

Annotator 300

HDCP-Compliant Annotation Graphics Processor



Precautions

Safety Instructions

Safety Instructions • English

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ATTENTION: This symbol, ⚠, when used on the product, is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

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Instructions de sécurité • Français

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Korean

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AAP, AFL (Accu-Rate Frame Lock), ADSP (Advanced Digital Sync Processing), Auto-Image, CableCover, CDRS (Class D Ripple Suppression), DDSP (Digital Display Sync Processing), DMI (Dynamic Motion Interpolation), Driver Configurator, DSP Configurator, DSVP (Digital Sync Validation Processing), EQIP, FastBite, FOXBOX, Global Configurator, IP Intercom HelpDesk, Link License, MAAp, MicroDigital, ProDSP, QS-FPC (QuickSwitch Front Panel Controller), Scope-Trigger, SIS, Simple Instruction Set, Skew-Free, SpeedNav, Triple-Action Switching, XTRA, ZipCaddy, ZipClip

Conventions Used in this Guide

Notifications

The following notifications are used in this guide:

CAUTION: Risk of minor personal injury.

ATTENTION : Risque de blessure mineure.

ATTENTION :

- Risk of property damage.
- Risque de dommages matériels.

NOTE: A note draws attention to important information.

Software Commands

Commands are written in the fonts shown here:

```
^ARMerge Scene,,Op1 scene 1,1 ^B 51 ^W ^C
```

```
[Ø1] RØØØ4ØØ3ØØØØ4ØØØØ8ØØØØ6ØØ [Ø2] 35 [17] [Ø3]
```

```
[Esc] X1 * X17 * X20 * X23 * X21 CE ←
```

NOTE: For commands and examples of computer or device responses mentioned in this guide, the character “Ø” is used for the number zero and “O” is the capital letter “o.”

Computer responses and directory paths that do not have variables are written in the font shown here:

```
Reply from 2Ø8.132.18Ø.48: bytes=32 times=2ms TTL=32
```

```
C:\Program Files\Extron
```

Variables are written in slanted form as shown here:

```
ping xxx.xxx.xxx.xxx -t
```

```
SOH R Data STX Command ETB ETX
```

Selectable items, such as menu names, menu options, buttons, tabs, and field names are written in the font shown here:

From the **File** menu, select **New**.

Click the **OK** button.

Specifications Availability

Product specifications are available on the Extron website, www.extron.com.

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Introduction

This section describes this guide and features of the Annotator 300, including:

- [About this User Guide](#)
- [About the Annotator 300](#)
- [Features](#)

About this User Guide

This guide contains information to install, configure, and operate the Extron Annotator 300 HDCP-Compliant Annotation Graphics Processor with DTP Extension.

About the Annotator 300

The Extron Annotator 300 is a high performance, hardware-based annotation processor that allows a presenter to draw, point, or type over live presentations using a touch display, graphics tablet, or a keyboard and mouse.

The HDCP-compliant Annotator 300 includes HDMI and DisplayPort inputs, a universal analog video input, and three simultaneous outputs including two HDMI and a DTP twisted pair output. It also features advanced Extron video signal processing with a high performance scaling engine and fast, reliable switching. The DTP twisted pair output extends HDMI and bidirectional control signals to a DTP receiver over a shielded twisted pair cable up to 330 feet (100 meters). The Annotator 300 offers a wide range of annotation tools and controls, all easily accessible by the presenter using an intuitive on-screen GUI.

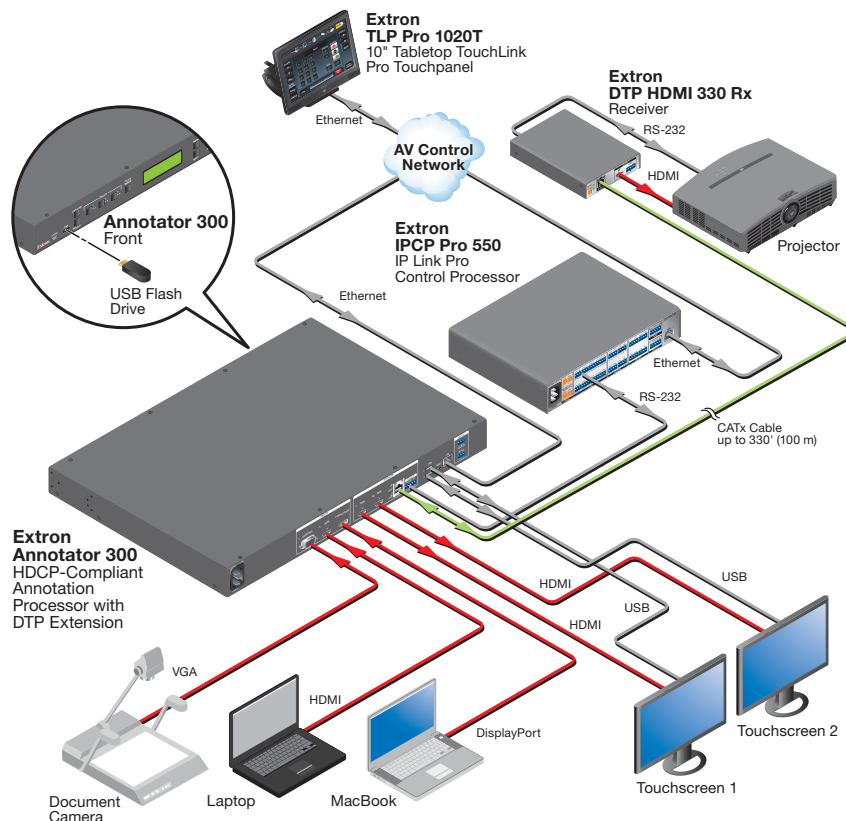


Figure 1. Typical Annotator 300 Application

Features

- **Live annotation capabilities plus high performance scaling and switching** — The Annotator 300 allows a presenter to draw, point, or add text in real-time over live video and graphics presentations.
- **Inputs** — Includes one HDMI; one DisplayPort; one universal 15-pin HD input for RGB, component video, S-video, or composite video.
- **Outputs** — Includes two HDMI, one DTP twisted pair output on RJ-45
- **Integrated three-input switcher with HDMI, DisplayPort, and universal analog video inputs** — The Annotator 300 delivers fast, reliable input switching between HDMI, DisplayPort, and analog video sources. The universal auto-detecting analog video input automatically detects incoming RGB, component video, S-video, or composite video.
- **Three simultaneous video outputs** — One DTP twisted pair output and two HDMI outputs are available for driving three displays.
- **Integrated DTP output supports transmission of HDMI with embedded audio and control up to 330 feet (100 meters) over a shielded STP cable** — The DTP output supports digital signal transmission of HDMI with embedded audio and control up to 330 feet (100 meters) over a shielded STP cable, providing high reliability and maximum performance on an easily installed cable infrastructure.
- **Intuitive graphical annotation interface** — A user-friendly on-screen display enables quick and easy annotation. Essential annotation tools are available for drawing freehand or lines, adding rectangular or elliptical shapes, typing text, highlighting an area of an image, pointing to an object on-screen, and using the screen as a whiteboard. Customization options are available for text and graphics, including point size and color.
- **Hardware-based graphics and video processing** — The Annotator 300 features a fully hardware-based system architecture designed to deliver the performance and operational reliability essential for mission-critical applications.
- **Compatible with popular touch displays and graphics tablets** — The Annotator 300 supports a wide variety of touch displays and graphics tablets from third-party manufacturers, and also can be used with a standard keyboard and mouse.
- **Capture, store, and recall images** — An image can be captured as a snapshot of the live video output, including annotations, and saved to internal memory, a removable USB flash drive, or a network location for archiving.
- **Print captured images using a network printer** — The Annotator 300 supports connection to a printer on the network, enabling captured images to be sent directly to the printer without connecting to a PC.
- **Configurable Main and Confidence outputs** — The outputs can be configured as separate Main and Confidence outputs with individually controlled visibility of annotation and OSD graphics.
- **HDCP compliant** — Fully supports HDCP-encrypted sources, with selectable authorization for unencrypted content.
- **Supported HDMI specification** features include data rates up to 6.75 Gbps, Deep Color, and HD lossless audio formats
- **Supports DisplayPort input** signals at resolutions up to 2560x1600
- **Compatible with shielded twisted pair cable** — The Annotator 300 fully supports a maximum transmission distance of 330 feet (100 meters) for all compatible resolutions when used with shielded twisted pair cable. Shielded twisted pair cabling with solid center conductor sizes of 24 AWG or better is recommended for optimal performance.

- **Extron XTP DTP 24 shielded twisted pair cable** is strongly recommended for optimal performance
- **Bidirectional RS-232 and IR pass-through for AV device control** — Bidirectional RS-232 control and IR signals can be transmitted alongside the video signal over the DTP connection, allowing the remote device to be controlled without the need for additional cabling. Bidirectional control extension eliminates the need for control system wiring to remote devices.
- **Remote powering of DTP receiver** — The Annotator 300 can provide remote power to a DTP receiver over the twisted pair connection, eliminating the need for a separate power supply at the remote unit.
- **Compatible with all DTP 230 and DTP 330 Series receivers, and DTP-enabled products** — Enables mixing and matching with desktop and wallplate receivers, as well as other DTP-enabled products to meet application requirements.
- **DTP output is compatible with HDBaseT-enabled devices** — The DTP output can be configured to send video and embedded audio, plus bidirectional RS-232 and IR signals to an HDBaseT-enabled display.
- **Auto-switching between inputs** — Auto-switching allows for simple, unmanaged installation in locations such as in a lectern or under a conference table. When multiple inputs are active, the switching priority is configurable.
- **Auto Input Format Detection** — For the universal analog video input, the Annotator 300 detects 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 matrix switcher, lowering system cost while improving manageability.
- **Selectable output rates from 640x480 to 1920x1200, including HDTV 1080p/60 and 2K** — Available output rates include computer-video up to 1920x1200, HDTV rates up to 1080p/60, and 2K.
- **Advanced scaling engine with 30-bit processing and 1080i deinterlacing** — Image scaling and video format conversion are performed at 30-bit precision for enhanced color accuracy and picture detail. High performance deinterlacing of 1080i signals from HD sources delivers optimized image quality.
- **Key Minder continuously verifies HDCP compliance for quick, reliable switching** — Key Minder authenticates and maintains continuous HDCP encryption between input and output devices to ensure quick and reliable switching in professional AV environments, while enabling simultaneous distribution of a single source signal to one or more displays.
- **EDID Minder automatically manages EDID communication between connected devices** — EDID Minder ensures that all sources power up properly and reliably output content for display.
- **SpeedSwitch Technology** provides exceptional switching speed for HDCP-encrypted content
- **Aspect ratio control** — The aspect ratio of the video output can be controlled by selecting a FILL mode, which provides a full screen output, or a FOLLOW mode, which preserves the original aspect ratio of the input signal.
- **HDCP authentication and signal presence confirmation** — Provides real-time verification of HDCP status for each digital video input and output. This allows for easy signal and HDCP verification through RS-232 or Ethernet, providing valuable feedback to a system operator or helpdesk support staff.

- **HDCP Visual Confirmation provides a green signal when encrypted content is sent to a non-compliant display** — A full-screen green signal is sent when HDCP-encrypted content is transmitted to a non-HDCP compliant display, providing immediate visual confirmation that protected content cannot be viewed on the display.
- **HDMI to DVI Interface Format Correction** — Automatically enables or disables embedded audio and InfoFrames, and sets the correct color space for proper connection to HDMI and DVI displays.
- **Seamless switching** — Seamless cut through black and fade through black transition effects are available to enhance presentations by eliminating distractions during switching.
- **Auto-Image setup** — When activated, the unit automatically optimizes the image by analyzing and adjusting to the video input signal. This can save time and effort in setting up a newly connected source, particularly in presentation environments where different guest presenter laptops with various output resolutions will be connected.
- **Auto Input Memory** — When activated, the unit 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.
- **Output Standby Mode** — The unit can be set to automatically mute video and sync output to the display device when no active input signal is detected. This allows the projector or flat-panel display to automatically enter into standby mode to save energy and enhance lamp or panel life.
- **Power Save Mode** — The unit can be placed in a low power standby state to conserve energy when not in use.
- **AFL - Accu-RATE Frame Lock** — A patented technology exclusive to Extron that locks the output frame rate to a designated input to eliminate stuttering caused by frame rate conversion.
- **Image freeze control** — A live image can be frozen using RS-232 serial control, USB, Ethernet control, or the annotation GUI.
- **Picture controls** — Available for adjusting brightness, contrast, color, tint, and detail, as well as horizontal and vertical positioning and sizing.
- **Quad standard video decoding** — A temporal, 3D adaptive comb filter provides advanced decoding of composite NTSC 3.58, NTSC 4.43, PAL, and SECAM for integration into systems worldwide.
- **User presets** — Memory presets are available for each input to store and recall optimized image settings.
- **Automatic 3:2 and 2:2 pulldown detection** — Advanced film mode processing techniques that help maximize image detail and sharpness for NTSC, PAL, and HDTV 1080i sources that originated from film.
- **Internal video test patterns for calibration and setup** — The unit offers several video test patterns to facilitate proper system setup and calibration of display devices.
- **Integrated audio delay** — Embedded audio is passed through to all outputs and automatically delayed to compensate for latency introduced by the video processing.
- **Front panel security lockout** — This feature locks out all front panel functions except for input selection; all functions however, are available through Ethernet, USB, or RS-232 control.
- **Ethernet monitoring and control** — Enables control and proactive monitoring over a LAN, WAN, or the Internet.
- **Built-in Web pages** — Enables the use of a standard browser for monitoring over an intuitive Web interface.

- **RS-232 control port** — Enables the use of serial commands for complete control and configuration via the Extron Windows®-based control program, or integrated into a control system. Extron products use the SIS™ - Simple Instruction Set command protocol, a set of basic ASCII commands that allow for quick and easy programming.
- **Front panel USB configuration port** — Enables easy configuration without having to access the rear panel.
- **Contact closure ports** — Can be used for external control of source switching.
- **RJ-45 signal and link LED indicators for DTP port** — Provides a means for validating signal flow and operation, allowing quick identification of connectivity issues.
- **Easy setup and commissioning with the Extron Product Configuration Software (PCS)** — Conveniently configure multiple products using a single software application.
- **Rack-mountable 1U, full rack width metal enclosure**
- **Includes LockIt HDMI cable lacing brackets**
- **Highly reliable, energy-efficient internal universal power supply** — The 100-240 VAC, 50/60 Hz, international power supply provides worldwide power compatibility with high demonstrated reliability.

Installation

This section contains installation information for the Extron Annotator 300. It covers the following subjects:

- **UL/Safety Requirements**
- **Mounting the Annotator 300**

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 300

If the Annotator 300 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 300 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 ($T_{ma} = +122\text{ }^{\circ}\text{F}$, $+50\text{ }^{\circ}\text{C}$) as 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 (for example, use of power strips).

Rack Mounting

Mount the Annotator 300 to a rack using the pre-installed rack ears (see figure 2, left image), or use an optional MBU 149 mounting kit (part number **70-222-01**) for under-the-desk mounting (see figure 2, right image).

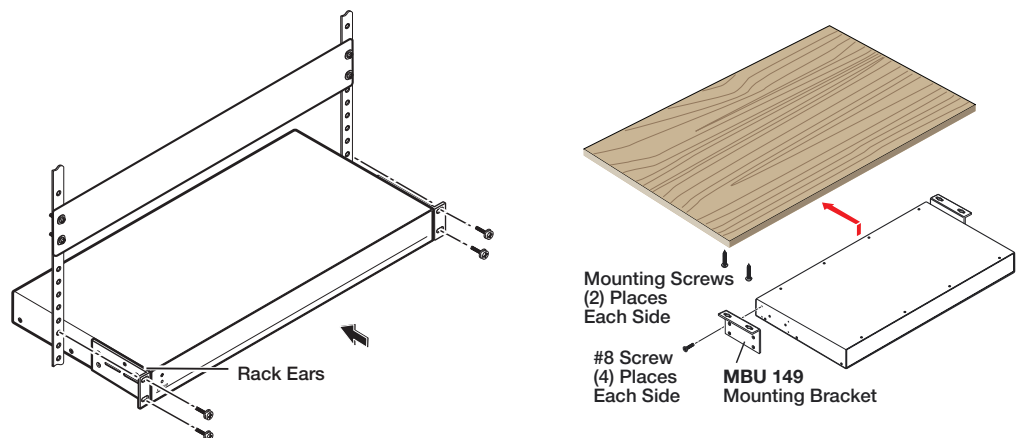


Figure 2. Mounting the Annotator 300; rack or under-desk mounting.

Rear Panel Features and Connections

This section describes the rear panel features and how to connect the cables.

Rear Panel Features

The illustration below shows the rear panel features of the Annotator 300.

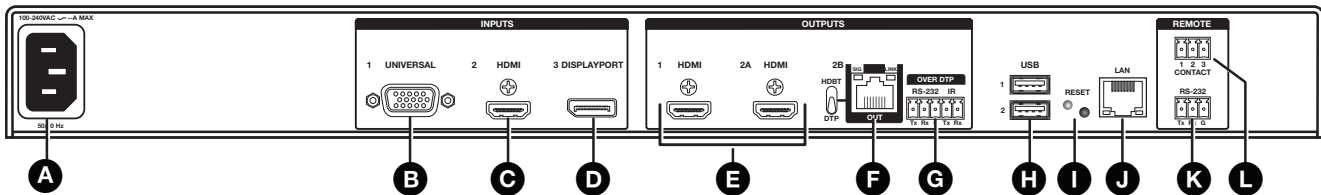


Figure 3. Annotator 300 Rear Panel Features

Power and video input connections	Outputs and control connections	
<ul style="list-style-type: none"> A AC power connector B Universal analog 15-pin HD connector C HDMI connector (HDMI/DVI inputs) D DisplayPort connector 	<ul style="list-style-type: none"> E HDMI connectors (2) (HDMI/DVI outputs) F RJ-45 connector (DTP or HDBaseT output), selectable by switch G 5-pole captive screw connector (for DTP RS-232 and IR insert) H USB A connectors (2) 	<ul style="list-style-type: none"> I Reset button and LED J RJ-45 LAN connector K Remote RS-232 3-pole captive screw connector L Remote contact closure 3-pole captive screw connector

Power and Video Input Connections

- A** **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.
- B** **Universal analog connector** — Connect high resolution computer-video input signals to this 15-pin HD connector.
- C** **HDMI connector** — Connect an HDMI or DVI (with an adapter) source to this HDMI connector.
- D** **DisplayPort connector** — Connect a suitable DisplayPort source to this DisplayPort connector.

Output, User Interface, and Control Connections

- E HDMI connectors** — Connect suitable HDMI or DVI (with an adapter) displays to these two connectors for HDMI or DVI output.
- F RJ-45 connector** — Connect the Annotator 300 to a DTP receiver for selectable DTP or HDBaseT output that supports the digital signal transmission of HDMI with embedded audio and control up to 330 feet (100 meters) over shielded twisted pair (STP) cable. Output format is selected by setting the switch accordingly.

CAUTION: Risk of damage to equipment. DO NOT connect an HDBaseT unit if using DTP transmission. The power carried over DTP may damage the unit.

ATTENTION: Cela risque d'endommager votre équipement. Ne PAS connecter une unité HDBaseT si vous utilisez la transmission DTP. L'alimentation transmise sur DTP peut endommager l'unité.

- G 5-pole captive screw connector** — Connect to this for bi-directional RS-232 over DTP and IR insertion.
- H USB A ports** — Connect up to twenty touch panel devices (using USB hubs), or a USB mouse and keyboard to these ports.
- I Reset button and LED** — This button is used to reset the switcher to any one of four different states. The LED indicates the status during the procedure. Refer to the [Resetting the Unit with the Reset Button](#) section, for details.
- J RJ-45 Ethernet connector** — Connect the Annotator 300 to 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 300 is connected to an Ethernet LAN, and the Act LED flickers amber, indicating data transmission as the devices communicate.
- K RS-232 3-pole captive screw connector** — This connector provides for two-way RS-232 communication. Connect a host computer or control system to this for serial RS-232 or RS-422 control. The default protocol is 9600 baud, 1 stop bit, no parity, and no flow control.
- L Remote contact closure 3-pole captive screw connector** — Connect a host device to this 3-pole connector for remote contact closure control.

Installation and Cabling

Step 1 – Mount the Annotator 300 device

Turn off or disconnect all equipment power sources and rack mount the device (see [page 7](#)).

Step 2 – Connect inputs

Connect inputs from video sources to the applicable connectors marked “Inputs” (see [page 8](#), **B** to **D** for connector types).

Step 3 – Connect outputs

Connect video output devices to the applicable output connectors marked “Outputs” (see [page 9](#), **E** to **G** for connector types).

Step 4 – Connect user interface devices

Connect user interface devices (mouse and keyboard) or touch panels to the Annotator 300 using either of the rear panel USB ports (see **H** on page 9). Alternatively the front panel USB port can also be used to connect a user interface device.

Step 5 – Connect touch panel devices

Via USB A ports — Connect a touch panel device to either port **H** as desired. For most devices no configuration is needed.

Step 6 – Connect control devices

LAN Ethernet port — Connect to an Ethernet LAN or WAN via this RJ-45 connector **J** to control the processor from a remote location, using a PC’s Internet browser. See [page 98](#), [Ethernet Connections](#) section 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.

Remote ports — For serial RS-232 or RS-422 control, or contact closure control, connect a host computer or control system via the two 3-pole captive screw connectors **K** and **L**. RS-232 protocol (default values):
• 9600 baud • 1 stop bit • no parity • 8 data bits • no flow control.

NOTE: See “[SIS Communication and Control](#)” section (page 31 onwards) for definitions of the SIS commands and “[Product Configuration Software](#)” section (page 63 onwards) 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 **A**.

Powering Up

When applying power to the Annotator 300, 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 the figure below for a typical default display cycle.

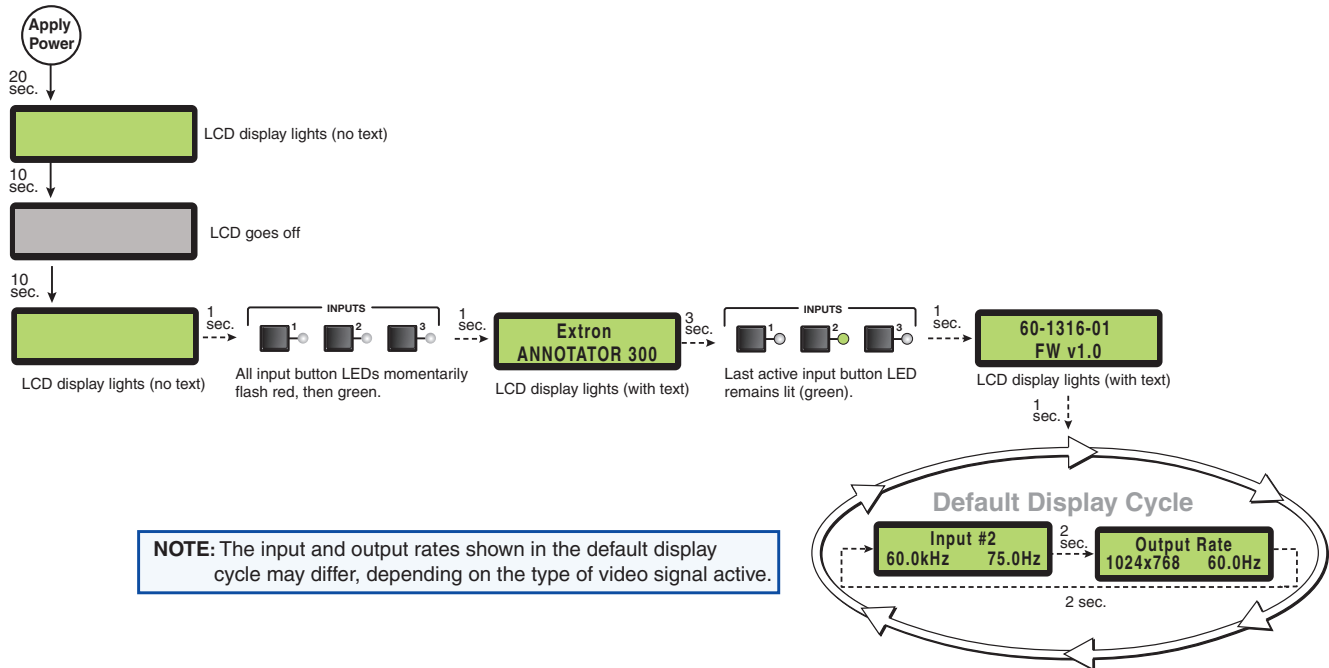


Figure 4. Typical Default Cycle

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

Resetting the Unit with the Reset Button

There are three reset modes (numbered 1, 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 Tweaker to press it. [See the table](#) on page 13 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.

