main location.

12. Reset the remote system after the main system starts up with the T1 Campus Networking T1 circuit connected.
13. Note that the remote components are activated at the remote system as part of the main location after the T1 circuits are established.

Expanding a Remote System

Complete the following steps to expand a Remote system:

1. Unplug the T1 circuit and wait for system to come up in the Local mode.
2. If you are adding a new IX-DTI-N card, set the following switches on the remote system. If you are expanding an existing circuit proceed to step 3.

Note: Refer to Switch Settings for additional information on the switch settings for SW1 and SW5.

- **Clocking.** On SW2 of the IX-DTI-N card, set position 1 to OFF and position 2 to ON.
- **T1 Circuit Type.** On SW2 of the IX-DTI-N card, set positions 3 and 4 for either D4/AMI or ESF/B8ZS.

3. Set the following switches on the remote system IX-VCOMP card:

- **Main/Remote.** On SW2 of the IX-VCOMP card, set position 6 to OFF for remote.
- **Virtual Slot Address Selection.** On SW3 of the IX-VCOMP card, set VS 1-8.
- **Compression/Non-Compression.** On SW4 of the IX-VCOMP card, set CP 1-8.

Note: Only dip switches that were enabled for virtual slots for SW3 can be a choice selection for SW4.

- **Network Card Serial Number.** On SW2 of the IX-VCOMP card, set SN 1-4.
- **Drop and Insert Settings.** On SW1 of the IX-VCOMP card, set DI1-DI5 and TB.

4. Connect the IX-VCOMP card to the IX-DTI-N card.
5. Plug the IX-DTI-N card into your planned card slot in the ECS.
6. Expand the *Number of Stations* (Class 01.06) and *Number of Trunks* (Class 01.07) at the remote location to reflect the additional ports at the remote system. Add 8 trunks for each additional virtual slot enabled for SW3 on the remote site.
7. Reset the remote system with the T1 Campus Networking T1 circuit unplugged.
8. Make configuration changes in the remote system for the new ports being added. Define the additional IX-DTI-N virtual slots as T1 E & M Tie Lines.
9. Upload the Class 01 configuration changes and reset the remote system.
10. Set the system data settings for Resources Assignment in Class 31.04.
11. Expand the number of stations (Class 01.06) and the number of trunks (Class 01.07) at the main location to reflect the additional stations and/or trunks added at the remote end.
12. Reset the main system.

13. Change the configuration of the main system to reflect the new ports being added from the remote system.
14. Upload the Class 01 configuration changes and reset the main location.
15. After the main system is back up and running, connect the T1 Campus T1 circuit and reset the remote system.
16. Note that the remote components are activated at the remote system as part of the main location after the T1 circuits are established.

Troubleshooting

The following table outlines the cause and recommended action for the various alarm indications.

LED		Cause	Recommended Action	
REDALM		Receive Signal Loss The ECS has stopped receiving the signal on the Receive (RX) pair. The ECS, the CSU and the Smart Jack all have alarm capability. Observing the locations of active alarms will isolate the problem.	1. Do loopback from CSU to the ECS.	Does problem clear? YES: The problem is before the ECS. Proceed to step 2. NO: Check cable from CSU to the ECS. Replace DTI card.
Alarm State: Applicable Cards: History:	ON DTI-T/DTI-P/ DTI-N Error Log			
			2. Do loopback from CSU to Smart Jack.	Does problem clear? YES: The problem is before the CSU. Contact the T1 circuit provider. NO: Proceed to steps 3-6.
			3. Check cable from Smart Jack to CSU. 4. Replace CSU. 5. Replace cable from CSU to Smart Jack. 6. Connect T1 Analyzer to T1 circuit.	Does problem clear? YES: Contact IAI. NO: Replace CSU. Contact theT1 circuit provider.
BLUE ALARM		Receive Signal Loss A Blue Alarm occurs if the DTI has been enabled to send a Keep Alive signal, which consists of all 1's", when it detects a Receive Signal Loss.	Follow the procedure for a Red Alarm.	

Alarm State: Applicable Cards: History:	ON/Flashing DTI-T/DTI-N Error Log			
YELALM		Transmit Signal Loss The ECS has stopped sending signal towards network/far end, and they return a yellow alarm on the receive pair. The ECS, the CSU and the Smart Jack all have alarm capability. Observing the location of active alarms will isolate the problem.	1. Do loopback from CSU to Smart Jack.	Does problem clear? YES: The problem is after the CSU. Check cable from CSU to DTI card. Replace DTI card. NO: Check cable from CSU to Smart Jack. Replace CSU. Connect T1 Analyzer. Contact the T1 circuit provider.
Alarm State: Applicable Cards: History:	ON DTI-T/DTI-P/ DTI-N Error Log			

ERRST		Bipolars The pulses received by the ECS are deformed and cannot be treated as T1 signal properly. The ECS, CSU and the Smart Jack all have alarm capability. Observing the location of active alarms will isolate the problem.	1. Verify cable from CSU to ECS meets specs and all connections are good. If CSU has bipolar alarm, also: 1. Check cable from Smart Jack to CSU. 2. Connect T1 Analyzer to T1 circuit in monitor mode.	Does problem clear? NO: Contact the T1 circuit provider. NOTE: The ECS cannot cause bipolars; it can only receive them.
Alarm State: Applicable Cards: History:	ON DTI-T/DTI-N Error Log			

MASTER/SLAVE SETTING		If clocking is not provided by the network, the card should be set to MASTER. If clocking is provided by the network, the card should be set to SLAVE.	Verify SW2 settings.
Alarm State: Applicable Cards:	None DTI-T/DTI-N		
CLKM		NOTE: Only one card can be the clock source. After default or a reset, the digital card installed in the lowest PCM high-way becomes the clock source. If that signal is inter-rupted, the clock source will shift automatically to another digital card.	Verify SW2 settings.
Alarm State: Applicable Cards: History:	None DTI-T/DTI-P/ DTI-N None		
OPR 0		Layer 1 Connection Status for DTI-N Card Layer 1 is the indication of a physical electrical connection from the DTI card connector to the T1 circuit	1. Check cable and wiring from CSU. 2. Check cable and wiring from Smart Jack to CSU. 3. Check SW2 for proper DIP settings.
Alarm State: Applicable Cards:	OFF DTI-P/DTI-N		
OPR 1		Layer 2 Status for DTI-N Card Layer 2 is the data link layer which uses LAP-D Protocol	1. Check cable and wiring from CSU. 2. Check cable and wiring from Smart Jack to CSU. 3. Check SW2 for proper DIP settings.

Alarm State: Applicable Cards: History:	OFF DTI-N Error Log		

OPR 2		Initialization Status for DTI-N Card When flashing, this LED indicates an unsuccessful initialization process. NOTE: Steady ON would indicate a successful initialization process.	1. Check DTI DIP settings. 2. Check VCOMP DIP settings (Main and Remote).
Alarm State: Applicable Cards: History:	Flashing DTI-N Error Log		
M B		Make Busy A flashing LED indicates card is in Make Busy state.	1. Check Database Classes 01.09 and 31.04. 2. Check VCOMP DIP settings (Main and Remote).
Alarm State: Applicable Cards:	No Change DTI-T/DTI-P/ DTI-N		

Error Log Examples

Main System Error log example after a T1 circuit loss and recovery

The Main system IX-DTI-N card is installed in physical ports 57-64/185-192 and the IX-VCOMP has Virtual 4,7, and 8 enabled, which represent that the IX-DTI-N is using physical card number 12, 27, 28 in the main system.

In this example, the T1 circuit was lost for more than 7 seconds.

```
-------------------------------------------------------------------------
-------
No.  Date     Time     Class      ID.                        Parameters
-------------------------------------------------------------------------
-------
000  00/09/19 13:34:06  4-16  C-Net Link Error (Momentary)  Card No. 12
                                                 R-Card : N/A(0) R-No. 00
001  00/09/19 13:34:06  4-16  C-Net Link Error (Momentary)  Card No. 27
                                                 R-Card : N/A(0) R-No. 00
002  00/09/19 13:34:06  4-16  C-Net Link Error (Momentary)  Card No. 28
                                                 R-Card : N/A(0) R-No. 00
003  00/09/19 13:34:11  4-15  C-Net Link Error (Disconnect) Card No. 12
                                                 R-Card : N/A(0) R-No. 00
004  00/09/19 13:34:11  4-15  C-Net Link Error (Disconnect) Card No. 27
                                                 R-Card : N/A(0) R-No. 00
005  00/09/19 13:34:11  4-15  C-Net Link Error (Disconnect) Card No. 28
                                                 R-Card : N/A(0) R-No. 00
006  00/09/19 13:34:14  4-14  C-Net Link Error (Recover)    Card No. 12
                                                 R-Card : N/A(0) R-No. 00
007  00/09/19 13:34:14  4-14  C-Net Link Error (Recover)    Card No. 27
                                                 R-Card : N/A(0) R-No. 00
008  00/09/19 13:34:14  4-14  C-Net Link Error (Recover)    Card No. 28
                                                 R-Card : N/A(0) R-No. 00
```

Remote System Error log example after T1 circuit loss and recovery

The Remote system IX-DTI-N card is installed in physical ports 25-23/153-160 and the IX-VCOMP has Virtual 4,7 and 8 enabled, which are programmed in Class 31.04 to support physical card number 8, 23, and 24.

In this example, the T1 circuit was lost for more than 7 seconds.

```
-------------------------------------------------------------------
--------------
No.  Date     Time     Class      ID.                        Parameters
-------------------------------------------------------------------
--------
000  00/09/19 13:34:12  4-16  C-Net Link Error (Momentary) Card No. 08
                                          R-Card :  PSUB
001  00/09/19 13:34:12  4-16  C-Net Link Error (Momentary) Card No. 23
                                          R-Card :  SUBX
002  00/09/19 13:34:12  4-16  C-Net Link Error (Momentary) Card No. 24
                                          R-Card :  LGTK
003  00/09/19 13:34:17  4-15  C-Net Link Error (Disconnect)Card No. 08
                                          R-Card :  PSUB
004  00/09/19 13:34:17  4-15  C-Net Link Error (Disconnect)Card No. 23
                                          R-Card :  SUBX
005  00/09/19 13:34:17  4-15  C-Net Link Error (Disconnect)Card No. 24
                                          R-Card :  LGTK
006  00/09/19 13:34:19  4-14  C-Net Link Error (Recover)   Card No. 08
                                          R-Card :  PSUB
007  00/09/19 13:34:19  4-14  C-Net Link Error (Recover)   Card No. 23
                                          R-Card :  SUBX
008  00/09/19 13:34:19  4-14  C-Net Link Error (Recover)   Card No. 24
                                          R-Card :  LGTK
```

Main System Error log example after a T1 circuit momentary loss and recovery

The Main system IX-DTI-N card is installed in physical ports 57-64/185-192 and the IX-VCOMP has Virtual 4,7, and 8 enabled, which represent that the IX-DTI-N is using physical card number 12, 27, 28 in the main system.

In this example, the T1 circuit was lost for a duration less than 7 seconds.

```
------------------------------------------------------------------------
--------
No.  Date     Time     Class      ID.                        Parameters
------------------------------------------------------------------------
-------
000  00/09/19 13:34:06  4-16  C-Net Link Error (Momentary)  Card No. 12
                                                 R-Card : N/A(0) R-No. 00
001  00/09/19 13:34:06  4-16  C-Net Link Error (Momentary)  Card No. 27
                                                 R-Card : N/A(0) R-No. 00
002  00/09/19 13:34:06  4-16  C-Net Link Error (Momentary)  Card No. 28
                                                 R-Card : N/A(0) R-No. 00
003  00/09/19 13:34:09  4-14  C-Net Link Error (Recover)    Card No. 12
                                                 R-Card : N/A(0) R-No. 00
004  00/09/19 13:34:09  4-14  C-Net Link Error (Recover)    Card No. 27
                                                 R-Card : N/A(0) R-No. 00
005  00/09/19 13:34:09  4-14  C-Net Link Error (Recover)    Card No. 28
                                                 R-Card : N/A(0) R-No. 00
```

Remote System Error log example after T1 circuit momentary loss and recovery

The Remote system IX-DTI-N card is installed in physical ports 25-23/153-160 and the IX-VCOMP has Virtual 4,7 and 8 enabled, which are programmed in Class 31.04 to support physical card number 8, 23, and 24.

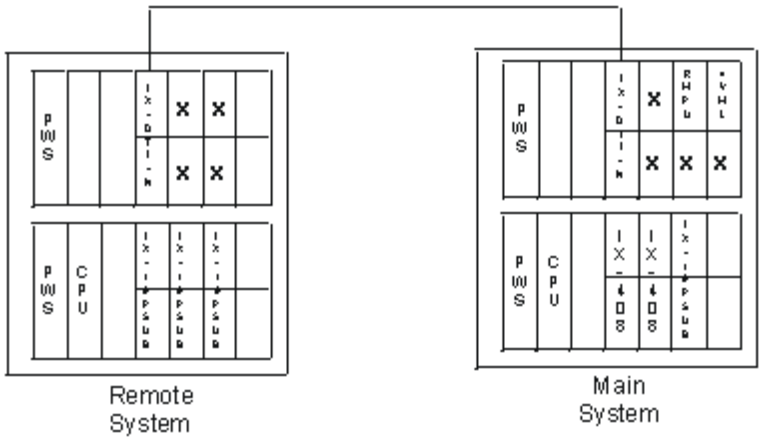
In this example, the T1 circuit was lost for a duration less than 7 seconds.

```
------------------------------------------------------------------
--------------
No.  Date     Time     Class      ID.                        Parameters
------------------------------------------------------------------
--------
000  00/09/19 13:34:12  4-16  C-Net Link Error (Momentary) Card No. 08
                                          R-Card :  PSUB
001  00/09/19 13:34:12  4-16  C-Net Link Error (Momentary) Card No. 23
                                          R-Card :  SUBX
002  00/09/19 13:34:12  4-16  C-Net Link Error (Momentary) Card No. 24
                                          R-Card :  LGTK
003  00/09/19 13:34:15  4-14  C-Net Link Error (Recover)   Card No. 08
                                          R-Card :  PSUB
004  00/09/19 13:34:15  4-14  C-Net Link Error (Recover)   Card No. 23
                                          R-Card :  SUBX
005  00/09/19 13:34:15  4-14  C-Net Link Error (Recover)   Card No. 24
                                          R-Card :  LGTK
```

Campus Networking Configuration Examples

Note: Refer to the T1 Campus Networking Configuration Worksheet section for the ECS port numbers, physical card numbers and virtual slot numbers for these examples.

Example of 46-port APS to APS Campus Network



In the main system, the IX-VCOMP card is set as Main to define that it resides in the main system (SW2 position 6 = ON). Next, the virtual slots are set to identify the physical ports that are used to support the remote system cards. In this example, you would set the virtual slots as 1, 2, 5, 6, 7 and 8 (SW3 position 1, 2, 5, 6, 7 and 8 = ON) to identify physical ports 033-048 and 161-192 as the ports used to support the cards in the remote system.

In the remote system, the IX-VCOMP card is set as Remote to define that it resides in the remote system (SW2 position 6 = OFF). Then, the virtual slots are set to provide the ability to program the actual cards supported in the remote system. In this example, you would set the virtual slots as 1, 2, 3, 5, 6, and 7 (SW3 position 1, 2, 3, 5, 6, and 7 = ON) because of the location of the IX-DTI-N / IX-VCOMP.

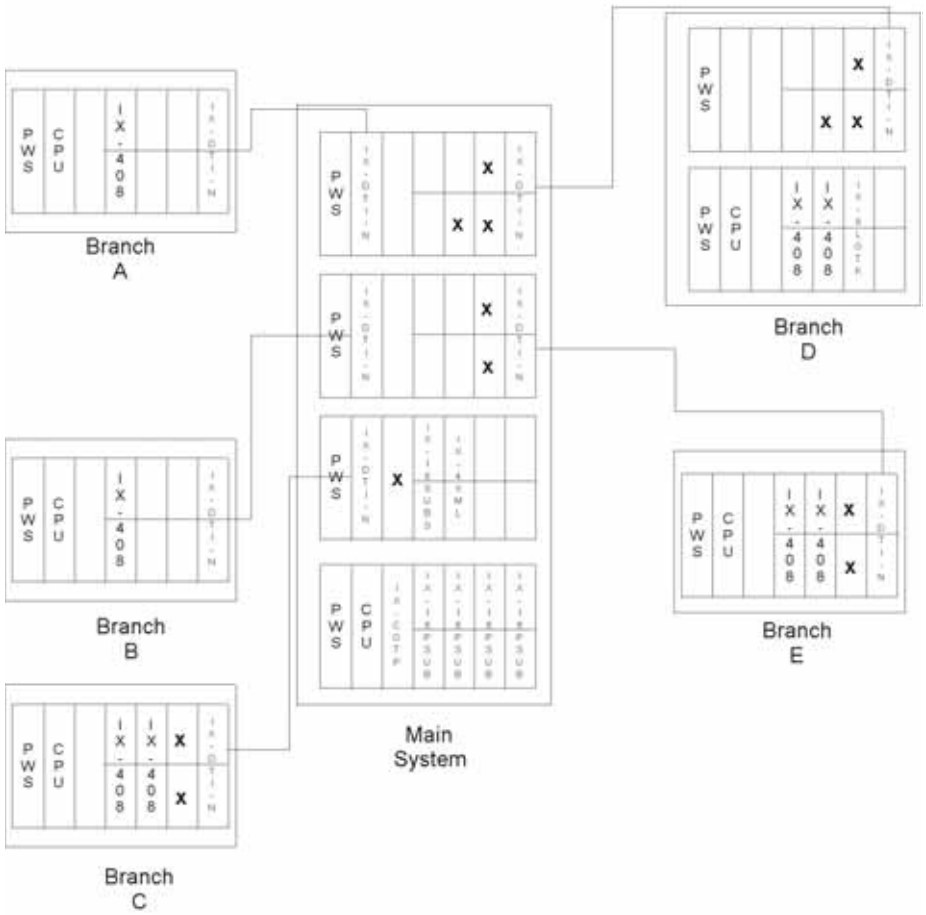
Virtual slot numbers 1, 2, 3, 5, 6 and 7 are planned to represent physical card numbers 5, 21, 6, 22, 7 and 23 in the remote system. It is necessary to program this association. In Class 31.04, the following will be programmed:

- Virtual slot number 1 as physical card number 5.
- Virtual slot number 2 as physical card number 21.
- Virtual slot number 3 as physical card number 6.
- Virtual slot number 5 as physical card number 22.
- Virtual slot number 6 as physical card number 7.
- Virtual slot number 7 as physical card number 23.

With the campus cards set as described in the above example, at initialization the main system recognizes the following equipment supported by ports 033-048 and 161-192:

Ports 033-040 correspond to physical card number 5 consisting of 8 digital lines:	Ports 041-048 correspond to physical card number 21 consisting of 8 digital lines:	Ports 161-168 correspond to physical card number 6 consisting of 8 digital lines:	Ports 169-176 correspond to physical card number 22 consisting of 8 digital lines:	Ports 177-184 correspond to physical card number 7 consisting of 8 digital lines:	Ports 185-192 correspond to physical card number 23 consisting of 8 digital lines:
033 KT	041 KT	161 KT	169 KT	177 KT	185 KT
034 KT	042 KT	162 KT	170 KT	178 KT	186 KT
035 KT	043 KT	163 KT	171 KT	179 KT	187 KT
036 KT	044 KT	164 KT	172 KT	180 KT	188 KT
037 KT	045 KT	165 KT	173 KT	181 KT	189 KT
038 KT	046 KT	166 KT	174 KT	182 KT	190 KT
039 KT	047 KT	167 KT	175 KT	183 KT	191 KT
040 KT	048 KT	168 KT	176 KT	184 KT	192 KT

Example of Campus Network with Five Remote Systems



BRANCH A:

In the main system, the IX-VCOMP card is set as Main to define that it resides in the main system (SW2 position 6 = ON). Next, the virtual slots are set to identify the physical ports that are used to support the remote system cards. In this example, you would set the virtual slots as 1 and 2 (SW3 position 1 and 2 = ON) to identify physical ports 353-368 as the ports used to support the cards in the remote system.

In the remote system, the IX-VCOMP card is set as Remote to define that it resides in the remote system (SW2 position 6 = OFF). Then, the virtual slots are set to provide the ability to program the actual cards supported in the remote system. In this example, you would set the virtual slots as 4 and 8 (SW3 position 4 and 8 = ON) because of the location of the IX-DTI-N / IX-VCOMP.

Virtual slot numbers 4 and 8 are planned to represent physical card numbers 5 and 21 in the remote system. It is necessary to program this association. In Class 31.04, the following will be programmed:

- Virtual slot number 4 as physical card number 5.
- Virtual slot number 8 as physical card number 21.

With the campus cards set as described in the above example, at initialization the main system recognizes the following equipment supported by ports 353-368:

Ports 353-360 correspond to physical card number 5 consisting of 8 digital lines:	Ports 361-368 correspond to physical card number 21 consisting of 4 trunk lines:
353 KT	361 TRK
354 KT	362 TRK
355 KT	363 TRK
356 KT	364 TRK
357 KT	365 Not Used
358 KT	366 Not Used
359 KT	367 Not Used
360 KT	368 Not Used

BRANCH B:

In the main system, the IX-VCOMP card is set as Main to define that it resides in the main system (SW2 position 6 = ON). Next, the virtual slots are set to identify the physical ports that are used to support the remote system cards. In this example, you would set the virtual slots as 1 and 2 (SW3 position 1 and 2 = ON) to identify physical ports 257-272 as the ports used to support the cards in the remote system.

In the remote system, the IX-VCOMP card is set as Remote to define that it resides in the remote system (SW2 position 6 = OFF). Then, the virtual slots are set to provide the ability to program the actual cards supported in the remote system. In this example, you would set the virtual slots as 4 and 8 (SW3 position 4 and 8 = ON) because of the location of the IX-DTI-N / IX-VCOMP.

Virtual slot numbers 4 and 8 are planned to represent physical card numbers 5 and 21 in the remote system. It is necessary to program this association. In Class 31.04, the following will be programmed:

- Virtual slot number 4 as physical card number 5.
- Virtual slot number 8 as physical card number 21.

With the campus cards set as described in the above example, at initialization the main system recognizes the following equipment supported by ports 257-272:

Ports 257-264 correspond to physical card number 5 consisting of 8 digital lines:	Ports 265-272 correspond to physical card number 21 consisting of 4 trunk lines:
257 KT	265 TRK
258 KT	266 TRK
259 KT	267 TRK
260 KT	268 TRK
261 KT	269 Not Used
262 KT	270 Not Used
263 KT	271 Not Used
264 KT	272 Not Used

BRANCH C:

In the main system, the IX-VCOMP card is set as Main to define that it resides in the main system (SW2 position 6 = ON). Next, the virtual slots are set to identify the physical ports that are used to support the remote system cards. In this example, you would set the virtual slots as 1, 2, 3 and 4 (SW3 position 1, 2, 3 and 4 = ON) to identify physical ports 225-256 as the ports used to support the cards in the remote system.

In the remote system, the IX-VCOMP card is set as Remote to define that it resides in the remote system (SW2 position 6 = OFF). Then, the virtual slots are set to provide the ability to program the actual cards supported in the remote system. In this example, you would set the virtual slots as 3, 4, 7 and 8 (SW3 position 3, 4, 7 and 8 = ON) because of the location of the IX-DTI-N / IX-VCOMP.

Virtual slot numbers 3, 4, 7 and 8 are planned to represent physical card numbers 5, 6, 21 and 22 in the remote system. It is necessary to program this association. In Class 31.04, the following will be programmed:

- Virtual slot number 3 as physical card number 5.
- Virtual slot number 4 as physical card number 6.
- Virtual slot number 7 as physical card number 21.
- Virtual slot number 8 as physical card number 22.

With the campus cards set as described in the above example, at initialization the main system recognizes the following equipment supported by ports 225-256:

Ports 225-232 correspond to physical card number 5 consisting of 8 digital lines:	Ports 233-240 correspond to physical card number 6 consisting of 8 digital lines:	Ports 241-248 correspond to physical card number 21 consisting of 4 trunk lines:	Ports 249-256 correspond to physical card number 22 consisting of 4 trunk lines:
225 KT	233 KT	241 TRK	249 TRK
226 KT	234 KT	242 TRK	250 TRK
227 KT	235 KT	243 TRK	251 TRK
228 KT	236 KT	244 TRK	252 TRK
229 KT	237 KT	245 Not Used	253 Not Used
230 KT	238 KT	246 Not Used	254 Not Used
231 KT	239 KT	247 Not Used	255 Not Used
232 KT	240 KT	248 Not Used	256 Not Used

BRANCH D:

In the main system, the IX-VCOMP card is set as Main to define that it resides in the main system (SW2 position 6 = ON). Next, the virtual slots are set to identify the physical ports that are used to support the remote system cards. In this example, you would set the virtual slots as 3, 4, 6, 7 and 8 (SW3 position 3, 4, 6, 7 and 8 = ON) to identify physical ports 305-320 and 425-448 as the ports used to support the cards in the remote system.

In the remote system, the IX-VCOMP card is set as Remote to define that it resides in the remote system (SW2 position 6 = OFF). Then, the virtual slots are set to provide the ability to program the actual cards supported in the remote system. In this example, you would set the virtual slots as 3, 4, 6, 7 and 8 (SW3 position 3, 4, 6, 7 and 8 = ON) because of the location of the IX-DTI-N / IX-VCOMP.

Virtual slot numbers 1, 2, 3, 5, 6 and 7 are planned to represent physical card numbers 5, 6, 21, 22 and 7 in the remote system. It is necessary to program this association. In Class 31.04, the following will be programmed:

- Virtual slot number 3 as physical card number 5.
- Virtual slot number 4 as physical card number 6.
- Virtual slot number 6 as physical card number 21.
- Virtual slot number 7 as physical card number 22.
- Virtual slot number 8 as physical card number 7.

With the campus cards set as described in the above example, at initialization the main system recognizes the following equipment supported by ports 305-320 and 425-448:

Ports 305-312 correspond to physical card number 5 consisting of 8 digital lines:	Ports 313-320 correspond to physical card number 6 consisting of 8 digital lines:	Ports 425-432 correspond to physical card number 21 consisting of 4 trunk lines:	Ports 433-440 correspond to physical card number 22 consisting of 4 trunk lines:	Ports 441-448 correspond to physical card number 7 consisting of 8 trunk lines:
305 KT	313 KT	425 TRK	433 TRK	441 TRK
306 KT	314 KT	426 TRK	434 TRK	442 TRK
307 KT	315 KT	427 TRK	435 TRK	443 TRK
308 KT	316 KT	428 TRK	436 TRK	444 TRK
309 KT	317 KT	429 Not Used	437 Not Used	445 TRK
310 KT	318 KT	430 Not Used	438 Not Used	446 TRK
311 KT	319 KT	431 Not Used	439 Not Used	447 TRK
312 KT	320 KT	432 Not Used	440 Not Used	448 TRK

BRANCH E:

In the main system, the IX-VCOMP card is set as Main to define that it resides in the main system (SW2 position 6 = ON). Next, the virtual slots are set to identify the physical ports that are used to support the remote system cards. In this example, you would set the virtual slots as 3, 4, 7 and 8 (SW3 position 3, 4, 7 and 8 = ON) to identify physical ports 081-096 and 209-224 as the ports used to support the cards in the remote system.

In the remote system, the IX-VCOMP card is set as Remote to define that it resides in the remote system (SW2 position 6 = OFF). Then, the virtual slots are set to provide the ability to program the actual cards supported in the remote system. In this example, you would set the virtual slots as 3, 4, 7 and 8 (SW3 position 3, 4, 7 and 8 = ON) because of the location of the IX-DTI-N / IX-VCOMP.

Virtual slot numbers 3, 4, 7 and 8 are planned to represent physical card numbers 5, 6, 21 and 22 in the remote system. It is necessary to program this association. In Class 31.04, the following will be programmed:

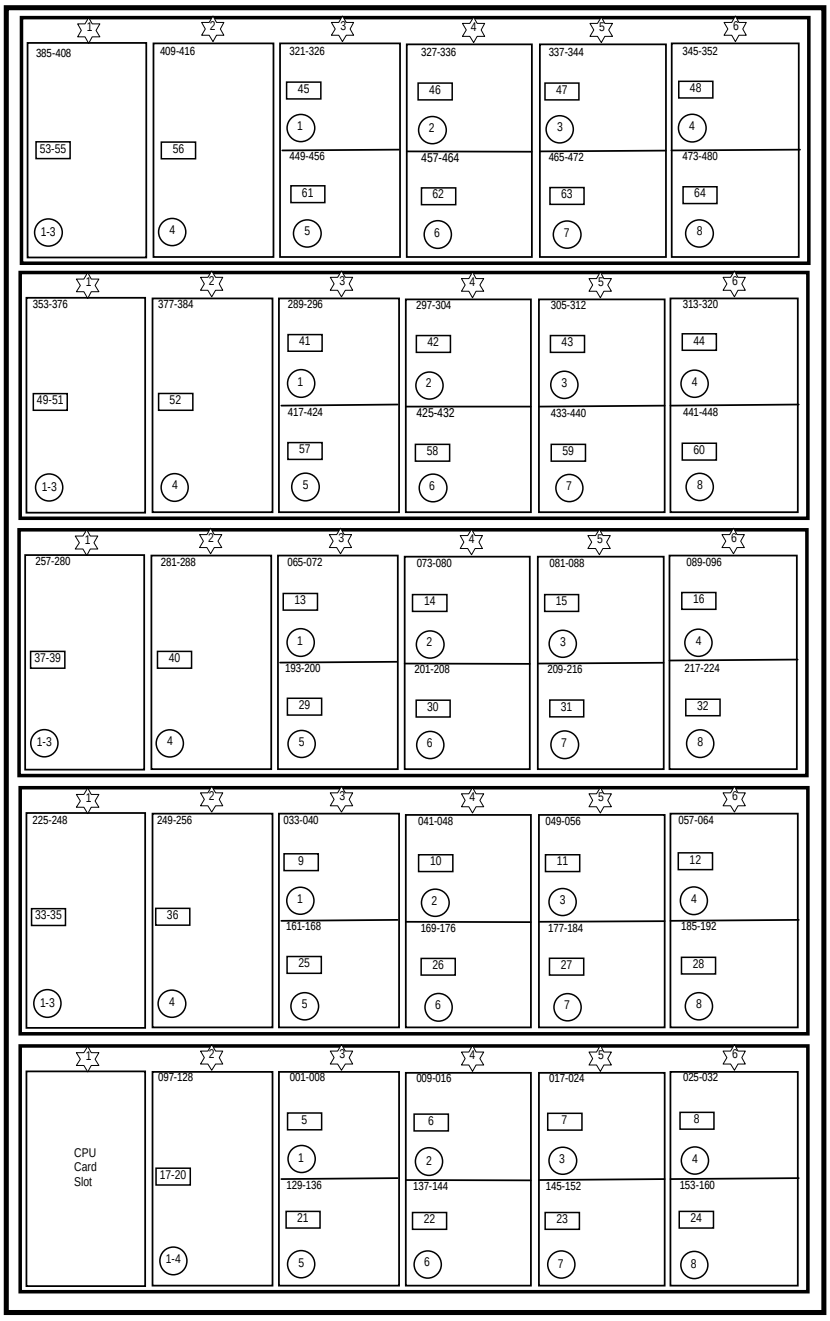
- Virtual slot number 3 as physical card number 5.
- Virtual slot number 4 as physical card number 6.
- Virtual slot number 7 as physical card number 21.
- Virtual slot number 8 as physical card number 22.

With the campus cards set as described in the above example, at initialization the main system recognizes the following equipment supported by ports 081-096 and 209-224:

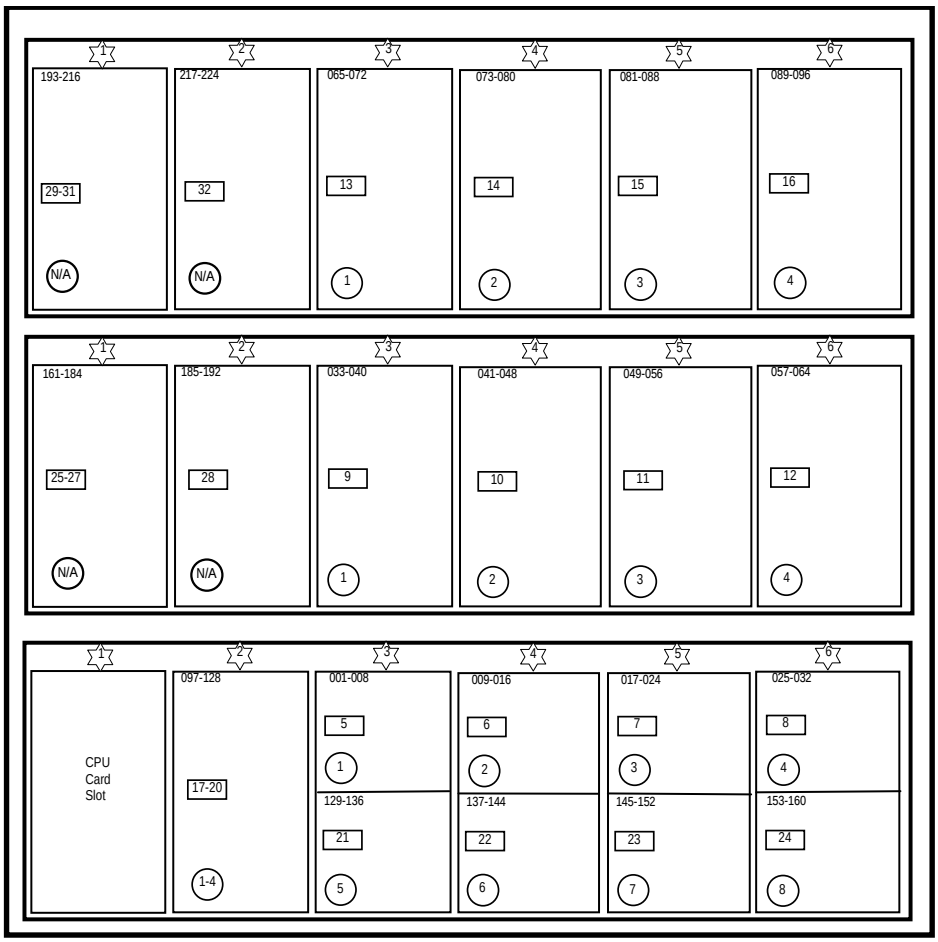
Ports 081-088 correspond to physical card number 5 consisting of 8 digital lines:	Ports 089-096 correspond to physical card number 6 consisting of 8 digital lines:	Ports 209-216 correspond to physical card number 21 consisting of 4 trunk lines:	Ports 217-224 correspond to physical card number 22 consisting of 4 trunk lines:
081 KT	089 KT	209 TRK	217 TRK
082 KT	090 KT	210 TRK	218 TRK
083 KT	091 KT	211 TRK	219 TRK
084 KT	092 KT	212 TRK	220 TRK
085 KT	093 KT	213 Not Used	221 Not Used
086 KT	094 KT	214 Not Used	222 Not Used
087 KT	095 KT	215 Not Used	223 Not Used
088 KT	096 KT	216 Not Used	224 Not Used

Campus Networking Configuration Worksheets

APS Worksheet



ADIX-M Worksheet



Slot Number

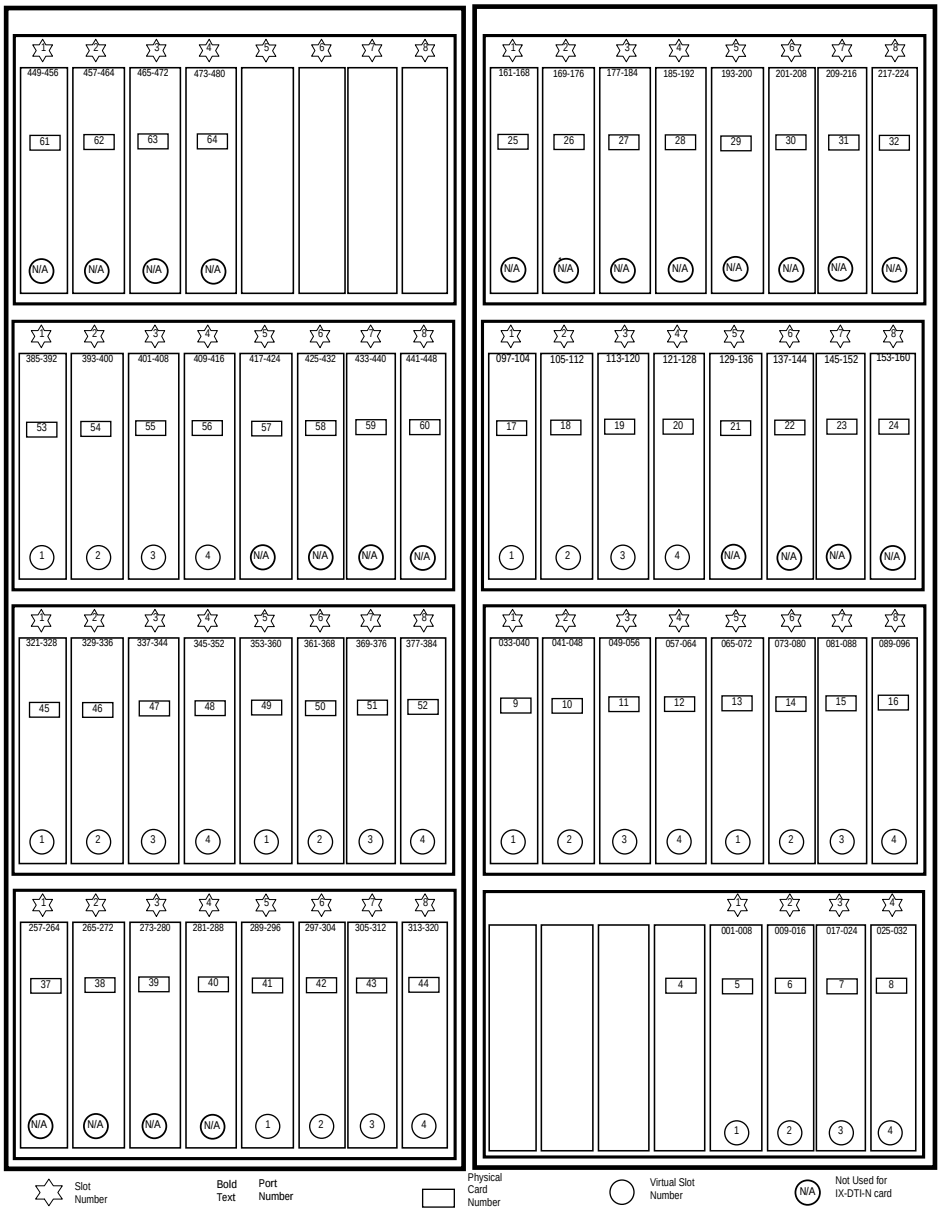
Bold Text Port Number

Physical Card Number

Virtual Slot Number

N/A Not Used for IX-DTI-N card

ADIX 450 Worksheet



Chapter 17

Optional Feature Installation

Programming Music On Hold (MOH)

The Iwatsu Enterprise-CS System can be programmed to play music on hold using either the internal MOH source or an external MOH source. The internal music on hold source is contained in the IX-CCU card and is pre-programmed in the factory. You can choose one of eight melodies to play. If you choose instead to use an external music on hold source, it must be connected to the BGM/MOH modular jack on the IX-CCU card. An AM/FM tuner or cd player is commonly used as an external MOH source.

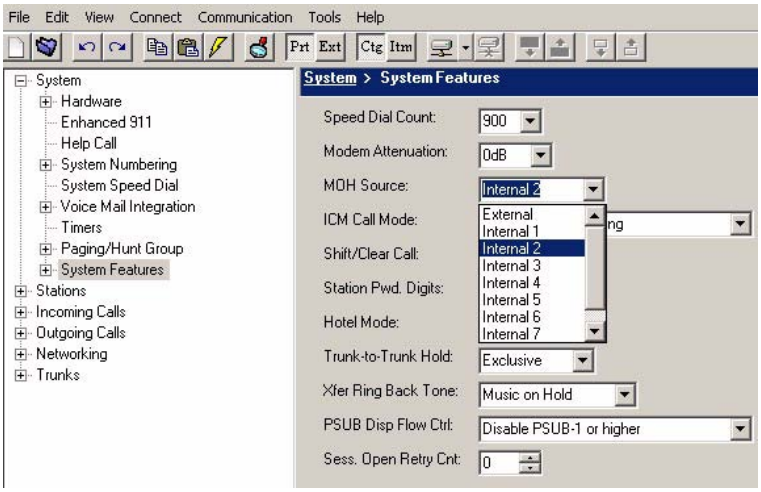
Internal Music On Hold Selections

MOH Selection:	MOH Song Title
Internal 1	Hitomi ga hohoemu kara (Miki Imai, Japanese Pop)
Internal 2	Here Comes the Sun
Internal 3	Hi-Ho
Internal 4	Mirai Yosouzu 2 (Dreams Come True, Japanese-Pop)
Internal 5	I need to be in love (The Carpenters)
Internal 6	Pachelbel's Canon D
Internal 7	Same as Internal 1
Internal 8	Same as Internal 1

Internal MOH Programming

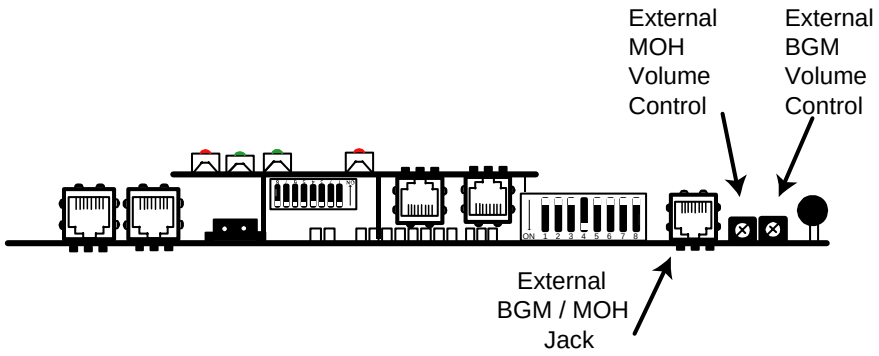
The following is performed using the Category (**Ctg**) View in the Iwatsu Programmer 5.0.x

1. Select: **System > System Features**.
2. Set the **MOH Source (Music on Hold Source)** to **Internal 1 - 8** (*Class 02.03).*
3. Upload the changes to the system database.



External Music On Hold Setup

Familiarize yourself with the location of the BGM/MOH modular jack and the MOH and BGM external volume control variable resistors.

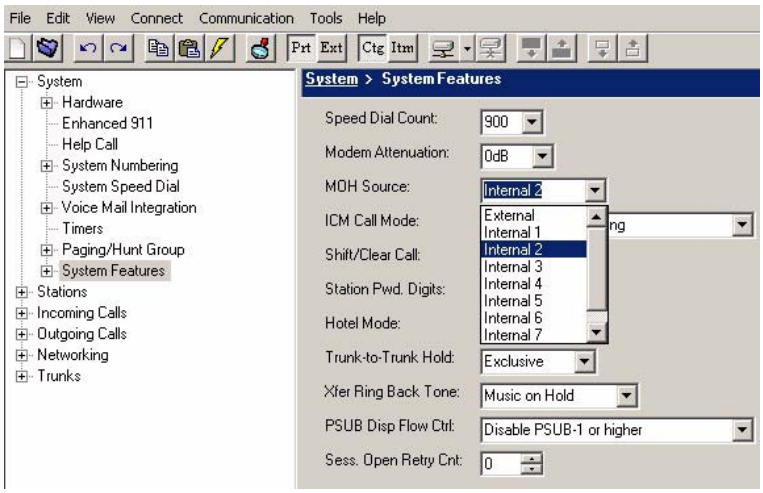


Programming and Installation

The following is performed using the Category (**Ctg**) View in the Iwatsu Programmer 5.0.x.

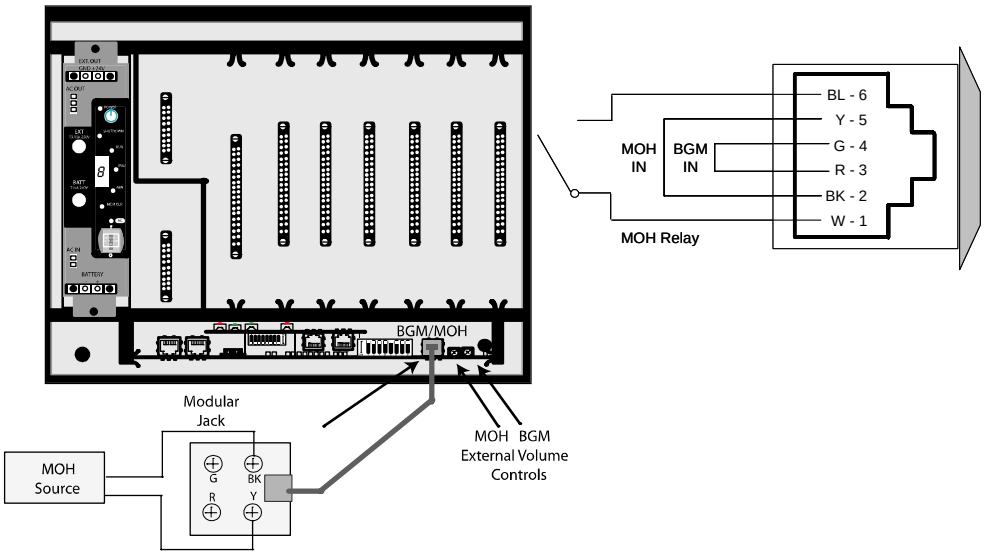
Programming:

1. Select: **System > System Features**.
2. Set the **MOH Source (Music on Hold Source)** to **External** (*Class 02.03).*
3. Upload the changes to the system database.



Installation:

1. Connect the output from the MOH source to the black and yellow wires of a modular jack.
2. Plug the output from the modular jack into the MOH/BGM jack on the IX-CCU card using an industry standard base cord as illustrated.
3. Turn potentiometer variable resistor labeled MOH on the IX-CCU to adjust the MOH volume. Clockwise to increase, counterclockwise to decrease.



Programming Background Music

The ECS System provides a background music (BGM) interface to external P.A. system speakers and KT station speakers. BGM can be input using either the BGM/MOH modular jack on the IX-CCU card or the 50-pin Amphenol connector on the IX-EDVIF card.

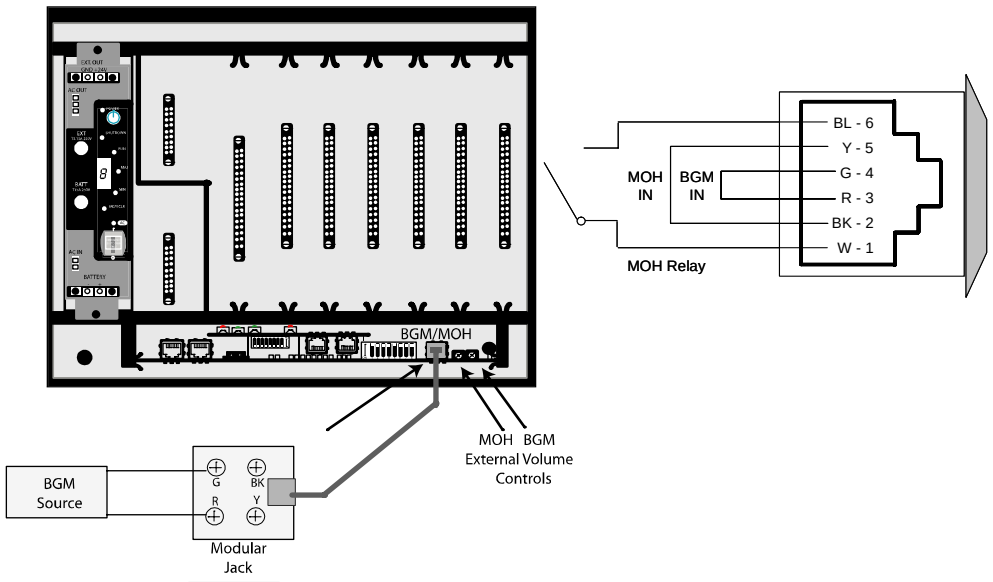
Note: BGM is not supported over IP telephones.

BGM Input Through the IX-CCU Card

The BGM/MOH modular jack on the IX-CCU is used for BGM input.

Programming and Connection

1. Access the programming mode from a DSS unit, programming KT, or PC Programmer. Go to **System > System Features > Ports > BGM Input Port** (*Class 04.03)*.
2. Make sure the data field is set to **0**.
3. Connect the output from the BGM source to the red and black wires of the same modular jack used for MOH.
4. Plug the output from the modular jack into the BGM/MOH modular jack on the IX-CCU card as illustrated.
5. Turn potentiometer variable resistor labeled BGM on the IX-CCU to adjust the BGM volume. Clockwise to increase, counterclockwise to decrease.
6. Press [FEAT] + [6][2] from a KT to turn on BGM. Press [FEAT] + [0][6][2] to turn off BGM.

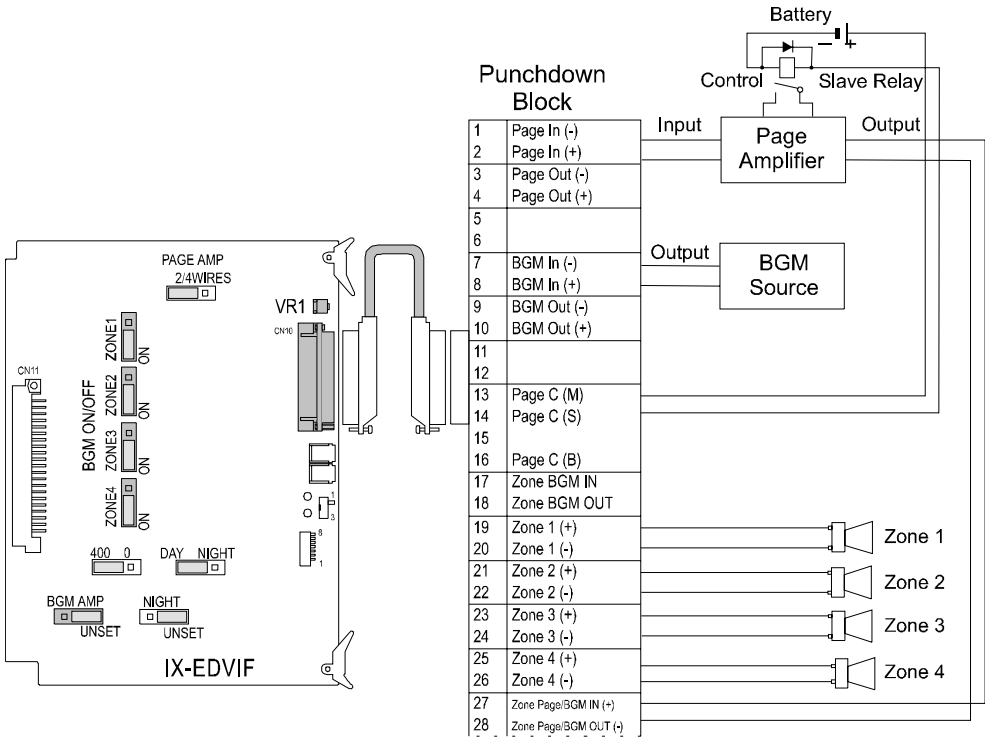


Playing BGM Through All Speakers and External Paging

External BGM can be played through all paging speakers (non-zone) when the speaker is idle, or through individual zones when the zone is idle.

Setup and Programming

1. Access the programming mode from the Iwatsu Programmer. Go to **System > System Features > Ports > BGM Input Port** (*Class 04.03)*. Set the BGM input port to be equal to the second miscellaneous port on the IX-EDVIF card-**002**.
2. Go to **System > System Features > Ports > BGM Output** (*Class 04.04)*. Enter either the miscellaneous logical port of the BGM source (second circuit on the IX-EDVIF), or the miscellaneous logical port number of Page Zone 1 (first circuit on the IX-EDVIF). Either of these data entries will cause BGM output through the page circuit (pin 1 and 2, PAGE IN, on the punchdown block).
3. Connect the BGM source output and page amplifier to the punchdown block as illustrated.
4. Connect the output from the punchdown block to the 50-pin Amphenol connector on the IX-EDVIF card.

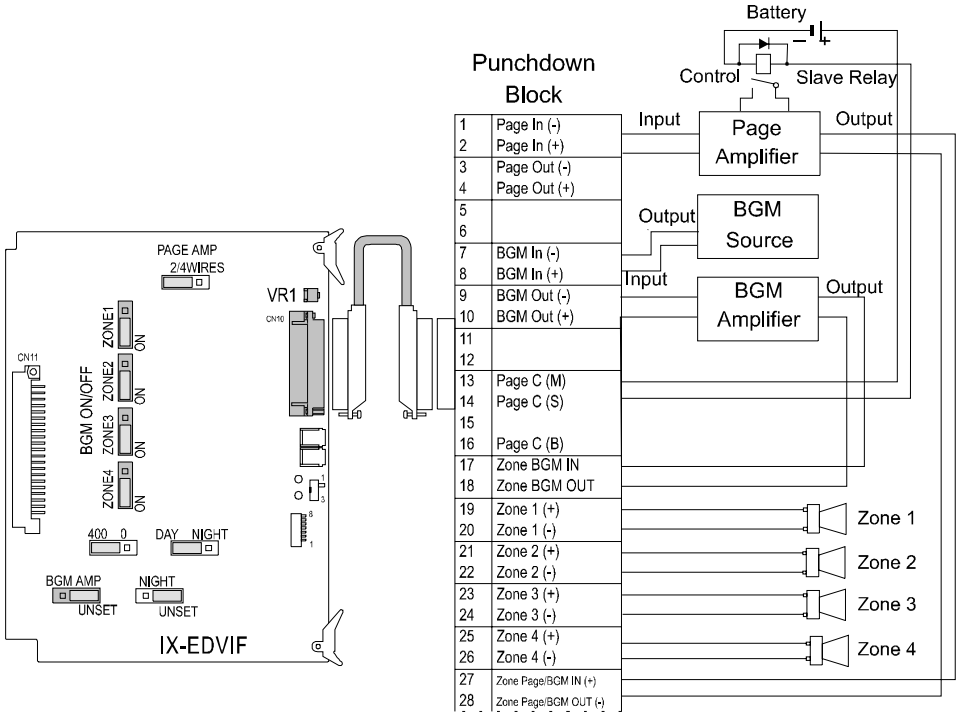


Playing BGM Through Individual Paging Zones

Follow the steps below to route BGM, using the IX-EDVIF interface, to up to four external zone outputs. You can enable or disable BGM for each zone by setting strapping jacks for ZONE1 through ZONE4 on the IX-EDVIF card.

Setup and Programming

1. Access the programming mode from a DSS unit, programming KT, or Iwatsu Programmer. Go to **System > System Features > Ports > BGM Input Port** (*Class 04.03).*
2. Set the BGM input port to be equal to the second miscellaneous port on the IX-EDVIF card-**002** and press [ENTER].
3. Go to **System > System Features > Ports > BGM Output** (*Class 04.04)*. Enter either the miscellaneous logical port number of the BGM source (second circuit on the IX-EDVIF), or the miscellaneous logical port number of Page Zone 1 (first circuit on the IX-EDVIF). Either of these data entries will cause BGM output through the page circuit (pin 1 and 2, PAGE IN, on the punchdown block).
4. Make sure the BGM AMP strapping jack on the IX-EDVIF card is in the RIGHT position. This will cause BGM to output to pins 9 and 10 BGM OUT on the punchdown block.
5. Connect the BGM external amplifier input to pins 9 and 10 BGM OUT on the punchdown block as illustrated.
6. Connect the speaker output of the external amplifier to pins 17 and 18 ZONE BGM IN on the punchdown block as illustrated. Connect the output from the punchdown block to the 50-pin Amphenol connector on the IX-EDVIF card.


Battery
Punchdown Block
Control
Slave Relay
Input
Output
Page Amplifier
Output
BGM Source
Inpput
BGM Amplifier
Output
1 Page In (-)
2 Page In (+)
3 Page Out (-)
4 Page Out (+)
5
6
7 BGM In (-)
8 BGM In (+)
9 BGM Out (-)
10 BGM Out (+)
11
12
13 Page C (M)
14 Page C (S)
15
16 Page C (B)
17 Zone BGM IN
18 Zone BGM OUT
19 Zone 1 (+)
20 Zone 1 (-)
21 Zone 2 (+)
22 Zone 2 (-)
23 Zone 3 (+)
24 Zone 3 (-)
25 Zone 4 (+)
26 Zone 4 (-)
27 Zone Page/BGM IN (+)
28 Zone Page/BGM OUT (-)
Zone 1
Zone 2
Zone 3
Zone 4
PAGE AMP
2/4WIRES
VR1
CN10
CN11
BGM ON/OFF
ZONE1
ZONE2
ZONE3
ZONE4
ON
400 0
DAY NIGHT
BGM AMP
NIGHT
UNSET
UNSET
IX-EDVIF

Programming the System for External Paging

This section describes the various external paging applications compatible with the ECS System.

Note: Iwatsu recommends against paging over IP. Should Iwatsu authorized distributors and end users choose to configure ECS systems with paging over IP, they do so at their own risk. Iwatsu Voice Networks does not support and is not responsible for degradation of network performance or quality of paging over IP.

Paging Through a P.A. System

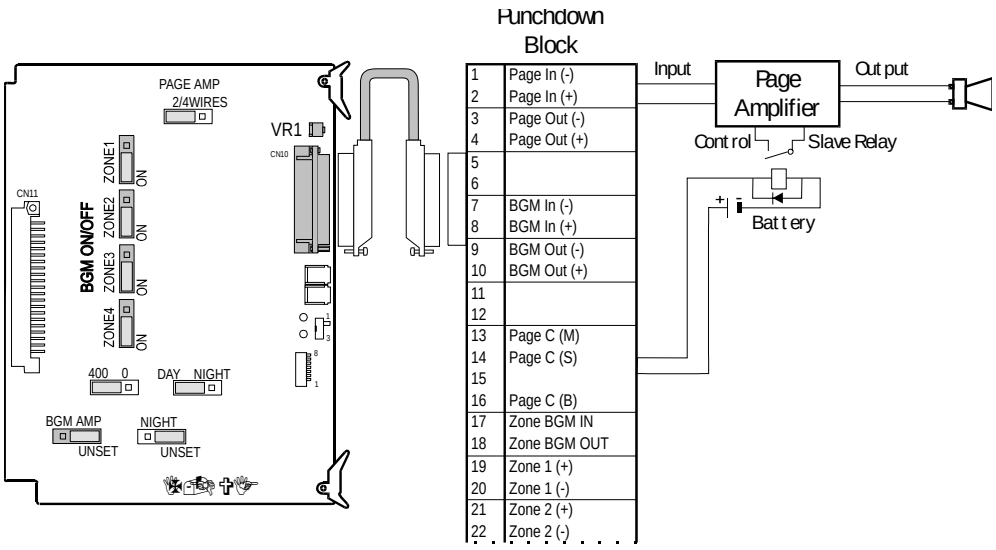
The IX-EDVIF card and a punchdown block must be installed to interface a P.A. system to the ECS System. The IX-EDVIF can be installed in any universal slot on the IX-CME Gateway Controller. Connect the IX-EDVIF card to the punchdown block using a 26.12-pair Amphenol cable.

Setup and Programming

1. Access the programming mode from a DSS unit, programming KT, or PC Programmer. Go to **System** > **Paging/Hunt Group** > **Station Paging Group** (*Class 08.04)*.
2. Create the desired paging groups. Press [ENTER] to save.
3. Go to **System** > **System Numbering** > **Park/Hunt/Page Numbering** > **Paging Group Access #** *(Class 07.04)*.
4. Program a page group access number for each page group. Press [ENTER] to save.
5. Set the PAGE AMP strapping jack on the IX-EDVIF card to either the **2-WIRES** (left) or **4-WIRES** (right) position.

Note: When the IX-EDVIF card is set to **2-WIRES**, the PAGE IN pins on the punchdown block become a two-way path. When the IX-EDVIF card is set to **4-WIRES**, paging voice is sent out through the PAGE OUT pins on the punchdown block while talk-back voice is received through the PAGE IN pins.

6. Do one of the following:
   - If the PAGE AMP strapping jack on the IX-EDVIF card is set to **2-WIRES**, connect the audio input/output terminal of the paging amplifier to pins 1 and 2, PAGE IN, located on the punchdown block.
   - If the PAGE AMP strapping jack on the IX-EDVIF is set to **4-WIRES**, connect the input terminal to pins 1 and 2, PAGE IN and the output terminal to pins 3 and 4, PAGE OUT located on the punchdown block.
7. Connect the page amplifier power control relay (SLAVE) to the PAGE CONTROL (+) and (-) pins on the punchdown block as illustrated.


Punchdown Block
PAGE AMP
2/4WIRES
VR1
CN10
CN11
BGM ON/OFF
ZONE1
ZONE2
ZONE3
ZONE4
ON
400 0
DAY NIGHT
BGM AMP
UNSET
NIGHT
UNSET
1 Page In (-)
2 Page In (+)
3 Page Out (-)
4 Page Out (+)
5
6
7 BGM In (-)
8 BGM In (+)
9 BGM Out (-)
10 BGM Out (+)
11
12
13 Page C (M)
14 Page C (S)
15
16 Page C (B)
17 Zone BGM IN
18 Zone BGM OUT
19 Zone 1 (+)
20 Zone 1 (-)
21 Zone 2 (+)
22 Zone 2 (-)
Input
Page Amplifier
Output
Control
Slave Relay
Battery

Zone Paging

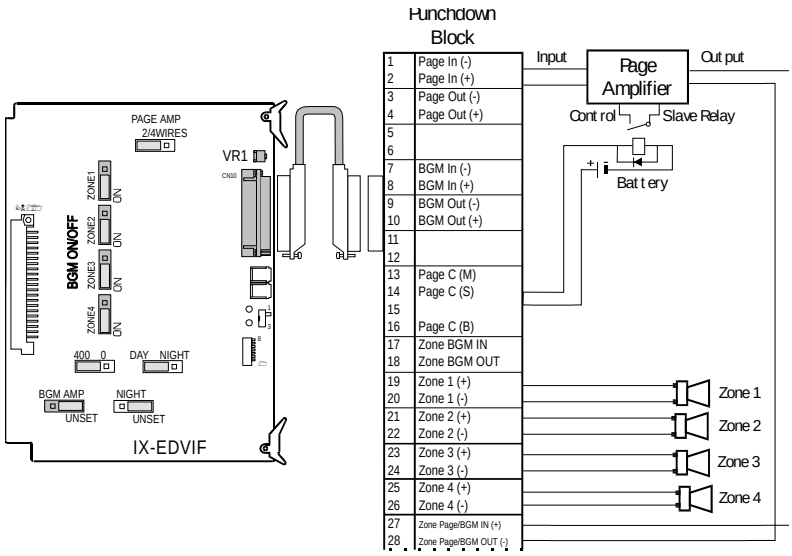
The IX-EDVIF card and a punchdown block must be installed to interface to a zone P.A. system. The IX-EDVIF card can be installed in any universal slot on the IX-CMM or IX-EXPMM units. Connect the IX-EDVIF card to the punchdown block using a 25-pair Amphenol cable.

Setup and Programming

1. Access the programming mode from a DSS unit, programming KT, or PC Programmer. Go to **System > Station Paging/Hunt Group > Station Paging Group** (*Class 08.04).*
2. Create the desired paging groups. Press [ENTER] to save.
3. Go to **System > System Numbering > Park/Hunt/Page Numbering > Paging Group Access #** (*Class 07.04)*.
4. Program a page group access number for each page group. Press [ENTER] to save.
5. Set the PAGE AMP strapping jack on the IX-EDVIF card to either the **2-WIRES** (left) or **4-WIRES** (right) position.

Note: When the IX-EDVIF card is set to **2-WIRES**, the PAGE IN pins on the punchdown block become a two-way path. When the IX-EDVIF card is set to **4-WIRES**, paging voice is sent out through the PAGE OUT pins on the punchdown block while talkback voice is received through the PAGE IN pins.

6. Do one of the following:
   - If the PAGE AMP strapping jack on the IX-EDVIF card is set to **2-WIRES**, connect the audio input/output terminal of the paging amplifier to pins 1 and 2, PAGE IN, located on the punchdown block.
   - If the PAGE AMP strapping jack on the IX-EDVIF is set to **4-WIRES**, connect the input terminal to pins 1 and 2, PAGE IN and the output terminal to pins 3 and 4, PAGE OUT located on the punchdown block.
7. Connect the page amplifier power control relay (SLAVE) to the PAGE CONTROL (+) and (-) pins on the punchdown block as illustrated. (Not required in all installations.)
8. Connect the page amplifier output for P.A. zone speakers to the ZONE PAGE/ BGM (+) and (-) pins on the punchdown block as illustrated.



To connect the zone speakers:

1. Connect the P.A. zone speakers (1 through 4) to the ZONE 1 through ZONE 4 pins on the punchdown block.
2. The figure above illustrates the relay connections for the P.A. system including the page amplifier, BGM amplifier, and zone speakers.

Two-Way Paging

The ECS System can be connected to two-way talk-back paging amplifiers. Either a two-wire or four-wire talk-back amplifier can be used. The two-wire connection reduces the P.A. input sensitivity because of the hybrid circuit inserted in the input.

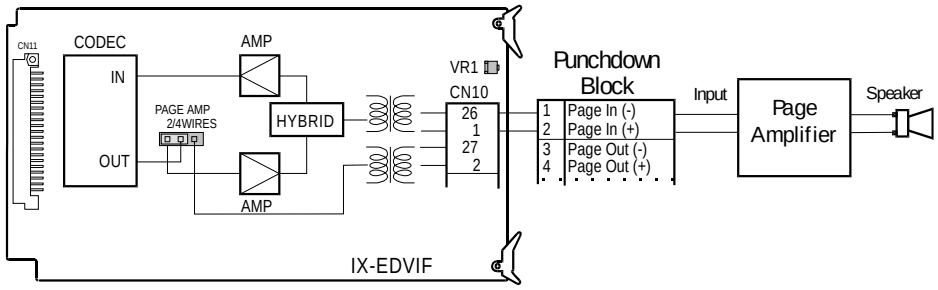
Setup and Programming

1. Set the PAGE AMP strapping jack on the IX-EDVIF card to either the **2-WIRES** (left) or **4-WIRES** (right) position.

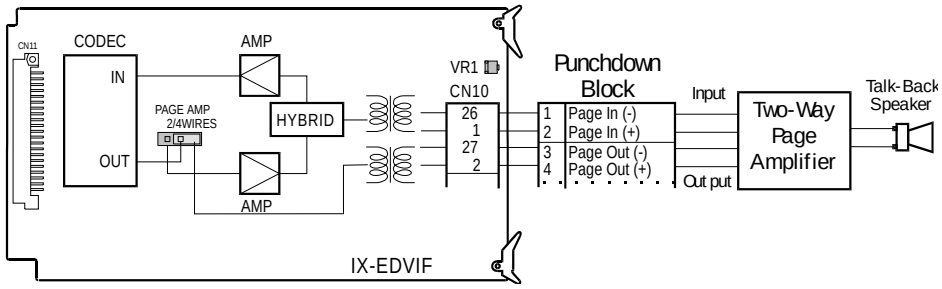
Note: When the IX-EDVIF card is set to **2-WIRES**, the PAGE IN pins on the punchdown block become a two-way path. When the IX-EDVIF card is set to **4-WIRES**, paging voice is sent out through the PAGE OUT pins on the punchdown block while talk-back voice is received through the PAGE IN pins.

2. Do one of the following:
   - If the PAGE AMP strapping jack on the IX-EDVIF card is set to **2-WIRES**, connect the audio input/output terminal of the paging amplifier to pins 1 and 2, PAGE IN, located on the punchdown block.
   - If the PAGE AMP strapping jack on the IX-EDVIF is set to **4-WIRES**, connect the input terminal to pins 1 and 2, PAGE IN and the output terminal to pins 3 and 4, PAGE OUT located on the punchdown block.
3. Connect the page amplifier power control (SLAVE) to the PAGE CONTROL (+) and (-) pins on the punchdown block. (Not required in all installations.)

Two-Wire Connection



Four-Wire Connection

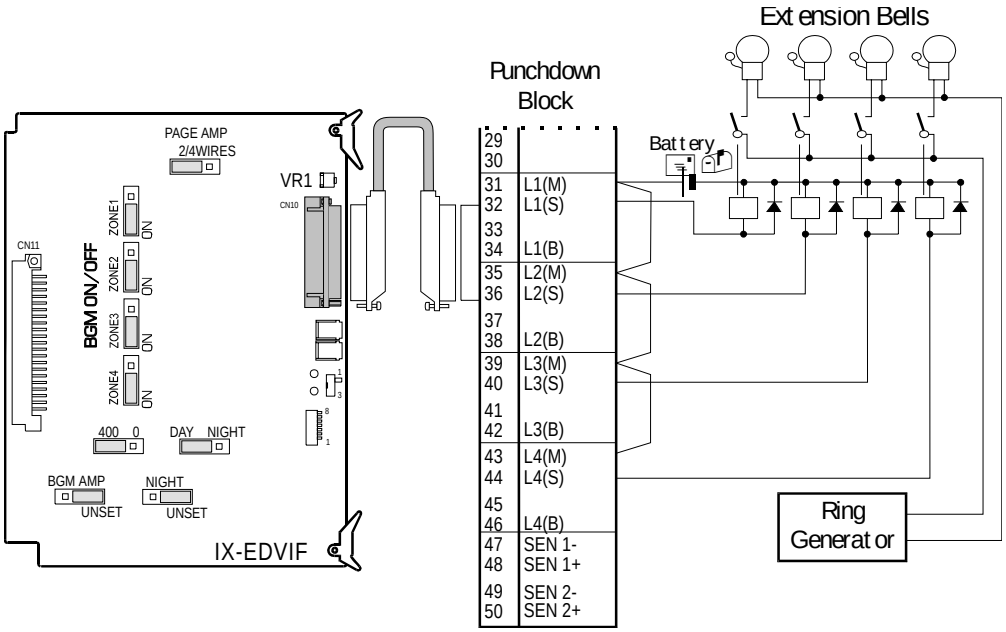


External Ringer

Individual incoming CO lines can be assigned to activate an external loud ringer connected to the punchdown block. The ringer can be set as either a day ringer or a night ringer.

To set up an external ringer:

1. Access the programming mode from a DSS unit, programming KT, or PC Programmer. Go to **System > Features > Misc Relay/Sensor** (*Class 04.35)* and Program the miscellaneous logical port location of the relays and the relay numbers on the IX-EDVIF card to be used for external ringing.
2. Go to **System > Features > Misc Relay/Sensor > Relay Assignment** *(Class 04.37)* and program the type of relays you are using.
3. Go to **Trunks > Features > Ringing Parameter > Loud Ringer Relay No.** (*Class 11.35)* and program the relay to activate when there is an incoming call on the desired CO lines.
4. Go to **Trunks > Features > Ringing Parameter > UNA Relay** (*Class 11.28)* and program the desired relay to activate when there is an incoming call on a UNA line. UNA Lines are programmed in **Trunks > Features > Line Attribute > UNA Line** *(Class 11.27)*.
5. Connect the ringer and ringing generator through slave relays to L1 through L4 on the punchdown block (corresponding to relay numbers 1 to 8 assigned above) as illustrated.

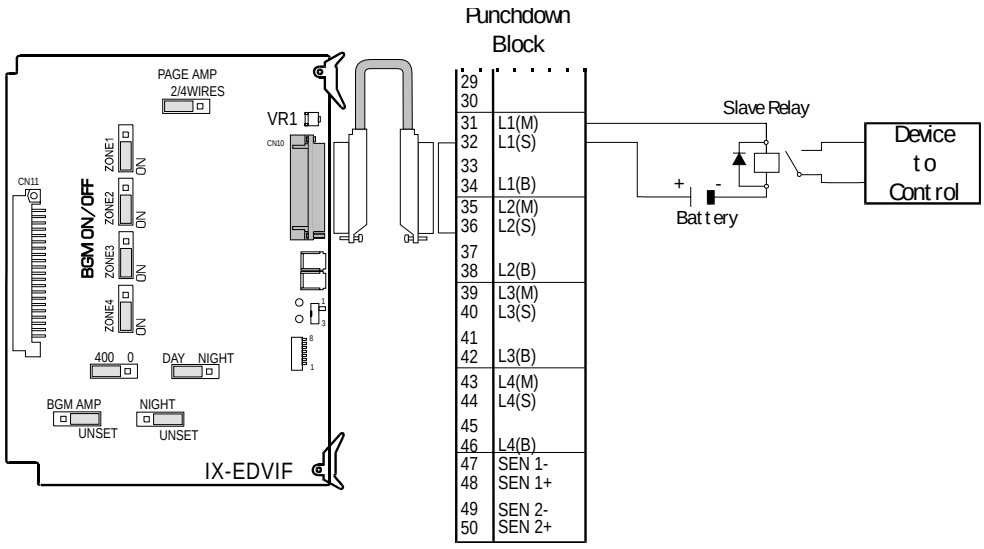


Remote Control

Flexible relays on the IX-EDVIF card can be used to control a customer provided device such as an electric door lock.

Setup and Programming

1. Access the programming mode from a DSS unit, programming KT, or PC Programmer. Go to **System > Features > Misc Relay/Sensor** (*Class 04.35)* and program the miscellaneous logical port location of the relays and the relay numbers on the IX-EDVIF card to be used for remote control applications.
2. Go to **System > Features > Misc Relay/Sensor > Misc Relay Timer** (*Class 04.36)* and program the length of time the relays will operate for.
3. Go to **System > Features > Misc Relay/Sensor > Relay Assignment** (*Class 04.37)* and program the type of relays you are using.
4. Go to **Stations > Key Patterns** *(Class 14.01)* and/or **Stations > Key Patterns** (*Class 15.01)* and program a [REMOTE] key to operate the remote control application.
5. Connect the device to be controlled through slave relays to L1 through L4 on the punchdown block (corresponding to relay numbers 1 to 8 assigned above) as illustrated.



Night Mode Switch

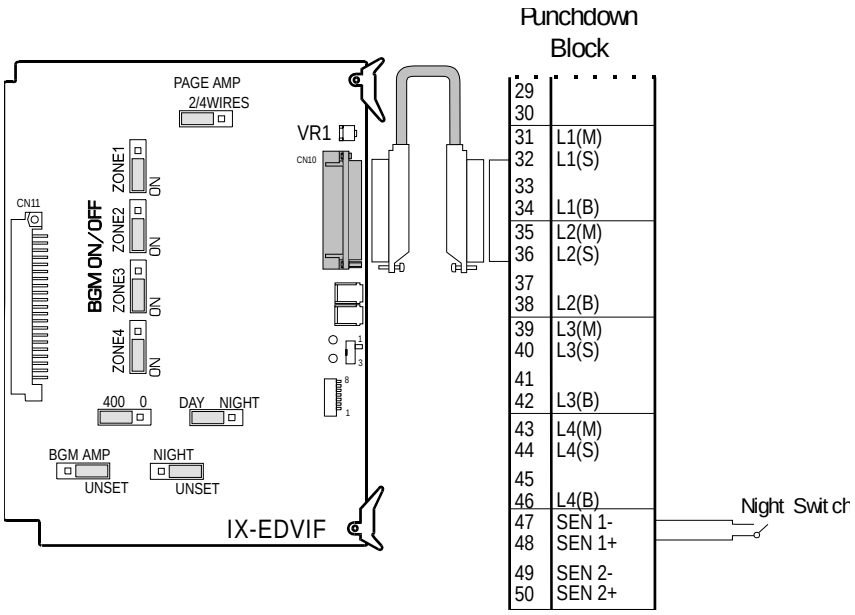
A universal night switch can be installed to manually switch the system into night mode.

Note: When using an IX-EDVIF for the Night Mode Switch, the switch must be configured as the fifth circuit the IX-EDVIF card in **System > Features > Misc Relay/Sensor** (Class 04.35) (example: [RLY NN-5]).

Setup and Programming

1. Access the programming mode from a DSS unit, programming KT, or PC Programmer. Go to **System > Timers > Night Mode Start Time** (*Class 04.31)* and program the automatic night mode start time if desired. The default setting is **0 - No Automatic Switching**.
2. Go to **System > Features > Misc Relay/Sensor** (*Class 04.35)* and program the miscellaneous logical port location of the sensor on the IX-EDVIF card and the sensor number which will be used as a night mode switch.
3. Go to **System > Features > Misc Relay/Sensor > Relay Assignment** (*Class 04.37)* and program the sensor type.
4. Connect a push-on/push-off or toggle type switch to SENS1 through SENS2 on the punchdown block corresponding to the sensor numbers assigned in the programming as illustrated.

Note: An IX-EDVIF card can only use the sensor 1 settings.


Punchdown Block
PAGE AMP
2/4WIRES
VR1
CN10
CN11
BGM ON/OFF
ZONE1
ZONE2
ZONE3
ZONE4
ON
400 0
DAY NIGHT
BGM AMP
UNSET
NIGHT
UNSET
IX-EDVIF
29
30
31 L1(M)
32 L1(S)
33
34 L1(B)
35 L2(M)
36 L2(S)
37
38 L2(B)
39 L3(M)
40 L3(S)
41
42 L3(B)
43 L4(M)
44 L4(S)
45
46 L4(B)
47 SEN 1-
48 SEN 1+
49 SEN 2-
50 SEN 2+
Night Switch

Station Message Detail Recording and ACD Event Records

SMDR and ACD Event records can be output through the Serial port on the IX-CCU card or the Ethernet ports (LAN 1 and LAN 2) on the IX-CCSU card.:

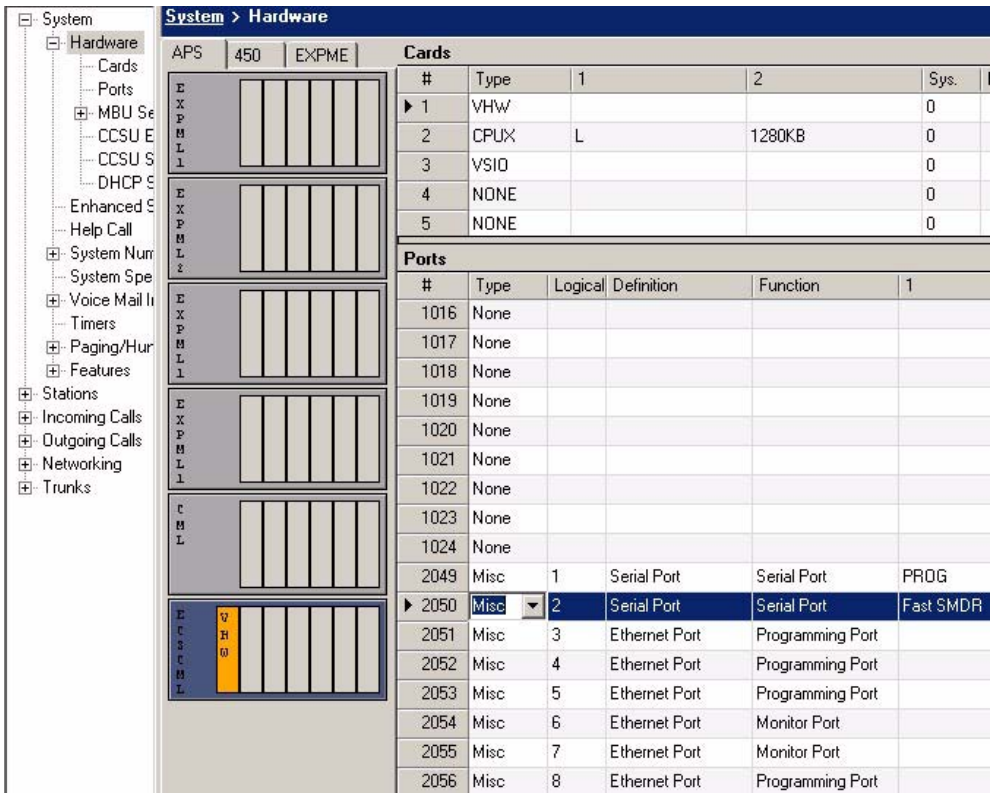
Note:	ACD Event records and SMDR output from either the Serial or Ethernet ports *require a license*. - ACD Event output requires an ACD Event License - SMDR output requires an SMDR License.

Also, a printer connected on the RS232C (PRN) port on the IX-EDVIF card can print out details of incoming and outgoing calls made through the System. No license is required for SMDR output through the IX-EDVIF card.

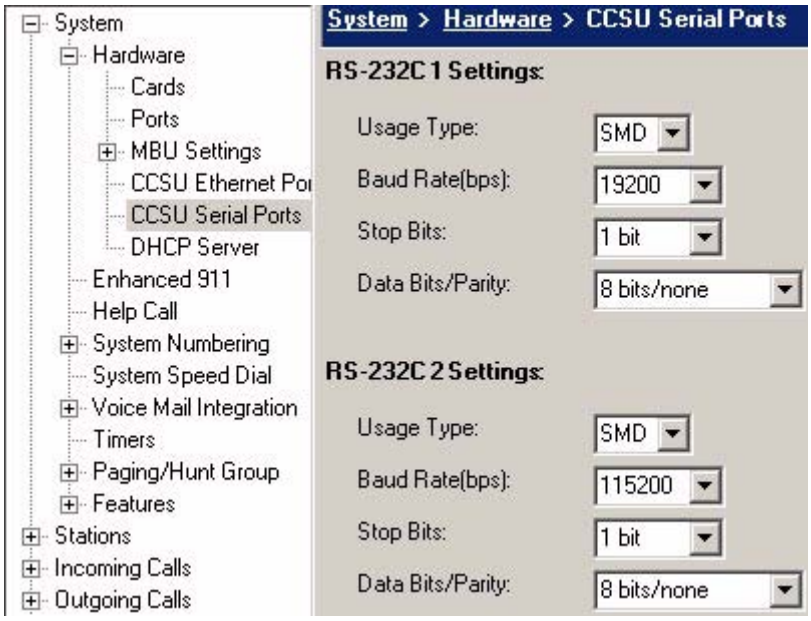
ACD Event Output Through the Serial Port

Using the Iwatsu Programmer in the Category (**Ctg**) View Mode:

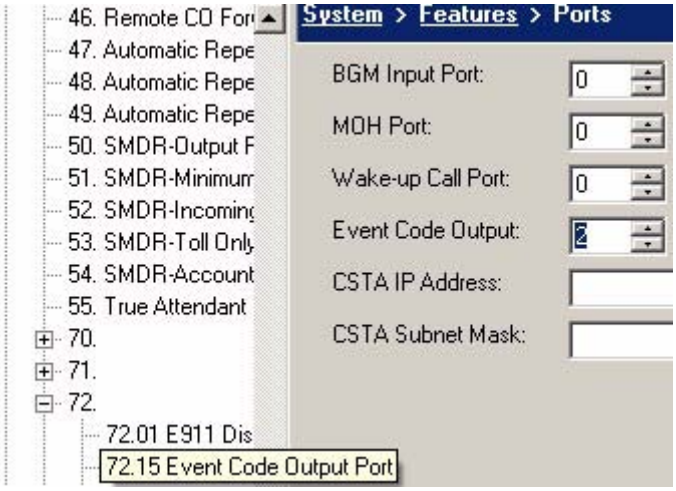
1. Select: **System > Hardware**
   - Logical Port Number: **Logical port 2** (default setting)



2. Select: **System > Hardware > CCSU Serial Ports**
   - Ensure **RS-232C2 Settings** are:
   - Usage Type: **SMDR**
   - Baud Rate(bps): **115200**
   - Stop Bits: **1 bit**
   - Data Bits/Parity: **8 bits/none**



3. Select: **System > Features > Ports**
   - Set: **Event Code Output**: **2**

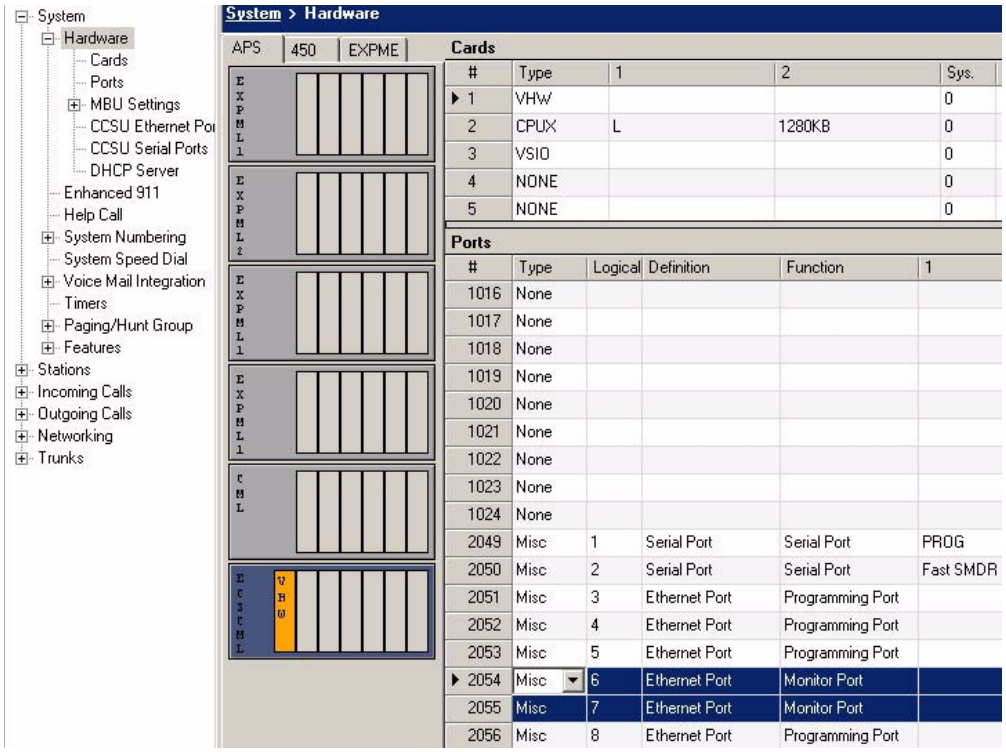


ACD Event Output Through the Ethernet Ports

ACD Event Records can be output through Ethernet ports (LAN 1 and LAN 2).

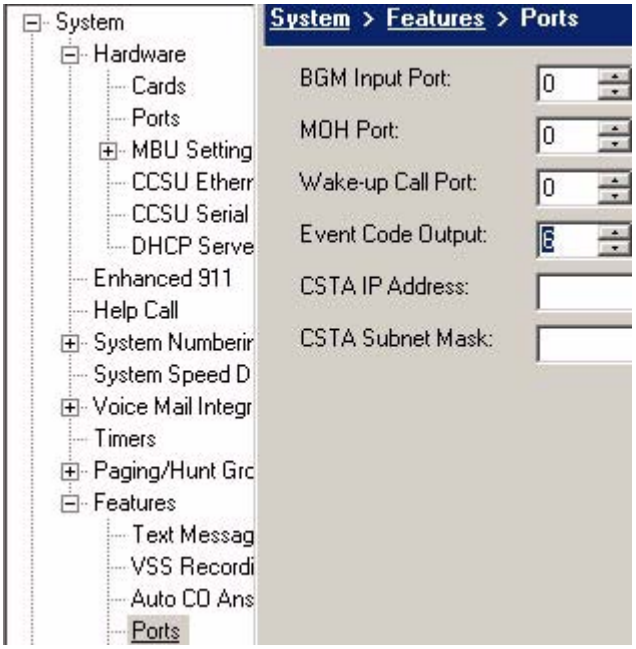
1. Select: **System > Hardware**

- Ensure Logical ports 6 and 7 are set up as shown below:
  - Type: **Misc**
  - Logical: **6 and 7**
  - Definition: **Ethernet Port**
  - Function: **Monitor Port**



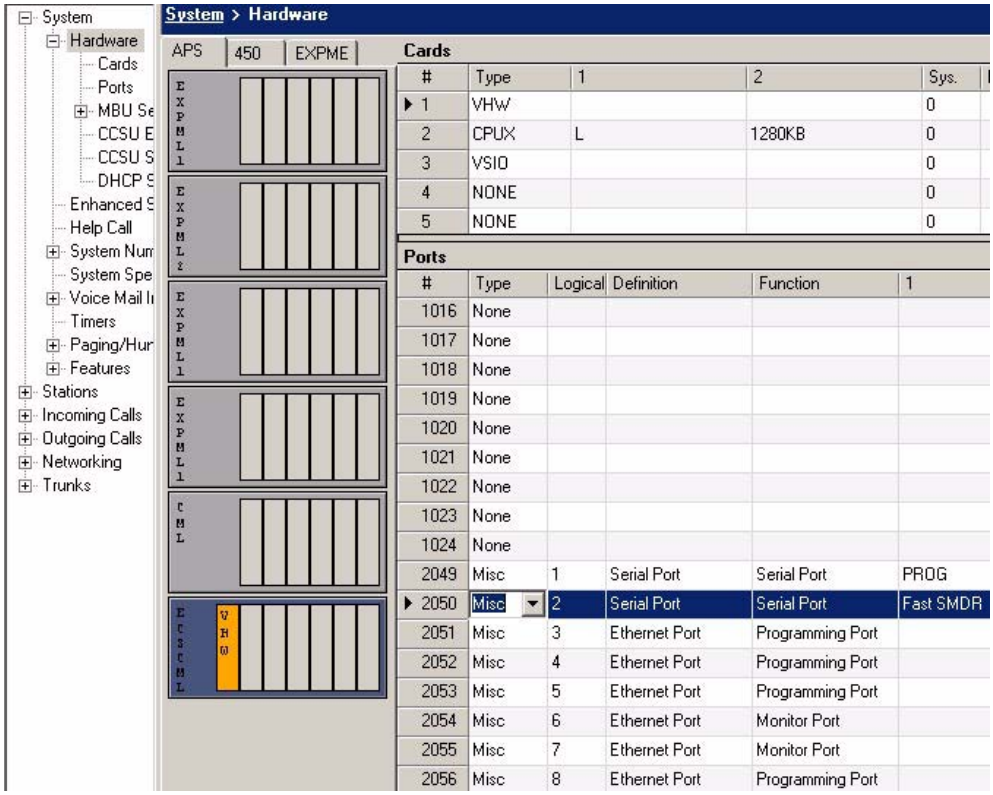
2. Select: **System > Features > Ports**
   - Set: **Event Code Output: 6** (For LAN 1 and LAN 2 on TCP port 5005)

   Or
   - Set: **Event Code Output: 7** (For LAN 1 and LAN 2 on TCP port 5008)

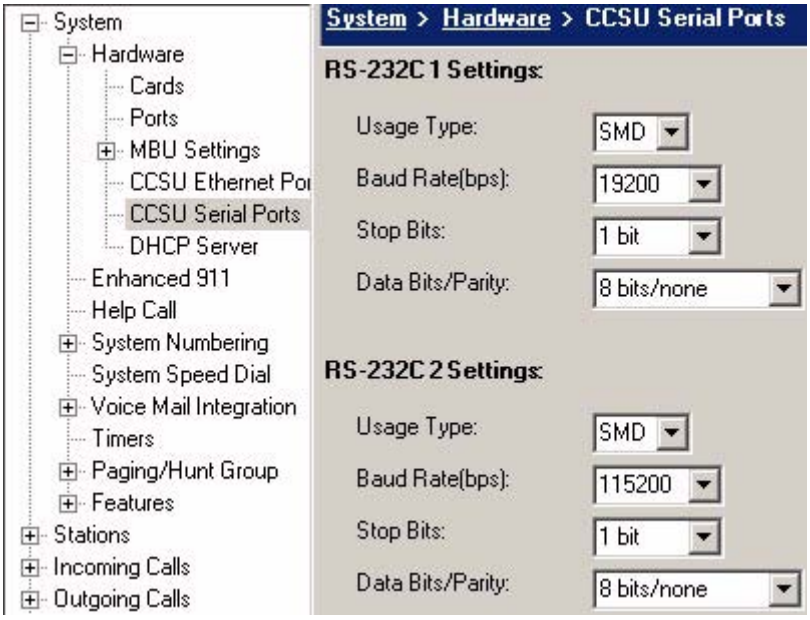


SMDR Output Through the Serial Port

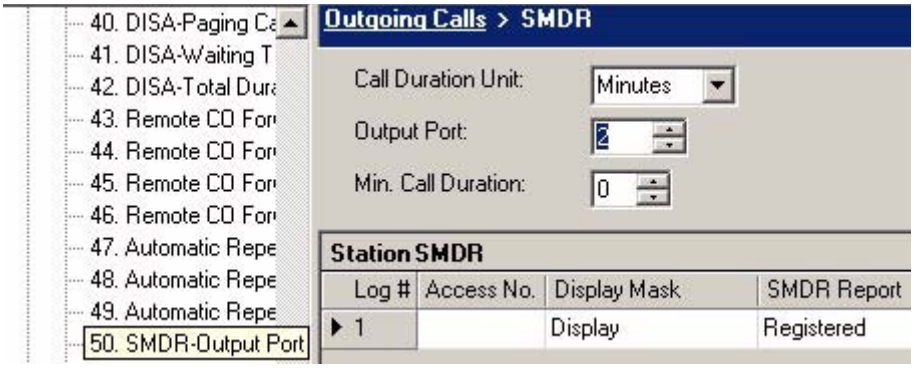
1. Select: **System > Hardware**
   - Port Number: **Logical port 2** (default setting)



2. Select: **System > Hardware > CCSU Serial Ports**
   - Ensure **RS-232C2 Settings** are:
   - Usage Type: **SMDR**
   - Baud Rate(bps): **115200**
   - Stop Bits: **1 bit**
   - Data Bits/Parity: **8 bits/none**



3. Select: **Outgoing Calls > SMDR**
   - Set: **Output Port: 2**

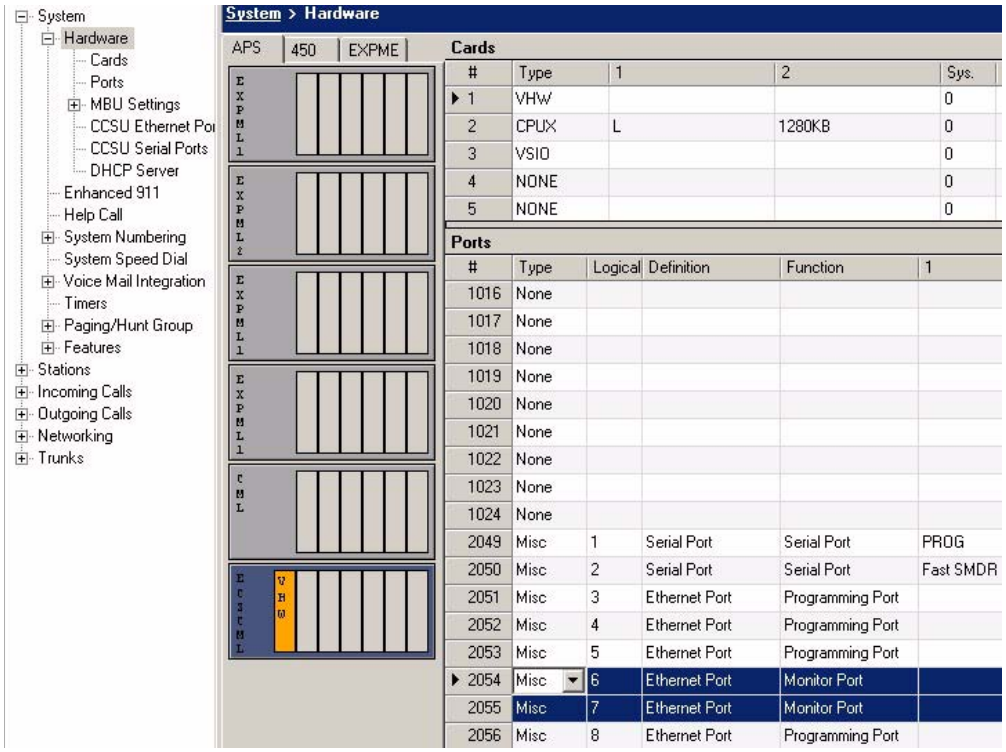


SMDR Output Through the Ethernet Ports

SMDR can be output through Ethernet ports (LAN 1 and LAN 2).

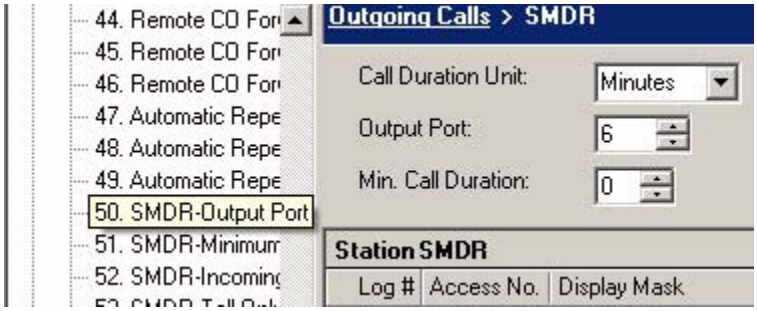
1. Select: **System > Hardware**

- Ensure Logical ports 6 and 7 are set up as shown below:
  - Type: **Misc**
  - Logical: **6 and 7**
  - Definition: **Ethernet Port**
  - Function: **Monitor Port**



2. Select: **Outgoing Calls > SMDR**
   - Set: **Output Port: 6** (For LAN 1 and LAN 2 on TCP port 5005)

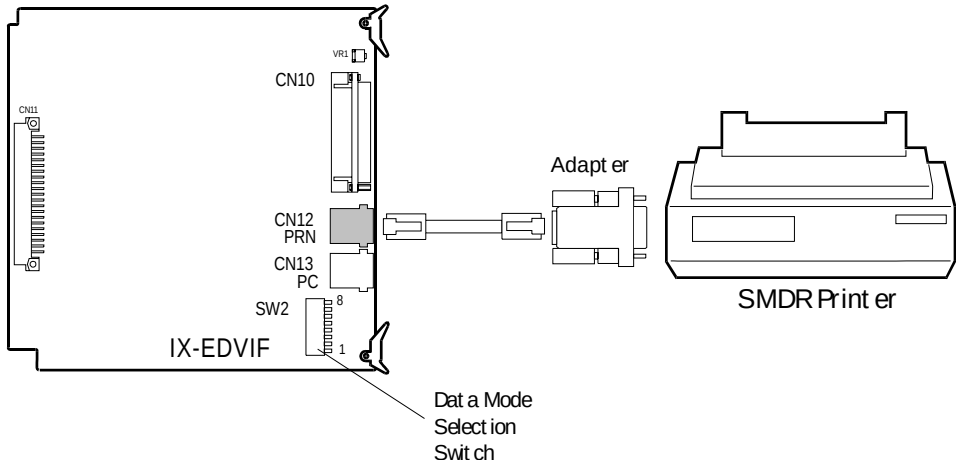
   Or
   - Set: **Output Port: 7** (For LAN 1 and LAN 2 on TCP port 5008)



SMDR with the IX-EDVIF Card

To install a station message detail recorder:

1. Set SW2 on the IX-EDVIF card. See **Section 4 - Component Description** for more information.
2. Plug the attached serial cable into the connector labeled PRN on the IX-EDVIF card as illustrated.
3. Plug the other side of the cable into a serial printer. Use an extension cable or DB9 to DB25 conversion connector if necessary.
4. Program the SMDR port using *Class 01.13 - Port Definition*. Program **Outgoing Calls > SMDR** (*Class 04. 50, 51, 52, 53, and 54*) as required.



Chapter 18

Local and Remote Programming

The Iwatsu Enterprise-CS primarily uses an Ethernet-based LAN/WAN connection for programming purposes. In most cases, this is the preferred method of programming. However, there are instances in which a LAN/WAN connection is not possible. There are several alternative serial-based connections that can be used in lieu of a LAN/WAN connection:

- Direct Serial Connection
- Connection using an external modem
- Connection using an internal modem
- Connection using the IX-PSUBMDM-E Digital Port Modem for the ECS.

This document opens with LAN/WAN connection instructions, followed by direct serial connection, a serial-based modem connection, direct Ethernet connection instructions, and IX-PSUBMDM-E installation configuration instructions.

Once the programming connection is made from the programming PC to the ECS, the Iwatsu Programmer is used for programming the ECS.

The minimum PC requirements for installing and operating the Iwatsu Programmer 5.0.3954 or higher are:

- PC operating system: Windows® 7, Windows® Vista, Windows® XP (Standard or Professional) operating system with Service Pack 2, or Windows® 2003 Server
- Microsoft® .NET Framework 3.5
- Processor speed: 700 MHz or higher
- 100 megabytes of hard disk space
- RAM: 256 MB
- 800 x 600 minimum resolution monitor (1024x768 recommended)

LAN / WAN Connection

The ECS has the ability to be remotely maintained using an IP connection. In this case, the programming PC can connect to the ECS via the Internet, a VPN connection or through the LAN. In all cases, the ECS must have an IP address that is visible to the programming PC.

When connecting to the ECS through the LAN, a private IP address is all that is required. The process for connecting to the ECS through a VPN is similar. In this case, the programming PC establishes a VPN connection. Then, the ECS's private IP address is used for the connection. With either connection method, the network administrator will provide both the private IP address and the VPN connection instructions.

If the ECS is programmed through the Internet, the programming PC must have an IP address visible outside the network. This can be done by assigning a public IP address to the ECS. Alternatively, a Network Address Translation (NAT) or Network Address Port Translation (NAPT) can be used to allow the private IP address for the ECS to be viewed outside the network by routing to port 5001. With either method, the network's gateway must be programmed into the ECS.

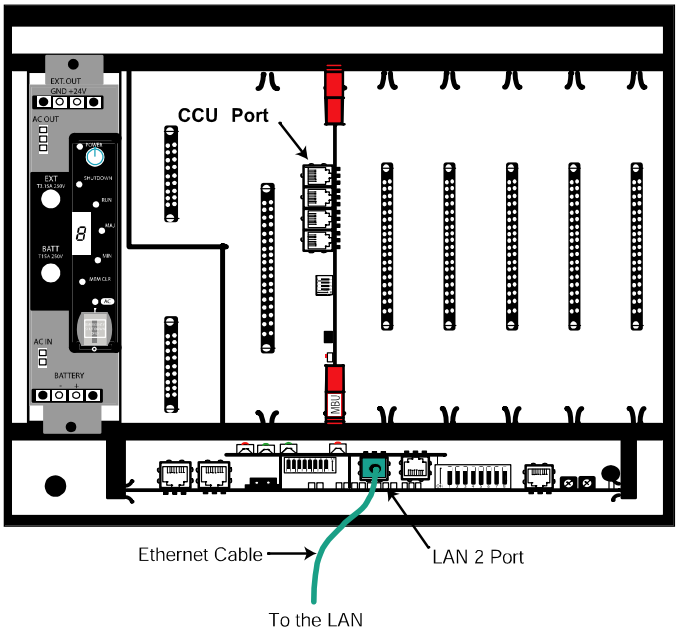
Important! The LAN 1 port has no provision for configuring the port to use a gateway. For this reason, Iwatsu Voice Networks recommends using the LAN 2 port for all LAN/WAN connections.

Items required for this procedure:

- A visible IP address assigned to the ECS
- An appropriate length Ethernet cable
- Unused LAN 2 port on the ECS
- A programming PC with a LAN/WAN connection to the ECS (LAN, VPN, or Internet)
- A free port on the Local Area Network (LAN)
- A Network Address Translation (NAT) or Network Address Port Translation (NAPT) can be used to allow the private IP address for the ECS to be viewed outside the network by routing to port 5001.

Hardware Connection

1. Insert one end of the Ethernet cable into the LAN 2 port on the IX-CCSU card.



2. Insert the free end of the Ethernet cable into a free port on the LAN.

Configuring the Programming PC

The programming PC must have the ability to communicate with the ECS system. If the programming PC will not connect to the ECS using a LAN connection, make sure the programming PC is on the same network (i.e. subnet) as the ECS.

If the ECS will be programmed through a VPN connection, the VPN must be established prior to programming. Once the VPN connection is established, the Iwatsu Programmer will use the private IP address (assigned by the network administrator) for the ECS.

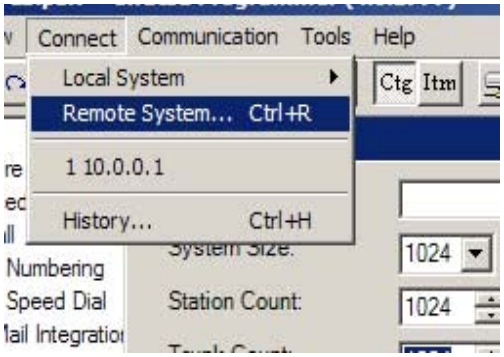
If a WAN connection, such as the Internet is used to connect to the ECS, make sure the programming PC can connect to the ECS. This means that a public IP address must be given to the ECS. Alternatively, the ECS can use a private IP address. However, this requires the network administrator to program the network's gateway to provide NAT/NAPT translation.

Important!	Iwatsu Voice Networks suggests working with the network administrator to discuss and configure the above connection.

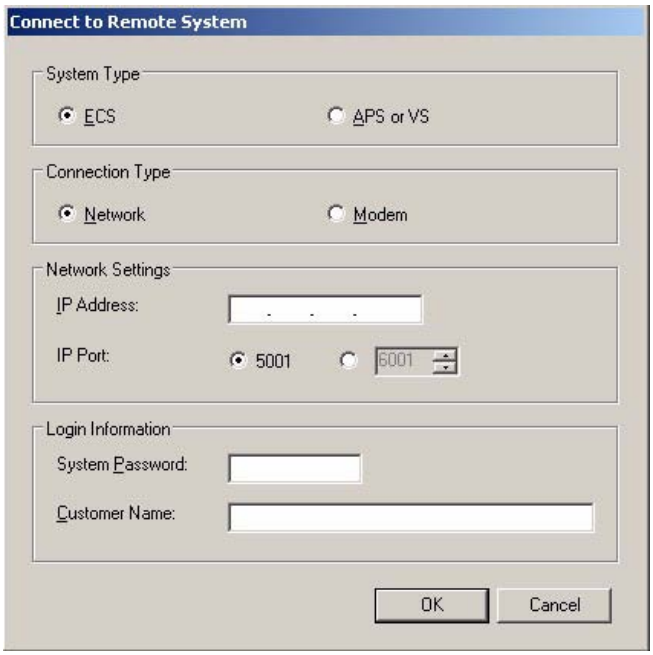
Connecting using the Iwatsu Programmer

Once the programming PC has a communication path to the ECS, the Iwatsu Programmer is used. Whether using a LAN, WAN, or VPN connection, the Iwatsu Programmer follows the same connection process. The following illustrates the process used to connect to the ECS.

1. Launch the Iwatsu Programmer
2. Select: **Connect > Remote System...**



3. Select: **ECS** for the System Type
4. Select: **Network** for the Connection Type
5. Enter: ECS **LAN 2 IP address** for the **Network Setting IP Address** (default = 10.0.0.1)



6. Enter the **System Password** (default = **nextsysm**)
7. Select: **OK**

The Iwatsu Programmer connects to the ECS and is now ready to program.

Direct Serial Connection

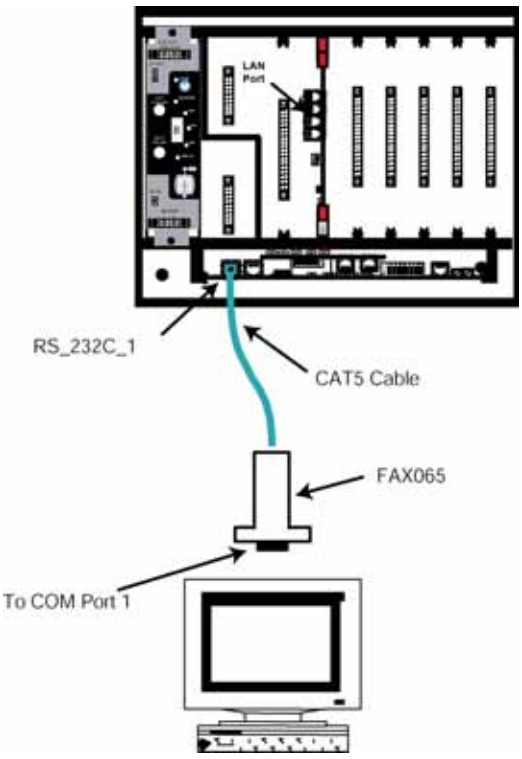
The following process documents the procedure used to directly connect to an ECS system using CAT5 Ethernet cable. This process differs from that of the ADIX APS in that it first requires a Windows-level PPP connection. After the Windows-level connection is established, the Iwatsu Programmer can be used. This process should take no longer that five minutes to complete.

Hardware required to perform this procedure:

- FAX065 connector
- Appropriate length CAT5 cable
- A free serial port on the programming PC
- Access to the RS-232C_1 port on the IX-CCU card

Hardware Connection

1. Connect the FAX065 connector to COM Port 1 on the programming PC.
2. Insert one end of the CAT5 cable into the FAX065 connector.
3. Insert the free end of the CAT5 cable into the RS-232C_1 port on the IX-CCU card.



Establishing a Windows Connection

This process is documented using the Windows XP Pro operating system. Depending on the operating system used, these screens may slightly differ.

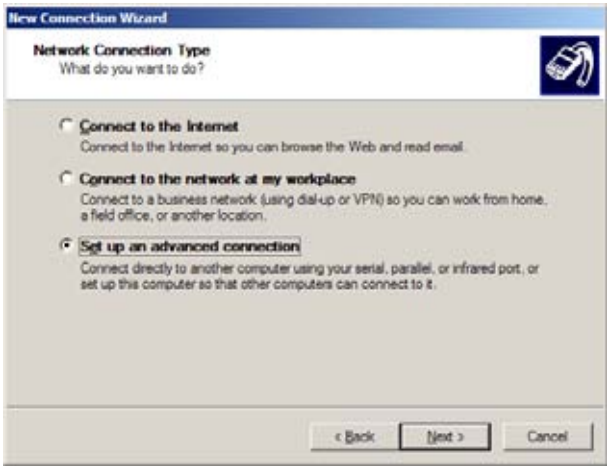
1. Double-click the Network Neighborhood icon on the Windows Desktop.
2. When the Network Neighborhood loads, right-click in the window.
3. Select the **New Connection Wizard** icon.



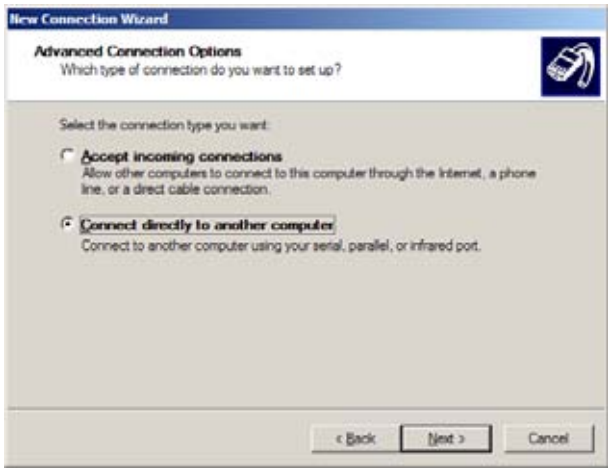
4. When the New Connection Wizard loads, Select: **Next**.



5. When the Network Connection Type displays, Select: **Set up an advanced connection.**
6. Select: **Next**.



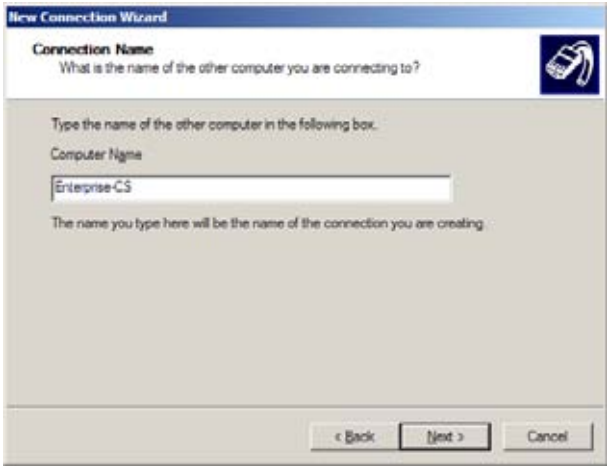
7. Select: **Connect directly to another computer**.
8. Select: **Next**.



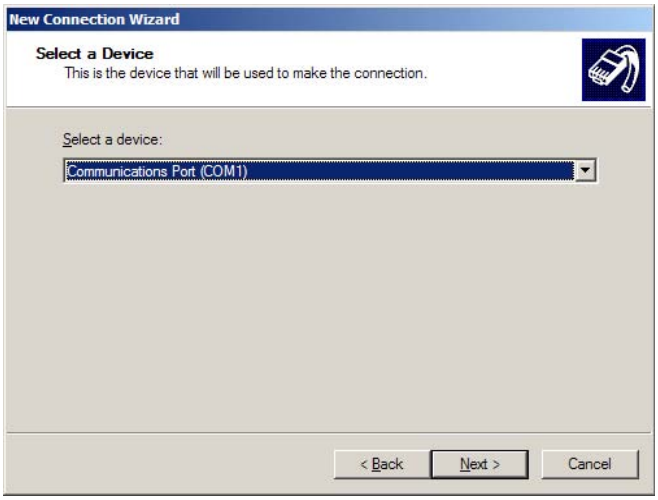
9. Select: **Guest**.
10. Select: **Next**.



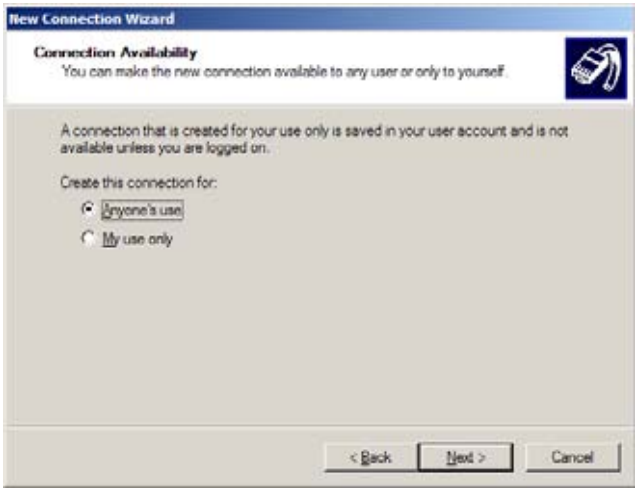
11. Enter a **Computer Name** for the connection.



12. Under the **Select a device** drop-down menu, Select: **Communications Port (COM1)**.



13. Select: **Anyone's use**.



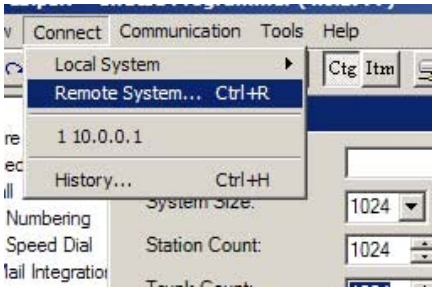
14. Select: **Next**.

Connecting Using the Iwatsu Programmer

Once the programming PC is properly connected to the ECS and a Windows-level PPP connection is established, the system is ready to be programmed using the Iwatsu Programmer. The following illustrates the process used to connect to the ECS.

Important! A PPP connection must be established before the Iwatsu Programmer can begin the communications process.

1. Launch the Iwatsu Programmer.
2. Select: **Connect** > **Remote System...**



3. Select: **ECS** for the **System Type**.
4. Select: **Network** for the **Connection Type**.
5. Enter: LAN 1 IP address for the **Network Setting IP Address** (default = 172.30.30.30)

Important! Though these instructions use the LAN 1 port, the LAN 2 port can also be used. If LAN 2 is used, adjust these instructions accordingly.



6. Enter the **System Password** (default = **nextsysm**).
7. Select: **Next**.

The Iwatsu Programmer connects to the ECS and is now ready to program.

Serial Modem Connection

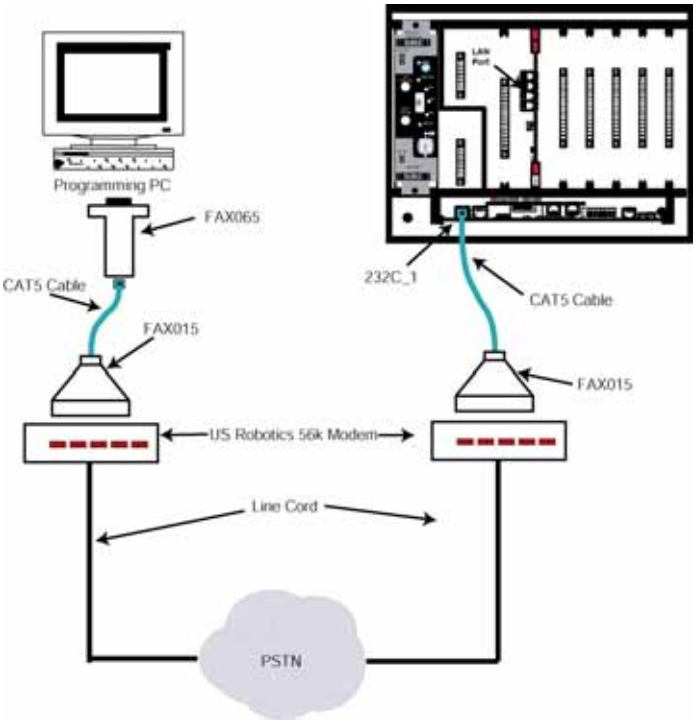
The following procedure documents the process for establishing a modem connection to an ECS system using CAT5 cable. This process requires a Windows-level PPP connection. After the Windows-level connection is established, the Iwatsu Programmer can be used. This process should take no longer than five minutes to complete.

Hardware required to perform this procedure:

- FAX065 connector
- FAX015 connector
- Two CAT5 cables of appropriate length
- US Robotics 56K External Modem
- A free serial port on the programming PC
- Access to the RS-232C_1 port on the IX-CCU card

Programming PC Hardware Connection

1. Connect on end of the FAX065 connector to COM Port 1 on the programming PC.
2. Insert one end of the CAT5 cable into the FAX065 connector.
3. Insert the other end of the CAT5 cable into the RJ45 jack on the FAX015 connector.
4. Plug the FAX015 connector into the external US Robotics modem.
5. Connect the modem to the PSTN using line cord.



ECS Hardware Connection

1. Connect one end of the second CAT5 cable to the LAN 1 port on the IX-CCU.
2. Connect the other end of the CAT5 cable to the FAX015 connector.
3. Plug the FAX015 connector into the external US Robotics modem.
4. Connect the modem to the PSTN using line cord.

Creating a Generic Modem

The Windows operating system prefers a generic modem driver over the driver supplied with the US Robotics modem. If you are unsure of how to delete the modem driver, consult the Microsoft Windows documentation or help file.

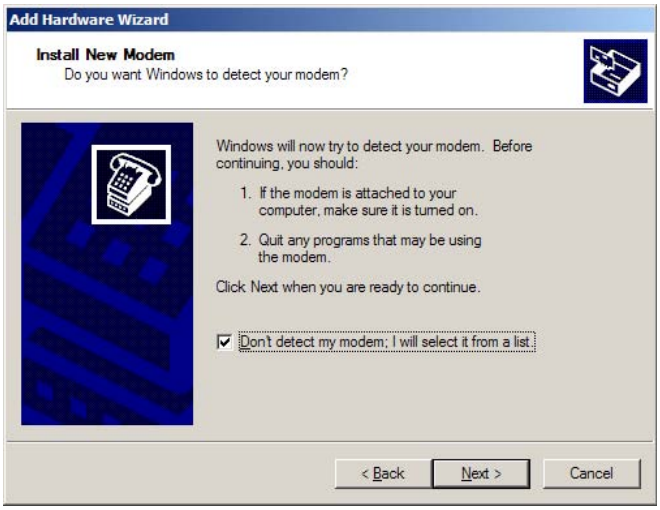
1. Open the Windows Control Panel.
2. Select the **Phone and Modem Options** icon.



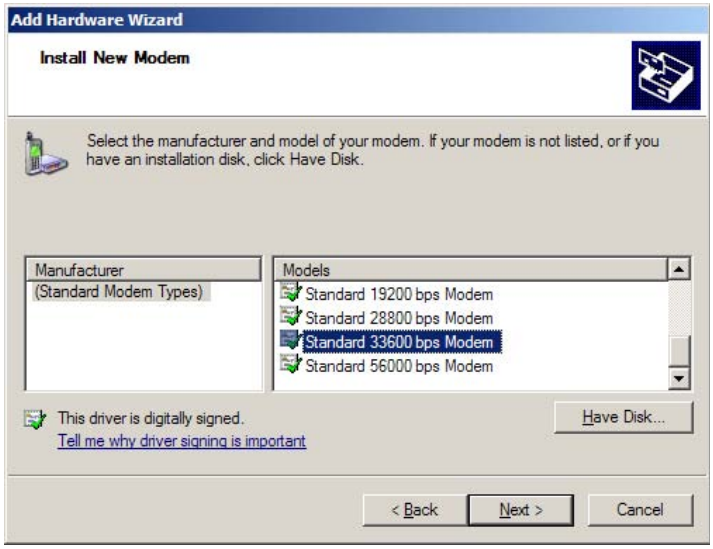
3. When the Phone and Modem Options window displays, select the **Modems** tab.
4. Select: **Add...**



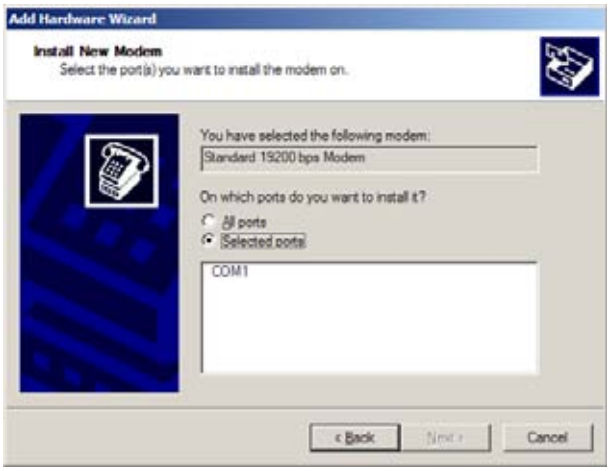
5. When the wizard begins: Select: **Don't detect my modem; I will select it from a list**.



6. Select: **Standard Modem Types**.
7. Select: **Standard 33600 bps Modem**.
8. Select: **Next.**



9. Select: **Selected ports** radio button.
10. Select: **COM1**.
11. Select: **Next**.



12. Windows will then install the generic modem.

Establishing a Windows Connection

This process is documented using the Windows XP Pro operating system. Depending on the operating system used, these screens may slightly differ. The generic 33600 bps modem must be installed prior to performing these steps.

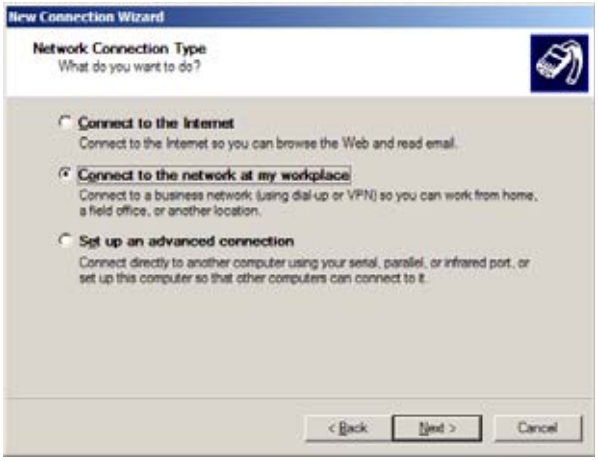
1. Double-click the **Network Neighborhood** icon on the Windows Desktop.
2. When the Network Neighborhood loads, right-click in the window.
3. Select the **New Connection Wizard** icon.



4. When the New Connection Wizard loads, Select: **Next**.



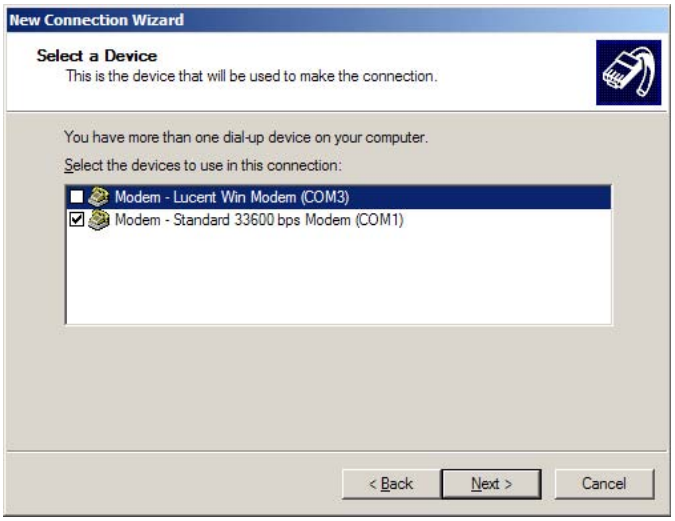
5. When the **Network Connection Type** displays, Select: **Connect to the network at my workplace**.
6. Select: **Next**.



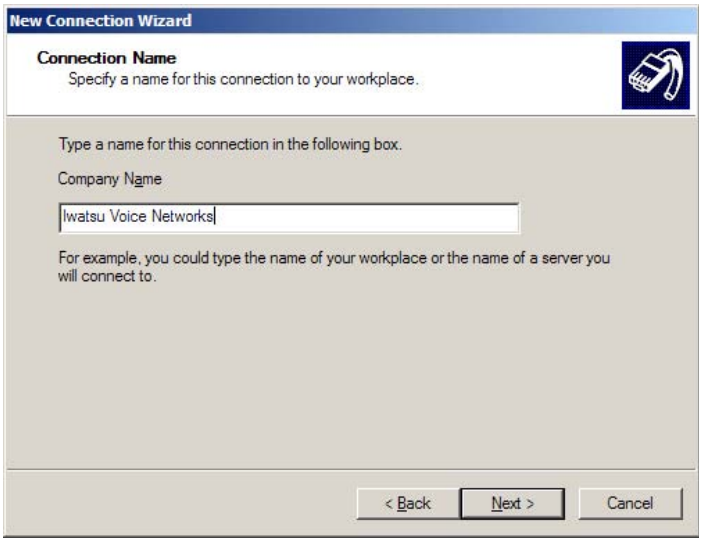
7. Select: **Dial-up connection**.
8. Select: **Next**.



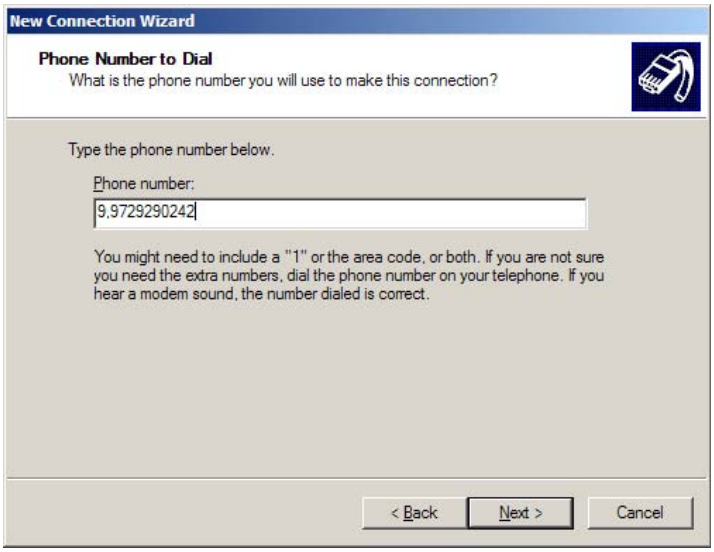
9. Select: **Standard 33600 bps Modem (COM1)**.
10. Select: **Next**.



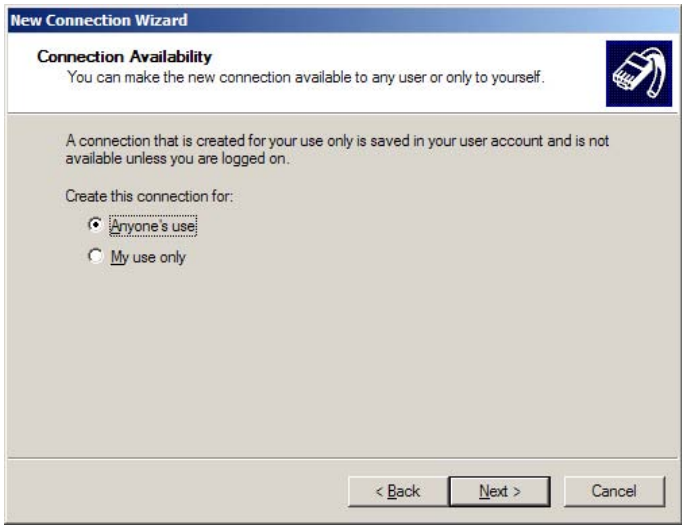
11. Enter a name for the connection.
12. Select: **Next**.



13. Enter the **Phone number** for the modem connected to the ECS.
14. Use a comma to delineate the digit used (if any) for outside line access and the actual phone number of the remote modem.
15. Select: **Next**.

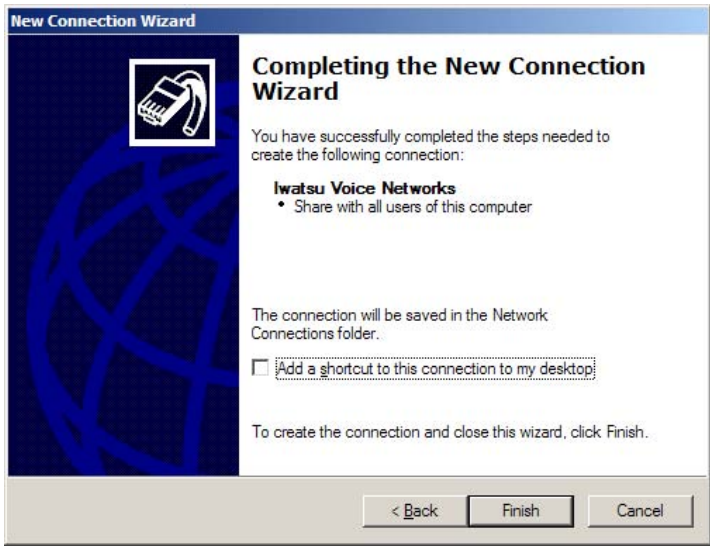


16. Select: **Anyone's use**.
17. Select: **Next**.



18. When the New Connection Wizard window is displayed, Select: **Add a shortcut to this connection to my desktop** (optional).
19. Select: **Finish**.

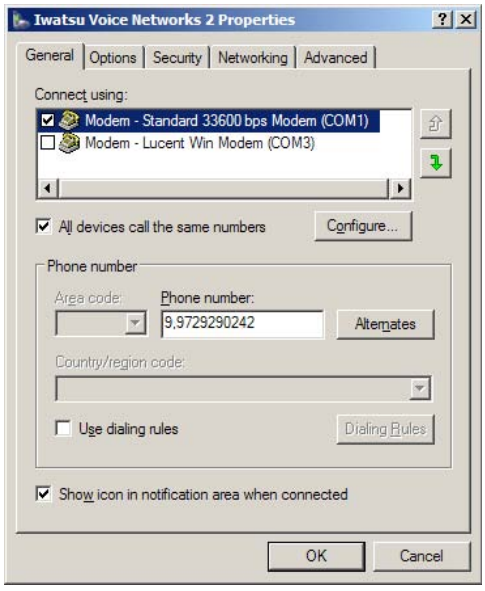
    Once this process is complete, a new modem icon is added in the Network Neighborhood.



20. When the Connection window displays, select: **Properties**.



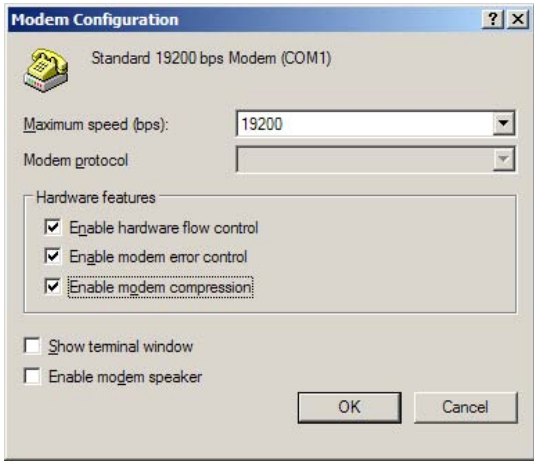
21. Under the **General** tab, (ensure the modem you just created is selected) and then Select: **Configure**.



22. Select: **19200** in the **Maximum speed (bps)** from the drop-down menu.

Important! Do not leave 33600 as the Maximum speed (bps) setting. Make sure to change to 19200.

23. Make sure all of the options under **Hardware features** are selected.
24. Select: **OK**.



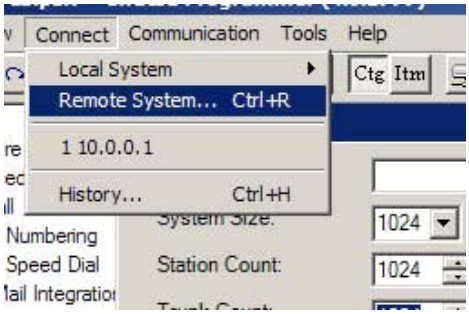
25. The Connection window will display. At times, the Windows username will automatically populate, make sure there is no user name or password entered in the Connection window.
26. Select: **Dial** and the connection is made.

Connecting Using the Iwatsu Programmer

Once the programming PC is properly connected to the ECS and a Windows-level PPP connection is established, the system is ready to be programmed using the Iwatsu Programmer. The following illustrates the process used to connect to the ECS.

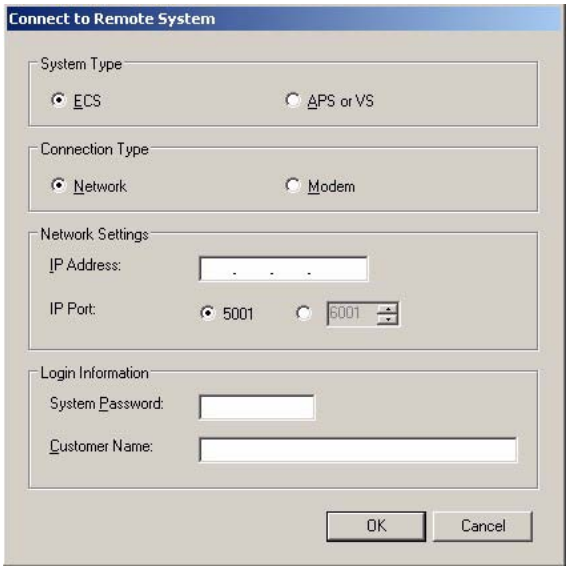
Important! A PPP connection must be established before the Iwatsu Programmer can begin the communications process.

1. Launch the Iwatsu Programmer.
2. Select: **Connect** > **Remote System...**



3. Select: **ECS** for the **System Type**.
4. Select: **Network** for the **Connection Type**.
6. Enter: LAN 1 IP address for the Network Setting **IP Address** (default = **172.30.30.30**)Enter the **System Password** (default = **nextsysm**).
7. Select: **OK**.

Important! Though these instructions use the LAN 1 port, the LAN 2 port can also be used. If LAN 2 is used, adjust these instructions accordingly.



The Iwatsu Programmer connects to the ECS and is now ready to program.

Direct Connect Using Ethernet

The ECS has the ability to be directly programmed using an Ethernet connection. When programming the ECS on-site and a free port on the LAN is unavailable, this is the preferred method for connecting to the system.

Directly connecting to the ECS using an Ethernet connection requires the programming PC to be on the same network as the ECS. This process assumes the ECS LAN 1 port uses the default IP address. (172.30.30.30).

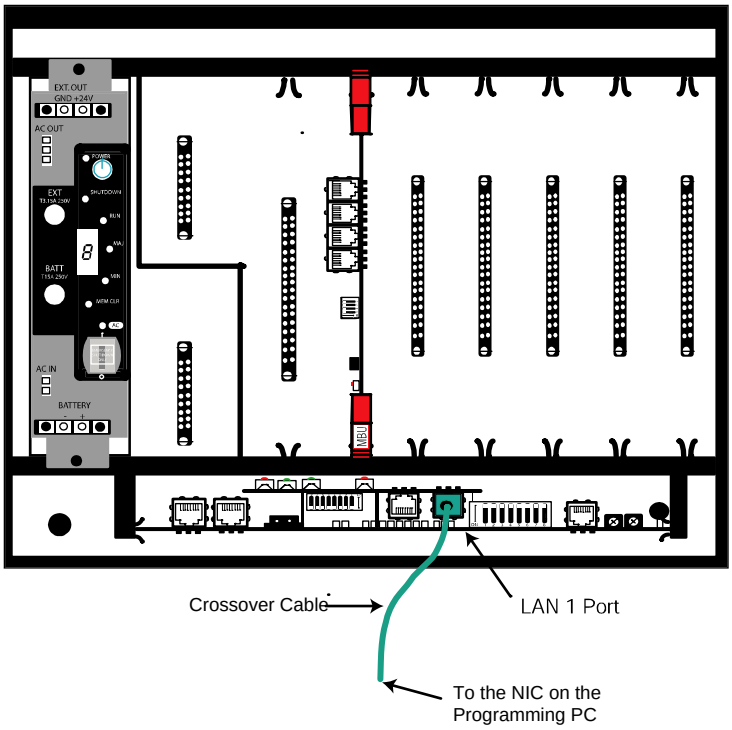
Hardware required to perform this procedure:

- An appropriate length Ethernet crossover cable (pinout: 1-3 and 2-6).
- Unused LAN 1 port (LAN 2 can also be used)
- A programming PC with a NIC card
- Access to LAN 1 on the IX-CCSU card

Hardware Connection

Important! Though these instructions use the LAN 1 port, the LAN 2 port can also be used. If LAN 2 is used, adjust these instructions accordingly.

1. Connect one end of the crossover cable to the NIC card on the programming PC.
2. Insert the free end of the crossover cable into LAN 1 on the IX-CCSU card.



Configuring the Programming PC

The programming PC must be configured to be on the same network (i.e. use the same subnet mask) as the ECS. These instructions use the default IP address of the LAN 1 port (172.30.30.30).

This process is documented using the Windows XP operating system. Depending on your operating system, these screens may slightly differ.

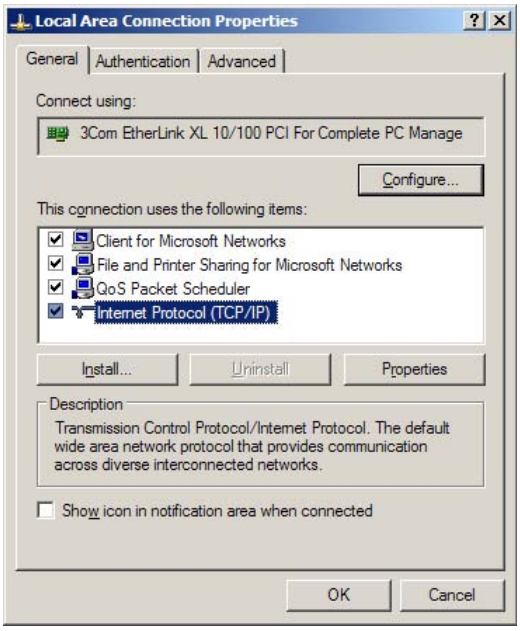
1. **Right-click** on **My Network Places**.



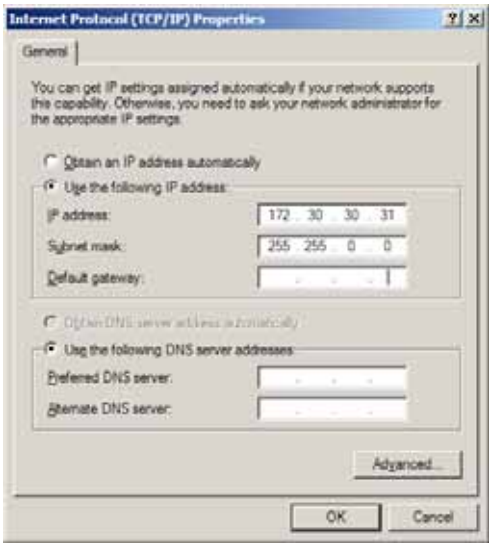
2. Select: **Properties**.
3. When the **Network Connections** screen loads, **right-click** on the **Local Area Connection** icon
4. Select: **Properties**. The **Local Area Connection Properties** window loads.



5. Select: **Internet Protocol (TCP/IP).**
6. Select: **Properties**.



7. Select: **Use the following IP address** radio button.
8. Give the programming PC an appropriate **IP address**, i.e. 172.30.30.31.
9. Give the programming PC an appropriate **Subnet Mask**, i.e. 255.255.255.0.
10. Select: **OK**.

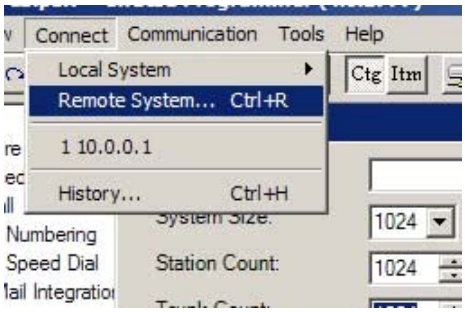


Important! This example uses an IP address of 172.30.30.31 and a subnet mask of 255.255.255.0. This is an appropriate IP address for connecting to an ECS using the default IP address for LAN 1. If the ECS IP address has been changed, this address may not work and you should consult with your network administrator.

