Extron® Electronics
INTERFACING, SWITCHING AND CONTROL

User's Manual

PRELIMINARY

Annotator

Annotation Graphics Processor

68-1661-01
Rev. Ax2
09 09

Precautions

Safety Instructions • English

This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Consignes de Sécurité • Français

Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).

Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions• Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conserver les instructions• Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Eviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Sicherheitsanleitungen • Deutsch

Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits-und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Instrucciones de seguridad • Español

Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.

Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaucion

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean especificamente recomendados por el fabricante, ya que podrian implicar riesgos.

安全须知 • 中文

这个符号提示用户该设备用户手册中有重要的操作和维护说明。

这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解所有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Avertissement

Alimentations• Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

Déconnexion de l'alimentation• Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il a danger d'explosion s'll y a remplacment incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un ype equivalent recommande par le constructeur. Mettre au reut les batteries usagees conformement aux instructions du fabricant.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdanschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stomversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegengestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

Schlitze und Öffnungen • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Litium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearia ni eliminaria.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalientamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

警告

电源 • 该设备只能使用产品上标明的电源。 设备必须使用有地线的供电系统供电。 第三条线（地线）是安全设施，不能不用或跳过 。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。

电源线保护 • 妥善布线， 避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。 设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。 不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。必须使用与厂家推荐的相同或相近型号的电池。按照生产厂的建议处理废弃电池。

PRELIMINARY

声明

所使用电源为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

FCC Class A Notice

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. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The Class A 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.

NOTE *This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance with FCC emissions limits.*

For more information on safety guidelines, regulatory compliances, EMI/EMF compliance, accessibility, and related topics, click here.

Table of Contents

Table of Contents, cont'd

Table of Contents, cont'd

Chapter One

PRELIMINARY

Introduction

About this Manual

About the Annotator

Definitions

Features

Introduction

About this Manual

This manual contains installation, configuration, and operating information for the Extron Annotator. It covers configuring and operating the device using the front panel controls and Simple Instruction Set (SIS™) commands, and how to annotate the displayed image. It also describes how to load and start up the Windows®-based Signal Processing Products Control Program (SPPCP) and how to connect to the built-in HTML pages, for operating the processor.

About the Annotator

The Extron Annotator, Annotation Graphics Processor, is a scaling product that allows a presenter to draw, point, or type on video or computer source outputs using a touch panel, mouse, or keyboard.

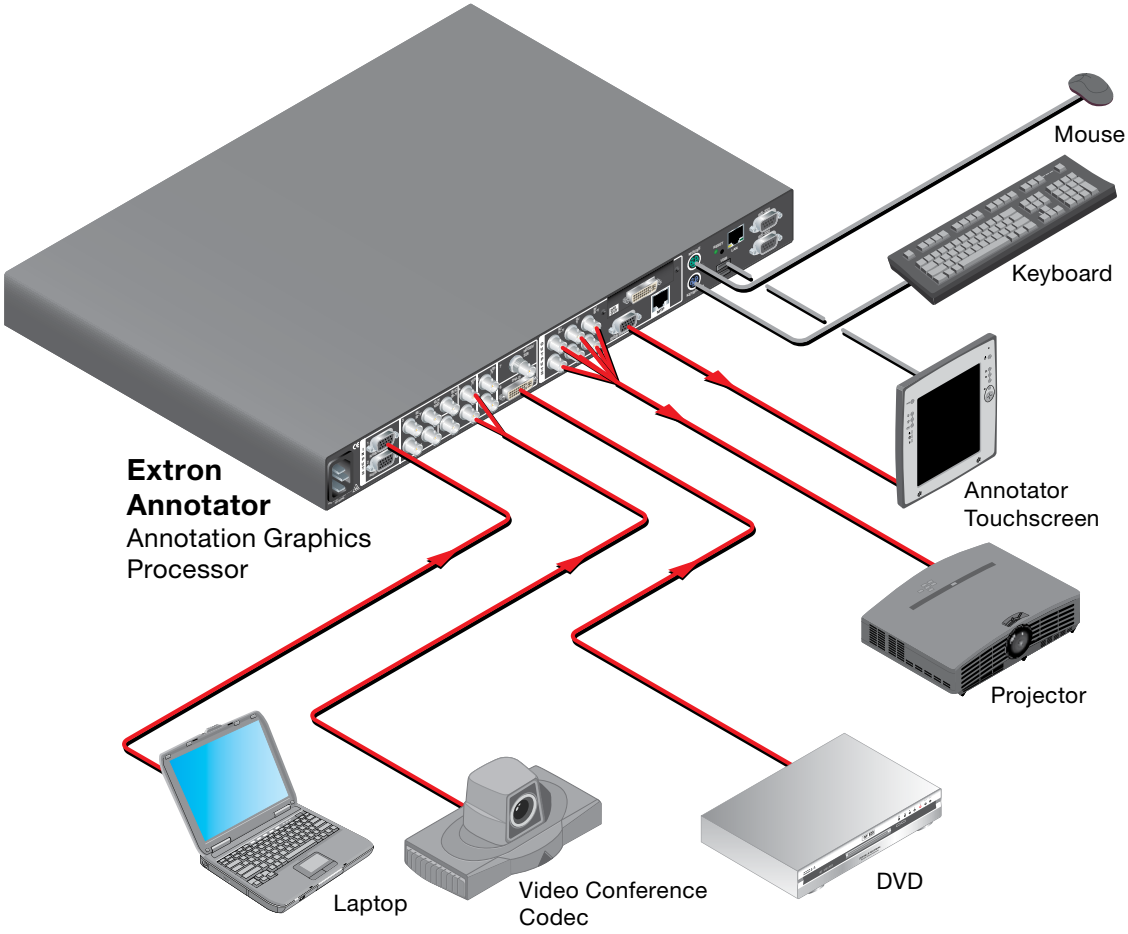


Figure 1-1 — Typical Annotator application

Definitions

The following terms are used throughout this manual:

EDID — Extended Display Identification Data. A communications protocol or instruction set developed by VESA (Video Electronics Standards Association) for the identification of display devices to computers using the DDC (Display Data Channel) transmission standard.

DVI — Digital Visual Interface. The digital video connectivity standard that was developed by DDWG (Digital Display Working Group). This connection standard offers two different connectors: one with 24 pins that handles digital video signals only, and one with 29 pins that handles both digital and analog video. This standard uses TDMS (Transition Minimized Differential Signal) from Silicon Image and DDC (Display Data Channel) from VESA (Video Electronics Standards Association). DVI-D is a DVI connector that supports digital signals only, and DVI-I supports both digital and analog signals.

SDI — Serial Digital Interface. The standard based on a 270 Mbps transfer rate. This is a 10-bit, scrambled, polarity independent interface with common scrambling for both component ITU-R 601 and composite digital video and four channels of embedded digital audio.

HD-SDI — High-definition version of SDI specified in SMPTE 292M. This standard transmits audio and video over a single coaxial cable with a data rate of 1.485 Gbit/second.

Preset — A configuration that has been stored, allowing the setup and recall of recurring I/O configurations using either the front panel, RS-232/422, or Ethernet control.

Input: Up to 128 input presets (individual I/O configurations) may be saved and recalled. An input preset is a user-defined set of input and picture control settings that can be saved for each source within a system so that they can be recalled whenever the source is active. Input presets can be recalled on any input that supports the saved input's video format. This type of preset saves specific settings for size, centering, contrast, brightness, detail, zoom, and input configuration. Unlike user presets, input presets save parameters that can be recalled only on the source that was active when the preset was saved.

User: Up to 16 user presets per input are available. A user preset saves specific settings for color, brightness, detail, size, and centering. User presets are used when a shortcut is needed to quickly recall a group of settings that relate to the current content or current input. Each input has it's own set of 16 user presets.

Auto Memory — The automatic saving and recall of input and picture controls for signals that have been previously applied.

Features

Real time annotations over high resolution PC and video graphics — This allows a presenter to draw, point, or add text in real time over live video and computer-video presentations.

Inputs: Two RGB or HD component video on 15-pin HD connectors; configurable input on BNCs for RGB, HD component video, S-video, or composite video; component video, S-video, or composite video on BNCs; S-video or composite video on BNCs; DVI-D; and optional SDI/HD-SDI.

Outputs: Simultaneous scaled outputs as RGB or HD component video on BNCs, 15-pin HD, and Extron MTP twisted pair output; optional fourth output for DVI-D, HD-SDI, or scan-converted component video, S-video, or composite video.

Configurable Preview and Program outputs — The outputs can be configured as separate Preview and Program outputs. The Preview output allows a presenter or system operator to view the annotation GUI, while the audience sees the video and annotation through the Program outputs. This can also be used by the system operator to preview annotations before making them live.

Hardware-based graphics and video processing — The Annotator features a fully hardware-based system architecture designed to deliver the performance and operational reliability essential for mission-critical applications.

Intuitive graphical user interface — A user friendly on-screen display enables quick and easy annotation. Essential annotation tools are available for drawing freehand or straight lines, adding rectangular or elliptical shapes, typing in text, highlighting an area of an image, and pointing to an object on-screen. Customizing options are available for text and graphics including point size and color.

Integrated seven-input presentation switcher — The Annotator allows for switching between DVI, RGBHV, component video, and S-video or composite video sources. An input for SDI/HD-SDI is available as an option.

Auto input format detection — Each input can be set to detect the incoming signal format, automatically reconfiguring itself to provide the appropriate decoding and signal processing. This feature can reduce the number of required outputs for a device, lowering system cost while improving manageability.

RGB, HDTV, and video scaling — RGB computer-video, high definition video, and standard definition video sources can be scaled to the desired output resolution.

RGB upscaling and downscaling — The Annotator features an advanced scaling engine with high quality upscaling and downscaling of high resolution computer-video signals.

Compatibility with popular touchscreen displays — The Annotator supports touchscreen displays from third-party manufacturers and also can be used with a standard keyboard and mouse.

Optional SDI/HD-SDI input — SDI or HD-SDI signals from cameras or other professional video equipment can easily be integrated into presentations with the optional SDI/HD-SDI input board.

Four simultaneous annotated video outputs — Two high resolution RGB or component video outputs are available, as well as Extron MTP twisted pair and an optional output that can be configured as DVI, HD-SDI, or scan-converted video.

Extron MTP twisted pair output — This provides built-in transmission of RGB or component video signals over twisted pair cables for long distance transmission to a remote display. A compatible Extron MTP Series twisted pair receiver is required.

Optional DVI, HD-SDI, or scan-converted output — A flexible output expansion port which can be populated to support optional DVI, HD-SDI, or scan converter output boards. These boards serve as a third Program output and offer additional system capabilities, such as recording or digital signal transmission.

Output rates — A total of 81 output rates are available, including computer-video rates up to 1920x1200, and HDTV rates up to 1080p/60 Hz.

Image freeze control — A live image can be frozen using the annotation GUI, the freeze button on the front panel, or through RS-232 serial control and IP Link® Ethernet control.

Image capture — A snapshot of the live video output, including annotations, can be captured and stored as a BMP file on the Annotator or downloaded to a PC for archiving.

Auto-Image™ — Using the annotation GUI or the front panel, the sizing, centering, and filtering can be automatically adjusted to optimize the output image.

Auto Input Memory — When activated, the Annotator automatically stores size, position, and picture settings based on the incoming signal. When the same signal is detected again, these image settings are automatically recalled from memory.

EDID emulation — The Annotator provides a means for specifying the rate of the incoming DVI or VGA signal through the RS-232 serial port. EDID emulation allows proper communication with the video source.

Glitch-free switching — Switching is glitch-free between RGB and video inputs with selectable cut or fade to black transitions. Presentations can be enhanced by eliminating distracting visual jumps, glitches, and distortion commonly seen when switching between computer and video sources.

PIP - picture-in-picture — Allows a video source to be displayed within an RGB image, or vice versa, with dynamic, fully adjustable window positioning for the PIP window. PIP mode is available through RS-232 serial control or IP Link Ethernet control.

Picture controls for brightness, contrast, color, tint, detail, and horizontal and vertical positioning, sizing, and zoom. Sixteen memory presets are available for each input to store all image settings.

Aspect ratio conversion — Any video input can be adjusted horizontally and vertically to meet a specific aspect ratio requirement. Alternatively, the input aspect ratio may be specified as 4:3 or 16:9 and fixed.

Front panel security lockout — This locks out all front panel functions except for input selection; all functions however, are available through RS-232 control.

Automatic 3:2 and 2:2 pulldown detection — Advanced film mode processing techniques help maximize image detail and sharpness for NTSC, PAL, and HDTV 1080i sources that originated from film.

Motion adaptive 1080i to 1080p deinterlacing — High performance deinterlacing for 1080i signals from HD sources including broadcasts and Blu-ray Disc™, allows optimized image quality through advanced motion compensation.

Quad standard video decoding — This uses a digital, four-line adaptive comb filter to decode NTSC 3.58, NTSC 4.43, PAL, and SECAM video for integration into systems worldwide.

IP Link Ethernet monitoring and control — An IP integration technology developed by Extron. IP Link enables the Annotator to be controlled and proactively monitored over a LAN, WAN, or the Internet.

RS-232 serial control port — Using serial commands, the Annotator can be controlled and configured via the Extron Windows-based control program (SPPCP), or integrated into third-party control systems. Extron products use the SIS (Simple Instruction Set) command protocol, a set of basic ASCII code commands that allow for quick and easy programming.

Rack-mountable 1U, full rack width, metal enclosure

Internal universal power supply — The 100-240 VAC, 50-60 Hz, international power supply provides worldwide power compatibility.

Chapter Two

PRELIMINARY

Installation

U/L Safety Requirements

Mounting the Annotator

Rear Panel Features and Connections

Powering Up

Resetting the Unit with the Reset Button

Installation

UL/Safety Requirements

The Underwriters Laboratories (UL) requirements listed below pertain to the safe installation and operation of this Annotation Graphics Processor.

Important safety instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Mounting the Annotator

If the Annotator is to be rack mounted, it is important to mount it before cabling it. Four rubber feet are included with the unit. Install the feet only if the unit is to be mounted on a table top (see "Tabletop placement" below).

Tabletop placement

For tabletop placement, install the self-adhesive rubber feet/pads (provided) onto the four corners of the bottom of the device.

UL guidelines for rack mounted devices

The following Underwriters Laboratories (UL) guidelines pertain to the safe installation of the Annotator in a rack.

1. **Elevated operating ambient temperature** — If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, install the device in an environment compatible with the maximum ambient temperature (Tma = +122 °F, +50 °C) specified by Extron.
2. **Reduced air flow** — Install the equipment in a rack so that the amount of air flow required for safe operation of the equipment is not compromised.
3. **Mechanical loading** — Mount the equipment in the rack so that a hazardous condition is not achieved due to uneven mechanical loading.
4. **Circuit overloading** — Connect the equipment to the supply circuit and consider the effect that circuit overloading might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
5. **Reliable earthing (grounding)** — Maintain reliable grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

Rack mounting

To rack mount the Annotator, insert screws under each opposite corner of the unit and secure it to the the rack (see figure 2-1).

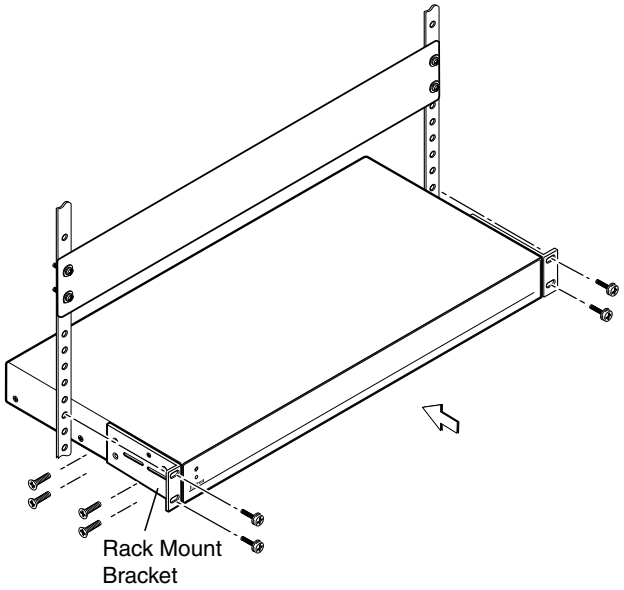


Figure 2-1 — Mounting the Annotator

Rear Panel Features and Connections

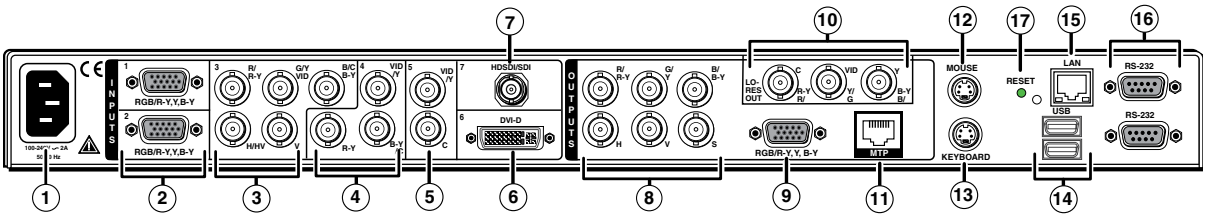


Figure 2-2 — Annotator rear panel features

① AC power connector
② RGB/HD VGA connectors (inputs 1 and 2)
③ Universal connectors (input 3)
④ Component/S-video/composite BNC connectors (input 4)
⑤ S-video/composite BNC connectors (input 5)
⑥ DVI connector (input 6)
⑦ (Optional) HD-SDI connector (input 7)
⑧ RGB/HD YUV BNC ouput connectors
⑨ RGB/HD VGA output connector
⑩ (Optional) output card (scan converter shown)
⑪ MTP twisted pair output connector
⑫ PS/2 mouse port
⑬ PS/2 keyboard port
⑭ USB A ports
⑮ RJ-45 Ethernet LAN connector
⑯ 9-pin RS-232 connectors
⑰ Reset button and LED

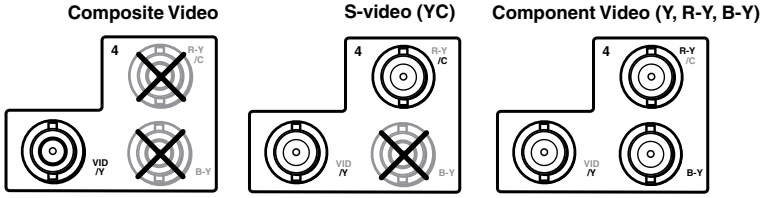
Power and video input connections

① **AC power connector —** After connecting all input and output cables, plug a standard IEC power cord from a 100 to 240 VAC, 50 Hz to 60 Hz power source into this receptacle.

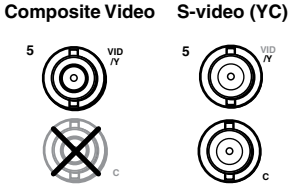
② **RGB/HD VGA connectors (inputs 1 and 2) —** Connect high resolution computer-video input signals to either of the two 15-pin HD connectors.

③ **Universal connectors (input 3) —** Connect high resolution computer-video input signals to this group of female BNC connectors.

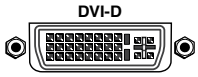
④ **Composite/S-video/component BNC connectors (input 4) —** Connect composite video, S-video, and component video signals. Connect cables as shown below.



⑤ **S-video/composite video BNC connectors (input 5) —** Connect S-video or composite video input signals to this pair of female BNC connectors. Connect cables as shown below.



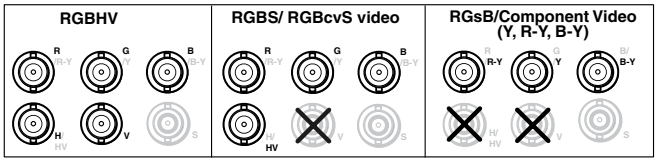
⑥ **DVI-D connector (input 6) —** Connect a high resolution input signal to this DVI-D connector.



⑦ **Optional input board (HD-SDI with BNC's shown) connector (input 7) —** Connect an appropriate input to the optional board connector.

Output, user interface, and control connections

⑧ **RGB/HD YUV BNC connectors —** Connect a display to these for RGB, or HD YUV component output.



⑨ **RGB/HD 15-pin VGA connector —** Connect a display to this for RGB or HD component video output.

⑩ **Optional output card (scan converter with BNC connectors shown) —** Connect a display to this for composite, S-video, or component video output.

⑪ **MTP output —** Connect a mini twisted pair receiver to this port

⑫ **PS/2 mouse port —** Connect a PS/2 mouse to this port for annotation use.

⑬ **Keyboard port —** Connect a Microsoft® compatible keyboard to this port for annotation use.

⑭ **USB A ports —** Connect up to two touch panel devices (or a USB mouse and keyboard) to these ports.

⑮ **LAN Ethernet port —** Connect the Annotator to an Ethernet LAN or WAN via this RJ-45 connector. Ethernet control allows the operator to control the processor from a remote location. When connected to an Ethernet LAN or WAN, the device can be accessed and operated from a computer running a standard Internet browser. The Link LED lights green when the Annotator is connected to an Ethernet LAN, and the Act LED flickers amber, indicating data transmission as the devices communicate.

NOTE *Do not use standard telephone cables, as they do not support Ethernet or Fast Ethernet. See Appendix B for correct cabling.*

Do not stretch or bend cables. Transmission errors can occur.

NOTE *See chapter 5, "SIS Programmer's Guide", for definitions of the SIS commands and chapter 6, "Annotator Software" to install and use the control software.*

⑯ **Remote (RS-232) 9-pin ports** — These connectors provides for two-way RS-232 communication. See chapters 5 and 6 for information on how to install and use the control software and SIS commands.

The default protocol is 9600 baud, 1 stop bit, no parity, and no flow control.

⑰ **Ethernet connection indicators** — The LEDs marked "Link" and "Act" indicate the status of the Ethernet connection.

Installation and cabling

Step 1 — Mount the unit

Turn off or disconnect all equipment power sources and rack mount the Annotator. See page 2-3.

Step 2 — Connect inputs

Connect inputs from video and/or audio sources to the applicable connectors marked "Inputs" (see page 2-4, ② to ⑦ for connector types).

NOTE *See Appendix B for input and output cabling and connector details.*

Step 3 — Connect outputs

Connect audio and video output devices to the applicable I/O board connectors marked "Outputs" (see page 2-4, ⑧ to ⑪ for connector types).

Step 4 — Connect user interface devices

PS2 mouse and keyboard ports — Connect a mouse and/or a keyboard for annotation use.

Step 5 — Connect touch panel devices

USB A ports — Connect a touch panel device as desired.

Step 6 — Connect control devices

LAN Ethernet port — Connect to an Ethernet LAN or WAN via this RJ-45 connector ⑮ to control the processor from a remote location, using a PC's Internet browser. See Appendix B for network cable termination method. Ethernet connection indicator LEDs marked indicate the status of the Ethernet connection. The green LED lights when connected to an Ethernet LAN, and the amber LED flickers as the devices communicate.

NOTE *Do not use standard telephone cables, as they do not support Ethernet or Fast Ethernet. Do not stretch or bend cables as transmission errors could occur.*

Remote ports — For serial RS-232 or RS-422 control, connect a host computer or control system via the 9-pin D connector ⑯. RS-232 protocol (default values): • 9600 baud • 1 stop bit • no parity • 8 data bits • no flow control.

NOTE *See chapter 5, "SIS Programmer's Guide" for definitions of the SIS commands. See chapter 6, "Annotator Software" to install and use the control software.*

Step 7 — Connect power

AC power connector — Plug in a standard IEC power cord from a 100 to 240 VAC, 50 - 60 Hz power source into this receptacle ①.

Powering Up

When applying power to the Annotator, the unit undergoes a start-up self testing sequence (see image below) and then the LCD displays the default display cycle.

Default display cycle

When in use but not in any menu mode, the LCD screen defaults to cycling through the input/output configuration currently installed. The displayed content may vary, depending on the input video signal type. See figure 2-3 for a typical default display cycle.