ATTENTION: Étudier de près les différents modes de réinitialisation. Appliquer le mauvais mode de réinitialisation peut causer une perte inattendue de la programmation de la mémoire flash, une reconfiguration des ports ou une réinitialisation du contrôleur.

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.

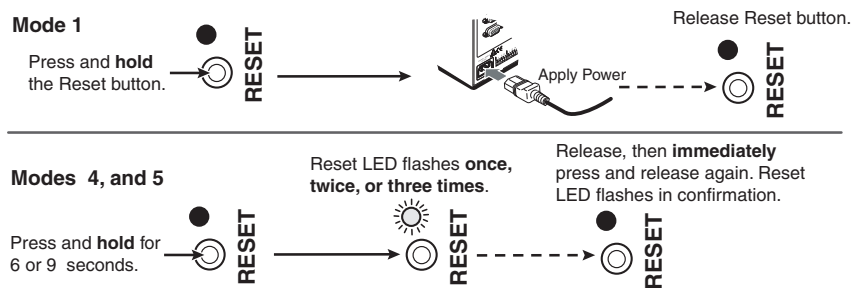


Figure 5. Resetting the Annotator 300

NOTES:

- After a mode 1 reset is performed, update the firmware for the Annotator 300 to the latest version. Do not operate the firmware version that results from the mode 1 reset. If the factory default firmware is to be used, that version must be uploaded 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 `ØQ SIS` command to confirm that the factory default firmware is no longer running (look for the asterisk [*] following the version number).

See the [table](#) on next page for a summary of the reset modes.

Annotator Reset Mode Summary

	Mode	Activation	Result	Purpose/Notes
Use Factory Firmware	1	<p>Hold down the recessed Reset button while applying power to the unit</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>NOTE: After a mode 1 reset is performed, update the Annotator 300 firmware to the latest version. Do not operate the firmware version that results from this mode reset. If you want to use the factory default firmware, you must upload that version again. See page 71 for details on uploading firmware.</p> </div>	<p>The Annotator 300 reverts to the factory default firmware. Event scripting does not start if the device is powered in this mode. All user files and settings (drivers, adjustments, IP settings) are maintained.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>NOTE: If you do not want to update firmware, or you performed a mode 1 reset by mistake, cycle power to the Annotator 300 to return to the firmware version that was running prior to the mode 1 reset. Use the ØQ SIS command to confirm that the factory default firmware is no longer running (look for asterisks following the version number.)</p> </div>	<p>This mode reverts to the factory default firmware version if incompatibility issues arise with user-loaded firmware.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>NOTE: User-defined web pages may not work correctly if using an earlier firmware version.</p> </div>
Reset all IP Settings	4	<p>Hold down the Reset button for about 6 sec. until the Power LED blinks twice (once at 3 sec., again at 6 sec.). Then release and press Reset momentarily (for <1 sec.) within 1 second.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>NOTE: Nothing happens if the momentary press does not occur within 1 second.</p> </div>	<p>This mode does the following:</p> <ul style="list-style-type: none"> • Enables ARP capability. • Sets the IP address back to factory default (192.168.254.254). • Sets the subnet back to factory default. • Sets the default gateway address to the factory default. • Sets port mapping back to factory default. • Turns DHCP off. • Turns events off. 	<p>This mode enables you to set IP address information using ARP and the MAC address.</p>
Reset to Factory Defaults	5	<p>Hold down the Reset button for about 9 sec. until the Power LED blinks three times (once at 3 sec., again at 6 sec., again at 9 sec.). Then release and press Reset momentarily (for <1 sec.) within 1 second.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>NOTE: Nothing happens if the momentary press does not occur within 1 second.</p> </div>	<p>This mode performs a complete reset to factory defaults (except the firmware).</p> <ul style="list-style-type: none"> • Does everything mode 4 does. • Removes button/touchpanel configurations. • Resets all IP options. • Removes scheduling settings. • Removes/clears all files from the unit. 	<p>This mode is useful if you want to start over with configuration and uploading, and also to replace events.</p>

Operation

This section of the manual discusses the operation of an Annotator 300 unit and is divided into four sections:

- [Front Panel Overview](#)
- [The Annotator 300 Menu System](#)
- [Setting the Front Panel Locks \(Executive Modes\)](#)

Front Panel Overview

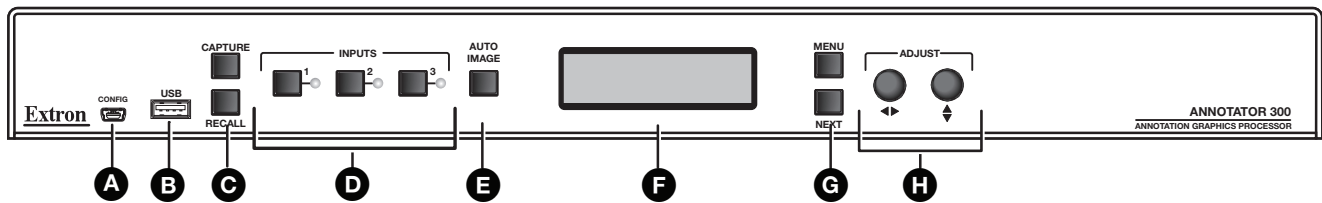


Figure 6. Front Panel Features

- A** **Front panel configuration port** — Connect a control system or computer to this mini USB port using an optional USB A Male to USB Mini B Male Configuration Cable. This port is used for unit configuration and firmware upgrades.
- B** **Front panel USB port** — Connect an external drive to store or recall captured images, or connect a user interface device to this port.
- C** **E** **Special function buttons** — These three buttons are:
 - Capture — Allows the capture and saving of the current image,.
 - Recall — Allows the user to recall a saved image.
 - Auto Image — Initiates auto image adjustment on the selected input.
- D** **Input buttons and LEDs** — These three buttons are used to select and switch inputs. A lit LED indicates the currently active input.
- F** **LCD display** — This LCD screen displays two rows of menu, control response, and configuration text.
- G** **Menu navigation buttons** — These two buttons give access to menu commands. See [“The Annotator 300 Menu System”](#) section in this chapter.
 - **Menu button** — This button gives direct access to a series of five menus.
 - **Next button** — This button allows page changes within each one of the menus, and to exit the menu cycle.
- H** **Adjustment knobs** — These two knobs are used with the menu navigation buttons to adjust settings.

The Annotator 300 Menu System

The Annotator 300 can be configured using the menu system, via the Extron Simple Instruction Set (SIS) of commands, or via the Extron Products Configuration Software (PCS 2.1 or higher) software program, through an RS-232 or LAN connected PC.

NOTE: For methods see “[SIS Communication and Control](#)” and “[Product Configuration Software \(PCS\)](#)” section.

The Annotator 300 has six front panel configuration menus: User Presets, Picture Control, Input Configuration, Output Configuration, Advanced Configuration, and View Comm Settings. A hidden menu (Edit Comm Settings) is also accessible.

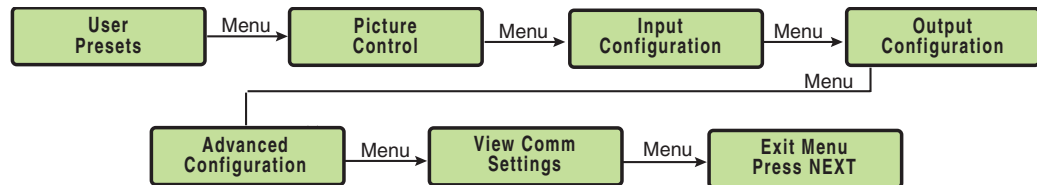


Figure 7. The Annotator 300 Front Panel Configuration Menus

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.

Picture Control

This menu allows configuration of the following settings for an active input: Horizontal and vertical centering and sizing, brightness, contrast, tint, color, and detail.

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 input EDID value (see the [tables](#) on page 18).

Output Configuration

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

Resolution and refresh rate (see the [table](#) on page 19), HDMI format, and HDCP note setting.

Advanced Configuration

This menu allows advanced configuration of the following Annotator 300 settings:

Test Pattern, Calibrate Panels, Auto Image, Aspect Ratio, Auto Memory, Capture/Recall format, Overscan setting, Switch Effect, Internal Temp (view only), 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 “[Edit Comm Settings \(hidden\)](#)” on next page.

Edit Comm Settings (hidden)

To display and enter this menu, press and hold the Input 3 button and the Next button simultaneously. The hidden menu appears.

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

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.

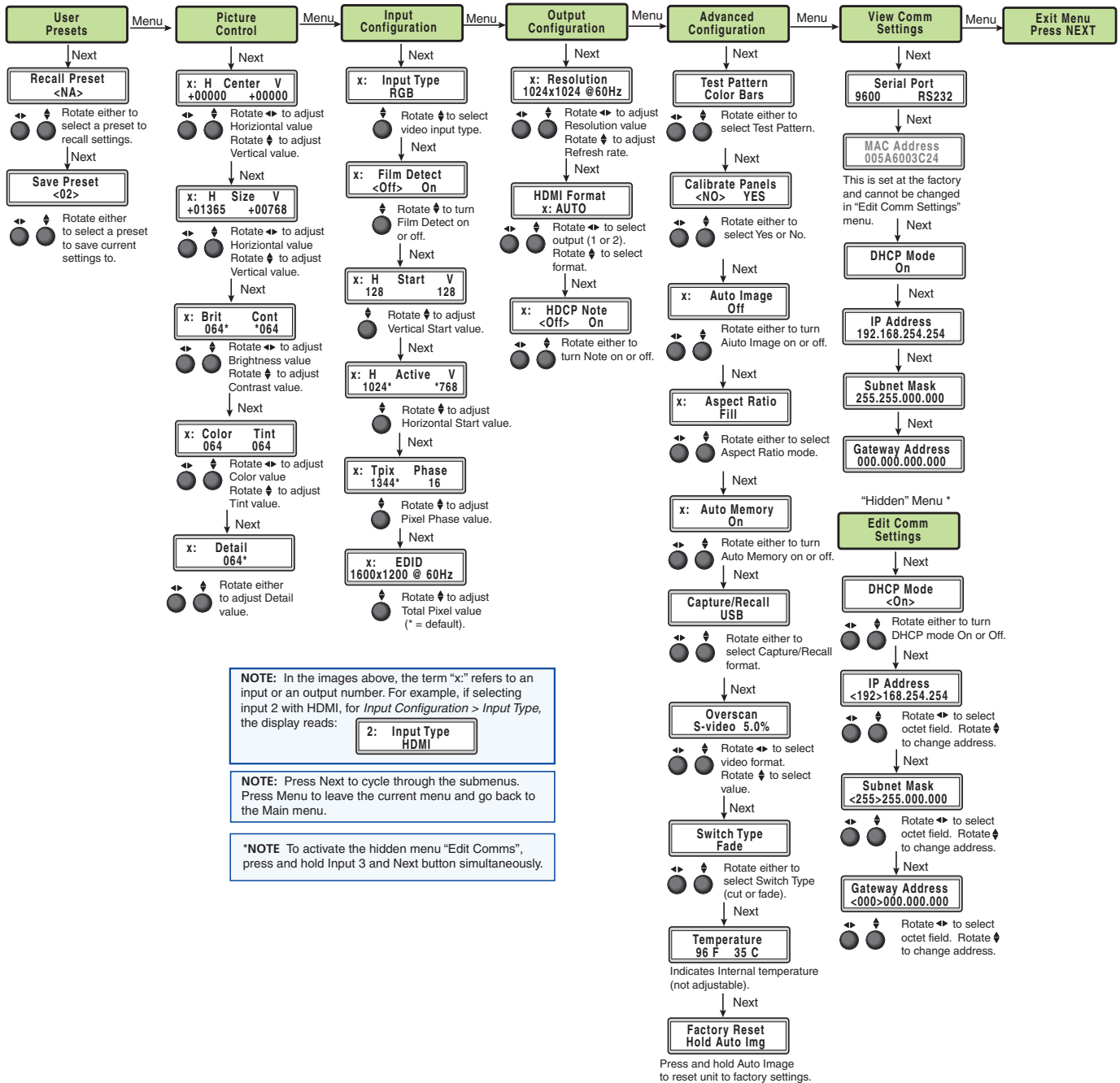


Figure 8. Annotator Menu System Overview

Using the Menus

To configure the Annotator 300 using any of the menus, do the following:

1. Press the Menu button repeatedly to reach 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.

NOTES:

- Pressing the Menu button within any level takes the user back to the current top level menu.
- When in any menu for approximately 25 seconds and no buttons have been pressed or Adjust knobs rotated, the unit times out and returns to the default cycle.

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 Adjust knob (◀▶) 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.
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.

A rectangular LCD display with a light green background. The text "Save Preset" is on the top line and "<N/A>" is on the bottom line.

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 knob (◀▶) 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.
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.

A rectangular LCD display with a light green background. The text "Recall Preset" is on the top line and "<02>" is on the bottom line.

Input Configuration

Within this menu, the 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:

- 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.

NOTE: If the input shown is not the one to be adjusted, press the desired input button.

- 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
*Auto Detect	*HDMI/DVI	*DisplayPort
RGB		
Auto YUV		
RGBcvS		
S-video		
Composite		

Figure 9. Signal Formats per Input (*= Default Value)

- 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	YUVi	RGBcvS	S-vid	Composite	DVI	HDMI	DisplayPort
Film Detect	X	X	X	X	X	X	X	X	X
H Start	X	X	X	X	X	X			
V Start	X	X	X	X	X	X			
Phase	X	X							
Total Pixels	X	X							
Active Pixels	X	X	X	X	X	X			
Active Lines	X	X	X	X	X	X			
EDID	X						X	X	X

Figure 10. Adjustments Possible per Signal Format

- At the desired setting (for example, Horizontal and Vertical Start on input 1 with a YUVp/HDTV signal, see image at right), rotate both Adjust knobs (◀▶) to adjust the settings value as desired (here at 128).
- Repeat steps 3 and 4 for each setting as desired.
- When complete, press Menu once or Next repeatedly to return to the top level menu. Alternatively, allow the unit to time out to return to the default cycle.

1: H	Start	V
128		128

Output Configuration

Using this menu, resolutions and refresh rates, HDMI format, and HDCP note can be selected and adjusted for an output. See the table below for 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 Adjust knob (◀▶) to adjust the resolution value, and rotate the right Adjust knob (⬇️) to adjust the refresh rate.

Resolution	23.98 Hz	24 Hz	25 Hz	29.97 Hz	30 Hz	50 Hz	59.94 Hz	*60 Hz
640x480								X
800x600								X
1024x768								X
1280x768								X
1280x800								X
1280x1024								X
1360x768								X
1366x768								X
1440x900								X
1400x1050								X
1680x1050								X
1600x1200								X
1920x1200								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
2048x1080	X	X	X	X	X	X	X	X

* = Default

Figure 11. Output Resolution/Refresh Rate Table

3. Press Next to enter the next submenu, HDMI Format. Within this submenu the output signal type (Auto, DVI RGB 444, RGB 444 Full, RGB 444 Limited, YUV 444 Full, or YUV 444 Limited, YUV 422 Full, or YUV 422 Limited) can be selected.
4. Rotate either front panel Adjust knob (◀▶) to select the output HDMI format.
5. Press Next to enter the next submenu, HDCP Note. Within this submenu, the HDCP note can be turned Off (default) or On. When the HDCP notification is turned On, and an HDCP-encrypted input is sent to a display that is non-compliant, a green background is displayed with a moving message reading "HDCP Content". If HDCP notification is Off, a black or muted output is displayed.
6. Rotate either front panel Adjust knob (◀▶) to turn the note off or on.
7. Press Next or Menu to return to the Output Configuration top level menu.

Advanced Configuration

Within this menu: a test pattern can be selected to aid setting up the display, connected touch panel displays can be calibrated, auto imaging, aspect ratio, and auto memory can be set or turned on or off, the image capture and recall location can be set, the overscan threshold set, and the switch effect chosen. In addition, the internal temperature can be read, and the unit can be reset to factory default settings.

1. Within Advanced Configuration, press **Next** to enter the first sublevel, Test Pattern.

The following test pattern settings are available (None [no test pattern] is the default):

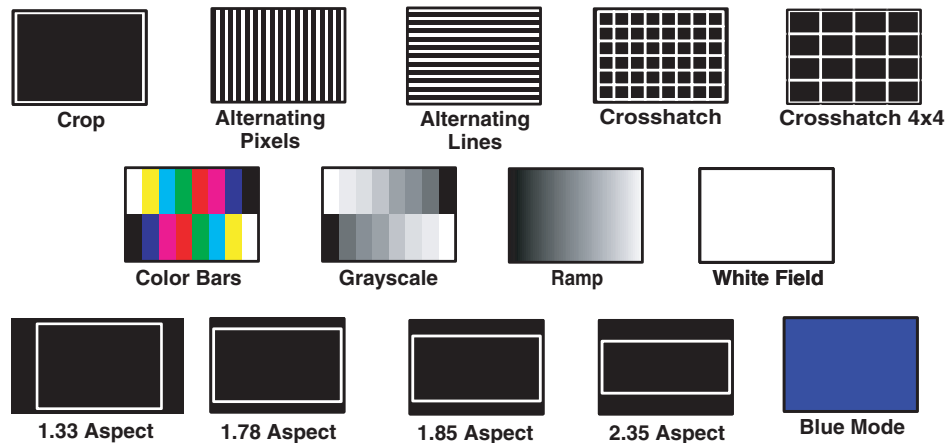
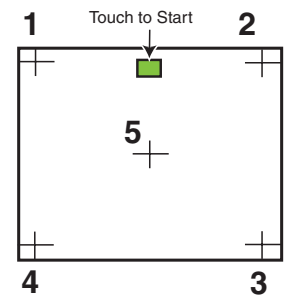


Figure 12. Available Test Patterns

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.

2. Press **Next** to cycle to the Calibrate Panels submenu.

- a. Within the Advanced Configuration menu, select **Yes** and press **Next** to cycle to Calibrate Panels.
- b. Observe all connected touchpanel screens. On all screens a green box appears at top center. To start the sequence, tap the box on one of the panel screens you need to calibrate.
- c. The box disappears and a crosshatch + appears in the upper left corner. Tap the screen at the crosshatch.
- d. The crosshatch re-appears at the top right corner. Tap the crosshatch. The crosshatch re-appears in the lower right.
- e. Repeat by tapping the crosshatch as it reappears in each corner, in sequence (see image at right) and then tap the crosshatch when it appears in the center of the screen.
- f. After tapping the fifth (central) crosshatch, the unit saves the calibration data and restarts the sequence by showing the green box on all connected touchpanels.
- g. Repeat for each connected touchpanel screen. Press any front panel button to exit the sequence and save the data.



3. Press **Next** to enter the next sublevel, Auto Image. The current active input and setting status is displayed. With the applicable input showing, rotate either Adjust knob (◀◆) to turn the **Auto Image** on or off.
4. Press **Next** to enter the next sublevel, Auto Memories, and rotate either Adjust knob (◀◆) to turn the Auto Memory on or off.
5. Press **Next** to enter the next sublevel, Aspect Ratio, and rotate either Adjust knob (◀◆) to select Fill or Follow.
6. Press **Next** to go to the next sublevel, Capture/Recall. Rotate either Adjust knob (◀◆) to select the location (Internal, USB, or Network) to save or recall captured images.
7. Press **Next** to go to the next sublevel, Overscan. Rotate the left Adjust knob (◀▶) to set the signal type (RGB, YUV, RGBcvS, S-video, or composite video), and the right Adjust knob (◆) to set the overscan (None, 2.5%, or 5%) for the selected signal type.
8. Press **Next** to go to the next sublevel, Switch Type. Rotate either Adjust knob (◀◆) to select the switch type (Cut or Fade).
9. Press **Next** to go to the next sublevel, (internal) Temperature. This is view-only.
10. Press **Next** to go to the next sublevel, Factory Reset. Press and hold the front panel **Auto-Image** button for 3 seconds to reset the unit to factory defaults.

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 sublevel to view the following: Serial port (baud rate and communication type), MAC address (cannot be changed), 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 Settings menu, press and hold in the Input 3 button and the **Next** button simultaneously. The Edit Comms Settings menu appears.

Edit Comm Settings

1. Press **Next** to go through each sublevel to edit the following: 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 is not displayed.

2. At each level, use both Adjust knobs to set new values as desired.

NOTES:

- For IP address, subnet mask, and gateway address settings, the left Adjust knob moves between octets and the right Adjust knob changes the values.
- When already connected to a remote PC via LAN, changing the IP address can result in the loss of connection.
- The Annotator 300 default IP address is 198.162.254.254.

3. Press **Menu** to exit the Edit Comm Settings menu, saving the new settings.

Exit Menu

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

Capture/Recall Settings (front panel activated)

A snapshot of the currently displayed image (including annotations) can be captured and saved to the Annotator 300 memory using the front panel Capture/Recall button, the Next button, and the two Adjust knobs. This image or any other saved image can then be recalled and output to the active display at a later time.

To capture an image:

1. Press the **Capture** button. The LCD displays “To Confirm....Press Next”.
2. Press **Next** to confirm and to enter the Capture process. The LCD displays “Capturing Image: <filename>”.

When the image is saved the LCD reverts to the default menu cycle.

NOTE: Custom image names can be used when image captures are initiated using the appropriate SIS commands.

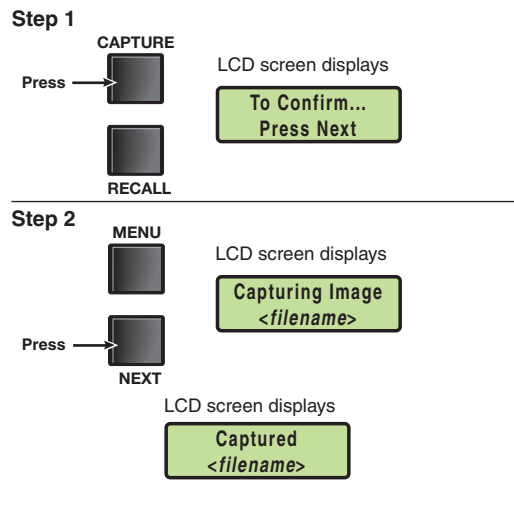


Figure 13. Sequence for Capturing an Image

To recall an image:

1. Press and release the **Recall** button. The LCD displays “Recall Image <None>”.
2. Use either Adjust knob to scroll through the saved images to the desired image.
3. Press **Next** to Recall the image. The LCD displays “Recalling: <filename>”. When the image is fully downloaded, the LCD displays the name of the image and “Recalled”, (for example, “IMG05.bmp Recalled”). The recalled image is displayed on the active display.

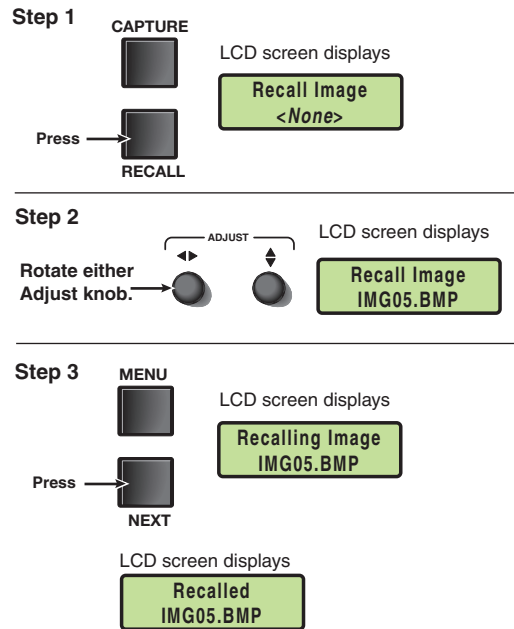


Figure 14. Sequence for Recalling an Image

To remove an image from the display:

1. Press and release the **Recall** button. The LCD displays “Recall Image <None>”.
2. Press **Next**. The LCD displays “Recall: <None>”. The current image is removed from the display, but not from the Annotator 300 memory. To recall the image follow the steps described in the “To recall an image” section above.

Setting the Front Panel Locks (Executive Modes)

The Annotator 300 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 completely locked. This mode can only be enabled and disabled using SIS commands. See the “**SIS Communication and Control**” section from page 31 onwards, for further details.

Executive mode 2 (enabled) — The front panel is locked except for input switching and Auto Image.

Enabling or Disabling Executive Mode 2 from the Front Panel

NOTES:

- If the Annotator 300 is in Executive mode 0 (unlocked), this procedure enables mode 2 (locked).
- If it is in Executive mode 2, this procedure enables mode 0 (unlocks the unit).