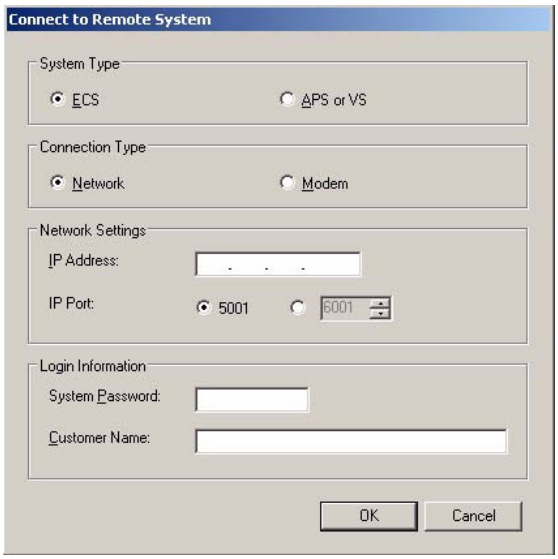
Connecting Using the Iwatsu Programmer

Once the programming PC is properly connected to the ECS and the programming PC is on the same network as the ECS, the system is ready to be programmed using the Iwatsu Programmer. The following illustrates the process used to connect to the ECS.

1. Launch the Iwatsu Programmer.
2. Select: **Connect > Remote System...**



3. Select: **ECS** for the **System Type**.
4. Select: **Network** for the **Connection Type**.
5. Enter: LAN 1 IP address for the Network Setting **IP Address** (default = **172.30.30.30**)



6. Enter the **System Password** (default = **nextsysm**).
7. Select: **OK**.

The Iwatsu Programmer connects to the ECS and is now ready to program.

IX-PSUBMDM-E Installation and Configuration

This section consists of instructions for installing the IX-PSUBMDM-E Digital Port Modem into an ECS cabinet. The Installation section also includes IX-MDMBOX Digital Station Port Enclosure wall mounting instructions.

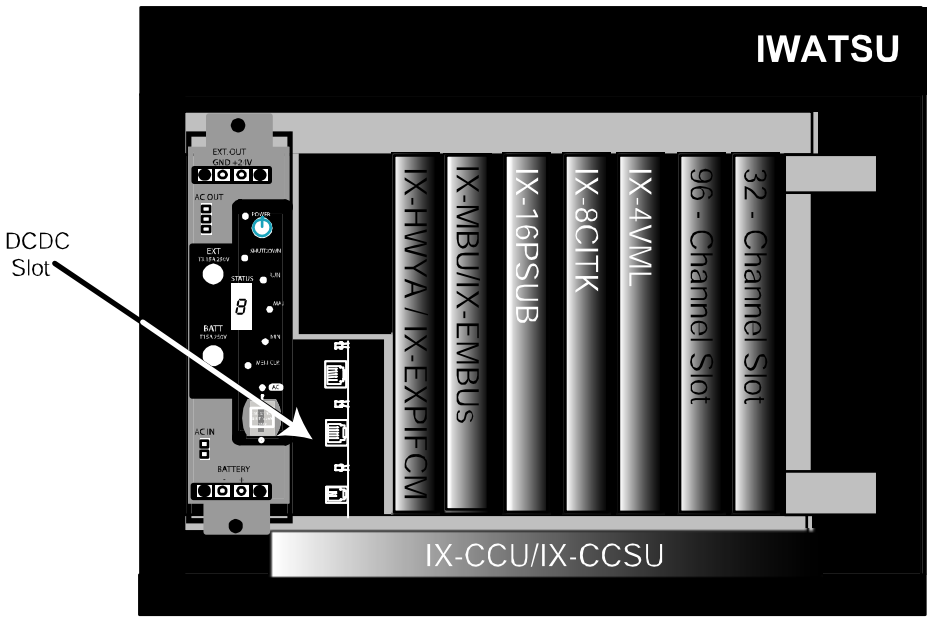
The IX-PSUBMDM-E Digital Port Modem is programmed to receive outside calls just as a digital key telephone. Therefore, the Configuration section contains only a brief overview consisting of the required Class and Items used to route outside calls to a station.

Installing the IX-PSUBMDM-E in the ECS Cabinet

The following instructions describe the installation process of installing the IX-PSUBMDM-E Digital Port Modem into the DCDC slot in the ECS cabinet.

The IX-PSUBMDM-E is a half-sized card for use in the DCDC slot of the ECS cabinet. IX-PSUBMDM Digital Port Modem receives power from a digital station port and does not require power from the back plane of the ECS.

1. Remove the mounting bracket (if attached) and gently slide the IX-PSUBMDM through guides on the DCDC slot.
   - Use the card stopper located in front of the lower guide rails to secure the card in place.

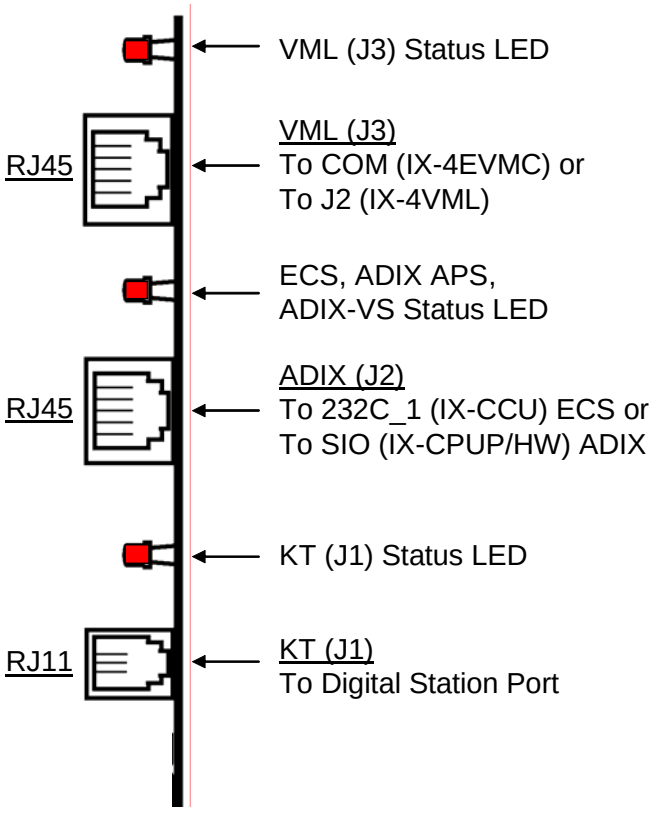


Connecting an IX-PSUBMDM-E to the Respective Components

The following instructions describe the process of connecting the IX-PSUBMDM-E Digital Port Modem to the digital station card, the IX-CCU and the Omega-Voice VMI cards (IX-4EVMC or the IX-4VML). One RJ-45 category 5 (CAT5) cable is provided with the IX-PSUBMDM-E Digital Port Modem.

Note: Cable must be no longer than fifty (50) feet.

1. Connect a line cord from the digital station card installed in the ECS to the RJ11 jack labeled **KT** (J1) on the card.
2. Connect a CAT5 cable from the RJ45 jack labeled ADIX (J2) to the RJ45 jack labeled 232C_1 on the IX-CCU.
3. Connect a CAT5 cable from the RJ45 jack labeled VML (J3) to the RJ45 jack labeled COM on the IX-4EVMC or J2 on the IX-4VML or the VS-VML.

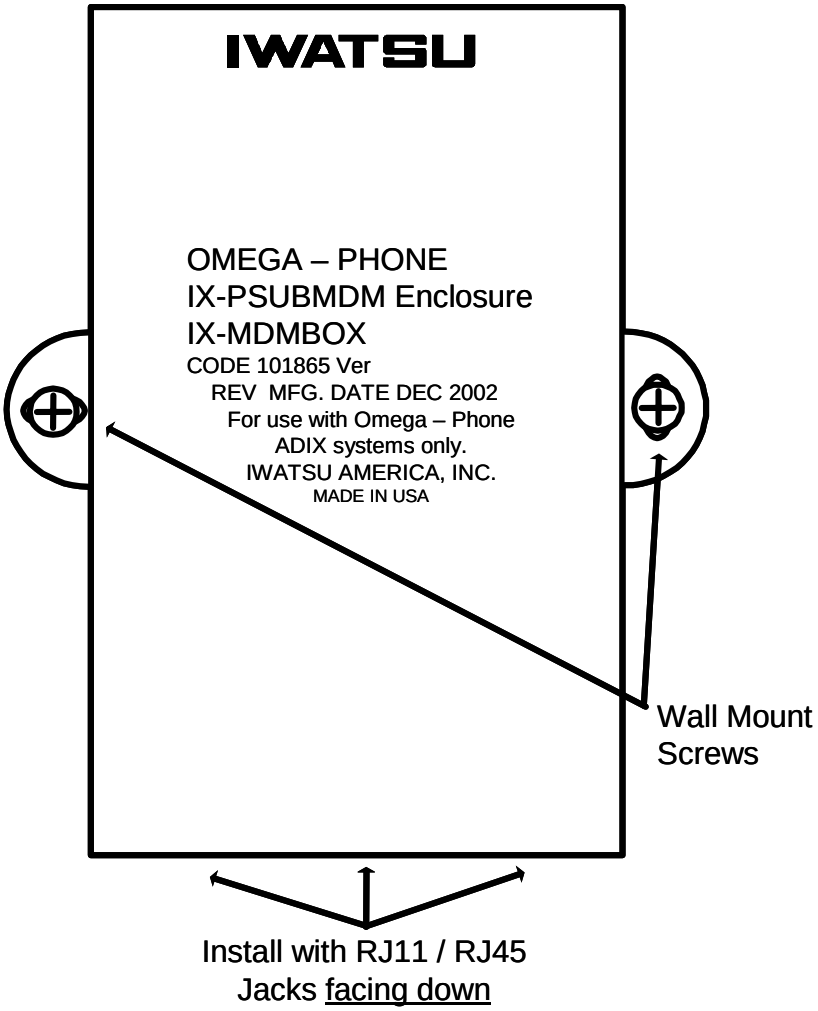


Wall Mounting the IX-MDMBOX

When the IX-PSUBMDM-E Digital Port Modem requires installation outside the ECS cabinet, the following instructions apply:

Mount the IX-MDMBOX to wall with the following considerations:

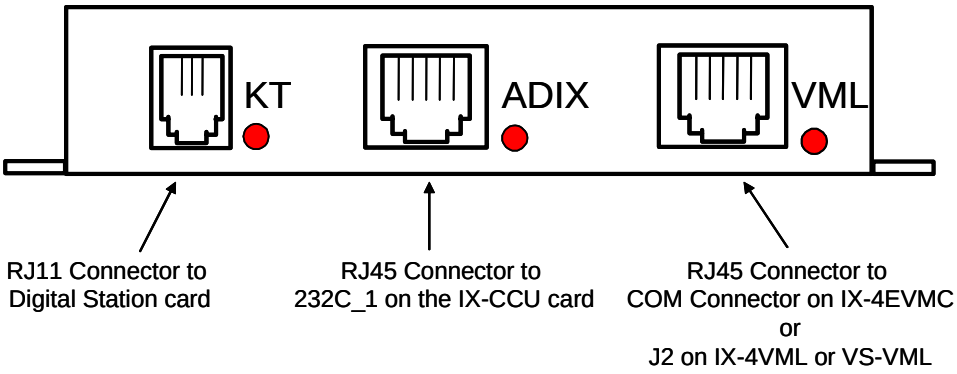
1. Mount the RJ11 and RJ45 jacks in the downward position.
2. Mount the IX-MDMBOX as close as possible to the ECS telephone system.
3. Mount the IX-MDMBOX securely to the wall using the supplied Phillips screws.
4. Make certain the IX-MDMBOX will not come into contact with any extreme elements such as excessive humidity or water, extreme heat or extreme cold.
5. Do not mount the IX-PSUBMDM-E so low on the wall that the LEDs on the IX-PSUBMDM-E are difficult to read.



Connecting the IX-PSUBMDM-E to the ECS

Once the IX-MDMBOX is securely mounted to the wall as specified in, the IX-PSUBMDM-E is ready to connect to the ECS telephone system. The following process details how to connect the IX-PSUBMDM-E Digital Port Modem to the ECS telephone system.

1. Connect a line cord from the digital station card installed in the ECS to the RJ11 jack labeled **KT** on the IX-MDMBOX.
2. Connect a CAT5 cable from the RJ45 jack labeled **ADIX** to the RJ45 jack labeled **232C_1** on the IX-CCU card.
3. Connect a CAT5 cable from the RJ45 jack labeled **VML** to the RJ45 jack labeled **COM** on the IX-4EVMC or **J2** on the IX-4VML or the VS-VML cards.



Configuration

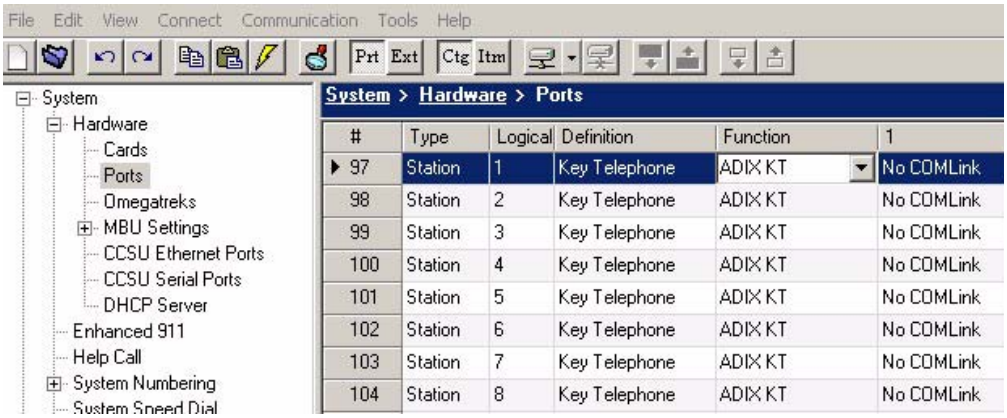
The IX-PSUBMDM-E Digital Port Modem receives incoming trunk calls just as a regular ECS digital key telephone. As such, ECS database programming for the IX-PSUBMDM-E Digital Port Modem is the same, with a few exceptions.

This section consists of a general overview for routing incoming calls to the IX-PSUBMDM-E Digital Port Modem.

The following are **System > Hardware** (Class 01) and **Stations** (Class 10) programming configurations for the IX-PSUBMDM-E Digital Port Modem. All instructions assume the IX-PSUBMDM-E Digital Port Modem is installed at default.

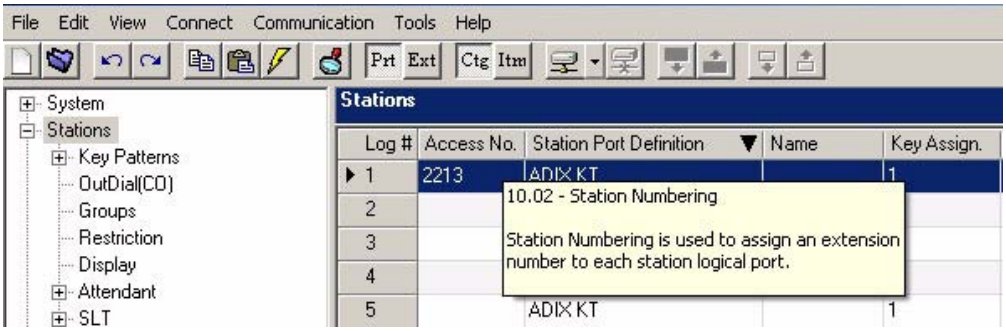
IX-PSUBMDM-E Digital Port Modem Database Programming

1. **Communication > Download Database from System...**
   - With the IX-PSUBMDM-E installed and connected, use the Iwatsu Programmer in the Category (Ctg) view to obtain a fresh download of the ECS database.
   - Select: **Communication > Download Database from System...**
   - Save the database.
   - Store a copy of the database in a safe place.
2. **System > Hardware (Class 01)**
   - Select: **System > Hardware > Ports** (Class 01) programming and make sure the following holds true for the physical port connected to the IX-PSUBMDM-E.
   - The **Type** field is defined as **STATION**.
   - The **Definition** field is defined as **KEY TELEPHONE**.
   - The **Function** field is defined as **ADIX KT**.

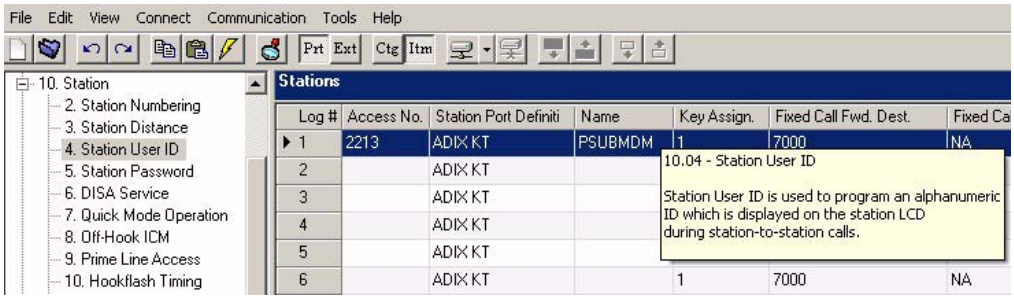


   - Save the database changes.

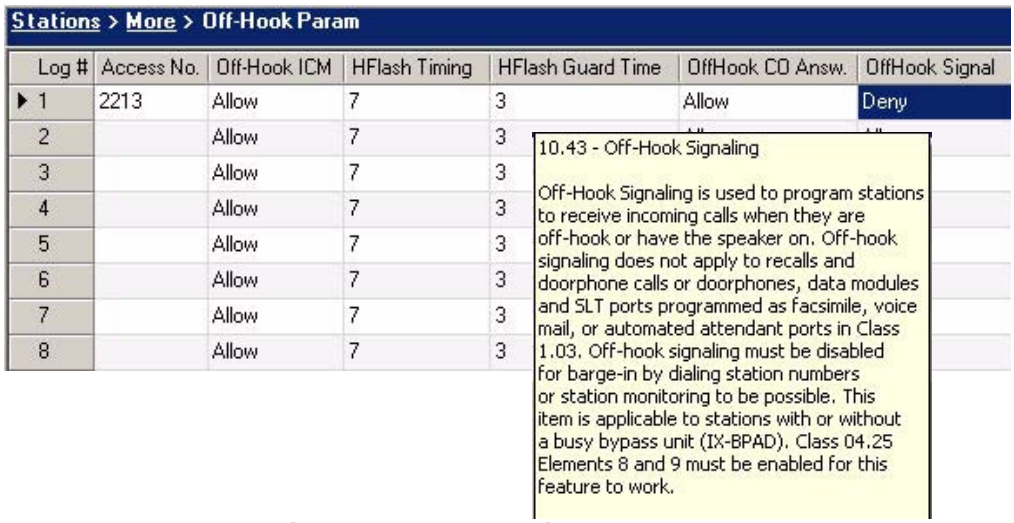
3. **Stations > Access No. (Class 10.02)**
   - Select: **Stations > Access No.** (Class 10.02) and make sure an extension number for the logical port connected to the IX-PSUBMDM-E has been assigned.



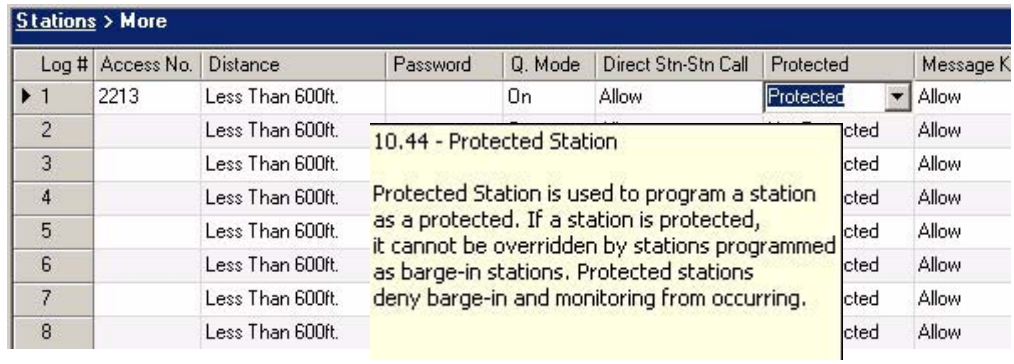
4. **Stations > Name (Class 10.04)**
   - Select: **Stations > Name** (Class 10.04) programming for the physical port connected to the IX-PSUBMDM-E and enter a Name for the IX-PSUBMDM-E.



5. **Stations > More > Off-Hook Param (Class 10.43) (Required)**
   - Select: **Stations > More > Off-Hook Param** (Class 10.43) and set the Off-Hook Signaling to **Deny**.



6. **Stations > More (Class 10.44) (Required)**
   - Select: **Stations > More** (Class 10.44) and set the Protected Station to **Protected**.



   - Save the database changes.

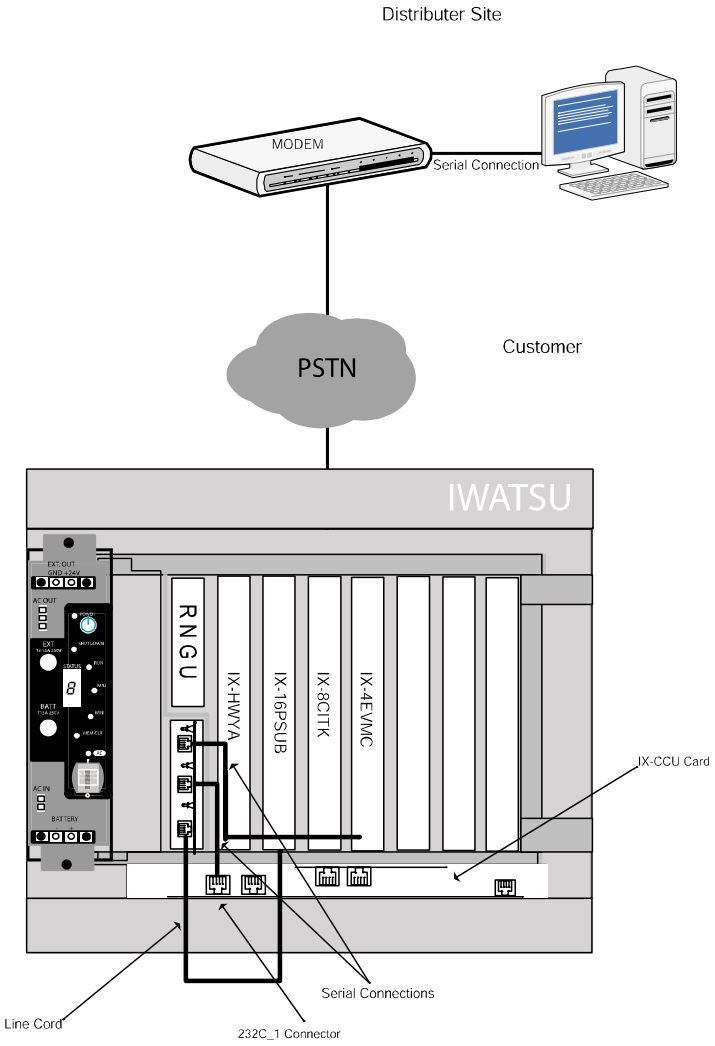
IX-PSUBMDM-E/A Reconfiguration

All new IX-PSUBMDM cards now ship with **Version 1.04 software**. This software release allows the baud rate to be changed from 9600 kbps to 19200 kbps and vice-versa.

The IX-PSUBMDM-A (part number 101861-A) that ships preconfigured to operate with the ADIX and ADIX-VS systems (9600 kbps) can be reconfigured to operate with the ECS (19200 kbps). IX-PSUBMDM-E (part number 101861-E) that ships preconfigured to operate with the ECS system (19200 kbps) can be reconfigured to operate with the ADIX and ADIX-VS systems (9600 kbps).

ECS Hardware Connection Overview

The following illustration shows the hardware connection procedure for connecting the IX-PSUBMDM-E to an ECS.



Reconfiguration

This section of the document explains the procedure used to change the serial baud rate of the IX-PSUMBDM-A from 9600 kbps (ADIX and ADIX-VS product lines) to 19200 kbps (ECS), followed by the inverse procedure.

Note: Before starting the reconfiguration procedure, read and understand the entire process.

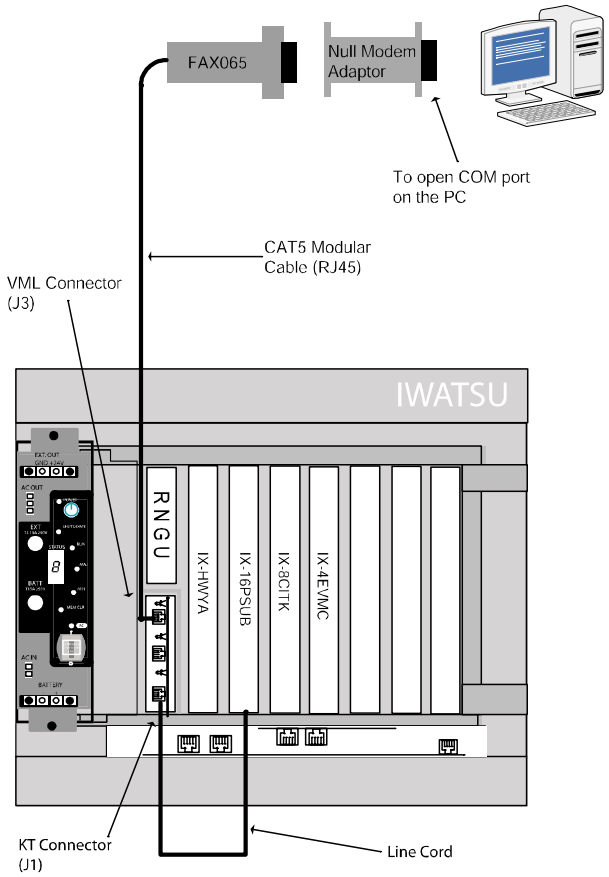
Connections

Before the IX-PSUBMDM can be reconfigured, a hardware connection must be established. The following hardware items are required for this procedure. The reconfiguration procedure will take approximately 5 minutes.

- Null modem adaptor (Available at electronic stores such as Radio Shack, PN 26-264)
- FAX065 connector
- CAT5 cable
- Terminal emulation program (i.e. HyperTerminal)

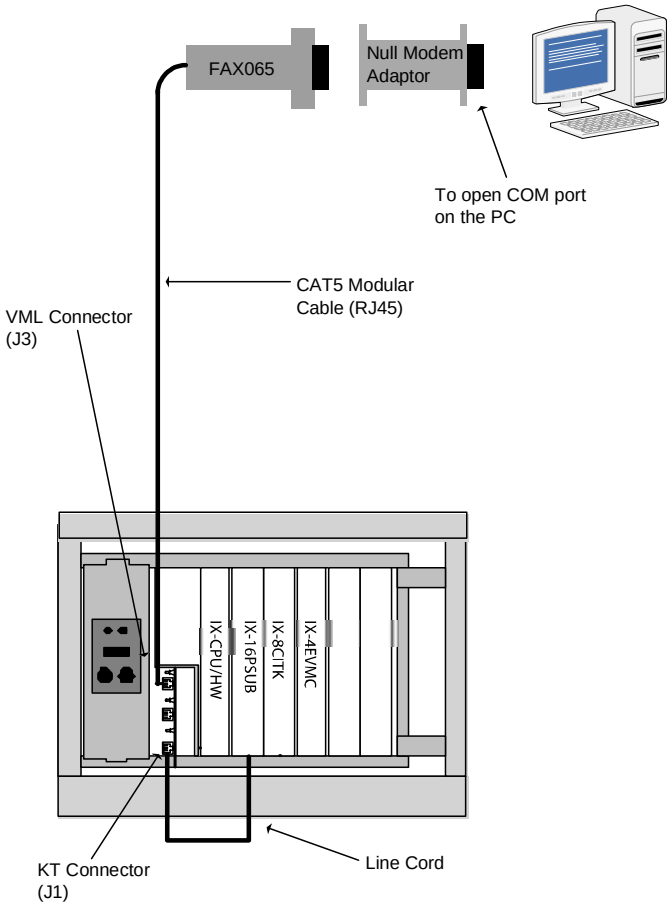
ECS Connections

The following illustration shows the ECS and the proper connection procedure to the IX-PSUBMDM reconfiguration.



ADIX Connections

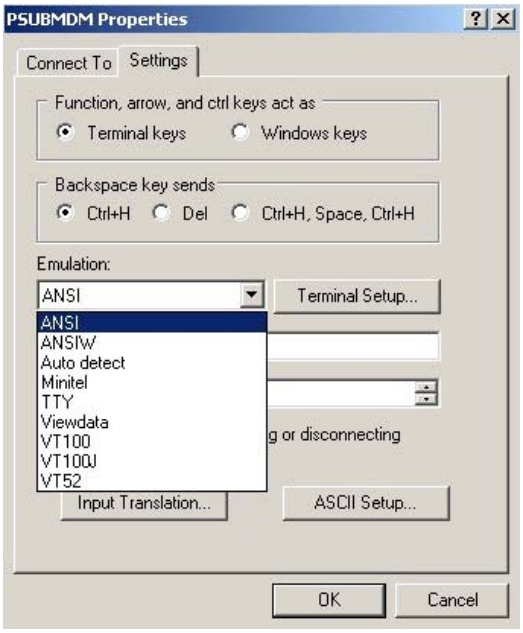
The following illustration shows the ADIX APS and the proper connection procedure to the IX-PSUBMDM for reconfiguration.



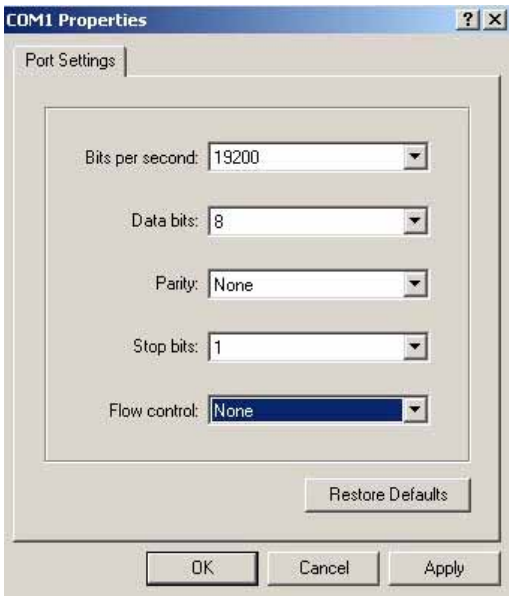
Reconfigure from ADIX to ECS

The following procedure is used to reconfigure an IX-PSUBMDM-A to an IX-PSUBMDM-E.

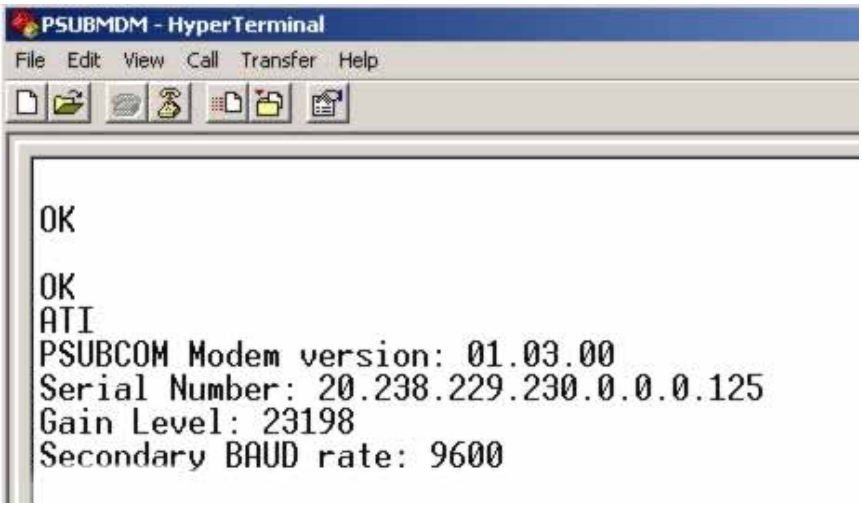
1. Launch HyperTerminal.
2. Verify the terminal emulation setting type is set to **ANSI.**



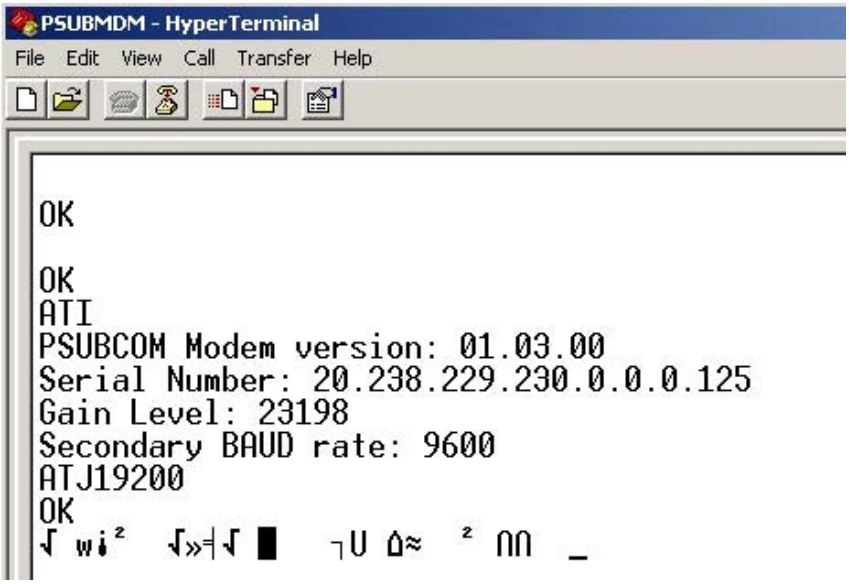
3. Verify your COM Port Settings:
   - **Bits per second** = **19200**
   - **Data Bits = 8**
   - **Parity** = **None**
   - **Stop bits** = **1**
   - **Flow control** = **None**



4. Insert the null modem adaptor into a free COM port on the PC.
5. Insert the FAX065 connector into the female side of the null modem adaptor.
6. Insert one end of the CAT5 cable into the FAX065 connector.
7. Insert the free end of the CAT5 cable into the J3 (the jack labeled VML) on the IX-PSUBMDM.
8. Insert the line cord from the digital station port into KT connector (J1) on the IX-PSUBMDM.
9. Type the following case-sensitive commands in all capital letters:
   - **ATQ0** <enter> to turn on the result codes (will not echo when typed).
   - **ATE1** <enter> to turn echo on (will not echo when typed).
   - **ATI** <enter>.
   - The following information displays:



10. Type **ATJ19200** <enter>.

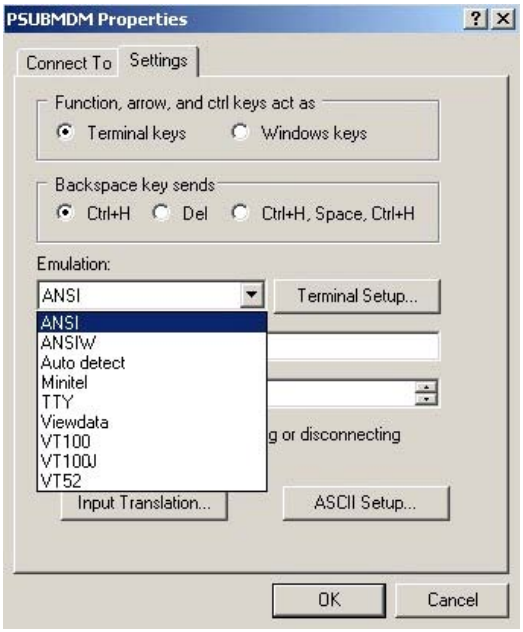


11. Cycle the power in the IX-PSUBMDM by removing the line cord from KT connector (J1), then replacing it.
12. Remove the CAT5 cable from VML (J3) connector.
13. Reconnect all cables for normal IX-PSUBMDM operation.
14. Test communication with the ECS.

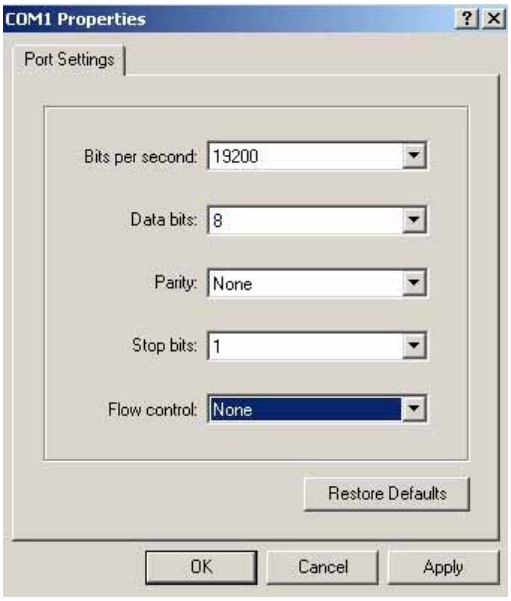
Reconfigure from ECS to ADIX

The following procedure is used to reconfigure an IX-PSUBMDM-E to an IX-PSUBMDM-A.

1. Launch HyperTerminal.
2. Verify the terminal Emulation setting type is set to **ANSI.**

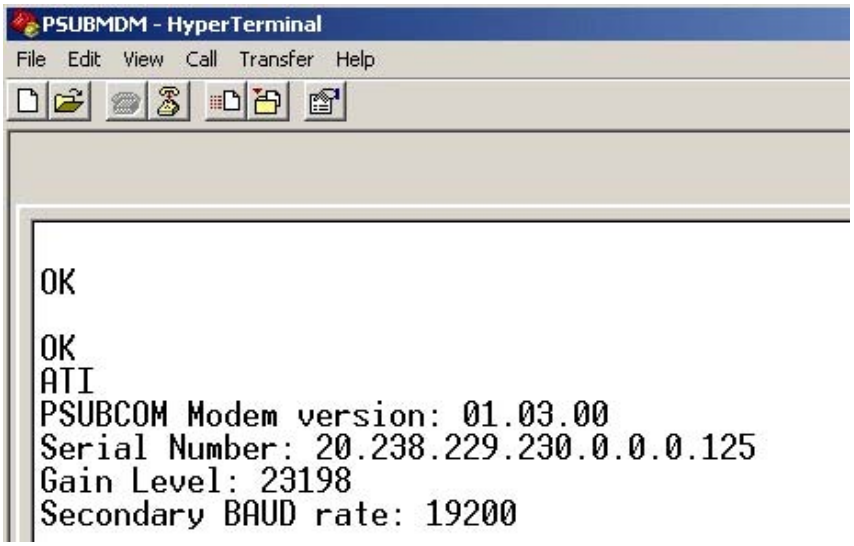


3. Verify your COM Port Settings:
   - **Bits per second = 19200**
   - **Data Bits = 8**
   - **Parity = None**
   - **Stop bits = 1**
   - **Flow control = None**

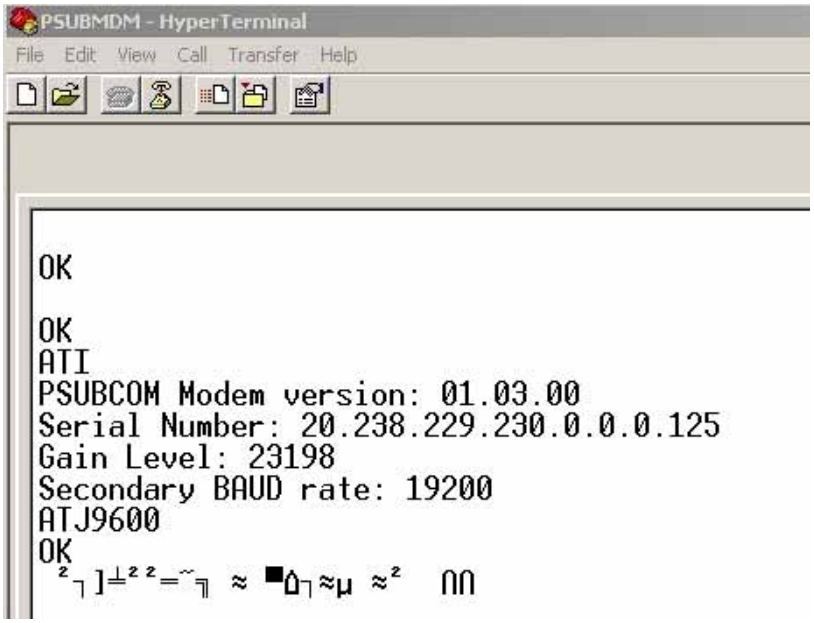


4. Insert the null modem adaptor into a free COM port on the PC.
5. Insert the FAX065 connector into the female side of the null modem adaptor.
6. Insert one end of the CAT5 cable into the FAX065 connector.
7. Insert the free end of the CAT5 cable into the J3 (the jack labeled VML) on the IX-PSUBMDM.
8. Insert the line cord from the digital station port into KT connector (J1) on the IX-PSUBMDM.

9. Type the following case-sensitive commands in all capital letters:
   - **ATQ0** <enter> to turn on the result codes (will not echo when typed).
   - **ATE1** <enter> to turn echo on (will not echo when typed).
   - **ATI** <enter>.
   - The following information displays:



10. Type **ATJ9600** <enter>.



11. Cycle the power in the IX-PSUBMDM by removing the line cord from KT connector (J1), then replacing it.
12. Remove the CAT5 cable from VML (J3) connector.
13. Reconnect all cables for normal IX-PSUBMDM operation.
14. Test communication with the ADIX or ADIX-VS system.

Chapter 19

ECS Software

This chapter describes the process for upgrading the Iwatsu Enterprise-CS system software, installing the Iwatsu Programmer, converting an existing database to an ECS database, and defaulting the ECS system database.

The latest version of the Iwatsu Programmer can be downloaded from the Iwatsu Distributor website at: http://www.iwatsu.biz/Distributors/TechSupport/Downloads.cfm.

This procedure assumes your programming PC meets the minimum system requirements (outlined below) and is properly installed on the programming PC.

- Windows® 7, Windows® Vista, Windows® XP (Standard or Professional) operating system with Service Pack 2, or Windows® 2003 Server
- Microsoft® .NET Framework 3.5
- Processor speed: 700 MHz or higher
- 100 megabytes of hard disk space
- RAM: 256 MB
- 800 x 600 minimum resolution monitor (1024x768 recommended)

Database Default Procedures

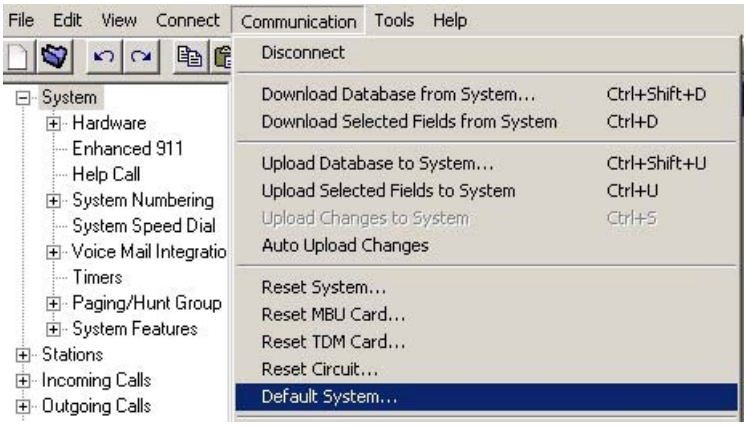
Default Mode Initializing the ECS in the default mode clears the database of any programming and returns all items to their factory values.

Default Procedure Using the Iwatsu Programmer

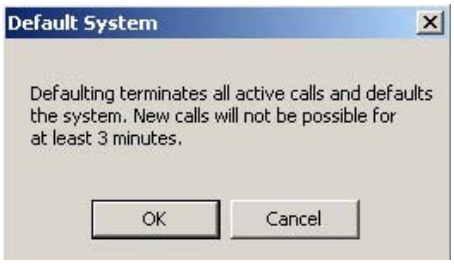
Note: The Iwatsu Programmer (5.0.3954 or later) enable the programmer (user) to upgrade the ECS remotely, using only the Iwatsu Programmer.

Using the Iwatsu Programmer, follow the steps below to default the ECS system remotely:

1. From the Iwatsu Programmer, select: **Communication > Default System...**



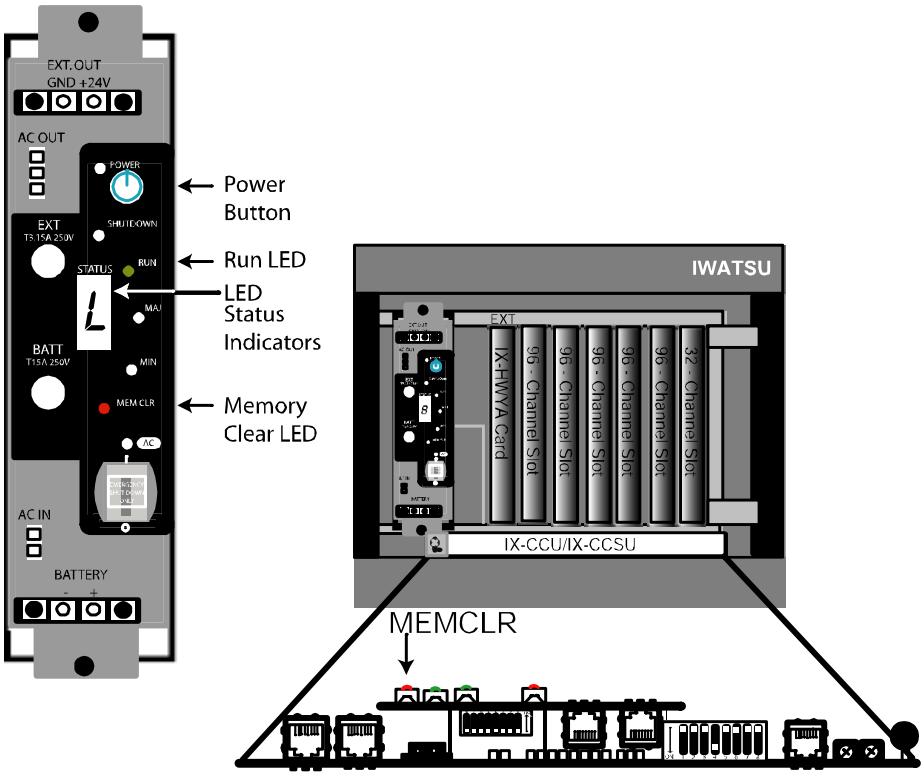
2. When the **Default System** screen appears, select **OK.**



3. This procedure will take 3-4 minutes to complete.

Manual System Default Procedure:

1. If the power is ON, press and hold the Power button until the system shuts down.
2. Press and hold the MEMCLR switch on the IX-CCSU card (Do not release the MEMCLR switch).
3. Press and release the Power button on the IX-PWSE power supply.
4. Observe the IX-PWSE Power Supply: The MEMCLR LED will light (Red) and an "*L*" will appear in the STATUS window.
5. Release the MEMCLR switch and wait until the LEDs stop flashing and the RUN LED (on the IX-PWSE) remains ON.
6. This procedure will take 3-4 minutes to complete.



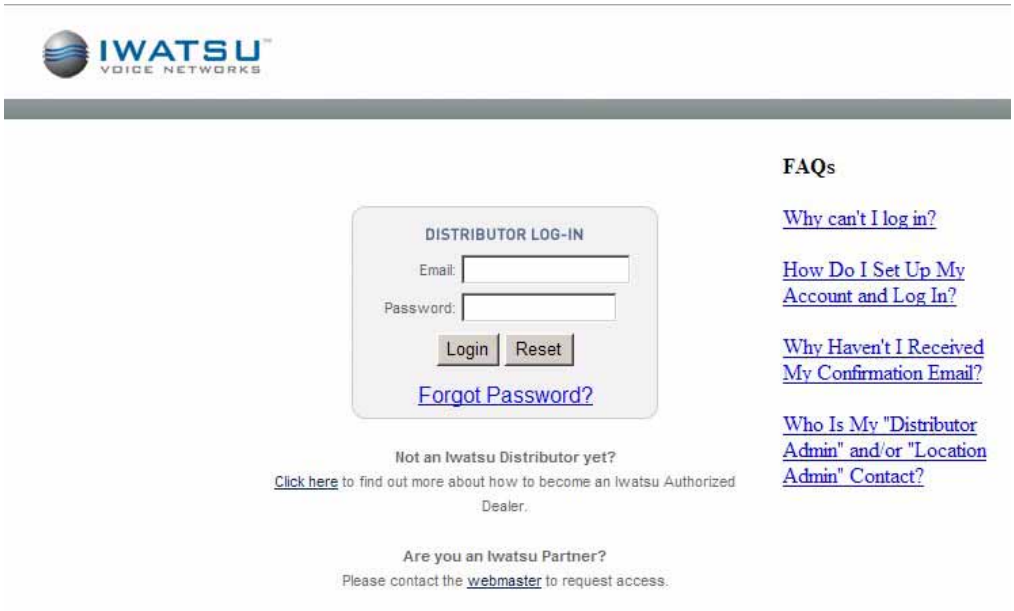
The Iwatsu Programmer

Download the Iwatsu Programmer

The following are instructions for installing and running the Iwatsu Programmer 5.0.3954 or higher. The latest version of the Iwatsu Programmer can be downloaded from the Iwatsu Distributor website at http://www.iwatsu.biz/Distributors/TechSupport/Downloads.cfm.

Download the Iwatsu Programmer from the Iwatsu Distributor Website.

1. Go to the Iwatsu Distributor Website at: **http://www.iwatsu.biz/Distributors/TechSupport/Downloads.cfm**
2. Enter your Distributor Log-in - **Email** address and **Password**

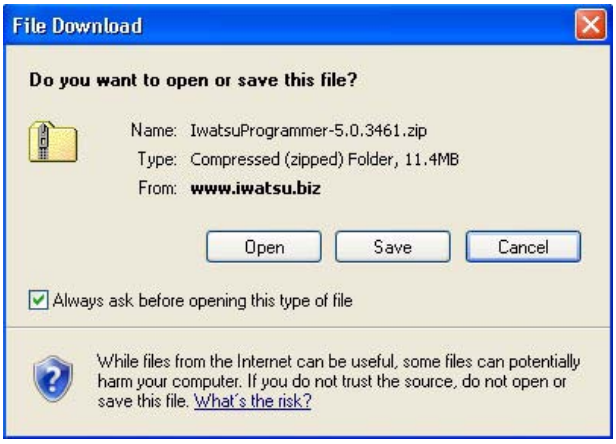


3. Select: **Technical Support > Downloads**

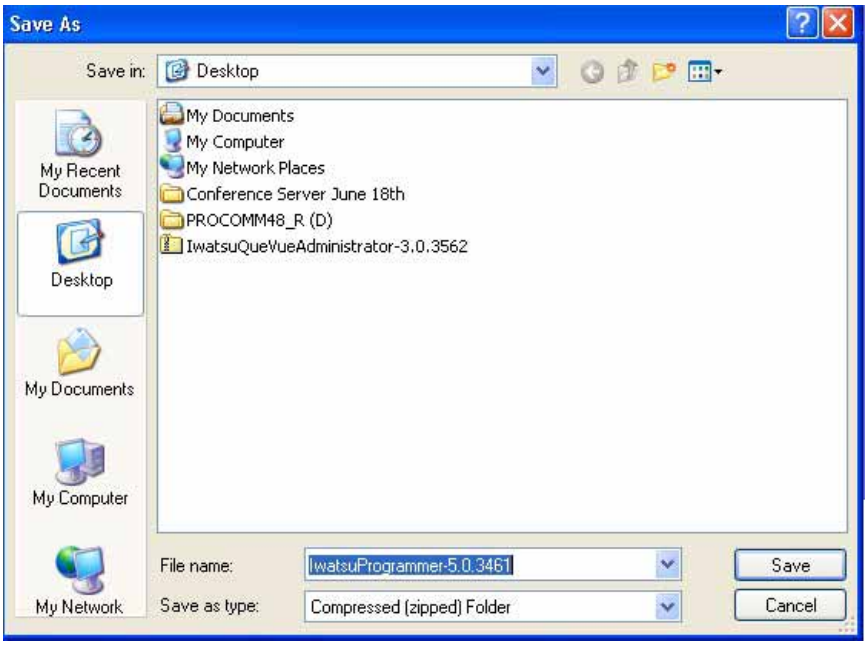


4. Under **Downloads > Iwatsu Programmer**
   - Select the latest **Iwatsu Programmer (for ECS and ADIX)** to download
   - If you do not have **Microsoft .Net Framework 3.5** installed on your PC, download this item first and follow the instructions on the screen.

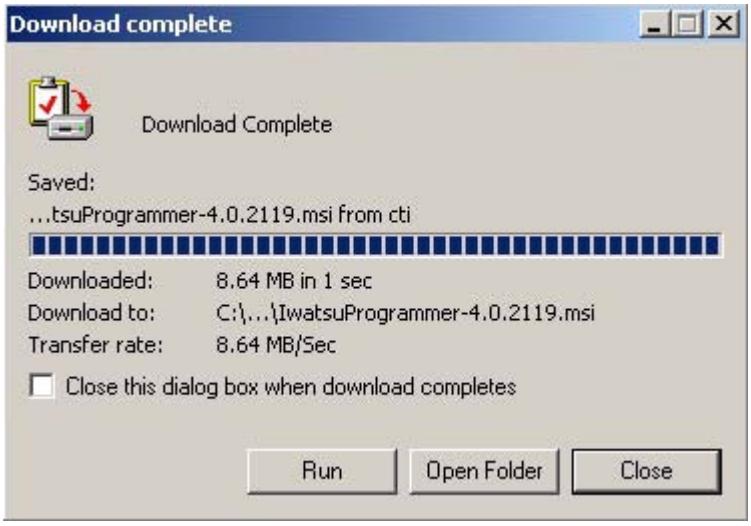
5. You will be prompted to **Run**, **Save**, or **Cancel** the Programmer file download
   - Select: **Save** (this will allow you to save the Programmer on your PC)or select Run to install the programmer on the PC your are currently using.



   - If you selected Save, the Iwatsu Programmer will be saved in a directory on your PC.



6. The dialog box shown below will appear while the Programmer downloads. The box will close when the Programmer finishes downloading to your PC.



7. Once the download process is completed, proceed to the directory where the Programmer was saved. Double-click on the Iwatsu Programmer icon and follow the directions on the screen to install.



Iwatsu Programmer Basic Navigation

Launch the Iwatsu Programmer 5.0.3954 or later. This assumes that the Iwatsu Programmer and Microsoft .Net Framework is correctly installed and the PC can connect to an ECS system.

Refer to Chapter 18 for connection procedures.

Note: To navigate and become familiar with the Iwatsu Programmer, it is not necessary to connect to the ECS.

Also, a system database can be pre-programmed or an existing database can be modified without connecting to the system and an upload to the ECS can be performed at a later time.

To launch the Iwatsu Programmer:

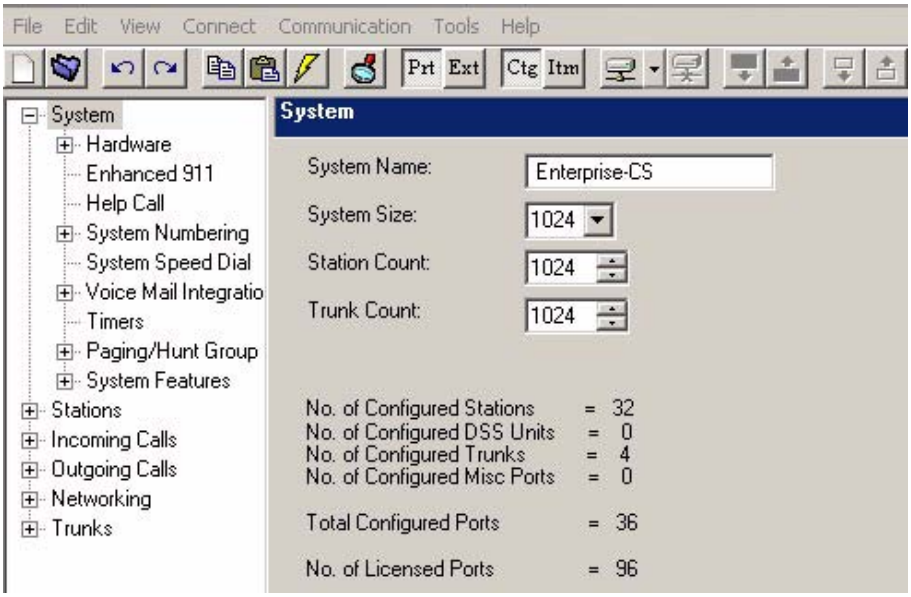
1. Double click the Iwatsu Programmer icon on the Windows desktop.

   or

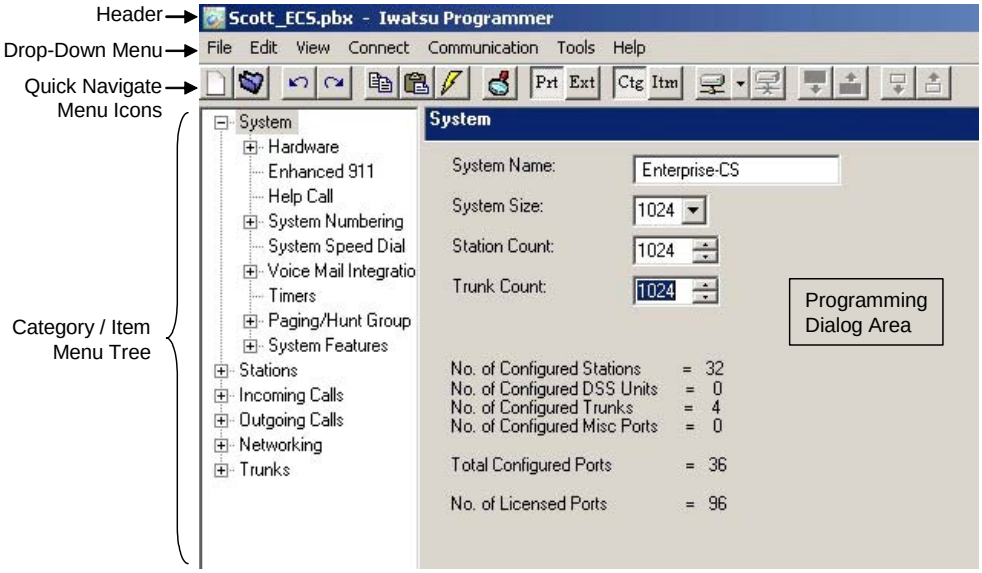
2. Select: **Start > Programs > Iwatsu Programmer > Iwatsu Programmer** from the PC desktop.



- When the Iwatsu Programmer main screen appears, it will look like the one shown below.



- The Iwatsu Programmer display contains a window header, drop-down menus, Menu icons, a Category/Item tree, a programming dialog window, and a Status Bar at the bottom of the screen as shown below.



The Window Header

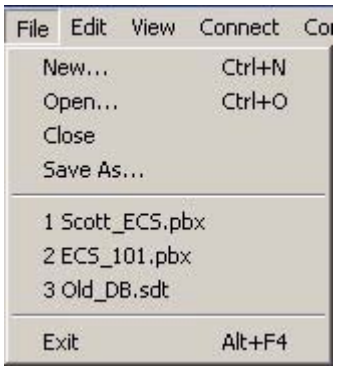
The Window Header contains the Database file name.



The Drop-down Menu

The Drop-down Menu bar contains seven menu items: File, Edit, View, Connect, Communication, Tools, and Help. Each File menu item is explained below:

File



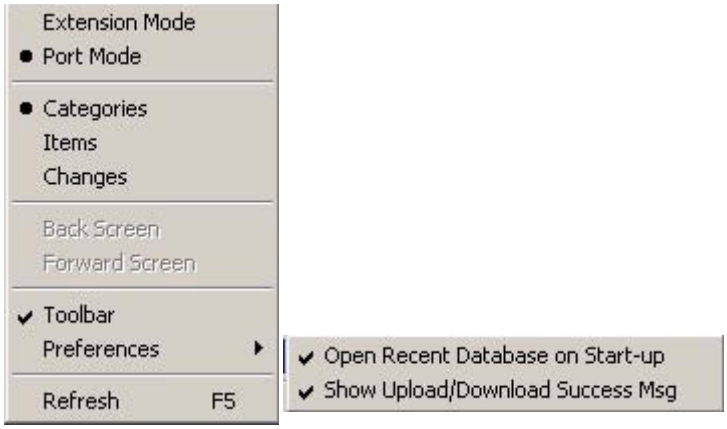
New...	Used to create a new database file
Open...	Used to open an existing database file
Close	Closes the open database file
Save As...	Used to save the open database file in a new location or with a new file name
File List	Displays previously created/opened database files .pbx file extensions denote an ECS database file .sdt file extensions denote an ADIX database file
Exit	Exits the Iwatsu Programmer

Edit



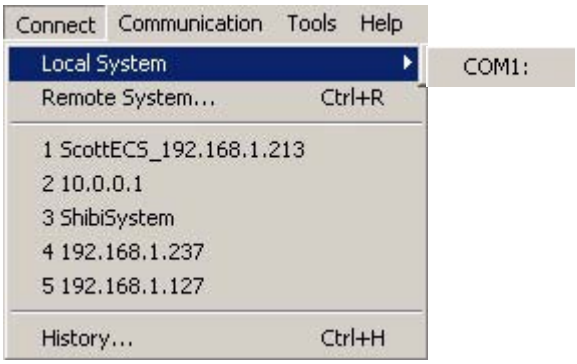
Undo	Allows the user to undo the previous action(s)
Redo	Allows the user to redo the previous action
Cut	Allows the user to cut an item(s) and place it in the clipboard
Copy	Allows the user to copy a selected item(s)
Paste	Allows the user to paste an item from the clipboard
Default	Allows the user to return a selected item(s) to its default value
Clear	Allows the user to clear data in fields that do not have a null default value
Copy Range...	Allows the user to copy a range of items from a list
Key Copy...	Allows the user to copy a specific key in a key pattern to one or multiple key patterns
Find...	Allows the user to search and find a specific item in the programmer
Find Next...	Allows the user to find the next like item in the search

View



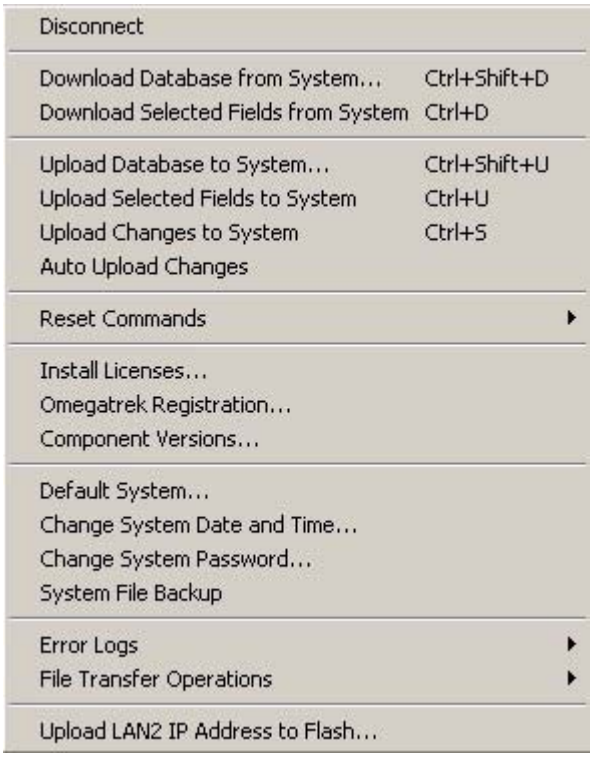
Extension Mode	Selecting Extension Mode causes all screens containing station number fields to show the station number, rather than the logical number.
Port Mode	Selecting Port Mode organizes relevant screens by the logical port number, rather than the extension number.
Categories	The Category view organizes database programming in groups, rather than Class/Item structure. For example, the Category view is organized by the following programming groups: • System • Station • Trunks • Incoming Calls • Outgoing Calls • Networking When selecting the Station group, all station programming is organized within this group, regardless of the Class/Items within the group
Items	The Item view is organized by the traditional Class/Item. Iwatsu Voice Networks' documentation is currently based on the Class/Item structure of this view. Class 01 through Class 37 display in this view. IP Block or Common Block databases, the category view must be used
Changes	Allows the user to track changes that have been made to the database for the current session
Back Screen	Takes you to the previous screens you have viewed.
Forward Screen	Takes you forward to the most recently viewed screens.
Toolbar	When the Toolbar option under the View menu is checked, all the buttons with icons display. Uncheck the Toolbar option to hide the toolbar.
Preferences	Allows the user to open the most recent database used on programmer start-up and will show upload and download successful message. These items can be enable or disabled.
Refresh	The Refresh option reloads the data in the selected field and displays it

Connect



Local System	The Local System option allows you to directly connect the programmer to the telephone system. To directly connect to an ADIX, ADIX APS or ADIX-VS telephone system, do the following: 1. Plug a FAX065 connector and a serial cable into a COM port on the PC. 2. Connect the free end of the serial cable to the SIO port (IX-CPUP/HW) or the PC port on the ADIX-VS. 3. Select the Local System option and select the COM port used. 4. The programmer connects to the telephone system
Remote System...	The Remote System option allows an IP-based connection to the telephone system. IP Connection to the ECS You can connect to the ECS via an IP connection. This connection can be either private (i.e. via a LAN) or a remote connection through the Internet. To establish a connection the ECS telephone system from a remote location, you must know the public IP address of the ECS. If a public IP address is unavailable to you, consult the network administrator for alternative methods of connection. 1. Select the Remote System option. • The Connect to the Remote System window displays. 2. Select the ECS option. 3. Select the Network option. 4. Enter the public IP address of the ECS telephone system. 5. Enter the System Password. 6. Enter the Customer Name. 7. Press the OK button. • The programmer is now connected to the ECS telephone system
IP Address List	Lists previously used IP Addresses for ECS systems
History	Displays a history of system name and / or IP addresses previously used

Communication



Disconnect	When connected to a system, you can select the Disconnect option. This option closes the communication channel between the programmer and the system.
Download Database from System	Launches the Download Database window. In this window, you can either leave all the Classes checked or deselect any classes that you do not want to download. 1. Select the Class you want to download (all Classes are checked at default). 2. Select the OK button. • The Classes begin to download.
Download Selected Fields from System	Allows you to select multiple fields and download just the selected fields. For example, you can select multiple rows in a table and download just those fields.
Upload Database to System	Launches the Upload Database window. In this window, you can either leave all the Classes checked or deselect any classes that you do not want to download. 1. Select the Class you want to upload (all Classes are checked at default). 2. Select the OK button. • The Classes begin to download.
Upload Selected Fields to System	Allows you to select multiple fields and download just the selected fields. Foe example, you can select multiple rows in a table and download just those fields.
Upload Changes to System	Anytime a change is made to the system database, the programer records it. During during your programming session, you can upload only the database changes you made. This option is reset after each upload.
Auto Upload Changes	Immediately uploads any changes made. This is real-time programming of the systems and must be used with caution. If an error is made to database programming and is sent to the system, you must use the Undo feature.
Reset Commands:	Reset System, Reset MBU Card, and Reset TDM Card.
- Reset System...	Resets the system. All current calls will be terminated when this option is selected.
- Reset MBU Card..	Sends a reset command to the IX-MBU/EMBU card. Any system resource that is using the IX-MBU/EBMBU card will be terminated.

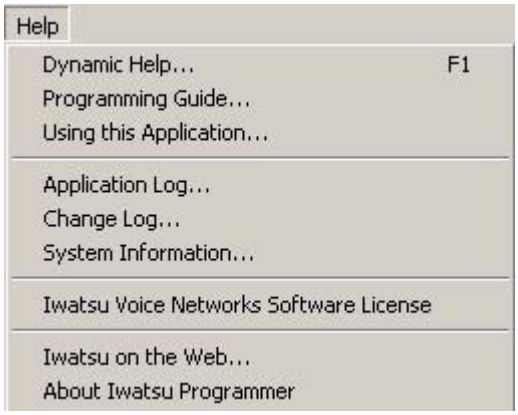
- Reset TDM Card..	Allows you to reset a TDM resource in the ECS system. To use the feature, do the following: 1. Select the Reset TDM Option from the Connect menu • The Reset TDM dialog opens. 2. Enter the card number that will be reset. 3. Select the OK button. • The TDM card resets.
Install Licenses...	Provides the management for the licences for the ECS. When the system is ordered, there is a default licence key installed. This key is displayed in Install Licences window. If you have a licence that you want to install, do the following: 1. Select the Install Licences... option from the Communication menu • The Install Licences window displays. 2. Select the last, blank Licence Key textbox. 3. Enter the 32-digit licence key • The if the licence key is valid, the Description field populates automatically. 4. Select the Install Licence button. • The Licence Key installs.
Omegatrek Registration...	Allows you to enter the activation code(s) for Omegatrek registration.
Component Versions...	Allows you to view the IX-CCSU serial number and other component firmware and software versions.
Default System...	Terminates all active calls and returns the system to factory default. New calls are not possible for at least three minutes.
Change System Date and Time...	When you select the Change Date and Time option... the change system date dialog displays. The data and time displayed will always be the current date and time of the programming PC. You can change the system date and time and upload the changes. However, when you reload the Change System Date dialog, the programming PC's date and time will load. To change the system date or time, do the following: 1. Select the Change Data and Time... option from the Communication menu 2. Enter the new date and time 3. Select the OK button.
Change System Password...	Allows you to change the ECS password.
System File Backup	Initiates a Manual System File backup to the backup storage area on the compact flash. The database backup mode must be set to Manual for this feature
Error Logs:	Download Error Log, Clear Error Log, and Download Log Folder from Flash to PC.
-Download Error Log...	Allows the user to view any errors that have occurred.
-Clear Error Log	Clears the error log from the memory. Only use this option after the error log is downloaded.
-Download Log Folder from Flash to PC...	Allows you to download the system error log for troubleshooting
File Transfer Operations:	
-Upload New Version to System Flash...	Allows you to upgrade the system software remotely via File Transfer Protocol.
-Download File from System Flash...	Downloads any ECS system file(s) and saves those files to a user specified location.
-Delete Task_Info File	Manually deletes the Task_Info File.
Upload LAN2 IP Address to Flash...	Uploads and stores the LAN2 IP Address on the compact flash

Tools



Key Labels	The Key Labels tool is an application used for printing key labels for the digital and IP telephones. To use the key label tool, you must have Microsoft Word 2000, or XP. The Key Label Tool movie, located in the Iwatsu Programmer Help file, shows you how to use the Key Label tool.
Default Key Names...	Lists the Default Key Label Names and allows you to create new Key Label Names for your printed Key Labels
Reports	Allows you to view, save, and print Station, Trunk, Class Reports, ACD Class Reports, and Key Templates.
Crystal Reports	
Iwatsu Licensing	Allows you to Get, Lookup, Export, and Import License Keys.
Diagnostics	For Iwatsu Field Engineer use.
Numbering Check...	Allows you to check for numbering conflicts in the system.
Create Phone Directory...	Allows you to create a phone directory from the system database
Flip Station Data	Allows you to flip (swap) station data for two stations.
Merge Remote DB	Merges a Remote database into the Main database.
Count DSS+CCV	Gives you a count of all Direct Station Selection keys and Call Coverage Keys for each key pattern. Used for diagnostic purposes.
Check Against Defaults	Checks System, Station, or Trunk database values for specified logical numbers against the default values. Used for diagnostic purposes.
Update VM Box with Station Ext	Updates Mailbox Data with programmed Station Access Numbers.

Help



Dynamic Help...	Automatically launches the Help menu for the Category or Item that is currently selected.
Programming Guide...	Automatically launches the Programming Guide (Section 6 from the Technical Manual)
Using this Application...	Automatically launches the General Navigation tool for navigating through the Iwatsu Programmer.
Application Log...	Tracks logins, uploads, downloads, and error message information.
Change Log...	The Change Log provides information on changes / imporovements that have occurred on previous versions of the Iwatsu Programmer.
System Information...	Displays the system information for your PC.
Iwatsu Voice networks Software License	Displays the Iwatsu Voice Networks Software License Agreement.
Iwatsu on the Web	Takes you to the Iwatsu website (www.iwatsu.com)
About Iwatsu Programmer	Displays the Iwatsu Programmer Version you are currently using.

Icon Menu Bar

The Icon Menu bar contains 20 quick access menu items. Each icon can also be found the drop-down menus.

The Icons are explained below:



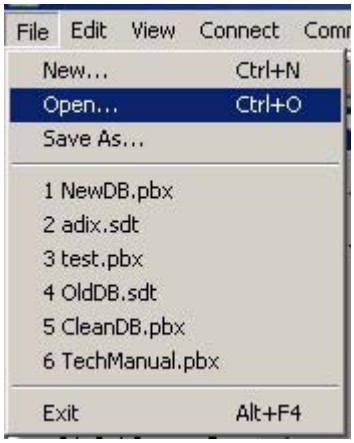
1	Back - Takes you previously viewed screens.
2	Forward - Takes you to the most recently viewed screens.
3	Creates a new database file
4	Open an existing database file
5	Undo a previous action(s)
6	Redo a previous action(s)
7	Copy selected items
8	Paste
9	Returns all selected items to their default values
10	Finds selected text in the data fields
11	Select stations by their logical port number
12	Select stations by their extension number
13	Displays the Category view in the Category / Item menu
14	Displays the Class / Item view in the Category / Item menu
15	Connect to a remote system
16	Disconnect from a system
17	Download system database
18	Upload system database
19	Download selected field from system
20	Upload selected field to system

Database Conversion Procedure

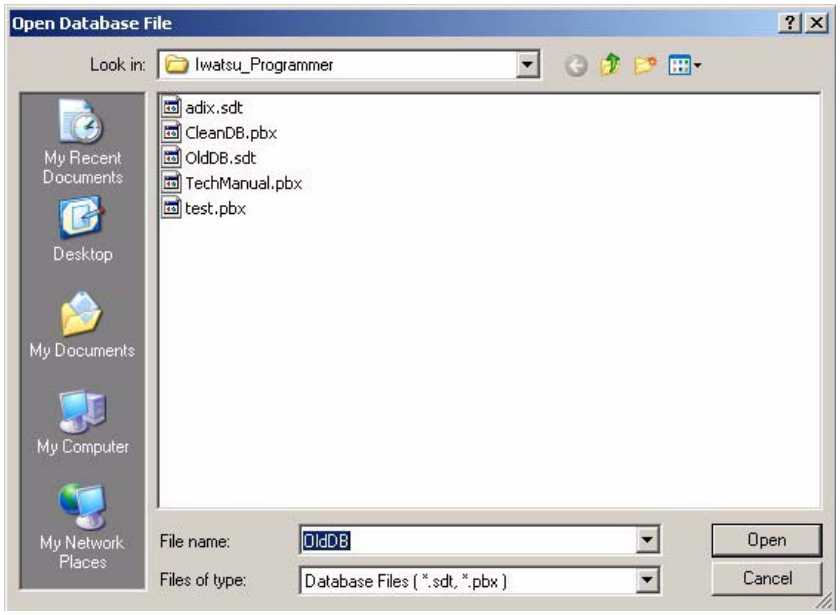
The database conversion procedure allows the user to convert an existing ADIX or upgrading an existing ECS database to a new ECS database version.

Note: The database conversion will be performed without connecting to the ECS.

1. Launch the Iwatsu Programmer 5.0.3954 or higher
2. From the Iwatsu Programmer drop-down menu, Select: **File > Open**.

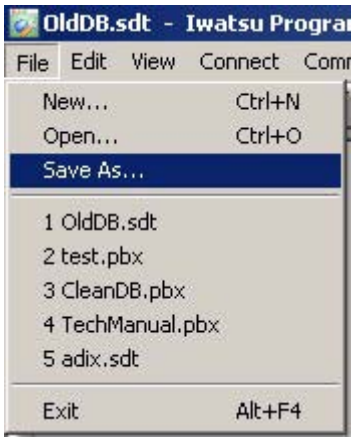


3. Highlight the database that will be converted to an ECS database and Select: **Open.**

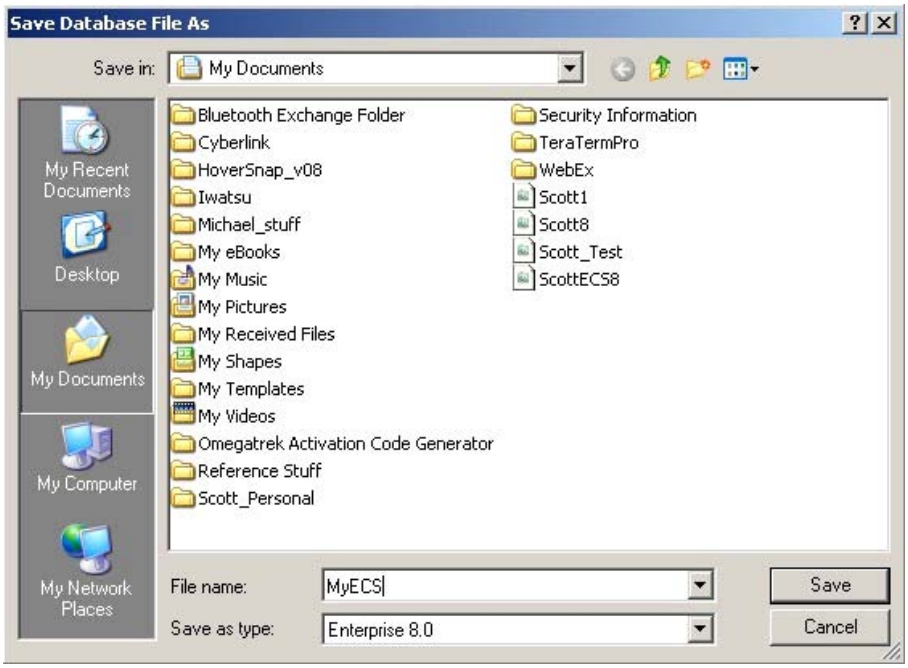


4. Once the database file opens in the Iwatsu Programmer.

Select: **File > Save As...**



5. When the Save **Database File As** dialog box appears:
   - Enter the new **File Name** to save the database as
   - Select: **Enterprise 8.0** (or current software version to be upgraded) as the **Save As Type** (The Save As Type will appear as the current database type)
   - Select: **Save**. The database is then converted to an ECS database and is now ready to be uploaded to an ECS system.



6. The database conversion procedure is complete.

ECS Software Upgrade Procedure

The ECS system software upgrade procedure is described below.This is intended to be available to Iwatsu distributors and Certified Iwatsu Enterprise-CS personnel.The latest version of the Iwatsu Programmer (minimum 5.0.3954) is required for this upgrade procedure. The latest version of the Iwatsu Programmer can be downloaded from the Iwatsu Distributor website at http://www.iwatsu.biz/Distributors/TechSupport/Downloads.cfm.This procedure assumes your programming PC meets the minimum system requirements (outlined below), and is properly installed on the programming PC.

System Requirements:

- PC operating system: Windows® Vista, Windows® XP (Standard or Professional) operating system with Service Pack 2, or Windows® 2003 Server
- Microsoft® .NET Framework 3.5
- Processor speed: 700 MHz or higher
- 100 megabytes of hard disk space
- RAM: 256 MB
- 800 x 600 minimum resolution monitor (1024x768 recommended)

Warning!

If you connect an IP telephone (with an IPKT software version of 2.0 or higher) to an ECS system **with ECS software version 5.0 or below**, you **MUST** set the Auto-Update flag in the ECS database to Auto-Update YES before connecting this IP telephone. Auto-Update must be set to YES in the ECS database to allow the telephone to downgrade to an IPKT software version that is compatible with the ECS software version on your system.

If the Auto-Update flag is set to NO and the 2.x IP telephone is connected to an ECS system with software below 5.0, the telephone will not function.

Iwatsu ICON Series IX-5910 and IX-5930 IP Telephones will not operate on ECS systems with a software version below 5.1. Iwatsu ICON Series IX-5900 IP telephones and IX-59DS DSS units will not operate on ECS systems with a software version below 6.x.

ECS Software Version 8.0x Upgrade Procedure

Introduction

The ECS system upgrade procedure for software version 8.0x is described below:

- Implementation recommendation: Use the Iwatsu Programmer (version 5.0.3954 or higher).
- Iwatsu Enterprise 4.0 and higher require a replacement IX-CFMU compact flash module (PN: 101126).
- LAN/WAN IP connectivity to all Iwatsu Enterprise-CS systems is required.

Warning!	**Compact Flash Replacement Required:** Systems with ECS software versions below 4.0 require a replacement IX-CFMU 128 MB Compact Flash Module (Part Number: 101126-50). The compact flash module shipped with previous IX-CCSU cards is incompatible with ECS version 4.0 or higher. If you already have ECS version 4.0 or above on your system, you do not have to replace the compact flash. **IX-MBU Upgrade to IX-MBU Software Version 1.22 Required**: IX-MBU software version 1.22 is required with ECS software versions 4.0 or higher. IX-MBU software version 1.22 is included with the ECS software version 8.x image. IX-MBU software version 1.22 is not compatible with ECS software version 3.x and lower. **IP Telephone Upgrade:** Your IP Key Telephones MUST be upgraded to the latest KT software to operate properly with ECS software version 8.x.

The following steps will be performed to complete the upgrade procedure:

Step 1 - Database and license download.

Step 2 - Database conversion.

Step 3a - Install the new IX-CFMU compact flash module.

Step 3b - FTP software upgrade to the ECS.

Step 4 - Connect to the ECS LAN 2 Port.

Step 5 - Install Licenses.

Step 6 - System default.

Step 7 - Database upload.

Step 8 - System reset.

Step 9 - IX-MBU Upgrade Procedure.

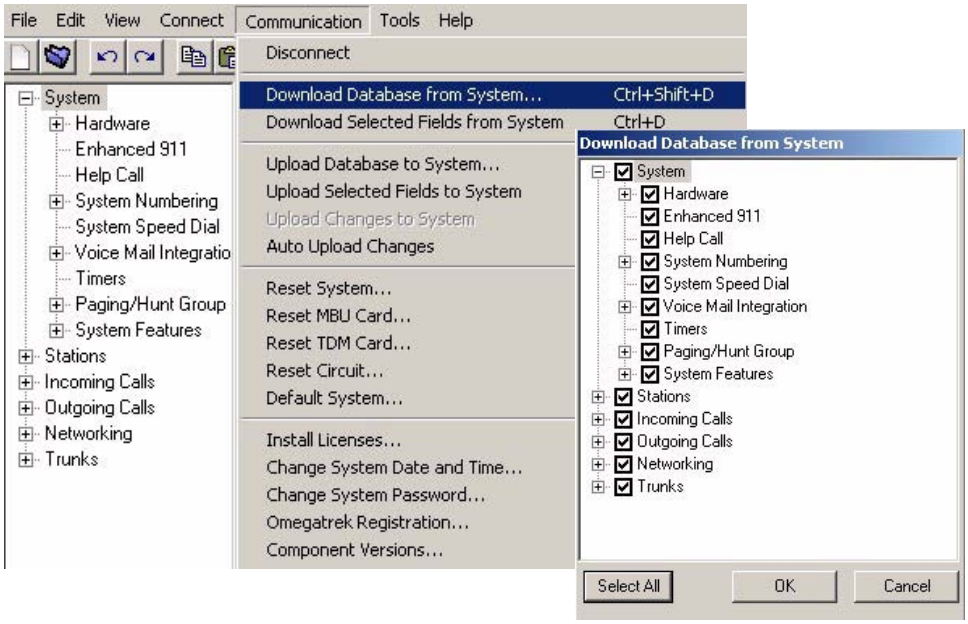
Step 10 - IP Telephone Software Version Automatic Update

Step 1: Database and License Download

The first step to upgrade your ECS system is to download the database and then make sure to download all licensing data from that system. This database will be uploaded to the ECS to complete the upgrade procedure. The licensing data will be stored on your PC as a backup. Licensing data will only need to be uploaded again if the Compact Flash has been formatted.

This procedure is performed using the Iwatsu Programmer (version 5.0.3954 or higher) in the Category (Ctg) view mode.

1. Connect to the ECS system to be upgraded and perform a complete system database download using the Iwatsu Programmer.
   - Select: **Communication > Download Database from System...**
   - Select: **Select All** database items from the Download Database from System window.
   - Select: **OK**. The database will downloaded on your PC (Remember the database file name, you will need it later in this procedure.

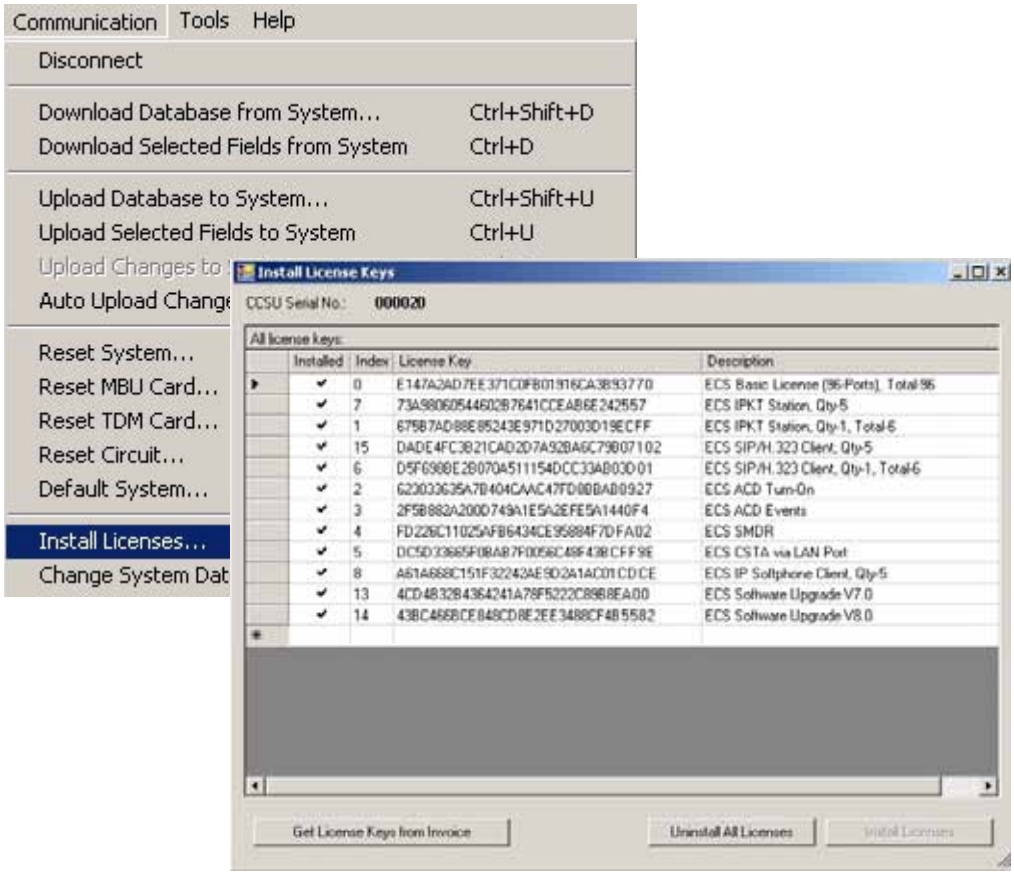


   - When the ECS database has been successfully downloaded, the **Download Successful** screen-pop will appear. This screen-pop will not appear if the option has been **disabled** under the **View > Preferences** drop-down menu in the programmer.
   - Select: **OK**.



2. Install (download) licenses:
   - Select: **Communication** > **Install Licenses...**
   - When the **Install License Keys** window appears, the ECS license keys have been stored on your PC.
   - **Close** the Install License Key window (Press the X in the top right of the window).

Note:	Performing this procedure enables the programmer (you) to have the licensing data from the ECS system you are upgrading on the programming PC (your PC).

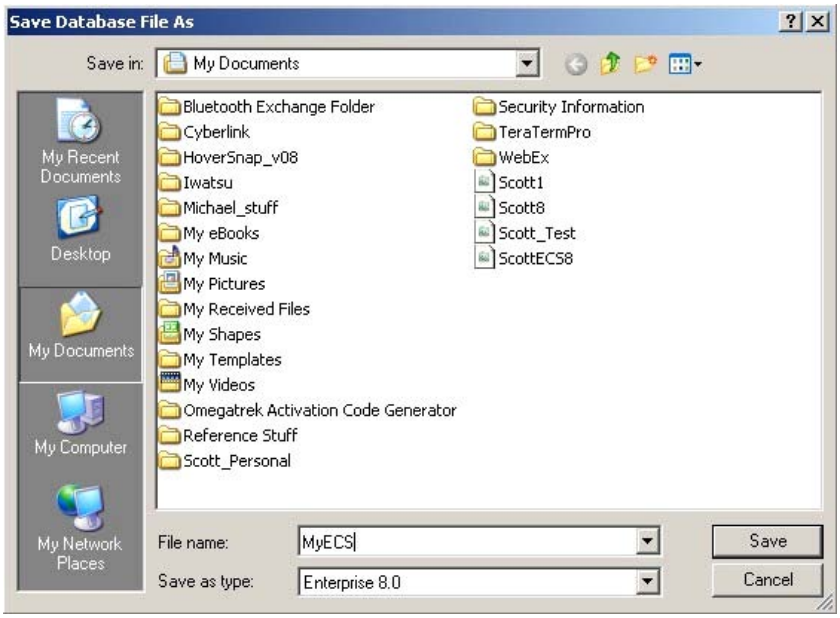


   - When the database and licensing information is successfully downloaded, proceed to **Step 2**.

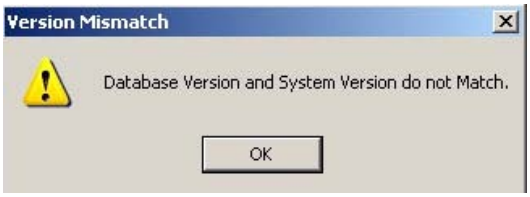
Step 2: Convert the Database (If Required)

The current database must be converted to the new ECS software version before uploading the software upgrade to your ECS system.

1. Save your current database as an **Enterprise 8.0** database.
   - Select: **File > Save as...** from the drop-down menu.
   - When the S**ave Database File As** window appears, type in a new **File name** and select **Enterprise 8.0** from the **Save as type**.
   - Select: **Save**.



2. If you receive a **Version Mismatch** warning screen-pop, select **OK** to dismiss the window. This software version mismatch will no longer appear when the upgrade procedure is complete.



Step 3a: Installing a New IX-CFMU Compact Flash Module

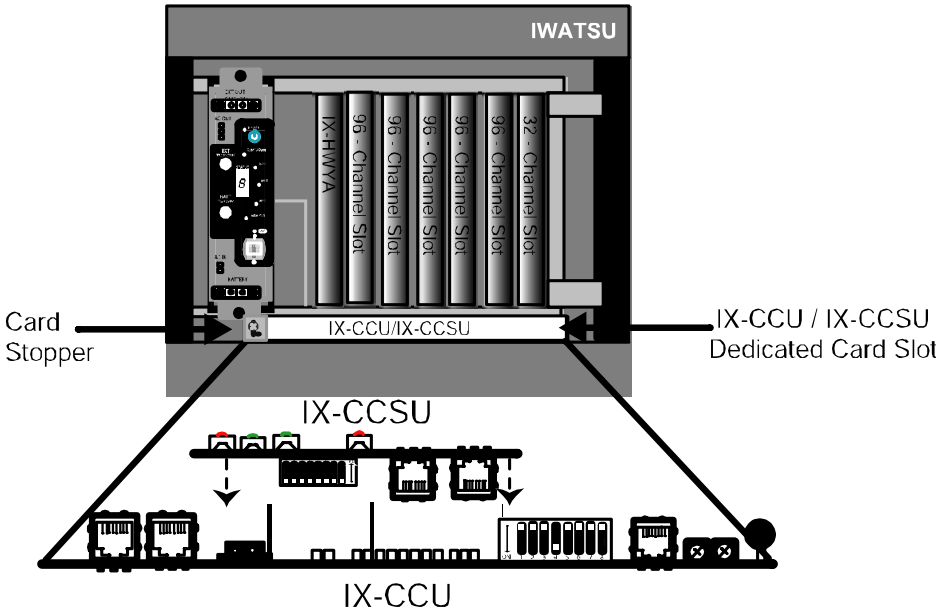
Follow this procedure if you are installing ECS version 8.0x with a **new compact flash module**. If you already have ECS 4.0x software or higher on your system and are upgrading to 8.0x software follow the procedure in Step 3b.

Note:

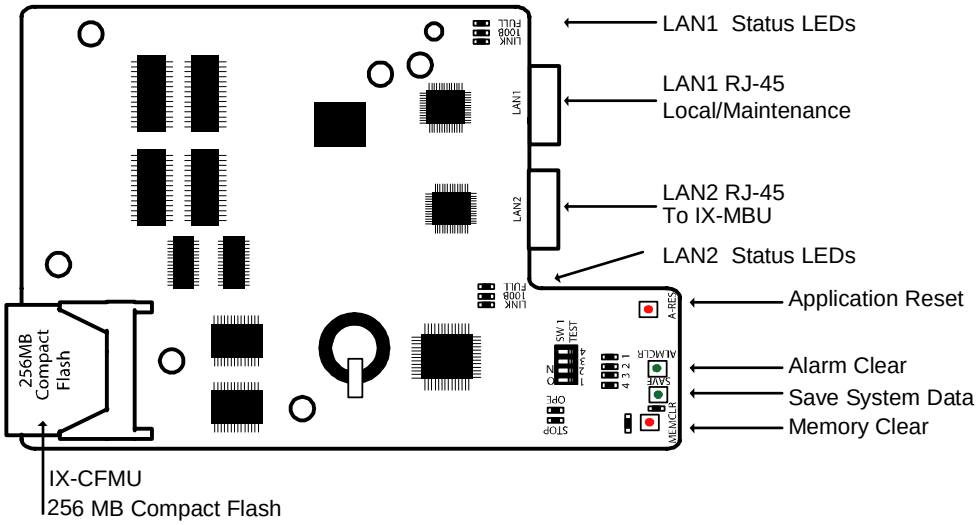
Before proceeding, you must have the ECS Software Version 8.0 software version and a valid ECS Software Version 8.x software version license (PN: 000347).

You can upgrade to software version 8.0 and higher with a 3.x (PN: 000342), 4.x (PN: 000343), 5.x (PN: 000344), 6.x (PN: 000345), or a 7.x (PN: 000346) license, but you will not have access to the software version 8.0 features and enhancements. Your ECS will display a Minor 2 error since the license requirements for software version 8.0 have not been met.

1. Shut down your ECS system by pressing the Power button until the Shutdown LED begins to flash. When the ECS shuts down, turn off the power to the system.
2. Remove the IX-CCU/CCSU cards from the ECS.



3. Remove the old compact module from the IX-CCSU card and replace it with the new 256 MB IX-CFMU (PN: 101126-70).



4. Reinstall and secure the IX-CCU/CCSU cards in the ECS cabinet.
5. **Press** and **hold** the red **MEMCLR** (Memory Clear) button on the IX-CCSU card and power up the ECS. Release the MEMCLR button when the MEMCLR LED lights and the ***L*** appears in the **STATUS** window.
6. When you replace the IX-CFMU module and restart your system, the ECS LAN 2 IP address will be at the default setting of 10.0.0.1.
7. Before trying to connect to the ECS using the Iwatsu Programmer, remember to change the IP address of your programming PC to an IP address that is compatible with the LAN 2 default IP address.
8. We will restore the previous LAN 2 IP address during Step 7.

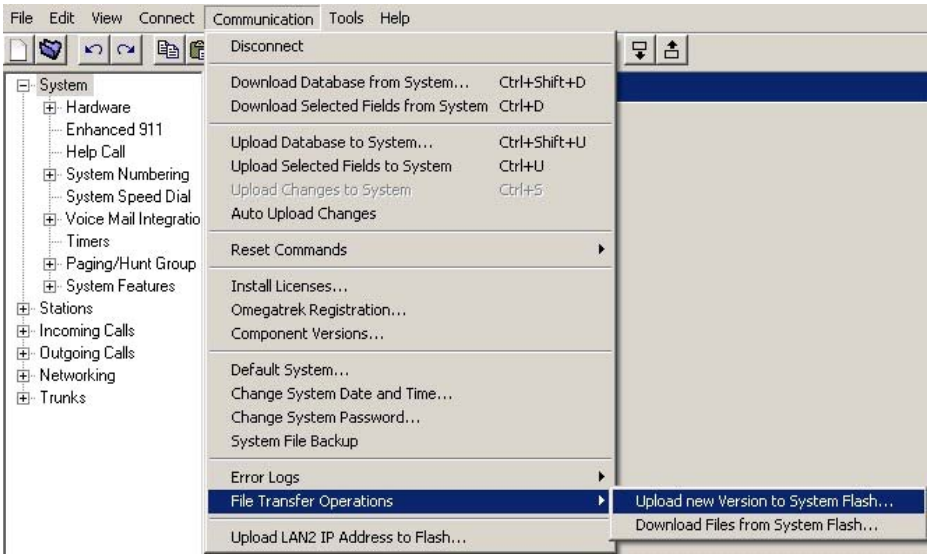
Step 3b: Upload the ECS Software Upgrade

This step is only used when upgrading your system **without replacing** the compact flash module. **If you are replacing the compact flash and this is a new ECS 8.0x install follow the procedure in Step 3a**.

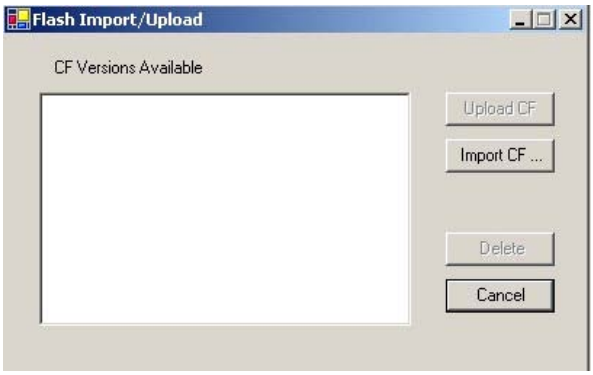
Note:	Before proceeding, you must have the ECS Software Version 8.0 software version and a valid ECS Software Version 8.x software version license (PN: 000347). You can upgrade to software version 8.0 and higher with a 3.x (PN: 000342), 4.x (PN: 000343), 5.x (PN: 000344), 6.x (PN: 000345), or a 7.x (PN: 000346) license, but you will not have access to the software version 8.0 features and enhancements. Your ECS will display a Minor 2 error since the license requirements for software version 8.0 have not been met.

Make sure that you have downloaded a current copy of your database before you proceed.

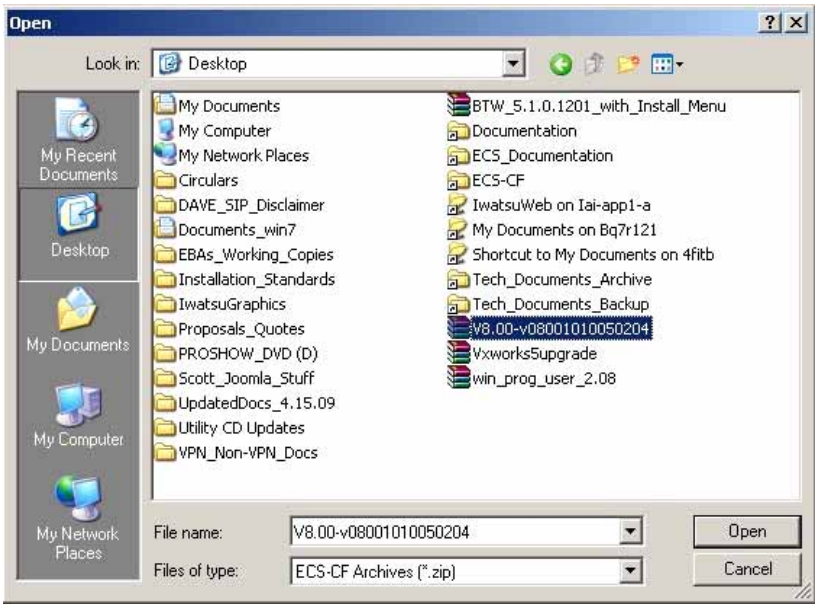
1. Upload the ECS software upgrade to the Compact Flash on the IX-CCSU.
   - Select: **Communication > File Transfer Operations > Upload New Version to System Flash...** from the drop-down menu.



2. When the **Flash Import / Upload** window appears:
   - Select: **Import CF...**

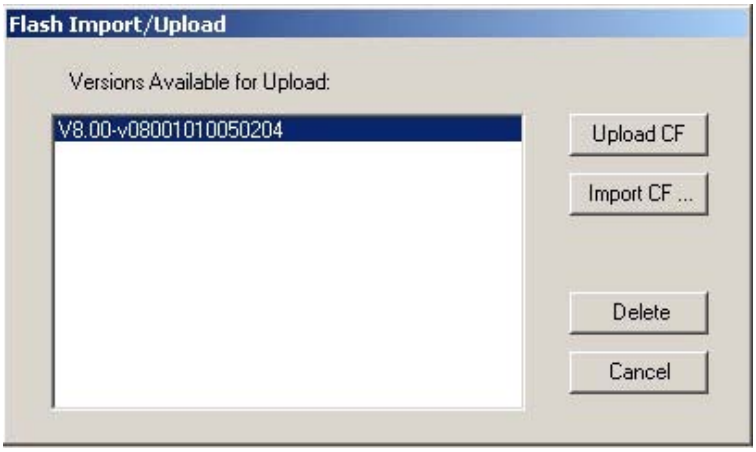


3. When the **Open** window appears:
   - Locate the directory where software version 8.0x is stored. This will be a **.zip** file similar to the file shown below.
   - Highlight (select) the file and then select **Open**.



4. The **Flash Import / Upload** window will appear again with the file selected in the previous step.
   - Highlight (select) the software version to upload to the ECS Compact Flash.

- Select: **Upload CF**. The software upload to the ECS will begin. This process will take about 3 minutes to complete.



5. When you select **Upload CF**, the warning message shown below appears before the software begins to upload.
   - Select **OK** to upload the software anyway.

   or
   - Select **Cancel** to cancel the installation.



6. When the **Flash Upload Success** screen appears, select **OK** to continue.



7. Read and acknowledge the **Upload LAN 2 IP Address to the Compact Flash** warning message: DO NOT upload the LAN 2 IP Address to the Compact Flash unless you have verified the database version. In this case, you should have saved your database to version 8.0 in Step 2.

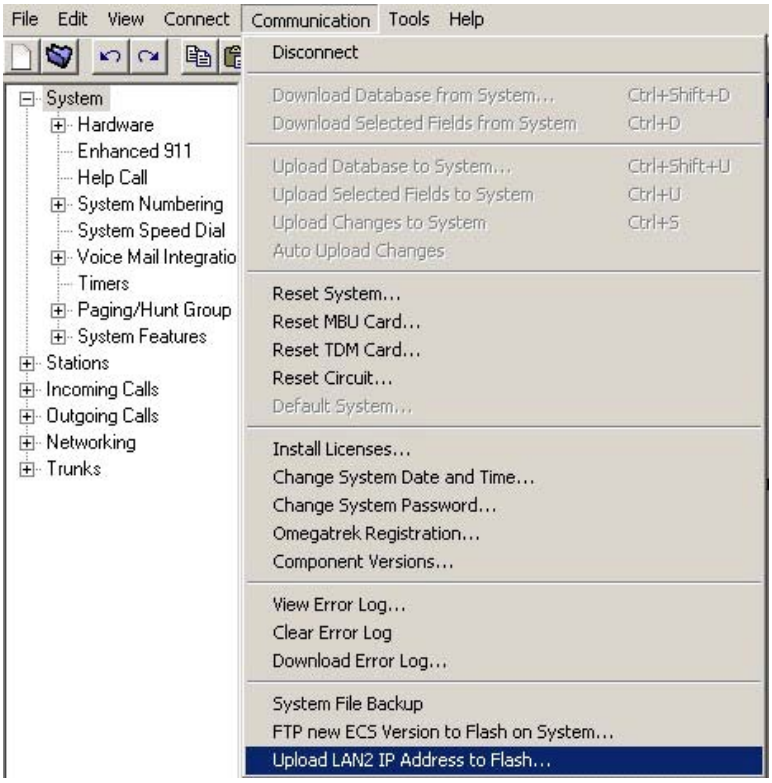
- Select **OK** to continue.



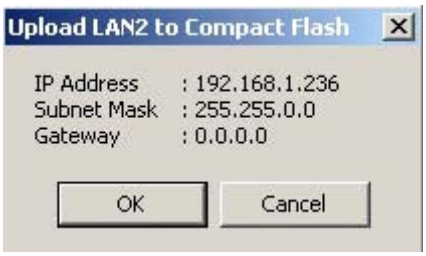
Step 4: Upload the LAN 2 IP Address to the Compact Flash

The LAN 2 IP Address will return to the default setting of 10.0.0.1 if the current LAN 2 IP Address is not uploaded to the ECS Compact Flash before a system default is performed.

1. Select: **Communication > Upload LAN2 IP Address to Flash...**



2. The current LAN 2 IP Address to be uploaded will appear in the **Upload LAN2 to Compact Flash** screen-pop.
   - Select: **OK**. This process only takes a few seconds to complete.

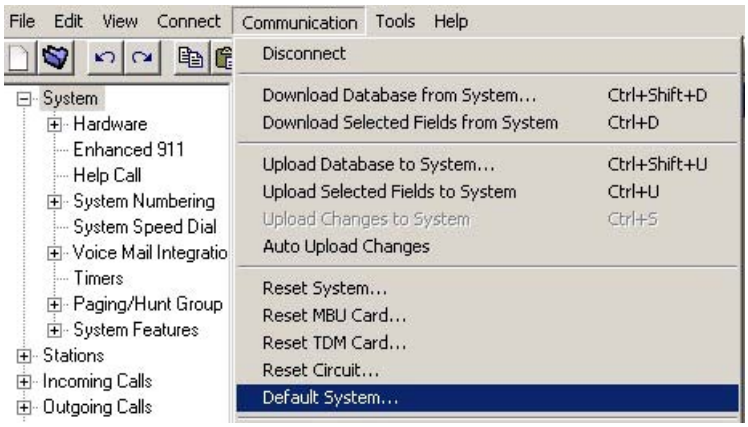


Note: Ensure the IP information is correct. Failure to do so may make the ECS inaccessible via remote or local IP.

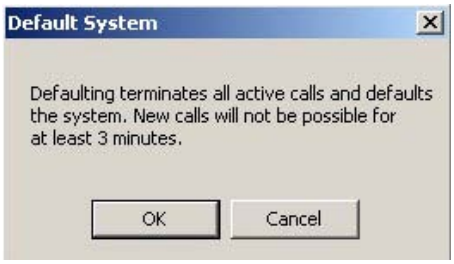
Step 5: ECS System Default Procedure

Using the Iwatsu Programmer, follow the steps below to default the ECS system remotely:

1. From the Iwatsu Programmer, select: **Communication > Default System...**



2. When the **Default System** screen appears, select **OK** to continue the default procedure.



3. This procedure will take 3-4 minutes to complete.

Connect to the ECS LAN 2 Port

If you replaced the IX-CFMU module and restarted your system, the ECS LAN 2 IP address will be at the default setting of 10.0.0.1.

Before trying to connect to the ECS using the Iwatsu Programmer, remember to change the IP address of your programming PC to an IP address that is compatible with the LAN 2 default IP address.

We will restore the previous LAN 2 IP address during Step 7.

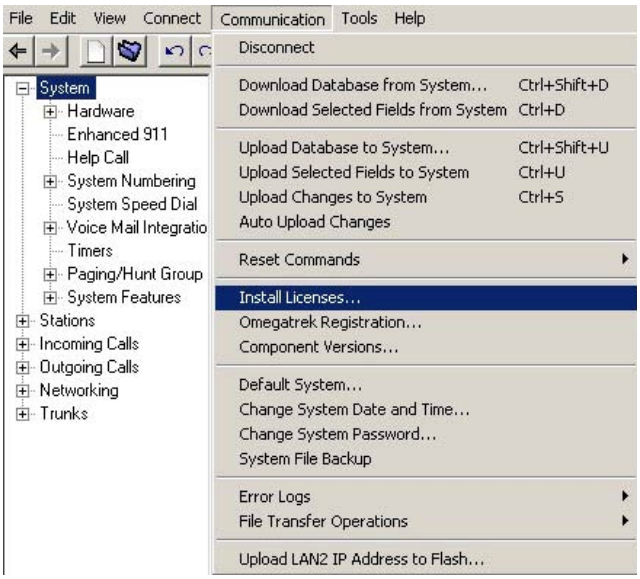
Step 6: Install Licenses

If you replaced the IX-CFMU module and restarted your system, the ECS LAN 2 IP address will be at the default setting of 10.0.0.1.

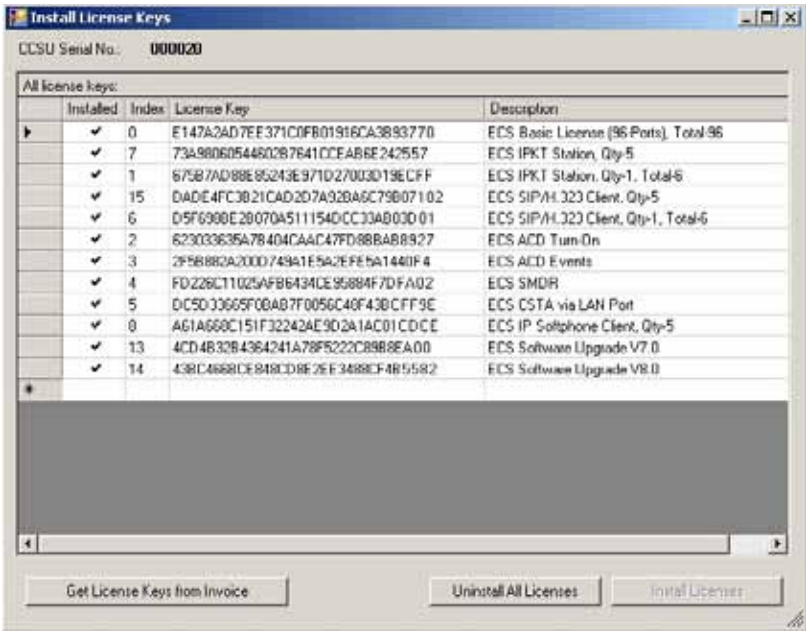
Before trying to connect to the ECS using the Iwatsu Programmer, remember to change the IP address of your programming PC to an IP address that is compatible with the LAN 2 default IP address.

Using the Iwatsu Programmer, follow the steps below to install licenses:

1. From the Iwatsu Programmer, select: **Communication > Install Licenses...**



2. When the Install License Keys screen appears all available license keys will appear in the list.
   - Select: **Install Licenses**. When a check mark appears next to the license, that license has been installed.

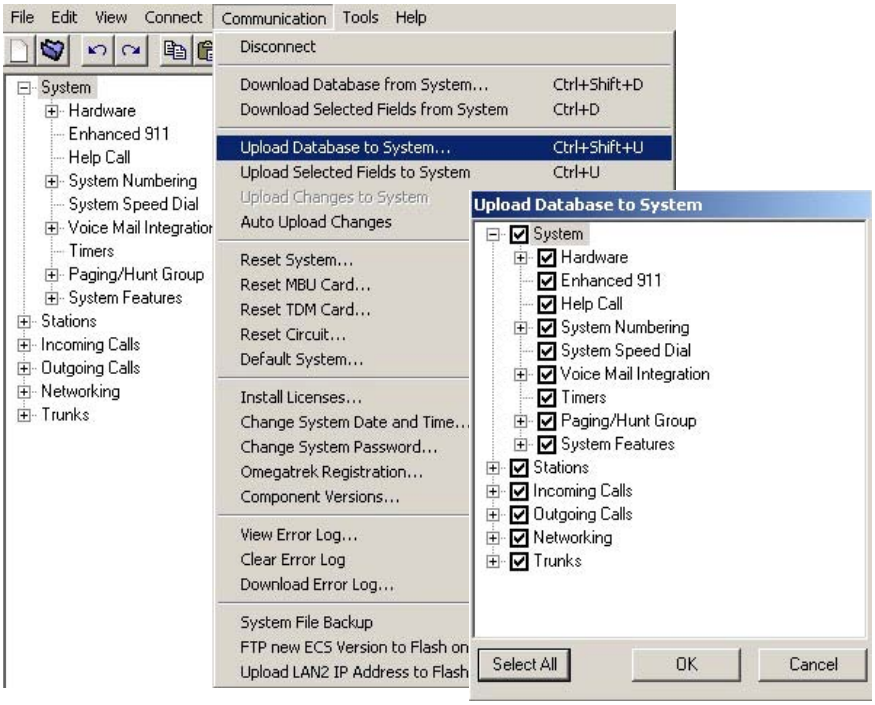


Step 7: Upload the Database

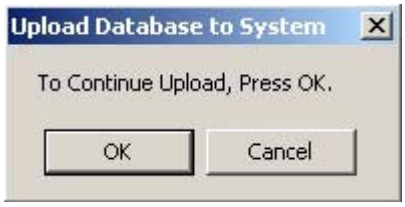
Once the default procedure has been completed, the ECS database needs to be uploaded to the system.

Using the Iwatsu Programmer in the Category (Ctg) mode:

1. Connect to the ECS system that was upgraded.
2. Open the database file that you downloaded and converted to a software version 8.0 database file (This database file may already be open).
   - Select: **File > Open** to select the database file.
3. With the database file open, perform a complete system database upload to the ECS system.
   - Select: **Communication > Upload Database to System...**
   - Select: **Select All** database items.
   - Select: **OK**.



- When the **To Continue Upload** confirmation screen-pop appears, select: **OK**.



- When the upload is complete, the **Upload Successful** screen-pop will appear, select: **OK**. The database has been successfully uploaded to the ECS.

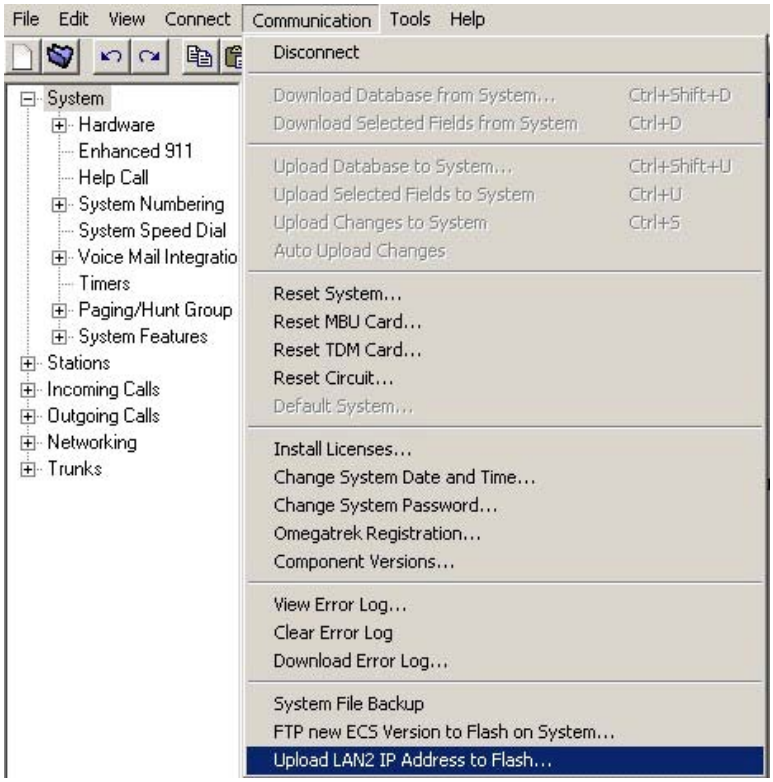


Upload the LAN 2 IP Address to the Compact Flash

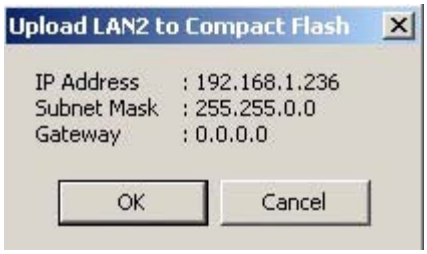
The ECS LAN 2 IP address for your ECS system is also contained in the database you just uploaded. Remember to upload the LAN 2 IP address to the ECS Compact Flash at this time.

To save the LAN 2 IP address:

1. Select: **Communication > Upload LAN2 IP Address to Flash...**



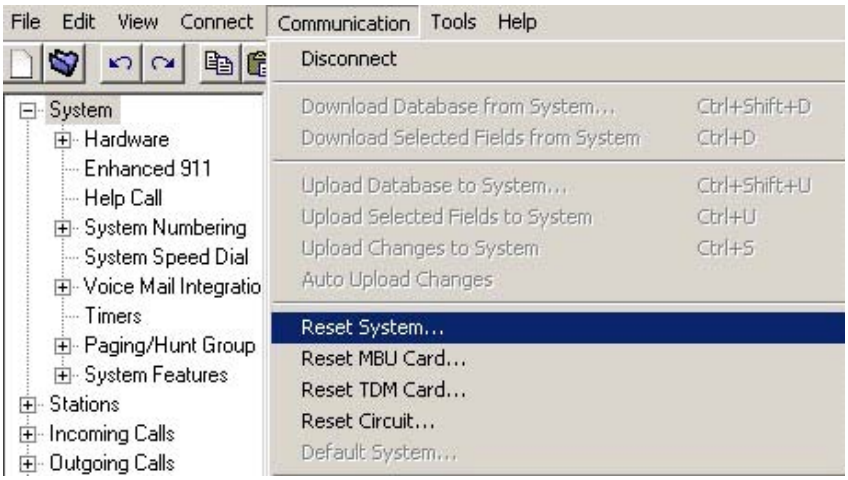
2. The current LAN 2 IP Address to be uploaded will appear in the **Upload LAN2 to Compact Flash** screen-pop.
   - Select: **OK**. This process only takes a few seconds to complete.



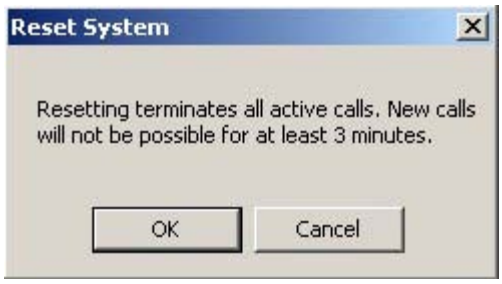
Note:	Ensure the IP information is correct. Failure to do so may make the ECS inaccessible via remote or local IP.

Step 8: System Reset

1. When the database upload is complete, a system reset is required to complete the upgrade procedure.
   - Select: **Communication > Reset System...**



   - When the **Reset System** confirmation screen-pop appears, select **OK**. Resetting the system will terminate all active calls and disconnect you from the ECS system.



2. If other ECS systems require upgrading, repeat this procedure.

The upgrade is complete.

Remember to upgrade your IX-MBU software and IP telephones to the latest software version.

IWATSU enterprise CS

Technical Manual

Appendix A

Licensing

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Appendix A

ECS Licensing

This chapter describes the process for installing Iwatsu Enterprise-CS system licenses. Licenses are a required component for ECS functionality and are controlled by the Iwatsu License Server. The Iwatsu License Server is a web service that generates license keys to enable ECS system features, devices, and determines the allowable system size and configuration. The License Server also enables third party licenses and provides a mechanism for reporting the number of licenses issued during a specified period of time.

- Valid licenses are required for system operation, hardware, function, and feature activation. The distributor is responsible for installing all license keys.
- Licenses are tied to a specific IX-CCSU Central Control Sub Unit serial number and contain a sequence number to guarantee uniqueness.
- Licenses may be transferred from one IX-CCSU to another IX-CCSU if hardware replacement is necessary. This procedure may only be authorized by Iwatsu Technical Support.

Licensing Requirements

- **For new systems:** An ECS Software Version 8.x license (part number: 000347) is required when the 30-day Open license is replaced with the Basic System Port License. The ECS Software Version 8.x Software license must be added at the same time as the Basic System Port License.
- **For existing systems upgrading to ECS version 8.x:** The ECS Software Version 8.x license (part number: 000347) and ECS system Software Version 8.0 are required to enable the ECS version 8.0 feature set. ECS systems with an Iwatsu Enterprise 3.0 license (000342), 4.0 license (000343), 5.0 license (000344), 6.0 license (000345), or a 7.0 license (000346) can install Software Version 8.0, but will not have access to the ECS Software Version 8.x feature set.

Warning!	An Iwatsu Enterprise-CS Software Version 8.x license (PN: 000347) must be installed by the Iwatsu dealer in all ECS systems running ECS Software Version 8.0 software. For new system sales, all ECS packages have been updated to include part number 000347. Version 8.x Software and a Version 3.0 License (PN: 000342), Version 4.0 License (PN: 000343), Version 5.0 License (PN: 000344), Version 6.0 License (PN: 000345), or a Version 7.0 (PN: 000346): You can upgrade your ECS system to Software Version 8.0 if you have an Iwatsu Enterprise-CS 3.0 - 7.0 license (000342 - 000346) but you will not have access to the ECS Version 8.0 feature set and the ECS will display a Minor 2 alarm until an ECS Software Version 8.x license (PN: 000347) is installed. Version 8.0 Software and the 30-Day Wide Open License: The ECS system will not operate after the expiration of the 30-day wide open license unless the Iwatsu Enterprise-CS Software Version 8.x license (PN: 000347) and the Basic System Port License are installed. When the ECS system running Software Version 8.0 is booted up with only the 30-day Wide Open license installed, the ECS will display a Minor 2 Alarm. The Minor 2 Alarm has NO effect on system operation (provided the 30-day Wide Open license has not expired). The Minor 2 Alarm will clear once the required Basic System Port license and the Version 8.x Software license are installed and the ECS system is reset.

License Types

The ECS requires license keys to enable system ports, features, and devices. Licenses are a required component for ECS functionality and are downloaded from the Iwatsu License Server. The Iwatsu License Server is a web service that generates license keys based on the options ordered through the Iwatsu Customer Service department to enable ECS system features and devices and also determines the allowable system size and configuration. The distributor is responsible for installing all license keys.

Licenses are tied to a specific IX-CCSU Central Control Sub Unit serial number and contain a sequence number to guarantee uniqueness.

License types include:

License Type	Description	Number of Ports, Devices, Features Enabled
30-Day Temporary License	The ECS ships with a 30-day temporary license which enables all ports, features, and devices in the system with the exception of SIP client licenses and IP Campus licenses. Within 30 days after system cutover the distributor is required to install permanent licenses to ensure continued operation of the ECS. If permanent licenses are not installed after the 30-day Temporary License expires a "Expired License" warning is displayed on the LCD of all telephones. WARNING: If the system is reset after the 30-day temporary license has expired, the ECS will not operate!	Allows the system to operate with all system features enabled, except SIP and IP Campus
Basic System Port License.	The function of the Basic System Port License is to enable the permanent license keys and to set the base number of ports enabled in the system. Other Port Add-on licenses, IP Client licenses, etc. cannot be installed until the basic license key is enabled. There are three types of Basic System Port Licenses. Based on the package ordered, the ECS will ship with either: 1. 96-Port Basic System Port License (PN 000317). Enables the first 96 system ports. Included with ECS-S PKG (PN 042040), ECS-L TDM PKG (PN 042050), ECS-L IP PKG (PN 042051), IP CAMPUS REMOTE PKG (PN 042058). NOTE: One 96-port basic license is included with the ECS IP Campus 576 Main & Remote PKG (PN 042057) and the ECS IP Campus Main & Remote 1024 PKG (PN 042056). This license is intended to be installed in the remote system to ensure system operation in local mode. 2. 576-Port Basic System Port License (PN 000325). This license enables 576 system ports. It may only be ordered as part of the ECS IP Campus 576 Main & Remote PKG (PN 042057). This license is installed in the IP Campus main system location. It enables ports in all IP campus locations. If the number of ports in all IP campus locations exceeds 576, Port Add-On Licenses are required. 3. 1024-Port Basic System Port License (PN 000326). This license enables 1024 system ports. It may only be ordered as part of the ECS IP Campus 1024 Main & Remote PKG (PN 042056). This license is installed in the IP Campus main system location. It enables ports in all IP campus locations. The ECS cannot grow beyond 1024 ports.	96 ports, 576 ports, or 1024 ports based on package ordered

License Type	Description	Number of Ports, Devices, Features Enabled
Port Add-On Licenses	Port Add-On Licenses are used to increase the port capacity of the ECS system. One of the Basic System Port Licenses described above must be installed in the system before a Port Add-On License can be installed. The following Port Add-On Licenses are available: 1. Port Add-On License I (PN 000318). Adds ports 97 through 192 to the system. Port Add-On License I may only be added to ECS systems that have a 96-Port Basic System Port License (PN 000317) installed. Only one Port Add-On License I may be uploaded to an ECS system. Port Add-On License I is included with ECS Expansion Package A (PN 040030). Port Add-On License I may not be added to ECS systems if the following license keys are installed: > 480-Port Add-On License (PN 000327). > 576-Port Basic System Port License (PN 000325) > 1024-Port Basic System Port License (PN 000326). 2. Port Add-On License II (PN 000319). Use Port Add-On License II to add the following 96-port increments to an ECS system: > Ports 193 through 288 > Ports 289 through 384 > Ports 385 through 480. CONDITIONS Port Add-On License II may only be added to ECS systems that have a 96-Port Basic System Port License (PN 000317) installed plus one Port Add-On License I (PN 000318). installed. EXCLUSIONS Port Add-On License II may not be added to ECS systems if the following license keys are installed: > 480-Port Add-On License (PN 000327). > 576-Port Basic System Port License (PN 000325) > 1024-Port Basic System Port License (PN 000326). Port Add-On License II is included with ECS Expansion Package B (PN 040031) and ECS Expansion Package C (PN 040032). NOTE: ECS Expansion shelf 5 requires Port Add-On License III (PN 000320). Please note when ordering ECS Expansion Package B that the expansion module is intended for shelf 5 and IVN customer service will automatically substitute Port Add-On License III for the Port Add-On License II normally included. 3. Port Add-On License III (PN 000320). Use Port Add-On License III to add the following 96-port increments to an ECS system: > Ports 481 through 576 > Ports 577 through 672 > Ports 673 through 768 > Ports 769 through 864 > Ports 865 through 960.	Port Add-On Licenses are available in 64-, 96-, or 480-port increments based on the type of upgrade being performed.

License Type	Description	Number of Ports, Devices, Features Enabled
Port Add-On Licenses Continued	CONDITIONS Port Add-On License III may only be added to ECS systems under the following conditions: > Systems that have a 96-Port Basic System Port License (PN 000317) installed plus one (1) Port Add-On License I (PN 000318) installed, plus three (3) Port Add-On License II (PN 000319) installed. > Systems that have a 96-Port Basic System Port License (PN 000317) installed plus one (1) 480 Port Add-On License installed (PN 000327). > Systems that have a 576-Port Basic System Port License (PN 000325) installed. EXCLUSIONS Port Add-On License III may not be added to ECS systems if the following license keys are installed: > 1024-Port Basic System Port License (PN 000326). 4. Port Add-On License IV (PN 000321). Use Port Add-On License IV to add the following 64-port increments to an ECS system: > Ports 961 through 1024 CONDITIONS Port Add-On License IV may only be added to ECS systems under the following conditions: > Systems that have a 96-Port Basic System Port License (PN 000317) installed plus one (1) Port Add-On License I (PN 000318) installed, plus three (3) Port Add-On License II (PN 000319) installed, plus five (5) Port Add-On License III (PN 000320) installed. > Systems that have a 96-Port Basic System Port License (PN 000317) installed plus one (1) 480 Port Add-On License installed (PN 000327), plus four (4) Port Add-On License III (PN 000320) installed. > Systems that have a 576-Port Basic System Port License (PN 000325) installed, plus four (4) Port Add-On License III (PN 000320) installed. EXCLUSIONS Port Add-On License IV may not be added to ECS systems if the following license keys are installed: > 1024-Port Basic System Port License (PN 000326). 5. 480-Port Add-On License (PN 000327). This license adds 480 ports to the ECS system. This part number may not be ordered individually. It is included as a component in the ECS APS UPGRADE PACKAGE (PN 042059). A 96-Port Basic System License or 576-Port Basic System License (PN 000325). CONDITIONS 480-Port Add-On License may only be added to ECS systems under the following condition: > Systems that have a 96-Port Basic System Port License (PN 000317) installed. EXCLUSIONS 480-Port Add-On License may not be added to ECS systems if the following license keys are installed: > 1024-Port Basic System Port License (PN 000326). > 576-Port Basic System Port License (PN 000325).	Port Add-On Licenses are available in 64-, 96-, or 480-port increments based on the type of upgrade being performed.

License Type	Description	Number of Ports, Devices, Features Enabled
Device License	An IP Client License enables Iwatsu IP telephones to operate. A SIP Client License is required to enable SIP Clients (Windows Messenger Clients) or SIP telephones to operate in the system. Device licenses may be ordered and installed in blocks of 1, 5, 10, 25, 50, or 100 clients.	1, 5, 10, 25, 50, or 100 clients based on type of license ordered.
Feature License	Feature Licenses enable features such as ACD Call Routing, IP Campus Main System, IP Campus Remote System, ACD Events Output, and SMDR Output. Note: A feature license is not required for ACD event output through the IX-HCIF card, or for SMDR output through the IX-EDVIF card.	Individually licensed
CSTA License	The CSTA (Computer Supported Telephony Application) License is required to utilize the IX-CCSU LAN 2 port for CSTA connectivity. (PN 000322)	.
Software License	An ECS 8.x Software License is required for upgrading an your system to ECS 8.x software. (PN 000347).	Software Upgrade to ECS 8.x Features

30-Day Temporary License

The 30-Day Temporary License is a free license that activates all stations, trunks (including IP resources), and optional features in the ECS. *IP Campus and SIP protocol stack-based stations and trunks are excluded*. The main purpose of the 30-Day Temporary License is to ensure system operation in case of emergency IX-CCSU replacement.

The 30-Day Temporary License comes installed from the factory and allows the system to operate with the above features for thirty days and is replaced with the Basic System Port License.

- IX-CCSU card is shipped with the 30-Day Temporary License
- License is for 30 days of actual usage. “Warehouse” time does not count
- Five days prior to license expiration, LCD display phones will display, “**TEMP License Expires on MM/DD**”
- After 30 days, LCD display phones will display, “**TEMP License Has Expired**”
- After 30 days a system minor “2” alarm is generated

Warning!

If the 30-Day Temporary License expires before the Basic System License is installed, the ECS system will continue to function for 911 purposes.

After license expiration date: If the user resets or defaults the system, the ECS will come up with zero (0) ports initialized. All trunks, stations, and miscellaneous ports WILL NOT function, not even for 911 access.

LAN1 and LAN2 ports on the IX-CCSU and Serial ports 1 and 2 on the IX-CCU continue to function so a valid Basic System License can be installed.

Basic System Port License

The Basic System Port License is the minimum required license for operating the ECS. No other license can be installed without first installing a Basic System Port License.

- Required before the 30-Day Temporary License has expired
- Enables base system and station feature set
- Sets the initial maximum system port size - 96 ports
- Does not expire
- System reset required after the Basic License installation

Three types of Basic System Port Licenses are available:

- 96-Port Basic System Port License
- 576-Port Basic System Port License
- 1024-Port Basic System Port License

Port Add-On Licenses

The total number of Port Add-On Licenses define the maximum size of the system (stations and trunks). All devices require a Port Add-On License (all station ports, all trunk ports, and all miscellaneous ports). LAN1 and LAN2 ports on the IX-CCSU and Serial ports 1 and 2 on the IX-CCU card do not require a Port Add-On License. All station ports include Omegatrek handsets, IP and SIP stations.

The number of operable resources can be increased by adding another Port Add-On License.

Port Add-On License limits and conditions:

Port Add-On License limits and conditions apply per ECS system

- Each Port Add-On License I, II, or III enables ninety-six (96) additional ports
- Port Add-On License IV enables sixty-four (64) additional ports
- Card reset required after a Port Add-On License installation

Part Number:	Port Add-On License:	License Limit:	License Condition:
000318	I	One Port License I	Requires the Basic System Port License(000317) to be installed (Ports 97-192)
000319	II	Three License II's	Requires the Port I Add-On License to be installed (Ports 193-480 - each unit adds 96 ports)
000320	III	Five License III's	Requires all three Port II Add-On Licenses to be installed (Ports 481-960 - each unit adds 96 ports)
000321	IV	One License IV	Requires all five Port III Add-On Licenses to be installed (Ports 961-1024 - this unit adds 64 ports)

IP Client Licenses

An **IP Client License** is required for all IP telephones (except IX-12IPKTD/-E2) and a **SIP Client License** is required for any SIP clients installed in the system (e.g., SIP telephones, and Windows Messenger clients). Without a valid Client License, the respective devices will not operate. Omegatrek stations are controlled by the port license and do not require a unique Client License.

If the number of Client devices installed in the system exceeds the number of Client Licenses installed in the system, devices with a higher physical port number will not operate.

The number of client registrations can increase by adding additional Client Licenses.

Client License limits and conditions:

- A valid port license is required for each Client (IP telephone or SIP). Port licenses are included with the Basic System Port License and the Port Add-On License.
- IP Station Client Licenses and SIP Client Licenses are available in blocks of one, five, ten, twenty-five, fifty, and one-hundred.
- System reset required after a Client License installation.

Feature Licenses

A Feature License activates an optional feature controlled by licensing include IP Campus, ACD, ACD event output, SMDR output, and CSTA.

The ACD Feature License is not dynamically recognized by the system and requires a system reset.

Feature License Types:

Part Number:	Feature License:	Description:	System Reset Required:
000311	ACD Feature	Activates ACD functions	YES
000312	IP Campus Main	IP Campus Main system license (See Note 1)	NO
000313	IP Campus Remote	IP Campus Remote system license: License required for each remote system (See Note 1)	NO
000314	ACD Event Output	Activates ACD events for output through the IX-CCU serial port or IX-CCSU Ethernet port (See Note 2)	NO
000315	SMDR Output	Activates SMDR outputs through the IX-CCU serial port or IX-CCSU Ethernet port (See Note 2)	NO
000322	CSTA	Activates CSTA connectivity through the IX-CCSU Ethernet ports.	NO

IP Campus Feature License Conditions:

Note: 1

All IP Campus Feature Licenses are installed in the Main IP Campus system.

The licensed IP Campus Remote quantity determines the Remote system numbers. If the system is licensed for two Remote IP Campus nodes, the Remote system numbers will be Remote systems 1 and 2.

IP Campus Feature License Conditions

- IP Campus Main and Remote Feature Licenses are only installed in the Main IP Campus system. No IP Campus Remote Feature License is installed in a Remote system
- Port Add-On Licenses installed in the Main IP Campus system must support all IP Campus resources in the IP Campus Network (Main and Remote systems)
- Port Add-On Licenses must be installed in the Remote systems to enable the Remote system to operate as a Local system

ACD Event and SMDR Feature License Conditions:

Note: 2

ACD Event with IX-HCIF or IX-EDVIF, no license necessary.

ACD Event with IX-CCU serial port, the license is required.

ACD Event with IX-CCSU Ethernet port, the license is required.

SMDR with IX-HCIF or IX-EDVIF, no license necessary.

SMDR with IX-CCU serial port, the license is required.

SMDR with IX-CCSU Ethernet port, the license is required.

Installing Licenses

There are three ways to generate a license key:

1. From the Iwatsu Programmer connected to the internet
2. From the Iwatsu Distributor Website:

   http://www.iwatsuvoicenetworks.com/Distributors

   - Login using your Distributor User ID and Password
   - Select: Licensing



3. Contact Iwatsu Field Support

Three items needed to create license keys:

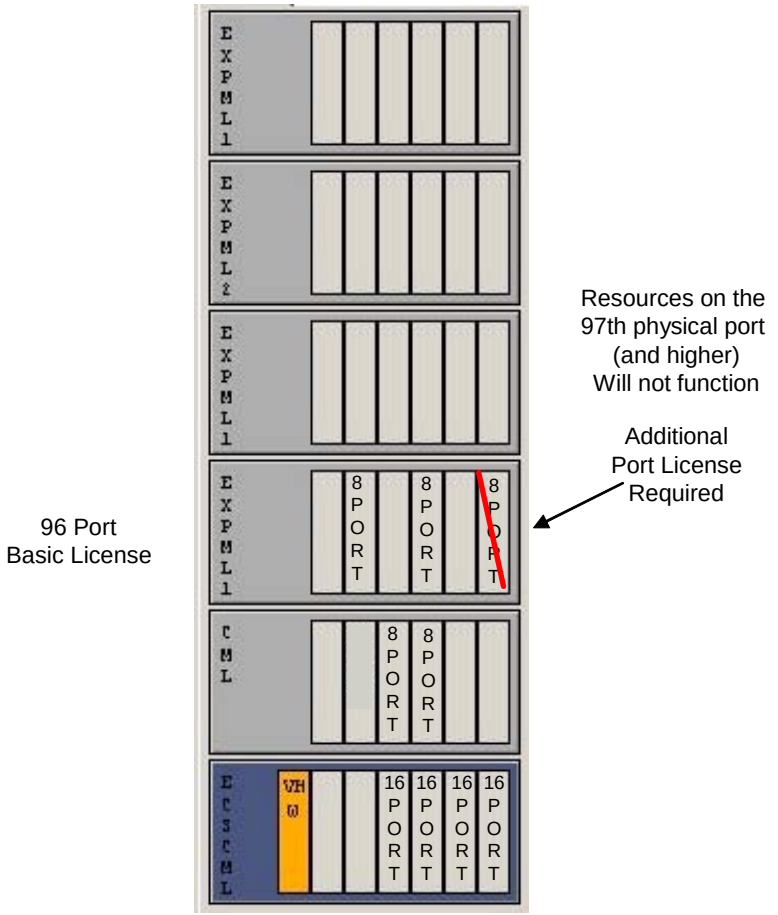
1. Distributor Number (Account Number)
2. Invoice Number or Order Number
3. IX-CCSU Central Control Sub Unit Serial Number

License Distribution within the ECS

The ECS system distributes license keys based on physical port number.

For example: When the Basic System Port License key is installed in the system, 96 physical ports are enabled (lowest physical port number to the highest physical port number). The 97th port and greater are not enabled and require a Port Add-On License to be installed (See the graphic example below).

- The first 96 physical ports are enabled
  - empty/unassigned physical ports are not counted
- All Virtual resources in the system must also be counted
  - For example: A VIPSUB card created for an IP telephone is associated with a physical port number



Important !

If a license limit is exceeded by resources installed in the ECS, those resources that exceed the license limit (with the highest physical port numbers) will be disabled.

For example: If the Basic or Port License limit is exceeded when a new card/ port is installed/created in the ECS with a lower physical port number than existing (enabled) ports, those ports with a highest physical port numbers exceeding the license limit are disabled until additional ports are licensed and the card(s) affected are reset.

Iwatsu Programmer Licensing

This procedure will enable you to generate license key(s) from the Iwatsu License Server and store them on your PC or laptop and install the keys onto the ECS.

Using the Iwatsu Programmer, connected to the internet, follow the steps listed below to generate and install licenses on an ECS system.