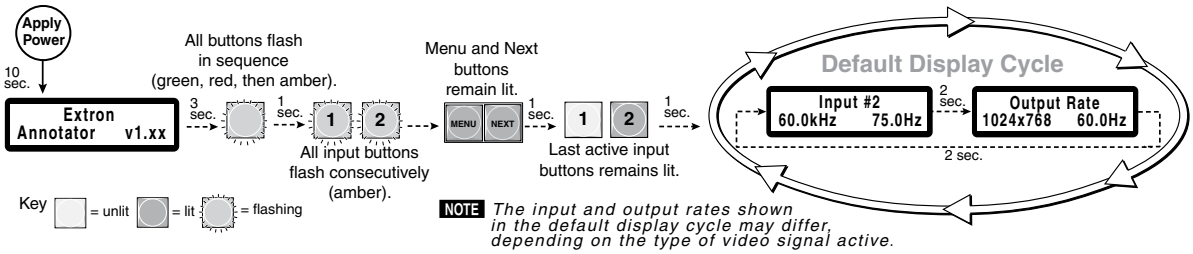


Figure 2-3 — Typical Default Cycle

The default display cycle shows the output rate and the refresh rates for the currently selected input.

Resetting the Unit with the Reset Button

There are four reset modes (numbered 1, 3, 4, and 5 for the sake of comparison with Extron IPL products) that you can access by pressing the Reset button on the rear panel. The Reset button is recessed, so use a pointed stylus, ballpoint pen, or Extron Tweeker to press it. See the table on the next page for a summary of the reset modes.

CAUTION *Review the reset modes carefully. Using the wrong reset mode may result in unintended loss of flash memory programming, port reassignment, or processor reboot.*

NOTE *The reset modes listed in the table close all open IP and Telnet connections and close all sockets. Also, each mode is a separate function, not a continuation from mode 1 to mode 5.*

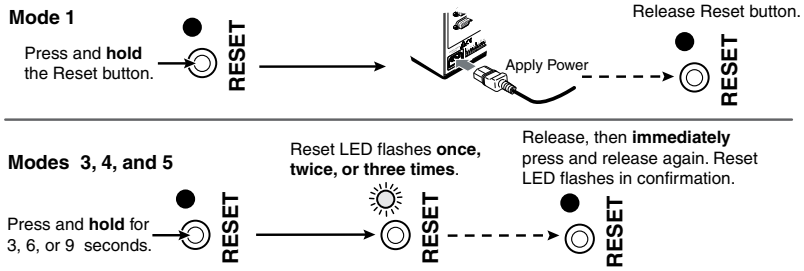


Figure 2-4 — Resetting the Annotator

PRELIMINARY

NOTE *After a mode 1 reset is performed, update the Annotators's firmware to the latest version. Do not operate the firmware version that results from the mode 1 reset. If you want to use the factory default firmware, you must upload that version again.*

If you do not want to update firmware, or you performed a mode 1 reset by mistake, cycle power to the device to return to the firmware version that was running before the mode 1 reset. Use the 0Q SIS command to confirm that the factory default firmware is no longer running (look for the asterisk [*] following the version number).

Reset Mode Comparison Summary

Mode	Activation	Result	Notes
1	Hold down the recessed Reset button while applying power to the unit.	Mode 1 causes the unit to revert to the factory default firmware. Event scripting does not start if the unit is powered on in this mode. All user files and settings (drivers, audio adjustments, IP settings, etc.) are maintained.	Use mode 1 to remove a version of firmware if incompatibility issues arise.
3	Hold down the Reset button for about 3 seconds, until the Reset LED blinks once. Then, within 1 second, press Reset again briefly (for less than 1 second).	Mode 3 turns events on or off. During resetting, the Reset LED flashes 2 times if events are starting; 3 times if events are stopping.	Events must be turned on if you want to change IP settings or scheduling.
4	Hold down the Reset button for about 6 seconds, until the Reset LED has blinked twice (once at 3 seconds, once at 6 seconds). Then, within 1 second, press Reset briefly (for less than 1 second).	Mode 4 does the following: • Enables ARP capability. • Sets the IP address back to factory default. • Sets the subnet back to factory default. • Sets the default gateway address back to the factory default. • Sets port mapping back to factory default. • Turns DHCP off. • Turns all events off. The Reset LED flashes 4 times in quick succession during reset.	Mode 4 enables you to set IP address information using ARP and the MAC address.
5	Hold down the Reset button for about 9 seconds, until the Reset LED has blinked three times (once at 3 seconds, once at 6 sec., once at 9 seconds). Then, within 1 second, press Reset briefly (for less than 1 second).	Mode 5 performs a complete reset to factory defaults (except the firmware). • Does everything mode 4 does. • Resets everything that was set via the Real Time Adjustments part of the control program: all video settings and miscellaneous options. • Resets all IP options. • Removes/clears all files from the processor. The Reset LED flashes 4 times in quick succession during the reset.	Mode 5 is useful if you want to start over with control software configuration and uploading, and to replace events.

3

Chapter Three

PRELIMINARY

Front Panel Operation

Front Panel Overview

Switching Inputs

Button Backlighting

The Annotator Menu System

Setting the Front Panel Locks (Executive Modes)

Setting up the Annotator to Work with a Matrix Switcher

Front Panel Operation

Front Panel Overview

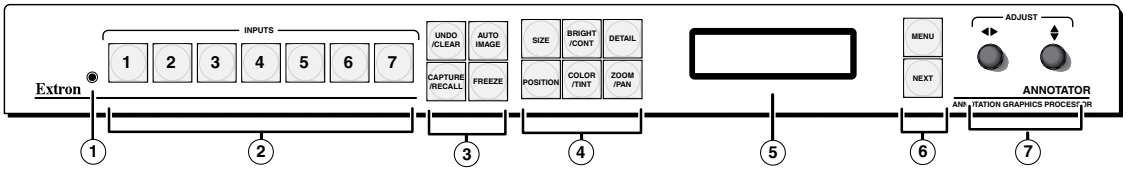
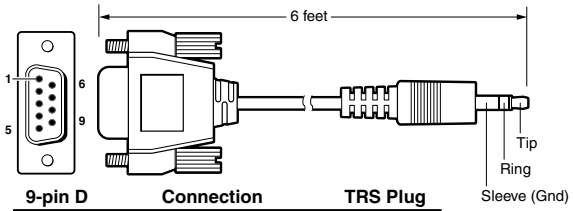


Figure 3-1 — Front panel features

① **Front panel configuration port —** Connect a control system or computer to this (RS-232) port, using an optional 9-pin D to 2.5 mm mini jack TRS RS-232 cable, part **70-335-01** (see below). RS-232 protocol (default values):
• 9600 baud • 1 stop bit • no parity • 8 data bits • no flow control



9-pin D	Connection	TRS Plug
Pin 2	Computer's RX line	Tip
Pin 3	Computer's TX line	Ring
Pin 5	Computer's signal ground	Sleeve

Figure 3-2 — Front 2.5 mm port configuration cable, part 70-335-01

② **Input selection buttons —** Select/switch inputs and indicate which input is active.

③ **Special function buttons —** These four buttons are:

- Undo/Clear — Allows a reversal of up to seven of the last annotation points or clears selected annotations.

NOTE *See chapter 4 for an overview of image annotation.*

- Auto Image— Allows auto image adjustment on the selected input.
- Capture/Recall — Allows the capture and saving of the current image, or the recall of a saved image.
- Freeze — Allows the current displayed image to be frozen or unfrozen as desired.

④ **Picture control buttons —** These six buttons are:

- Size — Allows adjustment to the displayed image size.
- Bright/Cont — Allows adjustment of the brightness and contrast settings for the displayed image.
- Detail — Allows adjustment of the detail (sharpness) settings for the displayed image.
- Position — Allows horizontal and/or vertical position adjustment of the displayed image.
- Color/Tint — Allows adjustment of the color and tint settings for the displayed image.
- Zoom/Pan — Allows displayed image to be zoomed in or out, or panned horizontally and/or vertically.

NOTE *The above adjustments are made using either or both Adjust knobs.*

⑤ **LCD display —** This LCD screen displays two rows of menu, control response, and configuration text.

⑥ **Menu navigation buttons —** These two buttons give access to menu commands. See "The Annotator Menu System" section in this chapter.

Menu button — This button, always lit amber, gives direct access to a series of five menus.

Next button — This button, always lit amber, allows page changes within each one of the menus, and to exit the menu cycle.

⑦ **Adjust knobs —** These two knobs are used with the picture control buttons and the menu navigation buttons to adjust settings.

Switching Inputs

To switch inputs, simply press the desired input button. The button lights amber with an active video signal. If the output is configured correctly for the display device, the image changes to the new input. An inactive signal gives no image.

Button Backlighting

The buttons can be backlit a dimmed amber.

To turn the backlighting on or off, press and hold the Bright/Cont and Color/Tint buttons simultaneously until the buttons become lit or unlit.

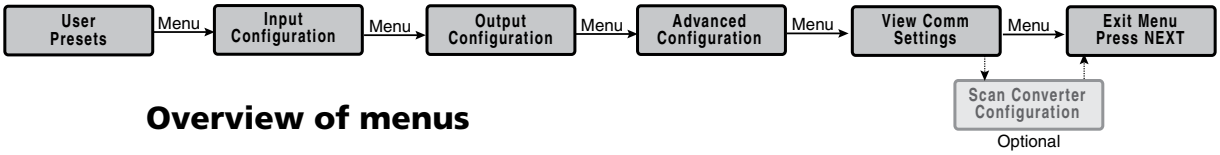
Front Panel Operation

The Annotator Menu System

The Annotator can be configured using the menu system, via the Extron Simple Instruction Set (SIS™) of commands through an RS-232 or LAN connected PC, or via the Extron software program, SPPCP.

NOTE *For SIS commands and SPPCP configuration methods see chapters 5 and 6.*

The Annotator has six front panel configuration menus: User Presets, Input Configuration, Output Configuration, Advanced Configuration, View Comm Settings. A hidden menu (Edit Comm Settings) is also accessible. If the optional Scan Converter board is installed a scan converter configuration menu becomes available.



Overview of menus

User Presets

This menu allows the user to save the current image settings to a preset number (1-16), and recall any saved preset to become the current image settings. Each input has sixteen user selectable presets.

Input Configuration

This menu allows configuration of the following setting for any selected input:

Input type, Film detection, vertical and horizontal start points, pixel phase, the number of total and active pixels and the number of active lines, DVI input and EDID rate (see EDID tables on page 3-6).

Output Configuration

This menu allows configuration of the following settings for the active output:

Resolution and Refresh rate (see table on page 3-6), Output Type, and Sync Polarity (where applicable).

Advanced Configuration

This menu allows advanced configuration of the following Annotator settings:

Auto Image, Auto Memories, Input EDID, RGB Delay, Switch Effect, Test Pattern, MTP Pre-Peaking, Internal Temp (view only), Calibrate Panels, and Reset to Factory defaults.

View Comm Settings

This menu allows the user to view the following serial and IP settings for the unit:

Serial port baud rate, MAC address, DHCP (Dynamic Host Configuration Protocol) setting, IP address, Subnet Mask address, and Gateway address

NOTE *These settings can not be edited from within this menu. See next section.*

Edit Comm Settings (hidden)

To display and enter this menu, press and hold the Detail and Color/Tint buttons simultaneously and then press Next. The hidden menu appears.

This menu allows the user to edit the following serial and IP settings:

Serial port baud rate, DHCP mode, IP address, subnet mask, and gateway address.

Exit Menu

At this menu pressing Next exits the Menu system and returns to the default cycle.

Scan Converter Configuration

This menu, displayed only when the optional scan-converter board is installed, allows the user to configure the settings for scan-converted outputs.

Using the menus

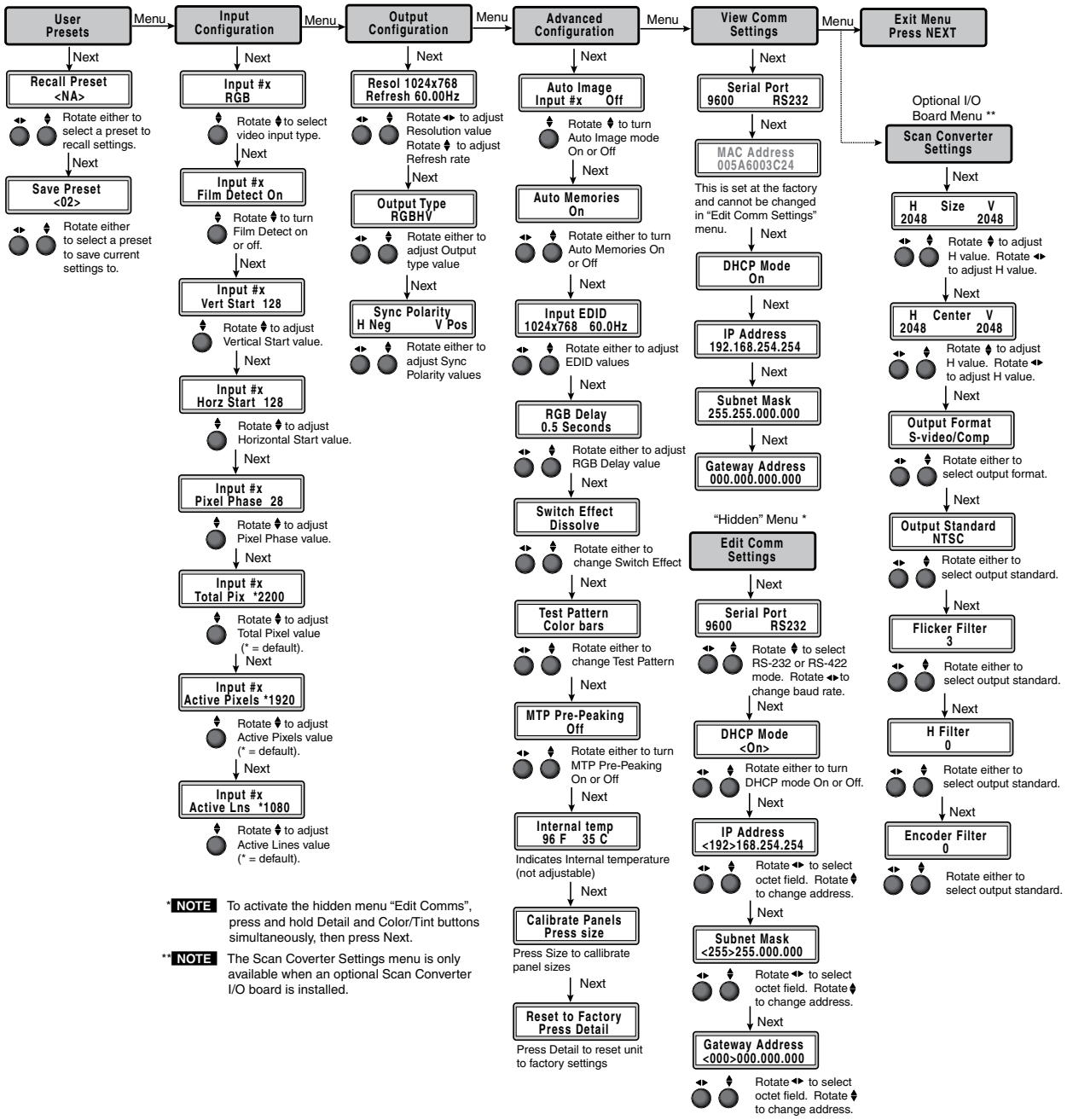
To configure the Annotator using any of the above menus, do the following:

1. Press the Menu button repeatedly to get to the desired configuration menu.
2. Press the Next button repeatedly to go to the desired submenu.
3. The LCD shows the current values. Observe the LCD and rotate either (or both) adjust knob to change the values as desired.

NOTE *Pressing the Menu button within any level takes the user back to the current top level menu.*

Whilst within any menu if for approximately 25 seconds no buttons are pressed or no adjust knobs rotated, the unit times out and returns to the default cycle.

For individual menu details see the following pages.



* **NOTE** To activate the hidden menu "Edit Comms", press and hold Detail and Color/Tint buttons simultaneously, then press Next.

** **NOTE** The Scan Converter Settings menu is only available when an optional Scan Converter I/O board is installed.

PRELIMINARY

User presets

Within this menu up to 16 presets can be saved or recalled.

Save a user preset

1. From the default display cycle press Menu to enter the User Presets submenu.
2. Press Next twice to go to the Save Preset menu.
3. Rotate either front panel encoder to select a preset (1 to 16) to save the current settings to. Default setting is <N/A>. Select <N/A> and press Next to move to the next submenu without saving.

Save Preset
<N/A>

4. Press Next to save the current image settings to the selected Preset number. The Preset is saved and the LCD goes back to the top level User Preset menu.

NOTE *If an existing Preset is chosen to save to, the previous settings are overwritten in favor of the new (current) settings.*

Recall a user preset

1. From the default display cycle press Menu to enter the User Presets submenu.
2. Press Next to go to the Recall Preset menu.
3. Rotate either front panel adjust knobs (◄►▲▼) to select a preset (1 to 16) to recall as the current settings. Default setting is N/A. Select <N/A> and press Next to move to the next submenu without recalling.

Recall Preset
<02>

4. Press the Next button. The Preset is recalled, the image changes to the recalled settings and the LCD goes back to the top level User Preset menu.

Input configuration

Within this menu any of the seven inputs can be configured. Each input has different settings depending on the signal format. Consult the tables below for signal formats per input and possible adjustments per signal format.

To configure inputs:

1. From the top level Input Configuration menu press the Next button to bring up the input selection screen. The active input is displayed on the LCD with current signal format.

Input #2
YUVp/HDTV

NOTE *If the input showing is not the one to be adjusted, press the desired input button.*

2. With the correct input displayed, rotate the right adjust knob (▲▼) to change the signal format (refer to table below for signal type per input).

Input #1	Input #2	Input #3	Input #4	Input #5	Input #6	Input #7
*RGB	*RGB	*RGB	*YUVi	*S-Video	*DVI	*SDI
YUVp/HDTV	YUVp/HDTV	YUVp/HDTV	S-Video	Composite		HD-SDI
Auto Detect	Auto Detect	RGBcvS	Composite	Auto Detect		Auto Detect
		YUVi	Auto Detect			
		S-Video				
		Composite				
		Auto Detect				

Figure 3-3 — Signal formats per input (*= default value)

3. Press the Next button to go to the next setting. If necessary repeat pressing Next until the desired level is attained. Refer to the table below for adjustable settings for each signal format.

Input Format	RGB	YUVp/ HDTV	RGBcvS	YUVi	S-vid	SDI	HD-SDI
Film Detect	X	X	X	X	X	X	X
H Start	X	X					
V Start	X	X					
Pahse	X	X					
Total Pixels	X	X					
Active Pixels	X	X	X	X	X	X	X
Active Lines	X	X	X	X	X	X	X

Figure 3-4 — Adjustments possible per signal format

4. At the desired setting (for example, Horizontal Start on input #2 with a YUVp/HDTV signal), rotate the right adjust knob (▲▼) to adjust the settings value as desired (here to 122).

Input #2
Horz Start 122

5. Repeat steps 3 and 4 for each setting as desired.
6. When complete press Menu once or Next repeatedly to return to the top level menu. Alternatively, allow to time out to return to the default cycle.

Output configuration

Within this menu an outputs resolution, refresh rate, output signal type, and sync polarity can be selected and adjusted. Refer to the table below for applicable resolution and refresh rates.

1. Press Next to bring up the Resolution submenu. In this submenu, the resolution and refresh rate can be adjusted.
2. Rotate the left front panel encoder (◄►) to adjust the resolution value, and rotate the right encoder (▲▼) to adjust the refresh rate.

NOTE *There are 25 pre-installed output resolutions (see table on next page) to choose from (640 x 480 at 50 Hz through 1080p and 2048x1080 at 60 Hz). The refresh rate is based on the resolution selected.*

See table on next page.

Resolution	23.98 Hz	24 Hz	25 Hz	29.97 Hz	30 Hz	50 Hz	59.94 Hz	*60 Hz	75 Hz
640x480						X		X	X
800x600						X		X	X
852x480						X		X	X
1024x768						X		X	X
1024x852						X		X	X
1024x1024						X		X	X
1280x768						X		X	X
1280x800						X		X	X
1280x1024						X		X	X
1360x765						X		X	X
1360x768						X		X	X
1365x768						X		X	X
1366x768						X		X	X
1365x1024						X		X	X
1440x900						X		X	X
1400x1050						X		X	
1680x1050						X		X	
1600x1200						X		X	
1920x1200						X		X	
480p							X	X	
576p						X			
720p		X	X	X	X	X	X	X	X
1080i						X	X	X	
1080p	X	X	X	X	X	X	X	X	X
2048x1080	X	X	X	X	X	X	X	X	X

Figure 3-5 — Output resolution/refresh rate table

3. Press Next to enter the next submenu, Output Type. Within this submenu the output signal type (RGBHV, RGsB, YUV Bi-Level, or YUV Tri-Level) can be selected.
4. Rotate either front panel adjust knob (◄►▲▼) to select the output signal type.
5. Press Next to enter the next submenu, Sync Polarity. Within this submenu, the Sync Polarity can be set (H- V-, H+ V-, H+ V+, or H- V+).
6. Rotate either front panel adjust knob (◄►▲▼) to select the sync polarity.

NOTE *An incorrect sync polarity setting will result in the loss of the output image.*

7. Press Next or Menu to return to the Output Configuration.

Advanced configuration

Within this menu auto imaging and auto memory can be turned on or off, Input EDID can be set, RGB delay value adjusted, the switch effect chosen, a test pattern selected to aid setting up the display, and the MTP pre-peaking turned on or off. In addition the internal temperature can be read, the size of the touch panel display can be calibrated, and the unit can reset to factory default settings.

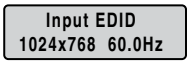
1. Press Next to enter the first sublevel, Auto Image. The current active input and setting status is displayed.

NOTE *At any submenu, if the input is incorrect, press the desired input button, and then proceed with the setting adjustment.*

2. With the applicable input showing, rotate the right adjust knob (▲▼) to turn the Auto Image on or off.

3. Press Next to enter the next sublevel, Auto Memory and rotate either adjust knob (◄►▲▼) to turn the Auto Memory on or off.

4. Press Next to go to the next sub-level (Input EDID), or press Next repeatedly to get to any applicable level. At each level, rotate the adjuster knobs (right only or both) as needed to change the settings to the desired value.



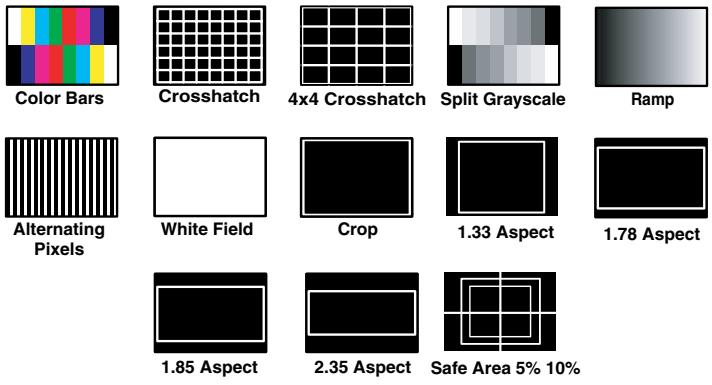
NOTE *The Input EDID setting adjustment applies only to the VGA and DVI inputs. Refer to figure 3-5 for resolution and refresh rate details.*

For some settings (e.g., panel calibration) follow any on-screen instructions.

The internal temperature is a "read-only" screen. No adjustment is possible.

For Test Pattern settings, the following are available:

None (default), Split Color Bars (8), Crosshatch 4x4, 32 Level Grayscale, Ramp, Alternating Pixels, Whitefield, Crop, 1.33 Aspect ratio, 1.78 Aspect ratio, 1.85 Aspect ratio, 2.35 Aspect ratio, Safe Area, Blue Mode.



NOTE *The test patterns may vary based on the output rate selected. For example if a 4:3 rate is selected, then the 4:3 crosshatch (32x24) and aspect ratio crop patterns appear.*
The raster border is independent of the aspect ratio, always surrounding the active area of the screen.

