ALTUSEN™

Enterprise KVM Solutions by ATEN

16 Port High Density KVM Switch

KH0116

User Manual

FCC Information

This is an FCC Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. 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. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RoHS

This product is RoHS compliant.

User Notice

All information, documentation, and specifications contained in this manual are subject to change without prior notification by the manufacturer. The manufacturer makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranties as to merchantability or fitness for any particular purpose. Any of the manufacturer's software described in this manual is sold or licensed `as is'. Should the programs prove defective following their purchase, the buyer (and not the manufacturer, its distributor, or its dealer), assumes the entire cost of all necessary servicing, repair and any incidental or consequential damages resulting from any defect in the software.

The manufacturer of this system is not responsible for any radio and/or TV interference caused by unauthorized modifications to this device. It is the responsibility of the user to correct such interference.

The manufacturer is not responsible for any damage incurred in the operation of this system if the correct operational voltage setting was not selected prior to operation. PLEASE VERIFY THAT THE VOLTAGE SETTING IS CORRECT BEFORE USE.

Safety Instructions

General

* Read all of these instructions. Save them for future reference.

* Follow all warnings and instructions marked on the device.

* Do not place the device on any unstable surface (cart, stand, table, etc.). If the device falls, serious damage will result.

* Do not use the device near water.

* Do not place the device near, or over, radiators or heat registers.

* The device cabinet is provided with slots and openings to allow for adequate ventilation. To ensure reliable operation, and to protect against overheating, these openings must never be blocked or covered.

* The device should never be placed on a soft surface (bed, sofa, rug, etc.) as this will block its ventilation openings. Likewise, the device should not be placed in a built in enclosure unless adequate ventilation has been provided.

* Never spill liquid of any kind on the device.

* Unplug the device from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.

* The device should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

* The device is equipped with a 3-wire grounding type plug. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not attempt to defeat the purpose of the grounding-type plug. Always follow your local/national wiring codes.

* Do not allow anything to rest on the power cord or cables. Route the power cord and cables so that they cannot be stepped on or tripped over.

* If an extension cord is used with this device make sure that the total of the ampere ratings of all products used on this cord does not exceed the extension cord ampere rating. Make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.

* To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).

- Position system cables and power cables carefully; Be sure that nothing rests on any cables.

- When connecting or disconnecting power to hot pluggable power supplies, observe the following guidelines:

- Install the power supply before connecting the power cable to the power supply.

- Unplug the power cable before removing the power supply.

- If the system has multiple sources of power, disconnect power from the system by unplugging all power cables from the power supplies.

- Never push objects of any kind into or through cabinet slots. They may touch dangerous voltage points or short out parts resulting in a risk of fire or electrical shock.

- Do not attempt to service the device yourself. Refer all servicing to qualified service personnel.

- If the following conditions occur, unplug the device from the wall outlet and bring it to qualified service personnel for repair.

  - The power cord or plug has become damaged or frayed.

  - Liquid has been spilled into the device.

  - The device has been exposed to rain or water.

  - The device has been dropped, or the cabinet has been damaged.

  - The device exhibits a distinct change in performance, indicating a need for service.

  - The device does not operate normally when the operating instructions are followed.

- Only adjust those controls that are covered in the operating instructions. Improper adjustment of other controls may result in damage that will require extensive work by a qualified technician to repair.

Rack Mounting

* Before working on the rack, make sure that the stabilizers are secured to the rack, extended to the floor, and that the full weight of the rack rests on the floor. Install front and side stabilizers on a single rack or front stabilizers for joined multiple racks before working on the rack.

* Always load the rack from the bottom up, and load the heaviest item in the rack first.

* Make sure that the rack is level and stable before extending a device from the rack.

* Use caution when pressing the device rail release latches and sliding a device into or out of a rack; the slide rails can pinch your fingers.

* After a device is inserted into the rack, carefully extend the rail into a locking position, and then slide the device into the rack.

* Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.

* Ensure that proper airflow is provided to devices in the rack.

* Do not step on or stand on any device when servicing other devices in a rack.

Package Contents

The KH0116 package consists of:

1 KH0116 KVM Switch

2 KVM Cable Sets

1 Firmware Upgrade Cable

1 Power Cord

1 Rack Mount Kit

1 User Manual*

1 Quick Start Guide

1 Registration Card

Check to make sure that all of the components are present and in good order. If anything is missing, or was damaged in shipping, contact your dealer.

Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the switch or to any other devices on the KH0116 installation.

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* Features may have been added to the KH0116 since this manual was printed. Please visit our website to download the most up to date version of the manual.

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About This Manual

This User Manual is provided to help you get the most from your KH0116 system. It covers all aspects of installation, configuration and operation. An overview of the information found in the manual is provided below.

Overview

Chapter 1, Introduction, introduces you to the KH0116 System. Its purpose, features and benefits are presented, and its front and back panel components are described.

Chapter 2, Installation and Operation, provides step-by-step instructions for setting up your installation, and explains some basic operation procedures.

Chapter 3, OSD Operation, provides a complete description of the KH0116's On Screen Display, and how to work with it.

Chapter 4, Hotkey Operation, details all of the concepts and procedures involved in the hotkey operation of your KH0116 installation.

Chapter 5, The Firmware Upgrade Utility, explains how to upgrade the KH0116's firmware to the latest available version.

An Appendix, at the end of the manual provides specifications and other technical information regarding the KH0116.

<u>Conventions</u>

This manual uses the following conventions:

Monospaced	Indicates text that you should key in.
[ ]	Indicates keys you should press. For example, [Enter] means to press the **Enter** key. If keys need to be chorded, they appear together in the same bracket with a plus sign between them: [Ctrl+Alt].
1.	Numbered lists represent procedures with sequential steps.
♦	Bullet lists provide information, but do not involve sequential steps.
→	Indicates selecting the option (on a menu or dialog box, for example), that comes next. For example, Start → Run means to open the *Start* menu, and then select *Run*.
⚠	Indicates critical information.

ALTUSEN Information

Technical Support

North America Technical Phone Support	Registered ALTUSEN product owners are entitled to telephone technical support. Call the ALTUSEN Technical Support Center: 949-453-8885.
International Technical Phone Support	1. Contact your local dealer. 2. Call the ALTUSEN Technical Support Center:(886-2) 8692-6959.
Email Support	Email your questions and concerns to: support@altusen.com
Online Support ◆ Troubleshooting ◆ Documentation ◆ Software Updates	Online troubleshooting that describes the most commonly encountered problems and offers possible solutions to them; online documentation (including electronically available manuals); and the latest drivers and firmware for your product are available at the ALTUSEN website: **http://www.altusen.com**

Getting Help

For additional help, advice, and information, ALTUSEN provides several support options. If you need to contact ALTUSEN technical support with a problem, please have the following information ready beforehand:

◆ Product model number, serial number, and date of purchase.

◆ Your computer configuration, including operating system, revision level, expansion cards, and software.

◆ Any error messages displayed at the time the error occurred.

◆ The sequence of operations that led up to the error.

◆ Any other information you feel may be of help

Product Information

For information about all of ALTUSEN's products and how they can help you connect without limits, visit ALTUSEN on the web or contact an ALTUSEN Authorized Reseller.

- In the United States of America, call: 866-ALTUSEN (258-8736)
- In Canada and South America, call: 949-453-8885
- In all other locations, call: 886-2-8692-6789
- Visit ALTUSEN on the web at http://www.altusen.com for a list of locations and telephone numbers

Chapter 1
Introduction

Overview

The KH0116 KVM Switch is a control units that allow access to multiple computers from a single KVM (keyboard, monitor, and mouse) console. Before the development of sophisticated KVM switches, the only way to control large-scale multiple computer configurations from a single console was through a complex and costly network system. Now, with the KH0116, you can easily access multiple computers in a cost effective manner.

A single KH0116 can control up to 16 computers. As many as 31 additional KH0116 can be daisy chained to each other, so that up to 512 computers can all be controlled from a single keyboard-monitor-mouse console.

A custom ASIC (patent pending) provides an auto-sensing function that recognizes the position of each station on the chain, eliminating the need to manually set the position with DIP switches. A seven segment front panel LED displays each Station's position for easy identification.

For further convenience, the KH0116 features high density 15 pin connectors instead of the usual 25 pin connectors. This space-saving innovation allows a full, 16 port switch, to be installed in a 1U system rack.

Your KH0116 investment is protected by an included *Firmware Upgrade Utility*. You can stay current with the latest functionality improvements by downloading firmware update files from our website as they become available, and using the utility to quickly and conveniently perform the upgrade.