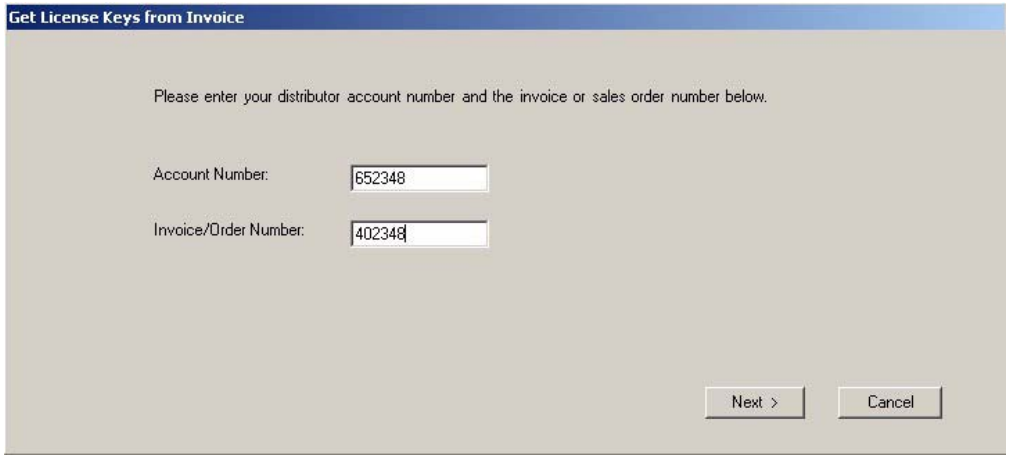
License Keys from Invoice

To generate a License Key from an Invoice or Sales Order Number:

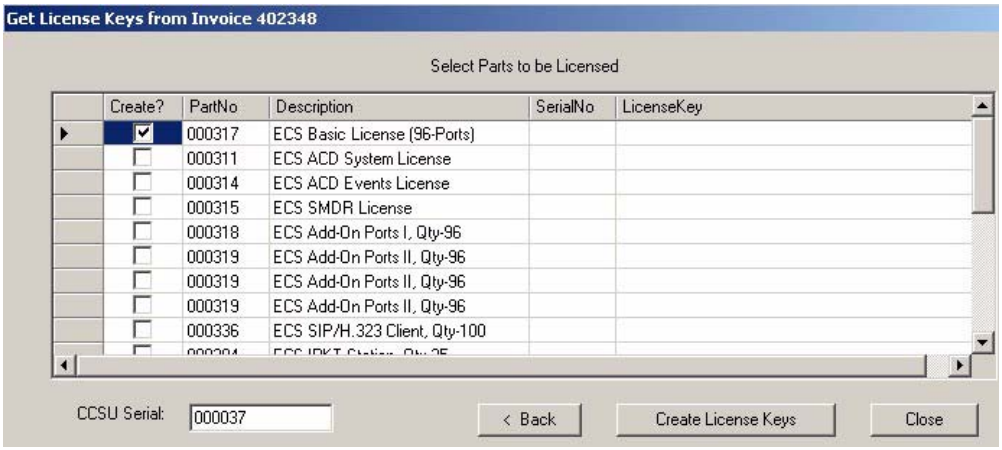
1. Launch the Iwatsu Programmer
2. Select: **Tools > Iwatsu Licensing > Get License Keys from Invoice...**



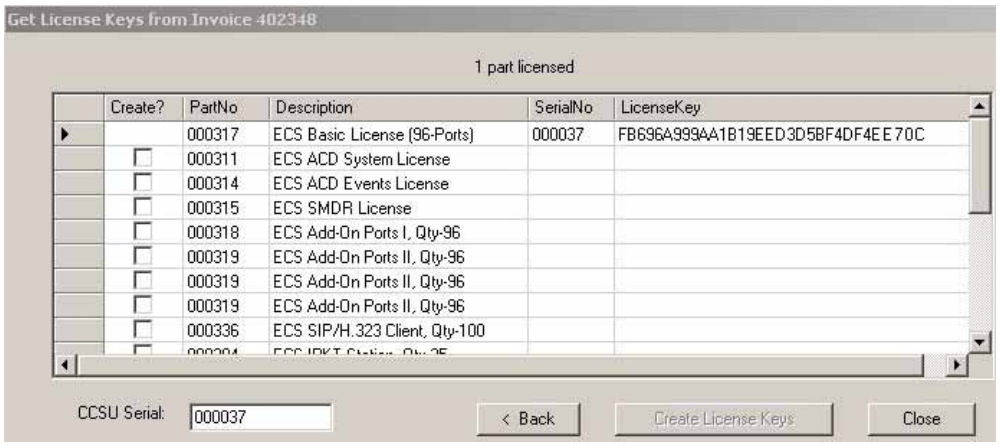
3. Enter your Distributor **Account Number** and **Invoice/Order Number**
   - Select: **Next >**



4. License Part Numbers associated with the Distributor **Account Number** and **Invoice/Order Number** will appear in the screen below
5. Select Parts to be licensed for a specific IX-CCSU Serial Number
   - Enter IX-CCSU Serial number if not currently connected to the ECS
   - If connected to the ECS, the IX-CCSU Serial number will appear



6. Select: **Create License Keys** button
   - **Create License Keys** button will become active once a selection is made
   - A License Key is generated and appears next to the Part(s) selected
   - The IX-CCSU Serial Number also appears next to the License Key



7. The License Key is now created and ready to be installed on the ECS
8. Proceed to **Install License Keys on the ECS** on **page 21**

Distributor Website Licensing

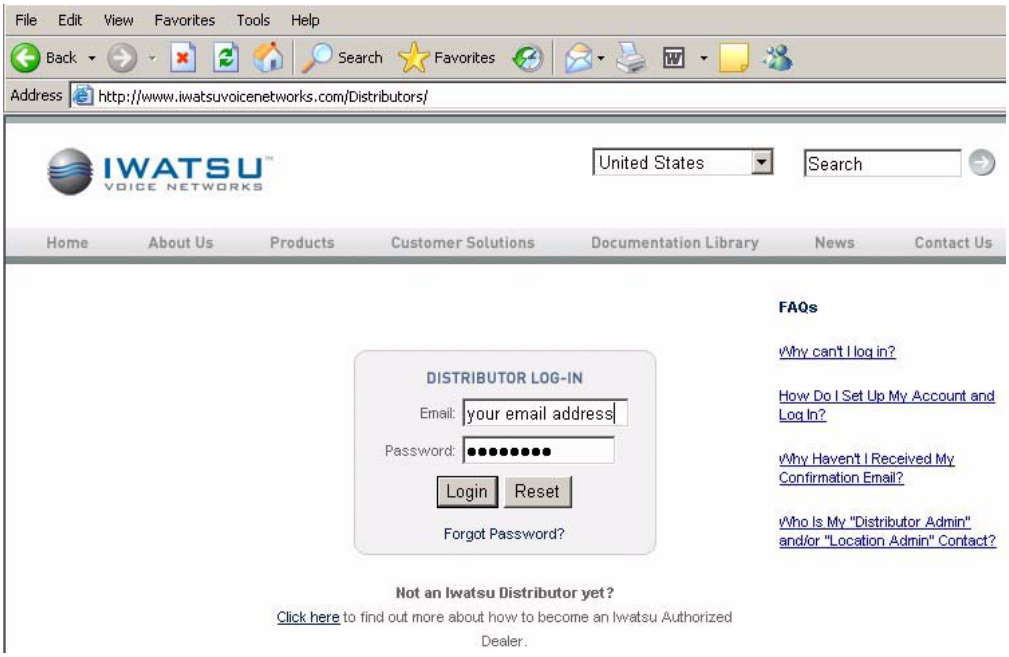
This procedure will enable you to generate license key(s) from the Iwatsu License Server and store them on your PC or laptop and install the keys onto the ECS.

Using the Iwatsu Distributor Website, follow the steps listed below to generate and install licenses on an ECS system.

License Keys from Distributor Website

To generate a License Key from the Iwatsu Distributor Website:

1. Go to http://www.iwatsuvoicenetworks.com/Distributors
2. Enter **Email** address and **Password** to Log-in



3. Select: **Login**

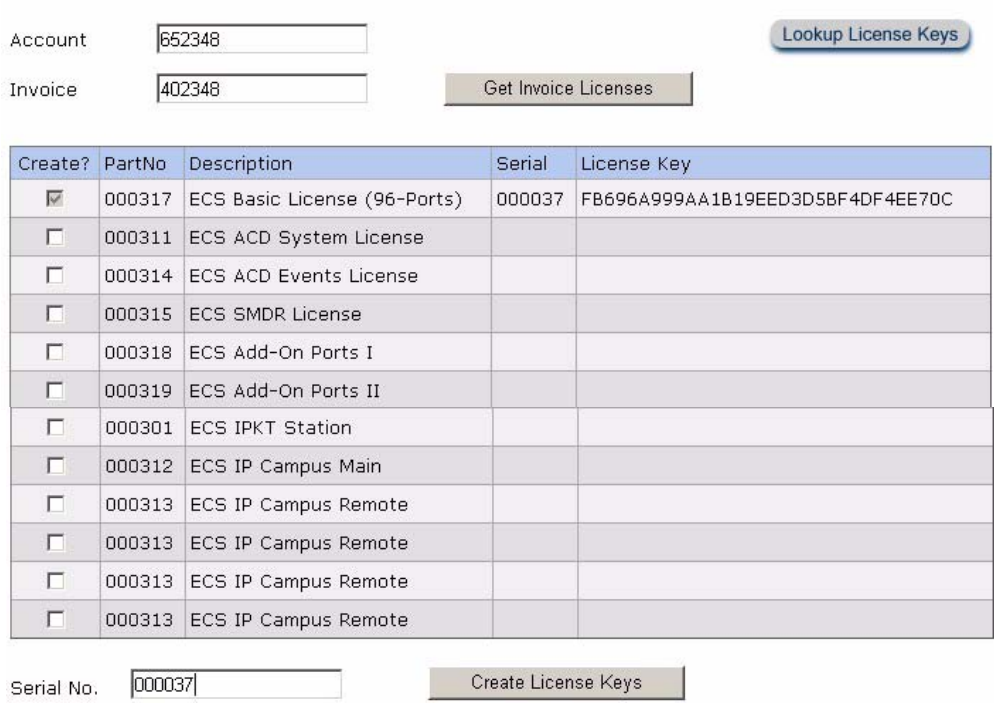
4. At the Distributor Website, Select: **Licensing**



5. Enter Distributor **Account** number and **Invoice** number
   - Select: **Get Invoice Licenses**



6. Select License Part Numbers to Create License Keys
   - All licensable Part Numbers on the invoice will appear
   - License Keys that are already created appear with a check mark
7. Enter the associated IX-CCSU **Serial No.** for the license(s)
8. Select: **Create License Keys** button
   - **Create License Keys** button will become active once a selection is made
   - A License Key is generated and appears next to the Part(s) selected
   - The IX-CCSU Serial Number also appears next to the License Key



9. The License Key is now created and ready to be installed on the ECS
10. Proceed to **Install License Keys on the ECS** on **page 21.**

Import and Export License Keys

The Import and Export License Keys feature enables the use to export (save) license keys to a disk to be imported (loaded) on another PC. For example: License keys generated and saved within the Iwatsu Programmer on one PC in the office can be exported onto a floppy disk and given to a field technician to import into the Iwatsu Programmer running on his/her laptop to carry to the job site.

Important! Valid License Keys must be generated before this procedure can be performed. If no License Keys exist on the PC, the export function will not work.

Export License Keys

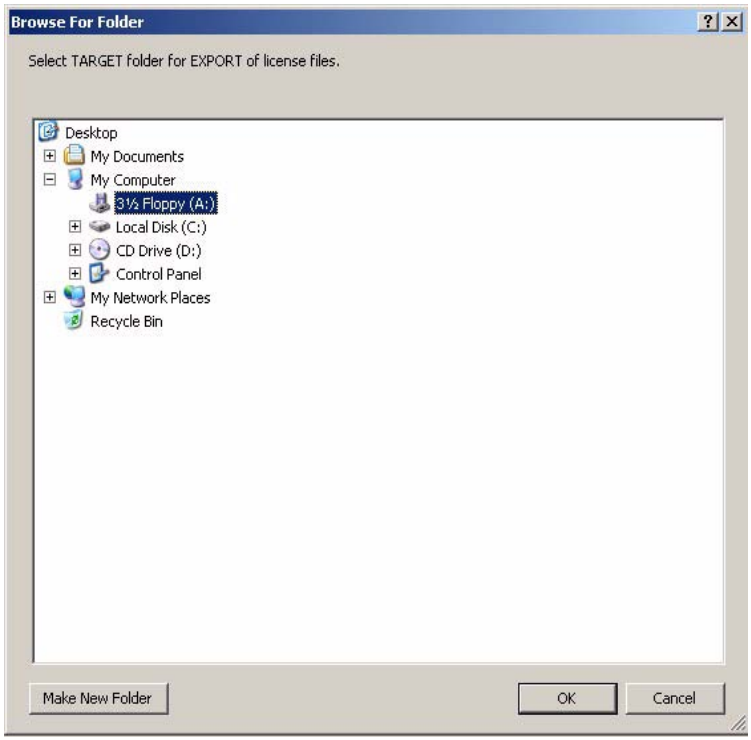
To export License Keys from the Iwatsu Programmer on a PC to a disk or folder, follow the steps listed below:

1. Launch the Iwatsu Programmer
2. Select: **Tools > Iwatsu Licensing > Export Licenses...**

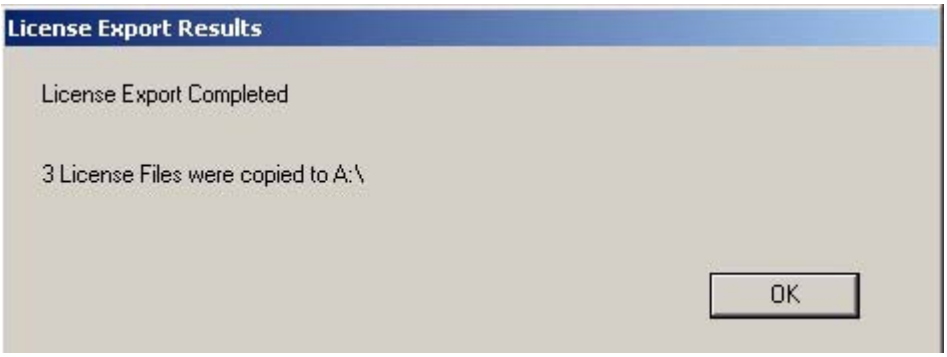


3. Select a **TARGET** folder location to **EXPORT** the license files. For this example, a floppy disk on the A: drive was selected.

4. Select: **OK**



5. The license keys will be exported to the location selected and the results shown in the window below.



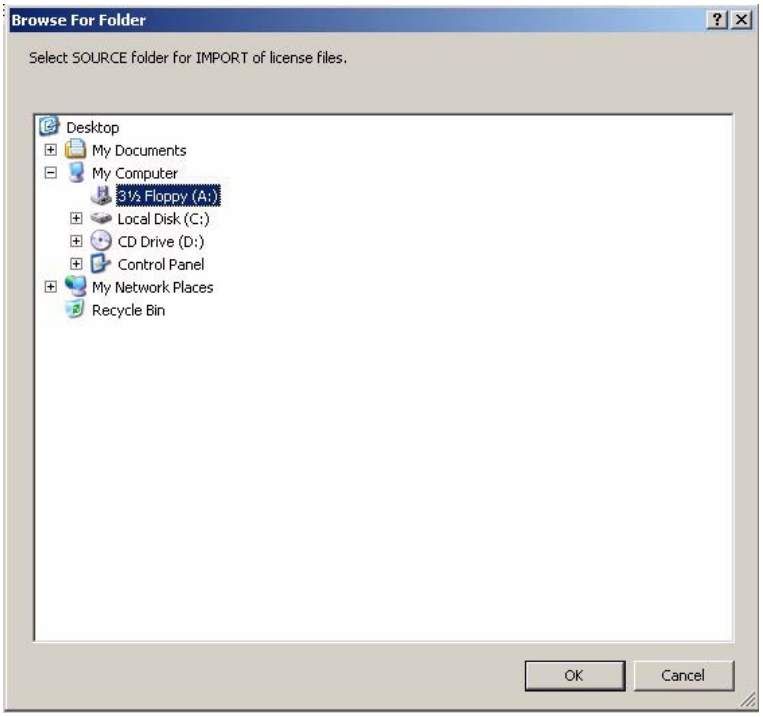
Import License Keys

To import License Keys from a disk or folder into the Iwatsu Programmer running on a PC/Laptop, follow the steps listed below:

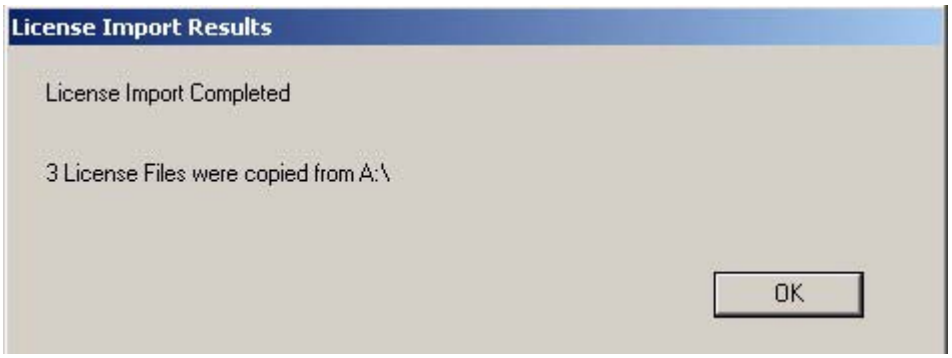
1. Launch the Iwatsu Programmer
2. Select: **Tools > Iwatsu Licensing > Import Licenses...**



3. Select the **SOURCE** folder location to **IMPORT** the license files. For this example, license files were saved on a floppy disk.
4. Select: **OK**



5. The license keys will be imported into the Iwatsu Programmer from the source location specified above. The results are shown in the window below.



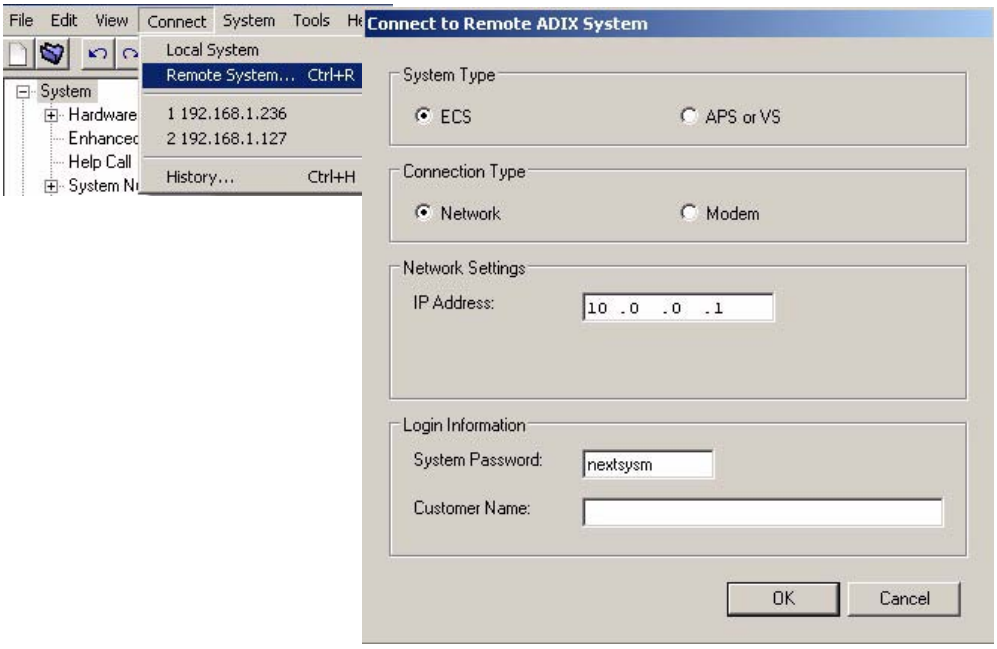
6. Once the license keys have been imported, proceed to **Install License Keys on the ECS** on **page 21**.

Note:	For Export or Import function, if the source license file has an older time stamp than an existing destination file, the user is prompted with a Yes / No / Yes to All / Cancel dialog box.

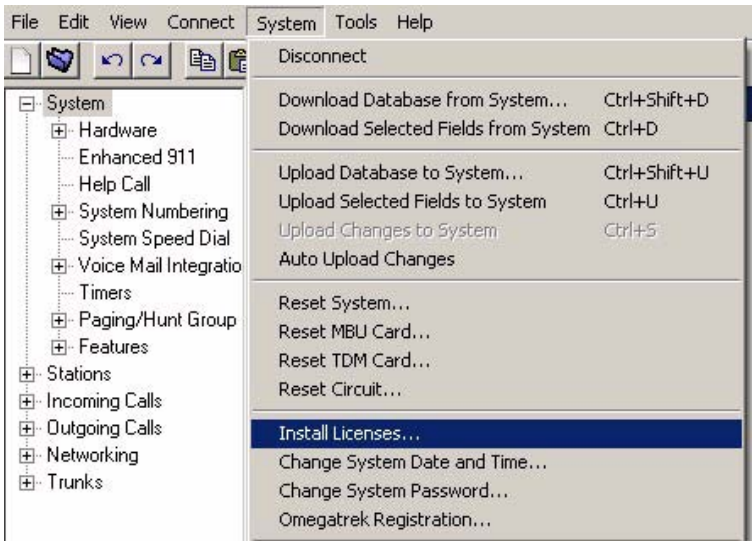
Install License Keys on the ECS

You must connect to the ECS system to install License Keys.

1. If currently connected to the ECS, **skip to Step 4**
2. From the Iwatsu Programmer, Select: **Connect > Remote System**
3. Enter the **IP Address** and **System Password** and Select: **OK**

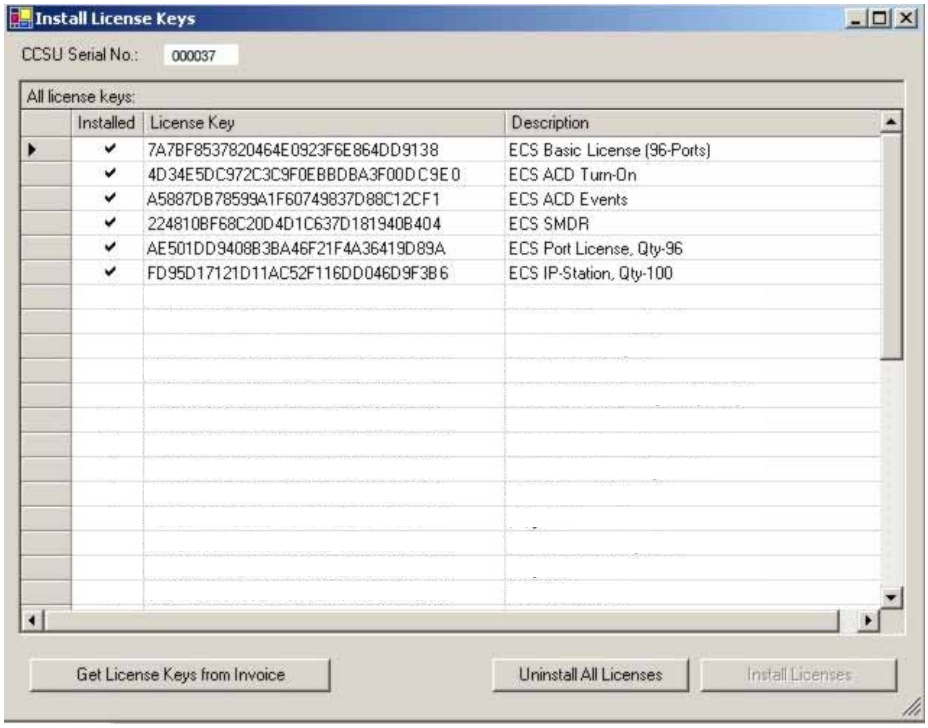


4. When connected, Select: **System > Install Licenses...**



Licenses already installed on the system will appear with a check mark next to the License Key.

5. Select: **Install Licenses**.
   - Once the License Key(s) are installed successfully, a check mark will appear next to the License Key
   - If an error occurs while attempting to install a license key, an error dialog box will appear



6. Proceed to **Reset Procedure** on the following page

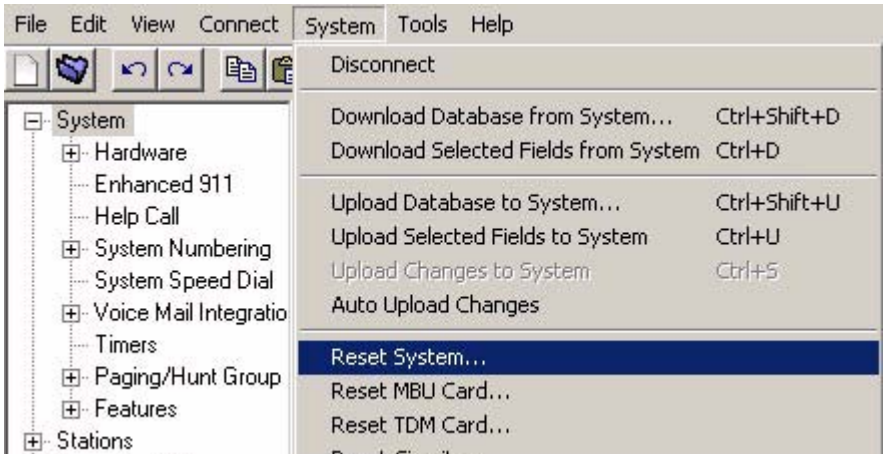
Reset Procedure

Refer to the table below for licenses that require a reset after installation:

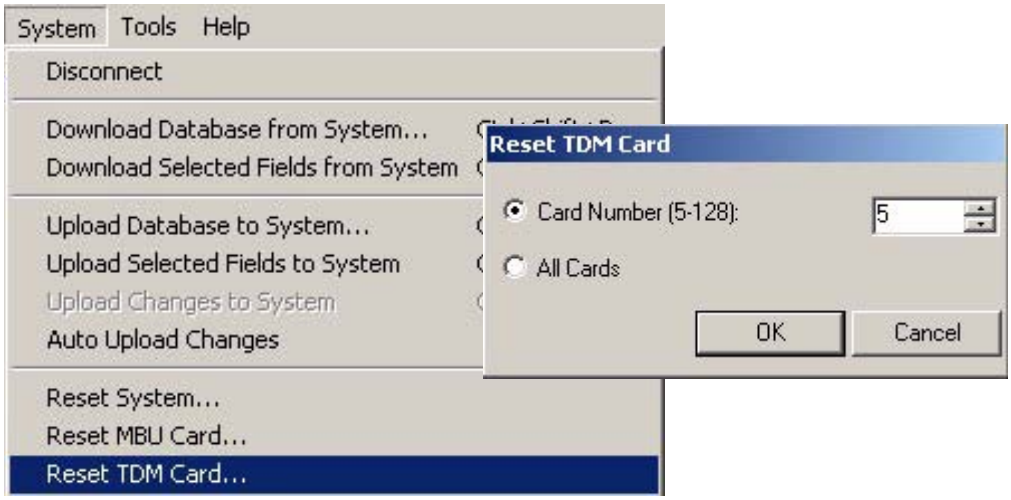
If a reset is not required, license installation is complete.

License:	System Reset Required:
Basic System Port License	System Level Reset
Port Add-On License	Card Level Reset
IP Client License (IP Telephone and SIP)	System Level Reset
ACD Feature	System Level Reset
IP Campus Main	No Reset Required
IP Campus Remote	No Reset Required
ACD Event Output	No Reset Required
SMDR Output	No Reset Required
IP Softphone	No Reset Required
CSTA	No Reset Required

1. For licenses that require a system level reset:
   - Select: **System > Reset System** from the Iwatsu Programmer to reset the system



2. For the Port License:
   - Select: **System > Reset TDM Card**
   - Enter the **Card Number** to be reset
   - Select: **OK**



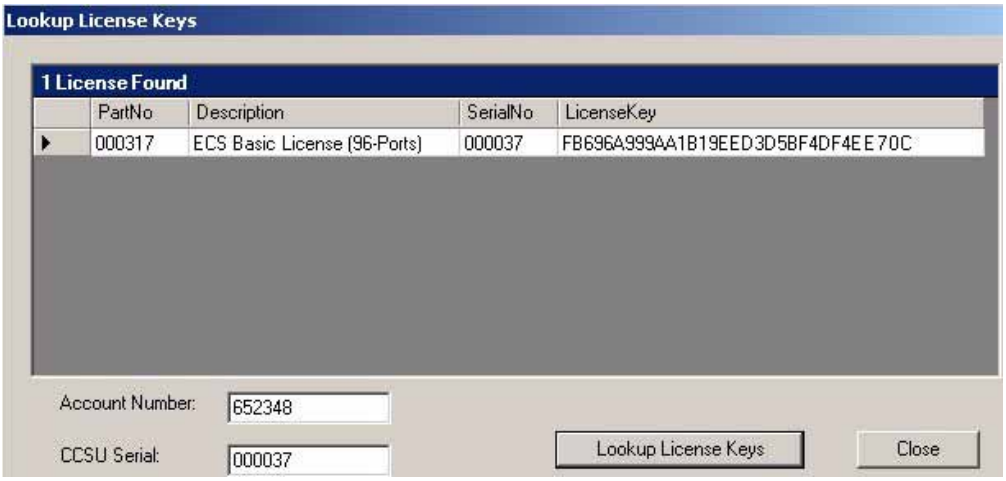
License Key Lookup

The Lookup License Keys option is used to determine what license have been created for a specific IX-CCSU.

1. Launch the Iwatsu Programmer and connect to the internet
2. Select: **Tools > Iwatsu Licensing > Lookup License Keys...**



3. Enter Distributor **Account Number** and IX-**CCSU Serial** number
4. Select: **Lookup License Keys**
   - Lookup License Keys button will not be selectable until Account number and CCSU Serial number are entered.
   - All license keys that have been generated for a specific IX-CCSU are shown. This does not include licensable part numbers associated with an invoice/ order number for an IX-CCSU.
   - Licenses matching the IX-CCSU serial number will populate the window. If no licenses match the IX-CCSU serial number, No Licenses Found will appear in the window header.



License Expiration

Five days before the 30-Day Temporary license expires, all display phones will display "**TEMP License Expires on MM/DD**". The message indicates the exact date that the license will expire and a minor "2" alarm will appear on the IX-PWSE Power Supply, and license expiration data will be generated in the Error Log. When the license expires, all display phones will display, "**TEMP License Has Expired**".



Warning!

If the 30-Day Temporary License expires before the Basic System Port License is installed, the ECS system will continue to function for 911 purposes.

After license expiration date: If the user resets or defaults the system, the ECS will come up with zero (0) ports initialized. All trunks, stations, and miscellaneous ports WILL NOT function, Not Even for 911 Access.

LAN1 and LAN2 ports on the IX-CCSU and Serial ports 1 and 2 on the IX-CCU continue to function so a valid Basic License can be installed.

License Alarm Indications

The table lists the license alarm indications that will appear on the IX-PWSE or IX-PWSES Power Supply Alarm Panel and Status Indicator:

License:	Alarm LED Indicator:	Status Indicator:	Description:
License Error	MIN (Minor Alarm)	2	A non-decodable license was entered. The license notification to the IP block has failed or a license for a different system was entered (Wrong IX-CCSU number was entered).
Basic License	MIN (Minor Alarm)	2	No license input, license expiration alert, or the license expiration of the Basic license or the Temporary license has been detected during initialization or operation.

No Valid License Indication

Telephones that do not have a valid system license will display the following characteristics:

- Normal display (Date, Time, System Name)
- No dial tone from the handset
- Only dial tone from the speaker
- Dial tone cannot be broken
- “Feature 99” command does not change the display



Display is Normal
•Only Dial Tone from Speaker
•Dial Tone Cannot be Broken

IWATSU enterprise CS

Technical Manual

8th Edition

Volume 3

IWATSU VOICE NETWORKS

Iwatsu America, Inc. has undertaken efforts to make certain that the information presented in this manual is accurate at the time of release. The information is provided "AS IS" without warranties of any kind, either expressed or implied, including but not limited to warranties of merchantability, fitness for a particular purpose or non-infringement, nor does Iwatsu America, Inc. warrant that the information is error free. The information is subject to change without notice.

SPECIAL NOTICES

If the System is equipped with Telephony over Transmission Control Protocol/ Internet Protocol (TCP/IP) and Session Initiation Protocol (SIP) wired and/or wireless facilities, the user may experience certain compromises in performance, reliability and security due to transmission facilities QoS and bandwidth problems, even when the Equipment performs to the specification.

USER(S) ACKNOWLEDGES THAT THEY ARE AWARE OF THESE RISKS AND THAT THEY HAVE DETERMINED THESE RISKS ARE ACCEPTABLE FOR THIER APPLICATION OF THE EQUIPMENT. USER(S) ALSO ACKNOWLEDGE(S) THAT THEY ARE SOLELY RESPONSIBLE FOR ENSURING THAT THEIR NETWORKS AND TRANSMISSION FACILITIES QOS AND BANDWIDTH ARE ADEQUATE FOR THE PURPOSE INTENDED AND THEIR NETWORKS AND TRANSMISSION FACILITIES ARE ADEQUATELY SECURED AGAINST UNAUTHORIZED INTRUSION.

Toll Restriction

The Toll Restriction feature of the Iwatsu Enterprise-CS system is one method of preventing fraud (i.e., the making of unauthorized toll calls) by users of the system. The chance of fraud may be reduced but may not be eliminated. Only a complete program which includes but may not be limited to inspection of telephone call billing, use of call detail recorders and other such call monitoring devices, systematic monitoring of all telephone call activity, and implementing corrective measures can minimize the possibility of fraud. Iwatsu Voice Networks and/or its Third Party manufacturers/suppliers hereby disclaim any express or implied warranty that its equipment is technically immune from or prevents unlawful and/or unauthorized utilization that may result in unauthorized toll calls. Iwatsu Voice Networks hereby warns Distributor that such is possible.

Direct Inward System Access (DISA)

The Direct Inward System Access (DISA) feature, with the ability to allow outside parties to connect to the internal services of the Iwatsu Enterprise-CS, may provide a means for fraudulent calls to occur. Only a complete program which includes, but may not be limited to, inspection of telephone call billing, use of call detail recorders and other such call monitor devices, systematic monitoring of all telephone call activity, frequently changing DISA authorization codes, and implementing corrective measures can minimize the possibility of fraud. Iwatsu Voice Networks and/or its Third Party manufacturers/suppliers hereby disclaim any express or implied warranty that its equipment is technically immune from or prevents unlawful and/or unauthorized utilization that may result in unauthorized calls. Iwatsu Voice Networks hereby warns Distributor that such is possible.

Use Of Call Recorder, Station Monitor, Station Coaching and Voice Mail Record

In certain states it is illegal to intercept, listen to, and/or record telephone calls. In certain states and under certain circumstances it is illegal to intercept for the purposes of listening in and/or recording telephone calls. Because such activity is not illegal in all jurisdictions and may be permitted in training and/or monitoring of personnel, this telephone system can be programmed to permit interception, listening to, and/or recording with or without warning to those on the line. Before utilizing the system for such purposes, you are advised to confirm the laws of the jurisdiction in which you utilize such feature(s). Iwatsu Voice Networks and/or its Third Party manufacturers/suppliers disclaim any responsibility for improper use or illegal of the Call Record, Station Monitor, Station Coaching and VM Record Feature and disclaim any obligations to render legal advice concerning this feature.

Support Of Enhanced 911

In order to comply with regulations for support of Enhanced 911 service that may be in effect in the local jurisdiction that the Iwatsu Enterprise-CS system is installed, the Iwatsu Enterprise-CS system provides for Enhanced E911 support by either using optional third party equipment, or configuring the system to use assigned telephone numbers (ANI) for defined areas, or a station or group of stations. Distributor is hereby warned to check local laws as to Enhanced 911 support requirements, and that the configuration of the Iwatsu Enterprise-CS system not contravene any such statutes, and to properly warn the End User (Purchaser) of the Iwatsu Enterprise-CS system of the possible legal implication of the use of this feature.

Electrical Safety Advisory

It is recommended that an AC surge arrestor of the form and capacity suitable for the model of the Iwatsu Enterprise-CS system purchased be installed in the AC outlet to which the system is connected.

Music-On-Hold

In accordance with U.S. Copyright Law, a license may be required from the American Society of Composers, Authors and Publishers or other similar organizations, if radio or TV broadcasts are transmitted through the music-on-hold feature of the telecommunication system. Iwatsu America Inc. and/or its Third Party manufacturers/suppliers hereby disclaim any liability arising out unlawful and/or unauthorized utilization use of the music-on-hold feature.

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Note: The UL model name for the Iwatsu Enterprise-CS is ADIX-ECS.

This manual was written for systems with Iwatsu Enterprise-CS Version 8.x software. In some cases, operation of available features may differ from that listed in this manual, depending on the hardware, software and programmed functions in your Iwatsu Enterprise-CS system.

Iwatsu Voice Networks shall not be held responsible for any representation made regarding this information by any individual.

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Part Number: **108614c**

FCC Registration and Requirements

Instructions to the User:

The Iwatsu Enterprise-CS line of digital telecommunications systems has been registered and approved by the Federal Communications Commission (FCC) for direct connection to your local telephone service. In accordance with FCC rules and regulations regarding telephone equipment, Iwatsu is required to make you aware of your rights and obligations regarding the use of this equipment. In order that we may fulfill our obligations, please take a moment to carefully read the rules and regulations contained herein that apply to you.

FCC Rules and Regulations

1. Notification to the Local Telephone Company

The local Telephone Company may request specific information about the Iwatsu Enterprise-CS system before connection can be made to the local Telephone Company lines. When requested by the Telephone Company, the following information should be provided:

- The FCC Registration Number for all equipment connected to an individual line.
- The largest Ringer Equivalence Number (REN) for each line.
- Information required for compatible operation of the equipment with the Telephone Company communication facilities.

The FCC Registration Number and Ringer Equivalence Number (REN) is printed on the equipment label located on the common equipment cabinet of the system (IX-CME). The largest Ringer Equivalence Number is the sum of the Ringer Equivalence Number (REN) of each FCC registered device that is connected to the same line. The maximum Ringer Equivalence Number that can normally be used without causing faulty operation is 5.0. Check with your local Telephone Company to determine what is the maximum Ringer Equivalence Number for the telephone lines you are using. In order to connect registered terminal equipment to the Telephone Company lines, the terminal equipment must utilize an FCC “standard means of connection”, often referred to as a “registered jack”. The type of jack utilized on the Iwatsu Enterprise-CS system is identified by a USOC code number. Different code numbers are utilized for the various types of services provided by the Telephone Company that the systems use. When requesting new telephone service, the Telephone Company must be informed of the code number for each type of service. The Iwatsu Enterprise-CS system can be configured as either a Private Branch Exchange (PBX) - Fully Protected, Key Telephone System - Fully Protected or a Multi-Function (Hybrid) System - Fully Protected.

The Iwatsu Enterprise-CS systems FCC - Part 68 registered as a fully protected telephone system. The following information must be provided to the local telephone operating company when requesting service terminating to the Iwatsu Enterprise-CS system:

LOOP START TRUNK
Ringer Equivalence No 0.5B
Service Order Code 9.0F
Facility Interface Code 02LS2
Registered Connection RJ21X

GROUND START TRUNK†
Ringer Equivalence No 1.0B
Service Order Code 9.0F
Facility Interface Code 02GS2
Registered Connection RJ21X

CALLER ID TRUNK
Ringer Equivalence No 0.5B
Service Order Code 9.0F
Facility Interface Code 02LS2
Registered Connection RJ21X, RJ11*

E&M TIE LINE CARD
TYPE 1
Facility Interface Codes TL31M
Service Order Code 9.0F
Registered Connection RJ2GX
TYPE 2
Facility Interface Codes TL32M
Service Order Code 9.0F
Registered Connection RJ2HX

T-1 SERVICE (SF)
Facility Interface Code 04DU9-BN
Service order Code 6.0P
Registered Connection RJ48C

T-1 SERVICE (ESF)
Facility Interface Code 04DU9-1KN
Service order Code 6.0P
Registered Connection RJ48C

DID TRUNK*
Facility Interface Codes 02RV2-T
Ringer Equivalence No. 0.0B
Service order Code 9.0F
Registered Connection RJ21X

OPS LINE CARD
Facility Interface Codes. OL13C
Service Order Code 9.0F
Registered Connection RJ21X

ISDN BRI CARD
Facility Interface Codes. 02IS5
Registered Connection RJ49C#

ISDN PRI CARD
Facility Interface Codes. 04DU9-1KN
Registered Connection RJ49C or RJ48X

NOTE:

* Check with local utility or service provider for type of connection allowed.

† Not available for US:BD6KF10BIWATSU1 registration applications.

NT1 required.

2. Restrictions on the Use of Registered Telephone Equipment

FCC rules governing customer owned telephone equipment specifically exclude the use of the ECS system on public coin telephone (pay phone) lines. The connection to party line service is subject to local state tariffs. Contact your state public utility, public service commission or corporate commission for information on this.

3. Incidence of Harm

If for some reason the ECS system causes harm to the Telephone Company network, the Telephone Company will notify you in advance that temporary discontinuance of service may be required. In the event advance notice is not practical, the Telephone Company will notify you of the interruption of service as soon as possible. Also, the Telephone Company will advise you of your right to file a complaint with the FCC if you believe it is necessary. The Telephone Company may also make changes in its facilities, operations or procedures that could affect the operation of your system. If this occurs, the Telephone Company will provide advance notice in order for you to make the necessary modifications to maintain uninterrupted service.

4. Hearing-Aid Compatibility

The ECS system, utilizing telephone station equipment manufactured by Iwatsu, meets all FCC requirements for hearing-aid compatibility.

5. Instruction Regarding the Repair and Refurbishment of Registered Equipment

Only the manufacturer or its authorized agents are permitted under FCC rules to make other than routine repairs to registered telephone equipment. Repairs made to registered telephone equipment by unauthorized entities is a violation of local state tariffs and will void equipment warranties. Routine repairs are classified typically as lamp replacement, fuse replacement, directory label replacement, etc. All other repairs to your ECS telephone equipment should be performed by Iwatsu Voice Networks. When trouble is experienced on any telephone line that your system is connected to and the trouble is causing harm to the network, the Telephone Company may request that you remove the equipment from the telephone line(s) until the problem has been corrected. To contact Iwatsu Voice Networks, for information regarding the repair of your equipment, write or call:

(972) 929-0242
IWATSU Voice Networks
8001 Jetstar Drive
Irving, TX 75063
Attn: Repair Department

6. Use of Other FCC Registered Equipment

Aside from the Ringer Equivalence reporting as explained (above), use of other FCC equipment may provide for specific limitations depending upon the type of equipment. Check the instructions included with such equipment to determine what the limitations are, if any, on the use of such equipment.

7. Automatic Dialers

The ECS system contains features that provide for the automatic dialing of outgoing calls. When programming Emergency Numbers and/or making test calls to Emergency Numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities during off-peak hours such as early morning or late evening.

8. Toll Restriction and Optimized Routing Features

The ECS system provides both Toll Restriction and Optimized Routing features that may be programmed in your system. The software or programming contained in the ECS system may need to be upgraded to allow user access to the network in order to recognize newly established network area codes and exchange codes as they are placed in service. Failure to upgrade the programming or software (if required) to recognize the new codes as they are established will restrict the user from gaining access to the network and to these codes.

9. Direct-Inward-Dialing (DID) Requirements

The ECS system meets all FCC requirements for Direct-Inward-Dialing (DID) service by providing Answer Supervision on incoming DID calls in accordance with FCC regulations. Allowing this equipment to be operated in such a manner as to not provide proper Answer Supervision is a violation of Part 68 of the FCC's rules. The equipment returns proper Answer Supervision to the local telephone exchange when DID calls are: answered by the called station, answered by the attendant, routed to a recorded announcement that can be administered by the system user, routed to a dial prompt (instruction).

10. Radio Frequency Emissions

The ECS system is registered with the FCC as a Class A RF Device, pursuant to Part 15 of the FCC rules, that may radiate radio frequency emissions. This equipment complies with the limits for a Class A device. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. In the event that the system causes interference with another device, steps must be taken to reduce the interference, including possible removal of the equipment. While the probability of such an event is remote, consult Iwatsu Voice Networks for further assistance if this occurs.

11. Equal Access Requirements

This system is capable of providing users access to interstate providers of operator services through the use of equal access codes. Failure to provide equal access capabilities is a violation of the Telephone Operator Consumer Services Improvement Act of 1990 and Part 68 of the FCC rules.

IWATSU VOICE NETWORKS

IWATSU enterprise CS

Technical Manual

Section 6

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Class 01

System Configuration

System Configuration is used to define the basic structure of the Iwatsu Enterprise-CS (ECS). The System Configuration is a core from which the database is built upon.

This section of the documentation departs from the traditional Class/Item structure. Instead, this section is based on the Hardware category under System. Where possible, the Class/Item nomenclature will preface the titles. This is for reference only.

Iwatsu Voice Networks suggests using the category view of the Iwatsu Programmer. This intuitive view combines and places often used Items on a single screen. The System Configuration Class is encompassed in the Hardware category. The following graphic shows the hierarchy.



Note:	The ECS must be reset to effect any changes made in System Configuration: Hardware. Changing individual port configuration requires a card reset in a running system and does not require a system wide reset.

System

System identifies the maximum number of system ports. This parameter cannot be edited and is for display purposes only. At default, all 1024 ports are activated. The number of ports displayed are reflected in the port liscence installed.

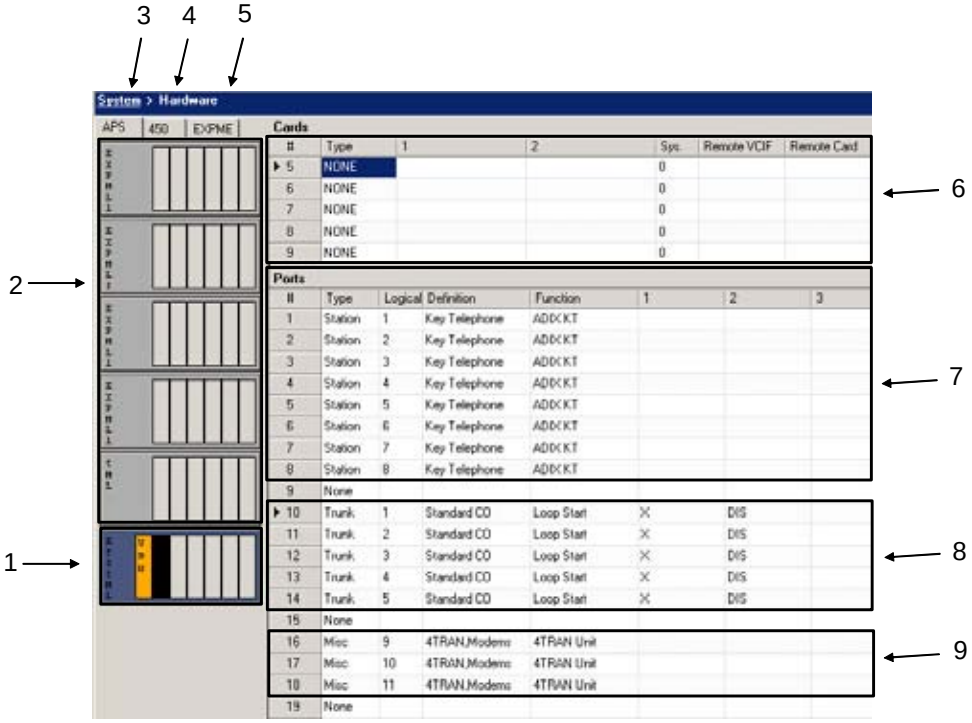
System Hardware

Overview

The **System Hardware** category is the location where all database programming begins. The category combines many different Items used in Class 01 System Configuration.

This section will explain the System Hardware category on a macro-level. The detailed components that make up the System Hardware category are explained in detail as their Item.

The following graphic displays the System Hardware category screen. This must be used for illustration purposes and in no way reflects proper database programming procedure.

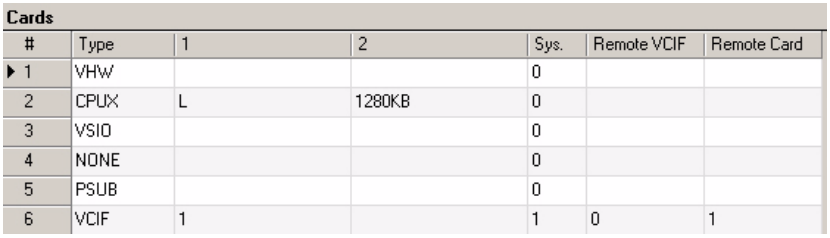


1. Graphical display of the Iwatsu ECS IX-CME cabinet. When a specific card slot is clicked, the card number and relevant ports display on the screen.
2. Graphical display of the ECS Expansion cabinets (future release) . When a specific card slot is clicked, the card number and relevant ports display on the screen.
3. The ADIX APS tab. Select this tab if an ADIX APS will be used for expansion purposes.
4. The ADIX 450 tab. Select this tab if an ADIX 450 will be used for expansion purposes.
5. The EXPME tab. Select this tab if the ECS expansion cabinets (future release) will be used for expansion purposes.
6. The display of the cards associated with the specific slot selected. This view greatly eases programming by eliminating timely searches. All the cards are also available in a single view. Though a more tedious, the Cards category can be used.
7. The Port associated with the selected card. The information displayed in this section varies based on the type of card installed in the system. In this example, a station card in installed.
8. The Port associated with the selected card. The information displayed in this section varies based on the type of card installed in the system. In this example, a trunk card in installed.
9. The Port associated with the selected card. The information displayed in this section varies based on the type of card installed in the system. In this example, a misc card in installed.

Cards

Overview

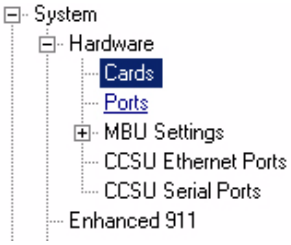
The Cards category contains important information to the ECS. The ECS uses Card number and Circuit number to specify a location within the system. When using the Hardware View in the Iwatsu Programmer to program the ECS, card numbers are automatically mapped, and the cards display on the top of the screen.



Cards

#	Type	1	2	Sys.	Remote VCIF	Remote Card
1	VHW			0		
2	CPUX	L	1280KB	0		
3	VSIO			0		
4	NONE			0		
5	PSUB			0		
6	VCIF	1		1	0	1

Alternatively, the cards can be viewed as a whole. This view is selected under the Hardware category.



Configurable Card Fields

Each card is has six configurable fields. These fields are used to assign system resources to specific cards.

Type

The Type field displays all cards in the system. This is also the location used to define the card as a virtual port. Once the remote IP Campus node connects to the main system, the virtual card changes to the actual card represented on the remote node.

There are four programmable selections under Type. All of the selections are virtual in nature.

- **VIPSUB:** This selection is used for remote IPKTD telephones (except IX-12IPKTD/-E2). Each card configured as an VIPSUB can support eight IP telephones.
- **VIPSLT:** This selection is used to configure the card as a SIP station. Each card configured as an VIPSLT can support eight SIP or H.323 stations.
- **VTRUNK:** This selection is not used at this time.
- **VCIF:** This selection is used for IP Campus installations. Any resource at the remote node must be configured as a VCIF. When the remote node is

restarted, the VCIF card in the main site will automatically configure to the actual card in the remote node.

VCIF can reside in any open card slot. If an IX-16PSUB is in the last slot of the IX-CME, cards 67 and 68 are available as VCIFs. However it is good practice to begin programming VCIF cards from the left to the right

Parameter 1

The first parameter to the right of the card type displays additional card information. The only time the field is configurable in when **VCIF** is programmed as the card type. In this case, Parameter 1 refers to the card number in the main system.

Parameter 2

This field displays additional card information and is not configurable.

Sys.

This field refers to the campus node. A zero (0) signifies the main system. All remote IP Campus nodes systems 1-16.

Remote VCIF

The Remote VCIF field is used to point the main site's VCIF card to the remote site's corresponding VCIF card. Every remote card has both a VCIF and a card number. This field uses the remote VCIF.

Remote Card

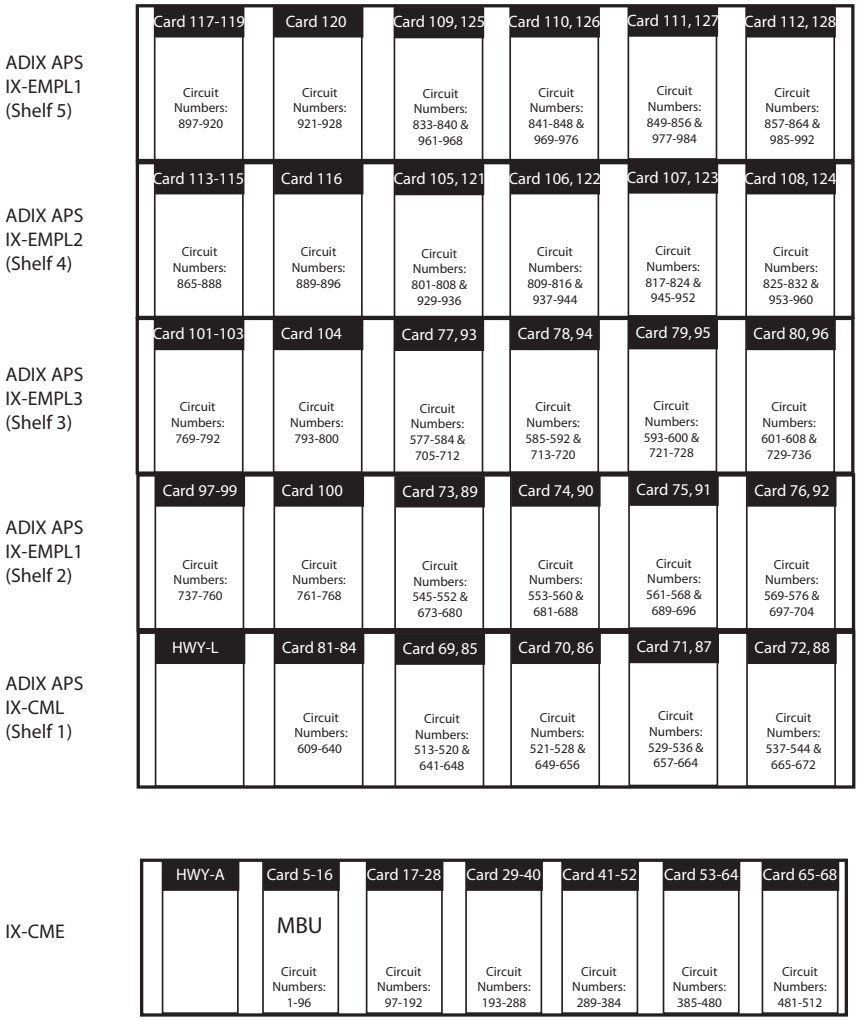
This field is used to point the main site's VCIF to the actual card numbers at the remote node. For example, if a IX-16PSUB-3 is installed in the last card slot of the remote IX-CME cards 65 and 67 will be entered in these fields.

ECS Card Map

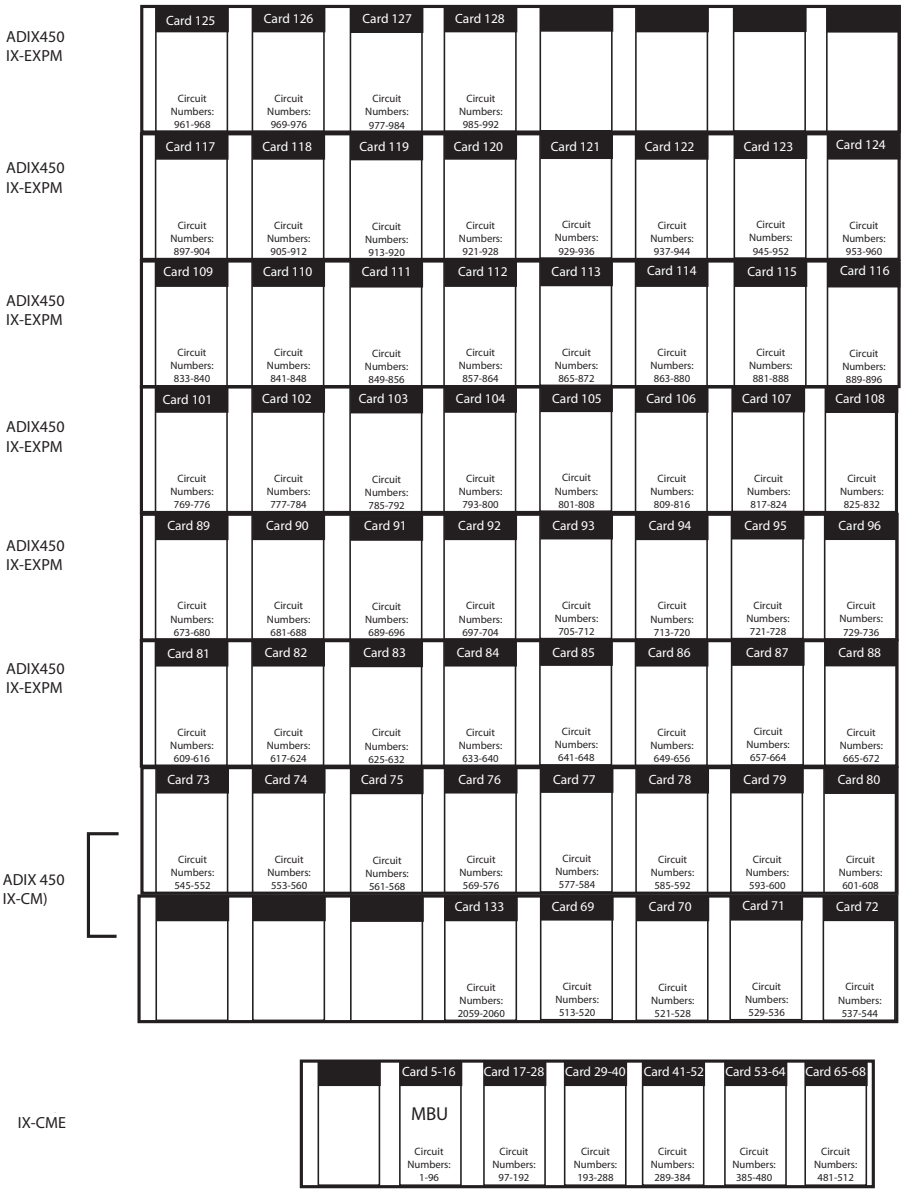
IX-HWY A TDM EXPANSION

HWY 0	HWY 3	HWY 6	HWY 9	HWY 12	HWY 15
Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #	Card # Port #
5 — 1-8	17 — 97-104	29 — 193-200	41 — 289-296	53 — 385-392	65 — 481-488
6 — 9-16	18 — 105-112	30 — 201-208	42 — 297-304	54 — 393-400	66 — 489-496
7 — 17-24	19 — 113-120	31 — 209-216	43 — 305-312	55 — 401-408	67 — 497-504
8 — 25-32	20 — 121-128	32 — 217-224	44 — 313-320	56 — 409-416	68 — 505-512
HWY 1	**HWY 4**	**HWY 7**	**HWY 10**	**HWY 13**	
9 — 33-40	21 — 129-136	33 — 225-232	45 — 321-328	57 — 417-424	
10 — 41-48	22 — 137-144	34 — 233-240	46 — 329-336	58 — 425-432	
11 — 49-56	23 — 145-152	35 — 241-248	47 — 337-344	59 — 433-440	
12 — 57-64	24 — 153-160	36 — 249-256	48 — 345-352	60 — 441-448	
HWY 2	**HWY 5**	**HWY 8**	**HWY 11**	**HWY 14**	
13 — 65-72	25 — 161-168	37 — 257-264	49 — 353-360	61 — 449-456	
14 — 73-80	26 — 169-176	38 — 265-272	50 — 361-368	62 — 457-464	
15 — 81-88	27 — 177-184	39 — 273-280	51 — 369-376	63 — 465-472	
16 — 89-96	28 — 185-192	40 — 281-288	52 — 377-384	64 — 473-480	

ECS with an ADIX APS Card Map



ECS with ADIX 450 Card Map



Station Ports

Station Ports is used to define station ports in the ECS system. On the Hardware category screen, the physical port numbers can be configured as station ports. The Hardware category also displays the trunk ports, miscellaneous ports and Attendant units. This section assumes the port is configured as a station. For additional information on trunk ports, reference Trunk Ports. For additional information on Misc Ports, reference Misc Ports.

Note:	Changing individual port configuration requires a card reset in a running system and does not require a system wide reset.

On the Ports screen, are multiple configurable columns. Each column and the value of data selections within the column are explained below.

- **Type**: This column is used to signify if the physical port number will be used as a Station, Trunk or Misc port (Here, Station Ports is assumed).
- **Logical**: This column defines the corresponding logical port number
- **Definition**: This column defines the type of station associated with the logical port number. This column is further explained under Definition.
- **Function**: This column defines how the selected station will function. This column is further explained under Function.

Definition

The Definition column is the location where the logical port is defined as a certain type of station. In total, there are seven options that can define a station:

Attendant

The Attendant selection is used to define the station port as a attendant. The Attendant definition requires further programming in the *Function* section.

Key Telephone

The Key Telephone Selection is used to define the station port as a key telephone. The Key Telephone definition requires further programming in the *Key Telephone* section.

SLT

The SLT selection is used to define the station port as a single line telephone. The SLT definition requires further programming in the *Function* section.

Message Station

The Message Station selection is used to define the station port as a message station. The SLT definition requires further programming in the *Function* section.

Doorphone

The Doorphone selection is used to define the station port as a doorphone. When an IX-DDPH is used, select the Doorphone. This selection requires not further programming in the *Function* section.

Dummy Station

Wireless

The Wireless selection is used to define the station port as an Omegatrek wireless station. When an IX-PS6 is used, the Wireless selection is used. This selection requires no further programming in the *Function* section.

Function

The IP-SATT function is used when station is defined as Attendant. This function specifies that the station is in the attendant position and it is an IP station functioning as a simple attendant.

Attendant

ATT Console

The Attendant Console function is used to define and IX-ATT Attendant Console.

KT + DSS

The KT + DSS function is used to define a key telephone as an attendant. A key telephone is a Digital telephone that can be configured an attendant position.

IP-SATT

The IP-SATT function is used to define an IP-based telephone as an attendant. An IP phone is an Iwatsu ICON Series IX-5930 or IX-5910, IX-12IPKTD/-E2, IX-12/6IPKTD-E, and Platinum Series IP telephones. SIP stations must not be used as an attendant.

IPDSS w/SATT

The IPDSS w/SATT function is used to define an Iwatsu ICON Series IX-59DS IP DSS unit that is attached to an Iwatsu ICON Series IX-5930, IX-5910, or IX-5810 telephone that is programmed as an attendant.

Key Telephone

ADIX KT

The ADIX KT function is used when station is defined as Key Telephone. This function specifies that the station is will function as a digital key telephone. A key telephone is an IX-MKT, IX-12KTD/S-2 or an IX-12KTD/S-3 Digital Key Telephone.

IP-KT

The IP-KT function is used when station is defined as Key Telephone. This function specifies that the station is will function as a IP telephone. An IP telephone is an Iwatsu ICON Series IP telephone (IX-5930, IX-5910, or IX-5900), IX-12IPKTD/-E2, IX-12/6IPKTD-E, and Platinum Series IP telephones.

The IP-KT Function contains two Sub Functions

- Uses MBU: This option is used for the Iwatsu ICON Series IP telephone (IX-5930, IX-5910, or IX-5900), IX-12/6IPKTD-E, and Platinum Series IP Stations and requires IX-MBU resources.
- Uses IPSUB: This options is used for the IX-12IPKTD/-E2 IP Station and requires a port on the IX-8IPSUB/IX-8EIPSUB IP Station Card.

ZTD

The ZTD function is used when station is defined as Key Telephone. This function specifies that the station is will function as a ZTD telephone.

The ZTD function contains two Sub Functions.

- No Speaker: This option is used when no speaker is used on the ZTD phone.
- Speakerphone: This option is used when a speaker is used on the ZTD phone.

Versa Phone

The Versa Phone function is used when station is defined as Key Telephone. This function specifies that the station is will function as a IX-VT telephone.

Busy Bypass

The Busy Bypass function is used when station is defined as Key Telephone. This function specifies that the port is being used as a Busy Bypass unit.

The Busy Bypass function has a Sub Function used to specify the key telephone associated with the busy bypass unit. The logical port number of the key telephone must associated with the busy Bypass unit.

For example: If the key telephone uses logical port 4, the Sub Function of the Busy Bypass function must be set to 4.

Virtual KT

The Virtual KT function is used at default. When a station card is inserted into the ECS and it is defaulted and no stations are connected to the card, the all ports associated with the station card will displays as Virtual KT. This is true for a station card that is only partially used.

For example: If an IX-16PSUB-1 has 8 digital key telephones connected to the card and the ECS is defaulted, eight of the ports will displays as ADIX KTs and the remaining eight will display as Virtual KTs. If a digital key telephone is later added to the IX-16PSUB-1 and the ECS is reset, the system will automatically convert the Virtual KT to an ADIX KT.

Un Assigned DSS

The Unassigned DSS function is automatically assigned in programming when more than two DSS units is connected to the ECS system. At default, the first two DSS units automatically marry to the first station in the system. The third (and remaining) display in programming as Un Assigned DSS.

All Unassigned DSS units must be then associated with the attendant position.

SLT

SLT-STD

The SLT-STD function is used when a station is defined as SLT. This function specifies that the station will function as any single line telephone.

With the SLT-STD function, there are two SubFunctions.

- DP: Use this option with rotary phones
- DTMF: Use this option with Dial Pulse phones

SLT-MSG

The SLT-MSG function is used for the analog phone that has a message waiting lamp and require and IX-SUBM card. These phones are common in areas such a hotels.

With the SLT-MSG function, there are two SubFunctions.

- DP: Use this option with rotary phones
- DTMF: Use this option with Dial Pulse phones

SLT-FAX

The SLT-FAX function is used when station is defined as SLT that will be used for FAX purposes. This function specifies that the station will function as a FAX line. Should the need arise, the ICM ring cadence can be changed to a FAX. Additionally, it is good practice to use the SLT-FAX function for modem and answering machine use.

With the SLT-FAX function, there are two SubFunctions.

- DP: Use this option with rotary phones
- DTMF: Use this option with Dial Pulse phones

Digital OPX

The Digital OPX option is used anytime a single line port is required across the IP or T1 network. For example, the Digital OPX option is uses when a station needs a local CO dial tone across the T1 or IP network.

- DP: Use this option with rotary phones
- DTMF: Use this option with Dial Pulse phones

SIP

The SIP function is used when station is defined as SLT. This function specifies that the station is will function as SIP station. These stations use a channel on the IX-MBU card.

Message Station

MSGU

The MSGU function is used to define the IX-MSGU card. There are a total of 8 IX-MSGU cards per system. The MSGU option has the following three Sub Functions:

- No 1-8: refers to the IX-MSGU card number. There can be no more than 8 cards per system.
- Ch1-4 refers to the channel number on the IX-MSGU card. The are two channels on the card and an additional two channels are available when the IX-EMSGU card is used. Each channel connects to a port on the IX-16PSUB card.
- CMSG and No CMSG: refers to the playback function of the port. For recording an message playback, select the CMSG function. One MSGU channel per system can be configured for recording and message playback.
  For playback only, select the No CMSG function.

VML

The VML function is used to define an IX-4VML card. this function has two Sub Functions that further define how the port will operate.

- VM/AA: refers to how the IX-4VML card will operate. This function allows the card to operate as both a voicemail system and an automated attendant.
- AA: refers to how the IX-4VML card will operate. This function allows the IX-4VML card to operate as an automated attendant only.

Digital VMOPX

The Digital VMOPX function is used for centralized voicemail applications. When a voicemail system resides across a traditional network (T1 or IP Networking), the remote ECS system will have stations with Digital VMOPX function.

The Digital VMOPX function has three Sub Functions:

- Mode 1 or Mode 2: Mode 1 should always be used.
- IMD, DEL, WNK: The Immediate (IMD) Delay (DEL) and Wink (WNK) modes are used for signalling. Except in rare cases, Immediate should be used.
- T1, IP: T1 and IP functions refers to the type of network used. For IP networking, use the IP Sub Function. For traditional T1 networking, use the T1 Sub Function.

SIP or H.323 VML

The SIP or H.323 VML function is used to define a SIP station or SIP VML port.

Sub Functions

The multiple Sub Function columns are used for detailed programming. The options in the Sub Function columns are Function selection. For this reason, the Sub Functions are listed in the Function section.

Trunk Ports

Trunk Ports is used to define Trunk ports in the ECS system. On the Hard ware category screen, the physical port numbers can be configured as Trunk ports. The Hardware category also displays the station ports, miscellaneous ports and ATT Units. This section assumes the port is configured as a trunk. For additional information on station ports, reference Station Ports. For additional information on Misc Ports, reference Misc Ports.

On the Ports screen, there are multiple configurable columns. Each column and the value of data selections within the column are explained below.

- **Type**: This column is used to signify if the physical port number will be used as a Station, Trunk or Misc port (Here, Trunk Ports is assumed).
- **Logical**: This column defines the corresponding logical port number
- **Definition**: This column defines the type of trunk associated with the logical port number. This column is further explained under Definition.
- **Function**: This column defines how the selected trunk will function. This column is further explained under Function.

Definition

Standard CO

Standard CO is defined as a Central Office (CO) trunk that does not require enhanced parameters. The Standard CO definition requires additional programming in the *Function* section.

Behind PBX Trunk

The Behind PBX Trunk definition is used to define Centrex/PBX trunks. This allows Centrex/PBX trunks to enhance toll restriction and eliminate predial.

E&M Tie Line

The E&M Tie definition is used to define E&M Tie Lines. The E&M Tie Lines can either be T1 or IP-based and are used to tie two ECS systems together. The E&M Tie Line definition requires additional programming in the *Function* section.

Enhanced CO

The Enhanced CO definition is used to define those trunks that use Caller ID or ANI/DNIS. ISDN trunks are an exception and are defined as Standard CO. The Enhanced CO definition requires additional programming in the *Function* section.

IP Trunk

IP Trunks are used for IP Networking purposes and requires additional programming in the *Function* section.

Function

Standard CO

Loop Start

The Loop Start function is used to define any loop start trunk provided by the telephone company. The Loop Start function contains two Sub Functions:

- X, ANS: refers to polarity reversal. This should always be set to X (No polarity reversal). The ANS function enables the polarity reversal and should not be used.
- X, DIS: refers to the disconnect. The DIS function is selected at default and enables the disconnect and is used in 11.19 Disconnect Signal.

Ground Start

The Ground Start function is used to define any ground start trunk provided by the telephone company. The Ground Start function contains two Sub Functions:

- X, ANS: refers to polarity reversal. This should always be set to X (No polarity reversal). The ANS function enables the polarity reversal and should not be used.
- X, DIS: refers to the disconnect. The DIS function is selected at default and enables the disconnect and is used in 11.19 Disconnect Signal.

Analog DID

The Ground Start function is used to define any ground start trunk provided by the telephone company. The Ground Start function contains three Sub Functions:

- X, ANS: refers to polarity reversal. This should always be set to X (No polarity reversal). The ANS function enables the polarity reversal and should not be used.
- X, DIS: refers to the disconnect. The DIS function is selected at default and enables the disconnect and is used in 11.19 Disconnect Signal.
- IMD, WNK: refers to the signalling mode used. use the IMD option for the immediate mode and the WNK option for the wink mode.

ISDN Trunk

The ISDN Trunk function is used to define any ground start trunk provided by the telephone company. The Ground Start function contains two Sub Functions:

- PP, PM-1, PM-2: The PP function refers to Point-to-Point. The PM-1 and PM-2 function refers to Point-to-Multipoint 1 and 2.
- B, D: refers to the ISDN channel used. The B function refers to the B-channel (bearer channel). The D function refers to the D-channel (signalling).
- BRI, PRI: refers to the type of ISDN service used. BRI refers to ISDN BRI and PRI refers to ISDN PRI.

Digital Loop Start

The Digital Loop Start function is used any time a digital circuit is used to emulate an analog loop start circuit.

- X: is not currently used.
- X, DIS: refers to the disconnect. The DIS function is selected at default and enables the disconnect and is used in 11.19 Disconnect Signal.
- T1, IP: refers to the type of circuit used for networking. Use the T1 function for a T1 network and use the IP function for IP (Internet Protocol) networking.

T1 Ground Start

The T1 Ground Start function is used any time a digital circuit is used to emulate an analog ground start circuit.

- X: is not currently used.
- X, DIS: refers to the disconnect. The DIS function is selected at default and enables the disconnect and is used in 11.19 Disconnect Signal.

T1 DID

The T1 DID function is used for a digital direct inward dial (DID) trunk.

- X, ANS: refers to polarity reversal. This should always be set to X (No polarity reversal). The ANS function enables the polarity reversal and should not be used.
- X, DIS: refers to the disconnect. The DIS function is selected at default and enables the disconnect and is used in 11.19 Disconnect Signal.
- IMD, WNK: refers to the signalling mode used. use the IMD option for the immediate mode and the WNK option for the wink mode.

Digital E&M Trunk

The Digital E&M Trunk function is used any time a digital circuit is used to emulate an analog E&M circuit.

e T1 DID function is used for a digital direct inward dial (DID) trunk.

- X, ANS: refers to polarity reversal. This should always be set to X (No polarity reversal). The ANS function enables the polarity reversal and should not be used.
- X, DIS: refers to the disconnect. The DIS function is selected at default and enables the disconnect and is used in 11.19 Disconnect Signal.
- ATT, IMD, DLY, WNK: refers to the mode used. The ATT function is used for attendant mode; The IMD function is used for Immediate mode; the DLY function is used the Delay (Wink) mode; the WNK function is used for the Wink (300 ms) mode.
- T1, IP: refers to the type of circuit used for networking. Use the T1 function for a T1 network and use the IP function for IP (Internet Protocol) networking.

Behind PBX

PBX

The PBX function is designed for analog Loop Start / Ground Start trunks. This alters the Toll-Restriction database to provide predial groups. The PBX Function contains the following two Sub Functions:

- X, DIS: refers to the disconnect. The DIS function is selected at default and enables the disconnect and is used in 11.19 Disconnect Signal.

E&M Tie Line

Analog E&M Tie Line

The Analog E&M Tie Line function is a Type I or Type II and uses a wire voice. The Analog E&M Tie Line function contains the following three Sub Functions:

- X, ANS: refers to polarity reversal. This should always be set to X (No polarity reversal). The ANS function enables the polarity reversal and should not be used.
- X, DIS: refers to the disconnect. The DIS function is selected at default and enables the disconnect and is used in 11.19 Disconnect Signal.
- ATT, IMD, DLY, WNK: refers to the mode used. The ATT function is used for attendant mode; The IMD function is used for Immediate mode; the DLY function is used the Delay (Wink) mode; the WNK function is used for the Wink (300 ms) mode.

Digital E&M Tie Line

The Digital E&M Tie Line function is used to establish a PBX-to-PBX intercom connection used in conventional networking. The Digital E&M Tie Line function contains the following four Sub Functions:

- X, ANS: refers to polarity reversal. This should always be set to X (No polarity reversal). The ANS function enables the polarity reversal and should not be used.
- X, DIS: refers to the disconnect. The DIS function is selected at default and enables the disconnect and is used in 11.19 Disconnect Signal.
- ATT, IMD, DLY, WNK: refers to the mode used. The ATT function is used for attendant mode; The IMD function is used for Immediate mode; the DLY function is used the Delay (Wink) mode; the WNK function is used for the Wink (300 ms) mode.
- T1, IP: reverse to the type of circuit used for networking. Use the T1 function for a T1 network and use the IP function for IP (Internet Protocol) networking.

Enhanced CO

T1 Two-Way DID

The T1 Two-Way DID function is used to allow outgoing calls and performs DID operation on incoming calls. The T1 Two-Way DID function contains the following three Sub Functions:

- X, ANS: refers to polarity reversal. This should always be set to X (No polarity reversal). The ANS function enables the polarity reversal and should not be used.
- X, DIS: refers to the disconnect. The DIS function is selected at default and enables the disconnect and is used in 11.19 Disconnect Signal.
- ATT, IMD, DLY, WNK: refers to the mode used. The ATT function is used for attendant mode; The IMD function is used for Immediate mode; the DLY function is used the Delay (Wink) mode; the WNK function is used for the Wink (300 ms) mode.

Caller ID

The Caller ID function is used to allow outgoing calls and performs caller ID operation on incoming calls. The Caller ID function contains the following two Sub Functions:

- X, ANS: refers to polarity reversal. This should always be set to X (No polarity reversal). The ANS function enables the polarity reversal and should not be used.
- X, DIS: refers to the disconnect. The DIS function is selected at default and enables the disconnect and is used in 11.19 Disconnect Signal.

ANI/DNIS

The ANI/DNIS function is used to allow outgoing calls and performs caller ID operation on incoming calls. The Caller ID function contains the following two Sub Functions:

- The ANI/DNIS function is used to allow outgoing calls and performs ANI/DNIS operation on incoming calls. The ANI/DNIS function contains the following four Sub X, ANS: refers to polarity reversal. This should always be set to X (No polarity reversal). The ANS function enables the polarity reversal and should not be used.
- X, DIS: refers to the disconnect. The DIS function is selected at default and enables the disconnect and is used in 11.19 Disconnect Signal.
- ATT, IMD, DLY, WNK: refers to the mode used. The ATT function is used for attendant mode; The IMD function is used for Immediate mode; the DLY function is used the Delay (Wink) mode; the WNK function is used for the Wink (300 ms) mode.
- ADDR, ANI, DNIS, ANI & ADDR, ANI & DNIS, ANI & ADDR(A): These functions define the format used Each of these functions are explained below.
    - ADDR: Address only; the ANI/DNIS channel will receive 1-12 unformatted digits and translate them in DNIS Conversion Data.
    - ANI: used for Address Number Identification.
    - DNIS: used for Dialed Number Service.
    - ANI & ADDR:

ANI & ADDR, ANI & DNIS and ANI & ADDR(A) explain the expected format of the ANI/DNIS digits. Each format is deliminates using a * (star). For example, if the ANI & DNIS function is selected, the ECS will expect the digits in this format: *ANI *DNIS*.

IP Trunk

SIP Trunk

The SIP Trunk option is used for programming SIP trunks. Effective with the release of ECS Version 5.0, the ECS no longer supports H.323.

Connecting the Iwatsu Enterprise-CS to SIP trunks can provide a cost effective solution over costly PRIs/BRIs. However, in order for SIP trunks to work, SIP traffic must be able to traverse the network's firewall. There are four methods supported for connecting SIP trunks to the ECS system: (1) Connecting SIP trunks directly to the ECS (ECS version 8.0 enhancement) or (2) Connecting SIP trunks to the ECS via a SIP/PRI gateway, or (3) Connecting SIP trunks to the ECS via the Ingate SIParator, (4) Connecting to a SIP to Analog ATA device (i.e., SPA 3102). This section focuses on the SIP trunk to ECS Direct Connection and associated ECS software version 8.0 enhancements.

Consider the following factors when determining which connection method is best for your application.

- Number of simultaneous calls
- Number of DIDs
- Total number of SIP trunk channels
- ECS limitation of 248 SIP trunks
- Due to the nature of IP / SIP transmissions, fax services over IP / SIP cannot be guaranteed. A dedicated analog fax circuit is recommended for all mission critical / core business faxes. Fax over SIP trunks is dependant upon the SIP Provider's fax support policy. Some carriers DO NOT support fax. If the provider does support fax, the circuit on the transmission must not use any compression and must be configured for G.711. Iwatsu has successfully tested incoming and outgoing fax between a fax machine connected to an ECS analog fax port and a SIP trunk provider when the two conditions above are true. ECS does not support T.38 fax detection. T.38 is a fax relay standard that was adopted to permit fax over conventional IP networks operating at G.729. Implementation of compression to the circuit renders poor quality or no service on fax calls.

Misc Ports

Misc Ports is used to define Miscellaneous ports in the ECS system. On the Hardware category screen, the physical port numbers can be configured as Misc ports. The Hardware category also displays the station ports and trunk ports. This section assumes the port is configured as a Misc. For additional information on station ports, reference Station Ports. For additional information on Trunk Ports, reference Trunk Ports

On the Ports screen, are multiple configurable columns. Each column and the value of data selections within the column are explained below.

- **Type**: This column is used to signify if the logical port number that will be used as a Station, Trunk or Misc port (Here, Trunk Port is assumed).
- **Logical**: This column defines the corresponding logical port number
- **Definition**: This column defines the type of trunk associated with the logical port number. This column is further explained under Definition.
- **Function**: This column defines how the selected trunk will function. This column is further explained under Function.

Definition

4ETRAN, Modems

The 4ETRAN, Modem is defined as any miscellaneous resource that uses an IX-4ETRAN card.

RMPU Modem

The RMPU Modem definition is used for modem and DISA (DTMF receivers.

Tone Detector

The Tone Detector defines an IX-RMPU card. This provides DTMF detection for trunks programmed as DISA trunks.

Serial Port

The Serial Port defines a logical port as a serial port. This can be used for programming purposes in the IX-CCU card. The IX-EDVIF and the IX-HCIF card also use the serial port definition.

Page Zone

The Page Zone defines external page zones. The page zones use the IX-EDVIF or the IX-MISC cards for four external page zones. The page zones are controlled buy the IX-CCU/CCSU for access and background music on hold.

Relay Control

The Relay Control defines the four programmable relays provided by the IX-EDVIF card. Optionally, the IX-MISC card can be used for eight relays per card. Relays can be used for the following:

- Loud ringing bell (CO calls)
- UNA- Universal Night Answer (CO calls)
- Remote control for momentary closure
- IX-DDPH Door Phone
- ACD call queue level

Sensor Control

This definition is for factory use only and must not be used.

Music Source

The Music Source defines the music source used by the system.

Ethernet Port

The Ethernet Port defines the miscellaneous port as a programming port.

Function

4ETRAN

4ETRAN Unit

The IX-4ETRAN Unit function is for factory use only and must not be used.

Pooled Modem

The Pooled Modem function is for factory use only and must not be used.

EDVIF

RMPU

RMPU

The RMPU function is for factory use only and must not be used.

Tone Detector

DTMF Receiver

The DTMF Receiver function is used for DISA Rx (IX-RMPU card)

Serial Port

Serial Port

The Serial Port Function is used for RS-232C output. The output is used for SMDR/ ACD data and can be used as a programming port. The Serial Port function contains the following Sub Function:

- SMDR, PROG, Fast SMDR: With the exceptional rare case, Fast SMDR should be used.

CTI Port

NIC

The NIC function is used for Computer Telephony Interface (CTI) applications. The CTI applications included:

- PC Attendant
- TASKE events
- ESNA TOLEE Unified Messenging

Page Zone

External Zone

The Page Zone defines external page zones. The page zones use the IX-EDVIF or the IX-MISC cards for four external page zones. The page zones are controlled buy the IX-CCU/CCSU for access and background music on hold.

ACD Emergency Record

The ACD Emergency Record function is used to record ACD calls. The ACD Emergency Record function contains the following three Sub Functions:

- On, OFF: Use ON to enable ACD Emergency Recording
- 0 - 7: Refers to the page card (1 of 8 IX-MISC cards)
- 0 - 4: Refers to Page Zone 1-4. This is used as an audio path to the recording device.

Relay Control

The Relay Control defines the four programmable relays provided by the IX-EDVIF card. Optionally, the IX-MISC card can be used for eight relays per card. Relays can be used for the following:

- Loud ringing bell (CO calls)
- UNA- Universal Night Answer (CO calls)
- Remote control for momentary closure
- IX-DDPH Door Phone
- ACD call queue level

Sensor Control

Sensor Control

The Sensor Control Function is not used in the ECS. This is a relay function on the IX-EDVIF/IX-MISC cards that changes the normal relay to ‘sensor control.’

Music Source

BGM/MOH Source

This field defines the music source as a BGM or MOH source.

One Way Source

The One Way Source function are consider MOH/BGM.

Ethernet Port

Programming Port

The Ethernet Port defines the miscellaneous port as a programming port.

Monitor Port

The Monitor Port function is used for ACD event output and for SMDR event output.

MBU Settings: Ethernet Settings

MBU Settings is used to define the configurable parameters in the IX-MBU. There is a maximum of 2 IX-MBU cards per IX-CME. Each IX-MBU card requires the configuration.

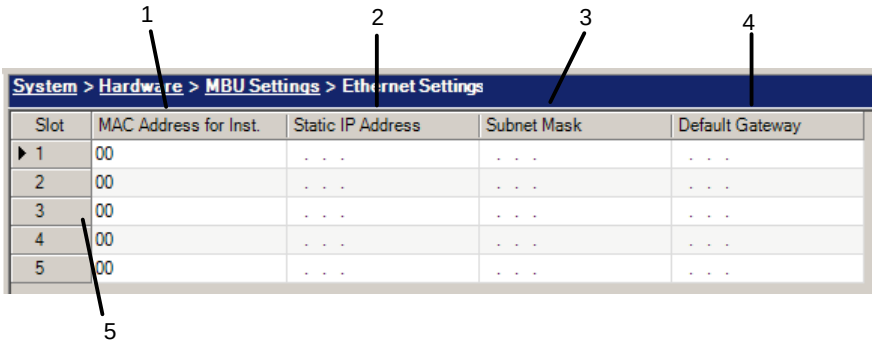
Note:	Any IX-MBU parameter change requires an IX-MBU card reset.

The following is a list of the configurable parameters for each IX-MBU card.

- MBU Installation Key
- MAC Address for Install
- Static IP Address
- Default Gateway
- Subnet Mask

MBU Installation Key

This field must always use the **MBU Installation Restricted by MAC Address** option. Do not select another option.



1. MAC Address for Install

This field is used to enter the 12-digit MAC address of the IX-MBU card. If this field contains an improper MAC address, the IX-MBU will not function. The MAC address is printed on each IX-MBU card.

2. Static IP Address

This field is used to enter the static IP address of the IX-MBU card. The IP address must not be dynamic (DHCP) and is provided by the network administrator.

3. Subnet Mask

This field is used to input the subnet mask used by the network. The subnet mask is provided by the network administrator.

4. Default Gateway

This field is used to program the IP address of the router. This address is provided by the network administrator.

5. Slot

This refers to the universal slot locations within the ECS IX-CME module. Slots 1-5 begin at the first card slot to the right of the EXT slot.

MBU Settings: Additional Settings

Additional Settings is used to define the additional configurable parameters in the IX-MBU. These parameters are not always used and not necessarily required for ECS IP Campus networking.

The setting listed under the More heading contain the following configurable parameters for each IX-MBU card.

- S/W Version Comp
- Software Version
- IP Address Acq Method
- JB Minimal Delay
- RTP Port Range Start
- RTP Port Range End
- Rem Prg Port End

S/W Version Comp

This field is reserved for factory use only and must not be modified from its default.

Software Version

The values displayed in the Software Version field shows the software version that resides on the compact flash memory of the IX-MBU card. Note that the value displayed is not necessarily the software version that is currently running on the IX-MBU card.

IP Address Acq Method

The IP Address Acp Method field is the location where the IP address aquisition method is configured. There are two choices: Static or dynamic. In most cases, the default value of static should be used.

JB Minimal Delay

This field is reserved for factory use only and must not be modified from its default.

RTP Port Range Start

The RTP Port Range Start specifies the the beginning RTP port number of the range used by the IX-MBU. The defualt value is 5004 and in most cases, the default value is appropriate.

RTP Port Range End

The RTP Port Range End specifies the the ending RTP port number used by the IX-MBU. The defualt value is 5998 and in most cases, the default value is appropriate.

Rem Prg Port End

This field is reserved for factory use only and must not be modified from its default.

MBU Settings: More:

More is used to define the additional configurable parameters in the IX-MBU. These parameters are not always used and not necessarily required for ECS IP Campus networking.

The setting listed under the More heading contain the following configurable parameters for each IX-MBU card.

- Max Channels
- TOS
- Input Gain
- Output Gain
- DTMF Volume
- LAN Speed/Duplex
- VLAN Tagging
- Rec. Priority Threshold
- VLAN ID
- VLAN Priority

Max Channels

The Max Channels field is the location where IX-MBU channels are limited. In ECS IP Campus networking, there may be situations where the IX-MBU/MBSU channels require more bandwidth than is available.

For example, an ECS IP Campus network uses a VPN circuit to network two ECS IP Campus node together. The VPN circuit can support 8 simultanious calls. However each IP campus node has 24 IX-MBU/MBSU channels. In this case, it may be appropriate to set the Max Channels value to 8.

The Max Channel Default value is 0, meaning no restriction. The IX-MBU/MBSU channels can be restricted from 1 to 96. When 96 is programmed in the Max Channel field, all IX-MBU/MBSU channels are restricted.

TOS

The TOS field is used to configure the network for DiffServ QoS. The default value is 184 and this should not be modified from the default.

Input Gain

The value entered in the Input Gain field determines the gain volume for receiving audio. The default value is 32 and this should not be modified from the default.

Output Gain

The value entered in the Output Gain field determines the transmitting gain volume. The default value is 32 and this should not be modified from the default.

DTMF Volume

The value entered in the DTMF Volume field determines the transmitting DTMF volume.. The default value is 27 and this should not be modified from the default.

LAN Speed/Duplex

The LAN Speed/Duplex selection is the location where the LAN/Duplex speed is configured for the LAN port on the IX-MBU card. This determines the speed at which the IX-MBU card communicates with the local area network. There are six options:

- Auto Negotiation
- Fixed 100mpbs/Full Duplex
- Fixed 100mpbs/Half Duplex
- Fixed 10mpbs/Full Duplex
- Fixed 10mpbs/Halfl Duplex

If unsure of the appropriate LAN speed/duplex setting, consult with the network administrator.

VLAN Tagging

The VLAN Tagging field is used to configure the ECS for use on a network that uses virtual LANs--VLANs. If the ECS will reside on a VLAN, select the **Use VLAN Tagging** option. If the ECS will reside on a traditional LAN without VLANs, select the **No VLAN Tagging**.

Rec. Priority Threshold

The Rec. Priority Threshold determines priority of receiving RTP packet. This data items affects only those ECS systems using with using VLAN tagging. The minimum value is 0 and maximum value is 7. The highest priority is 7 and 0 is the lowest. The default is 4.

VLAN ID

The VLAN ID field determines ID number used in VLAN tagging. If a VLAN is not used, the VLAN ID should remain at the default.

VLAN Priority

The VLAN Priority is used to configure the the priority VLAN tags. This applies to IEEE802.3p QoS and does not apply if VLAN tagging is not used.

The default value is 7 and this should not be modified from the default.

CCSU Ethernet Ports

The IX-CCU/CCSU has two Ethernet ports. Each Ethernet port must have a unique static IP address. The LAN 1 and LAN 2 ports must be on a different network (use different subnet masks). The values configurable in these fields are available from the network administrator.

Note:	A system reset is required when any LAN 1 or LAN 2 parameters are changed.

IP Address

This field is used to enter the static IP address of the IX-CCU/CCSU card. The IP address must not be dynamic (DHCP) and is provided by the network administrator.

Subnet Mask

This field is used to input the subnet mask used by the network. The subnet mask can be obtained by the network administrator.

LAN Protocol

This field refers to the duplex used by the network. Full or Half-Duplex options are available, as well as Auto Negotiate. The Auto Negotiate option is default and will work well with most modern Ethernet-based IP Networks.

LAN Speed

This field refers to the speed used by the Ethernet network. The IX-CCU/CCSU can operate at 10 MBPS or 100 MBPS. At default, the IX-CCU/CCSU operates in 10/100 MBPS auto mode. This option will work well with most modern Ethernet-based networks.

CCSU Serial Ports

The IX-CCU/CCSU has two serial ports: RS-232C 1 and RS-232C 2. Each serial port must can be used either as a programming port (direct connection) or as a SMDR output port.

If the serial port will act as a programming port, the default values will always be used. If the serial port will act as a SMDR output port, the configurable settings must match the device that receives the SMDR output stream. This information is available in the SMDR device manufacturer.

The following configurable values are available.

RS-232C 1 / RS232C 2

Usage Type

The **Usage Type** dropdown menu defines how the serial port will be used. Select PRO if the port will be used for programming and SMDR if the port is for SMDR output.

Baud Rate (bps)

The baud rate selected in this field must match the baud rate of the receiving device.

Stop Bits

The stop bits selected in this field must match the baud rate of the receiving device.

Databits Parity

The data bits selected in this field must match the baud rate of the receiving device.

PPP Settings

These fields are automatically configured when a PPP connection is established. The default values work well in most situations and should not default PPP IP address conflicts with another device on the network.

PPP Gateway

This field is reserved for factory use only and must not be modified from its default.

PPP Client Address

This field is reserved for factory use only and must not be modified from its default.

PPP Subnet Mask

This field is reserved for factory use only and must not be modified from its default.

DHCP Server

The ECS has an integrated DHCP server. The DHCP server can be used to dynamically allocate IP addesses to any device on the network. If the DHCP server is used on the ECS, there can be no other DHCP servers on the network.

Note:	Never install a DHCP server on the network without the network administrator permission.

Note:	A system reset is required when any DHCP Server parameters are changed.

Number of Addresses

The Number of Address field refers to the total number of dynamic IP addressed needed for the network. For example, if 180 nodes are expected on the network and all need a dynamic IP address, 200 dynamic IP addresses may be appropriate. This allows room for the network to grow.

If zero is entered, there will be no IP address dynamically allocated. There is a range of 1 to 268435455 available for dynamic IP address allocation.

DHCP Server: Address Assignment

The Address Assignment allows a range of IP address available to the DHCP server. There may be times in which multiple sequential ranges are required. For this reason, Iwatsu Voice Networks developed eight separate ranges.

Expiration Time

The Expiration Time field refers to the lease time of the DCHP address. When the Expiration Time expires, the DHCP address is released. When the device requires an IP address, the DHCP server sends the IP address.

The time entered in the Expiration Time field is in minutes. The default value of 60, then, means that the IP address is released after an hour.

Starting IP Address

The starting IP address is the first IP address in the DCHP range. This can be 0.0.0.1 to 255.255.255.0. Do not enter leading or training zeros into the IP address.

Ending IP Address

The ending IP address is the first IP address in the DCHP range. This can be 0.0.0.1 to 255.255.255.0. Do not enter leading or training zeros into the IP address.

Netmask

The value entered into the Netmask field is the subnet mask of the network. The subnet mask of the network can be obtained from the network administrator.

An example of a Class C subnet mask is 255.0.0.0

Def. Gateway Address

The value entered in the Def. Gateway Address field is the IP address of the edge router. This is the router used to connect the network with the WAN/Internet.

Class 02

System Constants

Use **Class 02 - System Constants** to program variables and functions which will be applied throughout the Iwatsu Enterprise-CS. The items in Class 02 include:

- 02.01 - System Speed Dial Type
- 02.03 - Music Source Selection
- 02.10 - CO Monitor Guard Time
- 02.11 - CO Interrupt Tone Duration
- 02.12 - CO Interrupt Tone Repetition
- 02.13 - CO Interrupt Tone Allowance
- 02.14 - CO Continuous Tone Duration
- 02.15 - CO Silence Duration
- 02.16 - CO Silence - Noise Allowance
- 02.17 - System Prefix
- 02.18 - Holiday List
- 02.19 - Time Zone
- 02.20 - System Text Message

02.01 - System Speed Dial Type

Class 02 Item 01 - System Speed Dial Type sets the amount of speed dial numbers available to the system. The ECS can be setup to have a maximum of either ninety two-digit or nine hundred three-digit speed dial numbers. System speed dial memory can be used for forced account code listings thereby reducing the amount of system speed dial numbers.

Programming Field Description

System Speed Dial:	Meaning:	Number of speed dial numbers available.
	Range:	90 two-digit speed dial numbers available: (00-89) 900 three-digit speed dial numbers available: (000-899).
	Default:	900

Related Databases:

Required: Class 05 System Speed Dial.

Associated: 04.71 - Call Coverage/Voice Mail Data; 10.70 - Programming Reserve (CCV ICM); 10.73 - Programming Reserve; 11.70 - Call Coverage Trunk.

02.03 - Music Source Selection

Class 02 Item 03 - Music Source Selection defines whether an internal or external music on hold (MOH) source is used.

Programming Field Description

MOH Source	Meaning:	Select either external Music on Hold source or use melodies 1 - 8 of the Internal MOH
	Range:	External Internal 1 through 8
	Default:	External

Internal Music On Hold Selections

MOH Selection:	MOH Song Title
Internal 1	Hitomi ga hohoemu kara (Miki Imai, Japanese Pop)
Internal 2	Here Comes the Sun
Internal 3	Hi-Ho
Internal 4	Mirai Yosouzu 2 (Dreams Come True, Japanese-Pop)
Internal 5	I need to be in love (The Carpenters)
Internal 6	Pachelbel's Canon D
Internal 7	Same as Internal 1
Internal 8	Same as Internal 1

Related Databases:

Required: 04.05 - Music on Hold (MOH) Input Port (For external MOH source only).

Associated: None.

Hardware Required:

IX-CCU, IX-MISC, IX-EDCTU.

02.10 - CO Monitor Guard Time

Class 02 Item 10 - CO Monitor Guard Time is used to define the length of time the system will wait after a trunk-to-trunk conference is activated before it begins to monitor the line status. When the ECS detects a continuous tone, a repeated interrupt tone or no tone (silence) that exceeds the values programmed in 02.11 - CO Interrupt Tone Duration through 02.16 - CO Silence - Noise Allowance, it will release both lines. To turn off this feature, enter a value of **0**.

Note: The IX-4ETRAN card is required to monitor the line status.

Programming Field Description

CO Monitor Guard Time	Meaning:	Time in seconds before line monitoring begins.
	Range:	0-255 seconds 0 = no monitoring
	Default:	10 seconds

Related Databases:

Required: 02.11 - CO Interrupt Tone Duration; 02.12 - CO Interrupt Tone Repetition; 02.13 - CO Interrupt Tone Allowance; 02.14 - CO Continuous Tone Duration; 02.15 - CO Silence Duration; 02.16 - CO Silence - Noise Allowance.

Associated: 01.04 Port Configuration (Disconnect Signal).

Hardware Required:

IX-4ETRAN.

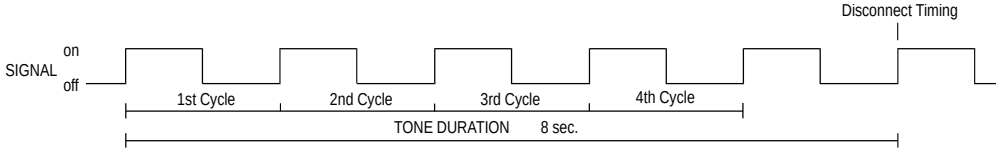
02.11 - CO Interrupt Tone Duration

Class 02 Item 11 - CO Interrupt Tone Duration is used to establish the maximum length of time in seconds that an interrupted signal can be received before the ECS will disconnect a trunk-to-trunk conference. Line monitoring capabilities are limited to mixed tones of either 440Hz or 350Hz and can be detected regardless of the on/off cycle provided the signal pattern is consistent. The CO Interrupt Tone Duration is used along with 02.12 - CO Interrupt Tone Repetition. For example, if 02.11 - CO Interrupt Tone Duration and 02.12 - CO Interrupt Tone Repetition are programmed as follows:

CO INTERRUPT TONE DURATION: 80

CO INTERRUPT TONE REPETITION: 4

When the ECS detects a signal which lasts longer than eight seconds and is repeated five times, the two lines will be disconnected.



Note: The IX-4ETRAN card is required to monitor the line status.

Programming Field Description

CO Interrupt Tone Duration	Meaning:	Monitor time begins.
	Range:	0-255 x 100 milliseconds
	Default:	100 (10 seconds)

Related Databases:

Required: 02.10 - CO Monitor Guard Time; 02.12 - CO Interrupt Tone Repetition; 02.13 - CO Interrupt Tone Allowance.

Associated: 02.14 - CO Continuous Tone Duration; 02.15 - CO Silence Duration; 02.16 - CO Silence - Noise Allowance.

Hardware Required:

IX-4ETRAN.

02.12 - CO Interrupt Tone Repetition

Class 02 Item 12 - CO Interrupt Tone Repetition is used to define the number of times the interrupt signal pattern must be repeated before the ECS will disconnect a trunk-to-trunk conference. Line monitoring capabilities are limited to mixed tones of either 440Hz or 350Hz and can be detected regardless of the on/off cycle provided the signal pattern is consistent. Class 02.12 is used along with *Class 02.11 - CO Interrupt Tone Duration.*

Note: The IX-4ETRAN card is required to monitor the line status.

Programming Field Description

Data Field:	Meaning:	Number of repeated tones required before a trunk-to-trunk conference is disconnected.
	Range:	0-255
	Default:	4

Related Databases:

Required: 02.10 - CO Monitor Guard Time; 02.11 - CO Interrupt Tone Duration; 02.13 - CO Interrupt Tone Allowance.

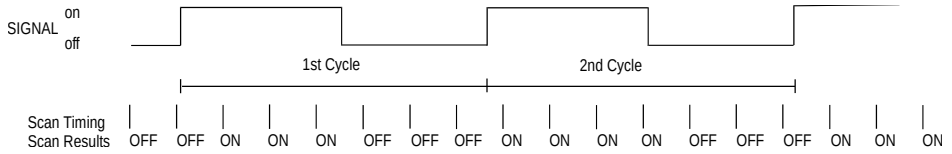
Associated: 02.14 - CO Continuous Tone Duration; 02.15 - CO Silence Duration; 02.16 - CO Silence - Noise Allowance.

Hardware Required:

IX-4ETRAN.

02.13 - CO Interrupt Tone Allowance

Class 02 Item 13 - CO Interrupt Tone Allowance is used to define the number of irregular signal cycles the ECS will ignore when monitoring the status of a trunk-to-trunk conference. The illustration below diagrams a cycle in which the signal pattern and scan timing do not match. Although this situation rarely occurs, by programming an irregular signal allowance you will force the ECS to confirm scan information against a regular signal. In most cases a setting of **2** is adequate.



Note: The IX-4ETRAN card is required to monitor the line status.

Programming Field Description

Co Interrupt Tone Allowance	Meaning:	Number of irregular signal cycles that will be disregarded during the monitoring period.
	Range:	0-255
	Default:	2

Related Databases:

Required: 02.10 - CO Monitor Guard Time; 02.11 - CO Interrupt Tone Duration; 02.12 - CO Interrupt Tone Repetition.

Associated: 02.14 - CO Continuous Tone Duration; 02.15 - CO Silence Duration; 02.16 - CO Silence - Noise Allowance.

Hardware Required:

IX-4ETRAN.

02.14 - CO Continuous Tone Duration

Class 02 Item 14 - CO Continuous Tone Duration is used to define the length of time a continuous signal (i.e., dial tone) must be received before the system will detect termination of a trunk-to-trunk conference and disconnect the lines. This feature is applicable for 440Hz and 350Hz mixed tones only. For example, if a value of 30 is programmed in the Continuous Tone Duration, when the ECS detects a continuous mixed tone of 440Hz or 350Hz for a duration of thirty seconds, it will disconnect both CO lines.

Note:	The IX-4ETRAN card is required to monitor the line status. The IX-4ETRAN cannot detect (CO) dial tone.

Programming Field Description

Continuous Tone Duration	Meaning:	Duration of a continuous tone in seconds before disconnect occurs.
	Range:	0-255 seconds
	Default:	60

Related Databases:

Required: 02.10 - CO Monitor Guard Time.

Associated: 02.11 - CO Interrupt Tone Duration; 02.12 - CO Interrupt Tone Repetition; 02.14 - CO Continuous Tone Duration; 02.15 - CO Silence Duration; 02.16 - CO Silence - Noise Allowance.

Hardware Required:

IX-4ETRAN.

02.15 - CO Silence Duration

Class 02 Item 15 - CO Silence Duration is used to define the length of time silence must be maintained on both lines before the system detects termination of a trunk-to-trunk conference and disconnects the lines. For example, if a value of 30 is programmed in the CO Silence Duration, the ECS will disconnect both CO lines after it detects no sound on either line for thirty seconds.

Note: The IX-4ETRAN card is required to monitor the line status.

Programming Field Description

CO Silence Duration	Meaning:	Duration of silence in seconds before disconnect occurs.
	Range:	0-255 seconds
	Default:	255

Related Databases:

Required: 02.10 - CO Monitor Guard Time; 02.16 - CO Silence - Noise Allowance.

Associated: 02.11 - CO Interrupt Tone Duration; 02.12 - CO Interrupt Tone Repetition; 02.13 - CO Interrupt Tone Allowance; 02.14 - CO Continuous Tone Duration

Hardware Required:

IX-4ETRAN.

02.16 - CO Silence - Noise Allowance

Class 02 Item 16 - CO Silence - Noise Allowance is used to define the number of times the ECS will disregard noise such as static and line interference while monitoring a trunk-to-trunk conference. The Co Silence-Noise Allowance is used in conjunction with 02.15 - CO Silence Duration. If the occurrence of noise detected by the ECS exceeds the number programmed in the Co Silence-Noise Allowance, the system clock that detects continuous dial tone will be reset to 0. Line monitoring will then begin again for the duration programmed in 02.15 - CO Silence Duration.

Note: The IX-4ETRAN card is required to monitor the line status.

Programming Field Description

Silence Noise Allowance	Meaning:	Number of detected noise occurrences permitted before the continuos dial tone clock is reset.
	Range:	0-255 occurrences
	Default:	2

Related Databases:

Required: 02.10 - CO Monitor Guard Time; 02.16 - CO Silence - Noise Allowance.

Associated: 02.11 - CO Interrupt Tone Duration; 02.12 - CO Interrupt Tone Repetition; 02.13 - CO Interrupt Tone Allowance; 02.14 - CO Continuous Tone Duration.

Hardware Required:

IX-4ETRAN.

02.17 - System Prefix

Class 02 Item 17 - System Prefix is used to set a prefix to be used with an optimized routing plan. For example, if the ECS is installed in an area where 1 + [area code] + [number] dialing is used, the value programmed in the System Prefix would be 1 (default). The System Prefix is only referenced by the ECS when the Optimized Routing feature is used.

Programming Field Description

System Prefix	Meaning:	Toggle between prefix used/not used for dialing through optimized routing.
	Range:	Check: prefix is not used Unchecked: prefix is used
	Default:	Checked

Related Databases:

Required: 10.32 - Optimized Routing Call; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 06.01 - Toll Restriction Table; 06.02 - Toll Restriction - Plan Table; 06.03 - Toll Restriction - Dial Table; 10.33 - Forced Optimized Routing.

02.18 - Holiday List

Class 02 Item 18 - Holiday List is used to denote twenty calendar days on which the ECS will use the holiday optimized routing time zone settings programmed in 02.19 - Time Zone.

Programming Field Description

Holiday List	Meaning:	Identifies the number from the holiday list.
	Range:	01-20
Holiday List Day	Meaning:	Identify the month (first) and date (second) for each holiday.
	Range:	01-01 to 12-31
	Default:	Blank

Related Databases:

Required: 02.19 Time Zone; 10.32 Optimized Routing Call; 10.33 Forced Optimized Routing; 10.34 Route Advance Step; Class 17 Optimized Routing.

Associated: 03.01 Time of Day; 03.02 Calendar.

02.19 - Time Zone

Class 02 Item 19 - Time Zone is used to establish an optimized routing time schedule assignment on an hourly basis as well as a calendar condition. Default settings are listed in the *Time Zone Default Table* on the next page.

Programming Field Description

Time Zone: Hour	Meaning:	Identifies one of the 24 hours in the day.
	Range:	01-24
Time Zone: Day	Meaning:	Time Zone Calendar condition.
	Range	Weekdays Saturday Sunday Holiday
	Default	Weekday
Time Zone Value	Meaning:	Time Zone Default Table entry.
	Range:	0-2
	Default:	See the *Time Zone Default Table*

Time Zone Default Table

Time Zone Hour	Calendar Condition			
	Week day	Saturday	Sunday	Holiday
01 - 01:00 to 01:59	2	2	2	2
02 - 02:00 to 02:59	2	2	2	2
03 - 03:00 to 03:59	2	2	2	2
04 - 04:00 to 04:59	2	2	2	2
05 - 05:00 to 05:59	2	2	2	2
06 - 06:00 to 06:59	2	2	2	2
07 - 07:00 to 07:59	2	2	2	2
08 - 08:00 to 08:59	0	0	0	0
09 - 09:00 to 09:59	0	0	0	0
10 - 10:00 to 10:59	0	0	0	0
11 - 11:00 to 11:59	0	0	0	0
12 - 12:00 to 12:59	0	0	0	0
13 - 13:00 to 13:59	0	0	0	0
14 - 14:00 to 14:59	0	0	0	0
15 - 15:00 to 15:59	0	0	0	0
16 - 16:00 to 16:59	0	0	0	0
17 - 17:00 to 17:59	1	1	1	1
18 - 18:00 to 18:59	1	1	1	1
19 - 19:00 to 19:59	1	1	1	1
20 - 20:00 to 20:59	1	1	1	1
21 - 21:00 to 21:59	1	1	1	1
22 - 22:00 to 22:59	1	1	1	1
23 - 23:00 to 23:59	2	2	2	2
24 - 00:00 to 00:59	2	2	2	2

Related Databases:

Required: 02.18 - Holiday List; 03.02 - Calendar; 10.32 - Optimized Routing Call; 10.33 - Forced Optimized Routing; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 03.01 - Time of Day.

02.20 - System Text Message

Class 02 Item 20 - System Text Message is used to enter text messages 0-89. Each text message may be a maximum of 16 characters in length. The [TEXT MSG], [TEXT MSGn], or [MSGGPn] key is required to use this feature. The [TEXT MSG] key allows users to send any system or personal text message by pressing [TEXT MSG] and dialing the desired text message number (00-99). The [TEXT MSGn] keys allows users to send a specific text message. The [MSGGPn] key text message group key allows users to send a text message to a group of users. Text message groups are defined in 08.06 - Text Message Group.

Programming Field Description

System Text Message	Meaning:	System Text Message Number
	Range:	0-89
	Default	0
System Text Message	Meaning:	Alphanumeric text message
	Range:	Up to 16 characters
	Default:	01-89 (See table below)

Text Message Default Table

Item Name	Element Number	New Default
Text Messages	01	Not used
	02	Important Call
	03	Visitor Here
	04	Boss Calling
	05	Meeting Reminder
	06	Emergency Call
	07	Have Them Hold
	08	Show Them In
	09	Send to VM
	10	Guest in Lobby
	11	Take Message
	12 - 89	Not used

Related Databases:

Required: 04.71 - Call Coverage/Voice Mail Data; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Associated: 08.06 - Text Message Group; 10.72 - Programming Reserve 3 Element 2=3 Text Message Confirmation Tone; 26.01 - Station Text Message 1.

Class 03

Clock and Calendar

Class 03 - Clock and Calendar is **no longer associated with Class 03**.

The time and date are changed using the **Change System Date and Time...** option under the **Communication** drop-down menu.

- 03.01 - Time of Day
- 03.02 - Calendar

03.01 - Time of Day

Note:	In the Iwatsu Programmer, the time and date are changed using the **Change System Date and Time...** option under the **Communication** menu.

Class 03 Item 01 - Time of Day is used to set the system clock.

This item and 03.02 - Calendar are very important to the operation of the Omegatrek equipment. It is important the system time and system date are set correctly prior to installing and activating the Omegatrek equipment.

Note:	When setting the time, on the ECS telephone system, always wait two minutes before resetting the telephone system.
Note:	The time of day is set in Class 03.01 using military time. The ECS will display the time of day using a twelve-hour clock that indicates AM or PM.

Programming Field Description

Data Field:	Meaning:	Current time.
	Range:	0000 to 2359 in military time
	Default:	0000 = midnight

Related Databases:

Required: 04.25, Element 16 (Daylight Savings Time).

Associated: 02.07 Diagnostic Callout Time; 02.19 Time Zone; 04.50 Night Mode Start Time; 04.51 Auto CO Answer Start Time; 17.06 Route Table.

03.02 - Calendar

Note:	In the Iwatsu Programmer, the time and date are changed using the **Change System Date and Time...** option under the **Communication** menu.

Class 03 Item 02 - Calendar is used to set the system date. This item and Class 03 Item 01 are very important to the operation of the Omegatrek equipment. It is important the system time and system date are set correctly prior to installing and activating the Omegatrek equipment.

Programming Field Description

Data Field:	Meaning:	Current date in MM/DD/YY format.
	Range:	01/01/1985 to 12/31/2084
	Default:	01/01/00

Related Databases:

Required: None.

Associated: 02.18 Holiday List; 04.33 Auto Answer Day; Class 17 Optimized Routing.

Class 04

Subsystem Constants

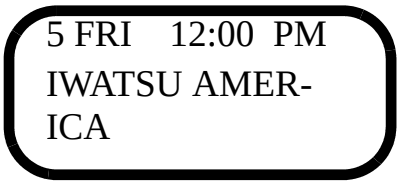
Use **Class 04 - Subsystem Constants** to program variables and functions such as system timers which will be applied throughout the ECS. The following programming items are included in Class 04:

- 04.01 - Name of Subsystem
- 04.02 - Not Used
- 04.03 - Background Music Input Port
- 04.04 - Background Music Output Port
- 04.05 - Music on Hold Input Port
- 04.06 - Not Used
- 04.07 - Wake-Up Call Report Port
- 04.08 - Hold Recall Timer
- 04.09 - Call-Back Duration
- 04.10 - Timed Trunk Queuing
- 04.11 - Off-Hook Trunk Queuing Duration
- 04.12 - Camp-On Duration
- 04.13 - Call Forward No Answer
- 04.34 - UCD Answer Time
- 04.35 - Miscellaneous Function Port
- 04.36 - Miscellaneous Relay Timer
- 04.37 - Miscellaneous Function
- 04.38 - Hunting Method in CO Line Group
- 04.39 - DISA-ICM Call
- 04.40 - DISA-Paging Call
- 04.41 - DISA-Waiting Time
- 04.42 - DISA-Total Duration
- 04.43 - Remote CO Forward Incoming Group
- 04.44 - Remote CO Forward Outgoing Group
- 04.45 - Remote CO Forward Message Number
- 04.46 - Remote CO Forward Duration

- 04.14 - Automatic CO Answer
- 04.15 - Attendant DIL Intercept
- 04.16 - Delayed Ringing Time
- 04.17 - Doorphone Answer Time
- 04.18 - Reminder Ring Duration
- 04.19 - LCD Duration
- 04.20 - VSS Recording Time
- 04.21 - Hunting Time
- 04.22 - ICM Call Mode
- 04.23 - Shift/Clear Call
- 04.24 - Attendant Call Park Orbit
- 04.25 - Calls for Pickup
- 04.26 - Not Used
- 04.27 - Station Password Digits
- 04.28 - Hotel Mode
- 04.29 - Dial Pulse SLT Consultation Hold
- 04.30 - Trunk-to-Trunk Hold
- 04.31 - Night Mode Start Time
- 04.32 - Automatic CO Answer Start Time
- 04.33 - Automatic CO Answer Day
- 04.47 - Automatic Repeat Dial-Duration
- 04.48 - Automatic Repeat Dial-Off Hook
- 04.49 - Automatic Repeat Dial-Repetition
- 04.50 - SMDR-Output Port
- 04.51 - SMDR-Minimum Call Duration
- 04.52 - SMDR-Incoming Call Report
- 04.53 - SMDR-Toll Only Report
- 04.54 - SMDR-Account Code Only (0-1)
- 04.55 - True Attendant Position
- 04.57 - CTI Interface Socket Open Timer
- 04.70 - Programming Reserve 1
- 04.71 - CC/VM Data
- 04.72 - Programming Reserve 3
- 04.76 – Automatic Relay Activation Time
- 04.77 - VM/AA Attendant Packet Codes
- 04.78 - Programming Reserve 9
- 04.79 – E-Response Help Call LCD Display

04.01 - Name of Subsystem

Class 04 Item 01 - Name of Subsystem is used to program a system name up to sixteen characters in length. The system name programmed in Name of Subsystem is displayed on all stations equipped with a two-line LCD except IX-ATT console units.



Note: You must reset the system to effect any change programmed in Class 04.01.

Programming Field Description

System Name	Meaning:	Name of ECS system.
	Range:	Up to 16 alphanumeric characters
	Default:	None

Related Databases:

Required: None.

Associated: None.

04.03 - Background Music (BGM) Input Port

Class 04 Item 03 - Background Music Input Port is used to define the l port of the background music circuit. **The background music circuit is always the second physical circuit on the IX-MISC/EDVIF card.** The logical port number entered in Background Music (BGM) Input Port is based on the location of the IX-MISC/EDVIF card. For example, if the IX-MISC card used for background music is assigned miscellaneous logical port numbers 1-8, the background music input port must be the second circuit on the IX-MISC— miscellaneous logical port number 2. Therefore, a value of **2** would be entered in Background Music (BGM) Input Port.

Note:	If the music source is connected to the BGM/MOH jack on the IX-CCU, it can be used as both the music on hold input and the background music input. This type of setup requires that the music on hold input port is assigned the same miscellaneous logical port number in 04.05 - Music on Hold (MOH) Input Port as is assigned in Background Music (BGM) Input Port. Background Music is not supported on IP telephones.

Programming Field Description

BKG Music Port	Meaning:	Miscellaneous logical port number for BGM.
	Range:	0-512 0 = the IX-CCU BGM input port is being used
	Default:	0

Related Databases:

Required: None.

Associated: 04.04 - Background Music (BGM) Output Port; 04.05 - Music on Hold (MOH) Input Port.

Hardware Required:

IX-CCU, IX-MISC, IX-EDCTU, IX-EDVIF.

04.04 - Background Music (BGM) Output Port

Class 04 Item 03 - Background Music Output Port is used to define the logical output port of the background music circuit. Designating the background music output port gives you the option of allowing the ECS to play background music through external paging speakers. **The background music circuit is always the second physical circuit on the IX-MISC/EDVIF card.** The port number entered in Background Music Output Port is based on the location of the IX-MISC/EDVIF card. For example, if the IX-MISC/EDVIF card used for background music is assigned miscellaneous logical port numbers1-8, the background music output port must be the second circuit on the IX-MISC— miscellaneous logical port number 2. Therefore, a value of 2 would be entered in Background Music Output Port. However, he most common connection point is the IX-CCU.

Note:	The IX-MISC/EDVIF card contains one BGM output port per card. A system can have up to four BGM output ports, one on each of four IX-MISC cards. Background Music is not supported on IP telephones.

Programming Field Description

System Background Music Port	Meaning:	BGM output source.
	Range:	1-4
Background Music Output Port	Meaning:	Port number of the BGM source
	Range:	0-512 0 = no output
	Default:	0

Related Databases:

Required: 04.03 - Background Music (BGM) Input Port.

Associated: None

Hardware Required:

IX-MISC, IX-EDCTU, IX-EDVIF.

04.05 - Music on Hold (MOH) Input Port

Class 04 Item 05 - Music On Hold Input Port is used to define the logical input port of the music on hold circuit. **The music on hold circuit is always the third physical circuit on the IX-MISC card.** This item applies only if 02.03 - Music Source Selection was set to **external**. The logical port number entered in Music on Hold (MOH) Input Port must be based on the location of the IX-MISC card. For example, if the IX-MISC card to be used for music on hold is assigned miscellaneous logical port numbers 1-8, the music on hold input port must be the third circuit on the IX-MISC, or miscellaneous logical port number 3. Therefore, a value of 3 would be entered in Music on Hold (MOH) Input Port.

If the music source is connected to the MOH/BGM jack on the IX-CCU card, it can be used as both the music on hold input and the background music inputs. This type of setup requires that the music on hold input port is assigned to the same miscellaneous logical port number as the 04.03 - Background Music (BGM) Input Port.

Programming Field Description

MOH Input Port	Meaning:	Miscellaneous logical port number of the MOH input port.
	Range:	0-512 0 = the IX-CCU music on hold input port is being used
	Default:	0

Related Databases:

Required: 02.03 - Music Source Selection.

Associated: 04.03 - Background Music (BGM) Input Port.

Hardware Required:

IX-CCU, IX-MISC, IX-EDVIF.

04.07 - Wake Up Call Report Port

Class 04 Item 07 - Wake Up Call Report Port is used to specify the port of the serial printer to be used for the *Wake-Up Call History Report*. This port can be shared with the port enabled for *Station Message Detail Recording* in 04.50 - SMDR - Output Port.

Either two IX-SCIF cards or one IX-EDVIF card and one IX-SCIF card must be installed in the system in order to separate the Wake-Up Call Report port from the Station Message Detail Recording port defined in 04.50 - SMDR - Output Port.

Programming Field Description

Wake up Call Port	Meaning:	Miscellaneous logical port number of the SMDR printer.
	Range:	0-512
	Default:	0 (Not used)

Related Databases:

Required: 01.13 Hardware.

Associated: 04.28 - Hotel Mode; 04.50 - SMDR - Output Port.

Hardware Required:

IX-EDVIF, IX-SCIF (An IX-HCIF can be used in place of a IX-SCIF card.

04.08 - Hold Recall Timer

Class 04 Item 08 - Hold Recall Timer is used to define the length of time a call will remain on hold. This timer is also used for Call Park and Group Park Call. The value entered denotes the length of time a call will remain on hold before the station that placed it on hold is recalled. A call placed on hold will recall the attendant if recall is not answered after the time programmed in 04.15 - Attendant DIL Intercept has elapsed.

Note:	This feature does not function with ICM calls.
Note:	If a value of **0 - No Recall** is entered in Hold Recall Timer, a trunk line cannot be programmed to accept attendant intercept when recall occurs (11.26 - Attendant Intercept Line).

Programming Field Description

Hold Recall Timer	Meaning:	Time in seconds before recall occurs.
	Range:	0-255seconds 0 = no recall
	Default:	180 seconds

Related Databases:

Required: 10.37 - Hold Recall.

Associated: 04.15 - Attendant DIL Intercept, 04.55 - Port Definition - True Attendant Position; 11.26 - Attendant Intercept Line.

04.09 - Call Back Duration

Class 04 Item 09 - Call Back Duration is used to define the length of time call back ringing will be maintained after a line becomes available and the system calls the queuing station. The call back condition is canceled once the time set in Call Back Duration has elapsed.

Programming Field Description

Call Back Duration	Meaning:	Length of time that ringing will be maintained after call-back.
	Range:	10-255 seconds
	Default:	20 seconds

Related Databases:

Required: None.

Associated: 04.10 - Timed Trunk Queuing; 04.19 - LCD Duration.

04.10 - Timed Trunk Queuing

Class 04 Item 10 - Timed Trunk Queuing is used to define the length of time from the activation of the busy number callback feature until call back ringing is initialized. The system will redial the callback number when the duration programmed here expires. A busy callback ringing duration programmed at the station during feature activation overrides the value programmed in this item.

Programming Field Description

Timed Trunk Queuing	Meaning:	Length of time in minutes between activation of busy number callback and call back.
	Range:	1 to 20 minutes
	Default:	5 minutes

Related Databases:

Required: None.

Associated: 04.09 - Call Back Duration; 10.19 - Queuing Class.

04.11 - Off-Hook Trunk Queuing Duration

Class 04 Item 11 - Off-Hook Trunk Queuing Duration is used to define the length of time an extension is allowed to wait for an idle trunk. When the time programmed in Off-Hook Trunk Queuing Duration elapses, the station is removed from the queue.

Programming Field Description

Off Hook TRK Que Dur.	Meaning:	Length of time in seconds a station will remain in the queue.
	Range:	10 to 255 seconds
	Default:	60 seconds

Related Databases:

Required: 10.20 - Off-Hook Trunk Queuing.

Associated: 10.20 - Off-Hook Trunk Queuing.

04.12 - Camp-On Duration

Class 04 Item 12 - Camp-On Duration is used to define the length of time the camp-on condition is maintained. When the time programmed in Camp-On Duration elapses, a recall is made to the original station. At that time, if the line is enabled in 11.26 - Attendant Intercept Line for attendant intercept, if the original station does not answer the recall within the attendant DIL intercept time (programmed in 04.15 - Attendant DIL Intercept), recall will be directed to the attendant station.

Conditions:

- 04.13 - Call Forward - No Answer must be less than the camp-on duration timer for this feature to work. This is especially true when using fixed call forward to voice mail in the busy/no answer or no answer mode.
- 04.13 - Call Forward - No Answer also applies to calls transferred to a UCD group.

Programming Field Description

Camp-On Duration	Meaning:	Length of time in seconds the camp-on condition is maintained.
	Range:	0 to 255 seconds 0 = infinity
	Default:	60 seconds.

Related Databases:

Required: None.

Associated: 04.13 - Call Forward - No Answer; 04.15 - Attendant DIL Intercept; 11.26 - Attendant Intercept Line.

04.13 - Call Forward - No Answer

Class 04 Item 13 - Call Forward - No Answer is used to define the length of time a call will ring at one station without being answered before it is forwarded to another station. This parameter applies to both the call forward - no answer and fixed call forward - no answer features. An ICM voice call, however, will not be forwarded if it is not answered.

Programming Field Description

Call FWD No Answer	Meaning:	Length of time in seconds before call forwarding occurs at a ringing station.
	Range:	0 to 255 seconds 0 = no call forwarding in the no answer mode.
	Default:	12 seconds.

Related Databases:

Required: 10.16 - Call Forwarding.

Associated: 10.73 - Programming Reserve; 10.75 - Programming Reserve 6 Element 2 Station No Answer Call Forward Timer, 10.78 - Fixed Call Forward Destination.

04.14 - Automatic CO Answer

Class 04 Item 14 - Automatic CO Answer is used to define the length of time from incoming call detection to system answer. When automatic CO answer occurs, the ECS plays a prerecorded message to the caller then disconnects the call.

Note:	If the IX-MSGU card is not installed, or if all IX-MSGU ports are busy at the time of the call, the ECS will not answer the call until an IX-MSGU port becomes available.

Programming Field Description

Automatic CO Answer	Meaning:	Length of time in seconds before Automatic CO Answer occurs.
	Range:	5 to 255 seconds
	Default:	16 seconds

Related Databases:

Required: 04.32 - Automatic CO Answer Start Time; 04.33 - Automatic CO Answer Day; 11.24 - Automatic Answer Line; 04.45 - Remote CO Forward Message Number; 04.46 - Remote CO Forward Duration.

Associated: 04.20 - VSS Recording Time; 15.01 - Attendant Key Assignment.

Hardware Required:

IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

04.15 - Attendant DIL Intercept

Class 04 Item 15 - Attendant DIL Intercept is used to define the length of time DIL incoming calls will ring at the assigned ringing station(s) before being transferred to the attendant. The following conditions must exist before attendant DIL intercept occurs:

- Time programmed for this feature in Attendant DIL Intercept has elapsed.
- Incoming calls, hold recalls or camp-on recalls will change to attendant intercept calls if they are not answered within the time programmed in Attendant DIL Intercept from the time the call or recall begins.
- If the time programmed in *04.16 - Delayed Ringing Timer* is greater than the time programmed in Attendant DIL Intercept, the call will not change to the delayed ringing assignment, but will change to attendant intercept.
- The intercept timer for delayed ringing stations was initialized at the time primary ringing started.

Note: Attendant intercept will not operate when the system is in night mode.

Programming Field Description

Att DIL Intercept	Meaning:	Length of time in seconds before Attendant DIL Intercept occurs.
	Range:	0 to 255 seconds 0 = no attendant intercept
	Default:	60 seconds

Related Databases:

Required: 04.55 - Port Definition - True Attendant Position; 11.26 - Attendant Intercept Line.

Associated: 04.08 - Hold Recall Timer; 04.12 - Camp-On Duration; 04.16 - Delayed Ringing Timer; 08.05 - UCD Hunt Group.

04.16 - Delayed Ringing Timer

Class 04 Item 16 - Delayed Ringing Timer is used to define the length of time a call will ring at the DIL station(s) before it begins ringing at the station(s) specified for delayed ringing. When the ECS is in day mode, if the time programmed in 04.15 - Attendant DIL Intercept is less than the time programmed in Delayed Ringing Timer, the call will be forwarded to the attendant intercept destination bypassing the delayed ringing station. This timer affects the Call Forward - No Answer operation on a DIL to station call. If Delayed Ringing Timer is set to 0 - No delayed ringing and if any stations are assigned as delayed ringing stations in 11.32 - Ringing Station, all delayed ringing stations and stations programmed in 11.32 - Ringing Station will ring at the time a call is detected on a CO line. Thus, 11.33 - Delayed Ringing Station can be used as an expanded table for specifying up to thirty-two DIL stations.

Note: Delayed ringing stations are NOT subject to Day/Night Mode operation.

Programming Field Description

Delayed Ringing Timer	Meaning:	Length of time in seconds before delayed ringing occurs.
	Range:	0 to 255 seconds 0 = no delayed ringing
	Default:	30 seconds

Related Databases:

Required: 11.32 - Ringing Station; 11.33 - Delayed Ringing Station.

Associated: 04.15 - Attendant DIL Intercept; 04.55 - Port Definition - True Attendant Position; 11.26 - Attendant Intercept Line.

04.17 - Doorphone Answer

Class 04 Item 17 - Doorphone Answer Time is used to define the length of time after ringing starts during which a station can answer a doorphone. This timer also controls doorphone relay make time.

Programming Field Description

Doorphone Answer Time	Meaning:	Length of time in seconds stations can answer a doorphone call.
	Range:	5 to 255 seconds
	Default:	20 seconds

Related Databases:

Required: 10.57 Doorphone Ringing; 10.59 Doorphone Tone.

Associated: 04.35 Miscellaneous Function Port; 04.37 Miscellaneous Function; 10.58 Doorphone Relay.

Hardware Required:

IX-DPHM, IX-16PSUB, IX-8PSUB, IX-DDPH.

04.18 - Reminder Ring Duration

Class 04 Item 18 - Reminder Ring Duration is used to define the length of time that *time reminder* and *wake-up calls* will ring. Once this time has elapsed the call is canceled.

Programming Field Description

Reminder Ring Dur.	Meaning:	Length of time in seconds time reminder and wake-up calls will ring.
	Range:	10 to 255 seconds
	Default:	20 seconds

Related Databases:

Required: None.

Associated: 03.01 - Time of Day; 03.02 - Calendar; 04.28 - Hotel Mode.

Related Hardware:

IX-MSGU, IX-CMSG, IX-CMSG-1

04.19 - LCD Duration

Class 04 Item 19 - LCD Duration is used to define the length of time the call duration counter of incoming and outgoing calls remains on the station LCD after the station goes on-hook. Once the time programmed in LCD Duration has elapsed, the display returns to the idle mode.

Note:	It is recommended that the LCD duration is set to a value no greater than sixty seconds to ensure the accuracy of this timer.

Programming Field Description

LCD Duration	Meaning:	Length of time in seconds before LCD is reset to idle after going on-hook
	Range:	0-255 seconds
	Default:	5 seconds

Related Databases:

Required: None.

Associated: 11.06 - Inter-Digit Time; 11.13 - Sender Time Out.

Hardware Required:

Key telephones with LCD displays.

04.20 - VSS Recording Time

Class 04 Item 20 - VSS Recording Time is used to establish the allowed recording time, between 1 and 360 seconds, for each custom message. Custom messages cannot be recorded unless a value greater than **0** is programmed in Class 04.20 for the corresponding message number. If the value remains **0**, the ECS uses the fixed message for the corresponding element. A value greater than **0** overrides the fixed message. Up to fifty-two custom messages can be recorded. Custom messages can only be recorded at an attendant position that has had a [Message Record] key assigned in *Class 15.01 - Attendant Key Assignment*. An IX-MSGU card is required to run this operation. The IX-CMSG/CMSG-1 card is required for customized recordings.

Field	Description
VSS Record Time MSG #: 31	UCD First Message. This message is played to callers on hold after the UCD Message Interval has elapsed.
VSS Record Time MSG #: 32	UCD Second Message. This message is played to callers on hold after the UCD Message Interval has elapsed. (There is no fixed message.)
VSS Record Time MSG #: 33-52	Custom Message Reserve. Use elements 33-52 to define the recording time of each custom recorded message.
SLT Predial Timer	SLT Predial Timer. When an SLT seizes a trunk, the system will not provide an audio path until this timer expires. This is useful to prevent toll fraud by single-line telephones.
UCD Message Interval	UCD Message Interval is used to assign an interval time in seconds between VSS messages that are played back to the outside caller. The interval timer begins at the start of UCD Message No. 1. When the timer expires, UCD Message No. 2 begins. The interval timer begins again at the start of UCD Message No. 2. When the timer expires, UCD Message No. 2 will replay. This then establishes a timing loop to replay UCD Message No. 2 continuously (until the disconnect time causes CO disconnect).
UCD Disconnect Time	UCD Disconnect Time is used to define the time in minutes after which a call waiting on a UCD group will be disconnected if not answered. The disconnect time begins when the call is detected by the ECS.

The Fixed Messages Table lists the available message numbers and the prerecorded message for each.

Fixed Messages Table

Message Number	Type of Message	Prerecorded Message
01	Variable (general Information, quick reference, etc.).	No prerecorded message.
02	DISA (1)	This is the Direct Dial in Service. If you are calling from a touch tone telephone and know the party's extension number, please dial it after the tone. If you need assistance, please stay on the line and an operator will assist you.
03	DISA (2)	This is the Direct Dial in Service. If you are calling from a touch tone telephone and know the party's extension number, please dial it after the tone. We are sorry, but no collect calls can be accepted. If you need assistance, please stay on the line and an operator will assist you.
04	DISA (3)	DISA confirmation tone.
05	DISA Acknowledgment	Reserved.
06 to 09	Auto Answer Message 1	Our offices are now closed. Please call again during our regular business hours. Thank you.
10 to 13	Auto Answer Message 2	Our offices are closed today. Please call again during our regular business hours. Thank you.
14-17	Remote Call Forward	This is the remote call forwarding service. A call is being forwarded to you. Please stay on the line.
18	DISA - Busy Station	The station you have reached is now busy.
19	DISA - Number is not in use	The number you have dialed is not in service. Please check the number and dial again. Thank you.
20	DISA -DND Station	The station you have called is not accepting calls at this time. Please call again later. Thank you.
21	DISA - Absence Message	There is no answer at the station you have called. Please try again later. Thank you.
22	UC & LC (Wake-Up call time entry	This is the wake-up call service. Please dial the digits for the time you wish to be called using the 24-hour clock.
23	Wake-Up Call Announcement	This is your wake-up call service. Have a nice day.
24	VSS Recording Prompt (using VSSR key)	Please leave your message after the tone.
25	VSS Recording Cancel (using VSSR key)	Your previous message has been canceled.
25	VSS Recording Channel Busy (using VSSR key)	Our message service is busy now. Please try again later. Thank you.
27	VSS Recording Acknowledgment	Your message has been sent. Thank you.

28	VSS Variable Message Playback	Your message has been recorded as follows...
29	VSS Request Acknowledgment	Your request has been accepted.
30	VSS Cancel Request	Your request has been canceled.
31	UCD Answer	We are sorry, all our operators are busy now. Your call will be answered as soon as an operator becomes available. Please stay on the line. Thank you.
32*	UCD Second Message	No prerecorded message.
33 to 52	Custom Recorded Messages	None.
58*	SLT Predial Timer	Not applicable.
<MSG59>**	UCD - Interval Between Messages	Not applicable.
60**	UCD - Disconnect Timer	Not applicable.

Programming Field Description

Message Number	Meaning:	Message number.
	Range:	1-60
VSS Recording Time	Meaning:	Maximum time in seconds allotted to record each custom message. Note: For <MSG60> only, input is in minutes.
	Range:	0 to 120 seconds 0=Fixed Message
	Default:	0

Related Databases:

Required: 15.01 - Attendant Key Assignment.

Associated: 04.45 - Remote CO Forward Message Number; 08.05 - UCD Hunt Group; 11.45 - Auto Answer Message 1; 11.46 - Auto Answer Message 2; 11.48 - DISA Message Number.

Hardware Required:

IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

04.21 - Hunting Time

Class 04 Item 21 - Hunting Time is used to define the length of time a hunt call will ring at each station before it is forwarded to the next station in the hunt group.

Programming Field Description

UCD Hunt Group	Meaning:	Hunt group number.
	Range:	1-250
UCD Hunting Time	Meaning:	Time in seconds before a call moves to the next station in a hunt group.
	Range:	0 to 255 seconds 0 = no hunting
	Default:	12

Related Databases:

Required: 07.02 - Hunting Group Access Numbers; 08.01 - Hunt Group - Type; 08.02 - Hunt Group - Station; 11.34 - Direct In Line (DIL) to Hunt Group.

Associated: 04.12 - Camp-On Duration; 04.15 - Attendant DIL Intercept; 04.20 - VSS Recording Time; 04.34 - UCD Answer Time; 08.03 - Hunt Group - ID; 08.05 - UCD Hunt Group; 11.23 - Uniform Call Distribution (UCD) Line; 11.72 - UCD Overflow Calls.

04.22 - ICM Call Mode

Class 04 Item 22 - ICM Call Mode is the calling mode for intercom calls. There are three settings for the ICM Call Mode: Called Party-Network Ring, Calling Party and Called Party-Network Voice. These settings refer to the station with the ability to change the ICM calling mode. The station defined in ICM Call Mode as the calling mode station can determine whether the call mode is tone (ring) or voice.

If the data field is set to Called Party-Network Voice and the station is set to receive voice calls, the calling station can toggle the call from voice to tone. Called Party-Network Voice/Ring does not take effect until the station user enters [FEAT] + [6][5]. When the ICM Call Mode is set for Called Party-Network Ring, the local telephone system can choose how incoming intercom calls are received, and all intercom calls coming across the network will ring.

04.22 ICM Call Mode	10.48 Calling Mode	Local Call Mode	Network Call Mode	Call Mode Change Operation
Calling Party	Voice Tone	Voice or Tone (ring)	Always Tone (ring)	The Calling extension can alternate between tone and voice by pressing the # key.
Called Party-Net Voice	Not Applicable	Voice	Always Voice	The Calling extension can alternate between Voice and Tone by pressing the [#] key.
		Tone (ring)	Always Voice	The Calling extension cannot change the calling mode. The station can receive tone calls only.
Called Party-Net Ring	Not Applicable	Voice	Always Tone (ring)	The Calling extension can alternate between Voice and Tone by pressing the [#] key.
		Tone (ring)	Always Tone (ring)	The Calling extension cannot change the calling mode. The station can receive tone calls only.

Note:	In Calling Party, 10.48 - Calling Mode determines how the station originates the local intercom call, not how the station receives the call.
Note:	E&M Tie Line Ring Mode can be an analog, a T1 or an IP trunk configured as an E&M tie line.

Programming Field Description

ICM Call Mode	Meaning:	Toggle between *Called Party Control* and *Calling Party Control*.
	Range:	Calling Party Called Party-Net Voice Called Party-Net Ring
	Default:	Called Party-Net Ring

Related Databases:

Required: 10.48 - Calling Mode.

Associated: None.

04.23 - Shift/Clear Call

Class 04 Item 23 - Shift/Clear Call is used to select either *shift call*, *clear call* or *no feature* for ICM dialing. If *shift call* is selected, a station making an ICM call to an extension which is busy or does not answer can call another extension without going on hook by dialing the last digit of the new extension number. If *clear call* is selected, the station can call another extension without going on hook but must redial the entire new extension number. If *no feature* is selected, the station must manually go on-hook, then dial the new extension number.

Programming Field Description

Shift/Clear Call	Meaning:	Toggle between *shift call, clear call* and *no feature*.
	Range:	No feature Shift call Clear call
	Default:	No feature

Related Databases:

Required: None.

Associated: None.

04.24 - Attendant Call Park Orbit

Class 04 Item 24 - Attendant Call Park Orbit is used to define the *call park orbit number(s)* as either *attendant use only* or *system use*. Each system can use a total of 250 call park orbit numbers. In default, the first 8 orbit numbers are assigned for attendant use only, orbit numbers 9-14 are assigned to the system (Group) and orbit numbers 15-250 are assigned to the attendant. If a call park orbit number is assigned for system use, any station can park a call there. A station can pick up a call in the attendant call park orbit by dialing the park orbit number if one has been assigned in 07.01 - Attendant/System Park Orbit Numbers.

Programming Field Description

Call Park Orbits Numbing	Meaning:	Call park orbit number.
	Range:	1-250
Used By	Meaning:	Toggle between *System Use (group park)* and *Attendant Use* of call park orbit numbers.
	Range:	System use Attendant use
	Default:	1-10; 21-60 = Attendant
		11-20; 61-250 = System (Group)

Related Databases:

Required: 07.01 - Attendant/System Park Orbit Numbers.

Associated: 04.25 - (Elements 5 - 16) Element 6; 114.01 - Key Assignment / 15.01 - Attendant Key Assignment.

04.25 - Calls for Pickup (Elements 1 - 4)

Class 04 Item 25 - Calls for Pickup (Elements 1 - 4) is used to determine the different types of calls a pickup group can access. Call pickup groups are defined in 10.51 - Call Pick-Up Group. Calls for Pickup contains ten additional elements—04.25 - (Elements 5 - 16)—which are used to program various system features.

Programming Field Description

CO Calls for Pickup	Meaning:	Call types for pickup.
	Range:	Enable Disable
	Default	Enable
.01 ICM Calls for Pickup	Meaning:	Call types for pickup
	Range:	Enable Disable
	Default	Disable
.02 Camp-On for Pickup	Meaning:	Call types for pickup
	Range:	Enable Disable
	Default	Enable
.03 Recall for Pickup	Meaning:	Call types for pickup
	Range:	Enable Disable
	Default	Enable

Related Databases:

Required: 10.51 - Call Pick-Up Group.

Associated: 10.22 - Incoming CO Access Group; 10.43 - Off-Hook Signaling; 10.44 - Protected Station.

04.25 - (Elements 5 - 16)

Class 04 Item 25 - (Elements 5 - 16) is used to determine the operation of various system features.

Both Busy ICM and Busy CO Override are enabled in default. Stations enabled to send busy bypass signaling in 10.41 - Busy Overriding and stations that are assigned an override key can perform busy bypass tone calling regardless of the values entered in Busy ICM Override or Busy CO Override field. The table below illustrates the relationships between these two fields:

If the system is programmed for:		And the called station is programmed for:	Then, busy bypass tone calling will operate based on the following programming for the calling station:		
Busy Override ICM	Busy Override ICM	10.43 - Off-Hook Signaling	10.41 - Busy Overriding Denied.	10.41 - Busy Overriding Allowed.	[Over Ride] key assigned in 14.01 - Key Assignment
Denied	Denied	Allowed to receive	No bypass signal - Busy status indication	Busy Bypass signaling will be sent regardless	Busy Bypass signaling will be sent regardless
Denied	Denied	Denied receiving	No bypass signal - Busy status indication	of other programmed items.	of other programmed items.
Allowed	Denied	Allowed to receive	Busy bypass signaling on ICM call only		
Allowed	Denied	Denied receiving	No bypass signal - Busy status indication		
Denied	Allowed	Allowed to receive	Busy bypass signaling on CO calls only		
Denied	Allowed	Denied receiving	No bypass signal - Busy status indication		
Allowed	Allowed	Allowed to receive	Camp-On signaling on ICM and CO calls.		
Allowed	Allowed	Denied receiving	No bypass signal - Busy status indication		

.06 Call Park For ICM Calls	Meaning:	Used to enable or disable Call Park
	Range:	Enable Disable
	Default	Enable
.07 Trunk Access	Meaning:	Used to enable or disable the floating CO line access feature and multiple CO line access feature.
	Range:	COL PBX
	Default	COL
.08 Busy ICM Override	Meaning:	Used to select whether the system will allow busy bypass calling (busy override) and camp on calls for ICM calls in progress.
	Range:	Enable Disable
	Default	Enable
.09 Busy CO Override	Meaning:	Used to select whether the system will allow busy bypass calling (busy override) and camp on calls for CO calls in progress.
	Range:	Enable Disable
	Default	Enable
.10 SMDR Call Duration Unit	Meaning:	Determines the unit of time used in 04.51 - SMDR - Minimum Call Duration.
	Range:	Minutes Seconds
	Default	Minutes
.11 Flash on CO Calls	Meaning:	Used to enable or disable single-line telephones to flash on CO calls.
	Range:	Enable Disable
	Default	Enable
.12 Daylight Savings Time	Meaning:	Used to identify if daylight savings time is used.
	Range:	Enable Disable
	Default	Disable

04.27 - Station Password Digits

Class 04 Item 27 - Station Password Digits is used to define the number of digits used for station passwords. The personalized password disables an unattended station from using the outgoing call features. This password is also used by the station user to access system features through DISA.