Press and hold the Menu and Next buttons to enable or disable the Executive Mode.

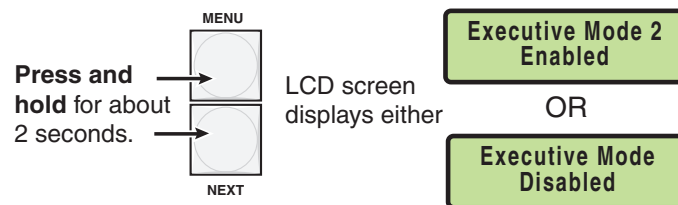


Figure 15. Turning Executive Mode On or Off

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

Executive mode 2 can also be enabled or disabled by SIS commands. See the “**SIS Communication and Control**” section, for SIS commands.

On Screen Annotation

This section of the manual discusses on screen annotation and is in four sections:

- [Touch Panel Configuration](#)
- [USB Port Connections](#)
- [Touchscreen Calibration](#)
- [Annotation Overview](#)

The Annotator 300 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, and a standard keyboard and/or mouse. The touchscreen panels are connected by USB, and device drivers can be uploaded to ensure compatibility with the Annotator 300. For a full list of compatible panels visit www.extron.com. Contact Extron if the device you wish to use is not listed.

Touch Panel Configuration

If a USB touchpanel is part of the system, confirm the panel is supported by the firmware on the Annotator 300 by reviewing the compatibility list available on the product page of the Extron website (www.extron.com). If the touchpanel is not supported by the firmware, a supporting module must be uploaded to the Annotator 300 using PCS version 2.1 (or greater).

1. Connect to the Annotator 300 using the PCS 2.1 software.
2. From the icon ribbon, click on and open the **Annotation Settings** page.
3. In the **Installed USB Devices** section, click **Add**. The **Add a USB Device** dialog box opens.
4. Find the touchpanel device in the list of available modules, or:
if the device is not present in the list but is available from the Extron website, click on Check for Updates.
5. Select the module that supports your touchpanel and click **Add**. The dialog box closes and the selected touchpanel is now listed in the **Installed USB Devices** section.

To remove an installed touchpanel:

1. Connect to the Annotator 300 using the PCS software.
2. From the icon ribbon, click on and open the **Annotation Settings** page.
3. In the **Installed USB Devices** section, select the installed USB device to be removed, and click **Remove**. A **Remove USB Device** confirmation dialog box opens.
4. Click **Remove** to remove the installed device, or click **Cancel** to exit the action without removing the device.

USB Port Connections

Touchpanels can be connected via the two rear panel USB ports. By connecting multiple USB hubs (see figure 20), up to 20 devices can be connected.

A number of common touchpanels are automatically supported. A mix of size and vendor types can be connected simultaneously, but unsupported devices may cause adverse affects. For a full list of compatible panels visit www.extron.com.

The USB ports also support standard USB keyboards and mice.

Before use, panel calibration is advised (see “[Touchscreen Calibration](#)” in this section).

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 300. Do not connect more than three hubs in line (three deep).

NOTE: The Annotator 300 has one hub built into the product.

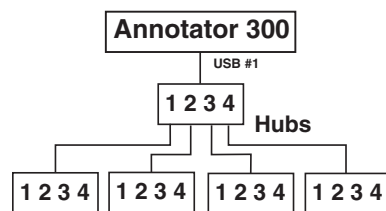


Figure 16. Connect USB Hubs for Multiple Devices

Touchscreen Calibration

If a touchpanel screen is attached to the Annotator 300, the touch accuracy can be calibrated using the Calibrate Panels setting in the Advanced configuration menu.

1. Within the Advanced Configuration menu, select **Yes** and press **Next** to cycle to Calibrate Panels.

Observe all connected touchpanel screens. On all screens a green box appears at top center. To start the sequence, tap the box on one of the panel screens you need to calibrate.

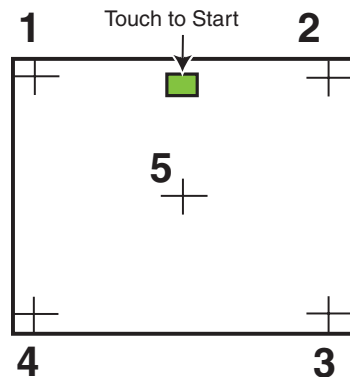


Figure 17. Sequence of Cross Positions for Setting the Touch Accuracy of a Screen

2. The box disappears and a crosshatch + appears in the upper left corner. Tap the screen at the crosshatch.
3. The crosshatch re-appears at the top right corner. Tap the crosshatch. The crosshatch re-appears in the lower right.

4. Repeat by tapping the crosshatch as it reappears in each corner, in sequence (see [Figure 17](#) on previous page) and then tap the crosshatch when it appears in the center of the screen.
5. After tapping the fifth (central) crosshatch, the unit saves the calibration data and restarts the sequence by showing the green box on all connected touchpanels.
6. Repeat for each connected touchpanel screen. Press the front panel button **Next** to exit the sequence and save the data.


Annotation Overview

The Annotator 300 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 18. 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 standard mouse and/or keyboard attached to the rear or front USB 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.

The time out can be set via the PCS software (see the PCS product specific help file) or SIS commands (see [SIS Communication and Control](#) from page 31 onwards for details).

NOTE: All on screen annotations are lost when power to the Annotator 300 is recycled.

Default Annotation Buttons



Input selection — Selecting this button opens a pop-up palette displaying the three inputs of the Annotator 300. Selecting any input button switches the display to that input.



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 (automatic sizing, centering, and filtering to optimize the output image on the currently selected input). A secondary button appears to the left of the Auto Image button to confirm the action is desired.



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



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.



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 to the rear USB 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 end point of the previously active function.



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



Size — 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.



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.



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.



Undo — Selecting this allows the user to undo the last 15 Completed annotations or undo a Clear action.



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.



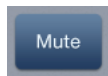
Tools — Selecting the Tools button opens a secondary palette containing the following advanced tools: Capture, Freeze, Mute, Whiteboard, Spotlight, Zoom, and Pan. On selection of any tool, the secondary palette closes. To reopen the palette, click on the Tools button.



Capture — Select this to take a snapshot image of the current program output, including annotations (but not any open On-Screen Display palettes). This captured image can be saved to the Annotator 300 memory for later recall.



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 300 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 inch x 1 inch) 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.

NOTES:

- 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.
- 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 also selected, only the rectangle or ellipse outline is drawn.
- Eraser and Highlighter size, text size, and line weight have discrete size settings.
- A drawn, unfilled shape cannot be filled afterwards, and vice versa.
- A completed annotation is defined by lifting the finger or stylus from the touchscreen, pressing the keyboard Enter key, or releasing the primary mouse button.
- 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.

SIS Communication and Control

The Annotator 300 can be operated and configured using Simple Instruction Set (SIS) commands input via a PC or control system connected to either the front panel USB port, or the rear panel RS-232, or Ethernet port. See **J**, **H**, and **K**, on **page 9**, and “**Ethernet Connection**” section on page 106, for wiring details.

Front Panel Configuration Port

The USB mini B port is located on the front panel. It is used to connect to a host computer for configuration using SIS commands with DataViewer or for updating firmware with the Firmware Loader utility. Both are available at www.extron.com.

Ethernet Connection

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.

Ethernet Cabling

The Ethernet cable can be terminated as a straight-through cable or a crossover cable and must be properly terminated for your application. See “**Ethernet Connection**” section on page 106, for cable termination details.

Default IP Addresses

To access the Annotator 300 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 “**Ethernet Connection**” section on page 106 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.

NOTES:

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

The Ethernet link times out after a designated period of time of no communications. By default, this time-out value is set to five minutes but the value can be changed.

NOTE: Extron recommends leaving the default time-out 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 300 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. 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 Internet connection:

(c) Copyright 2014, Extron Electronics, ANNOTATOR 300, Vx.xx,
60-1316-01←

Ddd, DD MMM YYYY HH:MM:SS (day, date time. Tue, 14 Jun 2014 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 any change of the input frequency, video format, or audio format; on the currently selected input is detected.

NOTE: Response is seen via verbose connections only.

Exen←

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.

HplgOx←

The processor initiates the SIS response that is broadcast upon detection of a Hot Plug event on output x.

Processor Error Responses

When the Annotator 300 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)	E22 — Busy
E10 — Invalid command	E24 — Privilege violation
E11 — Invalid preset number	E25 — Device not present
E12 — Invalid port number	E26 — Maximum number of connections exceeded
E13 — Invalid parameter (out of range)	E27 — Invalid event number
E14 — Command not available for this configuration	E28 — Bad filename/file not found
E17 — Invalid command for this signal type	

Using the Command/Response Table for SIS Commands

The command/response table follows this section. 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 0D	LF 0A					
space 20	!	21	"	22	#	23	\$	24	%	25	&	26	'	27			
(28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F			
0 30	1	31	2	32	3	33	4	34	5	35	6	36	7	37			
8 38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F			
@ 40	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 50	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			
` 60	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 70	q	71	r	72	s	73	t	74	u	75	v	76	w	77			
x 78	y	79	z	7A	{	7B	|	7C	}	7D	~	7E	DEL	7F			

Figure 19. 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

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

x1 = Input selection, 1 to 3

x2 = Output selection:

- 0 = All outputs (Only available for Video Mute)
- 1 = Output 1 Only (HDMI)
- 2 = Output 2A Only (HDMI)
- 3 = Output 2B Only (DTP)

x3 = Input video format:

- 0 = Auto Detect (Default)
- 1 = RGB
- 2 = Auto YUV
- 3 = RGBcvs
- 4 = S-Video
- 5 = Composite
- 6 = HDMI/DVI
- 7 = DisplayPort

x4 = H/V start — 0 to 255 (default midpoint = 128, translates to the default value in the input lookup tables)

x5 = Detected Input Video Format:

- 0 = No signal present
- 1 = RGB
- 2 = Auto YUV
- 3 = RGBcvs
- 4 = S-Video
- 5 = Composite
- 6 = DVI
- 7 = HDMI
- 8 = DisplayPort

- X6** = Pixel phase — 0 to 63 (default = 31)
- 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 3 = SECAM
 - 1 = NTSC - = N/A (when input is set to a high resolution signal format)
 - 2 = PAL
- X12** = Internal temperature (in degrees Celsius)
- X13** = Horizontal and vertical frequencies (format is three digit with single decimal and leading zeros for example, 075.3)
- X14** = Text label – up to 16 characters

NOTE: User and input presets saved without a name will be saved with default “USER PRESET XX” or “INPUT PRESET XXX” (for example, “USER PRESET 11” or “INPUT PRESET 005”).

- X15** = Picture adjustment — 0 to 127 (default 64)- (Three digit response – 0 padding)
- X16** = H or V position (range -11000 to +11000)
- X17** = H or V size (range 10 to 11000)
- X18** = Text string up to 32 characters drawn from the alphabet (A-Z), digits (0-9), minus sign/hyphen (-). No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case. The first character must be an alpha character. The last character must not be a minus sign/hyphen
- X20** = Test patterns:

0 = off (default)	8 = ramp
1 = Crop	9 = white field
2 = alternating lines	10 = 1.33 aspect ratio
3 = alternating pixels	11 = 1.78 aspect ratio
4 = crosshatch	12 = 1.85 aspect ratio
5 = 4x4 crosshatch	13 = 2.35 aspect ratio
6 = color bars	14 = blue mode
7 = grayscale	

x21 = Scaler resolution:

NOTE: Unless otherwise indicated, resolutions below are all at a 60 Hz refresh rate.

10 = 640x480	29 = 720p @ 25 Hz	48 = 2048x1080 @ 25 Hz
11 = 800x600	30 = 720p @ 29.97 Hz	49 = 2048x1080 @ 29.97 Hz
12 = 1024x768	31 = 720p @ 30 Hz	50 = 2048x1080 @ 30 Hz
13 = 1280x768	32 = 720p @ 50 Hz	51 = 2048x1080 @ 50 Hz
14 = 1280x800	33 = 720p @ 59.94 Hz	52 = 2048x1080 @ 59.94 Hz
15 = 1280x1024	34 = 720p @ 60 Hz (default)	53 = 2048x1080 @ 60 Hz
16 = 1360x768	35 = 1080i @ 50 Hz	201 = Custom output rate 1
17 = 1366x768	36 = 1080i @ 59.94 Hz	202 = Custom output rate 2
18 = 1440x900	37 = 1080i @ 60 Hz	203 = Custom output rate 3
19 = 1400x1050	38 = 1080p @ 23.98 Hz	
20 = 1600x900	39 = 1080p @ 24 Hz	
21 = 1680x1050	40 = 1080p @ 25 Hz	
22 = 1600x1200	41 = 1080p @ 29.97 Hz	
23 = 1920x1200	42 = 1080p @ 30 Hz	
24 = 480p @ 59.94 Hz	43 = 1080p @ 50 Hz	
25 = 480p @ 60 Hz	44 = 1080p @ 59.94 Hz	
26 = 576p @ 50 Hz	45 = 1080p @ 60 Hz	
27 = 720p @ 23.98 Hz	46 = 2048x1080 @ 23.98 Hz	
28 = 720p @ 24 Hz	47 = 2048x1080 @ 24 Hz	

x22 = EDID emulation:

NOTE: Unless otherwise indicated, resolutions below are all at a 60 Hz refresh rate.

0 = Automatic; match current output resolution (LCD reads "MATCH OUTPUT")		
1 = Output #1 (HDMI Connector)		
2 = Output #2A (HDMI Connector)		
3 = Output #2B (DTP Connector)		
10 = 640x480	29 = 720p @ 25 Hz	48 = 2048x1080 @ 25 Hz
11 = 800x600	30 = 720p @ 29.97 Hz	49 = 2048x1080 @ 29.97 Hz
12 = 1024x768	31 = 720p @ 30 Hz	50 = 2048x1080 @ 30 Hz
13 = 1280x768	32 = 720p @ 50 Hz	51 = 2048x1080 @ 50 Hz
14 = 1280x800	33 = 720p @ 59.94 Hz	52 = 2048x1080 @ 59.94 Hz
15 = 1280x1024	34 = 720p @ 60 Hz (default)	53 = 2048x1080 @ 60 Hz
16 = 1360x768	35 = 1080i @ 50 Hz	81 = 2560x1440 @ 60 Hz
17 = 1366x768	36 = 1080i @ 59.94 Hz	82 = 2560x1600 @ 60 Hz
18 = 1440x900	37 = 1080i @ 60 Hz	201 = Custom EDID
19 = 1400x1050	38 = 1080p @ 23.98 Hz	202 = Custom EDID
20 = 1600x900	39 = 1080p @ 24 Hz	203 = Custom EDID
21 = 1680x1050	40 = 1080p @ 25 Hz	
22 = 1600x1200	41 = 1080p @ 29.97 Hz	
23 = 1920x1200	42 = 1080p @ 30 Hz	
24 = 480p @ 59.94 Hz	43 = 1080p @ 50 Hz	
25 = 480p @ 60 Hz	44 = 1080p @ 59.94 Hz	
26 = 576p @ 50 Hz	45 = 1080p @ 60 Hz	
27 = 720p @ 23.98 Hz	46 = 2048x1080 @ 23.98 Hz	
28 = 720p @ 24 Hz	47 = 2048x1080 @ 24 Hz	

- X24** = EDID Table; 128 or 256 Bytes.
- X25** = User presets — 1 to 16
- X26** = Input presets — 1 to 128
- X28** = On-screen menu/cursor time-out (default = 10) /Output sync time-out (default = 501-never),
 0 = Menu/cursor never times out/output sync is instantly disabled with no active input
 1 to 500, in 1 second increments,
 501 = output sync never times out
- X29** = Executive mode status
 0 = Off / disabled (default)
 1 = Exe Mode 1 - Complete front panel lockout
 2 = Exe Mode 2 - Partial front panel lockout (only input selection and Auto-Image are still available)
- X38** = Overscan (Applied only to SMPTE [NTSC/PAL, 480p – 1080p] input rates)
 0 = 0.0% (Default for RGB, HDMI, DisplayPort)
 1 = 2.5% (Default for YUV Auto, RGBcvS, S-Video, and Composite video)
 2 = 5.0%
- X39** = Aspect ratio
 1 = Fill (fills entire output raster) (default)
 2 = Follow (follows input native aspect ratio)
- X40** = Screen Saver modes
 1 = Black screen (Default)
 2 = Blue output
- X42** = Video Mute
 0 = Unmute video/sync
 1 = Mute video to black
 2 = Mute video and sync
- X43** = Auto-Image Threshold Value
 0 (black) through 100 (white), default = 25
- X44** = HDCP status
 0 = No sink or source device detected
 1 = Sink or source detected with HDCP
 2 = Sink or source detected but no HDCP is present
- X45** = Video Switching Effect
 0 = Cut
 1 = Fade through Black
- X46** = HDCP Mode
 0 = AUTO – HDMI output is only encrypted when viewing an encrypted input – slower switching (default)
 1 = ON – HDMI output is always encrypted regardless of input selection – faster switching

X48 = HDMI Output Format:

- 0 = auto (based on the display EDID: default)
- 1 = DVI RGB 444
- 2 = RGB 444 Full
- 3 = RGB 444 Limited
- 4 = YUV 444 Full
- 5 = YUV 444 Limited
- 6 = YUV 422 Full
- 7 = YUV 422 Limited

X49 = Auto Output Format Status:

- 0 = Output not connected
- 1 = DVI RGB 444
- 2 = RGB 444 Full
- 3 = RGB 444 Limited
- 4 = YUV 444 Full
- 5 = YUV 444 Limited
- 6 = YUV 422 Full
- 7 = YUV 422 Limited

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

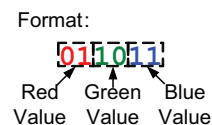
X51 = Font selection — 16 character file name including *.TTF extension,

- 0 = default font (DeJaVuSans)

X52 = Font size — 8 to 63 point font (default = 18 pt)

X53 = Line color — 6 bit RGB, 64 total colors

- 000000 = Black
- 010000 = Dark red (33%)
- 100000 = Medium red (66%)
- 110000 = Bright red (100%)
- 001100 = Bright green (66%)
- 000011 = Bright blue (default)
- 111111 = White
- 010101 = Dark gray (33%)



X54 = Line weight, eraser, or highlighter 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, the last four the Y coordinate, limits = 1000,1000. Fixed for any output rate.

Example, (0,0) = 00000000 = top left; (500,500) = 05000500 = screen center.

X58 = Audio input type

- 0 = None – Input muted (EDID has no CEA extension)
- 1 = LPCM-2Ch (LPCM-2Ch audio requested from source via EDID)
- 2 = Full Digital (allows any digital audio format from source via EDID)

X59 = All ports (0), USB device (1-64)

X61 = Video Signal Status
0 = Video / TMDS signal not detected
1 = Video / TMDS signal detected

X62 = Power Save modes
0 = Full Power mode (Default)
1 = Low Power state

X63 = Screen Saver Status
0 = Active Input; timer not running
1 = No active input; timer is running; output sync still active
2 = No active input; timer has expired; output sync disabled

X64 = File location
0 = Internal Flash
1 = Image Quick Capture PC (requires Image Quick Capture software)
2 = Attached USB drive (Only ONE USB drive can be connected)
3 = Network location (location must be configured or E25 will be issued)

X65 = Image Capture File Format
1 = JPG
2 = BMP (default)

X67 = Network folder path (spaces not allowed)
Example: 10.13.198.131/AnaheimCourt/Room20

X68 = Printer URI address
Example: lpd://197.168.254.201

NOTES:

- "lpd" must be lower case
- Contact your IT department to determine if your printer supports postscript printing via LPD.

X69 = Auto Annotation Clear
0 = Disabled (default)
1 = Clear after an input switch
2 = Clear after an input switch or when a new input frequency is detected

X71 = Output Group Selection
0 = All outputs (Default)
1 = Output 1 Only (HDMI)
2 = Output 2A and 2B Only (HDMI & DTP)
3 = None

X72 = White/Blackboard status
0 = Disabled (Default)
1 = Whiteboard is enabled
2 = Blackboard is enabled

X73 = Auto Switch Mode
0 = Disable (Default)
1 = Gives priority to the highest numbered active input
2 = Gives priority to the lowest numbered active input

X74 = DTP Output Format
0 = DTP format (Default)
1 = HDBaseT Format

- X75** = Keyboard Locale Selection
 - 1033 = US Keyboard layout (Default)
 - 1031 = German Keyboard layout
 - 1034 = Spanish Keyboard layout
 - 1036 = French Keyboard layout
 - 2057 = Great Britain Keyboard layout
- X76** = Filename/prefix name without extension (12 characters)
- X77** = Filename with extension
- X78** = Configuration type
 - 0 = IP config (ip.cfg)
 - 1 = Event config (event.cfg)
 - 2 = Box specific parameters (box.cfg)
- X79** = Number of copies to print (printer quantity): 1-50 (default = 1)

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	!	[X1] ↵	View currently selected input source.
Input video format			
Set format	[Esc][X1]*[X3]ITYP ←	ITyp [X1]*[X3]*[X5] ↵	Set input [X1] to video format [X3] . Detected format [X5] is also reported in response
View format	[Esc][X1]ITYP ←	[X3]*[X5] ↵	View video format of input [X1] . Detected format [X5] is also reported in response
View input standard	[Esc][X1]ISTD ← (tagged response in verbose mode 2/3)	[X1]*[X11] ↵ ISTD [X1]*[X11] ↵	View video standard [X11] for input [X1] . Verbose mode (2/3)
Input EDID			
Specify an EDID value	[Esc]A[X1]*[X22]EDID ←	Edid [X1]*[X22] ↵	Set EDID resolution and refresh [X22] for input [X1] .
View EDID value	[Esc]A[X1]EDID ←	[X22] ↵ EdidA [X1]*[X22] ↵	View EDID resolution and refresh [X22] for input [X1] . Verbose mode (2/3)
Save an outputs EDID	[Esc]S[X2]*[X22]EDID ←	EdidS [X2]*[X22] ↵	Set output [X2] EDID to [X22] . (Valid for [X22] = 201, 202, 203 only, and [X2] = 1, 2 and 3 only.)
Export EDID file	[Esc]E [X22], EDID ←	[X24] ↵	Exports EDID table [X24] .
Import an EDID file	[Esc]I [X22], [X24]EDID ←	EdidI [X22] ↵	Imports user defined EDID to [X22] (valid for [X22] = 201, 202, 203 only).
Auto-Image			
Enable auto image	[X1]*1A	Img [X1]*1 ↵	Enable Auto image for input [X1] (only available for input 1).
Disable auto image	[X1]*0A	Img [X1]*0 ↵	Turn off auto image for input [X1] (only available for input 1).
Execute auto image	A	Img 0 ↵	Execute auto image for current input.
Execute and Fill	1*A	Img 1 ↵	Execute auto image and fill entire output.
Execute and Follow	2*A	Img 2 ↵	Execute auto image and follow the input's aspect ratio.
View auto image	[X1]A	[X10] ↵	View auto image setting for input [X1] .

NOTE: **[X1]** = Input selection; 1 – 3
[X2] = Output selection: 0 = All outputs (Only available for Video Mute), 1 = Output 1 Only (HDMI), 2 = Output 2A Only (HDMI), 3 = Output 2B Only (DTP)
[X3] = Input video format; 0 = Auto detect (default), 1 = RGB, 2 = Auto YUV, 3 = RGBcvs, 4 = S-video, 5 = Composite video, 6 = HDMI/DVI, 7 = DisplayPort
[X5] = Detected Input Video Format: 0 = No signal present, 1 = RGB, 2 = Auto YUV, 3 = RGBcvs, 4 = S-Video, 5 = Composite, 6 = DVI, 7 = HDMI, 8 = DisplayPort
[X10] = 0 (off/disable), 1 (on/enable)
[X11] = Input standard: 0 = No signal, 1 = NTSC, 2 = PAL, 3 = SECAM, - = N/A (when input is set to a high resolution signal format)
[X22] = EDID emulation: see [page 36](#) for EDID resolution and refresh rates
[X24] = EDID Table; 128 or 256 Bytes.

Command/Response Table for SIS Commands

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Auto-Image threshold value			
NOTE: Luminosity value which the processor defines as active video for Auto-Image.			
Set threshold value	Esc [X43]ALVL ←	A1v1[X43]↵	Set global Auto image luminosity value [X43].
View threshold value	Esc ALVL ←	[X43]↵	View global Auto image luminosity value [X43].
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]↵	View 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 line 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]↵	View vertical location of first active line in active input.
Pixel phase (RGB and YUV-HD input signals only)			
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]↵	View pixel phase.
Total pixels (RGB and YUV-HD 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]↵	View 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]↵	View active pixels.