If a touch panel screen is attached to the Annotator, the touch accuracy can be calibrated using the Calibrate Panels setting in the Advanced configuration menu.

1. Within the Advanced configuration menu press Next repeatedly to cycle to the Calibrate Panels submenu.
2. Press the Size button and observe the touch panel screen. A cross appears in the upper left corner. Tap the screen at the cross, and repeat at each cross.
3. After tapping the fourth cross, the unit saves the calibration data and restarts the sequence. Repeat the process for each connected touch screen.
4. Press any front panel button to exit the sequence and save the data.

NOTE *See page 4-2 for detailed touchscreen setup instructions.*

View comm settings

Within this menu the current IP settings are only viewable. To make any adjustments the hidden "Edit Comm Settings menu must be accessed (see below).

1. Press Next to go through each sub-level to view the following: Serial port (baud rate and communication type), MAC address (cannot be changed within the Edit Comm menu), DHCP status (on or off), IP address, Subnet mask, and Gateway address.
2. Press Next or Menu to return to the View Comm Settings menu.

To enter the "hidden" Edit Comms menu, press and hold in the Detail and Color/Tint buttons simultaneously, and then press the Next button. The Edit Comms menu appears.

Edit comm settings

1. Press Next to go through each sublevel to edit the following: serial port settings, DHCP (on or off), IP address, subnet mask, and gateway address.

NOTE *The hardware address (the MAC address) is hard coded and cannot be changed. In edit mode the MAC address menu is not displayed.*

2. At each level, use both adjust knobs to set new values as desired. For example rotate the left front panel Adjust knob (◄►) to adjust the baud rate (9600, 19200, 38400, or 115200), and rotate the right Adjust knob (▲▼) to select the connection type (RS-232/RS-422).

NOTE *For IP address, subnet mask, and gateway address settings, the left Adjust knob moves between octets and the right Adjust knob changes the values.*

Where already connected to a remote PC via LAN, changing the IP address can result in the loss of connection.

The device's default IP address is 198.162.254.254.

3. Press Next or Menu to exit the Edit Comm Settings menu, keeping the new settings.

Exit menu

Within this menu press Next to exit the menu system and return to the default display cycle.

Scan converter configuration

This menu is available only when a scan converter board is installed.

Within this menu horizontal and vertical image size and centering can be configured, output format and output standard chosen, and flicker, horizontal, and encoder filters set.

1. Press Next to enter the first sublevel, horizontal and vertical size. The current settings are displayed. (2048 is the default setting)
2. Rotate the left front panel adjust knob (◄►) to adjust the horizontal value, and rotate the right adjust knob (▲▼) to adjust the vertical value.
3. Press Next to go the second sublevel, horizontal and vertical centering.
4. Rotate the left front panel adjust knob (◄►) to adjust the horizontal value, and rotate the right adjust knob (▲▼) to adjust the vertical value.
5. Press Next to go to the next sub-level (Output Format), or press Next repeatedly to get to any level. At each level, rotate either adjuster knobs as needed to change the settings to the desired values:
   Output format (S-video/Comp, YUVi, or RGsB)
   Output Standard (NTSC or PAL)
   Flicker, Horizontal, and Encoder filter values (0 to 3)
6. When complete press Menu once or Next repeatedly to return to the top level menu. Alternatively, allow to time out to return to the default cycle.

Setting the Front Panel Locks (Executive Modes)

The Annotator has two levels of front panel security lock that limit the operation of the device from the front panel.

Executive mode 0 (disabled) — The front panel is fully unlocked. This is the default setting.

Executive mode 1 (enabled) — The front panel is locked except for input switching, video freeze, and auto image.

Executive mode 2 (enabled) — The front panel is completely locked. This mode can only be enabled and disabled using SIS commands. See chapter 5 SIS Commands for further details.

Enabling or disabling Executive mode 1 from the front panel

NOTE *If the Annotator is in Executive mode 0 (unlocked), this procedure selects mode 1 (locked).*

If it is in Executive mode 1, this procedure selects mode 0 (unlocks the unit).

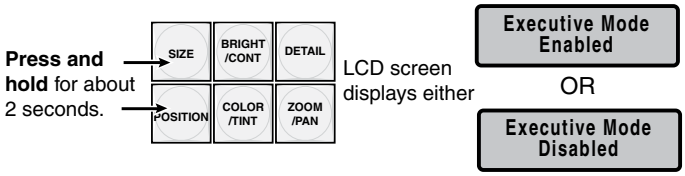


Figure 3-6 — Turning Executive mode on or off

When either Executive mode is enabled and a front panel action is attempted (other than input switching, video freeze, and auto image), the LCD displays the status for 2 seconds.

Lock mode 1 can also be enabled or disabled by SIS commands. See chapter 5 for SIS commands.

Setting up the Annotator to work with a Matrix Switcher

The Sync to Matrix tool is a powerful tool which can simplify the control system necessary when using an Extron Matrix switcher and an Annotator.

The "Sync to Matrix" script can sense when a new tie that is made on the matrix is routed to the Annotator and automatically recalls the input preset associated with the input on the matrix switcher. The input preset recalls all the settings for the input including the signal format, input sampling settings, and picture controls.

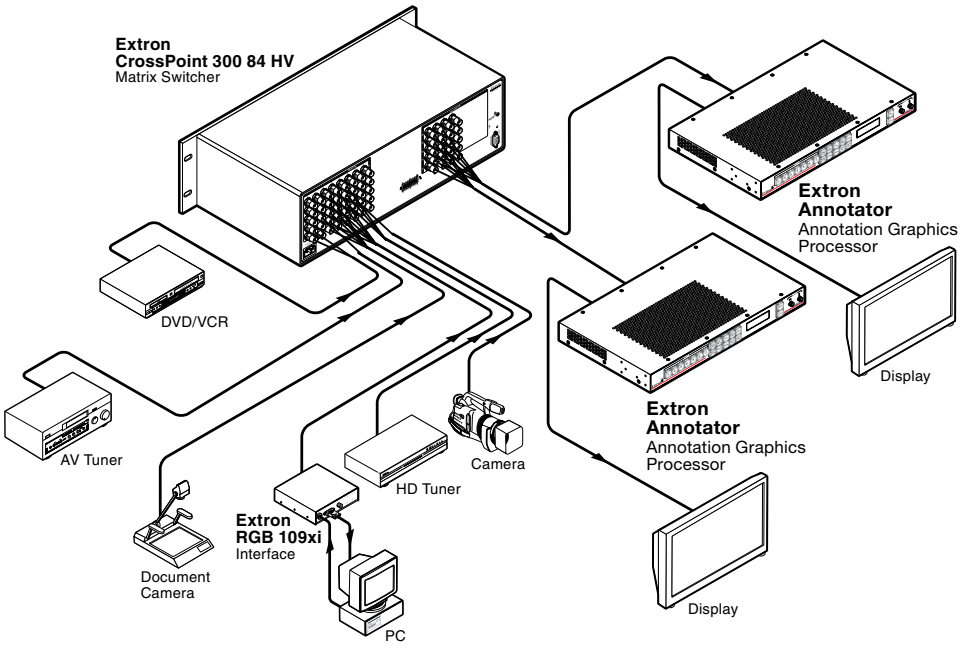


Figure 3-7 — Annotators connected to a Matrix switcher

To configure the input presets required using the Sync to Matrix tool, do the following:

1. Install and connect the Annotator as described in the chapter two of this manual, but connect the Annotator's input 3 to one of the matrix switcher's outputs.

NOTE *Multiple Annotators can be connected to a single matrix switcher.*

2. Tie input 1 of the matrix switcher to whichever matrix switcher output is connected to input 3 of the Annotator (see figure 3-8).

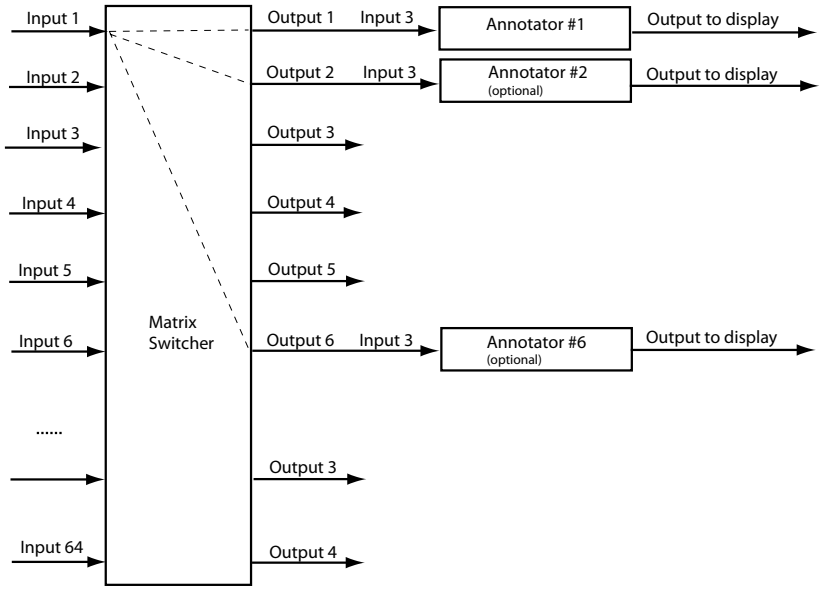


Figure 3-8 — Multiple Annotator's connected to a Matrix switcher

3. On the Annotator, configure the input as follows:

   a). Switch to input 3 on the Annotator.

   b). Set the following input sampling settings as needed: signal type, horizontal and vertical start, pixel phase, total pixels, active pixels, and active lines

NOTE *Do not use auto detect setting for the input type when using input presets.*

   c). Set the following picture controls as needed: size, position, color, tint, brightness, contrast, and detail.

   d). Save the adjusted settings as input preset 1. Refer to chapter 5, "Programmers Guide", for the SIS commands to save the preset.

NOTE *Each input preset must be saved with the same number as the input on the matrix switcher. For Example, input 24 on the matrix will be associated with the input preset 24 on the Annotator.*

   e). Repeat steps 2 and 3 for each matrix input that is used on the Annotator.

4. Synchronize the Annotator to the matrix switcher as follows:

   a). Open the control program (SPPCP) and connect to the Annotator.

NOTE *Connection must be via IP (not RS-232).*

   b). From the Tools menu, select **Sync to Matrix Switcher...** . The Sync to Matrix Switcher window opens

   c). In the IP Address field, enter the matrix switcher's IP address.

   d). Click **Connect to Matrix** button. The matrix switcher's size is displayed.

   e). From the drop-down menu next to **Annotator Input #3** select the matrix output number that is connected to Input 3 on the Annotator. Click **Take**. The devices now sync.

4

Chapter Four

PRELIMINARY

On Screen Annotation

RS-232 Driver Configuration

USB Driver Configuration

Touchscreen Calibration

Annotation Overview

On Screen Annotation

The Extron Annotator is a high performance, hardware-based annotation processor for video and computer-video sources. Annotating over motion video or still images is possible using common touchscreen panels, as well as any standard keyboard and/or mouse. The touchscreen panels can be connected by RS-232 or USB hubs. A touchscreen device driver can be uploaded to ensure compatibility with the Annotator. A number of touchscreen panels are supported.
For a full list of compatible panels visit www.extron.com. Contact the Extron HelpLine if the device you wish to use in not listed.

RS-232 driver configuration

RS-223 driver configuration is possible using the Signal Processing Products Control Program. The Touch Screen Panel Configuration option allows you to configure a touchpanel so that it can be used with the Annotator.

Using a NULL RS-232 cable only, connect the touchscreen to the Annotator via either of the two rear panel RS-232 comm ports.

To configure a touchpanel for use with the Annotator:

1. Open the SPPCP program on a connected PC
2. From the Tools menu, select RS-232 Touch Screen Panel Configuration. This opens the Touch Screen Configuration window.
3. In the appropriate section, depending on which COM port has a touchpanel connected, select the type of touchpanel from the drop-down list. This enables the **Upload Driver** button.

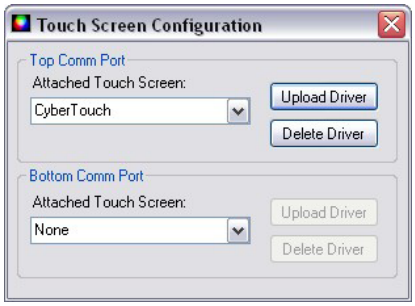


Figure 5-1 — Touch Screen Configuration screen

4. Click **Upload Driver**. This uploads the appropriate touchpanel driver
A dialog box indicates progress. The box closes when the driver has been uploaded.

To delete a driver from an attached touchpanel:

Follow steps **1** and **2** above if necessary.

In the appropriate section, depending on which COM port has the touchpanel connected, click **Delete Driver**. This deletes the driver associated with the touchpanel.

USB driver configuration

Touch screen panels can be connected via the two rear panel USB ports. By daisy chaining USB hubs (3 per Annotator USB port) up to 20 devices can be connected.

For a full list of compatible panels visit www.extron.com.

A number of common touchpanels are automatically supported. A mix of size and vendor type can be connected, but unsupported devices may cause adverse affects.

The USB ports also support USB keyboards and mice.

Before use, panel calibration is advised (see "Touchscreen calibration" below).

Using a suitable USB A cable, connect a touchscreen device or hubs to the either of the two USB A ports on the rear panel of the Annotator.

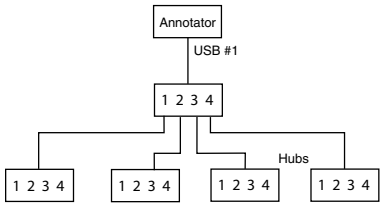


Figure 5-1 — Connect USB hubs for multiple displays

Touchscreen calibration

If a touchscreen is attached to the Annotator, the touch accuracy should be calibrated using the Calibrate Panels setting in the Advanced configuration menu.

Both RS-232 and USB connected touchscreens require calibration.

To calibrate a connected and powered-on panel, do the following:

1. Press the Menu button on the front panel of the Annotator repeatedly until reaching the Advanced Configuration menu.
2. Within the Advanced configuration menu press Next repeatedly to cycle to "Calibrate Panels Press Size".
3. Press Size and observe the touchpanel screen. A cross appears in the upper left corner.
4. Tap the screen at the cross, which then moves to the top right corner.
5. Tap the second cross. This moves to the bottom right corner.
6. Tap the third cross. This moves to the bottom left corner.
7. Tap the fourth cross. The unit saves the calibration data and restarts the sequence.
8. Repeat the process for each connected touchscreen.
9. Press any front panel button to exit the sequence and save the data.

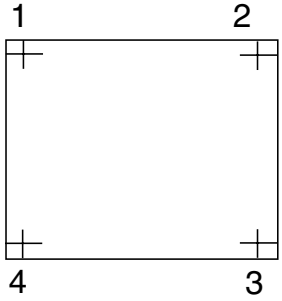


Figure 5-1 — Sequence of crosses for setting touch accuracy

Annotation Overview

The Annotator's output has the capability to include a graphical tool bar which is used for annotation. The tool bar can be enabled or disabled as desired. When enabled, the tool bar is visible down the right side of the display and allows selection of the following:

Inputs selection, Pointer, Auto Image, Freehand, Line, Arrow, Rectangle Ellipse, Text, Highlighter, Size select, Eraser, Color, Fill, Undo, Redo, Clear, Tools; Capture, Freeze, Mute, Whiteboard, Spotlight, Zoom, and Pan.

Figure 5-2 — Annotation menu examples

When clicking on the tool bar arrow  , the tool bar slides in from the right side, and can be accessed through a touch screen, or by using a Microsoft® compatible mouse and/or keyboard attached to the rear PS/2 ports.

The tool bar disappears (hides) after a user-specified time-out.
If the time-out is set to zero, the tool bar remains on-screen indefinitely.

Default annotation buttons

Input selection — Selecting this button opens a pop-up palette displaying the Annotator's six inputs. Selecting any input button switches the display to that input.

NOTE *A seventh input button is also displayed if an optional HD-SDI card is installed.*

Pointer — Selecting this button changes the cursor to an extra-large arrow of the currently selected color.

Auto-Image™ — On selection of this button, the unit performs an auto image on the currently selected input. A secondary button appears to the left of the Auto Image button to confirm the function has been completed.

Freehand — Selecting this button allows the user to draw freely on the display screen.

NOTE *For Freehand, Line, Arrow, and Highlighter functions, the start point is where the screen is touched (by finger or stylus), or where the cursor starts when holding down the primary mouse button. The finish point is where the stylus or finger is lifted from the screen, or at the point where the mouse button is released.*

For all drawn annotations, line color and weight are adjustable.

Line — Selecting this button allows the user to create a straight line between two points.

Arrow — Selecting this button allows the user to create a straight line between two points with an arrow at the end point.

Rectangle — Selecting this button allows the user to create a rectangle with edges parallel to the raster.

NOTE *For Rectangle and Ellipse functions, the primary corner is where the screen is first touched (by finger or stylus), or where the cursor starts when holding down the primary mouse button. The opposite corner is where the stylus or finger is lifted from the screen, or at the point where the mouse button is released.*

Unless the fill option is selected, only the rectangle or ellipse outline is drawn.

Ellipse — Selecting this button allows the user to create an ellipse between the primary and the opposite corners of a non-drawn rectangle.

Text — Selecting this button allows the user to create on-screen text with a keyboard connected at the Annotator's rear PS2 port. Text insertion begins either at the mouse operated cursor point, or where the screen is touched. If no insertion point is defined, then text is inserted at the previous active function's end point.

Highlighter — Selecting this button allows the user to highlight the video information, not the annotation.

Size Select — Select this button to adjust size of text and/or line weight (not linked), after selecting a drawing or text function, such as line, rectangle, or text. A secondary palette opens displaying either line weight or text point size depending on the active function. From the secondary palette select the desired size button. Functions this applies to are Text, Line, Arrow, Freehand, Highlighter, Arrows, Rectangle, Ellipse, and Eraser.

NOTE *Eraser size, text size, and line weight have discrete size settings.*

Eraser — Select this to erase any (non saved) annotations on the screen.

Color — Select this button to choose the color of any drawing function (fill or outline), text, or pointer color. On selection, a secondary palette opens with 16 color swatches. Select a color as desired. The active function now uses the selected color.

NOTE *The current active color is shown on the Color button as the large swatch. 64 colors are definable via SIS™ commands, although the OSD (On Screen Display) only shows 16 of the most common colors.*

Fill — Selecting this button in conjunction with selecting the rectangle or ellipse button, allows the user to draw a solid shape, filled with the currently selected color.

NOTE *A drawn, unfilled shape cannot be filled afterwards, and vice versa.*

On Screen Annotation, cont'd

Undo — Selecting this allows the user to undo the last 7 completed annotations or undo a Clear action.

NOTE *A completed annotation is defined by lifting the finger or stylus from the touch screen, pressing the keyboard Enter key, or releasing the primary mouse button.*

Redo — If selected while using the Undo function, it recreates the last undone annotation.

Clear — Selecting this clears the screen of all unsaved annotations, and can be undone with the Undo function.

Tools — Selecting the Tools button opens a secondary palette containing the following advanced tools: Capture, Freeze, Mute, Whiteboard, Spotlight, Zoom, and Pan. On selection of any tool, the secondary palette closes. To reopen the palette, click on the Tools button.

Capture — Select this to take a snapshot image of the current program output, including annotations (but not any open OSD palettes). This captured image can be saved to the Annotator's memory for later recall.

NOTE *Using SIS commands the Capture tool can be customized to send out an unsolicited response, indicating an image is ready to be streamed directly to an external PC.*

Freeze — Select this to freeze the live video. To unfreeze the video, reselect this button or switch inputs.

Mute — Select this to mute the video input and display a black screen. Annotations and menus are still visible. To unmute the video, reselect the Mute button, or select the Whiteboard tool, or switch inputs.

Whiteboard — Select this to create a white canvas for annotations. No input video image is visible. To remove the white canvas, reselect the Whiteboard button, select mute, or switch inputs.

Spotlight — Select this to create an ellipse to focus on a specific area of the screen, while the outer area's brightness is greatly reduced. The shape and size of the ellipse is adjustable by dragging the cursor while outside of it, to any point. The ellipse can be moved to any point by dragging the cursor while within the ellipse.

Zoom — Select this to zoom in to a specific area of the screen. Using the cursor, create a rectangle at the desired area and the Annotator zooms in to view that area. If the boundaries of the area are beyond the zoom capabilities, then the view will not change. To zoom out draw a small rectangle (<100 pixels, ~1"x 1") and the normal view is restored.

Pan — Selecting this while in zoom mode, allows the user to move the focus to a new area. Place the cursor on a zoomed image and drag to the desired area.

Annotator

5

Chapter Five

PRELIMINARY

SIS™ Programmer's Guide

RS-2323/RS-422 Link

Ethernet (LAN) Port

Host-to-Processor Instructions

Processor-Initiated Messages

Processor Error Responses

Using the Command/Response Tables for SIS commands

Command/Response Table for SIS Commands

The Annotator can be operated and configured using Simple Instruction Set (SIS™) commands input via a PC connected to either of the processor's serial ports or the Ethernet port. See ⑮ and ⑯ on page 2-4, and Appendix B for wiring details.

RS-232/RS-422 Link

The Annotator has two rear ports and one front port that can be used for serial control. All ports enable use of SIS commands and the Windows-based control software. The default protocol for these ports is:
• 9600 baud, • 1 stop bit, • no parity, • no flow control, • 8-bit.

See ⑯ on pages 2-4 through 2-5 for connection details.

Ethernet (LAN) Port

The rear panel Ethernet connector on the unit can be connected to an Ethernet LAN or WAN. Communications between the unit and the controlling device is via Telnet (a TCP socket using port 23). The TCP port can be changed if necessary. This connection makes SIS control of the unit possible using a computer connected to the same LAN or WAN. The SIS commands and behavior of the unit are identical to that when communicating to it via RS-232.

Ethernet connection

The Ethernet cable can be terminated as a straight-through cable or a crossover cable and must be properly terminated for your application. See Appendix B for cable termination details.

Default IP addresses

To access the Annotator via the Ethernet port, you need the Extron IP address and may need the subnet mask and the gateway address. If the IP address has been changed to an address comprised of words and characters, the actual numeric IP address can be determined using the ping (ICMP) utility (see Appendix B for more details). If the addresses have not been changed, the factory-specified defaults are:

IP address: 192.168.254.254, subnet mask: 255.255.0.0, gateway address: 0.0.0.0

Establishing a connection

Establish a network connection to the processor as follows:

1. Open a TCP socket to port 23 using the processor's IP address.

NOTE *If the local system administrators have not changed the value, the factory-specified default, 192.168.254.254, is the correct value for this field.*

The processor responds with a copyright message including the date, the name of the product, firmware version, part number, and the current date/time.

NOTE *If the processor is not password-protected, the device is ready to accept SIS commands immediately after it sends the copyright message.*

NOTE *If the processor is password-protected, a* `password` *prompt appears below the copyright message.*

2. If the processor is password protected, enter the appropriate administrator or user password.

If the password is accepted, the processor responds with *`Login User`* or *`Login Administrator`*.

If the password is not accepted, the *`Password`* prompt reappears.

Connection Timeouts

The Ethernet link times out after a designated period of time of no communications. By default, this timeout value is set to five minutes but the value can be changed. See the "Global configure IP port timeout" command on page 5-xx.

NOTE *Extron recommends leaving the default timeout at five minutes and periodically issuing the Query (Q) command to keep the connection active. If there are long idle periods, Extron recommends disconnecting the socket and reopening the connection when another command must be sent.*

Number of connections

The Annotator can have up to 200 simultaneous TCP connections, including all http sockets and Telnet connections. When the connection limit is reached, the processor accepts no new connections until some have been closed. No error message or indication is given that the connection limit has been reached. To maximize performance of an IP Link device, the number of connections should stay low and unnecessary open sockets should be closed.

Using Verbose Mode

Telnet connections to the processor can be used to monitor for changes that occur on the processor, such as front panel operations and SIS commands from other Telnet sockets or a serial port. For a Telnet session to receive change notices from the processor, the Telnet session must be in verbose mode 1 or 3. See the Verbose Mode command on page 5-xx. In verbose mode 1 or 3, the Telnet socket reports changes in messages that resemble SIS command responses.