Programming Field Description

Station PWD Digits	Meaning:	Number of digits for the station password.
	Range:	1-6
	Default:	4

Related Databases:

Required: 10.05 - Station Password.

Associated: 10.06 - DISA Service.

04.28 - Hotel Mode

Class 04 Item 28 - Hotel Mode is used to toggle between *normal mode* and *hotel mode*. When hotel mode is selected, DSS consoles have room indicators on their Busy Lamp Field (BLF) units. The differences between hotel mode and normal mode are as follows:

- In hotel mode, an attendant position equipped with a KT + DSS unit will display the room status on the BLF unit.
- If a station is set as “occupied” by the attendant, the station is not restricted from making outgoing calls. If a station is set as “vacant” by the attendant, the station is restricted from making outgoing calls.

Note:	A system reset is required when switching to Hotel Mode/Normal Mode from Hotel Mode/Normal Mode.

Programming Field Description

Hotel Mode:	Meaning:	Toggle between *normal mode* and *hotel mode*.
	Range:	Normal mode Hotel mode
	Default:	Normal

Related Databases:

Required: 15.01 - Attendant Key Assignment.

Associated: 04.07 - Wake Up Call Report Port; 07.06 - Feature Access Numbers; 10.45 - Message Key.

Hardware Required:

KT + DSS units, IX-8SUBM (for message waiting), IX-DCDCB.

04.29 - Dial Pulse SLT Consultation Hold

Class 04 Item 29 - Dial Pulse SLT Consultation Hold is used to determine how a dial pulse single-line telephone (SLT) will place a CO call on consultation hold. The two consultation hold options available are:

- Calls are placed on consultation hold when the dial pulse SLT performs a hookswitch flash.
- Calls are automatically placed on consultation hold when the dial pulse SLT dials an extension number.

If a single-line telephone uses DTMF, it must always perform hookswitch flash to place a call on consultation hold.

Note:	If Dial Mode is selected in Dial Pulse Consultation Hold, only incoming calls or transferred calls can be placed on consultation hold by dialing on a dial pulse SLT. Hookswitch flash must be performed to place outgoing calls and ICM calls on hold.

Programming Field Description

DP On Consult Hold	Meaning:	Toggle between *flash* and *dial* modes to place an incoming CO call on consultation hold from a dial pulse SLT.
	Range:	Flash mode Dial mode
	Default:	Flash

Related Databases:

Required: 01.04 Configuration; 10.10 - Hookflash Timing; 10.46 - Hookswitch Flash.

Associated: None.

Hardware Required:

IX-8SUBS, IX-8SUBM, IX-4SUBL, Single-Line Telephones, IX-DCDCB, IX-8SUBS-1, IX-8SUBS-2, IX-SUBS-3.

04.30 - Trunk-to-Trunk Hold

Class 04 Item 30 - Trunk-to-Trunk Hold is used to define the hold status of CO lines engaged in a trunk-to-trunk conference. For example, if Exclusive is programmed, only the station that activated the trunk-to-trunk conference can access the conference to create a multiline conference. If System is programmed for this item, any station can pickup the conference.

Programming Field Description

Trunk-to-Trunk Hold	Meaning:	Toggle between System and Exclusive to define access to trunk-to-trunk conferences on hold.
	Range:	System Exclusive
	Default:	Exclusive

Related Databases:

Required: 01.04 Configuration.

Associated: 02.10 - CO Monitor Guard Time; 02.11 - CO Interrupt Tone Duration; 02.12 - CO Interrupt Tone Repetition; 02.13 - CO Interrupt Tone Allowance; 02.14 - CO Continuous Tone Duration; 02.15 - CO Silence Duration; 02.16 - CO Silence - Noise Allowance.

Hardware Required:

IX-4ETRAN.

04.31 - Night Mode Start Time

Class 04 Item 31 - Night Mode Start Time is used to set the time of day when the system will automatically switch to night mode. The ECS can also be manually switched to night mode at the attendant station. Manual operation has priority over automatic operation. Regardless of how the system is switched to night mode, it must always be switched back to day mode manually using the [Night Change] button.

Programming Field Description

Night Mode Start Time	Meaning:	Set the time using military time at which the system will automatically switch to night mode.
	Range:	00:00 - 23:59
	Default:	Blank

Related Databases:

Required: 03.01 - Time of Day.

Associated: 10.23 - Toll Restriction Level and Class; 10.27 - Automatic Signal Alternating; 10.28 -Dial-On Conversation; 10.32 - Optimized Routing Call; 10.34 - Route Advance Step; 15.01 - Attendant Key Assignment.

Hardware Required:

IX-MISC, IX-EDCTU (if an external ringer or remote relay control in night mode is desired), IX-EDVIF.

04.32 - Automatic CO Answer Start Time

Class 04 Item 32 - Automatic CO Answer Start Time is used to set the time of day when the system will automatically switch to Automatic Answer Mode. The ECS is setup at default to play voice message 1 to outside callers when in automatic answer mode. Use 04.33 - Automatic CO Answer Day to program the days on which voice message 2 will be played. If an IX-MSGU card is not installed this feature will not work. If an IX-MSGU port is not available at the time of a call, the system will not answer the call until an IX-MSGU port becomes available.

Note:	Automatic CO answer mode can also be activated manually using the attendant [Automatic Answer] key.

Programming Field Description

Auto CO Ans St Time	Meaning:	Set the time using military time at which the system will automatically switch to Auto CO Answer mode.
	Range:	00:00 - 23:59
	Default:	None

Related Databases:

Required: 03.01 - Time of Day; 04.33 - Automatic CO Answer Day; 11.24 - Automatic Answer Line; 11.45 - Auto Answer Message 1; 11.46 - Auto Answer Message 2; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Associated: 04.14 - Automatic CO Answer; 04.20 - VSS Recording Time.

Hardware Required:

IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

04.33 - Automatic CO Answer Day

Class 04 Item 33 - Automatic CO Answer Day is used to select up to four days of the week when the ECS will automatically use voice message 2 when answering calls in automatic CO answer mode. The auto answer day begins at 12:00 a.m. on the days programmed in Automatic CO Answer Day. Automatic CO Answer Day will not work unless 04.32 - Automatic CO Answer Start Time is programmed. If an IX-MSGU card is not installed this feature will not work. If an IX-MSGU port is not available at the time of a call, the ECS will not answer the call until a IX-MSGU port becomes available.

Programming Field Description

Day	Meaning:	Auto CO Answer Day.
	Range:	1-4
Auto CO Answer Day	Meaning:	Select a day of the week in which voice message 2 will be played in automatic CO answer mode.
	Range:	Sunday Monday Tuesday Wednesday Thursday Friday Saturday Sunday None
	Default:	None

Related Databases:

Required: 03.01 - Time of Day; 03.02 - Calendar; 04.14 - Automatic CO Answer; 04.32 - Automatic CO Answer Start Time; 11.24 - Automatic Answer Line; 11.46 - Auto Answer Message 2.

Associated: 04.20 - VSS Recording Time; 15.01 - Attendant Key Assignment.

Hardware Required:

IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

04.34 - UCD Answer Time

Class 04 Item 34 - UCD Answer Time is used to define the duration between the time a UCD line detects an incoming signal and the ECS answers the call. For example, if the default value of 16 seconds is programmed in UCD Answer Time, the call will be answered and the UCD message is played 16 seconds after the system detects an incoming UCD call. During that interval the caller continues to hear ringback tone. This feature is only available if an IX-MSGU card is installed. If an IX-MSGU port is not available at the time a call is received, the system will wait 16 seconds then check for an available IX-MSGU port. When the system is in night mode UCD is not operational.

The length of time between messages is programmable and a second message can also be programmed. Additionally, UCD overflow parameters and a UCD disconnect time can be programmed.

Programming Field Description

UCD Answer Time	Meaning:	Time in seconds before a UCD call will be answered by the system.
	Range:	10-255 seconds
	Default:	16 seconds

Related Databases:

Required: 08.05 - UCD Hunt Group.

Associated: 04.20 - VSS Recording Time; 08.01 - Hunt Group - Type; 08.02 - Hunt Group - Station; 08.03 - Hunt Group - ID; 11.26 Attendant Intercept Line; 11.32 Ringing Station; 11.34 - Direct In Line (DIL) to Hunt Group.

Hardware Required:

IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

04.35 - Miscellaneous Function Port

Class 04 Item 35 - Miscellaneous Function Port is used to define the relay or sensor locations for each system. Up to thirty-two relays or sixteen sensors are allowed per system. The relay control is always the fourth circuit of the IX-MISC/EDVIF card. Control for the sensor logical port is always the fifth port on the IX-MISC/EDVIF card. Each miscellaneous card contains relays and sensors. Some relay circuits are used for relays only. Some relay circuits can be used for either relays or sensors. However, only relays 1-8 can appear as a key. Switches must be set on the IX-MISC/EDVIF card for relay and/or sensor use.

Programming Field Description

System Misc Relay Sensor Number	Meaning:	Relay or sensor number.
	Range:	1-32
Port Number	Meaning:	Miscellaneous logical port of relay or sensor.
	Range:	0-512
	Default:	00
Circuit Number	Meaning:	Relay or sensor number on the miscellaneous logical port.
	Range:	1-8
	Default:	1

Related Databases:

Required: 04.37 - Miscellaneous Function.

Associated: 01.03 Port Definition; 01.04 Port Configuration; 04.36 - Miscellaneous Relay Timer; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

IX-MISC, IX-EDVIF, IX-EDCTU.

04.36 - Miscellaneous Relay Timer

Class 04 Item 36 - Miscellaneous Relay Timer is used to define the length of closure that relays defined as *one-shot* relays in 04.37 - Miscellaneous Function will operate.

Programming Field Description

Misc Relay Timer	Meaning:	Time in milliseconds a one-shot relay will remain closed during operation.
	Range:	10-255 (x 100 milliseconds)
	Default:	100 (x 100 milliseconds)

Related Databases:

Required: 04.35 - Miscellaneous Function Port; 04.37 - Miscellaneous Function.

Associated: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

IX-MISC, IX-EDVIF, IX-EDCTU.

04.37 - Miscellaneous Function

Class 04 Item 37 - Miscellaneous Function is used to define the function of each relay and sensor on the IX-MISC card. Use the table below for data entry:

Relay Assignment	Function	Description
Loud Ringer	Relay	Day Bells. 1 second on, 3 seconds off/day and night.
Relay Control	Relay	Push ON/OFF. Remote control in Programmer must be assigned to activate this relay.
One-Shot Relay	Relay	A one-shot relay can be assigned to operate with a specific doorphone in 10.58 - Doorphone Relay. This relay operates only when the doorphone is in use. Remote control in PC Programmer must be assigned to activate this relay.
Doorphone Relay	Relay	A doorphone relay can be assigned to operate with a specific doorphone in 10.58 - Doorphone Relay. This relay operates only when the doorphone is in use. This relay also provides a make contact for video camera control. The doorphone relay will make when the doorphone call button is activated and will open when the called station goes on-hook or the *doorphone answer time* programmed in Class 04.17 has elapsed.
Night Relay	Relay	Operates when the system is in the night mode.
UNA Relay	Relay	Works the same as a loud ringer. Functions only when in night mode.
Manual Night Switch	Sensor	Relays 5-8 - Closed = Night. Open = Day
Queue Threshold Indication	Relay	See 19.12 - Status Relay Number
Expansion	Relay	See Class 19.12 - Status Relay Number
Emergency Record	Relay	See Class 19.12 - Status Relay Number

Programming Field Description

Relay Assignment	Meaning:	Relay assignment.
	Range:	See table above
	Default:	Loud Ringer

Related Databases:

Required: 04.35 - Miscellaneous Function Port.

Associated: 04.17 - Doorphone Answer; 04.36 - Miscellaneous Relay Timer; 10.57 - Doorphone Ringing; 10.58 - Doorphone Relay; 11.28 - Universal Night Answer (UNA) Relay Number; 11.35 - Loud Ringer Relay Number; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

IX-MISC, IX-EDVIF, IX-EDCTU, IX-DDPH.

04.38 - Hunting Method in CO Line Group

Class 04 Item 38 - Hunting Method in CO Line Group is used to determine the search order to access an idle CO line in a trunk group for outgoing calls. The order must be carefully selected, with regard to the customer's operating conditions, to avoid a call collision. There are two hunting modes to choose from:

- **Normal Hunting** - The ECS will always seize the highest trunk in the group.
- **Circular Hunting** -The ECS will start searching at the lowest trunk and seize sequentially. Circular hunting is used primarily with ground start trunks.

Programming Field Description

Hunt Method Co Grp	Meaning:	Determine the CO line search order.
	Range:	Normal Circular
	Default:	Normal

Related Databases:

Required: 07.03 - CO Line Group Access Numbers; 11.38 - Outgoing CO Group.

Associated: 04.25 - Calls for Pickup (Elements 1 - 4) Element 7; 114.01 - Key Assignment / 15.01 - Attendant Key Assignment; Class 17 Optimized Routing.

Hardware Required:

IX-8LGTK, IX-T1DTI, IX-4EMTK.

04.39 - DISA ICM Call

Class 04 Item 39 - DISA ICM Call is used to limit the length of time an ICM call from an external party using DISA is allowed to ring. If the call is not answered within the time programmed in DISA ICM Call, the line will be disconnected or intercepted by the attendant depending on the following conditions:

- If 11.26 - Attendant Intercept Line is set and the attendant intercept time (04.15 - Attendant DIL Intercept) is less than the time programmed in 04.39 - DISA ICM Call, the DISA call will route to the attendant or be disconnected as programmed.
- If no station ports are equipped in the system, the call will route to the lowest port regardless of the port type. This includes SLT ports.

Note: It is recommended that DISA ICM Call is set to a value no greater than sixty seconds to ensure the accuracy of this timer.

Programming Field Description

ICM Call	Meaning:	The length of time an ICM DISA call may ring before being either disconnected or intercepted by the attendant.
	Range:	0-60 seconds (with 0 meaning infinity)
	Default:	60 seconds

Related Databases:

Required: 04.41 - DISA Waiting Time; 04.42 - DISA: Total Duration; 10.06 - DISA Service; 11.25 - DISA Line; 11.47 - DISA/T1 E&M Virtual Station; 11.48 - DISA Message Number.

Associated: 04.15 - Attendant DIL Intercept; 04.40 - DISA Paging Call; 04.55 - Port Definition - True Attendant Position; 11.26 - Attendant Intercept Line.

Hardware Required:

IX-RCVPM with IX-4RCVS or IX-RMPU, IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

04.40 - DISA Paging Call

Class 04 Item 40 - DISA Paging Call is used to limit the length of time an outside caller using a DISA line is allowed to access the *paging*, *all call* or *group call* functions. When the time programmed in DISA Paging Call has elapsed and either the paging, all call or group call functions are still being used, the line will be disconnected or intercepted by the attendant depending on the following conditions:

- If 11.26 - Attendant Intercept Line is set and the 04.15 - Attendant DIL Intercept is less than the time programmed in 04.39 - DISA ICM Call, the DISA call will route to the attendant or be disconnected as programmed.
- If no station ports are equipped in the system, the call will route to the lowest port regardless of the port type. This includes SLT ports.

Note:	t is recommended that DISA Paging Call is set to a value no greater than sixty seconds to ensure the accuracy of this timer.

Programming Field Description

Paging Call	Meaning:	The length of time an ICM DISA call may ring before being disconnected or intercepted by the Attendant.
	Range:	0-255 seconds (with 0 meaning infinity)
	Default:	30 seconds

Related Databases:

Required: 04.39 - DISA ICM Call; 04.41 - DISA Waiting Time; 04.42 - DISA: Total Duration; 10.02 - Station Numbering; 11.25 - DISA Line; 11.47 - DISA/T1 E&M Virtual Station; 11.48 - DISA Message Number.

Associated: 04.15 - Attendant DIL Intercept; 04.55 - Port Definition - True Attendant Position; 07.04 - Paging Group Access Numbers; 08.04 - Paging Group - Station/Zone; 10.49 - Meet-Me Answer Group; 11.26 - Attendant Intercept Line.

Hardware Required:

IX-RCVPM with IX-4RCVS or IX-RMPU, IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

04.41 - DISA Waiting Time

Class 04 Item 41 - DISA Waiting Time is used to define the length of time the ECS will wait for the first incoming dialing after answering a call on a DISA line. When the time programmed in Class 04.41 has elapsed, the line will be disconnected or intercepted by the attendant depending on the following conditions:

- If 11.26 - Attendant Intercept Line is set and the 04.15 - Attendant DIL Intercept is less than the time programmed in 04.39 - DISA ICM Call, the DISA call will route to the attendant or be disconnected as programmed.
- If no IX-PSUB ports are equipped in the system, the call will route to the lowest port regardless of the port type. This includes SLT ports.

Programming Field Description

waiting Time	Meaning:	The length of time the system will wait for the first incoming dialing after answering a call on a DISA line.
	Range:	0-255 seconds 0 = infinity
	Default:	10 seconds

Related Databases:

Required: 04.39 - DISA ICM Call; 04.40 - DISA Paging Call; 04.42 - DISA: Total Duration; 10.06 - DISA Service; 11.25 - DISA Line; 11.47 - DISA/T1 E&M Virtual Station; 11.48 - DISA Message Number.

Associated: 04.15 - Attendant DIL Intercept; 04.55 - Port Definition - True Attendant Position; 11.26 - Attendant Intercept Line.

Hardware Required:

IX-RCVPM with IX-4RCVS or IX-RMPU, IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

04.42 - DISA: Total Duration

Class 04 Item 42 - DISA: Total Duration is used to define the length of time an outside caller can use DISA after the line is answered. When the time programmed in Class 04.42 has elapsed, the line is disconnected even if it has been intercepted by the attendant. This timer supersedes all other timers. This parameter does not apply when performing remote PC programming through DISA.

Programming Field Description

Data Field:	Meaning:	The length of time in minutes an outside caller may remain on a DISA line.
	Range:	0-255 minutes 0 = infinity (not recommended)
	Default:	60 minutes

Related Databases:

Required: 04.39 - DISA ICM Call; 04.40 - DISA Paging Call; 10.06 - DISA Service; 11.25 - DISA Line; 11.47 - DISA/T1 E&M Virtual Station; 11.48 - DISA Message Number.

Associated: 04.15 - Attendant DIL Intercept; 04.55 - Port Definition - True Attendant Position; 11.26 - Attendant Intercept Line.

Hardware Required:

IX-RCVPM with IX-4RCVS or IX-RMPU, IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages), IX-4ETRAN (if outbound CO calls through DISA are required).

04.43 - Remote CO Forward Incoming Group

Class 04 Item 43 - Remote CO Forward Incoming Group is used to specify which incoming CO group will be used as the incoming lines for each remote CO forward group. Each subsystem can have four remote CO forwarding groups. One incoming CO group cannot be assigned to more than one forward group. For example, If CO line group 10 is used as the incoming lines for the second remote call forward group, this item is programmed as follows:

[04.43 <NUM2> REMOTE CO FWD INCOMING GP. 10]

Additionally, remote CO forward can also be activated or deactivated by an external caller through DISA using the station password.

Programming Field Description

System Remote CO Forward: Group Number	Meaning:	Remote call forward group number.
	Range:	1-4
Incoming Group	Meaning:	Incoming CO group number as set in 11.39 - Incoming CO Group.
	Range:	1-250
	Default:	0

Related Databases:

Required: 1.11 Trunk Port Definition; 04.44 - Remote CO Forward Outgoing Group; 04.45 - Remote CO Forward Message Number; 04.46 - Remote CO Forward Duration, 11.38 - Outgoing CO Group; 11.39 - Incoming CO Group.

Associated: 11.18 - Line Loss; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

IX-4ETRAN, IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

04.44 - Remote CO Forward Outgoing Group

Class 04 Item 44 - Remote CO Forward Outgoing Group is used to specify which outgoing CO group is used as the outgoing lines for each remote CO forward group. Each subsystem can have four remote CO forwarding groups. CO disconnect detection must be set in Trunk Ports for each remote forward group. One outgoing CO group can be assigned to more than one forward group. Additionally, remote CO forward can also be activated or deactivated by an external caller through DISA using the station password.

Programming Field Description

System Remote CO Forward: Group Number	Meaning:	Remote call forward group number.
	Range:	1-4
Outgoing Group	Meaning:	Outgoing CO group number from 11.38 - Outgoing CO Group.
	Range:	1-250
	Default:	0

Related Databases:

Required: 01.11 Trunk Port Definition; 04.43 - Remote CO Forward Incoming Group; 04.45 - Remote CO Forward Message Number; 04.46 - Remote CO Forward Duration, 11.38 - Outgoing CO Group; 11.39 - Incoming CO Group

Associated: 11.18 - Line Loss; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

IX-4ETRAN, IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

04.45 - Remote CO Forward Message Number

Class 04 Item 45 - Remote CO Forward Message Number is used to specify which message is played for a specific remote CO forward group to the destination telephone when a call is answered. Each system can have four remote CO forwarding groups. Once the outgoing dialing has been completed, the message programmed in Class 04 Item 45 - Remote CO Forward Message Number will play automatically to the destination telephone after the *inter-digit time* programmed in 11.06 - Inter-Digit Time and the *sender time-out* programmed in 11.13 - Sender Time Out have elapsed. If **0** is assigned as the value for a remote CO forward group in Class 04 Item 45 - Remote CO Forward Message Number, the call is forwarded to the destination before a message is played.

Note:	Remote CO forward can also be activated or deactivated by an external caller through DISA using the station password.

Programming Field Description

System Remote CO Forward: Group Number	Meaning:	Remote call forward group number.
	Range:	1-4
Message No	Meaning:	Message number (04.20 - VSS Recording Time) for remote call forward group.
	Range:	No Msg, 14-17
	Default:	14

Related Databases:

Required: 01.11 Trunk Port Definition; 04.43 - Remote CO Forward Incoming Group; 04.44 - Remote CO Forward Outgoing Group; 04.46 - Remote CO Forward Duration, 11.38 - Outgoing CO Group; 11.39 - Incoming CO Group

Associated: 04.20 - VSS Recording Time; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

IX-4ETRAN, IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

04.46 - Remote CO Forward Duration

Class 04 Item 46 - Remote CO Forward Duration is used to define the maximum duration allowed for a forwarded call to a specific remote CO forward destination. Once the time programmed in Remote CO Forward Duration has elapsed, the call is disconnected. This item should be set to **0**, if the IX-4ETRAN card, which provides disconnection detection, is installed. Additionally, remote CO forward can also be activated or deactivated by an external caller through DISA using the station password.

Programming Field Description

System Remote CO Forward: Group Number	Meaning:	Remote call forward group number.
	Range:	1-4
Duration	Meaning:	Time in minutes before a forwarded call is disconnected for the specified remote call forward group.
	Range:	0-255 minutes
	Default:	60 minutes

Related Databases:

Required: 01.11 Trunk Port Definition; 04.43 - Remote CO Forward Incoming Group; 04.44 - Remote CO Forward Outgoing Group; 04.46 - Remote CO Forward Duration, 11.38 - Outgoing CO Group; 11.39 - Incoming CO Group.

Associated: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

IX-4ETRAN, IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

04.47 - Automatic Repeat Dial - Duration

Class 04 Item 47 - Automatic Repeat Dial - Duration is used to define the interval between occurrences of automatic repeat dialing. For example, if a station is setup for automatic repeat dialing and a value of **120** is programmed in Automatic Repeat Dial - Duration, the system will attempt the call every 120 seconds (two minutes) until either the receiving station goes off-hook, the operation is canceled or the number of call attempts programmed in 04.49 - Auto Repeat Dial - Repetition has been exceeded. Automatic repeat dial is a CO related feature.

Note:	The auto repeat dial duration timer has no effect if 11.13 - Sender Time Out is set to **0**.

Programming Field Description

Dial Duration	Meaning:	Time in seconds between occurrences of the automatic repeat dial feature.
	Range:	10-255 seconds
	Default:	120 seconds

Related Databases:

Required: 04.48 - Auto Repeat Dial - Off Hook; 04.49 - Auto Repeat Dial - Repetition; 11.13 - Sender Time Out; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Associated: 11.06 - Inter-Digit Time.

04.48 - Auto Repeat Dial - Off Hook

Class 04 Item 48 - Auto Repeat Dial - Off Hook is used to define the length of time the system remains off-hook during an auto repeat dial call attempt. If the dialing station does not go off-hook during the time specified here, the call is terminated and repeated later. If the station which activated auto repeat dialing goes off-hook before the time programmed in Class 04.48 has elapsed, the auto repeat dialing is canceled.

Note: If the outside party answers within the automatic repeat dialing off hook time, the call will be terminated unless the dialing station goes off hook or presses the [SPKR] key if an optional IX-SSPU is installed.

Programming Field Description

Dial Off Hook	Meaning:	Time in seconds a station can remain off-hook between occurrences of the auto repeat dial feature.
	Range:	10-255 seconds
	Default:	20 seconds

Related Databases:

Required: 04.47 - Automatic Repeat Dial - Duration; 04.49 - Auto Repeat Dial - Repetition; 11.13 - Sender Time Out; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Associated: 11.06 - Inter-Digit Time.

04.49 - Auto Repeat Dial - Repetition

Class 04 Item 49 - Auto Repeat Dial - Repetition is used to define the number of attempts the system will make dialing an auto repeat dial call. Once the number of auto repeat dial attempts equals the number programmed in Auto Repeat Dial - Repetition, the feature is canceled.

Programming Field Description

Dial Repetition	Meaning:	Number of times auto repeat dialing is attempted when a station goes off-hook before the feature is canceled.
	Range:	1-120
	Default:	10

Related Databases:

Required: 04.47 - Automatic Repeat Dial - Duration; 04.48 - Auto Repeat Dial - Off Hook; 11.13 - Sender Time Out; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Associated: 11.06 - Inter-Digit Time.

04.50 - SMDR - Output Port

Class 04 Item 50 - SMDR - Output Port is used to define the **logical port number** of the SMDR serial port on the IX-SCIF or IX-EDVIF card. The first circuit on the IX-SCIF card is always defined as the PC port. The second circuit on the IX-SCIF/IX-HCIF card is always defined as the printer port. By default, MISC Logical Port 3 is the SMDR port (IX-EDVIF).

Note: You must consider the default settings for *Classes 04.53 - SMDR - Toll Only Report and 04.54 - SMDR - Account Code Only,* and 06.07 - Toll Restriction - SMDR Table. At default, *04.53 - SMDR - Toll Only Report* is set for toll calls only which causes the system to scan the toll definition for SMDR in 06.07 - Toll Restriction - SMDR Table. At default 06.07 - Toll Restriction - SMDR Table is blank, therefore, there is NO SMDR report (output).

Programming Field Description

Output Port	Meaning:	SMDR output logical port number.
	Range:	0-512
	Default:	0

Related Databases:

Required: 01.13 Misc Port Definition; 04.53 - SMDR - Toll Only Report; 06.07 - Toll Restriction - SMDR Table.

Associated: 04.25 - Calls for Pickup (Elements 1 - 4) Element 10; 04.51 - SMDR - Minimum Call Duration; 04.52 - SMDR - Incoming Call Report; 04.54 - SMDR - Account Code Only; 10.18 - SMDR Report; 11.06 - Inter-Digit Time; 11.13 - Sender Time Out; 11.29 - SMDR Report.

Hardware Required:

IX-SCIF, IX-EDVIF, IX-HCIF

04.51 - SMDR - Minimum Call Duration

Class 04 Item 51 - SMDR - Minimum Call Duration is used to define the minimum call duration of calls to be included on an SMDR report. When the duration of a call exceeds the time set in SMDR - Minimum Call Duration, the call information is included in the SMDR report. If this item is set to **0**, all calls are included in the SMDR report. For example, if SMDR - Minimum Call Duration, 04.53 - SMDR - Toll Only Report and 04.54 - SMDR - Account Code Only are programmed as follows:

SMDR-MINIMUM CALL DURATION (10-30) 10]

SMDR-TOLL ONLY REPORT (0-1) 1]

SMDR-ACCOUNT CODE ONLY (0-1) 1]

The SMDR report will include only call information for toll calls which exceed ten minutes and for which an account code has been entered. SMDR recording begins after the timers programmed in 11.06 - Inter-Digit Time and *11.13 - Sender Time Out* expire.

Note:	The minimum call duration for SMDR printout can be programmed in either minutes or seconds. The value selected in 04.45 - Remote CO Forward Message Number Element 10 determines whether the minimum call duration specified in 04.51 - SMDR - Minimum Call Duration is in minutes or in seconds. The default setting is minutes.

Programming Field Description

Min Call Duration	Meaning:	Time in minutes or seconds a call must exceed to be included on an SMDR printout.
	Range:	0-30
	Default:	0

Related Databases:

Required: 04.25 - Calls for Pickup (Elements 1 - 4) Element 10; 04.50 - SMDR - Output Port.

Associated: 04.52 - SMDR - Incoming Call Report; 04.53 - SMDR - Toll Only Report; 04.54 - SMDR - Account Code Only; 06.07 - Toll Restriction - SMDR Table; 10.18 - SMDR Report; 11.06 - Inter-Digit Time; 11.13 - Sender Time Out; 11.29 - SMDR Report.

Hardware Required:

IX-SCIF, IX-EDVIF, IX-HCIF.

04.52 - SMDR - Incoming Call Report

Class 04 Item 52 - SMDR - Incoming Call Report is used to define whether incoming CO calls are included with the SMDR printout.

Programming Field Description

Incoming Call Report	Meaning:	Select to include or omit incoming CO calls from the SMDR report.
	Range:	Do no Print Print
	Default:	Print

Related Databases:

Required: 04.50 - SMDR - Output Port.

Associated: 04.25 - Calls for Pickup (Elements 1 - 4) Element 10; 04.51 - SMDR - Minimum Call Duration; 04.53 - SMDR - Toll Only Report; 04.54 - SMDR - Account Code Only; 06.07 - Toll Restriction - SMDR Table; 10.18 - SMDR Report; 11.06 - Inter-Digit Time; 11.13 - Sender Time Out; 11.29 - SMDR Report.

Hardware Required:

IX-SCIF, IX-EDVIF, IX-HCIF.

04.53 - SMDR - Toll Only Report

Class 04 Item 53 - SMDR - Toll Only Report is used to define whether outgoing toll calls are included in the SMDR printout. If a value of **1** is entered in SMDR - Toll Only Report, the dial data to be printed out must be programmed in 06.07 - Toll Restriction - SMDR Table. For example, if 04.51 - SMDR - Minimum Call Duration, 04.53 - SMDR - Toll Only Report and 04.54 - SMDR - Account Code Only are programmed as follows:

SMDR-MINIMUM CALL DURATION (10-30) 10]

SMDR-TOLL ONLY REPORT (0-1) 1]

SMDR-ACCOUNT CODE ONLY (0-1) 1]

The SMDR report will include only call information for toll calls which exceed ten minutes and for which an account code has been entered. To include all calls on the SMDR Report, 04.53 - SMDR - Toll Only Report and 04.54 - SMDR - Account Code Only must remain set to **0**.

Programming Field Description

Toll Only Report	Meaning:	Select to include or omit toll calls from the SMDR report.
	Range:	Print All Calls Print Toll Calls Only
	Default:	Print All Calls

Related Databases:

Required: 04.50 - SMDR - Output Port; 06.07 - Toll Restriction - SMDR Table.

Associated: 04.25 - Calls for Pickup (Elements 1 - 4) Element 10; 04.51 - SMDR - Minimum Call Duration; 04.53 - SMDR - Toll Only Report; 04.54 - SMDR - Account Code Only; 06.07 - Toll Restriction - SMDR Table; 10.18 - SMDR Report; 11.06 - Inter-Digit Time; 11.13 - Sender Time Out; 11.29 - SMDR Report.

Hardware Required:

IX-SCIF, IX-EDVIF, IX-HCIF.

04.54 - SMDR - Account Code Only

Class 04 Item 54 - SMDR - Account Code Only is used to define whether calls for which an account code has been entered are included in the SMDR printout. For example, if 04.51 - SMDR - Minimum Call Duration, 04.53 - SMDR - Toll Only Report and 04.54 - SMDR - Account Code Only are programmed as follows:

SMDR-MINIMUM CALL DURATION (10-30)10]

SMDR-TOLL ONLY REPORT (0-1) 1]

SMDR-ACCOUNT CODE ONLY (0-1) 1]

The SMDR report will include only call information for toll calls which exceed ten minutes and for which an account code has been entered.

Programming Field Description

Account Code Only:	Meaning:	Select to include or omit calls for which an account code has been entered from the SMDR report.
	Range:	Print all calls Print calls with an account code only
	Default:	Print all calls

Related Databases:

Required: 04.50 - SMDR - Output Port.

Associated: 04.25 - Calls for Pickup (Elements 1 - 4) Element 10; 04.51 - SMDR - Minimum Call Duration; 04.53 - SMDR - Toll Only Report; 04.54 - SMDR - Account Code Only; 06.07 - Toll Restriction - SMDR Table; 10.18 - SMDR Report; 11.06 - Inter-Digit Time; 11.13 - Sender Time Out; 11.29 - SMDR Report.

Hardware Required:

IX-SCIF, IX-EDVIF, IX-HCIF.

04.55 - Port Definition - True Attendant Position

Class 04 Item 55 - Port Definition - True Attendant Position is used to specify the logical port numbers of up to eight stations to function as attendant positions or *true attendants*. Only the stations assigned as true attendant positions in Port Definition - True Attendant Position will receive attendant recalls and be included in all attendant calls.

The KT + DSS will function as a true attendant position. If Port Definition - True Attendant Position is not programmed, the system will assign the attendant position with the lowest logical port number as the true attendant.

Note:	If there is no setting in Port Definition - True Attendant Position, an attendant recall will search for the lowest attendant logical port.

Programming Field Description

Position #	Meaning:	Number of the true attendant position.
	Range:	1-32
Port	Meaning:	Logical port number of the SATT or attendant position.
	Range:	1-1024 0 = no true attendant
	Default:	0

Related Databases:

Required: 07.06 - Feature Access Numbers Element 30 Feature Access Number.

Associated: 01.09 Port Definition; 10.12 - Key Assignment; 15.01 - Attendant Key Assignment; 11.26 - Attendant Intercept Line.

04.70 - Programming Reserve 1

Class 04 Item 70 - Programming Reserve 1 contains the following programming elements:

Field	Description
.01 ISDN Redirect Number	At system default, when an outside number is forwarded to an ISDN PRI line, the called number will be referenced in Class 25 DNIS Conversion Data for DNIS routing purposes. Optionally, the redirect number (the number forwarded to the ISDN PRI line) can be enabled and will replace the called number using Class 25 DNIS Conversion Data for routing purposes.
.02 Camp on Indication	Call Coverage Camp-On Indication At system default, when a station is being call covered by multiple stations and one of the covering stations transfers a call to the covered station, the call will ring at the other covering stations. Use Class Call Coverage Camp-On Indication to prevent a transferred call from ringing at all covering stations.
.03 CNIS Source	CNIS Source is Calling Party Number Choice. This option was enabled to choose outgoing CNIS options.
.04 MailBox Indication	MBOX Enable determines which key—MBOX or MSG—is used to provide voicemail message indication on a system-wide basis. If MBOX is selected, voicemail indication will only be provided on [MBOX-nnn] keys. The MBOX feature is programmed in 35.01 - MBOX Translation Table. If MSG is selected, voicemail indication will only be provided on [MSG] keys.
.05 Message Status Indication	Message Indication determines the message indication status on a Attendant position's DSS keys.
.06 E911 Broadcast	E911 Broadcast Mode is the programming data item where either all ADIX Digital Key Telephones with a display receive Enhanced 911 LCD Indication or only the attendant positions receive Enhanced 911 LCD Indication.
.16 Day/Night or 24 Hour	DID, DNIS, Caller ID/ANI Day/Night Indicator Setting Use this setting to toggle between the Class 09 Direct Inward Dialing (DID) Conversion Data, Class 24 Caller ID/ANI Conversion Data or Class 25 DNIS Conversion Data day or night mode.
.18 Cut Short Operation	DISA Short-Cut Operation Use this to allow DISA callers to dial another station without first dialing [#][#] while the DISA incoming message is playing. This operation is applicable only when the system is playing an incoming message. It does not apply for busy station messages or warning messages for invalid numbers.
.22 Route Table Selection	ANI/DNIS Routing Table Selection This item is only used when both ANI and DNIS digits are sent by the CO. Use this to program which routing table - ANI (24.02 - Caller ID/ANI Conversion Number) or DNIS (25.02 - DNIS Conversion Number) - determines the destination of an incoming call on an ANI/DNIS trunk. This item also determines which data is displayed on the station LCD. If the data programmed in the ANI (24.01 - Caller ID/ANI Incoming Number) and DNIS (25.01 - DNIS Incoming Number) conversion tables does not match the ANI/DNIS data sent by the CO, the call is routed to the ringing stations programmed for that line in 11.32 - Ringing Station.

.23 CID Events Enabled	Caller ID/ANI/DNIS Event Code Enable for ECS ACD This item must be set to enable event code output in order to have caller ID/ANI/DNIS event codes output to the reporting output port defined in 18.07 - Reporting Output Port.
.26 VM Record Mode	Voice Mail Recording Mode This item determines the recording mode, either *Monitor* or *Conference,* for the conversation recording feature. In Monitor mode, conversation recording is established via a one-way audio path. Prompts from the voice mail system are not sent to the initiating station. In Conference mode, conversation recording is established via a two-way audio path. When conversation recording is started in conference mode, confirmation tone is sent to the initiating station. During the recording, other prompts from the voice mail are also sent to the station that initiated recording.
.33 Inband Signalling	Network Inband Signaling. This element is used to enable the inband signaling feature for the Networking feature.
.35 E911 Outgoing Type	E911 Outgoing Type is used to program the Enhanced 911 Service feature. This item determines whether a CAMA interface via the IX-EMTK and the Telident STS™ is used, or if Enhanced 911 routing is accomplished using the proposed 40,000 square foot rule. Enhanced 911 allows information that reveals the exact location of the caller to be sent to the 911 operator, regardless of line extensions. For example, if a guest of a hotel dials 911, the 911 operator would be sent information with the phone number that would help locate the caller, such as the room number or which floor the call originated. The ECS supports two interfaces that utilize Enhanced 911 Services: CAMA Routing via an interface with the Telident STS™ Area Routing Based on the Proposed “40,000 Square Foot Rule.”
.36 Abandoned Call Method	Call Logging--When a call is received on a caller ID or ANI line, ECS will capture and store in the system memory information about the caller received with the call. This information includes the caller’s telephone number and name, date and time of the call, trunk number and destination station. This information can be output as a system event code or to SMDR. Information for the 500 most recent calls can be stored in the system memory on a first in, first out basis. Two modes of storage are available for this feature: Abandon Call Storage All Call Storage Note: Programming in this element affects this feature system-wide.
.37 Network Switch Type	Network Switch Type--Use this to designate whether the ECS is located at the main location or the remote location (Remote or Main Switch) for centralized SMDR.
.55 PSUB Display Command Flow Control	PSUB Display Command Flow Control--This item is used to enable flow control when installing the ECS systems that use first release PSUB cards. This item should be disabled when using PSUB-1 or newer cards.
.62 Call Forward Message	DID Number External Call Forward Message When the DID Number External Call Forward Message feature is programmed, this item may be used to set the forward message played to the recipient of a forwarded call. If this is set to Enable, system message 14 will play to the recipient after sender time out. If the system is not equipped with an IX-MSGU card, this must be set to Disable.

Programming Reserve 1

Data Field:

.01 ISDN Redirect Number	Range:	Disable = disable redirect (calling party DNIS is sent) Enable = enable redirect (forwarded DNIS is sent
	Default:	Disable
.02 Camp on Indication	Range:	No = do not ring covering stations on transfer Yes = ring all covering stations on transfer
	Default:	No
.03 CNIS Source	Range:	C10-79 = outgoing calls use the CNIS source SSPD97 = outgoing calls use Station Speed Dial bin 97
	Default:	C10-79
.04 MailBox Indication	Range:	MBOX = MBOX key is used MSG = MSG key is used
	Default:	MBOX
Message Status Indication	Range:	Disable = Used to disable Message Waiting indication status on an Attendant position's DSS keys Enable = Used to enable indication status on DSS keys
	Default:	Disabled
.06 E911 Broadcast	Range:	Attendant Only All Stations
	Default:	Attendant Only
.16 Day/Night or 24 Hour	Range:	500/500 = 500 day mode/500 night mode DID, DNIS; 800 day mode/800 night mode caller ID/ANI numbers 1000 = 1000 day mode/0 night mode DID, DNIS; 1600 day mode/0 night mode caller ID/ANI numbers
	Default:	500/500
.18 Cut Short Operation	Range:	Disabled = disabled (DISA caller must dial [#][#] + station number to call another station while the incoming message is playing) Enabled = enabled (DISA caller can call another station by dialing only the station number while the incoming message is playing)
	Default:	Disabled
.22 Route Table Selection	Range:	DNIS = route by referring to the DNIS conversion table (Class 25 DNIS Conversion Data). Display DNIS data. ANI = route by referring to the ANI conversion table (Class 24 Caller ID/ANI Conversion Data). Display ANI data.
	Default:	DNIS
.23 CID Events Enabled	Range:	No = no caller ID event code output sent to ACD reporting port. Yes = caller ID event code output sent to ACD reporting port.
	Default:	No
.26 VM Record Mode	Range:	Monitor = Monitor Mode Conference = Conference Mode
	Default:	Monitor

.33 Inband Signalling	Range:	No = Disable Network Inband Signaling Yes = Enable Network Inband Signaling
	Default:	No
.35 E911 Outgoing Type	Range:	CAMA =Tie line CAMA routing Area = Area routing via the Proposed “40,000 Square Foot Rule.
	Default:	Area
.36 bandoned Call Method	Range:	Abandon = save information for abandoned calls only CID/ANI = save information for all calls”
	Default:	Abandon
.37 Network Switch Type	Range:	Remote = remote switch Main = main switch
	Default:	Remote
.55 PSUB Display Command Flow Control	Range:	Disable PSUB-1 or higher Enable PSUB
	Default:	Disable PSUB-1 or higher
.62 Call Forward Message	Range:	Disable = no message with DID Number External Call Forward call Enabled = play system message 14 with DID Number External Call Forward call
	Default:	Disabled

Related Databases:

ISDN Redirect Number:04.72 - Programming Reserve 3 Element 01 Station to Clear E911 broadcasts.

Camp on Indication:04.71 - Call Coverage/Voice Mail Data Element 01; 10.70 - Programming Reserve (CCV ICM) Element 02=1; 11.70 - Call Coverage Trunk Element 02=1; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

CNIS Source Class 25 DNIS Conversion Data

Mailbox Indication:35.01 - MBOX Translation Table

Message Status Indication:04.70 - Programming Reserve 1 Element 4; 35.01 - MBOX Translation Table

Day/Night or 24 Hour: Class 09 Direct Inward Dialing (DID) Conversion Data; Class 24 Caller ID/ANI Conversion Data; Class 25 DNIS Conversion Data.

Cut Short Operation:DISA Programming.

Route Table Selection:24.01 - Caller ID/ANI Incoming Number; 24.02 - Caller ID/ANI Conversion Number; 24.03 - Caller ID/ANI Number ID; 24.04 - Incoming Digits; 24.05 - Caller ID/ANI Conversion Digits; 24.06 - Caller ID/ANI Conversion Starting Position.

CID Events Enabled:04.72 Event Code Output Port.

VM Record Mode:1.13 Hardware; 04.77 - Voice Mail/Auto Attendant Packet Codes Element 21; 04.77 - Voice Mail/Auto Attendant Packet Codes Element 22; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Inband Signalling:28.05 - Network External.

E911 Outgoing Type:04.70 - Programming Reserve 1 Element 35 E911 Outgoing Type; 04.71 - Call Coverage/Voice Mail Data Element 06 E911 Relay Number; 04.71 - Call Coverage/Voice Mail Data Element 08 E911 FAIL Rely Number; 04.71 - Call Coverage/Voice Mail Data Element 09 E911 Special Trunk Group; 04.71 - Call Coverage/Voice Mail Data Element 17 E911 CAMA Wink Timer; 04.72 - Programming Reserve 3 Element 18 E911 Inf. Port; 10.73 - Programming Reserve Element 4 E911 Area Routing Trunk Group; 11.72 - UCD Overflow Calls Element E911 Attribute; 15.01 - Attendant Key Assignment; 17.18 - Emergency Bypass Number Elements 1-16 Emergency Specific Code; 29.10 - Emergency Send Dial.

Network Switch Type: All basic networking items.

Call Forward Message:09.01 DID Conversion Table; 14.01/15.01 Key Assignment; 24.02 Caller ID/ANI Conversion Table; 25.02 DNIS Conversion Table.

04.71 - Call Coverage/Voice Mail Data

Class 04 Item 71 - Call Coverage/Voice Mail Data is used to specify various timing parameters for the *Call Coverage* and *Voice Mail/Automated Attendant Integration* features. The timing parameters defined by each element are described in the table below:

Field	Description
.01 Delay Start Time	Delayed Start Time determines the length of time that incoming calls will ring at the covered station before call coverage ringing begins at the covering stations which are in *call coverage delayed ringing mode*.
.02 MOH/Ring Back Tone	MOH/Ring Back Tone is used to define the tone the caller will hear when a station is ringing. You can toggle between music on hold mode and ring back tone ringing mode.
.03 F.A.C. Length	F.A.C. (Forced Account Code) Length defines the number of digits (one to twelve) of the forced account code.

Note: 02.01 - System Speed Dial Type must be set to a value of **1** - 900 speed dial numbers to activate this database setting. The remaining numbers after the verified account codes can be used as system speed dial numbers.

.05 Overflow Timer *5 Sec	Overflow Timer *5 Sec defines the amount of time which must elapse before a call waiting at a UCD group will be further forwarded. The forwarding destination is defined in 08.05 - UCD Hunt Group.
.06 E911 Relay Number	E911 Relay Number identifies the system relay number accessed to when E911 Routing succeeds. This relay may be connected to trigger a device such as an external alarm.
.08 E911 Fail Relay Number	E911 FAIL Relay Number identifies the system relay number accessed to when E911 Routing fails. This relay may be connected to trigger a device such as an external alarm.
.09 DTMF Speed	DTMF Speed specifies the length of the DTMF signal that will be sent between the ECS and the voice mail/auto attendant system.
.10 In Packet Pause Time	In-Packet Pause Time specifies the length of the pause between the call type identifier and the call detail identifier.
.12 Predis PKT Pause Time	Predis PKT Pause Time determines the length of the pause between the time the ECS detects that disconnect has occurred from the CO line or the extension connected to the voice mail/auto attendant system until the disconnect packet is sent.
.13 Disc. Signal Time	Disc Signal Type determines the signal used to tell the voice mail/auto attendant that the CO line or extension has hung up. Choices for the signal are: *momentary loop open* or *DTMF disconnect packet*.

Note: The momentary loop open signal is available only if an IX-8SUBS-1 or IX-8SUBS-2 card is installed.

.14 Trunk ID Packet

Trunk ID Packet is used to program the ECS to send additional data (i.e., trunk number, caller ID/ANI/DNIS digits) with certain packet codes to the VM/AA port. The tables below list the options programmable in this item and how they affect packet transmission:

Trunk ID Packet					Incoming Format		
Field Selection	Trunk no.	Caller ID	ANI	DNIS	No ANI/DNIS/ CID	ANI/DNIS	CID
None (0)					none ([packet] only)	none ([packet] only)	none ([packet] only)
TRK (1)	✓				[trunk no.]	[trunk no.]	[trunk no.]
CID/ANI (2)		✓	✓		[spr]+[spr]	[spr]+[ANI]+[spr]	[spr]+[CID]+[spr]
DNIS (3)				✓	[spr]+[spr]	[spr]+[DNIS]+[spr]	n/a
CID/ANI/ DNIS (4)		✓	✓	✓	[spr]+[spr]+[spr]	[spr]+[ANI]+[spr]+[DNIS]+[spr]	[spr]+[CID]+[spr]+ [spr]
TRK/CID/ ANI (5)	✓	✓	✓		[trunk no.]+[spr]+[spr]	[trunk no.]+[spr]+[ANI]+[spr]	[trunk no.]+[spr]+[CID]+ [spr]
TRK/DNIS (6)	✓			✓	[trunk no.]+[spr]+[spr]	[trunk no.]+[spr]+[DNIS]+[spr]	n/a
TRK/CID/ ANI/DNIS (7)	✓	✓	✓	✓	[trunk no.]+[spr]+[spr]+ [spr]	[trunk no.]+[spr]+[ANI]+[spr]+ [DNIS]+[spr]	[trunk no.]+[spr]+[CID]+ [spr]

([packet] +) [mbox no.] Packet Format by type of Calls				
	Affected packet numbers: 07, 09			Affected packet numbers: 08, 10 -
Field Selection	No ANI/DNIS/CID Incoming calls	ANI/DNIS Incoming calls	CID Incoming calls	Intercom Calls
None (0)	[mbox no.]	[mbox no.]	[mbox no.]	[mbox no.]
TRK (1)	[mbox no.]	[mbox no.]	[mbox no.]	[mbox no.]
CID/ANI (2)	[mbox no.]+[spr]+[spr]	[mbox no.]+[spr]+[ANI]+[spr]	[mbox no.]+[spr]+[CID]+[spr]	[mbox no.]+[calling ext. no.]
DNIS (3)	[mbox no.]+[spr]+[spr]	[mbox no.]+[spr]+[DNIS]+[spr]	n/a	[mbox no.]+[calling ext. no.]
CID/ANI/ DNIS (4)	[mbox no.]+[spr]+[spr]+[spr]	[mbox no.]+[spr]+[ANI]+[spr]+[DNIS]+[spr]	[mbox no.]+[spr]+[CID]+[spr]+[spr]	[mbox no.]+[calling ext. no.]
TRK/CID/ ANI (5)	[mbox no.]+[spr]+[spr]	[mbox no.]+[spr]+[ANI]+[spr]	[mbox no.]+[spr]+[CID]+[spr]	[mbox no.]+[calling ext. no.]
TRK/DNIS (6)	[mbox no.]+[spr]+[spr]	[mbox no.]+[spr]+[DNIS]+[spr]	n/a	[mbox no.]+ [calling ext.no.]
TRK/CID/ ANI/DNIS (7)	[mbox no.]+[spr]+[spr]+[spr]	[mbox no.]+[spr]+[ANI]+[spr] +[DNIS]+[spr]	[mbox no.]+[spr]+[CID]+[spr]	[mbox no.]+ [calling ext.no.]

Field	Description
.15 Loop Open Duration	Voice Mail/Auto Attendant Port Loop Open Duration is used to enable disconnect signal on the SLT ports. If a momentary loop open signal is selected in Element 13 as the type of disconnect signal to be provided to the voice mail/auto attendant system, Element 15 is used to specify the duration of the loop open condition sent to SLT ports system-wide.

Note: The momentary loop open signal is available only if an IX-8SUBS-1 or IX-8SUBS-2 card is installed.

Field	Description
.16 MailBox Length	Mailbox Length This item is used by the Transfer to Guest Mailbox feature.
.17 Call Wink Timeout (sec)	E911 CAMA Wink Timer This item determines the amount of time in seconds that the ECS system will monitor the IX-EMTK tie line for Wink back from the Telident STS™ after 911 has been dialed from a system extension. If the IX-EMTK receives wink back, it will send the identifying digits to the Telident STS™. If the IX-EMTK does not receive wink back from the Telident STS™ within the amount of time specified in this item, it will resend the call using the secondary trunk programmed in 11.72 - UCD Overflow Calls: E911 Attribute.
.18 Auto Reset Mode	Automatic Reset Operation Enables a system to reset automatically at a pre-programmed time. After a system is reset, information about the reset is stored in the system's error log.
.20 Data Backup Day	The Data Backup Day is the day used to backup all volatile memory to the compact flash. In the event that the system is reset or loses power, all data stored volatile memory is lost. When the power is restored or the system is reset,
.21 Navigation Key Status Detection Time	the Navigation Key Status Detection Time is the amount of time required when pressing the Setup key on an Iwatsu ICON Series IP station before accessing the Setup menu.
.28 Delayed Ringing Global	Delayed Ringing - Global is used to delay the ringing at stations when a call arrives on a caller ID trunk or ANI/DNIS T1 trunk. The delay time programmed here allows an external PC to process the caller ID/ANI/DNIS information. This timer affects the following types of calls: Calls routed to a station via the caller ID/ANI or DNIS table. Calls routed to an ACD group via the caller ID/ANI or DNIS table then distributed to an ACD agent station. Note: *Class 04.15 - Attendant Intercept Time* must be greater than the value programmed here. If it is not the call will not ring at the station programmed in 24.02 - Caller ID/ANI Conversion Number or 25.02 - DNIS Conversion Number. This item is ignored if the incoming digits do not match data entered in the caller ID/ANI or DNIS tables. In that case the call will ring according to the programming in *11.26 - Attendant Intercept Line, 11.32 - Ringing Station, and 11.34 - Direct In Line (DIL) to Hunt Group*.

.29 Session Open Retry Count (IP-Campus Remote)	Session Open Retry Count (IP-Campus Remote) This is the number of times a remote IP Campus system will attempt to connect to the main IP Campus node when connectivity is lost before going into the standalone mode. (0-255 attempts - default = 5)
.38 Silent Connection Time	Silent Connection Time This element is used to program a guard timer to eliminate speaker sound during an incoming call's transition from ringing station to handset when answered. This transition speaker sound only occurs in installations where analog trunks are used. It is typically not necessary to set this database item to a value greater than 1 (1=100 msec).
.39 Text MSG Duration	Text Message Duration This element is used to program the amount of time, between 0 and 255 minutes that a text message will remain on the station LCD.
.40 Abandoned Call Duration	Abandon Call Storage Duration This element is used to program the amount of time, between 0 and 30 days that an abandoned call record for Caller ID/ANI and DNIS will remain in the system memory.
.41 Offhook Help Timeout	E-Response Help Call Time-out. determines the length of time that a station programmed as an E-Response help call station in 10.74 - Station Based Timers E-Response Help Call Extension Enable/Disable must remain off-hook before the system automatically places a help call to the group designated as the E-Response Group in 10.74 - Station Based Timers E-Response Help Call Group.
.42 Fixed Time Relay	Automatic Relay Number Assignment. is used to designate the relay number used with the Automatic Relay Control feature. The relay designated in this item operates automatically at the time of day specified in 04.76 - Programming Reserve 7 Relay Activate Time.
.43 Call Log Storage Duration	Call Log Storage Duration is used to determine how long a call in the Platinum 18i/d Call Log is held before being deleted. (Programmable from 0-31 days, 15 days is default). The 18i/d telephone will hold the newest 10 incoming and 10 outgoing calls.
.45 Incoming Call: Top	Incoming Call: Top The value programmed in this field displays when an analog incoming call is a CO call that rings directly to the station. Reference the Display Description below.
.46 Incoming Call: Bottom	Incoming Call: Bottom The value programmed in this field displays when an analog incoming call is a CO call that rings directly to the station. Reference the Display Description below.
.47 In progress: Top	In progress: Top The value programmed in this field displays when a call has been answered.
.48 In Progress: Bottom	In Progress: Bottom The value programmed in this field displays when a call has been answered.
.49 First Disp in Progress: Top	First Disp in Progress: Top When on an analog call, First Display in Progress displays the value programmed here the first time the [Display Change] key is pressed. Reference the Display Description below.
.50 First Disp in Progress: Bottom	First Disp in Progress: Bottom When on an analog call, First Display in Progress displays the value programmed here the first time the [Display Change] key is pressed

.51 Second Disp in Progress: Top	Second Disp in Progress: Top When on an analog call, Second Display in Progress displays the value programmed here the second time the [Display Change] key is pressed. Reference the Display Description below.
.52 Second Disp in Progress: Bottom	Second Disp in Progress: Bottom When on an analog call, Second Display in Progess displays the value programmed here the second time the [Display Change] key is pressed. Reference the Display Description below.
.53 Forward Call: Top	Forward Call: Top When a forwarded call rings the station, the value programmed in the field displays. Reference the Display Description below.
.54 Forward Call: Bottom	Forward Call: Bottom When a forwarded call rings the station, the value programmed in the field display. Reference the Display Description below.
.55 First Disp in Forward: Top	First Disp in Forward: Top When on a forwarded call, First Display in Forward displays the value programmed here the first time the [Display Change] key is pressed. Reference the Display Description below.
.56 First Disp in Forward: Bottom	First Disp in Forward: Bottom When on a forwarded call, First Display in Forward displays the value programmed here the first time the [Display Change] key is pressed. Reference the Display Description below.
.57 Second Disp in Forward: Top	Second Disp in Forward: Top When on a forwarded call, Second Display in Forward displays the value programmed here the second time the [Display Change] key is pressed. Reference the Display Description below.
.58 Second Disp in Forward: Bottom	Second Disp in Forward: Bottom When on a forwarded call, Second Display in Forward displays the value programmed here the second time the [Display Change] key is pressed. Reference the Display Description below.
.59 Camp On Transfer: Top	Camp On Transfer: Top The value programmed in the Camp on Transfer displays when a transferred call rings the station. Reference the Display Description below.
.60 Camp On Transfer: Bottom	Camp On Transfer: Bottom The value programmed in the Camp on Transfer displays when a transferred call rings the station. Reference the Display Description below.
.61 Ist Disp in CP/TRN: Top	Ist Disp in CP/TRN: Top When on a transferred call, the 1st Display in Camp on Transfer displays the first time the [Display Change] key is pressed. Reference the Display Description below.
.62 Ist Disp in CP/TRN: Bottom	Ist Disp in CP/TRN: Bottom When on a transferred call, the 1st Display in Camp on Transfer displays the first time the [Display Change] key is pressed
.63 2nd Disp in CP/TRN: Top	2nd Disp in CP/TRN: Top When on a transferred call, the 2nd Display in Camp on Transfer displays the the second time the [Display Change] key is pressed. Reference the Display Description below.

.64 2nd Disp in CP/ TRN: Bottom

2nd Disp in CP/TRN: Bottom When on a transferred call, the 2nd Display in Camp on Transfer displays the second time the [Display Change] key is pressed.
Reference the Display Description below.

Each of these elements <NUM45> through <NUM64> represent one line of the LCD during a specific condition of incoming ringing. For example, 04.71 <NUM55> determines what is displayed on the first line of the LCD during ringing of an incoming forwarded call after the [Display Change] key is pressed one time. The illustrations below identify the position and condition affected by each element <NUM45> through <NUM64>.

Display Data

The values in the following table are valid for Caller ID/ANI/DNIS Name/Number Display screen.

Displayed Data	Description
Caller ID/ANI Name	Name sent by the telephone company in the multiple message format, or the Caller ID/ANI name programmed in 24.03 - Caller ID/ANI Number ID
Caller ID/ANI Number	Caller's telephone number sent by the telephone company
DNIS Name	Name programmed in 24.03 - Caller ID/ANI Number ID
DNIS Number	Number the caller dialed sent by the telephone company
ACD Group Name	ACD Group name programmed in 19.02 - ACD Group Name
Duration Timer	LCD timer showing the total duration of the call after answer
Name of FWD Sta	Station user ID (10.04 - Station User ID) of the station that forwarded or camped-on the call.
Ext. or FWD Sta	Extension number (10.02 - Station Numbering) of the station that forwarded the call
Trunk ID	Line ID programmed for the trunk in 11.03 - Line ID.
Trunk # and Trunk Group #	Trunk Number or Incoming Trunk Group Number (11.39 - Incoming CO Group)

Programming Field Description

Element	Meaning:	See descriptions in the table above
	Range:	See the table above
Data Field:		
.01 Delay Start Time	Range:	0 (no call coverage) - 255 seconds
	Default:	20
.02 MOH/Ring Back Tone	Range:	music on hold mode ring back tone mode
	Default:	MOH
.03 F.A.C. Length	Range:	01 - 12 digits 0 = flexible up to 12
	Default:	0
	Default:	0
.05 Overflow Timer *5 Sec	Range:	0 - 255 minutes (5 second increments) 0 = no overflow
	Default:	6 (*5 = 30 seconds)
.06 E911 Relay Number	Range:	1-32 (Relay Numbers)
	Default:	20
.08 E911 Fail Relay Number	Range:	1-32 (Relay Numbers)
	Default:	20

.09 TRNK on CAMA Failure	Range:	01 - 250 trunk groups
	Default:	1
.10 DTMF Speed	Range:	50 milliseconds on/50 milliseconds off 50 milliseconds on/100 milliseconds off 100 milliseconds on/50 milliseconds off 100 milliseconds on/100 milliseconds off 150 milliseconds on/50 milliseconds off 150 milliseconds on/100 milliseconds off 150 milliseconds on/150 milliseconds off 200 milliseconds on/200 milliseconds off
	Default:	100/100
.11 In Packet Pause Time	Range:	0-9 seconds
	Default:	0 = no pause
.12 Predis PKT Pause Time	Range:	0-9 seconds
	Default:	0 = no pause
.13 Disc. Signal Time	Range:	disconnect by packet disconnect by loop open signal
	Default:	disconnect by loop open signal
.14 Trunk ID Packet	Range:	0-7 (see table above)
	Default:	2
.15 Loop Open Duration	Range:	0-15 (x 100 milliseconds)
	Default:	7
.16 MailBox Length	Range:	0 - 4
	Default:	4
.17 Call Wink Timeout (sec)	Range:	0-255
	Default:	4
.18 Auto Reset Mode	Default	0
	Range	0 – No reset 1 – Monday, Wednesday, Friday and Sunday 2 – Tuesday, Thursday and Saturday 8 – Only Once 9 – Every day
.20 Data Backup Day	Range:	Sunday Monday Tuesday Wednesday Thursday Friday Saturday Sunday Everyday
.	Default	Sunday

.21 Navigation Key Status Detection Time	Range	0-255 in 100 millisecond increments 0 = no access
	Default:	10 = one second
.28 Delayed Ringing Global	Range:	0-255 milliseconds
	Default:	0 = no delayed ringing
.38 Silent Connection Time	Range:	0-127 in 100 millisecond increments. It is typically not necessary to set this database item to a value greater than 1 (1=100 msec).
	Default:	0
.39 T ext MSG Duration	Range:	0-255 minutes
	Default:	0
.40 Abandoned Call Duration	Range:	0-30 days
	Default:	0
.41 Offhook Help Timeout	Range:	1 - 20 seconds
	Default:	0 (0=20 seconds)
.42 Fixed Time Relay	Range:	Relay Number 0-32
	Default:	0
.43 Call Log Storage Duration	Range:	0-31 days
	Default:	15 days
.45 Incoming Call: Top	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Caller ID/ANI Number
.46 Incoming Call: Bottom	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Caller ID/ANI Name

.47 In Progress: Top	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Caller ID/ANI Name
.48 In Progress: Bottom	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Duration Timer
.49 First Disp in Progress: Top	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Caller ID/ANI Number
.50 First Disp in Progress: Bottom	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Duration Timer

.51 Second Disp in Progress: Top	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Trunk ID
.52 Second Disp in Progress: Bottom	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Trunk # and Trunk Group #
.53 Forward Call: Top	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Caller ID/ANI Number
.54 Forward Call: Bottom	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Caller ID/ANI Name

.55 First Disp in Forward: Top	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Name of FWD Sta
.56 First Disp in Forward: Bottom	Default	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Range	Ext. or FWD Sta
.57 Second Disp in Forward: Top	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Trunk ID
.58 Second Disp in Forward: Bottom	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Trunk # and Trunk Group #

.59 Camp On Transfer: Top	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Caller ID/ANI Number
.60 Camp On Transfer: Bottom	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Caller ID/ANI Name
.61 Ist Disp in CP/TRN: Top	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Name of FWD Sta
.62 Ist Disp in CP/TRN: Bottom	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Ext. or FWD Sta

.63 2nd Disp in CP/TRN: Top	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Name of FWD Sta
.64 2nd Disp in CP/TRN: Bottom	Range:	Caller ID/ANI Name Caller ID/ANI Number DNIS Name DNIS Number ACD Group Name Duration Timer Name of FWD Sta Ext. or FWD Sta Trunk ID Trunk # and Trunk Group # None
	Default:	Trunk # and Trunk Group #

Related Databases:

Associated: 04.36 - Miscellaneous Relay Timer.

Required: 03.02 - Calendar; 04.35 - Miscellaneous Function Port; 04.37 - Miscellaneous Function; 04.76 - Programming Reserve 7 Element 2 Automatic System Reset Time. 10.74 - Station Based Timers E-Response Help Call Extension Enable/Disable, 10.74 - Station Based Timers E-Response Help Call Group.

Hardware Required:

IX-CCU/CCSU, IX-8SUBS, IX-8SUBS-1, IX-8SUBS-2, IX-MISC or IX-EDIF.

04.72 - Programming Reserve 3

Class 04 Item 72 - Programming Reserve 3 contains the following programming element:

Field	Description
.01 Display Clear Station	Display Clear Station assigns a logical port number for the station that will clears an E911 broadcast.
.15 Event Code Output Port	Event Code Output Port identifies the HCIF port that outputs the event code for the computer-telephony application.
.18 Information Port	Information Port is used to identify the Miscellaneous Logical Port Number through which SMDR information specific to Enhanced 911 service is sent. This miscellaneous logical port number represents the SMDR port on a IX-EDVIF or IX-SCIF, or IX-HCIF card dedicated for E911 SMDR output.

Programming Field Description

Element	Meaning:	See description above.
	Range:	Display Clear Station; Event Code Output Port; Information Port
Field:	Meaning:	Miscellaneous logical port for event code output
.01 Display Clear Station	Range:	0-1024
	Default:	Blank
.15 Event Code Output Port	Range:	0-512
	Default:	00
.18 Information Por	Range:	0-512
	Default:	0

Related Databases:

Required: Event Code Output Port: Class 24 Caller ID/ANI Conversion Data; Class 25 DNIS Conversion Data
For Information Port, refer to the individual feature.

Associated: Event Code Output Port: 09.03 - DID Trunk ID.
For Information Port, Refer to individual feature

04.76 - Programming Reserve 7

Element	Description
.01 Relay Activate Time	Relay Activate Time is used to program the relay activation time for the Automatic Relay Activation feature. The ECS system may be programmed to operate a one-shot relay at a fixed time each day. The time specified for automatic one-shot relay control is programmed in this item. The relay number used for this feature is programmed in 04.71 - Call Coverage/Voice Mail Data: Fixed Relay Time
.02 Auto Reset Time	Auto Reset Time programs the time of day for the automatic system reset schedule.
.03 Data Backup Time	Data Backup Time programs the time at which the ECS system backs up the data from volatile memory to the compact flash. The day of the week when this occurs is programmed in 04.71 - Call Coverage/Voice Mail Data: Data Backup Day.

Programming Field Description

Element	Meaning:	See descriptions above
	Range:	Relay Activate Time; Auto Reset Time; Data Backup Time
Field:		
.01 Relay Activate Time	Meaning:	Time of Day in 24-hour format.
	Range:	00:00 to 23:59
	Default:	Blank
.02 Auto Reset Time	Meaning:	Time of day for scheduled reset.
	Range:	00:00 to 23:59
	Default:	Blank (No Automatic Rest)
.03 Data Backup Time	Meaning:	Time of day for data backup
	Range:	00:00 to 23:59
	Default:	Blank (No backup time)

Related Databases:

Required: 03.01 - Time of Day; 04.71 - Call Coverage/Voice Mail Data<NUM18> Auto Reset Mode; 04.71 - Call Coverage/Voice Mail Data Fixed Time Relay.

Associated: 04.35 - Miscellaneous Function Port; 04.37 - Miscellaneous Function.

Hardware Required:

IX-EDVIF or IX-MISC, IX-EDCTU

04.77 - Voice Mail/Auto Attendant Packet Codes

Class 04 Item 77 - Voice Mail/Auto Attendant Packet Codes is used to specify the actual data for each DTMF in-band packet sent from the ECS to the voice mail or auto attendant port. The data for each packet can be entered according to the specifications of the voice mail/automated attendant system. The ECS uses two types of packets:

- **Call Identifier Packets:** These packets identify the type of call being sent to the voice mail or auto attendant port.
- **Call Process Packets:** These packets indicate a change in the status of an extension to the voice mail or auto attendant port. Two call process packets are provided.

Voice Mil/Automated Attendant Packet Codes

System VM/AA Packet Codes	Packet
04.77.01 - Direct incoming CO call VM/AA ([pkt 01]+[trunk no.])	8
04.77.02 - Direct incoming ICM call VM/AA ([pkt 02]+[ext. no.])	9
04.77.03 - CO camp-on call VM/AA ([pkt 03]+[trunk no.])	8
04.77.04 - ICM camp-on call VM/AA ([pkt 04]+[ext no.])	8
04.77.05 - Cons. hld recall b/c EXT doesn't exist VM/AA([pkt 05]+[trunk no.])	5
04.77.06 - ICM call to a mailbox VM/AA ([pkt 06]+[mbox no.])	6
04.77.07 - CO call trns. to a mailbox VM/AA ([pkt 07]+[mbox no.])	7
04.77.08 - ICM call trns. to a mailbox VM/AA ([pkt 08]+[mbox no.])	6
04.77.09 - Fwded CO call VM/AA only ([pkt 09]+[mbox no.])	7
04.77.10 - Fwded ICM call VM/AA only ([pkt 10]+[mbox no.])	6
04.77.11 - CO camp-on recall b/c No Ans VM/AA only ([pkt 11]+[ext no.])	7
04.77.12 - CO/ICM camp-on recall b/c Busy/DND VM/AA([pkt 12]+[ext no.])	7
04.77.13 - Retrieving own msg. VM/AA ([pkt 13]+[mbox no.])	4
04.77.14 - Station answered a (screened) trns. call by VM - VM/AA ([pkt 14])	
04.77.15 - Fwded incoming CO call AA only ([pkt 15]+[trunk no.])	
04.77.16 - Fwded incoming ICM call AA only ([pkt 16]+[ext no.])	
04.77.17 - CO camp-on recall b/c of No Ans AA only ([pkt 17]+[ext no.])	
04.77.18 - CO/ICM camp-on recall b/c of Busy/DND-AA([pkt 18]+[ext no.])	
04.77.19 - CO/ICM connected to VM hangs up VM/AA only ([pkt 19])	
04.77.20 - Separator VM/AA ([pkt 20])	
04.77.21 - Start call recording VM/AA ([pkt 21]+[mbox no.])	2
04.77.22 - Stop call recording VM/AA ([pkt 22])	
04.77.23 - VM Message Disconnect Packet VM/AA([pkt 23])	2222
04.77.24 - ACD Auto Attendant Packet([pkt 24])	7

Programming Field Description

Element	Meaning:	See above descriptions.
Field:	Range:	See above descriptions
Data Field:	Meaning:	Enter packet codes such as identifiers or digits to be included.
	Range:	Up to 4 digits (0-9, *, #)
	Default:	See above descriptions

Related Databases:

Required: 01.13 Hardware; 04.71 - Call Coverage/Voice Mail Data; 07.02 - Hunting Group Access Numbers; 07.06 - Feature Access Numbers; 08.01 - Hunt Group - Type; 08.02 - Hunt Group - Station; 08.03 - Hunt Group - ID; 10.45 - Message Key; 14.01 - Key Assignment; 15.01 Attendant Key Assignment; Class 24 Caller ID/ANI Conversion Data; Class 25 DNIS Conversion Data.

Note: The Voice Mail Stop Recording/ Delete Message packet, must be set to 2222 for Voice Mail Monitor (Answering Machine Emulation) to function.

04.70 - Programming Reserve 1 Element 38 Automatic/User Initiated Monitor, 04.77 - Voice Mail/Auto Attendant Packet Codes: Disconnect Packet, 04.77 - Voice Mail/Auto Attendant Packet Codes: Voice Mail Stop Recording/ Delete Message, 10.72 - Programming Reserve 3 Element Enable/Disable Answering Machine Emulation, 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Associated: 10.04 - Station User ID.

Hardware Required:

IX-CCU/CCSU, IX-8SUBS, IX-8SUBS-1/IX-8SUBS-2.

04.78 - Programming Reserve 9

Class 04 Item 78 - Programming Reserve 9 contains the following programming elements:

Elements	Description
Toll Dial Table: 01-32	Toll Dial Table: 01-32 The telephone numbers registered in these fields will force a station to enter a forced account code if the station has been programmed in 10.73 - Programming Reserve: Forced Account Code Station.
Dial: 33-42	Dial: 33-42 The emergency dial telephone numbers registered in these fields can be dialed without forced account code entry regardless of how 10.73 - Programming Reserve: Forced Account Code Station is programmed.
.63 CSTA IP Address	CSTA IP Address is the IP address of the IX-NICLINK card used for CSTA integration
.64 CSTA Subnet Mask	CSTA Subnet Mask is the subnet mask of the network in which the IX-NICLINK card resides. This is used for CSTA integration with the ECS.

Note: These entries have no meaning for Toll Restriction in 06.01 - Toll Restriction Table,06.02 - Toll Restriction - Plan Table, and 06.03 - Toll Restriction - Dial Table.

Programming Field Description

Element	Meaning:	See element descriptions above.
	Range:	01-42
Field:	Meaning:	Enter dial data for forced account codes and Emergency numbers.
	Range:	Up to 16 digits (0-9, #, *, [ALL] = n)
	Default:	e33=911

Related Databases:

Required: 04.71 - Call Coverage/Voice Mail Data: Forced Account Code Length; 10.73 - Programming Reserve: Forced Account Code Station; 11.70 - Call Coverage Trunk: Forced Account Trunk.

Associated: 04.71 - Call Coverage/Voice Mail Data: Number of Verified Account Codes; 05.01 - System Speed Dial - Number; 10.73 - Programming Reserve: Verified Account Code Display; 10.73 - Programming Reserve: SMDR Account Code Printout; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

04.79 - E-Response Help Call LCD Display

Class 04 Item 79 is used to program the Alphanumeric E-Response Help Call LCD Display. When the E-Response help call is placed, the LCD displays of the called extensions in the E-Response ICM Group will display the message programmed in 04.78 - Programming Reserve 9 plus the calling party's extension number (10.02 - Station Numbering) and station ID (10.04 - Station User ID). The E-Response Message may be a maximum of 16 characters in length.

Programming Field Description

LCD Display	Meaning:	Alphanumeric E-Response message
	Range:	Up to 16 Characters
	Default:	Help Call

Related Databases:

Associated: 04.35 - Miscellaneous Function Port;04.36 - Miscellaneous Relay Timer, 04.76 - Programming Reserve 7: Relay Activate Time; 04.71 - Call Coverage/Voice Mail Data: Fixed Time Relay; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

IX-MISC, IX-EDVIF, IX-EDCTU

Class 05

System Speed Dial

Class 05 - System Speed Dial contains the programming items necessary to set up system speed dialing functions. The following programming items are included in Class 05:

- 05.01 - System Speed Dial - Number
- 05.02 - System Speed Dial - ID
- 05.03 - System Speed Dial - Display

05.01 - System Speed Dial - Number

Class 05 Item 01 - System Speed Dial - Number is used to register the system speed dial numbers. System Speed Dial - Number table is used for *system speed dial numbers*.

Rules for Accessing CO Groups when Speed Dialing

If **0** is programmed in the Trunk Group Field, when a key telephone uses the system speed dial feature without first selecting a CO line, the outside line is selected according to the optimized routing plan. If optimized routing is not programmed, an outside line is selected from one of the CO groups available to that station. The outside line for system speed dialing performed by a single-line telephone is selected in the same manner.

Note:	When a flash is entered in a speed address, the system automatically accesses the short flash timer set in *Class 11.16*. *Class 10.32 - Optimized Routing Call* ignores flashes in the speed dial number.

Programming Field Description

System Speed Dial: Bin Number	Meaning:	Speed dial bin number.
	Range:	00-89 = If 02.01 - System Speed Dial Type is set to 0
		000-899 = If 02.01 - System Speed Dial Type is set to 1
Trunk Group	Meaning:	Outgoing CO group number.
	Range:	0-250
	Default:	0
Dial Data	Meaning:	Speed dial outgoing digits.
	Range:	Up to 32 digits (0-9, *, #, *pause*, *flash*, *null*)
	Default:	None.

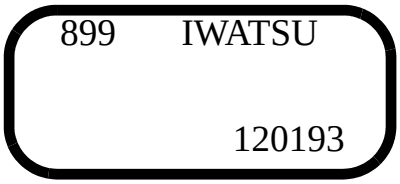
Related Databases:

Required: 02.01 - System Speed Dial Type.

Associated: 04.71 - Call Coverage/Voice Mail Data, Number of F.A.C.; 05.02 - System Speed Dial - ID; 05.02 - System Speed Dial - ID; 07.03 - CO Line Group Access Numbers; 10.30 - Automatic Outgoing CO; 10.73 - Programming Reserve; 11.70 - Call Coverage Trunk; Class 17 Optimized Routing.

05.02 - System Speed Dial - ID

Class 05 Item 02 - System Speed Dial - ID is used to register an alphanumeric ID for each system speed dial number registered in 05.01 - System Speed Dial - Number. The speed dial ID is displayed on a key telephone's LCD display with the speed dial number when scrolling through the speed dial directory or when speed dialing the programmed number.



Programming Field Description

System Speed Dial: ID	Meaning:	Speed dial bin number.
	Range:	00-89 if 02.01 - System Speed Dial Type is set to 0
		000-899 if 02.01 - System Speed Dial Type is set to 1
ID:	Meaning:	ID code for system speed dial number.
	Range:	Alphanumeric up to 10 characters
	Default:	None

Related Databases:

Required: 02.01 - System Speed Dial Type; 05.01 - System Speed Dial - Number.

Associated: 05.03 - System Speed Dial - Display.

Hardware Required:

Key telephones with LCD displays.

05.03 - System Speed Dial - Display

Class 05 Item 03 - System Speed Dial - Display is used to program whether the speed dial number and speed dial ID are displayed on the IP or key telephone and included in the SMDR printout.

Programming Field Description

System Speed Dial: Display	Meaning:	Speed dial bin number.
	Range:	00-89 if 02.01 - System Speed Dial Type is set to 0
		000-899 if 02.01 - System Speed Dial Type is set to 1
Display	Meaning:	Toggle between display/do not display and print on SMDR/do not print on SMDR speed dial number and ID.
	Range:	Visible Invisible
	Default:	Visible

Related Databases:

Required: 02.01 - System Speed Dial Type; 05.01 - System Speed Dial - Number.

Associated: 05.02 - System Speed Dial - ID; 10.30 - Automatic Outgoing CO.

Hardware Required:

Key telephones with LCD displays.

Class 06

Toll Restriction

Class 06 - Toll Restriction is used to set up the dial tables, plan tables and access codes which are used throughout the ECS to place restrictions on CO calls. The items in Class 06 include:

- 06.01 - Toll Restriction Table
- 06.02 - Toll Restriction - Plan Table
- 06.03 - Toll Restriction - Dial Table
- 06.04 - Toll Restriction - Predial
- 06.05 - Toll Restriction - Allow List
- 06.06 - Toll Restriction - Deny List
- 06.07 - Toll Restriction - SMDR Table
- 06.08 - Toll Restriction - Equal Access Dial Table
- 06.09 - Toll Restriction - Equal Access Pin Code
- 06.10 - Toll Restriction - Equal Access Pin Position
- 06.11 - Toll Restriction - Equal Access Prefix Table
- 06.12 - Toll Restriction - Equal Access CO Line Group

06.01 - Toll Restriction Table

Class 06 Item 01 - Toll Restriction Table is used to identify the *toll plan table number* that corresponds to each *toll restriction group number* for each *station toll class*. The Toll Restriction table below illustrates the method used to determine an individual toll plan number according to the toll restriction group number of the CO line seized and the *station toll class* (1-4, 8-15) assigned to the dialing station. If the system identifies that the number includes a 11.41 - Predial Group Number, the toll restriction group number will be determined in 06.04 - Toll Restriction - Predial. If the number dialed includes an *equal access code*, once the system identifies this code programmed in Class 06.08, the toll restriction group number is determined in 06.12 - Toll Restriction - Equal Access CO Line Group. For example, if a station is assigned to *toll class 2* in 10.23 - Toll Restriction Level and Class, when that station seizes a line and dials a number, if that line is assigned to group 3 in 11.40 - Toll Restriction Group Number, the system selects *Toll Plan Table 2*

Programming Field Description

Toll Restriction Table Number	Meaning:	Toll restriction plan table (06.02 - Toll Restriction - Plan Table) to be used for the corresponding trunk number and station toll restriction class.
	Range:	0 - 32
	Default:	1
Class1 -4	Meaning:	Toll restriction class assigned to each station in *10.23 - Toll Restriction Level and Class,*.
	Range:	Class1; Class2; Class3; Class4
Class1-4 data	Meaning:	This data is entered in one of the 4 classes (see above) and refers to each CO line in 11.40 - Toll Restriction Group Number.
	Range:	00-32

Related Databases:

Required: 06.02 - Toll Restriction - Plan Table; 06.04 - Toll Restriction - Predial; 06.05 - Toll Restriction - Allow List; 06.06 - Toll Restriction - Deny List; 10.23 - Toll Restriction Level and Class; 11.40 - Toll Restriction Group Number; 11.41 - Predial Group Number.

Associated: 06.08 - Toll Restriction - Equal Access Dial Table; 10.52 - Toll Restriction Class Alternating Group.

06.02 - Toll Restriction - Plan Table

Class 06 Item 02 - Toll Restriction - Plan Table references an *allow/deny/stop* flag that indicates the type of restriction and the number of the *dial table* that contains the dial data to be restricted under that toll plan. A maximum of eight dial table numbers (called 'ref.') can be registered per toll plan. There are forty dial tables (06.03 - Toll Restriction - Dial Table) available each containing up to ten dial data entries. The allow/deny/stop flag is assigned to each toll plan number in Toll Restriction-Plan Table:

- **Deny** - When Deny is used, if the dial input matches the contents of the dial tables, dialing is prohibited. If it does not match, dialing is permitted.
- **Allow -** When Allow is used, if the dial input matches the contents of the dial tables, dialing is permitted. If it does not match, dialing is prohibited.
- **Stop -** When Stop is used, only the dialed digits matching the dial input are sent out. Any subsequent dialed digits are not sent out,. e.g., the dial sender is dropped from the outgoing trunk even if 10.28 -Dial-On Conversation is set to enable.

Note:	If Allow is used, the sender is dropped after sending the allowed number of dialed digits, even if the station is enabled for 10.28 -Dial-On Conversation.

Programming Field Description

Toll Restriction Plan Table: Number	Meaning:	Toll restriction plan table number.
	Range:	1-32
Restriction	Meaning:	For each toll plan number indicate the status.
	Range:	Deny Allow Stop, allow but stop after the dial digits listed are sent, but stop after the dial digits listed are sent
	Default:	Deny
Ref. 1-8	Meaning:	Reference up to eight dial tables for each toll plan number. The value entered into the Reference tables corresponds to one of the 40 available Dial Tables in 06.03 - Toll Restriction - Dial Table
	Range:	1-40
	Default:	0

Related Databases:

Required: 06.01 - Toll Restriction Table; 06.03 - Toll Restriction - Dial Table; 06.04 - Toll Restriction - Predial; 06.05 - Toll Restriction - Allow List; 06.06 - Toll Restriction - Deny List; 10.23 - Toll Restriction Level and Class; 11.40 - Toll Restriction Group Number.

Associated: 06.08 - Toll Restriction - Equal Access Dial Table; 10.28 -Dial-On Conversation.

06.03 - Toll Restriction - Dial Table

Class 06 Item 03 - Toll Restriction - Dial Table is used to register dial data that is subject to toll restriction for each table number indicated in 06.02 - Toll Restriction - Plan Table. Each of the 40 Dial Tables table contains ten lines of eight digits in length for data entry. Each line can be expanded twice to reference the data contained in additional dial tables. The maximum data string including expansion tables is twenty-four digits. **If the dial data entered includes an expansion, 'N' (meaning null) must be entered for any unused spaces in the eight-digit field**.

Up to twenty expansions on the dialed data in the first table can be entered by referencing two expansion dial tables.

Programming Field Description

Toll Restriction Dial Table Number	Meaning:	This is the table number configured in 06.02 - Toll Restriction - Plan Table
	Range:	1-40
Line Number	Meaning:	One of the 10 available entry lines in the dial table.
	Range:	1-10
Dial Data	Meaning:	Dial data.
	Range:	Up to 8 digits. (0-9, *, #, A = All)
	Default:	See Table Below
Exp 1-2	Meaning:	Expansion dial table numbers.
2-3 (d2-d3):	Range:	01-40
	Default:	0

Toll Restriction Dial Table Number											Line Number					
Line No.	01	02	03	04	05	06	07	08	09	10	01	02	03	04	05	06
Dial Data	2NN	3NN	4NN	5NN	6NN	7NN	8NN	9NN	1800	1888	1877	1866	1855	1844	1833	1822
Exp 1	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
Exp 2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

Related Databases:

Required: 06.01 - Toll Restriction Table; 06.02 - Toll Restriction - Plan Table; 06.04 - Toll Restriction - Predial; 06.05 - Toll Restriction - Allow List; 06.06 - Toll Restriction - Deny List; 10.23 - Toll Restriction Level and Class; 11.40 - Toll Restriction Group Number.

Associated: 06.08 - Toll Restriction - Equal Access Dial Table.

06.04 - Toll Restriction - Predial

Class 06 Item 04 - Toll Restriction - Predial is used to register digits that will precede a dialed number. If a trunk is programmed as a PBX or tie line, the data entered in Toll Restriction - Predial as predial data is not checked by the ECS toll restriction program when dialing out on that trunk. Toll Restriction - Predial has no effect unless the trunks applied for predial programming have been defined in 11.40 - Toll Restriction Group Number and 11.41 - Predial Group Number.

Programming Field Description

Toll Restriction Predial Group Number	Meaning:	Predial group number sent from 11.41 - Predial Group Number.
	Range:	1-4
Line Number	Meaning:	Entry line in the dial table.
	Range:	01-10
Predial Data	Meaning:	Predial data.
	Range:	Up to 4 digits. (0-9, *, #, A = All)
	Default:	None
Toll Group Number	Meaning:	Toll restriction group number sent from 11.40 - Toll Restriction Group Number.
(d2):	Range:	0-32
	Default:	0

Related Databases:

Required: 01.11 Trunk Port Definition; 06.01 - Toll Restriction Table; 06.02 - Toll Restriction - Plan Table; 06.05 - Toll Restriction - Allow List; 06.06 - Toll Restriction - Deny List; 10.23 - Toll Restriction Level and Class; 11.40 - Toll Restriction Group Number; 11.40 - Toll Restriction Group Number.

Associated: 06.08 - Toll Restriction - Equal Access Dial Table.

06.05 - Toll Restriction - Allow List

Class 06 Item 05 - Toll Restriction - Allow List is used to define specific dial data as **universally allowed**, regardless of the toll restriction plan. Even if the dial data registered in the Toll Restriction - Allow List is denied in the 06.02 - Toll Restriction - Plan Table and 06.03 - Toll Restriction - Dial Table, the ECS allows the dialing as an exception. This table supersedes station toll class 1 through 4 assigned in 10.23 - Toll Restriction Level and Class.

Note:	Programming in the Toll Restriction - Allow List is meaningless if Classes 06.01 - Toll Restriction Table, 10.23 - Toll Restriction Level and Class, and 11.40 - Toll Restriction Group Number are not programmed.

Programming Field Description

Toll Restriction List Line Number	Meaning:	Entry line in allow list.
	Range:	01-32
Allow List	Meaning:	Allowed dial data.
	Range:	Up to 8 digits. (0-9, *, #, A = All)
	Default:	911

Related Databases:

Required: 06.01 - Toll Restriction Table; 06.02 - Toll Restriction - Plan Table; 06.03 - Toll Restriction - Dial Table; 06.06 - Toll Restriction - Deny List; 10.23 - Toll Restriction Level and Class; 11.43 - Incoming CO Access Class.

Associated: 06.08 - Toll Restriction - Equal Access Dial Table.

06.06 - Toll Restriction - Deny List

Class 06 Item 06 - Toll Restriction - Deny List is used to define specific dial data as **universally denied**, regardless of the toll restriction plan. Even if the dial data registered in Toll Restriction-Deny List is allowed in the 06.02 - Toll Restriction - Plan Table and 06.03 - Toll Restriction - Dial Table, the ECS denies the dialing as an exception. This table supersedes station toll class 1 through 4 assigned in 10.23 - Toll Restriction Level and Class. If 06.06 - Toll Restriction - Deny List and *06.05 - Toll Restriction - Allow List* contain the same data values the deny list has priority.

Note: Programming in *Toll Restriction - Deny* is meaningless if *06.01 - Toll Restriction Table, 10.23 - Toll Restriction Level and Class, and 11.40 - Toll Restriction Group Number* are not programmed.

Programming Field Description

Toll Restriction List Line Number	Meaning:	Entry line in deny list.
	Range:	01-32
Deny List	Meaning:	Denied dial data.
	Range:	Up to 8 digits 0-9, *, #, A = All)
	Default:	1900

Related Databases:

Required: 06.01 - Toll Restriction Table; 06.02 - Toll Restriction - Plan Table; 06.03 - Toll Restriction - Dial Table; 06.04 - Toll Restriction - Predial; 06.06 - Toll Restriction - Deny List; 10.23 - Toll Restriction Level and Class; 11.40 - Toll Restriction Group Number.

Associated: 06.08 - Toll Restriction - Equal Access Dial Table.

06.07 - Toll Restriction - SMDR Table

Class 06 Item 07 - Toll Restriction - SMDR Table is used to define specific dial data to appear as toll call data on the SMDR printout when 04.53 - SMDR - Toll Only Report is programmed for **toll calls only**.

Three different classification marks can be programmed to flag a specific call type on the SMDR printout. These classification marks, included in the Programming Field Description below, are programmed in Toll Restriction - SMDR Table. Dial data entered in Toll Restriction - SMDR Table affects only the SMDR printout. It has no effect on the system toll restriction features.

Note:	At default, the ECS does not recognize any toll calls.

Programming Field Description

Line Number	Meaning:	Entry line in the SMDR table.
	Range:	01-32
Dialed Digits	Meaning:	Identifies the dialed digits to be included on the SMDR printout.
	Range:	Up to 8 digits. 0-9, *, #, Space, A = All)
	Default:	None
Note Mark	Meaning:	Identifies a classification mark for the data entered in Dialed Digits to be included on the SMDR printout in the note column.
	Range:	* prints out next to the number in the note column # prints out next to the number in the note column no flag
	Default:	*

Related Databases:

Required: 04.50 - SMDR - Output Port; 04.50 - SMDR - Output Port; 10.18 - SMDR Report; 11.29 - SMDR Report.

Associated: None.

06.08 - Toll Restriction - Equal Access Dial Table

Class 06 Item 08 - Toll Restriction - Equal Access Dial Table is used to determine the *equal access dial data* which corresponds to each *equal access group number.* Any station that uses this feature must be programmed for equal access in *Class 10.31*. When a station seizes a CO line and performs *automatic equal access code dialing* ([SPEED] + *n* + [*] or [#]), the system references the equal access group number specified for that line in *Class 11.42*, to determine the equal access number. The system then performs equal access dialing. See *Class 11.42 - Equal Access Group Number* for more information.

Note:	***** = with pin code, **#** = without pin code.

The SMDR printout will mask (XXX...) all equal access dial data and pin number. These Xs (dialed digits) appear in the "called number" column of SMDR.

Programming Field Description

Toll Restriction-Equal Access Group Number	Meaning:	Equal access group number programmed in 11.42 - Equal Access Group Number.
	Range:	1-4
Grp # (11.40)	Meaning:	Equal Access Number.
	Range:	1-10
Equal Access Number	Meaning:	Equal access dial data.
	Range:	Up to 16 digits 0-9, *, #, A = All)
	Default:	None

Related Databases:

Required: 06.09 - Toll Restriction - Equal Access Pin Code; 06.10 - Toll Restriction - Equal Access Pin Position; 06.11 - Toll Restriction - Equal Access Prefix Table; 06.12 - Toll Restriction - Equal Access CO Line Group; 10.31 - Equal Access; 11.42 - Equal Access Group Number.

Associated: None.

06.09 - Toll Restriction - Equal Access Pin Code

Class 06 Item 09 - Toll Restriction - Equal Access Pin Code is used to determine the equal access pin code for each equal access number. This data is used whenever an equal access pin code is automatically dialed. This data does not apply to manually dialed calls.

Programming Field Description

Toll Restriction-Equal Access Group Number	Meaning:	Equal access group number programmed in 11.42 - Equal Access Group Number.
	Range:	1-4
Grp # (11.40)	Meaning:	Equal access number.
	Range:	1-10
Equal Access	Meaning:	Equal access pin code.
	Range:	Up to 20 digits (0-9, *, #, A = All)
	Default:	None

Related Databases:

Required: 06.06 - Toll Restriction - Deny List; 06.10 - Toll Restriction - Equal Access Pin Position; 06.11 - Toll Restriction - Equal Access Prefix Table; 06.12 - Toll Restriction - Equal Access CO Line Group; 10.31 - Equal Access; 11.42 - Equal Access Group Number.

Associated: None.

06.10 - Toll Restriction - Equal Access Pin Position

Class 06 Item 10 - Toll Restriction - Equal Access Pin Position is used to determine if the pin code for each equal access number is inserted before or after the dialed telephone number.

Note:	If the pin position is set to a value of **1 - after the equal access number**, the system will pause for three seconds before outputting the pin code.

Programming Field Description

Toll Restriction-Equal Access Group Number	Meaning:	Equal access group number programmed in 11.42 - Equal Access Group Number.
	Range:	1-4
Grp # (11.40)	Meaning:	Equal access number.
	Range:	1-10
Data Field:	Meaning:	Determine if the equal access pin code is inserted before or after the dialed data.
	Range:	Before Dial = before dialed telephone number After Dial = after dialed telephone number
	Default:	Before Dial

Related Databases:

Required: 06.08 - Toll Restriction - Equal Access Dial Table; 06.09 - Toll Restriction - Equal Access Pin Code; 06.11 - Toll Restriction - Equal Access Prefix Table; 06.12 - Toll Restriction - Equal Access CO Line Group; 10.31 - Equal Access; 11.42 - Equal Access Group Number.

Associated: None.

06.11 - Toll Restriction - Equal Access Prefix Table

Class 06 Item 11 - Toll Restriction - Equal Access Prefix Table is used to determine if an equal access number requires a prefix. This program is used only if 06.10 - Toll Restriction - Equal Access Pin Position is set to a value of 1.

Note:	If the pin code position is set to **1** - **after the equal access number** in 06.10 - Toll Restriction - Equal Access Pin Position, the system will pass eleven digits of dial data before inserting the pin code.

Programming Field Description

Toll Restriction-Equal Access Group Number	Meaning:	Equal access group number programmed in 11.42 - Equal Access Group Number.
	Range:	1-4
Grp # (11.40)	Meaning:	Equal access number.
	Range:	1-10
PIN Prefix	Meaning:	Toggle between prefix required /prefix not required.
	Range:	Not Required = prefix not required Required = prefix required
	Default:	Not Required

Related Databases:

Required: 06.08 - Toll Restriction - Equal Access Dial Table; 06.09 - Toll Restriction - Equal Access Pin Code; 06.10 - Toll Restriction - Equal Access Pin Position; 06.12 - Toll Restriction - Equal Access CO Line Group; 10.31 - Equal Access; 11.42 - Equal Access Group Number.

Associated: None.

06.12 - Toll Restriction - Equal Access CO Line Group

Class 06 Item 12 - Toll Restriction - Equal Access CO Line Group is used assign equal access dial tables to a trunk group or restriction. When a station dials an outgoing call with an equal access code, the ECS determines the toll restriction based on the toll restriction group number programmed in Class 06.12 and the station's toll class programmed in 10.23 - Toll Restriction Level and Class. At that time, the ECS will reference the appropriate toll plan number assigned in 06.01 - Toll Restriction Table. 06.12 - Toll Restriction - Equal Access CO Line Group has priority over the equal access group assigned to a CO line in 11.42 - Equal Access Group Number.

Programming Field Description

Toll Restriction-Equal Access Group Number	Meaning:	Equal access group number programmed in 11.42 - Equal Access Group Number.
	Range:	1-4
Grp # (11.40)	Meaning:	Equal access number.
	Range:	1-10
Trunk Group	Meaning:	Toll restriction group number.
	Range:	0-250
	Default:	0

Related Databases:

Required: 06.08 - Toll Restriction - Equal Access Dial Table; 06.09 - Toll Restriction - Equal Access Pin Code; 06.10 - Toll Restriction - Equal Access Pin Position; 06.11 - Toll Restriction - Equal Access Prefix Table; 10.31 - Equal Access; 11.42 - Equal Access Group Number.

Associated: None.

Class 07

Numbering Plans

Class 07 - Numbering Plans is used to set up the access numbers used throughout the ECS. The items in Class 07 include:

- 07.01 - Attendant/System Park Orbit Numbers
- 07.02 - Hunting Group Access Numbers
- 07.03 - CO Line Group Access Numbers
- 07.04 - Paging Group Access Numbers
- 07.05 - PBX Network Access Numbers
- 07.06 - Feature Access Numbers

07.01 - Attendant/System Park Orbit Numbers

Class 07 Item 01 - Attendant/System Park Orbit Number is used to assign dial codes for the attendant/system call park orbits.

Programming Field Description

Park Orbit Number	Meaning:	Call park orbit number.
	Range:	1-250
Access No.	Meaning:	Access code.
	Range:	Up to 4 digits (0-9, *, #)
	Default:	For software versions 4.0 and higher: None

Related Databases:

Required: 04.24 - Attendant Call Park Orbit.

Associated: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

07.02 - Hunting Group Access Numbers

Class 07 Item 02 - Hunting Group Access Numbers is used to assign ICM numbers to access station hunt groups. The digits [*] and [#] are acceptable as part of the access code.

Programming Field Description

Hunt Group Access Number	Meaning:	Hunt group number.
	Range:	1-250
Access No.	Meaning:	Access code.
	Range:	Up to 4 digits (0-9, *, #)
	Default:	None

Related Databases:

Required: 08.01 - Hunt Group - Type; 08.02 - Hunt Group - Station

Associated: 04.20 - VSS Recording Time; 04.21 - Hunting Time; 04.71 - Call Coverage/Voice Mail Data: UCD Overflow Timer; 04.77 - Voice Mail/ Auto Attendant Packet Codes; 08.03 - Hunt Group - ID; 08.05 - UCD Hunt Group; 11.34 - Direct In Line (DIL) to Hunt Group.

07.03 - CO Line Group Access Numbers

Class 07 Item 03 - CO Line Group Access Numbers is used to assign ICM dialing numbers to access CO line groups. Use group number 61 in the element field for multiple CO group access. Enter group number 255 in the element field for the CO line group **optimized routing** access feature. This feature is used to access CO lines when dialing on ICM. The digits [*] and [#] are acceptable as part of the optimized routing access code. CO Line Group Access Number does not apply to floating group CO access (using a [FLT n] key).

Programming Field Description

CO Line Group Access Number	Meaning:	Outgoing CO group number.
	Range:	1-250, 255 255 = optimized routing access
Access No.	Meaning:	Access code.
	Range:	Up to 4 digits (0-9, *, #)
	Default:	Blank

Related Databases:

Required: 10.21 - Outgoing CO Line Group; 10.32 - Optimized Routing Call; 11.38 - Outgoing CO Group.

Associated: 04.25 - (Elements 5 - 16) Element 7 Multiple CO Group; 10.33 - Forced Optimized Routing; Class 17 Optimized Routing.

07.04 - Paging Group Access Numbers

Class 07 Item 04 - Paging Group Access Numbers is used to define the ICM dial numbers used to access the system paging features. *All Call* includes the paging stations assigned to page group 125 Stations and the external speakers assigned to page group 250 External Speakers/Zones.

Programming Field Description

Paging Group Access Number	Meaning:	Paging group number
	Range:	1-250 255 (all call)
Access No	Meaning:	Access code.
	Range:	Up to 4 digits (0-9, *, #)
	Default:	blank

Related Databases:

Required: 08.04 - Paging Group - Station/Zone; 10.38 - Paging Access.

Associated: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

07.06 - Feature Access Numbers

Class 07 Item 06 - Feature Access Numbers is used to assign ICM dial numbers to access system features without using the [FEAT] key. These numbers are used primarily by single-line telephones and data modules. The Feature Access Code Table lists each feature that may be assigned an access code. With the exception of the default access codes, the feature codes listed in the table represent the suggested feature access codes. Feature access code assignment should be planned carefully to avoid conflicts with other numbering plans.

In hotel/motel mode, there are two room status change codes that enable hotel room status displays to be changed from the station. Additionally, you can program the feature access codes for external control of the remote CO forward feature using DISA.

Voice mail/auto attendant mailbox access numbers may be programmed and correspond to hunt groups (47-50), which are designated for voice mail/auto attendant ports.

Feature Code Numbering		
Feature Code	Default	Meaning
1	Yes	Cancel
2	No	SPD (for SLT and data modules only)
3	No	SPD with Group (for SLT and data modules only)
4	No	SPD without Group (for SLT and data modules only)
5	No	Last No. redial (for SLT and data modules only)
6	No	Trunk Queuing (for SLT and data modules only)
7	No	Busy Number Callback (for SLT and data modules only)
8	No	Hold/Hold Pickup (for SLT and data modules only)
9	No	Group Call Pickup (In Group)(
10	No	External Group Pickup
11	No	Directed Call Pickup
12	No	Station Park Pickup (for SLT and data modules only)
13	No	Remote Station Park Pickup
14	No	Long CO Flash (for SLT and data modules only)
15	No	Short CO Flash (for SLT and data modules only)
16	No	ADD (Conference) (for SLT and data modules only)
18	No	ICM Call Back (for SLT and data modules only)
19	Yes	Message Wait (for SLT and data modules only)
20	No	Call Forward Destination (for SLT and data modules only)
21	No	Call Forward Mode (for SLT and data modules only)
22	No	Call Forward Activation (for SLT and data modules only)
23	No	DND (for SLT and data modules only)
24	No	Meet-me Answering
25	No	Voice Message ([Message Record] key or [FEAT]+[4][5])

26	No	Morning Call Registration
27	No	Station Password (for SLT and data modules only)
28	No	Through Dialing (for SLT and data modules only)
29	No	Through Dialing - Disconnect (for SLT and data modules only)
30	Yes	All Attendant Call
36	No	Room Status-Occupied and Cleaned)
37	No	Room Status-Occupied and Cleaning Confirmed
38	No	Remote CO Forward Access Code for Reactivating/Cancellation
39	No	CO Group Incoming Call Answer
43	No	Automatic Relay Feature Access Number
45	No	External Call Forward Set (for SLT and data modules only)
46	No	UNA Pickup
47	No	Account Code (for SLT and data modules only)
48	Yes	Voicemail mailbox access Hunt Group 47
49	No	Voicemail mailbox access Hunt Group 48
50	No	Voicemail mailbox access Hunt Group 49
51	No	Voicemail mailbox access Hunt Group 50
52	No	I-CNIS OFF
53	No	Transfer to Park (for SLT and data modules only)

Programming Field Description

Feature Code Numbering	Meaning:	Feature Access Number.
	Range:	1-250
Data Field:	Meaning:	Access code.
	Range:	Up to 4 digits (0-9, *, #)
	Default:	None

Related Databases:

Required: 04.55 - Port Definition - True Attendant Position.

Associated: 04.71 - Call Coverage/Voice Mail Data; 04.77 - Voice Mail/Auto Attendant Packet Codes.

Class 08

Group Data

Class 08 - Group Data is used to set up hunt groups and page groups. The items in Class 08 include:

- 08.01 - Hunt Group - Type
- 08.02 - Hunt Group - Station
- 08.03 - Hunt Group - ID
- 08.04 - Paging Group - Station/Zone
- 08.05 - UCD Hunt Group
- 08.06 - Text Message Group

08.01 - Hunt Group - Type

Three types of hunting methods are available with the ECS to search for an idle station within a group:

- **Terminal Hunting** - Incoming calls start hunting from the first station in the group.
- **Distributed Hunting** - Incoming calls start hunting from the station following the last station in the group that answered a call.
- **All Ring Hunt Group** - Incoming calls ring all stations in the group.

Hunt groups 47-50 are designated for voice mail or auto attendant ports only.

Programming Field Description

UCD Hunt Group Number	Meaning:	Hunt group number.
	Range:	01-250
Hunt Grp Type	Meaning:	Toggle between terminal/distributed hunting.
	Range:	Terminal = terminal hunting Distributed = distributed hunting All = all ring
	Default:	Terminal

Related Databases:

Required: 04.21 - Hunting Time; 07.02 - Hunting Group Access Numbers; 08.02 - Hunt Group - Station.

Associated: 04.34 - UCD Answer Time; 08.03 - Hunt Group - ID; 08.05 - UCD Hunt Group; 11.34 - Direct In Line (DIL) to Hunt Group.

08.02 - Hunt Group - Station

Class 08 Item 02 - Hunt Group - Station is used to define the stations that belong to each master hunt group and the order which they will be called. Up to thirty-two stations can be registered in one group. Stations belonging to a hunt group are passed over when the following conditions exist:

1. The station is busy.
2. While receiving calls with higher priority.
3. When in the following modes:
   - If all the stations in a hunt group are in DND, the call is automatically routed to the attendant.
   - If all the stations in a hunt group are busy and attendant intercept is not set for the trunk, the call rings (or waits to ring) at the first station in order of the hunt group.
   - If off-hook signaling is enabled, a call will ring with a local tone if the station is busy.

Hunt groups 47-50 are designated for voice mail or auto attendant ports only and hunt groups 51-60 are designated for data module ports only.Additionally, the Conversation Recording feature may only be accessed via hunt group 47.

Programming Field Description

Station Hunt Group Number	Meaning:	Hunt group number (listed vertically).
	Range:	01-250
Station Hunt Group Position	Meaning:	Position in the hunting sequence (listed horizontally).
	Range:	01-32
Logical Port Number	Meaning:	Station logical port.
	Range:	0-1024
	Default:	0

Related Databases:

Required: 07.02 - Hunting Group Access Numbers.

Associated: 04.21 - Hunting Time; 04.71 - Call Coverage/Voice Mail Data; 04.77 - Voice Mail/Auto Attendant Packet Codes; 08.01 - Hunt Group - Type; 08.03 - Hunt Group - ID; 08.05 - UCD Hunt Group; 11.34 - Direct In Line (DIL) to Hunt Group; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

08.03 - Hunt Group - ID

Class 08 Item 03 - Hunt Group - ID is used to program an alphanumeric ID up to eight characters in length for hunt group identification. This ID appears at stations equipped with an LCD display when calling the hunt group.

Hunt groups 47-50 are designated for voice mail or auto attendant ports only and hunt groups 51-60 are designated for data module ports only.Additionally, the Conversation Recording feature may only be accessed via hunt group 47.

Programming Field Description

Element	Meaning:	Hunt group ID.
Field:	Range:	01-250
Data Field:	Meaning:	Hunt group identification name
	Range:	Up to 8 alphanumeric characters
	Default:	None

Related Databases:

Required: 07.02 - Hunting Group Access Numbers; 08.02 - Hunt Group - Station.

Associated: 04.21 - Hunting Time; 08.01 - Hunt Group - Type; 08.05 - UCD Hunt Group; 11.34 - Direct In Line (DIL) to Hunt Group; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Hardware Required:

Any key telephone with a display.

08.04 - Paging Group - Station/Zone

Class 08 Item 04 - Paging Group - Station/Zone is used to assign stations to a page group for E-Response help calls, group calls, and zone speakers to page groups for zone paging. Each group can contain a maximum of 64 stations or speakers. A maximum of sixteen external paging zones (four IX-MISC cards) can be accommodated. An ICM Group of up to 64 stations may be programmed and assigned a group number in Class 08.04. The group is then identified as an Intercom Group in 08.05 - UCD Hunt Group Group Attribute. An access code for the group must be programmed in 07.04 - Paging Group Access Numbers. The table below lists the page group numbering plan:

Page Group Number	Page Feature	Data Field Entry	Notes
1-124	Station Group Call, ICM Group Call, E-Response Help Call	Logical port numbers of stations in the group.	A station can belong to more than one group.
125	Internal Group - All Call	Logical port numbers of stations in the group.	All station page.
126-249	Zone Page	MISC logical port number(s).	
250	Zone - All Call	MISC logical port number(s).	All zone page.

Programming Field Description

Page Group Number	Meaning:	Page group, ICM group, E-Response group number (displays vertically).
	Range:	1-250
Station/Zones	Meaning:	Stations/zones in the group (displays horizontally).
	Range:	1-64
Data Field:	Meaning:	Station/miscellaneous logical port numbers.
	Range:	1-1024: If the Page Group Number is 1-125, enter station logical port number. 126-250: If the Page Group Number is, enter miscellaneous logical port number.
	Default:	0

Related Databases:

Required: 07.04 - Paging Group Access Numbers; 10.34 - Route Advance Step.

Associated: 04.40 - DISA Paging Call; 10.49 - Meet-Me Answer Group; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment

ICM Group Call:	04.22 - ICM Call Mode; 07.04 - Paging Group Access Numbers; 08.04 - Paging Group - Station/Zone; 08.05 - UCD Hunt Group: Paging Group Type; 10.48 - Calling Mode.
E-Response Help Call:	04.13 - Call Forward - No Answer; 04.22 - ICM Call Mode; 04.71 - Call Coverage/ Voice Mail Data: E-Response Help Call Time Out; 04.79 - E-Response Help Call LCD Display: E-Response Help Call Message; 07.04 - Paging Group Access Numbers; 08.04 - Paging Group - Station/Zone; 08.05 - UCD Hunt Group: Paging Group Type; 08.05 - UCD Hunt Group: E-Response Contact Relay; 10.48 - Calling Mode; 10.74 - Station Based Timers: E-Response Help Call Mode; 10.74 - Station Based Timers: E-Response Help Call Extension.

Hardware Required:

IX-MISC, IX-EDVIF, IX-EDCTU.

08.05 - UCD Hunt Group

Class 08 Item 05 - UCD Hunt Group contains elements which are used to define up to 250 groups as UCD groups, two messages and an overflow destination to handle UCD (Uniform Call Distribution) calls. UCD Hunt Group enhances the characteristics of the station hunt groups programmed in 08.02 - Hunt Group - Station. The following calls are handled as UCD calls when they initially ring at stations belonging to a UCD group:

- Incoming calls on loop or ground start trunks.
- DID calls.
- DISA calls.
- Transferred calls
- Forwarded calls.

If the incoming call is not answered by a station in the UCD group, the ECS system can answer the call. Two messages can be programmed in UCD Hunt Group to handle the call. An overflow destination can also be programmed using UCD Hunt Group. UCD calls can be programmed to overflow to another UCD group or a hunt group. A UCD call can overflow only once. ICM calls do not overflow.

Programming Specifications

UCD Hunt Group contains the following element fields:

Field:	Used to:
UCD Hunt Group Number	Identify a hunt group (programmed in 08.02 - Hunt Group - Station) or paging group (programmed in 08.04 - Paging Group - Station/Zone).
UCD Hunt Group	Define a the group as a UCD group or hunt group. A group must be defined here as a UCD group to activate the other operations for that group.
1st Message	Identify Message 1 for the UCD group. This message is played if an incoming call to the UCD group is not answered by the time the value programmed in 04.34 - UCD Answer Time has expired.
2nd Message	Identify Message 2 for the UCD group. The second message follows the first message if a call is not answered by the time the value programmed in *04.20 - VSS Recording Time: UCD Message Interval* has expired.
Overflow Dest	Identify the overflow destination for the UCD group. If a UCD call is not answered by the time the value programmed in *04.71 - Call Coverage/ Voice Mail Data: UCD Overflow Timer* has expired, the call will be forwarded to the group programmed here.

Note: 04.12 - Camp-On Duration must be longer than UCD overflow time for camped-on calls to overflow. Calls transferred to a UCD group will recall when the timer in 04.12 - Camp-On Duration expires.

Group Attribute	Identify a paging group from 08.04 - Paging Group - Station/Zone as an ICM Group. Doing so allows the specified group to be programmed as the destination for an ICM Group Call or E-Response Help Call.
Help Relay No	Identify a one-shot relay to be used with E-Response.

Programming Field Description

UCD Hunt Group Number	Meaning:	Station hunt group programmed in 08.02 - Hunt Group - Station.
	Range:	01-250
UCD Hunt Grp	Meaning:	Define group as UCD group or station hunt group.
	Range:	Regular = regular hunt group UCD = UCD group
	Default:	Regular
1st Message	Meaning:	Define first message for the UCD group.
	Range:	31-52
	Default:	None
2nd Message	Meaning:	Define second message for the UCD group.
	Range:	31-52
	Default:	None
Overflow Dest	Meaning:	Define the overflow destination for the UCD group.
	Range:	0-250
	Default:	0
Group Attribute	Meaning:	Define group as a page group or ICM group.
	Range:	Paging = Paging Group ICM = ICM Group Call
	Default:	Paging
Help Relay No	Meaning:	Identify the E-Response Help Call Relay Number
	Range:	0-32
	Default:	0

Related Databases:

Required: 04.20 - VSS Recording Time: VSS Recording Time; 04.20 - VSS Recording Time: UCD Message Interval; 04.20 - VSS Recording Time: UCD Disconnect Timer; 04.34 - UCD Answer Time; 04.71 - Call Coverage/Voice Mail Data: UCD Back Tone; 04.71 - Call Coverage/ Voice Mail Data: UCD Overflow Timer; 07.02 - Hunting Group Access Numbers; 08.02 - Hunt Group - Station; 11.34 - Direct In Line (DIL) to Hunt Group.

Associated: 04.12 - Camp-On Duration; 04.55 - Port Definition - True Attendant Position; 11.26 - Attendant Intercept Line.

Hardware Required:

IX-MSGU, IX-CMSG-1, IX-CMSG, IX-EMCH.

08.06 - Text Message Group

Class 08 Item 06 - Text Message Group is used to define the stations that belong to each Text Message Group. A maximum of 250 text message groups may be programmed. Up to 64 stations can be registered in one group.

Note: There must be at least 1 station programmed in position 1.

Programming Field Description

Text Message Group Number	Meaning:	Text Message Group Number
	Range:	1-250
Logical Port	Meaning:	Logical port of each station in text message group.
	Range:	0-1024
	Default:	0

Related Databases:

Required: 02.20 - System Text Message; 04.71 - Call Coverage/Voice Mail Data: Text Message Duration; 10.72 - Programming Reserve 3; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Associated: 26.01 - Station Text Message 1.

Class 09

Direct Inward Dialing (DID) Conversion Data

Class 09 - Direct Inward Dialing (DID) Conversion Data is used to set up the ECS Direct Inward Dialing feature:

- 09.01 - Incoming Number
- 09.04 - DID Incoming Digits
- 09.05 - DID Ignored Digits
- 09.03 - DID Trunk ID
- 09.04 - DID Incoming Digits
- 09.05 - DID Ignored Digits

09.01 - Incoming Number

Class 09 Item 01 - DID Incoming Number is used create the digit conversion table. This table is used to convert the actual dialed data on a DID line to the extension number where the call will ring. A DID call may be programmed to ring a specific extension or hunt group. If you wish to route a DID call to a hunt group, the Access Number of the specific hunt group (07.02 - Hunting Group Access Numbers) must be programmed as the destination in this item (d2) for the desired entry. A DID call may also be programmed to follow the primary (11.32 - Ringing Station) and delayed ringing (11.33 - Delayed Ringing Station) assignment for the trunk. If you wish to route a DID call based on the 11.32 - Ringing Station and 11.33 - Delayed Ringing Station programming, the CO Access Number of the trunk (11.02 - CO Line Access Numbers) must be programmed as the destination in this item for the desired entry. The attendant will intercept any undefined incoming numbers. When programming DID dial numbers, [*] and [#] cannot be used. In day mode, calls on DID trunks will recall the attendant if the line is programmed to enable attendant intercept in 11.26 - Attendant Intercept Line. Recall conditions are as follows:

- Undefined Number
- No Answer
- Extension Busy
- Station in DND Mode

Attendant intercept is not available in night mode. DID calls, however, can be programmed for *universal night answer* (UNA) by enabling a UNA line in 11.27 - Universal Night Answer (UNA) Line.

Programming Field Description

Ringing Mode (Radio button selection)	Meaning:	Toggle between Day mode, Night mode or Day/Night mode.
	Range:	Day Ringing Night Ringing Day/Night Ringing
CO Incoming CO DID Table Number	Meaning:	Conversion table number.
	Range:	1-500 or 500 day and 500 night
DID Incoming Number	Meaning:	Incoming digits received from the central office.
	Range:	Up to 4 digits (0-9), N=All
	Default:	None

Related Databases:

Required: 07.02 - Hunting Group Access Numbers; 09.04 - DID Incoming Digits; 09.05 - DID Ignored Digits; 10.02 - Station Numbering.

Associated: 04.15 - Attendant DIL Intercept; 04.25 - Calls for Pickup (Elements 1 - 4) Elements 08 and 09; 04.70 - Programming Reserve 1 Element 16; 10.21 - Outgoing CO Line Group; 10.43 - Off-Hook Signaling; 11.02 - CO Line Access Numbers; 11.26 - Attendant Intercept Line; 11.32 - Ringing Station; 11.33 - Delayed Ringing Station; 11.38 - Outgoing CO Group.

Hardware Required:

IX-4DITK; IX-DCDCA; IX-DCDCB, IX-DTI-T, IX-T1DTI, IX-T1RCV, IX-4RCVS.

09.02 - DID Conversion Number

Class 09 Item 02 - DID Conversion Number is used to assign a network class of service for networked DID calls.

Programming Field Description

CO incoming DID Table Number	Meaning:	Toggle between Day mode, Night mode or Day/Night mode. These items are listed as radio buttons.
	Range:	Day Ringing Night Ringing Day/Night
Conversion table number	Meaning:	Conversion table number.
	Range:	1-500 or 500 day and 500 night
Conversion (Access No)	Meaning:	Conversion table number.
	Range:	Up to 4 digits (0-9)
MBOX/NCS/ ACD Priority	Meaning:	MBOX, Network Class of Service or ACD Priority field
	Range:	Up to 4 digits (0-9)
	Default:	None

Related Databases:

Required: 09.01 - Incoming Number; 09.04 - DID Incoming Digits, Class 28 Networking.

Associated: None.

Hardware Required:

IX-DTI-T, IX-T1DTI (PPU 3.0), or IX-4DITK.

09.03 - DID Trunk ID

Class 09 Item 03 - DID Trunk ID is used to assign an alphanumeric name to identify each DID number listed in the 09.01 - Incoming Number. The DID trunk ID is displayed when an incoming call is ringing at a station. The DID trunk ID is displayed during the following operations:

- Call Forward
- Call Coverage key operation
- Group Pick-Up
- Recalls

Programming Field Description

CO incoming DID Table Number	Meaning:	Toggle between Day mode, Night mode or Day/Night mode. These items are listed as radio buttons.
	Range:	Day Ringing Night Ringing Day/Night
Conversion table number	Meaning:	Conversion table number.
	Range:	1-500 or 500 day and 500 night
Trunk ID	Meaning:	DID Trunk ID.
	Range:	Up to 16 alphanumeric characters
	Default:	None

Related Databases:

Required: 09.01 - Incoming Number.

Associated: None.

Hardware Required:

IX-4DITK; IX-DCDCA; IX-DCDCB, IX-4RCVS, IX-DTI-T, IX-T1DTI, IX-T1RCV.

09.04 - DID Incoming Digits

Class 09 Item 04 - DID Incoming Digits is used to define the total number of digits that will be received from an incoming call on a DID trunk from the telephone company. The total number of digits programmed in 09.02 - DID Conversion Number must match the sum of the ignored digits programmed in 09.03 - DID Trunk ID and the digits in 09.01 - Incoming Number.

Programming Field Description

DID Incoming Digits	Meaning:	Number of incoming digits from the DID trunk.
	Range:	0-6
	Default:	3

Related Databases:

Required: 09.01 - Incoming Number; 09.04 - DID Incoming Digits.

Associated: 04.15 - Attendant DIL Intercept; 04.25 - Calls for Pickup (Elements 1 - 4) Elements 08 and 09; 07.01 - Attendant/System Park Orbit Numbers; 10.02 - Station Numbering; 11.26 - Attendant Intercept Line.

Hardware Required:

IX-4DITK; IX-DCDCA; IX-DCDCB, IX-4RCVS, IX-DTI-T, IX-T1DTI, IX-T1RCV.

09.05 - DID Ignored Digits

Class 09 Item 05 - DID Ignored Digits is used to define the number of digits from the CO that are ignored on an incoming call on a DID trunk. When digits are defined as ignored, the ECS will read the remaining digits in the number. For example, if the value programmed in 09.04 - DID Incoming Digits is 5, and the value programmed in 09.05 - DID Ignored Digits is **2**, the first two digits received are ignored. The ECS reads only the last three digits and converts them to the extension number programmed using the 09.01 - Incoming Number.

Programming Field Description

Trunk ID	Meaning:	Number of incoming digits from a DID trunk that the system will ignore.
	Range:	0-6
	Default:	0

Related Databases:

Required: 09.01 - Incoming Number; 09.04 - DID Incoming Digits.

Associated: 04.15 - Attendant DIL Intercept; 04.25 - Calls for Pickup (Elements 1 - 4) Elements 08 and 09; 07.02 - Hunting Group Access Numbers; 10.02 - Station Numbering; 11.26 - Attendant Intercept Line.

Hardware Required:

IX-4DITK; IX-DCDCA; IX-DCDCB, IX-4RCVS, IX, DTI-T, IX-T1DTI, IX-T1RCV.

Class 10

Station Class of Service

Use **Class 10 - Station Class of Service** to program variables and functions which will be applied throughout the ECS at the station level. The following programming items are included in Class 10:

- 10.02 - Station Numbering
- 10.03 - Station Distance
- 10.04 - Station User ID
- 10.05 - Station Password
- 10.06 - DISA Service
- 10.07 - Quick Mode Operation
- 10.08 - Off-Hook ICM
- 10.09 - Prime Line Access
- 10.10 - Hookflash Timing
- 10.11 - Data Module Communication
- 10.12 - Key Assignment
- 10.13 - Preringing For Single-Line Telephones
- 10.14 - Dial Confirmation Tone
- 10.15 - Handset Volume Control
- 10.16 - Call Forwarding
- 10.36 - Answer Hold
- 10.37 - Hold Recall
- 10.38 - Paging Access
- 10.39 - Direct Station-to-Station Call
- 10.40 - Barge-In Station
- 10.41 - Busy Overriding
- 10.42 - Do Not Disturb (DND)
- 10.43 - Off-Hook Signaling
- 10.44 - Protected Station
- 10.45 - Message Key
- 10.46 - Hookswitch Flash
- 10.47 - Howler Alert
- 10.48 - Calling Mode
- 10.49 - Meet-Me Answer Group
- 10.50 - ICM Group
- 10.51 - Call Pick-Up Group

- 10.17- Unscreened Transfer (SLT Only)
- 10.18 - SMDR Report
- 10.19 - Queuing Class
- 10.20 - Off-Hook Trunk Queuing
- 10.21 - Outgoing CO Line Group
- 10.22 - Incoming CO Access Group
- 10.23 - Toll Restriction Level and Class
- 10.24 - System Speed Access
- 10.25 - System Speed Toll Restriction
- 10.26 - Dial Pulse to DTMF Signal Alternating
- 10.27 - Automatic Signal Alternating
- 10.28 -Dial-On Conversation
- 10.29 - Preset Dial
- 10.30 - Automatic Outgoing CO
- 10.31 - Equal Access
- 10.32 - Optimized Routing Call
- 10.33 - Forced Optimized Routing
- 10.34 - Route Advance Step
- 10.35 - Off-Hook CO Answering
- 10.52 - Toll Restriction Class Alternating Group
- 10.53 - Attendant Automatic Hold
- 10.54 - Attendant Call Progress Tone
- 10.55 - Attendant Overflow Level
- 10.56 -Attendant Overflow Destination
- 10.57 - Doorphone Ringing
- 10.58 - Doorphone Relay
- 10.59 - Doorphone Tone
- 10.60 - Station Data Module Link
- 10.70 - Programming Reserve (CCV ICM)
- 10.71 - Programming Reserve 2
- 10.72 - Programming Reserve 3
- 10.73 - Programming Reserve
- 10.74 - Station Based Timers
- 10.75 - Programming Reserve 6
- 10.76 - Optimized Routing Class
- 10.78 - Fixed Call Forward Destination
- 10.79 - Station CNIS Number

10.02 - Station Numbering

Class 10 Item 02 - Station Numbering is used to assign an extension number to each station logical port. The digits must be between 0 and 9.

Note:	Do not change the access number for a busy station. **For SIP stations:** A system reset is required when adding a SIP station and if the SIP station is assigned an extension number that was used by another station. There is no issue when a new extension number is assigned to newly added SIP station.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Access No	Meaning:	Extension number
	Range:	1-4 digits (0-9)
	Default:	Blank

Related Databases:

Required: 01.09 Station Port Definition; 11.02 - CO Line Access Numbers.

Hardware Required:

All Station interface cards.

10.03 - Station Distance

Class 10 Item 03 - Station Distance is used to program a range in distance between the KSU and **bypass units** or **doorphones** to secure error free data transmission.

Note:	If a busy bypass unit is in close proximity to the KSU, feedback will occur if the value is set to Less than 600 ft in Class 10.03 Distance field for the IX-BPAD logical port.

Programming Field Description

Distance	Meaning:	Distance of a station from the common module or expansion module
	Range:	Less than 660 ft 500-1000 ft
	Default:	Less than 660 ft

Related Databases:

Required: 01.03 Port Definition; 01.04 Port Configuration.

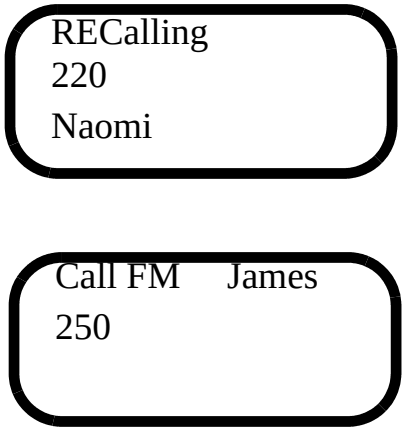
Associated: None.

Hardware Required:

IX-DDPH, IX-BPAD.

10.04 - Station User ID

Class 10 Item 04 - Station User ID is used to program an alphanumeric ID which is displayed on the station LCD during station-to-station calls. For example, if extension 250 is assigned the ID James and the station user dials Naomi at extension 220, the LCD display at each station will appear as follows:



Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Name	Meaning:	Name
	Range:	Alphanumeric up to 8 digits
	Default:	None

Related Databases:

Required: None.

Associated: 10.02 - Station Numbering.

Hardware Required:

Key Telephones with LCD displays.

10.05 - Station Password

Class 10 Item 05 - Station Password is used to assign a password that is used to lock a station out of service and access system features through Direct Inward System Access (DISA). The ECS will accept only the digits 0-9 in the password.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Password	Meaning:	Numeric station password
	Range:	Up to 6 digits (0-9)
	Default:	None

Related Databases:

Required: 04.27 - Station Password Digits.

Associated: 04.39 - DISA ICM Call: ICM Call; 04.40 - DISA Paging Call; 04.41 - DISA Waiting Time; 04.42 - DISA: Total Duration: Total Duration; 10.06 - DISA Service; 11.25 - DISA Line.

Hardware Required:

IX-RCVPM with IX-4RCVC or IX-RMPU for DISA.

10.06 - DISA Service

Class 10 Item 06 - DISA Service is used to determine if a station password programmed in 10.05 - Station Password for a specific station logical port number can be used by an outside caller to access the system through DISA.

When DISA service is provided with the ECS, the station subscriber may also use the system ICM features by calling from outside. Feature accessibility varies according to the password used for DISA access. PBX networking codes cannot be accessed through DISA.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Data Field:	Meaning:	Determine if DISA access is permitted at the station level using the password from 10.05 - Station Password
	Range:	Disabled - DISA access is disabled Enabled - DISA access is enabled
	Default:	Enabled

Related Databases:

Required: 10.05 - Station Password; 11.25 - DISA Line.

Associated: 04.39 - DISA ICM Call: ICM Call; 04.40 - DISA Paging Call: Paging Call; 04.41 - DISA Waiting Time: Waiting Time; 04.42 - DISA: Total Duration; 11.46 - Auto Answer Message 2.

Hardware Required:

IX-RMPU, or IX-RCVPM with IX-4RCVC, IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

10.07 - Quick Mode Operation

Class 10 Item 07 - Quick Mode Operation is used to enable stations to automatically go into off-hook status (automatically turn the speaker on) by pressing any line key or [ICM].

Note:	This program can be disabled for station ports using modular headset operation.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Q Mode	Meaning:	Program a station for quick mode operation
	Range:	Deny - quick mode off Allow - quick mode on
	Default:	ON

Related Databases:

Required: None.

Associated: None.

Hardware Required:

Key Telephone, Versa-Phone.

10.08 - Off-Hook ICM

Class 10 Item 08 - Off-Hook ICM is used to allow a station immediate intercom dial tone upon going off-hook. If any of the following items are programmed, they have priority over Off-Hook ICM in the following order:

- Priority 1 - 10.35 - Off-Hook CO Answering
- Priority 2 - 10.30 - Automatic Outgoing CO
- Priority 3 - 10.09 - Prime Line Access
- Priority 4 - 10.08 - Off-Hook ICM

Note:	It is recommended that Off-Hook ICM and 10.09 - Prime Line Access are disabled when using a headset to prevent call progress tones from being audible through the headset.
Note:	It is recommended that Off-Hook ICM be set to Allow when using IX-COMLINK, to allow off-hook ICM.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Data Field:	Meaning:	Program a station for off-hook ICM operation
	Range:	Deny - do not allow off-hook ICM Allow - allow off-hook ICM
	Default:	Allow

Related Databases:

Required: None.

Associated: 10.09 - Prime Line Access; 10.30 - Automatic Outgoing CO; 10.35 - Off-Hook CO Answering; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

10.09 - Prime Line Access

Class 10 Item 09 - Prime Line Access is used to program a station to automatically access to one of the following ICM dial codes upon going off-hook:

- CO Line Direct Access No. (11.02 - CO Line Access Numbers, 11.21 - Prime Line)
- CO Group Access No. (07.03 - CO Line Group Access Numbers, Class 11.21 - Prime Line)
- Station Number (10.02 - Station Numbering)
- Hunt Group Access Number (07.02 - Hunting Group Access Numbers)
- Paging Group Access Number (07.04 - Paging Group Access Numbers)

In order to be used for CO direct or CO group access, CO lines must be enabled as prime lines in 11.21 - Prime Line. If any of the following databases are programmed, they have priority over Prime Line Access in the following order:

- Priority 1 - 10.35 - Off-Hook CO Answering
- Priority 2 - 10.30 - Automatic Outgoing CO
- Priority 3 - 10.09 - Prime Line Access
- Priority 4 - 10.10 - Hookflash Timing

Note:	It is recommended that 10.08 - Off-Hook ICM and 10.09 - Prime Line Access are disabled when using a headset to prevent call progress tones from being audible through the headset.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Prime Line Access	Meaning:	Program an ICM access code for prime line access
	Range:	Up to 4 digits using (0-9)
	Default:	None

Related Databases:

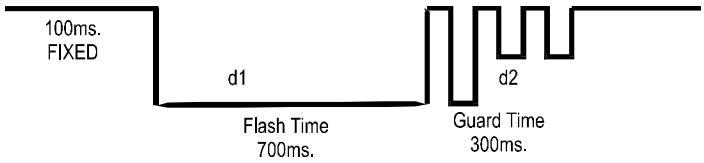
Required: 07.02 - Hunting Group Access Numbers.; 07.03 - CO Line Group Access Numbers; 07.04 - Paging Group Access Numbers; 10.02 - Station Numbering; 11.02 - CO Line Access Numbers; 11.21 - Prime Line.

Associated: 10.08 - Off-Hook ICM; 10.30 - Automatic Outgoing CO; 10.35 - Off-Hook CO Answering.

10.10 - Hookflash Timing

Class 10 Item 10 - Hookflash Timing is used to define the *on-hook* duration and *guard time* for a *hookswitch flash* by a single-line telephone to be accepted. For example, if Hook Flash Timing, data field 1 is set to **07** and data field 2 is set to **03**, the selected station is programmed for a 700ms *flash* (hookswitch) and a 300ms *guard bounce time*. In this example, the system recognizes any on-hook duration lasting longer than 100 milliseconds and less than 700 milliseconds as a hookswitch flash. Disconnect time would be an on-hook duration of 1 second (700ms flash + 300ms guard time.)This programming has no effect on digital telephones. The following illustrates hookflash timing:

Note: Hookflash timing is valid only for the first port of each card.



Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
HFlash Timing	Meaning:	Hookflash time (time multiplied by 100 milliseconds)
	Range:	0-15
	Default:	7 (700 milliseconds)
HFlash Guard Time	Meaning:	Guard time (time multiplied by 100 milliseconds)
	Range:	0-15
	Default:	3 (300 milliseconds)

Related Databases:

Required: 01.09 Station Port Definition

Associated: 10.46 - Hookswitch Flash.

Hardware Required:

IX-8SUBS, IX-8SUBM, IX-4SUBL, IX-RNGU, IX-8SUBS-1, IX-8SUBS-2, IX-4RCVS.

10.11 - Data Module Communication

Class 10 Item 11 - Data Module Communication is used to specify whether a data module has the ability to make or receive ICM calls to another data module within the same subsystem or ICM group. Unless the logical ports of both the data module and the associated KT (programmed in 10.60 - Station Data Module Link) are programmed as *allowed* in Data Module Communications, data communication is not possible.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
DM Comm	Meaning:	Program a station for data module communication
	Range:	Deny - do not allow data module communication Allow - allow data module communication
	Default:	Allow

Related Databases:

Required: 01.09 Station Port Definition

Associated: 04.06 - Pooled Modem Port; 10.60 - Station Data Module Link.

Hardware Required:

IX-DMS, IX-DMB, IX-8PSUB, IX-8BSUB, IX-RCVPM, IX-12PMD, IX-24PMD.

10.12 - Key Assignment

Class 10 Item 12 - Key Assignment is used to assign a key pattern to each station. The key pattern assigned in the Key Assignment defines the function of each line key. These patterns are programmed in Classes 14 - Station Flexible Key Assignment and 15 - Attendant Key Assignment. Key patterns are assigned using a number between 1 and 128 for key telephones and 129 and 136 for attendant positions. Single-line telephones do not require a key pattern.

Before activating IX-PS6 portable stations, pattern 101 must be assigned to the logical ports defined as IX-PS6 portable stations. Other key patterns can be assigned to key telephones defined as IX-PS6 portable stations, but the patterns must be copied from pattern 101. The actual key patterns are programmed in 14.01 - Key Assignment. See Class 14 - Station Flexible Key Assignmentfor more details. The table below lists the default key patterns.

Note:	It is recommended that you build a pattern in 14.01 - Key Assignment or 15.01 - Attendant Key Assignment before assigning it to a station in 10.12 - Key Assignment.
Note:	The following program is recommended when using IX-COMLINK: Key Pattern (10.12 - Key Assignment, 14.01 - Key Assignment, 15.01 - Attendant Key Assignment) — key 25=Speaker, key 26=Transfer, key 27=Feature, key 28=Hold/DND. Also recommended for some applications are ICM, SPEED and ADD.
Note:	The IX-COMLINK does not support the use of the HEADSET key. If a headset is required, it must be connected to the HEADSET connector and used without a KT.

Default Key Pattern Numbers

Key Pattern Number	Description	Station Type
001	Hybrid (PBX)	IX-24KTD-2/3 and IX-12IPKTD
002	Hybrid (PBX)	IX-12KTD-2/3 and IX-12IPKTD
003	Hybrid (PBX)	IX-VT Versa-Phone
004	Direct CO's 1-12	IX-24KTD-2/3 and IX-12IPKTD
005	Hybrid (ACD)	IX-24KTD-2/3 and IX-12IPKTD
006	Hybrid (ACD)	IX-12KTD-2/3 and IX-12IPKTD
007	Hybrid (PBX)	MKT
008	Direct CO's 1-24	ZTD
009	Direct DSS CO's 1-6	ZTD
010-100	Blank (unassigned)	Blank (unassigned)
101	IX-PS6 Omegatrek Portable Station	IX-PS6 Omegatrek Portable Station
102-1001	Blank (unassigned)	Blank (unassigned)
1002	IX-5800/IX-5900 Default	IX-5800/IX-5900 Default
1003	Square	IX-5810/IX-5910
1004	Hybrid	IX-5810/IX-5910
1005	ACD	IX-5810/IX-5910
1006	Square	IX-5930
1007	Hybrid	IX-5930
1008	ACD	IX-5930
1009-1024	Blank (unassigned)	Blank (unassigned)
1025	Attendant KT/DSS Hybrid	IX-5800, IX-12/24KTD-2/3, IX-24KTD, IX-24KTS, IX-8KTD, IX-8KTS KT + DSS unit(s)
1026	Attendant Console	IX-ATT / BLF Attendant Console
1027	Attendant KT/DSS Stand-Alone	IX-12/24KTD-2/3, IX-24KTD, IX-24KTS, IX-8KTD, IX-8KTS KT + DSS unit(s)
1028	Attendant KT/DSS Squared (Direct CO's)	IX-12KTD-2, IX-12KTS-2 Digital Telephones (SATT)
1029	Attendant Square	IX-5810/IX-5910
1030	Attendant Hybrid	IX-5810/IX-5910
1031	Attendant ACD	IX-5810/IX-5910
1032	Attendant Square	IX-5930
1033	Attendant Hybrid	IX-5930
1034	Attendant ACD	IX-5930
1035-1056	Unassigned Attendant patterns	

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Key Assign.	Meaning:	Key pattern number
	Range:	0001-1056
	Default:	(See Default Key Pattern Table above) 1 = Key Telephones 129 = Attendant KT/DSS positions 130 = IX-ATT console positions

Related Databases:

Required: 01.09 Station Port Definition; 14.01 - Key Assignment; 15.01 - Attendant Key Assignment.

Associated: None.

Hardware Required:

All Digital and IP Telephones, Versa-Phones, Attendant Consoles, DSS Units, Omegatrek Portable Stations.

10.13 - Preringing For Single-Line Telephones

Class 10 Item 13 - Preringing For Single-Line Telephones is used to program a three hundred millisecond ring burst that is sent to a single-line telephone prior to the start of the normal CO or ICM ring cycle. This item may be used for facsimile machines or modems if quicker answering of calls is required.

Note:	For faster ring detection and answering on auto attendant, voice mail and fax ports, enable preringing.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
PreRinging	Meaning:	Program a SLT for a prering burst
	Range:	Disable - no preringing Enable - preringing
	Default:	Disable

Related Databases:

Required: 01.09 Station Port Definition

Associated: 11.32 - Ringing Station; 11.33 - Delayed Ringing Station.

Hardware Required:

IX-8SUBS-3, IX-8SUBS, IX-8SUBM-3, IX-8SUBM, IX-4SUBL, IX-RNGU, IX-8SUBS-1, IX-8SUBS-2, IX-4RCVS.

10.14 - Dial Confirmation Tone

Class 10 Item 14 - Dial Confirmation Tone is used to enable or disable the dial confirmation tone on each key telephone or Versa-Phone. The dial confirmation tone is audible through the handset or speaker when dialing.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Dial Conf. Tone	Meaning:	Program a station for dial confirmation tones
	Range:	No Tone - no tone Tone - tone
	Default:	Tone

Related Databases:

Required: None.

Associated: None.

Hardware Required:

Key Telephones and/or Versa-Phones.

10.15 - Handset Volume Control

Class 10 Item 15 - Handset Volume Control is used to program the handset volume default level. If a change is made to the handset volume while the station is off-hook, the volume is reset to the value programmed here upon going on-hook. This item cannot be programmed for ZT-D key telephones or single-line telephones.

Note:	The programming of this Item requires a reset on the ADIX-VS Telephone System.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Handset Volume	Meaning:	Program the handset volume control
	Range:	Last - stay at last position Low - return to low Medium - return to medium High - return to high
	Default:	Low

Related Databases:

Required: None.

Associated: None.

Hardware Required:

Key Telephones and/or Versa-Phones.

10.16 - Call Forwarding

Class 10 Item 16 - Call Forwarding is used to enable or disable the manual call forward feature at a station. This program does not affect fixed call forward operation.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Call Forward-ing	Meaning:	Allow/do not allow call forwarding
	Range:	Deny - do not allow Allow - allow
	Default:	Allow

Related Databases:

Required: None.

Associated: 04.13 - Call Forward - No Answer; 10.73 - Programming Reserve; 10.78 - Fixed Call Forward Destination, 12.01 - Station Speed Dial - Trunk.

10.17- Unscreened Transfer (SLT Only)

Class 10 Item 17 - Unscreened Transfer (SLT Only) is used to enable or disable the unscreened transfer feature (transfer a call without waiting for the called extension to answer) at a station with a single-line telephone. For example, if a single-line telephone is not permitted to make an unscreened transfer, when the SLT transfers a CO call to another telephone, the SLT user must wait for the other telephone to answer before the SLT user can hang up and thereby transfer the call. The single-line user is forced to use a screened transfer technique.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Unscreened Xfer	Meaning:	Allow/do not allow unscreened transfers from a SLT
	Range:	Deny - do not allow Allow - allow
	Default:	Allow

Related Databases:

Required: 01.11 Port Definition, 01.11 Port Configuration.

Associated: 04.25 - Calls for Pickup (Elements 1 - 4): Hook Flash Enable, 10.10 - Hookflash Timing, 10.46 - Hookswitch Flash.