NOTE: [X1] = Input selection; 1 – 3
[X4] = H/V start — 0 to 255 (default midpoint = 128, translates to the default value in the input lookup tables)
[X6] = Pixel phase; 0-63 (default = 31)
[X7] = Total pixels; (±512 of the default value)
[X8] = Active pixels; (±512 of the default value)
[X43] = Auto-Image Threshold Value; 0 (black) through 100 (white), default = 25

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Active lines			
Specify a value	Esc X9ALIN←	AlinX1*X9←	Set active lines to specified value for active input.
Increment value	Esc +ALIN←	AlinX1*X9←	Increase value.
Decrement value	Esc -ALIN←	AlinX1*X9←	Decrease value.
View value	Esc ALIN←	X9←	Show active lines.
3:2, 2:2, 24:1 Film mode detect			
Enable film detect	Esc X1*1FILM←	FilmX1*X10←	Turn film mode detection on.
Disable film detect	Esc X1*ØFILM←	FilmX1*X10←	Turn film mode detection off.
View setting	Esc X1FILM←	X10←	View setting.
Picture Adjustments			
Video mute			
Unmute output	X71*ØB	VmtX71*ØØ←	Restore picture for output X71.
Mute output video	X71*1B	Vmt X71*Ø1←	Mute video only on output X71.
Mute output sync and video	X71*2B	Vmt X71*Ø2←	Mute sync and video on output X71.
Query output state	X71B	X42←	Queries mute status of output X71.
Color			
Specify a value	Esc X15COLR←	ColrX1*X15←	Set color level to X15.
Increment value	Esc +COLR←	ColrX1*X15←	Increase value.
Decrement value	Esc -COLR←	ColrX1*X15←	Decrease value.
View value	Esc COLR←	X15←	Show color level.
Tint			
Specify a value	Esc X15TINT←	TintX1*X15←	Set tint level to X15.
Increment value	Esc +TINT←	TintX1*X15←	Increase value.
Decrement value	Esc -TINT←	TintX1*X15←	Decrease value.
View value	Esc TINT←	X15←	Show tint level.
Contrast			
Specify a value	Esc X15CONT←	ContX1*X15←	Set contrast level to X15.
Increment value	Esc +CONT←	ContX1*X15←	Increase value.
Decrement value	Esc -CONT←	ContX1*X15←	Decrease value.
View value	Esc CONT←	X15←	Show contrast level.
Brightness			
Specify a value	Esc X15BRIT←	BritX1*X15←	Set brightness level to X15.
Increment value	Esc +BRIT←	BritX1*X15←	Increase value.
Decrement value	Esc -BRIT←	BritX1*X15←	Decrease value.
View value	Esc BRIT←	X15←	Show brightness level.

NOTE: X1 = Input selection; 1 – 3
X9 = Active lines – (±512 of the default value)
X10 = 0 (off/disable), 1 (on/enable)
X15 = Picture adjustment; 0 to 127 (default 64) (Three digit response – 0 padding)
X42 = Video Mute: 0 = Unmute video/sync, 1 = Mute video to black, 2 = Mute video and sync
X71 = Output Group Selection; 0 = All outputs (Default), 1 = Output 1 Only (HDMI), 2 = Output 2A and 2B Only (HDMI & DTP), 3 = None

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Detail filter			
Specify a value	Esc X15HDET ←	HdetX1*X15 ↵	Set detail level to X15.
Increment value	Esc +HDET ←	HdetX1*X15 ↵	Increase value.
Decrement value	Esc -HDET ←	HdetX1*X15 ↵	Decrease value.
View value	Esc HDET ←	X15 ↵	Show detail level.
Horizontal shift			
Specify a value	Esc X16HCTR ←	HctrX1*X16 ↵	Set horizontal position to X16.
Increment value	Esc +HCTR ←	HctrX1*X16 ↵	Shift position right.
Decrement value	Esc -HCTR ←	HctrX1*X16 ↵	Shift image left.
View value	Esc HCTR ←	X16 ↵	Show horizontal position value.
Vertical shift			
Specify a value	Esc X16VCTR ←	VctrX1*X16 ↵	Set vertical position to X16.
Increment value	Esc +VCTR ←	VctrX1*X16 ↵	Shift image down.
Decrement value	Esc -VCTR ←	VctrX1*X16 ↵	Shift image up.
View value	Esc VCTR ←	X16 ↵	Show vertical position value.
Horizontal size			
Specify a value	Esc X17HSIZ ←	HsizX1*X17 ↵	Set horizontal size to X17.
Increment value	Esc +HSIZ ←	HsizX1*X17 ↵	Widen the image.
Decrement value	Esc -HSIZ ←	HsizX1*X17 ↵	Make image narrower.
View value	Esc HSIZ ←	X17 ↵	Show horizontal size value.
Vertical size			
Specify a value	Esc X17VSIZ ←	VsizX1*X17 ↵	Set vertical size to X17.
Increment value	Esc +VSIZ ←	VsizX1*X17 ↵	Make the image taller.
Decrement value	Esc -VSIZ ←	VsizX1*X17 ↵	Make image shorter.
View value	Esc VSIZ ←	X17 ↵	Show vertical size value.

NOTE: X1 = Input selection; 1 – 3
X15 = Picture adjustment; 0 to 127 (default 64) (Three digit response – 0 padding)
X16 = H or V position (range -11000 to +11000)
X17 = H or V size (range 10 to 11000)

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Output Configuration			
Output scaler rate			
Set output rate	Esc X21RATE ←	RateX21 ←	Select output resolution and refresh rate.
View output rate	Esc RATE ←	X21 ←	Show selected output rate.
Digital output format			
Set format	Esc X2*X48OTYP ←	OtypX2*X48*X49 ←	Sets the output color space/format for digital output to X48. Automatic format X49 is also reported in the response.
View setting	Esc X2OTYP ←	X48*X49 ←	View the output color space for digital output X2. Automatic format X49 is also reported in the response.
Screen saver (runs when no active video in selected input)			
Set mode	Esc MX40SSAV ←	SsavMX40 ←	Sets the screen saver mode to X40 (default: 1 = black).
View mode	Esc MSSAV ←	X40 ←	View the current screen saver mode X40.
Set time duration	Esc TX28SSAV ←	SsavTX28 ←	Sets the screen saver time duration X28 seconds (default: 501 = never).
View time duration	Esc TSSAV ←	X28 ←	View the screen saver time duration X28.
View screen saver status	Esc SSSAV ←	X63 ←	View screen saver status X63.
<p>NOTE: When the Screen Saver mode automatically enables or disables output sync (entering or exiting the X63 = 2 state), an unsolicited SsavS X63 ← response is broadcast.</p>			
AFL mode			
Disable AFL mode	Esc ØGLOK ←	GlokØ ←	Disables global AFL mode (default).
Enable AFL mode	Esc 1GLOK ←	Glok1 ←	Locks the outputs refresh rate to the inputs refresh rate.
View AFL mode setting	Esc GLOK ←	X10 ←	View current global AFL mode
DTP protocol			
View protocol	Esc 03HDBT ←	X74 ←	View twisted pair output protocol
<p>NOTE: An unsolicited "HdbtO3* X74 ←" is broadcast to all verbose 1 or 3 ports if the position of the DTP/HDBaseT switch is changed.</p>			

NOTE: X2 = Output selection: 0 = All outputs (Only available for Video Mute), 1 = Output 1 Only (HDMI), 2 = Output 2A Only (HDMI), 3 = Output 2B Only
X10 = 0 (off/disable), 1 (on/enable)
X21 = Scaler resolution; see page 41 for scaler resolution details
X28 = On-screen menu time-out (default = 10) /Output sync time-out (default = 501-never)
0 = Menu/cursor never times out/output sync is instantly disabled with no active input
1 to 500, in 1 second increments, 501 = output sync never times out
X40 = Screen Saver modes; 1 = Black screen (Default), 2 = Blue output with OSD "INPUT x NO SIGNAL"
X48 = HDMI Output Format; see page 43 for HDMI output formats
X49 = Digital Output Format; see page 43 for Digital output formats
X63 = Screen Saver Status; 0 = Active Input; timer not running, 1 = No active input; timer is running; output sync still active, 2 = No active input; timer has expired; output sync disabled
X74 = DTP Output Format; 0 = DTP format (Default), 1 = HDBaseT Format

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Audio Configuration			
Audio mute (global setting - persists beyond a power cycle)			
Audio mute on	1Z	Amt1←	Mute selected audio input.
Audio mute off	ØZ	AmtØ←	Unmute selected audio input.
View audio mute status	Z	X10←	View audio mute status.
Audio input format – (for defining the audio portion of EDID on HDMI and DisplayPort inputs)			
Set none	Esc I X1 * Ø AFMT ←	Afmt I * X1 * Ø ←	Mute all audio for input X1.
Set 2CH digital	Esc I X1 * 1 AFMT ←	Afmt I * X1 * 1 ←	Select 2CH digital for input X1.
Set FULL digital	Esc I X1 * 2 AFMT ←	Afmt I * X1 * 2 ←	Select FULL digital for input X1.
View setting	Esc I X1 AFMT ←	X58 ←	Show audio input type for input X1.
NOTE: Applies to inputs 2 and 3 only.			
Presets			
User memory presets			
Recall preset	1 * X25 .	1Rpr X25 ←	Recalls user preset X25 for selected input.
Save preset	1 * X25 ,	1Spr X25 ←	Saves user preset X25 for selected input.
Delete/clear preset	Esc X1 * X25 PRST ←	Prst X1 * X25 ←	Clears user preset X25 for selected input.
User preset name			
Write preset name	Esc 1 * X25 , X14 PNAM ←	Pnam 1 * X25 , X14 ←	Set the name X14 for user preset X25.
View preset name	Esc 1 * X25 PNAM ←	X14 ←	View the name X14 for user preset X25.
NOTE: To restore a default User Preset Name, a single space character should be entered for X14; unassigned presets = “[unassigned]” Valid only for existing presets.			
Input presets			
Recall presets	2 * X26 .	2Rpr X26 ←	Recalls input preset X26.
Save presets	2 * X26 ,	2Spr X26 ←	Saves input parameters to preset X26.
Delete/clear preset	Esc X2 * X26 PRST ←	Prst X2 * X26 ←	Clears input preset X26.
Input preset name			
Write preset name	Esc 2 * X26 , X14 PNAM ←	Pnam 2 * X26 , X14 ←	Set the name X14 for input preset X26.
View preset name	Esc 2 * X26 PNAM ←	X14 ←	View the name X14 for preset X26.
NOTE: To restore a default Input Preset Name, a single space character should be entered for X14; unassigned presets = “[unassigned]” Valid only for existing presets.			

NOTE: X1 = Input selection; 1 – 3
X10 = off/disable (0), on/enable (1)
X14 = Text label – up to 16 characters
X25 = Memory presets – 1 to 16
X26 = Input presets – 1 to 128
X58 = Audio input type; 0 = None – Input muted (EDID has no CEA extension), 1 = LPCM-2Ch (LPCM-2Ch audio requested from source via EDID), 2 = Full Digital (via EDID allows digital audio format from source)

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Auto Memories			
Enable	Esc X1*1AMEM←	AmemX1*1↵	Set auto memory on. Previous settings for incoming signal are auto recalled.
Disable	Esc X1*ØAMEM←	AmemX1*Ø↵	Set auto memory off. Default settings are always used unless input preset is recalled manually.
View setting	Esc X1AMEM←	X10↵	View auto memory status for X1.
Advanced Configurations			
Test pattern			
Set test pattern	Esc X20TEST←	TestX20↵	Select test pattern X20.
View test pattern	Esc TEST←	X20↵	View which test pattern is used.
Freeze			
Enable	1F	Frz1↵	Freeze selected input.
Disable	ØF	FrzØ↵	Unfreeze selected input.
View setting	F	X10↵	View freeze setting.
Auto Switch mode			
Disable	Esc ØAUSW←	AuswØ↵	Manual input switching only.
High to Low (3 to 1)	Esc 1AUSW←	Ausw1↵	Gives priority to the highest active input.
Low to High (1 to 3)	Esc 2AUSW←	Ausw2↵	Gives priority to the lowest active input.
View setting	Esc AUSW←	X73↵	View current setting.
Switch effect			
Cut	Esc ØSWEF←	SwefØ↵	Sets the switch effect to cut.
Fade	Esc 1SWEF←	Swef1↵	Sets the switch effect to fade through to black.
View setting	Esc SWEF←	X45↵	View effect setting.
Front panel lockout (executive mode)			
Enable Mode 1	1X	Exe1↵	Lock out entire front panel.
Enable Mode 2	2X	Exe2↵	Limited front panel adjustments.
Disable	ØX	ExeØ↵	Adjustments and selections can be made from front panel.
View front panel lock status	X	X29↵	Show executive mode status.
NOTE: For full lock mode details see the "Setting the Front Panel Locks (Executive Modes)" section.			

NOTE: X1 = Input selection; 1 – 3
X10 = off/disable (0), on/enable (1)
X20 = Test patterns: 0 = off (default), 1 = Crop, 2 = alternating lines, 3 = alternating pixels, 4 = crosshatch, 5 = 4x4 crosshatch, 6 = color bars, 7 = grayscale, 8 = ramp, 9 = white field, 10 = 1.33 aspect ratio, 11 = 1.78 aspect ratio, 12 = 1.85 aspect ratio, 13 = 2.35 aspect ratio, 14 = blue mode
X29 = Executive mode status: 0 = Off / disabled (default), 1 = Exe Mode 1 - Complete front panel lockout, 2 = Exe Mode 2 - Partial front panel lockout (only input selection and Auto-Image are still available)
X45 = Video Switching Effect; 0 = Cut, 1 = Fade through Black (default)
X73 = Auto Switch Mode; 0 = Disable (Default), 1 = Gives priority to the highest numbered active input, 2 = Gives priority to the lowest numbered active input

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Aspect Ratio mode			
Enable Fill mode	Esc X1 *1ASPR←	Aspr X1 *1←	Set aspect ratio to Fill (default).
Enable Follow mode	Esc X1 *2ASPR←	Aspr X1 *2←	Set aspect ratio to Follow.
View aspect ratio setting	Esc X1 ASPR←	X39 ←	Show current aspect ratio
Overscan mode (applies only to SMPTE [NTSC/PAL - 1080p 50/60] input rates)			
Set value	Esc X3 * X38 OSCN←	0scn X3 * X38 ←	Set input type X3 to overscan mode X38 .
View status	Esc X3 OSCN←	X38 ←	View current overscan status.
HDCP notification (shows green screen)			
Enable HDCP notification	Esc N1HDCP←	HdcpN1←	Enable the HDCP notification (default)
Disable HDCP notification	Esc NØHDCP←	HdcpNØ← X10 ←	Disable the HDCP notification verbose response (0/1)
Query HDCP notification	Esc NHDCP←	HdcpN X10 ← X10 ←	Query the HDCP notification verbose response (0/1)
HDCP status			
Query input	Esc I X1 HDCP←	HdcpI X1 * X44 ← X44 ←	Query the HDCP status of the HDMI or Display Port inputs verbose response (0/1)
Query output	Esc O X2 HDCP←	HdcpO X2 * X44 ← X44 ←	Query the HDCP status of the HDMI output verbose response (0/1)
HDCP authorized device			
Enable HDCP Authorization	Esc E X1 *1HDCP←	HdcpE X1 * X10 ←	Enable HDCP Authorization on input X1 .
Disable HDCP Authorization	Esc E X1 *ØHDCP←	HdcpE X1 * X10 ←	Disable HDCP Authorization on input X1 .
Query status	Esc E X1 HDCP←	X10 ←	View HDCP Authorization status.
View video signal presence			
View signal presence	Esc ØLS←	X61 * X61 * X61 ← INØØ• X61 * X61 * X61 ←	IN #1*IN #2*IN #3 (X61): 0 = no input; 1 = input detected). verbose mode (2/3)

NOTE:

- X1** = Input selection; 1 – 3
- X2** = Output selection: 0 = All outputs (Only available for Video Mute), 1 = Output 1 Only (HDMI), 2 = Output 2A Only (HDMI), 3 = Output 2B Only
- X3** = Input video format; 0 = Auto detect, 1 = RGB (default), 2 = Auto YUV, 3 = RGBcvs, 4 = S-video, 5 = Composite video, 6 = HDMI/DVI, 7 = DisplayPort
- X10** = off/disable (0), on/enable (1)
- X38** = Overscan (Applied only to SMPTE [NTSC/PAL, 480p – 1080p] input rates)
 - 0 = 0.0% (Default for RGB, HDMI) (A “True” Auto-Image is executed on SMPTE inputs)
 - 1 = 2.5% (Default for YUV Auto, S-Video and CV) (An Auto-Image command snaps to a 2.5% table; no true Auto-Image)
 - 2 = 5.0% (Auto-Image command snaps to a 5.0% table; no true Auto-Image)
- X39** = Aspect ratio 1 = Fill (fills entire output raster, default), 2 = Follow (follows native aspect ratio)
- X44** = HDCP status; 0 = no sink or source device detected, 1 = sink or source detected with HDCP, 2 = sink or source detected but no HDCP is present
- X61** = Video Signal Status; 0 = Video / TMDS signal not detected, 1 = Video / TMDS signal detected

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Power Save			
Power save OFF	<code>[Esc]0PSAV ←</code>	<code>Psav0 ←</code>	Default: runs in full power mode, the product will always output video. ANNOTATOR 300 enters low power state that can only be exited via <code>[Esc]0PSAV ←</code> command, or front panel button press View current power save status.
Power save ON	<code>[Esc]1PSAV ←</code>	<code>Psav1 ←</code>	
View setting	<code>[Esc]PSAV ←</code>	<code>[X62] ←</code>	
USB device status			
Enable USB device	<code>[Esc][X59]*1ADEV ←</code>	<code>Adev[X59]*1 ←</code>	Enable USB device <code>[X59]</code> .
Disable USB device	<code>[Esc][X59]*0ADEV ←</code>	<code>Adev[X59]*0 ←</code>	Disable USB device <code>[X59]</code> .
View setting	<code>[Esc][X59]ADEV ←</code>	<code>[X10] ←</code>	View current USB device status.
View USB device information	<code>45i ←</code>	<code>Inf45*[X59]*[X53] * <calibration status>* <device ID> ←</code>	View details about last moved/touched USB device
Network Printer			
Network printer			
Enable network printer	<code>[Esc]E1PRTR ←</code>	<code>PrtrE1 ←</code>	Enable Network Printing when the capture button is triggered.
Disable network printer	<code>[Esc]E0PRTR ←</code>	<code>PrtrE0 ←</code>	Disable Network Printing (default).
View setting	<code>[Esc]EPRTR ←</code>	<code>[X10] ←</code>	View network printer setting
Printer URI option			
Set URI option	<code>[Esc]U[X68]PRTR ←</code>	<code>PrtrU[X68] ←</code>	Sets the printer URI to <code>[X68]</code> .
View setting	<code>[Esc]UPRTR ←</code>	<code>[X68] ←</code>	View printer URI setting
	<i>Example:</i> <code>[Esc] U lpd://10.13.1.22 PRTR ←</code>		NOTE: "lpd" must be lower case
Printer quantity			
Define printer quantity	<code>[Esc]Q[X79]PRTR ←</code>	<code>PrtrQ[X79] ←</code>	Defines number of copies to print (<code>[X79]</code>) when image is captured.
View setting	<code>[Esc]QPRTR ←</code>	<code>[X79] ←</code>	View the current number of copies to print.

NOTE: `[X10]` = off/disable (0), on/enable (1)
`[X53]` = Line color, 6 bit RGB, 64 total colors (see [page 38](#) for full details)
`[X59]` = All ports (0), USB device (1-64)
`[X62]` = Power Save modes; 0 = Full Power mode (Default), 1 = Low Power state
`[X68]` = Printer URI address, *Example:* `lpd://10.13.1.22`
`[X79]` = Number of copies to print (printer quantity): 1-50 (default = 1)

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Annotation type			
Set type	<code>[Esc]X50DRAW←</code>	<code>DrawX50↵</code>	Sets current annotation to <code>X50</code> .
View type	<code>[Esc]DRAW←</code>	<code>X50↵</code>	View current annotation type.
Annotation coordinates			
Location	<code>[Esc]X57APNT←</code>	(no response)	Places the annotation location at <code>X57</code> .
Complete annotation	<code>[Esc]ASTP←</code>	<code>Astp↵</code>	Indicates the end of an annotation function.
<p>NOTE: All coordinate values sent to the Annotator are interpreted according to the guidelines for the current annotation type.</p> <p>Example: Draw a square <code>Esc 00000000APNT← Esc 00100000APNT← Esc 00100010APNT← Esc 00000010APNT←</code> <code>Esc 00000000APNT← Esc ASTP←</code></p>			
Annotation color			
Set color	<code>[Esc]X59*X53ACOL←</code>	<code>AcolX59*X53↵</code>	Sets the color to <code>X53</code> for device <code>X59</code> .
View color	<code>[Esc]X59ACOL←</code>	<code>X53↵</code>	View current annotation color.
<p>NOTE: The color setting applies to all annotation types.</p>			
Annotation object fill			
Enable object fill	<code>[Esc]1FILL←</code>	<code>Fill1↵</code>	Enable fill for new objects drawn.
Disable object fill	<code>[Esc]0FILL←</code>	<code>Fill0↵</code>	Disable fill for new objects drawn.
View setting	<code>[Esc]FILL←</code>	<code>X10↵</code>	View current fill setting.
<p>NOTE: The fill setting applies to rectangles and ellipses drawn after the setting has been modified.</p>			
Text configuration			
Set text font	<code>[Esc]X51FONT←</code>	<code>Font*X51↵</code>	Set annotation font to <code>X51</code> .
View font	<code>[Esc]FONT←</code>	<code>X51↵</code>	View current font file name.
<p>NOTE: Font files must be stored on the hardware in the "Font" folder.</p>			
Set text size	<code>[Esc]X52TXSZ←</code>	<code>TxsZ[X52↵</code>	Set annotation text size to <code>X52</code> .
View text size	<code>[Esc]TXSZ←</code>	<code>X52↵</code>	View current text size.

NOTE:

- `X10` = off/disable (0), on/enable (1)
- `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 *.TTF extension, 0 = default font (DeJaVuSans)
- `X52` = Font size — 8 to 63 point font (default = 18 pt)
- `X53` = Line color — 6 bit RGB, 64 total colors; 000000 = Black, 010000 = Dark red (33%), 100000 = Medium red (66%), 110000 = Bright red (100%), 001100 = Bright green (66%), 000011 = Bright blue (default), 111111 = White, 010101 = Dark gray (33%)
- `X57` = Annotation coordinates — 8 digit number with first four being the X coordinate, the last four the Y coordinate, limits = 1000,1000. Fixed for any output rate.
Example, (0,0) = 00000000 = top left; (500,500) = 05000500 = screen center.
- `X59` = All ports (0), USB device (1-64)

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Keyboard locale configuration			
Set keyboard locale	Esc X75LCID←	Lcid0X75↵	Set keyboard locale to X75.
View keyboard locale	Esc LCID←	X75↵	View current keyboard locale.
Line configuration			
Set line weight	Esc X54LNWT←	LnwtX54↵	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/highlighter size			
Set eraser/highlighter size	Esc X54ERSR←	ErsrX54↵	Set the eraser/highlighter size to X54.
View size	Esc ERSR←	X54↵	View current eraser/highlighter 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. 15 states are held in memory.
Redo annotation	Esc 2EDIT←	Edit2↵	Previously removed annotation is placed back on the output.
Annotation display			
Set output to show annotation	Esc X71ASHW←	AshwX71↵	Set which video outputs display annotations.
View font	Esc ASHW←	X71↵	View setting.
Cursor display			
Set output to show cursor	Esc X71CSHW←	CshwX71↵	Set which video outputs display the cursor.
View font	Esc CSHW←	X71↵	View setting.
Cursor time-out			
Set cursor time out	Esc X28CDUR←	CdurX28↵	Set cursor duration to X28 seconds.
View time-out	Esc CDUR←	X28↵	View setting.
NOTE: Setting the time-out to zero disables the cursor time-out.			