Host-to-Processor Instructions

SIS commands consist of one or more characters per command field. They do not require any special characters to begin or end the command character sequence. Each processor response to an SIS command ends with a carriage return and a line feed (CR/LF = ↵), which signals the end of the response character string. A string is one or more characters.

Processor-Initiated Messages

When a local event such as a front panel operation occurs, the processor responds by sending a message to the host. The processor-initiated messages are listed below.

With an RS-232/422 connection (upon power up):

(c) Copyright 2009, Extron Electronics Annotator, Vx.xx, 60-968-14↵

With an Internet connection:

(c) Copyright 2009, Extron Electronics Annotator, Vx.xx, 60-968-14↵

Ddd, DD MMM YYYY HH:MM:SS (day, date time. e.g. Tue, 14 Apr 2009 14:43:17)

The processor initiates the copyright message when powered on or when connection via Internet protocol (IP) is established. Vx.xx is the firmware version number.

↵Password:

The processor initiates the password message immediately after the copyright message when the controlling system is connected using TCP/IP or Telnet and the processor is password protected. The processor requires an administrator or user level password before performing the commands entered.

NOTE *Password prompt is re-displayed if an incorrect password is entered.*

↵Login Administrator↵ and ↵Login User↵

The processor initiates the login message when a correct administrator or user password has been entered. If the user and administrator passwords are the same, the processor defaults to administrator privileges.

Reconfig↵
The processor sends the Reconfig message whenever a new resolution is applied.
NOTE *Response given seen via RS-232 connection only.*

Exe*n*↵
The processor initiates the Exe message when executive mode is toggled on or off from the front panel. "*n*" is the executive mode status: 1 = on, 0 = off.

Processor Error Responses

When the Annotator receives an SIS command and determines that it is valid, it performs the command and sends a response to the host device. If the processor is unable to perform the command because the command is invalid or contains invalid parameters, the processor returns an error response to the host. The error response codes are:

E01 — Invalid input channel number (out of range)
E10 — Invalid command
E11 — Invalid preset number
E12 — Invalid output number/port number
E13 — Invalid parameter (out of range)
E14 — Command not available for this configuration
E17 — Invalid command for this signal type
E22 — Busy
E24 — Privilege violation
E25 — Device not present
E26 — Maximum number of connections exceeded
E27 — Invalid event number
E28 — Bad filename/file not found

Using the Command/Response Table for SIS Commands

The command/response table begins on page 5-8. Lowercase letters are acceptable in the command field except where indicated. The table below shows the hexadecimal equivalent of ASCII characters used in the command/response tables.

ASCII to HEX Conversion Table										Esc	1B	CR	ØD	LF	ØA
	2Ø	!	21	"	22	#	23	$	24	%	25	&	26	'	27
(	28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F
Ø	3Ø	1	31	2	32	3	33	4	34	5	35	6	36	7	37
8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F
@	4Ø	A	41	B	42	C	43	D	44	E	45	F	46	G	47
H	48	I	49	J	4A	K	4B	L	4C	M	4D	N	4E	O	4F
P	5Ø	Q	51	R	52	S	53	T	54	U	55	V	56	W	57
X	58	Y	59	Z	5A	[	5B	\	5C	]	5D	^	5E	_	5F
`	6Ø	a	61	b	62	c	63	d	64	e	65	f	66	g	67
h	68	i	69	j	6A	k	6B	l	6C	m	6D	n	6E	o	6F
p	7Ø	q	71	r	72	s	73	t	74	u	75	v	76	w	77
x	78	y	79	z	7A	{	7B	I	7C	}	7D	~	7E	DEL	7F

ASCII to hexadecimal conversion

Symbols are used throughout the table to represent variables in the command/response fields. Command and response examples are shown throughout the table.

Symbol definitions

↵ = Carriage return with line feed
¦ or ← = Carriage return with no line feed
• = Space
Esc or W = Escape key

PRELIMINARY

NOTE *If unit does not support or recognize the entered commands, nothing will happen and no response is issued.*

X1 = Input selection, 1 to 7

X2 = Output selection:
- 0 = All outputs (default)
- 1 = Program only (BNC, MTP, optional output card)
- 2 = Preview only (VGA)
- 3 = None

X3 = Input video format:
- 1 = RGB (default)
- 2 = YUVp/HDTV
- 3 = RGBcvS
- 4 = YUVi
- 5 = S-video
- 6 = Composite video
- 7 = SDI
- 8 = HD-SDI
- 9 = DVI
- 10 = Auto detect

X4 = H/V start — 0 to 255 (default midpoint = 128)

X6 = Pixel phase — 0 to 31 (default = 16)

X7 = Total pixels — (±512 of the default value)

X8 = Active pixels — (±512 of the default value)

X9 = Active lines — (±512 of the default value)

X10 = Off/disable (0) or On/enable (1)

X11 = Input standard:
- 0 = No signal
- 1 = NTSC
- 2 = PAL
- 4 = SECAM
- - = N/A (occurs when input is set to a high resolution signal format)

X12 = Internal temperature (in degrees Celsius)

X13 = Horizontal and vertical frequencies (format is three digit with single decimal and leading zeros e.g., 075.3)

X15 = Picture adjustment — 0 to 127 (default 64)

X16 = H and V position (zero location is 2048, and limits are ± the output resolution)

X17 = H and V size (0 to 200% of the output area, in single pixel increments)

X18 = Zoom (100 to 500%)
- Default for low resolution video = 111%
- Default for high resolutrion video = 100%

X19 = Pan — 0 to 200 (zero location is 0, and limits are ± the output resolution) (default = 100 center point)

X20 = Test patterns:
- 0 = Off (default)
- 1 = Color bars
- 2 = Crosshatch
- 3 = 4x4 Crosshatch
- 4 = Grayscale

5 = Ramp
6 = Alternating Pixels
7 = White field
8 = Crop
9 = 1.33 Aspect ratio
10 = 1.78 Aspect ratio
11 = 1.85 Aspect ratio
12 = 2.35 Aspect ratio
13 = Safe area
14 = Blue mode

X21 = Scaler resolution:

1 = 640 x 480
2 = 800 x 600
3 = 852 x 480
4 = 1024 x 768
5 = 1024 x 852
6 = 1024 x 1024
7 = 1280 x 768
8 = 1280 x 800
9 = 1280 x 1024
10 = 1360 x 765
11 = 1360 x 768
12 = 1365 x 768
13 = 1366 x 768
14 = 1365 x 1024
15 = 1440 x 900
16 = 1400 x 1050
17 = 1680 x 1050
18 = 1600 x 1200
19 = 1920 x 1200
20 = 480p
21 = 576p
22 = 720p
23 = 1080i
24 = 1080p
25 = 2048 x 1080

X22 = Output refresh rate:

1 = 23.98 Hz
2 = 24 Hz
3 = 25 Hz
4 = 29.97 Hz
5 = 30 Hz
6 = 50 Hz
7 = 59.94 Hz
8 = 60 Hz (default)
9 = 75 Hz

X23 = Output polarity:

0 = H-/V- (default)
1 = H-/V+
2= H+/V-
3 = H+/V+

X24 = Output sync format:

0 = RGBHV (default)
1 = RGsB
2= YUV bi-level
3 = YUV tri-level

X25 = Memory presets — 1 to 16

X26 = Input presets — 1 to 128

X28 = On-screen menu timeout — 1 to 64, in 1 second increments, 0 = always displayed, default = 10

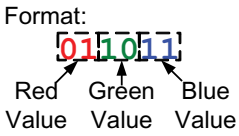
X37 = RGB delay — 0 to 50, in 0.1 second increments, default = 05 (0.5 seconds)

X50 = Annotation type:
- 0 = Eraser
- 1 = Pointer
- 2 = Freehand
- 3 = Highlighter
- 4 = Vector line
- 5 = Arrow line (arrow appears at the endpoint of the vector)
- 6 = Ellipse
- 7 = Rectangle
- 8 = Text tool
- 9 = Spotlight
- 10 = Zoom tool
- 11 = Pan tool

X51 = Font selection — 16 character file name including *.FNT extension,
0 = default font (Arial)

X52 = Font size — 8 to 63 point font, default = 8 pt

X53 = Line color — 6 bit RGB, 64 total colors
e.g. 000000 = Black
010000 = Dark red (33%)
010000 = Medium red (66%)
110000 = Bright red (100%)
001100 = Bright green (66%)
000011 = Bright blue (default)
111111 = White
010101 = Dark gray (33%)



X54 = Line weight or eraser width — 1 to 63 pixels wide, default = 8

X56 = On-screen clock:
- 0 = Disabled (default)
- 1 = Date and time
- 2 = Time only
- 3 = Date only

X57 = Annotation Coordinates — 8 digit number with first four being the X coordinate, last four the Y coordinate, limits = 1000,1000. Fixed for any output rate.
Example, (0,0) = 00000000 = top left; (500,500) = 05000500 = screen center.

X75 = Scan converter output format
- 0 = S-video/composite video
- 1 = YUVi
- 2 = RGsB

X76 = Scan converter output standard
- 0 = NTSC
- 1 = PAL

X77 = Scan converter filter level (encoder, horizontal, flicker) — 0 to 3

Command Response Table for SIS Commands

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Input Switching and Configuration			
Input selection			
Select input	X1 !	In X1 ↵	Select video from input X1.
View current input	!	In X1 ↵	View currently selected input source.
Input video format			
Set format	X1*X3 \	Typ X1*X3 ↵	Set input X1 to video format X3.
View format	X1\	X3 ↵	View video format of input X1.
View detected format	X1*\	Atyp X1*X3 ↵	View actual video format auto detected on input X1.
DVI input EDID			
Specify an EDID value	Esc X21*X22 EDID ←	Edid X21*X22 ↵	Set EDID resolution and refresh for DVI and VGA inputs.
View EDID value	Esc EDID ←	X21*X22 ↵	View EDID resolution and refresh for DVI and VGA inputs.
Auto image			
Enable auto image	X1*1A	Img X1*1 ↵	Auto image input X1 when selected.
Disable auto image	X1*0A	Img X1*0 ↵	Turn off auto image for input X1.
Execute auto image	A	Img ↵	Execute auto image for current input.
View auto image	X1A	X10 ↵	View auto image setting.
Horizontal start			
Specify a value	Esc X4 HSRT ←	Hsrt X1*X4 ↵	Set horizontal location of first active pixel in active input.
Increment value	Esc +HSRT ←	Hsrt X1*X4 ↵	Increase value.
Decrement value	Esc -HSRT ←	Hsrt X1*X4 ↵	Decrease value.
View value	Esc HSRT ←	X4 ↵	Show horizontal location of first active pixel in active input.
Vertical start			
Specify a value	Esc X4 VSRT ←	Vsrt X1*X4 ↵	Set vertical location of first active pixel in active input.
Increment value	Esc +VSRT ←	Vsrt X1*X4 ↵	Increase value.
Decrement value	Esc -VSRT ←	Vsrt X1*X4 ↵	Decrease value.
View value	Esc VSRT ←	X4 ↵	Show vertical location of first active pixel in active input.

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Pixel phase			
Specify a value	Esc X6 PHAS ←	Phas X1 * X6 ↵	Set pixel phase to specified value for active input.
Increment value	Esc +PHAS ←	Phas X1 * X6 ↵	Increase value.
Decrement value	Esc -PHAS ←	Phas X1 * X6 ↵	Decrease value.
View value	Esc PHAS ←	X6 ↵	Show pixel phase.
Total pixels (RGB and YUVp/HDTV only)			
Specify a value	Esc X7 TPIX ←	Tpix X1 * X7 ↵	Set total pixels to specified value for active input.
Increment value	Esc +TPIX ←	Tpix X1 * X7 ↵	Increase value.
Decrement value	Esc -TPIX ←	Tpix X1 * X7 ↵	Decrease value.
View value	Esc TPIX ←	X7 ↵	Show total pixels.
Active pixels			
Specify a value	Esc X8 APIX ←	Apix X1 * X8 ↵	Set active pixels to specified value for active input.
Increment value	Esc +APIX ←	Apix X1 * X8 ↵	Increase value.
Decrement value	Esc -APIX ←	Apix X1 * X8 ↵	Decrease value.
View value	Esc APIX ←	X8 ↵	Show active pixels.
Active lines			
Specify a value	Esc X9 ALIN ←	Alin X1 * X9 ↵	Set active lines to specified value for active input.
Increment value	Esc +ALIN ←	Alin X1 * X9 ↵	Increase value.
Decrement value	Esc -ALIN ←	Alin X1 * X9 ↵	Decrease value.
View value	Esc ALIN ←	X9 ↵	Show active lines.
3:2/2:2 Film mode detect			
Enable film mode	Esc X1 *1FILM ←	Film X1 * X10 ↵	Turn film mode detection on.
Disable film mode	Esc X1 *0FILM ←	Film X1 * X10 ↵	Turn film mode detection off.
View setting	Esc X1 FILM ←	X10 ↵	View settings.

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Picture Adjustments			
Video mute			
Mute video to black	1B	Vmt1↵	Mute video and display a black screen.
Mute video to white	2B	Vmt2↵	Mute video and display a white screen.
Unmute video	0B	Vmt0↵	Restore picture.
View mode	B	00 to 02↵	Mute status.
Color			
Specify a value	Esc X15 COLR←	Colr X1 * X15 ↵	Set color level to X15.
Increment value	Esc +COLR←	Colr X1 * X15 ↵	Increase value.
Decrement value	Esc -COLR←	Colr X1 * X15 ↵	Decrease value.
View value	Esc COLR←	X15 ↵	Show color level.
Tint			
Specify a value	Esc X15 TINT←	Tint X1 * X15 ↵	Set tint level to X15.
Increment value	Esc +TINT←	Tint X1 * X15 ↵	Increase value.
Decrement value	Esc -TINT←	Tint X1 * X15 ↵	Decrease value.
View value	Esc TINT←	X15 ↵	Show tint level.
Contrast			
Specify a value	Esc X15 CONT←	Cont X1 * X15 ↵	Set contrast level to X15.
Increment value	Esc +CONT←	Cont X1 * X15 ↵	Increase value.
Decrement value	Esc -CONT←	Cont X1 * X15 ↵	Decrease value.
View value	Esc CONT←	X15 ↵	Show contrast level.
Brightness			
Specify a value	Esc X15 BRIT←	Brit X1 * X15 ↵	Set brightness level to X15.
Increment value	Esc +BRIT←	Brit X1 * X15 ↵	Increase value.
Decrement value	Esc -BRIT←	Brit X1 * X15 ↵	Decrease value.
View value	Esc BRIT←	X15 ↵	Show brightness level.

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Detail filter			
Specify a value	Esc X15 HDET ←	Hdet X1 * X15 ↵	Set detail level to X15.
Increment value	Esc +HDET ←	Hdet X1 * X15 ↵	Increase value.
Decrement value	Esc -HDET ←	Hdet X1 * X15 ↵	Decrease value.
View value	Esc HDET ←	X15 ↵	Show detail level.
Horizontal shift			
Specify a value	Esc X16 HCTR ←	Hctr X1 * X16 ↵	Set horizontal position to X16.
Increment value	Esc +HCTR ←	Hctr X1 * X16 ↵	Shift position right.
Decrement value	Esc -HCTR ←	Hctr X1 * X16 ↵	Shift image left.
View value	Esc HCTR ←	X16 ↵	Show horizontal position value.
Vertical shift			
Specify a value	Esc X16 VCTR ←	Vctr X1 * X16 ↵	Set vertical position to X16.
Increment value	Esc +VCTR ←	Vctr X1 * X16 ↵	Shift image up.
Decrement value	Esc -VCTR ←	Vctr X1 * X16 ↵	Shift image down.
View value	Esc VCTR ←	X16 ↵	Show vertical position value.
Horizontal size			
Specify a value	Esc X17 HSIZ ←	Hsiz X1 * X17 ↵	Set horizontal size to X17.
Increment value	Esc +HSIZ ←	Hsiz X1 * X17 ↵	Widen the image.
Decrement value	Esc -HSIZ ←	Hsiz X1 * X17 ↵	Make image narrower.
View value	Esc HSIZ ←	X17 ↵	Show horizontal size value.
Vertical size			
Specify a value	Esc X17 VSIZ ←	Vsiz X1 * X17 ↵	Set vertical size to X17.
Increment value	Esc +VSIZ ←	Vsiz X1 * X17 ↵	Make the image taller.
Decrement value	Esc -VSIZ ←	Vsiz X1 * X17 ↵	Make image shorter.
View value	Esc VSIZ ←	X17 ↵	Show vertical size value.

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Horizontal zoom			
Specify a value	Esc X18 ZOOM ←	Zoom X1 * X18 ↵	Set zoom percentage to X18.
Increment value	Esc +ZOOM ←	Zoom X1 * X18 ↵	Zoom in.
Decrement value	Esc -ZOOM ←	Zoom X1 * X18 ↵	Zoom out.
View value	Esc ZOOM ←	X18 ↵	Show zoom percentage.
Pan			
Specify a horizontal value	Esc X19 HPAN ←	Hpan X1 * X19 ↵	Set horizontal pan value to X19.
Pan left	Esc +HPAN ←	Hpan X1 * X19 ↵	Pan left.
Pan right	Esc -HPAN ←	Hpan X1 * X19 ↵	Pan right.
Specify a vertical value	Esc X19 VPAN ←	Vpan X1 * X19 ↵	Set vertical pan value to X19.
Pan down	Esc +VPAN ←	Vpan X1 * X19 ↵	Pan down.
Pan up	Esc -VPAN ←	Vpan X1 * X19 ↵	Pan up.
Output Configuration			
Output scaler rate			
Set output rate	Esc X21 * X22 RATE ←	Rate X21 * X22 ↵	Select output resolution and refresh rate.
View output rate	Esc RATE ←	X21 * X22 ↵	Show selected output rate.
Output polarity			
Set polarity	Esc X23 OPOL ←	Opol X23 ↵	Set output polarity for RGBHV ouput.
View polarity setting	Esc OPOL ←	X23 ↵	Show current output polarity.
Output sync format			
Set format	Esc X24 OSYN ←	Osyn X24 ↵	Set output sync format.
View sync setting	Esc OSYN ←	X24 ↵	Show current output sync format.

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Scan Converter Board			
Video output format			
Set output format	Esc X75 VTPO ←	Vtpo X75 ↵	Select video output format to X75.
View output format	Esc VTPO ←	X75 ↵	View setting.
Video output standard			
Set output standard	Esc X76 VSTD ←	Vstd X76 ↵	Select video output standard to X76.
View output standard	Esc VSTD ←	X76 ↵	View setting.
Scan converter horizontal position			
Specific value	Esc S X16 HCTR ←	HtcrS X16 ↵	Set horizontal position to X16.
Increment up	Esc S+HCTR ←	HtcrS X16 ↵	Shift image right.
Increment down	Esc S-HCTR ←	HtcrS X16 ↵	Shift image left.
View	Esc SHCTR ←	X16 ↵	Horizontal position value is X16.
Scan converter vertical position			
Specific value	Esc S X16 VCTR ←	VtcrS X16 ↵	Set vertical position to X16.
Increment up	Esc S+VCTR ←	VtcrS X16 ↵	Shift image down.
Increment down	Esc S-VCTR ←	VtcrS X16 ↵	Shift image up.
View	Esc SVCTR ←	X16 ↵	Vertical position value is X16.
Scan converter horizontal size			
Specific value	Esc S X17 HSIZ ←	HsizS X17 ↵	Set horizontal size to X17.
Increase size	Esc S+HSIZ ←	HsizS X17 ↵	Widen image.
Decrease size	Esc S-HSIZ ←	HsizS X17 ↵	Make image narrower.
View	Esc S+HSIZ ←	X17 ↵	Horizontal size is X17.
Scan converter vertical size			
Specific value	Esc S X17 VSIZ ←	VsizS X17 ↵	Set vertical size to X17.
Increase size	Esc S+VSIZ ←	VsizS X17 ↵	Make image taller.
Decrease size	Esc S-VSIZ ←	VsizS X17 ↵	Make image shorter.
View	Esc S+VSIZ ←	X17 ↵	Vertical size is X17.

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Scan converter Horizontal filter			
Set detail level	Esc S X77 HDET ←	HdetS X77 ↵	Set H filter level to X77.
Increment up	Esc S+HDET ←	HdetS X77 ↵	Increase H filter level.
Increment down	Esc S-HDET ←	HdetS X77 ↵	Decrease H filter level.
View detail value	Esc S+HDET ←	X77 ↵	H filter level is X77.
Flicker filter			
Set flicker filter level	Esc S X77 VDET ←	VdetS X77 ↵	Specify the flicker filter level to X77.
Increment up	Esc S+VDET ←	VdetS X77 ↵	Increase the flicker filter level.
Increment down	Esc S-VDET ←	VdetS X77 ↵	Decrease the flicker filter level.
View flicker filter level	Esc S+VDET ←	X77 ↵	View the flicker filter level.
Encoder filter			
Set encoder filter level	Esc S X77 VENC ←	VencS X77 ↵	Set video encoder filter level to X77.
View	Esc VENC ←	X77 ↵	View the encoder filter level.
Presets			
User Memory presets			
Recall presets	1* X25 .	1Rpr X25 ↵	Recalls memory preset X25 for selected input.
Save presets	1* X25 ,	1Spr X25 ↵	Saves memory preset X25 for selected input.
Input presets			
Recall presets	2* X26 .	2Rpr X26 ↵	Recalls input preset X26.
Save presets	2* X26 ,	2Spr X26 ↵	Saves input parameters to preset X26.
Auto Memory			
Enable	Esc 1AMEM ←	Amem1 ↵	Set auto memory on. Previous settings for incoming signal are auto recalled.
Disable	Esc 0AMEM ←	Amem0 ↵	Set auto memory off. Default settings are always used unless input preset is recalled manually.
View setting	Esc AMEM ←	X10 ↵	View auto memory status.

PRELIMINARY

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Advanced Configurations			
Test pattern			
Set test pattern	Esc X20 TEST ←	Test X20 ↵	Select test pattern X20.
View test pattern	Esc TEST ←	X20 ↵	View which test pattern is selected.
Freeze			
Enable	1F	Frz1 ↵	Freeze selected input.
Disable	0F	Frz0 ↵	Unfreeze selected input.
View	F	X10 ↵	View freeze status.
RGB delay time			
Set value	Esc X37 VDLY ←	Vdly X37 ↵	Set RGB delay.
View setting	Esc VDLY ←	X37 ↵	View RGB delay setting.
Switch effect			
Cut	Esc 0SWEF ←	Swef0 ↵	Sets the switch effect to cut.
Fade	Esc 1SWEF ←	Swef1 ↵	Sets the switch effect to fade through to black.
View setting	Esc SWEF ←	0 ↵ (or 1 ↵)	View effect setting.
MTP Pre-peaking			
Enable	Esc 1OPEK ←	Opek1 ↵	Enables pre-peaking on the MTP output.
Disable	Esc 0OPEK ←	Opek0 ↵	Disables pre-peaking on the MTP output.
View setting	Esc OPEK ←	X10 ↵	View pre-peaking setting.
Front panel lockout (executive mode)			
Enable Mode 1	1X	Exe1 ↵	Limited front panel adjustments only.
Enable Mode 2	2X	Exe2 ↵	Lock out entire front panel.
Disable	0X	Exe0 ↵	Adjustments and selections can be made from front panel.
View front panel lock status	X	X10 ↵	Show executive mode status.