Setting up the KH0116 is fast and easy; plugging cables into their appropriate ports is all that is entailed. Because the KH0116 intercepts keyboard input directly, there is no software to configure, so there is no need to get involved in complex installation routines or be concerned with incompatibility problems.

Access to any computer on the installation is easily accomplished either by entering *Hotkey* combinations from the keyboard, or by means of a powerful menu driven OSD (On Screen Display) system. A convenient *Auto Scan* feature also permits automatic scanning and one-by-one monitoring of the activities of selected computers on the installation.

There is no better way to save time and money than with a KH0116 installation. By allowing a single console to manage all the attached computers, a KH0116 installation: (1) eliminates the expense of having to purchase a separate keyboard, monitor, and mouse for each computer; (2) saves all the space those extra components would take up; (3) saves on energy costs; and (4) eliminates the inconvenience and wasted effort involved in constantly moving from one computer to another.

Features

- A single console controls up to 16 computers
- Dedicated chain ports - daisy chain up to 31 additional units - control up to 512 computers from a single console
- No software required - convenient computer selection via *Hotkeys* and intuitive On Screen Display (OSD) menus
- Auto Scan feature for monitoring user-selected computers
- Hot Pluggable - add or remove switches/computers without having to power down the switches
- Custom ASIC (patent pending) auto-senses station's position on daisy chained installations - no need for manual DIP switch setting - front panel LED indicates station's position
- Port names automatically reconfigured when station sequence is changed
- Two level password security - only authorized users view and control the computers - up to four Users plus an Administrator - separate profiles for each
- Two level logout - Manual and Timed
- Keyboard and mouse emulation - computers boot even when the console focus is elsewhere - *Keep Alive* function - the keyboard and mouse work properly even if the switch temporarily loses power
- Supports* PS/2 Compatible Mice, Microsoft Intellimouse Explorer, Logitech FirstMouse+
- Superior video quality - resolutions of up to 1920 x 1440 - each port supports DDC2B
- Supports a second remote console (up to 150 m away)
- Firmware upgradable
- Full range universal internal power supply
- Rack Mountable in 19" System Rack (1U)

Note: 1. PS/2 compatible mouse support is for 3 button wheel mice.

2. The Logitech Mouse Ware program's *Change Device* procedure does not work on Microsoft NT computers.

Hardware Requirements

Console

- A VGA, SVGA, or Multisync monitor capable of the highest resolution that you will be using on any computer in the installation.
- A PS/2 style mouse
- A PS/2 style keyboard

Computers

The following equipment must be installed on each computer:

- A VGA, SVGA or Multisync card.
- A 6-pin mini-DIN (PS/2 style) mouse port.
- A 6-pin mini-DIN (PS/2 Style) keyboard port.

Cables

Substandard cables may damage the connected devices or degrade overall performance. For optimum signal integrity and to simplify the layout, we strongly recommend that you use the high quality Custom Cable sets described below:

Function	CS Part Number
KVM Switch to KVM Switch (Daisy Chaining)	2L-1700 - 0.6 m 2L-1701 - 1.8 m
KVM Switch to Computer	2L-5201P - 1.2 m 2L-5202P - 1.8 m 2L-5203P - 3.0 m

Components

<u>KH0116 Front View</u>

No.	Component	Description
1	Port LEDs	The Port LEDs provide status information about their corresponding Computer Ports. There is one pair of LEDs for each Port. The one on the left is the *On Line* LED; the one on the right is the *Selected Port* LED:
		◆ An *On Line* LED lights ORANGE to indicate that the computer attached to its corresponding port is up and running.
		◆ A *Selected* LED lights GREEN to indicate that the computer attached to its corresponding port is the one that has the KVM focus. The LED is steady under normal conditions, but flashes when its port is accessed under Auto Scan Mode (see *F7 SCAN:*, page 32).
		◆ When the KH0116 is first powered on, the On Line and Selected LEDs blink in sequence as the Switch performs a self-test.
2	Reset Switch	Pressing this switch in performs a system reset.
		Note: The switch is recessed and must be pushed with a thin object - such as the end of a paper clip, or a ballpoint pen.

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No.	Component	Description
3	Remote Console Area	The KH0116 can be operated from a remote console (up to 150m away) with the purchase of the CE-250 KVM Extender system.
		If you choose to use a remote console, its cable plugs into this connector.
		Normally, both consoles can access the KH0116. Clicking the **Disable Remote** button to the *In* position disables the Remote Console – only the Local Console has access to the switch.
		Details on using the KH0116 with the CE-250 KVM Extender system are provided on page 13.
4	Firmware Upgrade Area	This area consists of two components: The Firmware Upgrade Port; and the Firmware Upgrade Reset Switch.
		◆ The Firmware Upgrade Cable that transfers the firmware upgrade data from the administrator's computer to the KH0116 (see p. 42), plugs into the Firmware Upgrade Port's RJ-11 connector.
		◆ During normal operation and while performing a firmware upgrade, this switch should be in the NORMAL position. If a firmware upgrade operation does not complete successfully, slide this switch to the RECOVER position and do a warm reset to return the switch to its prior firmware state.
		After returning the switch to its prior firmware state, slide the switch back to the NORMAL position to attempt the firmware upgrade again, or to use the switch with its prior firmware.
5	Power LED	Lights to indicate that the KH0116 is powered up and ready to operate.
6	Station ID LED	The KH0116's Station ID is displayed here. If this is a Single Station installation (see p. 10), or the First Station on a Daisy Chained installation (see p. 11), the KH0116 has a Station ID of **01**. On a Daisy Chained installation, the KH0116 auto-senses its position and displays the Station ID that corresponds to its place in the chain. (see *Port ID Numbering*, p. 17 for details).

KH0116 Rear View
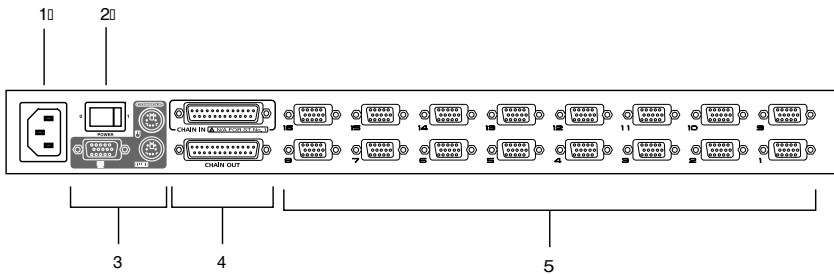
No.	Component	Description
1	Power Socket	
2	Power Switch	
3	Local Console Port Section	If this is a Single Station installation, or if this is the First Station of a daisy chained installation, the keyboard, monitor, and mouse that make up the Local Console plug in here.
4	Daisy Chain Ports	When Daisy Chaining Units (see p. 11), the daisy chain cables plug in here.* The upper port is the *Chain In* port; the lower one is the *Chain Out* port. The Chain In port is never used on the Master (First Stage) unit.
5	Computer Port Section	The cables that link to the computers plug in here. The shape of these connectors has been specifically modified so that only cables designed to work with this switch can plug in.*

* See the *Cables* section on p. 4 for cable details.

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Chapter 2
Installation and Operation

Before You Begin

1. Important safety information regarding the placement of this device is provided on page iv. Please review it before proceeding.

2. Make sure that power to all the devices you will be connecting up have been turned off. You must unplug the power cords of any computers that have the Keyboard Power On function.

Rack Mounting

The KH0116 can be mounted in a 1U system rack. For convenience and flexibility, the mounting brackets can screw into either the front or the back of the unit so that it can attach to the front or the back of the rack. To rack mount the unit do the following:

1. Screw the mounting brackets into the sides of the unit at the front or the rear, as shown in the diagrams below.

2. Slide the unit into the rack and secure it to the rack.
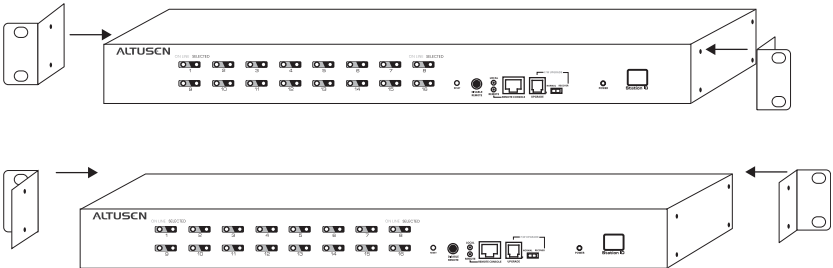
Single Stage Installation

In a Single Stage installation, there are no additional switches daisy chained down from the first unit. To set up a single stage installation do the following:

1. Plug your keyboard, mouse, and monitor into the unit's Console Ports.

2. Use KVM cable sets (as described in the *Cables* section on p. 4), to connect any available Computer Port to the Keyboard, Video and Mouse ports of the computer you are installing.