NOTE: X10 = off/disable (0), on/enable (1)
X28 = On-screen menu time-out (default = 10) /Output sync time-out (default = 501-never)
0 = Menu/cursor never times out/output sync is instantly disabled with no active input
1 to 500, in 1 second increments, 501 = output sync never times out
X54 = Line weight, eraser, or highlighter width — 1 to 63 pixels wide (default = 8)
X71 = Output Group Selection; 0 = All outputs (Default), 1 = Output 1 Only (HDMI), 2 = Output 2A and 2B Only (HDMI & DTP), 3 = None
X75 = Keyboard Locale Selection; 1033 = US Keyboard layout (Default), 1031 = German Keyboard layout, 1034 = Spanish Keyboard layout, 1036 = French Keyboard layout, 2057 = Great Britain Keyboard layout

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 to right	[Esc]K+HCTR ←	Hctrk[X16]↵	Shift clock right.
Increment to left	[Esc]K-HCTR ←	Hctrk[X16]↵	Shift clock left.
View settings	[Esc]KHCTR ←	[X16]↵	Horizontal position value is [X16].
On-screen clock vertical position			
Specific value	[Esc]K[X16]VCTR ←	Vctrk[X16]↵	Set vertical position 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]KVCTR ←	[X16]↵	Vertical position value is [X16].
Panel calibration mode			
Enter calibration mode	[Esc]1PCAL ←	Pca1↵	Enter touchpanel calibration mode.
Exit calibration mode	[Esc]0PCAL ←	Pca10↵	Exit touchpanel calibration mode.
View setting	[Esc]PCAL ←	[X10]↵	View calibration setting.
Auto annotation clear			
Set annotation clear	[Esc][X69]ACLR ←	Ac1r[X69]↵	Set auto annotation clear to [X69].
View setting	[Esc]ACLR ←	[X69]↵	Annotation clear setting is [X69].
Annotation white/blackboard			
Disable whiteboard	[Esc]0WHBD ←	Whbd0↵	Disable whiteboard (default).
Enable whiteboard	[Esc]1WHBD ←	Whbd1↵	Enable whiteboard
Enable blackboard	[Esc]2WHBD ←	Whbd2↵	Enable blackboard (OSD mute button).
View setting	[Esc]WHBD ←	[X72]↵	View current setting.

NOTE: [X10] = off/disable (0), on/enable (1)
[X16] = H or V position (range -11000 to +11000)
[X56] = On-screen clock: 0 = disabled (default), 1 = date and time, 2 = time only, 3 = date only
[X69] = Auto Annotation Clear; 0 = Disabled (default), 1 = Clear after an input switch; 2 = Clear after an input switch or when a new input frequency is detected
[X72] = White/Blackboard status; 0 = Disabled (Default), 1 = Whiteboard is enabled, 2 = Blackboard is enabled

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
On-Screen Menu Configuration			
Menu time-out			
Set menu time-out period	Esc X28MDUR ←	MdurX28 ↵	Sets the menu duration to X28 seconds.
View time-out	Esc MDUR ←	X28 ↵	View setting.
NOTE: Setting the time-out to zero disables the on-screen display (OSD) time-out.			
Menu display			
Set output to show menu	Esc X71MSHW ←	MshwX71 ↵	Sets which video outputs display the OSD.
View setting	Esc MSHW ←	X71 ↵	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.			
Menu graphics			
Load default OSD	Esc 0MLOD ←	Mlod00 ↵	Loads the factory default OSD from the firmware.
Load user defined OSD	Esc 1MLOD ←	Mlod01 ↵	Checks the file system for custom OSD and reloads the images.
OSD/front panel capture and recall button modes			
Save to internal memory	Esc 0MCAP ←	Mcap0 ↵	Sets the OSD image capture button to capture the image and save it to internal flash memory. The image recall is also set to the local storage only.
Save to IQC	Esc 1MCAP ←	Mcap1 ↵	Sets the OSD image capture button to capture image to temporary memory for Image Quick Capture (IQC). The image recall is also set to the local storage only.
Save to USB flash	Esc 2MCAP ←	Mcap2 ↵	Sets the OSD image capture button to send image to the connected USB flash device. The image recall is also set to the USB and the local storage.
Save to network drive	Esc 3MCAP ←	Mcap3 ↵	Sets the OSD image capture button to send image to the configured network drive. The image recall is also set to the designated network folder and the local storage.
View setting	Esc MCAP ←	3 ↵ / 2 ↵ / 1 ↵ / 0 ↵	View setting.
NOTE: In order for the network capture to occur, user must have set the Network Driver Capture Settings (Domain, Username, and Password). To print without saving a copy of the image file, set capture mode to Image Quick Capture (1)			

NOTE: X28 = On-screen menu time-out (default = 10)
0 = Menu/cursor never times out
1 to 500, in 1 second increments
X71 = Output Group Selection; 0 = All outputs (Default), 1 = Output 1 Only (HDMI), 2 = Output 2A and 2B Only (HDMI & DTP), 3 = None

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Image capture/recall			
Image capture/recall to product flash memory			
Save image to flash	[Esc]0*[X76]MF ←	Ims0*[X77]↵	Saves currently displayed image to memory under designated name and currently selected capture file format.
Save image to USB	[Esc]2*[X76]MF ←	Ims2*[X77]↵	Saves currently displayed image to USB memory under designated name and currently selected capture file format.
Save image to external	[Esc]3*[X76]MF ←	Ims3*[X77]↵	Saves currently displayed image to configured network under designated name and currently selected capture file format.
Recall image	[Esc][X64]*[X77]RF ←	Imr[X64]*[X77]↵	Recalls displayed image (file extension is required).
Mute image	[Esc]0*ØRF ←	ImrØ↵	Mutes image on the output and reveals live input video
Current image	[Esc]RF ←	[X77]↵ Imr*[X77]↵	View currently displayed image name. verbose response (1 and 3)
Save image to flash	[Esc]ØMF ←	ImsØ↵	Saves currently displayed to memory using capture file format settings.
Save image to USB	[Esc]2MF ←	Ims2↵	Saves currently displayed to USB memory using capture file format settings.
Save image to external	[Esc]3MF ←	Ims3↵	Saves currently displayed to configured network using capture file format settings.
<p>NOTE: USB Capture will send the image to the first enumerated USB drive and saved in the "Annotator_Images" folder. Multiple USB drives are not supported. Images captured to the flash will be saved in the "Graphics" folder</p>			
Image quick capture			
Save image to RAM	[Esc] QCAP ←	Qcap↵	Saves currently displayed image to Annotator RAM.
<p>NOTE: Qcap response invokes Quick Capture software running on a PC to request image data. Image streaming duration depends on network speed</p>			

NOTE: [X64] = File location; 0 = Internal Flash, 2 = Attached USB drive (Only ONE USB drive can be connected), 3 = Network location (location must be configured or E25 will be issued)
[X76] = Filename/prefix name without extension (12 characters)
[X77] = Filename with extension

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
Image capture file format			
Set capture file format	[Esc]F[X65]CFMT ←	CfmtF[X65]↵	Sets the file format for the images that will be captured.
View setting	[Esc]FCFMT ←	[X65]↵	View the captured file format.
Set prefix name	[Esc]P[X76]CFMT ←	CfmtP[X76]↵	Sets the prefix name for captured images.
Clear prefix name	[Esc]P●CFMT ←	CfmtP●/↵	Removes the prefix name.
Read prefix name	[Esc]PCFMT ←	[X112]↵	View the prefix name.
<p>NOTE: Unit does not send out a tagged response until completion of capture to designated location. Note that the filename will be enumerated with a time and date stamp (YYYYMMDD_HHMMSS). Also note that if a prefix is defined then an underscore will be placed between the prefix and date/time stamp.</p> <p>Example of filename when file format is set to .jpg, prefix is set to "Room-20" and the capture is taken at 11/12/13 at 7:35pm :Room-20_20131112_193500.jpg</p>			
Network folder capture/recall settings			
Set folder path	[Esc]F[X67]NTWK ←	NtwkF●[X67]↵	Sets the folder path.
<i>Example:</i> [Esc]F10.13.198.131/AnaheimCourt/Room20NTWK ←			
Clear folder path	[Esc]F●NTWK ←	NtwkF●↵	Reset folder path.
Read folder path	[Esc]FNTWK ←	NtwkF●[X67]↵	Read folder path.
Set user name	[Esc]U[X18]NTWK ←	NtwkU[X18]↵	Sets network user name.
Clear user name	[Esc]U●NTWK ←	NtwkU●↵	Resets network user name.
Read user name	[Esc]UNTWK ←	[X18]↵	Read network user name.
Set password	[Esc]P[X133]NTWK ←	NtwkP****↵	Sets network password.
Clear password	[Esc]P●NTWK ←	NtwkP●↵	Resets network password.
Read password	[Esc]PNTWK ←	****↵ or ●↵	View if password is set (**** = password, ● = no password)

NOTE: [X18] = Text string up to 32 characters drawn from the alphabet (A-Z), digits (0-9), minus sign/hyphen (-). No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case. The first character must be an alpha character. The last character must not be a minus sign/hyphen.

[X65] = Image Capture File Format; 1 = JPG, 2 = BMP (default)

[X67] = Network folder path (spaces not allowed). Example: 10.13.198.131/AnaheimCourt/Room20

[X76] = Filename/prefix name without extension (12 characters)

[X112] = Text string up to 63 characters drawn from the alphabet (A-Z), digits (0-9), minus sign/hyphen (-). No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case. The first character must be an alpha character. The last character must not be a minus sign/hyphen.

[X133] = Password 12 alphanumeric characters

Command	ASCII command (host to processor)	Response (processor to host)	Additional description
USB driver commands			
List user loaded driver files	Esc LUSBF←	<filename>↵<filename>↵ ...<filename>↵↵	
Delete user loaded driver files	Esc D<filename>USBF←	Usbfd•<filename>↵	
Time zone			
Set time zone	Esc <zone name>*TZON←	Tzone•<zone name> * <description>↵	
View current time zone	Esc TZON←	<zone name> * <description>↵	
List all time zone	Esc *TZON←	<zone name> * <description>↵ <zone name> * <description>↵ <zone name> * <description>↵	
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↵	
<p>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.</p>			
Information request			
General information	I / i	Vid[x1]•Typ[x5]•Std[x11]•Blk[x10]•Hrt[x13]•Vrt[x13]↵	
Query firmware version	Q/q	x.xx↵	View firmware version.
Query part number	N/n	zz-zzz-zz↵	View part number.
View internal temperature	Esc 2ØSTAT←	[x12]↵	Temperature in degrees Celsius.
Backup/Restore configuration			
Save box configuration to file system	Esc 1*[x78]XF←	Cfg1*[x78]↵	Backup the current device configuration
Restore configuration from file system	Esc Ø*[x78]XF←	CfgØ*[x78]↵	Restore device configuration

NOTE:

- [x1] = Input selection, 1 to 3
- [x5] = Detected Input Video Format: 0 = No signal present, 1 = RGB, 2 = Auto YUV, 3 = RGBcVs, 4 = S-Video, 5 = Composite, 6 = DVI, 7 = HDMI, 8 = DisplayPort
- [x10] = off/disable (0), on/enable (1)
- [x11] = Input standard: 0 = No signal, 1 = NTSC, 2 = PAL, 3 = SECAM, - = N/A (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
for example, 075.3)
- [x78] = Configuration type: 0 = IP config, 1 = Event config, 2 = Box config

Using the Command/Response Table for IP SIS Commands

Symbol Definitions

• = Space

X101 = Specific port number (01-99), 00 = reserved

X105 = On/off status: 0 = off/disable; 1 = on/enable

X111 = Version number (listed to two decimal places)

X112 = Text string up to 63 characters drawn from the alphabet (A-Z), digits (0-9), minus sign/hyphen (-). No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case. The first character must be an alpha character. The last character must not be a minus sign/hyphen.

X113 = Time and date (for set) In the format: MM/DD/YY•HH:MM:SS where:
MM = month: 01 (January) through 12 (December), DD = 01 through 31, YY = 00 through 99, HH = 00 through 24, MM = 00 through 59, SS = 00 through 59

X114 = IP address: (###.###.###.###). Leading zeros in each of 4 fields are optional in setting values, and are suppressed in returned values.

X118 = Hardware (MAC) address: ##-##-##-##-##-##

X119 = Subnet mask (xxx.xxx.xxx.xxx). Leading zeros are optional in setting values in each of four fields, and are suppressed in returned values. Default subnet mask = 255.255.0.0

X122 = Verbose mode: 0 = clear/none (default, Telnet), 1 = verbose mode (default, RS-232/RS-422), 2 = tagged responses for queries, 3 = verbose mode/tagged for queries.

NOTE: If tagged responses are enabled, all read commands return the constant string and the value as the set command does (for example, the read processor name command `[Esc]CN←`, returns `lpr•[X100]←`).

X133 = Password (12 characters = maximum length; no special characters are allowed.)

NOTE: A user password cannot be assigned if no administrator password exists; the E14 error code is returned. If the administrator password is cleared, the user password is also removed.

X141 = Reading Password: RS-232 connection responds with password. IP connection responds with 4 asterisk (****) if password exists and empty if not, instead of actual password.

X149 = Default name, (Annotator-300 + last 3 pairs of the MAC address)

X169 = Time-out in 10 second steps,, 1-65000 (default = 30 = 30 seconds)

Command	ASCII (Telnet) (host to processor)	URL Encoded (Web) (host to processor)	Response (processor to host)
Firmware version requests			
NOTE: An asterisk (*) after the version number indicates the version currently running. Caret (^) indicates bad checksum/invalid load. Question marks (?) indicate version not loaded.			
Query firmware version	Q	Q verbose mode (2/3)	[X111]↵ ver01 * [X111]↵
Query firmware and build version	*Q	*Q verbose mode (2/3)	[X111]↵ Bld [X111]↵
Query kernel firmware and build version	**Q	**Q verbose mode (2/3)	[X111]↵ Lib [X111]↵
Query verbose version information	0Q	0Q verbose mode (2/3)	All responses from 2Q-3Q-4Q↵ Ver01 * All responses from 2Q-3Q-4Q↵
Query firmware version	1Q	1Q verbose mode (2/3)	[X111]↵ ver01 * [X111]↵
Query bootstrap version	2Q	2Q verbose mode (2/3)	[X111]↵ ver02 * [X111]↵
Query factory firmware version	3Q	3Q verbose mode (2/3)	[X111] (plus web ver.-desc-date/time)↵ Ver03 * [X111] (plus web ver. - desc - UL date/time)↵
Query updated firmware version	4Q	4Q verbose mode (2/3)	[X111] (plus web ver.-desc-date/time)↵ Ver04 * [X111] (plus web ver. - desc - UL date/time)↵
Information requests			
Request processor part number	N	N verbose mode (2/3)	60-xxxx-yy↵ Pho 60-xxxx-yy↵
Request model name	1i	1i verbose mode (2/3)	ANNOTATOR 300↵ Inf01 * ANNOTATOR 300↵
Request model description	2i	2i verbose mode (2/3)	Annotation Graphics Processor↵ Inf02 * Annotation Graphics Processor↵
Request system memory usage	3i	3i verbose mode (2/3)	# Bytes used out of #Kbytes ↵ Inf03 * # Bytes used out of #Kbytes ↵
Request user memory usage	4i	4i verbose mode (2/3)	# Bytes used out of #Kbytes↵ Inf04 * # Bytes used out of #Kbytes ↵

NOTE: [X111] = Version number (listed to two decimal places)

Command	ASCII (Telnet) (host to processor)	URL Encoded (Web) (host to processor)	Response (processor to host)
IP setup commands			
Set unit name	[Esc] [X112] CN ←	W [X112] CN |	Ipn • [X112] ←
Set unit name to factory default	[Esc] • CN ←	W %20 CN |	Ipn • [X149] ←
Read unit name	[Esc] CN ←	WCN |	[X112] ←
Set time/date	[Esc] [X113] CT ←	W [X113] CT |	lpt • [X113] ←
Read time/date	[Esc] CT ←	WCT |	[X113] ←
Set DHCP on	[Esc] 1 DH ←	W1DH |	ldh 1 ←
Set DHCP off	[Esc] 0 DH ←	W0DH |	ldh 0 ←
View DHCP mode	[Esc] DH ←	WDH |	ldh [X105] ←
Set IP address	[Esc] [X114] C ←	W [X114] C |	lpl • [X114] ←
Read IP address	[Esc] C ←	WC |	[X114] ←
Read hardware address (MAC)	[Esc] CH ←	WCH |	[X118] ←
Set subnet mask	[Esc] [X119] CS ←	W [X119] CS |	lps • [X119] ←
Read subnet mask	[Esc] CS ←	WCS |	[X119] ←
Set gateway IP address	[Esc] [X114] CG ←	W [X114] CG |	lpg • [X114] ←
Read gateway IP address	[Esc] CG ←	WCG |	[X114] ←
NOTE: Changes made to any Ethernet settings do not take effect until the reboot networking command (2BOOT) is issued.			
Reboot network	[Esc] 2 BOOT ←		Boot 2 ←

NOTE:

[X105] = On/off status: 0 = off/disable; 1 = on/enable

[X112] = Text string up to 63 characters drawn from the alphabet (A-Z), digits (0-9), minus sign/hyphen (-). No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case. The first character must be an alpha character. The last character must not be a minus sign/hyphen.

[X113] = Time and date (for set) in the format: MM/DD/YY•HH:MM:SS where: MM = month: 01 (January) through 12 (December), DD = 01 through 31, YY = 00 through 99, HH = 00 through 24, MM = 00 through 59, SS = 00 through 59

[X114] = IP address: (###.###.###.###). Leading zeros in each of 4 fields are optional in setting values, and are suppressed in returned values.

[X118] = Hardware (MAC) address: ##-##-##-##-##-##

[X119] = Subnet mask (xxx.xxx.xxx.xxx). Leading zeros are optional in setting values in each of four fields, and are suppressed in returned values. Default subnet mask = 255.255.0.0.

[X149] = Default name, (Annotator-300 + last 3 pairs of the MAC address)

Command/Response Table for IP SIS Commands

Command	ASCII (Telnet) (host to processor)	URL Encoded (Web) (host to processor)	Response (processor to host)
<p>NOTE: A user password cannot be assigned if an administrator password does not exist. Entering a password when the Annotator 300 has not been configured yields an E14 response from the processor. If the administrator password is cleared (removed), the user password is also removed.</p>			
Read administrator password	<code>[Esc]CA←</code>	WCAI	<code>[X141]←</code>
Set administrator password	<code>[Esc] [X133]CA←</code>	W[X133]CAI	<code>!pa•[X133]←</code>
Clear administrator password	<code>[Esc]•CA←</code>	W%20CAI	<code>!pa•←</code>
Set user password	<code>[Esc] [X133]CU←</code>	W[X133]CUI	<code>!pu•[X133]←</code>
<p>NOTE: A user password cannot be assigned if an administrator password does not exist.</p>			
Clear user password	<code>[Esc]•CU←</code>	W%20CUI	<code>!pu•←</code>
Read user password	<code>[Esc]CU←</code>	WCUI	<code>[X141]←</code>
Set verbose mode	<code>[Esc] [X122]CV←</code>	W [X122]CVI	<code>V!vb [X122]←</code>
<p>NOTE: The processor can send out unsolicited information (such as notice of a volume or input change or a change in some other setting). That is called verbose (wordy) relationship between the processor and a connected device. For a direct RS-232/422 connection, the processor is set for Verbose mode by default. When the Annotator 300 is connected via Ethernet, Verbose mode is disabled by default in order to reduce the amount of communication traffic on the network. If you want to use the Verbose mode with a processor connected via Ethernet, this mode must be set to On each time you reconnect to the processor.</p>			
Read verbose mode	<code>[Esc]CV←</code>	WCVI	<code>[X122]←</code>

NOTE: `[X122]` = Verbose mode: 0 = clear/none (default, Telnet), 1 = verbose mode (default, RS-232/RS-422), 2 = tagged responses for queries, 3 = verbose mode/tagged for queries.

`[X133]` = Password (12 characters = maximum length; no special characters are allowed.)

`[X141]` = Reading Password: RS-232 connection responds with password. IP connection responds with 4 asterisk (****) if password exists and empty if not, instead of actual password.

Command	ASCII (Telnet) (host to processor)	URL Encoded (Web) (host to processor)	Response (processor to host)
Ethernet data port			
Set current conn port time-out	<code>[Esc] 0 * [X169] TC ←</code>	<code>W0%2A[X169]TC |</code>	<code>Pt.i 0 * [X169] ←</code> <code>[X169] ←</code>
View current conn port time-out	<code>[Esc] 0 TC ←</code>	<code>W0TC |</code>	
Set global IP port time-out	<code>[Esc] 1 * [X169] TC ←</code>	<code>W1%2A[X169]TC |</code>	<code>Pt.i 1 * [X169] ←</code> <code>[X169] ←</code>
View global IP conn port time-out	<code>[Esc] 1 TC ←</code>	<code>W1TC |</code>	
Re-map port designations			
Set Telnet port map	<code>[Esc] [X101] MT ←</code>	<code>W[X101]MT |</code>	<code>Pmt [X101] ←</code>
Reset Telnet port map	<code>[Esc] 23 MT ←</code>	<code>W23MT |</code>	<code>Pmt 00023 ←</code>
Disable Telnet port map	<code>[Esc] 0 MT ←</code>	<code>W0MT |</code>	<code>Pmt 00000 ←</code>
Read Telnet port map	<code>[Esc] MT ←</code>	<code>WMT |</code>	<code>[X101] ←</code>
Directories			
Change/create directory	<code>[Esc] {path} {directory} / C J ←</code>	<code>W {path} {directory} / C J |</code>	<code>Dir • {path} / {directory} / ←</code>
NOTE: A directory does not actually exist until a file has been copied into the path.			
Move back to root directory	<code>[Esc] / C J ←</code>	<code>W%2FCJ |</code>	<code>Dir • / ←</code>
Move up one directory	<code>[Esc] . C J ←</code>	<code>W%2E%2ECJ |</code>	<code>Dir • {path} / {directory} / ←</code>
View current directory	<code>[Esc] C J ←</code>	<code>WCJ |</code>	<code>{path} / {directory} / ←</code>

NOTE: [X101] = Specific port number (01-99), 00 = reserved
[X169] = Time-out in 10 second steps,, 1-65000 (default = 30 = 30 seconds)

Command	ASCII (Telnet) (host to processor)	URL Encoded (Web) (host to processor)	Response (processor to host)
File commands			
List Files from current Directory	[Esc] DF↵	WDF|	filename x • date/time • length↵
List Selected Files from current Directory	[Esc] first char in extension DF↵	W first char in extension DF|	filename x • date/time • length↵
List Selected Files from current Directory	[Esc] first char in filename first char in extension DF↵	W first char in extension first char in extension DF|	filename x • date/time • length↵
List Files from current Directory and below	[Esc] LF↵	WLF|	filename x • date/time • length↵
List Selected Files from current Directory and below	[Esc] first char in extension LF↵	W first char in extension LF|	filename x • date/time • length↵
List Selected Files from current Directory	[Esc] first char in filename first char in extension LF↵	W first char in extension first char in extension LF|	filename x • date/time • length↵
Erase user-supplied file ^{24, 28}	[Esc] {filename} EF↵	W {filename} EF|	Del • {filename}↵
Erase current directory and its files ^{24, 28}	[Esc] /EF↵	W%2FEF|	Ddl↵
Erase current directory and subdirectories ^{24, 28}	[Esc] //EF↵	W%2F%2FEF|	Ddl↵

Product Configuration Software

The Extron Product Configuration Software (PCS version 2.1 or later) offers another way to control the Annotator 300 via USB or TCP/IP connection in addition to the SIS commands.

This section describes the software installation and communication (see [Accessing the Web Page](#) on page 92, or see the *Annotator 300 Product Configuration Software* help file for detailed control information). Topics in this section include:

- [Installing the Software](#)
- [Starting the Software](#)
- [Using the Software](#)

The graphical interface includes the same functions as those on the device front panel with additional features that are available only through the software.

The control software is compatible with Microsoft Windows operating systems. The software program is available on the Extron [website](#).