NOTE *For full lock mode details, refer to chapter 3, "Setting the Front Panel Locks (Executive Modes)" section.*

PRELIMINARY

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Picture in Picture			
PIP on/off			
PIP on	Esc X1 PIP ←	Pip X1 ↵	Turn PIP on and display input X1.
PIP off	Esc 0PIP ←	Pip0 ↵	Turn PIP off.
View PIP status	Esc PIP ←	X1 ↵	View PIP window selection.
NOTE *When PIP is enabled, all picture control commands apply to the image in the PIP window.*			
Swap PIP			
Swap	%	Tke0 ↵	Swap content between main and PIP window.
Annotation			
Annotation type			
Set type	Esc X50 DRAW ←	Draw X50 ↵	Sets current annotation type to X50.
View type	Esc DRAW ←	Draw X50 ↵	View current annotation type.
Annotation coordinates			
Location	Esc X57 APNT ←	Apnt X57 ↵	Places the annotation location at X57.
Complete annotation	Esc ASTP ←	Astp ↵	Indicates the end of an annotation function.
NOTE *All coordinate values sent to the Annotator will be interpreted according to the guidelines for the current annotation type.*			
Example: Draw a square Esc 00000000APNT ← Esc 00100010APNT ← Esc 00200020APNT ← Esc 00300030APNT ← Esc ASTP ←			
Annotation color			
Set color	Esc X53 ACOL ←	Acol X53 ↵	Sets the color to X53.
View color	Esc ACOL ←	X53 ↵	View current annotation color.
NOTE *The color setting applies to all annotations.*			
Annotation object fill			
Enable object fill	Esc 1FILL ←	Fill1 ↵	Enable fill for new objects drawn.
Disable object fill	Esc 0FILL ←	Fill0 ↵	Disable fill for new objects drawn.
View setting	Esc FILL ←	X10 ↵	View current fill setting.
NOTE *The fill setting applies to rectangles and ellipses drawn after the setting has been modified.*			

PRELIMINARY

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Text configuration			
Set text font	Esc X51 FONT ←	Font X51 ↵	Set annotation font to X51.
View font	Esc FONT ←	X51 ↵	View current font file name.
NOTE *Font files must be stored on the hardware in the nortxe-font folder.*			
Set text size	Esc X52 TXSZ ←	Txsz X52 ↵	Set annotation text size to X52.
View text size	Esc TXSZ ←	X52 ↵	View current text size.
Line configuration			
Set line weight	Esc X54 LNWT ←	Lnwt X54 ↵	Set line weight to X54 pixels.
View size	Esc LNWT ←	X54 ↵	View current line weight setting.
Drop shadow			
Enable drop shadow	Esc 1SHDW ←	Shdw1 ↵	Enable a drop shadow.
Disable drop shadow	Esc 0SHDW ←	Shdw0 ↵	Disable drop shadow.
View setting	Esc SHDW ←	X10 ↵	View current fill setting.
Eraser size			
Set eraser size	Esc X54 ERSR ←	Ersr X54 ↵	Set the eraser size to X54 pixels.
View size	Esc ERSR ←	X54 ↵	View current eraser size.
Annotation edit functions			
Clear all annotations	Esc 0EDIT ←	Edit0 ↵	Clears all annotations on the output. Cannot be undone.
Undo last annotation	Esc 1EDIT ←	Edit1 ↵	Undoes the last annotation. Seven states are held in memory.
Redo annotation	Esc 2EDIT ←	Edit2 ↵	Previously removed annotation is placed on the output.
Annotation display			
Set output to show Annotation	Esc X2 ASHW ←	Ashw X2 ↵	Set which video outputs display annotations.
View font	Esc ASHW ←	X2 ↵	View setting.
Cursor display			
Set output to show cursor	Esc X2 CSHW ←	Cshw X2 ↵	Set which video outputs display the cursor.
View font	Esc CSHW ←	X2 ↵	View setting.

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
On-screen clock			
Enable on-screen clock	Esc X56 TIME ←	Time X56 ↵	Display the time on the video output.
View settings	Esc TIME ←	X56 ↵	View setting.
On-screen clock horizontal position			
Specific value	Esc K X16 HCTR ←	HctrK X16 ↵	Set horizontal position to X16.
Increment up	Esc K +HCTR ←	HctrK X16 ↵	Shift clock right.
Increment down	Esc K -HCTR ←	HctrK X16 ↵	Shift clock left.
View settings	Esc K HCTR ←	X16 ↵	Horizontal position value is X16.
On-screen clock vertical position			
Specific value	Esc K X16 VCTR ←	VctrK X16 ↵	Set vertical centering to X16.
Increment up	Esc K +VCTR ←	VctrK X16 ↵	Shift clock down.
Increment down	Esc K -VCTR ←	VctrK X16 ↵	Shift clock up.
View settings	Esc K VCTR ←	X16 ↵	Vertical position value is X16.
On-Screen Menu Configuration			
Menu timeout			
Set menu timeout	Esc X28 MDUR ←	Mdur X28 ↵	Sets the Menu duration to X28 seconds.
View timeout	Esc MDUR ←	Mdur X28 ↵	View setting.
NOTE *Setting the timeout to zero disables the OSD timeout.*			
Menu display			
Set which output to show menu on	Esc X2 MSHW ←	Mshw X2 ↵	Sets which video outputs display the OSD.
View setting	Esc MSHW ←	X2 ↵	View setting.
NOTE *If the menu is being displayed on one output, annotating in the menu area on outputs not showing the menu still affects the menu. The area is safe for annotation on any screen after the menu times out and docks away.*			

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
OSD capture button mode			
Save to internal memory	Esc 0MCAP←	Mcap 0↵	Sets the OSD image capture button to capture the image to internal flash memory.
Save to external location	Esc 1MCAP←	Mcap 1↵	Sets the OSD image capture button to send the image to internal RAM memory. This mode allows images to be streamed to an external PC for archiving/printing.
View setting	Esc MCAP←	1↵ /0↵	View setting.
Image Capture/Recall			
Image capture/recall to Annotator flash memory			
Save image	Esc 0**filename*MF←	Ims**filename*↵	Saves currently displayed image to memory under designated name.
Recall image	Esc 0**filename*RF←	Imr**filename*↵	Recalls displayed image.
Mute image	Esc 0*0RF←	Imr0*↵	Mutes image on the output and reveals live input video
Current image	Esc RF←	*filename*↵	View currently displayed image name.
NOTE *The filename must be 16 characters or less, including the *.bmp extension.*			
Image Quick Capture			
Save image to RAM	Esc QCAP←	Qcap↵	Saves currently displayed image to RAM.
Stream image to PC	Esc 1MF←	(raw bitmap data with checksum)	Steams image data for RAM directly to requesting PC*.
NOTE **Requires Quick Capture software to run on requesting PC.*			
Resets			
Erase user-supplied Web pages and files	Esc *filename*EF←	Del•*filename*↵	
Erase current directory and files	Esc /EF←	Ddl↵	
Erase current directory and subdirectories	Esc //EF←	Ddl↵	
Erase flash memory	Esc ZFFF←	Zpf↵	
Reset all device settings to factory default settings	Esc ZXXX←	Zpx↵	
Absolute system reset	Esc ZQQQ←	Zpq↵	Includes resetting IP to 192.168.254.254 and subnet mask to 255.255.000.000.
Absolute system reset (but retain IP)	Esc ZY←	Zpy↵	

PRELIMINARY

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
NOTE *This reset is similar to ZQQQ but excludes IP address, subnet mask, gateway addresses, unit name, DHCP setting, and port mapping (telnet/web/direct access) in order to maintain communications with device. Recommended after a firmware update.*			
Information request			
General information	1/i	Vid[X1]•Typ[X3]•Std[X11]•Blk[X10]•Hrt[X13]•Vrt[X13]•Pip[X1]↵	
Query firmware version	Q/q	x.xx↵	
Query part number	N/n	68-968-xx↵	View part number.
View internal temperature	[Esc] 20STAT←	STAT20•[X12]↵	Temperature in degrees Celsius.

6

Chapter Six

PRELIMINARY

Annotator Software

Installing and Starting the Signal Processing Products Control Program

Using the Program

Installing and Starting the Signal Processing Products Control Program

The Annotator can be operated via the Windows®-based Signal Processing Products Control Program (SPPCP). This program is on the Extron Software Products DVD (included with the unit) or available at www.extron.com. Install and run this program on a Windows-based PC connected to either of the serial ports or the Ethernet port. See page 2-4 for connection information. The program cannot be run from the DVD.

Installing the program

1. Insert the DVD into the drive. The DVD self starts.

NOTE *The DVD starts only if you have a DVD drive on your PC.*

The Extron software window appears.

NOTE *If the disc does not self-start, run Launch.exe from the disc.*

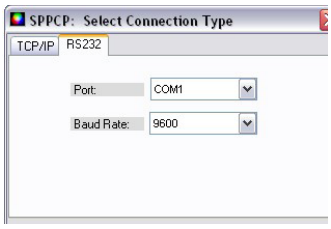
2. Click the **Software** tab.
3. Scroll to the Signal Processing Products program and click **Install**.
4. Follow the on-screen instructions. The installation program creates a C:\Program Files\Extron\Signal Processing folder. Three icons are created:

- Signal Processing program
- Signal Processing Help
- Uninstall Signal Processing Control program

Starting the program

1. Click **Start** > **Programs** > **Extron Electronics** > **Signal Processing** > **Signal Processing Products Control Program**.

The Select Connection Type window appears.



2. Either choose the comm (serial) port that is connected to the Annotator or select the **TCP/IP tab**.

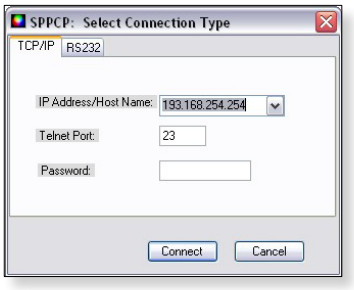
NOTE **For a comm port**, *check the baud rate displayed in the comm port selection window. To change the baud rate, click the* **Baud** *button, select the desired rate. To exit without starting the program, click* **Cancel**.

If you selected a serial port in step 2 click **OK.** The control program is ready for operation.

3. **If you selected TCP/IP tab in step 2**, the TCP/IP Connection window appears.

a. Examine the IP Address field, which displays the last IP address entered, or the drop-down box which lists the most recently used IP addresses.

If listed, select the applicable IP address, or enter the correct IP address in the field.



NOTE *192.168.254.254 is the factory-specified default IP address.*

b. If the unit is password protected, enter the appropriate administrator or user password in the Password field.

c. Click **Connect**. The Control Program is ready for operation.

Using the Program

The Signal Processing Products Control Program (SPPCP) is used to configure and operate the Annotator from the PC on which the program resides.

Orientation

The SPPCP main window (figure 6-1) has 5 tabs: Control, I/O Configuration, Advanced Settings, Image Capture, Font. Click on each as desired.

The menu bar on the main window shows File, Options, Tools, and Help. Click on each as desired.

At the bottom of the window is the status bar, indicating the status of the connection or any configuration error messages.

NOTE *For detailed Signal Processing Product Control Program instructions when the program is open; press F1 or click on* **Help, Contents**.

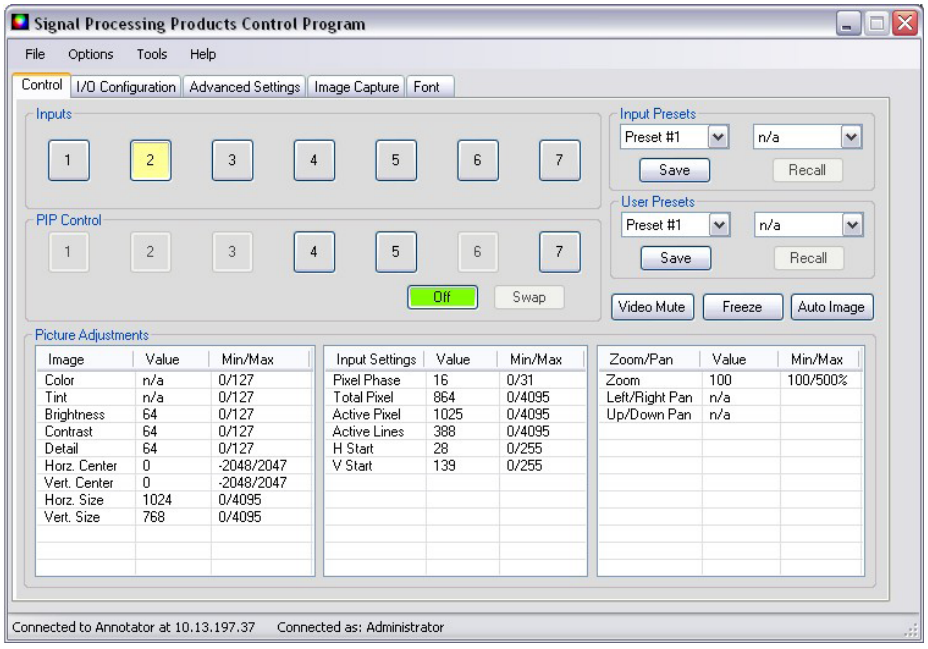
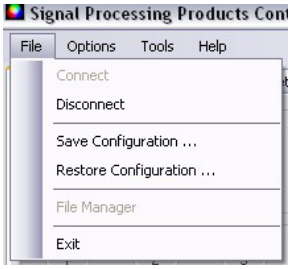


Figure 6-1 — The control program main window

Control program menus



File menu

Click on this to open a drop-down menu displaying six selectable options; Connect, Disconnect, Save Configuration..., Restore Configuration..., File Manager, and Exit.

- **Connect —** Select this to reconnect the Annotator (or connect a new device) when it has been disconnected from the Signal Processing Products Control Program. Then follow the steps for "*Starting the program*" on page 6-2.
- **Disconnect —** Select this to disconnect the unit from the Signal Processing Products Control Program. The SPPCP remains open, but items on the main window are grayed out and configuration via the SPPCP is not available.
- **Save Configuration... —** Select this to save the current configuration. A secondary window opens allowing choice of items to save, and selecting a folder location for the saved xxx.cfg files.

NOTE *If these files are saved to the root directory of the Annotator, they are accessible at a later time.*

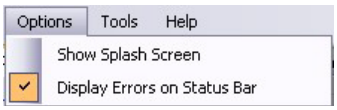
- **Restore Configuration... —** Select this to restore a saved configuration. A secondary window opens allowing a choice of which folder to restore the files from. A pop-up confirmation window opens allowing the action to be completed or cancelled.
- **File Manager —** Select this to load the Extron IP Link® File Manager application. This application is useful in uploading and downloading files to and from IP Link-enabled devices.

NOTE *This option becomes enabled when the File menu is accessed after installing File Manager. In order to use this option, download the IP Link File Manager application at* **www.extron.com**.

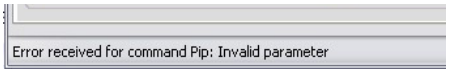
- **Exit —** Select this to exit the Control Program. This disconnects and closes the Signal Processing Products Control Program application.

Options menu

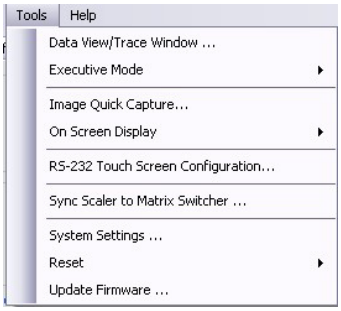
Click on this to open a drop-down menu displaying two selectable options: Show Splash Screen, and Display Errors on Status Bar.



- **Show Splash Screen —** Select this to show the Extron Signal Processing Products Control Program splash screen upon startup. Deselected, the program opens immediately at the Select Connection Type window.
- **Display Errors on Status Bar —** Select this to display any operation errors on the status bar at the bottom of the window



Tools menu

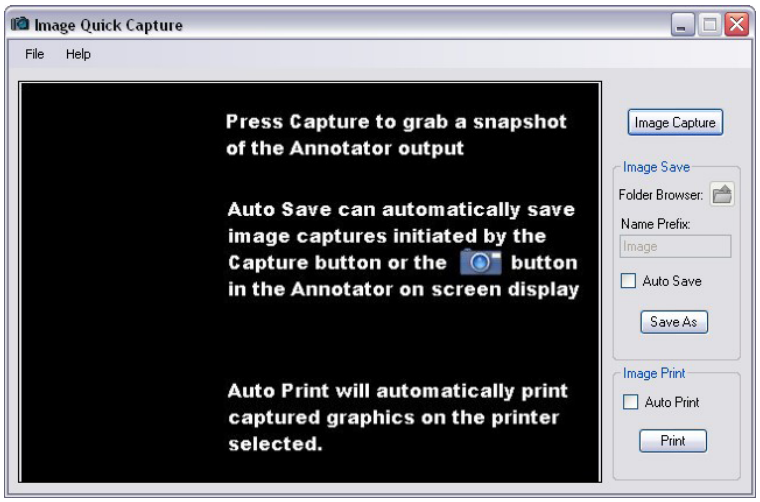


Click on this to open a drop-down box displaying nine selectable options: Data View/Trace Window... Executive Mode, Image Quick Capture..., On Screen Display, RS-232 Touch Screen Configuration..., Sync Scaler to Matrix Switcher..., System Settings..., Reset, and Update Firmware....

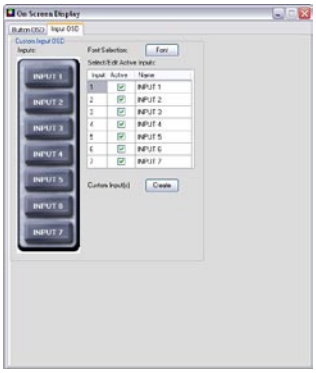
- **Data View/Trace Window... —** Select this to open a separate window in which the transmit and receive (Tx/Rx) data between the control software on the host PC and the Annotator can be viewed in ASCII format (see figure at right). During data transmission and receipt, the data tracer window is constantly updated. To close the window, click **Close** or the X in the window's top right corner.

- **Executive Mode —** Select this to open a secondary drop-down box, allowing selection between Input Switch/Freeze only, On, or Off. Select as desired.

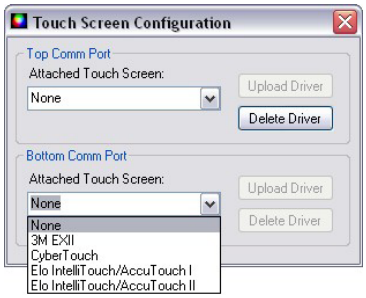
- **Image Quick Capture —** Select this to open a secondary window. Within that window select the image to capture, where to save the image to if desired, and/or to print the image (after capture).



- **On Screen Display —** Select this to open a secondary drop-down box, offering the choice of using the Default OSD or the Custom OSD. Select as desired. If selecting Custom OSD, a separate window opens allowing customization of the OSD menu bar (Button OSD) and inputs selection bar (Input OSD).



- **RS-232 Touch Screen Configuration... —** Select this to open a secondary window. Within that window select the applicable comm port (top or bottom), the touch screen type and upload (or delete) the relevant driver. Click **Close** or the X in the window's top right corner to exit without making changes.



- **Sync Scaler to Matrix Switcher —** Select this to open a secondary window. Within that window enter the IP address of the matrix switcher to which the Annotator is connected. If required enter the password, then click **Connect to Matrix**. Select the output number from the Matrix Output to Annotator drop-down list and click **Take**. The Matrix Status section displays the matrix output that is being monitored and the tied input. The Annotator Input #3 section displays the current status of the input being used.

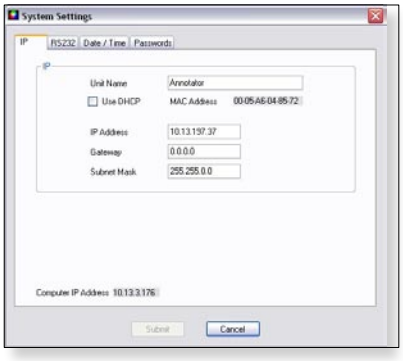
NOTE *The matrix switcher must be connected to via a configured input on the Annotator. See page 3-12 for information.*

The matrix and the Annotator must to be connected to an active network at all times to allow the products to remain synchronized. If the connection is lost, the script needs to be restarted by either sending the SIS command or by power cycling the Annotator.

Click **Refresh Status** to update the status of the matrix switcher. Refreshing the status returns updated information about which scaler input is tied to a particular matrix output.

If you need to change the matrix IP address or to which output of the matrix the Annotator is connected, click **Remove Sync Scripts.**

- **System Settings... —** Select this to open a secondary window. This allows changes to be made to various device settings: IP and RS-232 connections, date/time, and passwords. Select the applicable tab, change the settings as desired, and click **Submit** to make the changes effective.



NOTE *Changing the IP address may result in loss of connection to the LAN.*

Only the baud rate can be changed when selecting the RS-232 tab.

Click **Cancel** or the X in the window's top right corner to exit without making changes.

- **Reset —** If it is necessary to reset the Annotator, select this to open a secondary drop-down box. Two options are available: Reset to Factory Defaults and Reset to Absolute Defaults Except IP Settings.

  Reset to Factory Defaults resets all settings on the device to their factory defaults, including all video and audio settings, and clears all configuration files from the device.

  Reset to Absolute Defaults Except IP Settings resets all setting on the device to their defaults, including all captured images and the customized On Screen Display. IP settings are not reset.

  Select as desired.

- **Update Firmware... —** Selecting this opens the Firmware Loader application (where already installed on a connected PC). The Firmware Loader uploads new firmware to the device, through a serial port or TCP/IP connection.

  In order for the Update Firmware function to work, the Firmware Loader application must be installed on the connected PC. If already installed, skip steps **1 through 4** below.

  To download and install the Firmware Loader application:

  1. Go to www.extron.com.

  2. Enter "Firmware Loader" in the Search field and press Enter.

  3. Locate the Firmware Loader application in the search results and click **Download Now!**

  4. Follow the on-screen prompts to complete the download.

  To update the device's firmware:

  1. From the Tools menu, select Update Firmware. The SPPCP minimizes and the Firmware Loader application opens.

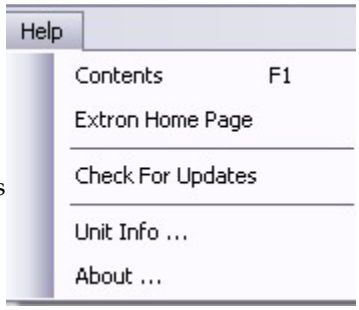
  2. Click **Browse** to search for the device-specific firmware file (with the file extension ".S19") that has been downloaded to the connected PC.

  3. Click **Upload**. This uploads the new firmware to the connected device.

  4. Exit the Firmware Loader. The SPPCP restores itself and displays the Connect dialog box. This dialog appears since the connection is lost after a firmware upload. Re-enter the connection information in the Connect dialog box to re-establish communication with the device.

Help menu

Click on this to open a drop-down menu displaying five selectable options: Contents, Extron Home Page, Check for Updates, Unit Info... and About....



- **Contents —** Select this (or press F1) to bring up the Help file which gives step-by-step instructions to configure the Annotator using the SPPCP program. The Help File opens in a separate window (see figure 6-2). Select the subject matter from the contents section at the left side of the window.

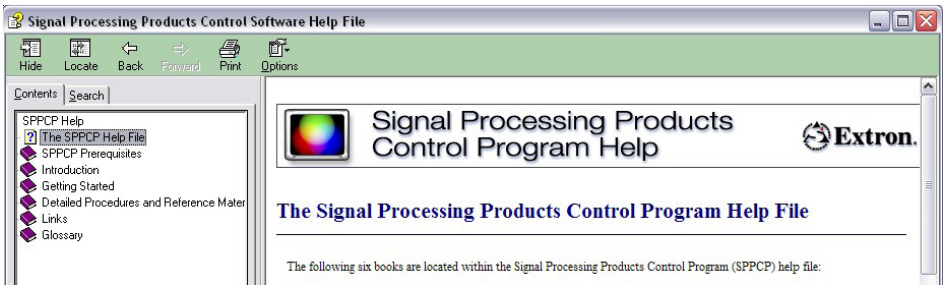
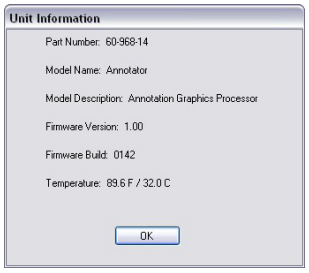


Figure 6-2 — The control program' Help File's main window

- **Extron Home Page —** Select this to open the Extron Web site (www.extron.com) home page. From this link, device firmware and necessary applications such as Firmware Loader and IP Link File Manager can be downloaded, and supporting documentation for Extron products can be viewed.
- **Check For Updates —** Select this to update the software control program (SPPCP). If an update is available follow any on-screen instructions to install it. A dialog box appears if no updates are currently available. Click **OK** or the X in the window's top right corner to close it.
- **Unit Info... —** Select this to open a dialog box with information about the connected device. The box shows the part number, the name, model description, currently installed firmware version and build, and the device's internal temperature.