    Note: Ignore the Daisy Chain Ports at this time. They are only used when daisy chaining additional KH0116 units. Daisy chaining is described in the next section.
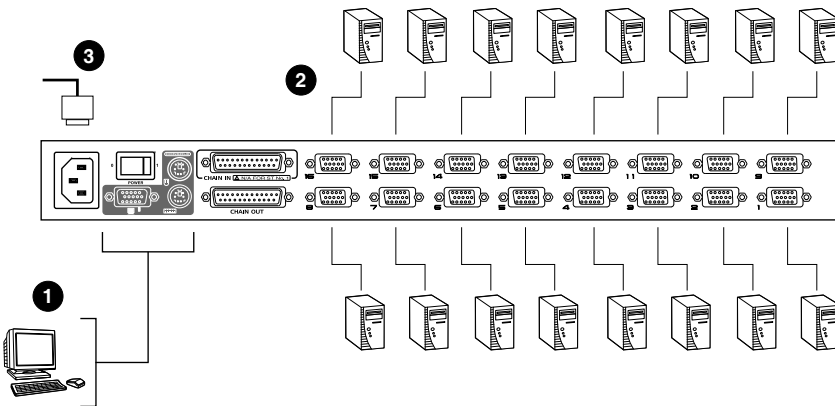
3. Plug the female end of the power cord into the KH0116's Power Socket; plug the male end into an AC power source.

4. Turn on the power to the KH0116.

5. Turn on the power to the computers.

Note: Information regarding installing a Remote Console is given on page 13.

Single Stage Installation Diagram:

Daisy Chaining

To control even more computers, up to 31 additional switches can be daisy chained down from the first unit. As many as 512 computers can be controlled from a single console in a complete installation. A table showing the relation between the number of computers and the number of KH0116 units needed to control them is provided on p. 49 of the Appendix.

To set up a daisy chained installation, first make sure that the power to all the devices you will be connecting up has been turned off, then refer to the diagram on p. 12 as you perform the steps listed below.

1. Use a daisy chain cable set (described in the *Cables* section, p. 4), to connect the *Chain Out* port of the parent KH0116 unit to the *Chain In* port of the child KH0116 unit (First Station Out to Second Station In, Second Station Out to Third Station In, etc.).

   Note: You cannot use the *Chain In* port of the First Station KH0116, since it is the highest level parent.

2. Use KVM cable sets (described in the *Cables* section, p. 4), to connect any available KH0116 Computer Port to the Keyboard, Video and Mouse ports of the computers you are installing.

3. Plug the female end of the power cord into the KH0116's Power Socket; plug the male end into an AC power source.

4. Repeat the above steps for any additional KH0116 units you wish to add to the chain.

5. Power up the installation according to the following procedure:

   a) Power on the First Station.

      Wait for the unit to ascertain its Station ID and display it on the Station ID LED. (The Station ID for the First Stage unit is **01**, the ID for the Second Stage unit is **02**, the ID for the Third Stage unit is **03**, etc.).

   b) Power on each Station on the installation in turn (Second Station, then Third Station, then Fourth, etc.).

      In each case, wait for the Station ID to be ascertained and displayed on the current Station before powering on the next one.

   c) After all the Stations are up, power on the computers.

Daisy Chain Installation Diagram:
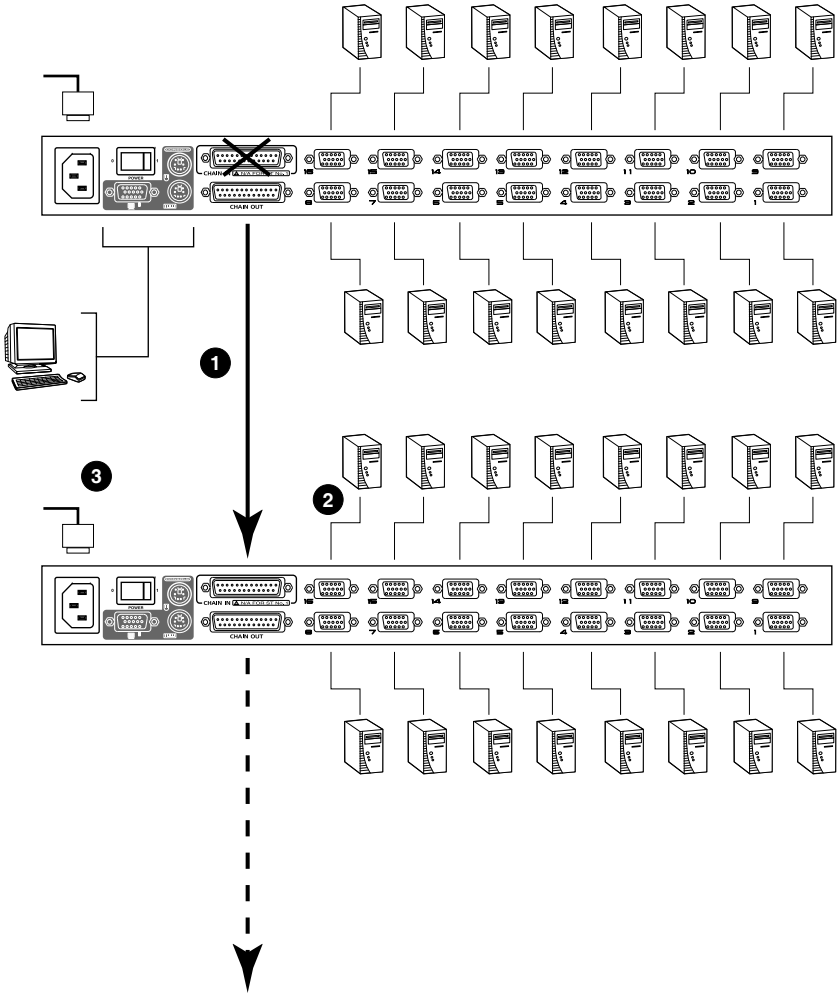
Remote Console Operation

Overview

Operating the KH0116 from a remote KVM console (up to 150m away), is accomplished by means of the CE-250 KVM Extender system. The CE-250 system consists of a Remote Module (CE-250R) that connects to a Local Module (CE-250L) via Cat 5 cabling. Since the CE-250L (the Local Module) is built into the KH0116, all that is required for Remote Console operation is the purchase of a CE-250R module.
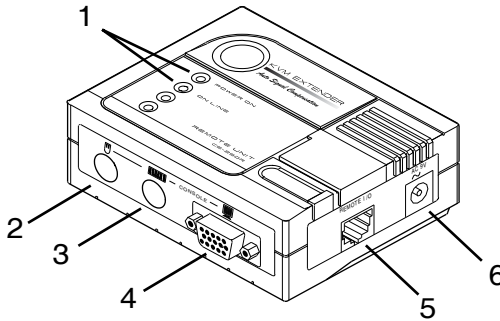
CE-250R Components

No.	Component	Description
1	LEDs	The Remote Module has two LEDs (Power and On Line) to indicate the operating status of the Local and Remote units. See page 15 for details
2	Mouse Port	The remote mouse plugs in here
3	Keyboard Port	The remote keyboard plugs in here.
4	Monitor Port	The remote monitor plugs in here.
5	Remote I/O	The Cat 5 cable that connects this unit to the KH0116's *Remote Console port* (the Local Module) plugs in here.
6	Power Jack	The cable from the AC power adapter plugs in here.

CE-250R Installation

Installation is simply a matter of plugging in cables. Make sure that all the equipment to be connected up is powered Off, the perform the steps indicated below:

1. Plug the keyboard, monitor, and mouse cables for the remote console devices into their ports on the Console side of the CE-250R.

2. Plug either end of the Cat 5 cable into the CE-250R's Remote I/O port. Plug the other end of the cable into the *Remote Console* port of the KH0116.