Hardware Required:

IX-8SUBS, IX-8SUBS-1, IX-8SUBS-2, IX-8SUBS-3, IX-8SUBM, IX-8SUBM-3, IX-4SUBL, IX-RNGU, IX-4RCVS.

10.18 - SMDR Report

Class 10 Item 18 - SMDR Report is used to register a station to have its calls included in the SMDR printout. Calls made by a station programmed as Not registered are not included in the SMDR printout. Additionally, if a station is programmed as Registered and makes an outgoing call using a line programmed in 11.29 - SMDR Report as not included in SMDR report, that call information will not be included in the SMDR printout regardless of how this item is programmed.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
SMDR Report	Meaning:	Register a station to have its calls included in the SMDR report
	Range:	Not registered - not registered Registered - registered
	Default:	Registered

Related Databases:

Required: 04.50 - SMDR - Output Port; 04.51 - SMDR - Minimum Call Duration; 04.52 - SMDR - Incoming Call Report; 04.53 - SMDR - Toll Only Report; 04.54 - SMDR - Account Code Only; 06.07 - Toll Restriction - SMDR Table; 11.22 - Do Not Disturb (DND) Override CO Ringing.

Associated: 04.52 - SMDR - Incoming Call Report.

Hardware Required:

IX-SCIF, IX-HCIF, IX-EDVIF, Serial Printer.

10.19 - Queuing Class

Class 10 Item 19 - Queuing Class is used to program the station hierarchy for the trunk queuing and busy number call back features. Stations programmed with a higher queuing class receive first priority for CO line connection.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Queuing Class	Meaning:	Program station queuing priority
	Range:	0 - highest priority 1 2 3 - lowest priority
	Default:	0

Related Databases:

Required: None.

Associated: 04.10 - Timed Trunk Queuing; 04.11 - Off-Hook Trunk Queuing Duration; 10.20 - Off-Hook Trunk Queuing.

10.20 - Off-Hook Trunk Queuing

Class 10 Item 20 - Off-Hook Trunk Queuing is used to enable or disable a station from accessing the off-hook trunk queuing feature.

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Off-Hook Trunk Queuing	Meaning:	Enable or disable a station from accessing the off-hook trunk queuing feature
	Range:	Disabled - disabled Enabled - enabled
	Default:	Disabled

Related Databases:

Required: 04.11 - Off-Hook Trunk Queuing Duration; 10.19 - Queuing Class.

Associated: None.

10.21 - Outgoing CO Line Group

Class 10 Item 21 - Outgoing CO Line Group is used to program outgoing restrictions for trunk group access. Stations which are outgoing restricted on a given trunk group are permitted incoming access on the same trunk group. The data programmed in Class 10.21 applies toward all CO line outgoing access operations.

Note:	When a station attempts an outgoing call which is subject to optimized routing, if the CO line group selected is restricted in Class 10.21, dialing is denied, but advances to the next step within the route table.
Note:	The setting in 11.47 - DISA/T1 E&M Virtual Station that allows you to control of the distant end of a T1 E&M tie line also restricts which CO can be accessed by a tie line in Class 10 Item 21.

Programming Field Description

Station: Log No	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Group Number	Meaning:	Select trunk groups 1-250 using the DSS buttons. The group numbers are valid for both day and night fields
	Range:	Day Deny - denied Day Allow - allowed for trunk groups selected Night Deny - denied Night Allow - allowed for trunk groups selected
	Default:	Day = allow Night = allow

Related Databases:

Required: 11.38 - Outgoing CO Group.

Associated: Class 06 - Toll Restriction; 10.23 - Toll Restriction Level and Class.

10.22 - Incoming CO Access Group

Class 10 Item 22 - Incoming CO Access Group is one of three programs required to program incoming CO access restriction. Class 10.22 is used to assign stations to one of 250 incoming CO access groups. To complete the programming for this feature, each group programmed here must be assigned to a trunk logical port number (10.43 - Off-Hook Signaling *and* 11.43 - Incoming CO Access Class).

Programming Field Description

Stations: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
In CO Acc Grp	Meaning:	Incoming CO access group number
	Range:	1-250
	Default:	1

Related Databases:

Required: 11.43 - Incoming CO Access Class, 11.44 - Incoming Restrictions.

Associated: None.

10.23 - Toll Restriction Level and Class

Class 10 Item 23 - Toll Restriction Level and Class is used to define the toll restriction class for each station. If a value of 1-4 is entered in Class 10.23 Toll (Day/Night) or Outdial (Day/Night) fields, the system will reference 06.01 - Toll Restriction Table. Stations can be programmed to have a different toll restriction class for day and night modes.

Note:	If a station's outgoing call level is 0 or 5-7 is less than or equal to the outgoing call level programmed for the CO line, the station can make outgoing calls on the line. If a station's outgoing call level is higher than the outgoing call level assigned to the line, the station cannot make any outgoing calls on the line.
Note:	The setting in 11.47 - DISA/T1 E&M Virtual Station that allows you to control of the distant end of a T1 E&M tie line also allows you to assign toll restriction to calls dialed across the tie line in 10.23 - Toll Restriction Level and Class.
Note:	The *station outgoing call level* is related to the CO line outgoing call level assigned for the line in 11.41 - Predial Group Number or 11.43 - Incoming CO Access Class.

Programming Field Description

Station restriction: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (Station maximum)
Toll (day)	Meaning:	Restriction through the Toll Restriction Tables programmed in Class 06 Toll Restriction based on the mode (day or night)
	Range:	0-15 (0, 5-15 for factory use only)
	Default:	0
Toll (night)	Meaning:	Restriction through the Toll Restriction Tables programmed in Class 06 Toll Restriction based on the mode (day or night)
	Range:	0-15 (0, 5-15 for factory use only)
	Default:	0
OutDial(Day)	Meaning:	Outgoing restriction
	Range:	0 = No restriction of outgoing calls. 5= Deny any outgoing calls, except for system speed dial calls. Allow all incoming calls and calls on hold. 6= Deny any outgoing calls. Deny access to system speed dial. Allow all incoming calls and calls on hold. 7= Deny all outgoing and incoming calls, deny access to calls on hold. Allow intercom and camp-on calls. (1-4, 8-15 are for factory use only).
	Default:	0
OutDial(Night)	Meaning:	Outgoing restriction
	Range:	0 = No restriction of outgoing calls. 5= Deny any outgoing calls, except for system speed dial calls. Allow all incoming calls and calls on hold. 6= Deny any outgoing calls. Deny access to system speed dial. Allow all incoming calls and calls on hold. 7= Deny all outgoing and incoming calls, deny access to calls on hold. Allow intercom and camp-on calls. (1-4, 8-15 are for factory use only).
	Default:	0

Related Databases:

Required: Class 06 Toll Restriction; 10.52 - Toll Restriction Class Alternating Group; 11.40 - Toll Restriction Group Number; 11.42 - Equal Access Group Number; 11.43 - Incoming CO Access Class.

Associated: 10.25 - System Speed Toll Restriction.

10.24 - System Speed Access

Class 10 Item 24 - System Speed Access is used to determine the stations permitted to access the system speed dial numbers.

Note:	Class 10.24 does not restrict stations from using station speed dial numbers.
Note:	Enabling system speed access is recommended when using IX-COMLINK. The programming in this item must match the value of the "SwitchDialOnConv" line in the PCKTADPT.INI file.
Note:	The setting in 11.47 - DISA/T1 E&M Virtual Station that allows you to control of the distant end of a T1 E&M tie line also determines if the tie lines can be access System Speed Dial in Class 10 Item 24.

Programming Field Description

Station feature Access: Log Number	Meaning:	Select the station logical port number using the DSS keys
Field:	Range:	0001-1024 (station maximum)
System SPD Access	Meaning:	Program a station for system speed dial access
	Range:	Deny - do not allow system speed dial access Allow - allow system speed dial access
	Default:	Allow

Related Databases:

Required: Class 05 - System Speed Dial.

Associated: 02.01 - System Speed Dial Type; 10.25 - System Speed Toll Restriction.

10.25 -System Speed Toll Restriction

Class 10 Item 25 - System Speed Toll Restriction is used to determine if calls from a station using the system speed dial feature are subject to toll restriction. If a station is restricted here, the only system speed dial numbers that can be successfully dialed are those telephone numbers programmed as universally allowed in the toll restriction database (Class 06).

Programming Field Description

Station Other Parameters	Meaning:	Select the station logical port number using the DSS keys
	Range:	0001-1024 (station maximum)
Sys SPD Toll Rest	Meaning:	Determine if a station is subject to toll restriction using the system speed dial numbers
	Range:	Unrestricted - unrestricted Restricted) - restricted
	Default:	Restricted

Related Databases:

Required: Class 05 - System Speed Dial; Class 06 - Toll Restriction; 10.23 - Toll Restriction Level and Class; 10.24 - System Speed Access; 11.40 - Toll Restriction Group Number.

Associated: 10.52 - Toll Restriction Class Alternating Group.

10.26 - Dial Pulse to DTMF Signal Alternating

Class 10 Item 26 - Dial Pulse to DTMF Signal Alternating is used to enable or disable the alternate tone/pulse dialing feature which enables a station to change signaling from dial pulse to DTMF while on a CO circuit.

Note:	The alternate tone/pulse dialing feature is only valid for CO lines which have been programmed as **DP** in *Class 11.08 - Dial Type*.

Programming Field Description

Station Other Parameters	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
DP-DTMF Sig Alt	Meaning:	Determine if a station can alternate between DP and DTMF signaling
	Range:	Allow Deny
	Default:	Allow

Related Databases:

Required: 11.08 - Dial Type DP/DTMF; 11.10 - DTMF Dial Speed (Altered).

Associated: 10.27 - Automatic Signal Alternating; 11.06 - Inter-Digit Time; 11.13 - Sender Time Out.

Hardware Required:

IX-8LGTK-1.

10.27 - Automatic Signal Alternating

Class 10 Item 27 - Automatic Signal Alternating is used to program an automatic reversal of the signaling type (DP/DTMF) after *sender time out* on outgoing CO calls, or when dialing out through an incoming call. Automatic Signal Alternating applies to CO circuits programmed for dial pulse in 11.08 - Dial Type DP/DTMF. Automatic Signal Alternating must be enabled if a modem is connected to a SLT port on a IX-8SUBS, IX-8SUBM or IX-4SUBL card to avoid noise malfunction during data transmission. The address signaling speed of the DTMF signals is programmed in Class 11.10.

Note:	When dial pulse CO lines are used by single-line telephones or as tie lines, the logical ports assigned as SLT and virtual stations for E&M tie lines/DID trunks must be programmed to enable this item in order to eliminate intermittent voice speech.

Programming Field Description

Station Other Parameters	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Auto Sig Alt	Meaning:	Program automatic signal alternating from DP to DTMF after sender time out or dialing out through and ICM call
	Range:	Deny Allow
	Default:	Allow

Related Databases:

Required: 11.08 - Dial Type DP/DTMF; 11.10 - DTMF Dial Speed (Altered).

Associated: 10.26 - Dial Pulse to DTMF Signal Alternating; 11.06 - Inter-Digit Time; 11.13 - Sender Time Out.

Hardware Required:

IX-8LGTK, IX-DTI-T, IX-T1DTI.

10.28 -Dial-On Conversation

Class 10 Item 28 - Dial-On Conversation is used to determine whether a station is allowed to perform *dial-on conversation*. This item is used to determine if a station can dial DTMF tones during a conference call. If this item is set to Allow, the station can dial DTMF tones during a conference call. If the item is set to Deny, the station cannot dial DTMF tones during conference calls.

If a station is disabled for dial-on conversation, the station cannot dial out after the *sender time out*. When the toll restriction plan includes a *stop flag*, outgoing dialing during conversation is not permitted, even if the station is enabled for the dial-on conversation feature.

Note:	Unless toll fraud is an issue, Dial-On Conversation should be enabled to allow “through dialing” (i.e., VM, pagers, etc.). In the case of SLTs, Dial-On Conversation should be enabled to eliminate “talk off” and erratic modem and fax operation due to dial muting.
Note:	Enabling dial on conversation is recommended when using IX-COMLINK.
Note:	The setting in 11.47 - DISA/T1 E&M Virtual Station that allows you to control of the distant end of a T1 E&M tie line should be set to off if you are using a PRI to dial out, or have modems going over the tie lines.
Note:	With dial-on conversation enabled, a station on a conference call can send DTMF tones. For example, a user may play back a voice message during a conference call or dial a conference call through an auto attendant or voice response system.

Programming Field Description

Station Other Parameters	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Dial on Conv	Meaning:	Allow/deny dial-on conversation
	Range:	Deny Allow
	Default:	Allow

Related Databases:

Required: 11.13 - Sender Time Out.

Associated: 06 Toll Restriction; 10.26 - Dial Pulse to DTMF Signal Alternating; 10.23 - Toll Restriction Level and Class.

10.29 - Preset Dial

Class 10 Item 29 - Preset Dial is used to allow a station to dial a number before going off-hook and have that number appear on the LCD display. The call is stored in memory until the user picks up or selects a CO or ICM line.

Programming Field Description

Station feature Access: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Preset Dial	Meaning:	Allow/deny preset dial
	Range:	Deny Allow
	Default:	Allow

Related Databases:

Required: None.

Associated: None.

Hardware Required:

Key Telephones with a LCD display.

10.30 - Automatic Outgoing CO

Class 10 Item 30 - Automatic Outgoing CO is used to program a station to automatically seize a line and dial a preset number upon going off-hook. Data modules cannot use this feature. The ECS will automatically dial the number registered as *station speed dial 99* at the station. If no numbers are programmed in *station speed dial 99*, a busy signal will sound when the user goes off-hook.

Priority on going off hook is assigned in the following order:

- Priority 1 - 10.35 - Off-Hook CO Answering
- Priority 2 - 10.30 - Automatic Outgoing CO
- Priority 3 - 10.09 - Prime Line Access
- Priority 4 - 10.08 - Off-Hook ICM

Programming Field Description

Station other Features: Log Number	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Auto Outgoing CO	Meaning:	Allow/deny automatic outgoing CO
	Range:	Deny Allow
	Default:	Deny

Related Databases:

Required: 12.01 - Station Speed Dial -Trunk.

Associated: 10.35 - Off-Hook CO Answering.

10.31 - Equal Access

Class 10 Item 31 - Equal Access is used to program a station to have access to the *equal access number automatic outgoing dialing* feature.

Programming Field Description

Station Feature Access	Meaning:	Station Logical Port Number
	Range:	0001-1024 (station maximum)
Equal Access	Meaning:	Allow/deny equal access
	Range:	Deny Allow
	Default:	Allow

Related Databases:

Required: 06.08 - Toll Restriction - Equal Access Dial Table; 06.09 - Toll Restriction - Equal Access Pin Code; 06.10 - Toll Restriction - Equal Access Pin Position; 06.11 - Toll Restriction - Equal Access Prefix Table; 06.12 - Toll Restriction - Equal Access CO Line Group; 11.42 - Equal Access Group Number.

Associated: None.

10.32 - Optimized Routing Call

Class 10 Item 32 - Optimized Routing Call is used to program a station to be permitted to make outgoing calls using *optimized routing*. Optimized Routing Calls must be disabled to use the *super CO line group* speed dial feature (i.e., When using CO as trunk group entry in 05.01 - System Speed Dial - Number).

See Class 17 - Optimized Routing, for detailed information regarding optimized routing programming.

Note:	The setting in 11.47 - DISA/T1 E&M Virtual Station that allows you to control of the distant end of a T1 E&M tie line. This also allows the tie line users access to the code for Optimized Routing in Class 10 Item 32. This Item must be disabled when using multiple CO access.

Programming Field Description

Station Optimized	Meaning:	Station Logical Port Number
	Range:	0001-1024 (station maximum)
Data Field:	Meaning:	Allow/deny optimized routing
	Range:	Deny Allow
	Default:	Allow

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 04.25 - Calls for Pickup (Elements 1 - 4) Element 07; 07.03 - CO Line Group Access Numbers; 10.33 - Forced Optimized Routing.

10.33 - Forced Optimized Routing

Class 10 Item 33 - Forced Optimized Routing is used to program specific stations to adhere to forced optimized routing on all outgoing calls. When Forced Optimized Routing is set to *forced*, that station's general float keys [FLT] are defined as optimized routing keys. 10.32 - Optimized Routing Call must be set to allow optimized routing in order for Forced Optimized Routing to work.

Note:	Disabling Forced Optimized Routing is recommended when using IX-COMLINK. This item must be disabled for any port connected to an IX-COMLINK. The IX-COMLINK utilizes the access codes programmed in 11.02 - CO Line Access Numbers to access the CO trunks in the ECS system and Class 10.33 disables the access codes. IX-COMLINK does not support optimized routing.

Programming Field Description

Station Optimized	Meaning:	Station Logical Port Number
	Range:	0001-1024 (station maximum)
Forced Optimized Routing	Meaning:	Forced/not forced optimized routing.
	Range:	Not Forced) - optimized routing is not forced Forced - optimized routing is forced
	Default:	Not Forced

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; Class 17 Station Class of Service.

Associated: 07.03 - CO Line Group Access Numbers: Optimized Routing Dial Access No.; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

10.34 - Route Advance Step

Class 10 Item 34 - Route Advance Step is used to define the number of steps (route choices), up to a maximum of seven advance steps (eight route choices). An optimized routing call will advance to the next step (route choice) if the first step or route choice (CO group) within the route table is busy.

Note:	The setting in 11.47 - DISA/T1 E&M Virtual Station that allows you to control of the distant end of a T1 E&M tie line also sets how far the tie line call can advance using Optimize Routing.

Programming Field Description

Station Optimized	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Route Advanced Step	Meaning:	Number of advance steps required to route an optimized call through an alternate CO group
	Range:	0-7
	Default:	0 - use the first CO group only

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; Class 17 Optimized Routing.

Associated: 10.21 - Outgoing CO Line Group; 10.33 - Forced Optimized Routing.

10.35 - Off-Hook CO Answering

Class 10 Item 35 - Off-Hook CO Answering is used to program stations to answer incoming CO calls by going off-hook without pressing a line key. This feature is applicable to CO calls manually transferred as well as direct ringing assignment.

Note:	To enable off-hook CO answering at a specific station, you must set Off-Hook CO Answering to *allow* and program the desired incoming lines to ring at the station in 11.32 - Ringing Station. This feature does not work on lines for which the station is assigned as a delayed ringing station in 11.33 - Delayed Ringing Station.

Class Off-Hook CO Answering must be denied for stations equipped with a headset.

Programming Field Description

Station Off Hook Parameters	Meaning:	Station Logical Port Number
	Range:	0001-1024 (station maximum)
Offhook CO Answ	Meaning:	Allow/deny off-hook CO automatic answer
	Range:	Deny Allow
	Default:	Allow

Related Databases:

Required: 11.30 - Ringing Method; 11.32 - Ringing Station.

Associated: 04.16 - Delayed Ringing Timer; 11.33 - Delayed Ringing Station.

10.36 - Answer Hold

When **Class 10 Item 36 - Answer Hold** is enabled, a station can hold/park a call in progress and answer a second call by pressing a single key: [HOLD] or [Individual Park]. This is the automatic outside line answer/hold feature. It is available with the following types of calls:

- Transferred Calls
- DIL CO Calls
- ICM Tone Calls
- ICM Voice Calls
- DID Calls
- E&M Calls Programming Field Description

Note:	A single-line telephone can access this feature by performing a hookswitch flash.

Station Feature Access	Meaning:	Station Logical Port Number
	Range:	0001-1024 (station maximum)
Answer Hold	Meaning:	Allow/deny answer hold
	Range:	Deny Allow
	Default:	Deny

Related Databases:

Required: 04.25 - Calls for Pickup (Elements 1 - 4) Elements 8 and 9; 10.41 - Busy Overriding; 10.43 - Off-Hook Signaling.

Associated: 04.08 - Hold Recall Timer; 10.37 - Hold Recall; 10.46 - Hookswitch Flash.

10.37 - Hold Recall

Class 10 Item 37 - Hold Recall is used to deny or allow stations from receiving recalls from calls placed on hold. ICM calls cannot be recalled. If the recall timer is set to 0 in 04.08 - Hold Recall Timer, Hold Recall is not valid.

Note: If Class 10.37 is set to deny for a specific station, calls on a CO line defined as an *Attendant Intercept Line* in *Class 11.26* that are placed on hold will not recall the attendant as an attendant recall.

Programming Field Description

Station Feature Access	Meaning:	Station Logical Port Number
	Range:	0001-1024 (station maximum)
Data Field:	Meaning:	Allow/deny hold recall
	Range:	Allow Deny
	Default:	Allow

Related Databases:

Required: 04.08 - Hold Recall Timer.

Associated: 04.15 - Attendant DIL Intercept; 10.36 - Answer Hold; 10.74 - Station Based Timers; 11.26 - Attendant Intercept Line.

10.38 - Paging Access

Class 10 Item 38 - Paging Access is used to program stations to access the paging and group call features. The table below lists the possible dial codes for paging access:

Dial:	To Page:
80	All Call (Station Group 125 + External Zone 250)
81	Station Group No. 1
82	Station Group No. 2
83	Station Group No. 3
84	Station Group No. 4
85	Station Group No. 5
86	External Zone No. 1
87	External Zone No. 2
88	External Zone No. 3
89	External Zone No. 4

Note: The setting in 11.47 - DISA/T1 E&M Virtual Station that allows you to control of the distant end of a T1 E&M tie line also allows or denies the tie line all use the paging feature in Class 10 Item 38.

Programming Field Description

Station Feature Access	Meaning:	Station Logical Port Number
	Range:	0001-1024 (station maximum)
Paging Access	Meaning:	Allow/deny paging access and group call features
	Range:	Deny Allow
	Default:	Allow

Related Databases:

Required: 07.04 - Paging Group Access Numbers; 08.04 - Paging Group - Station/ Zone.

Associated: None.

Hardware Required:

IX-MISC, IX-EDVIF, IX-EDCTU.

10.39 - Direct Station-to-Station Call

Class 10 Item 39 - Direct Station-to-Station Call is used to allow or restrict station-to-station calls and transferred CO calls. This item restricts any station that is denied from calling any other station that is denied. Stations that are denied cannot transfer calls to other denied stations.

Note:	The setting in 11.47 - DISA/T1 E&M Virtual Station that allows you to control of the distant end of a T1 E&M tie line also can be used to deny tie lines from making direct station calls in Class 10 Item 39.

Programming Field Description

Station General	Meaning:	Station Logical Port Number
	Range:	0001-1024 (station maximum)
Direct Stn-Stn Call	Meaning:	Allow/deny station-to-station calling
	Range:	Allow Deny
	Default:	Allow

Related Databases:

Required: 10.50 - ICM Group.

Associated: None.

10.40 - Barge-In Station

Class 10 Item 40 - Barge-In Station is used to allow or deny a station from joining another station's call in progress using the barge-in feature. A warning tone is sent to the internal call parties to alert them that a conference has been established. Barge-in is not possible until after *sender time out* has elapsed. Stations programmed as barge-in stations in Barge-In Station may not interrupt calls by stations programmed as *protected stations* in 10.44 - Protected Station. In order to barge in by dialing a station number 10.43 - Off-Hook Signaling must be disabled.

Programming Field Description

Station Feature Access	Meaning:	Station Logical Port Number
	Range:	0001-1024 (station maximum)
Barge-In Station	Meaning:	Allow/deny the barge-in feature
	Range:	Allow Deny
	Default:	Allow

Related Databases:

Required: 10.43 - Off-Hook Signaling; 10.44 - Protected Station.

Associated: 11.06 - Inter-Digit Time; 11.13 - Sender Time Out; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

10.41 - Busy Overriding

Class 10 Item 41 - Busy Overriding is used to allow stations to call extensions that are busy or in DND mode using the bypass ringing feature. Stations enabled for busy override can override all stations except those designated as protected stations in 10.44 - Protected Station.

04.25 - Calls for Pickup (Elements 1 - 4): Elements 08 and 09 are available to program stations for busy bypass tone calling (busy override) of CO calls in progress, ICM calls in progress, or both. However, stations enabled to send busy bypass signaling in Busy Signalling, or stations that are assigned an [Over Ride] key can perform busy bypass tone calling regardless of the values programmed in 04.25 - Calls for Pickup (Elements 1 - 4) or 10.43 - Off-Hook Signaling.

The attendant paging override can be allowed or denied using this item. If 10.41 - Busy Overriding is enabled at stations other than attendant positions, those stations cannot override any paging, including attendant paging. If 10.41 - Busy Overriding is enabled, busy tone is sent to the station affected by the paging override. If this feature is disabled, busy tone is sent to the attendant when paging override is attempted.

Note:	If a station has an [Over Ride] key, the station has override capability regardless of this program.

Programming Field Description

Station Feature Access	Meaning:	Station Logical Port Number
	Range:	0001-1024 (station maximum)
Busy Override	Meaning:	Allow/deny busy override.
	Range:	Deny Allow
	Default:	Deny

Related Databases:

Required: 10.44 - Protected Station.

Associated: 04.25 - Calls for Pickup (Elements 1 - 4): Elements 8 and 9; 10.46 - Hookswitch Flash; 10.42 - Do Not Disturb (DND); 10.43 - Off-Hook Signaling.

10.42 - Do Not Disturb (DND)

Class 10 Item 42 - Do Not Disturb is used to allow stations to use the DND feature. This feature, when set at a station, prevents the following types of calls from ringing:

- Incoming CO Ringing
- DID Ringing
- DISA Ringing
- ICM Calls
- Doorphone Calls
- Page/Group Calls
- Hunt Group Calls/UCD

DND mode does not affect the following calls:

- Recalls
- Private Line Ringing (if 11.22 - Do Not Disturb (DND) Override CO Ringing is enabled)
- Busy Overriding Calls (10.41 - Busy Overriding)

Note:	DND mode prevents stations from receiving calls through the station speaker. Stations programmed as protected stations in 10.44 - Protected Station cannot receive camp-on calls at all.

Programming Field Description

Station Feature Access	Meaning:	Station Logical Port Number.
	Range:	0001-1024 (station maximum)
DND	Meaning:	Allow/deny DND
	Range:	Deny Allow
	Default:	Allow

Related Databases:

Required: None.

Associated: 10.41 - Busy Overriding.

10.43 - Off-Hook Signaling

Class 10 Item 43 - Off-Hook Signaling is used to program stations to receive incoming calls when they are off-hook or have the speaker on. Off-hook signaling does not apply to recalls and doorphone calls or doorphones, data modules and SLT ports programmed as facsimile, voice mail, or automated attendant ports in *Class 1.09*. Off-hook signaling must be disabled for barge-in by dialing station numbers or station monitoring to be possible. This item is applicable to stations with or without a busy bypass unit (IX-BPAD). 04.25 - (Elements 5 - 16): Elements 8 and 9 must be enabled for this feature to work.

Note:	Disabling Off-Hook Signaling cause the Answering Machine Emulation feature to fail.

Programming Field Description

Station Off-Hook Parameters	Meaning:	Station Logical Port Number
	Range:	0001-1024 (station maximum)
Off Hook Signal	Meaning:	Allow/deny off-hook signaling
	Range:	Deny Allow
	Default:	Allow

Related Databases:

Required: 04.25 - (Elements 5 - 16): Elements 8 and 9.

Associated: 10.36 - Answer Hold; 10.41 - Busy Overriding; 10.44 - Protected Station.

Hardware Required:

Standard, IX-BPAD.

10.44 - Protected Station

Class 10 Item 44 - Protected Station is used to program a station as a *protected*. If a station is protected, it cannot be overridden by stations programmed as barge-in stations. Protected stations deny barge-in and monitoring an voicemail record from occurring.

Note:	Enabling Protected Station cause the Answering Machine Emulation feature to fail.

Programming Field Description

Station general	Meaning:	Station Logical Port Number
	Range:	0001-1024 (station maximum)
Protected	Meaning:	Define a station as protected/not protected against barge-in
	Range:	Not Protected Protected
	Default:	Not Protected)

Related Databases:

Required: None.

Associated: 10.40 - Barge-In Station; 10.41 - Busy Overriding; 11.22 - Do Not Disturb (DND) Override CO Ringing.

10.45 - Message Key

Class 10 Item 45 - Message Key is used to identify stations that have been assigned a [MESSAGE] message key. Stations must be programmed to have a message key in order to use the *message waiting* feature and receive voice mail message indications. Extensions programmed as *no message key* in Message Key cannot receive message indications regardless of whether or not they have been assigned a message key in 14.01 - Key Assignment / 15.01 - Attendant Key Assignment. ZT-D and ZT-S telephones do not have a [MESSAGE] key at default. Without the [MESSAGE] key, the attendant DSS will show messages sent to the target station.

Note:	This program enables stations to receive message indication. A station disabled in Message Key can still send a message to another station.

Programming Field Description

Station general	Meaning:	Station Logical Port Number
	Range:	0001-1024 (station maximum)
Message Key	Meaning:	Program a message key
	Range:	Deny - no message key Allow - message key
	Default:	Allow

Related Databases:

Required: 10.12 - Key Assignment; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Associated: 04.70 - Programming Reserve 1: Mailbox Indication; 04.70 - Programming Reserve 1: Message Status Indication.

Hardware Required:

All Key Telephones, Single-Line Telephones with Message Lamps and Versa-Phones.

10.46 - Hookswitch Flash

Class 10 Item 46 - Hookswitch Flash is used to enable/disable a single-line telephone to use the hookswitch flash feature to place calls on hold and access other ECS features. Single-line telephones which are denied hookswitch flash, cannot place calls on hold, transfer calls, nor use any features which require hookswitch flash to enter a feature access code.

Programming Field Description

SLT Stations	Meaning:	Station Logical Port Number
	Range:	0001-1024 (station maximum)
SLT HS Flash	Meaning:	Allow/deny hookswitch flash at a SLT station
	Range:	Deny Allow
	Default:	Allow

Related Databases:

Required: None.

Associated: 04.25 - (Elements 5 - 16): SLT CO Flash; 04.29 - Dial Pulse SLT Consultation Hold.

Hardware Required:

Single-Line Telephones, IX-8SUBS, IX-SUBS-1, IX-SUBS-2, IX-8SUBM, IX-4SUBL, IX-4RCVS, IX-RNGU.

10.47 - Howler Alert

Class 10 Item 47 - Howler Alert is used to program stations to receive a howler alert through the handset after staying off-hook longer than forty seconds without dialing.

Programming Field Description

Station Settings	Meaning:	Select the station logical port number using the DSS buttons.
	Range:	0001-1024 (station maximum)
Howler Alert	Meaning:	Allow/deny howler alert.
	Range:	Deny Allow
	Default:	Allow

Related Databases:

Required: None.

Associated: 04.29 - Dial Pulse SLT Consultation Hold.

10.48 - Calling Mode

Class 10 Item 48 - Calling Mode is used to program the initial ICM calling mode for digital telephones. The calling mode can be programmed as either *tone* or *voice*. The following programming conditions apply to Calling Mode:

- If 04.22 - ICM Call Mode is set to Tone Call, the calling party has calling mode control.
- If the called party selects *tone*, all calls are tone.
- If the called party selects *voice*, all calls are voice and can be toggled to *tone*.

Note:	This feature must be initialized by pressing [FEAT] + [6][5] after initial system start-up or defaulting the system if tone calling is selected.

Programming Field Description

Station Settings	Meaning:	Select the station logical port number using the DSS buttons.
	Range:	001-1024 (station maximum)
Data Field:	Meaning:	Define the calling mode at digital telephones.
	Range:	Voice Call Tone Call
	Default:	Tone Call

Related Databases:

Required: 04.22 - ICM Call Mode.

Associated: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

10.49 - Meet-Me Answer Group

Class 10 Item 49 - Meet-Me Answer Group is used to define the logical port number of the zone page speaker that each station is permitted to answer using the *meet-me answer* feature. The paging zone logical port number is assigned in *Class 01.03*. The paging zone is assigned in 08.04 - Paging Group - Station/Zone.

Note:	This item applies to external zones only.

Programming Field Description

Station Group	Meaning:	Station logical port number
	Range:	001-512 (misc maximum)
Meet Me Answer Group	Meaning:	Logical port number for zone page
	Range:	0 = disable meet-me feature 1-512 (misc maximum)
	Default:	0

Related Databases:

Required: 01.09 Station Port; 08.04 - Paging Group - Station/Zone.

Associated: 04.40 - DISA Paging Call.

10.50 - ICM Group

Class 10 Item 50 - ICM Group is used to assign stations to ICM groups. When a station is assigned to an ICM group, that station can only have intercom communication with stations in the same group. Group 0 is reserved as a global group that can communicate with all other groups. This program has no effect on CO access by different station groups.

Note:	The setting in 11.74 - ISDN Line Class that allows you to control of the distant end of a T1 E&M tie line also allows you to restrict which ICM stations can be called by the tie line in Class 10 Item 50.

Programming Field Description

Station Group	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
ICM Grp	Meaning:	ICM group number
	Range:	0 = global group 1-32
	Default:	0

Related Databases:

Required: None.

Associated: 10.39 - Direct Station-to-Station Call; 10.51 - Call Pick-Up Group.

10.51 - Call Pick-Up Group

Class 10 Item 51 - Call Pick-Up Group is used to assign stations to call pick-up groups. When a station is assigned to a call pick-up group, that station can pick up calls ringing at a station within its pick-up group. A station assigned to pick-up group 0 in this item **cannot** pick-up calls ringing at other extensions.

Programming Field Description

Station Group	Meaning:	Station logical port number
	Range:	0001-1024 (station maximum)
Call Pickup Grp	Meaning:	Call pick-up group number
	Range:	0 = restricted pick-up group 1-250
	Default:	1

Related Databases:

Required: 04.25 - Calls for Pickup (Elements 1 - 4).

Associated: None.

10.52 - Toll Restriction Class Alternating Group

Class 10 Item 52 - Toll Restriction Class Alternating Group is used to allow an attendant station to switch the station service class of a group of stations between modes 1 and 2. This is done manually using the group number assigned in Class 10.52, or automatically when the system is in night mode.

Programming Field Description

Station Restriction	Meaning:	Station logical port number
	Range:	001-512 (misc maximum)
Toll Rest Cls Alt Grp	Meaning:	Group number
	Range:	0 = no group 1-250
	Default:	0

Related Databases:`

Required: 10.21 Outgoing CO Group; 10.23 Toll Restriction Class.

Associated: 15.01 Attendant Key Assignment; Class 06 Toll Restriction.

10.53 - Attendant Automatic Hold

Class 10 Item 53 - Attendant Automatic Hold is used to determine whether the attendant console can place a call in progress on hold automatically by pressing a line key with an incoming call.

Note:	This feature works on outgoing calls only after the sender time out has elapsed.

Programming Field Description

Attendant Stations	Meaning:	Attendant Station Logical Port Number
	Range:	001-1024 (station maximum)
Auto Hold	Meaning:	Allow/deny attendant automatic hold
	Range:	Deny Allow
	Default:	Deny

Related Databases:

Required: 01.09 Station Port Definition.

Associated: 11.06 - Inter-Digit Time; 11.13 - Sender Time Out.

Hardware Required:

Attendant Console.

10.54 - Attendant Call Progress Tone

Class 10 Item 54 - Attendant Call Progress Tone is used to determine whether the attendant console can deny call progress tones, such as a dial tone, which are not needed for console operation. Call progress tones include the following:

- Dial Tones
- Ring Back Tones
- Optimized Tones
- DND Tones
- Absence Message Tones
- Recorder Tones
- Busy Tones
- Warning Tones
- Waiting Tones
- Camp-On Tone (SLT)

Programming Field Description

Element	Meaning:	Select the attendant station logical port number using the DSS buttons
Field:	Range:	001-1024 (station maximum)
Data Field:	Meaning:	Allow/deny attendant call progress tones
	Range:	Deny Allow
	Default:	Allow

Related Databases:

Required: 01.9 Station Port Definition; 01.11 Port Configuration.

Associated: None.

Hardware Required:

Attendant Console.

10.55 - Attendant Overflow Level

Class 10 Item 55 - Attendant Overflow Level is used to program the number of calls an attendant station can handle before incoming calls are automatically transferred to the attendant overflow destination programmed in 10.56 -Attendant Overflow Destination. Overflow occurs when the number of calls exceeds the value programmed in Attendant Overflow Level.

The following types of calls are subject to attendant overflow:

- Hold Recalls
- CO Incoming Calls
- Attendant All Call

The following types of calls are not subject to attendant overflow:

- Call Backs
- Serial Recalls
- CO Private Lines
- Wake-Up Calls

The value programmed in Attendant Overflow Level can be changed without going into programming mode.

Programming Field Description

Attendant Stations	Meaning:	Logical port number of the attendant station
	Range:	001-1024 (station maximum)
Overflow Level	Meaning:	Attendant call overflow level
	Range:	0 = no overflow 1-30
	Default:	0

Related Databases:

Required: 10.56 -Attendant Overflow Destination.

Associated: None.

10.56 -Attendant Overflow Destination

Class 10 Item 56 - Attendant Overflow Destination is used to select the station to which calls directed to the attendant will overflow to when the attendant overflow level programmed in 10.55 - Attendant Overflow Level has been exceeded.

Programming Field Description

Attendant Stations	Meaning:	Logical port number of the attendant station
	Range:	001-1024 (station maximum)
Overflow Dest	Meaning:	Logical port number of overflow destination
	Range:	001-1024 (station maximum)
	Default:	0

Related Databases:

Required: 10.55 - Attendant Overflow Level.

Associated: None.

10.57 - Doorphone Ringing

Class 10 Item 57 - Doorphone Ringing is used to program up to sixteen stations to ring when there is an incoming call from a doorphone.

Note:	If 10.57 - Doorphone Ringing is not programmed, a doorphone will not operate.

Programming Field Description

Door Phone Ringing Stations	Meaning:	Logical port number of the doorphone
	Range:	001-1024 (station maximum)
Access No	Meaning:	Select station logical port numbers for doorphone ringing
	Range:	Deny - no doorphone ringing Allow - doorphone ringing
	Default:	Deny

Related Databases:

Required: 01.09 Station Port Definition; 04.17 - Doorphone Answer; 10.59 - Doorphone Tone.

Associated: 10.58 - Doorphone Relay.

Hardware Required:

IX-DPHM, IX-8PSUB, IX-DDPH.

10.58 - Doorphone Relay

Class 10 Item 58 - Doorphone Relay is used to program a doorphone to trip a relay when the call button is pressed. Doorphone Relay is used to identify the relay which is associated with the doorphone. For this program to work, the relay must be defined as a doorphone relay in 04.37 - Miscellaneous Function. The operation duration of the relay lasts from the time the call button is pressed until the call is answered or the doorphone answer time programmed in 04.17 - Doorphone Answer has elapsed.

Programming Field Description

Doorphone Stations	Meaning:	Logical port number of the doorphone.
	Range:	001-1024 (station maximum)
Doorphone Relay	Meaning:	Relay number.
	Range:	0 = no relay 0-32
	Default:	0

Related Databases:

Required: 04.35 - Miscellaneous Function Port; 04.37 - Miscellaneous Function.

Associated: 04.17 - Doorphone Answer; 10.57 - Doorphone Ringing; 10.59 - Doorphone Tone.

Hardware Required:

IX-MISC, IX-EDVIF, IX-EDCTU, IX-16PSUB, IX-8PSUB, IX-DPPH, IX-408.

10.59 - Doorphone Tone

Class 10 Item 59 - Doorphone Tone is used to program the ringing tone for each doorphone. Four different tones are available:

- Melody 1 on the IX-DPHM Card
- Melody 2 on the IX-DPHM Card
- ICM Ringing Tone
- ICM Recall Tone

Programming Field Description

Doorphone Stations	Meaning:	Logical port number of the doorphone.
	Range:	001-1024 (station maximum)
Doorphone Tone	Meaning:	Ringing tone selection
	Range:	1 = Melody 1 2 = Melody 2 3 = ICM Ringing Tone 4 = ICM Recall Tone
	Default:	3

Related Databases:

Required: 01.09 Station Port Definition; 10.57 Doorphone Ringing.

Associated: 10.58 - Doorphone Relay.

Hardware Required:

IX-8PSUB, IX-DDPH, IX-DPHM, IX-HWCL, IX-16PSUB, IX-408.

10.60 - Station Data Module Link

Class 10 Item 60 - Station Data Module Link is used to link a data module with an associated key telephone or Versa-Phone. This attribute must be defined for both the data module and the connected telephone station.

Station Data Module Link is also used to define the DSS units that are connected and operated together with KTs or Versa-Phones beyond the limitation of SATT assignment. The buttons and LEDs of the DSS unit will not light. The DSS must use one of the station key patterns for the key assignment.

Programming Field Description

Station Other Parameters	Meaning:	Station logical port number.
	Range:	0001-1024 (station maximum)
Data Module Link	Meaning:	Logical port number of linked station.
	Range:	0001-1024 (station maximum)
	Default:	0

Related Databases:

Required: 01.09 Station Port Definition.

Associated: 10.11 - Data Module Communication.

Hardware Required:

IX-8PSUB.

10.61 - Caller ID & MSG Data

Class 10 Item 61 - Caller ID & MSG Data is used to determine whether or not caller ID is sent to a single line telephone and the type of signal to send to light the message lamp on the SLT.

The SLTs with message waiting can be equipped with neon or LED lamps. Each station circuit of the IX-8SUBS-4 card supplies 130 VDC to light the message (neon) lamps or uses FSK modulation for telephones with LED lamps (typically, cordless telephone use FSK to light the message lamp). Check the single line telephone's specification for this information.

Set the caller ID mode and the message lamp type for each SLT. No CID & MSG Lamp is the default setting.

Programming Field Description

No CID / MSG Lamp (Default)

- No Caller ID.
- Neon message lamp.

Caller ID / MSG Lamp

- Caller ID.
- Neon message lamp.

No CID / MSG LED

- No Caller ID.
- Frequency Shift Key (FSK) modulation for the message lamp. Typically used for cordless telephones and/or telephones with LED message lamps.

Caller ID / MSG LED

- Caller ID.
- FSK modulation for the message lamp. Typically used for cordless telephones or telephones with LED message lamps.

Related Databases:

Required: 01.08 - System Hardware; 10.02 - Station Numbering

Associated: 10.04 - Station User ID.

Hardware Required:

IX-8SUBS-4.

10.70 - Programming Reserve (CCV ICM)

Class 10 Item 70 - Programming Reserve contains two element fields. The first element field is used to identify the logical port number. The second element field is used for the following programming items:

Field	Description
.01 Call Coverage ICM	Call Coverage of ICM Calls is used to program which stations are subject to call coverage. If call coverage is turned on, an incoming call to a station is indicated at each covering station. Turn this function off to keep CCV stations from calling each other while attempting to answer a covered station call.
.02 Call Prog Tone	Call Progress Tone is used to enable or disable the tone burst heard at a station when camp-on or conference occurs.
.03 Display Mask	Verified Account Code Display is used determine which stations will have verified account codes displayed on the LCD.
.04 Group Monitor	Group Monitoring Enable/Disable is used to designate whether the speaker is available when the user presses **[SPKR]** during off-hook state. When the speaker is disabled, the user cannot monitor from the speaker while off-hook. This eliminates the possible “howling noise” associated with this situation. Note: The user may press **[SPKR]** even if this function is disabled.
.05 SMDR Display	Forced Account Code Printout is used to determine which stations defined as *forced account code stations* in *Class 10.73* will have their forced account code calls appear on the SMDR printout.
.06 Speaker Priority	IX-12KTD-3 Half Duplex Speakerphone Mode Priority is used to set the default priority for the Half Duplex Speakerphone operation of the IX-12KTD/S-3. This item affects all ECS key telephones during speakerphone calls (IX-12KTD/S-3, IX-12KTD/S-2). This item sets the priority of the audio transmission through the KT speaker and microphone of a half-duplex (switched) speakerphone as either “Receiving Mode (speaker active/microphone inactive)” or “Sending Mode (microphone active/speaker inactive)”. When Receiving Mode is programmed as the priority in Class 10.70 <E2 = 6>, the KT speaker is enabled to receive audio and the microphone is disabled to send audio when no conversation takes place. When Sending Mode is programmed as the priority, the KT speaker is disabled to receive audio and the microphone is enabled to send audio when no conversation takes place.
.07 Station Display	Each station display can be setup to show the ECS system information or the individual station information in the second line of the station display. Selecting System (default) will display the ECS system information. Selecting Station will display the station Name (if programmed) and the extension number.
.08 SLT Disc Signal	SLT Disconnect Signal Station This programming item is used to enable or disable the disconnect signal feature on a per station (SLT) basis. The following conditions are required: This feature requires an IX-8SUBS-1, IX-8SUBS-2, IX-8SUBS-3 or IX-8SUBM-3 card. This item is not required for the SLT ports assigned as the VM/AA or VM port in *Class 01.09 Station Port Definition* .

.09 **Show Alarm for License Expiration** Station can display an alarm when the temporary factory license is about to expire.

.11 **Directory Visibility Flag** This programming item determines whether or not the station appears in the Directory on the Iwatsu ICON Series IX-5930, IX-5910, and IX-5810.

.12 **Speech Call for Bluetooth Headset** This programming item is used to enable or disable the Speech Access feature for Bluetooth headsets paired with an Iwatsu ICON Series IX-5930, IX-5910, or IX-5810 telephone.

.13 **LCD Pairing Mode** The purpose of LCD Pairing Mode 2 is to avoid the condition that causes the backlight on the IX-59DS to remain lit when attached to an IX-5810 without software version 2.00. LCD Pairing Mode 2 is only selected for an IX-5810 SATT with software version 1.xx.
Mode 1 = When the backlight on the master SATT lights, the LCD backlight on the paired IX-59DS unit or units also light and vice versa. The timing to turn the LCD backlights off is also synchronized for the attendant and paired IX-59DS units
Mode 2 = LCD Pairing Mode 2 is selected for an IX-5810 that does not have software version 2.00 and is a master SATT for an IX-59DS. IX-5810 software, older than software version 2.00, does not support the backlight control command sent from the ECS system.

.14 **CID Display on Hold Enable/Disable**
ECS Software Version 7.0 includes a new programming item that allows the Caller ID Display on Hold feature to be disabled at a station. The Caller ID Display on Hold feature was added in version 5.0 and enables an Iwatsu ICON Series IX-5810, IX-5910, IX-5930 and IX-59DS to display the Caller ID name or number information of a call placed on hold or park from one of the self-labeling keys listed below. For the IX-59DS, this feature is enabled / disabled based on the programming for the paired ICON Series telephone.
This feature is enabled for all or disabled for all of the following keys on a specific station and the key(s) must be programmed on an Iwatsu ICON Series self-labeling key:
- CO Line keys
- Float keys
- Individual Park keys
- Group Park keys

The IX-59DS only supports the Group Park key. CO Line, Float, and Individual Park keys are not supported on the IX-59DS

Programming Field Description

Log #	Meaning:	Station logical port number.
	Range:	001-1024 station maximum)
	Meaning:	See the previous description.
	Range:	See the previous description.
Field:		
.01 Call Coverage ICM	Range:	No = covered station does not have call coverage of ICM calls Yes = covered station has call coverage of ICM calls
	Default:	Yes
.02 Call Prog Tone	Range:	Disable = enable tone burst for camp-on/conference indication Enable = disable tone burst for camp-on/conference indication
	Default:	Enable
.03 Display Mark	Range:	Display = display the account code on the LCD Not Display = do not display the account code on the LCD
	Default:	Display
.04 Group Monitor	Range:	Off Spkr Phn = station's speaker is unavailable at off-hook On Spkr Phn = station's speaker is available at off-hook
	Default:	On Spkr Phn
.05 SMDR Display	Range:	Do Not Mask = do not mask forced account calls on SMDR report Mask = mask forced account calls on SMDR report
	Default:	Do Not Mask
.06 Speaker Priority	Range:	Receive = Receiving Mode Priority (speakerphone active/ microphone inactive) Send = Sending Side Priority (microphone active/speaker inactive)
	Default:	Receive = Receiving Mode Priority
.07 Station Display	Range:	System = Displays the system name in the telephone display Station = Displays the station's name and extension number in the bottom line of the telephone display (SW Version 2.10 or higher)
	Default:	System
.08 SLT Disconnect Signal	Range:	Enable = ensable disconnect (loop-open) signal Disable = disable disconnect (loop-open) signal
	Default:	Disable
.09 Show Alarm for License Expiration	Range:	Yes = Displays alarm when the the temporary factory license is about to expire No = No alarm is displayed when the temporary factory license is about to expire
	Default:	No
.11 Directory Visibility Flag	Range:	Visible = Station information appears in the Directory on the Iwatsu ICON Series IX-5930, IX-5910, and IX-5810 telephone Invisible = Station information does not appear in the Directory on the Iwatsu ICON Series IX-5930, IX-5910, and IX-5810 telephone
	Default:	Visible
.12 Speech Call for Bluetooth Headset	Range:	Enable = Speech Access is enabled for use with a Bluetooth headset Disable = Speech Access is disabled for use with a Bluetooth headset

	Default:	Enable
.13 LCD Pairing Mode	Range:	Mode 1 = When the backlight on the master SATT lights, the LCD backlight on the paired IX-59DS unit or units also light and vice versa. The timing to turn the LCD backlights off is also synchronized for the attendant and paired IX-59DS units Mode 2 = LCD Pairing Mode 2 is selected for an IX-5810 that does not have software version 2.00 and is a master SATT for an IX-59DS. IX-5810 software, older than software version 2.00, does not support the backlight control command sent from the ECS system.
	Default:	Mode 1
.14 CID Display on Held Key	Range:	Enable = Enables an Iwatsu ICON Series IX-5810, IX-5910, IX-5930 and IX-59DS to display the Caller ID name or number information of a call placed on hold or park from a self-labeling key. Disable = Disables an Iwatsu ICON Series IX-5810, IX-5910, IX-5930 and IX-59DS to display the Caller ID name or number information of a call placed on hold or park from a self-labeling key.
	Default:	Enable

Related Databases:

Call Coverage ICM: 04.70 - Programming Reserve 1, Element 2; 04.71 - Call Coverage/Voice Mail Data; 11.70 - Call Coverage Trunk; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Display Mask:04.71 - Call Coverage/Voice Mail Data; 05.01 - System Speed Dial - Number; 10.73 - Programming Reserve; 10.70 - Programming Reserve (CCV ICM).

SMDR Display:04.71 - Call Coverage/Voice Mail Data; 10.73 - Programming Reserve; 11.70 - Call Coverage Trunk.

SLT Disc Signal:04.71 - Call Coverage/Voice Mail Data.

10.71 - Programming Reserve 2

Class 10 Item 71 - Programming Reserve 2 contains two fields. The first field is used to identify the station logical port number. The second element field is used for the following programming item:

Field	Description
.02 SLT Busy Camp On	Busy Camp-On From Single-Line Telephones is used to enable or disable busy camp-on from single-line telephones. If this item is enabled a SLT can camp-on (CO and ICM) to a busy station (excluding a SLT) or hunt group. When a SLT is camped-on to a busy station, it is handled by the system as regular camp-on. The following conditions apply: No camp-on recall for ICM calls. Camp-on recall for CO calls.
.03 SLT Hook Mode	SLT/ VML Conference from Consultation Hold is used to disable SLT to conference from Consultation Hold

Note: This feature should be enabled for voice mail ports so they can camp-on calls to busy stations.

Programming Field Description

SLT Stations	Meaning:	Station logical port number.
	Range:	1-1024 (station maximum)
	Meaning:	See the previous description.
	Range:	See the previous description.
Field		
.02 SLT Busy Camp On	Range:	Disable = disable busy camp-on from a SLT Enable = enable busy camp-on from a SLT
	Default:	Disable
.03 SLT Hook Mode	Range:	Disable = enable SLT conference from consultation hold Enable = disable SLT conference from consultation hold
	Default:	Disable

Related Databases:

Required: None.

Associated: None.

10.72 - Programming Reserve 3

Class 10 Item 72 contains two fields. The first field is used to identify the station logical port number. The second field is used for the following programming item:

Field	Description
.03 Text Message Tone (DND)	Text Message Receive Tone at DND Station is used to enable or disable the text message confirmation tone from playing at a station in DND mode when a text message arrives.
.04 VML Dial Mask	ICM Dial Digit Masking is used to replace the ICM dialed digit with a *
.07 AME	Enable/Disable Answering Machine Emulation is used to enable or disable an extension to use the Answering Machine Emulation feature.

Programming Field Description

Station Logical Port Number	Meaning:	Station logical port number.
	Range:	1-1024 (station maximum)
Field	Meaning:	See the previous description.
	Range:	See the previous description.
Field:		
Text Message Tone (DND)	Range:	Disable = disable text message confirmation tone at DND stations Enable = enable text message confirmation tone at DND stations
	Default:	Enable
VML Dial Mask	Range:	Disable = disable ICM Dial Digit Masking Enable = enable ICM Dial Digit Masking
		Enable
AME	Range:	Disable = disable ability to use Answering Machine Emulation feature Enable = enable ability to use Answering Machine Emulation feature
	Default:	Enable

Related Databases:

Text Message Tone (DND): 02.20 - System Text Message; 08.06 - Text Message Group; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 26.01 - Station Text Message 1.

VML Dial Mask: 01.09 Station Port Definition; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; Class 24 Station Class of Service; Class 25 DNIS Conversion Data.

AME: Note: 04.77 - Voice Mail/Auto Attendant Packet Codes: VM Message Disconnect Packet VM/AA must be set to 2222 for Voice Mail Monitor (Answering Machine Emulation) to function.
04.70 - Programming Reserve 1: Automatic/User Initiated Monitor, 04.77 - Voice Mail/Auto Attendant Packet Codes: VM Message Disconnect Packet VM/AA, 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

10.73 - Programming Reserve

Class 10 Item 73 - Programming Reserve contains six fields. Fixed Call Forwarding, Manual Call Forwarding, Forced Account Code, E911 Area Routing Trunk Group, Platinum Series Telephone Call Log Mode, and Iwatsu ICON Series Telephone Backlight Duration.

Field	Description
.01 Fixed Call FWD	Fixed Call Forward Mode is used to define the default call forward mode for each station. If fixed call forwarding is used, change this data value to B/NA (Busy/No Answer) or NA (No Answer). At default, the system will forward all calls and the primary station will never ring when in fixed call forward mode.
.02 Manual Call FWD	Manually Activated Call Forward Default Mode is used to assign the default mode for manually activated call forwarding, using the [FORWARD] key on the telephone. If desired, the mode programmed here can be changed by the station user.
.03 Forced Acct Code	Forced Account Code Station is used to define a station as either a forced account code station or verified account code station. Four modes of operation are programmable here: Forced - Toll Call Only, Forced -All Calls, Verified - Toll Calls Only, Verified - All Calls. Forced account code stations must enter a string of digits equal in length to the programming in 04.71 - Call Coverage/Voice Mail Data: FAC Length. Verified account code stations must enter an account code that exactly matches a data entry in 37.01-Forced Account Codes. Account code entry is required when these stations attempt to seize or make a call using a CO lines specified as a forced account code trunk in 11.70 - Call Coverage Trunk. Toll Calls are defined in 04.78 - Programming Reserve 9, Elements 01-32. Numbers defined in 04.78 - Programming Reserve 9 override all forced/verified account code entry.
.04 E911 Area Rt TG	E911 Area Routing Trunk Group. This item is used to associate each system extension with a specific trunk group (11.38 - Outgoing CO Group) when the Proposed “40,000 Square Foot Rule” is selected as the method for Enhanced 911 Service in 04.70 - Programming Reserve 1: E911Outgoing Type.
.05 Call Log Mode	Call Log Mode is used to select the type of calls that are logged in the Platinum 18i/d Call Log.
.06 LCD Backlight Duration	LCD Backlight Duration is used to set the backlight duration on the Iwatsu ICON Series IX-5930, IX-5910, and IX-5810 telephone. Backlight duration can be set to 30 (default) seconds, 1, 3, 5, 10, 20, 30, 60, 90, and 120 minutes

Note:	Regardless of the value programmed in Fixed Call Forward, fixed call forward will not operate unless a destination station is programmed in 10.78 - Fixed Call Forward Destination.
Note:	Fixed call forward must be initialized by manually activating and deactivating the [FORWARD] key at the station level after initial system start-up or defaulting the system. If initialization is not performed, the fixed call forward feature will not operate.

Programming Field Description

Station Logical	Meaning:	Station logical port number.
	Range:	1-1024 (station maximum)
Field	Meaning:	See the previous description.
	Range:	See the previous description.
Field		
Fixed Call FWD	Range:	All = forward all calls to the destination programmed in *10.78 - Fixed Call Forward Destination* B/NA = forward calls to the destination programmed in *10.78 - Fixed Call Forward Destination* only if the station is busy/no answer NA = forward calls to the destination programmed in *10.78 - Fixed Call Forward Destination* only if there is no answer at the station
	Default:	NA
Manual Call FWD	Range:	All = all call forward for manual operation B/NA = busy/no answer forward for manual operation NA = no answer forward for manual operation
	Default:	All
Forced Acct Code	Meaning:	Identify forced account code mode at station level when calling out on a forced account code trunk (11.70 - Call Coverage Trunk).
	Range:	Normal = unforced ACC All = forced account code station - all outgoing calls ACC Toll = forced account code station - toll calls only VRF ALL = verified account code station - all outgoing calls VRF Toll = verified account code station - toll calls only
	Default:	Normal
E911 Area Rt TG	Range:	01-250
	Default:	1
Call Log Mode	Range:	No Logging CO Call ICM and CO Call
	Default:	CO Call
LCD Backlight Duration	Range:	30 Seconds 1, 3, 5, 10, 20, 30, 60, 90, 120 minutes (Note: A telephone reset is required after changing the LCD duration)
	Default:	30 Seconds

Related Databases:

Required: 04.25 <NUM8> Calls for Pickup; 04.25 <NUM9> Calls for Pickup; 04.70<NUM35>d1=1; 10.16 Call Forwarding; 10.78 Fixed Call Forward Destination.; 11.38 Outgoing CO Trunk Group; 29.10 Emergency Send Dial

Fixed Call FWD / Manual Call Forward: 04.13 - Call Forward - No Answer.

Forced Acct Code:04.71 - Call Coverage/Voice Mail Data; 04.78 - Programming Reserve 9 Elements 33-42; 37.01 - Forced Account Code.

E911 Area Rt TG:11.38 - Outgoing CO Group.

Call Log Mode: 04.71.43 - Call Log Storage Duration

Associated: 11.22 - Do Not Disturb (DND) Override CO Ringing, 17.18 - Emergency Bypass Number.

10.74 - Station Based Timers

Class 10 Item 74 - Programming Reserve 5 contains two fields. The first field is used to identify the station logical port number. The second field is used for the following new programming items.

Field	Description
.01 Hold Recall Timer	Station Hold Recall Timer is used define the length of time a call will remain on hold on a station-by-station basis. This timer is also used for Call Park and Group Call Park. The value entered denotes the length of time a call will remain on hold before the station that placed it on hold is recalled. A call placed on hold will recall the attendant if recall is not answered after the time programmed in 04.15 - Attendant DIL Intercept has elapsed. This is a per station setting. If no setting is made, the programming in 04.08 - Hold Recall Timer will determine the hold recall time.
.02 Campon Recall Timer	Station Camp-On Duration Timer is used to define the length of time the camp-on condition is maintained on a station-by-station basis. When the time programmed elapses, a recall is made to the originating station. At that time, if the line is enabled in 11.26 - Attendant Intercept Line for attendant intercept, if the originating station does not answer the recall within the attendant DIL intercept time (programmed in 04.15 - Attendant DIL Intercept), recall will be directed to the attendant station. This is a per station setting. If no setting is made, the programming in 04.12 - Camp-On Duration will determine the camp-on time.
.03 Emg Call Mode	E-Response Help Call Extension Enable/Disable. This item is used to program a station as an E-Response Help Call extension. Stations enabled in this item to make an E-Response help call will automatically call the E-Response Help Group programmed in 10.74 - Station Based Timers if left off hook for a duration that exceeds the E-Response Help Call Time programmed in 04.71 - Call Coverage/ Voice Mail Data:Off Hook Help Timeout, or after pausing between digits dialed for longer than 10 seconds without completing the call. A station may be enabled for E-Response when the system is in the Day Mode only, or both Day Mode and Night Mode according to the programming in this item.
.04 Emg Call Group	E-Response Help Call Group. An ICM Group may be identified as the E-Response Help Call Group for a specific system extension on a station-by-station basis. In order for this item to take effect, a station must first be enabled to use E-Response in 10.74 - Station Based Timers: Emg Call Mode. An ICM Group is defined in 08.04 - Paging Group - Station/Zone and 08.05 - UCD Hunt Group.

Note: To make any changes take effect, a station reset is required.

Programming Field Description

Station Logical	Meaning:	Station logical port number.
	Range:	1-1024 (station maximum)
	Meaning:	See the previous description.
	Range:	See the previous description.
Field		
Hold Recall Timer	Range:	0-255 seconds 0 = use setting in 04.08 - Hold Recall Timer
	Default	0
Campon Recall Timer	Range:	0-255 seconds 0 = use setting in Class 04.12
	Default	0
Emg Call Mode	Meaning:	E-Response Help Call Station Enable/Disable
	Range:	Disable, Day Only, ay and Night
Emg Call Group	Default	Disable
	Meaning:	E-Response Help Call Group Number
	Range:	0-250
	Default	0

Related Databases:

Hold Recall Timer

Required: 10.37 - Hold Recall.

Associated: 04.08 - Hold Recall Timer, 04.15 - Attendant DIL Intercept, 04.55 - Port Definition - True Attendant Position; 11.26 - Attendant Intercept Line.

Campon Recall Timer

Associated: 04.15 - Attendant DIL Interceptt; 11.26 - Attendant Intercept Line.

Emg Call Mode / Emg Call Group

Required: 04.13 - Call Forward - No Answer; 04.22 - ICM Call Mode; 04.71 - Call Coverage/Voice Mail Data: E-Response Help Call Time Out; 04.79 - E-Response Help Call LCD Display: E-Response Help Call Message; 07.04 - Paging Group Access Numbers; 08.04 - Paging Group - Station/Zone; 08.05 - UCD Hunt Group: Paging Group Type; 10.48 - Calling Mode; 10.74 - Station Based Timers: E-Response Help Call Mode; 10.74 - Station Based Timers: E-Response Help Call Extension.

Associated: 08.05 - UCD Hunt Group: E-Response Contact Relay.

10.75 - Programming Reserve 6

Class 10 Item 75 - Programming Reserve 6 contains two fields. This programming item is a multipurpose item used to set the station class of service. The first element field is used to identify the logical port number. The second element field is used for the following programming item:

Field	Description
.01 Green LED Disp	Green LED Display Lamp is used to associate the green LED on the Omega-Phone IX-12KTD-2/3 and IP telephone display lamp with a key on the telephone. At default this item is set to 136 ([Message]) for station logical port 001 and 36 ([Message]) for all other station logical ports.
.02 Call FWD NA Timer	Station No Answer Call Forward Timer is used to define the length of time a call will ring at one station without being answered before it is forwarded to another station. This is a per station setting. If no setting is made, the programming in 04.13 - Call Forward - No Answer will determine the station forward timer.
.03 IP Device Handler	Station IP Device Handler is used for ports on the IX-8IPNET/IX-8EIPNET card configured as Voicemail/OPX or Off-Premise SLT/OPX ports. These digits point to a Class 36 IP Device Handlers associate with centralized voicemail system or off premise extension. If 0 is programmed in the IP Device Handler field (10.75), this item is ignored.
.04 Service Class	Network Class of Service serves two purposes: 1.) It is referenced when a Network Access Code (Class 28.01) that points to an Internal Network Conversion table (Class 28.03) is dialed from the specified station. The Network Class of Service determines how the call is routed based on the programming in Class 28.03. 2.) It determines the number of route advance steps the user may use based on the programming in Class 28.06. Route advance steps are programmed in Class 28.05.

Note: To make any changes take effect, a station reset is required.

Programming Field Description

Station Logical	Meaning:	Station logical port number.
	Range:	1-1024 (station maximum)
.01 Green LED Disp	Meaning:	Green LED on Display Lamp
	Range:	Standard Stations = 01-24, 29-36 Attendant Stations = 01-24, 129-136
	Default	Attendant = 136; non-attendant = 36
.02 Call FWD NA Timer	Meaning:	Call Forward No Answer Timer
	Range:	0-255 seconds 0 = use setting in 04.13 - Call Forward - No Answer
	Default	0
.03 IP Device Handler	Meaning:	Number of IP Device Handler in Class 36
	Range:	0, 1-128 (Class 36 IP Device Handler Number)
	Default	0
.04 Service Class	Meaning:	Network Class of Service
	Range:	1-16 (28.03 - Network Internal)
	Default	1

Related Databases:

Green LED Disp

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Associated: None.

Call FWD NA Timer

Required: 04.13 - Call Forward - No Answer, 10.16 - Call Forwarding.

Associated: None.

IP Device Handler

Required: 11.23 - Uniform Call Distribution (UCD) Line, 28.01 - Network Number; 28.02 - Network Attribute, 28.03 - Network Internal; 28.04 - Network Feature; 28.05 - Network External; 28.06 - Network Route Advance Step.

Associated: None.

Hardware Required

IX-12IPKTD/-E2 and IX-12KTD-2/3 Digital Key Display Telephone.

10.76 - Optimized Routing Class

Class 10 Item 76 - Optimized Routing Class is used to assign specific stations to an optimized routing class for outgoing calls.

Programming Field Description

Opt Routing Class	Meaning:	Optimized Routing Class
	Range:	01-32
	Default:	1

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; Class 17 Optimized Routing.

Associated: 10.21 - Outgoing CO Line Group; 10.33 - Forced Optimized Routing.04.25 - Calls for Pickup (Elements 1 - 4) Element 07; 07.03 - CO Line Group Access Numbers

10.78 - Fixed Call Forward Destination

Class 10 Item 78 - Fixed Call Forward Destination is used to program the destination where calls will be forwarded from each station logical port number when the *fixed call forward feature* or Hold/Quick Forward feature operates.

If a destination is not assigned for a station, that station cannot use the fixed call forward feature. In that case, the station can only set call forwarding manually. Once fixed call forwarding is set, it can only be disabled by deleting the destination programmed in Fixed Call Forward Destination. This feature operates in conjunction with the fixed call forward mode programmed in 10.73 - Programming Reserve: Manual Call Forward. Programming in 10.73 - Programming Reserve: Fixed Call Forward is ignored when the [HOLD/QUICK FORWARD] key is active. A station can change the fixed call forward destination by manually activating call forwarding.

Note:	Regardless of the value programmed in 10.73 - Programming Reserve: Fixed Call Forward, fixed call forward will not operate unless a destination station is programmed in *Class 10.78 - Fixed Call Forward Destination*.
Note:	Fixed call forward must be initialized by manually activating and deactivating the [FORWARD] key at the station level after initial system start-up or defaulting the system. If initialization is not performed, the fixed call forward feature will not operate.

Programming Field Description

Station Call Forward	Meaning:	Station logical port number.
	Range:	1-1024 (station maximum)
Field	Meaning:	Extension number or hunt group access number to be used as the destination for fixed call forwarding and Hold/Quick Forwarding.
	Range:	1-4 digits (0-9, *, #)
	Default:	7000

Related Databases:

Required: 04.13 - Call Forward - No Answer; 10.73 - Programming Reserve.

Associated: 10.50 - ICM Group

10.79 - Station CNIS Number

Class 10 Item 79 - Station CNIS Number can be set as the first choice for CNIS output on an outgoing ISDN or E911 call. All 911 calls made on an ISDN line will use the Station CNIS Number for the first choice of CNIS output. If Station CNIS Number is left blank, the Number Programmed in 29.09 - Calling Party Number will be used.

Programming Field Description

Station Out-dial (CO)	Meaning:	Station CNIS Number.
	Range:	1-1024
CNIS No	Meaning:	Station CNIS number first choice for outgoing CNIS calls.
	Range:	1-16 digits (0-9)
	Default:	None

Related Databases:

Required: 04.13 - Call Forward - No Answer; 10.70 - Programming Reserve (CCV ICM): CNIS Output Option; 10.73 - Programming Reserve.

Associated: 12.01 - Station Speed Dial -Trunk; 29.09 - Calling Party Number.

Class 11

Line Class

Use **Class 11 - Line Class** to program variables and functions which will be applied to designated incoming and outgoing lines. The following programming items are included in Class 11:

- 11.01 - (Not Used)
- 11.02 - CO Line Access Numbers
- 11.03 - Line ID
- 11.04 - Dial Waiting Time
- 11.05 - Dial Starting Time
- 11.06 - Inter-Digit Time
- 11.07 - Minimum Pause Time
- 11.08 - Dial Type DP/DTMF
- 11.09 - DTMF Dial Speed
- 11.10 - DTMF Dial Speed (Altered)
- 11.11 - Dial Pulse Speed
- 11.12 - Dial Pulse Break Ratio
- 11.13 - Sender Time Out
- 11.14 - Automatic Pause Time
- 11.15 - CO Flash Time (Long Flash)
- 11.16 - Centrex Flash Time (Short Flash)
- 11.17 - Ring Interval Time
- 11.30 - Ringing Method
- 11.31 - Ringing Tone
- 11.32 - Ringing Station
- 11.33 - Delayed Ringing Station
- 11.34 - Direct In Line (DIL) to Hunt Group
- 11.35 - Loud Ringer Relay Number
- (11.36)
- 11.37 - Forced Release Condition
- 11.38 - Outgoing CO Group
- 11.39 - Incoming CO Group
- 11.40 - Toll Restriction Group Number
- 11.41 - Predial Group Number
- 11.42 - Equal Access Group Number
- 11.43 - Incoming CO Access Class
- 11.44 - Incoming Restrictions
- 11.45 - Auto Answer Message 1
- 11.46 - Auto Answer Message 2

- 11.18 - Line Loss
- 11.19 - Disconnect Signal
- 11.20 - E&M On-Hook Detect
- 11.21 - Prime Line
- 11.22 - Do Not Disturb (DND) Override CO Ringing
- 11.23 - Uniform Call Distribution (UCD) Line
- 11.24 - Automatic Answer Line
- 11.25 - DISA Line
- 11.26 - Attendant Intercept Line
- 11.27 - Universal Night Answer (UNA) Line
- 11.28 - Universal Night Answer (UNA) Relay Number
- 11.29 - SMDR Report
- 11.47 - DISA/T1 E&M Virtual Station
- 11.48 - DISA Message Number
- 11.49 - (Not Used)
- 11.50 - (Not Used)
- 11.70 - Call Coverage Trunk
- 11.72 - UCD Overflow Calls
- 11.73 - Reserve 4
- 11.74 - ISDN Line Class
- 11.77 - ISDN Line Class

11.01 - (Not Used)

Class 11 Item 01 - Sub-System Number is not used.

11.02 - CO Line Access Numbers

Class 11 Item 02 - CO Line Access Numbers is used to program dial access codes to seize individual trunks through ICM dial tone or second dial tone. Trunk access numbers are assigned a default value based on physical port location within the ECS. For example, if the first trunk card is installed in the slot two (physical ports 1 through 96), at the time of system default, the access numbers would be 101 through 108 for trunk logical ports 1-8.

If you wish to change the default values, the system will accept numbers between one and four digits in length which use a combination of the digits 0 through 9. The symbols [*] and [#] cannot be used. When programming CO line access numbers you must be careful to avoid conflicts with station and access numbers.

Trunk access numbers are not related to *trunk groups*. A trunk can be assigned a trunk access number and also be assigned to a trunk group. In addition to outgoing calls, a trunk can be seized during the following operations either automatically by the system or by dialing the trunk access number:

- Ringing CO Line Calls
- Calls on System Hold
- Group Park
- Calls Ringing as Camp-On
- Privacy Released Calls
- Via programming in the Caller ID/ANI Conversion Table (Class 24.02)

Note:	If 10.33 - Forced Optimized Routing is used, CO Line Access Numbers access is denied.
Note:	The following program for outgoing call trunk access numbers is recommended when using IX-COMLINK: The trunk access number(s) programmed in CO Line Access Numbers must match the value in the Trunk 1~200 lines in the PCKTADPT.INI file. (Example Trunk 1=1001, Trunk 1=1002.)

Programming Field Description

Trunks	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Access No	Meaning:	Access code used to seize the trunk.
	Range:	Up to 4 digits (0-9)
	Default:	Physical port number + 1000

Related Databases:

Required: 01.11 Port Definition; 01.04 Port Configuration.

Associated: 07.01 - Attendant/System Park Orbit Numbers; 07.02 - Hunting Group Access Numbers.; 07.03 - CO Line Group Access Numbers; 07.04 - Paging Group Access Numbers; 07.06 - Feature Access Numbers; 10.02 - Station Numbering; 19.01 - ACD Group Access Number, 24.02 - Caller ID/ANI Conversion Number.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.03 - Line ID

Class 11 Item 03 - Line ID is used to program an eight-character, alphanumeric identification for each trunk circuit. The alphanumeric trunk identification (trunk ID) is displayed when receiving an incoming call or when transferring an incoming call after the line is answered. The trunk ID is not displayed for calls in a camp-on state. The trunk ID is displayed in positions one through eight of the second line of the LCD on incoming calls, and positions seven through fourteen on line one of the LCD on transferred calls to ECS key telephones equipped with displays and attendant consoles.

Programming Field Description

Trunks	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Name	Meaning:	Alphanumeric trunk identifier.
	Range:	Up to 8 characters
	Default:	None

Related Databases:

Required: 01.03 Port Definition; 01.04 Port Configuration.

Associated: 11.32 - Ringing Station.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.04 - Dial Waiting Time

Class 11 Item 04 - Dial Waiting Time is used to define the length of time the system will wait, after trunk seizure from a toll restricted station, before the first digit dialed is received. If the first digit is not received within the time set in this item, the trunk DTMF sender is disconnected. Dial Waiting Time works in conjunction with 11.06 - Inter-Digit Time and 11.13 - Sender Time Out. At the time the first digit is dialed, dial waiting time stops and inter-digit timing starts. This parameter applies to any station with a toll restriction class other than 0 (10.23 - Toll Restriction Level and Class).

Note: This item determines when an SLT can be monitored and also can affect SLT forced account code operation.

Programming Field Description

Trunk Line Dial Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Dial Wait Time	Meaning:	Timer for dial waiting on a specific trunk.
	Range:	10-25 seconds
	Default:	20 seconds

Related Databases:

Required: 10.23 - Toll Restriction Level and Class.

Associated: 11.06 - Inter-Digit Time; 11.13 - Sender Time Out.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.05 - Dial Starting Time

Class 11 Item 05 - Dial Starting Time is used to define the length of time the system will wait, after trunk seizure, to output the first digit using any of the automatic dialing features. Dial starting time means *dialing signal guard time* for the ECS automatic dialing features.

Note:	This timer does not affect network dialing. The network dialing pause is programmed in 11.14 - Automatic Pause Time. This timer should be lengthened for ground start trunks.

Programming Field Description

Trunk Line Dial Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Dial Start Time	Meaning:	Pause before outputting the first digit on a specific trunk.
	Range:	0-15 (x100 milliseconds).
	Default:	5 (500 milliseconds).

Related Databases:

Required: None.

Associated: 04.47 - Automatic Repeat Dial - Duration; 04.48 - Auto Repeat Dial - Off Hook; 04.49 - Auto Repeat Dial - Repetition; Class 05 System Speed Dial; 10.29 - Preset Dial; 10.30 - Automatic Outgoing CO; 12.01 - Station Speed Dial -Trunk.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.06 - Inter-Digit Time

Class 11 Item 06 - Inter-Digit Time is used to program the inter-digit timer for dialing on a CO line. Inter-digit timing starts after the first digit is dialed. It is used to monitor the following system functions:

- Determines the length of time the ECS waits between each digit dialed.
- When time out occurs while dialing from a toll restricted station, the system disconnects the trunk DTMF/DP sender. If over-digit dialing is required from a toll restricted station after inter-digit time out and sender time out has occurred, the station must be programmed to allow *dial on conversation* in 10.28 -Dial-On Conversation.
- Inter-digit time out works in conjunction with 11.13 - Sender Time Out. After the inter-digit time has elapsed, the trunk circuit DTMF/DP sender is disconnected (only if station is toll restricted) and the timing of sender time out starts. Sender time out determines the operation of numerous features including trunk-to-trunk conferences.
- When placing a CO call from a display station, the dialed data will remain in the LCD display until sender time out, after the inter-digit timer has elapsed. For example, if inter-digit time is set to ten seconds and sender time out is set to ten seconds. After placing a CO call, the dialed data will remain on the LCD for twenty seconds after the last digit is dialed.

Programming Field Description

Trunk Line Time Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
InterDigit Time	Meaning:	Inter-digit timer.
	Range:	1-15 (x2 seconds)
	Default:	1 (2 seconds)

Related Databases:

Required: None.

Associated: 10.23 - Toll Restriction Level and Class; 10.28 -Dial-On Conversation; 11.13 - Sender Time Out.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.07 - Minimum Pause Time

Class 11 Item 07 - Minimum Pause Time is used to program the minimum length of time, in milliseconds, that the system will pause between digits dialed on a dial pulse trunk. Minimum pause time applies to all dialing from dial pulse trunks, either manual dialing or automatic dialing.

Note:	The Minimum Pause Time must be assigned to the trunk logical port corresponding to the first physical port (*Class 01.11*) on the IX-8LGTK card. **The data entered for the first circuit of the IX-8LGTK card applies to all eight of the card's circuits.** Programming for any other circuit is meaningless.

Programming Field Description

Trunk Line Time Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Pause Per Second	Meaning:	PPS
	Range:	1-15 (x 100 milliseconds) Iwatsu America recommends using 10 pps (USA) and 20 pps (Canada)
Min. Pause Time	Meaning:	Minimum pause time multiplied by 100 milliseconds.
	Range:	1-15 (x 100 milliseconds)
	Default:	10 pps = 7 (700 milliseconds) 20 pps = 5 (500 milliseconds)

Related Databases:

Required: 11.08 - Dial Type DP/DTMF.

Associated: 11.11 - Dial Pulse Speed; 11.12 - Dial Pulse Break Ratio.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.08 - Dial Type DP/DTMF

Class 11 Item 08 - Dial Type DP/DTMF is used to program the address signaling type for each trunk as either *dial pulse* or *DTMF*. Trunks programmed as dial pulse may be switched to DTMF dialing by using the *alternate tone/pulse dialing* feature. This feature is useful for those customers who are served by a dial pulse Central Office that wishes to use OCC services.

The dial type of each ISDN channel must be set to DP in order to accommodate D channel signaling. Regardless of the setting in this item, DTMF signaling is used to signal the B channels.

Programming Field Description

Trunks	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Dial Type	Meaning:	Dial Pulse or DTMF, Minimum pause time multiplied by 100 milliseconds.
	Range:	DP -Dial Pulse-Required for ISDN Trunks. DTMF - DTMF
	Default:	DTMF

Related Databases:

Required: 11.07 - Minimum Pause Time; 11.09 - DTMF Dial Speed; 11.11 - Dial Pulse Speed; 11.12 - Dial Pulse Break Ratio.

Associated: 10.27 - Automatic Signal Alternating; 10.28 -Dial-On Conversation; 11.06 - Inter-Digit Time; 11.10 - DTMF Dial Speed (Altered); 11.13 - Sender Time Out.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.09 - DTMF Dial Speed

Class 11 Item 09 - DTMF Dial Speed is used to program the dialing speed of trunks programmed for *DTMF address signaling*.

Note:	DTMF Dial Speed must be programmed for the first trunk in the system. **The data entered for the first circuit of the trunk card defined (Class 01.11) with the lowest physical port number applies to all trunk cards programmed for DTMF dialing.** The DTMF SPD Dial field determines the duration or width of the DTMF signal dialed. The DTMF SPD Pause field determines the duration or pause time between DTMF signals dialed. For example, if DTMF SPD Dial = 150 and DTMF SPD Pause = 100, the system would then produce a dialing pattern in a series of DTMF signals that would be on for 150ms, pause for 100ms, on for 150ms, repeat.

Programming Field Description

Trunk Line Dial Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
DTMF SPD Dial	Meaning:	Dial/on time programmed in milliseconds.
	Range:	50 - 650 milliseconds (in 50 milliseconds increments) 750 milliseconds 3 seconds
	Default:	100 milliseconds
DTMF SPD Pause	Meaning:	Pause/off time programmed in milliseconds.
	Range:	1-13 milliseconds (in 50 milliseconds increments) 750 milliseconds 3 seconds
	Default:	100 milliseconds

Related Databases:

Required: 11.08 - Dial Type DP/DTMF.

Associated: 11.10 - DTMF Dial Speed (Altered).

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.10 - DTMF Dial Speed (Altered)

Class 11 Item 10 - DTMF Dial Speed (Altered) is used to program the *address signaling* speed of DTMF signals generated after the *alternate tone/pulse dialing* feature is activated. The first data entry field requires a two-digit input (in milliseconds) to determine the duration or width of the DTMF signal dialed. The second data entry field also requires a two-digit input (in milliseconds) to determine the duration or pause time between DTMF signals dialed. The DTMF dial speed programmed in this item is activated by the programming in 10.27 - Automatic Signal Alternating after sender time-out.

Programming Field Description

Trunk Line Dial Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
DTMF (Alt) Dial	Meaning:	Dial/on time programmed in milliseconds.
	Range:	50-750 (in 50 milliseconds)
	Default:	150 milliseconds
DTMF (Alt) Pause	Meaning:	Pause/off time programmed in milliseconds.
	Range:	50-750 (in 50 milliseconds)
	Default:	150 milliseconds

Related Databases:

Required: 10.26 - Dial Pulse to DTMF Signal Alternating; 10.27 - Automatic Signal Alternating; 11.08 - Dial Type DP/DTMF.

Associated: None.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.11 - Dial Pulse Speed

Class 11 Item 11 - Dial Pulse Speed is used to program the *address signaling speed* to the Central Office when using *dial pulse* trunks. Each trunk card installed in the system may be programmed individually to dial at 10pps or 20pps, however, individual circuits on a trunk card must have the same pps setting.

Note:	Dial Pulse Speed must be assigned to the trunk logical port corresponding to the first physical port (*Class 01.11*) on the trunk card. **The data entered for the first circuit of the trunk card applies to all eight of the card's circuits.** Programming for any other circuit is meaningless.
Note:	The Canadian Department of Communications (DOC) prohibits the use of dial pulse trunks with a dial speed of 20pps.

Programming Field Description

Trunk Line Dial Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
DP Speed	Meaning:	Dial pulse time.
	Range:	10 pps (pulse per second) 20 pps
	Default:	10 PPS

Related Databases:

Required: 11.08 - Dial Type DP/DTMF; 11.12 - Dial Pulse Break Ratio.

Associated: 11.07 - Minimum Pause Time.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.12 - Dial Pulse Break Ratio

Class 11 Item 12 - Dial Pulse Break Ratio is used to program the *percent break* of the dial pulse. Percent break is the ratio or break (on-hook state) interval of the total pulse cycle. Percent break is typically between 58 and 62 percent. The default value for this parameter is 61 percent.

Note:	The Dial Pulse Break Ratio must be assigned to the trunk logical port corresponding to the first physical port (*Class 01.11*) on the IX-8LGTK card. **The data entered for the first circuit of the IX-8LGTK card applies to all eight of the card's circuits.** Programming for any other circuit is meaningless.
Note:	The Canadian Department of Communications (DOC) prohibits the use of a break ratio other than 61 percent. Dial pulse trunks in Canada must be programmed with a dial speed of 10pps at a break ratio of 61 percent.

Programming Field Description

Trunk Line Dial Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
DP Break %	Meaning:	Percent break.
	Range:	20%-99%
	Default:	39%

Related Databases:

Required: 11.08 - Dial Type DP/DTMF.

Associated: 11.07 - Minimum Pause Time; 11.11 - Dial Pulse Speed.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB; IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.13 - Sender Time Out

The primary function of **Class 11 Item 13 - Sender Time Out** is to notify the system CPU that dialing on a CO line is completed. The system uses sender time out as a flag to define a call as completed and start other features associated with the call. Sender time out works conjunction with 11.06 - Inter-Digit Time. Sender time out starts after inter-digit time has elapsed.

The following features do not operate until sender time out has elapsed.

- **LCD Call Duration Timer** - The LCD call duration timer is displayed in positions one though five of line two on the LCD after sender time out has elapsed.
- **SMDR Valid Call Timer** - For a CO call to be defined as valid, the station must be off-hook for the duration of sender time out. Once sender time out has elapsed, the SMDR minimum call duration timer starts (04.51 - SMDR - Minimum Call Duration).
- **Account Code Input** - Account codes for SMDR purposes cannot be input until sender time out has elapsed. This only applies to outgoing calls.
- **Conferences** - The following conferences: Add-On, Multiline, Trunk-To-Trunk, Barge-In and Remote CO Forwarding do not become operational until sender time out has elapsed.
- **DID Number External Call Forward** — Voice path between the distant party and the forwarded destination is not established until sender time out expires.
    - Automatic Hold
    - Automatic Signal Alternating
    - Remote Call Forwarding Message
    - DID Remote Call Forward
    - ACD valid outgoing call timer for PBX wrap-up time
    - Call Monitoring for key telephones
    - Barge-In for key telephones.

Programming Field Description

Trunk Line Time Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Data Field:	Meaning:	Time in seconds before sender time out occurs.
	Range:	0-255
	Default:	4

Related Databases:

Required: None.

Associated: 04.45 - Remote CO Forward Message Number; Class 05 System Speed Dial; 10.27 - Automatic Signal Alternating; 10.28 -Dial-On Conversation; 10.30 - Automatic Outgoing CO; 11.06 - Inter-Digit Time

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.14 - Automatic Pause Time

Class 11 Item 14 - Automatic Pause Time is used to automatically insert a pause if the first digit(s) dialed match the predial numbers registered in the 06.04 - Toll Restriction - Predial. This item is utilized if the ECS is served by Centrex, PBX off premises extensions, E&M tie lines (*Class 01.11*) or any other services that require predialed digits before dialing the number. Automatic pause works in conjunction with calls dialed manually or any type of automatic dialing feature.

Note:	This pause is automatically inserted after any combination of digits that are prefixed in 17.13 - Add Dial Table regardless of the setting in *Class 01.11*.

Programming Field Description

Trunk Line Time Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Auto Pause Time	Meaning:	Automatic pause time in seconds.
	Range:	0-9 Seconds
	Default:	1

Related Databases:

Required: 01.11 Port Definition; 06.04 - Toll Restriction - Predial.

Associated: 05.01 - System Speed Dial - Number; 12.01 - Station Speed Dial - Trunk; 17.13 - Add Dial Table.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.15 - CO Flash Time (Long Flash)

Class 11 Item 15 - CO Flash Time (Long Flash) is used to program the length of *flash* - the duration of on-hook status or an open in loop current for a specified interval. This flash is sent to the Central Office, for trunk disconnect and dial tone reorder. CO flash is generated by use of the [FLASH] key or with the dial access code [FEAT] + [1][1].

Note:	Flash is also programmable using system and station speed dial addressing.
Note:	This timer acts as a guard timer for seizing dial tone from a float key.

Programming Field Description

Trunk Line Time Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
CO Flash Time	Meaning:	CO Flash time (x 100 milliseconds).
	Range:	1-30 (in 100 milliseconds)
	Default:	8 (800 milliseconds)

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Associated: 05.01 - System Speed Dial - Number.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.16 - Centrex Flash Time (Short Flash)

Class 11 Item 16 - Centrex Flash Time (Short Flash) is used to program the length of *flash* - the duration of on-hook status or an open in loop current for a specified interval. The flash programmed in Class 11.16 is sent to Centrex, PBX OPX extensions or E&M tie lines for a second dial tone request. This flash is normally used for transfer functions or feature access from distant-end equipment. The Centrex flash time should be programmed within the station flash boundaries of the distant-end equipment.

Programming Field Description

Trunk Line Time Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Centrex Flash Time	Meaning:	Centrex Flash time (x 100 milliseconds).
	Range:	1-30 (x 100 milliseconds)
	Default:	3

Related Databases:

Required: 07.06 - Feature Access Numbers; 10.12 - Key Assignment; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Associated: 05.01 - System Speed Dial - Number.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-408, IX-044.

11.17 - Ring Interval Time

Class 11 Item 17 - Ring Interval Time is used to monitor the incoming CO ringing station. This timer starts at ring voltage detection (trunk PPU). If, at the end of this time, ring voltage is not present, trunk ringing ceases.

Note: The Ring Interval Time must be assigned to the trunk logical port corresponding to the first physical port (*Class 01.11*) on the IX-8LGTK card. **The data entered for the first circuit of the IX-8LGTK card determines the operation of all eight circuits on the card.** Programming of any other circuits is meaningless.

Programming Field Description

Trunk Line Time Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Data Field:	Meaning:	Ring interval time (x 100 milliseconds).
	Range:	1-255 (x 100 milliseconds)
	Default:	50 (5 seconds)

Related Databases:

Required: 01.11 Port Definition; 01.11 Port Configuration.

Associated: 11.32 - Ringing Station.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.18 - Line Loss

Class 11 Item 18 - Line Loss applies to trunk-to-trunk conference with the IX-4ETRAN card. The built-in amplifier in the IX-4ETRAN card will provide compensation for the line loss based on the value defined in the Line Loss. The loss is defined between the local CO and the ECS.

Note:	Line Loss has no function in systems not equipped with a IX-4ETRAN card.

Programming Field Description

Trunk Line Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Field:	Range:	001-1024 (Trunk maximum)
Data Field:	Meaning:	Line loss in dB (multiplied by 2).
	Range:	0-7 (x 2 dB)
	Default:	4 (8 dB)

Related Databases:

Required: None.

Associated: 02.10 - CO Monitor Guard Time; 02.11 - CO Interrupt Tone Duration; 02.12 - CO Interrupt Tone Repetition; 02.13 - CO Interrupt Tone Allowance; 02.14 - CO Continuous Tone Duration; 02.15 - CO Silence Duration; 02.16 - CO Silence - Noise Allowance.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.19 - Disconnect Signal

Class 11 Item 19 - Disconnect Signal is used to monitor (in time) the disconnect signal sent from the central office when the remote party hangs up. If the system detects the disconnect signal at any time after sender time out, the CO lines are disconnected, regardless of the condition of the lines at the time. If *Class 01.11 Trunk Port Configuration* is enabled for disconnect detection, this program determines the length of time for valid disconnect.

Note:	A reset is required for any change to take effect.

Tip: If the line is enabled for disconnect detection in *Class 01.11 - Port Configuration*, it is recommended that a value of ten or higher is programmed for this item (100ms or higher) to avoid calls disconnecting in progress.

Programming Field Description

Trunk Line Parameter	Meaning:	Trunk logical port number.
Field:	Range:	1-1024 (Trunk maximum)
Disconnect Signal	Meaning:	Disconnect signal time multiplied by 10 milliseconds.
	Range:	10-150 (x 10 milliseconds)
	Default:	70 (700 milliseconds)

Related Databases:

Required: 01.11 Port Configuration (*must be assigned as disconnect signal detect*).

Associated: None.

Hardware Required:

IX-8UNTK, IX-8LGTK, IX-8CITK, IX-4EMTK, IX-4DITK, IX-DTI-T, IX-T1DTI, IX-4ICOTB, IX-ICOTB, IX-ICOTP, IX-DTI-P, IX-408, IX-044.

11.20 - E&M On-Hook Detect

Class 11 Item 20 - E&M On-Hook Detect is used to define the length of time required to detect an *on-hook* signal on an E&M tie line. After the system detects an on-hook signal on the "E" line of an E&M tie line, it will not disconnect the line and return it to an idle state until the time programmed in E&M On-Hook Detect has elapsed.

Note:	In a digital trunk (T1) configuration, this timer sets the wait time for wink back from the CO before returning a reorder and sending a protocol error.
Note:	This Item also determines the time before a CO call from the main system can be transferred to a remote network station.

Programming Field Description

Network E&M Tie Line Trunks	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
E&M On-Hook Detect	Meaning:	Time in seconds.
	Range:	1-15 seconds
	Default:	15

Related Databases:

Required: 01.11 Trunk Port Definition.

Associated: None.

Hardware Required:

IX-8UNTK, IX-4EMTK.

11.21 - Prime Line

Class 11 Item 21 - Prime Line is used to define a trunk line(s) as a *prime line*. When a trunk is defined as a prime line, stations can access it automatically upon going off-hook. This item works in conjunction with 10.09 - Prime Line Access. For example, if a station is programmed for prime access to a particular CO group in 10.09 - Prime Line Access, and if at least one CO line in that group is programmed to allow prime line access in Prime Line, each time the station goes off-hook, it will automatically access one of those lines. If no line in the group is programmed to allow prime line access, this feature is invalid.

Programming Field Description

Trunk Call Processing	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Data Field:	Meaning:	Program prime lines.
	Range:	No - not a prime line Yes - prime line
	Default:	No

Related Databases:

Required: 07.03 COL Group Access Number; 10.09 Prime Line Access; 11.02 CO Line Access Numbers.

Associated: 10.21 Outgoing CO Line Group; 11.38 Outgoing CO Group.

11.22 - Do Not Disturb (DND) Override CO Ringing

Class 11 Item 22 - Do Not Disturb (DND) Override CO Ringing is used to assign lines that are capable of overriding station DND on an incoming call. To receive DND override ringing, the station must be assigned as a ringing station for that line in either *Class 11.32 - Ringing Station*, or *Class 11.33 - Delayed Ringing Station*.

Note:	When DND override ringing is allowed, the stations assigned to ring in Class 11.32 or Class 11.33 cannot activate DND or Call Forward for incoming calls on the line. Call coverage and barge-in capabilities and monitoring on the trunk are also eliminated.

Programming Field Description

Trunk Line Attribute	Meaning:	Trunk Logical Port Number
	Range:	1-1024 (Trunk maximum)
DND CO Override Ring	Meaning:	Program lines for DND override ringing.
	Range:	No - no DND override ringing Yes - DND override ringing
	Default:	No

Related Databases:

Required: 11.32 - Ringing Station, 11.33 - Delayed Ringing Station.

Associated: 10.42 - Do Not Disturb (DND).

11.23 - Uniform Call Distribution (UCD) Line

This Item is no longer used.

11.24 - Automatic Answer Line

Class 11 Item 24 - Automatic Answer Line is used to program a CO line for automatic answer. This program works in conjunction with *04.32 - Automatic CO Answer Start Time* and 04.33 - Automatic CO Answer Day. This item requires the use of the IX-MSGU/CMSG-1.

Programming Field Description

Trunk Automatic Answer	Meaning:	Trunk Logical Port Number
	Range:	1-1024 (Trunk maximum)
Auto Answer Line	Meaning:	Program lines as automatic answer lines.
	Range:	No - not an automatic answer line Yes - automatic answer line
	Default:	No

Related Databases:

Required: 04.14 - Automatic CO Answer; 04.32 - Automatic CO Answer Start Time; 04.33 - Automatic CO Answer Day; 11.45 - Auto Answer Message 1; 11.46 - Auto Answer Message 2.

Associated: 04.20 - VSS Recording Time; 11.16 - Centrex Flash Time (Short Flash); 11.17 - Ring Interval Time.

Hardware Required:

IX-8UNTK, IX-408, IX-8LGTK, IX-MSGU, (IX-CMSG/IX-CMSG-1 for custom messages).

11.25 - DISA Line

Class 11 Item 25 - DISA Line is used to program CO lines as DISA lines to provide Direct Inward System Access service to incoming calls.

Conditions

- DISA calls require DTMF receivers regardless of the type of trunk - digital (IX-T1DTI) or analog (IX-8LGTK).
- If the DTMF receiver circuits are busy or not programmed and attendant intercept is enabled, the call will ring at the attendant as a recall in day or night mode. If it is not enabled, the call will follow day/night mode DIL ringing but delayed ringing will not occur.
- If a doorphone is dialed through DISA, the doorphone will lock-up.
- A DISA caller dialing a hunt group in which all members are busy will receive the following message: "The station you have dialed is now busy." The call will recall to a true attendant (04.55 - Port Definition - True Attendant Position) fifteen seconds after the message has played. If attendant intercept is not enabled, the call is disconnected after fifteen seconds.

Programming Field Description

Element Field:	Meaning:	Select the trunk logical port number using the DSS buttons.
	Range:	1-1024 (station maximum)
Data Field:	Meaning:	Program lines as DISA lines.
	Range:	No - not a DISA line Yes - DISA line
	Default:	No

Related Databases:

Required: 01.04 Port Configuration; 04.15 Attendant DIL Intercept; 04.39 DISA-ICM Call; 04.40 DISA-Paging Call; 04.41 DISA-Waiting Time; 04.42 DISA-Total Duration; 10.06 DISA Service; 11.26 Attendant Intercept Line; 11.47 DISA Virtual Station.

Associated: 04.20 VSS Recording Time; 10.02 Station Numbering; 10.05 Station Password; 11.19 Disconnect Signal; 11.48 DISA Message Number.

Hardware Required:

IX-RCVPM with IX-4RCVC, or IX-RMPU (IX-4ETRAN if loop disconnect signal is not provided), IX-MSGU, (IX-CMSG/IX-CMSG for custom messages).

11.26 - Attendant Intercept Line

Class 11 Item 26 - Attendant Intercept Line is used to enable *attendant intercept* of unanswered incoming calls on CO lines. When CO lines are enabled for attendant intercept, unanswered calls on the line will ring at the attendant position after the time set in *Class 04.15 - Attendant DIL Intercept* has elapsed. This feature is disabled when the system is in night mode. Incoming CO calls that do not have a night ringing assignment are forwarded to the primary station.

ECS software version 8.0 extends the Attendant Intercept operation to incoming PRI/BRI calls as well as, incoming T1 ANI/DNIS calls.

The Attendant Intercept feature allows an outside call to be directed to ring at an attendant position if the call goes unanswered, if transferred to a non existent extension, or if a call reaches an extension in the DND (Do Not Disturb) mode. If a call is transferred to a non existent extension the [Recall Answer] key LED will light on the attendant station.

The Attendant Intercept feature changes the Attendant Intercept Line attribute default from Disable to Enable. This change enables incoming PRI/BRI calls to a busy VM/AA or station to be answered by an attendant.

Note:	Regardless of the programming in this item, calls will recall the attendant after the hold recall timer (Class 04.08) and attendant DIL intercept timer (Class 04.15) have elapsed. DID calls to a UCD group in DND will forward to the attendant regardless of the programming in this item. The ATT Intercept feature is not valid when a system or trunk group is in Night Mode.

Programming Field Description

Trunk DISA	Meaning:	Trunk Logical Port Number
	Range:	1-1024 (Trunk maximum)
DISA Line	Meaning:	Program lines as attendant intercept lines.
	Range:	Disable - not an attendant intercept line Enable - attendant intercept line
	Default:	Enable

Related Databases:

Required: 04.15 - Attendant DIL Intercept.

Associated: 04.08 - Hold Recall Timer; 04.12 - Camp-On Duration; 04.13 - Call Forward - No Answer; 04.16 - Delayed Ringing Timer.

Note:	If you have upgraded your ECS system from a previous software version to version 8.0 and have uploaded a converted database to the system, you will need to manually change this parameter from Disable to Enable.

11.27 - Universal Night Answer (UNA) Line

Class 11 Item 27 - Universal Night Answer (UNA) Line is used to program lines for universal night answer. The CO lines assigned for UNA in Class 11.27 can be picked up by UNA operation while the system is in night mode.

Programming Field Description

Trunk Line Attribute	Meaning:	Trunk Logical Port Number
	Range:	1-1024 (Trunk maximum)
UNA Line	Meaning:	Program lines as UNA lines.
	Range:	No - not a UNA line Yes - UNA line
	Default:	Yes

Related Databases:

Required: None.

Associated: 07.06 - Feature Access Numbers: 46; 11.28 - Universal Night Answer (UNA) Relay Number; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment

Hardware Required:

IX-MISC, IX-EDVIF, IX-EDCTU, Trunk Cards.

11.28 - Universal Night Answer (UNA) Relay Number

Incoming calls on the CO lines assigned as UNA lines will energize the relays assigned in **Class 11 Item 28 - Universal Night Answer (UNA) Relay Number** to operate external loud ringers while the system is in night mode. These relays must also be programmed as UNA Relays in 04.37 - Miscellaneous Function.

Programming Field Description.

Trunk Ringing Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
UNA Relay No	Meaning:	Relay number.
	Range:	0 = no relay operation 1-32
	Default:	0

Related Databases:

Required: 01.03 Port Definition; 04.35 - Miscellaneous Function Port; 04.37 - Miscellaneous Function; 11.27 - Universal Night Answer (UNA) Line.

Associated: 07.06 - Feature Access Numbers: 46; 11.28 - Universal Night Answer (UNA) Relay Number; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment

Hardware Required:

IX-MISC, IX-EDVIF, IX-EDCTU.

11.29 - SMDR Report

Class 11 Item 29 - SMDR Report is used to program the CO lines which will be included in the SMDR information printout. The SMDR printout will only include call information for calls on CO lines which are enabled in this item.

Programming Field Description

Trunk SMDR	Meaning:	Trunk Logical Port Number
	Range:	1-1024 (Trunk maximum)
SMDR Report	Meaning:	Program lines included on the SMDR report.
	Range:	No - line not included in SMDR report Yes - line is included in SMDR report
	Default:	Yes

Related Databases:

Required: 04.50 - SMDR - Output Port; 10.18 - SMDR Report.

Associated: 04.51 - SMDR - Minimum Call Duration; 04.52 - SMDR - Incoming Call Report; 04.53 - SMDR - Toll Only Report; 04.54 - SMDR - Account Code Only; 06.07 - Toll Restriction - SMDR Table.

Hardware Required:

IX-SCIF, IX-EDVIF, IX-HCIF.

11.30 - Ringing Method

Class 11 Item 30 - Ringing Method is used to program the type of system extensions that are allowed to ring when there is an incoming call on the selected line.

- When the system goes into the night mode, the ringing method is Both only.
- When a line is assigned as Attendant in Ringing Mode, delayed ringing is not activated.
- When a line is assigned as a DISA, DID or DND override ringing line, the ringing Method is meaningless.
- Regardless of the ringing method assigned here, 11.30 - Ringing Method must also be programmed.
- When a line is assigned as Attendant, the attendant station is the only station programmed as a ringing station in 11.32 - Ringing Station that will ring.
- When a line is assigned as Any station, all of the stations programmed as ringing stations in 11.32 - Ringing Station will ring except for the attendant.
- When a line is assigned as Both, all extensions programmed as ringing stations in 11.32 - Ringing Station will ring.
- Do not assign as Attendant when using hunt groups.

Programming Field Description

Element	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Data Field:	Meaning:	Define the ringing method.
	Range:	Attendant Both Any station except attendant
	Default:	Both

Related Databases:

Required: 11.32 - Ringing Station.

Associated: 11.22 - Do Not Disturb (DND) Override CO Ringing; 11.25 - DISA Line; 11.33 - Delayed Ringing Station.

11.31 - Ringing Tone

Class 11 Item 31 - Ringing Tone is used to program the ringing tone for each CO line. One of the four tones listed below can be selected for incoming ringing at stations:

Tone	Duration
Ring 1	1 second on, 3 seconds off.
Ring 2	0.8 seconds on, 0.2 seconds off, 0.2 seconds on, 3 seconds off.
Ring 3	0.4 seconds on, 0.2 seconds off, 0.4 seconds on, 3 seconds off.
MOH	Continuous

Programming Field Description

Trunk Call Processing	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Ringing Tone	Meaning:	Define the ringing tone.
	Range:	Ring 1 Ring 2 Ring 3 MOH
	Default:	Ring 1

Related Databases:

Required: None.

Associated: 11.32 - Ringing Station; 11.33 - Delayed Ringing Station.

Hardware Required

IX-MISC/IX-EDCTU, IX-EDVIF, IX-CPU16M (for Music on Hold), IX-CCU.

11.32 - Ringing Station

Class 11 Item 32 - Ringing Station is used to program the station(s) that will ring on a CO line. A maximum of sixteen stations can be registered to receive incoming ringing for each CO line. An additional sixteen stations can be programmed as *delayed ringing stations* in 11.33 - Delayed Ringing Station. For sixteen additional ringing stations, the value in *04.16 - Delayed Ringing Timer* must be set to **0 - no delayed ringing**. The Ringing Station has priority over data set in 11.34 - Direct In Line (DIL) to Hunt Group. We do not recommend that you program Voicemail Access Numbers as ringing stations.

Note:	When 11.30 - Ringing Method is programmed as Attendant, the logical port number of the attendant must also be programmed as a ringing station in this item. UCD does not work in the night mode. Iwatsu ICON Series self-labeling key name change is not supported with Multiple Ringing Mode.

Programming Field Description

Trunk Ringing Station	Meaning:	Trunk Logical Number
	Range:	1-1024 (Trunk maximum)
Ringing Mode	Meaning:	Toggle between Day1, Day2, Day3, or Night modes (radio buttons on top of screen).
	Range:	Day1 Ringing Day2 Ringing Day3 Ringing Night Ringing
Ringing Station Number	Meaning:	Define up to sixteen stations as ringing station/non-ringing station.
	Range:	Station logical 1-1024
	Default:	None

Related Databases:

Required: 11.30 - Ringing Method; 11.31 - Ringing Tone.

Associated: 10.22 - Incoming CO Access Group; 10.35 - Off-Hook CO Answering; 10.43 - Off-Hook Signaling; 11.22 - Do Not Disturb (DND) Override CO Ringing; 11.26 - Attendant Intercept Line; 11.33 - Delayed Ringing Station; 11.34 - Direct In Line (DIL) to Hunt Group; 11.43 - Incoming CO Access Class. Class 25.08 - Trunk Group Number for Group Ringing Mode.

Hardware Required

Any Trunk Card, Any Station Card.

11.33 - Delayed Ringing Station

Class 11 Item 33 - Delayed Ringing Station is used to program the stations that will receive delayed ringing for each CO line. An incoming call on the line will ring at the primary stations assigned in 11.32 - Ringing Station, until the time set in 04.16 - Delayed Ringing Timer has elapsed. Then the call will begin ringing at the delayed ringing stations as well as the primary stations with an incoming alarm tone ringing signal. The delayed ringing assignment remains the same for both day and night modes.

Programming Field Description

Trunk Ringing Station	Meaning:	Trunk Logical Number
	Range:	1-1024 (Trunk maximum)
Ringing Station Number	Meaning:	Define up to sixteen stations as ringing station/non ringing station.
	Range:	Station logical 1-1024
	Default:	None

Related Databases:

Required: 04.16 - Delayed Ringing Timer; 11.30 - Ringing Method; 11.31 - Ringing Tone; 11.32 - Ringing Station.

Associated: 04.15 - Attendant DIL Intercept; 11.26 - Attendant Intercept Line; 11.34 - Direct In Line (DIL) to Hunt Group.

Hardware Required

Any Trunk Card, Any Station Card.

11.34 - Direct In Line (DIL) to Hunt Group

Class 11 Item 34 - Direct In Line (DIL) to Hunt Group is used to program incoming calls on a CO line to ring at the stations in a hunt group. A line may not be programmed for both DIL to a hunt group in Direct In Line (DIL) to Hunt Group and specific station(s) ringing in 11.32 - Ringing Station at the same time.

CO lines assigned as **Attendant** in 11.30 - Ringing Method cannot be used for DIL to a hunt group regardless of the programming for this item. If a CO line is programmed as an attendant intercept line in 11.26 - Attendant Intercept Line, and the time programmed in 04.15 - Attendant DIL Intercept has elapsed, the hunt call will end. The incoming call will then change to an *attendant recall*.

Note:	UCD does not work in the night mode. Iwatsu ICON Series self-labeling key name change is not supported with Multiple Ringing Mode.

Programming Field Description

Trunk Call Processing	Meaning:	Select the trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Day1: DIL to Hunt Grp	Meaning:	Hunt group used for Day1 mode
	Range:	0 = No Hunt Group 1-250
	Default:	0
Day2: DIL to Hunt Grp	Meaning:	Hunt group used for Day2 mode
	Range:	0 = No Hunt Group 1-250
	Default:	0
Day3: DIL to Hunt Grp	Meaning:	Hunt group used for Day3 mode
	Range:	0 = No Hunt Group 1-250
	Default:	0
Night: DIL to Hunt Grp	Meaning:	Hunt group used for Night mode
	Range:	0 = No Hunt Group 1-250
	Default:	0

Related Databases:

Required: 04.21 - Hunting Time; 04.38 - Hunting Method in CO Line Group; 07.02 - Hunting Group Access Numbers; 08.01 - Hunt Group - Type; 08.02 - Hunt Group - Station; 11.32 - Ringing Station.

Associated: 04.15 - Attendant DIL Intercept; 08.03 - Hunt Group - ID; 08.05 - UCD Hunt Group; 11.26 - Attendant Intercept Line; 11.30 - Ringing Method Class 25.08 - Trunk Group Number for Group Ringing Mode.

Hardware Required

Any Trunk Card, Any Station Card.

11.35 - Loud Ringer Relay Number

Class 11 Item 35 - Loud Ringer Relay Number is used to program a loud ringer relay to activate when there is an incoming call on a CO line. The relay number assigned here must be programmed as a loud ringer in 11.37 - Forced Release Condition.

Programming Field Description

Trunk Ringing Parameter	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Loud Ringer Relay Number	Meaning:	Relay number.
	Range:	0-32
	Default:	0

Related Databases:

Required: 01.03 Port Definition; 04.35 - Miscellaneous Function Port; 04.37 - Miscellaneous Function.

Associated: None.

Hardware Required:

IX-MISC, IX-EDVIF, IX-EDCTU.

11.36 - (Not Used)

Class 11 Item 36 - Distinctive Ringing Detect is not used.

11.37 - Forced Release Condition

Class 11 Item 37 - Forced Release Condition is used to define the *tip and ring* condition when a CO line is forced-released by the attendant. Consult your local telephone company if the data is set to **Loop Close** - make busy. (In most cases this will make busy the circuit to incoming CO calls.)

Programming Field Description

Trunk Other Features	Meaning:	Select the trunk logical port number.
	Range:	1-1024 (Trunk Logical)
Forced Rel. Condition	Meaning:	Toggle between loop open/loop close.
	Range:	Loop Open Loop Close
	Default:	Loop Closed

Related Databases:

Required: None.

Associated: 11.38 - Outgoing CO Group

Hardware Required:

Any Trunk Card, IX-DSS-A.

11.38 - Outgoing CO Group

Class 11 Item 38 - Outgoing CO Group is used to define the *floating CO line* groups for each CO line. There is no limit to the number of CO lines that can be included in one CO line group. This item is also used for remote CO forwarding. This feature is not available for KF registered systems. Outgoing CO Group establishes the CO groups which become the route choice selection in the route tables (17.06 - Route Table) contained in optimized routing.

Note:	A system reset is required to accurately reflect the correct FLT-NNN indication. A system reset is not necessary if a system has only FLT-000 (Optimized) keys.

Programming Field Description

Trunks	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Outgoing CO Grp	Meaning:	Outgoing CO group number.
	Range:	1-250
	Default:	1

Related Databases:

Required: None.

Associated: 04.38 - Hunting Method in CO Line Group; 04.44 - Remote CO Forward Outgoing Group; 05.01 - System Speed Dial - Number; 07.03 - CO Line Group Access Numbers; 10.09 - Prime Line Access; 11.21 - Prime Line; Class 12 Station Speed Dial - 1; Class 17 Optimized Routing.

Hardware Required:

Any Trunk Card.

11.39 - Incoming CO Group

Class 11 Item 39 - Incoming CO Group is used to define the *incoming CO line* group for each CO line. There is no limit to the number of CO lines that can be included in one CO line group. These groups are only used for remote CO forwarding.

Note:	DID trunks should be programmed in this item along with 11.38 - Outgoing CO Group to ensure that incoming DID calls will terminate to dedicated [FLT n] keys. Group night also uses this item to separate ringing.

Programming Field Description

Trunk	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Incoming CO Grp	Meaning:	Incoming CO group number.
	Range:	1-250
	Default:	1

Related Databases:

Required: 04.43 - Remote CO Forward Incoming Group.

Associated: 04.44 - Remote CO Forward Outgoing Group.

11.40 - Toll Restriction Group Number

Class 11 Item 40 - Toll Restriction Group Number is used to assign each CO line to a group that is referenced by the ECS toll restriction feature. The toll restriction group number works in conjunction with the toll restriction class programmed for each station in 10.23 - Toll Restriction Level and Class to configure the 06.01 - Toll Restriction Table.

Programming Field Description

Trunk Restriction Attribute	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Toll Restr Grp No	Meaning:	Toll restriction group number.
	Range:	0-32
	Default:	0

Related Databases:

Required: 06.01 - Toll Restriction Table; 06.02 - Toll Restriction - Plan Table; 06.03 - Toll Restriction - Dial Table; 06.04 - Toll Restriction - Predial; 06.05 - Toll Restriction - Allow List; 06.06 - Toll Restriction - Deny List; 10.23 - Toll Restriction Level and Class.

Associated: 10.25 - System Speed Toll Restriction.

11.41 - Predial Group Number

Class 11 Item 41 - Predial Group Number must be programmed for all CO lines which are PBX lines or tie lines. Each CO line group listed here must be identified with the predial in order to apply the toll restriction correctly. If this data is not registered for each line assigned as a PBX line or tie line in *Class 01.11 - Port Definition*, the predial data entered in 06.04 - Toll Restriction - Predial will not be considered in determining the toll restriction.

There are two data entries for this Item. PreDial Grp No (Group) is the *predial group number*. PreDial Grp No (Call Level) corresponds to the outgoing call level for that line. It is related to the outgoing call level assigned to the station in 10.23 - Toll Restriction Level and Class. The outgoing call level assigned in 10.23 - Toll Restriction Level and Class must be lower than or equal to the call restriction level programmed for the line in PreDial Grp No (Call Level) of Predial Group Number to permit dialing of outgoing calls. If the station's outgoing call level is higher than the outgoing call level assigned to the line, the station will not be allowed to make any outgoing calls on the line.

Programming Field Description

Trunk Restrictive Attribute	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
PreDial Grp No (Call Level)	Meaning:	Predial group level.
	Range:	0-15
	Default:	0
PreDial Grp No (Group)	Meaning:	Predial group.
	Range:	0-15
	Default:	0

Related Databases:

Required: 01.11 Port Definition; 01.11 Port Configuration; 06.01 - Toll Restriction Table; 06.02 - Toll Restriction - Plan Table; 06.03 - Toll Restriction - Dial Table; 06.04 - Toll Restriction - Predial; 06.05 - Toll Restriction - Allow List; 06.06 - Toll Restriction - Deny List; 10.23 - Toll Restriction Level and Class.

Associated: 06.07 - Toll Restriction - SMDR Table; 10.25 - System Speed Toll Restriction.

11.42 - Equal Access Group Number

Class 11 Item 42 - Equal Access Group Number is used to define the equal access group number for each CO line. Based on this data, when a station performs *automatic equal access outgoing dialing*, the system automatically determines what equal access code is used.

Programming Field Description

Trunk Restrictive Attribute	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Equal Access Grp No	Meaning:	Equal access group number.
	Range:	1-4
	Default:	1

Related Databases:

Required: 06.08 - Toll Restriction - Equal Access Dial Table; 06.09 - Toll Restriction - Equal Access Pin Code; 06.10 - Toll Restriction - Equal Access Pin Position; 06.11 - Toll Restriction - Equal Access Prefix Table; 06.12 - Toll Restriction - Equal Access CO Line Group; 10.31 - Equal Access.

Associated: None.

Hardware Required:

Any trunk card.

11.43 - Incoming CO Access Class

Class 11 Item 43 - Incoming CO Access Class is used to program the *incoming access restriction level* for each line. A unique incoming access restriction is programmable for both the day and night modes.Class 11.43 is used to program the restriction for both incoming and outgoing calls.

Number	Restriction
0	Unrestricted Any station in any access group can access the line.
1	Restriction Level 1 A station in the line access group can access the line. Stations outside of the access group cannot pick-up incoming calls and calls on hold on the line.
2	Restriction Level 2 Stations outside of the line access group cannot pick-up incoming calls or barge into the line, but can pick-up a transferred calls and calls on hold.
3	Restriction Level 3 The access restrictions are the same as Level 2, however, there is only a solid LED indication provided when the line is accessed by stations outside of the access group.
4	Restriction Level 4 Deny recalls and outgoing calls on the line.

See *Chapter 3 - Incoming CO Access Restriction* for more information on access restriction.

Programming Field Description

Log #	Meaning:	Trunk logical port number.
	Range:	1-1024 (station maximum)
Trunk Logical Port Day	Meaning:	Restriction level of the trunk logical port in day mode
	Range:	0-4
	Default:	0
Trunk Logical Port Night	Meaning:	Restriction level of the trunk logical port in night mode
	Range:	0-4
	Default:	0

Related Databases:

Required: 10.22 Incoming CO Access Group; 11.44 Access Group Number.

Associated: 11.32 Ringing Station; 11.33 Delayed Ringing Station; 11.34 Direct In

Hardware Required:

Any Trunk Card.

11.44 - Incoming Restrictions

Class 11 Item 44 - Incoming Restrictions is used to program each incoming CO access group (*Class 10.22*) as either *access restricted* or *unrestricted* on each CO line. If a station belongs to a CO access group which is access restricted in this item, the system will determine the level of restriction according to the value programmed for the line in *Class 11.43 - Incoming CO Access Class*.

Programming Field Description

Element	Meaning:	Trunk logical port number.
Field:	Range:	1-1024 (trunk logical; listed as rows in the programmer)
Data Field:	Meaning:	Us the check/uncheck for restriced unrestricted access.
	Range:	Unchecked - access restricted Checked - access unrestricted
	Default:	Checked

Related Databases:

Required: 10.22 Incoming CO Access Group; 11.43 Incoming CO Access Class.

Associated: None.

Hardware Required:

Any trunk card.

11.45 - Auto Answer Message 1

Class 11 Item 45 - Auto Answer Message 1 is used to program the message that is played to an outside party when a CO line call is answered automatically at level 1 (04.32 - Automatic CO Answer Start Time). The tables below list the message numbers corresponding to Class 11.45 data field:

Auto Answer Message Number	VSS Message Number
0	06
1	07
2	08
3	09

VSS Message Numbers 06-09
Our offices are now closed. Please call again during our regular business hours. Thank you.

Programming Field Description

Trunk Automatic Answer	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Auto Answer MSG 1	Meaning:	Message number.
	Range:	0-3
	Default:	0

Related Databases:

Required: 04.32 - Automatic CO Answer Start Time; 04.33 - Automatic CO Answer Day; 11.24 - Automatic Answer Line.

Associated: 04.20 - VSS Recording Time; 11.46 - Auto Answer Message 2; 15.01 - Attendant Key Assignment.

Hardware Required:

IX-MSGU (IX-CMSG/IX-CMSG-1 for custom messages).

11.46 - Auto Answer Message 2

Class 11 Item 46 - Auto Answer Message 2 is used to program the message that is played to an outside party when a CO line call is answered automatically at level 2 (11.33 - Delayed Ringing Station). The tables below list the message numbers corresponding to Auto Answer Message 2 data field entry:

Auto Answer Message Number	VSS Message Number
0	10
1	11
2	12
3	13

VSS Message Numbers 10-13
Our offices are closed today. Please call again during our regular business hours. Thank you.

This is an example of a prerecorded message in Station >>VSS record Time (04.20)

Programming Field Description

Trunk Automatic Answer	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk Logical)
Auto Answer MSG 2	Range:	0-3
	Default:	0
	Meaning:	Message number.

Related Databases:

Required: 04.14 - Automatic CO Answer; 04.32 - Automatic CO Answer Start Time; 04.33 - Automatic CO Answer Day; 11.24 - Automatic Answer Line.

Associated: 04.20 - VSS Recording Time; 11.45 - Auto Answer Message 1; 15.01 - Attendant Key Assignment.

Hardware Required:

IX-MSGU (IX-CMSG/IX-CMSG-1 for custom messages).

11.47 - DISA/T1 E&M Virtual Station

Class 11 Item 47 - DISA/T1 E&M Virtual Station is designed to assign virtual station class of service to DISA trunk logical ports for non-subscriber DISA access. This item does not affect subscriber access to DISA. The purpose of this program is to provide "dummy" class of service (i.e. limited) access to DISA operations. The virtual extension numbers assigned in this item do not represent actual system extensions. They are assigned for the specific reason of assigning access rights to DISA services for DISA callers.

The DISA/T1 E&M Virtual Station is also used to assign virtual logical port numbers for T1 circuits configured as E&M tie lines. The IX-DTI-T card references this logical port number for toll restriction and outgoing restriction.

Unused circuits on the following cards can be assigned as DISA or T1 E&M virtual stations:

- IX-4SUBL Card
- IX-4DITK Card

Note: This item can also be used to control dialing from remote network stations.

Programming Field Description

Trunk DISA	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
DISA Virtual Station	Meaning:	Virtual station logical port number.
	Range:	1-1024 (station maximum) 0 = none
	Default:	1

Related Databases:

Required: 01.03 Port Definition; 04.39 - DISA ICM Call; 04.40 - DISA Paging Call; 04.41 - DISA Waiting Time; 04.42 - DISA: Total Duration; 10.06 - DISA Service; 11.25 - DISA Line.

Associated: 10.02 - Station Numbering; 10.05 - Station Password; 11.48 - DISA Message Number.

Hardware Required:

IX-RCVPM with IX-4RCVC, or IX-RMPU.

11.48 - DISA Message Number

Class 11 Item 48 - DISA Message Number is used to define the message that is played when a call is answered on a DISA line. The table below lists the message numbers corresponding to DISA Message Number data field entry:

Note: DISA callers must dial [#][#] to break or halt the message playback in order to dial their access codes. There is also a DISA short-cut operation (04.70 - Programming Reserve 1*:* Short Cut Operation). This program, when enabled, allows DISA callers to dial their access codes without first dialing [#][#].

DISA Message Number	Message
0	DISA dial tone.
1	This is the Direct Dial-In Service. If you are calling from a touchtone telephone and know the party's extension number, please dial it after the tone. If you need assistance, please stay on the line and an operator will assist you.
2	This is the Direct Dial-In Service. If you are calling from a touchtone telephone and know the party's extension number, please dial it after the tone. We are sorry, but no collect calls can be accepted. If you need assistance, please stay on the line and an operator will assist you.
3	Single-frequency tone.

Programming Field Description

Trunk DISA	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Data Field:	Meaning:	DISA message number.
	Range:	0-3 (see description above)
	Default:	1

Related Databases:

Required: 04.39 - DISA ICM Call; 04.40 - DISA Paging Call; 04.40 - DISA Paging Call; 04.42 - DISA: Total Duration; 10.06 - DISA Service; 11.25 - DISA Line.

Associated: 04.20 - VSS Recording Time; 04.70 - Programming Reserve 1: Short Cut Operation; 10.05 - Station Password; 15.01 - Attendant Key Assignment.

Hardware Required:

IX-MSGU (IX-CMSG/IX-CMSG-1 for custom messages).

11.49 - (Not Used)

Class 11 Item 49 - DIL Line is not used.

11.50 - (Not Used)

Class 11 Item 50 - Ring Through Page is not used.

11.70 - Call Coverage Trunk

Class 11 Item 70 - Call Coverage Trunk contains two element fields. The first element field is used to identify the trunk logical port number. The second element field is used for the following programming items:

Field Name	Description
Call Coverage Line	Call Coverage Line is used to program which CO lines are subject to the *call coverage* feature. If call coverage is enabled, an incoming call on this line is indicated at any extension with a Call Coverage key for the station at the which the call is ringing.
Forced Acct Line	Forced Account Code is used to program which CO lines are subject to the *forced account code* feature. When a station that is programmed as a *forced account code station* in 10.73 - Programming Reserve attempts to make an outgoing call from the specified CO line, the station user is forced to enter an account code to complete the call. Note: The telephone numbers listed in 04.78 - Programming Reserve 9*:* Emergency Dial Table are not subject to forced account code entry.
NSF Incoming	Network Specific Facilities is used for ISDN PRI.
Tie Line SMDR	Enable/Disable Extension Information is used to determine in an ECS network configuration whether the remote extension information is sent to SMDR for a CO call.
Remote Trunk PKT	Enable/Disable Trunk Packet is used to determine in an ECS network configuration whether trunk information is sent when a remote station is set to forward to voice mail.
ISDN Coding	ISDN Numbering Option is used for areas where switch types force customer provided equipment (CPE) to code Calling Party Number Information Elements and Called Party Number Information Elements in setup messages rigidly to initiate outbound calls on ISDN trunks. In these areas, the Type of Number and Numbering Plan in the Calling Party Number or Called Party Number Information Elements must be coded depending on the *numbers* instead of unknown numbering plan.
ENUM Format	ENUM programming is a one bit data field and if the value is set to 1 (ENUM), the ECS system software will add a '+" sign to the head of dial strings for the outgoing calls. ECS software version 8.0 will accept ENUM (E.164 NUmber Mapping ENUM) formatted dial numbers in the user part of a request Uniform Resource Identifier (URI), From and To header. Inbound Accepted Characters - All alpha characters and the '+' sign (ASCII code 0x2B) are acceptable. All numeric characters (0-9) that were supported on previous software versions are also accepted.

Programming Field Description

Trunk Logical Port	Meaning:	Trunk logical port number.
	Range:	001-1024 (Trunk maximum)
Field Name		
Call Coverage Line	Range:	No = trunk is not subject to call coverage Yes = trunk is subject to call coverage
	Default:	No
Forced Acct Line	Range:	No = forced account code is not required for trunk Yes = forced account code is required for trunk
	Default:	No
NSF Incoming	Range:	
	Default:	
Tie Line SMDR	Range:	No = no remote extension information sent Yes = remote extension information sent to SMDR
	Default:	No
Remote Trunk PKT	Range:	Yes = send packet No = no packet
	Default:	No
ISDN Coding	Range:	0 = ECS software codes the Type of Number and Numbering Plan area in the Calling Party Number and Called Party Number Information Element in setup messages for outbound calls as Unknown Numbering Plan 1 = Optional, the ECS software codes the Type of Number and Numbering Plan area in the Calling Party Number Information Element and Called Party Number Information Element in setup messages for outbound calls by the following. Called Party Number (Destination Phone Number) Calling Party Number (CNIS data)
	Default:	0
ENUM Format	Range:	None or Add “+” sign to calling / called number ENUM programming is a one bit data field and if the value is set to 1 (ENUM), the ECS system software will add a '+" sign to the head of dial strings for the outgoing calls. ECS software version 8.0 will accept ENUM (E.164 NUmber Mapping ENUM) formatted dial numbers in the user part of a request Uniform Resource Identifier (URI), From and To header. Inbound Accepted Characters - All alpha characters and the '+' sign (ASCII code 0x2B) are acceptable. All numeric characters (0-9) that were supported on previous software versions are also accepted.
	Default:	None

Related Databases:

Required: 04.25 - Calls for Pickup (Elements 1 - 4): Call Duration Unit; 04.50 - SMDR - Output Port.

Associated: 04.52 - SMDR - Incoming Call Report; 04.53 - SMDR - Toll Only Report; 04.54 - SMDR - Account Code Only; 06.07 - Toll Restriction - SMDR Table; 10.18 - SMDR Report; 11.06 - Inter-Digit Time; 11.13 - Sender Time Out; 11.29 - SMDR Report.

Call Coverage: 04.70 - Programming Reserve 1: Call Coverage Camp on Indication; 04.71 - Call Coverage/Voice Mail Data; 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Forced Account Code: 04.71 - Call Coverage/Voice Mail Data; 04.78 - Programming Reserve 9: Emergency Dial Table; 10.73 - Programming Reserve.

11.72 - UCD Overflow Calls

Class 11 Item 72 - UCD Overflow Calls contains two element fields. The first element field is used to identify the trunk logical port number. The second element field is used for the following programming items:

E911 Attribute indicates whether a trunk on the IX-EMTK card that is connected to the Telident STS unit is the primary or secondary circuit to be used for Enhanced 911 service. This item is required for enhanced 911 service.

When 911 is dialed from a system extension, the call will be first routed using the IX-EMTK trunk programmed as the primary circuit in this item. If after routing a 911 call using the primary trunk, the system does not receive wink back from the Telident STS within the time programmed in 04.71 - Call Coverage/Voice Mail Data:Call Wink Time-out (sec).

UCD Overflow Calls only applies to CO lines designated as UCD lines in 11.23 - Uniform Call Distribution (UCD) Line. If no overflow destination is assigned in this item, once the time programmed for UCD overflow has elapsed, the call will ring according to the delayed ringing assignment programmed for the line in 11.33 - Delayed Ringing Station. If no delayed ringing assignment is programmed, the line will recall the attendant if it has been enabled in 04.15 - Attendant DIL Intercept for attendant DIL intercept.

Programming Field Description

Trunk Other Features	Meaning:	Station logical port number.
	Range:	1-1024
E911 Trunk	Meaning:	E911 Attribute.
	Range:	Normal Primary Secondary
	Default:	Normal

Related Databases:

Required: 01.03 Port Definition; 01.04 Port Configuration; 04.20 - VSS Recording Time; 04.34 - UCD Answer Time; 04.70 - Programming Reserve 1: E911 Outgoing Type; 04.71 - Call Coverage/Voice Mail Data: E911 Relay Number; 04.71 - Call Coverage/Voice Mail Data: E911 FAIL Rely Number; 04.71 - Call Coverage/Voice Mail Data: E911 Special Trunk Group; 04.71 - Call Coverage/Voice Mail Data: E911 CAMA Wink Timer; 04.72 - Programming Reserve 3: E911 Inf. Port; 07.02 - Hunting Group Access Numbers; 08.02 - Hunt Group - Station; 10.73 - Programming Reserve: E911 Area Routing Trunk Group; 11.32 - Ringing Station; 11.43 - Incoming CO Access Class; 11.72 - UCD Overflow Calls: E911 Attribute; 15.01 - Attendant Key Assignment; 17.18 - Emergency Bypass Number: Emergency Specific Code; 29.10 - Emergency Send Dial.

Associated: 04.21 - Hunting Time; 08.01 - Hunt Group - Type; 08.02 - Hunt Group - Station; 11.33 - Delayed Ringing Station.

Related Operation:

Uniform Call Distribution.

11.73 - Reserve 4

Class 11 Item 73 supports ISDN. The function of each element is explained below:

Field	Description
Short Flash Detection Timing	Short Flash Time is used to define the *on-hook* duration and *guard time* for automatic *hookswitch flash* by a T1 E&M tie line using the network conversion tables.
Protocol Type	ISDN Protocol Type is used to program the ISDN protocol for ISDN PRI and BRI lines. The protocol may be set as either National ISDN or Custom (DMS-100) for each CO switch type. This setting is dependent on the telephone company setting.
Delayed Hunt Grp	Set Hunt Group as Delayed Call Destination allows a hunt group (Class 8 Group Data) to be set as the delayed incoming call destination. If a call on a CO line is not answered at the ringing stations (11.32 - Ringing Station) within a programmable duration (04.16 - Delayed Ringing Timer) the hunt group in *Delayed Hunt Group* starts ringing. This feature makes it possible for you to send delayed calls to voicemail.
Network Class Service	Networking Class is used for conventional and old style networking tie lines when tandeming through an ECS system.

Programming Field Description

Trunk Logical Port Number	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Field	Meaning:	See the description above.
Short Flash Detection Timing	Meaning:	[(Hookflash time *16) + Guard time]
	Range:	0-15
	Default:	6
Protocol Type	Range:	National ISDN DMS Custom 5ESS Custom
	Default:	National ISDN
Delayed Hunt Grp	Range:	1-250 0 = no hunt group
	Default:	0
Network Class Service	Range:	0-16 (Class of Service)
	Default:	1
	Range:	2, 3, 4

Related Databases:

Required: 04.21 - Hunting Time; 04.38 - Hunting Method in CO Line Group; 07.02 - Hunting Group Access Numbers; 08.01 - Hunt Group - Type; 08.01 - Hunt Group - Type; 11.32 - Ringing Station.

Associated: 08.03 - Hunt Group - ID; 08.05 - UCD Hunt Group; 11.26 - Attendant Intercept Line; 11.30 - Ringing Method.

Short Flash Detection Timing:01.03 Port Definition

Protocol Type:01.03 Port Definition; 01.04 Port Configuration; 11.74 - ISDN Line Class: Interface ID; 11.74 - ISDN Line Class: D-Channel ID; 11.77 - ISDN Line Class SPID (1); 11.77 - ISDN Line Class SPID (2); 24.07 - ANI Enabled ISDN Trunk; 25.07 - DNIS MOH Input Port.

Delayed Hunt Grp:28.05 - Network External; 28.06 - Network Route Advance Step.

Hardware Required:

Short Flash Detection Timing:IX-DTI-T; IX-T1DTI.

Protocol TypeIX-DTI-P; IX-ICOTP; IX-4ICOTB; IX-2ICOTB.

Delayed Hunt Grp:IX-DTI-T; IX-T1DTI; IX-4EMTK.

11.74 - ISDN Line Class

Class 11 Item 74 is used for ISDN integration. The function of each element is explained below:

Field	Description
PRI Interface ID	ISDN PRI Interface ID is used to program the identification number for each PRI line when multiple ISDN PRI lines are terminated to ECS. The PRI Interface ID for each line is a number between zero and eight that is assigned by the telephone company. Programming in this item is only required when the Multi-DS1 feature is used.
D-Channel ID	Controlling D Channel is used to identify the controlling D channel when the Multi-DS1 feature is used. Enter only the first logical port number of the IX-ICOTP card followed by the controlling D channel. Programming in this item is only required when the Multi-DS1 feature is used. The controlling D channel is determined by the entry for the first trunk of each ISDN PRI line when this feature is used.

Programming Field Description

Trunk Logical Number	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Field		
PRI Interface ID	Range:	0-8
	Default:	0
D-Channel ID	Range:	0-200
	Default:	0

Related Databases:

Element 2: 01.03 Port Definition; 01.04 Port Configuration; 11.73 - Reserve 4: Delayed Hunt Group; 24.07 - ANI Enabled ISDN Trunk; 25.07 - DNIS MOH Input Port.

Hardware Required:

IX-DTI-P; IX-ICOTP

11.77 - ISDN Line Class

Class 11 Item 77 is used for ISDN BRI integration. The function of each field is explained below:

Element 2 (e2) =	Description
SPID (1)	Service Profile Identifier (SPID) 1 for ISDN BRI is used to enter the SPID number assigned by the telephone company for the first channel of the specified ISDN BRI line.
SPID (2)	Service Profile Identifier (SPID) 2 for ISDN BRI is used to enter the SPID number assigned by the telephone company for the second channel of the specified ISDN BRI line.

Programming Field Description

Trunk Logical Port Number	Meaning:	Trunk logical port number.
	Range:	1-1024 (Trunk maximum)
Field	Meaning:	ISDN BRI Channel (SPID 1)
Data Field:	Range:	0-32 digits
	Default:	blank
Field	Meaning:	ISDN BRI Channel (SPID 2)
Data Field:	Range:	0-32 digits
	Default:	blank

Related Databases:

Element 2: 01.03 Port Definition; 01.04 Port Configuration; 11.73 - Reserve 4: Delayed Hunt Group; 11.74 - ISDN Line Class: D-Channel; 24.07 - ANI Enabled ISDN Trunk.

Hardware Required:

IX-2ICOTB, IX-4ICOTB

Class 12

Station Speed Dial - 1

Use **Class 12 - Station Speed Dial - 1** to program station speed dial numbers and a station speed dial number ID for station logical ports 001 to 1024.

The following programming items are included in Class 12:

- 12.01 - Station Speed Dial -Trunk - Trunk
- 12.02 - Station Speed Dial - ID

12.01 - Station Speed Dial -Trunk

Class 12 Item 01 - Station Speed Dial - Trunk is used to set individual station speed dial numbers through database programming. Each ECS station can have ten station speed dial numbers (speed dial code numbers 90-99). Station speed dial numbers can be programmed either at the station level or using the programmer. Station speed dial number programming information using a digital key or IP telephone is as follows:

To program:	Enter this:	To get this result on the display:
a digit to be dialed	0-9, *, #	0-9, *, #
pause	[P] + [0-9]	P (0-9); meaning pause 0-9 seconds

Note: Use the [SPEAKER] key on a programming KT to register a pause.

dial alteration	[PAUSE] + [*] = P + * = [PAUSE] + [#] = P + # =	T (DP to DTMF) P (DTMF to DP)
flash	[FLASH] = FS	FS
tandem	[SPEED] + *number*	SP (other speed dial bin number)

Note: Personal Speed Bin 97 cannot be used when using I-CNIS on the ISDN trunk. The bin will not function. See 29.09 - Calling Party Number for details.

Programming Field Description

Log No	Meaning:	Station logical port number.
	Range:	1-1024
Bin No	Meaning:	Station speed dial bin number.
	Range:	90-99
Trunk Number	Meaning:	CO trunk number.
(d1):	Range:	0-250
	Default:	0
Telephone Number	Meaning:	Dial Number.
	Range:	Up to 32 digits (0 – 9, *, #, Flash, Pause and Speed Bin)
	Default:	blank

Related Databases:

Required: 11.38 - Outgoing CO Group.

Associated: 12.02 - Station Speed Dial - ID.

12.02 - Station Speed Dial - ID

Class 12 Item 02 - Station Speed Dial - ID is used to program an alphanumeric identification that is displayed on key telephones with displays when the corresponding speed dial number is accessed.

Programming Field Description

Log No	Meaning:	Station logical port number.
	Range:	1-1024
Bin No	Meaning:	Station speed dial bin number.
	Range:	90-99
Speed Dial ID	Meaning:	Alphanumeric ID.
	Range:	Up to 10 characters
	Default:	None

Related Databases:

Required: 12.01 - Station Speed Dial -Trunk.

Associated: None.

Class 13

Station Soft DSS

Use **Class 13 - Station Soft DSS** or from the Category view of the Iwatsu Programmer **Stations > More Stations > Soft DSS** to program up to 10 Direct Station Selections (DSS) for the 18i/d Platinum Series IP and Digital Key Telephone's EZDial menu feature. This programming class became available with ECS 2.0 software.

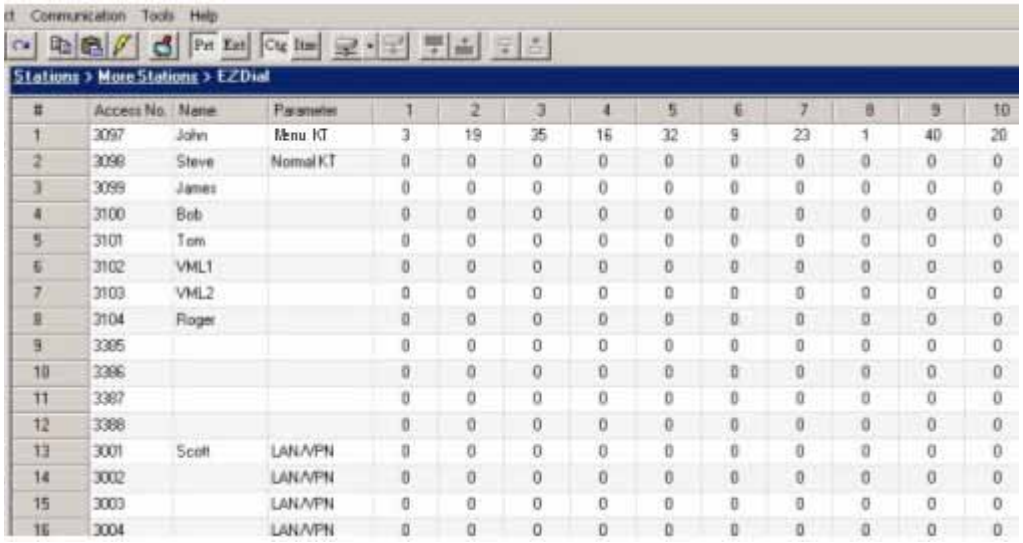
The following programming item is included in Class 13:

- EZDial Soft DSS Information.

Class 13 Item 01 - EZDial Soft DSS Information is used to program frequently used ICM extensions for an individual Platinum Series 18i/d station. Each 18i/d Platinum Series telephone station can have up to 10 EZDial Soft DSS numbers. EZDial numbers are programmed using the Iwatsu Programmer.

Note:	When a change is made to the EZDial Soft DSS information for a station, the telephone must be reset for the change to take effect.

- Soft DSS Information can be input using the station logical port number or the station extension number.
  - Select **Prt** to view/input the station logical port number.
  - Select **Ext** to view/input the station extension number.



#	Access No.	Name	Parameter	1	2	3	4	5	6	7	8	9	10
1	3097	John	Menu KT	3	19	35	16	32	9	23	1	40	20
2	3098	Steve	Normal KT	0	0	0	0	0	0	0	0	0	0
3	3099	James		0	0	0	0	0	0	0	0	0	0
4	3100	Bob		0	0	0	0	0	0	0	0	0	0
5	3101	Tom		0	0	0	0	0	0	0	0	0	0
6	3102	VML1		0	0	0	0	0	0	0	0	0	0
7	3103	VML2		0	0	0	0	0	0	0	0	0	0
8	3104	Roger		0	0	0	0	0	0	0	0	0	0
9	3385			0	0	0	0	0	0	0	0	0	0
10	3386			0	0	0	0	0	0	0	0	0	0
11	3387			0	0	0	0	0	0	0	0	0	0
12	3388			0	0	0	0	0	0	0	0	0	0
13	3001	Scott	LAN/VPN	0	0	0	0	0	0	0	0	0	0
14	3002		LAN/VPN	0	0	0	0	0	0	0	0	0	0
15	3003		LAN/VPN	0	0	0	0	0	0	0	0	0	0
16	3004		LAN/VPN	0	0	0	0	0	0	0	0	0	0

Programming Field Description

Log No	Meaning:	Station logical port number.
Access No.	Meaning:	Station extension number
Parameter	Meaning:	Station port definition (Class 01.09)
1 - 10	Meaning:	Extension or logical port number for 10 EZDial Soft DSS numbers.