Control tab

The Control tab displays the current configuration of the Annotator, with numbered boxes representing the video inputs. Also shown on the Control tab are the PIP control buttons, current Picture Adjustment values, input and user presets, as well as Mute, Freeze and Auto Image buttons.

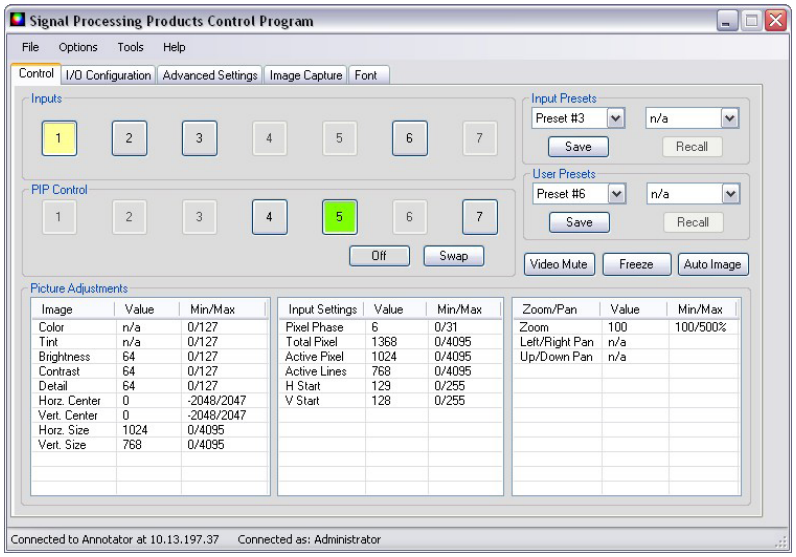


Figure 6-3 — The Control tab screen

- **Inputs —** The current active input is shown (yellow). Select a desired input button to change to that input.
- **PIP Control —** To swap a selected Picture-In-Picture input for the main input as desired, click **Swap**. To select a different PIP input click on that PIP input button, then click **Swap**. To turn the PIP feature off, click **Off**.
- **Picture Adjustments —** The Picture Adjustments section at the bottom of the Control tab has three tables: Image, Input Settings, and Zoom/Pan. Each table's value field can be adjusted as desired. Refer to the SPPCP Help File for details.
- **Input Presets —** The specific settings for size, centering, contrast, brightness, detail, zoom, and input configuration of an input can be saved to a preset. Up to 128 input presets can be saved. A saved preset can be recalled as desired. Select a preset number and click **Save** or **Recall** as applicable.

NOTE *Saving to an existing preset overwrites the prior saved data in favor of the new.*

- **User Presets —** A user preset saves specific settings for color, brightness, detail, size, zoom and pan, and centering and up to 16 user presets per input are available. These settings can then be recalled and applied to an applicable input. Select a preset number and click **Save** or **Recall** as desired.
- **Video Mute—** Select this to mute or unmute the video image. When selected, the button text turns red.
- **Freeze —** Select this to freeze an image for use as a logo or for annotation.
- **Auto Image —** Select this to perform an auto image on an input.

I/O Configuration tab

The I/O Configuration tab allows input and output configuration, as well as EDID emulation settings to be adjusted.

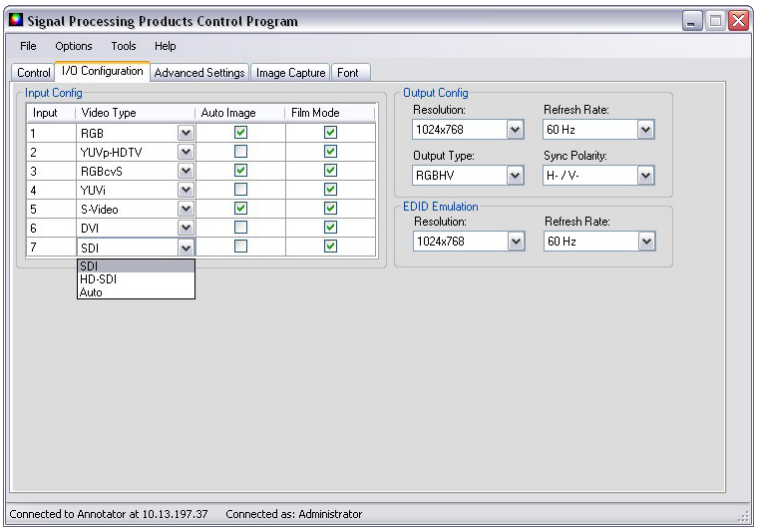


Figure 6-4 — The I/O Configuration tab screen

- **Input Config —** Set a suitable video type for an input by clicking on the drop-down box (see input 7 above) and selecting a listed video type.
  If Auto Image on an input is desired mark the check box.
  Check **Film Mode** if 3:2 pull down detection for NTSC and 2:2 film detection for PAL video sources is relevant.
- **Output Config —** To configure an output's resolution, refresh rate, output type, or sync polarity, select the desired values from the respective drop-down list.
- **EDID Emulation —** To set resolution and refresh rates for EDID Emulation, select the values from the drop-down list. Alternatively select Match Output to automatically set the EDID to match the output resolution and refresh rate.

Advanced Settings tab

The Advanced Settings tab allows advanced functions to be configured. These include test pattern selection, and advanced features, used primarily during initial setup.

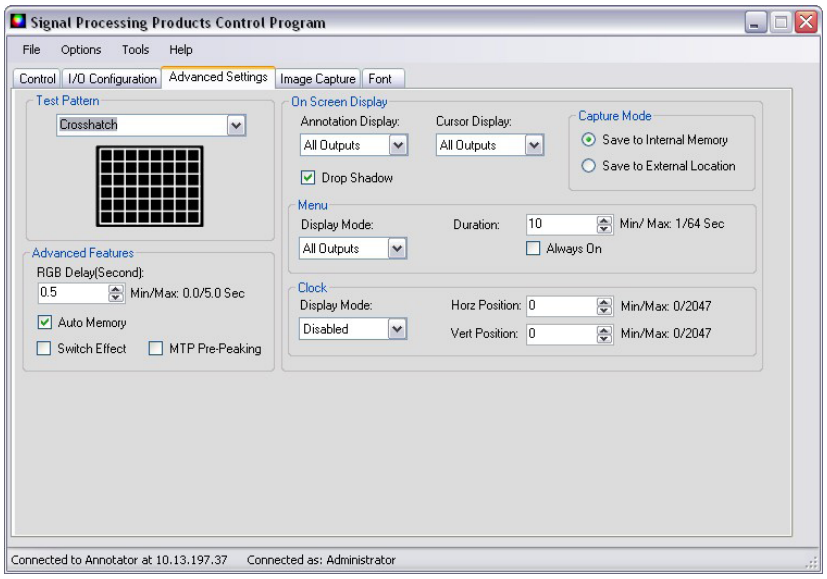


Figure 6-5 — The Advanced Settings tab screen

- **Test Pattern —** Select any of the 14 test patterns to aid setting up an output display device. A small thumbnail of the pattern is shown on the tab (see above). Select Off where a test pattern is not needed
- **Advanced Features —** Within this section RGB delay can be adjusted (from 0 to 5.0 seconds) in 0.1 second intervals with each click of the scroll arrows. In addition, auto memory can be turned on or off, and switch effect can be activated. If using mini twisted pair devices, pre-peaking can be turned on to compensate for long cable runs.
- **On Screen Display —** Within this section selections can be made to how annotation display and cursor display is handled by choosing form each drop-down list. In addition by selecting or deselecting a check box, drop shadow on annotations can be turned on or off.
- **Capture Mode —** These two selectable radio buttons allow a choice of locations for saving Quick Capture captured images to; either internal or external memory.
- **Menu —** The menu section allows a choice of display modes (all outputs, program only, preview only, or none) and the display duration, either from 1 to 64 seconds (adjustable in 1 second intervals) or always on. Select as desired.
- **Clock —** In this section the clock display mode can be set or disabled, and it's on-screen horizontal and vertical position can be adjusted.

Scan Converter tab

NOTE *The Scan Converter tab only appears if the optional scan converter output board is installed in the Annotator.*

The Scan Converter tab allows viewing and changing of the configuration settings. for the optional scan converter output board.

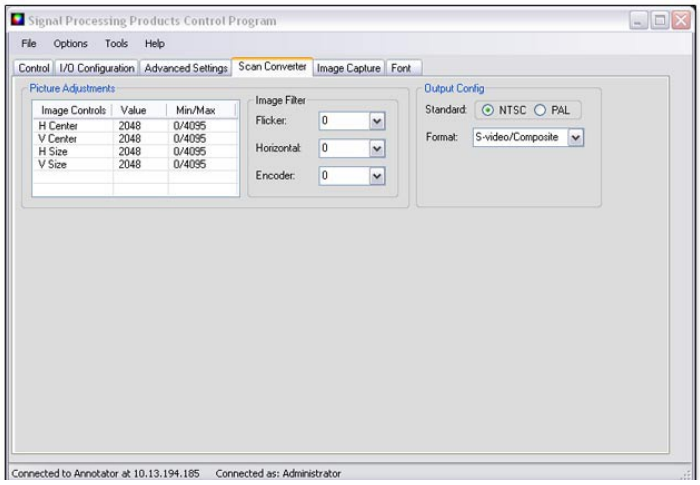


Figure 6-6 — The Scan Converter tab screen

- **Picture Adjustments —** The Picture Adjustments and Image Filter sections of the Scan Converter tab allows adjustments to be made to the image settings of the scan converted output. Adjustable image settings are: Horizontal Center, Vertical Center, Horizontal Size, and Vertical Size. Change the value field (from 0 to 4095) as required. In addition the Image Filter settings (flicker, horizontal detail, and encoder sharpness) can be set as desired from each drop-down list.
- **Output Config —** In this section the output standard (PAL or NTSC) and the format of the scan converted output (S-video/Composite, YUVi, or RGsB) can be set. Select the applicable standard and format as desired.

Image Capture tab

The Image Capture tab allows capturing, saving, recalling, and deletion of displayed images.

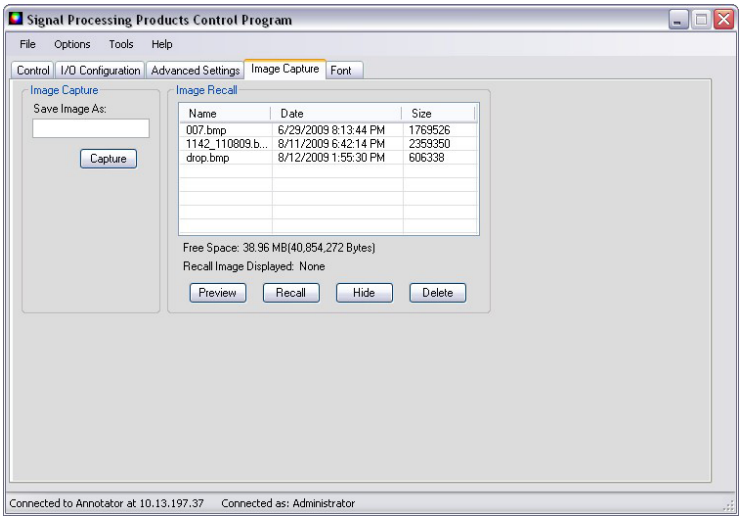


Figure 6-7 — The Image Capture tab screen

- **Image Capture —** Use this section to capture a displayed image. Enter a suitable name (maximum 12 characters) and click **Capture.**
- **Image Recall —** Use this section to recall a captured image. Select the desired image and click **Preview** to see a thumbnail image on the connected PC or **Recall** to show the image on a connected display device. In addition, a displayed image can be hidden and a captured image can be deleted within this section.

Font tab

The Font tab allows generation and selection of font type used by the Annotator.

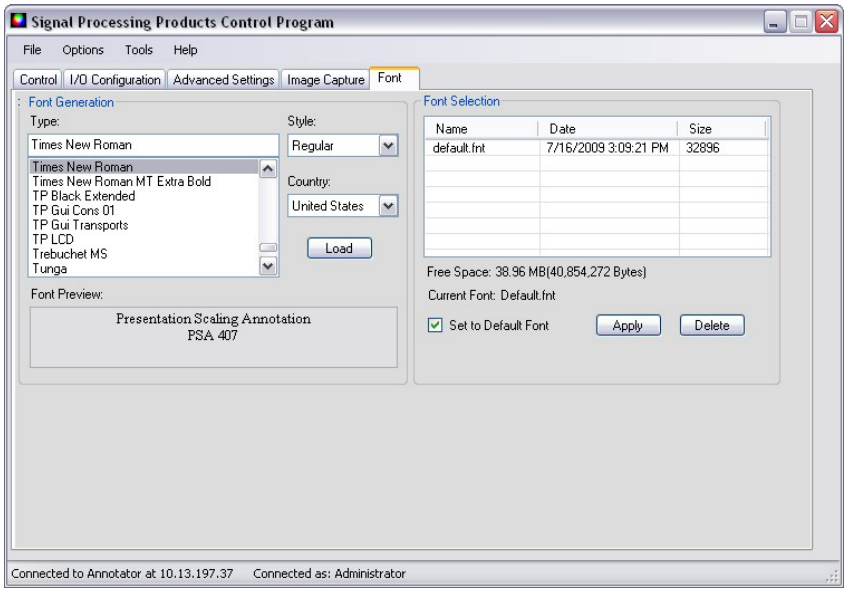


Figure 6-8 — The Advanced Settings tab screen

- **Font Generation —** Use this to generate a font type to use by selecting from the font Style drop-down list and font style (regular or bold). Select the country whose font characters are to be used (United States, France, or Germany) and click **Load**. Enter a file name for the saved font file in the Save As dialog box and click **Save**.
- **Font Selection —** Within this section select a font to use from the list and click **Apply**. If so desired check the **Set to Default Font** box. To delete a font select it and click **Delete**.

For full details on the tabs and using the software, refer to the Help File within the SPPCP.

Status bar

The status bar appears at the bottom of the SPPCP screen. It displays information about the application's current status as well as that of the device.

It shows unit connected, connection type (IP address or comm port), current user permission level (for example, Administrator), and any error information. If connected via Telnet, then the IP address or unit name of the device are displayed, and if connected via serial port, the baud rate and port number are displayed. Error information appears for 5 seconds in the status bar and then is replaced by connection and device information.

7

Chapter Seven

PRELIMINARY

HTML Operation

Accessing the Web Pages

System Status Page

Configuration Pages

File Management Page

Control Pages

Image Page

HTML Operation

The Annotator can be controlled and operated through its Ethernet port, connected via a LAN or WAN, using a Web browser such as Microsoft® Internet Explorer®. The browser displays the unit's factory-installed Web pages, which provide an alternative means of viewing and operating the device.

NOTE *If your Ethernet connection to the Annotator is unstable, try turning off the proxy server in your Web browser. To do this in Microsoft Internet Explorer, click Tools > Internet Options > Connections > LAN Settings, and clear the "*Use a proxy server...*" check box. Click* **OK**.

Accessing the Web Pages

Access the HTML pages as follows:

1. Start the Web browser program.
2. Click in the browser's Address field and enter your Annotator's IP address.

NOTE *If the local system administrators have not changed the value, the factory-specified default, 192.168.254.254, is the correct value for this field.*

4. If you want the browser to display a page other than the default page (such as a custom page that you have uploaded), enter a slash (/) and the name of the file to open.

NOTE *The browser's Address field should display the address in the following format: xxx.xxx.xxx.xxx/{**optional**_file_name.html}*

NOTE *The following characters are invalid in file names:* + ~ , @ = ' [ ] { } < > ' " ; : | \ *and* space.

5. Press the keyboard's Enter key. The Annotator checks to see if the unit is password protected.

   If the unit is not password protected, the System Status Web page is displayed.

   If the unit is password protected, the network password dialog box is displayed (figure 7-1).

Figure 7–1 — Example of a network password dialog box

6. In the Password field, enter the appropriate administrator or user password. If desired, select the check box to have the system input your password the next time you enter your Annotator's IP address. Click **OK**.

NOTE *A user name entry is not required.*

Some Web pages may not be available or may be viewable only when logged in as a user.

The Annotator checks several possibilities, in the following order, and then responds accordingly:

- Does the address include a specific file name, such as 192.168.254.254/file_name.html? **If so**, the unit downloads that HTML page.
- Is there a file in the device's memory that is named "index.html"? **If so**, the device downloads "index.html" as the default startup page.
- **If neither of the above conditions is true**, the device downloads the factory-installed default startup page, "nortxe_index.html" (figure 7-2), also known as the System Status page.

Any of the five main pages (System Status, Configuration, File Management, Control, and Images) can be accessed at any time by clicking on the relevant tab. Some of the main pages have a series of sub-pages, accessible by clicking on the links in the sidebar menu.

System Status Page

The System Status page (figure 7-2) displays system information (unit name, model, firmware version, etc.), IP settings, and serial port settings. The page updates itself periodically to reflect the latest status of the Annotator components. If a variable changes, the display shows the change in status the next time it updates.

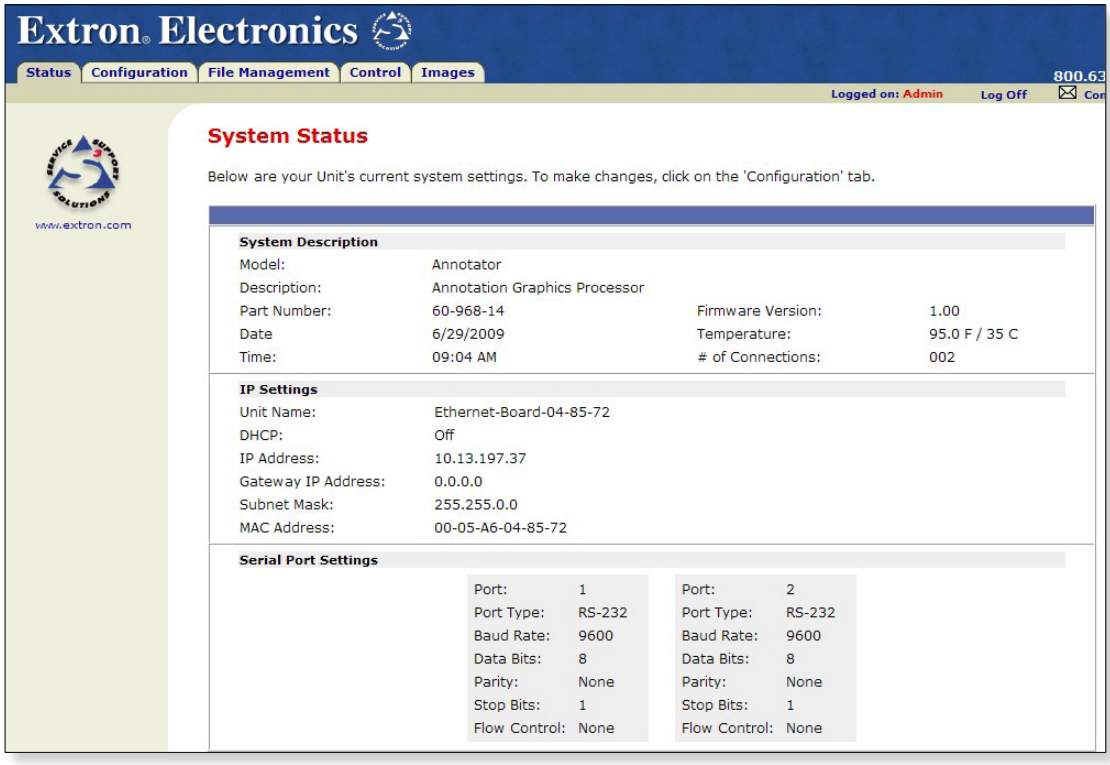


Figure 7-2 — System Status page

Configuration Pages

The Configuration pages allow System settings (such as IP address, date/time, etc.), scaler settings ( ), and passwords (admin and user), to be configured as desired. Additionally by selecting the Firmware Upgrade link the current firmware can be upgraded.

System Settings page

The Annotator displays the System Settings page (figure 7-3) when you click the Configuration tab. The screen consists of fields in which you can view and edit IP administration and system date and time settings. See Appendix B for basic information about IP addresses and subnetting.

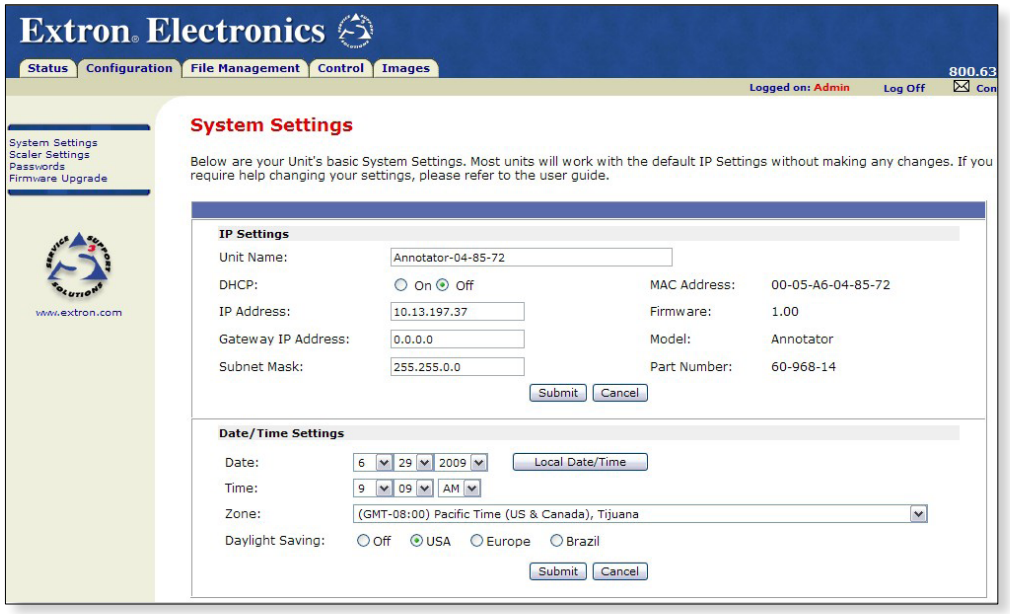


Figure 7–3 — System Configuration page

On password-protected connections, there are two levels of protection: administrator and user.
Administrators have full access to all unit capabilities and editing functions. Users can change inputs, create and recall presets, change images, and view all settings with the exception of passwords.

- Ethernet connection to the unit, either entering SIS commands (see chapter 5, "SIS Programmer's Guide") or using the Extron Signal Processing Products Control Program (see chapter 6, "Annotator Software") **is** password protected.
- Connection via the RS-232/RS-422 port **is not** password protected.

IP Settings fields

The IP Settings fields provide a location for viewing and editing settings unique to the Ethernet interface. After editing any of the settings on this page, click **Submit** at the bottom of the IP Settings section.

Unit Name field

The Unit Name field contains the name used as the "from" information when the Annotator e-mails notification of its failed or repaired status. This name field can be changed to any valid name, up to 24 alphanumeric characters.

NOTE *The following characters are invalid in the device name:* + ~ , @ = ‘ [ ] { } < > ’ “ ; : | \ *and* ?.

DHCP radio buttons

The DHCP On radio button directs the device to ignore any entered IP addresses and to obtain its IP address from a Dynamic Host Configuration Protocol (DHCP) server (if the network is DHCP capable).

The DHCP Off radio button turns DHCP off. Contact the local system administrator to determine this control's setting.

IP Address field

The IP Address field contains the IP address of the Annotator. This value is encoded in the unit's flash memory.

Valid IP addresses consist of four 1-, 2-, or 3-digit numeric subfields separated by dots (periods). Each field can be numbered from 000 through 255. Leading zeros, up to 3 digits total per field, are optional. Values of 256 and above are invalid.