3. Plug the power adapter (supplied with the CE-250R) into an AC source; plug the adapter's power cable into the CE-250R's Power Jack

4. Power up your KH0116 installation according to the steps given on page 11.

CE-250R Installation Diagram:
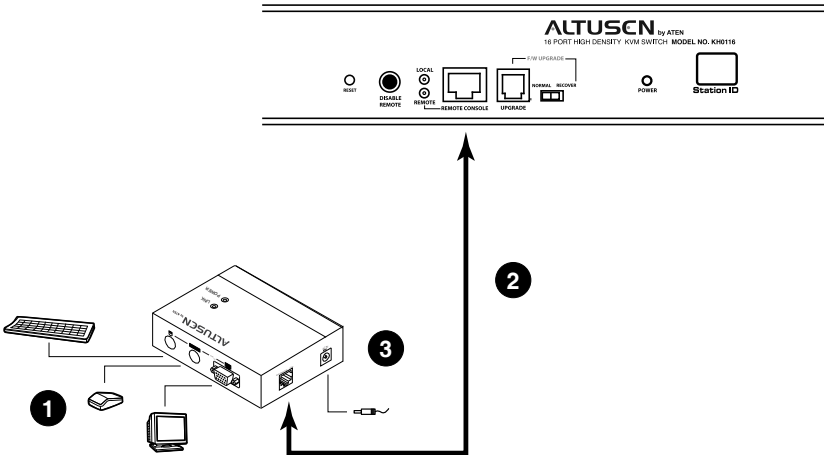
CE-250R Operation

With the Remote Console installed, the default situation is for both the Local and Remote consoles to be active. The KH0116 and the CE-250R have two LEDs each to indicate the Local/Remote operating status, as shown in the tables, below:

KH0116 (Local Console):

LED	Operating Mode	
	Local	Auto
Local	Lights to indicate that the Local Console is active (the Remote LED is out).	1. Lights when the local console is active (the Remote LED is out) 2. Turns off when the remote console is active (the Remote LED turns on) 3. Flashes on and off alternately with the Remote LED when neither console is active.
Remote	The LED is Off.	1. Lights when the remote console is active (the Local LED is out) 2. Turns off when the local console is active (the Local LED turns on) 3. Flashes on and off alternately with the Local LED when neither console is active.

CE-250R (Remote Console):

LED	Indication
Power	1. Lights steadily to indicate that the connection to the Local Unit is ok. 2. Flashes when there is a problem with the connection to the Local Unit.
On Line	1. Lights when the remote console is active. 2. Is Off when the local console is active. 3. Is Off when there is a problem with the connection to the Local Unit.

Hot Plugging

The KH0116 supports *hot plugging* - components can be removed and added back into the installation by unplugging their cables from the ports without the need to shut the unit down. In order for hot plugging to work properly, however, the procedures described below must be followed:

Switching Station Positions:

You can switch station positions by simply unplugging from the old parent and plugging into a new one. After you do, in order for the OSD menus to correspond to the change, you must reset the Station IDs in the OSD. See *RESET STATION IDS*, p. 29, for details.

Note: If the computer's Operating System does not support hot plugging, this function may not work properly.

Hot Plugging Computer Ports:

In order for the OSD menus to correspond to the change, you must manually reconfigure the OSD to reflect the new Port information. See the *F3 SET* (p. 24) and *F4 ADM* (p. 26), functions for details.

Hot Plugging Console Ports

The keyboard, monitor, and mouse can all be hot plugged to/from the KH0116's console ports. When hot plugging the mouse, however, keep the following in mind:

1. If you unplug and replug the mouse (to reset it, for example), you should replug the same mouse that you removed.

2. If you plug in a different mouse, all the stations and all the computers on the installation must be shut down for 10 seconds, and then restarted following the power up sequence described on page 11.

Note: If, after hot plugging, there is nos response to keyboard and/or mouse input, perform a Keyboard and Mouse Reset by pressing the Reset switch in (see page 5).

Port ID Numbering

Each Computer Port on a KH0116 installation is assigned a unique Port ID. The Port ID is made up of two parts: a *Station Number*, and a *Port Number*:

◆ The *Station Number* - is a two digit number which reflects the switch's position in the daisy chain sequence. This corresponds to the number displayed on the front panel Station ID LED.

◆ The *Port Number* - is a two digit number which reflects the port on the KH0116 Station that the computer is connected to.

◆ The Station Number precedes the Port Number.

◆ Station and Port numbers from 1 - 9 are padded with a preceding zero, so they become 01 - 09.

For example, a computer attached to **Port 6** of **Station 12** would have a Port ID of: **12-06**.

Powering Off and Restarting

If it becomes necessary to Power Off one of the KH0116 units, before starting it back up you must do the following:

1. Shut down all the computers that are attached to it.

   Note: You must unplug the power cords of any computers that have the *Keyboard Power On* function. Otherwise, the switch will still receive power from the computers.

2. Wait 10 seconds, then Power the KH0116 back On.

3. After the KH0116 is up, Power On the computers.

Note: If you have shut down more than one Station, power up the highest Station (the one closest to the Master Station) first and work your way down to the lowest one.

Port Selection

Port Selection is accomplished either by means of the KH0116's On Screen Display (OSD), or by entering Hotkey combinations from the keyboard. *OSD Operation* is discussed in Chapter 3; *Hotkey Port Selection* is discussed in Chapter 4.

OSD Operation

Overview

The On Screen Display (OSD) is a menu driven method to handle computer control and switching operations. All procedures start from the OSD Main Screen. To pop up the Main Screen, tap the **[Scroll Lock]** key twice.
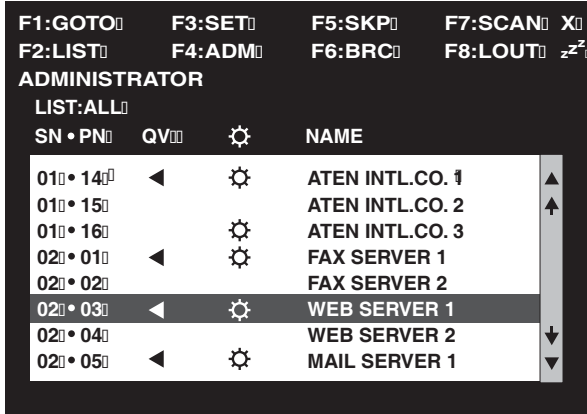

Note: You can optionally change the Hotkey to the Ctrl key, in which case you would tap [Ctrl] twice (see *OSD Hotkey*, p. 24). With this method, the [Ctrl] keys must be on the same side (both left, or both right).

The OSD incorporates a two level (Administrator / User) password system. Before the OSD Main Screen comes up, a dialog box appears that asks you to provide your password. If the password function has been set, you must provide the password in order to access the OSD Main Screen.

If this is the first time that the OSD is being run, or if the password function has not been set, simply press **[Enter]**. The OSD Main Screen comes up in Administrator Mode. In this mode, you have Administrator privileges, with access to all Administrator and User functions, and can set up operations (including password authorization for the future), as you would like.

When you invoke the OSD, a screen similar to the one below appears:

F1:GOTO	F3:SET	F5:SKP	F7:SCAN	X
F2:LIST	F4:ADM	F6:BRC	F8:LOUT	z^z^z

ADMINISTRATOR

LIST:ALL

SN • PN	QV	☼	NAME	
01 • 14	◄	☼	ATEN INTL.CO. 1	▲
01 • 15			ATEN INTL.CO. 2	⬆
01 • 16		☼	ATEN INTL.CO. 3	
02 • 01	◄	☼	FAX SERVER 1	
02 • 02			FAX SERVER 2	
02 • 03	◄	☼	WEB SERVER 1	
02 • 04			WEB SERVER 2	⬇
02 • 05	◄	☼	MAIL SERVER 1	▼

Note: 1. The diagram depicts the Administrator's Main Screen. The User Main Screen does not show the **F4** and **F6** functions since these are reserved for the Administrator and can't be accessed by ordinary Users.

2. The OSD always starts in *List* view, with the highlight bar at the same position it was in the last time it was closed.

3. Only the ports that have been set accessible by the Administrator for the currently logged in User are visible (see *SET ACCESSIBLE PORTS*, page 28, for details).

OSD Navigation

* To dismiss the menu, and deactivate the OSD, Click the **X** at the upper right corner of the OSD Window; or press **[Esc]**.

* To Logout, Click **F8** or the $_Z Z^Z$ symbol at the top of the Main Screen, or press **[F8]**.

* To move up or down through the list one line at a time, Click the Up and Down Triangle symbols (▲▼) or use the Up and Down Arrow Keys. If there are more list entries than there is room for on the Main Screen, the screen will scroll.

* To move up or down through the list one screen at a time, Click the Up and Down Arrow symbols (♠↓), or use the [Pg Up] and [Pg Dn] keys. If there are more list entries than there is room for on the Main Screen, the screen will scroll.

* To bring the KVM focus to a port, Double Click it, or move the Highlight Bar to it then press [Enter].

* After executing any action, you automatically go back to the menu one level above.