Related Databases:

Required: Stations (Class 10)

Class 14

Station Flexible Key Assignment

Class 14 - Station Flexible Key Assignment which is used to program flexible key patterns for every station type except attendant positions and BLF units. Pattern numbers and default key pattern assignments are listed in the following tables:

Class 14.01

Number	Description	Station Type
001	Hybrid (PBX)	IX-24KTD-2/3 and IX-12IPKTD
002	Hybrid (PBX)	IX-12KTD-2/3 and IX-12IPKTD
003	Hybrid (PBX)	IX-VT Versa-Phone
004	Direct CO's 1-12	IX-24KTD-2/3 and IX-12IPKTD
005	Hybrid (ACD)	IX-24KTD-2/3 and IX-12IPKTD
006	Hybrid (ACD)	IX-12KTD-2/3 and IX-12IPKTD
007	Hybrid (PBX)	MKT
008	Direct CO's 1-24	ZTD
009	Direct DSS CO's 1-6	ZTD
010-100	Blank (unassigned)	Blank (unassigned)
101	IX-PS6 Omegatrek Portable Station	IX-PS6 Omegatrek Portable Station
102-1001	Blank (unassigned)	Blank (unassigned)
1002	IX-5800/IX-5900 Default	IX-5800/IX-5900 Default
1003	Square	IX-5810/IX-5910
1004	Hybrid	IX-5810/IX-5910
1005	ACD	IX-5810/IX-5910
1006	Square	IX-5930
1007	Hybrid	IX-5930
1008	ACD	IX-5930
1009-1024	Blank (unassigned)	Blank (unassigned)

1025	Attendant KT/DSS Hybrid	IX-5800, IX-12/24KTD-2/3, IX-24KTD, IX-24KTS, IX-8KTD, IX-8KTS KT + DSS unit(s)
1026	Attendant Console	IX-ATT / BLF Attendant Console
1027	Attendant KT/DSS Stand-Alone	IX-12/24KTD-2/3, IX-24KTD, IX-24KTS, IX-8KTD, IX-8KTS KT + DSS unit(s)
1028	Attendant KT/DSS Squared (Direct CO's)	IX-12KTD-2, IX-12KTS-2 Digital Telephones (SATT)
1029	Attendant Square	IX-5810/IX-5910
1030	Attendant Hybrid	IX-5810/IX-5910
1031	Attendant ACD	IX-5810/IX-5910
1032	Attendant Square	IX-5930
1033	Attendant Hybrid	IX-5930
1034	Attendant ACD	IX-5930
1035-1056	Unassigned Attendant patterns	

14.01 - Key Assignment

Class 14 Item 01 - Key Assignment is used to generate and edit the station flexible key patterns used by IP telephones, key telephones, Omegatrek Portable Stations, ZT-D telephones and Versa-Phones. The patterns generated here must be assigned to each individual station in 10.12 - Key Assignment. Data for key programming is provided in the tables on the next few pages.

Note:	If you are creating a new key pattern based on the default pattern (1), you must first copy the default pattern to the number you have designated for the new key pattern.
Note:	The following program is recommended when using IX-COMLINK: Key Pattern (10.12 - Key Assignment, 14.01 - Key Assignment, 15.01 - Attendant Key Assignment) — key 25=Speaker, key 26=Transfer, key 27=Feature, key 28=Hold/DND. Also recommended for some applications are ICM, SPEED and ADD.

Programming Field Description

Element	Meaning:	Key pattern.
Field 1 (e1):	Range:	001-1024
Element	Meaning:	Key number.
Data Field 1	Meaning:	Key function.
(d1):	Range:	0-150
	Default:	See Default Key Patterns
Data Field 2	Meaning:	Key sub-function.
(d2):	Default:	See Default Key Patterns
Field 1 (e2):	Range:	01-64

Related Databases:

Required: 10.12 Key Assignment.

Associated: 01.11 Port Definition; 15.01 Attendant Key Assignment; 16.01 BLF Assignment.

Feature Keys Sorted By Feature Name

Keys for Features Common to Key Telephones and Versa-Phones

Feature	Phone Display ([FEAT][#][9] from KT)	PC Programmer (Key Selection Window)	Key Data	
			data 1 (d1)	data 2 (d2)
(blank)	No Assign	(blank)	000	
Abandoned Call at Trunk (All trunk Groups)[1]	USAT	USAT	166	
Abandoned Call at Trunk (Specific Group)[1]	USATn	USATn	167	01-250(Grp#)
Abandoned Call at Station[1]	USAS	USAS	168	
Abandoned Call Delete Record[1]	UAD	UAD	169	
Absence Message Key	Absence Message	Absence Message	022	
Account Code Entry Key	Account Code	Account Code	100	
ACD Group[2,3]	ACD 1-250	ACD-N (N=1-250,All)	012	01-250(Grp#)
ACD Group Night[3]	NIGHT 1-250	ACD Group Night	014	01-250 (Grp#)
ACD Message Recording[3]	A.REC	ACD MESSAGE RECORD	095	
Add-On Conference/ Barge-In Key[4]	ADD	ADD	025	
Agent Answer Key[3]	AGT ANS	Agent Answer	111	
Agent Log In[3]	LOG	AGENT LOG	090	
Agent Monitoring Key[3]	AGENT 1-1024	AGM-N (N=001-400)	098	001-1024 (AGT)
All ACD Groups[2, 3]	ACD All	ACD-N (N=1-250,All)	012	255
All Call - Press Page Key	Press Page	Press Page	044	
All Call Page Key[4]	ALL	Paging (All Call)	006	255
Automatic Repeat Dialing Key	Auto Repeat Dial	Auto Repeat Dial	060	
Background Music Key	BGM	BGM	026	
Busy Number Callback Key	Timed Trunk Queue	Timed Trk. Queue	079	
Call Connect Key	Connect	Connect	101	
Call Coverage Key-Delayed[2]	Delayed 1 - 1024	CCV - Delayed	009	001-1024 (SLP)
Call Coverage Key-Immediate[2, 4]	Immed. 1 - 1024	CCV - Immd.	008	001-1024 (SLP)

Call Coverage Key-No Ring[2]	No ring 1-1024	CCV - NoRing	010	001-1024 (SLP)
Call Forward Key[4]	Call Forward	Forward	038	
Call Log	Call Log	Callog	199	
Call Monitoring Key[4]	Monitor	MONITOR	051	
Call Park Key[4]	Individual Park	Park	055	
Call Park Pick-Up Key[4]	Call Park Pickup	Park Pick-up	058	
Call Release Key (for headset stations)	Release	Release	062	
Call Sequence Change[3]	SQC 1-60,Any	CALL SEQUENCE CHG.	099	01-60,Any (Grp#)
Caller ID/ANI/DNIS Display Change[1]	Display Change	DSPCHG	160	
CNIS Off Key	CNIS OFF	CNIS OFF	173	
Conversation Record[1, 4]	REC	REC	171	
Flash Key (Short)[1, 4]	Short Flash	Flash (Short)	072	
Flash Key (Long)[1]	Flash	Flash (Long)	039	
Direct Call Pick-Up Key[4]	Spec. Call Pickup	Call P/Up (Direct)	030	
Direct CO Line Termination Key[2, 4, 5]	COL 1-1024	CO Line	002	001-1024 (TLP)
DID Remote Call Transfer[1]	PTRAN	(not available)	109	
Direct Station Signaling Key[2, 4]	DSS 1-1024	DSS	004	001-1024 (SLP)
Display Scroll Key[4]	LCD Mode Change	Display	033	
DP to DTMF Signaling Change Key	Dial Reverse	Dial Reverse	059	
Emergency Recording/ Help[3]	EMG	Emergency	096	
Extension Database Display Key[4]	EXT Number	Extension Data	035	
External Group Pick-Up Key[4]	Call Pickup Out	Call P/Up (Extn'l)	040	
Feature Operation Key	Feature	Feature	037	
Fixed Qualification Code Entry[4]	QUALIFY 000-999	FIXED QUALIFY-N	015	000-999
Flexible Qualification Code Entry[4]	QUALIFY	MANUAL QUALIFY	092	
Floating CO Group Selection Key[1, 2, 4]	FLT	CO Float	003	63
Floating CO Group Termination Key[2, 4]	FLT 1-250	CO Float	003	01-250 (Grp#)

Group Call Key (internal page groups)[4]	Group 1-125	Paging (Grp. Call)	006	01-125 (Grp#)
Group Park Key[1, 4]	Group Park 1-250	Grp. Park	001	01-250 (Grp#)
Headset Key[2]	Headset	Headset	105	
Headset Control Key[4]	Headset	Headset	198	
Help[3]	HELP	Help	097	
Hold/Quick Forward Key	Hold/Quick Forward	Hld/FWD	125	
Hold/Do Not Disturb Key	HOLD/DND	HOLD/DND	102	
Hunt Group Key (external page groups)	Hunting	Hunt Group	005	
ICM Calling Mode Key	Calling Mode CHG	Calling Mode	083	
Integrated Directory	Directory	INT DIR	196	
Intercom Line Call Back Key	ICM Call Back	ICM Call Back	021	
Intercom Line Termination Key[4]	ICM	ICM	042	
Internal Group Pick-Up Key[4]	Call Pickup In	Call P/Up (Intr'l)	057	
Last Number Redial	Last No.Redial	Last Number Dial	088	
Malicious Caller ID Key	MCID	MAL	191	
MBOX key[4]	MBOX	MBOX	176	
Meet-Me Pick-Up Key[4]	Meet Me	Meet Me	047	
Memo Dial Key	Memo Dial	Memo Dial	048	
Message Activation Key[4]	MSG	MESSAGE	050	
Microphone Cut-Off Key[4]	MIC	Mic Off	049	
Mobility Key[7]	Mobility	MOB	190	
Not Available[3]	Unavailable	Unavailable	93	
Optimized Key	FLT 00	FLT 00	003	000
Optimized Routing [OPT] Key[1,2, 4]	FLT	CO Float	003	255
Override Key	Over Ride	Override	054	
Privacy Release Key	Privacy Release	Privacy Release	103	
Queued Call Indication[2,3]	QUEUE 1-250	Queue-n	013	01-250 (Grp#)
Remote Call Forwarding Key	Remote Call FWD 1-4	Remote Call FWD	032	1-4
Remote Control Key[4]	Relay 1-32	Remote CONTROL	064	01-32 (Relay)
Saved Dial Key	Save No. Redial	Saved Number Dial	073	
Separator Key	Separate	Separate	107	

Ring Muting	Silence		068	
Speaker Key	Speaker	Speaker	070	
Speaker Duplex	Speaker Duplex	SPK DPX	197	
Speech Key	Speech	SPCH	192	
Speed Dial Key	Speed Dial	Speed Dial KEY	071	
Speed Dial Key (Personal)-One-Touch[4]	Speed Dial 90-99	Speed Dial (STA)	020	90-99 (Bin#)
Speed Dial Key (System)-One-Touch[4]	System Speed 000-899	Speed Dial (SYS)	019	00-89, 000-899 (Bin#)
Station Lock Password Key	Station Lockout	Station Lock	043	
Substitute Key	Substitute	SBS (Substitute)	074	
Supervisor Log In[3, 4]	S.LOG	SUPERVISOR LOG	089	
Text Message Key (General)[1]	TEXTMSG	TEXTMSG	161	
Text Message Key (Preprogrammed) [1]	TEXTMSGn	TEXTMSGn	162	00-99 (MSG#)
Text Message Group Key[1]	MSGGPn	MSGGPn	170	01-250 (Grp#)
Text Web Key	Text Web	TXTWEB	194	
Time Reminder Key	Reminder	Time Reminder	061	
Transfer Key	TRN	TRANSFER	078	
Trunk Call Back Queuing Key	Trunk Queuing	Trunk Queuing	028	
Universal Night Answering Key[1, 4]	UNA Pickup	UNA	104	
Virtual Key for DCKT970(IX-DCKT900)[1]	Wireless Virtual	Wireless Virtual	165*	01-36 (key#)
Voice Mailbox Access Key[4]	VML Hunting	Mailbox Access	011	47-50
Voice Mail Monitor	VML Monitor	VML Monitor	175	000
Voice Message Playing Key[1]	Message Service	Voice Msg. Play	081	
Voice/Data Exchange Key	V-Data Exchange	Voice Data Ex.	082	
Wake-Up Call Key	Wake-Up Call	Wake Up Call	046	
Wrap-Up[3]	WRAP	Wrap-up	094	
Zone Paging Key	Zone 1	Paging Zone	006	126-250 (Grp#)

Programming Notes:

1	Flash Key (Short) - Timer programming (short flash) required
	Flash Key (Long) - Timer programming (long flash) is required
	Group Park Key - System park orbit assignment is required.
	Headset Control Key - This key is used only if the station is equipped with a headset.
	UNA - Database setting for trunk(s) is required.
	Voice Message Playing Key - Playback key is for playback of voice message 1 only.
	Floating CO Group Selection/Optimized Routing Key If the station is enabled for forced optimized routing in 10.33 - Forced Optimized Routing, keys assigned as float keys will function as optimized routing ([OPT]) keys.
2	Recommended that this key is assigned to a button with a dual-color LED. Call Coverage Keys ([Immed.], [Delayed], [NoRing]) must be assigned to keys with dual-color LEDs. These features will not operate on Versa-Phones or key telephones with single-color LED lamps.
(Bin#)	Value corresponds to either a system speed dial or personal speed dial bin number.
(GRP#)	Value corresponds to a group number, i.e., Hunt Group, CO Group, Park Orbit Group.
(Relay)	Value corresponds to the relay number assigned to a miscellaneous function port in 04.35 - Miscellaneous Function Port.
(SLP)	Value corresponds to a station logical port number.
(TLP)	Value corresponds to a trunk logical port number.
3	This key is available with ECS ACD software only.
4	This key cannot be programmed on an IX-ATT Attendant Console.
5	Assigned to an Attendant Console Soft Key.
6	The ECS system supports a maximum of 64 appearances of a specific CO Line key.
7	Requires Iwatsu ICON Series IX-5930, IX-5910, or IX-5810 telephone. ECS software version 8.0 w/ valid ECS version 8.0 license and Iwatsu Enterprise TOL software version 8.0 w/ version 8.0 UC Client Manager.
*	IX-DCKT970 / IX-DCKT900 only

Feature Keys Sorted By (D1) Value

Keys for Features Common to Key Telephones and Versa-Phones

Key Data data 1 (d1)	data 2 (d2)	Feature	Phone Display ([FEAT][#][9] from KT)	PC Programmer (Key Selection Window)
000		(blank)	No Assign	(blank)
001	01-250 (Grp#)	Group Park Key[1,4]	Group Park 1-250	Grp. Park
002	001-1024 (TLP)	Direct CO Line Termination Key [2,4,5]	COL 1-1024	CO Line
003	000	Floating CO Group/ Optimized Routing Key [1,2,4]	FLT	CO Float
003	01-250 (Grp#)	Floating CO Group Termination Key [2,4]	FLT 1-250	CO Float
004	001-1024 (SLP)	Direct Station Signaling Key[2,4]	DSS 1-1024	DSS
005	125-250 (Grp#)	Hunt Group Key (external page groups)	Hunting	Hunt Group
006	255	All Call Page Key[4]	ALL	Paging (All Call)
006	1-125 (Grp#)	Group Call Key (internal page groups)[4]	Group 1-250	Paging (Grp. Call)
006	126-250 (Grp#)	Zone Paging Key	Zone 1	Paging Zone
008	001-1024 (SLP)	Call Coverage Key - Immediate[2,4]	Immed. 1 - 1024	CCV - Immd.
009	001-1024 (SLP)	Call Coverage Key - Delayed[2]	Delayed 1 - 1024	CCV - Delayed
010	001-1024 (SLP)	Call Coverage Key - No Ring[2]	No ring 1-1024	CCV - NoRing
011	47-50	Voice Mailbox Access Key[4]	VML Hunting	Mailbox Access
012	01-250(Grp#)	ACD Group[2,3]	ACD 1-250	ACD-N (N=1-250, All)
012	All	All ACD Groups[2,3]	ACD 255	ACD-N (N=1-250, All)
013	01-250 (Grp#)	Queued Call Indication[2,3]	QUEUE 1-250	Queue-n
014	01-250 (Grp#)	ACD Group Night[3]	NIGHT 1-250	ACD Group Night
015	000-999	Fixed Qualification Code Entry[4]	QUALIFY 000-999	FIXED QUALIFY-N
019	00-89, 000-899 (Bin#)	Speed Dial Key (System)-One-Touch[4]	System Speed 000-899	Speed Dial (SYS)

020	90-99 (Bin#)	Speed Dial Key (Personal)-One-Touch[4]	Speed Dial 90-99	Speed Dial (STA)
021		Intercom Line Call Back Key	ICM Call Back	ICM Call Back
022		Absence Message Key	Absence Message	Absence Message
025		Add-On Conference/Barge-In Key[4]	ADD	ADD
026		Background Music Key[5]	BGM	BGM
028		Trunk Call Back Queuing Key	Trunk Queuing	Trunk Queuing
030		Direct Call Pick-Up Key[4]	Spec. Call Pickup	Call P/Up (Direct)
032	1-4	Remote Call Forwarding Key	Remote Call FWD 1-4	Remote Call FWD
033		Display Scroll Key[4]	LCD Mode Change	Display
035		Extension Database Display Key[4]	EXT Number	Extension Data
037		Feature Operation Key	Feature	Feature
038		Call Forward Key[4]	Call Forward	Forward
039		Flash Key (Long)[1]	Flash	Flash (Long)
040		External Group Pick-Up Key[4]	Call Pickup Out	Call P/Up (Extn'l)
042		Intercom Line Termination Key[4]	ICM	ICM
043		Station Lock Password Key	Station Lockout	Station Lock
044		All Call - Press Page Key	Press Page	Press Page
046		Wake-Up Call Key	Wake-Up Call	Wake Up Call
047		Meet-Me Pick-Up Key[4]	Meet Me	Meet Me
048		Memo Dial Key	Memo Dial	Memo Dial
049		Microphone Cut-Off Key[4]	MIC	Mic Off
050		Message Activation Key[4]	MSG	MESSAGE
051		Call Monitoring Key[4]	Monitor	MONITOR
054		Override Key	Over Ride	Override
055		Call Park Key[4]	Individual Park	Park
057		Internal Group Pick-Up Key[4]	Call Pickup In	Call P/Up (Intr'l)
058		Call Park Pick-Up Key	Call Park Pickup	Park Pick-up
059		DP to DTMF Signaling Change Key	Dial Reverse	Dial Reverse
060		Automatic Repeat Dialing Key	Auto Repeat Dial	Auto Repeat Dial
061		Time Reminder Key	Reminder	Time Reminder

062		Call Release Key (for headset stations)	Release	Release
064	01-32 (Relay)	Remote Control Key[4]	Relay 1-32	Remote CONTROL
069		Station Class-of-Service Change Key[5]	Station Service	STATION COS Change
070		Speaker Key	Speaker	Speaker
071		Speed Dial Key	Speed Dial	Speed Dial KEY
072		Flash Key (Short)[2]	Short Flash	Flash (Short)
073		Saved Dial Key	Save No. Redial	Saved Number Dial
074		Substitute Key	Substitute	SBS (Substitute)
078		Transfer Key	TRN	TRANSFER
079		Busy Number Callback Key	Timed Trunk Queue	Timed Trk. Queue
080		Message Record Key	Message Record	Voice Msg. Rec.
081		Voice Message Playing Key[1]	Message Service	Voice Msg. Play
082		Voice/Data Exchange Key	V-Data Exchange	Voice Data Ex.
083		ICM Calling Mode Key	Calling Mode CHG	Calling Mode
088		Last Number Redial	Last No.Redial	Last Number Dial
089		Supervisor Log In[3,4]	S.LOG	SUPERVISOR LOG
090		Agent Log In[3]	LOG	AGENT LOG
091		ACD Database Programming Key[3]	A.PROG	ACD Programming
092		Flexible Qualification Code Entry[4]	QUALIFY	MANUAL QUALIFY
093		Not Available[3]	Unavailable	Unavailable
094		Wrap-Up[3]	WRAP	Wrap-up
095		ACD Message Recording[3]	A.REC	ACD MESSAGE RECORD
096		Emergency Recording/Help[3]	EMG	Emergency
097		Help[3]	HELP	Help
098	001-1024 (AGT)	Agent Monitoring Key[3]	AGENT 1-1024	AGM-N (N=001-400)
099	01-250,All (Grp#)	Call Sequence Change[3]	SQC 1-250,All	CALL SEQUENCE CHG.
100		Account Code Entry Key	Account Code	Account Code
101		Call Connect Key	Connect	Connect
102		Hold/Do Not Disturb Key	HOLD/DND	HOLD/DND
103		Privacy Release Key	Privacy Release	Privacy Release

104		Universal Night Answering Key[1,4]	UNA Pickup	UNA
105		Headset Key[2]	Headset	Headset
107		Separator Key	Separate	Separate
109		DID Remote Transfer Key[1]	PTRAN	(not available)
111		Agent Answer Key[3]	AGT ANS	Agent Answer
125		Hold/Quick Forward Key	Hold/ Hold/Quick Forward	HLD/FWD
160		Caller ID/ANI/DNIS Display Change Key[1]	Display Change	(not available)
161		Text Message Key (General)[1]	TEXTMSG	TEXTMSG
162		Text Message Key (Preprogrammed)[1]	TEXTMSGn	TEXTMSGn
165*	01-36 (key#)	Virtual Key for DCKT970(IX-DCKT900)[1]	Wireless Virtual	Wireless Virtual
166		Abandoned Call at Trunk (All Trunk Groups)[1]	USAT	USAT
167	01-250 (GRP#)	Abandoned Call at Trunk (Specific Trunk Group)[1]	USATn	USATn
168		Abandoned Call at Station[1]	USAS	USAS
169		Abandoned Call Delete[1]	USD	USD
170	01-250 (GRP#)	Text Message Group Key[1]	MSGGPn	MSGGPn
171		Conversation Record[1,4]	REC	REC
174		E911 Display Clear	E911 Display CLR	E911 Display Clear
175	000	VoiceMail Monitor	VML Monitor	VML Monitor
176	000-999	MBOX key[4]	MBOX	MBOX
190		Mobility Key[7]	Mobility	MOB
191		Malicious Caller ID Key	MCID	MAL
192		Speech Call Key	Speech	SPCH
193		Speaker Boost Key	SPKR Boost	SPBST
194		Text Web Key	Text Web	TXTWEB
196		Directory	Directory	INT DIR
197		Speaker Duplex Key	Speaker Duplex	SPK DPX
198		Headset Control Key[4]	Headset Control	HEADCTL
199		Call Log Key	Call Log	CALLOG

Programming Notes:

1	Flash Key (Short) - Timer programming (short flash) required
	Flash Key (Long) - Timer programming (long flash) is required
	Group Park Key - System park orbit assignment is required.
	Headset Control Key - This key is used only if the station is equipped with a headset.
	UNA - Database setting for trunk(s) is required.
	Voice Message Playing Key - Playback key is for playback of voice message 1 only.
	Floating CO Group Selection/Optimized Routing Key If the station is enabled for forced optimized routing in 10.33 - Forced Optimized Routing, keys assigned as float keys will function as optimized routing ([OPT]) keys.
2	Recommended that this key is assigned to a button with a dual-color LED. Call Coverage Keys ([Immed.], [Delayed], [NoRing]) must be assigned to keys with dual-color LEDs. These features will not operate on Versa-Phones or key telephones with single-color LED lamps.
(Bin#)	Value corresponds to either a system speed dial or personal speed dial bin number.
(GRP#)	Value corresponds to a group number, i.e., Hunt Group, CO Group, Park Orbit Group.
(Relay)	Value corresponds to the relay number assigned to a miscellaneous function port in 04.35 - Miscellaneous Function Port.
(SLP)	Value corresponds to a station logical port number.
(TLP)	Value corresponds to a trunk logical port number.
3	This key is available with ECS ACD software only.
4	This key cannot be programmed on an IX-ATT Attendant Console.
5	Assigned to an Attendant Console Soft Key.
6	The ECS system supports a maximum of 64 appearances of a specific CO Line key.
7	Requires Iwatsu ICON Series IX-5930, IX-5910, or IX-5810 telephone. ECS software version 8.0 w/ valid ECS version 8.0 license and Iwatsu Enterprise TOL software version 8.0 w/ version 8.0 UC Client Manager.
*	IX-DCKT970 / IX-DCKT900 only

Default Key Patterns and Key Locations

The illustrations and tables on the following pages identify key locations and programming information for Iwatsu ICON Series Telephones, ECS Key Telephones, Versa-Phones and ZT-D Key Telephones using default patterns 1, 2, 3 and 4.

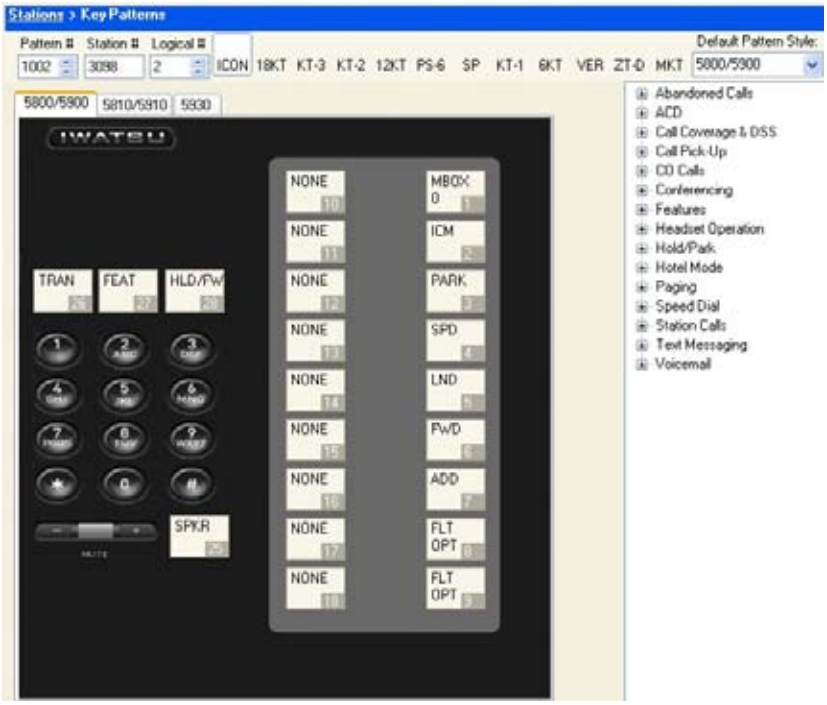
Iwatsu ICON Series Telephone Default Key Patterns

New default key patterns have been created for the Iwatsu ICON Series IX-5800/IX-5900, IX-5810/IX-5900, and IX-5930 telephones.

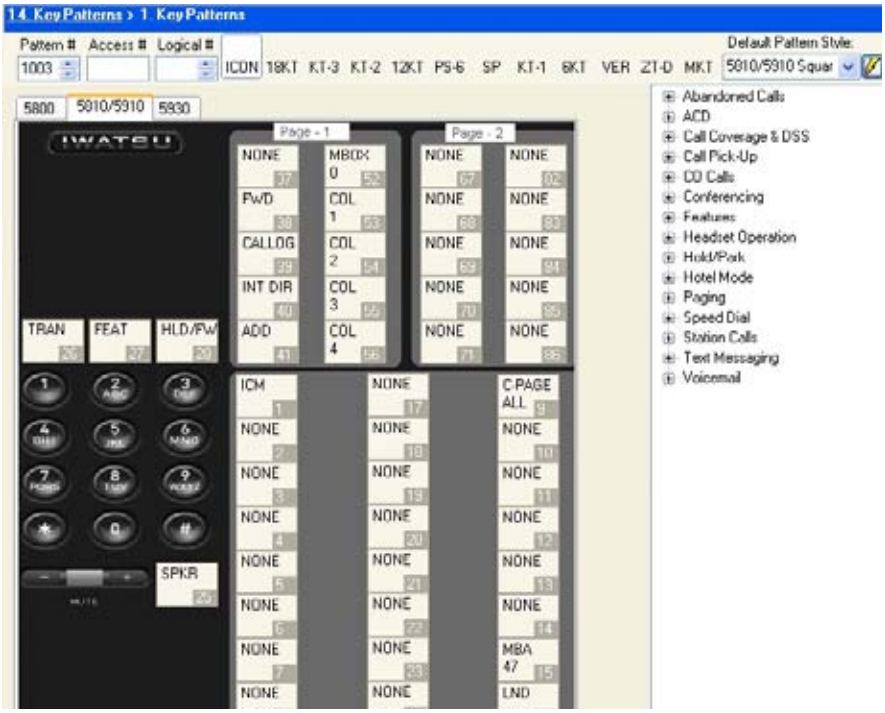
Stations > Key Patterns (Class 14)

- IX-5800 / IX-5900 Key pattern default = 1002
- IX-5810 / IX-5910 Square key pattern = 1003
- IX-5810 / IX-5910 Hybrid key pattern = 1004
- IX-5810 / IX-5910 ACD key pattern = 1005
- IX-5930 Square key pattern = 1006
- IX-5930 Hybrid key pattern = 1007
- IX-5930 ACD key pattern = 1008

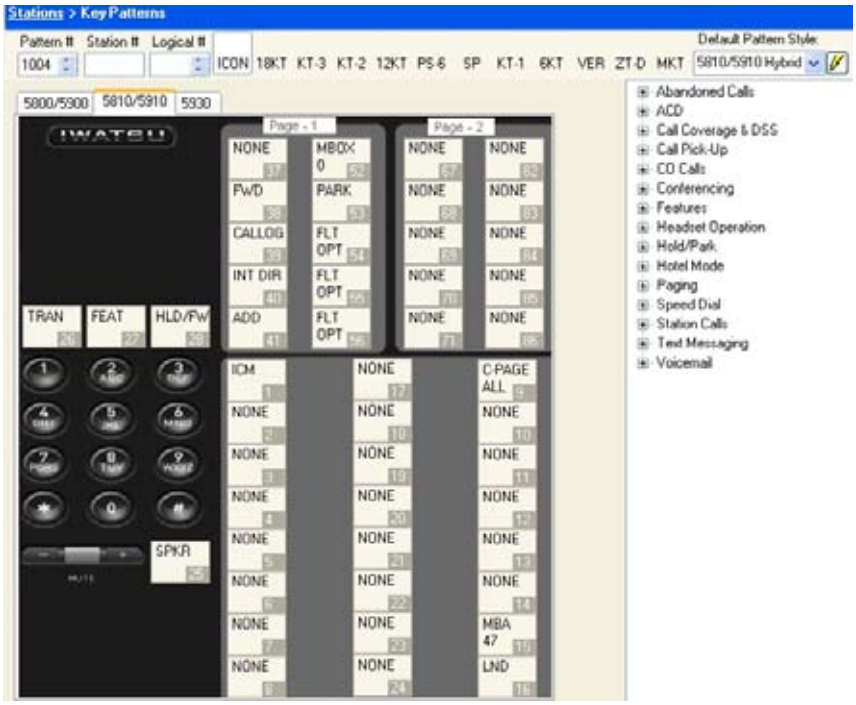
IX-5800 / IX-5900 Default Station Key Pattern



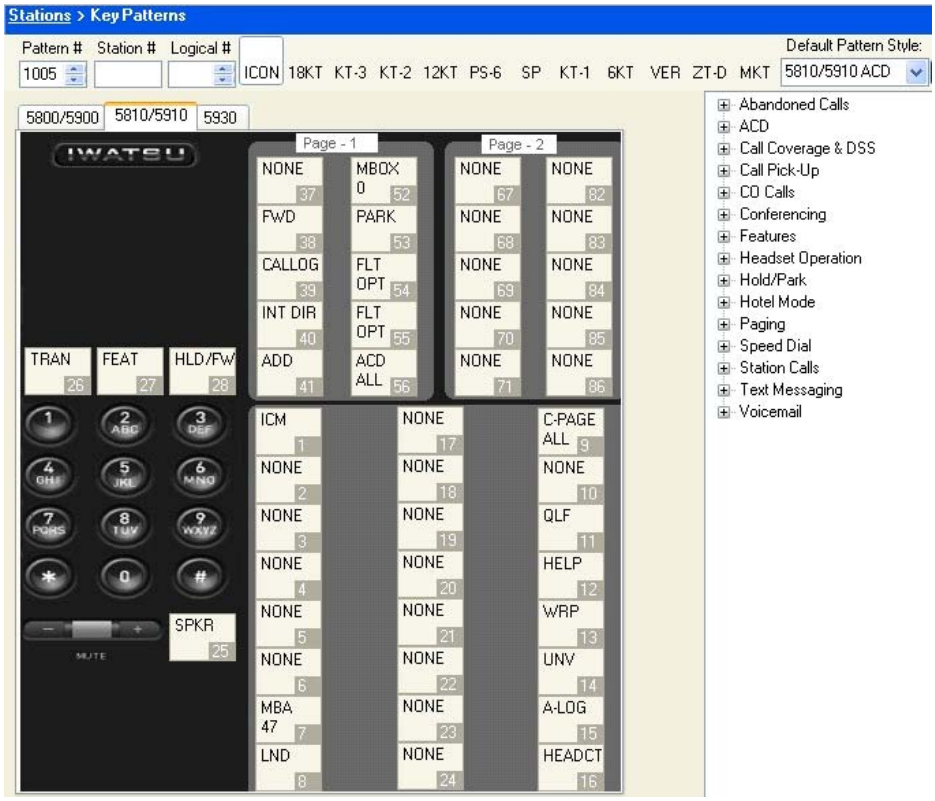
IX-5810 / IX-5910 Default Station Square Key Pattern



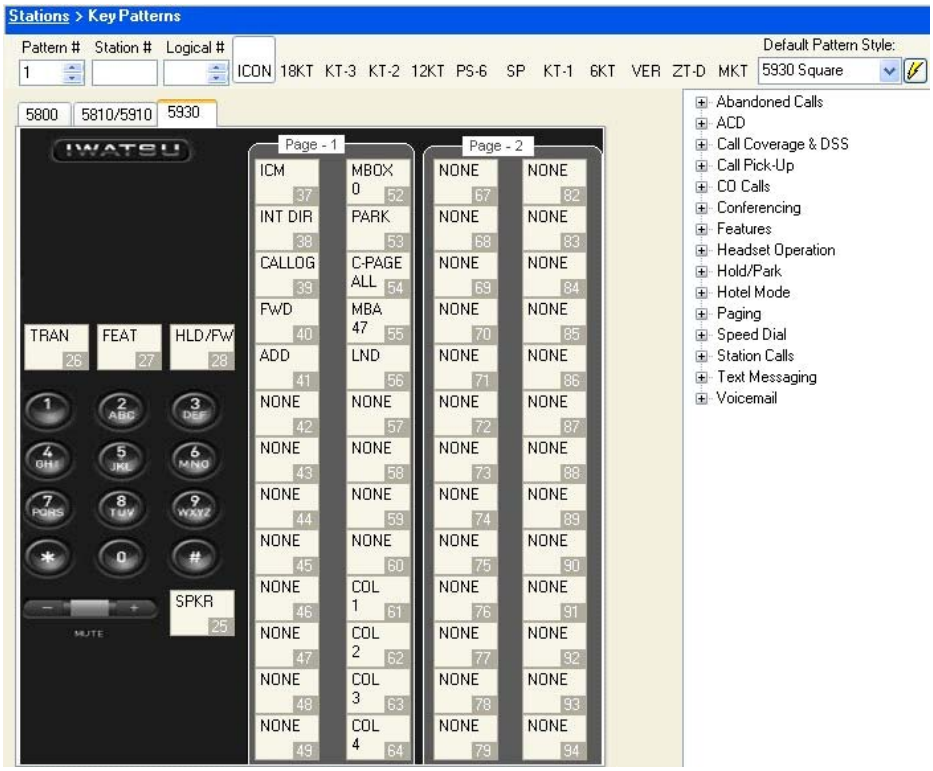
IX-5810 / IX-5910 Default Station Hybrid Key Pattern



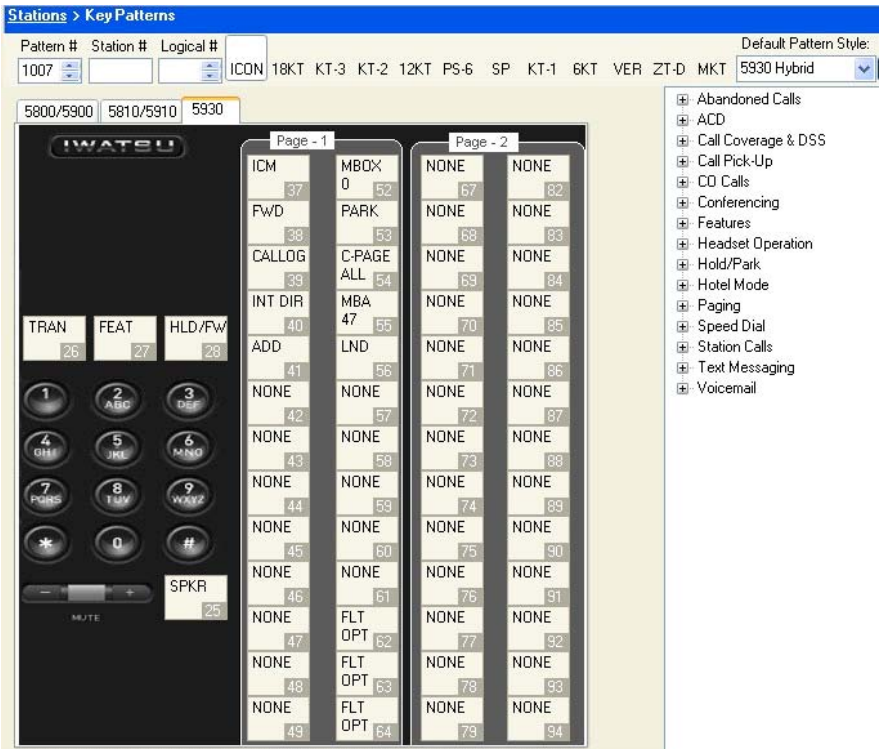
IX-5810 / IX-5910 Default Station ACD Key Pattern



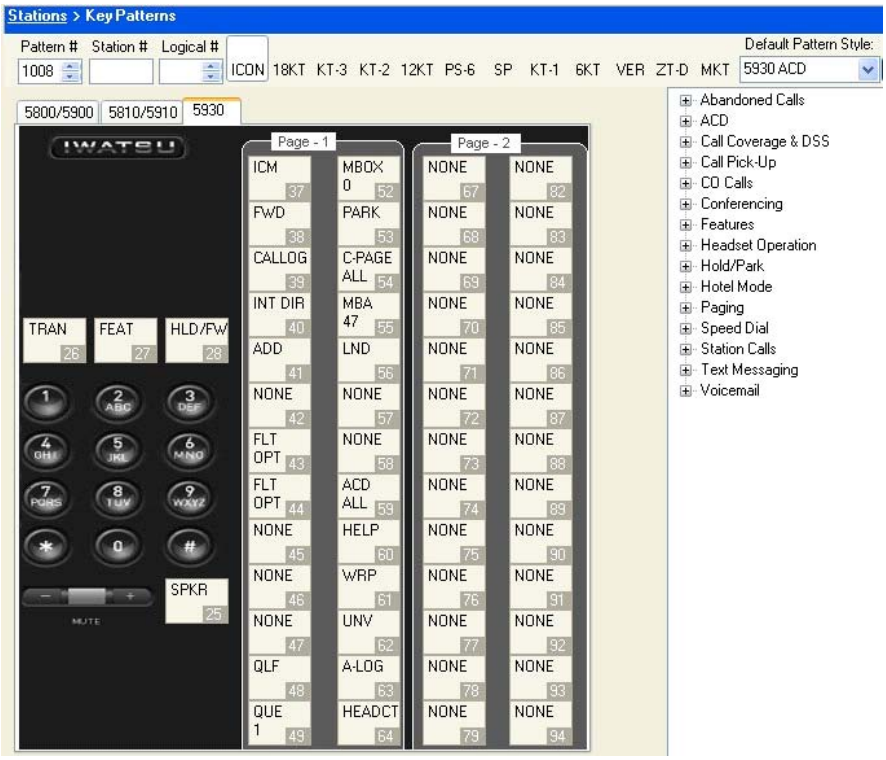
IX-5930 Default Station Squared Key Pattern



IX-5930 Default Station Hybrid Key Pattern



IX-5930 Default Station ACD Key Pattern



ECS IX-24IPKTD/IX-24KTD-2/3 Hybrid Pattern Key Locations and Default Key Pattern 001

#029	**#030**	**#031**	**#032**	**#033**	**#034**	**#035**	**#036**
042-000	071-000	039-000	025-000	049-000	038-000	044-000	176-000
ICM	SPEED	FLASH	ADD	MIC OFF	FWD	PAGE	MBOX-000

#001	**#002**	**#003**	**#004**	**#005**	**#006**
003-000	003-000	001-011	001-012	055-000	011-047
FLT-000	FLT-000	G.PRK-11	G.PRK-12	PARK	MBA-47
#007	**#008**	**#009**	**#010**	**#011**	**#012**
088-000	083-000	166-000	169-000	160-000	005-047
LND	TONE/V.	USAT	UAD	DSPCHG	HNT-47
#013	**#014**	**#015**	**#016**	**#017**	**#018**
019-000	019-001	019-002	019-003	019-004	019-005
SYS-000	SYS-001	SYS-002	SYS-003	SYS-004	SYS-005
#019	**#020**	**#021**	**#022**	**#023**	**#024**
020-090	020-091	020-092	020-093	020-094	020-095
STS-90	STS-91	STS-92	STS-93	STS-94	STS-95

#039	**#047**
000-000	000-000
#040	**#048**
000-000	000-000
#041	**#049**
00-000	000-000
#042	**#050**
000-000	000-000
#043	**#051**
000-000	000-000
#044	**#052**
000-000	000-000
#045	**#053**
000-000	000-000
#046	**#054**
000-000	000-000

#025
070-000
SPK
#026
078-000
TRAN
#027
037-000
FEAT
#028
102-000
HOLD/ DND

1	2	3
4	5	6
7	8	9
*	0	#

ECS IX-24IPKTD/IX-24KTD-2/3 Hybrid Key Locations and Default Key Pattern 002

#029	#030	#031	#032	#033	#034	#035	#036
042-000 ICM	071-000 SPEED	039-000 FLASH	025-000 ADD	049-000 MIC OFF	038-000 FWD	044-000 PAGE	176-000 MBOX-000

#001	#002	#003	#004	#005	#006
003-000 FLT-000	003-000 FLT-000	001-011 G.PRK-11	001-012 G.PRK-12	055-000 PARK	011-047 MBA-47
#007	#008	#009	#010	#011	#012
088-000 LND	019-000 SYS-000	019-001 SYS-001	019-002 SYS-002	020-090 STS-90	020-091 STS-91
#013	#014	#015	#016	#017	#018
000-000	000-000	000-000	000-000	000-000	000-000
#019	#020	#021	#022	#023	#024
000-000	000-000	000-000	000-000	000-000	000-000

#039	#047
000-000	000-000
#040	#048
000-000	000-000
#041	#049
00-000	000-000
#042	#050
000-000	000-000
#043	#051
000-000	000-000
#044	#052
000-000	000-000
#045	#053
000-000	000-000
#046	#054
000-000	000-000

#025
070-000 SPK
#026
078-000 TRAN
#027
037-000 FEAT
#028
102-000 HOLD/ DND

1	2	3
4	5	6
7	8	9
*	0	#

ECS IX-24IPKTD/IX-24KTD-2/3 Hybrid Key Locations and Default Key Pattern 003

#029	**#030**	**#031**	**#032**
003-000	055-000	058-000	071-000
FLT-00	PARK	P-PUP	SPEED
#033	**#034**	**#035**	**#036**
038-000	025-000	011-047	176-000
FWD	ADD	MBA-47	MBOX-000

#025	**#026**	**#027**	**#028**
070-000	078-000	037-000	125-000
SPK	TRAN	FEAT	HOLD/FWD

ECS **IX-24IPKTD/IX-24KTD-2/3** Square Key Locations and Default Key Pattern 004

#029	**#030**	**#031**	**#032**	**#033**	**#034**	**#035**	**#036**
042-000	071-000	039-000	025-000	049-000	038-000	055-000	176-000
ICM	SPEED	FLASH	ADD	MIC OFF	FWD	PARK	MBOX-000

#001	**#002**	**#003**	**#004**	**#005**	**#006**
002-001	002-002	002-011	001-003	002-005	002-006
COL-001	COL-002	COL-003	COL-004	COL-005	COL-006
#007	**#008**	**#009**	**#010**	**#011**	**#012**
002-007	002-008	002-009	002-010	002-011	002-012
COL-007	COL-008	COL-009	COL-010	COL-011	COL-012
#013	**#014**	**#015**	**#016**	**#017**	**#018**
019-000	019-001	019-002	019-003	002-090	002-091
SYS-000	SYS-001	SYS-002	SYS-003	STS-090	STS-091
#019	**#020**	**#021**	**#022**	**#023**	**#024**
088-000	083-000	166-000	169-000	160-000	011-047
LND	TONE/V.	USAT	UAD	DSPCHG	MBA-47

#039	**#047**
000-000	000-000
#040	**#048**
000-000	000-000
#041	**#049**
00-000	000-000
#042	**#050**
000-000	000-000
#043	**#051**
000-000	000-000
#044	**#052**
000-000	000-000
#045	**#053**
000-000	000-000
#046	**#054**
000-000	000-000

#025
070-000
SPK
#026
078-000
TRAN
#027
037-000
FEAT
#028
102-000
HOLD/ DND

1	2	3
4	5	6
7	8	9
*	0	#

ECS IX-24IPKTD/IX-24KTD-2/3 ACD Key Locations and Default Key Pattern 005

#029	**#030**	**#031**	**#032**	**#033**	**#034**	**#035**	**#036**
042-000	071-000	025-000	049-000	038-000	090-000	105-000	176-000
ICM	SPEED	ADD	MIC OFF	FWD	LOG	C-PAGE ALL	MBOX-000

#001	**#002**	**#003**	**#004**	**#005**	**#006**
003-000	003-000	001-011	001-012	055-000	011-047
FLT-000	FLT-000	G.PRK-11	G.PRK-12	PARK	MBA-47
#007	**#008**	**#009**	**#010**	**#011**	**#012**
012-163	094-000	019-000	019-001	019-002	019-003
ACD	WRP	SYS-000	SYS-001	SYS-002	SYS-003
#013	**#014**	**#015**	**#016**	**#017**	**#018**
013-001	094-000	020-090	020-091	020-092	020-093
QUE-01	UAV	STS-90	STS-91	STS-92	STS-93
#019	**#020**	**#021**	**#022**	**#023**	**#024**
013-002	097-000	111-000	160-000	101-000	062-000
QUE-02	HELP	AGS	DSPCHG	REC	HEAD

#039	**#047**
000-000	000-000
#040	**#048**
000-000	000-000
#041	**#049**
00-000	000-000
#042	**#050**
000-000	000-000
#043	**#051**
000-000	000-000
#044	**#052**
000-000	000-000
#045	**#053**
000-000	000-000
#046	**#054**
000-000	000-000

#025
070-000
SPK
#026
078-000
TRAN
#027
037-000
FEAT
#028
102-000
HOLD/ DND

1	2	3
4	5	6
7	8	9
*	0	#

ECS IX-24IPKTD/IX-24KTD-2/3 Key Locations and Default Key Pattern 006

#029 042-000 ICM	**#030** 071-000 SPEED	**#031** 160-000 DSPCHG	**#032** 025-000 ADD	**#033** 049-000 MIC OFF	**#034** 038-000 FWD	**#035** 044-000 PAGE	**#036** 176-000 MBOX-000

#001 003-000 FLT-000	**#002** 003-000 FLT-000	**#003** 001-011 G.PRK-11	**#004** 001-012 G.PRK-12	**#005** 055-000 PARK	**#006** 011-047 MBA-47
#007 012-163 ACD	**#008** 013-001 QUE-01	**#009** 090-000 LOG	**#010** 093-000 WRP	**#011** 093-000 UAV	**#012** 097-000 HELP
#013 000-000	**#014** 000-000	**#015** 000-000	**#016** 000-000	**#017** 000-000	**#018** 000-000
#019 000-000	**#020** 000-000	**#021** 000-000	**#022** 000-000	**#023** 000-000	**#024** 000-000

1	2	3
4	5	6
7	8	9
*	0	#

#025 070-000 SPK	
#026 078-000 TRAN	
#027 037-000 FEAT	
#028 102-000 HOLD/ DND	

#039 000-000	**#047** 000-000
#040 000-000	**#048** 000-000
#041 00-000	**#049** 000-000
#042 000-000	**#050** 000-000
#043 000-000	**#051** 000-000
#044 000-000	**#052** 000-000
#045 000-000	**#053** 000-000
#046 000-000	**#054** 000-000

ECS IX-MKT Key Locations and Default Key Pattern 007

#01 003-000 FLT-000	**#02** 003-000 FLT-000	**#03** 055-000 PARK	**#04** 042-000 ICM
#05 038-000 FORWARD	**#06** 025-000 ADD	**#07** 176-000 MBOX	**#08** 071-000 SPEED
Speaker	TRAN	FEAT	HOLD/DND
#025 070-000 SPEAKER	**#026** 078-000 TRAN	**#027** 037-000 FEAT	**#028** 102-000 HOLD/DND

1	2	3
4	5	6
7	8	9
*	0	#

ECS IX-ZTD Key Locations and Default Key Pattern 008

#001 002-001 COL-001	**#002** 002-002 COL-002	**#003** 002-003 COL-003	**#004** 002-004 COL-004	**#005** 002-005 COL-005	**#006** 002-006 COL-006
#007 002-007 COL-007	**#008** 002-008 COL-008	**#009** 002-009 COL-009	**#010** 002-010 COL-010	**#011** 002-011 COL-011	**#012** 002-012 COL-012
#013 002-013 COL-013	**#014** 002-014 COL-014	**#015** 002-015 COL-015	**#016** 002-016 COL-016	**#017** 002-017 COL-017	**#018** 002-018 COL-018
#019 002-019 COL-019	**#020** 002-020 COL-020	**#021** 002-021 COL-021	**#022** 002-022 COL-022	**#023** 002-023 COL-023	**#024** 002-024 COL-024

#025 042-000 ICM	**#030** 049-000 MIC OFF	**#031** 038-000 FWD	**#032** 025-000 ADD	**#033** 039-000 FLASH	**#034** 044-000 PAGE

#029 070-000 SPKR	1	2	3
#026 078-000 TRAN	4	5	6
#027 037-000 FEAT	7	8	9
#028 102-000 HOLD/DND	*	0	#

ECS IX-ZTS Key Locations and Default Key Pattern 009

#001 002-001 COL-001	**#002** 002-002 COL-002	**#003** 002-003 COL-003	**#004** 002-004 COL-004	**#005** 002-005 COL-005	**#006** 002-006 COL-006
#007 004-001 DSS-001	**#008** 004-002 DSS-002	**#009** 004-003 DSS-003	**#010** 004-004 DSS-004	**#011** 004-005 DSS-005	**#012** 004-006 DSS-006
#013 004-007 DSS-007	**#014** 004-008 DSS-008	**#015** 004-009 DSS-009	**#016** 004-010 DSS-010	**#017** 004-011 DSS-011	**#018** 004-012 DSS-012
#019 004-013 DSS-013	**#020** 004-014 DSS-014	**#021** 004-015 DSS-015	**#022** 004-016 DSS-016	**#023** 004-017 DSS-017	**#024** 004-018 DSS-018

#025 042-000 ICM	**#030** 049-000 MIC OFF	**#031** 071-000 SPEED	**#032** 025-000 ADD	**#033** 039-000 FLASH	**#034** 044-000 PAGE

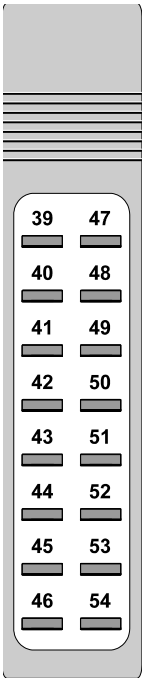
#029 070-000 SPKR	1	2	3
#026 078-000 TRAN	4	5	6
#027 037-000 FEAT	7	8	9
#028 102-000 HOLD/DND	*	0	#

ECS IX-PS6 Key Locations and Default Key Pattern 101

#01 003-000 FLT-000	**#02** 003-063 FLT-000	**#03** 038 FORWARD	**#04** 176-000 MBOX
#05 078 TRANSFER	**#06** 055 PARK	**#07** 049 MIC	**#08** 025 ADD
DIR	Scroll Down	Scroll Up	#020 102 HOLD

Send	Clear Hist	Power End
1	2	3
4	5	6
7	8	9
*	0	#
#17 037 FEATURE		**Speaker**

Autodialer Key Locations and Default Key Pattern 1



Key Number (e2)	Default Key Assignment	Key Code (d1-d2)
39	DSS 1	004-001
40	DSS 2	004-002
41	DSS 3	004-003
42	DSS 4	004-004
43	DSS 5	004-005
44	DSS 6	004-006
45	DSS 7	004-007
46	DSS 8	004-008
47	DSS 9	004-009
48	DSS 10	004-010
49	DSS 11	004-011
50	DSS 12	004-012
51	DSS 13	004-013
52	DSS 14	004-014
53	DSS 15	004-015
54	DSS 16	004-016

Class 15

Attendant Key Assignment

Class 15 - Attendant Key Assignment contains one item, *Class 15.01 - Attendant Key Assignment* which is used to program flexible key patterns used by the attendant positions. Pattern numbers and default key pattern assignments are listed in the following tables:

Class 15.01

Number	Description	Station Type
1025	Hybrid Key Telephone + DSS	IX-5800/IX-5900, IX-24KTD/S2/3, IX-8KTD/S KT + DSS Unit(s) default pattern
1026	IX-ATT Console	Attendant Console default pattern
1027	Stand alone Key Telephone	Operator KT default pattern
1028	Squared Key Telephone + DSS	IX-12KTD-2/3, IX-12KTS-2, IX-12ELK KT + DSS default pattern
1029	Square Iwatsu ICON Telephone	IX-5810/IX-5910
1030	Hybrid Iwatsu ICON Telephone	IX-5810/IX-5910
1031	ACD Iwatsu ICON Telephone	IX-5810/IX-5910
1032	Square Iwatsu ICON Telephone	IX-5930
1033	Hybrid Iwatsu ICON Telephone	IX-5930
1034	ACD Iwatsu ICON Telephone	IX-5930
1035-1056	Unassigned Attendant patterns	

15.01 - Attendant Key Assignment

Class 15 Item 01 - Attendant Key Assignment is used to generate and edit the attendant station flexible key patterns used by KT + DSS unit(s), Attendant KTs and Attendant Consoles. The patterns generated here must be assigned to each individual station in *Class 10.12 - Key Assignment*. Key patterns 1 through 8 used in Class 15.01 correspond with numbers 1025 through 1056 in Class 10.12. The data for key programming is provided in the tables on the next few pages.

Note:	If you are creating a new key pattern based on the default pattern (001), you must first copy the default pattern to the number you have designated for the new key pattern.
Note:	The following program is recommended when using IX-COMLINK: Key Pattern (Class 10.12, 14.01, 15.01) — key 25=Speaker, key 26=Transfer, key 27=Feature, key 28=Hold/DND. Also recommended for some applications are ICM, SPEED and ADD.
Note:	The IX-COMLINK does not support the use of the HEADSET key. If a headset is required, it must be connected to the HEADSET connector and used without a KT.

Programming Field Description

Element	Meaning:	Key pattern.
Field 1 (e1):	Range:	1-32
Element	Meaning:	Key number.
Field 1 (e2):	Range:	001-536
Data Field 1	Meaning:	Key function.
(d1):	Range:	0-150
	Default:	See the key patterns
Data Field 2	Meaning:	Key sub-function.
(d2):	Default:	See the key patterns

Related Databases:

Required: 01.11 Port Definition; 01.11 Port Configuration; 10.12 - Key Assignment.

Associated: 14.01 - Key Assignment; 16.01 - BLF Assignment.

Attendant Position Feature Keys Sorted By Feature Name

Keys for Features Common to Key Telephones and Versa-Phones

Feature	Phone Display ([FEAT][#][9] from KT)	PC Programmer (Key Selection Window)	Key Data	
			data 1 (d1)	data 2 (d2)
(blank)	No Assign	(blank)	000	
Abandoned Call at Trunk (All trunk Groups)[1]	USAT	USAT	166	
Abandoned Call at Trunk (Specific Group)[1]	USATn	USATn	167	01-250(Grp#)
Abandoned Call at Station[1]	USAS	USAS	168	
Abandoned Call Delete Record[1]	UAD	UAD	169	
Absence Message Key	Absence Message	Absence Message	022	
Account Code Entry Key	Account Code	Account Code	100	
ACD Group[2,3]	ACD 1-250	ACD-N (N=1-250,All)	012	01-250(Grp#)
ACD Group Night[3]	NIGHT 1-250	ACD Group Night	014	01-250 (Grp#)
ACD Message Recording[3]	A.REC	ACD MESSAGE RECORD	095	
Add-On Conference/ Barge-In Key[4]	ADD	ADD	025	
Agent Answer Key[3]	AGT ANS	Agent Answer	111	
Agent Log In[3]	LOG	AGENT LOG	090	
Agent Monitoring Key[3]	AGENT 1-1024	AGM-N (N=001-400)	098	001-1024 (AGT)
All ACD Groups[2, 3]	ACD All	ACD-N (N=1-250,All)	012	255
All Call - Press Page Key	Press Page	Press Page	044	
All Call Page Key[4]	ALL	Paging (All Call)	006	255
Automatic Repeat Dialing Key	Auto Repeat Dial	Auto Repeat Dial	060	
Background Music Key	BGM	BGM	026	
Busy Number Callback Key	Timed Trunk Queue	Timed Trk. Queue	079	
Call Connect Key	Connect	Connect	101	
Call Coverage Key-Delayed[2]	Delayed 1 - 1024	CCV - Delayed	009	001-1024 (SLP)
Call Coverage Key-Immediate[2, 4]	Immed. 1 - 1024	CCV - Immd.	008	001-1024 (SLP)

Call Coverage Key-No Ring[2]	No ring 1-1024	CCV - NoRing	010	001-1024 (SLP)
Call Forward Key[4]	Call Forward	Forward	038	
Call Log	Call Log	Callog	199	
Call Monitoring Key[4]	Monitor	MONITOR	051	
Call Park Key[4]	Individual Park	Park	055	
Call Park Pick-Up Key[4]	Call Park Pickup	Park Pick-up	058	
Call Release Key (for headset stations)	Release	Release	062	
Call Sequence Change[3]	SQC 1-60,Any	CALL SEQUENCE CHG.	099	01-60,Any (Grp#)
Caller ID/ANI/DNIS Display Change[1]	Display Change	DSPCHG	160	
CNIS Off Key	CNIS OFF	CNIS OFF	173	
Conversation Record[1, 4]	REC	REC	171	
Flash Key (Short)[1, 4]	Short Flash	Flash (Short)	072	
Flash Key (Long)[1]	Flash	Flash (Long)	039	
Direct Call Pick-Up Key[4]	Spec. Call Pickup	Call P/Up (Direct)	030	
Direct CO Line Termination Key[2, 4, 5]	COL 1-1024	CO Line	002	001-1024 (TLP)
DID Remote Call Transfer[1]	PTRAN	(not available)	109	
Direct Station Signaling Key[2, 4]	DSS 1-1024	DSS	004	001-1024 (SLP)
Display Scroll Key[4]	LCD Mode Change	Display	033	
DP to DTMF Signaling Change Key	Dial Reverse	Dial Reverse	059	
Emergency Recording/ Help[3]	EMG	Emergency	096	
Extension Database Display Key[4]	EXT Number	Extension Data	035	
External Group Pick-Up Key[4]	Call Pickup Out	Call P/Up (Extn'l)	040	
Feature Operation Key	Feature	Feature	037	
Fixed Qualification Code Entry[4]	QUALIFY 000-999	FIXED QUALIFY-N	015	000-999
Flexible Qualification Code Entry[4]	QUALIFY	MANUAL QUALIFY	092	
Floating CO Group Selection Key[1, 2, 4]	FLT	CO Float	003	63
Floating CO Group Termination Key[2, 4]	FLT 1-250	CO Float	003	01-250 (Grp#)

Group Call Key (internal page groups)[4]	Group 1-125	Paging (Grp. Call)	006	01-125 (Grp#)
Group Park Key[1, 4]	Group Park 1-250	Grp. Park	001	01-250 (Grp#)
Headset Key[2]	Headset	Headset	105	
Headset Control Key[4]	Headset	Headset	198	
Help[3]	HELP	Help	097	
Hold/Quick Forward Key	Hold/Quick Forward	Hld/FWD	125	
Hold/Do Not Disturb Key	HOLD/DND	HOLD/DND	102	
Hunt Group Key (external page groups)	Hunting	Hunt Group	005	
ICM Calling Mode Key	Calling Mode CHG	Calling Mode	083	
Integrated Directory	Directory	INT DIR	196	
Intercom Line Call Back Key	ICM Call Back	ICM Call Back	021	
Intercom Line Termination Key[4]	ICM	ICM	042	
Internal Group Pick-Up Key[4]	Call Pickup In	Call P/Up (Intr'l)	057	
Last Number Redial	Last No.Redial	Last Number Dial	088	
Malicious Caller ID Key	MCID	MAL	191	
MBOX key[4]	MBOX	MBOX	176	
Meet-Me Pick-Up Key[4]	Meet Me	Meet Me	047	
Memo Dial Key	Memo Dial	Memo Dial	048	
Message Activation Key[4]	MSG	MESSAGE	050	
Microphone Cut-Off Key[4]	MIC	Mic Off	049	
Mobility Key[7]	Mobility	MOB	190	
Not Available[3]	Unavailable	Unavailable	93	
Optimized Key	FLT 00	FLT 00	003	000
Optimized Routing [OPT] Key[1,2, 4]	FLT	CO Float	003	255
Override Key	Over Ride	Override	054	
Privacy Release Key	Privacy Release	Privacy Release	103	
Queued Call Indication[2,3]	QUEUE 1-250	Queue-n	013	01-250 (Grp#)
Remote Call Forwarding Key	Remote Call FWD 1-4	Remote Call FWD	032	1-4
Remote Control Key[4]	Relay 1-32	Remote CONTROL	064	01-32 (Relay)
Saved Dial Key	Save No. Redial	Saved Number Dial	073	
Separator Key	Separate	Separate	107	

Ring Muting	Silence		068	
Speaker Key	Speaker	Speaker	070	
Speaker Duplex	Speaker Duplex	SPK DPX	197	
Speech Key	Speech	SPCH	192	
Speed Dial Key	Speed Dial	Speed Dial KEY	071	
Speed Dial Key (Personal)-One-Touch[4]	Speed Dial 90-99	Speed Dial (STA)	020	90-99 (Bin#)
Speed Dial Key (System)-One-Touch[4]	System Speed 000-899	Speed Dial (SYS)	019	00-89, 000-899 (Bin#)
Station Lock Password Key	Station Lockout	Station Lock	043	
Substitute Key	Substitute	SBS (Substitute)	074	
Supervisor Log In[3, 4]	S.LOG	SUPERVISOR LOG	089	
Text Message Key (General)[1]	TEXTMSG	TEXTMSG	161	
Text Message Key (Preprogrammed) [1]	TEXTMSGn	TEXTMSGn	162	00-99 (MSG#)
Text Message Group Key[1]	MSGGPn	MSGGPn	170	01-250 (Grp#)
Text Web Key	Text Web	TXTWEB	194	
Time Reminder Key	Reminder	Time Reminder	061	
Transfer Key	TRN	TRANSFER	078	
Trunk Call Back Queuing Key	Trunk Queuing	Trunk Queuing	028	
Universal Night Answering Key[1, 4]	UNA Pickup	UNA	104	
Virtual Key for DCKT970(IX-DCKT900)[1]	Wireless Virtual	Wireless Virtual	165*	01-36 (key#)
Voice Mailbox Access Key[4]	VML Hunting	Mailbox Access	011	47-50
Voice Mail Monitor	VML Monitor	VML Monitor	175	000
Voice Message Playing Key[1]	Message Service	Voice Msg. Play	081	
Voice/Data Exchange Key	V-Data Exchange	Voice Data Ex.	082	
Wake-Up Call Key	Wake-Up Call	Wake Up Call	046	
Wrap-Up[3]	WRAP	Wrap-up	094	
Zone Paging Key	Zone 1	Paging Zone	006	126-250 (Grp#)

Keys for Attendant Consoles/DSS Units Only

Feature	Phone Display	PC Programmer	Key Data	
			data 1 (d1)	data 2 (d2)
Attendant Answering Key	ATT Answer	Answer	023	
Station Class-of-Service Change Key[5]	Station Service	STATION COS Change	069	
Clock Adjustment Key[5]	Time Set	CLOCK Adjust	027	
Line Connect Key	Connect	Connect	101	
Connect With Supervise Key	Connect SUP	Connect SUPERVISE	029	
Destination Key	Destination	Destination	034	
Forced Release Key	Forced Release	Forced Release	036	
Group Night Transfer Key[5]	GP. Night Change	Group Night	041	
Message Wait Control Key	Message Wait CNT	Message Control	045	
Night Transfer Key	Night Change	Night	052	
Operator Call Termination Key	Operator	Operator	053	
Programming Key	Programming	PROGRAMMING Mode	056	
Recall Termination Key	Recall Answer	Recall	063	
BLF Page Control Key	Screen n	Screen	076	1, 2
Serial Call Key	Serial Call	Serial	066	
Stop Ringing Key	Silence	Silent	068	
Source Key	Source	SOURCE	075	
Call Swap Key	Split	Call Swap	067	

Keys for Hotel/Motel Use

Feature	Phone Display	PC Programmer	Key Data	
			data 1 (d1)	data 2 (d2)
Cleaned Room	Cleaning	Clean	085	
Occupied Room	Occupied	Occupy	086	
Reserved	Go Out	Reserved	087	
Vacant Room	Vacancy	Vacant	084	
Wake-Up Call	Wake Up Call ATT	Wake Up Call CTRL	065	

Programming Notes:

1 Flash Key (Short) - Timer programming (short flash) required

Flash Key (Long) - Timer programming (long flash) is required

Group Park Key - System park orbit assignment is required.

Headset Control Key - This key is used only if the station is equipped with a headset.

UNA - Database setting for trunk(s) is required.

Voice Message Playing Key - Playback key is for playback of voice message 1 only.

Floating CO Group Selection/Optimized Routing Key If the station is enabled for forced optimized routing in 10.33 - Forced Optimized Routing, keys assigned as float keys will function as optimized routing ([OPT]) keys.

2 Recommended that this key is assigned to a button with a dual-color LED. Call Coverage Keys ([Immed.], [Delayed], [NoRing]) must be assigned to keys with dual-color LEDs. These features will not operate on Versa-Phones or key telephones with single-color LED lamps.

(Bin#) Value corresponds to either a system speed dial or personal speed dial bin number.

(GRP#) Value corresponds to a group number, i.e., Hunt Group, CO Group, Park Orbit Group.

(Relay) Value corresponds to the relay number assigned to a miscellaneous function port in 04.35 - Miscellaneous Function Port.

(SLP) Value corresponds to a station logical port number.

(TLP) Value corresponds to a trunk logical port number.

3 This key is available with ECS ACD software only.

4 This key cannot be programmed on an IX-ATT Attendant Console.

5 Assigned to an Attendant Console Soft Key.

6 The ECS system supports a maximum of 64 appearances of a specific CO Line key.

7 Requires Iwatsu ICON Series IX-5930, IX-5910, or IX-5810 telephone. ECS software version 8.0 w/ valid ECS version 8.0 license and Iwatsu Enterprise TOL software version 8.0 w/ version 8.0 UC Client Manager.

* IX-DCKT970 / IX-DCKT900 only

Attendant Position Feature Keys Sorted By (D1) Value

Keys for Features Common to Key Telephones and Versa-Phones

Key Data data 1 (d1)	data 2 (d2)	Feature	Phone Display ([FEAT][#][9] from KT)	PC Programmer (Key Selection Window)
000		(blank)	No Assign	(blank)
001	01-250 (Grp#)	Group Park Key[1,4]	Group Park 1-250	Grp. Park
002	001-1024 (TLP)	Direct CO Line Termination Key [2,4,5]	COL 1-1024	CO Line
003	000	Floating CO Group/ Optimized Routing Key [1,2,4]	FLT	CO Float
003	01-250 (Grp#)	Floating CO Group Termination Key [2,4]	FLT 1-250	CO Float
004	001-1024 (SLP)	Direct Station Signaling Key[2,4]	DSS 1-1024	DSS
005	125-250 (Grp#)	Hunt Group Key (external page groups)	Hunting	Hunt Group
006	255	All Call Page Key[4]	ALL	Paging (All Call)
006	1-125 (Grp#)	Group Call Key (internal page groups)[4]	Group 1-250	Paging (Grp. Call)
006	126-250 (Grp#)	Zone Paging Key	Zone 1	Paging Zone
008	001-1024 (SLP)	Call Coverage Key - Immediate[2,4]	Immed. 1 - 1024	CCV - Immd.
009	001-1024 (SLP)	Call Coverage Key - Delayed[2]	Delayed 1 - 1024	CCV - Delayed
010	001-1024 (SLP)	Call Coverage Key - No Ring[2]	No ring 1-1024	CCV - NoRing
011	47-50	Voice Mailbox Access Key[4]	VML Hunting	Mailbox Access
012	01-250(Grp#)	ACD Group[2,3]	ACD 1-250	ACD-N (N=1-250, All)
012	All	All ACD Groups[2,3]	ACD 255	ACD-N (N=1-250, All)
013	01-250 (Grp#)	Queued Call Indication[2,3]	QUEUE 1-250	Queue-n
014	01-250 (Grp#)	ACD Group Night[3]	NIGHT 1-250	ACD Group Night
015	000-999	Fixed Qualification Code Entry[4]	QUALIFY 000-999	FIXED QUALIFY-N
019	00-89, 000-899 (Bin#)	Speed Dial Key (System)-One-Touch[4]	System Speed 000-899	Speed Dial (SYS)

020	90-99 (Bin#)	Speed Dial Key (Personal)-One-Touch[4]	Speed Dial 90-99	Speed Dial (STA)
021		Intercom Line Call Back Key	ICM Call Back	ICM Call Back
022		Absence Message Key	Absence Message	Absence Message
024		Automatic Answer Mode	Automatic Answer	Auto Answer
025		Add-On Conference/Barge-In Key[4]	ADD	ADD
026		Background Music Key[5]	BGM	BGM
027		Clock Adjustment Key[5]	Time Set	CLOCK adjust
028		Trunk Call Back Queuing Key	Trunk Queuing	Trunk Queuing
030		Direct Call Pick-Up Key[4]	Spec. Call Pickup	Call P/Up (Direct)
032	1-4	Remote Call Forwarding Key	Remote Call FWD 1-4	Remote Call FWD
033		Display Scroll Key[4]	LCD Mode Change	Display
035		Extension Database Display Key[4]	EXT Number	Extension Data
037		Feature Operation Key	Feature	Feature
038		Call Forward Key[4]	Call Forward	Forward
039		Flash Key (Long)[1]	Flash	Flash (Long)
040		External Group Pick-Up Key[4]	Call Pickup Out	Call P/Up (Extn'l)
041		Group Night Transfer Key[5]	GP. Night Change	Group Night
042		Intercom Line Termination Key[4]	ICM	ICM
043		Station Lock Password Key	Station Lockout	Station Lock
044		All Call - Press Page Key	Press Page	Press Page
046		Wake-Up Call Key	Wake-Up Call	Wake Up Call
047		Meet-Me Pick-Up Key[4]	Meet Me	Meet Me
048		Memo Dial Key	Memo Dial	Memo Dial
049		Microphone Cut-Off Key[4]	MIC	Mic Off
050		Message Activation Key[4]	MSG	MESSAGE
051		Call Monitoring Key[4]	Monitor	MONITOR
052		Night Mode Key	Night Change	Night
054		Override Key	Over Ride	Override
055		Call Park Key[4]	Individual Park	Park
057		Internal Group Pick-Up Key[4]	Call Pickup In	Call P/Up (Intr'l)
058		Call Park Pick-Up Key	Call Park Pickup	Park Pick-up

059		DP to DTMF Signaling Change Key	Dial Reverse	Dial Reverse
060		Automatic Repeat Dialing Key	Auto Repeat Dial	Auto Repeat Dial
061		Time Reminder Key	Reminder	Time Reminder
062		Call Release Key (for headset stations)	Release	Release
064	01-32 (Relay)	Remote Control Key[4]	Relay 1-32	Remote CONTROL
069		Station Class-of-Service Change Key[5]	Station Service	STATION COS Change
070		Speaker Key	Speaker	Speaker
071		Speed Dial Key	Speed Dial	Speed Dial KEY
072		Flash Key (Short)[2]	Short Flash	Flash (Short)
073		Saved Dial Key	Save No. Redial	Saved Number Dial
074		Substitute Key	Substitute	SBS (Substitute)
078		Transfer Key	TRN	TRANSFER
079		Busy Number Callback Key	Timed Trunk Queue	Timed Trk. Queue
080		Message Record Key	Message Record	Voice Msg. Rec.
081		Voice Message Playing Key[1]	Message Service	Voice Msg. Play
082		Voice/Data Exchange Key	V-Data Exchange	Voice Data Ex.
083		ICM Calling Mode Key	Calling Mode CHG	Calling Mode
088		Last Number Redial	Last No.Redial	Last Number Dial
089		Supervisor Log In[3,4]	S.LOG	SUPERVISOR LOG
090		Agent Log In[3]	LOG	AGENT LOG
091		ACD Database Programming Key[3]	A.PROG	ACD Programming
092		Flexible Qualification Code Entry[4]	QUALIFY	MANUAL QUALIFY
093		Not Available[3]	Unavailable	Unavailable
094		Wrap-Up[3]	WRAP	Wrap-up
095		ACD Message Recording[3]	A.REC	ACD MESSAGE RECORD
096		Emergency Recording/Help[3]	EMG	Emergency
097		Help[3]	HELP	Help
098	001-1024 (AGT)	Agent Monitoring Key[3]	AGENT 1-1024	AGM-N (N=001-400)
099	01-250,All (Grp#)	Call Sequence Change[3]	SQC 1-250,All	CALL SEQUENCE CHG.

100		Account Code Entry Key	Account Code	Account Code
101		Call Connect Key	Connect	Connect
102		Hold/Do Not Disturb Key	HOLD/DND	HOLD/DND
103		Privacy Release Key	Privacy Release	Privacy Release
104		Universal Night Answering Key[1,4]	UNA Pickup	UNA
105		Headset Key[2]	Headset	Headset
107		Separator Key	Separate	Separate
109		DID Remote Transfer Key[1]	PTRAN	(not available)
111		Agent Answer Key[3]	AGT ANS	Agent Answer
125		Hold/Quick Forward Key	Hold/ Hold/Quick Forward	HLD/FWD
160		Caller ID/ANI/DNIS Display Change Key[1]	Display Change	(not available)
161		Text Message Key (General)[1]	TEXTMSG	TEXTMSG
162		Text Message Key (Preprogrammed)[1]	TEXTMSGn	TEXTMSGn
166		Abandoned Call at Trunk (All Trunk Groups)[1]	USAT	USAT
167	01-250 (GRP#)	Abandoned Call at Trunk (Specific Trunk Group)[1]	USATn	USATn
168		Abandoned Call at Station[1]	USAS	USAS
169		Abandoned Call Delete[1]	USD	USD
170	01-250 (GRP#)	Text Message Group Key[1]	MSGGPn	MSGGPn
171		Conversation Record[1,4]	REC	REC
174		E911 Display Clear	E911 Display CLR	E911 Display Clear
175	000	VoiceMail Monitor	VML Monitor	VML Monitor
176	000-999	MBOX key[4]	MBOX	MBOX
190		Mobility Key[7]	Mobility	MOB
191		Malicious Caller ID Key	MCID	MAL
192		Speech Call Key	Speech	SPCH
193		Speaker Boost Key	SPKR Boost	SPBST
194		Text Web Key	Text Web	TXTWEB
196		Directory	Directory	INT DIR
197		Speaker Duplex Key	Speaker Duplex	SPK DPX
198		Headset Control Key[4]	Headset Control	HEADCTL
199		Call Log Key	Call Log	CALLOG

Keys for Attendant Consoles/DSS Units Only

Key Data		Feature	Phone	PC
data 1 (d1)	data 2 (d2)		Display	Programmer
023		Attendant Answering Key	ATT Answer	Answer
027		Clock Adjustment Key[5]	Time Set	CLOCK Adjust
029		Connect With Supervise Key4	Connect SUP	Connect SUPERVISE
034		Destination Key	Destination	Destination
036		Forced Release Key	Forced Release	Forced Release
041		Group Night Transfer Key[5]	GP. Night Change	Group Night
045		Message Wait Control Key	Message Wait CNT	Message Control
052		Night Transfer Key	Night Change	Night
053		Operator Call Termination Key	Operator	Operator
056		Programming Key	Programming	PROGRAMMING Mode
063		Recall Termination Key	Recall Answer	Recall
066		Serial Call Key	Serial Call	Serial
067		Call Swap Key	Split	Call Swap
068		Stop Ringing Key	Silence	Silent
069		Station Class-of-Service Change Key[5]	Station Service	STATION COS Change
075		Source Key	Source	SOURCE
076	1, 2	BLF Page Control Key	Screen n	Screen
077		Trunk /Trunk Group Access Control Key	Trunk Access CNT	Trunk Access Ctrl
080		Voice Synthesizer Recording Key	Message Record	Voice Msg. Rec.
101		Line Connect Key	Connect	Connect

Keys for Hotel/Motel Use

Key Data data 1 (d1)	data 2 (d2)	Feature	Phone Display	PC Programmer
085		Cleaned Room	Cleaning	Clean
086		Occupied Room	Occupied	Occupy
087		Reserved	Go Out	Reserved
084		Vacant Room	Vacancy	Vacant
065		Wake-Up Call	Wake Up Call ATT	Wake Up Call CTRL

Programming Notes:

1 Flash Key (Short) - Timer programming (short flash) required

Flash Key (Long) - Timer programming (long flash) is required

Group Park Key - System park orbit assignment is required.

Headset Control Key - This key is used only if the station is equipped with a headset.

UNA - Database setting for trunk(s) is required.

Voice Message Playing Key - Playback key is for playback of voice message 1 only.

Floating CO Group Selection/Optimized Routing Key If the station is enabled for forced optimized routing in 10.33 - Forced Optimized Routing, keys assigned as float keys will function as optimized routing ([OPT]) keys.

2 Recommended that this key is assigned to a button with a dual-color LED. Call Coverage Keys ([Immed.], [Delayed], [NoRing]) must be assigned to keys with dual-color LEDs. These features will not operate on Versa-Phones or key telephones with single-color LED lamps.

(Bin#) Value corresponds to either a system speed dial or personal speed dial bin number.

(GRP#) Value corresponds to a group number, i.e., Hunt Group, CO Group, Park Orbit Group.

(Relay) Value corresponds to the relay number assigned to a miscellaneous function port in 04.35 - Miscellaneous Function Port.

(SLP) Value corresponds to a station logical port number.

(TLP) Value corresponds to a trunk logical port number.

3 This key is available with ECS ACD software only.

4 This key cannot be programmed on an IX-ATT Attendant Console.

5 Assigned to an Attendant Console Soft Key.

6 The ECS system supports a maximum of 64 appearances of a specific CO Line key.

7 Requires Iwatsu ICON Series IX-5930, IX-5910, or IX-5810 telephone. ECS software version 8.0 w/ valid ECS version 8.0 license and Iwatsu Enterprise TOL software version 8.0 w/ version 8.0 UC Client Manager.

Default Key Patterns and Key Locations for Attendant Positions

The illustrations and tables on the following pages identify key locations and programming information for ECS Key Telephones + DSS unit(s), attendant consoles and operator KTs using default patterns 1, 2 and 4 (1025, 1026, 1028).

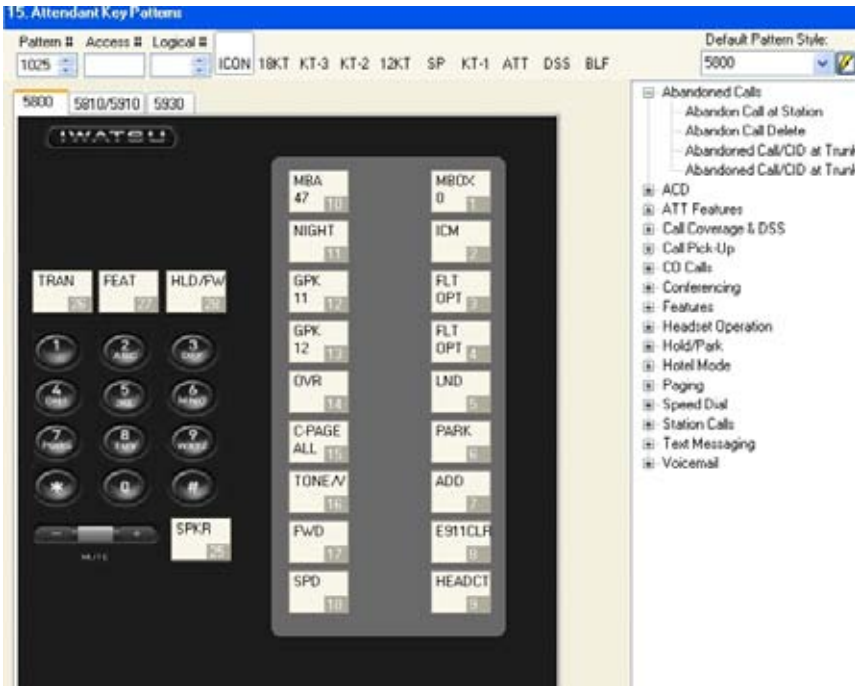
Iwatsu ICON Series Telephone Default Key Patterns

New default Attendant key patterns have been created for the IX-5800/IX-5900, IX-5810/IX-5910, and IX-5930 telephones.

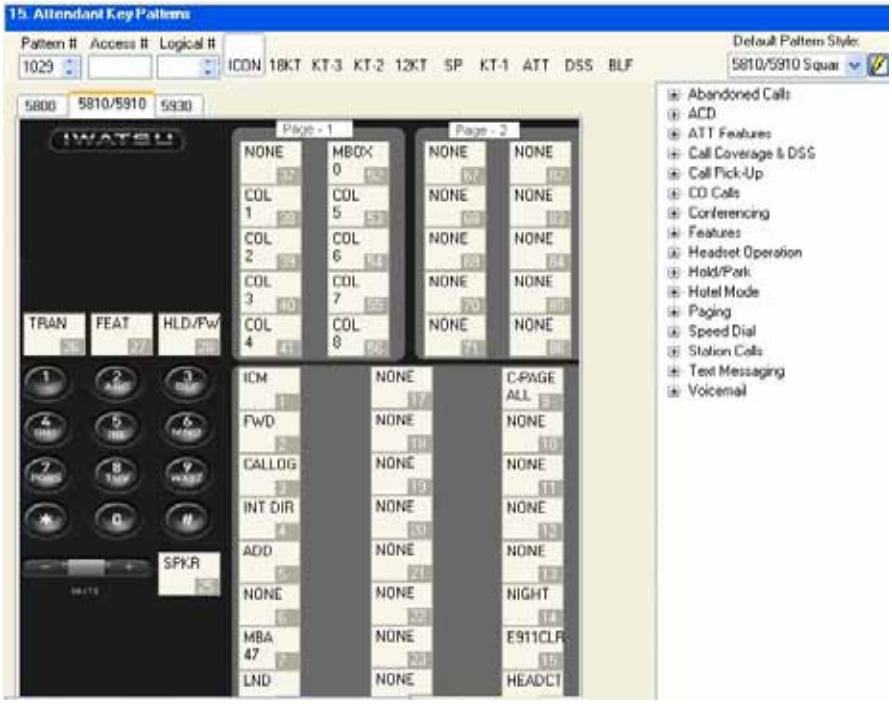
Stations > Attendant (SATT) (Class 15)

- IX-5800/IX-5900 Attendant key pattern = 1025
- IX-5810/IX-5910 Square Attendant key pattern = 1029
- IX-5810/IX-5910 Hybrid Attendant key pattern = 1030
- IX-5810/IX-5910 ACD key pattern = 1031
- IX-5930 Square Attendant key pattern = 1032
- IX-5930 Hybrid Attendant key pattern = 1033
- IX-5930 ACD key pattern = 1034

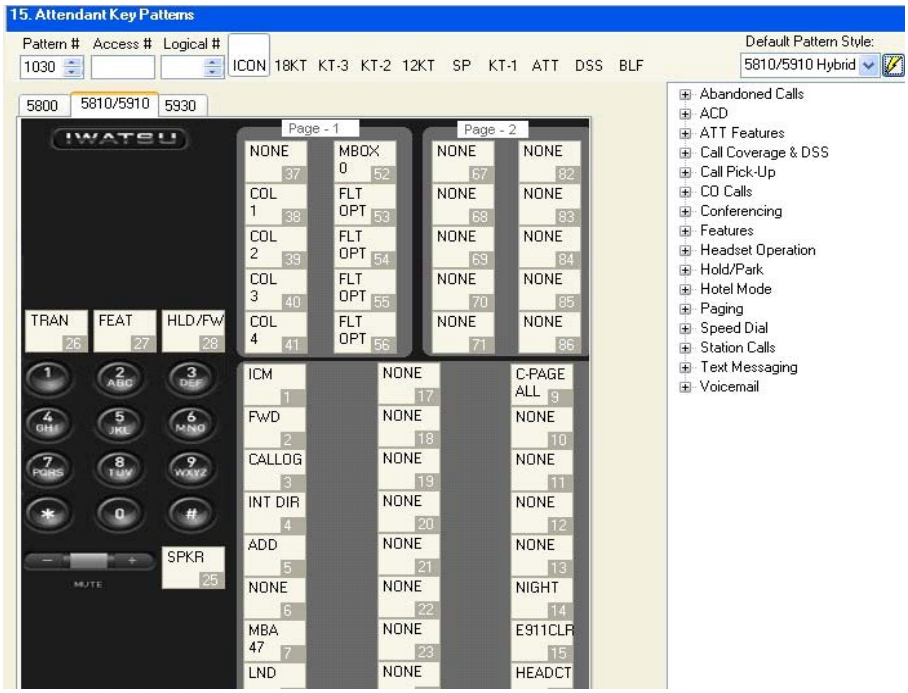
IX-5800 / IX-5900 Default Attendant Key Pattern



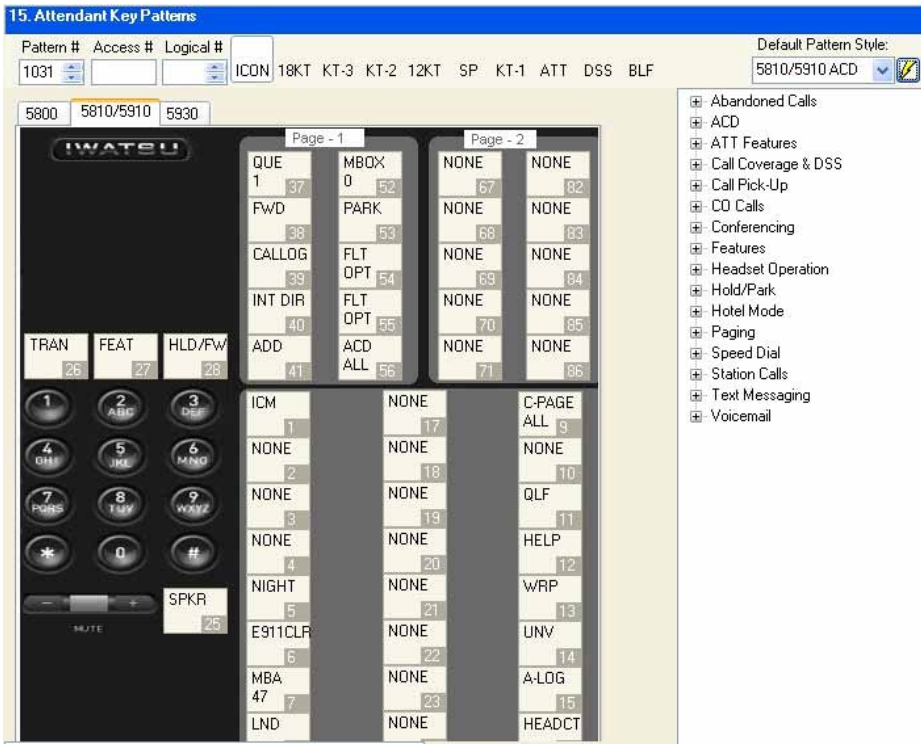
IX-5810 / IX-5910 Default Attendant Square Key Pattern



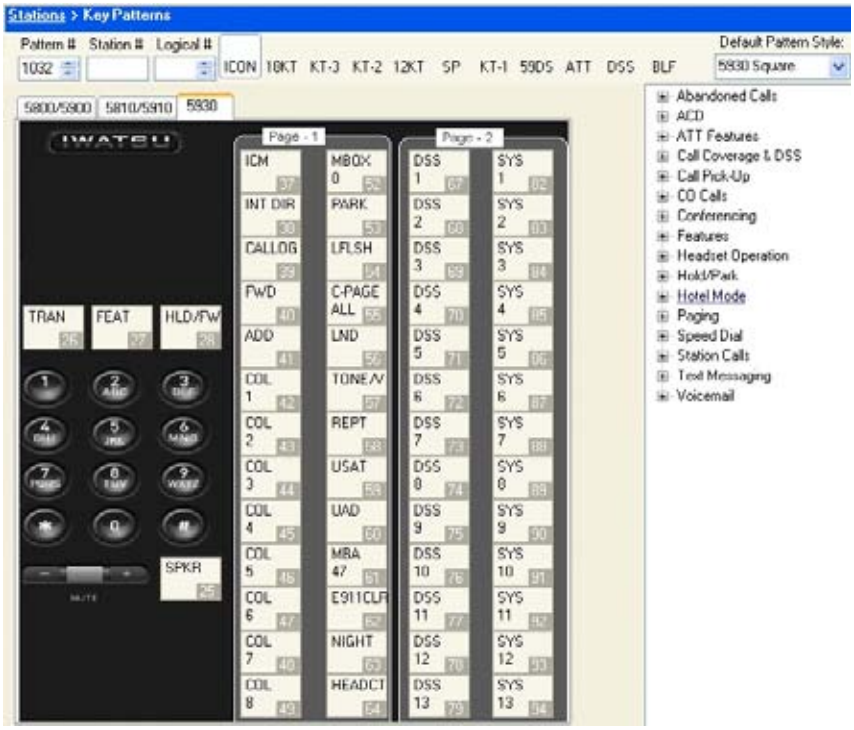
IX-5810 / IX-5910 Default Attendant Hybrid Key Pattern



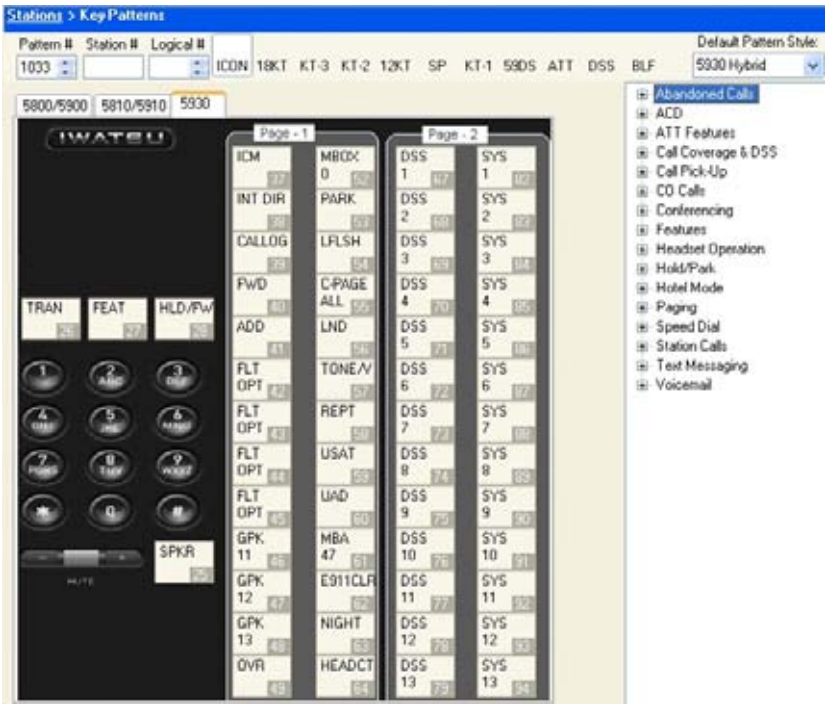
IX-5810 / IX-5910 Default Attendant ACD Key Pattern



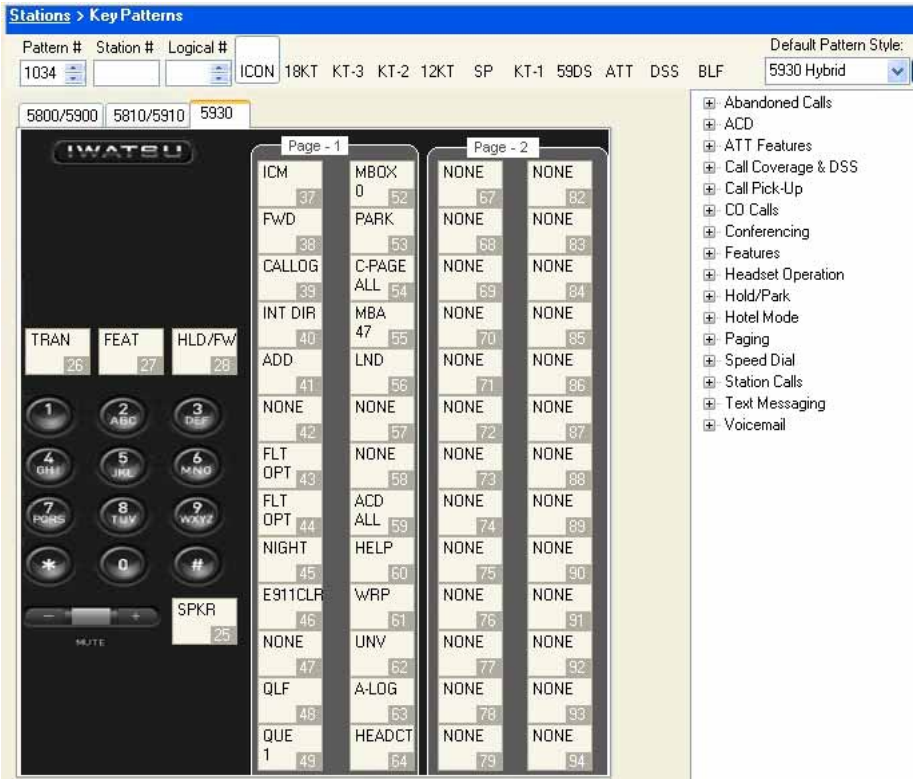
IX-5930 Default Attendant Square Key Pattern



IX-5930 Default Attendant Hybrid Key Pattern



IX-5930 Default Attendant ACD Key Pattern



ECS IX-24KTD/S + DSS Key Locations and Default Key Pattern 1 (1025)

#129	#130	#131	#132	#133	#134	#135	#136
042-000 ICM	071-000 SPEED	039-000 E911 CLR	025-000 ADD	049-000 MIC OFF	038-000 FWD	044-000 PAGE	176-000 MBOX-000

#001	#002	#003	#004	#005	#006
003-000 FLT-000	003-000 FLT-000	003-000 FLT-000	001-011 G.PRK-11	001-012 G.PRK-12	011-047 MBA-47
#007	#008	#009	#010	#011	#012
088-00 LND	073-000 SAVE	021-000 ICM CBK	160-000 DSPCHG	166-00 USAT	169-000 UAD
#013	#014	#015	#016	#017	#018
019-000 SYS-000	019-001 SYS-001	019-002 SYS-002	019-003 SYS-003	019-004 SYS-004	019-005 SYS-005
#019	#020	#021	#022	#023	#024
019-006 SYS-006	019-007 SYS-007	019-008 SYS-008	019-009 SYS-009	019-010 SYS-010	019-011 SYS-011

#029	#037
000-000	000-000
#030	#038
000-000	000-000
#031	#039
00-000	000-000
#032	#040
000-000	000-000
#033	#041
000-000	000-000
#034	#042
000-000	000-000
#035	#043
000-000	000-000
#036	#044
000-000	000-000

#025
070-000 SPK
#026
078-000 TRAN
#027
037-000 FEAT
#028
102-000 HOLD/ DND

1	2	3
4	5	6
7	8	9
*	0	#

ECS DSS 1, Screen 1 Key Locations and Default Key Pattern (1025)

#137	**#147**	**#157**	**#167**	**#177**
004-003	004-013	004-023	004-033	005-047
DSS-003	DSS-013	DSS-023	DSS-033	HNT-47
#138	**#148**	**#158**	**#168**	**#178**
004-004	004-014	004-024	004-034	162-000
DSS-004	DSS-014	DSS-024	DSS-034	TSMG-00
#139	**#149**	**#159**	**#169**	**#179**
004-005	004-015	004-025	004-035	162-001
DSS-005	DSS-015	DSS-025	DSS-035	TSMG-01
#140	**#150**	**#160**	**#170**	**#180**
004-006	004-016	004-026	004-036	162-002
DSS-006	DSS-016	DSS-026	DSS-036	TSMG-02
#141	**#151**	**#161**	**#171**	**#181**
004-007	004-017	004-027	004-037	162-003
DSS-007	DSS-017	DSS-027	DSS-037	TSMG-03
#142	**#152**	**#162**	**#172**	**#182**
004-008	004-018	004-028	004-038	162-004
DSS-008	DSS-018	DSS-028	DSS-038	TSMG-04
#143	**#153**	**#163**	**#173**	**#183**
004-009	004-019	004-029	004-039	162-005
DSS-009	DSS-019	DSS-029	DSS-039	TSMG-05
#144	**#154**	**#164**	**#174**	**#184**
004-010	004-020	004-030	004-040	036-000
DSS-010	DSS-020	DSS-030	DSS-040	FRL
#145	**#155**	**#165**	**#175**	**#185**
004-011	004-021	004-031	004-041	030-000
DSS-011	DSS-021	DSS-031	DSS-041	C-PUP
#146	**#156**	**#166**	**#176**	**#186**
004-012	004-022	004-032	004-042	040-000
DSS-012	DSS-022	DSS-032	DSS-042	G-PUP

#049	**#059**
076-001	076-002
SCN-1	SCN-2
#050	**#060**
041-000	052-000
G.NIGHT	NIGHT
#051	**#061**
027-000	056-000
CLOCK	PROG
#052	**#062**
067-000	068-000
C.SWAP	SILENT
#053	**#063**
198-000	053-000
HEADSET	OPER
#054	**#064**
055-000	058-000
PARK	P-PUP
#055	**#065**
077-000	045-000
TAC	MWC
#056	**#066**
054-000	063-000
OVR	RECALL
#057	**#067**
006-063	062-000
ALL CALL	RELEASE
#058	**#068**
023-000	101-000
ANS	CONNECT

ECS DSS 2, Screen 1 Key Locations and Default Key Pattern (1025)

#187	**#197**	**#207**	**#217**	**#227**
004-043	004-053	004-063	004-073	004-083
DSS-043	DSS-053	DSS-063	DSS-073	DSS-083
#188	**#198**	**#208**	**#218**	**#228**
004-044	004-054	004-064	004-074	004-084
DSS-044	DSS-054	DSS-064	DSS-074	DSS-084
#189	**#199**	**#209**	**#219**	**#229**
004-045	004-055	004-065	004-075	004-085
DSS-045	DSS-055	DSS-065	DSS-075	DSS-085
#190	**#200**	**#210**	**#220**	**#230**
004-046	004-056	004-066	004-076	004-086
DSS-046	DSS-056	DSS-066	DSS-076	DSS-086
#191	**#201**	**#211**	**#221**	**#231**
004-047	004-057	004-067	004-077	004-087
DSS-047	DSS-057	DSS-067	DSS-077	DSS-087
#192	**#202**	**#212**	**#222**	**#232**
004-048	004-058	004-068	004-078	004-088
DSS-048	DSS-058	DSS-068	DSS-078	DSS-088
#193	**#203**	**#213**	**#223**	**#233**
004-049	004-059	004-069	004-079	004-089
DSS-049	DSS-059	DSS-069	DSS-079	DSS-089
#194	**#204**	**#214**	**#224**	**#234**
004-050	004-060	004-070	004-080	004-090
DSS-050	DSS-060	DSS-070	DSS-080	DSS-090
#195	**#205**	**#215**	**#225**	**#235**
004-051	004-061	004-071	004-081	004-091
DSS-051	DSS-061	DSS-071	DSS-081	DSS-091
#196	**#206**	**#216**	**#226**	**#236**
004-052	004-062	004-072	004-082	004-092
DSS-052	DSS-062	DSS-072	DSS-082	DSS-092

ECS DSS 3, Screen 1 Key Locations and Default Key Pattern (1025)

#237	**#247**	**#257**	**#267**	**#277**
004-093	004-103	004-113	004-123	004-133
DSS-093	DSS-103	DSS-113	DSS-123	DSS-133
#238	**#248**	**#258**	**#268**	**#278**
004-094	004-104	004-114	004-124	004-134
DSS-094	DSS-104	DSS-114	DSS-124	DSS-134
#239	**#249**	**#259**	**#269**	**#279**
004-095	004-105	004-115	004-125	004-135
DSS-095	DSS-105	DSS-115	DSS-125	DSS-135
#240	**#250**	**#260**	**#270**	**#280**
004-096	004-106	004-116	004-126	004-136
DSS-096	DSS-106	DSS-116	DSS-126	DSS-136
#241	**#251**	**#261**	**#271**	**#281**
004-097	004-107	004-117	004-127	004-137
DSS-097	DSS-107	DSS-117	DSS-127	DSS-137
#242	**#252**	**#262**	**#272**	**#282**
004-098	004-108	004-118	004-128	004-138
DSS-098	DSS-108	DSS-118	DSS-128	DSS-138
#243	**#253**	**#263**	**#273**	**#283**
004-099	004-109	004-119	004-129	004-139
DSS-099	DSS-109	DSS-119	DSS-129	DSS-139
#244	**#254**	**#264**	**#274**	**#284**
004-100	004-110	004-120	004-130	004-140
DSS-100	DSS-110	DSS-120	DSS-130	DSS-140
#245	**#255**	**#265**	**#275**	**#285**
004-101	004-111	004-121	004-131	004-141
DSS-101	DSS-111	DSS-121	DSS-131	DSS-141
#246	**#256**	**#266**	**#276**	**#286**
004-102	004-112	004-122	004-132	004-142
DSS-102	DSS-112	DSS-122	DSS-132	DSS-142

ECS DSS 4, Screen 1 Key Locations and Default Key Pattern (1025)

#287	**#297**	**#307**	**#317**	**#327**
004-143	004-153	004-163	004-173	004-183
DSS-143	DSS-153	DSS-163	DSS-173	DSS-183
#288	**#298**	**#308**	**#318**	**#328**
004-144	004-154	004-164	004-174	004-184
DSS-144	DSS-154	DSS-164	DSS-174	DSS-184
#289	**#299**	**#309**	**#319**	**#329**
004-145	004-155	004-165	004-175	004-185
DSS-145	DSS-155	DSS-165	DSS-175	DSS-185
#290	**#300**	**#310**	**#320**	**#330**
004-146	004-156	004-166	004-176	004-186
DSS-146	DSS-156	DSS-166	DSS-176	DSS-186
#291	**#301**	**#311**	**#321**	**#331**
004-147	004-157	004-167	004-177	004-187
DSS-147	DSS-157	DSS-167	DSS-177	DSS-187
#292	**#302**	**#312**	**#322**	**#332**
004-148	004-158	004-168	004-178	004-188
DSS-148	DSS-158	DSS-168	DSS-178	DSS-188
#293	**#303**	**#313**	**#323**	**#333**
004-149	004-159	004-169	004-179	004-189
DSS-149	DSS-159	DSS-169	DSS-179	DSS-189
#294	**#304**	**#314**	**#324**	**#334**
004-150	004-160	004-170	004-180	004-190
DSS-150	DSS-160	DSS-170	DSS-180	DSS-190
#295	**#305**	**#315**	**#325**	**#335**
004-151	004-161	004-171	004-181	004-191
DSS-151	DSS-161	DSS-171	DSS-181	DSS-191
#296	**#306**	**#316**	**#326**	**#336**
004-152	004-162	004-172	004-182	004-192
DSS-152	DSS-162	DSS-172	DSS-182	DSS-192

Autodialer Key Locations and Default Key Pattern 1 (1025)

#029	**#037**
004-001	004-009
DSS 1	DSS 9
#030	**#038**
004-002	004-010
DSS 2	DSS 10
#031	**#039**
004-003	004-011
DSS 3	DSS 11
#032	**#040**
004-004	004-012
DSS 4	DSS 12
#033	**#041**
004-005	004-013
DSS 5	DSS 13
#034	**#042**
004-006	004-014
DSS 6	DSS 14
#035	**#043**
004-007	004-015
DSS 7	DSS 15
#036	**#044**
004-008	004-016
DSS 8	DSS 16

Default Key Pattern (1026) for an IX-ATT / BLF

#049	#050	#051	#052	#053	#054	#055	#056	#057	**#058**
004-003	004-004	004-005	004-006	004-007	004-008	004-009	004-010	004-011	004-012
DSS-003	DSS-004	DSS-005	DSS-006	DSS-007	DSS-008	DSS-009	DSS-010	DSS-011	DSS-012
#59	#60	#61	#62	#63	#64	#65	#66	#67	**#68**
004-013	004-014	004-015	004-016	004-017	004-018	004-019	004-020	004-021	004-022
DSS-013	DSS-014	DSS-015	DSS-016	DSS-017	DSS-018	DSS-019	DSS-020	DSS-021	DSS-022
#69	#70	#71	#72	#73	#74	#75	#76	#77	**#78**
004-023	004-024	004-025	004-026	004-027	004-028	004-029	004-030	004-031	004-032
DSS-023	DSS-024	DSS-025	DSS-026	DSS-027	DSS-028	DSS-029	DSS-030	DSS-031	DSS-032

#29	#30	#31	#32
052-000	068-000	038-000	037-000
NIGHT	SILENT	FWD	FEAT
#33	#34	#35	#36
055-000	054-000	174-000	025-000
PARK	OVR	E911CLR	ADD
#37	#38	#39	#40
063-000	011-047	053-000	102-000
RECALL	MBA-47	OPER	HOLD/ DND

#001	#002	#003	**#004**
003-000	003-000	003-000	003-000
FLT-000	FLT-000	FLT-000	FLT-000
#005	#006	#007	**#008**
003-000	003-000	003-000	003-000
FLT-000	FLT-000	FLT-000	FLT-000
#025	#026	#027	**#028**
023-000	101-000	062-000	006-063
ANS	CON-NECT	RELEASE	ALL CALL

Default Key Pattern (1027) for a stand alone KT

#129	#130	#131	#132	#133	#134	#135	#136
042-000 ICM	071-000 SPEED	174-000 E911CL	025-000 ADD	160-000 DSPCHG	038-000 FWD	044-000 PAGE	176-000 MBOX-000

#001	#002	#003	#004	#005	#006
003-000 FLT-000	003-000 FLT-000	001-011 G.PRK-11	001-012 G.PRK-12	055-000 PARK	011-047 MBA-47
#007	**#008**	**#009**	**#010**	**#011**	**#012**
004-003 DSS-003	004-004 DSS-004	004-005 DSS-005	004-006 DSS-006	004-007 DSS-007	004-008 DSS-008
#013	**#014**	**#015**	**#016**	**#017**	**#018**
004-009 DSS-009	004-010 DSS-010	004-011 DSS-011	004-012 DSS-012	004-013 DSS-013	004-014 DSS-014
#019	**#020**	**#021**	**#022**	**#023**	**#024**
005-047 HNT-47	019-000 SYS-000	019-001 SYS-001	019-002 SYS-002	019-003 SYS-003	052-000 NIGHT

#029	#037
000-000	000-000
#030	**#038**
000-000	000-000
#031	**#039**
00-000	000-000
#032	**#040**
000-000	000-000
#033	**#041**
000-000	000-000
#034	**#042**
000-000	000-000
#035	#043
000-000	000-000
#036	**#044**
000-000	000-000

#025	1	2	3
070-000 SPK			
#026	4	5	6
078-000 TRAN			
#027	7	8	9
037-000 FEAT			
#028	*	0	#
102-000 HOLD/ DND			

Default Key Pattern (1028) for a KT + DSS Squared

#129	#130	#131	#132	#133	#134	#135	#136
042-000 ICM	071-000 SPEED	174-000 E911CL	025-000 ADD	049-000 MIC OFF	038-000 FWD	044-000 PAGE	176-000 MBOX-000

#001	#002	#003	#004	#005	#006
002-001 COL-001	002-002 COL-002	002-011 COL-003	001-003 COL-004	002-005 COL-005	002-006 COL-006
#007	**#008**	**#009**	**#010**	**#011**	**#012**
002-007 COL-007	002-008 COL-008	002-009 COL-009	002-010 COL-010	002-011 COL-011	002-012 COL-012
#013	**#014**	**#015**	**#016**	**#017**	**#018**
019-000 SYS-000	019-001 SYS-001	019-002 SYS-002	019-003 SYS-003	002-090 SYS-004	002-091 SYS-005
#019	**#020**	**#021**	**#022**	**#023**	**#024**
088-000 LND	083-000 ICM CBK	166-000 USAT	169-000 UAD	160-000 DSPCHG	011-047 MBA-47

#029	#037
000-000	000-000
#030	**#038**
000-000	000-000
#031	**#039**
00-000	000-000
#032	**#040**
000-000	000-000
#033	**#041**
000-000	000-000
#034	**#042**
000-000	000-000
#035	**#043**
000-000	000-000
#036	**#044**
000-000	000-000

#025	1	2	3
070-000 SPK			
#026	4	5	6
078-000 TRAN			
#027	7	8	9
037-000 FEAT			
#028	*	0	#
102-000 HOLD/ DND			

ECS DSS 1, Screen 1 Key Locations and Default Key Pattern (1028)

#137	**#147**	**#157**	**#167**	**#177**
004-003	004-013	004-023	004-033	005-047
DSS-003	DSS-013	DSS-023	DSS-033	HNT-47
#138	**#148**	**#158**	**#168**	**#178**
004-004	004-014	004-024	004-034	162-000
DSS-004	DSS-014	DSS-024	DSS-034	TMG-00
#139	**#149**	**#159**	**#169**	**#179**
004-005	004-015	004-025	004-035	162-001
DSS-005	DSS-015	DSS-025	DSS-035	TSMG-01
#140	**#150**	**#160**	**#170**	**#180**
004-006	004-016	004-026	004-036	162-002
DSS-006	DSS-016	DSS-026	DSS-036	TMG-02
#141	**#151**	**#161**	**#171**	**#181**
004-007	004-017	004-027	004-037	162-003
DSS-007	DSS-017	DSS-027	DSS-037	TMG-03
#142	**#152**	**#162**	**#172**	**#182**
004-008	004-018	004-028	004-038	162-004
DSS-008	DSS-018	DSS-028	DSS-038	TMG-04
#143	**#153**	**#163**	**#173**	**#183**
004-009	004-019	004-029	004-039	162-005
DSS-009	DSS-019	DSS-029	DSS-039	FRL
#144	**#154**	**#164**	**#174**	**#184**
004-010	004-020	004-030	004-040	036-000
DSS-010	DSS-020	DSS-030	DSS-040	C-PUP
#145	**#155**	**#165**	**#175**	**#185**
004-011	004-021	004-031	004-041	030-000
DSS-011	DSS-021	DSS-031	DSS-041	G-PUP
#146	**#156**	**#166**	**#176**	**#186**
004-012	004-022	004-032	004-042	040-000
DSS-012	DSS-022	DSS-032	DSS-042	OPR

#049	**#059**
076-001	076-002
NONE	NONE
#050	**#060**
041-000	052-000
NONE	NONE
#051	**#061**
027-000	056-000
NONE	NONE
#052	**#062**
067-000	068-000
NONE	NONE
#053	**#063**
198-000	053-000
NONE	NONE
#054	**#064**
055-000	058-000
NONE	NONE
#055	**#065**
077-000	045-000
NONE	NONE
#056	**#066**
054-000	063-000
NONE	NONE
#057	**#067**
006-063	062-000
NONE	NONE
#058	**#068**
023-000	101-000
NONE	NONE

ECS DSS 2, Screen 1 Key Locations and Default Key Pattern (1028)

#187	**#197**	**#207**	**#217**	**#227**
004-043	004-053	004-063	004-073	004-083
DSS-043	DSS-053	DSS-063	DSS-073	DSS-083
#188	**#198**	**#208**	**#218**	**#228**
004-044	004-054	004-064	004-074	004-084
DSS-044	DSS-054	DSS-064	DSS-074	DSS-084
#189	**#199**	**#209**	**#219**	**#229**
004-045	004-055	004-065	004-075	004-085
DSS-045	DSS-055	DSS-065	DSS-075	DSS-085
#190	**#200**	**#210**	**#220**	**#230**
004-046	004-056	004-066	004-076	004-086
DSS-046	DSS-056	DSS-066	DSS-076	DSS-086
#191	**#201**	**#211**	**#221**	**#231**
004-047	004-057	004-067	004-077	004-087
DSS-047	DSS-057	DSS-067	DSS-077	DSS-087
#192	**#202**	**#212**	**#222**	**#232**
004-048	004-058	004-068	004-078	004-088
DSS-048	DSS-058	DSS-068	DSS-078	DSS-088
#193	**#203**	**#213**	**#223**	**#233**
004-049	004-059	004-069	004-079	004-089
DSS-049	DSS-059	DSS-069	DSS-079	DSS-089
#194	**#204**	**#214**	**#224**	**#234**
004-050	004-060	004-070	004-080	004-090
DSS-050	DSS-060	DSS-070	DSS-080	DSS-090
#195	**#205**	**#215**	**#225**	**#235**
004-051	004-061	004-071	004-081	004-091
DSS-051	DSS-061	DSS-071	DSS-081	DSS-091
#196	**#206**	**#216**	**#226**	**#236**
004-052	004-062	004-072	004-082	004-092
DSS-052	DSS-062	DSS-072	DSS-082	DSS-092

ECS DSS 3, Screen 1 Key Locations and Default Key Pattern (1028)

#237	**#247**	**#257**	**#267**	**#277**
004-093	004-103	004-113	004-123	004-133
DSS-093	DSS-103	DSS-113	DSS-123	DSS-133
#238	**#248**	**#258**	**#268**	**#278**
004-094	004-104	004-114	004-124	004-134
DSS-094	DSS-104	DSS-114	DSS-124	DSS-134
#239	**#249**	**#259**	**#269**	**#279**
004-095	004-105	004-115	004-125	004-135
DSS-095	DSS-105	DSS-115	DSS-125	DSS-135
#240	**#250**	**#260**	**#270**	**#280**
004-096	004-106	004-116	004-126	004-136
DSS-096	DSS-106	DSS-116	DSS-126	DSS-136
#241	**#251**	**#261**	**#271**	**#281**
004-097	004-107	004-117	004-127	004-137
DSS-097	DSS-107	DSS-117	DSS-127	DSS-137
#242	**#252**	**#262**	**#272**	**#282**
004-098	004-108	004-118	004-128	004-138
DSS-098	DSS-108	DSS-118	DSS-128	DSS-138
#243	**#253**	**#263**	**#273**	**#283**
004-099	004-109	004-119	004-129	004-139
DSS-099	DSS-109	DSS-119	DSS-129	DSS-139
#244	**#254**	**#264**	**#274**	**#284**
004-100	004-110	004-120	004-130	004-140
DSS-100	DSS-110	DSS-120	DSS-130	DSS-140
#245	**#255**	**#265**	**#275**	**#285**
004-101	004-111	004-121	004-131	004-141
DSS-101	DSS-111	DSS-121	DSS-131	DSS-141
#246	**#256**	**#266**	**#276**	**#286**
004-102	004-112	004-122	004-132	004-142
DSS-102	DSS-112	DSS-122	DSS-132	DSS-142

ECS DSS 4, Screen 1 Key Locations and Default Key Pattern (1028)

#287	**#297**	**#307**	**#317**	**#327**
004-143	004-153	004-163	004-173	004-183
DSS-143	DSS-153	DSS-163	DSS-173	DSS-183
#288	**#298**	**#308**	**#318**	**#328**
004-144	004-154	004-164	004-174	004-184
DSS-144	DSS-154	DSS-164	DSS-174	DSS-184
#289	**#299**	**#309**	**#319**	**#329**
004-145	004-155	004-165	004-175	004-185
DSS-145	DSS-155	DSS-165	DSS-175	DSS-185
#290	**#300**	**#310**	**#320**	**#330**
004-146	004-156	004-166	004-176	004-186
DSS-146	DSS-156	DSS-166	DSS-176	DSS-186
#291	**#301**	**#311**	**#321**	**#331**
004-147	004-157	004-167	004-177	004-187
DSS-147	DSS-157	DSS-167	DSS-177	DSS-187
#292	**#302**	**#312**	**#322**	**#332**
004-148	004-158	004-168	004-178	004-188
DSS-148	DSS-158	DSS-168	DSS-178	DSS-188
#293	**#303**	**#313**	**#323**	**#333**
004-149	004-159	004-169	004-179	004-189
DSS-149	DSS-159	DSS-169	DSS-179	DSS-189
#294	**#304**	**#314**	**#324**	**#334**
004-150	004-160	004-170	004-180	004-190
DSS-150	DSS-160	DSS-170	DSS-180	DSS-190
#295	**#305**	**#315**	**#325**	**#335**
004-151	004-161	004-171	004-181	004-191
DSS-151	DSS-161	DSS-171	DSS-181	DSS-191
#296	**#306**	**#316**	**#326**	**#336**
004-152	004-162	004-172	004-182	004-192
DSS-152	DSS-162	DSS-172	DSS-182	DSS-192

Class 16

Attendant Busy Lamp Field (BLF) Assignment

Class 16 - Attendant Busy Lamp Field (BLF) Assignment contains one item, *Class 16.01 - BLF Assignment* which is used to program flexible key patterns used by attendant consoles equipped with busy lamp field units. Pattern numbers and default key pattern assignments are listed in the following tables:

Class 16.01

Number	Used For	Class 10.12 Key Assignment Data
001	BLF default pattern.	Automatically follows the pattern number assigned for the associated attendant console.
002-008	Unassigned BLF patterns.	

16.01 - BLF Assignment

Class 16 Item 01 - BLF Assignment is used to generate and edit flexible key patterns for BLF units (IX-BLF) attached to attendant consoles. The pattern number (1-8) used for the BLF corresponds to the attendant position pattern number (1-8) programmed in *Class 15.01* and assigned to the attendant console in *Class 10.12*. When assigning BLF data, make sure to use the same pattern number as that used for key assignment for the associated attendant console. This programming does not apply to DSS units.

Note: If you are creating a new key pattern based on the default pattern (001) you must first copy the default pattern to the number you have designated for the new key pattern.

	Class Number		
	10.12 - Key Assignment	15.01 - Attendant Key Assignment	16.01 - BLF Assignment
Corresponding Pattern Number	1025	1	1
	1026	2	2
	1027	3	3
	1028	4	4
	1029	5	5
	1030	6	6
	1031	7	7
	1032	8	8
	1033	9	9
	1034	10	10
	1035	11	11
	1036	12	12
	1037	13	13
	1038	14	14
	1039	15	15
	1040	16	16
	1041	17	17
	1042	18	18
	1043	19	19
	1044	20	20
	1045	21	21
	1046	22	22
	1047	23	23
	1048	24	24
	1049	25	25
	1050	26	26
	1051	27	27
	1052	28	28
	1053	29	29
	1054	30	30
	1055	31	31
	1056	32	32

Programming Field Description

Element Field 1 (e1):	Meaning:	Pattern number.
	Range:	1-32
Element Field 1 (e2):	Meaning:	BLF Lamp Number.
	Range:	001-400
Data Field 1 (d1):	Meaning:	Function.
	Range:	0-1024
	Default:	See table below.
Data Field 2 (d2):	Meaning:	Key sub-function.
	Default:	See table below.

Related Databases:

Required: 01.11 Port Definition; 01.11 Port Configuration; 10.12 - Key Assignment; 15.01 - Attendant Key Assignment.

Associated: None.

Key Data For BLF Units

The table below lists the available settings for BLF Units.

Feature	Key Data	
	data 1 (d1)	data 2 (d2)
COL Group Busy Lamp.	3	001-250
Station Busy Lamp.	4	001-1024
Paging Group Busy Lamp.	6	001-250

IX-BLF Console Default Pattern (Screens 1 and 2)

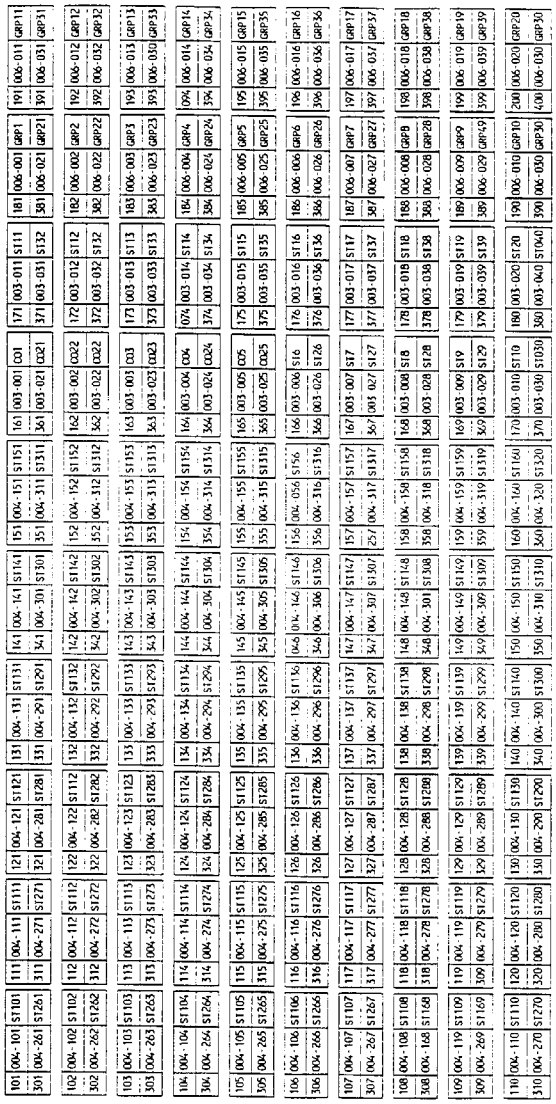
- Screen 1 displays Lamps 001-100
- Screen 2 displays Lamps 201-300

	Lamp Number	Default Lamp Data	Default Lamp Symbol
Screen 1	000	000-000	__00
Screen 2	000	000-000	__00

IX-BLF Console Default Pattern (Screens 3 and 4)

- Screen 3 displays Lamps 101-200
- Screen 2 displays Lamps 301-400

	Lamp Number	Default Lamp Data	Default Lamp Symbol
Screen 1	000	000-000	__00
Screen 2	000	000-000	__00



Class 17

Optimized Routing

Use **Class 17 - Optimized Routing** to program an optimized routing plan. With the software release of ECS version 1.5 Optimized Routing has significantly changed. The changes to Optimized Routing are described in this section under **Optimized Routing Expansion**.

The following programming items are included in Class 17:

- 17.01 - Bypass Code Table
- 17.02 - Area Code Table
- 17.03 - Six-Digit Route Selection Table
- 17.04 - (Not Used)
- 17.05 - General Office Code Table
- 17.06 - Route Table
- 17.07 - Delete Index Table
- 17.08 - Delete Dial Table
- 17.09 - Add Index Table
- 17.10 - Add Area Code Table
- 17.11 - Add Office Code Table
- 17.12 - Add Dial Index Table
- 17.13 - Add Dial Table
- 17.14 - Specific Code Table
- 17.15 - Area/Office Code Screening Table
- 17.16 - Eight-Digit Dial Enable
- 17.17 - Additional Office Code Prefix Information
- 17.18 - Emergency Bypass Number

Optimized Routing Expansion

Significant changes and enhancements to Optimized Routing (Class 17) and Station programming (Class 10) have been made to keep pace with the proliferation of area codes and telephone numbers, system expansion, larger networked systems, and TCP/IP interface. In addition, new items have been added to improve overall usability and to provide additional features for improved call routing.

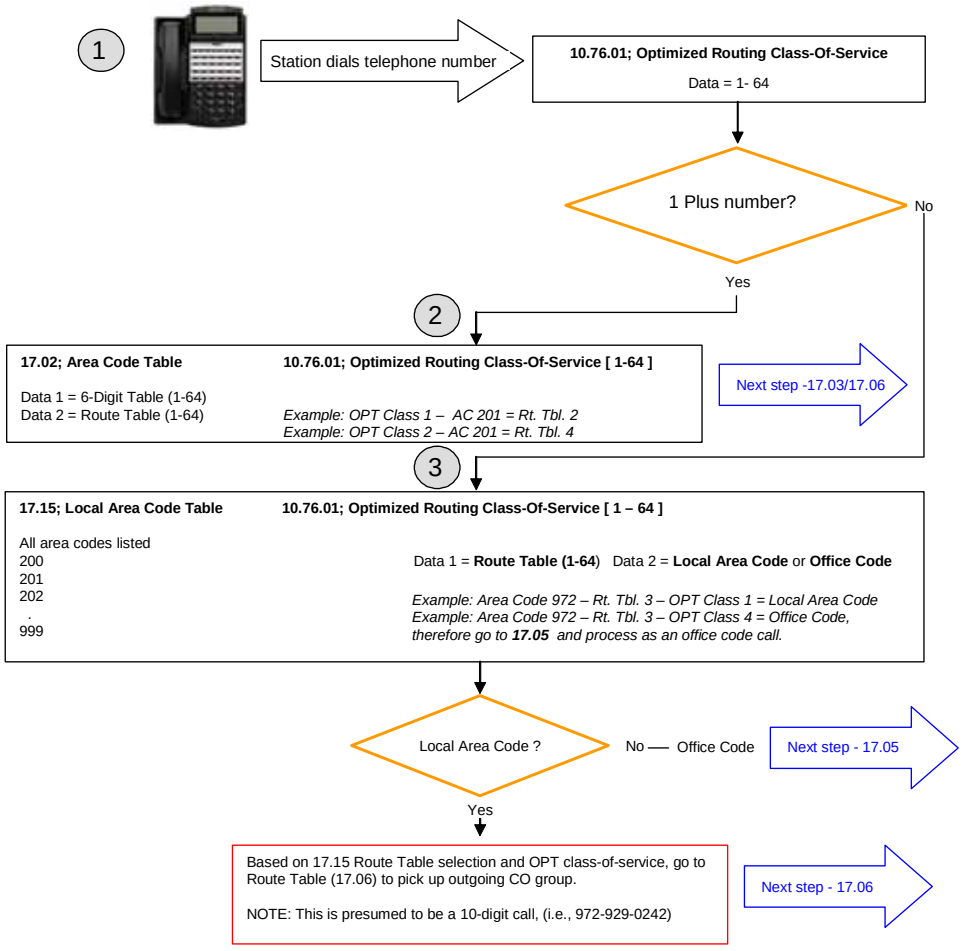
Note:	Because significant changes and enhancements have been made to Optimized Routing (Class 17), all Optimized Routing settings in the existing database will not be converted when the database is upgraded. Optimized Routing (Class 17) is programmed with the system default settings.

Enhancements to Optimized Routing are listed below:

- Routing table size and number increase for Optimized Routing (Class 17) data tables.
- New database items to facilitate improved call routing
- Optimized Routing Class of Service function (Class 10.76.01) to provide station based routing options.

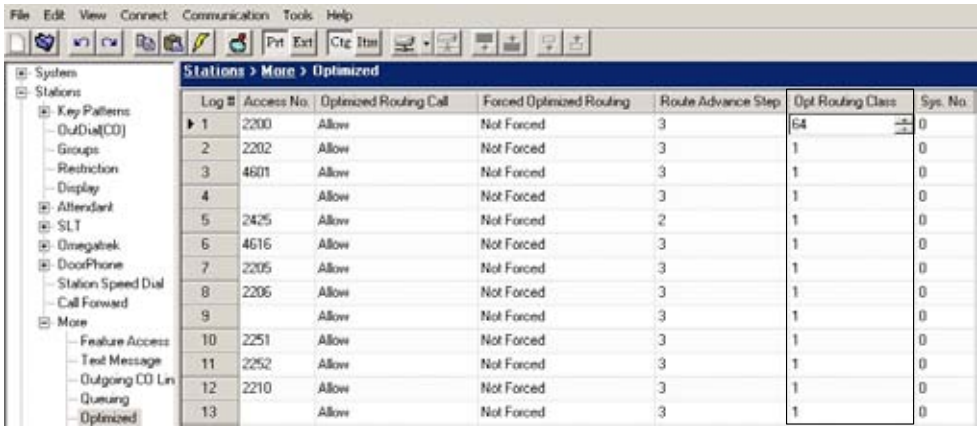
Optimized Routing Expansion Basic Flow Chart:

Use this flow chart as a reference for this section.



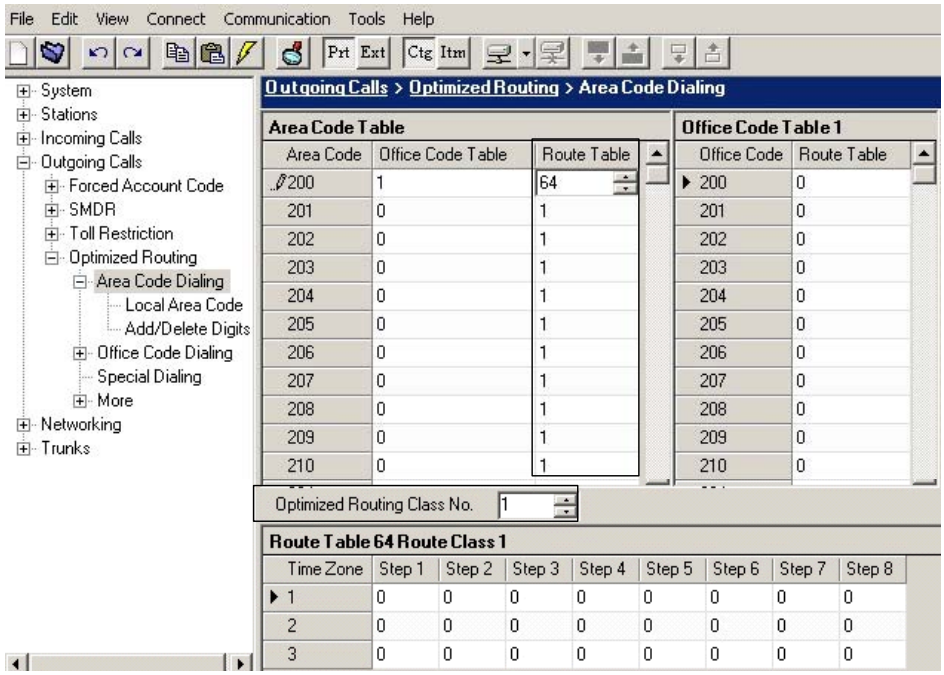
1. Station Based Optimized Routing:

- Stations > More > Optimized > Opt. Routing Class (Class 10.76.01).
  - Value 1-64.



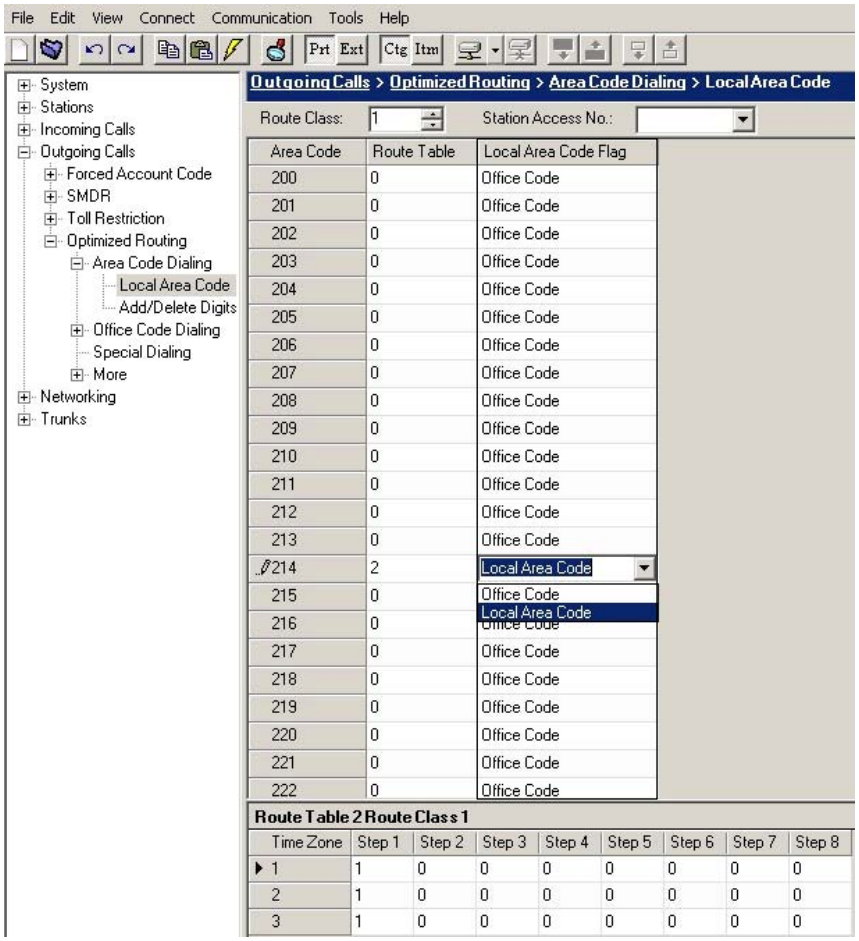
2. Area Code Dialing:

- **Outgoing Calls > Optimized Routing > Area Code Dialing > Route Table** (Class 17.02).
  - Value: 1 – 64.



3. Local Area Code / Office Code:

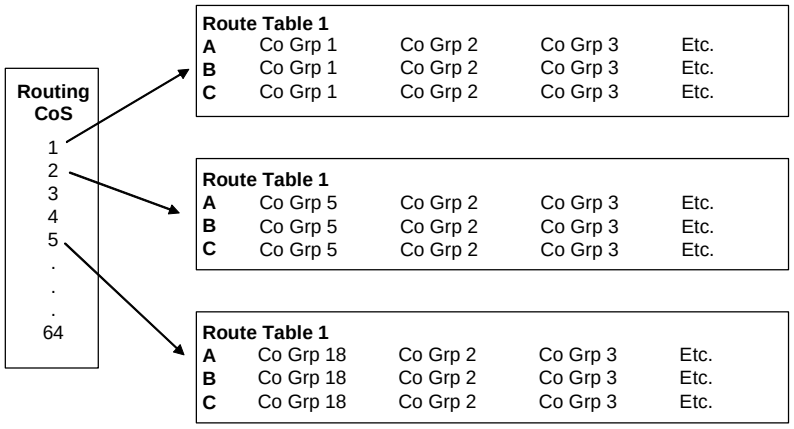
- **Outgoing Calls > Optimized Routing > Area Code Dialing > Local Area Code > Local Area Code Flag** (Class 17.15).
  - Value: **Office Code** – Go to **Outgoing Calls > Optimized Routing > Office Code Dialing** table (Class 17.05)
  - Value: **Local Area Code** – Pickup Route Table for Area Code.



Route Tables (Class 17.06):

The Route Tables are expanded to a range of 1-64. Each Route Table incorporates the full range of Station Routing Class of Service (Class 10.76.01).

- The Route Table structure allows up to 64 Station Routing CoS and 64 Route Selections per Route Table.
- The Route Table Structure is shown below:



Optimized Routing Class No. 2

Route Table 1 Route Class 2

Time Zone	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8
▶ 1	5	0	0	0	0	0	0	0
2	5	0	0	0	0	0	0	0
3	5	0	0	0	0	0	0	0

Optimized Routing Class No. 12

Route Table 1 Route Class 12

Time Zone	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8
1	22	0	0	0	0	0	0	0
2	22	0	0	0	0	0	0	0
▶ 3	22	0	0	0	0	0	0	0

Optimized Routing Class No. 64

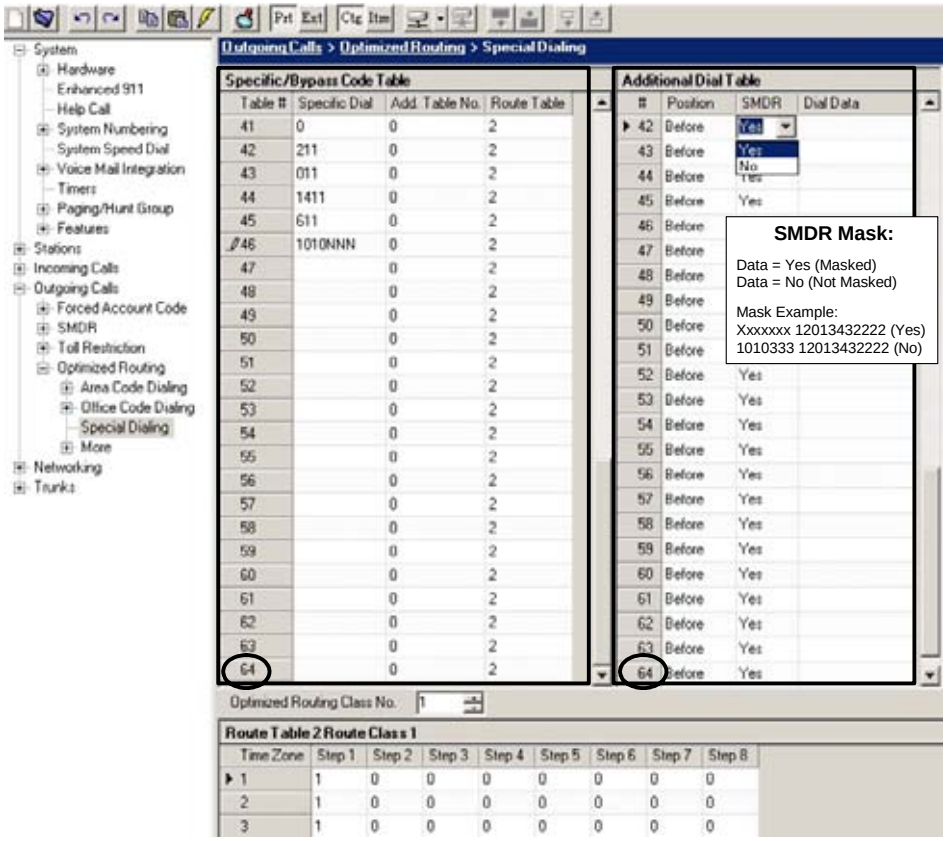
Route Table 1 Route Class 64

Time Zone	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8
▶ 1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0

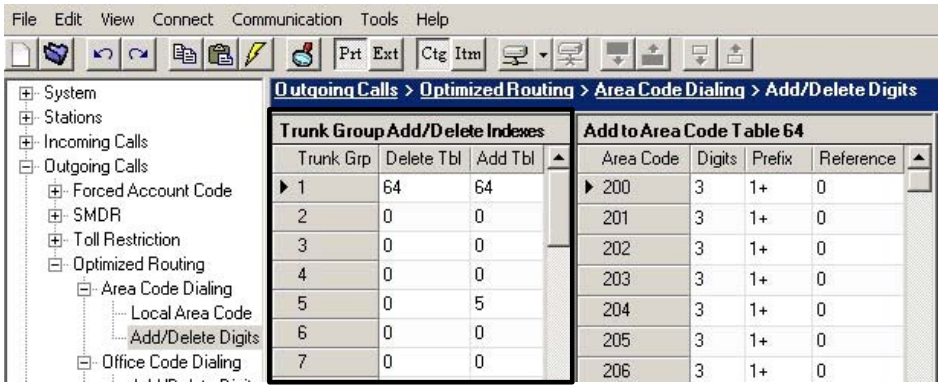
Add / Delete Functions:

The Add / Delete feature changes are detailed below:

1. Outgoing Calls > Optimized Routing > Special Dialing > Additional Dial Table (Class 17.13).
   - Expanded to 64 Dial Table entries.
   - New Item: SMDR field. When set to Yes (default), this masks the add data for SMDR and/or LCD output.
   - Expanded Dial Data to 20 digits each.
2. Outgoing Calls > Optimized Routing > Special Dialing > Specific/Bypass Code Table (Class 17.14).
   - Specific/Bypass Code Table expanded to 64 entries.
   - Specific Dial Table expanded to 20 digits each.



3. Outgoing Calls > Optimized Routing > Area Code Dialing > Add/Delete Dial Table (Class 17.08).
   - Delete Index Table expanded to 64 entries each (Class 17.07)
   - Add Index Table expanded to 64 entries each (Class 17.09).



Optimized Routing Overview

The ECS database includes a comprehensive optimized routing plan which enables the system to route outgoing calls through the least expensive trunk group available at the time a call is dialed.

The ECS optimized routing plan also provides routing based on either the first three digits dialed and/or six digits dialed. This flexibility enables you to program a different routing plan for area code dialing, office code dialing and area code plus office code dialing.

Optimized routing provides cost savings to ECS systems which have different types of CO lines installed, such as FX lines, WATS lines, tie lines, equal access lines and local lines. Each line type should be assigned to its own trunk group. Then, by entering data in the seventeen tables that comprise the optimized routing plan, the system will select the least expensive trunk group according to the number dialed. Additionally, three different routing plans can be programmed according to the time of day or holiday.