Installing the Software

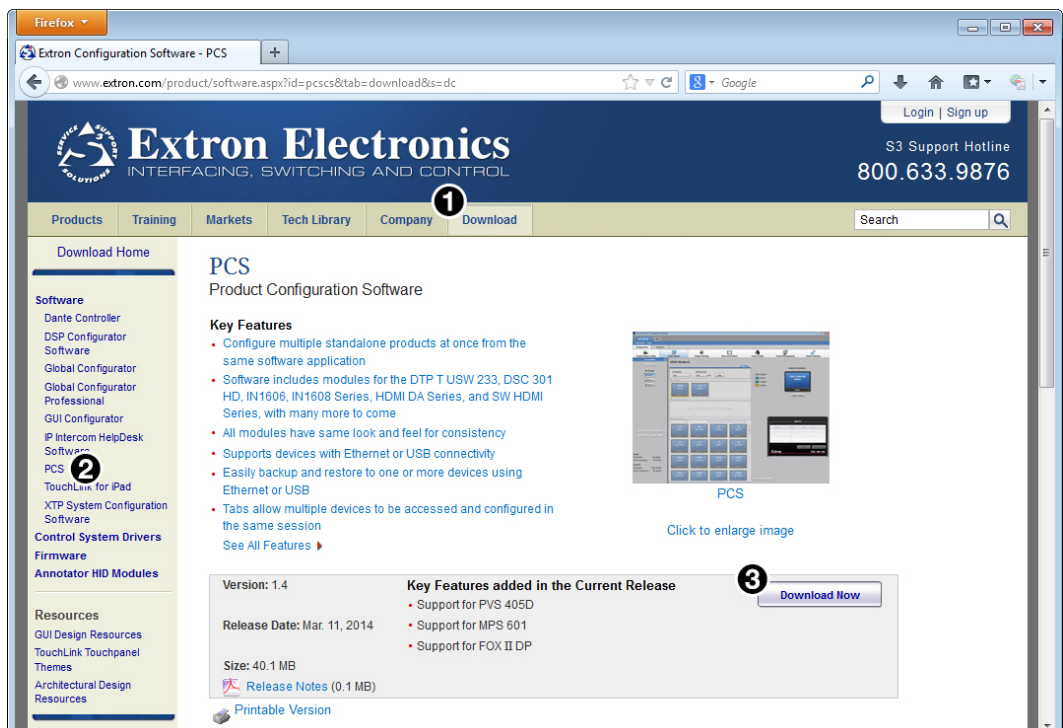


Figure 20. PCS Download from the Extron Website

NOTE: PCS versions prior to version 2.1 do not have the configuration pages for the Annotator 300 device. Ensure you download PCS version 2.1 or later.

1. On the Extron website, select the **Download** tab (see figure 20, ①).
2. From the left sidebar, click the **PCS** link (see figure 20, ②).
3. Click the **Download Now** button (see figure 20, ③).
4. Enter any required information to start the download. Note where the file is saved.
5. Open the executable (.exe) file from the save location.
6. Follow the instructions that appear on the screen. By default, the installation creates a directory in the Program Files or Program Files (x86) folder.

Starting the Software

Open the Product Configuration Software program from the **Start** menu or the desktop Product Configuration Software icon (see image at right).



The Product Configuration Software window opens at the Device Discovery panel.

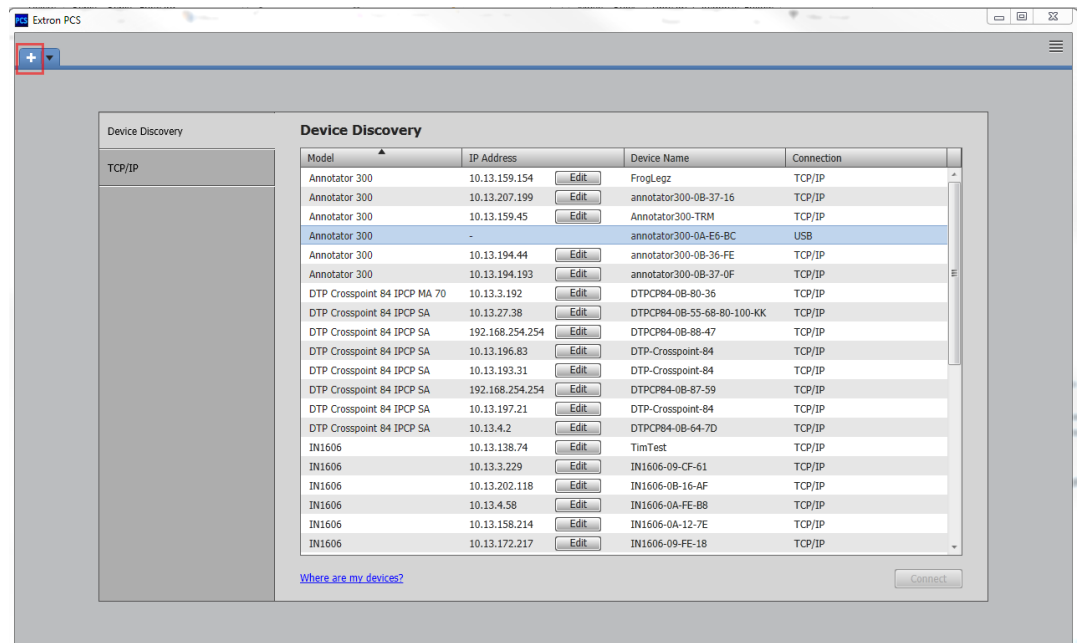


Figure 21. Start-up Window (Device Discovery)

If the Device Discovery panel is not showing, click on the white plus sign to open it (see figure 21).

Device Discovery Panel

The Device Discovery panel displays accessible Extron devices connected directly to the PC using the software through a LAN or WAN, or via a USB connection. Devices can be identified and sorted by model, IP address, device name, or connection method.

To sort the list of available devices, click the desired column heading to sort the category in ascending or descending order.

To connect to a device, select the desired device and click the **Connect** button. A new device configuration tab opens. Alternatively, double click on the desired device name to connect and open to the configuration page.

To edit communication settings from the Device Discovery panel:

1. In the **Device Discovery** pane, click the **Edit** button of the desired device. The Communication Settings dialog box opens.

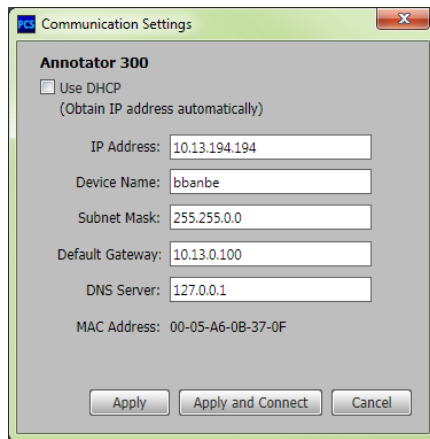


Figure 22. Communications Settings Edit Dialog Box

2. Enter the relevant details for each field or select the DHCP check box. See [Ethernet settings](#) on page 99 for configuration details.
3. Finalize the settings in one of the following ways:
 - Click the **Apply** button to accept the changes and return to the Device Discovery panel.
 - Click the **Apply and Connect** button to accept the changes and connect to the selected device. A new device configuration tab opens.
 - Click the **Cancel** button to cancel any pending changes and return to the Device Discovery panel.

TCP/IP Panel

The TCP/IP panel contains a means of connecting to a specific (IP address known) device through Ethernet.

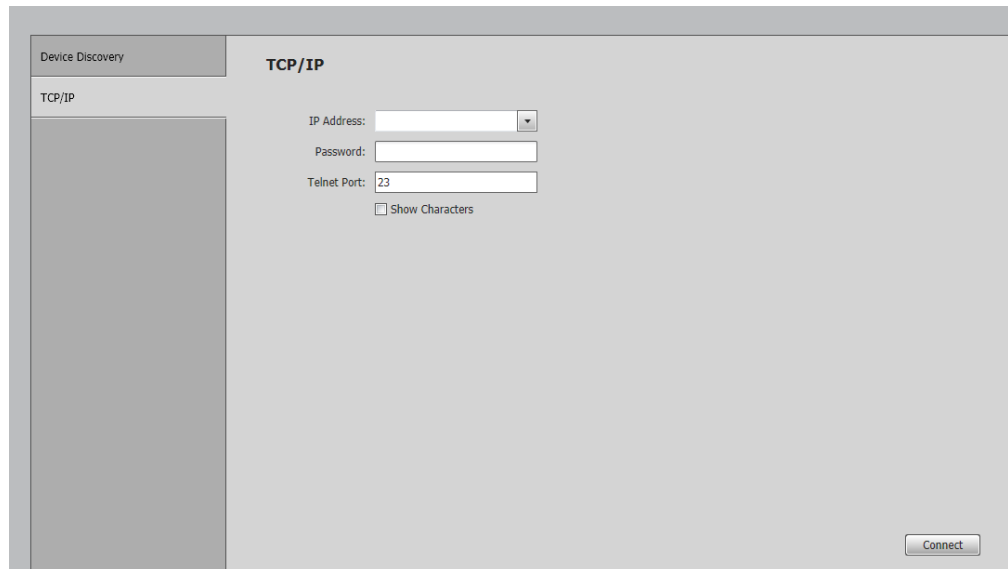


Figure 23. TCP/IP Panel

1. Click the **TCP/IP** tab, and in the **IP Address** field, enter the IP address of the desired device.
2. If required, enter the device password in the **Password** field.

NOTE: Check the Show Characters check box to have the password characters visible when entering them.

3. In the **Telnet Port** field, enter the Telnet port of the desired device.
4. Click the **Connect** button. A new device tab opens.

Offline Device Preview

It is possible for the Annotator 300 pages to be viewed without connecting directly to a device, but the settings cannot be changed or saved.

To open an offline device, click on the drop-down arrow and select **New Configuration File**. The New Configuration File dialog box opens.

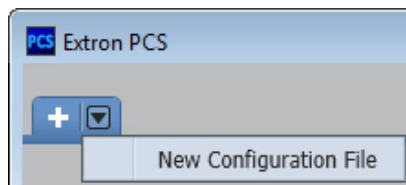


Figure 24. Start-up Drop-down Menu

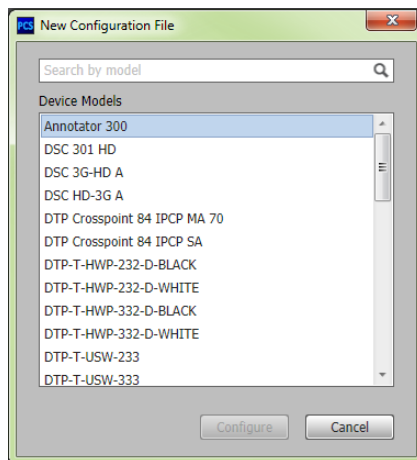


Figure 25. New Configuration File Dialog Box

1. Select the Annotator 300 device model from the Device Models list.
2. Click the **Configure** button. A new offline device configuration tab opens.

NOTE: Until a connection to an online device is made, all the pages are grayed out and configuration options are not available.

Using the Software

NOTE: For general software navigation, see [Accessing the Web Page](#) on page 92 or open the *Annotator 300 Product Configuration Software Help* file.

When connected to an online device, a connection status icon shows green on the device name tab.

The configuration page has a global navigation bar (ribbon) from which each of the individual configuration pages (Input/Output Config, EDID Minder, Image Settings, Size and Position, Annotation Settings, OSD Settings, and General Settings) can be accessed. On the left side of the tab is the AV Controls pane which can be used to switch inputs, view active input and output status, start an Auto-Image instance, freeze the displayed image, and mute or unmute video and audio signals,

There is also a **Device** drop-down menu on the **Device** tab for device-specific configuration options.

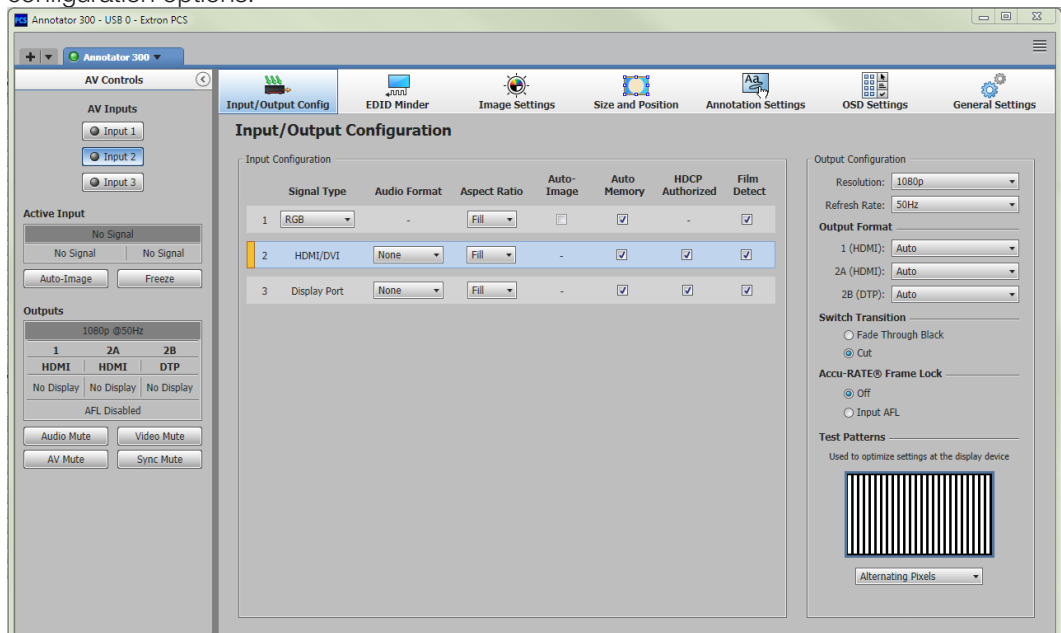


Figure 26. Device Configuration Pages

Device Menu

The **Device** drop-down menu contains options for disconnecting, changing hardware and communication settings, resetting the device, backing up and restoring device configurations, updating firmware, and viewing software module information.

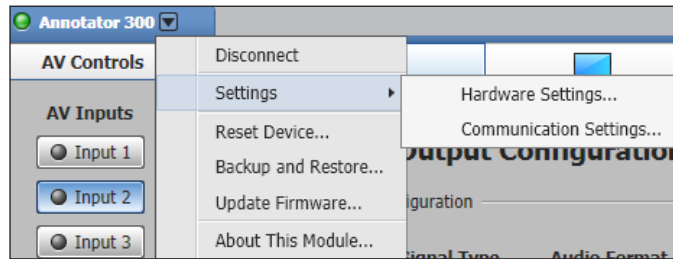


Figure 27. Device Menu

Disconnect

This option disconnects the PCS program from the connected device and closes the device tab. From the **Device** drop-down menu, select **Disconnect**.

Settings

Hardware Settings dialog box

This option allows users to view unit information, change the device name, set the internal clock, select a keyboard layout, and change the password of the connected device.

From the **Device** drop-down menu, select **Settings > Hardware Settings...** The Hardware Settings dialog box opens. For configuration details, see the *Annotator 300 PCS Help* file.

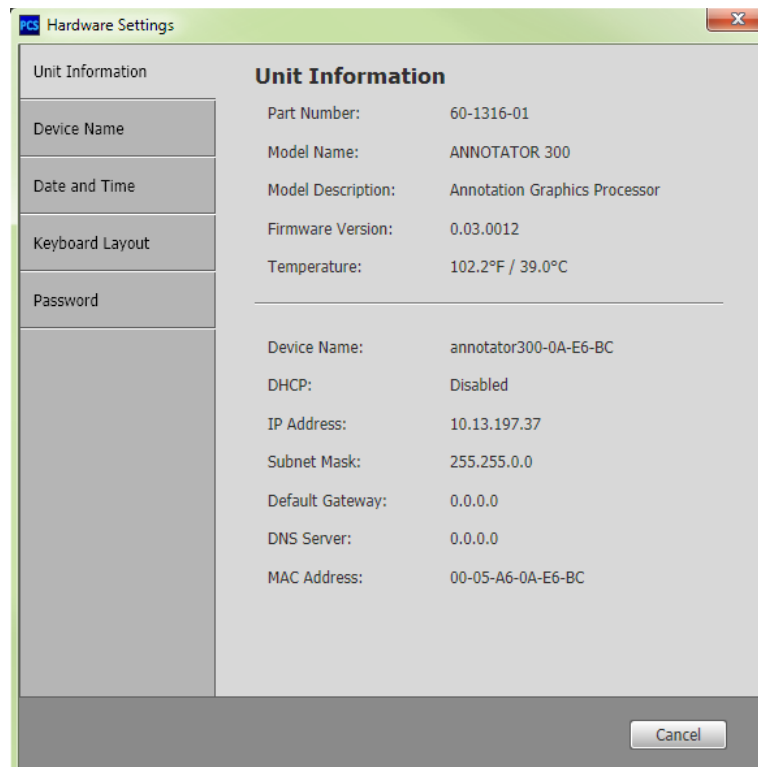


Figure 28. Hardware Settings Dialog Box

To change hardware settings:

1. Select the applicable tab (device name, date and time, keyboard layout, password).
2. Complete the fields as desired. For keyboard layout, select the keyboard type from the drop-down list.

NOTE: For Date and Time settings, the device can be synced to the PC settings by clicking the Sync to PC button.

3. Click the **Apply** button to accept pending changes.

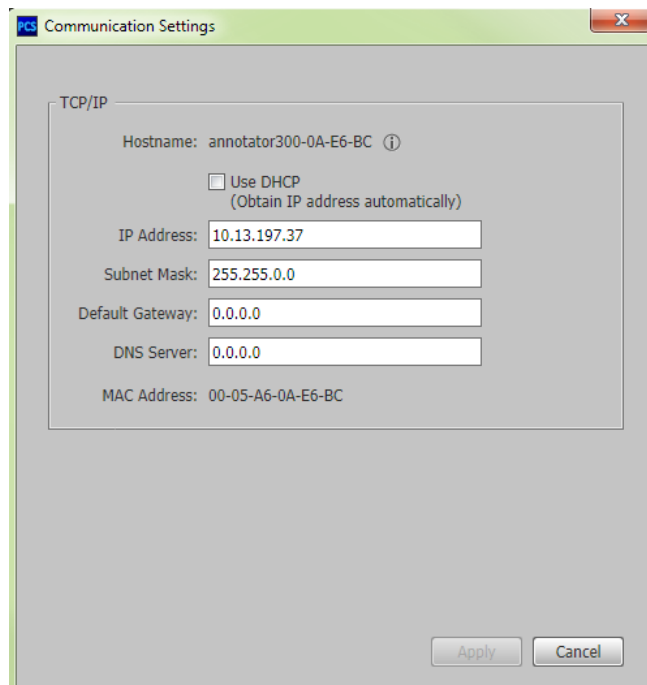
Clicking the **Cancel** button cancels any pending changes and closes the dialog box.

Communication Settings dialog box

This option allows users to change communication settings of the connected device.

From the **Device** drop-down menu, select **Settings > Communication Settings....**

The Communication settings dialog box opens.



The screenshot shows a dialog box titled "Communication Settings" with a "PCS" icon in the top-left corner. The dialog box contains a "TCP/IP" section with the following fields and values:

- Hostname: annotator300-0A-E6-BC
- Use DHCP (Obtain IP address automatically)
- IP Address: 10.13.197.37
- Subnet Mask: 255.255.0.0
- Default Gateway: 0.0.0.0
- DNS Server: 0.0.0.0
- MAC Address: 00-05-A6-0A-E6-BC

At the bottom right of the dialog box, there are two buttons: "Apply" and "Cancel".

Figure 29. Communication Settings Dialog Box

To change hardware settings:

1. To obtain an IP address automatically check the DHCP check box. Alternatively, to manually assign an IP address, complete all the fields as desired.
2. Click the **Apply** button to accept pending changes.

Clicking the **Cancel** button cancels any pending changes and closes the dialog box.

Reset Device

This option contains selectable reset modes for resetting the connected device.

From the **Device** drop-down menu, select **Reset Device...** The Reset Device dialog box opens.

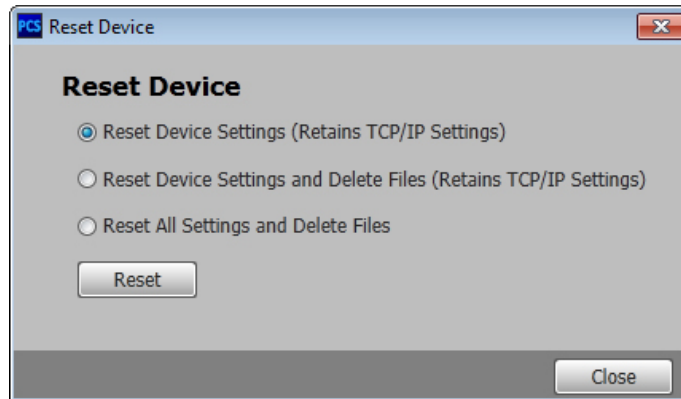


Figure 30. Reset Device Dialog Box

To reset the device select the applicable radio button and click the **Reset** button.

Clicking the **Close** button closes the dialog box without resetting the device.

For device reset details, see the [table](#) on page 13.

Backup and Restore

This option saves current configurations and restores saved configurations.

From the **Device** drop-down menu, click **Backup and Restore...** The System Backup and Restore dialog box opens.

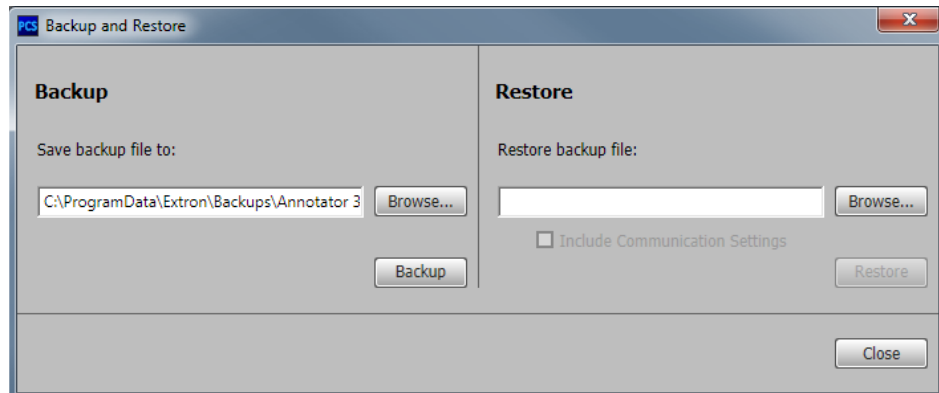


Figure 31. Backup and Restore Dialog Box

To save the current configuration settings to an external file:

1. In the Backup panel, click the **Browse** button. The Save As window opens.
2. Navigate to the desired save location on the host device and click the **Save** button. The window closes.
3. Click the **Backup** button to save the configuration to an external file to the host device.
4. Click the **Close** button to close the System Backup and Restore window.

To restore a saved configuration settings file:

1. In the Restore panel, click the **Browse** button. The Open window opens.
2. Navigate to the save location of the saved file and click the **Open** button. The Open window closes.

NOTE: Valid configuration files have a .extz file extension.

3. If desired, select the **Include Communication Settings** check box to also include communication settings to the restored configuration.
4. Click the **Restore** button to apply the saved configuration settings.
5. Click the **Close** button to close the System Backup and Restore window.

Update Firmware

This option uploads firmware from the host device to the connected device.

NOTE: If necessary, download new firmware from the Extron website.

1. From the **Device** drop-down menu, select **Update Firmware**. A dialog box opens to ask permission to disconnect from the device.
2. Click the **Continue** button to disconnect from the device and continue with the firmware update process. The Update Firmware dialog box opens.
3. Click the **Browse** button.
4. Navigate to the desired firmware file and select the device-specific firmware file. Valid firmware files have an .eff or .esf file extension.
5. Click the **Open** button. This returns you to the Update Firmware dialog box.
6. In the Update Firmware dialog box, click **Upload**. The progress bar shows the progress of the firmware upload to the device.

Help

This option contains a link to the device-specific help file.

From the **Device** drop-down menu, select device-specific **Help**. The help file opens in a separate window.

About This Module

This option contains the device module part number, version, and build number.

From the **Device** drop-down menu, select **About This Module...** The About This Module dialog box opens.

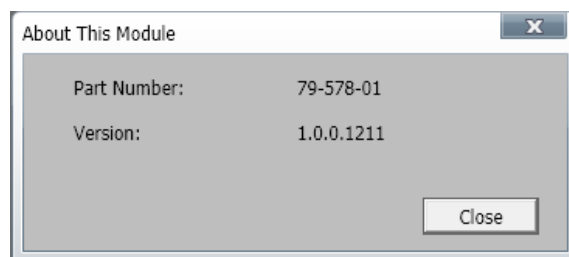


Figure 32. About This Module Dialog Box

Click the **Close** button to close the dialog box.

Software Menu

The Software menu (accessible at the top right corner of the PCS window) contains options to display device connection methods in the device tabs, re-enable confirmation dialogs, and view software information.

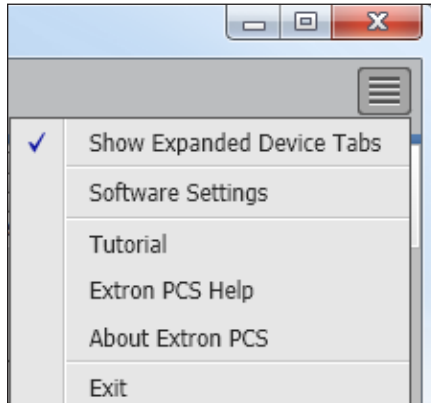


Figure 33. Software Menu

Show Expanded Device Tabs

This option displays the device IP address or connection method on the Device tab.

From the **Software** menu, select **Show Expanded Device Tabs**.

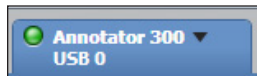


Figure 34. Expanded Device Tab (Connected through USB)

Software Settings

This option resets all disabled confirmation dialogs to the default settings.