OSD Main Screen Headings

Heading	Explanation
SN-PN	This column lists the Port ID numbers (Station Number - Port Number) for all the Computer Ports on the installation. The simplest method to access a particular computer is move the Highlight Bar to it, then press **Enter**.
QV	If a port has selected for Quick View scanning (see *Set Quick View Ports*, p. 28), an arrowhead displays in this column to indicate so.
☼	The computers that are powered on and are On Line have a Sun symbol in this column to indicate so.
NAME	If a port has been given a name (see *Edit Port Names*, p. 27), its name appears in this column.

OSD Functions

OSD functions are used to configure and control the OSD. For example, rapidly switching to any port; scanning only selected ports; limiting the list of ports you wish to view; designating a port as a Quick View Port; managing port names; or making OSD setting adjustments.

To access an OSD function:

1. Either Click a Function Key field at the top of the Main Screen, or press a Function Key on the keyboard.

2. In the Submenus that appear, make your choice either by Double Clicking it, or moving the Highlight Bar to it, then pressing **[Enter]**.

3. Press **[Esc]** to return to the previous menu level.

F1 GOTO:

Clicking the **F1** field or pressing **[F1]** activates the GOTO function. GOTO allows you to switch directly to a port either by keying in the port's *Name*, or its *Port ID*.

◆ To use the Name method, key in **1**; key in the port's Name; then press **[Enter]**.

◆ To use the Port ID method, key in **2**; key in the *Port ID*; then press **[Enter]**.

Note: You can key in a partial Name or Port ID. In that case, the screen will show all the computers that the User has *View* rights to (see *SET ACCESSIBLE PORTS*, p. 28), that match the Name or Port ID pattern, regardless of the current List settings (see *F2 LIST*, p. 23, for details).

To return to the OSD Main Screen without making a choice, press [Esc].

F2 LIST:

This function lets you broaden or narrow the scope of which ports the OSD displays (lists) on the Main Screen. Many of the OSD functions only operate on the computers currently selected for Listing on the Main Screen with this function. The submenu choices and their meanings are given in the table below:

Choice	Meaning
ALL	Lists all of the ports on the installation.
POWERED ON	Lists only the ports that have their attached computers Powered On.
QVIEW	Lists only the ports that have been selected as Quick View Ports (see *SET ACCESSIBLE PORTS*, p. 28).
QVIEW + POWERED ON	Lists only the ports that have been selected as Quick View Ports (see *SET QUICK VIEW PORTS*, p. 28), and that have their attached computers Powered On.

Move the Highlight Bar to the choice you want, then press **[Enter]**. An icon appears before the choice to indicate that it is the currently selected one.

F3 SET:

This function allows the Administrator and each User to set up his own working environment. A separate profile for each is stored by the OSD and is activated according to the *Username* that was provided during Login.

To change a setting:

1. Double Click it; or move the highlight bar to it, then press **[Enter]**.

2. After you select an item, a submenu with further choices appears. To make a selection, either Double Click it; or move the Highlight Bar to it, then press **[Enter]**. An icon appears before the selected choice to indicate which one it is. The settings are explained in the following table:

Setting	Function
OSD HOTKEY	Selects which Hotkey activates the OSD function: **[Scroll Lock] [Scroll Lock]** or **[Ctrl] [Ctrl]**. Since the Ctrl key combination may conflict with programs running on the computers, the default is the Scroll Lock combination.
PORT ID DISPLAY POSITION	Allows you to position where the Port ID appears on the monitor. The default is the upper right corner, but you can have it appear anywhere on the screen. Use the Mouse or the Arrow Keys plus Pg Up, Pg Dn, Home, End, and 5 (on the numeric keypad with Num Lock off), to position the Port ID display, then Double Click or press **[Enter]** to lock the position and return to the Set submenu.
PORT ID DISPLAY DURATION	Determines how long a Port ID displays on the monitor after a port change has taken place. The choices are: **User Defined** - which lets you select the amount of time (from 1 - 255 sec.); and **Always On** - which displays the Port ID at all times. If you select *User Defined*, key in the number of seconds, then press **[Enter]**. The default is 3 Seconds. A setting of 0 (zero) disables this function.

(Continued from previous page.)

Setting	Function
PORT ID DISPLAY MODE	Selects how the Port ID is displayed: the Port Number alone (**PORT NUMBER**); the Port Name alone (**PORT NAME**); or the Port Number plus the Port Name (**PORT NUMBER + PORT NAME**). The default is PORT NUMBER + PORT NAME).
SCAN DURATION	Determines how long the focus dwells on each port as it cycles through the selected ports in Auto Scan Mode (see *F7 SCAN*, p. 32). Key in a value from 1 - 255 seconds, then press **[Enter]**. Default is 5 seconds; a setting of 0 disables the Scan function.
SCAN/SKIP MODE	Selects which computers will be accessed under Skip Mode (see *F5 SKP*, p. 30), and Auto Scan Mode (see *F7 SCAN*, p. 32). Choices are: **ALL** - All the Ports which have been set Accessible (see *SET ACCESSIBLE PORTS*, p. 28); **POWERED ON** - Only those Ports which have been set Accessible and are Powered On; **QUICK VIEW** - Only those Ports which have been set Accessible and have been selected as Quick View Ports (see *SET QUICK VIEW PORTS*, p. 28); **QUICK VIEW + POWERED ON** - Only those Ports which have been set Accessible and have been selected as Quick View Ports and are Powered On. The default is **ALL**.
SCREEN BLANKER	If there is no input from the console for the amount of time set with this function, the screen is blanked. Key in a value from 1 - 30 minutes, then press **[Enter]**. A setting of 0 disables this function. The default is 0 (disabled).
HOTKEY COMMAND MODE	Enables / Disables the Hotkey Command function in case a conflict with programs running on the computers occurs.

F4 ADM:

F4 is an Administrator only function. It allows the Administrator to configure and control the overall operation of the OSD. To change a setting Double Click it; or use the Up and Down Arrow Keys to move the highlight bar to it then press **[Enter]**.

After you select an item, a submenu with further choices appears. Double Click the choice you want, or move the Highlight Bar to it then press **[Enter]**. An icon appears before the selected choice so that you know which one it is. The settings are explained in the following table:

Setting	Function
SET USERNAME AND PASSWORD	This function is used to set Usernames and Passwords for the Administrator and Users: 1. One Administrator and four User passwords can be set. 1. After you select the Administrator field or one of the User fields, a screen that allows you to key in your password appears. The password may be up to 15 characters long, and can consist of any combination of letters and numbers (A - Z, 0 - 9). 1. For each individual, key in the Username and Password, then press **[Enter]**. 1. To modify or delete a previous Username and/or Password, use the backspace key to erase individual letters or numbers.
SET LOGOUT TIMEOUT	If there is no input from the console for the amount of time set with this function, the Operator is automatically logged out. A login is necessary before the console can be used again. This enables other Operators to gain access to the computers when the original Operator is no longer accessing them, but has forgotten to log out. To set the timeout value, key in a number from 1 - 180 minutes, then press **[Enter]**. If the number is 0 [zero], this function is disabled. Default is 0 (disabled).

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Setting	Function
EDIT PORT NAMES	To help remember which computer is attached to a particular port, every port can be given a name. This function allows the Administrator to create, modify, or delete port names. To Edit a port name: 1. Click the port you want, or use the Navigation Keys to move the highlight bar to it, then press **[Enter]**. 1. Key in the new Port Name, or modify/delete the old one. The maximum number of characters allowed for the Port Name is 12. Legal characters include: ◆ All alpha characters: **a - z; A - Z** ◆ All numeric characters: **0 - 9** ◆ **+ - / : .** and **Space** Case does not matter; the OSD displays the Port Name in all capitals no matter how they were keyed in. 1. When you have finished editing, press **[Enter]** to have the change take effect. To abort the change, press **[Esc]**.
RESTORE DEFAULT VALUES	This function is used to undo all changes and return the setup to the original factory default settings (see *OSD Factory Default Settings*, page 49) - except for the *Names* settings that were assigned to the Ports, which are saved.
CLEAR THE NAME LIST	This function clears the port name list.
ACTIVATE BEEPER	Choices are: **Y** (for Yes), or **N** (for No). When activated, the beeper sounds whenever a Port is changed; when activating the Auto Scan function (see *F7 SCAN*, p. 32); or an invalid entry is made on an OSD menu. The default is Y (activated).

(Continued from previous page.)