The factory-installed default address is 192.168.254.254, but if this conflicts with other equipment at your installation, you can change the IP address to any valid value.

NOTE *IP address changes can cause conflicts with other equipment. Only local system administrators should change IP addresses.*

Gateway IP Address field

The Gateway IP Address field identifies the address of the gateway to the mail server to be used if the device and the mail server are not on the same subnet.

The gateway IP address has the same validity rules as the system IP address.

Subnet Mask field

The Subnet Mask field is used to determine whether the Annotator is on the same subnet as the mail server when you are subnetting. For more information, see "Subnetting — A Primer", in Appendix B, "Ethernet Connection".

MAC Address field

The Media Access Control (MAC) Address is hard coded in the device and cannot be changed.

Firmware field

This field shows the firmware version number. This field changes only when the firmware is updated.

Model field

This field shows the model (Annotator) and cannot be changed.

Part Number field

This field shows the Annotator part number (60-968-xx) and cannot be changed.

Date/Time Settings fields

The Date/Time Settings fields (figure 7-4) provide a location for viewing and setting the time functions.

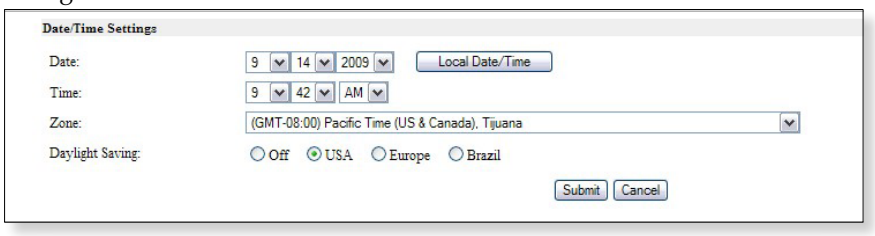


Figure 7–4 — Date/Time Settings fields

Change the date and time settings as follows:

1. Click the desired variable's drop box. The adjustable variables are month, day, year, hours, minutes, AM/PM, and (time) zone. A drop-down scroll box appears.
2. Click and drag the slider or click the scroll up or down buttons until the desired variable is visible.
3. Click on the desired variable.

NOTE *If setting the time, set the local time. The Zone variable allows you to then enter the offset from Greenwich Mean Time (GMT).*

NOTE *The Zone field identifies the standard time zone that has been selected and displays the amount of time, in hours and minutes, that the local time varies from the GMT international time reference.*

4. Repeat steps **1** through **3** for other variables that need to be changed.
5. Select the appropriate Daylight Saving radio button. To turn off daylight savings time, select Off.

NOTE *When daylight saving time is enabled, the unit updates its internal clock between Standard Time and Daylight Saving Time in the spring and fall on the date that the time change occurs in the United States of America and parts of Europe and Brazil. When daylight saving time is turned off, the unit does not adjust its time reference.*

6. Click the **Submit** at the bottom of the Date/Time Settings section to implement your selections.

Scaler Settings page

Access the Scaler Settings page (figure 7-5) by clicking the Scaler Settings link on the sidebar menu on the Configuration page.

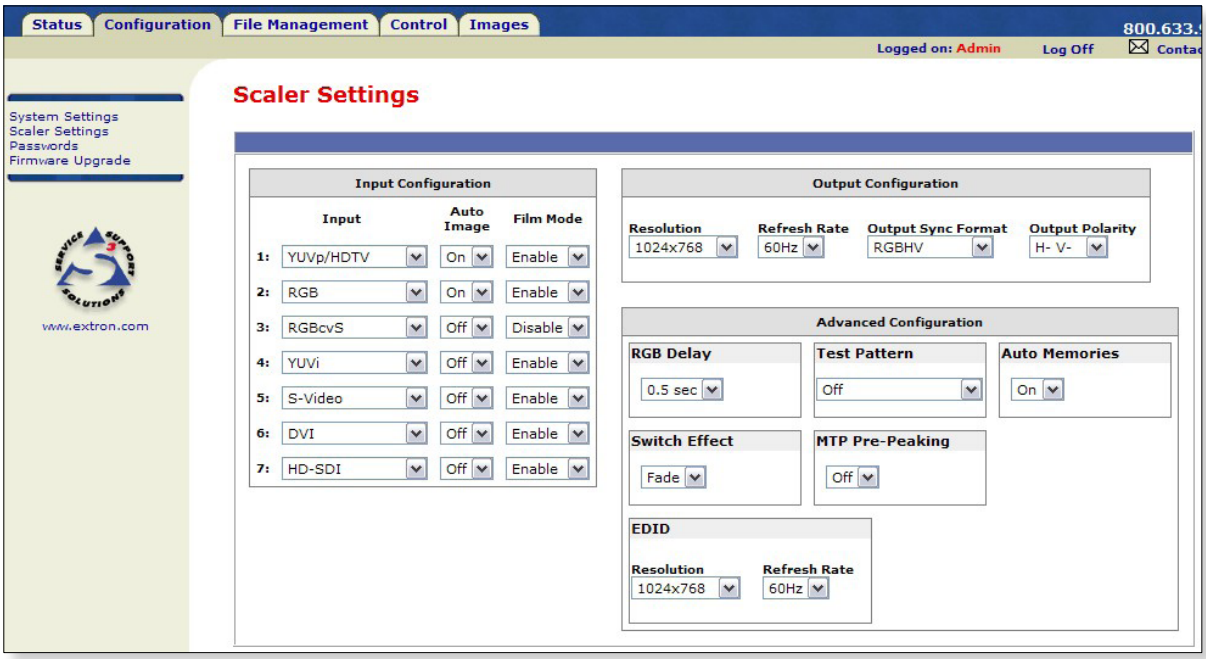


Figure 7–5 — Scaler settings page

The Scaler Status page displays input configuration settings (input signal format, auto image and film mode status) and output configuration settings (resolution and refresh rates, output sync format, and polarity), and advanced configuration settings (RGB delay, test pattern selection, auto memory status, switch effect, and MTP pre-peaking setting, and EDID resolution and refresh rates). Any settings can be changed and the unit updated to the new settings. The page updates itself periodically to reflect the latest status of the Annotator components. If a variable changes, the display shows the change in status the next time it updates.

Input configuration

For each of the seven inputs, the input format can be changed by clicking on the drop-down arrow and selecting the appropriate signal type:

NOTE *Selecting Auto Detect allows the device to automatically set the input to the appropriate signal format.*

- Input 1: RGB, YUVp/HDTV, Auto Detect
  Input 2: RGB, YUVp/HDTV, Auto Detect
  Input 3: RGB, YUVp/HDTV, RGBcvS, YUVi, S-video, composite, Auto Detect
  Input 4: YUVi, S-video, composite, Auto Detect
  Input 5: S-video, composite, Auto Detect
  Input 6: DVI
  Input 7: SDI, HD-SDI, Auto Detect

For each input Auto Image can be set on or off.

For each of the inputs Film mode can be enabled or disabled.

NOTE *Film mode processing helps maximize image detail and sharpness for NTSC, PAL, and HDTV 1080i sources that originated from film.*

Output configuration

Depending on the optional output card installed, the output connector and display device being used, the resolution and refresh rates can be set to one of 81 output rates from 640x480/50 Hz to 1920x1200, including HDTV 1080p/60 Hz. For a full table of output rates see page 3-8.

The output sync format can be chosen from RGBHV, RGsB, YUV bi-or tri-level sync.

Output polarity can be selected from H-/V- (default), H+/V-, H+/V+, or H-/V+.

Advanced configuration

Within this section, RGB delay can be set from a range of 0.0 seconds up to 5.0 seconds in 0.1 second steps. Use the drop-down box to select the desired setting. When switching inputs, the new input is displayed after the current RGB delay time, for example, 2.0 seconds.

If desired, an internal test pattern can be selected from the drop-down list of 14 patterns in order to aid the setting up a display device.

Switch effect can be toggled between Cut and Fade. The selected effect is seen on the connected display when inputs are switched.

Auto memories can be toggled on or off as desired.

When using the MTP (mini twisted pair) output, the pre-peaking setting can be turned on or off to compensate for the poor image quality of video signals transmitted over long distance twisted pair cable runs to a remote display. A compatible Extron MTP Series Twisted Pair Receiver is required for this output type.

Using EDID emulation, the Annotator provides a means for specifying the rate of the incoming DVI or VGA signal, and allows proper communication with the video source. EDID settings can be selected from the drop-down resolution and refresh rate lists.

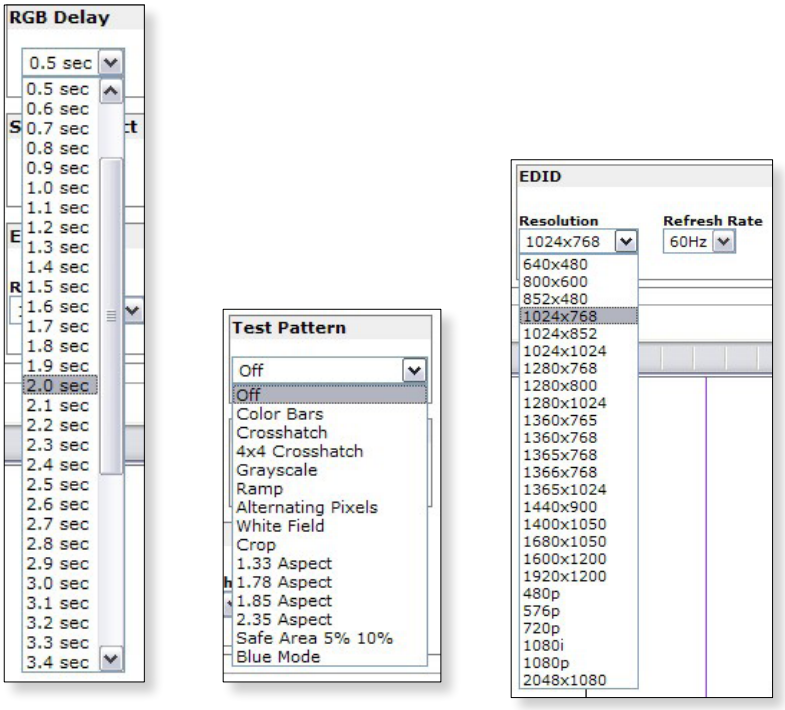


Figure 7–6 — RGB delay, Test pattern, and EDID selections

Passwords page

Access the Passwords page (figure 7-7) by clicking the Passwords link on the sidebar menu on Configuration page.

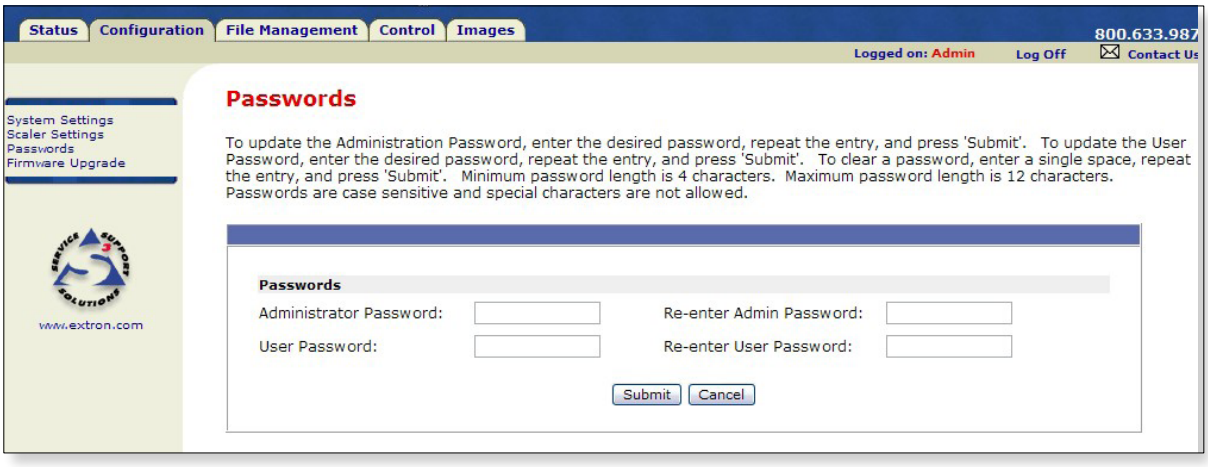


Figure 7–7 — Passwords page

The fields on the Passwords page are for entering and verifying administrator and user passwords. Passwords are case sensitive and are limited to 12 upper- and lowercase alphanumeric characters. Each password must be entered twice – once in the Password field and then again in the Re-enter Password field to the right. Characters in these fields are masked by four bullets (••••). If you do not want to password-protect an access level, leave the Password and the Re-Enter Password fields blank. After entering the desired password in both fields, click **Submit** at the bottom of the page.

NOTE *An administrator password must be created before a user password can be created.*

Some items may not be available or may be viewable only, when logged in as a user.

To clear an existing password so that no password is required, delete the bullets in the Password and Re-enter Password fields and enter a space in each field, then click **Submit** at the bottom of the page.

Firmware Upgrade page

The Firmware Upgrade page (figure 7-8) provides a way to replace the firmware that is coded on the Annotator's control board without needing to take the device out of service.

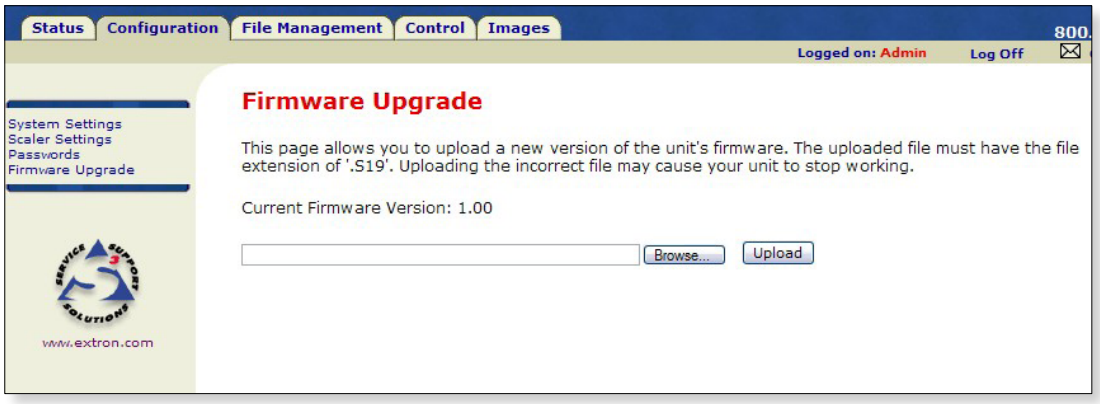


Figure 7–8 — Firmware Upgrade page

NOTE *The Firmware Upgrade page is **only** for replacing the firmware that controls all the device operation. To insert your own HTML pages, see* File Management Page, *later in this chapter.*

Update the Annotator firmware as follows:

1. Visit the Extron Web site, **www.extron.com**, and download the latest firmware file to your computer.
   a. On the Extron Web page, select the Downloads tab.
   b. On the Download Center page, click the Firmware link on the left sidebar menu.
   c. Click on the Annotator name.
   d. On the next screen, fill in the required information, then click the Download **product name_firmware version.exe** button.
   e. On the File Download - Security Warning window, click **Save**.
   f. On the Save As window, browse to the folder where you want to save the firmware file, and click **Save**. The firmware installation file is placed on your hard drive.
2. Access the Annotator internal Web pages.
3. Select the Configuration tab.
4. On the Configuration page, click the Firmware Upgrade link on the left sidebar menu.
5. Click **Browse**. A Choose file window opens.
6. Navigate to the folder where you saved the firmware upgrade file. Select the file.

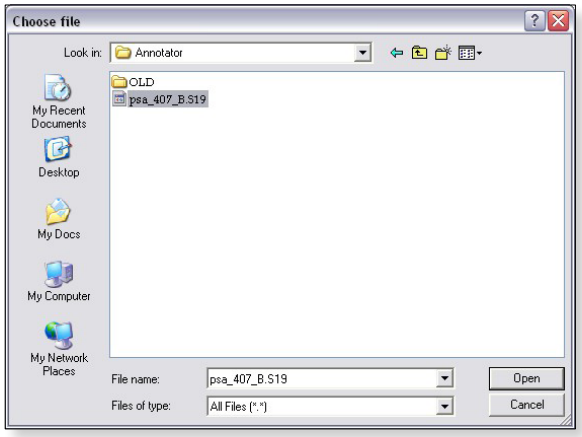


Figure 7–9 — Choose file window with a firmware file selected

NOTE *Valid firmware files must have the file extension ".S19." Any other file extension is* ***not*** *a firmware upgrade.*

NOTE *The original factory-installed firmware is permanently available on the Annotator. If the attempted firmware upload fails for any reason, the device reverts to the factory-installed firmware.*

7. Click **Open**.

8. On the Firmware Upgrade page, click **Upload**.

   While the firmware is uploading, the Upload button changes to Uploading... . When the uploading process is complete, the button changes back to Upload. The uploading may take a few minutes.

File Management Page

This page allows the user to upload or delete user files (such as HTML pages, or bitmaps) from the Annotator.

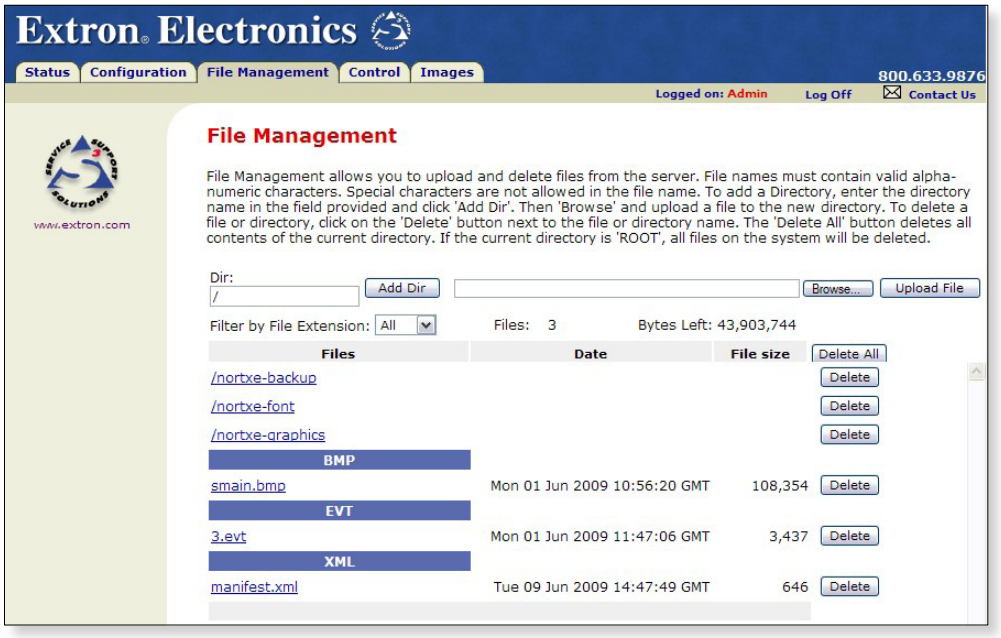


Figure 7–10 — File Management page

NOTE *The files listed in figure 7-10 are shown for example only and may not be present on your unit.*

Uploading files

Files to be uploaded to the Annotator must contain only valid alphanumeric characters and underscores.

NOTE *The following characters are invalid in file names:*
+ ~ , @ = ‘ [ ] { } < > ’ “ ; : | \ *and* space.

To upload files from the server, follow these steps:

1. Click **Browse** (to the right of the file name field).
2. Browse to locate the file that you want to upload, and open it. The file's name and directory path are displayed in the file name field on the File Management screen.
3. Click **Upload File**. The selected file name appears in the Files column on the File Management screen. (Files are listed separately under headings of their extensions.)

NOTE *If you want one of the pages that you create and upload to be the default startup page, name that file "index.html."*

Adding a directory

To add a directory or folder to the Annotator's file system, follow these steps:

1. Enter the directory name in the Dir: field, following the slash (/).
2. Click the **Add Dir** button or click **Add Dir**.
3. With the directory name displayed, perform the Uploading files procedure described in the previous section to add a file to the directory. The directory name appears at the top of the Files column, preceded by a slash.

To add more files to the directory, click the directory name to open it, then use the Uploading files procedure. To exit the directory, click (root) or (back).

Other file management activities

You can also perform the following tasks on the File Management screen:

Open a file — Click on the name of the file in the Files column.

Delete a file — Click **Delete** (at the right end of the line that contains the file you want to remove).

Delete all files — Click **Delete All**.

Display files by file extension — The Filter by File Extension menu lists the extensions of the files that have been uploaded to the Annotator. This menu lets you choose to display only files with the extension you select. Click **Select All** to display all uploaded files.

Control Pages

These three Control pages (User Control, Presets, and PIP Setup) allow limited device configuration. From the User Control page, the selection and viewing of inputs, mute and freeze selection, and execution of auto image is possible. Picture control and input sampling is also available on the User Control page. From the Presets page, up to 16 Memory presets and up to 30 Input presets can be saved and recalled. Using the PIP (Picture-in-Picture) page an input can be selected and swapped to become either the main image or the secondary (PIP) image. In addition, the PIP can be turned off and auto image can be performed an either input. Within PIP Setup limited picture control is possible. The Control pages initially open on the User Control page.

User Control page

The User Control page emulates some of the front panel features and displays the current picture control settings and input sampling data (see figure 7-11).
In addition, image muting/unmuting, freezing/unfreezing and Auto Image can be selected.

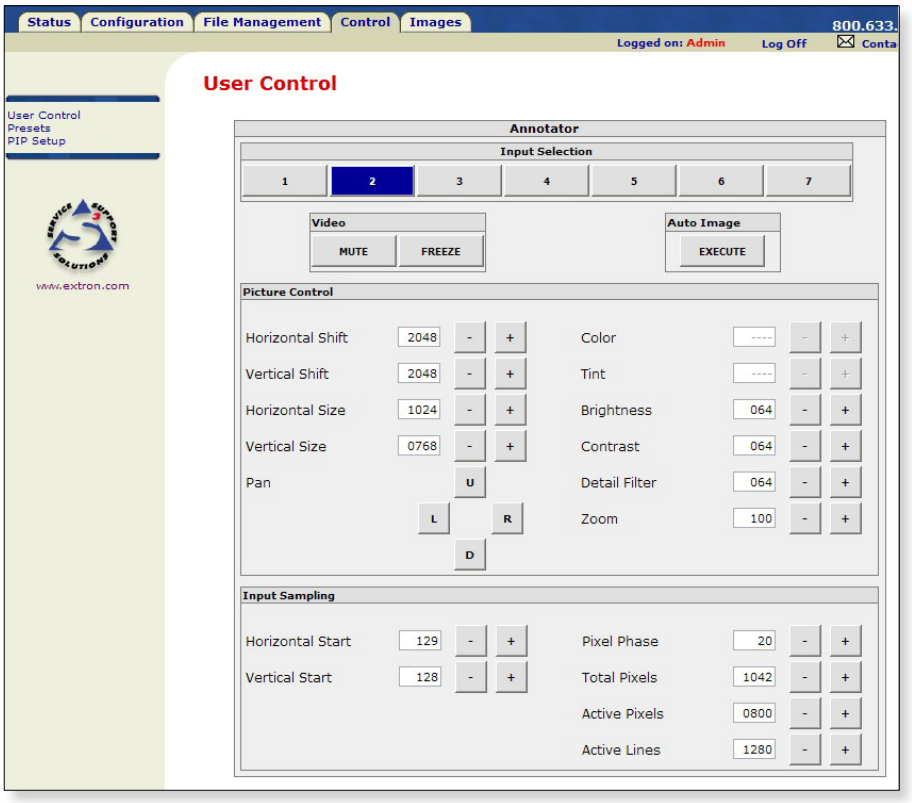


Figure 7–11 — User Control page

To select an input to be displayed, click on an input number. The selected input is displayed.