A station can be programmed to enable between one and seven alternate steps in 10.34 - Route Advance Step. If, at the time of dialing a CO line is not available in the trunk group programmed as the first choice, the system will try to select a CO line from an alternate trunk group in sequence.

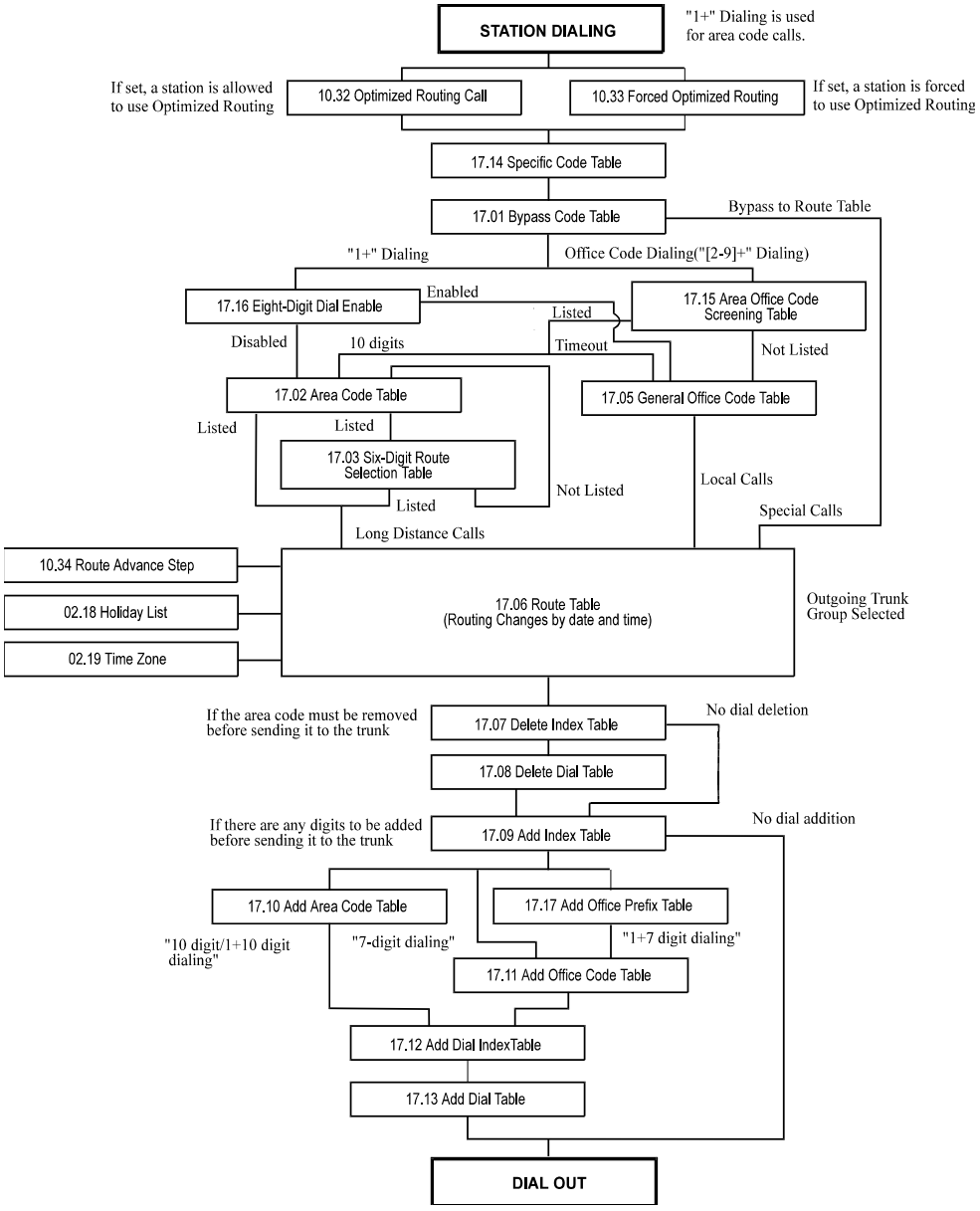
Other functions of the optimized routing plan include:

- **Area Code Deletion -** The system can delete up to eight area codes from dialed numbers. This is used for FX and E&M lines from distant area codes.
- **Area Code Screening** - The system can screen up to eight area codes that may be dialed with or without a “1+” prefix. This is sometimes used by local telephone companies that handle a limited number of outside area codes as local calls.
- **“1+” Dial Digit Reinsertion** - When dialing an area code or office code that requires dialing “1” plus the number, the initial digit “1” will be absorbed in the program. The digit “1” must be reinserted in order to make the call. The data addition tables are used to reinsert “1+” to the dialed number if required.
- **Additions to the Dialed Number** - The Add Dial Table contains ten entries for registering dial data to be added either before or after the dialed number. Up to twenty digits, including [#] and [*] can be registered for each entry. This is used for adding equal access codes, dial-up carrier access codes or trunk group access codes if the system is used behind a PBX or in Centrex applications.

Optimized Routing Plan Tables

The following graphic illustrates the tables of the ECS optimized routing plan. Use this diagram to indicate the method the system will use to route all types of dialing. The master table shows all possible steps within the routing plan. The simplified tables show only the steps which relate to the programming item being described.

The individual programming items, each of which contain a simplified table showing the table defined in that programming item with the previous logical steps to that item and the possible steps following the item in the plan. The most common route or path is indicated by bold lines; alternate paths are indicated by a lighter line.


STATION DIALING
"1+" Dialing is used for area code calls.
If set, a station is allowed to use Optimized Routing
10.32 Optimized Routing Call
10.33 Forced Optimized Routing
If set, a station is forced to use Optimized Routing
17.14 Specific Code Table
17.01 Bypass Code Table
Bypass to Route Table
"1+" Dialing
Office Code Dialing("[2-9]+" Dialing)
17.16 Eight-Digit Dial Enable
Enabled
Listed
17.15 Area Office Code Screening Table
Disabled
10 digits
Timeout
Not Listed
17.02 Area Code Table
17.05 General Office Code Table
Listed
Listed
17.03 Six-Digit Route Selection Table
Not Listed
Local Calls
Special Calls
Listed
Long Distance Calls
10.34 Route Advance Step
02.18 Holiday List
02.19 Time Zone
17.06 Route Table
(Routing Changes by date and time)
Outgoing Trunk Group Selected
If the area code must be removed before sending it to the trunk
17.07 Delete Index Table
No dial deletion
17.08 Delete Dial Table
If there are any digits to be added before sending it to the trunk
17.09 Add Index Table
No dial addition
17.10 Add Area Code Table
17.17 Add Office Prefix Table
"10 digit/1+10 digit dialing"
"7-digit dialing"
"1+7 digit dialing"
17.11 Add Office Code Table
17.12 Add Dial IndexTable
17.13 Add Dial Table
DIAL OUT

17.01 - Bypass Code Table

Class 17.01 - Bypass Code Table is used specifically for route selection and as a reference point to the 17.13 - Add Dial Table if additional digits are required before or after the specific code dialed. The Bypass Code Table determines the routing and actual dialing pattern of a specific code providing the specific code has been programmed in 17.14 - Specific Code Table.

The Bypass Code Table and the 17.14 - Specific Code Table work in conjunction with each other on an entry-by-entry basis from one to sixteen. If the system software detects a match between the digits dialed and the digits registered in the 17.14 - Specific Code Table, it then looks to the corresponding entry in the Bypass Code Table for trunk group selection and the 17.13 - Add Dial Table reference.

Programming Field Description

Table Number	Meaning:	Table number corresponding to entries 1-16 in 17.14 - Specific Code Table.
	Range:	01-16
Route Table	Meaning:	Route Table Number.
	Range:	1-8
	Default:	2
Add Table No.	Meaning:	Add Dial Table Number.
	Range:	1-10
	Default:	0

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.33 - Forced Optimized Routing; 10.34 - Route Advance Step; 11.38 - Outgoing CO Group; 17.14 - Specific Code Table.

Associated: 07.03 - CO Line Group Access Numbers: Group 255; 10.21 - Outgoing CO Line Group.

17.02 - Area Code Table

Class 17.02 - Area Code Table and 17.03 - Six-Digit Route Selection Table provide routing based on either the matching of the area code alone or the area code plus the office code (six-digit dialing) as opposed to matching three-digit dialing of the office code through 17.05 - General Office Code Table. When dialing begins with "1" and the total digits dialed exceed eight, the three digits following the "1" are determined to be an area code. When dialing begins with any digit other than "1", the first three digits are determined to be an area code only if they are listed in 17.15 - Area/Office Code Screening Table and the total digits dialed exceed eight. Once detected, the system will always refer to the Area Code Table first for registered data matching the dialed area code. If a six-digit route selection table number is registered for the dialed area code, the system proceeds to 17.03 - Six-Digit Route Selection Table to attempt to match the dialed office code. If a six-digit route selection table number is not registered or a route table number is not registered in the six-digit route selection table, the system will proceed to 17.06 - Route Table.

Programming Field Description

Area Code	Meaning:	All valid area codes for North America.
	Range:	200-999
Office Code Table	Meaning:	Points of one of 8 tables that contain office codes. In a 10-digit telephone number such as (972) 929-0242, the office code is the 929 digits.
	Range:	0 = no Six-Digit Route Selection Table 1 – 8
Route Table Number	Meaning:	Route Table number.
	Range:	0 = no Route Table 1 – 8
	Default:	200-999 = 1 Except as Follows: 800 = 2 822 = 2 833 = 2 844 = 2 855 = 2 866 = 2 877 = 2 888 = 2

Related Databases:

Required: 17.17 - Additional Office Code Prefix Information; 17.18 - Emergency Bypass Number; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.33 - Forced Optimized Routing; 10.34 - Route Advance Step; 17.15 - Area/Office Code Screening Table; 17.16 - Eight-Digit Dial Enable; Class 17 Optimized Routing.

Associated: 07.03 - CO Line Group Access Numbers; 10.21 - Outgoing CO Line Group.

17.03 - Six-Digit Route Selection Table

Class 17.03 - Six-Digit Route Selection Table works in conjunction with 17.02 - Area Code Table for route selection based on the first six digits dialed following the office code. Eight six-digit route selection tables are provided to determine route selection for any office code (200-999) used. If a route table number reference for the dialed office code is found, the system proceeds to *Class 17.06 – Route Table*. If no reference is found, the system will go back to Class 17.02 – Area Code Table to find the route table number based on the area code only.

Note:	This item will not be accessed by office code calls (seven or eight-digit dialing) dialed through optimized routing.

Programming Field Description

Office Code Table	Meaning:	Office Code Route Table Number.
	Range:	1-8
Office Code	Meaning:	3-digit office code
	Range:	200-999
Route Table	Meaning:	Route Table number.
	Range:	0 = no Route Table 1-8
	Default:	0

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.32 - Optimized Routing Call; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 17.03 - Six-Digit Route Selection Table; 10.21 - Outgoing CO Line Group.

17.04 - (Not Used)

Class 17.04 is not used

17.05 - General Office Code Table

Class 17.05 - General Office Code Table is used for all non-area code dialing. Use General Office Code Table to list all possible office codes (200-999) with a reference to a route table number. The system checks this item in the following instances:

- When dialing **does not begin** with a prefix (1+) and the first three digits dialed **are not** listed in 17.15 - Area/Office Code Screening Table, i.e., 935-8580, 220-5555.
- When dialing **does not begin** with a prefix (1+) and the first three digits dialed **are** listed in 17.15 - Area/Office Code Screening Table, but the total digits dialed are exactly seven, i.e., 212-1212, 929-5555.
- When dialing **begins** with a prefix (1+) and 17.16 - Eight-Digit Dial Enable is enabled and the total digits dialed are exactly eight, i.e. 1-212-1212, 1-929-5555.

The General Office Code Table provides route selection based on the office code dialed. The system will proceed to the route table number referenced for trunk group selection.

Programming Field Description

Office Code	Meaning:	Office code. In a 10-digit telephone number such as (972) 929-0242, the office code is the 929 digits.
	Range:	200-999
Route Table	Meaning:	Route Table number.
	Range:	0 = no Route Table 1-8
	Default:	2

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.33 - Forced Optimized Routing; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 17.03 - Six-Digit Route Selection Table.

17.06 - Route Table

The route tables defined in **Class 17.06 - Route Table** are the core of the optimized routing plan. Here, the trunk groups used for dialing are specified. The system uses 17.01 - Bypass Code Table, 17.02 - Area Code Table; 17.03 - Six-Digit Route Selection Table and 17.05 - General Office Code Table to obtain a reference to a route table number (1-8) based on the dialed number. Each route table contains three time zones that allow for different trunk group selection based on the time of day the call was made. The hours comprised in each time zone are defined in 02.19 - Time Zone. Up to eight trunk groups can be defined for each time zone. If all trunks in the first choice trunk group are busy, the system will attempt to select a trunk from up to seven additional trunk groups in a programmable sequence. If 10.34 - Route Advance Step is programmed to allow for a specific number of route advance steps (1-7), however, the system will only advance to the alternate trunk groups.

Note:	Default time zone values are as follows: 0 = 0800-1659, 1= 1700-2259, 2= 2300-0759.

Programming Field Description

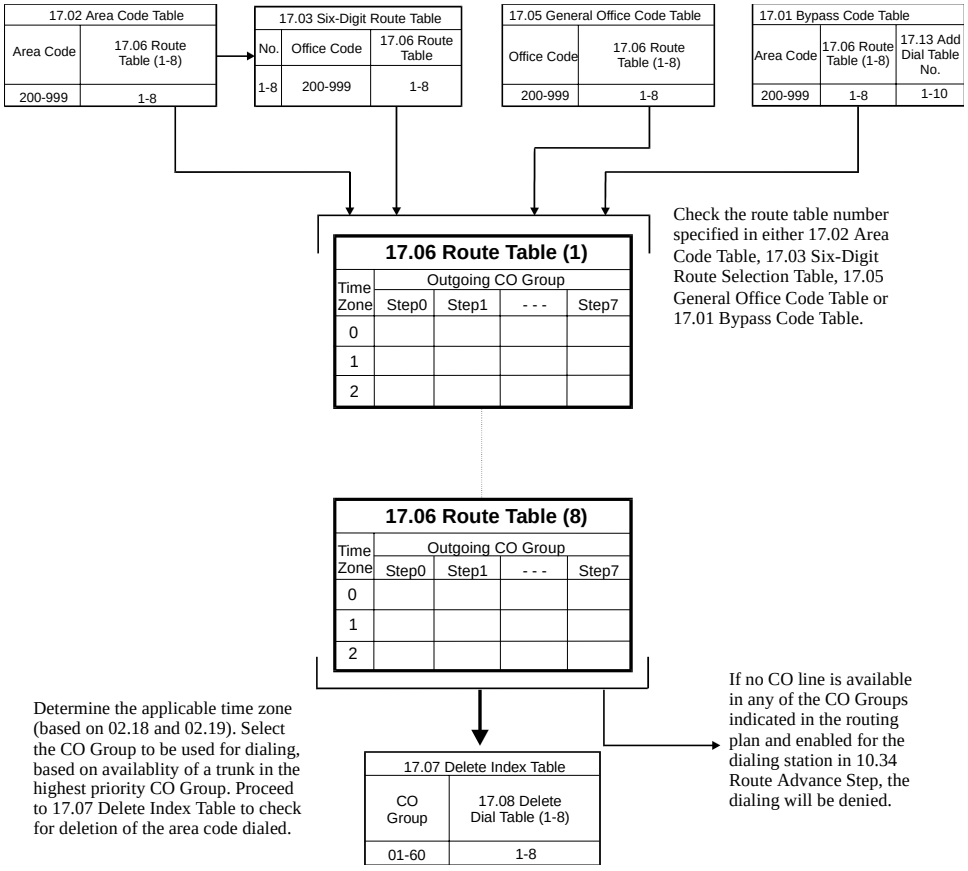
Route Table Number	Meaning:	Route Table number.
	Range:	1-8
Time Zone	Meaning:	Time Zone number.
	Range:	1-3
Step 1-8	Meaning:	Route selection advance steps per time zone.
	Range:	1-8
Step 1-8 Trunk Group	Meaning:	CO trunk group number
	Range:	0-250
	Default:	See the following table

Default Values	
Element Number	CO Trunk Group Number
Route Table: 1 Time Zone: 1 Step 1-8: 1	1
Route Table: 1 Time Zone: 2 Step 1-8: 1	1
Route Table: 1 Time Zone: 3 Step 1-8: 1	1
Route Table: 2 Time Zone: 1 Step 1-8: 1	1
Route Table: 2 Time Zone: 2 Step 1-8: 1	1
Route Table: 2 Time Zone: 3 Step 1-8: 1	1

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.33 - Forced Optimized Routing; 10.34 - Route Advance Step; 11.38 - Outgoing CO Group; Class 17 Optimized Routing.

Associated: 17.03 - Six-Digit Route Selection Table; 10.21 - Outgoing CO Line Group.


17.02 Area Code Table
Area Code
17.06 Route Table (1-8)
200-999
1-8
17.03 Six-Digit Route Table
No.
Office Code
17.06 Route Table
1-8
200-999
1-8
17.05 General Office Code Table
Office Code
17.06 Route Table (1-8)
200-999
1-8
17.01 Bypass Code Table
Area Code
17.06 Route Table (1-8)
17.13 Add Dial Table No.
200-999
1-8
1-10
17.06 Route Table (1)
Time Zone
Outgoing CO Group
Step0
Step1
- - -
Step7
0
1
2
Check the route table number specified in either 17.02 Area Code Table, 17.03 Six-Digit Route Selection Table, 17.05 General Office Code Table or 17.01 Bypass Code Table.
17.06 Route Table (8)
Time Zone
Outgoing CO Group
Step0
Step1
- - -
Step7
0
1
2
Determine the applicable time zone (based on 02.18 and 02.19). Select the CO Group to be used for dialing, based on availablity of a trunk in the highest priority CO Group. Proceed to 17.07 Delete Index Table to check for deletion of the area code dialed.
17.07 Delete Index Table
CO Group
17.08 Delete Dial Table (1-8)
01-60
1-8
If no CO line is available in any of the CO Groups indicated in the routing plan and enabled for the dialing station in 10.34 Route Advance Step, the dialing will be denied.

17.07 - Delete Index Table

Class 17.07 - Delete Index Table is used only if the dialed area code must be deleted. The Delete Index Table lists all sixty trunk groups, with a reference to a Delete Dial Table. Based on the trunk group selected in 17.06 - Route Table, the system checks the Delete Index Table for a reference to a 17.08 - Delete Dial Table, which lists the area codes to be deleted (maximum of eight). Applications requiring deletion of the area code include: foreign exchange lines, E&M tie lines and OPXs which originate from an area code other than the area code of the location of the ECS. If there is no dial to be deleted, the system will proceed to 17.09 - Add Index Table.

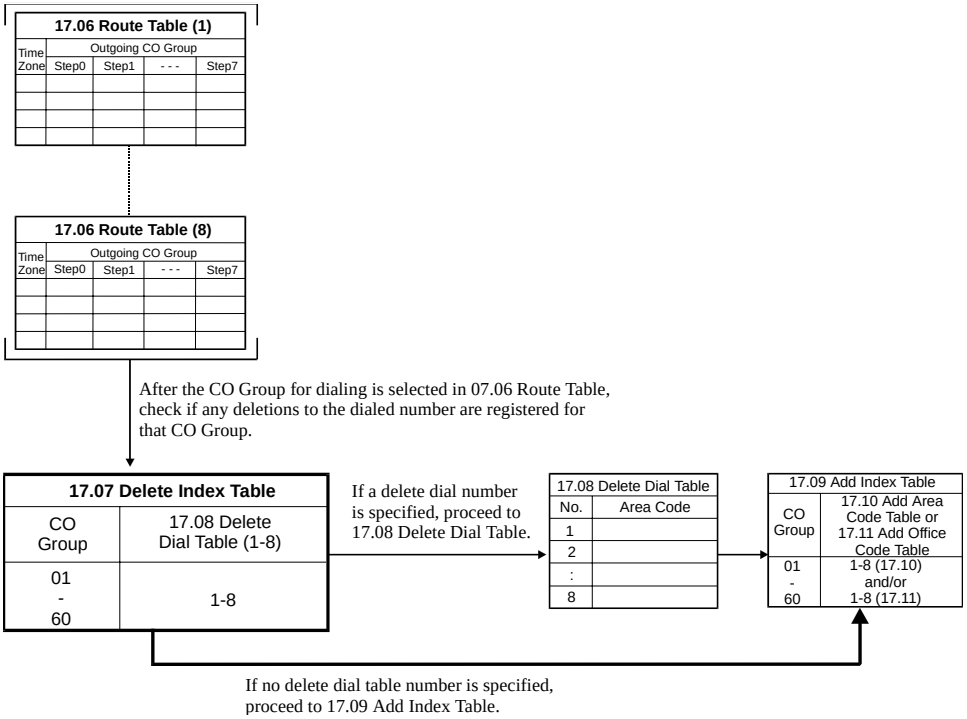
Programming Field Description

Trunk Group	Meaning:	Outgoing CO Group.
	Range:	1-250
Delete Tbl	Meaning:	Delete Dial Table number.
	Range:	0 = no deleted dial 1-8
	Default:	0

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.33 - Forced Optimized Routing; 10.34 - Route Advance Step; 11.38 - Outgoing CO Group; Class 17 Optimized Routing.

Associated: 17.03 - Six-Digit Route Selection Table.


17.06 Route Table (1)
Time Zone
Outgoing CO Group
Step0
Step1
- - -
Step7
17.06 Route Table (8)
Time Zone
Outgoing CO Group
Step0
Step1
- - -
Step7
After the CO Group for dialing is selected in 07.06 Route Table, check if any deletions to the dialed number are registered for that CO Group.
17.07 Delete Index Table
CO Group
17.08 Delete Dial Table (1-8)
01 - 60
1-8
If a delete dial number is specified, proceed to 17.08 Delete Dial Table.
17.08 Delete Dial Table
No.
Area Code
1
2
:
8
17.09 Add Index Table
CO Group
17.10 Add Area Code Table or 17.11 Add Office Code Table
01 - 60
1-8 (17.10) and/or 1-8 (17.11)
If no delete dial table number is specified, proceed to 17.09 Add Index Table.

17.08 - Delete Dial Table

Class 17.08 - Delete Dial Table is used to list up to eight area codes which will be automatically deleted if the dialed area code matches the data in this table. When a call is routed through a trunk group, the system checks the Delete Index Table (*Class 17.07*) for a reference to that trunk group. If a Delete Dial Table Number is indicated for that group, and the data registered in the table matches the area code dialed, the system deletes the area code from the dialing. Applications for area code deletion include foreign exchange lines, E&M tie lines and OPXs.

Programming Field Description

Element	Meaning:	Delete Dial Table number.
Field:	Range:	1-8
Data Field:	Meaning:	Area Code to be deleted.
	Range:	3 digits
	Default:	0

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.33 - Forced Optimized Routing; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 17.03 - Six-Digit Route Selection Table.

17.09 - Add Index Table

Class 17.09 - Add Index Table contains sixty entries – one for each trunk group – to provide a reference to an Add Area Code Table or Add Office Code Table. If the number dialed through optimized routing includes an area code, and there is a reference in this table for the trunk group selected in 17.06 - Route Table, the system will proceed to the referenced table (1-8) in 17.10 - Add Area Code Table. If, however, the number dialed is an office code call and there is a table reference in this item, the system will proceed to 17.11 - Add Office Code Table.

If the dialed number includes an area code, the system will access 17.10 - Add Area Code Table: Table 1. If the number does not include an area code, the system will access 17.11 - Add Office Code Table: Table 1.

Note:	Additional tables are always required for “1+” reinsertion. They are also used to reference an Add Dial Table that will allow the system to add up to twenty digits before or after the dialed number.

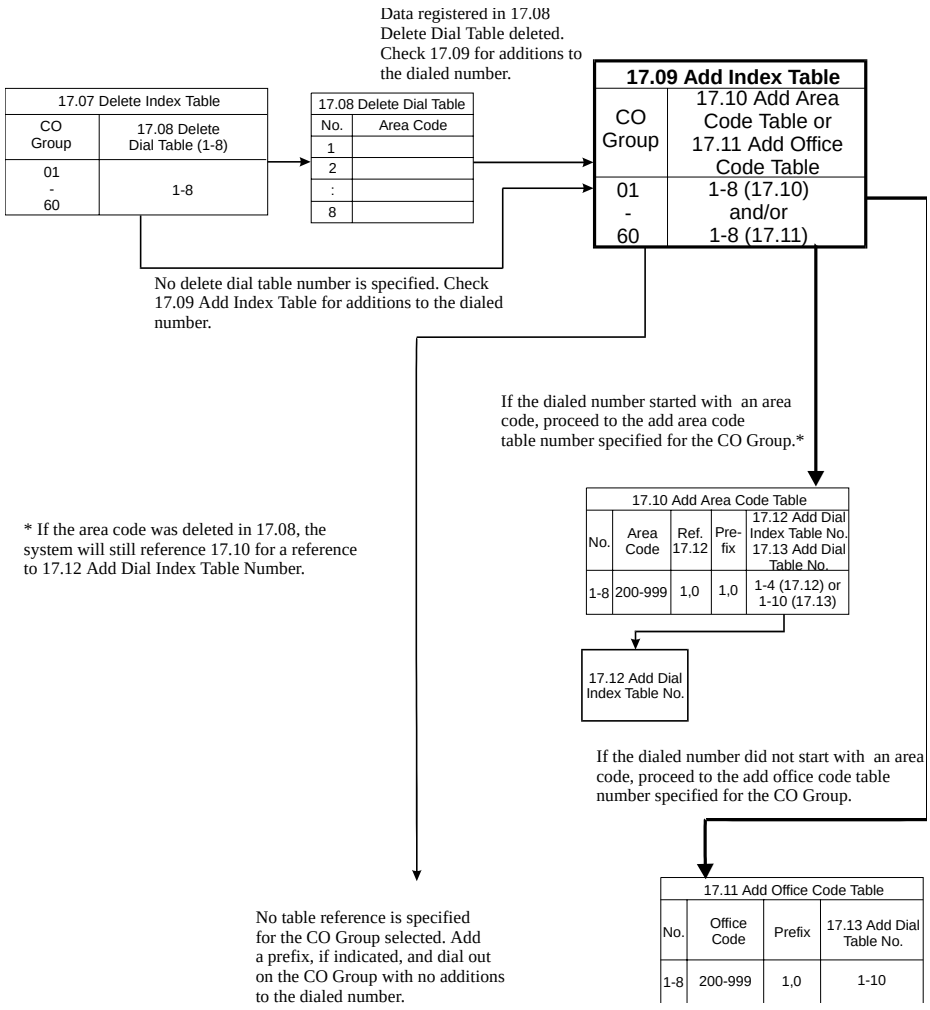
Programming Field Description

Trunk Group	Meaning:	Outgoing CO Group.
	Range:	1-250
Add Tbl	Meaning:	Add Area Code Table number or Add Office Code Table number.
	Range:	0 = no addition 1-8
	Default:	1 for Trunk Groups 1-5 (0 thereafter)

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday Listt; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.33 - Forced Optimized Routing; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 17.03 - Six-Digit Route Selection Table.


Data registered in 17.08 Delete Dial Table deleted. Check 17.09 for additions to the dialed number.
17.07 Delete Index Table
CO Group
17.08 Delete Dial Table (1-8)
01 - 60
1-8
17.08 Delete Dial Table
No.
Area Code
1
2
:
8
17.09 Add Index Table
CO Group
17.10 Add Area Code Table or 17.11 Add Office Code Table
01 - 60
1-8 (17.10) and/or 1-8 (17.11)
No delete dial table number is specified. Check 17.09 Add Index Table for additions to the dialed number.
If the dialed number started with an area code, proceed to the add area code table number specified for the CO Group.*
* If the area code was deleted in 17.08, the system will still reference 17.10 for a reference to 17.12 Add Dial Index Table Number.
17.10 Add Area Code Table
No.
Area Code
Ref. 17.12
Pre-fix
17.12 Add Dial Index Table No. 17.13 Add Dial Table No.
1-8
200-999
1,0
1,0
1-4 (17.12) or 1-10 (17.13)
17.12 Add Dial Index Table No.
If the dialed number did not start with an area code, proceed to the add office code table number specified for the CO Group.
17.11 Add Office Code Table
No.
Office Code
Prefix
17.13 Add Dial Table No.
1-8
200-999
1,0
1-10
No table reference is specified for the CO Group selected. Add a prefix, if indicated, and dial out on the CO Group with no additions to the dialed number.

17.10 - Add Area Code Table

Class 17.10 - Add Area Code Table adds the prefix “1” for area code dialing and a reference to either an 17.12 - Add Dial Index Table or an 17.13 - Add Dial Table. If data field 1 (d1) = **0**, the system will check the data field 2 (d2) prefix to determine if “1” must be added before the area code dialed. If data field 1 (d1) = **1**, then data field 3 references an Add Dial Table (*Class 17.12*) in which up to twenty digits can be registered for addition to the dialed number. If data field 3 (d3) = **0**, the system will dial the number as is. A value of **1** in (d1) is generally used if the area code was deleted in *Class 17.08* in which case the system will refer to the Add Dial Index Table (Class 17.12) specified by (d3). This will allow the system to reinsert the prefix “1” and add dial data to the remaining office code if necessary.

Note:	If a location requires “1+” dialing, this must always be added in the optimized routing plan tables. If “1+” addition is not registered in either Classes 17.10, 17.11 or 17.12, the number will not be dialed with the addition of “1+”. This will result in a dial error.

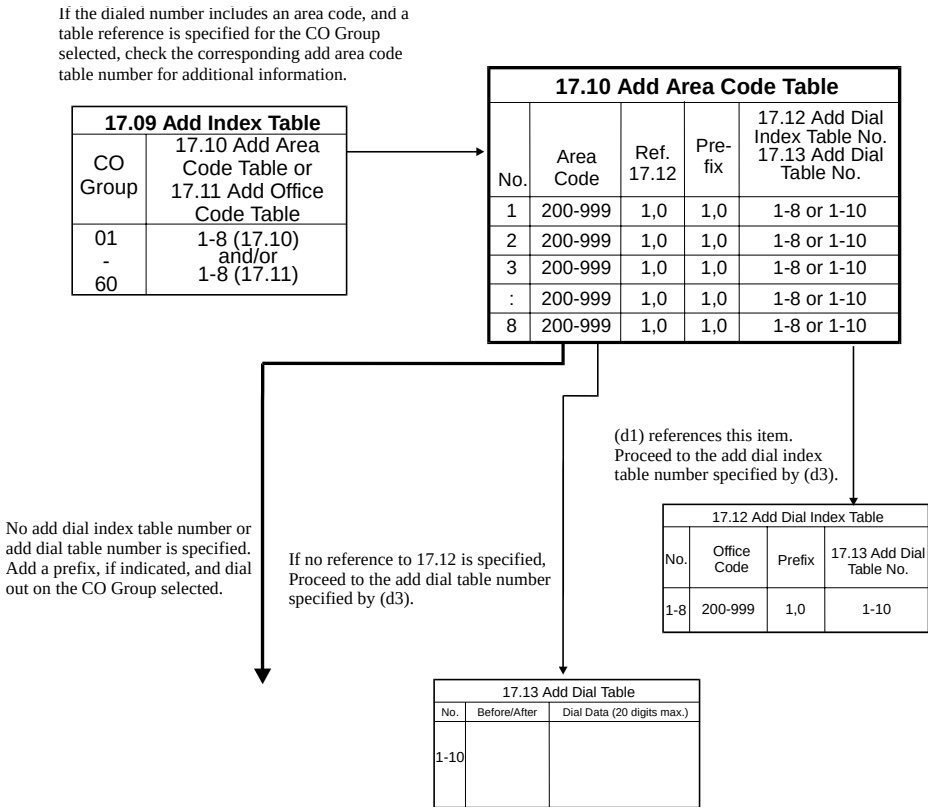
Programming Field Description

Area Code Table	Meaning:	Add Area Code Table.
	Range:	1-8
Area Code	Meaning:	Area Code.
	Range:	200-999
Digits	Meaning	Location where the area code adds a prefix or the area code and office code ignore the prefix.
	Range:	3 = add prefix (3-digit area code), references the 17.13 - Add Dial Table 6 = ignore prefix (3-digit area code plus the office code),references 17.12 - Add Dial Index Table
	Default:	3
Prefix	Meaning:	Add/do not add prefix.
	Range:	None = do not add prefix (Not applicable if 6 is programmed in the Digits Field +1 = add prefix
	Default:	+1
Reference	Meaning:	If a 3 is programmed in the Digits field, the Reference field refers to the 17.13 - Add Dial Table If a 6 is programmed in the Digits field, the Reference field refers to the 17.12 - Add Dial Index Table
	Range:	01-10: If the Digits field is programmed as a 3. 01-08: If the Digits field is programmed as a 6.
	Default:	0

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.33 - Forced Optimized Routing; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 17.03 - Six-Digit Route Selection Table.


If the dialed number includes an area code, and a table reference is specified for the CO Group selected, check the corresponding add area code table number for additional information.
17.09 Add Index Table
CO Group
17.10 Add Area Code Table or 17.11 Add Office Code Table
01 - 60
1-8 (17.10) and/or 1-8 (17.11)
17.10 Add Area Code Table
No.
Area Code
Ref. 17.12
Pre-fix
17.12 Add Dial Index Table No. 17.13 Add Dial Table No.
1 200-999 1,0 1,0 1-8 or 1-10
2 200-999 1,0 1,0 1-8 or 1-10
3 200-999 1,0 1,0 1-8 or 1-10
: 200-999 1,0 1,0 1-8 or 1-10
8 200-999 1,0 1,0 1-8 or 1-10
(d1) references this item. Proceed to the add dial index table number specified by (d3).
17.12 Add Dial Index Table
No.
Office Code
Prefix
17.13 Add Dial Table No.
1-8 200-999 1,0 1-10
No add dial index table number or add dial table number is specified. Add a prefix, if indicated, and dial out on the CO Group selected.
If no reference to 17.12 is specified, Proceed to the add dial table number specified by (d3).
17.13 Add Dial Table
No.
Before/After
Dial Data (20 digits max.)
1-10

17.11 - Add Office Code Table

The system will refer to **Class 17.11 – Add Office Code Table** only when a seven or eight-digit number not including an area code is dialed through optimized routing. This item is used to reference an office code to the 17.13 - Add Dial Table where up to twenty digits can be added before or after the dialed telephone number.

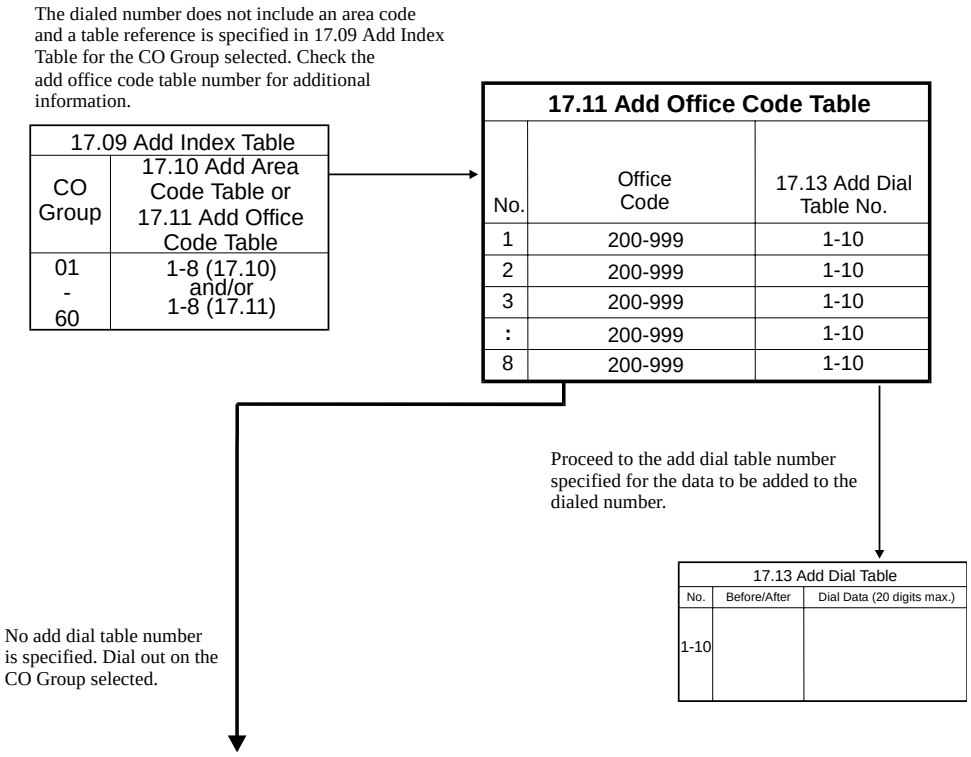
Programming Field Description

Add to Office Code Table	Meaning:	Add Office Code Table number.
	Range:	1-8
Office Code Table	Meaning:	Office code.
	Range:	200-999
Data Field:	Meaning:	Add Dial Table number (17.13 - Add Dial Table).
	Range:	1-10
	Default:	00

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.33 - Forced Optimized Routing; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 17.03 - Six-Digit Route Selection Table.


The dialed number does not include an area code and a table reference is specified in 17.09 Add Index Table for the CO Group selected. Check the add office code table number for additional information.
17.09 Add Index Table
CO Group
17.10 Add Area Code Table or 17.11 Add Office Code Table
01 - 60
1-8 (17.10) and/or 1-8 (17.11)
17.11 Add Office Code Table
No.
Office Code
17.13 Add Dial Table No.
1 200-999 1-10
2 200-999 1-10
3 200-999 1-10
: 200-999 1-10
8 200-999 1-10
Proceed to the add dial table number specified for the data to be added to the dialed number.
17.13 Add Dial Table
No.
Before/After
Dial Data (20 digits max.)
1-10
No add dial table number is specified. Dial out on the CO Group selected.

17.12 - Add Dial Index Table

Class 17.12 - Add Dial Index Table contains all the possible office codes for "1+" (prefix) reinsertion and an Add Dial Table reference. This item must be programmed when the dialed area code is deleted in 17.08 - Delete Dial Table, and if either "1+" reinsertion is required for the remaining office code dialing and/or if additional dial data must be added to the dialed number. The function of this table is similar to 17.11 - Add Office Code Table except that this item applies to numbers originally dialed with an area code or routes that were selected based on the area code dialed.

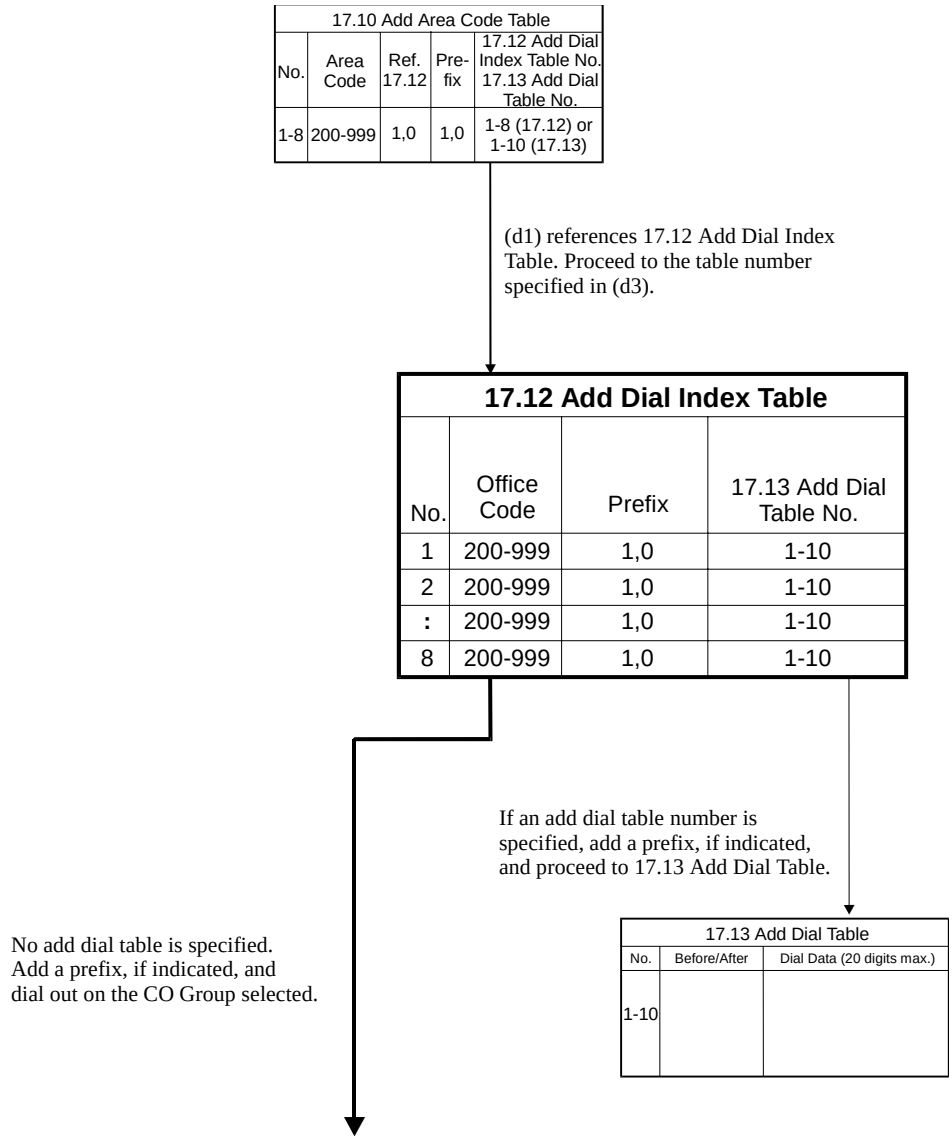
Programming Field Description

Add to Office Code Table	Meaning:	Add Dial Index Table number.
	Range:	1-8
Office Code	Meaning:	Office code.
	Range:	200-999
Data Field 1	Meaning:	Add/do not add prefix.
	Range:	None = do not add prefix +1 = add prefix (prefix = 1+ reinsertion)
	Default:	None
Reference	Meaning:	References an entry in the Additional Dial Table number (17.13 - Add Dial Table).
	Range:	1-10
	Default:	0

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.33 - Forced Optimized Routing; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 17.03 - Six-Digit Route Selection Table.


17.10 Add Area Code Table
No.
Area Code
Ref. 17.12
Pre-fix
17.12 Add Dial Index Table No. 17.13 Add Dial Table No.
1-8
200-999
1,0
1,0
1-8 (17.12) or 1-10 (17.13)
(d1) references 17.12 Add Dial Index Table. Proceed to the table number specified in (d3).
17.12 Add Dial Index Table
No.
Office Code
Prefix
17.13 Add Dial Table No.
1
200-999
1,0
1-10
2
200-999
1,0
1-10
:
200-999
1,0
1-10
8
200-999
1,0
1-10
If an add dial table number is specified, add a prefix, if indicated, and proceed to 17.13 Add Dial Table.
17.13 Add Dial Table
No.
Before/After
Dial Data (20 digits max.)
1-10
No add dial table is specified. Add a prefix, if indicated, and dial out on the CO Group selected.

17.13 - Add Dial Table

Class 17.13 - Add Dial Table is used to register up to ten numbers for automatic insertion before or after a number is dialed through optimized routing. Up to twenty digits including *, #, and pause can be added to the dialing. Applications for this table include equal access codes, dial-up common carrier service and trunk group access codes. Each add dial digit is represented as “X” and each pause is represented as “-” on the SMDR printout.

Note:	If a pause is registered, it must be followed by the pause time in seconds (0-9).

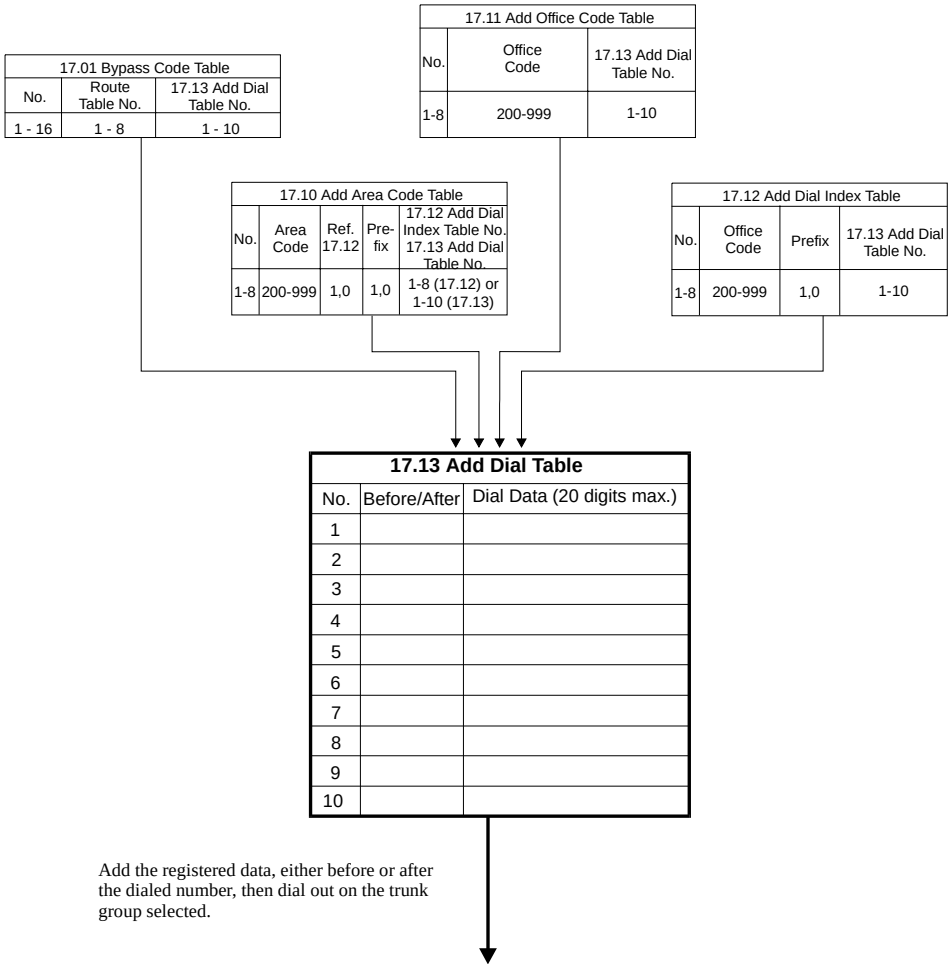
Programming Field Description

Additional Dial Table	Meaning:	Add Dial Table number.
	Range:	1-10
Position	Meaning:	Position of dial data to be added.
	Range:	Before = before the number After = after the number
	Default:	Before
Dial Data	Meaning:	Dial data to be added.
(d2):	Range:	Up to 20 digits (0-9, #, *, P) The ‘P’ is used for pausing purposes
	Default:	None

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.32 - Optimized Routing Call; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 07.03 - CO Line Group Access Numbers.


17.01 Bypass Code Table
No.
Route Table No.
17.13 Add Dial Table No.
1 - 16
1 - 8
1 - 10
17.11 Add Office Code Table
No.
Office Code
17.13 Add Dial Table No.
1-8
200-999
1-10
17.10 Add Area Code Table
No.
Area Code
Ref. 17.12
Pre-fix
17.12 Add Dial Index Table No. 17.13 Add Dial Table No.
1-8
200-999
1,0
1,0
1-8 (17.12) or 1-10 (17.13)
17.12 Add Dial Index Table
No.
Office Code
Prefix
17.13 Add Dial Table No.
1-8
200-999
1,0
1-10
17.13 Add Dial Table
No.
Before/After
Dial Data (20 digits max.)
1
2
3
4
5
6
7
8
9
10
Add the registered data, either before or after the dialed number, then dial out on the trunk group selected.

17.14 - Specific Code Table

Class 17.14 – Specific Code Table is used to route specific dialing codes through optimized routing, bypassing the area code, general area code and general office code tables. The table consists of sixteen entries used to enter up to sixteen different specific code dialing patterns. Each of the sixteen entries allows up to twenty digits to be programmed as specific codes. Some examples of specific codes programmable in this table include: 0, 00, 011, 10288, 10NNN, N11 (N = any digit, 0-9, *, #) plus other dialing codes defined as a valid number. The Specific Code Table works in conjunction with the Bypass Code Table (17.01 - Bypass Code Table) on an entry-by-entry basis. If the system finds a match between the digits dialed and the digits registered in the Specific Code Table, it will look to the corresponding entry in the Bypass Code Table for route table selection and Add Dial Table (17.13 - Add Dial Table) references.

Programming Field Description

Table Number	Meaning:	Specific Code Table number. References corresponding table number in Class 17.01 - Bypass Code Table.
	Range:	01-16
Specific Dial	Meaning:	Specific code data.
	Range:	Up to 20 digits (0-9, *, #)
	Default:	Table 1 = 411 Table 2 = 311 Table 3 = 611 Table 4 = 011 Table 5 = 1411 Table 6 = 00 Table 7 = 0 Table 8 = 1010NNN Table 9 = 511 Tables 10-16 = None

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.32 - Optimized Routing Call; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 07.03 - CO Line Group Access Numbers.

17.15 - Area/Office Code Screening Table

Class 17.15 - Area/Office Code Screening Table is used to determine if a number dialed without the prefix “1” is to be treated as an area code or an office code for route selection. An entry in this table is required in areas where a duplication of the area code and office code exists that allows a local call to be dialed using either seven or ten digits without the prefix “1”. For example, a local call with ten digits (e.g., 817-XXX-YYYY) and a local call with seven digits (e.g., 817-YYYY).

In areas where this type of dialing pattern is used, the duplicate area/office code is listed in Area/Office Code Screening Table. When a call is dialed without the prefix “1” and the first three digits dialed by the user match the digits entered in the table, the system automatically turns on a four-second inter-digit timer and begins to count the number of digits dialed. If the digits dialed match the digits registered in the table and dialing stops after seven digits, the system determines the first three digits to be an office code and sends the call to 17.05 - General Office Code Table. If the first three digits dialed match the digits registered in the table and the system counts a total of ten digits, the first three digits are determined to be an area code and the call is sent to 17.02 - Area Code Table.

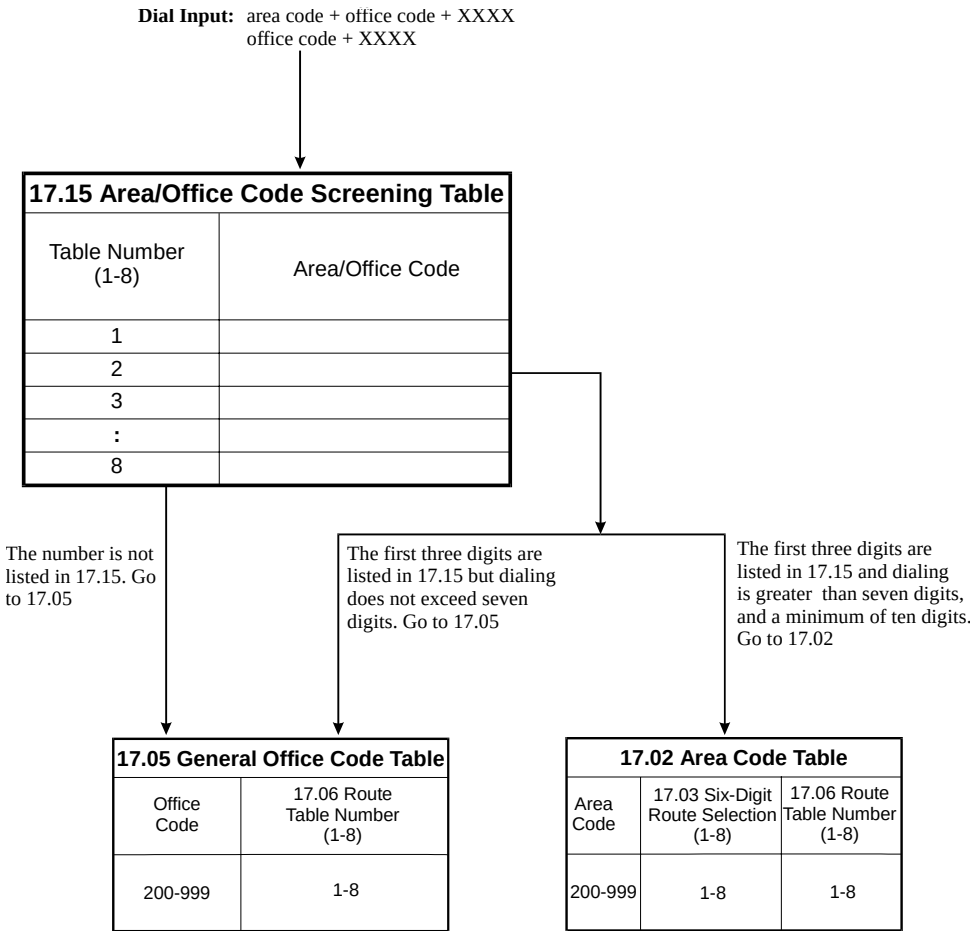
Programming Field Description

Local Area Codes	Meaning:	Area codes. Up to eight area codes can be programmed
	Range:	Up to 3 digits (0-9)
	Default:	None.

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.32 - Optimized Routing Call; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 07.03 - CO Line Group Access Numbers.


Dial Input: area code + office code + XXXX
office code + XXXX
17.15 Area/Office Code Screening Table
Table Number (1-8)
Area/Office Code
1
2
3
:
8
The number is not listed in 17.15. Go to 17.05
The first three digits are listed in 17.15 but dialing does not exceed seven digits. Go to 17.05
The first three digits are listed in 17.15 and dialing is greater than seven digits, and a minimum of ten digits. Go to 17.02
17.05 General Office Code Table
Office Code
17.06 Route Table Number (1-8)
200-999
1-8
17.02 Area Code Table
Area Code
17.03 Six-Digit Route Selection (1-8)
17.06 Route Table Number (1-8)
200-999
1-8
1-8

17.16 - Eight-Digit Dial Enable

Class 17.16 - Eight-Digit Dial Enable and *Class 17.17 - Additional Office Code Prefix Information Table* are used to differentiate a "1 + seven-digit" call from a "1 + ten-digit" call using a dial timer.

Note:	If Eight-Digit Dial Enable is set to checked, all calls that start with "1" are subject to a four-second dial digit timer.

If Eight-Digit Dial Enable is set to enabled, the system determines if an area code or an office code follows the prefix based on the total number of digits dialed. If eight digits are counted by the system, after a pause in dialing greater than four seconds, the dialed digits following the prefix are determined to be an office code and the call is routed to 17.05 - General Office Code Table. If eleven digits are counted by the system, the dialed digits following the prefix are determined to be an area code and the call is routed to 17.02 - Area Code Table. Once the route has been selected the system will reference the Add Index Table. The add index reference will then send the call, based on the office code route selection, through an associated reference in 17.17 - Additional Office Code Prefix Information.

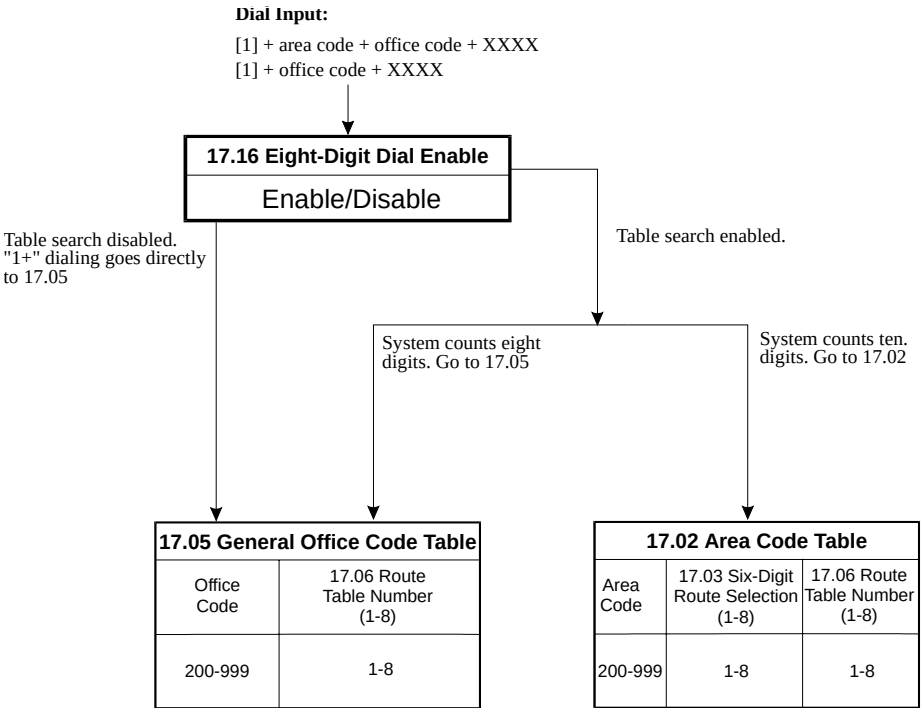
Programming Field Description

System Prfix	Meaning:	Activation of Additional Office Code Prefix Information Table.
	Range:	No checked = do not refer to 17.17 - Additional Office Code Prefix Information Checked = refer to 17.17 - Additional Office Code Prefix Information for the office code prefix. Also activates a four-second dial digit timer on all calls beginning with "1"
	Default:	Not checked

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.32 - Optimized Routing Call; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 07.03 - CO Line Group Access Numbers; 17.17 - Additional Office Code Prefix Information.


Dial Input:
[1] + area code + office code + XXXX
[1] + office code + XXXX
17.16 Eight-Digit Dial Enable
Enable/Disable
Table search disabled. "1+" dialing goes directly to 17.05
Table search enabled.
System counts eight digits. Go to 17.05
System counts ten. digits. Go to 17.02
17.05 General Office Code Table
Office Code
17.06 Route Table Number (1-8)
200-999
1-8
17.02 Area Code Table
Area Code
17.03 Six-Digit Route Selection (1-8)
17.06 Route Table Number (1-8)
200-999
1-8
1-8

17.17 - Additional Office Code Prefix Information

Class 17.17 - Additional Office Code Prefix Information is used to add the prefix "1" to specific office codes that were dialed by the user as "1 + seven digits". Additional Office Code Prefix Information is only referenced if 17.16 - Eight-Digit Dial Enable is programmed as **1** - enabled. This table does not have an impact on route or trunk group selection. Additional Office Code Prefix Information is referenced during the dialed number modification (i.e., add, delete) after the route has been selected in 17.05 - General Office Code Table through 17.09 - Add Index Table. From 17.09 - Add Index Table the call is handled as follows:

Type of Call	Reference the following Class(es)
1 + seven digits	Go to Additional Office Code Prefix Information to see if the prefix "1" must be reinserted. Then go to 17.11 - Add Office Code Table to see if any additional dial data must be added.
Seven digits	Go to 17.11 - Add Office Code Table to see if any dial data must be added.

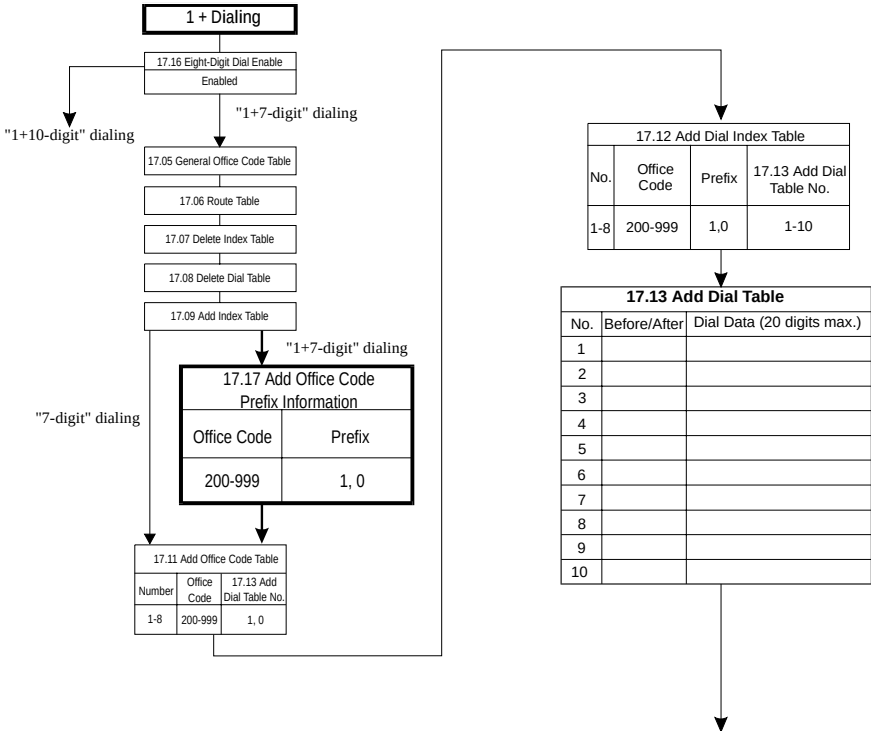
Programming Field Description

Office Code	Meaning:	Office code.
	Range:	200-999
Table 1-8	Meaning:	Additional Office Code Prefix Information Table number.
	Range:	1-8
Data Field:	Meaning:	Dial with/without prefix.
	Range:	No Prefix With Prefix
	Default:	No Prefix

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.32 - Optimized Routing Call; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 07.03 - CO Line Group Access Numbers.


1 + Dialing
17.16 Eight-Digit Dial Enable
Enabled
"1+10-digit" dialing
"1+7-digit" dialing
17.05 General Office Code Table
17.06 Route Table
17.07 Delete Index Table
17.08 Delete Dial Table
17.09 Add Index Table
"1+7-digit" dialing
"7-digit" dialing
17.17 Add Office Code Prefix Information
Office Code
Prefix
200-999
1, 0
17.11 Add Office Code Table
Number
Office Code
17.13 Add Dial Table No.
1-8
200-999
1, 0
17.12 Add Dial Index Table
No.
Office Code
Prefix
17.13 Add Dial Table No.
1-8
200-999
1,0
1-10
17.13 Add Dial Table
No.
Before/After
Dial Data (20 digits max.)
1
2
3
4
5
6
7
8
9
10

17.18 - Emergency Bypass Number

Class 17.18 – Emergency Bypass Number is used with Enhanced 911 Service. Digits programmed in this item bypass all other optimized routing programming. Programming in this item determines what dialed digits, besides 911, will activate 911 Emergency Routing.

Note:	If 9 is programmed as the access code for optimized routing in 07.03 - CO Line Group Access Numbers Group 255, 07.03 - CO Line Group Access Numbers must include an entry for 11 in order to allow system access to 911 from intercom dial tone.

The table consists of sixteen entries used to enter up to sixteen different specific code dialing patterns. Each of the sixteen entries allows up to four digits to be programmed as specific codes. Some examples of specific codes programmable in this table include: 0, 00, 011, 10288, 10NNN, N11 (N = any digit, 0-9, *, #) plus other dialing codes defined as a valid number.

Programming Field Description

Emergency Bypass Numbers	Meaning:	Emergency Specific code data. Up to 16 Emergency Bypass numbers can be entered
	Range:	Up to 4 digits (0-9)
	Default:	Entry 1 = 911 Entry 2 = 11 Entry 3-16 = Blank

Related Databases:

Required: 02.17 - System Prefix; 02.18 - Holiday List; 02.19 - Time Zone; 10.32 - Optimized Routing Call; 10.32 - Optimized Routing Call; 10.34 - Route Advance Step; Class 17 Optimized Routing.

Associated: 04.70 - Programming Reserve 1: E911 Outgoing Type; 04.71 - Call Coverage/Voice Mail Data: E911 Relay Number; 04.71 - Call Coverage/Voice Mail Data: E911 FAIL Rely Number; 04.71 - Call Coverage/Voice Mail Data: E911 Special Trunk Group; 04.71 - Call Coverage/Voice Mail Data: E911 CAMA Wink Timer; 04.72 - Programming Reserve 3: E911 Inf. Port; 10.73 - Programming Reserve: E911 Area Routing Trunk Group; 11.72 - UCD Overflow Calls: E911 Attribute; 15.01 - Attendant Key Assignment: E911 Display Clear; 17.18 - Emergency Bypass Number: Emergency Specific Code; 29.10 - Emergency Send Dial: Group # (1-60) Emergency Send Dial.

Class 18

ACD System Configuration

Use **Class 18** – **ACD System Configuration** to program system-wide parameters. The following programming items are included in Class 18:

- 18.01 - ACD Trunk Group Priority
- 18.02 - Ringing ACD Group
- 18.03 - Barge-In Tone
- 18.04 - Voice Message Recording Time
- 18.05 - ACD Music-on-Hold Source
- 18.06 - Call Sequence Table
- 18.07 - Reporting Output Port
- 18.08 - ACD Virtual Station
- 18.09 - CO Outgoing Duration
- 18.10 - Forward to Busy Hunting Group

18.01 - ACD Trunk Group Priority

Class 18 Item 01 – **ACD Trunk Group Priority** is used to define the priority a call is assigned at the time it is placed in the queue of an ACD group. Priority ranges from 1 (highest) to 8 (lowest).

Programming Field Description

Trunk Group Number	Meaning:	ACD trunk group number.
	Range:	01-250
ACD Trunk Group Priority	Meaning:	Priority given an incoming ACD call.
	Range:	1 (highest) to 8 (lowest)
	Default:	4

Related Databases:

Required: 23.01 - ACD Trunk Group.

Associated: 19.03 - ACD Group Forwarding Priority; 19.06 - Distribution Priority Change Timer; 19.07 - Distribution Priority Change Level; 20.04 - Agent Distribution Priority; 20.05 - Agent Transferring Priority; 22.03 - Station Priority.

18.02 - Ringing ACD Group

Class 18 Item 02 – **Ringing ACD Group** is used to associate an ACD group with an ACD trunk group. When ringing is detected on a line in an ACD trunk group, the system checks this item to determine which ACD group queue the call is distributed to. ACD trunk groups are defined in 23.01 - ACD Trunk Group. If 23.01 - ACD Trunk Group is not programmed, this item has no function.

Programming Field Description

Trunk Group Number	Meaning:	ACD trunk group number.
	Range:	01-250
Ringing ACD Group	Meaning:	ACD group queue to which an incoming call from a specified trunk group is distributed.
	Range:	1-250
	Default:	1

Related Databases:

Required: 20.03 - Agent Log In ACD Group; 23.01 - ACD Trunk Group.

Associated: 19.02 - ACD Group Name; 20.02 - Agent Log In Method.

Related Operation:

Incoming CO calls to an ACD group.

18.03 - Barge-In Tone

Class 18 Item 03 – **Barge-In Tone** is used to determine if a tone is sent to an agent when a supervisor breaks into the agent's conversation using the [ADD] key. *Class* 10.40 - Barge-In Station must be enabled for barge-in to provide a supervisor with barge-in capability using the [MONITOR] key.

Programming Field Description

Barge in Tone	Meaning:	Supervisor barge-in with or without a tone to the agent.
	Range:	Enabled = barge-in without tone Disabled = barge-in with tone
	Default:	Enabled

Related Databases:

Required: 10.40 - Barge-In Station.

Associated: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

18.04 - Voice Message Recording Time

Class 18 Item 04 – **Voice Message Recording Time** is used to program the maximum recording time for each message that is used for playback in the call sequence table. If the Voice Message Recording Time data field is set to 0, no time is allowed for recording. Up to thirty messages can be programmed in the call sequence table. When the recording time reaches the value programmed in this item, the system will automatically save the message and exit recording. An IX-MSGU (V1.5) card with either an IX-CMSG or IX-CMSG-1 daughterboard is required in the system.

Important: The sum of message recording time programmed in Voice Message Recording Time and 04.20 - VSS Recording Time cannot exceed the capacity of the message card. If the recording capacity of the message card is exceeded, the system message file will be corrupted.

Programming Field Description

Message Number	Meaning:	Message number.
	Range:	1-30
Voice Msg Recording Time in Seconds	Meaning:	Recording time in seconds for each message number.
(d1):	Range:	0-255
	Default:	0

Related Databases:

Required: 04.20 - VSS Recording Time; 18.06 - Call Sequence Table.

Associated: None.

Hardware Required:

IX-MSGU (V1.5) card with either an IX-CMSG or IX-CMSG-1 daughterboard.

18.05 - ACD Music-on-Hold Source

Class 18 Item 05 – ACD Music-on-Hold Source is used to associate an ACD MOH source number with a miscellaneous logical port that is connected to an external MOH input. The following conditions apply to ACD MOH:

- Up to eight external MOH sources can be installed.
- The second and third ports of the IX-MISC card are used for MOH input.
- One IX-MISC card and one IX-EDCTU board allow for the connection of two MOH sources.
- MOH is played according to the programming in the ACD group's associated call sequence table.

Class 01.03 Port Definition for the IX-MISC Card			
Physical Port	Definition	Data Port Function	ACD Use
First Port	2 - 4 - 0	Zone Page Speaker 1	
Second Port	2 - 7 - 0	BGM Source	ACD MOH Input
Third Port	2 - 7 - 0	MOH Source	ACD MOH Input
Fourth Port	2 - 5 - 0	Control Relays	Queue, Expansion, Emergency Recording
Fifth Port	2 - 6 - 0	Sensor Input	
Sixth Port	2 - 4 - 0	Zone Page Speaker 2	
Seventh Port	2 - 4 - 0	Zone Page Speaker 3	
Eight Port	2 - 4 - 0	Zone Page Speaker 4	

Programming Field Description

Source #	Meaning:	ACD MOH source number.
	Range:	1-8
Misc Logical Port Number	Meaning:	Miscellaneous logical port number.
(d1):	Range:	0-512
	Default:	0 (HWCL/HWCE input)

Related Databases:

Required: 01.13 Misc Port Definition; 19.11 ACD Group MOH Source.

Associated: 18.06 Call Sequence Table.

Hardware Required:

IX-MISC card and IX-EDCTU board, MOH source (e.g. FM tuner, cassette player).

18.06 - Call Sequence Table

Class 18 Item 06 – **Call Sequence Table** is used to construct the ACD call sequence tables. Calls in the queue of an ACD group are handled according to the steps programmed in the related call sequence table. A call sequence table contains up to ten boxes, each of which is defined in this item to initiate a specific function. Once the call sequence table is defined and saved, it can be assigned to one or more ACD groups in 19.01 - ACD Group Access Number.

Box Options Programmable in the Call Sequence Table

- **Play An ACD Message (d1 = 01)**
  Up to three messages can be programmed to play to calls waiting in queue. If all message channels are busy, the previous box status is continued until there is an available message channel. For example, if the first call sequence table box is a message, and all message channels are busy at the time the call is placed in queue, the caller hears continuous ringback tone until a message channel becomes available.
- **Play Music-on-Hold (d1 = 02)**
  Select the MOH source and duration.
- **Forward to Another Station (d1 = 03)**
  Forward the call in queue to a station outside the ACD group. The forwarded call is removed from the queue once it is transferred out of the ACD group. If the destination station is busy, the call will camp-on. If the destination station does not answer, the call will forward to the attendant.
- **Forward to a Hunt Group (d1 = 04)**
  Forward the call in queue to a hunt group. This entry will permanently remove the call from the queue.
- **Forward to Another ACD Group (d1 = 05)**
  Forward the call in queue to another ACD group. The forwarded call is removed from the queue of the forwarding ACD group. It is then placed in the queue of the destination ACD group where it follows the call sequence table assigned to the destination ACD group in *Class 19.04*.
- **Forward to Another Call Sequence Table Box (d1 = 06)**
  Forward the call in queue to a box within the current call sequence table, or a box in a different call sequence table. A call forwarded outside of the ACD group is removed from the queue.
- **AA Que three data fields.**
  After selecting Automated Attendant Queue, the voicemail / automated attendant hunt group number (47-50) sent to in Data Field 2 must be specified.
  Data Field 3 is used to specify the table number for data from Class 35.01 Mailbox Index. This specifies the digits sent after packet 24, when the voicemail / automated attendant port answers the call (for the ACD sequence table step, this allows the call to go to a particular mailbox or greeting in the Automated Attendant).
- **Forward to a System Speed Dial Destination (d1 = 07)**
  Forward the call in queue to a remote location using the system speed dial feature.

The forwarded call is removed from the queue once it is transferred out of the ACD group. It is recommended that the box preceding speed dial forward is music-on-hold.

- **Disconnect the Call (d1 = 08)**
  Delay Answer/Delay Distribution (d1 = 09)
  When incoming ringing is detected, the ACD system can be programmed to delay distribution to an ACD group for a programmable length of time. During the delay the caller hears ringback tone. Within this programming parameter there are two options - delay answer/immediate queue, and delay answer/delay queue. If immediate queuing is programmed, the ACD group's queue lamp lights the instant ringing is detected. If an agent is available, the call is distributed immediately, regardless of the delay time programmed. If delay queuing is programmed, the ACD group's queue lamp does not light and the call is not distributed until the delay time has elapsed.

Programming Field Description

Call Sequence Table Number	Meaning:	Call sequence table number. The individual tables display as hyperlinks on the top of the page.
	Range:	1-60
Order	Meaning:	Box number.
	Range:	1-10
Action	Meaning:	Contents of each box.
	Range:	Nothing
	Default:	Nothing
Parameter 1	Meaning:	Detail of contents (see table).
	Range:	000-999
	Default:	000
Parameter 2	Meaning:	Detail of contents (see table).
	Range:	000-999
	Default:	000
Parameter 3	Meaning:	Detail of contents (see table).
	Range:	000-999
	Default:	000

Action	Parameter 1		Parameter 2		Parameter 3	
Description	Description	Range	Description	Entry	Description	Range
Nothing	Nothing		Nothing		Nothing	
Play MSG	1st Message No.	001-030	2nd Message No.	001-030	3rd Message No.	001-030
MOH	Silent	000	Not Used	000	Duration Time in seconds	001-999
	System (HWC) MOH	001	Not Used	000	Duration Time in seconds	001-999
	ACD MOH	002	ACD MOH Source No.	001-008	Duration Time in seconds	001-999
Forward to Station	Extension Logical Port No.	001-448	Not used	000	Not used	000
Forward to Hunt Group	Hunt Group No. (Not Access No.)	001-060	Not used	000	Not used	000
Forward to ACD Group	ACD Group No.	001-060	Not used	000	Not used	000
Go To other Box	Call Sequence Table No.	001-060	Box No.	001-010	Not used	000
Forward with SPD Dial	Trunk Group No.	001-060	System Speed Dial	000-089	Not used	000
			Bin Number	000-899		
Disconnect	Not used	000	Not used	000	Not used	000
Delay / Answer	Immediate Queuing3	000	Not used	000	Not used	000
	Delay Queuing	001	Delay Time	000-999		
No Operation (Skip)	Not used	000	Not used	000	Not used	000
Auto Attendant Queue	Hunt Grp 47		35.01 MBOX Index		Wait Timer	000-255

Programming Notes:

If Forward to Hunt Group is programmed to forward an ACD call to voice mail from the sequence table the following packets are sent:

- When forwarding ICM to voice mail - packet 9 + the group access code.
- When forwarding a CO call to voice mail - send packet 10 + access code.
- The IX-4ETRAN card is required when using speed dial forwarding. If the IX-4ETRAN card is busy at the time a call is forwarded, the call will return to the queue at the end of sender time out. The following conditions apply depending on the type of trunk used to forward the call:

For All Analog Trunks, T1 Loop Start Trunks and T1 Ground Start Trunks:

- 18.09 - CO Outgoing Duration must be set to a value greater than 11.13 - Sender Time Out. 18.08 - ACD Virtual Station must be set to a value between 1 and 512.
- This will be the last call sequence table box that the system will reference. However, if the IX-4ETRAN card or the trunk group is busy, the system will proceed to the next box in the call sequence table.

For T1 Two-Way DID Trunks, T1 E&M Tie Trunks and T1 E&M Trunks:

- If the 18.09 - CO Outgoing Duration timer expires before the call is answered at the remote location, the call will proceed to the next box in the call sequence table. Sender time out is ignored. 18.08 - ACD Virtual Station must be set to a value between 1 and 512.
- If the IX-4ETRAN card or the trunk group is busy the system will proceed to the next box in the call sequence table.
- Two steps are required to program delay answer with immediate queuing:
  Box 1 - Action = Answer/Delay, Parameter 1 = Immediate Queuing, Parameter 2 = 000, Parameter 3 = Not Used
  Box 2 - Action = Answer/Delay, Parameter 1 = Delay Queueing, Parameter 2 = Delay Time, Parameter 3 = Not Used.

Related Databases:

Required: 18.08 - ACD Virtual Station; 18.09 - CO Outgoing Duration.

Associated: 11.13 - Sender Time Out; 19.04 - Linked Call Sequence Table Number.

18.07 - Reporting Output Port

The output port on the IX-HCIF card is used to connect a PC that generates real-time event codes for connections to the LINK Reporting Package. **Class 18 Item 07** – **Reporting Output Port** is used to define the miscellaneous logical port that the IX-HCIF card is connected to. The reporting output port is fixed to the second logical port of the IX-HCIF card. There is no data output if this item is programmed as **0**.

Note If an IX-HCIF card is added after system default, additional programming is required in *Class 01.13 - Misc Port Definition*:

Programming Field Description

Reporting o/p Port	Meaning:	Miscellaneous logical port number where ACD event codes are sent.
(d1):	Range:	0-512
	Default:	0

Related Databases:

Required: 01.13 Misc Port Definition.

Associated: None.

Hardware Required:

IX-HCIF card, (IX-BUFM), the cable is connected to the bottom connector of the IX-HCIF card.

18.08 - ACD Virtual Station

Class 18 Item 08 – **ACD Virtual Station** is used to assign a logical port number to identify an ACD call speed dial forwarded from a call sequence table. The logical port number that is entered in this item is used for ACD LINK reporting purposes. It is recommended that the ACD virtual station is assigned to the lowest station logical port.

Note:	If ACD Virtual Station is set to **0**, the CO outgoing duration programmed in *Class 18.09* is meaningless and speed dial forwarding from a call sequence table will not work.

Programming Field Description

Virtual Station Port	Meaning:	ACD virtual station.
	Range:	0 - 512
	Default:	1

Related Databases:

Required: 18.06 - Call Sequence Table; 18.09 - CO Outgoing Duration.

Associated: None.

Hardware Required:

IX-HCIF

18.09 - CO Outgoing Duration

Class 18 Item 09 – CO Outgoing Duration is used with the following:

For All Analog Trunks, T1 Loop Start Trunks and T1 Ground Start Trunks:

The system will wait for this timer to expire before an audio path is established when speed dial forwarding from a call sequence table is used. The value of this item must be greater than 11.13 - Sender Time Out.

For T1 Two-Way DID Trunks, T1 E&M Tie Trunks and T1 E&M Trunks:

This timer determines the length of time the system will wait for answer supervision on a T1 trunk from the distant end when speed dial forwarding from a call sequence table is used. If answer supervision is not detected within the time programmed in this item, the speed dial call is canceled and the call proceeds to the next box in the call sequence table.

Note: If 18.08 - ACD Virtual Station is set to **0**, the CO outgoing duration programmed in this item is meaningless and speed dial forwarding from a call sequence table will not work.

Programming Field Description

Virtual Station Port	Meaning:	CO outgoing duration time in seconds.
	Range:	0 - 1024
	Default:	20 Seconds

Related Databases:

Required: 18.06 - Call Sequence Table; 18.08 - ACD Virtual Station.

Associated:

Hardware Required:

None.

18.10 - Forward to Busy Hunting Group

Class 18 Item 10 – **Forward to Busy Hunting Group** is allows a call to camp-on to a busy hunting group or be placed back in the queue.

This feature is supported in ECS software version 1.25 or higher.

Programming Field Description

Virtual Station Port	Meaning:	CO outgoing duration time in seconds.
	Range:	Camp-on Queue
	Default:	Camp-on

Related Databases:

Required:

Associated:

Hardware Required:

Class19

ACD Group Configuration

Use **Class 19** – **ACD Group Configuration** to program parameters for specific ACD groups. The following programming items are included in Class 19:

- 19.01 - ACD Group Access Number
- 19.02 - ACD Group Name
- 19.03 - ACD Group Forwarding Priority
- 19.04 - Linked Call Sequence Table Number
- 19.05 - Call Sequence Table Alternating Time
- 19.06 - Distribution Priority Change Timer
- 19.07 - Distribution Priority Change Level
- 19.08 - ACD Group Expansion Timer
- 19.09 - ACD Group Expansion Destination
- 19.10 - Waiting Call Indication Threshold
- 19.11 - ACD Group Music-on-Hold Source
- 19.12 - Status Relay Number
- 19.13 - ACD Group Ringing Pattern
- 19.14 - ACD Call Recording Output

19.01 - ACD Group Access Number

Class 19 Item 01 – **ACD Group Access Number** is used to assign an access number to each ACD group. The number assigned in this item is used to call an ACD group through ICM dial tone, or to transfer a call to the ACD group. The ACD group access number cannot be used to forward a call to an ACD group. If an ACD call is transferred to voice mail using call sequence table option 04, the group access number is sent along with the packet.

Note: [*] and [#] cannot be used as all or part of an access number.

Programming Field Description

Group	Meaning:	ACD group number.
	Range:	1-250
Access No	Meaning:	ACD group access number.
(d1):	Range:	Up to 4 digits (0-9)
	Default:	None.

Related Databases:

Required: None.

Associated: 18.09 - CO Outgoing Duration; 19.02 - ACD Group Name; 20.03 - Agent Log In ACD Group.

19.02 - ACD Group Name

Class 19 Item 02 – **ACD Group Name** is used to assign a one- to eight-character alphanumeric name to identify each ACD group. The name of the ACD group where a call is initially distributed will remain with the call if it is redistributed by a call sequence table box, transfer, forward, or overflow.

Programming Field Description

Group	Meaning:	ACD group number.
	Range:	01-250
Name	Meaning:	Alphanumeric ACD group name.
	Range:	Up to 8 characters
	Default:	None.

Related Databases:

Required: None.

Associated: 19.01 - ACD Group Access Number; 20.03 - Agent Log In ACD Group; 23.01 - ACD Trunk Group.

19.03 - ACD Group Forwarding Priority

Class 19 Item 03 – **ACD Group Forwarding Priority** is used to program the priority of an ACD call that is forwarded to another ACD group. When a call is forwarded from one ACD group to another using call sequence table option 05, the call is assigned the priority level assigned to the **forwarding** ACD group.

Programming Field Description

Group	Meaning:	ACD group number.
	Range:	01-250
Forward Priority	Meaning:	Priority when forwarding a call to another ACD group using call sequence table option 05.
	Range:	1-8 1 = highest priority 8 = lowest priority
	Default:	4

Related Databases:

Required: None.

Associated: 18.06 - Call Sequence Table.

19.04 - Linked Call Sequence Table Number

Class 19 Item 04 – **Linked Call Sequence Table Number** is used to assign a default call sequence table to an ACD group for each of the four modes of operation - day mode, night mode, transfer/forward Day, and transfer/forward night. The linked call sequence tables programmed in this item can be changed at the agent or supervisor set using a [SEQUENCEn] key.

Note: If a call sequence table has not been linked to an ACD group, the caller will hear ringback tone.

Programming Field Description

Group	Meaning:	ACD group number.
	Range:	1-250
Call Seq Day	Meaning:	Call Sequence Day Mode.
	Range:	0 = no call sequence table 1-60
	Default:	0
Call Seq Night	Meaning:	Call Sequence Night Mode.
	Range:	0 = no call sequence table 1-60
	Default:	0
Call Seq Xfer/Fwd Day	Meaning:	Call Sequence Transfer / Forward Mode Day.
	Range:	0 = no call sequence table 1-60
	Default:	0
Call Seq Xfer/Fwd Night	Meaning:	Call Sequence Transfer / Forward Mode Night.
	Range:	0 = no call sequence table 1-60
	Default:	0

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment;18.06 - Call Sequence Table.

Associated: None.

19.05 - Call Sequence Table Alternating Time

Class 19 Item 05 – **Call Sequence Table Alternating Time** is used to set the time of day an ACD group will automatically switch from the day mode to the night mode call sequence table, and from the night mode to day mode call sequence table. Pressing the [NIGHTn] key overrides the programming in this item.

Note:	There is no weekend or holiday setting for the automatic call sequence change time.

Programming Field Description

Group	Meaning:	ACD group number.
	Range:	1-250
Auto Day to Night Time	Meaning:	Time of day in military time when the system will automatically switch to Night Mode.
	Range:	00:00 to 23:59
	Default:	00:00
Auto Night to Day Time	Meaning:	Time of day in military time when the system will automatically switch to Day Mode.
	Range:	00:00 to 23:59
	Default:	00:00

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment;19.04 - Linked Call Sequence Table Number.

Associated: None.

19.06 - Distribution Priority Change Timer

The priority level of a call in the queue of an ACD group changes based on the data programmed in **Class 19 Item 06** – **Distribution Priority Change Timer**. This item specifies - on a group-by-group, priority level-by-priority level basis - the length of time a call can remain at each priority level before the priority level is changed. The following conditions apply to the distribution priority change timer:

- The timer starts when a new ACD call is placed in the queue of an ACD group.
- The priority is increased according to the incoming priority level and the value programmed in 19.07 - Distribution Priority Change Level. This item is meaningless if 19.07 - Distribution Priority Change Level is set to **0**.
- Priority does not change if the data field of this item is set to **0**.

Programming Field Description

Group	Meaning:	ACD group number.
	Range:	01-250
Priority 1-8	Meaning:	Incoming priority number.
	Range:	1-8
Entry	Meaning:	Time in seconds.
	Range:	0-999
	Default:	0

Related Databases:

Required: 19.07 - Distribution Priority Change Level.

Associated: None.

19.07 - Distribution Priority Change Level

Class 19 Item 07 – **Distribution Priority Change Level** works in conjunction with 19.06 - Distribution Priority Change Timer. When the 19.06 - Distribution Priority Change Timer timer has elapsed, the system will check Distribution Priority Change Level to determine the new priority level to be placed on the ACD call in queue. The new priority level is based on the call's priority level at the time the 19.06 - Distribution Priority Change Timer timer elapsed. Priority does not change if the data field of this item is set to **0**.

Programming Field Description

Group	Meaning:	ACD group number.
	Range:	01-250
Level 1-8	Meaning:	Incoming priority number.
	Range:	1-8
Data Field	Meaning:	New priority level.
(d1):	Range:	0 = no change 1-8
	Default:	0

Related Databases:

Required: 19.06 - Distribution Priority Change Timer.

Associated: None.

19.08 - ACD Group Expansion Timer

Class 19 Item 08 – **ACD Group Expansion Timer** is used to program a duration after which expansion from one ACD group to another ACD group occurs. The expansion destination is programmed in 19.09 - ACD Group Expansion Destination. The following conditions apply to the ACD group expansion timer:

- The timer starts when a new ACD call is placed in the waiting queue of an ACD group.
- Expansion will not occur if the data field of ACD Group Expansion Timer or 19.09 - ACD Group Expansion Destination is set to **0**.
- The ID of the ACD group where the call originated will remain with the call if it is distributed to an agent in an expanded ACD group.
- The green LED of the [QUEUE] key will light steady to indicate group expansion. This LED will remain lit until the call is either answered or leaves the group.

Note:	There is no limit to the number of expansions that can occur from group to group.

Programming Field Description

Group	Meaning:	ACD group number.
	Range:	01-250
Expansion Timer	Meaning:	Time in seconds before group expansion occurs.
	Range:	0 = no expansion 1-999
	Default:	0

Related Databases:

Required: 19.09 - ACD Group Expansion Destination.

Associated: None.

19.09 - ACD Group Expansion Destination

Class 19 Item 09 – **ACD Group Expansion Destination** works in conjunction with 19.08 - ACD Group Expansion Timer. When the 19.08 - ACD Group Expansion Timer timer has elapsed, the system will check 19.09 - ACD Group Expansion Destination to determine which ACD group the call will expand to. Expansion does not occur if the data field of this item is set to **0**.

Programming Field Description

Group	Meaning:	ACD group number.
	Range:	01-250
Expansion Destination	Meaning:	ACD group to which the call will expand.
(d1):	Range:	0 = no expansion 1-250
	Default:	0

Related Databases:

Required: 19.08 - ACD Group Expansion Timer.

Associated: None.

19.10 - Waiting Call Indication Threshold

Class 19 Item 10 – **Waiting Call Indication Threshold** is used to define three levels to indicate the number of calls waiting in queue. The levels programmed in this item define the threshold at which the flashing status of the [QUEUEn] LED will activate or change at the ACD group's station sets. Each of the three levels causes a different indication to occur on the [QUEUEn] LED:

Number Of Calls Waiting	Lamp Indication
0	off
Calls Waiting (Solid Flash)	red
Calls Waiting (Slow Flash)	flashing red
Calls Waiting (Fast Flash)	fast flashing red

19.12 - Status Relay Number can be used to trigger external devices that represent the waiting call indication.

Programming Field Description

Element	Meaning:	ACD group number.
Field 1 (e1):	Range:	01-250
Calls Waiting (Solid Flash)	Meaning:	Number of waiting calls.
	Range:	0 = no LED indication 0-255
	Default:	1
Calls Waiting (Slow Flash)	Meaning:	Number of waiting calls.
	Range:	0 = no LED indication 0-255
	Default:	2
Calls Waiting (Fast Flash)	Meaning:	Number of waiting calls.
	Range:	0 = no LED indication 0-255
	Default:	3

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Associated: 04.36 - Miscellaneous Relay Timer, 04.37 - Miscellaneous Function, 19.12 - Status Relay Number.

19.11 - ACD Group Music-on-Hold Source

Class 19 Item 11 – **ACD Group Music-on-Hold Source** is used to select a MOH source for a specific ACD group. This setting can be considered the "default" MOH source. Up to nine MOH sources can be equipped in the system. The following conditions apply to ACD group MOH:

- The MOH selected in this item is played to a caller after an agent within the ACD group places the call on hold or station park.
- Setting the MOH Source to 0 selects system MOH.
- External MOH sources require one to four IX-MISC cards and IX-EDCTU boards. Input for these sources is programmed in 18.05 - ACD Music-on-Hold Source.

Programming Field Description

Group	Meaning:	ACD group number.
	Range:	01-250
MOH Source	Meaning:	MOH source.
	Range:	0-8 0 = system MOH
	Default:	0

Related Databases:

Required: 18.05 - ACD Music-on-Hold Source.

Associated: None.

19.12 - Status Relay Number

Class 19 Item 12 – **Status Relay Number** is used to program the relays mounted on the IX-MISC and/or IX-EDVIF cards to drive the external devices used to indicate ACD group status. The relays on the IX-MISC and IX-EDVIF cards supply dry contact closures that operate externally mounted slave relays. The slave relays are then used to operate external devices. The devices connected to external relays are equipped at the discretion of the distributor. The following limits apply to the relays:

- The relay contacts provided by the circuit cards are dry steady-state contacts and are not interrupted.
- The relay closures provided by the IX-MISC card are make contacts only.
- The relay closures provided by the IX-EDVIF card are make and break contacts.
- A total of thirty-two relays can be programmed for use in the ACD system.
- The relay contacts are provided on screw terminals L1 through L8 +/- on the EDCTU board with a IX-MISC card or L1 through L4, M/S/B on the IX-EDVIF card. The IX-EDVIF card contacts are wired to the yellow/blue through violet/ green conductors of the EDVIF amphenol.
- Three relay functions can be assigned: Queue, Expansion, and Emergency Record.

Two other programming items are required to define relays for use with an ACD group: 04.35 - Miscellaneous Function Port and 04.37 - Miscellaneous Function.

Programming Field Description

Group	Meaning:	ACD group number.
	Range:	1-250
Level 1-3	Meaning:	Waiting call indication threshold (from 19.10 - Waiting Call Indication Threshold)
	Range:	Relay Number 0-32
	Default:	0
Expansion	Meaning:	Group expansion (from 19.08 - ACD Group Expansion Timer and 19.09 - ACD Group Expansion Destination)
	Range:	Relay Number 0-32
	Default:	0
Emergency	Meaning:	ACD emergency call recording (associated with [EMG] key)
	Range:	Relay Number 0-32
	Default:	0

Related Databases:

Required: 04.35 - Miscellaneous Function Port; 04.37 - Miscellaneous Function.

Associated: 01.13 Misc Port Definition (IX-MISC Card); 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 19.08 - ACD Group Expansion Timer; 19.09 - ACD Group Expansion Destination; 19.10 - Waiting Call Indication Threshold.

19.13 - ACD Group Ringing Pattern

Class 19 Item 13 – **ACD Group Ringing Pattern** is used to define the ringing tone heard at the agent sets in an ACD group. Four ringing patterns are provided in the ECS System:

Tone	Duration
Single	1 second on, 3 seconds off.
Double	0.8 seconds on, 0.2 seconds off, 0.2 seconds on, 3 seconds off.
ICM Callback	0.4 seconds on, 0.2 seconds off, 0.4 seconds on, 3 seconds off.
MOH	Continuous

Programming Field Description

Group	Meaning:	ACD group number.
	Range:	1-250
Ringing Pattern	Meaning:	Ringing pattern.
	Range:	Single, Double, ICM Callback and MOH
	Default:	Single

Related Databases:

Required: None.

Associated: 19.01 - ACD Group Access Number; 19.02 - ACD Group Name; 20.01 - Agent Name; 19.03 - ACD Group Forwarding Priority.

19.14 - ACD Call Recording Output

Class 19 Item 14 – **ACD Group Call Recording Output** is used in conjunction with the emergency recording feature to record an agent conversation. When the [EMG] key is pressed, the agent's voice and the caller's voice are automatically connected to the miscellaneous logical paging port defined in this item. In addition, a relay operates to start and stop the recording device. If the supervisor that answers the emergency help call barges in, the supervisor's voice is also recorded. The emergency recording/ emergency help call feature uses a system conference trunk for recording. If all conference trunks are in use, or if the agent is already involved in a CO conference call at the time the [EMG] key is pressed, recording will not occur. Multiple recorders can be installed for multiple ACD groups.

Note:	This feature is only available on systems equipped with at least one IX-MISC card and IX-EDCTU board.
Note:	For this feature to work, the [EMG] key must be associated with a paging port in *Class 01.03* and 19.14 - ACD Call Recording Output.

Programming Field Description

Group	Meaning:	ACD group number.
	Range:	01-250
Call Recording Port	Meaning:	Miscellaneous logical port number of the external recording device.
	Range:	0-512
	Default:	0

Related Databases:

Required: 01.13 Misc Port Definition; 04.35 - Miscellaneous Function Port; 04.37 - Miscellaneous Function 19.12 - Status Relay Number.

Associated: None.

Class 20

Agent Class of Service

Use **Class 20** – **Agent Class of Service** to program, on an agent-by-agent basis, variables and parameters which will be applied throughout the ECS ACD system at the agent level. The following programming items are included:

- 20.01 - Agent Name
- 20.02 - Agent Log In Method
- 20.03 - Agent Log In ACD Group
- 20.04 - Agent Distribution Priority
- 20.05 - Agent Transferring Priority
- 20.06 - Forced Qualification Code Entry
- 20.07 - Automatic Connection Enable
- 20.08 - ACD Call Automatic Connection Time
- 20.09 - Toll Restriction Class
- 20.10 - Wrap-Up Enable
- 20.11 - Wrap-Up Method
- 20.12 - Wrap-Up Time
- 20.13 - Not Available Method
- 20.14 - Not Available Transition Time
- 20.15 - Qualification Code Enable
- 20.16 - Supervisor Call Duration

20.01 - Agent Name

Class 20 Item 01 – **Agent Name** is used to define, on an agent-by-agent basis, an alphanumeric agent ID. The ID assigned here is displayed on the LCD of the agent set when the agent logs in. A maximum of eight characters can be entered. A station set must be equipped with a [LOG] key in order to allow agent log in.

Programming Field Description

Agent	Meaning:	Agent number.
	Range:	1-1024
Name	Meaning:	Agent ID
	Range:	Up to eight alphanumeric characters.
	Default:	None

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 20.03 - Agent Log In ACD Group.

Associated: None.

20.02 - Agent Log In Method

Class 20 Item 02 – **Agent Log In Method** defines on an agent-by-agent basis the method by which the agent logs in to an ACD Group. Select Dual Group from the drop down menu when using traditional ECS ACD and not using the ACD Agent Flexible Group Login feature. Select Multi Group from the drop down menu when using the ACD Agent Flexible Group Login feature. When logging in to multiple groups, the agent must enter the ID; ACD group number and agent priority for each login.

Note:	An ACD agent must not be logged-in to any group whenever changing this data item.

Programming Field Description

Agent	Meaning:	Agent number (agent ID code).
	Range:	1-1024
Login Method	Meaning:	Toggle between group 1 and group 2.
	Range:	Dual Multi
	Default:	Dual

Related Databases:

Required: None.

Associated: None.

20.03 - Agent Log In ACD Group

Class 20 Item 03 – **Agent Log In ACD Group** is used to define, on an agent-by-agent basis, one or two ACD group(s) to which the agent logs in to by pressing [LOG] and entering an ID code. Single-group log in is not possible for agents enabled for dual-group log in for this item. Dual-group log in cannot be used with LINK.

Note:	An ACD agent must not be logged-in to any group whenever changing this data item.

Note:	The agent ID code is equal to the (e1) value in this item.

Programming Field Description

Agent	Meaning:	Agent number (agent ID code).
	Range:	1-1024
Group Login 1st	Meaning:	Group 1
	Range:	0-250 (ECS ACD Group Number)
	Default:	0
Group Login 2nd	Meaning:	Group 2
	Range:	0-250 (ECS ACD Group Number)
	Default:	0

Related Databases:

Required: 23.01 - ACD Trunk Group.

Associated: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; Class 20 Agent Class of Service.

20.04 - Agent Distribution Priority

Class 20 Item 04 – **Agent Distribution Priority** is used to assign each agent with an agent distribution priority level between 1 and 3. Calls are distributed to agents with priority level 1 first. Agents with priority level 2 only receive calls if all agents with priority level 1 are busy. Agents with priority level 3 only receive calls if all agents with priority levels 1 and 2 are busy. If multiple agents with the same priority level are available, the call is distributed to the longest idle agent **within** that priority.

Agents programmed for dual-group log in can be assigned a different priority level for each group. Answer Priority 1 and 2 are directly related to 20.03 - Agent Log In ACD Group.

Programming Field Description

Agent	Meaning:	Agent number (agent ID code).
	Range:	1-1024
Answer Priority 1	Meaning:	Group 1
	Range:	1-3 (priority level)
	Default:	1
Answer Priority 2	Meaning:	Group 2
	Range:	1-3 (priority level)
	Default:	1

Related Databases:

Required: 20.03 - Agent Log In ACD Group.

Associated: None.

20.05 - Agent Transferring Priority

Class 20 Item 05 – **Agent Transferring Priority** is used to define, on an agent-by-agent basis, the priority given to an answered ACD call when it is transferred from an agent to another ACD group. The call will arrive in the queue of the destination ACD group with the priority level assigned in this item. There are eight priority levels with level one being the highest. The priority programmed in this item follows the call wherever it is transferred within ACD.

Programming Field Description

Agent	Meaning:	Agent number.
	Range:	1-1024
Transfer Priority	Meaning:	Priority level.
	Range:	1-8
	Default:	4

Related Databases:

Required: 19.01 - ACD Group Access Number; 19.04 - Linked Call Sequence Table Number; 19.06 - Distribution Priority Change Timer; 19.07 - Distribution Priority Change Level; 19.08 - ACD Group Expansion Timer.

Associated: 20.03 - Agent Log In ACD Group.

20.06 - Forced Qualification Code Entry

If **Class 20 Item 06** – **Forced Qualification Code Entry** is enabled for an agent, that agent must enter a qualification code in order to terminate an ACD call. Programming for this feature works in conjunction with 20.11 - Wrap-Up Method on an agent-by-agent basis. If Forced Qualify Code is set to forced, 20.11 - Wrap-Up Method must be set to Automatic, to enable this feature. If an agent is programmed as forced, wrap-up starts automatically after each ACD call is terminated. At that time the [QUALIFYn] LED will flash red to indicate that qualification code entry is required. Wrap-up will not end until at least one qualification code is entered.

Note: If this item is enabled, the agent station must have a [QUALIFYn] key.

Tip: Program the buttons on an autodialer as [QUALIFYn] keys.

Programming Field Description

Agent	Meaning:	Agent number.
	Range:	1-1024
Forced Qualify Code	Meaning:	Toggle between forced and not forced qualification code entry for each agent.
(d1):	Range:	Not Forced = agent is not forced to enter a qualification code Forced = agent is forced to enter a qualification code.
	Default:	Not Forced

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 20.10 - Wrap-Up Enable; 20.11 - Wrap-Up Method; 20.12 - Wrap-Up Time; 20.15 - Qualification Code Enable.

Associated: None.

20.07 - Automatic Connection Enable

When the **Class 20 Item 07** – **Automatic Connection Enable** data field is set to **1** for an agent, that agent is automatically connected to the distributed call after 20.08 - ACD Call Automatic Connection Time has elapsed. This feature is useful for agents at stations equipped with a headset. A [HEADSET] or [HEADSET CONTROL] key is also required to enable this feature. To enable the automatic connection feature, the data of Automatic Connection Enable must be set to Automatic and the data of 20.08 - ACD Call Automatic Connection Time must be set to a value between 1 and 255 seconds. When using this feature, an agent must be careful to manually set their station status to not available by pressing the [N/A] button. Otherwise, calls will be distributed to and answered at the automatic connection enabled station regardless of whether or not the agent is present.

Note:	If automatic connection is enabled any programming in20.14 - Not Available Transition Time is meaningless.

Programming Field Description

Agent	Meaning:	Agent number.
	Range:	1-1024
Auto Connection	Meaning:	Toggle between manual and automatic connection for each agent.
	Range:	Manual = manual connection Automatic = automatic connection
	Default:	Manual

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 20.08 - ACD Call Automatic Connection Time.

Associated: None.

20.08 - ACD Call Automatic Connection Time

Class 20 Item 08 – **ACD Call Automatic Connection Time** works in conjunction with *Class 20.07 - Automatic Connection Enable,* on an agent-by-agent basis, to provide the automatic connection feature. If 20.07 - Automatic Connection Enable is enabled, a distributed ACD call is automatically connected to the agent's headset after the time programmed in ACD Call Automatic Connection Time has elapsed. During the duration programmed in this item, the agent will hear ring back tone (19.13 - ACD Group Ringing Pattern). This feature is useful for agents who always use a headset. A [HEAD] key is required to enable this feature.

Note:	To enable the automatic connection feature, the data of 20.07 - Automatic Connection Enable must be set to Automatic and the data of ACD Call Automatic Connection Time must be set to a number between **1** and **255**.

Programming Field Description

Agent	Meaning:	Agent number.
	Range:	1-1024
Auto Connection Time	Meaning:	Time in seconds.
	Range:	0-255
	Default:	5

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 20.07 - Automatic Connection Enable.

Associated: 19.13 - ACD Group Ringing Pattern.

20.09 - Toll Restriction Class

Class 20 Item 09 – **Toll Restriction Class** is not used.

20.10 - Wrap-Up Enable

Class 20 Item 10 – **Wrap-Up Enable** is used, on an agent-by-agent basis, to program the type of calls - ACD calls only, or both ACD and PBX calls - after which an agent is allotted wrap-up time. During wrap-up, the agent is removed from the queue for a period of time that is defined in 20.12 - Wrap-Up Time in order to enter information pertaining to the previous call. PBX calls will ring at the extension during wrap-up. 20.11 - Wrap-Up Method is used to selected between automatic and manual wrap-up.

Programming Field Description

Agent	Meaning:	Agent number.
	Range:	1-1024
Wrap-Up Type	Meaning:	Type of calls wrap-up time can be used for.
	Range:	None = no wrap-up ACD = ACD calls only ACD & PBX = ACD and PBX calls
	Default:	ACD

Related Databases:

Required: 20.11 - Wrap-Up Method; 20.12 - Wrap-Up Time.

Associated: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 20.06 - Forced Qualification Code Entry.

20.11 - Wrap-Up Method

Class 20 Item 11 – **Wrap-Up Method** is used to program, on an agent-by-agent basis, automatic or manual wrap-up. If Automatic (wrap-up) is programmed for an agent in this item, that agent's station enters wrap-up mode upon call termination (go on-hook or press [RELEASE]) and remains in wrap-up mode until the timer programmed in 20.12 - Wrap-Up Time expires or the [WRAP-UP] button is pressed. The agent class of service must be set for automatic wrap-up if the forced qualification code feature is used. If *manual wrap-up* is programmed (d1 = 1) for an agent in this item, that agent must press the [WRAP-UP] button during a call at which time the call is disconnected and the station enters wrap-up mode. That agent's station will remain in wrap-up mode until the [WRAP-UP] button is pressed again.

Using Not Available Mode with Automatic Wrap-Up Enabled If an agent is programmed for automatic wrap-up, if that agent presses [N/A] during wrap-up, wrap-up is canceled.

Programming Field Description

Agent	Meaning:	Agent number.
	Range:	1-1024
Wrap-Up Method	Meaning:	Wrap-up method.
(d1):	Range:	Automatic Manual
	Default:	Automatic

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 20.10 - Wrap-Up Enable; 20.12 - Wrap-Up Time.

Associated: 20.06 - Forced Qualification Code Entry.

20.12 - Wrap-Up Time

Class 20 Item 12 – **Wrap-Up Time** is used to define, on an agent-by-agent basis, the amount of wrap-up time allotted to an agent upon entering the wrap-up mode. This item is only used if the agent is programmed for automatic wrap-up in 20.11 - Wrap-Up Method. A feature called *wrap-up extension* is available. Wrap-up extension operates as follows: five seconds before wrap-up time ends a warning tone is audible from the agent's speaker. The agent can extend wrap-up time for a duration equal to the value programmed in this item by pressing the [WRAP-UP] key while the warning tone is audible. Wrap-up extension can be performed as many times as is needed.

Note:	If an agent is programmed for manual wrap-up in *Class 20.11*, this item is meaningless.

Programming Field Description

Agent	Meaning:	Agent number.
	Range:	1-1024
Wrap-Up Time	Meaning:	Wrap-up time in seconds.
	Range:	0 = infinity 0-255
	Default:	30

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 20.10 - Wrap-Up Enable; 20.11 - Wrap-Up Method.

Associated: None.

20.13 - Not Available Method

Class 20.13 - Not Available Method is used to select, on an agent-by-agent basis, the method – either *reserved* or *immediate* - in which the not available mode is activated during a call-in-progress. If reserved is selected in this item, when the agent presses [N/A] the button's LED will flash. However, the agent station does not become not available until the call-in-progress is terminated. If immediate is selected in this item, pressing the [N/A] button will immediately terminate the call-in-progress and place the agent station in not available mode.

Programming Field Description

Agent	Meaning:	Agent number.
	Range:	1-1024
Unavail. Method	Meaning:	Not available mode.
	Range:	Reserved Immediate
	Default:	Reserved

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 20.10 - Wrap-Up Enable; 20.11 - Wrap-Up Method.

Associated: None.

20.14 - Not Available Transition Time

Class 20.14 – **Not Available Transition Timer** is used define the parameters, on an agent-by-agent basis, of a safeguard feature called automatic not available transition. When an ACD call is distributed to an active agent, if the call is not answered within the time programmed in this item, the call is returned to the queue with the highest priority level - superqueue, and the agent status is automatically changed to not available. A call with a priority level of superqueue is immediately distributed to the next available agent without necessarily lighting the [QUEUEn] LED.

Note:	If an agent is enabled for automatic connection in 20.07 - Automatic Connection Enable, this feature is not available for that agent.

Programming Field Description

Agent	Meaning:	Agent number.
	Range:	1-1024
Unavail. Tnsition Time	Meaning:	Time in seconds before transition occurs.
	Range:	0-255 0 = not available transition timer disabled
	Default:	15

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Associated: 20.07 - Automatic Connection Enable.

20.15 - Qualification Code Enable

Class 20.15 – **Qualification Code Enable** is used, on an agent-by-agent basis, to enable an agent to enter a qualification code during wrap-up time. Qualification codes can be a maximum of three digits and are entered by either manually dialing the qualification code or pressing a [QUALIFYn] button that is programmed to automatically enter a specific qualification code. This feature is used mainly on systems equipped with the LINK Reporting package.

Programming Field Description

Agent	Meaning:	Agent number.
	Range:	1-1024
Qualify Code Enable	Meaning:	Disable or enable an agent to enter a qualification code.
	Range:	Disable Enable
	Default:	Enable

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment.

Associated: 20.06 - Forced Qualification Code Entry.

20.16 - Supervisor Call Duration

Class 20.16 – **Supervisor Call Duration** works exclusively with the help call and emergency recording/emergency help call features. It is used to program the length of time a help call or emergency help call will ring at a supervisor station before it is canceled at the agent station. The agent will receive visual notification if the timer programmed in this item has elapsed; the [HELP] or [EMG] LED will extinguish.

Programming Field Description

Element	Meaning:	Agent number.
	Range:	1-1024
Supervisor Call Dur	Meaning:	Time in seconds.
	Range:	0 = unlimited 0-255
	Default:	30

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 21.02 - Supervisor Log In ACD Group Number.

Associated: None.

Class 21

Supervisor Functions

Use **Class 21** – **Supervisor Functions** to program features which will be applied to specific supervisors. The following programming items are included:

- 21.01 - Supervisor Name
- 21.02 - Supervisor Log In ACD Group Number

21.01 - Supervisor Name

Class 21 Item 01 – **Supervisor Name** is used to define an alphanumeric name as the supervisor ID. The ID assigned here is displayed on the LCD of the active supervisor set. A maximum of eight characters can be entered.

Programming Field Description

Supervisor	Meaning:	Supervisor number.
	Range:	01-30
Name	Meaning:	Supervisor ID.
(d1):	Range:	Up to eight alphanumeric characters
	Default:	None

Related Databases:

Required: 14.01 - Key Assignment / 15.01 - Attendant Key Assignment; 21.02 - Supervisor Log In ACD Group Number; 22.02 - Supervisor Terminal Position.

Associated: 20.16 - Supervisor Call Duration.

21.02 - Supervisor Log In ACD Group Number

Class 21 Item 02 – **Supervisor Log In ACD Group Number** is used to associate a supervisor with an ACD group.

Programming Field Description

Supervisor	Meaning:	Supervisor number.
	Range:	1-30
Login ACD Group	Meaning:	ACD group number.
	Range:	1-250
	Default:	0

Related Databases:

Required: None.

Associated: 21.01 - Supervisor Name21.01 Supervisor Name.

Class 22

ACD Station Class of Service

Use **Class 22** – **ACD Station Class of Service** to program features which will be applied to specific ACD stations. The following programming items are included:

- 22.01 - ACD Terminal Position
- 22.02 - Supervisor Terminal Position
- 22.03 - Station Priority
- 22.04 - Headset Station

22.01 - ACD Terminal Position

Class 22 Item 01 – **ACD Terminal Position** is not used.

22.02 - Supervisor Terminal Position

Class 22 Item 02 – **Supervisor Terminal Position** is not used.

22.03 - Station Priority

Class 22 Item 03 – **Station Priority** is used to determine the priority level a call transferred from a system station or automated attendant is given when it is placed in the queue of an ACD group. The priority level range is from 1 (highest) to 8 (lowest).

Programming Field Description

Station	Meaning:	Station logical port number.
	Range:	0-1024
Station Priority	Meaning:	Priority in ACD queue.
(d1):	Range:	1-8
	Default:	4

Related Databases:

Required: 19.04 - Linked Call Sequence Table Number.

Associated: 19.06 - Distribution Priority Change Timer; 19.07 - Distribution Priority Change Level.

22.04 - Headset Station

Class 22 Item 04 – **Headset Station** is is not used.

Class 23

ACD Trunk Group

Class 23 – **ACD Trunk Group** contains one item. It is used to define ACD trunk groups.

- 23.01 - ACD Trunk Group

23.01 - ACD Trunk Group

Class 23 Item 01 – **ACD Trunk Group** is used to assign a trunk to an ACD trunk group. The trunks programmed in this item are given a priority when ringing at an ACD group (08.01 - Hunt Group - Type). If the 23.01 - ACD Trunk Group data field is set to **0** the trunk has no ACD function. If a trunk is assigned to an ACD trunk group, this item supersedes all other system programming associated with the trunk for ringing.

Programming Field Description

Trunk	Meaning:	Trunk logical port number.
	Range:	0-1024
ACD Trunk Group No	Meaning:	ACD trunk group number.
(d1):	Range:	0-250
	Default:	0

Related Databases:

Required: 18.02 - Ringing ACD Group.

Associated: 18.01 - ACD Trunk Group Priority; 19.13 - ACD Group Ringing Pattern.

Class 24

Caller ID/ANI Conversion Data

Class 24 - Caller ID/ANI Conversion Data is used to setup the ECS calling party display and routing feature when caller ID loop start trunks and ANI (T1) trunks are equipped in the system. It contains the following programming items:

- 24.01 - Caller ID/ANI Incoming Number
- 24.02 - Caller ID/ANI Conversion Number
- 24.03 - Caller ID/ANI Number ID
- 24.04 - Incoming Digits
- 24.05 - Caller ID/ANI Conversion Digits
- 24.06 - Caller ID/ANI Conversion Starting Position
- 24.07 - ANI Enabled ISDN Trunk

24.01 - Caller ID/ANI Incoming Number

Class 24 Item 01 - Caller ID/ANI Incoming Number is used to list up to 1600 numbers for routing assignment and/or to assign an alphanumeric ID to display on the LCD display of the telephone when this information is not provided by the CO. When an incoming call is received on a caller ID or ANI line, the caller ID/ANI digits are first subject to *Class 24.05 - Caller ID/ANI Conversion Digits* and *Class 24.06 - Caller ID/ANI Conversion Starting Position* to determine which caller ID/ANI digits the system will extract. If the system finds a match between the extracted caller ID/ANI digits and a value programmed in this item, it will look to *Class 24.02 - Caller ID/ANI Conversion Number* and/or *Class 24.03 - Caller ID/ANI Number ID* for an alphanumeric identifier. If the incoming caller ID/ANI digits are not listed in this item the call is routed according to the following programming items:

- 11.34 - Direct In Line (DIL) to Hunt Group
- 11.32 - Ringing Station
- 11.26 - Attendant Intercept Line
- 04.55 - Port Definition - True Attendant Position

Attendant intercept is not available when the system is in night mode. However, calls on caller ID/ANI lines can be programmed in this item to have a different day mode and night mode ringing destination.

Note:	According to the programming in 04.70 - Programming Reserve 1: Day Night or 24 hours, either 800 day mode/800 night mode or 1000 day mode/0 night mode numbers can be entered in Class 24.01.

Private and Out-of-Area Routing for Caller ID Calls

Private and out-of-area calls received on Caller ID (IX-8CITK) lines can be routed according to the programming in the conversion tables in Class 24. To route calls sent as “Private” from the telephone company, program an entry of “###” as the incoming number in 24.01 - Caller ID/ANI Incoming Number. Then program a destination for “###” in 24.02 - Caller ID/ANI Conversion Number. To route calls sent as “Out-of-Area” from the telephone company, program an entry of “***” as the incoming number in Class 24.01. Then program a destination for “***” in 24.02 - Caller ID/ANI Conversion Number.

Programming Field Description

Table #	Meaning:	Conversion table number.
	Range:	1-800
Element	Meaning:	Toggle betweenday mode, night mode or day/night mode. (Radio buttons)
	Range:	Day mode Night Mode Day/Night mode/extended day mode if 04.70 - Programming Reserve 1: Day Night or 24 hours- 1600 day mode caller ID/ANI numbers.
ANI Incoming No.	Meaning:	Incoming Caller ID/ANI digits.
	Range:	Up to 12 digits (0-9, #, *, n=All)
	Default:	None

Related Databases:

Required: 24.02 - Caller ID/ANI Conversion Number; 24.03 - Caller ID/ANI Number ID; 24.05 - Caller ID/ANI Conversion Digits; 24.06 - Caller ID/ANI Conversion Starting Position

Associated: 04.15 - Attendant DIL Intercept; 04.25 - (Elements 5 - 16) Busy ICM Override, Busy CO Override; 04.70 - Programming Reserve 1: Day/ Night or 24 hours; 10.21 - Outgoing CO Line Group; 10.43 - Off-Hook Signaling; 11.26 - Attendant Intercept Line; 11.32 - Ringing Station; 11.38 - Outgoing CO Group.

Hardware Required:

IX-8CITK, IX-DTI-T, IX-T1DTI, IX-T1RCV.

24.02 - Caller ID/ANI Conversion Number

Class 24 Item 02 - Caller ID/ANI Conversion Number is used to select a destination for an incoming call on a caller ID/ANI line. A call on a caller ID/ANI line can be routed to a station, hunt group, voice mailbox, ACD group, or across a network. In order to enter a conversion number in 24.02 - Caller ID/ANI Conversion Number this number must appear in 28.01 - Network Number. Once the number is routed to a remote system the call will not use the ANI conversion table at the remote system. Therefore you must route the call to a valid extension or Hunt Group number in the remote system.

A caller ID/ANI call may also be programmed to follow the primary (11.32 - Ringing Station) and delayed ringing (11.33 - Delayed Ringing Station) assignment for the trunk. If you wish to route a caller ID/ANI call based on the 11.32 - Ringing Station and 11.33 - Delayed Ringing Station, the CO Access Number of the trunk (11.02 - CO Line Access Numbers) must be programmed as the destination in this item for the desired entry. If 24.02 - Caller ID/ANI Conversion Number does not contain data for a string of caller ID/ANI digits entered in 24.01 - Caller ID/ANI Incoming Number the following programming items determine where the call is routed:

- 11.34 - Direct In Line (DIL) to Hunt Group
- 11.32 - Ringing Station
- 11.26 - Attendant Intercept Line
- 04.55 - Port Definition - True Attendant Position

Note:	According to the programming in 04.70 - Programming Reserve 1: Day/Night or 24 Hours, either 800 day mode 800 night mode or 1600 combined day / night mode conversions can be entered in Class 24 Caller ID/ANI Conversion Data.

Programming Field Description

ANI Ring	Meaning:	Toggle between day mode/night mode.
	Range:	Day Ringing Night Ringing Day/Night Ringing (04.70 - Programming Reserve 1 Day/Night or 24 Hours = 1 - 1600 day mode ANI/Caller ID numbers)
Table #	Meaning:	Conversion table number.
	Range:	1-800
Conversion (Access No)	Meaning:	Station, hunt group, voice mailbox access code, trunk access number or ACD group number.
	Range:	Up to 4 digits (0-9, N=null)
	Default:	None
MBOX/NCS/ ACD Priority	Meaning:	MBOX, Network Class of Service or ACD Priority field
	Range:	Up to 4 digits (0-9, N=null)
	Default:	None

Related Databases:

Required: 24.01 - Caller ID/ANI Incoming Number; 24.03 - Caller ID/ANI Number ID; 24.05 - Caller ID/ANI Conversion Digits; 24.06 - Caller ID/ANI Conversion Starting Position; 28.01 - Network Number; 28.02 - Network Attribute; 28.05 - Network External; 28.06 - Network Route Advance Step

Associated: 04.15 - Attendant DIL Intercept; 04.25 - (Elements 5 - 16) Busy ICM Override, Busy CO Override; 04.70 - Programming Reserve 1: Day/ Night or 24 hours; 10.21 - Outgoing CO Line Group; 10.43 - Off-Hook Signaling; 11.26 - Attendant Intercept Line; 11.32 - Ringing Station; 11.38 - Outgoing CO Group

Hardware Required:

IX-8CITK, IX-DTI-T, IX-T1DTI, IX-T1RCV.

24.03 - Caller ID/ANI Number ID

Class 24 Item 03 - Caller ID/ANI Number ID is used to assign an alphanumeric name to identify each caller ID/ANI number listed in the 24.01 - Caller ID/ANI Incoming Number. The caller ID/ANI number ID is displayed when an incoming call is ringing at a station. The caller ID/ANI number ID is not displayed until after the call has been answered during the following operations:

- Call Forward
- Call Coverage Key Operation
- Group Pick-Up

Note:	Information sent by the telephone company with the call overrides programming in this item.

Programming Field Description

ANI Ring	Meaning:	Toggle between day mode/night mode.
	Range:	Day Ringing Night Ringing Day/Night Ringing (04.70 - Programming Reserve 1 Day/Night or 24 Hours = 1 - 1600 day mode ANI/Caller ID numbers)
Table #	Meaning:	Conversion table number.
	Range:	1-800
Number ID	Meaning:	Caller ID/ANI Number ID.
	Range:	Up to 16 alphanumeric characters
	Default:	None

Related Databases:

Required: 24.01 - Caller ID/ANI Incoming Number; 24.02 - Caller ID/ANI Conversion Number; 24.05 - Caller ID/ANI Conversion Digits; 24.06 - Caller ID/ANI Conversion Starting Position.

Associated: None.

Hardware Required:

IX-8CITK; IX-DTI-T, IX-T1DTI; IX-T1RCV.

24.04 - Incoming Digits

Class 24 Item 04 - Caller ID/ANI Number ID is used to tell the ECS which Caller ID/ANI digits to receive. For example, if a value of 4 is entered into this programming field, the ECS telephone system will process the first four Caller ID/ANI digits received (i.e. the 3-digit area code plus an additional digit) and ignore the rest six digits.

Programming Field Description

Element	Meaning:	Incoming caller ID digit string.
Field 1 (e1):	Range:	0-10 digits.

Related Databases:

Required: 24.05 - Caller ID/ANI Conversion Digits; 24.06 - Caller ID/ANI Conversion Starting Position.

Associated: None.

Hardware Required:

IX-8CITK; IX-DTI-T, IX-T1DTI; IX-T1RCV, IX-DTI-P, IX-4ICOTB.

24.05 - Caller ID/ANI Conversion Digits

Class 24 Item 05 - Caller ID/ANI Conversion Digits is used to determine how many of the caller ID/ANI digits sent by the CO will be used when a call is received on a caller ID/ANI trunk. If digits other than zero (default) are entered in this item, an entry must also be programmed in 24.06 - Caller ID/ANI Conversion Starting Position. If there is a match in 24.01 - Caller ID/ANI Incoming Number the call will be routed according to the programming in 24.02 - Caller ID/ANI Conversion Number and/or an alphanumeric ID in 24.03 - Caller ID/ANI Number ID. If zero is entered in this item, the complete digit string received from the CO must be entered in 24.01 - Caller ID/ANI Incoming Number. Also, if the total number of digits received from the CO varies, e.g., seven or ten digits, you must enter the complete string of digits in 24.01 - Caller ID/ANI Incoming Number and disregard 24.05-Caller ID/ANI Conversion Digits and 24.06 - Caller ID/ANI Conversion Starting Position. However, if the total number of digits received from the CO is constant, and you want to route a call based on only a portion of the incoming digits (i.e., area code, office code, etc.), in 24.05-Caller ID/ANI Conversion Digits you must enter the total number of digits to be used (i.e., three for area code, seven for office code + subscriber number, etc.) and in 24.06 - Caller ID/ANI Conversion Starting Position enter the first digit to be counted (with the last digit received equal to 1 and the first digit received equal to the total number of digits sent).

Programming Field Description

Conversion Digits	Meaning:	Number of caller ID/ANI digits sent by the CO that the system will use.
	Range:	0-12
	Default:	0

Related Databases:

Required: 24.01 - Caller ID/ANI Incoming Number; 24.02 - Caller ID/ANI Conversion Number; 24.03 - Caller ID/ANI Number ID; 24.06 - Caller ID/ANI Conversion Starting Position.

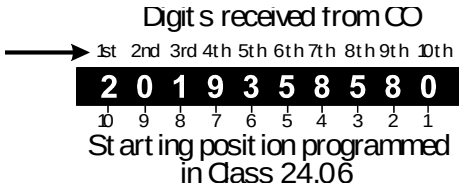
Associated: 01.03 Port Definition; 01.04 Port Configuration.

Hardware Required:

IX-8CITK; IX-DTI-T; IX-T1DTI; IX-T1RCV.

24.06 - Caller ID/ANI Conversion Starting Position

Class 24 Item 06 - Caller ID/ANI Conversion Starting Position is used to define the digit position at which the system will begin to identify the caller ID/ANI digits to be used to look for a match in 24.01 - Caller ID/ANI Incoming Number. If digits other than zero (default) are entered in this item, an entry must also be programmed in 24.05 - Caller ID/ANI Conversion Digits to define how many digits will be used to look for a match in 24.01 - Caller ID/ANI Incoming Number. The starting position is programmed as illustrated below:



If the CO is always sending ten caller ID/ANI digits in the format 201 935 8580, the ECS would use three caller ID/ANI digits (24.05 - Caller ID/ANI Conversion Digits) with the first digit used equal to the 7th starting position (24.06 - Caller ID/ANI Conversion Starting Position) and would find a match “935” in 24.01 - Caller ID/ANI Incoming Number. 24.02 - Caller ID/ANI Conversion Number and 24.03 - Caller ID/ANI Number ID would then be checked to determine the alphanumeric ID and routing assignment.

Programming Field Description

Data Field:	Meaning:	Position of the caller ID/ANI data string at which the system will begin to extract digits.
	Range:	0-12
	Default:	0

Related Databases:

Required: 24.01 - Caller ID/ANI Incoming Number; 24.02 - Caller ID/ANI Conversion Number; 24.03 - Caller ID/ANI Number ID; 24.05 - Caller ID/ANI Conversion Digits.

Associated: 01.03 Port Definition; 01.04 Port Configuration.

Hardware Required:

IX-8CITK; IX-DTI-T; IX-T1DTI; IX-T1RCV.

24.07 - ANI Enabled ISDN Trunk

Class 24 Item 07 — ANI Enabled ISDN Trunk is not used.

Class 25

DNIS Conversion Data

Class 25 - DNIS Conversion Data is used to set up the ECS to display the dialed digits of an incoming call to the system on T1 trunks. It contains the following programming items:

- 25.01 - DNIS Incoming Number
- 25.02 - DNIS Conversion Number
- 25.03 - DNIS Number ID
- 25.04 - Not Used
- 25.05 - DNIS Conversion Digits
- 25.06 - DNIS Conversion Starting Position
- 25.07 - DNIS MOH Input Port
- 25.08 - Trunk Group Number for Group Ringing Mode

25.01 - DNIS Incoming Number

Class 25 Item 01 - DNIS Incoming Number is used to list up to 1500 numbers to identify the dialed digits of an incoming call on a DNIS line. When the system receives a call on a DNIS line (typically an 800 or 900 line), the DNIS digits are first subject to 25.05 - DNIS Conversion Digits, and 25.06 - DNIS Conversion Starting Position to determine which DNIS digits the system will extract. If the system finds a match between the extracted DNIS digits and a value programmed in this item it will look to 25.03 - DNIS Number ID for an alphanumeric identifier and 25.02 - DNIS Conversion Number for the station, hunt group, voice mailbox, or ACD group the call will be routed to. If the extracted DNIS digits are not listed in this item, the call is routed according to the following programming items:

- 11.34 - Direct In Line (DIL) to Hunt Group
- 11.32 - Ringing Station
- 11.26 - Attendant Intercept Line
- 04.55 - Port Definition - True Attendant Position

Attendant intercept is not available when the system is in night mode. However, incoming calls on a DNIS line can be programmed in this item to have a different day mode and night mode ringing destination.

DNIS translations will not work properly if the trunks are not configured properly. The three more popular settings are given as the following example:

Carrier Sends	Configure ECS
(3 or 4 digits) 1234	ADDR (Address only)
*ANI*DNIS*	ANI and ADDR
ANI or DNIX	ANI or DNIS

Programming Field Description

Table #	Meaning:	Conversion table number.
	Range:	1-1500
Element	Meaning:	Toggle between Day 1, Day 2, Day 3, night mode or day/night mode.
	Range:	Day 1 mode Day 2 mode Day 3 mode Night Mode Day/Night mode/extended day mode if 04.70 - Programming Reserve 1: Day Night or 24 hours- 1000 day mode caller ID/ANI numbers.
DNIS Incoming No.	Meaning:	Incoming DNIS digits.
	Range:	Up to 12 digits (0-9, #, *, n=All)
	Default:	None

Related Databases:

Required: 25.02 - DNIS Conversion Number; 25.03 - DNIS Number ID; 25.05 - DNIS Conversion Digits; 25.06 - DNIS Conversion Starting Position.

Associated: 04.15 - Attendant DIL Intercept; 04.25 - (Elements 5 - 16) Busy ICM Override, Busy CO Override; 04.70 - Programming Reserve 1: Day/Night or 24 hours; 10.21 - Outgoing CO Line Group; 10.43 - Off-Hook Signaling; 11.26 - Attendant Intercept Line; 11.32 - Ringing Station; 11.38 - Outgoing CO Group

Hardware Required:

IX-DTI-T, IX-T1DTI, IX-T1RCV.

25.02 - DNIS Conversion Number

Class 25 Item 02 - DNIS Incoming Number is the second part of the DNIS conversion table. It is used to select a destination for an incoming call on a DNIS line. A call on a DNIS line can be routed to a station, hunt group, voice mailbox, ACD group, or over the network, according to the DNIS data received. In order to enter a conversion number in the DNIS Conversion Number Field this number must appear in 28.01 - Network Number. Once the number is routed to a remote system the call will not use the DNIS conversion table at the remote system. Therefore you must route the call to a valid extension or Hunt Group number in the remote system.

A DNIS call may also be programmed to follow the primary (11.32 - Ringing Station) and delayed ringing (11.33 - Delayed Ringing Station) assignment for the trunk. If you wish to route a DNIS call based on the 11.32 - Ringing Station and 11.33 - Delayed Ringing Station programming, the CO Access Number of the trunk (11.02 - CO Line Access Numbers) must be programmed as the destination in this item for the desired entry. If the DNIS Conversion Number does not contain data for a string of DNIS digits entered in 25.01 - DNIS Incoming Number the following programming items determine where the call is routed:

- 11.34 - Direct In Line (DIL) to Hunt Group
- 11.32 - Ringing Station
- 11.26 - Attendant Intercept Line
- 04.55 - Port Definition - True Attendant Position

Programming Field Description

DNIS Ring	Meaning:	Toggle between day mode/night mode.
	Range:	Day 1 Ringing Day 2 Ringing Day 3 Ringing Night Ringing Day/Night Ringing (04.70 - Programming Reserve 1 Day/Night or 24 Hours = 1 - 1500 day mode DNIS numbers)
Table #	Meaning:	Conversion table number.
	Range:	1-1500
Conversion (Access No)	Meaning:	Station, hunt group, voice mailbox access code, trunk access number or ACD group number.
	Range:	Up to 4 digits (0-9, N=null)
	Default:	None
MBOX/NCS/ ACD Priority	Meaning:	MBOX, Network Class of Service or ACD Priority field
	Range:	Up to 4 digits (0-9, N=null)
	Default:	None

Related Databases:

Required: 25.01 DNIS Incoming Number; 25.03 - DNIS Number ID; 25.05 - DNIS Conversion Digits; 25.06 - DNIS Conversion Starting Position.; 28.01 - Network Number; 28.02 - Network Attribute; 28.05 - Network External; 28.06 - Network Route Advance Step.

Associated: 04.15 - Attendant DIL Intercept; 04.25 - (Elements 5 - 16) Busy ICM Override, Busy CO Override; 04.70 - Programming Reserve 1: Day/ Night or 24 hours; 10.21 - Outgoing CO Line Group; 10.43 - Off-Hook Signaling; 11.26 - Attendant Intercept Line; 11.32 - Ringing Station; 11.38 - Outgoing CO Group.

Hardware Required:

IX-DTI-T, IX-T1DTI, IX-T1RCV.

25.03 - DNIS Number ID

Class 25 Item 03 - DNIS Number ID is used to assign an alphanumeric name to identify each DNIS number listed in 25.01 - DNIS Incoming Number. The DNIS ID is displayed when a call from a DNIS line is ringing at a station. The DNIS ID is not displayed until after the call has been answered during the following operations:

- Call Forward
- Call Coverage Key Operation
- Group Pick-Up

Note: The programming in this item overrides the DNIS digits sent by the CO on the station LCD. If this item is left blank, the DNIS digits received are displayed on the station LCD.

Programming Field Description

ANI Ring	Meaning:	Toggle between day mode/night mode.
	Range:	Day 1 Ringing Day 2 Ringing Day 3 Ringing Night Ringing Day/Night Ringing (04.70 - Programming Reserve 1 Day/Night or 24 Hours = 1 - 1500 day mode ANI/Caller ID numbers)
Table #	Meaning:	Conversion table number.
	Range:	1-800
Number ID	Meaning:	Caller ID/ANI Number ID.
	Range:	Up to 16 alphanumeric characters
	Default:	None

Related Databases:

Required: 25.01 - DNIS Incoming Number; 25.02 - DNIS Conversion Number; 25.05 - DNIS Conversion Digits; 25.06 - DNIS Conversion Starting Position.

Associated: None.

Hardware Required:

IX-DTI-T; IX-T1DTI; IX-T1RCV.

25.04 - Not Used

Class 25 Item 04 - is not used.

25.05 - DNIS Conversion Digits

Class 25 Item 05 - DNIS Conversion Digits is used to determine how many of the DNIS digits sent by the CO will be used when a call is received on a DNIS trunk. If digits other than zero (default) are entered in this item, an entry must also be programmed in 25.06 - DNIS Conversion Starting Position. If there is a match in 25.01 - DNIS Incoming Number the call will be routed according to the programming in *Class 25.02* and/or an alphanumeric ID in 25.03 - DNIS Number ID. If zero is entered in this item, the complete digit string received from the CO must be entered in 25.01 - DNIS Incoming Number.

Programming Field Description

Conversion Digits:	Meaning:	Number of DNIS digits sent by the CO that the system will extract.
	Range:	0-12
	Default:	0

Related Databases:

Required: 25.01 - DNIS Incoming Number; 25.02 - DNIS Conversion Number; 25.03 - DNIS Number ID; 25.06 - DNIS Conversion Starting Position.

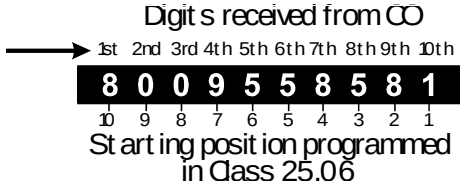
Associated: 01.03 Port Definition; 01.04 Port Configuration.

Hardware Required:

IX-DTI-T, IX-T1DTI; IX-T1RCV.

25.06 - DNIS Conversion Starting Position

Class 25 Item 06 - DNIS Conversion Starting Position is used to define the digit position at which the system will begin to identify the DNIS digits to be used to look for a match in 25.01 - DNIS Incoming Number. If digits other than zero (default) are entered in this item, an entry must also be programmed in 25.05 - DNIS Conversion Digits to define how many digits will be used to look for a match in *Class 25.01*. The starting position is programmed as illustrated below:



For example, if the following items are programmed:

- 25.01 - DNIS Incoming Number: 8581
- 25.05 - DNIS Conversion Digits: 4
- 25.06 - DNIS Conversion Starting Position: 4

If the CO is always sending ten DNIS digits in the format 800 935 8581, the ECS would use four DNIS digits (25.05 - DNIS Conversion Digits) with the first digit used equal to the 4th starting position (25.06 - DNIS Conversion Starting Position) and would find a match “8581” in 25.01 - DNIS Incoming Number. 25.02 - DNIS Conversion Number and 25.03 - DNIS Number ID would then be checked to determine the alphanumeric ID and routing assignment.

Programming Field Description

Conv. Stat Position	Meaning:	Position of the DNIS data string at which the system will begin to extract digits.
	Range:	0-12
	Default:	0

Related Databases:

Required: 25.01 - DNIS Incoming Number; 25.02 - DNIS Conversion Number; 25.03 - DNIS Number ID; 25.05 - DNIS Conversion Digits.

Associated: 01.03 Port Definition; 01.04 Port Configuration.

Hardware Required:

IX-DTI-T; IX-T1DTI; IX-T1RCV.

25.07 - DNIS MOH Input Port

Class 25 Item 07 — DNIS MOH Input Port is used to assign external Music On Hold sources.

Operation

- The ECS system provides external MOH from the selected the Miscellaneous logical port that is associated with the DNIS information.
- MOH Selection Method:
  - External MOH sources can be selected based on the DNIS information programmed under Incoming Calls > DNIS (Class 25) or individual CO trunk programming under Trunks > Trunk Features (Class 11.74.03).
  - When the DNIS setting is unavailable, the ECS selects the MOH port from ECS database programming under Trunks > Trunk Features (Class 11.74.03) trunk data.
  - If no trunk data is unavailable, then MOH is selected from System > System Features > Ports (Class 4.05).
  - If the previously listed sources are unavailable, then the MOH selection follows System > System Features (Class 2.03) programming.

Programming Field Description

DNIS MOH Input Port	Meaning:	DNIS MOH input port number.
	Range:	0-512

Related Databases:

Required: 25.01 - DNIS Incoming Number; 25.02 - DNIS Conversion Number; 1.08 - Card Information.

Associated: 2.03 - Music On Hold Source Selection; 04.03 - Background Music Input Port; 04.04 - Background Music Output Port; 04.05 - Music On Hold Input Port.

Hardware Required:

IX-EDVIF; IX-MISC

25.08 - Trunk Group Number for Group Ringing Mode

Class 25 Item 08 - Trunk Group Number for Group Ringing Mode has a total of 1500 entries to program the trunk group number that is used to obtain the Group Ringing Mode. The index for Class 25.08 corresponds to the index for Class 25.01.

A trunk group number must be entered in the ECS database under Incoming Calls > DNIS > Trunk Group (Class 25.08) to enable Group Ringing for a trunk group. If there is no Trunk Group Number entered, the default setting is 0 and the trunk group will follow System Ringing.

Group Ringing Mode

The Group Ringing option allows an ICON Series (IX-5930, IX-5910, or IX-5810) attendant position to change the Ringing Mode for a specific trunk group through the Group Night key programmed in the telephone key pattern. This means that an individual trunk group can be changed to one of four different Ringing Modes (Day-1, Day-2, Day-3, or Night) independent of other trunk groups in the system.

- When in the Group Ringing mode, the system Night key has the ability to change the system to In Forced Night which overrides the Group Ringing mode operation and forces all groups into Night Ringing mode. You can also set the system to In Group Mode which causes the system to follow the current state of each individual Group Night Transfer key.
- In the Group Ringing mode, Iwatsu ICON Series (IX-5810, IX-5910 or IX-5930) Attendant stations have the option to select Day-1, Day-2, Day-3, or Night mode for each specific group.
- In the Group Ringing mode, the Group Night Transfer key can select Day-1, Day-2 Day-3, or Night mode for each specific trunk group.

Programming Field Description

Tk. Grp#	Meaning:	Trunk Group Number.
	Range:	0, 1 - 250 0 = (Default) No trunk group entered. Trunk group will follow System Ringing

Database Programming:

System > System Features > Ringing Option (Class 04.70.08), Incoming Calls > Ringing Stations (Class 11.32), Incoming Calls > Trunk Processing DIL to Hunt Group (Class 11.34), Incoming Calls > DNIS . Incoming Number (Class 25.01), Incoming Calls > DNIS > Access No. (Class 25.02), Incoming Calls > DNIS > Number ID (Class 25.03), Incoming Calls > DNIS > MOH Source (Class 25.07), Incoming Calls > DNIS > Trunk Group (Class 25.08).

Hardware Required:

Iwatsu ICON Series IX-5930, IX-5910, or IX-5810 telephones.

Class 26

Station Text Message — 1

Use **Class 26 - Station Text Message - 1** to program station text messages for station logical ports 001 to 1024.

- 26.01 - Station Text Message 1

26.01 - Station Text Message 1

Class 26 Item 01 - Station Text Message 1 is used to program individual station text messages for station logical ports 001-1024 through database programming. Each ECS station has access to ten personal text messages (text messages 90-99). Station text message can also be programmed at the station level.

Registering a Text Message at a station Use the following dial keys to enter a text message in 02.20 - System Text Message from a telephone:

Key	Press 1 time	Press 2 times	Press 3 times	Press 4 times
1	-	.	space	1
2	A	B	C	2
3	D	E	F	3
4	G	H	I	4
5	J	K	L	5
6	M	N	O	6
7	O	R	S	7
8	T	U	V	8
9	W	X	Y	9
0	Q	Z	0	
*	*			
#	capital letters	lowercase letters		
HOLD	one character write/cancel			

Programming Field Description

Element Field 1 (e1):	Meaning:	Station logical port number.
	Range:	001-1024
Element Field 1 (e2):	Meaning:	Station text message bin number corresponding to text message numbers 90-99.
	Range:	01 = 90 03 = 92 05 = 94 07 = 96 09 = 98 02 = 91 04 = 93 06 = 95 08 = 97 10 = 99

Log Number	Meaning:	Station Logical Port Number
	Range:	0-1024
	Default:	0
Ext. Number	Meaning:	Extension Number on the station
	Range:	0-9999
	Default:	0
MSG Number	Meaning:	Text message number
	Range:	1-10
	Default:	1
Text Message	Meaning:	Station text message bin number corresponding to text message numbers 90-99
	Range:	0-16 alphanumeric digits
	Default:	blank

Related Databases:

Required: None.

Associated: 02.20 - System Text Message; 04.71 - Call Coverage/Voice Mail Data: Text Message Duration; 08.06 - Text Message Group; 10.72 - Programming Reserve 3: Text Message Tone.

Class 28

Networking

Class 28 - Networking contains the programming items required to set up a network of ECS systems. The following programming items are included in Class 28:

- 28.01 - Network Number
- 28.02 - Network Attribute
- 28.03 - Network Internal
- 28.04 - Network Feature
- 28.05 - Network External
- 28.06 - Network Route Advance Step
- 28.07 - Network IP Device Handler

28.01 - Network Number

Class 28 Item 01 – Network Number is used to program network access numbers. The entries in this table are not dialed out on the call. To add any digits or to redial the access code on the call, the data must be entered in 28.03 - Network Internal for internal conversions, 28.04 - Network Feature for feature access code conversions and Class 28.05 for external conversions. Each data entry in 28.01 - Network Number can be 1 to 4 digits in length.