Setting	Function
SET QUICK VIEW PORTS	This function lets the Administrator select which Ports to include as Quick View ports. ◆ To select/deselect a port as a Quick View Port, Double Click the port you want, or use the Navigation Keys to move the highlight bar to it, then press **[Enter]**. ◆ When a port has been selected as a Quick View Port, an arrowhead displays in the QV column of the LIST on the Main Screen to indicate so. When a port is deselected, the arrowhead disappears. ◆ If one of the Quick View options is chosen for the LIST view (see *F2 LIST*, p. 23), only a Port that has been selected here will display on the List. ◆ If one of the Quick View options is chosen for Auto Scanning (see *SCAN/SKIP MODE*, p. 25), only a Port that has been selected here will be Auto Scanned. The default is for no ports to be selected.
SET ACCESSIBLE PORTS	This function allows the Administrator to define User access to the computers on the installation on a Port-by-Port basis. For each User, select the target Port; then press the [Spacebar] to cycle through the choices: **F** (Full access) **V** (View Only), or **Blank** (A blank setting means that no access rights are granted. The Port will not show up on the User's LIST on the Main Screen.) Repeat until all access rights have been set, then press **[Enter]**. The default is **F** for all users on all Ports.

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Setting	Function
RESET STATION IDS	If you change the position of one of the Stations in the daisy chain, the OSD settings will no longer correspond to the new situation. This function directs the OSD to rescan the Station positions of the entire installation and updates the OSD so that the OSD Station information corresponds to the new physical layout. Only the Station Numbers get updated. Except for the Port Names, all Administrator settings (such as Set Accessible Ports, Set Quick View Ports, etc.), for all of the computers affected by the change, have to be manually redone.
FIRMWARE UPGRADE	In order to upgrade the KH0116's firmware (see Chapter 5), you must first invoke Firmware Upgrade Mode with this setting.

F5 SKP:

Clicking the **F5** field or pressing **[F5]** invokes Skip (SKP) Mode. This function enables you to easily skip backward or forward - switching the console focus from the currently active computer port to the previous or next available one.

◆ The selection of computers to be available for Skip Mode switching is made with the *Scan/Skip Mode* setting under the **F3 SET** function (see p. 24).

◆ When you are in Skip Mode, press [←] to switch to the previous computer in the List; press [→] to switch to the next computer in the List; press [↑] to switch to the last computer on the previous station in the List; press [↓] to switch to the first computer on the next station in the List.

> **Note:** When you Skip, you only Skip to the previous or next available computer that is in the *Scan/Skip Mode* selection (see p. 25).

◆ If a Port has been selected for *Scan/Skip Mode*, when the focus switches to that port a Left/Right Triangle symbol appears before its Port ID Display to indicate so.

◆ While Skip Mode is in effect, the console will not function normally. You must exit Skip Mode in order to regain control of the console.

◆ To exit Skip Mode, press **[Spacebar]** or **[Esc]**.

F6 BRC:

F6 is an Administrator only function. Clicking the **F6** field, or pressing **[F6]**, invokes Broadcast (BRC) Mode. When this function is in effect, commands sent from the console are broadcast to all available computers on the installation.

This function is particularly useful for operations that need to be performed on multiple computers, such as performing a system wide shutdown, installing or upgrading software, etc.

BRC works in conjunction with the **F2 LIST** function. The LIST function (see p. 23), is used to broaden or narrow the focus of which Ports appear on the OSD Main Screen. When you Broadcast a command, it only goes to the Ports currently selected to be listed on the OSD Main Screen.

- While BRC Mode is in effect, a Speaker symbol appears before the Port ID Display of the port that currently has the console focus.
- While BRC Mode is in effect, the mouse will not function normally. You must exit BRC Mode in order to regain control of the mouse.
- To exit BRC Mode, invoke the OSD (with the OSD Hotkey), then Click the **F6** field, or press **[F6]**, to turn BRC Mode off.

F7 SCAN:

Clicking the **F7** field or pressing **[F7]** invokes Auto Scan Mode. This function allows you to automatically switch among the available computers at regular intervals so that you can monitor their activity without having to take the trouble of switching manually.

- The selection of computers to be included for Auto Scanning is made with the *Scan/Skip Mode* setting under the **F3 SET** function (see p. 24).

- The amount of time that each Port displays for is set with the *Scan Duration* setting under the **F3 SET** function (see p. 24). When you want to stop at a particular location, press the [Spacebar] to stop scanning and exit *Auto Scan Mode*.

- If the scanning stops on an empty port, or one where the computer is attached but is powered Off, the monitor screen will be blank, and the mouse and keyboard will have no effect. Simply wait - after the *Scan Duration* time is up, the Scan function will move on to the next port.

- As each computer is accessed, an **S** appears in front of the Port ID display to indicate that it is being accessed under *Auto Scan Mode*.

- While Auto Scan Mode is in effect, the console will not function normally. You must exit Auto Scan Mode in order to regain control of the console.

- While you are in Auto Scan Mode, you can pause the scanning in order to keep the focus on a particular computer either by pressing **P**, or with a Left Click of the mouse. See *Invoking Auto Scan*, page 37, for details.

- To exit Auto Scan Mode, press the **[Spacebar]** or **[Esc]**.

F8 LOUT:

Clicking the **F8** field, or pressing **[F8]** logs you out of OSD control of the computers, and blanks the Console screen. This is different from simply pressing **[Esc]** when you are at the Main Screen to deactivate the OSD. With this function you must log in all over again to regain access to the OSD, whereas with **[Esc]**, all you have to do to reenter the OSD is tap the OSD Hotkey.

Note: 1. When you reenter the OSD after logging out, the screen stays blank except for the OSD Main Screen. You must input your password before you can continue.

2. If you reenter the OSD after logging out, and immediately use [Esc] to deactivate the OSD without having selected a port from the OSD menu, a Null Port message displays on the screen. The OSD Hotkey will bring up the Main OSD Screen.

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Hotkey Operation

Hotkey Port Control

Hotkey Port Control allows you to provide KVM focus to a particular computer directly from the keyboard. The KH0116 provides the following Hotkey Port Control features:

- ◆ Selecting the Active Port
- ◆ Auto Scanning
- ◆ Skip Mode Switching

Invoking Hotkey Mode

All Hotkey operations begin by invoking *Hotkey Mode*. Invoking Hotkey Mode takes three steps:

1. Hold down the **Num Lock** key;

1. Press and release the **minus** key;

1. Release the **Num Lock** key:

    ```
    [Num Lock] + [-];
    ```

Note: The minus key must be released within one half second, otherwise Hotkey invocation is cancelled and it has no effect.

When Hotkey Mode is active:

- ◆ The Caps Lock, and Scroll Lock LEDs flash in succession to indicate so. They stop flashing and revert to normal status when you exit Hotkey Mode.

- ◆ A Command Line appears on the monitor screen. The command line prompt is the word *Hotkey:* in yellow text on a blue background, and displays the subsequent Hotkey information that you key in.

- ◆ Ordinary keyboard and mouse functions are suspended - only Hotkey compliant keystrokes and mouse clicks (described in the sections that follow), can be input.

Pressing **[Esc]** exits Hotkey Mode.

Selecting the Active Port

Each Computer Port is assigned a Port ID (see *Port ID Numbering*, p. 17). You can directly access any computer on the installation with a Hotkey combination that specifies the Port ID of the Computer Port that the computer is connected to. The steps involved are:

1. Invoke Hotkey Mode (see p. 35).

2. Key in the Port ID

   The Port ID numbers display on the Command Line as you key them in. If you make a mistake, use [Backspace] to erase the wrong number.

3. Press **[Enter]**

   After you press [Enter], the KVM focus switches to the designated computer and you automatically exit Hotkey Mode.

Auto Scanning

Auto Scan automatically switches among all the active Computer Ports that are accessible to the currently logged on User at regular intervals, so that he can monitor their activity automatically. (See *Scan/Skip Mode* of the OSD **F3 SET** function, p. 24 for information regarding accessible ports).

Setting the Scan Interval

The amount of time Auto Scan dwells on each port is set with the *Scan Duration* setting of the OSD **F3 SET** function (see p. 24). You can change the scan interval before activating Hotkey Auto Scanning, if you wish, with the following Hotkey combination:

1. Invoke Hotkey Mode (see p. 35).

2. Key in **[T] [n]**

   Where [T] is the letter **T**, and [n] is a number from 1-255 that represents the number of seconds for the dwell time.

   The letter **T** and the numbers display on the Command Line as you key them in. If you make a mistake, use **[Backspace]** to erase the wrong number.

3. Press **[Enter]**

   After you press [Enter], you automatically exit Hotkey Mode, and are ready to invoke Auto Scanning.

Invoking Auto Scan

To start Auto Scanning, key in the following Hotkey combination:

1. Invoke Hotkey Mode (see p. 35).

2. Press **[A]**.

    After you press **A**, you automatically exit Hotkey Mode, and enter Auto Scan Mode, and Auto Scanning begins.