To mute or unmute, freeze or unfreeze the input image, click on the appropriate button. Muting the image blanks the display screen. Unmuting the image allows the image to be displayed.
Freezing the image keep the same image displayed, even when the input is switched. Unfreezing the image allows images from switched inputs to be viewed.

Presets page

From this page up to 16 Memory or 30 Input presets can be saved and recalled.

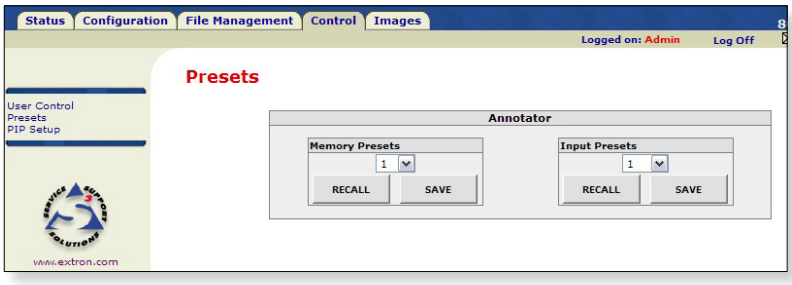


Figure 7–12 — Presets page

To save the current configuration to a memory or input preset, click on the applicable drop-down box, scroll to the desired preset number and click **Save**.

To recall a memory or input preset as the current configuration, click on the applicable drop-down box, scroll to the desired preset number and click **Recall**. The current configuration is then replaced by the recalled configuration.

PIP page

With this page, Picture-in-Picture setup is possible by selecting the main image and the secondary PIP image inputs.

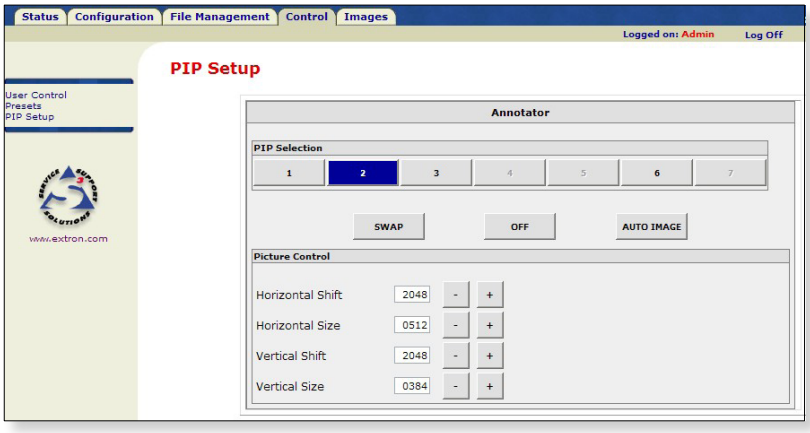


Figure 7–13 — PIP page

To toggle between two inputs click **Swap**.

To turn off the PIP format click **Off**.

Auto image is applied to any selected input when **Auto Image** is clicked on.

Images Page

This page allows images (.bmp format) to be added to or deleted from the Annotator, previewed, and recalled to be shown on a connected display device.

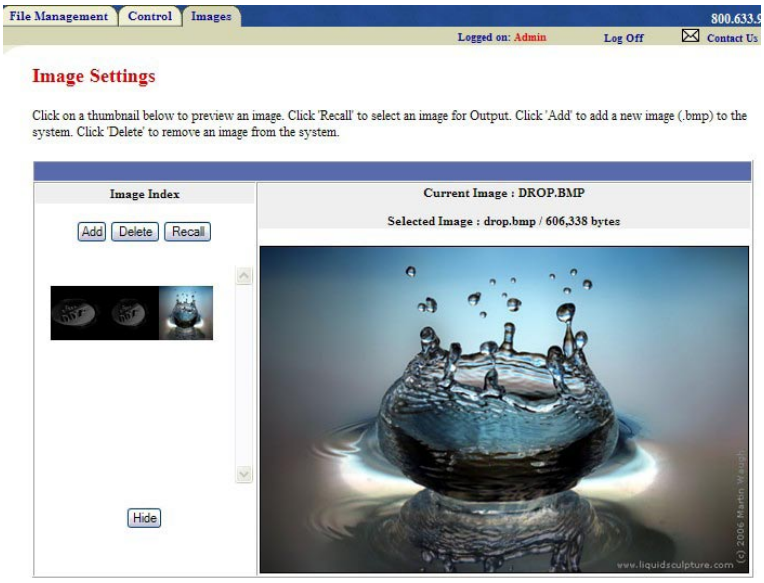


Figure 7–14 — Images page

To add an image, click **Add**, browse to the image location on the connected PC, and click **Upload Image**. The image is uploaded to theAnnotator and a thumbnail of the image is viewable on the Images Page (see figure 7-14).

NOTE *The image is not yet displayed.*

To preview an image without displaying it, click on the thumbnail.

To display an image click on a thumbnail image and then click **Recall**. The image is displayed. If no image appears on the display device, check the input selected and image format is correct.

To delete an image click on a thumbnail and then click **Delete**. The image is deleted from the Annotator files.

Appendix A

PRELIMINARY

Reference Information

Specifications — Annotator

Part Numbers, Cables, and Accessories

Reference Information

Specifications — Annotator

Video input

Number/signal type	2 RGBHV, RGBS, RGsB, component video (Y, R-Y, B-Y; progressive or HD) 1 RGBHV, RGBS, RGsB, component video (Y, R-Y, B-Y; interlaced, progressive, HD), S-video, composite video 1 component video (Y, R-Y, B-Y; interlaced), S-video, composite video 1 S-video, composite video 1 single link DVI-D 1 optional SDI, HD-SDI
Connectors	2 female 15-pin HD: RGBHV, RGBS, RGsB, component video 5 female BNC: RGBHV, RGBS, RGsB, component video, S-video, composite video 3 female BNC: component video, S-video, composite video 2 female BNC: S-video, composite video 1 female DVI-I: DVI-D 1 female BNC: optional SDI, HD-SDI
Nominal level	1 Vp-p for Y of component video and S-video, and for composite video 0.8 Vp-p for SDI 0.7 Vp-p for RGB and for R-Y and B-Y of component video 0.3 Vp-p for C of S-video
Minimum/maximum levels	Analog: 0.0 V to 2.0 Vp-p with no offset
Impedance	75 ohms
Horizontal frequency	Autoscan 15 kHz to 100 kHz
Vertical frequency	Autoscan 50 Hz to 120 Hz
Resolution range	640x480 to 1920x1200*, 480p, 576p, 720p, 1080i, and 1080p, digitized pixel for pixel; higher resolutions are undersampled. *Reduced blanking
Return loss	<-30 dB @ 5 MHz
DC offset (max. allowable)	0.5 V

Video processing

Digital sampling	30 bit, 10 bits per color; 13.5 MHz standard (video), 162 MHz standard (RGB, YUVp, DVI)
Colors	1 billion, 1024 per color channel
Encoder (for scan converted output)	10 bit digital
Horizontal filtering (for scan converted output)	3 levels
Vertical filtering (for scan converted output)	3 levels
Encoder filtering (for scan converted output)	3 levels

Video output

Number/signal type	2 buffered scaled RGBHV, RGBS, RGsB, or scaled HD component video (Y, R-Y, B-Y) 1 MTP 1 optional single link DVI-D; HD-SDI; or interlaced component video, S-video, composite video
Connectors	6 female BNC: RGB or component video 1 female 15-pin HD: RGB or component video 1 female RJ-45: output to an MTP device 1 slot for an optional DVI-D, HD-SDI, or interlaced component, S-video, composite video output card

Nominal level	1 Vp-p for Y of component video and S-video, and for G of RGsB 0.8 Vp-p for SDI 0.7 Vp-p for RGB and for R-Y and B-Y of component video 0.3 Vp-p for C of S-video
Minimum/maximum levels	0.0 V to 1.0 Vp-p
Impedance	75 ohms
Scaled resolution	640x480[6,8,9], 800x600[6,8,9], 852x480[6,8,9], 1024x768[6,8,9], 1024x852[6,8,9], 1024x1024[6,8,9], 1280x768[6,8,9], 1280x800[6,8,9], 1280x1024[6,8,9], 1360x765[6,8,9], 1360x768[6,8,9], 1365x768[6,8,9], 1365x1024[6,8,9], 1366x768[6,8,9], 1400x1050[6,8], 1440x900[6,8,9], 1600x1200[6,8], 1680x1050[6,8], 1920x1200[6,8] HDTV: 480p[7,8], 576p[6], 720p[3,4,5,6,7,8], 1080i[6,7,8], 1080p[1,2,3,4,5,6,7,8], 2048x1080[1,2,3,4,5,6,7,8] [1] = 23.98 Hz, [2] = 24 Hz, [3] = 25 Hz, [4] = 29.97 Hz, [5] = 30 Hz, [6] = 50 Hz, [7] = 59.94 Hz, [8] = 60 Hz, [9] = 75 Hz

Sync

Input type	RGBHV, RGBS, RGsB, RGBcvS, and component video
Output type	RGBHV, RGBS, RGsB, and component video (tri-level or bi-level)
Standards	NTSC 3.58, NTSC 4.43, PAL, SECAM Optional SDI/HD-SDI input: SMPTE 259M-C, SMPTE 292M
Input level	2.75 V to 5.0 Vp-p for RGBHV or RGBS 0.6 Vp-p for component video tri-level sync 0.3 Vp-p for component video bi-level sync or RGsB
Output level	TTL: 5.0 Vp-p, unterminated, bi-level or tri-level
Input impedance	Horizontal: 75 ohms Vertical: 510 ohms
Output impedance	75 ohms
Polarity	Positive or negative (selectable)

Control/remote — signal processor

Serial control port	2 RS-232/RS-422, female 9-pin D connectors (rear panel) 1 RS-232, 2.5 mm mini stereo jack (front panel)
Baud rate and protocol	9600 (default), 19200, 38400, 115200 baud, adjustable; 8 data bits, 1 stop bit, no parity
Serial control pin configurations	
9-pin D connector	RS-232: 2 = TX, 3 = RX, 5 = GND RS-422: 2 = TX-, 3 = RX-, 5 = GND, 7 = RX+, 8 = Tx+
2.5 mm mini stereo jack	Tip = TX, ring = RX, sleeve = GND
Ethernet control port	1 RJ-45 female connector
Ethernet data rate	10/100Base-T, half/full duplex with autodetect
Ethernet protocol	ARP, ICMP (ping), IP, TCP, UDP, DHCP, HTTP, SMTP, Telnet
Ethernet default settings	Link speed and duplex level = autodetected IP address = 192.168.254.254 Subnet mask = 255.255.0.0 Gateway = 0.0.0.0 DHCP = off
Web server	Up to 200 simultaneous sessions 40 MB nonvolatile user memory
Program control	Extron control/configuration program for Windows® Extron Simple Instruction Set (SIS™) Microsoft® Internet Explorer®, Telnet

Control/remote — annotation

Number/signal type	20 USB devices (via hubs) 2 serial devices 1 PS/2 mouse 1 PS/2 keyboard
Connectors	2 USB type A 2 RS-232, female 9-pin D (shared with standard control) 2 female PS/2

General

Power	100 VAC to 240 VAC, 50-60 Hz, 30 watts, internal
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Convection, vented on sides and top
Mounting	
Rack mount	Yes, with included brackets.
Furniture mount	Yes, with optional under-desk or through-desk mounting kit
Enclosure type	Metal
Enclosure dimensions	1.7" H x 17.5" W x 12.0" D (1U high, full rack wide) (4.3 cm H x 44.4 cm W x 30.5 cm D) (Depth excludes connectors and knobs.)
Product weight	6.8 lbs (3.1 kg)
Shipping weight	11 lbs (5 kg)
DIM weight	12 lbs (6 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Regulatory compliance	
Safety	CE, c-UL, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE *All nominal levels are at ±10%.*

NOTE *Specifications are subject to change without notice.*

PRELIMINARY

Part Numbers, Cables, and Accessories

Included parts

Included part	Replacement part number
Annotator	60-968-xx
US style IEC power cord	
Rubber feet, self-adhesive	
Annotator Setup Guide	
Tweeker (small screwdriver)	
Extron Software Products DVD	

Cables

NOTE *For signal cable requirements, please check the latest Extron catalog or visit* ***www.extron.com*** *for a comprehensive list.*
The cable listed below is for front panel RS-232 use.

Accessory	Part number
CFG 9-pin D female to 2.5 mm TRS configuration cable	70-335-01

Optional I/O boards

NOTE *The following I/O boards are optional and can be ordered separately.*

I/O board	Part number
SDI/HD-SDI input board	70-560-02
DVI output board	70-487-02
Scan Converter output board	70-486-02
SDI/HD-SDI output board	70-559-02

B

Appendix A

PRELIMINARY

Ethernet Connection

Ethernet Link

Subnetting — A Primer

Ethernet Connection

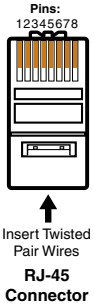
Ethernet Link

The rear panel Ethernet connector on the Annotator can be connected to an Ethernet LAN or WAN. This connection makes SIS control of the unit possible using a computer connected to the same LAN.

Ethernet connection

The Ethernet cable can be terminated as a straight-through cable or a crossover cable and must be properly terminated for your application (figure B-1).

- **Crossover cable** — Direct connection between the computer and the Annotator.
- **Patch (straight) cable** — Connection of the Annotator to an Ethernet LAN.



Straight-through Cable
(for connection to a switch, hub, or router)

End 1		End 2	
Pin	Wire Color	Pin	Wire Color
1	white-orange	1	white-orange
2	orange	2	orange
3	white-green	3	white-green
4	blue	4	blue
5	white-blue	5	white-blue
6	green	6	green
7	white-brown	7	white-brown
8	brown	8	brown

Crossover Cable
(for direct connection to a PC)

End 1		End 2	
Pin	Wire Color	Pin	Wire Color
1	white-orange	1	white-green
2	orange	2	green
3	white-green	3	white-orange
4	blue	4	blue
5	white-blue	5	white-blue
6	green	6	orange
7	white-brown	7	white-brown
8	brown	8	brown

Figure B–1 — RJ-45 connector pinout tables

Default address

To access the Annotator via the Ethernet port, you need the unit's IP address. If the address has been changed to an address comprised of words and characters, the actual numeric IP address can be determined using the ping utility. If the address has not been changed, the factory-specified default is 192.168.254.254.

Ping can also be used to test the Ethernet link to the Annotator.

Ping to determine Extron IP address

Theping utility is available at the DOS prompt. Ping tests the Ethernet interface between the computer and the Annotator. Ping can also be used to determine the actual numeric IP address from an alias and to determine the web address.

Ping the device as follows:

1. From the Windows Start menu, select Run... . The Run window opens.
2. In the Open text field, enter **command**.
3. Click OK. A DOS command window opens.
4. At the DOS prompt, enter **ping *IP address***. The computer returns a display similar to figure B-2.

   The line **Pinging ...** reports the actual numeric IP address, regardless of whether you entered the actual numeric IP address or an alias name.

```
C:\>ping 192.168.254.254

Pinging 192.168.254.254 with 32 bytes of data:

Reply from 192.168.254.254: bytes=32 time<10ms TTL=128
Reply from 192.168.254.254: bytes=32 time<10ms TTL=128
Reply from 192.168.254.254: bytes=32 time<10ms TTL=128
Reply from 192.168.254.254: bytes=32 time<10ms TTL=128

Ping statistics for 192.168.254.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Figure B–2 — Ping response

Ping to determine Web IP address

The ping utility has a modifier, *-a*, that directs the command to return the Web address rather than the numeric IP address.

At the DOS prompt, enter **ping -a IP *address***. The computer's return display is similar to the ping response shown in figure B-2, except that when you specify the *-a* modifier, the line **Pinging mail...** reports the Web IP address instead of the numeric IP address, regardless of whether you entered the actual numeric IP address or an alias name.

Connect as a Telnet client

The Telnet utility is available from the DOS prompt. Telnet allows you to input SIS commands to the Annotator from the PC via the Ethernet link and the LAN.

Access the DOS prompt and start Telnet as follows:

1. From the Windows Start menu, select **Run**... . The Run window opens.
2. In the Open text field, enter **command**.
3. Click **OK**. A DOS command window opens.
4. At the DOS prompt, enter **Telnet**. The computer returns a display similar to figure B-3, on the next page.

```
Microsoft (R) windows 2000 (TM) Version 5.0 (Build 2195)
Welcome to Microsoft Telnet Client
Telnet Client Build 5.00.99203.1

Escape Character is 'CTRL+]'

Microsoft Telnet>
```

Figure B–3 — Telnet screen

Telnet tips

It is not the intention of this manual to detail all of the operations and functionality of Telnet; however, some basic level of understanding is necessary for operating the Annotator via Telnet.

Connecting to the Annotator (Open command)

You connect to the Annotator using the Open command. Once your computer is connected to the unit you can enter the SIS commands the same as you would if you were using the RS-232 link.

Connect to the device as follows:

1. At the Telnet prompt, enter **open** ***IP address***.

   If the processor is not password protected, no further prompts are displayed until you disconnect from the Annotator.

   If the processor is password protected, Telnet displays the password prompt.

2. If necessary, enter the password at the password prompt.

   Connection to the processor via the Ethernet can be password protected. There are two levels of password protection: administrator and user.

   A person logged on as an administrator has full access to all the processing capabilities and editing functions.

   Users can select test patterns, mute or unmute the output, select a blue screen, and view all settings with the exception of passwords. By default, the processor is delivered with both passwords set to *carriage return*.

   Once you are logged in, the processor returns either **Login Administrator** or **Login User**. No further prompts are displayed until you disconnect the from the Annotator.

Escape character and Esc key

When Telnet is first started, the utility advises that the **Escape character is 'Ctrl+]'**. Many SIS commands include the keyboard Esc key. Consequently, some confusion may exist between the Escape character and the Esc key.

The Telnet Escape character is a key combination: the Ctrl key and the] key pressed simultaneously. Pressing these keys displays the Telnet prompt while leaving the connection to the Annotator intact.

The Escape key is the Esc key on the computer keyboard.

Local echo

Once your computer is connected to the Annotator, by default Telnet does not display your keystrokes on the screen. SIS commands are entered blindly, and only the SIS responses are displayed on the screen. To command Telnet to show all keystrokes, enter **set local echo** at the Telnet prompt before you open the connection to the processor.

With local echo turned on, keystrokes and the processor's responses are displayed on the same line. Example: **1*1*1!01Out01 In01 All** where **1*1*1!** is the SIS command and **01Out01 In01 All** is the response.

Note that all keystrokes are displayed, even those that should be masked, such as the password entry. For example, when entering a password with local echo turned on, you see a display such as **a*d*m*i*n***, where **admin** is the keyed-in password and ***** is the masked response.

Local echo can be turned off by entering **unset local_echo** at the Telnet prompt. If your computer is connected to the Annotator, and you need to access the Telnet prompt to turn local echo off, enter the Escape sequence (Ctrl +]).

Setting carriage return-line feed

Unless commanded otherwise, Telnet transmits a line feed character only (no carriage return) to the connected processor when you press the Enter key. This is the correct setting for SIS communication with the processor. The Telnet **set crlf** command forces Telnet to transmit carriage return and line feed characters when Enter is pressed; however, if **crlf** is set, the SIS link with the processor does not function properly.

Closing the link to the processor

To close the link to the processor, access the Telnet prompt by entering the Escape sequence (Ctrl +]). At the Telnet prompt, enter **close**.

Help

For Telnet command definitions, enter **?** at the Telnet prompt.

Exiting Telnet (Quit command)

Exit the Telnet utility by entering **quit** at the Telnet prompt. If you are connected to the Annotator, access the Telnet prompt by entering the Escape sequence (Ctrl +]).

Subnetting — A Primer

A subnet is a **sub**set of a **net**work — a set of IP devices that have portions of their IP addresses in common. It is not the purpose of this manual to describe TCP/IP protocol in detail. However, some understanding of TCP/IP subnetting is necessary in order to understand the interaction of the Annotator and the mail server gateway. To understand subnetting at the level required to install and operate the Annotator, you must understand the concepts of a gateway, local and remote devices, IP addresses and octets, and subnet masks and octets.

Gateways

The Annotator can communicate with the e-mail server that it uses for e-mail notification directly (if they are on the same subnet), or the communication can be routed via a gateway (a computer that provides a link between different subnets).

Local and remote devices

The local and remote devices are defined from the point of view of the function being described. In this manual, subnetting is an issue when you are using the controlling PC to set TCP/IP values in the Annotator.

IP addresses and octets

Valid IP addresses consist of four 1-, 2-, or 3-digit numeric subfields, properly called *octets*, which are separated by dots (periods) (figure B-4). Each octet can be numbered from 000 through 255. Leading zeros, up to 3 digits total per octet, are optional. Values of 256 and above are invalid.

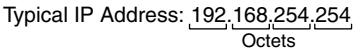


Figure B–4 — IP address and octets

Subnet masks and octets

The subnet mask (figure B-5) is used to determine whether the local and remote devices are on the same subnet or different subnets. The subnet mask consists of four numeric octets separated by dots. Each octet can be numbered from 000 through 255. Leading zeros, up to 3 digits total per octet, are optional. Each octet typically contains either 255 or 0. The octets determine whether or not the same octets of two IP addresses will be compared when determining if two devices are on the same subnet.

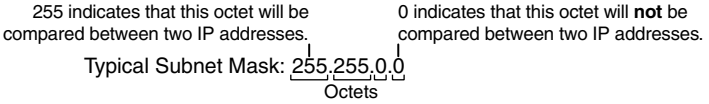


Figure B–5 — Subnet mask and octets

Determining whether devices are on the same subnet

To determine the subnet, the local device's IP address is compared to the remote device's IP address (figure B-6 below). Each address's octets are compared or not, depending on the value in the related subnet mask octet.

- If a subnet mask octet contains the value 255, the related octets of the local device's address and the remote device's IP address are unmasked.

  Unmasked octets are compared (indicated by **?** in figure B-6).

- If the subnet mask octet contains the value 0, the related octets of the local device's and remote device's IP addresses are masked.

  Masked octets are not compared (indicated by ***X*** in figure B-6).

If the unmasked octets of the two IP addresses **match** (indicated by **=** in figure B-6, example 1), the two addresses **are on the same subnet**.

If the two unmasked fields **do not match** (indicated by an unequal sign in figure B-6, example 2 and example 3), the addresses **are not on the same subnet**.

	Example 1	**Example 2**	**Example 3**
Local IP Address:	192.168.254.254	192.168.254.254	192.168.254.254
Subnet Mask:	255.255.0.0 (*?.?.X.X)*	255.255.0.0 (*?.?.X.X)*	255.255.0.0 (*?.?.X.X)*
Remote IP Address:	192.168.2.25	190.190.2.25	192.190.2.25
Match?:	=.=.*X.X* — **Match** (Same subnet)	≠.≠.*X.X* — **No match** (Different subnet)	=.≠.*X.X* — **No match** (Different subnet)

Figure B–6 — Comparing the IP addresses

Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:
Extron Electronics
1001 East Ball Road
Anaheim, CA 92805
U.S.A.

Japan:
Extron Electronics, Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

Europe, Africa, and the Middle East:
Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

China:
Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Asia:
Extron Asia
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Middle East:
Extron Middle East
Dubai Airport Free Zone
F12, PO Box 293666
United Arab Emirates, Dubai

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

PRELIMINARY

Extron **USA - West** Headquarters
+800.633.9876 Inside USA / Canada Only
+1.714.491.1500
+1.714.491.1517 FAX

Extron **USA - East**
+800.633.9876 Inside USA / Canada Only
+1.919.863.1794
+1.919.863.1797 FAX

Extron **Europe**
+800.3987.6673 Inside Europe Only
+31.33.453.4040
+31.33.453.4050 FAX

Extron **Asia**
+800.7339.8766 Inside Asia Only
+65.6383.4400
+65.6383.4664 FAX

Extron **Japan**
+81.3.3511.7655
+81.3.3511.7656 FAX

Extron **China**
+400.883.1568 Inside China Only
+86.21.3760.1568
+86.21.3760.1566 FAX

Extron **Middle East**
+971.4.2991800
+971.4.2991880 FAX