When the a network access code programmed in 28.01 - Network Number, the Access Number is dialed by an extension, the system looks to Class 28.02 to determine the type of conversion (internal, external or feature access), number of digits, and conversion table to use.

Programming Field Description

Index Number	Meaning:	Index Number
	Range:	001-800
Access No	Meaning:	Network Access Code
	Range:	Up to 4 digits in length
	Default:	

Related Databases:

Required: 28.02 - Network Attribute

Associated: 10.02 - Station Numbering; 11.02 - CO Line Access Numbers; 19.01 - ACD Group Access Number; 28.03 - Network Internal; 28.04 - Network Feature; 28.05 - Network External.

Hardware Required:

IX-8IPNET/IX-8EIPNET; IX-DTI-T; IX-T1DTI; IX-4EMTK

28.02 - Network Attribute

Class 28 Item 02 – Network Attribute is used to determine the attributes of each entry in 28.01 - Network Number. The index number in Network Attribute is a one-to-one relation with the index number in 28.01 - Network Number.

Number Attribute is used to set the conversion type of each entry. There are three conversion types: Internal, External and Feature.

Expected Digits is used to identify the number of digits that will follow each conversion entry. This is the number of digits the user will dial in conjunction with the conversion entry.

Conversion Table No Tis dependant on the selection in the Conversion Attribute field and points to one of three Table Numbers: 28.03 - Network Internal, 28.05 - Network External and 28.04 - Network Feature. Likewise, the range in Conversion Table Number is determined by the programming selection in the Number Attribute field. For example, Internal is the selection in the Number Attribute field, the 28.03 - Network Internal range is 1-200. If Feature is selected, the 28.04 - Network Feature range is 1-60. Finally, if External is selected, the Class 28.05 External Table range is 1-600.

28.02 Conversion Attribute Table			
Table Number	Number Attribute	Expected Dig-its	Conversion Table Number
001	0 – 2		
002			
003			
~			
800			
	Internal Feature External		Number Attribute = Internal: 1 – 200 Number Attribute = Feature: 1 – 60 Number Attribute = External: 1 - 600

Programming Field Description

Index Number	Meaning:	Index Number
	Range:	1-800
Number Attribute		Conversion Type
	Range:	Internal Feature External
	Default:	External (1-600 Internal (601-800)
Expected Digits		Number of Digits to follow a conversion entry
	Range:	0-99
	Default:	0
Conversion Table Reference		
	Range:	1-200 if Number Attribute is Internal 1-60 if Number Attribute is Feature 1-600 if Number Attribute is External
	Default:	0

Related Databases:

Required: 10.02 - Station Numbering; 11.02 - CO Line Access Numbers; 19.01 - ACD Group Access Number; 28.01 - Network Number; 28.03 - Network Internal; 28.04 - Network Feature; 28.05 - Network External

Associated: None

Hardware Required:

IX-8IPNET/IX-8EIPNET; IX-DTI-T; IX-T1DTI; IX-4EMTK

28.03 - Network Internal

Class 28 Item 03 – Network Internal is the internal conversion table. The Index number listed in the Network Internal corresponds to the number entered in 28.02 - Network Attribute Number Attribute (Internal). There are 16 possible translations per entry based on the network class of service programmed for the station. The network class of service is programmed in 10.75 - Programming Reserve 6: Network Class of Service.

28.03 Internal Conversion Table						
Index #	Network Class of Service Translation (e2)					
	01	02	03	07	~	16
1						
2						
3						
~		ICM number to be dialed				
200						

Programming Field Description

Index Number	Meaning:	Index Number
	Range:	1-200
Class 1 - 16	Meaning:	Network Class of Service Translation
	Range:	1-16
Data	Meaning	Enter the ICM Number.
	Range:	1-4 digits
	Default:	Blank

Related Databases:

Required: 110.75 - Programming Reserve 6: Network Class of Service; 28.01 - Network Number; 28.02 - Network Attribute

Hardware Required:

IX-8IPNET/IX-8EIPNET; IX-DTI-T; IX-T1DTI; IX-4EMTK

28.04 - Network Feature

Class 28 Item 04 – Network Feature is the feature conversion table. Currently, the feature access table may only be used to turn on and off Message Waiting Lamps at the location. The table number listed in Network Feature Index Number corresponds to the number entered in 28.02 - Network Attribute: Conversion Table Reference. Enter the feature number in the Feature field. The feature number corresponds to 07.06 - Feature Access Numbers. Set Feature field to 19 (Message Waiting). Use Data Field 3Additional Dial to add additional digits to the dial string.

28.04 Feature Access Conversion Table			
Index #	Action	Feature	Additional Dial
1	0 - 1	19	xxxx
2			
~			
60			
	Enable Disable	Currently only supports Message Waiting	

Programming Field Description

Index #	Meaning:	Index Number
	Range:	1-30
Action	Meaning:	Action
	Range:	Enable Disable
	Default:	Enable
Feature	Meaning:	Feature (only Message Waiting)
	Range:	Message Waiting
	Default:	Blank
Additional Dial	Meaning:	Digits to be added to dial string
	Range:	8 digits (0-9, * and #)
	Default:	

Related Databases:

Required: 07.06 - Feature Access Numbers; 28.01 - Network Number; 28.02 - Network Attribute

Hardware Required:

IX-8IPNET/IX-8EIPNET; IX-DTI-T; IX-T1DTI; IX-4EMTK

28.05 - Network External

Class 28 Item 05 – Network External is the external conversion table. The Index Number listed in Network External corresponds to the number entered in 28.02 - Network Attribute: Conversion Table No. There are three route steps for each translation. Route Advance Steps are used if the trunk group programmed as route step 1 is busy. Access to route advance steps is programmed on a station-by-station basis using 10.75 - Programming Reserve 6: Network Class of Service and 28.06 - Network Route Advance Step.

To program an external conversion in Network External, enter the CO trunk group to be used in the CO Group No. field. Use Process Method to program the digits to be sent to the distant system. Select Add Dial + Input to output the dialed digits plus the additional digits programmed in Add Dial Data field. Select Add Dial Only to ignore the dialed digits and output only the digits programmed in Add Dial Data Field. Input digits are the number of digits collected after the access code was dialed. The number of digits to collect was set in 28.02 - Network Attribute: Expected Digits. The In-band Signal Field is used to enable in-band signaling for the trunk group. When in-band signaling is enabled, Caller ID/ANI/DNIS and Station Information is sent with the call across the network. If you are using traditional networking to an ECS system, set In-Band Signal to Disable. The Add Dial Data field is used to program the additional dialed digits including pauses.

28.05 External Conversion Tables Route Step 1- 3				
Index	CO Group No	Process Method	In-band Signal	Add Dial Data
1	1 – 250	Add dial + Input Add dial only	Enable Disable	
2				
3				
~				
600				

Programming Field Description

Index#	Meaning:	Index Number
	Range:	1-600
CO Group No	Meaning:	Trunk Group
	Range:	1-250
	Default:	0
Process Method	Meaning:	Outgoing dial string
	Range:	Add dial + Input Add dial only
	Default:	Add dial + Input
In-Band	Meaning:	Enable/Disable In-band Signaling
	Range:	Enable Disable
	Default:	Disable
Add Dial Data	Meaning:	Add Dial Data
	Range:	0-9, * and #
	Default:	

Related Databases:

Required: 04.70 - Programming Reserve 1: Inbound Signaling; 10.02 - Station Numbering; 10.75 - Programming Reserve 6; 11.02 - CO Line Access Numbers; 11.73 - Reserve 4; 19.01 - ACD Group Access Number; 28.02 - Network Attribute; 25.02 - DNIS Conversion Number; 28.01 - Network Number; 28.02 - Network Attribute; 28.06 - Network Route Advance Step.

Hardware Required:

IX-8IPNET/IX-8EIPNET; IX-DTI-T; IX-T1DTI; IX-4EMTK

28.06 - Network Route Advance Step

Class 28 Item 06 – Network Route Advance Step is used to set the route advance step for each network class of service. Route advance steps are only used when the outgoing trunk group programmed in 28.05 - Network External Trunk Group is busy.

The route advance step used is based on the Network Class of Service programmed for the station in 10.75 - Programming Reserve 6. If the Advance Step is set to 0 the station user cannot advance to the next step. If the Advance Step is 1 then the station user can advance to the second route. An advance step of 2 will allow the user to use all three routes.

28.06 Network COS Advance Step Table	
Network COS	Advance Step
1	0 – 2
2	
3	
~	
16	

Programming Field Description

Index #	Meaning:	Network Class of Service (10.75 - Programming Reserve 6: Network Class of Service)
	Range:	1-16
Data Field:		Advance Steps allowed.
	Range:	0=No Advance Step 1=Allow Advance to Step 2 Only 2=Allow Advance to Step 2 and Step 3
	Default:	0

Related Databases:

Required: 10.75 - Programming Reserve 6: Network Class of Service; 28.05 - Network External

Hardware Required:

IX-8IPNET/IX-8EIPNET; IX-DTI-T; IX-T1DTI; IX-4EMTK

28.07 - Network IP Device Handler

Class 28.07 - Networking IP Device Handler is used to route ECS IP Networking Calls by referencing an entry in Class 36 IP Device Handlers which identifies the function and SIP URL of an IX-8IPNET/IX-8EIPNET card at the distant end. The destination of a network call using IP Networking is determined dynamically, i.e., on a call-by-call basis, using the IP Device Handler Number. The IP Device Handler Number programming is a specific number from 0 through 128. If zero is programmed in this item, IP Device Handler Number has no function.

28.07 Network IP Device Handler	
Network Table Number	Number of Class 36 IP Device Handler
1	0, 1 – 128
2	
3	
~	
800	

Programming Field Description

Network Conversion Table Number	Meaning:	Network table number
	Range:	0-800
IP Device Handling No.		Number of Class 36 IP Device Handler
	Range:	0, 1-128
	Default:	0= Setting in 29.11 - Trunk Group IP Device Handler

Related Databases:

Required: 10.75 - Programming Reserve 6; 28.05 - Network External; 29.11 - Trunk Group IP Device Handler; Class36 IP Device Handlers.

Hardware Required:

IX-8IPNET/IX-8EIPNET; IX-DTI-T; IX-T1DTI; IX-4EMTK

Class 29

Trunk Group Data

Class 29 - Trunk Group Data contains the programming items required to set up enhanced features on ISDN PRI Lines and is used for IP Networking. The following programming items are included in Classes 29 and 30:

- 29.01 - Group Attribute (Reserved)
- 29.02 - Group Name (Reserved)
- 29.03 - ISDN Trunk Group Bitmap
- 29.04 - Call-by-Call Attribute
- 29.05 - Service Parameters
- 29.06 - Ringing Station by ANI Table
- 29.07 - Ringing Station by DNIS Table
- 29.08 - B-Channel Table Number
- 29.09 - Calling Party Number
- 29.11 - Trunk Group IP Device Handler

29.01 - Group Attribute (Reserved)

Class 29 Item 01 – Group Attribute is not used. This item must remain set to its default value of **2 Way** for all groups.

29.02 - Group Name (Reserved)

Class 29 Item 02 – Group Name is currently not used.

29.03 - ISDN Trunk Group

Class 29 Item 03 – ISDN Trunk Group is used to assign ISDN PRI lines to trunk groups for use with the Call-by-Call, I-CNIS, and Fractional DS1 features. When an ISDN Trunk Group is accessed during an incoming or outgoing call, the individual ISDN PRI lines in the trunk group are eligible to receive a dynamic assignment on a call by call basis based on the action being performed. If an ISDN PRI line is not assigned to a trunk group in the ISDN Trunk Group, that ISDN line will not support the Call-by-Call, I-CNIS and Fractional DS1 features.

Note:	If a specific channel of an ISDN PRI line is directly accessed by pressing a [COLn] key, that call will not follow the programming in Class 29 Trunk Group Data unless the selected trunk is programmed to the same trunk group number in both 11.38 - Outgoing CO Group and ISDN Trunk Group. Enhanced ISDN features are only available on ISDN PRI lines associated with an ISDN trunk group programmed in ISDN Trunk Group. A total of 250 trunk groups may be programmed in the system. An ISDN PRI line may belong to multiple trunk groups. ISDN Trunk Groups programmed in ISDN Trunk Group are subject to all outgoing and incoming call restrictions programmed in Class 11 Line Class. Additionally, stations accessing an ISDN Trunk Group programmed in ISDN Trunk Group are subject to all restrictions programmed for that station in Class 10 Station Class of Service.
Note:	A total of 250 trunk groups may be programmed in the system. Both 11.38 - Outgoing CO Group and 29.03 - ISDN Trunk Group have access to the same bank of 250 trunk groups. Trunks may be assigned to multiple groups in 29.03 - ISDN Trunk Group. Iwatsu recommends that ISDN PRI lines assigned to an ISDN trunk group in 29.03 - ISDN Trunk Group are also assigned to the same trunk group in 11.38 - Outgoing CO Group. Further, Iwatsu also recommends reserving trunk groups for ISDN lines only.
Note:	At system default, all system trunks are assigned to trunk group 1 in 11.38 - Outgoing CO Group. Iwatsu recommends using a trunk group other than trunk group 1 as the ISDN Trunk Group.
Note:	Do not include Data channels in the trunk group.
Note:	**Future Consideration:** In order to comply with U.S. government regulations, a new E911 E&M Trunk used to access a new Enhanced E911 Service feature will be added in the near future. By default, trunks configured as E911 E&M will be assigned to trunk group 60. For this reason, Iwatsu recommends using a trunk group other than trunk group 60 as the ISDN Trunk Group.

Note:	A system reset is required to accurately reflect the correct FLT-NNN indication. A system reset is not necessary if a system has only FLT-000 (Optimized) keys.

Programming Field Description

Trunk	Meaning:	ISDN Trunk Group Number
	Range:	1-250
Logical Trunk Bitmaps	Meaning:	Define the trunk logical ports that belong to the specified ISDN trunk group using the DSS buttons.
	Range:	Not Checked - not part of the ISDN Trunk Group Checked - part of the ISDN Trunk Group
	Default:	Not Checked

Related Databases:

Required: 01.11 Trunk Port Definition; 01.04

Associated: Class 10 Station Class of Service; Class 11 Line Class; 11.38 - Outgoing CO Group; 29.04 - Call-by-Call Attribute; 29.05 - Service Parameters; 29.06 - Ringing Station by ANI Table; 29.07 - Ringing Station by DNIS Table; 29.08 - B-Channel Table Number; 29.09 - Calling Party Number; 30.01 - Attached B Channel

Hardware Required:

IX-DTI-P; IX-ICOTP

29.04 - Call-by-Call Attribute

Class 29 Item 04 – Call-by-Call Attribute is used to program the network attribute that identifies the type service being subscribed to on the lines programmed in the specified the ISDN Trunk Group. Each ISDN Trunk Group may be assigned only one attribute in 29.04 - Call-by-Call Attribute. There are five attribute options to choose from. Each of these is listed below followed by a brief description.

Option	Description
Nothing	No Network Specific Facility is used
In-WATS	Incoming WATS line
Out-WATS	Outgoing WATS line
FX	Foreign Exchange Trunk
Tie Line	Two-way, switch-to-switch connection

In order to support multiple NSFs on one ISDN PRI line, the channels on which those services are permitted must be programmed in a unique trunk group in 29.03 - ISDN Trunk Group. That trunk group must then be assigned a call by call attribute in class 29.04 - Call-by-Call Attribute. For example, on an ISDN PRI line you wish to allow local calls on channels 1-23, Tie line calls on Channels 1-9, and FX calls on channels 011-016. Programming would then be as follows:

ISDN PRI LINE (Trunk Logical Ports 1-23)			
Type of Call	Trunk Group Number (29.03)	Logical Ports in Trunk Group	Call-by- Call Attribute (29.04)
Local Calls	2	1-23	Nothing
Tie Line Calls	3	1-9	Tie Line
FX Calls	4	11-16	FX

Programming Field Description

Group #	Meaning:	ISDN Trunk Group Number (29.03 - ISDN Trunk Group)
	Range:	1-250
Call Attribute	Meaning:	Call Attribute
	Range:	0-4 (See above table)
	Default:	

Related Databases:

Required: 01.11 Trunk Port Definition; 01.04; 29.03 - ISDN Trunk Group; 29.05 - Service Parameters

Associated: Class 10 Station Class of Service; Class 11 Line Class; 11.38 - Outgoing CO Group; 29.06 - Ringing Station by ANI Table; 29.07 - Ringing Station by DNIS Table; 29.08 - B-Channel Table Number; 29.09 - Calling Party Number; 31.01 - Master Clocking

29.05 - Service Parameters

Class 29 Item 05 – Service Parameters is used to further define an NSF option defined in 29.04 - Call-by-Call Attribute. This item has no effect if 0 – No NSF is selected in Class 29.04.

The data programmed in Class 29.05 is supplied by the ISDN service provider. For example, enter the band number for an Out-WATS line. Enter the facility number for a FX line or Tie Line.

Programming Field Description

Group Number	Meaning:	ISDN Trunk Group Number (29.03 - ISDN Trunk Group)
	Range:	1-250
NSF Service Parameter	Meaning:	Service Parameter
	Range:	Up to 6 digits (Null, 0-9)
	Default:	

Related Databases:

Required: 01.11 Trunk Port Definition; 29.03 - ISDN Trunk Group; 29.04 - Call-by-Call Attribute

Associated: Class 1 0Station Class of Service; Class 11 Line Class; 11.38 - Outgoing CO Group; 29.06 - Ringing Station by ANI Table; 29.07 - Ringing Station by DNIS Table; 29.08 - B-Channel Table Number; 29.09 - Calling Party Number; 30.01 - Attached B Channel

Hardware Required:

IX-DTI-P; IX-ICOTP

29.06 - Ringing Station by ANI Table

Class 29 Item 06 – Ringing Station by ANI Table is used to identify the 24.02 - Caller ID/ANI Conversion Number through which to route an incoming call received with NSF information on the specified ISDN Trunk Group (29.03 - ISDN Trunk Group). This item is only used if 04.70 - Programming Reserve 1: ANI/DNIS Rout Table Selection is set to Route by ANI and the call is received with NSF.

There are three modes to choose from. When using ANI Day, routing is through the specified 24.02 - Caller ID/ANI Conversion Number only during the day mode. When using ANI Night, routing is through the specified 24.02 - Caller ID/ANI Conversion Number only during the night mode. When using ANI Day/Night, the call will always be routed through the specified 24.02 - Caller ID/ANI Conversion Number.

Programming Field Description

Grp #	Meaning:	ISDN Trunk Group Number (29.03 - ISDN Trunk Group)
	Range:	1-250
Day Mode	Meaning:	Class 24 Caller ID/ANI Conversion Data Day Mode
	Range:	0-250
	Default	Blank
Night Mode	Meaning:	Class 24 Caller ID/ANI Conversion Data Night Mode
	Range:	0-250
	Default	Blank
Day/Night Mode	Meaning:	Class 24 Caller ID/ANI Conversion Data Day/Night Mode
	Range:	0-250
	Default	Blank

Related Databases:

Required: 01.11 Trunk Port Definition; 04.70 - Programming Reserve 1: ANI/DID/DNIS Mode; 04.70 - Programming Reserve 1: ANI/DNIS Route Table Selection; 24.03 - Caller ID/ANI Number ID; 29.03 - ISDN Trunk Group; 29.04 - Call-by-Call Attribute

Associated: Class 10 Station Class of Service; Class 11 Line Class; 11.38 - Outgoing CO Group; Class 24 Caller ID/ANI Conversion Data; 29.06 - Ringing Station by ANI Table; 29.07 - Ringing Station by DNIS Table; 29.08 - B-Channel Table Number; 29.09 - Calling Party Number; 30.01 - Attached B Channel

Hardware Required:

IX-DTI-P; IX-ICOTP

29.07 - Ringing Station by DNIS Table

Class 29 Item 07 – Ringing Station by DNIS Table is used to identify the Class 25 DNIS Conversion Data number through which to route an incoming call received with NSF information on the specified ISDN Trunk Group (29.03 - ISDN Trunk Group). This item is only used if 04.70 - Programming Reserve 1: ANI/DNIS Route Table Selections is set to Route by DNIS and the call is received with NSF.

Note:	Night Mode values 201-400 corresponds with 25.02 - DNIS Conversion Number night/extended day mode settings 1-200.

Programming Field Description

Group Number	Meaning:	ISDN Trunk Group Number (29.03 - ISDN Trunk Group)
	Range:	1-250
DNIS Day	Meaning:	Day mode
	Range:	1-500
DNIS Day	Meaning:	Night mode
	Range:	1-500
DNIS Day	Meaning:	Day/Night mode
	Range:	1-1000

Related Databases:

Required: 01.11 Trunk Port Definition; 04.70 - Programming Reserve 1: ANI/DID/DNIS Mode; 04.70 - Programming Reserve 1: ANI/DNIS Route Table Selection; 25.03 - DNIS Number ID; 29.03 - ISDN Trunk Group; 29.04 - Call-by-Call Attribute

Associated: Class 10 Station Class of Service; Class 11 Line Class; 11.38 - Outgoing CO Group; Class 25 DNIS Conversion Data; 29.06 - Ringing Station by ANI Table; 29.07 - Ringing Station by DNIS Table; 29.08 - B-Channel Table Number; 29.09 - Calling Party Number; 30.01 - Attached B Channel

Hardware Required:

IX-DTI-P; IX-ICOTP

29.08 - B-Channel Table Number

Class 29 Item 08 – B-Channel Table Number is used to identify the table in 30.01 - Attached B Channel that denotes the active B channels for the specified ISDN trunk group (29.03 - ISDN Trunk Group). This item requires programming only when the Fractional DS1 feature is used.

Programming Field Description

Group Number	Meaning:	ISDN Trunk Group Number (29.03 - ISDN Trunk Group)
	Range:	1-250
B-Channel Assignment	Meaning:	30.01 - Attached B Channel Table Number
	Range:	1-250
	Default:	1

Related Databases:

Required: 01.11 Trunk Port Definition; 30.01 - Attached B Channel

Associated: 11.38 - Outgoing CO Group

Hardware Required:

IX-DTI-P; IX-ICOTP

29.09 - Calling Party Number

Class 29 Item 09 – Calling Party Number is used to assign a number to be sent as the I-CNIS with all outgoing calls made on that trunk group. The ISDN trunk group is programmed in 29.03 - ISDN Trunk Group. 29.09 - Calling Party Number is ignored if Speed Dial Bin 97 is programmed at the station placing the call after accessing the specific ISDN Trunk Group. Personal Speed Bin 97 cannot be used when using I-CNIS on the ISDN trunk group or if 04.70.03 is set to Speed 97. If Personal Speed Bin is used in this circumstance, the phone will not dial out.

Programming Field Description

Group #	Meaning:	ISDN Trunk Group Number (29.03 - ISDN Trunk Group)
	Range:	1-250
Calling Party Number:	Meaning:	I-CNIS Data to be sent with call
	Range:	Blank, Dial 1
	Default:	Blank

Related Databases:

Required: 01.11 Trunk Port Definition; 29.03 - ISDN Trunk Group

Associated: Class 10 Station Class of Service; Class 11 Line Class; 11.38 - Outgoing CO Group; 29.01 - Group Attribute (Reserved).

29.10 - Emergency Send Dial

Class 29 Item 10 - Emergency Send Dial is used when Area Routing via the Proposed “40,000 Square Foot Rule” is selected as the method for Enhanced 911 Service in 04.70 - Programming Reserve 1 E911 Outgoing Type. This item determines the exact dial string that is sent to the CO with a 911 call.

When Area Routing is selected in 04.70 - Programming Reserve 1 E911 Outgoing Type, each station in a defined area must be associated with a specific system trunk group (11.38 - Outgoing CO Group) in 10.73 - Programming Reserve. For example, a building with three floors assigns the stations on floor 1 to trunk group 1 in 10.73 - Programming Reserve, stations on floor 2 to trunk group 2 in Class 10.73 - Programming Reserve, and stations on floor 3 to trunk group 3 in Class 10.73 - Programming Reserve.

When a system extension dials 911, the data programmed in 29.10 - Emergency Send Dial will be sent with the call via a CO line in the trunk group associated with the specific area from which the call originated. Up to 24 digits including pauses may be entered for each trunk group. In most cases, only 911 will be entered in 29.10 - Emergency Send Dial. If the ECS system is behind Centrex, *9 [pause]* will be required before the digits *911*. If a 911 call is made from an off-premise (OPX) extension, additional digits may be required in place of 911 to route the call to the PSAP in the local area of the OPX.

Note: In order for an emergency call to be properly routed using the Proposed “40,000 Square Foot Rule,” 29.10 - Emergency Send Dial must be programmed with the digits 911, or other digits required to complete the call to the PSAP. If 911 is not programmed as part of the dial string in 29.10 - Emergency Send Dial, 911 routing using the Proposed “40,000 Square Foot Rule” will not operate.

Programming Field Description

Group Number	Meaning:	Trunk Group Number (11.38 - Outgoing CO Group)
	Range:	1-250
Emergency Send Dial:	Meaning:	Digits that are dialed out on trunk to Public Safety Answering Point.
	Range:	1-24 digits (0-9, *, #, pause)
	Default:	911

Related Databases:

Required: 11.38 - Outgoing CO Group.

Associated: 04.70 - Programming Reserve 1: E911 Outgoing Type; 04.71 - Call Coverage/Voice Mail Data: E911 Relay Number; 04.71 - Call Coverage/Voice Mail Data: E911 FAIL Rely Number; 04.71 - Call Coverage/Voice Mail Data: E911 Special Trunk Group; 04.71 - Call Coverage/Voice Mail Data: E911 CAMA Wink Timer; 04.72 - Programming Reserve 3: E911 Inf. Port; 10.73 - Programming Reserve: E911 Area Routing Trunk Group; 11.72 - UCD Overflow Calls E911 Attribute; 15.01 - Attendant Key Assignment: E911 Display Clear; 17.18 - Emergency Bypass Number: Emergency Specific Code; 29.10 - Emergency Send Dial: Emergency Send Dial.

Hardware Required:

IX-DTI-P; IX-ICOTP; IX-4ICOTB; IX-2ICOTB

29.11 - Trunk Group IP Device Handler

Class 29.11 - Trunk Group IP Device Handler provides the same function as 28.07 - Network IP Device Handler but is referenced only when direct trunk group access is permitted on a tie line call. The programming in this item (0-128) points to a Class 36 IP Device Handlers associated with the centralized voice mail system or off premise extension. If 0 is programmed in 29.11 - Trunk Group IP Device Handler, this item is ignored.

Programming Field Description

Group #	Meaning:	Trunk Group Number
	Range:	1-250
IP-Device Handler	Meaning:	Number of Class 36 IP Device Handlers
	Range:	0, 1-128
	Default:	0

Related Databases:

Required: Class 36 IP Device Handlers

Hardware Required:

IX-8IPNET/IX-8EIPNET

Class 30

ISDN B-Channel Assignment

Class 30 - ISDN B-Channel Assignment contains the programming items required to set up enhanced features on ISDN PRI Lines. The following programming items are included in Classes 30:

- 30.01 - Attached B Channel

30.01 - Attached B Channel

Class 30 Item 01 – Attached B Channel is used to identify the B channels in a specific 29.03 - ISDN Trunk Group that are active. This item requires programming in 29.08 - B-Channel Table Number in order to specify an ISDN Trunk Group. Attached B-Channel has no effect without programming in 29.08 - B-Channel Table Number.

Note:	Do not include Data channels in the trunk group.

Programming Field Description

Trunk Group Number	Meaning:	Table Number
	Range:	01-250
PRI Card Number	Meaning:	Interface ID Number
	Range:	0-8
Channel 1-24	Meaning:	Active B-Channels.
	Range:	Inactive - B-Channel not active Active - B-Channel is active
	Default:	Active

Related Databases:

Required: 01.11 Trunk Port Definition; 29.08 - B-Channel Table Number

Associated: 11.38 - Outgoing CO Group

Hardware Required:

IX-DTI-P; IX-ICOTP

Class 31

Campus Networking

Class 31 - Campus Networking are used for ECS configuration and include the following.

- 31.01 - Master Clocking
- 31.02 - Clocking Priority
- 31.03 - Network System Type
- 31.04 - Network Card Selection
- 31.05 - Remote Reset on Link Error
- 31.06 - Auto Reset Timer
- 31.07 - Network Error Display Station
- 31.08 - Remote System Recovery Mode
- 31.09 - Link Disconnect Detection Timer
- 31.10 - System Number
- 31.11 - Remote System Number
- 31.12 - Inter System Transit Port
- 31.13 - Inter System Transmission Port Release Timer
- 31.14 - Time Zone Offset

31.01 - Master Clocking

Class 31 Item 01 Master Clocking should be enabled when more than one IX-DTI-T, IX-DTI-P, or IX-4ICOTB cards are installed in the system. If the system has digital trunk cards other than IX-DTI-T or IX-DTI-P cards, such as the IX-ICOTP and IX-2COTB, this data should not be used. Software-controlled master clock selection capability is effective only with IX-DTI-T and IX-DTI-P cards. Other digital trunk cards are directly controlled by hardware.

Note:	Do not add the IX-DTI-N (Campus Networking) card to this clocking scheme.

Programming Field Description

Master Clocking	Meaning:	Enable or disable master clock priority
	Range:	Disabled Enabled
	Default:	Disabled

Related Databases:

Required: 31.02 - Clocking Priority.

Hardware Required:

IX-DTI-P; IX-ICOTP; IX-4ICOTB; IX-2ICOTB

31.02 - Clocking Priority

Class 31 Item 03 Clocking Priority is used when multiple IX-DTI-T, IX-DTI-P or IX-4ICOTB cards are installed in the system. This item defines the priority order for which T1 or PRI card supplies clocking to the system.

Note:	Do not use this data if the IX-T1DTI card, the IX-2COTB card or the IX-ICOTP card is installed. All Digital Trunk Cards must be IX-DTI or IX-DTI-T for this feature.

Programming Field Description

#:	Meaning:	Clocking Priority Order Number
	Range:	1 – 16
Card Number	Meaning:	Associate Physical Slot Card
	Range:	4 – 64
	Default:	None
Circuit Number:	Meaning:	For IX-4ICOTB use only
	Range:	1-4 (Which circuit of the IX-4ICOTB is to be for the clocking source)
	Default:	None

Related Databases:

Required: 31.01 - Master Clocking.

Hardware Required:

IX-DTI-N, IX-4ICOTB

31.03 - Network System Type

Class 31 Item 03 Network System Type sets the system as either the main or a remote system when using the campus APS network feature. This setting should always be set to main if not using Campus APS Networking.

Programming Field Description

NTWK System Type	Meaning:	Enter system type
	Range:	Main Remote
	Default:	Main

Related Databases:

Required: 31.04 - Network Card Selection.

Hardware Required:

IX-DTI-N

31.04 - Network Card Selection

Class 31 Item 04 Network Card Selection is used to associate the virtual slots (1-8) with each of the IX-DTI-N cards (1-16) in the Campus APS Network for the remote side only. The remote system must be reset for the programming in this item to take effect.

Programming Field Description

Card	Meaning:	Network Card number
	Range:	1-16
Slot 1-8	Meaning:	Virtual slot assignment
	Range:	1-8
Data Field:	Meaning:	Associate Physical Card Slot
	Range:	1-133
	Default:	None

Related Databases:

Required: 31.03 - Network System Type.

Hardware Required:

IX-DTI-N

31.05 - Remote Reset on Link Error

Class 31 Item 05 Remote Reset on Link Error is used to set the method of reset when the system detects a loss of signal on the T1 circuit. If manual is selected, the system must be reset at the CPU. Iwatsu recommends that this setting remains in the automatic mode.

Programming Field Description

Remote Sys Reset	Meaning:	Type of reset after loss of signal
	Range:	Manual Automatic
	Default:	Automatic

Related Databases:

Required: None.

Hardware Required:

IX-DTI-N

31.06 - Auto Reset Timer

Class 31 Item 06 Auto Reset Timer sets the amount of time the remote system waits after a loss of signal on the T1 circuit before a reset is initiated only if the system is set for automatic reset. This item effects all IX-DTI-N in the system.

Programming Field Description

Auto Reset Timer	Meaning:	Number of seconds the systems waits after loss of signal to cause a system reset
	Range:	0 – 255 seconds
	Default:	45 sec

Related Databases:

Required: 31.05 - Remote Reset on Link Error.

Note:	This item should be set based on the preference of the customer. The default value of 20 seconds will operate correctly in all applications. Changing this timer to 45 seconds will allow the main system to be reset without the remote system coming up in the local standalone mode. This is helpful for making programming changes to the system. In the event that the T1 circuit fails, changing this setting to 45 seconds will, however, delay the remote system from resetting for 52 seconds.

Hardware Required:

IX-DTI-N

31.07 - Network Error Display Station

Class 31 Item 07 Network Error Display Station sets the logical ports where error messages display when the system detects a status change on the T1 circuit. Errors display on the LCD of the attendant telephone in the main system regardless of this setting. Additional non-attendant stations with LCD displays in the main system can be programmed in this item to receive error messages. The non-attendant stations assigned in this item can also use the manual reset by dialing [FEAT] [#] [4] 6246. Error types are also reported in the error log. In a remote system, any stations with LCD displays can be programmed to receive these displays and reset the remote system.

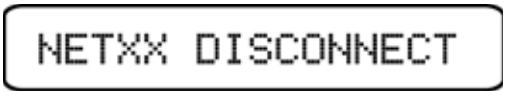
Main System Network Error Displays

Initialization errors on a system include the following:

- **No T1 Circuit** causes an error display when an IX-DTI-N card attempts to establish a link after activation and cannot.
- **Component Mismatch** causes an error display when the main system determines that the information that it has regarding remote port settings does not match the port settings that remote systems report.
- **Resource Count Error** causes an error display when the T1 circuit becomes unstable while the main system is initialized in the default mode. Resource information about the remote systems cannot be acquired by the main system, thus the remote systems cannot be activated.
  The LCD display for the errors described above is as follows.

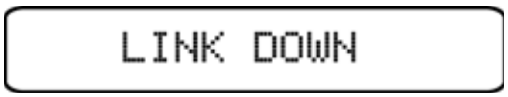


A **Link Disconnection** occurs when the main system detects a synchronization disruption followed by a synchronization loss from the remote system. The error is displayed and logged when the disruption lasts for a period specified in the system data settings. This error displays as:

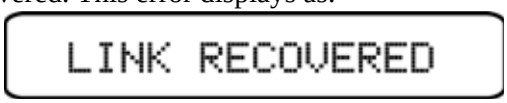


Remote System Network Error Displays

A **Link Down** displays at remote stations programmed in this item to indicate the T1 circuit is down. This error displays as:



A **Link Recovered** displays at remote stations programmed in this item to indicate the T1 circuit has recovered. This error displays as:



Note:	All displays will remain on the LCD display until the user performs a new operation.

Programming Field Description

#:	Meaning:	See description.
	Range:	1 – 8
	Meaning:	Station logical port where error messages are displayed. (For remote system stations, program the station logical port of the station in the local database. Do not assign the station logical port of the remote system station in the main system database.)
	Range:	1- 1024
	Default:	0

Related Databases:

Required: 31.08 - Remote System Recovery Mode.

Hardware Required:

IX-DTI-N

31.08 - Remote System Recovery Mode

Class 31 Item 08 Element 23 Remote System Recovery Mode sets the method of recovery when the T1 circuit is recovered. If set to manual, the system must be reset at the CPU or from an attendant key telephone or a non-attendant key telephone assigned in 31.07 - Network Error Display Station ([FEAT] [#] [4] + 6246).

Programming Field Description

Data Field:	Meaning:	System recovery type after link is recovered
	Range:	Manual Automatic
	Default:	Automatic

Related Databases:

Required: 31.07 - Network Error Display Station

If the remote system is set to manual recovery, any attendant key telephone, or a non-attendant key telephone assigned in 31.07 - Network Error Display Station, can dial [FEAT] [#] [4] + 6246 to reset the remote system.

Hardware Required:

IX-DTI-N

31.09 - Link Disconnect Detection Timer

Class 31 Item 09 Link Disconnect Detection Timer can set each individual T1 circuit with a timer to determine when the T1 circuit has been disconnected. Once this timer expires, the timer in 31.06 - Auto Reset Timer starts.

Programming Field Description

#:	Meaning:	Card Number
	Range:	1 – 16
Link Disc Detection Timer	Meaning:	Time in seconds after loss of signal before disconnect is detected.
	Range:	0 - 255
	Default:	5

Related Databases:

Required: 31.06 - Auto Reset Timer

Hardware Required:

IX-DTI-N

31.10 - System Number

Class 31 Item 10 System Number is documented under the IP Campus section.

31.11 - Remote System Number

Class 31 Item 11 Remote System Number is documented under the Cards section in the Harware view.

31.12 - Intersystem Transmit Port

Class 31 Item 10 Inter System Transmit Port is documented under the Networking IP Campus section.

31.13 - Intersystem transmit Port Release Timer

Class 31 Item 10 Intersystem Transmit Port Release Timer is documented under the Networking IP Campus section.

31.14 - Time Offset

Class 31 Item 10 Time Offset is documented under the Networking IP Campus section.

Class 32

Omegatrek Base Station / Group Data

Class 32 - Omegatrek Base Station / Group Data contains the programming items required to setup an Omegatrek telephone system. The following programming items are included in Class 32:

- 32.01 - Base Station Attribution
- 32.02 - Base Station Type
- 32.03 - Portable Station Ring Response Timeout Response Timeout
- 32.04 - Programming Base Station
- 32.05 - Reorder Tone Duration
- 32.06 - Main Cell Group Tenant Number
- 32.07 - PS Ring Retry
- 32.08 - Common Key Pattern

32.01 - Base Station Attribution

Class 32 Item 01 - BS Attribution is used to assign a Primary Base Station to a cell group.

To optimize the signal reception, the Omegatrek Wireless System is installed using a cell configuration. A cell is the area covered by a IX-BS5 Base Station. Signal strength in a cell should be strong enough for users of the Omegatrek Wireless System to carry on normal conversations throughout.

Programming Field Description

BS:	Meaning:	Base Station Serial Number from SW1 Setting on IX-BS5
	Range:	1-448
Main Cell Grp No	Meaning:	Main Cell Group
	Range:	1 - 31
	Default:	1
Sub Cell Grp No	Meaning:	Sub Cell Group
	Range:	1 - 8
	Default:	1
Cell No	Meaning:	Cell Number
	Range:	0 - 31
	Default:	0

Related Databases:

Required: 32.08 - Common Key Pattern; 33.01 - Common Key Pattern Assignment; 34.03 - Common Key Pattern

Hardware Required:

IX-4CSUB; IX-BS5

32.02 - Base Station Type

Class 32 Item 02 - Base Station Type is used to reference the IX-BS5 Base Station's type to the ECS. Currently, 1 is the only setting that is functional.

Note: This Item must be set to 1.

Programming Field Description

BS	Meaning:	Base Station Serial Number
	Range:	1-108
BS Type	Meaning:	Sets the type of Base Station
	Range:	1 - 31
	Default:	1 = IX-BS5

Related Databases:

Required: None.

Hardware Required:

IX-4CSUB; IX-BS5; IX-PS6

32.03 - Portable Station Ring Response Timeout

Class 32 Item 03 - Portable Station Ring Response Timeout Sets the amount of time the Omegatrek System will try to locate a IX-PS6 Portable Station before timing out and returning a busy tone. This condition applies to IX-PS6 Portable Stations that are out of area or are not programmed for Fixed Call Forwarding. Fixed Call Forwarding the IX-PS6 Portable Station overrides this timeout.

Programming Field Description

PS Ring Resp Timeout	Meaning:	Time in seconds the system rings an IX-PS6 portable station before timing out.
	Range:	0 - 255 Seconds
		0 = Unlimited
	Default:	10

Related Databases:

Required: None.

Hardware Required:

IX-4CSUB; IX-BS5; IX-PS6

32.04 - Programming Base Station

Class 32 Item 04 - Programming Base Station is used to assign the IX-BS5 Base Station serial number that will be used to program and activate the IX-PS6 Portable Stations. Program the serial number of the IX-BS5 Base Station that is closest to the area of the attendant key telephone (SATT) that will be used to program and activate the IX-PS6 Portable Stations.

Programming Field Description

Data Field:	Meaning:	IX-BS5 Base Station Serial Number
	Range:	1 - 108
	Default:	1

Related Databases:

Required: None.

Hardware Required:

IX-4CSUB; IX-BS5; IX-PS6; IX-KT

32.05 - Reorder Tone Duration

Class 32 Item 05 - Reorder Tone Duration is used to set the duration that IX-PS6 Portable Stations will receive reorder tone if a communication channel is not available.

Programming Field Description

Reorder Tone Dur	Meaning:	Duration that IX-PS6 Portable Stations will hear reorder tone if a communication channel is not available.
	Range:	0 - 255 Seconds
		0 = Disconnect Immediately
	Default:	0

Related Databases:

Required: None.

Hardware Required:

IX-4CSUB; IX-BS5; IX-PS6

32.06 - Main Cell Group Tenant Number

Class 32 Item 06 - Main Cell Tenant Group Number is used to assign a tenant group to the main cell group. This data exist to divide wireless areas by main cell groups. In default all IX-PS6 Portable Stations can use all cells.

In a divided main cell group, an IX-PS6 Portable Station with a different tenant number cannot be used. To have valid wireless tenant, you must also set 34.02 - Main Cell Group Tenant Number in database programming.

Programming Field Description

Group #	Meaning:	Main Cell Group Number
	Range:	0-127
Tenant #	Meaning:	Main Cell Group Tenant Number
	Range:	0-255
		0 = All tenant groups allowed
	Default:	0

Related Databases:

Required: 32.01 - Base Station Attribution; 34.02 - Main Cell Group Tenant Number.

Hardware Required:

IX-4CSUB; IX-BS5; IX-PS6

32.07 - PS Ring Retry

Class 32 Item 07 - PS Ring Retry is used to set the number of times an IX-BS5 Base Station will try to ring an IX-PS6 Portable Station if it is out of range.

Programming Field Description

Element Field (e1):	Meaning:	Number of times an IX-BS5 Base Station will try to ring an IX-PS6 Portable Station if the IX-PS6 Portable Station is out of range.
	Range:	0 - 255 Retry Times
		0 = No Retries
		255 = Unlimited
	Default:	0

Related Databases:

Required: 14.01 - Key Assignment; 32.01 - Base Station Attribution; 33.01 - Common Key Pattern Assignment; 34.03 - Common Key Pattern.

Hardware Required:

IX-4CSUB; IX-BS5; IX-PS6

32.08 - Common Key Pattern

Class 32 Item 08 - Common Key Pattern is used to assign a common key pattern to each Sub-Cell Group. Each IX-PS6 Portable Station can use common keys if the IX-PS6 Portable Station is within a Sub-Cell Group that is assigned the same pattern number in this item, as the IX-PS6 Portable Station is assigned in 34.03 - Common Key Pattern.

This item is only used in systems equipped with more than eighty (80) IX-PS6 Portable Stations. Setting up a common key pattern improves system performance in systems with more than eighty (80) IX-PS6 Portable Stations by sending the common key information to all IX-BS5 Base Stations in a Sub-Cell Group at the same time.

Programming Field Description

Element Field (e1):	Meaning:	Main Cell Group Number.
	Range:	1 - 127
Element Field (e2):	Meaning:	Sub-Cell Group Number.
	Range:	1 - 8
Data Field:	Meaning:	Base Stations Common Key Pattern.
	Range:	1 - 64
	Default:	0

Related Databases:

Required: 14.01 - Key Assignment; 32.01 - Base Station Attribution; 33.01 - Common Key Pattern Assignment; 34.03 - Common Key Pattern.

Hardware Required:

IX-4CSUB; IX-BS5; IX-PS6

Class 33

Omegatrek Common Key Pattern

Class 33 - Omegatrek Common Key Pattern is programmed for those ECS telephone systems in which more than eighty Omegatrek Portable Stations (IX-PS6) are used. Class 32 allows the creation of common key patterns and consist of the following Class:

- 33.01 - Common Key Pattern Assignment

33.01 - Common Key Pattern Assignment

Class 33 Item 01 - Common Key Pattern Assignment is used to create and edit the common key patterns used in 32.08 - Common Key Pattern and 34.03 - Common Key Pattern. Each IX-PS6 Portable Station can use common keys if the IX-PS6 Portable Station is within a Sub-Cell Group that is assigned the same pattern number in this item, as the IX-PS6 Portable Station is assigned in 34.03 - Common Key Pattern.

This item is only used in systems equipped with more than eighty 80 IX-PS6 Portable Stations. Setting up a common key pattern improves system performance in systems with more than eighty 80 IX-PS6 Portable Stations by sending the common key information to all IX-BS5 Base Stations in a Sub-Cell Group at the same time. Systems with less than eighty 80 IX-PS6 Portable Stations should use 14.01 - Key Assignment to program the function of each multi-function key on the IX-PS6 Portable Stations.

The following keys can be assigned to a common key pattern. COL[n] keys, FLT[n] keys and Group Park[n] keys. Any keys not assigned in the common key pattern will follow 14.01 - Key Assignment.

Programming Field Description

Key Pattern	Meaning:	Key Pattern Number (Top Spin Control)
	Range:	1 - 64
Key	Meaning:	Key Number
	Range:	1 - 15
Key	Meaning:	Key Function
	Range:	COL[n], FLT[n], GROUP PARK[n]
Parameter	Meaning:	CO line number, Float number or Group Park Number for the value for Key field
	Range:	0-1024 (COL), 0-250 (FLT),

Related Databases:

Required: 32.08 - Common Key Pattern; 34.03 - Common Key Pattern.

Hardware Required:

IX-4CSUB; IX-BS5; IX-PS6

Class 34

Omegatrek Station Data

Class 34 - Omegatrek Station Data is where specific Omegatrek Portable Station (IX-PS6) data is programmed. Class 34 consists of the following Items:

- 34.01 - Portable Station ID (PS ID)
- 34.02 - Main Cell Group Tenant Number
- 34.03 - Common Key Pattern
- 34.04 - Echo Suppressor

34.01 - Portable Station ID (PS ID)

Class 34 Item 01 - Portable Station ID (PS ID) is used to associate a station logical port defined as a wireless station in Class 01.03 with an Omegatrek IX-PS6 Portable Station by referencing the BARCODE number located inside the IX-PS6 battery compartment.

To enter the IX-PS6 Portable Station ID number, use only the last nine digits of the barcode. The data in this item is entered automatically when the Programming Base Station is used for IX-PS6 handset activation.

Programming Field Description

Log #	Meaning:	Station Logical Port Number
	Range:	1-1024
PS ID Number	Meaning:	PS ID Number
	Range:	000000001 - 268435455
	Default:	0

Related Databases:

Required: None.

Hardware Required:

IX-4CSUB; IX-BS5; IX-PS6

34.02 - Main Cell Group Tenant Number

Class 34 Item 02 - Main Cell Group Tenant Number is used to assign the tenant number of the Main Cell Group to be used by the IX-PS6 Portable Station.

Programming Field Description

Log #	Meaning:	Station Logical Port Number
	Range:	1-1024
Main Cell Grp Tenet	Meaning:	Main Tenant Cell Group
	Range:	1-255
		0 = All Tenant Group
	Default:	0

Related Databases:

Required: 32.06 - Main Cell Group Tenant Number.

Hardware Required:

IX-4CSUB; IX-BS5; IX-PS6

34.03 - Common Key Pattern

Class 34 Item 03 - Common Key Pattern is used to assign a common key pattern to each IX-PS6 Portable Station. Each IX-PS6 Portable Station can use common keys if the IX-PS6 Portable Station is within a Sub-Cell Group that is assigned the same pattern number in 32.08 - Common Key Pattern, as the IX-PS6 Portable Station is assigned in this item.

This item is only used in systems equipped with more than eighty 80 IX-PS6 Portable Stations. Setting up a common key pattern improves system performance in systems with more than eighty 80 IX-PS6 Portable Stations by sending the common key information to all IX-BS5 Base Stations in a Sub-Cell Group at the same time.

Programming Field Description

Log #	Meaning:	Station Logical Port Number
	Range:	1-1024
Grp Key Pattern Number	Meaning:	Common Key Pattern Number
	Range:	1 - 64
	Default:	1

Related Databases:

Required: 34.01 - Portable Station ID (PS ID); 32.08 - Common Key Pattern; 34.01 - Portable Station ID (PS ID).

Hardware Required:

IX-4CSUB; IX-BS5; IX-PS6

34.04 - Echo Suppressor

Class 34 Item 04 - Echo Suppressor is used to enable or disable Echo Suppression on the IX-PS6 Portable Station that is connected to the analog station or trunk. If an echo occurs during a conversation and the Echo Suppressor is enabled, the system attempts to eliminate the echo.

An echo is caused by transmit audio going back to the receiver through the two-wire-to-four-wire conversion circuit. An echo suppressor or an echo canceller is used to reduce the echo.

An echo suppressor detects transmitted audio signals and suppresses the echo by reducing the sidetone signals sent to the receiver during transmission.

Programming Field Description

Log #	Meaning:	Station Logical Port Number
	Range:	1-1024
Echo Suppressor	Meaning:	Echo Suppression
	Range:	Disable
		Enable
	Default:	Disabled

Related Databases:

Required: None.

Hardware Required:

IX-4CSUB; IX-BS5; IX-PS6

Class 35

Mailbox Data

Class 35 - Mailbox Data includes programming Items for both the Mailbox Translation Table (MBOX Translation Table) and for ACD Call in Queue messaging. Class 35 consists of the following Item:

- 35.01 - MBOX Translation Table

35.01 - MBOX Translation Table

Class 35 Item 01 - MBOX Translation Table is the table use to translate the mailbox associated with an [MBOX-nnn] key. When using an [MBOX] key to reference the MBOX Translation Table, the Mailbox Translation Table first checks 10.02 - Station Numbering for a valid extension.

In addition to the [MBOX] key, the MBOX Translation table provides the mailbox/ menu option to which ACD Call in Queue users can route. When using 35.01 - MBOX Translation Table for ACD Call in Queue purposes, 10.02 Station Numbering is not required to have a valid extension.

Programming Field Description

Box Number	Meaning:	Mailbox / Menu
	Range:	001-999
Station Number	Meaning:	Mailbox Number
	Range:	1 to 4 digits (* and # not accepted)
	Default:	3001 - 3999

Related Databases:

Required: 04.70 - Programming Reserve 1: Mailbox Enable; 04.70 - Programming Reserve 1: Mailbox Indication.

Associated: 14.01 - Key Assignment; 15.01 - Attendant Key Assignment; 18.01 - ACD Trunk Group Priority.

Required Hardware:

Standard

Class 36

IP Device Handlers

Class 36 - IP Device Handlers are items associated with ECS IP Networking. Class 36 consists of the following Items:

- 36.01 - IP Device Routing Steps
- 36.02 - Load Balancing
- 36.03 - Compression
- 36.04 - IPNET URL

36.01 - IP Device Routing Steps

Class 36 Item 01 - IP Device Routing is used to assign route steps for each IP Device Handler referenced in 28.07 - Network IP Device Handler. Up to four route steps may be programmed. Each route step identifies a table reference in 36.04 - IPNET URL. The Class 36.04 table contains the 8-bit URL (e.g., 192.168.0.5) and the function of the associated distant trunk (e.g., Tie Line, OPX).

Programming Field Description

Element Field:	Meaning:	IP Device Handler Number
	Range:	1 - 128
Data Field:	Meaning:	IP Device Handler Route Step 1
	Range:	0, 1 - 255
	Default:	0
Data Field:	Meaning:	IP Device Handler Route Step 2
	Range:	0, 1 - 255
	Default:	0
Data Field:	Meaning:	IP Device Handler Route Step 3
	Range:	0, 1 - 255
	Default:	0
Data Field:	Meaning:	IP Device Handler Route Step 4
	Range:	0, 1 - 255
	Default:	0

Related Databases:

Required: Class 10.75 <NUM3> Station IP Device Handler; 28.07 Networking IP Device Handler; 29.11 Trunk Group IP Device Handler; 36.02 IP Device Handler; 36.03 Compression; 36.04 IPNET URL.

Required Hardware:

IX-8IPNET / IX-8EIPNET

36.02 - Load Balancing

Class 36 Item 02 - Load Balancing is used to assign the hunting method of the 36.01 - IP Device Routing Steps. When Load Balancing is programmed as OFF in this item, a new ECS IP Networking Call will always start with 36.01 - IP Device Routing Steps. If Step 1 is busy, the ECS will automatically move to additional route steps in sequence: 2, 3, 4. If load balancing is programmed as ON in this item, the ECS will automatically choose from one of the available 36.01 - IP Device Routing Steps route steps based on which step was used last.

Programming Field Description

Device Handler #:	Meaning:	IP Device Handler Number
	Range:	1 - 128
Load Balancing:	Meaning:	Load Balancing ON or Off
	Range:	OFF ON
	Default:	OFF

Related Databases:

Required: 36.03 - Compression; 36.04 - IPNET URL.

Required Hardware:

IX-8IPNET / IX-8EIPNET

36.03 - Compression

Class 36 Item 03 - Compression is used to select the CODEC scheme for the IX-8IPNET card. Two choices are available: G.729 (24kbps including overhead) and G.711 (80kbps including overhead).

Programming Field Description

IP Device Handler #:	Meaning:	IP Device Handler Number
	Range:	1 - 128
Compression:	Meaning:	Compression setting of the IP Device Handler
	Range:	G.711 (64k) G.729 (8k)
	Default:	G.711 (64k)

Related Databases:

Required: Class 36 IP Device Handlers.

Required Hardware:

IX-8IPNET / IX-8EIPNET

36.04 - IPNET URL

Class 36.04 - ECS IP Networking URL (Distant Trunk Setting) is used to assign the 8-bit URL (e.g., 192.168.0.5) and the function of the associated distant trunk. Function of the distant trunk may be selected as follows:

EM = Used to make an E&M Tie Line call

TK = Used to make an E&M Trunk call from an Off-Premise (Centralized) VM

LS = Used to make a Loop Trunk call from an Off-Premise SLT / OPX

VM = Used to ring an OPX/VML from an E&M Trunk

SL - Used to ring an OPX/SLT from a Loop Trunk

When Entering the ECS IP Networking URL using the ECS programmer, it must be entering using the SIP URL format. For example, when programming an E&M tie line call with an IP address of 192.168.1.1, the following must be entered (no spaces or capital letters):

sip:em@192.168.1.1

Programming Field Description

Address Number	Meaning:	Address Number	
	Range:	1 - 255	
IPNET Card URL	Meaning:	IPNET Card Function	Distant IX-IPNET URL
		sip:em@	0-255.0-255.0-255.0-255
		sip:tk@	0-255.0-255.0-255.0-255
		sip:ls@	0-255.0-255.0-255.0-255
		sip:vm@	0-255.0-255.0-255.0-255
		sip:sl@	0-255.0-255.0-255.0-255
	Default:	blank	

Related Databases:

Required: Class 36 IP Device Handlers.

Required Hardware:

IX-8IPNET / IX-8EIPNET

Class 37

Forced Account Codes

Class 36 - Forced Account Codes are items used to program forced account codes:

- 37.01 - Forced Account Code

37.01 - Forced Account Code

Class 36 Item 01 - Forced Account Code is used to anytime 10.73 - Programming Reserve: Forced Account Codes is set to Verified (VTR All or VTR Toll). If a station is required to enter a verified account code, the account code is looked up in the 37.01 - Forced Account Code table. There are 2000 forced account codes available, each of which can contain up to 12 digits.

Programming Field Description

Forced Account Code #:	Meaning:	Forced Account code number
	Range:	1 - 2000
Forced Account Code	Meaning:	Account code required by the station programmed in 10.73 - Programming Reserve: Forced Account Codes
	Range:	0-9, up to 12 digits in length
	Default:	Blank

Related Databases:

Required: 10.73 - Programming Reserve: Forced Account Codes

Required Hardware:

Class 38

Congestion Control Data

Class 38 - Congestion Control Data contains the programming items required to set System, Individual, and Key Command Congestion Control Parameters. This class searches the signal queuing status every second. If the total queue count exceeds the programmed value, the system enters the Congestion State and suspends new signal registration. While system congestion is detected, operations will not function until the congestion ends. The following programming items are included in Class 38:

- 38.01 - System Congestion Watch Time
- 38.02 - System Congestion Detection
- 38.03 - Individual Congestion Watch Time
- 38.04 - Individual Congestion Detection
- 38.05 - Key Command Congestion Watch Time
- 38.06 - Key Command Congestion Detection

38.01 - System Congestion Watch Time

Class 38 Item 01 - System Congestion Watch Time is used to set the Congestion Watch Time for the system. This programming item contains the timers to detect the beginning and end of system congestion.

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Programming Field Description

Congn. Detect(sec):	Meaning:	Seconds to detect system congestion
	Range:	0-30 seconds
	Default:	0 (0 = No detection)
Congn. End(sec):	Meaning:	Seconds to detect end of system congestion
	Range:	0-30 seconds
	Default:	0 (0 = No detection)

Related Databases:

Required: None

Hardware Required:

None

38.02 - System Congestion Detection

Class 38 Item 02 - System Congestion Detection is used to set the Congestion Watch Time for the system. This programming item contains the timers to detect the beginning and end of system congestion.

Programming Field Description

Signal Queues No.:	Meaning:	Number of Signal Queues to detect system congestion.
	Range:	0-4000
	Default:	0 (0 = No detection)
Sig. Que End No.:	Meaning:	Number Signal Queues to detect end of system congestion.
	Range:	0-4000
	Default:	0 (0 = No detection)

Related Databases:

Required: None

Hardware Required:

None

38.03 - Individual Congestion Watch Time

Class 38 Item 03 - Individual Congestion Watch Time is used to set the amount of time (in seconds) to detect Individual component congestion and time to detect the end of the congestion.

Programming Field Description

Device Detect(sec)	Meaning:	Seconds to detect device congestion.
	Range:	0 - 30
	Default:	0 (0 = No detection)
Device End(sec)	Meaning:	Seconds to detect end of device congestion
	Range:	0 - 30
	Default:	0 (0 = No detection)

Related Databases:

Required: None

Hardware Required:

None

38.04 - Individual Congestion Detection

Class 38 Item 04 - Individual Congestion Detection is used to detect congestion for specified components. While individual component congestion is detected, operations on the specified components will not function until the congestion is clear. The components included in the Individual Congestion Detection are: ICOTP, ICOTB, and TDM key telephones.

Programming Field Description

DTI-P Signal Que No.:	Meaning:	Number of Signal Queues to detect congestion from DTI-P and ICOTP.
	Range:	0 - 100
	Default:	0 (0 = No detection)
DTI-P Que End No.:	Meaning:	Number of Signal Queues to detect end of device congestion from DTI-P and ICOTP.
	Range:	0 - 100
	Default:	0 (0 = No detection)
ICOT-B Signal Que No.:	Meaning:	Number of Signal Queues to detect congestion from 2/4ICOTB.
	Range:	0 - 100
	Default:	0 (0 = No detection)
ICOT-B Que End No.:	Meaning:	Number of Signal Queues to detect end of device congestion from 2/4ICOTB.
	Range:	0 - 100
	Default:	0 (0 = No detection)
PSUB Sig. Que No.:	Meaning:	Number of Signal Queues to detect congestion for 8/16 PSUB.
	Range:	0 - 100
	Default:	0 (0 = No detection)
PSUB Que End No.:	Meaning:	Number of Signal Queues to detect end of device congestion for 8/16 PSUB.
	Range:	0 - 100
	Default:	0 (0 = No detection)

Related Databases:

Required: None

Hardware Required:

None

38.05 - Key Command Congestion Watch Time

Class 38 Item 05 - Key Command Congestion Watch Time is used to set the amount of time (in seconds) to detect Key Command congestion and time to detect the end of the congestion.

Programming Field Description

Key Sig. Congt.(sec):	Meaning:	Seconds to detect key signal congestion.
	Range:	0-30
	Default:	3 (0 = No detection)
Key Sig. Congt. End(sec):	Meaning:	Seconds to detect end of key signal congestion.
	Range:	0-30
	Default:	3 (0 = No detection)

Related Databases:

Required: None

Hardware Required:

None

38.06 - Key Command Congestion Detection

Class 38 Item 06 - Key Command Congestion Detection is used to detect Key Command congestion (key telephone key command). While Key Command congestion is detected, the specified KT operation will not function until the congestion is clear.

Programming Field Description

Key Sig. Que No.:	Meaning:	Number of signal queues to detect key signal congestion
	Range:	0-100
	Default:	30 (0 = No detection)
Key Que No. End:	Meaning:	Number of signal queues to detect end of key signal congestion
	Range:	0-100
	Default:	0 (0 = No detection)

Related Databases:

Required: None

Hardware Required:

None

Class 39

Station Label Key Name

Class 39 - Station Label Key Name stores the Self-Labeling Key Names that are assigned to your Iwatsu ICON Series IX-5930, IX-5910, or IX-5810 telephone. The following programming item is included in Class 39:

- 39.01 - Key Name Assignment
  - Change the name of a key on the display
  - ECS Programmable Keys

39.01 - Key Name Assignment

Class 39 Item 01 - Key Name Assignment stores the Self-Labeling Key Names that are assigned to your Iwatsu ICON Series IX-5930, IX-5910, or IX-5810 telephone. Default label key names are not stored in this area, only the custom label names when a Self-Labeling Key is changed from its default setting. The Self-Labeling Key can be changed through the Iwatsu Programmer or through the Iwatsu ICON Series IX-5930, IX-5910, or IX-5810 telephone.

Label names will not appear next to a Label No. when a Self-Labeling Key is set to the default name. Simply delete the custom entry if you choose to return a label to the default name.

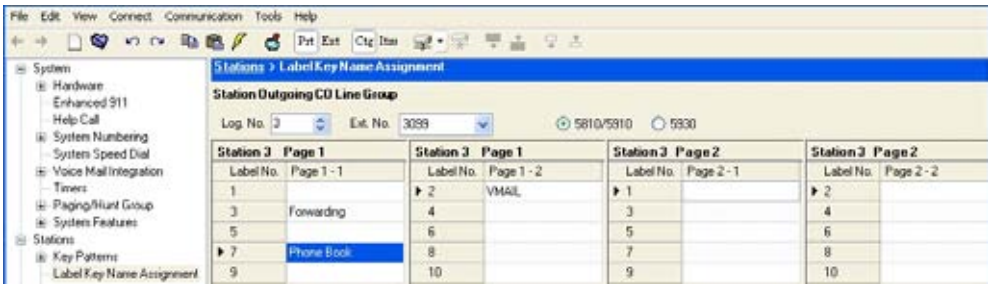
Note:	If you change the label on a key and that key is changed, the custom label that you assigned to that key will not change.

Programming Field Description

Log. No.:	Meaning:	Station Logical Port Number
	Range:	1-1024
Ext. No.:	Meaning:	Station Extension Number
	Range:	Dependent on Programmed Station Numbering
Telephone Type:	Meaning:	Telephone Type
	Range:	IX-5810, IX-5910, and IX-5930 Telephones
Label No.:	Meaning:	Self-Labeling Key Number
	Range:	1-10 (IX-5810/IX-5910) 1-26 (IX-5930)
Page 1 / Page 2 Label	Meaning:	Label Names for Page Number 1 or Page Number 2
	Range:	1-2

Change the name of a key on the display

- **Go to Stations > Label Key Name Assignment** (Class 39):
- Enter the **Station Logical Port Number** (Log. No.). This is the logical port number for the station you wish to modify.
- Enter the **Extension Number** (Ext. No.). This is the extension number for the station you wish to modify.
- Select the **5810/5910** or **5930**. This is the key telephone model.
- Enter your **new label name(s)** next to the Label Number (Label No.).
- When you have made your changes, upload the database changes and disconnect. The labels on the key telephone will change when you disconnect.



ECS Programmable Keys

Phone Display	Iwatsu Programmer	Key Data		Description
([FEAT][#][9] from KT)	(Key Selection Window)	data 1 (d1)	data 2 (d2)	
No Assign	(blank)	0		
USAS	USAS	168		Indicate Abandon Call at Station. Retrieve CID for abandoned or all calls at your station
USAT	USAT	166		Indicate Abandon Call at Station. Retrieve CID for abandoned or all calls at your station that were abandoned on a specific trunk group fixed or flexible.
USATn	USATn	167	01-250(Grp#)	Indicate Abandon Call at Station. Retrieve CID for abandoned or all calls at your station that were abandoned on a specific trunk group fixed or flexible.
USD	USD	169		Delete Abandon Call information
Absence Message	Absence Message	22		Allows you to leave an advisory message for a display phone caller if you should leave your office
Account Code	Account Code	100		Allows you to enter a one- to 12-digit code to either identify the caller or identify the party the call was made for
ACD 1-250	ACD-N (N=1-250,All)	12	01-250(Grp#)	Indicates incoming call or held call for specified ACD group.
NIGHT 1-250	ACD Group Night	14	01-250 (Grp#)	Switch ACD call into night mode. Follows night call sequence setting.
A.REC	ACD MESSAGE RECORD	95		Record ACD announcement messages played to calls waiting in queue.
ADD	ADD	25		Allows you to enter an existing call
AGT ANS	Agent Answer	111		Answer an ACD call when using headset
LOG	AGENT LOG	90		Agent key to login to and out of one or more ACD groups
AGENT 1-1024	AGM-N (N=001-400)	98	001-1024 (AGT)	Monitor activity of specific agent
ACD All	ACD-N (N=1-250,All)	12	255	Indicates incoming call or held call for all ACD groups.
Press Page	Press Page	44		Page announcement to all zones and station speakers. Press and hold to page
ALL	Paging (All Call)	6	255	Page announcement to all zones and station speakers. Press and release to page

Auto Repeat Dial	Auto Repeat Dial	60		Allows you to instruct Enterprise-CS to dial an outside party until they answer.
BGM	BGM	26		Play background music through station speaker
Screen n	Screen	76	1, 2	ATT/DSS Only
Timed Trunk Queue	Timed Trk. Queue	79		Allows you to instruct Enterprise-CS to periodically call you to try calling a previously dialed outside number again
Connect	Connect	101		Connect a call when using headset.
Delayed 1 - 1024	CCV - Delayed	9	001-1024 (SLP)	Allows both audible and/or visual indication of a call ringing at another extension
Immed. 1 - 1024	CCV - Immd.	8	001-1024 (SLP)	Allows both audible and/or visual indication of a call ringing at another extension
No ring 1-1024	CCV - NoRing	10	001-1024 (SLP)	Allows only a visual indication of a call ringing at another extension
Call Forward	Forward	38		Allows you to send your calls to an internal destination or external line (using Personal Speed Dial numbers 90-99)
Monitor	MONITOR	51		Allows you to silently monitor a call on another extension or line. In order for this feature to operate on intercom off-hook signaling must be disabled
Individual Park	Park	55		Allows you to alternate between two calls
Call Park Pickup	Park Pick-up	58		Pickup a parked call at extension
Release	Release	62		Release call when using headset
SQC 1-60,Any	CALL SEQUENCE CHG.	99	01-60,Any (Grp#)	Change the call sequence table selected for an ACD group
Split	Call Swap	67		Allows you to alternate between the outside calling party (the source) and the requested extension user (the destination) during the process of transferring a call without having to use the Hold button HOLD/DND. ATT/DSS Only
Display Change	DSPCHG	160		Change the text displayed with a call, e.g. duration, name, number, trunk group
Cleaning	Clean	85		Hotel / Motel notify that room is cleaned
Time Set	CLOCK Adjust	27		Allows you to change the time for the system clock.
CNIS OFF	CNIS OFF	173		Turn off CNIS information
Connect SUP	Connect SUPERVISE	29		ATT/DSS Only
REC	REC	171		The Call Recording feature allows an Enterprise-CS station user to record a station-to-station, outside line, or conference call to voice mail.

Destination	Destination	34		ATT/DSS Only
PTRAN	(not available)	109		Transfer a call off premise
Spec. Call Pickup	Call P/Up (Direct)	30		Answer a call ringing at any station
COL 1-1024	CO Line	2	001-1024 (TLP)	Access specific outside line
DSS 1-1024	DSS	4	001-1024 (SLP)	Provides status indication, one-touch dial for a station
LCD Mode Change	Display	33		The information displayed on the station LCD during incoming ringing, call in progress, incoming forwarded call ringing, and camped-on/transferred call ringing may be changed
Dial Reverse	Dial Reverse	59		Change signalling from DP to DTMF
EMG	Emergency	96		Call supervisor for help and start recording to recorder connected to relay
EXT Number	Extension Data	35		Display station extension and logical port information
Call Pickup Out	Call P/Up (Extn'l)	40		Allows you to answer a call ringing in a Group Call Pick-Up group that they are not part of
Feature	Feature	37		Access system features
QUALIFY 000-999	FIXED QUALIFY-N	15	000-999	Automatically enter a fixed qualification code upon pressing key. Code is output in ACD event stream.
Flash	Flash (Long)	39		Allows you to receive dial tone on the same outside line without having to hang up
Short Flash	Flash (Short)	72		Allows you to receive dial tone on the same outside line without having to hang up
QUALIFY	MANUAL QUALIFY	92		Manually enter a qualification code.
FLT	CO Float	3	63	Allows for a number of outside lines to be assigned to one of 250 groups. These groups may be used for incoming calls, outgoing calls or both incoming and outgoing calls
FLT 1-250	CO Float	3	01-250 (Grp#)	Allows for a number of outside lines to be assigned to one of 250 groups. These groups may be used for incoming calls, outgoing calls or both incoming and outgoing calls
Forced Release	Forced Release	36		Allows you to remove an extension from service. ATT/DSS Only
Group 1-125	Paging (Grp. Call)	6	01-125 (Grp#)	
GP. Night Change	Group Night	41		ATT/DSS Only

Group Park 1-250	Grp. Park	1	01-250 (Grp#)	By placing a call on Group Park all extensions with the appearance of that Group Park button will have a flashing indication and be able to pick up that call
Headset	Headset	198		The Headset Control key for use with the IX-12KTD/S-3 Digital Key Telephones and the IX-12IPKTD/-E IP Telephones allows you to control a headset without using the Connect or Release key
Headset	Headset	105		Allows you to alternate between using the handset (receiver) and the headset
HELP	Help	97		Allows agent to notify supervisor while on ACD call
HOLD/DND	HOLD/DND	102		Place call on hold, or place station is DND
Hold/Quick Forward	Hld/FWD	125		Place call on hold, or automatically forward telephone to fixed forward destination
Hunting	Hunt Group	5		Call a hunt group
Calling Mode CHG	Calling Mode	83		Toggle ICM calling mode from tone (ringing) call to voice announce call.
ICM Call Back	ICM Call Back	21		Allows you to instruct Enterprise-CS to inform you when a busy extension that you called becomes idle. When the extension becomes idle, Enterprise-CS will call you back
ICM	ICM	42		Allows you to make an internal call to another extension
Call Pickup In	Call P/Up (Intr'l)	57		Allows you to pick-up a call in your assigned group
Last No.Redial	Last Number Dial	88		Automatically dial the last outside number you called
Connect	Connect	101		ATT/DSS Only
MBOX	MBOX	176		Access voice mail messges. Call voice mail.
Meet Me	Meet Me	47		Allows you to answer a page from any phone that is in the same Meet-Me Page Answer group.
Memo Dial	Memo Dial	48		Allows you to save a telephone number in memory while you are speaking on an outside line. The memory is shared with Save Number Redial
MSG	MESSAGE	50		Allows you to light a lamp at another extension to inform them that you wish to speak with them. Does not work with MBOX key.
Message Wait CNT	Message Control	45		Allows you to inform a guest that there is a message waiting for them by lighting a Message Waiting Lamp on the phone in their room ATT/DSS Only
MIC	Mic Off	49		Allows you to mute the microphone in your phone for privacy
Night Change	Night	52		ATT/DSS Only

Unavailable	Unavailable	93		An Agent is excluded from receiving ACD Calls for an undefined period of time.
Occupied	Occupy	86		Hotel / Motel notify that room is occupied
Operator	Operator	53		ATT/DSS Only
FLT 00	FLT 00	3	0	Optimized Routing - Outgoing calls using least cost routing
FLT	CO Float	3	255	Optimized Routing - Outgoing calls using least cost routing
Over Ride	Override	54		Allows you to alert a busy extension user that you are waiting to speak with them
Privacy Release	Privacy Release	103		All calls are private and no one may enter a call unless you release the privacy for that call
Programming	PROGRAMMING Mode	56		ATT/DSS Only
QUEUE 1-250	Queue-n	13	01-250 (Grp#)	This key provides the Agent or Supervisor with information about the number of calls waiting to be answered by their group via LED status red/green solid, slow flash, fast flash
Recall Answer	Recall	63		Calls that were transferred and not answered, on Hold or Call Park too long, will ring and light the lamp on the Recall button RECALL at the Attendant Position. ATT/DSS Only
Remote Call FWD 1-4	Remote Call FWD	32	4-Jan	Allows you to send outside line calls to a remote location automatically.
Relay 1-32	Remote CONTROL	64	01-32 (Relay)	Allows you to activate/control a remote device. For example, a door opener or a monitor camera
Go Out	Reserved	87		Hotel / Motel notify that room is reserved
Silence		68		Allows you to turn the ringer, microphone, and speaker off at your phone.
Save No. Redial	Saved Number Dial	73		Allows you to save a number that you dialed when you receive either a busy signal or no answer.
Separate	Separate	107		Used in conjunction with Forced Account Code entry
Serial Call	Serial	66		Allows you to have outside calls return to you after the extension the call was transferred to hangs up. ATT/DSS Only
Source	SOURCE	75		ATT/DSS Only
Speaker Duplex	SPK DPX	197		Changes the speakerphone between half and full-duplex
Speaker	Speaker	70		Allows you to dial and receive outside or internal calls without lifting the receiver

Speed Dial	Speed Dial KEY	71		Allows you to have abbreviated outside number dialing
Speed Dial 90-99	Speed Dial (STA)	20	90-99 (Bin#)	Allows you to program up to 10 frequently dialed outside numbers for either one-touch or abbreviated dialing.
System Speed 000-899	Speed Dial (SYS)	19	00-89, 000-899 (Bin#)	Allows you to have access to frequently dialed outside numbers that are common to everyone in the office
Station Service	STATION COS Change	69		Enterprise-CS may be programmed to allow different outside calling restrictions to be set based on Day and Night Mode system operation. ATT/DSS Only
Station Lockout	Station Lock	43		You may enter a personalized password to prevent anyone from using your phone when you are not present
Silence	Silent	68		Allows you to turn the ringer off at the Attendant Position. ATT/DSS Only
Substitute	SBS (Substitute)	74		ACD Supervisors to login to an ECS ACD group with supervisor status
S.LOG	SUPERVISOR LOG	89		Allows you to send text messages to the display of another system extension
MSGGPn	MSGGPn	170	01-250 (Grp#)	Allows you to be reminded that it is a certain time. You are reminded by hearing tones that are generated from the phone's speaker
TEXTMSG	TEXTMSG	161		Allows you to program up to 10 frequently used messages for either one-touch or abbreviated access
TEXTMSGn	TEXTMSGn	162	00-99 (MSG#)	Allows you to have access to frequently used messages that are common to everyone in the office.
Reminder	Time Reminder	61		Allows you to transfer a call to another extension
TRN	TRANSFER	78		Allows you to instruct Enterprise-CS that you wish to be notified when the outside lines are no longer busy. When an outside line becomes available, your phone will ring
Trunk Queuing	Trunk Queuing	28		Allows you to answer calls that have been switched to ring at the Night Mode location
UNA Pickup	UNA	104		Pickup a call ringing into the system while in the night mode
Vacancy	Vacant	84		Hotel / Motel notify that room is vacant
Wireless Virtual	Wireless Virtual	165*	01-36 (key#)	Associate a DCKT970 with a digital KT. Sets the active station digital KT or DCKT
VML Monitor	VML Monitor	175	0	Montior a message being recorded in your voicemailbox. Option to connect to the call.

VML Hunting	Mailbox Access	11	47-50	Access a specific voice mailbox.
Message Service	Voice Msg. Play	81		Play a message on the MSGU card
V-Data Exchange	Voice Data Ex.	82		Used with data module.
Wake Up Call ATT	Wake Up Call CTRL	65		Hotel / Motel wake up call control
Wake-Up Call	Wake Up Call	46		Allows you or a guest to enter the time that they wish to be notified that it is time to wake-up
WRAP	Wrap-up	94		Time for agent to enter information about call after the call has ended. While in wrap-up new calls will not be presented to agent.
Zone 1	Paging Zone	6	126-250 (Grp#)	Page only to a specific external zone or group of stations.

Group Park Key - System park orbit assignment is required.
Headset Control Key - This key is used only if the station is equipped with a headset.
UNA - Database setting for trunk(s) is required.
Voice Message Playing Key - Playback key is for playback of voice message 1 only.
Floating CO Group Selection Key/Optimized Routing Key If the station is enabled for forced optimized routing in 10.12 - Key Assignment, keys assigned as float keys will function as optimized routing ([OPT]) keys.
Call Coverage Keys ([Immed.], [Delayed], [NoRing]) must be assigned to keys with dual-color LEDs.
These features will not operate on Versa-Phones or key telephones with single-color LED lamps.
Value corresponds to either a system speed dial or personal speed dial bin number.
Value corresponds to a group number, i.e., Hunt Group, CO Group, Park Orbit Group.
Value corresponds to the relay number assigned to a miscellaneous function port in 04.35 - Miscellaneous Function Port.
Value corresponds to a station logical port number.
Value corresponds to a trunk logical port number.
This key is available with Enterprise-CS ACD software only.
This feature is supported on the Omegatrek Portable Station

Related Databases:

Required: **Stations > Key Patterns** (Class 14.01, Class 15.01)

Hardware Required:

IX-8/16PSUB-2, IX-5810, IX-5910, IX-5930

Class 40

Ticker Field Display Data

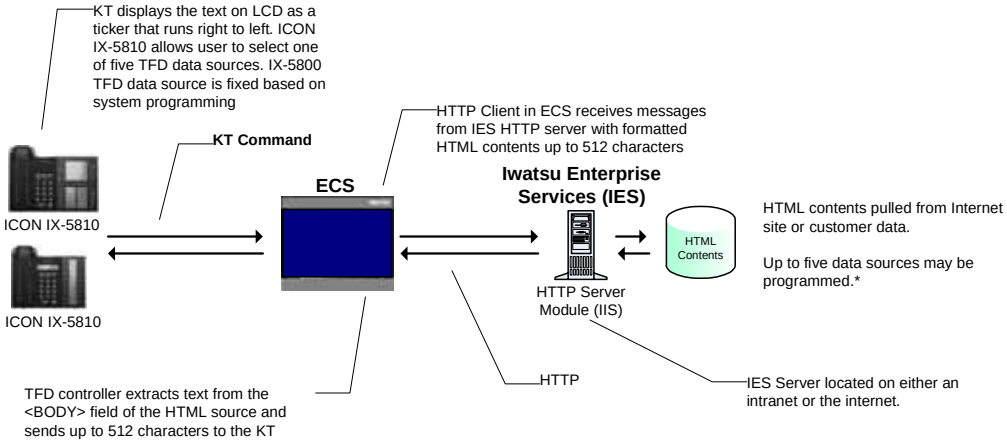
Class 40 - Ticker Field Display contains the programming items required to setup your Ticker Field Display. The following programming items are included in Class 40:

- TFD Programming Overview
- Iwatsuweb.com Ticker Parameters
- 40.01 - Forced TFD Number
- 40.02 - TFD Speed
- 40.03 - TFD Display Line
- 40.04 - TFD URL
- 40.05 - TFD Refresh Interval
- 40.06 - TFD User ID
- 40.07 - TFD Password
- 40.08 - TFD Name
- 40.09 - TFD Proxy Address
- 40.10 - TFD Proxy Port
- 40.11 - TFD Request Timeout

TFD Programming Overview

The Ticker Field Display allows you program a ticker formatted URL and have that information scroll across one of two lines on the Iwatsu ICON Series telephones. As an example, the ticker can be programmed to scroll weather, news, or quote of the day across the display of the key telephone.

Ticker Field Display requires Enterprise Services Version 2.1. Enterprise Services Version 2.1 adds a data parsing service as part of the Microsoft IIS service that is used to format the Ticker Field Display text into a required ECS format to display on the station LCD. The drawing below illustrates the various components of the Ticker Field Display application.



*NOTE: At release Iwatsu is providing a link to our hosted IES that allows dealers and customers to setup TFD for the local weather conditions. Details are provided below.

TFD Feature Overview

1. TFD messages may be up to 512 characters.
2. TFD messages may be programmed to scroll across the first line or the second line of the display.
3. Up to five TFD data sources or five may be programmed in the ECS database. The TFD data source is an HTTP server located on the Internet or an Intranet site or a manually typed message. All TFD message source information is programmed in IES.
4. There are two station TFD modes, Forced and User Selectable (Not Forced). In forced mode, the telephone will always display the TFD text of the selected source. The user does not have the option of changing the source or turning off the TFD. User selectable mode permits the station user to turn the TFD on or off. User selectable mode also permits the station user to select the source, change the scroll speed and select the LCD line that the TFD scrolls. User Selectable mode is

only available on the IX-5930, IX-5910, and IX-5810 telephones. Note: Forced mode will override all User Selectable settings.

5. The TFD Refresh Interval, the time between updates of the TFD messages, is programmable between 10 seconds and 18 minutes. Default refresh interval is 3 minutes.
6. One of three TFD display scroll speed settings may be programmed on a user-by user basis. This setting affects the text transition speed as described below:
   - SLOW the text transition speed is 500 milliseconds
   - MEDIUM the text transition speed is 300 milliseconds
   - FAST the text transition speed is 200 milliseconds.
7. Display Priority. Call progress information has a higher display priority than TFD data. As a result, the TFD data only displays when the station is idle.

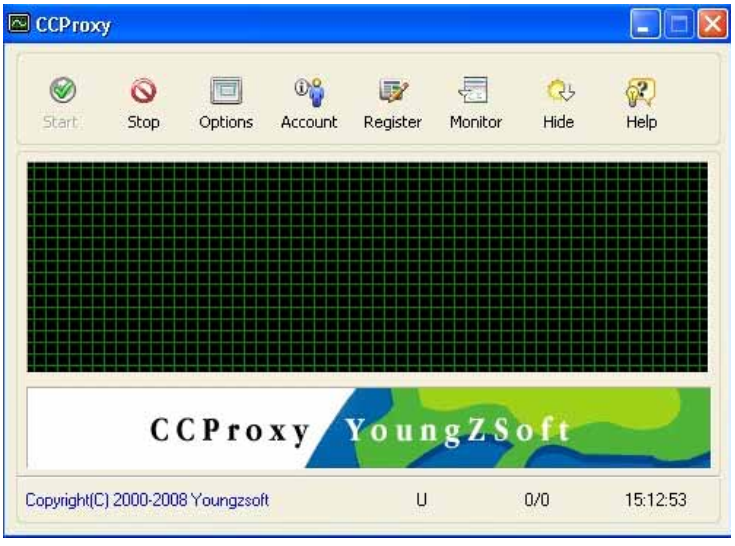
TFD Programming Overview

To program the Ticker Field Display, you must have a DNS Proxy server running to resolve URL Domain Names for the ECS. If you do not have a proxy server, you can download CCProxy proxy server software for free from www.youngzsoft.net/ccproxy/proxy-server-download.htm. This CCProxy server software easily installs on a PC and requires minimal configuration.

Proxy Server Software Installation and Configuration

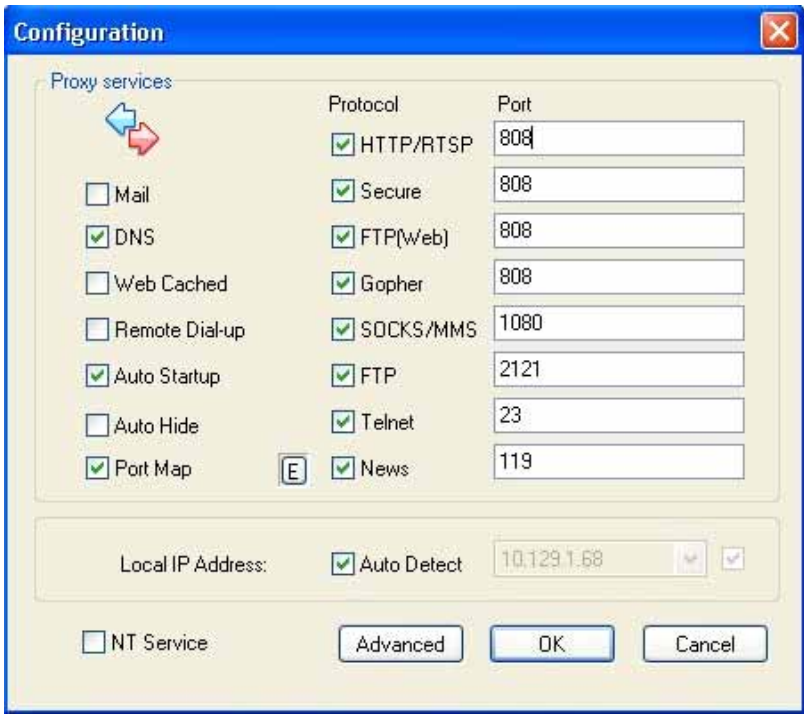
If you do not have a proxy server, download and install CCProxy on a PC: www.youngzsoft.net/ccproxy/proxy-server-download.htm.

- Download the proxy server software and follow the installation instructions.
- When CCProxy is installed, select Options to open the Configuration screen.



From the Configuration screen:

- Uncheck the Mail selection. Leaving Mail checked could cause a port conflict and cause the install to fail.
- Make sure DNS is checked (The screen shots displays the default configuration settings).
- Check NT Service (Not checked at default) if you want CCProxy to start automatically when the PC is rebooted.



- The PC's IP Address will appear ghosted out just above the OK button. You will need the PC IP Address and the proxy port number (Default = 808) when programming the Ticker Field Display database. CCProxy is now configured.
- Select OK.
- Make sure the Proxy server is started. Select Start if the CCProxy is not started.

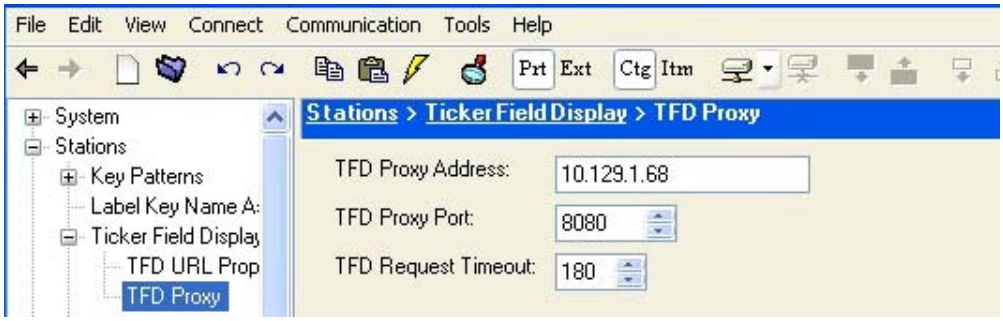
Ticker Field Display Database Configuration

Connect to the ECS using the Iwatsu Programmer. Make sure you have downloaded a current copy of the ECS database.

From the Ctg (Category view) mode:

1. Go to **Stations > Ticker Field Display > TFD Proxy**.
   - TFD Proxy Address: Enter the IP Address for your proxy server. If you are using CCProxy, enter the PC IP Address where CCProxy is running.
   - TFD Proxy Port: Enter the proxy port number for your proxy server. If you are using CCProxy, enter the default proxy port number 808.

- TFD Request Timeout: The TFD Request Timeout default = 180 seconds. Range = 1-600 seconds.



2. Go to **Stations > Ticker Field Display > TFD URL Properties**.
   - TFD URL: Enter the web address or address for the tickers you want to display. Go to the iwatsuweb.com Ticker Parameters page (in this chapter) for formatting Ticker URL database entries. An example URL entry is shown below:

http://www.iwatsuweb.com/TextWeb/Process.aspx?u=admin&p=admin&info=weather&tkr=1&dbg=&inp=75063

   - TFD Refresh Interval: Enter the TFD refresh rate in seconds. Default = 10-1080 seconds.
   - TFD User ID: If required. (Not required for this procedure)
   - TFD Password: If required. (Not required for this procedure)
   - TFD Name: The TFD Name will appear on the Iwatsu ICON Series telephone display when selecting a ticker to activate/deactivate.



Ticker Field Display Key Telephone Programming

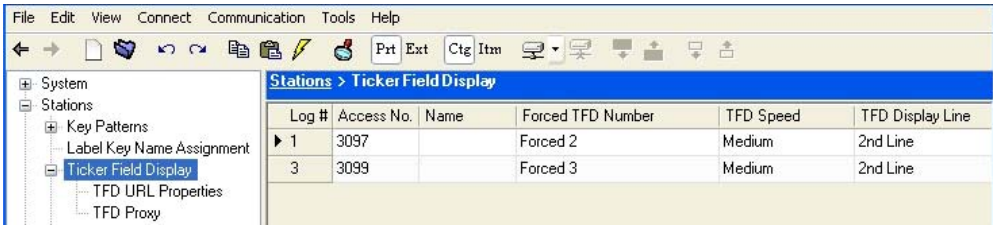
The Iwatsu ICON Series telephones support the Ticker Field Display (TFD). The TFD Forced Mode must be activated and deactivated from the Iwatsu Programmer. For the IX-5930, IX-5910, and IX-5810 telephones, the TFD may be activated and deactivated by the user through the telephone Setup Menu. Note that the TFD Forced Mode will override any user programming setting performed through station programming.

Ticker Field Forced Mode Display Activation through the Iwatsu Programmer

Go to **Stations > Ticker Field Display.**

- Select the Iwatsu ICON Series telephone's Logical port number where you want to activate the ticker.
- Change the Forced TFD Number parameter from Not Forced to Forced (Forced 1-5). 1-5 indicates the TFD URL entry (from the previous step) that you want to scroll across the LCD display of the telephone.

- You can also choose to change the TFD Speed (scroll speed) and the TFD Display Line.

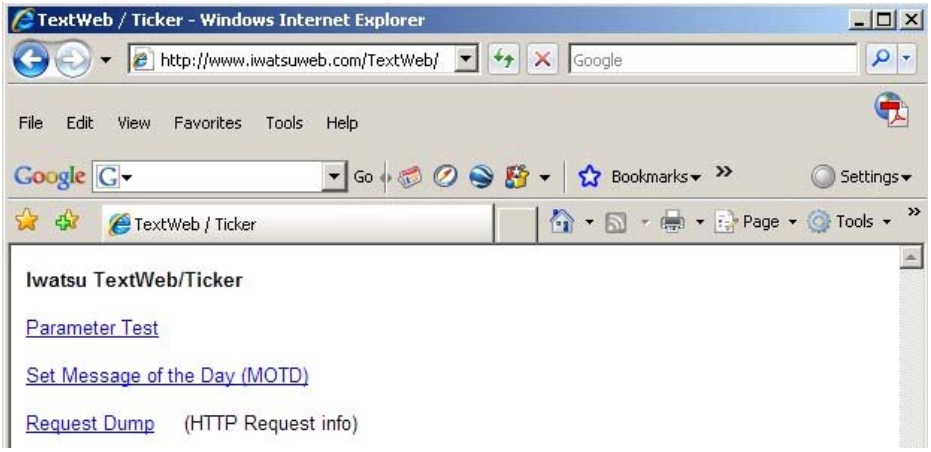


- Remember to upload your changes and disconnect from the ECS for you changes to take effect. It may take a couple of minutes for the ticker to begin to scroll across the display.

Iwatsuweb.com Ticker Parameters

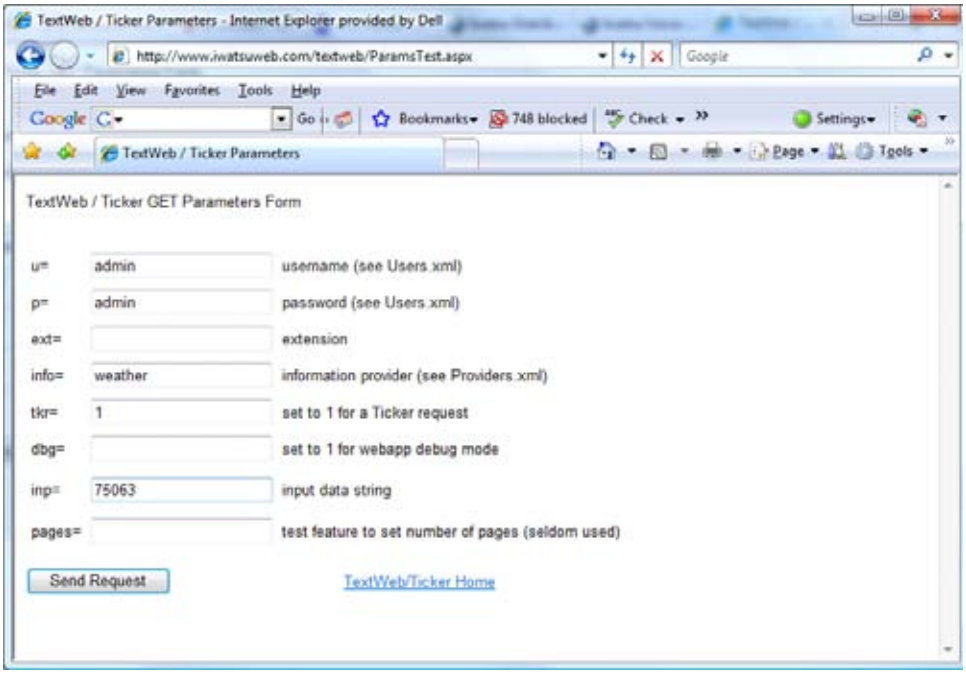
The iwatsuweb.com parameters form allows you to create a ticker request and displays the URL that you need to for an ECS TFD URL database entry. You can create a separate TFD URL for each of the info sources listed below: Quote, motd, weather, or nws-cc.

1. Open your Internet Browser and go to: http://www.iwatsuweb.com/TextWeb
   - Select Parameter Test to open the Iwatsu Web Parameters form.



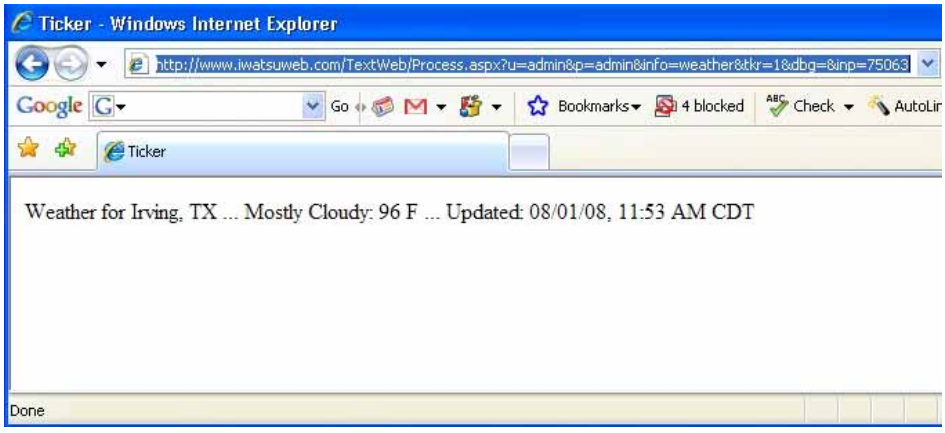
2. Enter the following information when the Parameters window appears:
   - u = admin
   - p= admin
   - ext = No entry required
   - info = Enter one of the following:
   - quote - For famous quotes
   - motd - For the ticker message of the day
   - weather - Basic weather information for a zip code or US city
   - nws-cc - Detailed weather (Current Conditions)
   - tkr = 1
   - dbg = No entry required
   - inp = Enter your zip code (not required for motd or quote)

- pages = No entry required



3. When the Parameters form is filled in, select Send Request and the requested information (based on the parameters entered) will appear in the window that opens along with the URL information needed for the ECS TFD URL database entry field.
   - Copy and paste this URL information in the ECS TFD URL field in the Iwatsu Programmer.

http://www.iwatsuweb.com/TextWeb/Process.aspx?u=admin&p=admin&info=weather&tkr=1&dbg=&inp=75063



40.01 - Forced TFD Number

Class 40 Item 01 - Forced TFD Number is used to set the Ticker Field Display (TFD) from Forced or Not Forced.

A specific TFD can be forced to appear on a specific Iwatsu ICON Series telephone display.

Programming Field Description

Forced TFD Number:	Meaning:	Forced Ticker Field Display Number
	Range:	Not Forced / Forced Ticker Field Number 1-5
	Default	Not Forced

Related Databases:

Required:

Hardware Required:

IX-8/16PSUB-2, IX-5930, IX-5910, IX-5810, IX-5800, and IX-5900

40.02 - TFD Speed

Class 40 Item 02 - TFD Speed is used to set the ticker scroll speed for the Ticker Field Display.

The TFD can be set to scroll Slow, Medium, or Fast.

Programming Field Description

TFD Speed:	Meaning:	TFD crawl speed
	Range:	Slow - Medium - Fast
	Default:	Medium

Related Databases:

Required:

Hardware Required:

IX-8/16PSUB-2, IX-5930, IX-5910, IX-5810, IX-5800, and IX-5900

40.03 - TFD Display Line

Class 40 Item 03 - TFD Display Line is used to assign the KT display line where the Ticker Field Display will appear.

The TFD can be assigned to appear on the first or second line of the KT display.

Programming Field Description

TFD Display Line:	Meaning:	TFD Display Line
	Range:	1st Line - 2nd Line
	Default:	1st Line

Related Databases:

Required:

Hardware Required:

IX-8/16PSUB-2, IX-5930, IX-5910, IX-5810, IX-5800, and IX-5900

40.04 - TFD URL

Class 40 Item 04 - TFD URL is used to enter the Ticker Field Display URL.

Up to five TFD URLs can be entered into the database.

Programming Field Description

TFD URL:	Meaning:	TFD URL site
	Range:	Enter your URL site
	Default:	None

Related Databases:

Required:

Hardware Required:

IX-8/16PSUB-2, IX-5930, IX-5910, IX-5810, IX-5800, and IX-5900

40.05 - TFD Refresh Interval

Class 40 Item 05 - TFD Refresh Interval is used to assign the Ticker Field Display refresh interval.

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Programming Field Description

TFD Refresh Interval:	Meaning:	TFD refresh interval in seconds
	Range:	10-10800 seconds
	Default:	180 seconds

Related Databases:

Required:

Hardware Required:

IX-8/16PSUB-2, IX-5930, IX-5910, IX-5810, IX-5800, and IX-5900

40.06 - TFD User ID

Class 40 Item 06 - TFD User ID is used to enter the Ticker Field Display User ID.

Programming Field Description

TFD User Id:	Meaning:	TFD User Id
	Range:	0 to 32 characters
	Default:	None

Related Databases:

Required:

Hardware Required:

IX-8/16PSUB-2, IX-5930, IX-5910, IX-5810, IX-5800, and IX-5900

40.07 - TFD Password

Class 40 Item 07 - TFD Password is used to enter the Ticker Field Display Password.

Programming Field Description

TFD Password:	Meaning:	TFD Password
	Range:	0 to 32 characters
	Default:	None

Related Databases:

Required:

Hardware Required:

IX-8/16PSUB-2, IX-5930, IX-5910, IX-5810, IX-5800, and IX-5900

40.08 - TFD Name

Class 40 Item 08 - TFD Name is used to enter a Name for the Ticker Field Display entry. The TFD Name will appear on the IX-5930, IX-5910, IX-5810 display when selecting a ticker to activate/deactivate

Programming Field Description

TFD Name:	Meaning:	TFD Name
	Range:	0-11 Characters
	Default:	None

Related Databases:

Required:

Hardware Required:

IX-8/16PSUB-2, IX-5930, IX-5910, IX-5810

40.09 - TFD Proxy Address

Class 40 Item 09 - TFD Proxy Address is used to assign a Proxy Address for the Ticker Field Display. Enter the IP Address for your proxy server.

A DNS Proxy server is required to resolve URL Domain Names for the ECS. If you are using CCProxy, enter the **PC IP Address** where CCProxy is running.

Programming Field Description

TFD Proxy Address:	Meaning:	TFD Proxy Address
	Range:	
	Default:	None

Related Databases:

Required:

Hardware Required:

IX-8/16PSUB-2, IX-5930, IX-5910, IX-5810, IX-5800, and IX-5900

40.10 - TFD Proxy Port

Class 40 Item 10 - TFD Proxy Port is used to assign a Proxy Port for the Ticker Field Display. Enter the proxy port number for your proxy server.

If you are using CCProxy as your proxy server, enter the default proxy port number **808.**

Programming Field Description

TFD Proxy Port	Meaning:	TFD Proxy Port
	Range:	1-65535
	Default:	80

Related Databases:

Required:

Hardware Required:

IX-8/16PSUB-2, IX-5930, IX-5910, IX-5810, IX-5800, and IX-5900

40.11 - TFD Request Timeout

Class 40 Item 11 - TFD Request Timeout is used to assign Timeout Request for the Ticker Field Display.

Programming Field Description

TFD Request Timeout	Meaning:	TFD Request Timeout in seconds
	Range:	1-600 seconds
	Default:	180 seconds

Related Databases:

Required:

Hardware Required:

IX-8/16PSUB-2, IX-5930, IX-5910, IX-5810, IX-5800, and IX-5900

Class 41

Bluetooth Control Data

Class 41 - Bluetooth Control Data contains the programming items required to setup Bluetooth parameters. The following programming items are included in Class 41:

- 41.01 - Bluetooth Volume Offset
- 41.02 - Bluetooth Retransmission Effort
- 41.03 - Bluetooth Packet Type
- 41.04 - Bluetooth Channel Mapping
- 41.05 - Bluetooth Connection Check Response Timer
- 41.06 - Bluetooth Name Check Response Timer

41.01 - Bluetooth Volume Offset

Class 41 Item 01 - Bluetooth Volume Offset is used to adjust the Bluetooth transmit and receive volume offset. Use the transmit and receive offset to increase or decrease the Bluetooth transmit and receive volume levels.

Programming Field Description

Bluetooth TX Volume Offset:	Meaning:	Bluetooth Transmit Volume Offset
	Range:	No Offset / 15.5 dB thru -16.0 dB
	Default	No Offset
Bluetooth RX Volume Offset:	Meaning:	Bluetooth Receive Volume Offset
	Range:	15.5 dB thru -16.0 dB
	Default:	No Offset

Related Databases:

Required:

Hardware Required:

- IX-5810 Digital telephone - IX-58BTINF Bluetooth Adapter, Bluetooth Headset.
- IX-5910/IX-5930 IP telephone - IX-59BTINF Bluetooth Adapter, Bluetooth Headset.

Bluetooth Headset Compatibility Chart

Iwatsu Voice Networks has tested the following Bluetooth Headsets for use with the IX-58BTINF and IX-59BTINF. This chart also includes ECS Class 41 database programming changes to optimize Bluetooth headset performance based on make and model of the headset.

Note:	Iwatsu has used its best effort testing the performance of the Bluetooth headsets listed in the compatibility chart below. Please note, however, that changes, modifications, and availability of third party equipment is outside the control of Iwatsu and is subject to change without notice. Iwatsu makes no express or implied warranties of compatibility, performance or operation with respect to individual manufacturer's Bluetooth headsets.

Bluetooth Headset Compatibility Chart with Offsets

Bluetooth Headset Make:	Bluetooth Headset Model:	Database Programming Transmit Offset	Database Programming Receive Offset
Motorola	H550	8 dB	2 dB
BlueAnt	V12	-2 dB	-1 dB

41.02 - Bluetooth Retransmission Effort

Class 41 Item 02 - Bluetooth Retransmission Effort is used to set the Bluetooth headset priority for retransmitting packets. When set to 1, the retransmission priority is optimized for headset power consumption. When set to 2, the retransmission priority is optimized for link quality.

Programming Field Description

Bluetooth Retransmission Effort	Meaning:	Bluetooth Retransmission Effort
	Range:	1-2 (0, 3-255 not used)
	Default:	2

Related Databases:

Required: None.

Hardware Required:

- IX-5810 Digital telephone - IX-58BTINF Bluetooth Adapter, Bluetooth Headset.
- IX-5910/IX-5930 IP telephone - IX-59BTINF Bluetooth Adapter, Bluetooth Headset.

41.03 - Bluetooth Packet Type

Class 41 Item 03 - Bluetooth Packet Type is used to select Bluetooth packet types that are compatible with the ECS. By default, all packet types listed are selected.

Programming Field Description

HV1	Meaning:	HV1
	Range:	Checked or Unchecked
	Default:	Checked
HV2	Meaning:	HV2
	Range:	Checked or Unchecked
	Default:	Checked
HV3	Meaning:	HV3
	Range:	Checked or Unchecked
	Default:	Checked
EV3	Meaning:	EV3
	Range:	Checked or Unchecked
	Default:	Checked
EV4	Meaning:	EV4
	Range:	Checked or Unchecked
	Default:	Checked
EV5	Meaning:	EV5
	Range:	Checked or Unchecked
	Default:	Checked
2-EV3	Meaning:	2-EV3
	Range:	Checked or Unchecked
	Default:	Checked
3-EV3	Meaning:	3-EV3
	Range:	Checked or Unchecked
	Default:	Checked

Programming Field Description (Continued)

2-EV5	Meaning:	2-EV5
	Range:	Checked or Unchecked
	Default:	Checked
3-EV5	Meaning:	3-EV5
	Range:	Checked or Unchecked
	Default:	Checked

Related Databases:

Required:

Hardware Required:

- IX-5810 Digital telephone - IX-58BTINF Bluetooth Adapter, Bluetooth Headset.
- IX-5910/IX-5930 IP telephone - IX-59BTINF Bluetooth Adapter, Bluetooth Headset.

41.04 - Bluetooth Channel Mapping

Class 41 Item 04 - Bluetooth Channel Mapping is used to select frequency hopping channels that are available for use in the 2.4 GHz band. Frequency hopping diminishes the impact of interference from other wireless devices that operate in the same band. By default, channels 1-79 are selected.

Programming Field Description

Data Field:	Meaning:	Bluetooth Channel Mapping
	Range:	Channel 1 - Channel 80 (Checked or Unchecked)
	Default:	Channels 1-79 Checked (Channel 80 not checked)

Related Databases:

Required:

Hardware Required:

- IX-5810 Digital telephone - IX-58BTINF Bluetooth Adapter, Bluetooth Headset.
- IX-5910/IX-5930 IP telephone - IX-59BTINF Bluetooth Adapter, Bluetooth Headset.

41.05 - Bluetooth Connection Check Response Timer

Class 41 Item 05 - Bluetooth Connection Check Response Timer is used to adjust the Bluetooth discovery response timer.

Programming Field Description

Bluetooth Conn Chk Resp Timer:	Meaning:	Bluetooth Connection Check Response Timer
	Range:	4-16 (x 1.28 seconds)
	Default:	8 (x 1.28 seconds)

Related Databases:

Required:

Hardware Required:

- IX-5810 Digital telephone - IX-58BTINF Bluetooth Adapter, Bluetooth Headset.
- IX-5910/IX-5930 IP telephone - IX-59BTINF Bluetooth Adapter, Bluetooth Headset.

41.06 - Bluetooth Name Check Response Timer

Class 41 Item 06 - Bluetooth Name Check Response Timer is used to adjust the amount of time to identify the Bluetooth headset device name.

Programming Field Description

Bluetooth Name Chk Resp Timer:	Meaning:	Bluetooth Name Check Response Timer
	Range:	3-12 seconds
	Default:	5 seconds

Related Databases:

Required:

Hardware Required:

- IX-5810 Digital telephone - IX-58BTINF Bluetooth Adapter, Bluetooth Headset.
- IX-5910/IX-5930 IP telephone - IX-59BTINF Bluetooth Adapter, Bluetooth Headset.

Class 42

Text Web Data

Class 42 - Text Web Data contains the programming items required to setup Text Web. The following programming items are included in Class 42:

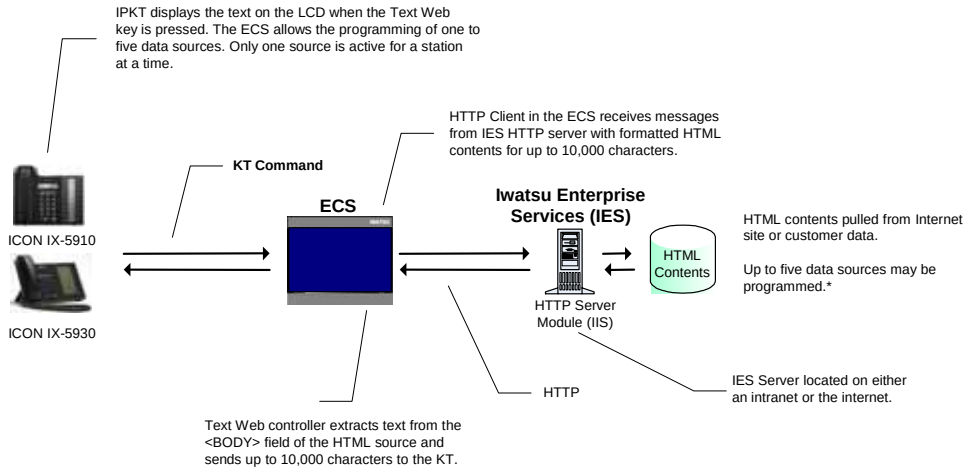
- Iwatsu Text Web Programming Overview
- IwatsuWeb.com Text Web Parameters
- 42.01 - EDAS URL
- 42.02 - EDAS User ID
- 42.03 - EDAS Password
- 42.04 - HTTP Request Timeout
- 42.05 - Station Text Web Group Number
- 42.06 - HTTP Proxy Address
- 42.07 - HTTP Proxy TCP Port

Iwatsu Text Web Programming Overview

Iwatsu Text Web allows you program a formatted URL and have that information display on your Iwatsu ICON Series IP telephones. As an example, Iwatsu Text Web can be programmed to display weather, news, famous quotes, or stock quotes on the display of the ICON Series IP telephone.

You must have a Text Web key in the key pattern of your Iwatsu ICON Series telephone for this feature.

Iwatsu Text Web requires Enterprise Services Version 2.1. Enterprise Services Version 2.1 adds a data parsing service as part of the Microsoft IIS service that is used to format Text Web text into the required ECS format to display on the station LCD. The drawing below illustrates the various components of the Ticker Field Display application.



*NOTE: At release Iwatsu is providing a link to our hosted IES that allows dealers and customers to setup Text Web for the local weather conditions. Details are provided below.

Iwatsu Text Web Feature Overview

1. Text Web messages may be up to 10,000 characters.
2. Up to five Text Web data sources or five may be programmed in the ECS database. The Text Web data source is an HTTP server located on the Internet or an Intranet site or a manually typed message. All Text Web message source information is programmed in IES.
3. Display Priority. Call progress information has a higher display priority than Text Web data. As a result, the Text Web data only displays when the station is idle.
4. The Iwatsu Ticker and Text Web Customization Tool, available January 2009, is available within Enterprise Services and allows dealers and end users to easily set up custom TFD messages.

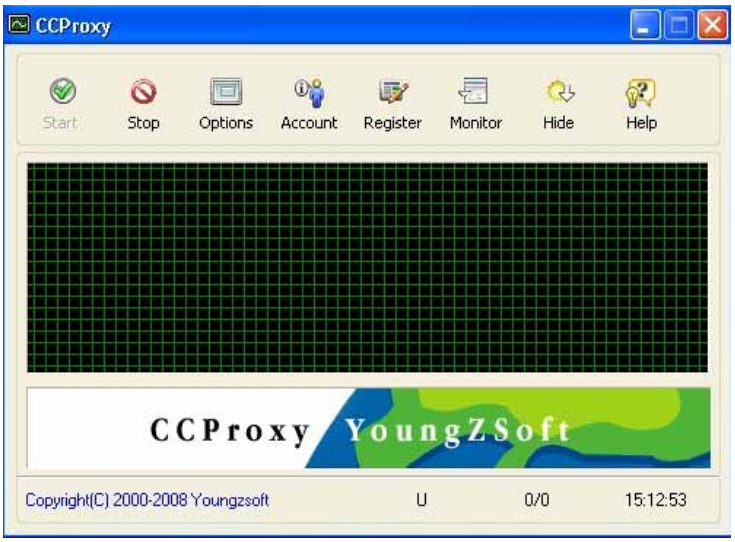
Iwatsu Text Web Programming Overview

To program the Iwatsu Text Web Display, you must have a DNS Proxy server running to resolve URL Domain Names for the ECS. If you do not have a proxy server, you can download **CCProxy** proxy server software for free from www.youngzsoft.net/ccproxy/proxy-server-download.htm. This CCProxy server software easily installs on a PC and requires minimal configuration.

Proxy Server Software Installation and Configuration

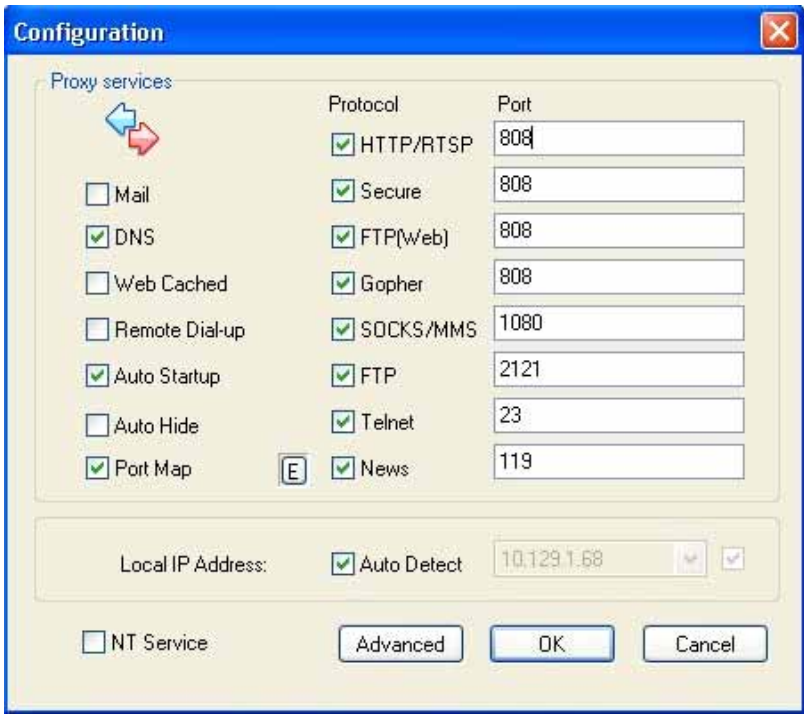
If you do not have a proxy server, download and install CCProxy on a PC: www.youngzsoft.net/ccproxy/proxy-server-download.htm.

- Download the proxy server software and follow the installation instructions.
- When CCProxy is installed, select Options to open the Configuration screen.



From the Configuration screen:

- Uncheck the Mail selection. Leaving Mail checked could cause a port conflict and cause the install to fail.
- Make sure DNS is checked (The screen shots displays the default configuration settings).
- Check NT Service (Not checked at default) if you want CCProxy to start automatically when the PC is rebooted.



- The PC's IP Address will appear ghosted out just above the OK button. You will need the PC IP Address and the proxy port number (Default = 808) when programming the Ticker Field Display database. CCProxy is now configured.
- Select OK.
- Make sure the Proxy server is started. Select Start if the CCProxy is not started.

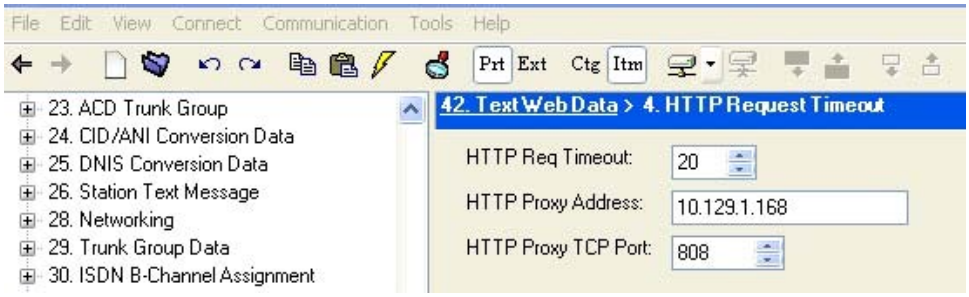
Iwatsu Text Web Database Configuration

Connect to the ECS using the Iwatsu Programmer. Make sure you have downloaded a current copy of the ECS database.

From the Itm (Item view) mode:

1. Go to **Class 42 Text Web Data**.
   - **Class 42.06: HTTP Proxy Address:** Enter the IP Address for your proxy server. If you are using CCProxy, enter the **PC IP Address** where CCProxy is running.
   - **Class 42.07: HTTP Proxy Port:** Enter the proxy port number for your proxy server. If you are using CCProxy, enter the proxy port number from the CC Proxy Configuration screen (example: **808)**.

- **Class 42.04: HTTP Request Timeout:** The TFD Request Timeout default = **20** seconds. Range = 1-180 seconds.



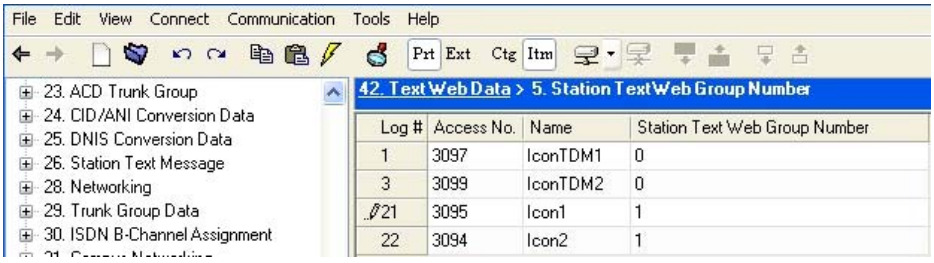
2. Go to **Class 42 Text Web Data**.
   - **Class 42.01 EDAS URL**: Enter the web address or address for the tickers you want to display. **Go to following page (iwatsuweb.com Text Web Parameters) for formatting Text Web URL database entries**. An example URL entry is shown below:

http://www.iwatsuweb.com/TextWeb/Process.aspx?u=admin&p=admin&info=weather&tkr=&dbg=&inp=75063

   - **Class 42.02 EDAS User ID**: If required. (Not required for this procedure)
   - **Class 42.03 EDAS Password**: If required. (Not required for this procedure)



   - Class 42.05 Station Text Web Group Number: This is the EDAS URL number (1-5) for the Text Web data this is displayed when the Text Web key is pressed at the station. If set to 0 (default) Text Web data will not display when the Text Web key is pressed.



Iwatsu Text Web Key Telephone Programming

A Text Web key must be placed in the key pattern of the Iwatsu ICON Series IP telephone.

IX-5910/IX-5930 Text Web Activation

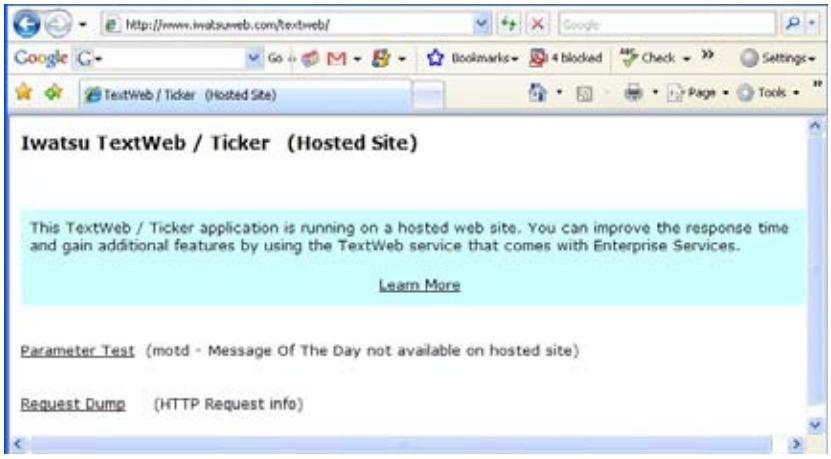
From the telephone:

- Press the Text Web key and follow the instructions on the display.

Iwatsuweb.com Text Web Parameters

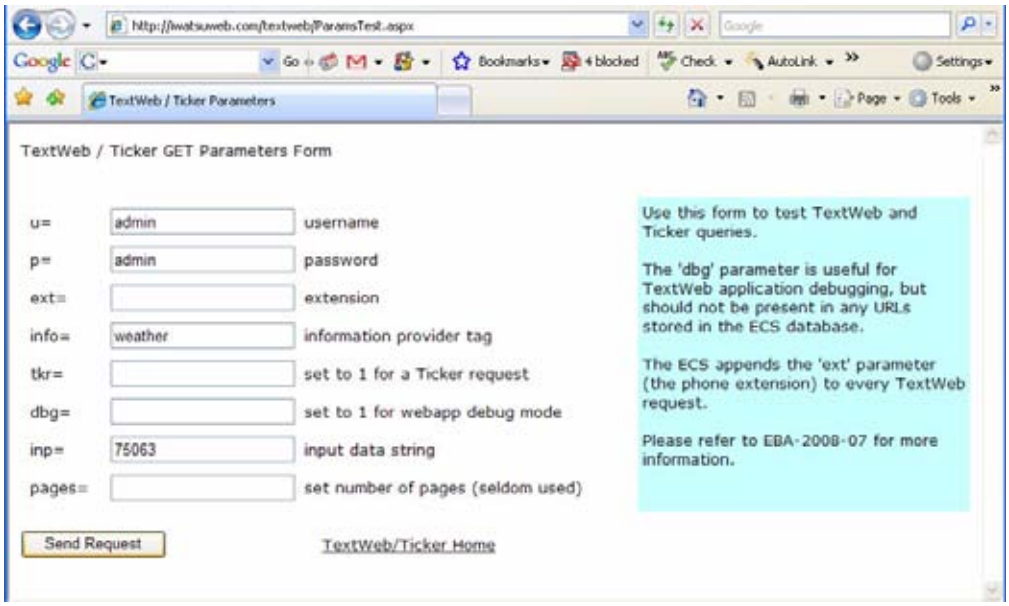
The iwatsuweb.com parameters form allows you to create a ticker request and displays the URL that you need to for an ECS TFD URL (Ticker-Class 40) or EDAS URL (Text Web-Class 42) database entry. You can create a separate TFD URL or EDAS URL for each of the info sources listed below: Famous quote, Yahoo! stock quote, weather, or National Weather Service.

1. Open your Internet Browser and go to: http://www.iwatsuweb.com/TextWeb
   - Select **Parameter Test** to open the Iwatsu Web Parameters form.



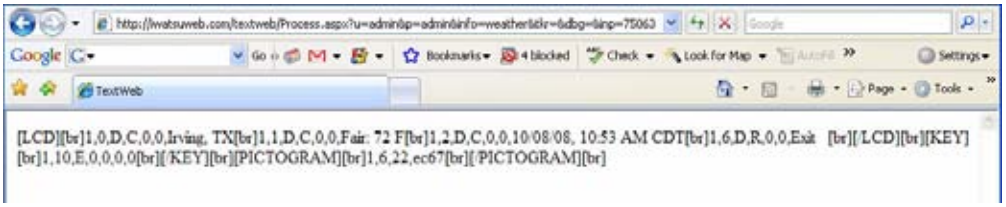
2. Enter the following information when the Parameters window appears:
   - u = admin
   - p= admin
   - ext = No entry required
   - info = Enter one of the following:
   - fq - For famous quotes
   - ystk - Yahoo! stock quotes
   - weather - Basic weather information for a zip code or US city
   - nws-cc - National Weather Service - current conditions
   - tkr = No entry for Text Web
   - dbg = No entry required
   - inp = Enter your zip code (not required for quotes)
   - pages = No entry required

Iwatsu Text Web Example:



3. When the Parameters form is filled in, select Send Request and the requested information (based on the parameters entered) will appear in the window that opens along with the URL information needed for the EDAS URL (Text Web-Class 42) database entry field.
   - Copy and paste this URL information in the EDAS URL (Text Web) field in the Iwatsu Programmer.

http://www.iwatsuweb.com/TextWeb/Process.aspx?u=admin&p=admin&info=weather&tkr=&dbg=&inp=75063



42.01 - EDAS URL

Class 42 Item 01 - EDAS URL is used to enter the web address or address for the Text Web data you want to display.

Programming Field Description

EDAS URL:	Meaning:	Enterprise Data Access Server URL
	Range:	Enter your Text Web URL
	Default	No Default

Related Databases:

Required: Class 42.02, 42.03, 42.04, 42.05, 42.06, 42.07; Class 14.01/15.01 Key Patterns

Hardware Required:

IX-5930 / IX-5910 IP telephone

42.02 - EDAS User ID

Class 42 Item 02 - EDAS User ID is used assign a user ID, if required. A user ID is not required for this feature.

Programming Field Description

EDAS User ID:	Meaning:	EDAS User ID
	Range:	0 to 32 characters
	Default:	None

Related Databases:

Required: Class 42.01, 42.03, 42.04, 42.05, 42.06, 42.07; Class 14.01/15.01 Key Patterns

Hardware Required:

IX-5930 / IX-5910 IP telephone

42.03 - EDAS Password

Class 42 Item 03 - EDAS Password is used to assign the EDAS Password, if required. A password is not required for this feature.

Programming Field Description

EDAS Password:	Meaning:	EDAS Password
	Range:	0 to 32 characters
	Default:	None

Related Databases:

Required: Class 42.01, 42.02, 42.04, 42.05, 42.06, 42.07; Class 14.01/15.01 Key Patterns

Hardware Required:

IX-5930 / IX-5910 IP telephone

42.04 - HTTP Request Timeout

Class 42 Item 04 - HTTP Request Timeout is used to set the HTTP request timeout. The HTTP Request Timeout default = 20 seconds. Range = 1-180 seconds.

Programming Field Description

HTTP Request Timeout:	Meaning:	HTTP Request Timeout
	Range:	1-180 seconds
	Default:	20 seconds

Related Databases:

Required: Class 42.01, 42.02, 42.03, 42.05, 42.06, 42.07; Class 14.01/15.01 Key Patterns

Hardware Required:

IX-5930 / IX-5910 IP telephone

42.05 - Station Text Web Group Number

Class 42 Item 05 - Station Text Web Group Number is used to assign the EDAS URL number (1-5) for the Text Web data. This is to determine which programmed Text Web data is displayed when the Text Web key is pressed at the station. If set to 0 (default) Text Web data will not display when the Text Web key is pressed.

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Programming Field Description

Station Text Web Group Number:	Meaning:	This is the EDAS URL number (1-5) for the Text Web data that is displayed when the Text Web key is pressed at the station
	Range:	1-5
	Default:	0

Related Databases:

Required: Class 42.01, 42.02, 42.03, 42.04, 42.06, 42.07; Class 14.01/15.01 Key Patterns

Hardware Required:

IX-5930 / IX-5910 IP telephone

42.06 - HTTP Proxy Address

Class 42 Item 06 - HTTP Proxy Address is used to enter the IP Address for your proxy server. If you are using CCProxy, enter the PC IP Address where CCProxy is running.

A DNS Proxy server is required to resolve URL Domain Names for the ECS. If you are using CCProxy, enter the **PC IP Address** where CCProxy is running.

Programming Field Description

HTTP Proxy Address:	Meaning:	HTTP Proxy IP Address
	Range:	
	Default:	None

Related Databases:

Required: Class 42.01, 42.02, 42.03, 42.04, 42.05, 42.07; Class 14.01/15.01 Key Patterns

Hardware Required:

IX-5930 / IX-5910 IP telephone

42.07 - HTTP Proxy TCP Port

Class 42 Item 07 - HTTP Proxy TCP Port is used to enter the proxy port number for your proxy server.

If you are using CCProxy, enter the proxy port number from the CC Proxy Configuration screen (example: 808).

Programming Field Description

HTTP Proxy TCP Port:	Meaning:	HTTP Proxy Port
	Range:	1-65535
	Default:	80

Related Databases:

Required: Class 42.01, 42.02, 42.03, 42.04, 42.05, 42.06; Class 14.01/15.01 Key Patterns

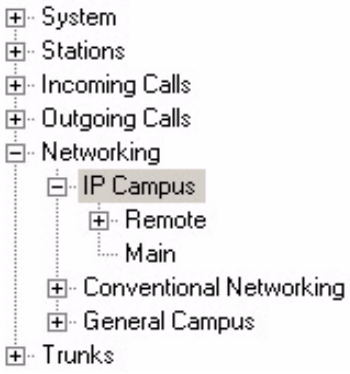
Hardware Required:

IX-5930 / IX-5910 IP telephone

IP Campus

Networking: IP Campus is used to configure an ECS IP Campus network. This section of the documentation departs from the traditional Class/Item structure. Instead, this section is based on the Hardware category under System. Where possible, the Class/Item nomenclature will preface the titles. This is for reference only.

Iwatsu Voice Networks suggests using the category view of the Iwatsu Programmer. This intuitive view combines and places often used Items on a single screen. IP Campus is encompassed in the Networking category. The following graphic shows the hierarchy.



IP Campus: Remote

IP Campus: Remote section is a section itself that contains multiple subsections. Within the IP Campus section there five programmable fields.

- Ntwk System Type
- System Number
- Main (LAN2) IP (CB)
- Main (LAN2) IP

Ntwk System Type

The Network system Type dropdown menu defines the role of the ECS within the ECS IP Campus network. Use the Main option to define the main site in an ECS IP Campus system. Use the Remote to define any remote node in an ECS IP Campus network.

System Number

The System Number option gives the ECS system a numerical value within the ECS IP Campus network. The main site will always receive a numerical value of Zero. Remote nodes in an ECS IP Campus network will receive numbers 1-24.

IP Campus systems **over 16** nodes **requires** Iwatsu Professional Services.

MAIN (LAN2) IP (CB)

The Main (LAN2) IP (CB) field is used to program the IP address of the main site in an ECS IP Campus Network. This field is is programmed on the remote site. The IP address entered in theis field refers to the IP address of the LAN2 port on the main site.

The IP address entered in this field must be identicle to the IP address entered in the Main (LAN2) IP field (below).

Main (LAN2) IP

The Main (LAN2) IP field is used to program the IP address of the main site in an ECS IP Campus Network. This field is is programmed on the remote site. The IP address entered in theis field refers to the IP address of the LAN2 port on the main site.

The IP address entered in this field must be identicle to the IP address entered in the Main (LAN2) IP (CB) field (above).

IP Campus: Remote: Remote General

IP Campus: Remote: Remote General section is a section itself that contains multiple subsections. Within the IP Campus section there five programmable fields.

- Link Disc Detection Timer
- Time Offset
- Payload Type
- Packet Interval

Link Disc Detection Timer

This field is reserved for factory use only and must not be modified from its default.

Time Offset

The Time Offset field allows the ECS system to offset its time from the main site's clock. For example, if the main site in an ECS IP Campus network resides in the Central time zone and the remote node resides in Mountain time zone, the remote node will use a -1 offset. This means that the remote node uses the same time as the main site but subtracts an hour. The is a maximum of +/- 6 hours.

Payload Type

The Payload Type field is used to select the CODEC used on the remote node in an ECS IP Campus network. There are two selections:

ITU-T G.711 Mu-law

ITU-T G.729

The default value is G.711 Mu-law.

Packet Interval

The Packet interval field determines send range interval of RTP packets on the main system. the RTP packet range interval is given in milliseconds. The available options are: 10, 20, 40, 60, 80, 100, 120, 140, 160, 180 and 200. The default is 20 milliseconds.

IP Campus: Main

The compression settings entered in this category are used by the main site in the ECS IP Campus network. If the main site uses a dissimilar CODEC than the remote node, the least compressed CODEC will be used (G.711).

Compression Settings [First Priority]

Compression Settings

The Compression Settings field is used to select the CODEC used on the main site in an ECS IP Campus network. The CODEC used in this field will be the prefered CODEC used by the ECS main system.

In an ECS IP Campus network, G.711 is the only supported CODEC used for FAX and modem use.

There are two selections:

- G.711 Mu-law
- G.729

The default value is G.711 Mu-law.

Compression Settings [Second Priority]

Compression Settings

The Compression Settings (Second Priority) field is used to select the secondary CODEC used on the main site in an ECS IP Campus network. The CODEC used in this field will be the backup CODEC used by the ECS main system. If this field is left blank, the Compression Setting (First Priority) will always be used.

In an ECS IP Campus network, G.711 is the only supported CODEC used for FAX and modem use.

There are two selections:

- G.711 Mu-law
- G.729

The default value is G.711 Mu-law.

IP Campus Systems Requirements

The following applies to all Iwatsu Enterprise-CS systems in an IP Campus network:

Important!

All Iwatsu Enterprise-CS systems in an IP Campus network (Main and Remote systems) must have the same ECS software version. IP Key Telephones installed in an IP Campus environment require that all ECS systems (Main and Remote) have the same ECS software version.
All Iwatsu Enterprise-CS systems must have the same software version when IP telephones are programmed for multi-host connectivity.

IP Campus Upgrade Process for ECS version 8.0

Iwatsu Voice Networks highly recommends updating of your Remote IP Campus systems prior to updating the main IP Campus site.

- **Remote IP Campus Systems**: Upgrade all remote IP Campus systems to ECS version 8.0 before upgrading the Main IP Campus system.
- **Main IP Campus System**: Upgrade the Main IP Campus system after all remote IP Campus systems have been upgraded.
  - Upload all licenses and the ECS database. Once this is complete, set the IPKT Automatic Update flag to YES (ECS database setting: Stations > IP Station Settings) before resetting the main IP Campus system. The final step for IP Campus upgrades should be a reset of the main system to confirm all remote systems recover properly.
- If you lose connectivity to the main IP Campus system before the IP telephones have upgraded, IP telephones addressed to the main IP Campus system will not function in the local mode because they have not been upgraded to the latest version of software until the main IP Campus system is upgraded and the IPKT Auto-Update flag is set to YES. Setting the Auto-Update flag to YES will allow these telephones to upgrade to a software version that is compatible with ECS software version 8.0 and higher.
- When the Iwatsu Enterprise-CS is upgraded to ECS Software Version 8.0 and higher software, all the IX-MBU Media Bridge Units in the IP Campus network must also be upgraded. ECS Software Version 8.0 requires IX-MBU Version 1.22.

Important!

When programming three or more virtual cards (such as VIPSUB, VTRUNK, or VIPSLT) it is important that those cards are programmed in higher card slot numbers that the VCIF cards used for the remote system. This applies to the remote side of an IP Campus installation. Failure to follow this programming guideline will result in the remote system timing out on boot and will the system will not recover do to the amount of time taken to initialize the virtual cards before bringing over the VCIF cards.

Trunk Busy and Attendant Intercept for CO Incoming Calls

ISDN PRI/BRI

Class 24/25 Direct Station Call

A call is routed to a station using either Class 24 or 25, the conversion table in the data table contains an extension number.

Busy Condition

ECS system software will respond with Q.931 Release Complete with the cause code 17, User Busy if a station converted from the Class 24/25 is busy (on a call) and Class 10.43 Off-hook Signaling to the station is set Deny.

System software will not attempt an ATT intercept regardless of any data settings and system conditions.

ECS system software will respond with Q.931 Release Complete with the cause code 17, User Busy if a station converted from the Class 24/25 is ringing, this will occur regardless of the data value of Class 10.43 Off-hook Signaling.

System software will not attempt ATT intercept regardless of any data settings and system conditions.

Class 24/25 Direct Hunting Call (Terminal or Distributed)

A call is routed to one of the hunting groups by using either Class 24 or 25, the conversion table in the data table contains a hunting group access number.

Busy Condition

ECS system software will respond with Q.931 Release Complete with the cause code 17, User Busy if all stations in the hunting group are busy (on a call or ringing), this will occur regardless of the data value of Class 10.43 Off-hook Signaling.

System software will not attempt ATT intercept regardless of any data settings and system conditions.

Class 24/25 Direct Hunting Call (UCD)

A call is routed to one of the hunting groups that is set as a UCD group by using either Class 24 or 25, the conversion table in the data table contains a hunting group access number.

Busy Condition

ECS system software will respond with Q.931 Alerting even if all stations in the hunting group are busy.

System software will attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in the day mode and the data value for Class 11.26, ATT Intercept Line is enabled.

Class 24/25 Direct Hunting Call (All Ring)

A call is routed to one of the hunting groups that is set as All Ring using either Class 24 or 25, the conversion table in the data table contains a hunting group access number.

Busy Condition

ECS system software will respond with Q.931 Alerting even if all stations in the hunting group are busy (on call or ringing), stations in the hunting group ring as Busy Camp-on.

System software will attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.

Class 11.32 Ringing Station (or Class 24/25 with Trunk Access Number)

A call is routed to stations specified in Class 11.32.

Busy Condition

ECS system software will respond with Q.931 Alerting even if all stations in Class 11.32 are busy (on call and Class 10.43 Off-hook Signaling is set to Deny, or ringing).

System software will attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.

Class 11.34 DIL to Hunt Group (or Class 24/25 with Trunk Access Number)

A call is routed to a hunting group specified in the Class 11.34.

Busy Condition

ECS system software will respond with Q.931 Alerting even if all stations in the hunting group are busy (on a call and Class 10.43 Off-hook Signaling is Deny, or ringing).

System software will attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 is expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.

T1 ANI/DNIS

Class 24/25 Direct Station Call

A call is routed to a station using either Class 24 or 25, the conversion table in the data table contains an extension number.

Busy Condition

ECS system software will send a busy tone if a station converted from Class 24 or 25 is busy (on a call) and Class 10.43 Off-hook Signaling for the station is set to Deny.

System software will then attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.

ECS system software will send busy tone if a station converted from Class 24 or 25 is ringing, this occurs regardless of the data value of Class 10.43 Off-hook Signaling.

System software will attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.

Class 24/25 Direct Hunting Call (Terminal or Distributed)

A call is routed to one of the hunting groups by using either Class 24 or 25, the conversion table in the data table contains a hunting group access number.

Busy Condition

ECS system software immediately attempts an ATT intercept if all stations in the hunting group are busy (on a call or ringing), this occurs regardless of the data value of Class 10.43 Off-hook Signaling.

Class 24/25 Direct Hunting Call (UCD)

A call is routed to one of the hunting groups that is programmed as a UCD group by using either Class 24 or 25, the conversion table in the data table contains a hunting group access number.

Busy Condition

ECS system software will send a ring-back tone even if all stations in the hunting group are busy.

System software will attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.

Class 24/25 Direct Hunting Call (All Ring)

A call is routed to one of the hunting groups that is programmed as All Ring by using either Class 24 or 25, the conversion table in the data table contains a hunting group access number.

Busy Condition

ECS system software will send a ring-back tone even if all stations in the hunting group are busy, station in the hunting group ring as Busy Camp-on.

System software will attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.

Class 11.32 Ringing Station (or Class 24/25 with Trunk Access Number)

A call is routed to stations specified in Class 11.32.

Busy Condition

ECS system software will send a ring-back tone even if all stations in Class 11.32 are busy (on a call and Class 10.43 Off-hook Signaling is set to Deny, or ringing).

System software will attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.

Class 11.34 DIL to Hunt Group (or Class 24/25 with Trunk Access Number)

A call is routed to a hunting group specified in Class 11.34.

Busy Condition

ECS system software will send a ring-back tone even if all stations in the hunting group are busy (on a call and Class 10.43 Off-hook Signaling is set to Deny, or ringing).

System software will attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.

Analog Trunk

Caller ID Class 24 Direct Station Call

A call is routed to a station using Class 24, the conversion table in the data table contains an extension number.

Busy Condition

ECS system software will not ring any station but the calling party hears ring-back tone if a station converted from Class 24 is busy (on a call) and Class 10.43 Off-hook Signaling for the station is set Deny.

System software will then attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.

ECS system software will not ring any station but the calling party hears ring-back tone if a station converted from Class 24 is ringing, this occurs regardless of the data value for Class 10.43 Off-hook Signaling.

System software will attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.

Caller ID Class 24 Direct Hunting Call (Terminal or Distributed)

A call is routed to one of the hunting groups using Class 24 , the conversion table in the data table contains a hunting group access number.

Busy Condition

ECS system software immediately attempts an ATT intercept if all stations in the hunting group are busy (on a call or ringing), this occurs regardless of the data value of Class 10.43 Off-hook Signaling.

Caller ID Class 24 Direct Hunting Call (UCD)

A call is routed to one of the hunting groups that is programmed as a UCD group by using Class 24, the conversion table in the data table contains a hunting group access number.

Busy Condition

ECS system software will not ring any station but the calling party hears ring-back tone if all stations in the hunting group are busy.

System software will attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.

Caller ID Class 24 Direct Hunting Call (All Ring)

A call is routed to one of the hunting groups that is programmed as All Ring by using Class 24, the conversion table in the data table contains a hunting group access number.

Busy Condition

ECS system software will start ringing the stations as Busy Camp-on and the caller party hears ring-back tone if all stations in the hunting group are busy, stations in the hunting group ring as Busy Camp-on.

System software will attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.

Class 11.32 Ringing Station (or Class 24 with Trunk Access Number)

A call is routed to stations specified in Class 11.32.

Busy Condition

ECS system software will not ring any station but the calling party hears ring-back tone if all stations in Class 11.32 are busy (on a call and Class 10.43 Off-hook Signaling is set to Deny, or ringing).

System software will attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.

Class 11.34 DIL to Hunt Group (or Class 24 with Trunk Access Number)

A call is routed to a hunting group specified in Class 11.34.

Busy Condition

ECS system software will not ring any station but the calling party hears ring-back tone if all stations in the hunting group are busy (on a call or ringing).

System software will attempt an ATT intercept once the Attendant DIL Intercept timer in Class 04.15 has expired when the system is in day mode and the data value of Class 11.26, ATT Intercept Line is enabled.