1. From the **Software Menu**, select **Software Settings**. The Software Settings dialog box opens.

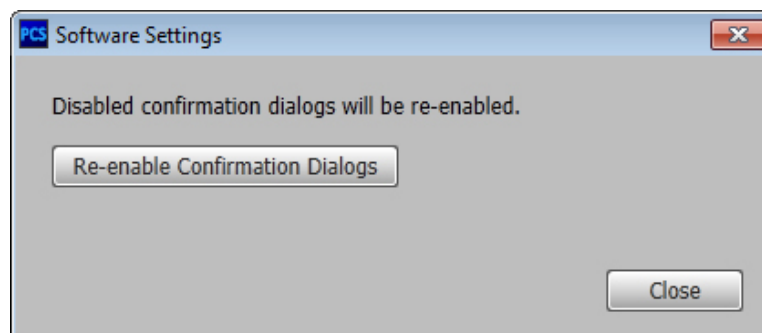


Figure 35. Software Settings Dialog Box

2. Click the **Re-enable Confirmation Dialogs** button. The dialog box closes and the reset is complete. Click the **Close** button to close the dialog box without re-enabling the confirmation dialogs.

Tutorial

This option displays a general overview of where to find features in the PCS framework.

1. From the **Software** menu, select **Tutorial1**. The Tutorial dialog box opens.
2. Click the **I Get It!** button to close the dialog box.

Extron PCS Help

This options opens the PCS Help file for general PCS operations. For product-specific help files, see [Help](#) on page 71.

From the **Software** menu, select **Extron PCS Help**.

About Extron PCS

This option contains information about the current PCS version.

1. From the **Software** menu, select **About Extron PCS**. The About - Extron PCS dialog box opens.



Figure 36. About - Extron PCS Dialog Box

2. Click the **Details** button for more information about the software and embedded modules.
3. Click the **OK** button to close the dialog box.

Exit

This option closes disconnects PCS from connected devices and closes the application.

1. From the **Software** menu, select **Exit**. If device tabs are open, the Exit dialog box opens.

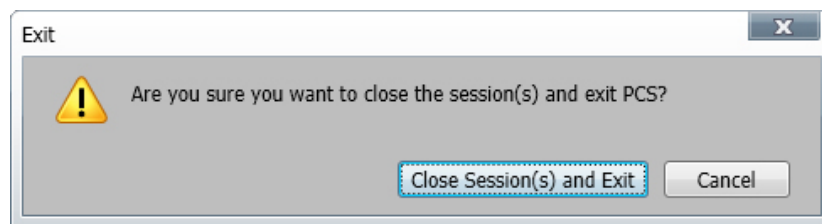


Figure 37. Exit Dialog Box

2. If necessary, click the **Close Session(s) and Exit** button to disconnect the software from connected devices, close all offline device tabs, and close the software. Click the **Cancel** button to leave the software open.

AV Controls Panel

The AV Controls pane can be used to switch inputs, view active input and output status, start an Auto-image instance, freeze the displayed image, and mute or unmute video and audio signals.

Included in the panel is a summary of the current active input and output status, including signal format and HDCP status, as well as AFL status.

NOTE: This panel can be hidden or revealed on any page by clicking on the arrow button on the top right of the panel.

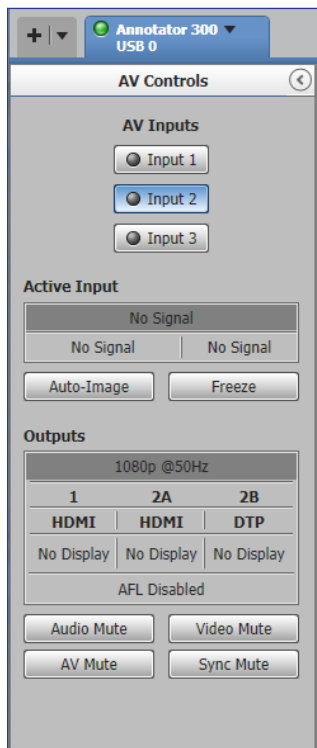


Figure 38. AV Controls Panel

NOTE: An open lock icon indicates that an input or output is not HDCP-encrypted. A closed lock with a check mark icon indicates that an input or output is HDCP-encrypted.

AV Inputs buttons

Click an AV Input button (1-3) to select that input. As the new input is selected, the summary within the panel changes to reflect the new input and output status.

NOTE: The signal status indicators on the AV input buttons display green when a signal is present on the corresponding input or gray when there is no signal present.

Auto-Image button

Clicking the **Auto-Image** button starts a one-time Auto-Image on the currently selected input.

Freeze button

Clicking the **Freeze** button freezes the current displayed video frame for the currently selected input. When the button is blue the image is frozen. Click the button again to unfreeze the image.

Audio, Video, and Sync Mute buttons

- Click the **Audio Mute** button to globally mute only the audio. The button turns red.
- Click the **Video Mute** button to mute only the video signal. The button turns red
- Click the **AV Mute** button to mute both video and audio simultaneously. The button turns red, along with the Video Mute and Audio Mute buttons.
- Click the **Sync Mute** button to mute video and sync. The button turns red along with the Video Mute button

To unmute any signal, click the appropriate button. The button reverts to the default color, indicating the signal has been unmuted.

Configuration Pages

The configuration pages contain options for input and output configuration, EDID management, image settings, image size and position, annotation settings, OSD settings, and device settings. Each page is accessible via the global navigation bar.



Figure 39. Global Navigation Bar

Input and Output Configuration Page

Click the **Input/Output Config** icon to open this page. It contains panels for input configuration and output configuration.

Input Configuration panel

The Input Configuration panel consists of user configurable fields for each input. These include input signal type, audio format, aspect ratio, automatic Auto-Image, Auto Memory, HDCP Authorized status, and Film Detect.

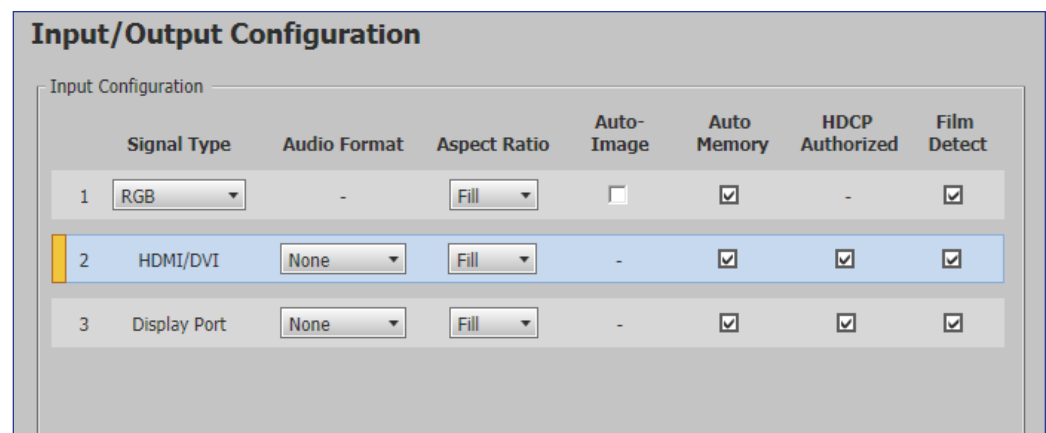


Figure 40. Input Configuration panel

Signal type

From the **Signal Type** drop-down menu, select the signal type for input 1 from **Auto Detect** (default), **RGB**, **Auto-YUV**, **RGBcvs**, **S-Video**, and **Composite**. For input 2 HDMI/DVI, and for input 3 DisplayPort are the only available signal types.

Audio Format

From the **Audio Format** drop-down menu, select the audio format type for inputs 2 and 3, from **None**, **LPCM-2ch**, and **Full Digital**. For input 1 no audio is available

Aspect ratio

From the **Aspect Ratio** drop-down menu select **Fill** or **Follow**.

- **Fill** — Scales the input signal to fill the entire video output.
- **Follow** — Follows the signal aspect ratio, with respect to the current output resolution setting. Black letter box or pillar box bars may be applied for aspect ratio compensation.

Auto-Image

Select the **Auto-Image** check box for input 1 to enable an automatic Auto-Image to an input. When enabled, Auto-Image is applied whenever there is a change in the input sync. Auto-Image attempts to size and center the input signal based on the aspect ratio setting.

By default, the Auto-Image threshold is 25% brightness. Analog video signals greater than the threshold are considered active video. To change the threshold value, use SIS commands.

Auto Memory

Select the **Auto Memory** check box of the desired input to enable the Auto Memory. Auto Memory recalls input and image settings for signals that have previously been applied. When Auto Memory is disabled, the scaler treats every newly applied input as a new source.

HDCP Authorized

Select the **HDCP Authorized** check box to enable or disable the HDCP Authorized feature for inputs 2 and 3. This feature determines if a digital input will report as an HDCP authorized sink to a source.

NOTE: This option is not available for analog inputs 1.

For source devices that require encryption, enable HDCP Authorized. If HDCP Authorized is disabled for sources that require encryption (for example, a Blu-ray player), the output is muted or a warning message is displayed.

Some source devices may encrypt their output even if the source material does not require HDCP encryption, preventing content from being displayed on a non-HDCP compliant display. Disable HDCP Authorized to allow the output of the scaler to remain unencrypted.

Film Detect

Select the **Film Detect** check box of the desired input to enable automatic 3:2, 2:2, and 24:1 film pulldown detection for NTSC, PAL, SECAM, and 1080i input signals.

Output Configuration panel

The Output Configuration panel contains controls for output resolution and rate, output format settings, switch transitions, Accu-RATE frame lock (AFL) settings, and available test pattern selection.

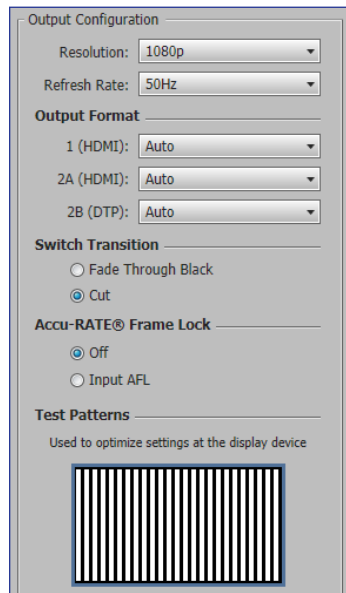


Figure 41. Output Configuration

Resolution

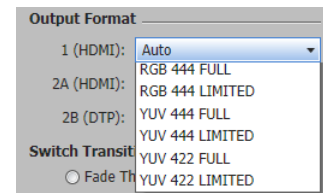
From the **Resolution** drop-down menu, select the applicable output resolution.

Refresh rate

From the **Refresh Rate** drop-down menu, select the applicable output refresh rate.

Output format

From each drop-down menu; **1 (HDMI)**, **2A (HDMI)**, or **2B (DTP)**, select the applicable digital signal format. See the image at right for format selection.



Switch transitions

From the Switch Transitions panel, select one of the following radio buttons:

- **Fade Through Black** — Fades video to a black screen before switching to the newly selected video.
- **Cut** — Switches video directly to the newly selected input.

Accu-RATE frame lock (AFL)

From the Accu-RATE Frame Lock panel, select one of the following radio buttons:

- **Off** — Frame lock is disabled.
- **Input AFL** — Frame lock is enabled.

NOTE: AFL is a patented technology exclusive to Extron that locks the output frame rate to a designated input to eliminate stuttering caused by frame rate conversion.

Test patterns

To aid display device setup and optimization, select a test pattern from the drop-down menu under the preview window.

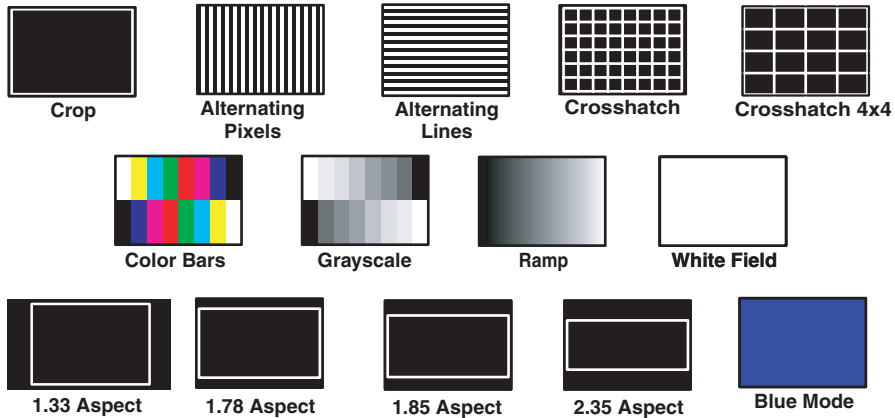


Figure 42. Available Test Patterns

NOTE: No input signal is needed when using a test pattern for display device setup.

EDID Minder Page

EDID Minder is an EDID management process that manages the EDID information between the scaler and one or more input sources. Click the **EDID Minder** icon on the global navigation bar to open the EDID Minder page.

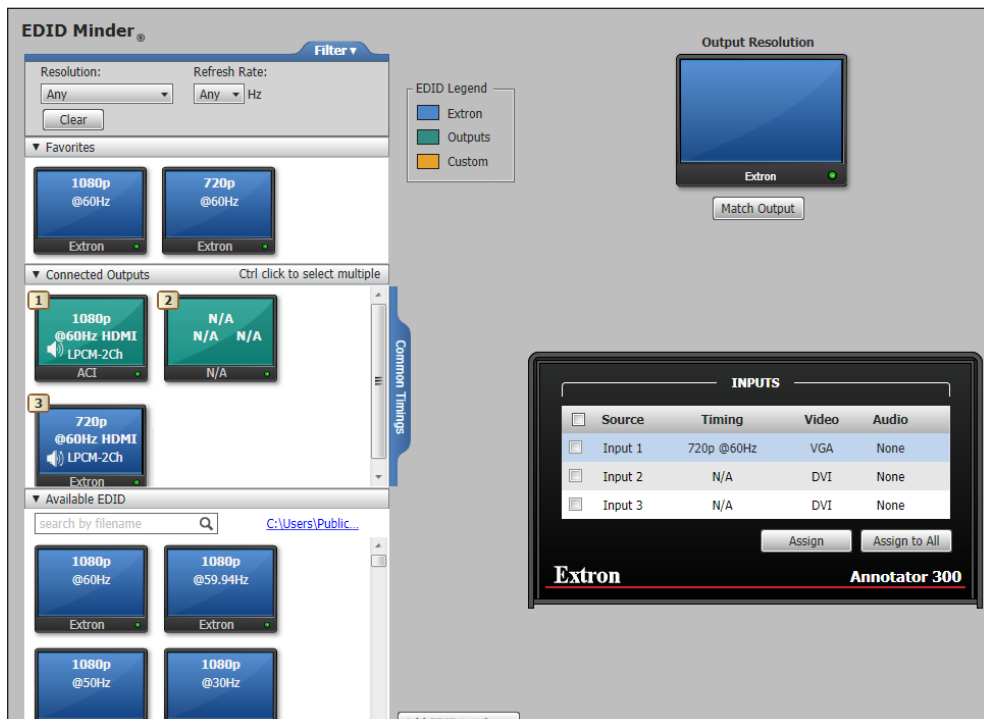


Figure 43. EDID Minder Page

The EDID properties currently assigned to each input are displayed in the table of inputs. The audio input format listed in an EDID is determined by the audio input format selected on the Input Configuration page.

Up to three EDID can be stored on the device as custom EDID files. Audio settings from custom EDID files take priority over current settings on the input.

NOTE: If an analog custom EDID file is assigned to a digital input or a digital custom EDID file assigned to an analog input, the display may not appear correctly.

Filtering Available EDID

Use the **Filter** tab to limit the number of available EDID displayed in the Available EDIDs and Connected Outputs sections.

1. From the **Resolution** drop-down menu select a specific resolution or **Any**.
2. From the **Refresh Rate** drop-down menu select a specific refresh rate or **Any**.

Assigning EDID

To assign EDID to selected inputs:

1. From the inputs group box (table of inputs) on the right, select the check boxes for the desired inputs
2. From the Favorites, Available EDIDs, or Connected Outputs panel on the left, select the desired EDID.
3. From the inputs group box, click the **Assign** button to assign EDID to the selected inputs.

To assign EDID to all inputs:

1. From the Favorites, Connected Outputs, or Available EDIDs panel, select an EDID.
2. From the inputs group box, click the **Assign to All** button.

NOTE: Unchecked inputs are ignored when assigning an EDID to all inputs.

To match the selected inputs to the current output resolution:

Matching the output resolution is the default value for all inputs.

1. From the inputs group box (table of inputs) on the right, select the check boxes for the desired inputs
2. In the Output Resolution panel, click the **Match Output** button.

Adding EDID to the EDID Library

1. Click the **Add EDID to Library** button. The **Browse Add EDID to Library** window opens.
2. Navigate to the desired EDID file location and select it.

NOTE: Valid EDID files have a .bin file extension.

3. Click the **Open** button. The EDID is added to the Available EDIDs panel.

Saving EDID to the EDID Library

1. From the Favorites, Connected Outputs, or Available EDIDs panel right-click on an EDID.
2. Select **Save to EDID Library**.
3. Click the **OK** button to save the file.

NOTE: Saving a factory EDID exports an HDMI, LPCM-2Ch EDID to the PC. The file is saved as a .bin file.

Image Settings Page

From this page, signal sampling and picture control settings can be adjusted, user and input presets can be saved and recalled, and overscan settings can be applied. Click the **Image Settings** icon on the global navigation bar to open the Image settings page.

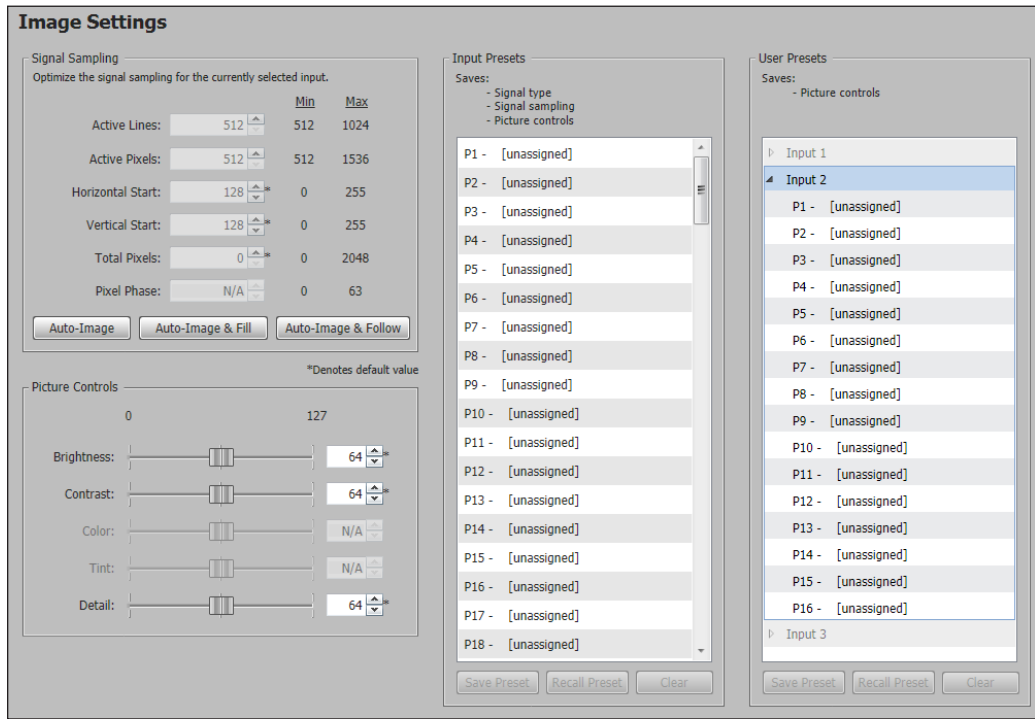


Figure 44. Image Settings Page

Signal Sampling panel

Signal sampling optimizes the input signal to the scaler for the currently selected input.

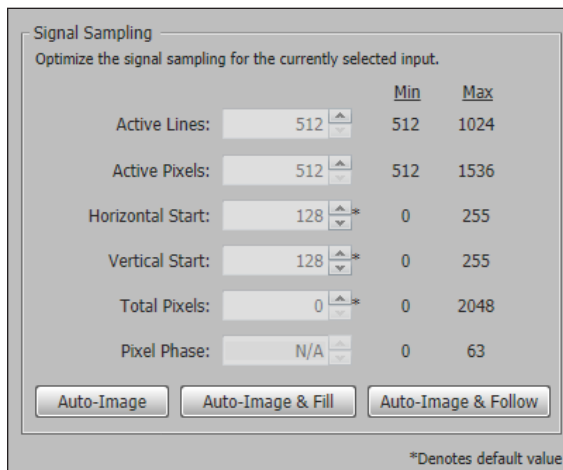


Figure 45. Signal Sampling Panel

To manually adjust signal sampling settings, enter a value within the Min and Max values displayed to the right of each adjustable setting, or click the **Up** or **Down** arrows. An asterisk beside a chosen value for a signal sampling setting indicates that it is a default value for the applied video signal.

To automatically adjust these settings, perform one of the following:

- Click the **Auto-Image** button to perform a one-time Auto-Image.
- Click the **Auto-Image & Fill** button to perform a one-time Auto-Image and fill the entire video output (ignores aspect ratio setting).
- Click the **Auto-Image & Follow** button to perform a one-time Auto-Image and to maintain the aspect ratio of the input signal (ignores aspect ratio setting).

Picture Controls panel

The Picture Controls panel shows adjustable image settings for the selected input.

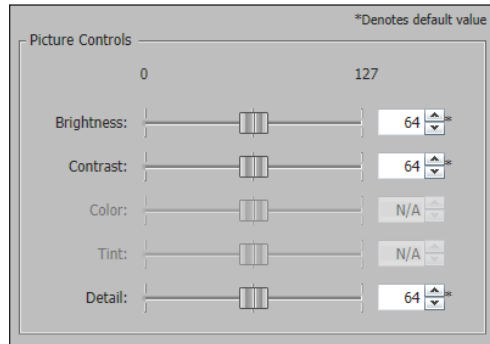


Figure 46. Picture Controls Panel

To adjust the picture settings, click and drag the associated slider for any image setting (brightness, contrast, color, tint, or detail) to the desired value.

Alternatively, enter a value within the field associated with the image setting, or click the **Up** and **Down** arrows to change the value in the field.

Presets panel

Presets save output settings to be recalled through RS-232 or Ethernet (see the table on next page for a comparison of saved settings for input and user presets).

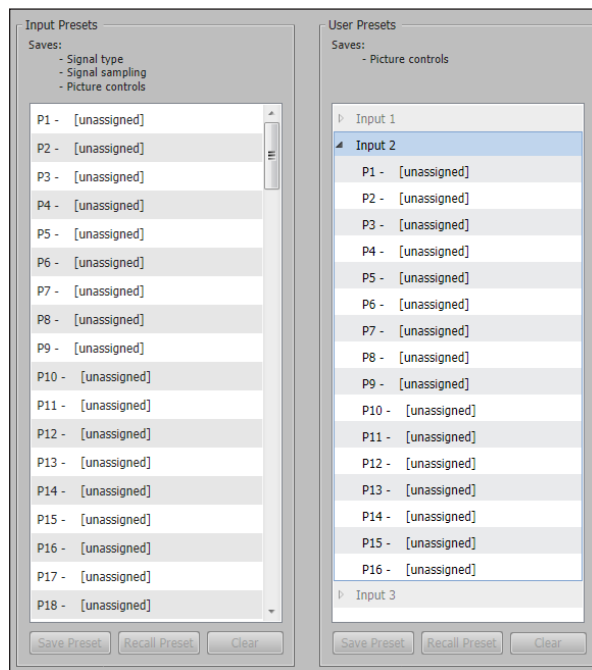


Figure 47. Input and User Presets Panel

Settings Included Within Presets		
Setting	User Preset	Input Preset
Horizontal and Vertical Start		X
Active Lines		X
Pixel Phase		X
Active Pixels		X
Total Pixels		X
Input Type		X
Film Detect		X
Brightness and Contrast	X	X
Color and Tint	X	X
Detail	X	X
Image Size and Position	X	X
Preset Name	X	X

NOTE: User presets can be saved on one input resolution and recalled on a different one. Input presets can only be recalled on the same input resolution that was present when the preset was saved.

Input presets

There are 128 presets that are global to all inputs. The presets contain all of the settings for an input when used with an upstream matrix switcher. Input presets save signal type, signal sampling, and picture control settings.