    - While you are in Auto Scan Mode, you can pause the scanning in order to keep the focus on a particular computer either by pressing **P** or with a Left Click of the mouse. During the time that Auto Scanning is paused, the Command Line displays: **Auto Scan: Paused.**

        Pausing when you want to keep the focus on a particular computer is more convenient than Exiting Auto Scan Mode because when you Resume scanning, you start from where you left off. If, on the other hand, you Exited and restarted, Scanning would start over from the very first computer on the installation.

        To resume Auto Scanning, press any key or Left Click. Scanning continues from where it left off.

    - While Auto Scan Mode is in effect, ordinary keyboard and mouse functions are suspended - only Auto Scan Mode compliant keystrokes and mouse clicks can be input. You must exit Auto Scan Mode in order to regain normal control of the console.

3. To exit Auto Scan Mode press **[Esc]** or **[Spacebar]**. Auto Scanning stops when you exit Auto Scan Mode.

Skip Mode

This feature allows you to switch between computers in order to monitor them manually. You can dwell on a particular port for as long or as little as you like - as opposed to Auto Scanning, which automatically switches after a fixed interval. To invoke Skip Mode, key in the following Hotkey combination:

1. Invoke Hotkey Mode (see p. 35).

2. Key in **[Arrow]**

   ◆ Where [Arrow] refers to one of the Arrow keys. After you press [Arrow], you automatically exit Hotkey Mode, and enter Skip Mode where you can switch ports as follows:

←	Skips from the current port to the first accessible port previous to it. (See *Scan/Skip Mode*, p. 25, for information regarding accessible ports.)
→	Skips from the current port to the next accessible port.
↑	Skips from the current port to the last accessible port of the previous Station.
↓	Skips from the current port to the first accessible port of the next Station.

   ◆ Once you are in Skip Mode, you can keep on skipping by pressing the Arrow keys. You don't have to use the [NumLock] + [-] combination again.

   ◆ While Skip Mode is in effect, ordinary keyboard and mouse functions are suspended - only Skip Mode compliant keystrokes can be input. You must exit Skip Mode in order to regain normal control of the console.

3. To exit Skip Mode, press **[Esc]** or **[Spacebar]**.

Hotkey Beeper Control

The Beeper (see Activate Beeper, p. 27) can be Hotkey toggled On and Off. To toggle the Beeper, key in the following Hotkey combination:

1. Invoke Hotkey Mode (see p. 35).

2. Press **[B]**

After you press **B**, the Beeper toggles On or Off. The Command Line displays *Beeper On* or *Beeper Off* for one second; then the message disappears and you automatically exit Hotkey Mode.

Hotkey Summary Table

The following table summarizes Hotkey operations on the KH0116:

[Num Lock] + [-]	[Port ID] [Enter]	Switches access to the computer that corresponds to that Port ID.
	[T] [n] [Enter]	Sets the Auto Scan interval to **n** seconds - where **n** is a number from 1 - 255.
	[A]	Invokes Auto Scan Mode. When Auto Scan Mode is in effect, [P] or Left Click pauses Auto Scanning. When Auto Scanning is paused, pressing Any Key or another Left Click resumes Auto Scanning.
	[←]	Invokes Skip Mode and skips from the current port to the first accessible port previous to it.
	[→]	Invokes Skip Mode and skips from the current port to the next accessible port.
	[↑]	Invokes Skip Mode and skips from the current port to the last accessible port of the previous Station.
	[↓]	Invokes Skip Mode and skips from the current port to the first accessible port of the next Station.
	[B]	Toggles the Beeper On or Off.

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Chapter 5
The Firmware Upgrade Utility

Introduction

The purpose of the Windows-based Firmware Upgrade Utility (FWUpgrade.exe) is to provide an automated process for make upgrading the KVM switch's firmware as smooth and painless as possible.

The Utility comes as part of a Firmware Upgrade Package that is specific for each device. As new firmware revisions become available, new firmware upgrade packages are posted on our web site:

```
http://www.altusen.com/support
```

Check the web site regularly to find the latest packages and information relating to them.

Before You Begin

To prepare for the firmware upgrade, do the following:

1. From a computer that is not part of your KVM installation go to our Internet support site and choose the model name that relates to your device to get a list of available Firmware Upgrade Packages.

2. Choose the Firmware Upgrade Package you want to install (usually the most recent), and download it to your computer.

3. Use the *Firmware Upgrade Cable* (provided with this unit), to connect a COM port on your computer to the *Firmware Upgrade Port* of your device.
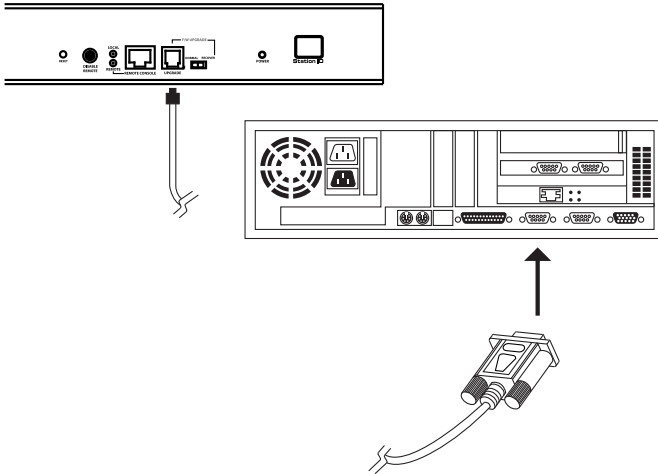
> **Note:** On a daisy chained installation, connect the cable to the First Station (Master) unit. The chained stations (Slaves) will receive the upgrade via the daisy chain cables.

4. Shut down all of the computers - but not the Stations - on your KVM installation.

5. From your KVM switch console, bring up the OSD (see p. 19) and select the **F4ADM** function.

6. Scroll down to *FIRMWARE UPGRADE*. Press [Enter], then press [Y] to invoke Firmware Upgrade Mode. (See *FIRMWARE UPGRADE*, page 29.) For your reference, the current firmware upgrade version displays on the screen.

Performing the Upgrade

Starting the Upgrade

To upgrade your firmware:

1. Run the downloaded Firmware Upgrade Package file - either by double clicking the file icon, or by opening a command line and keying in the full path to it.

    The Firmware Upgrade Utility *Welcome* screen appears:
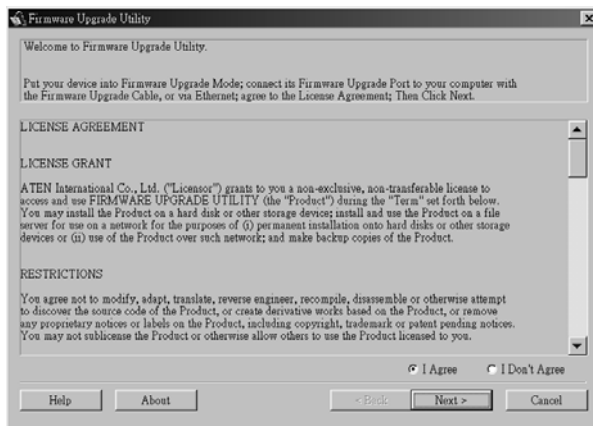
2. Read and *Agree* to the License Agreement (enable the I Agree radio button).

3. Click Next to continue. The Firmware Upgrade Utility main screen appears:
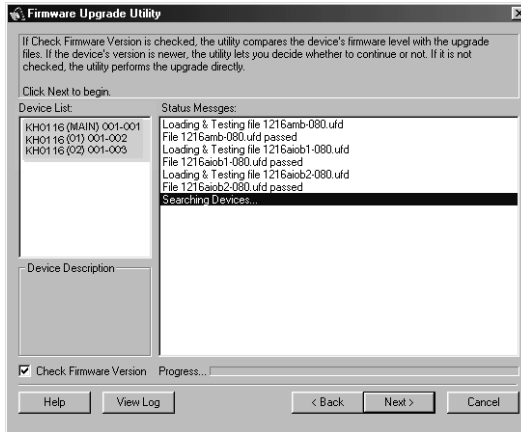
The Utility inspects your installation. All the devices capable of being upgraded by the package are listed in the *Device List* panel.

4. If the utility detects more than one Master Device (the First Stage unit of a daisy chained installation), a dialog box appears asking you to select one of the Master devices (and all the Slave devices that are chained down from it) that you want to receive the upgrade.
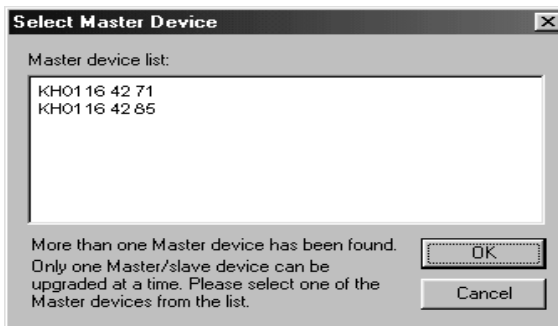
Select one of the Maser devices, then Click **OK**.

5. As you select devices, a detailed description of each appears in the *Device Description* panel.

6. After you have made your selection(s), Click **Next** to perform the upgrade.

   If you enabled *Check Firmware Version*, the Utility compares the device's firmware level with that of the upgrade files. If it finds that the device's version is higher than the upgrade version, it brings up a dialog box informing you of the situation and gives you the option to Continue or Cancel

   If you didn't enable *Check Firmware Version*, the Utility installs the upgrade files without checking whether they are a higher level, or not.

   As the Upgrade proceeds status messages appear in the Status Messages panel, and the progress toward completion is shown on the *Progress* bar.

7. To abort the upgrade procedure before it completes, click **Cancel**.

   If you cancel before completion, a dialog box appears warning you that quitting at this point may cause the device's firmware to be lost, and you are given the option to proceed or abort the cancel operation.

   Note: To recover from a "lost firmware" situation, see*Firmware Upgrade Recovery*, page 48.

Upgrade Succeeded

After the upgrade has completed, a screen appears to inform you that the procedure was successful:
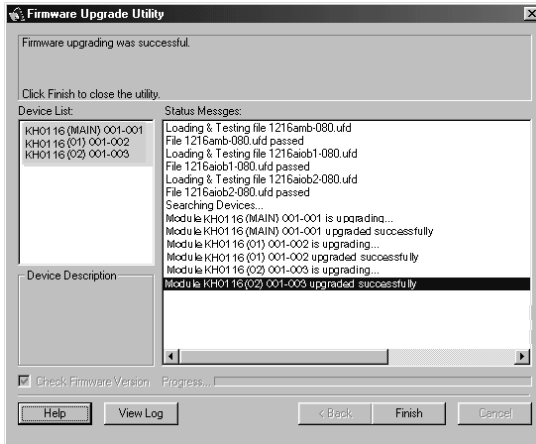
Click **Finish** to close the Firmware Upgrade Utility.

Upgrade Failed

If the upgrade failed to complete successfully a dialog box appears asking if you want to retry. Click **Yes** to retry. If you Click **No**, the *Upgrade Failed* screen appears:
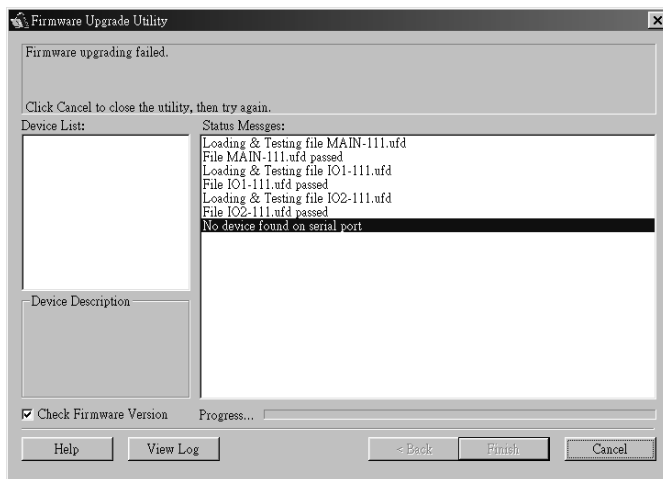
Click **Cancel** to close the Firmware Upgrade Utility. See the next section, *Firmware Upgrade Recovery*, for how to proceed.

Firmware Upgrade Recovery

There are basically three conditions that call for firmware upgrade recovery:

◆ When you invoke Firmware Upgrade Mode (see p. 29), but decide not to proceed with the upgrade.

◆ When the Mainboard firmware upgrade fails.

◆ When the I/O firmware upgrade fails.

To perform a firmware upgrade recovery, do the following:

1. Slide the *Firmware Upgrade Recovery Switch* (see p. 6) to the **Recover** position.

2. Power off and restart the switch according to the instructions given in the *Powering Off and Restarting* section (p. 18).

3. Slide the *Firmware Upgrade Recovery Switch* back to the **Normal** position.

4. Repeat Step 2.

Note: If one of the child units fails to upgrade successfully, unchain it from the installation and perform the recovery and upgrade operation on it independently. After it has been successfully upgraded, plug it back into the chain

Appendix

KH0116 Connection Table

The following table indicates the relationship between the number of KH0116 units and the number of computers that they control:

1	1 - 16	9	129 - 144	17	257 - 272	25	385 - 400
2	17 - 32	10	145 - 160	18	273 - 288	26	401 - 416
3	33 - 48	11	161 - 176	19	289 - 304	27	417 - 432
4	49 - 64	12	177 - 192	20	305 - 320	28	433 - 448
5	65 - 80	13	193 - 208	21	321 - 336	29	449 - 464
6	81 - 96	14	209 - 224	22	337 - 352	30	465 - 480
7	97- 112	15	225 - 240	23	353 - 368	31	481 - 496
8	113 - 128	16	241 - 256	24	369 - 384	32	497 - 512

OSD Factory Default Settings

Setting	Default
OSD Hotkey	[Scroll Lock] [Scroll Lock]
Port ID Display Position	Upper Right Corner
Port ID Display Duration	3 Seconds
Port ID Display Mode	The Port Number plus the Port Name
Scan Duration	5 Seconds
Scan/Skip Mode	All
Screen Blanker	0 (Disabled)
Logout Timeout	0 (Disabled)
Beeper	Y (Activated)
Accessible Ports	F (Full) For all Users on all Ports

Specifications

Function		Specification
Connectors	Console VGA	1 x HDB-15 F
	Console K/M	2 x 6 pin mini DIN F (KB - Gr; M - Pur)
	Computer Ports	16 x SPDB-15 F
	Daisy Chain	1 x DB-25 F; 1 x DB-25 M
	Remote Con.	1 x RJ-45
	FW Upgrade	1 x RJ-11
	Power	3 pin AC power jack
Switches	Power	1 x Rocker switch
	FW Recover	1 x Slide switch
	Reset	1 x Semi-recessed pushbutton
	Remote Con.	1 x Locking pushbutton
LEDs	On Line	16 (Green)
	Selected	16 (Amber)
	Power	1 (Blue)
	Station ID	2 x 7 Segments
Power Consumption		DC 9V; 8W (max.)
Emulation	Keyboard	PS/2
	Mouse	PS/2
Scan Interval		User Specified: 1 - 255 secs.
Video		2304 x 1440; DDC2B
Environment		Operating Temperature: 0 - 50° C
		Storage Temperature: -20 - 60° C
		Humidity: 0 - 80% RH
Physical Properties	Housing	Metal
	Weight	??? Kg
	L x W x H	483 x 210 x 45 mm (19" 1U)

Administrator Login Failure

If you are unable to perform an Administrator login (because the Username and Password information has become corrupted or you have forgotten it, for example) you can clear the login information with the following procedure:

1. Power off the KH0116 and remove its housing.

2. Short the jumper labeled **J12**.
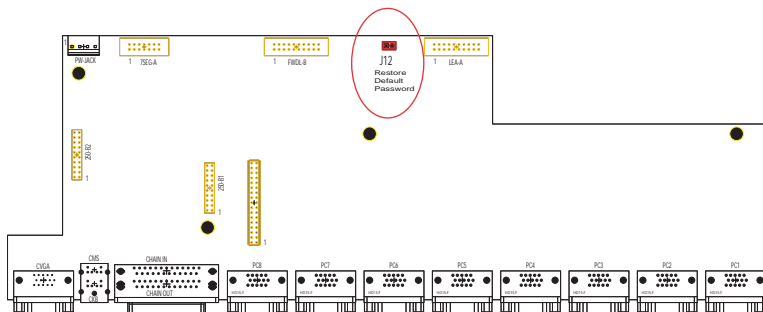
3. Power on the switch.

   The on screen display will show a message informing you that the password information has been cleared.

4. Power off the switch.

5. Remove the jumper cap from **J12**.

6. Close the housing and start the KH0116 back up.

After you start back up, you can use the default Username and Password (see *OSD Overview*, p. 33) to log in.

Troubleshooting

Symptom	Possible Cause	Action
Mouse and/or Keyboard not responding.	Improper mouse and/or keyboard reset.	Unplug the cable(s) from the console port(s), then plug it/them back in.
All Station IDs display as 01.	Station 1 has suddenly lost power.	Wait a few seconds for the system to reinitialize the station sequence and display the proper IDs.

Limited Warranty

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