To save an input preset:

1. From the Input Presets list, select the desired preset.
2. Click the **Save Preset** button. If the selected preset already has stored information on it, the Presets dialog box opens. Click the **Overwrite** button to erase the previous data and save the new settings. Click the **Cancel** button to return to the Image Settings page.

To rename a preset:

1. In the **Input Preset Name** column, double-click an **Input Preset Name**.
2. Change the name as desired.
3. Press the <Enter> key to save the new name.

To recall an input preset:

1. From the Input Presets list, select the desired preset.
2. Click the **Recall Preset** button. The Presets dialog box opens.
3. Click the **Recall** button to recall the preset. Click the **Cancel** button to return to the Image Settings page.

To clear a preset:

1. From the Input Presets list select the desired preset.
2. Click the **Clear** button. The Presets dialog box opens.
3. Click the **Clear** button to erase saved data. Click the **Cancel** button to return to the Image Settings page.

User Presets

There are 16 user presets per input to save picture control settings only.

To save a user preset:

1. From the User Presets list, select the desired preset.
2. Click the **Save Preset** button. If the selected preset already has stored information on it, the Presets dialog box opens. Click the **Overwrite** button to erase the previous data and save the new settings. Click the **Cancel** button to return to the Image Settings page.

To rename a preset:

1. In the **User Preset Name** column, double-click a **User Preset Name**.
2. Change the name as desired.
3. Press the <Enter> key to save the new name.

To recall a user preset:

1. From the User Presets list, select the desired preset.
2. Click the **Recall Preset** button. The Presets dialog box opens.
3. Click the **Recall** button to recall the preset. Click the **Cancel** button to return to the Image Settings page.

To clear a preset:

1. From the User Presets list, select the desired preset.
2. Click the **Clear** button. The Presets dialog box opens.
3. Click the **Clear** button to erase saved data. Click the **Cancel** button to return to the Image Settings page.

Size and Position Page

The Size and Position page provides three methods of adjusting image output size and position: graphically, numerically, or automatically with Auto-Image. Click the **Size and Position** icon on the global navigation bar to open the Size and Position page.

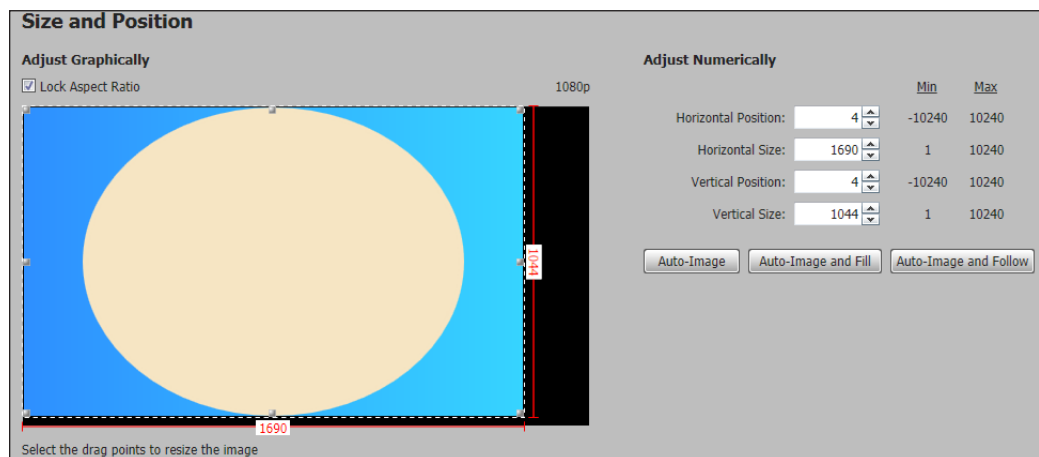


Figure 48. Size and Position Page

To adjust the size and position graphically:

If desired, click the **Lock Aspect Ratio** check box to constrain proportions.

1. Click and drag the drag points of the sample image to resize the image within the designated space (defined by the black area in figure 51).
2. Click anywhere inside the sample image (see the blue rectangle with a circle inside in figure 51) and drag it anywhere within the designated space to reposition the image.

To adjust the size and position numerically:

1. Enter a value or click the **Up** or **Down** arrow in the **Horizontal Size** and **Vertical Size** fields.
2. Enter a value or click the **Up** or **Down** arrow in the **Horizontal Position** and **Vertical Position** fields.

To adjust the size and position automatically:

To automatically adjust these settings, perform one of the following:

- Click the **Auto-Image** button to perform a one-time Auto-Image.
- Click the **Auto-Image & Fill** button to perform a one-time Auto-Image and fill the entire video output (ignores aspect ratio settings).
- Click the **Auto-Image & Follow** button to perform a one-time Auto-Image and to maintain the aspect ratio of the input signal (ignores aspect ratio settings).

Annotations Settings Page

The Annotations Settings page shows details of installed USB devices (touchpanels connected the Annotator 300), the currently used and installed fonts, selected display options, and a list of images (in bmp and jpeg formats) saved in the 42 MB of memory. Click the **Annotation Settings** icon on the global navigation bar to open the Annotation Settings page.

The screenshot displays the 'Annotation Settings' interface with four main sections:

- Installed USB Devices:** A table with columns for Type, Manufacturer, Model, and Version. It lists one device: Touch Display, EIZO, T2381W, 2.0. Below the table are buttons for 'Comm Sheet', 'Calibrate', 'Remove', and 'Add'.
- Display Options:** Includes a checked 'Use Drop Shadow' option. Under 'Show Annotations', '2 (HDMI and DTP)' is selected. Under 'Annotation Auto Clear', 'After Input Switch' is selected.
- Font Selection:** Shows 'Current Font: DejaVuSans'. The 'Installed Fonts' table lists 'DejaVuSans' and 'ARIALBD' (731 KB, 6/25/2014 2:14:14 PM). Buttons for 'Apply', 'Remove', and 'Add' are at the bottom.
- Internal Memory:** Shows 'Recalled Image: None' and 'Free Space: 40 MB'. The 'Images In Memory' table lists one image: '20131019_064606...' (994 KB, 6/25/2014 1:44:34 PM). Buttons for 'Remove' and 'Add' are at the bottom.

Figure 49. Annotation Settings Page

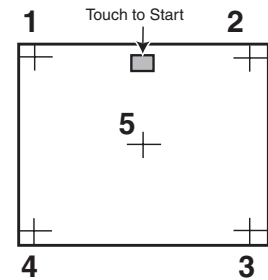
Installed USB devices

This section lists the installed devices and displays the type, manufacturer, model, and version number. The buttons below the list allows the user to view the comm sheet for the USB device, start device calibration, remove existing, or add new devices to the list.

To view the USB device comm sheet click the **Comm Sheet** button. The device sheet opens in a separate window.

To calibrate the USB device click the **Calibrate** button. Then do the following:

1. Observe the connected touchpanel screens. On all screens a green box appears at top center. To start the sequence, tap the box on the panel screen you intend to calibrate.
2. The box disappears and a crosshatch + appears in the upper left corner. Tap the screen at the crosshatch.
3. The crosshatch re-appears at the top right corner. Tap the crosshatch. The crosshatch re-appears in the lower right.
4. Repeat by tapping the crosshatch as it reappears in each corner, in sequence (see image at above right) and then tap the crosshatch when it appears in the center of the screen.
5. After tapping the fifth (central) crosshatch, the unit saves the calibration data and restarts the sequence by showing the green box on the connected touchpanel.
6. Press any front panel button to exit the sequence and save the data.



To remove a USB device form the list select the device in the list and click the **Remove** button. The device is removed from the listing.

To add a USB device to the list ensure the device is connected to the Annotator 300 and click the **Add** button. The device is added to the listing and is ready for calibration.

Font selection

This section lists the fonts that are installed and currently used by the Annotator 300. The buttons below the list allows the user to select and apply an installed font, remove existing, or add new fonts to the list.

To apply an existing font select the desired font from the list and click the **Apply** button. The font becomes the current font and the font name is displayed as current.

To remove an existing font select the desired font from the list and click the **Remove** button. The font is removed from the list and a dialog box confirms removal.

NOTES:

- The default font (DejaVuSans) and the currently used font cannot be removed from the list.
- To remove a font that is currently being used, set another font as the current font (via the **Apply** button) then remove the relevant font.

To add a font to the list:

1. Click the **Add** button. The Add a Font dialog box opens.
2. Scroll to select the relevant font and style.
3. Click **Add**. The new font is added to the Installed Fonts listing.

Click **Cancel** to exit the Add a Font procedure without any additions being made.

Display options

This section allows the user to select drop shadow settings, select the display to show annotations, and set the annotation auto clearing frequency.

To use drop shadow in the annotation display select the **Use Drop Shadow** check box. Clear the check box to remove the drop shadow.

To select an output display to show annotations select one or both **Show Annotations** check boxes. Clearing the check boxes disables the annotations from the relevant display.

To set the annotation auto clearing frequency select one of the radio buttons as desired for the following settings:

- Never clear
- Clear after input switch
- Clear after input switch or a new (signal) frequency detection.

Internal memory

This section lists the images that have been uploaded or saved to the internal memory and the current recalled image. Listed images can also be previewed. The memory can hold up to 42 MB of image data. When an image in the list is selected, a preview button appears, allowing the user to view the image before recall. A selected image can be recalled, hidden, or saved to the connected PC.

The buttons below the list allows the user to select and remove existing, or add new images to the list.

To remove an existing image select the desired image from the list and click the **Remove** button. A dialog box opens requesting confirmation for removal, and the image is removed from the list.

NOTES:

- The currently recalled (used) image cannot be removed from the list.
- To remove an image that is currently being used, recall another image as the current image and then remove the relevant image.

To add an image to the list:

1. Click the **Add** button. The Add Image dialog box opens.
2. Browse to a folder and select the relevant image (with .bmp or .jpg extension).
3. Click **Open**. The new image is added to the Images in Memory listing.

Click **Cancel** to exit the Add Image procedure without any additions being made.

To preview a listed image:

1. Select the desired image (hover cursor over image name). The **Preview** button appears.
2. Click the **Preview** button. The image opens in a separate window.
3. Click the "x" in the top right corner to close the preview window.

To recall, hide, or save a listed image:

1. Select the desired image (hover cursor over image name) and right-click the mouse button. A drop-down menu appears (**Recall**, **Hide**, and **Save to Computer**).
2. Select the desired action.
 - If recalling the image, the selected image is displayed on the output.
 - If hiding the image, the selected image is not displayed on the output.
 - If saving the image to a computer a Save Image window opens allowing the user to browse to a folder to save the selected image.

OSD Settings Page

The On Screen Display (OSD) Settings page allows the user to set captured image options, set specific OSD display options, and select current per input OSD menus. Click the **OSD Settings** icon on the global navigation bar to open the OSD Settings page.

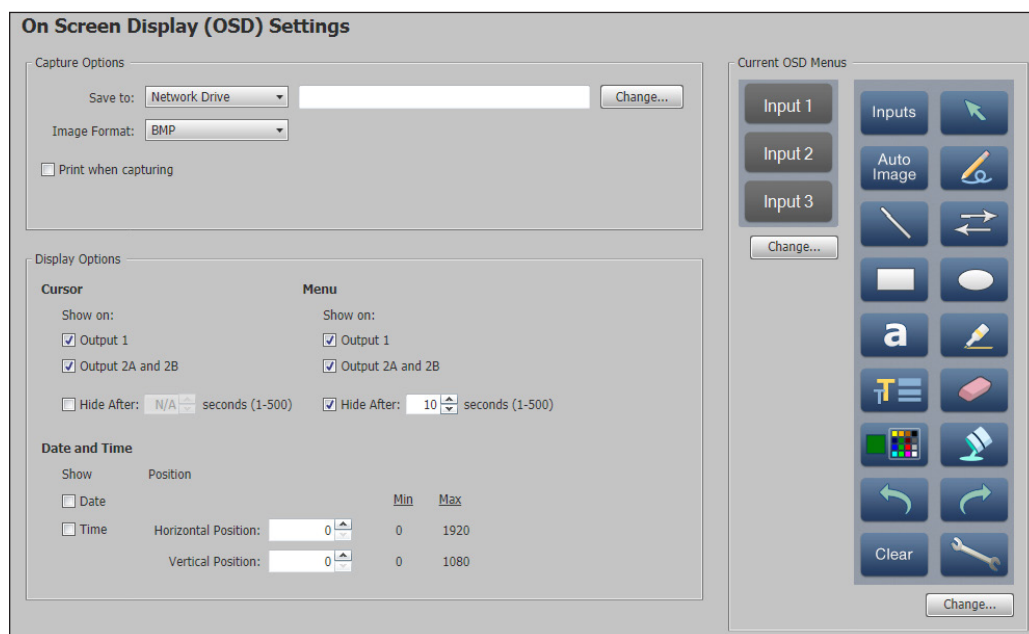


Figure 50. OSD Settings Page

Capture options

This section allows the user to set the image format for capture and to select where to save the image. In addition the captured image can be printed during capture.

To set the image format click the **Image Format** button and select the format from the drop down menu.

To select where to save the captured image click the **Save To** button and select the location from the drop down menu. If the **Network Drive** option is selected, a **Change** button appears allowing the user to select the folder location. A separate Network Drive Settings dialog box opens after clicking the **Change** button. This allows the user to browse to a folder of choice and, if required, enter a user name and password.

Display options

This section allows the user to choose on which outputs the cursor, menu, and the date and time are shown. In addition the cursor and menu can be hidden after setting a fixed time in seconds. The position of the date and time on the output screen can also be set.

To set the output to display the cursor, menu, and date and time, select each output box as desired for OSD option.

To set the time to hide the displayed cursor and menu, select the **Hide After** check box and enter a time in seconds (1-500).

To set the horizontal and vertical position of the date and time display, select each **Show** check box as applicable, and enter the horizontal position in pixels (0-1920) and the vertical position (0-1080).

Current OSD menus

This section allows the user to choose on which output which OSD menu is displayed, and allows the user access to customize the OSD menu per output.

To set the output to display a selected the OSD, click the input **Change...** button. A separate Customize On Screen Display window opens.

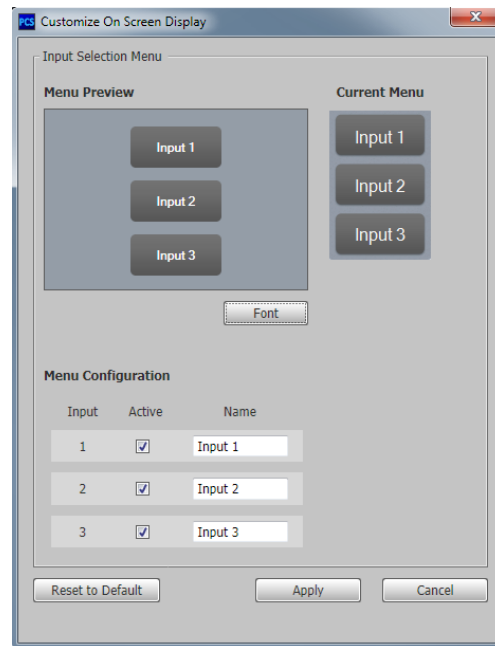


Figure 51. Customize OSD Window – Input Selection Menu

Select the check boxes as desired. To change the font, click the **Font** button and select a font from the newly opened dialog box. Click **Apply** when all changes have been made.

Click **Cancel** to exit the OSD options procedure without any changes being made.

To change or customize the OSD menu, click the menu **Change...** button. A separate Customize On Screen Display window with a Tools menu opens.

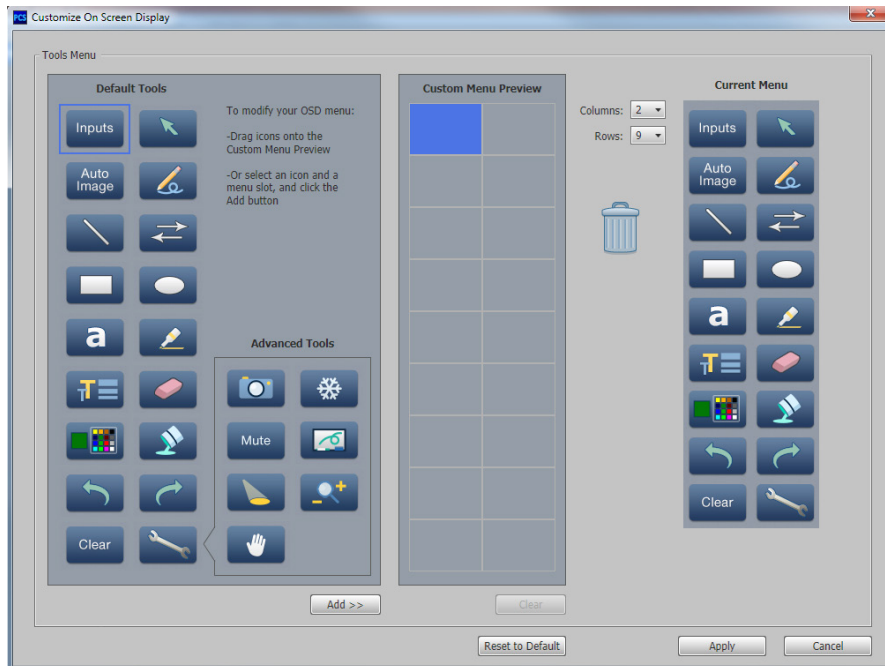


Figure 52. Customize OSD Window – Tools Menu

Follow the directions in the menu panel to customize the menu. A menu preview is available. Click **Apply** when menu is as desired. Click the **Reset to Default** button to revert the menu to the default menu.

Click **Cancel** to exit the OSD options procedure without any changes being made.

General Settings Page

The General Settings page allows the user to set the front panel lockout mode (Exec Mode) for the Annotator 300, and to enable and sets, or disable auto switching. In addition it gives access to the hardware settings page. Click the **General Settings** icon on the global navigation bar to open the General Settings page.

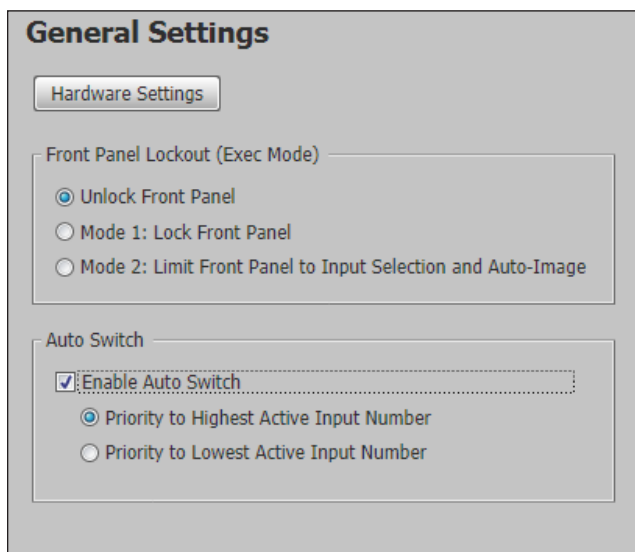


Figure 53. General Settings Page

To open the Hardware Setting page, click the menu **Hardware Settings** button. The Hardware Settings page opens in a separate window. See the *Annotator 300 Help* file for Hardware Setting details.

To set the front panel lockout mode, click the applicable Front Panel Lockout (Exec Mode) radio button as desired. See the *Annotator 300 Help* file for Exec Mode settings.

To enable auto switch, check the Auto Switch check box and then click the applicable radio button. See the *Annotator 300 Help* file for Auto Switch setting details.

To disable auto switch, uncheck the Auto Switch check box.

Accessing the Web Page

This section describes how to access the default web page and the web page contents. The web page is always available and cannot be erased or overwritten. Topics that are covered here are:

- [Accessing the Default Web Page](#)
- [Navigating the Default Web Page](#)

Accessing the Default Web Page

Access the Annotator 300 on-board web page as follows:

1. Double click the web browser icon on the PC desktop to launch the web browser.
2. Click in the browser's **Address** field.
3. Enter the unit's IP address in the browser's **Address** field.

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

NOTE: The browser **Address** field should display the address in the following format: `xxx.xxx.xxx.xxx/{optional_file_name.html}`
The following characters are invalid in file names: {space} ~ @ = ' [] { } < > ' " ; : | \ and ?.

5. Press the keyboard <Enter key>. The device checks to see if it is password protected.
If password protected, the Annotator 300 downloads the **Connect to (IP address)** page. If it is not password protected, proceed to step 7.
6. Click in the **Password** field and type in the appropriate administrator or user name and password.
7. Click **OK**.

Navigating the Default Web Page

The Annotator 300 default web page has six sections: **Communication Settings**, **Input/Output Status**, **Date/Time Settings**, **Configure This Device**, **Device Info**, and **Passwords**.

When logged in as an administrator, configuration of some of the device settings is possible by clicking on the applicable buttons. See the individual sections for details.

NOTE: When logged in as a user the web page is displayed as read-only. All buttons are grayed out and not available.

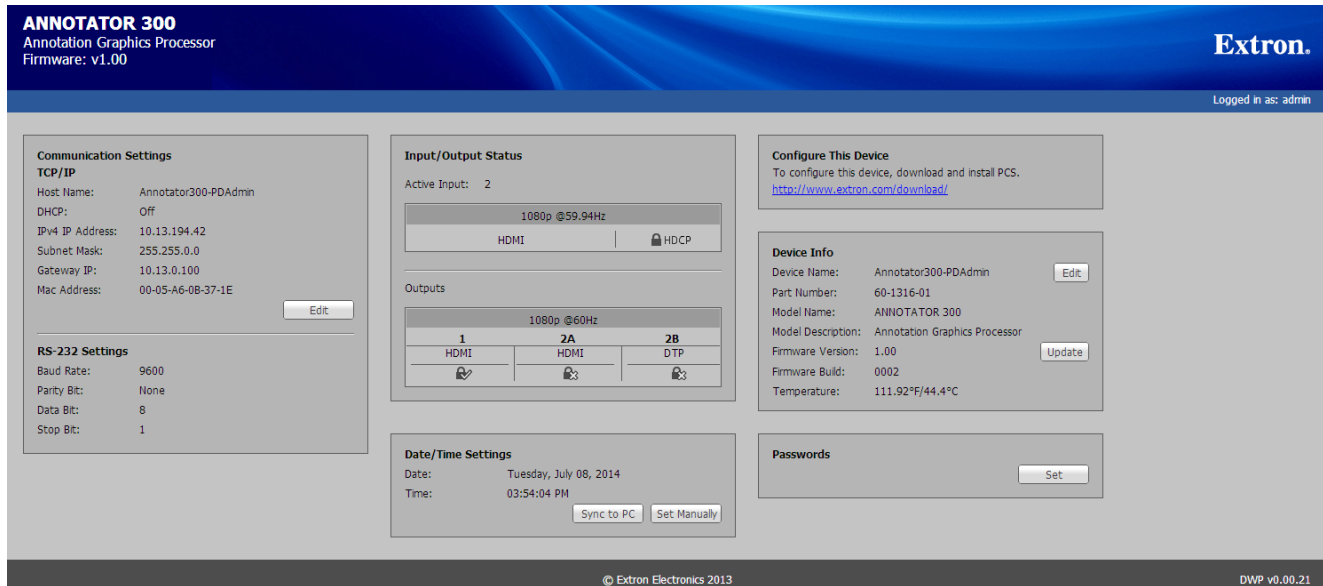


Figure 54. Annotator 300 Web Page

At the top left corner of the web page the current installed firmware build is shown. At the bottom right corner, the current web page build is shown (for example, DWP v0.00.21).

Communication Settings

This section displays the current TCP/IP and RS-232 settings.

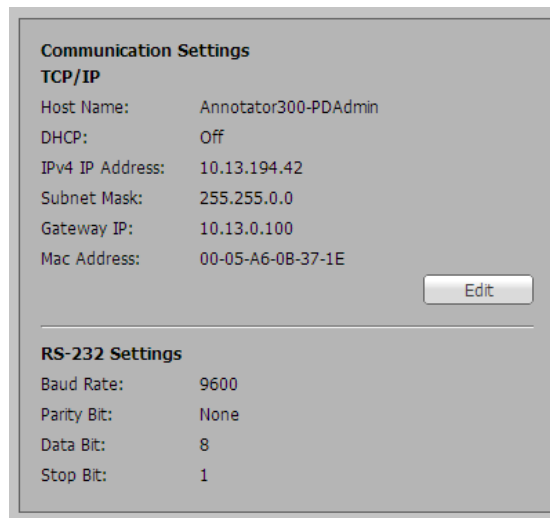


Figure 55. Communications Settings Section

When logged in as an administrator, TCP /IP settings can be changed.

NOTE: RS-232 settings are read-only cannot be changed via the web page.

To change the TCP/IP settings:

1. Click on the **Edit** button. The **Communication Settings** dialog box opens.

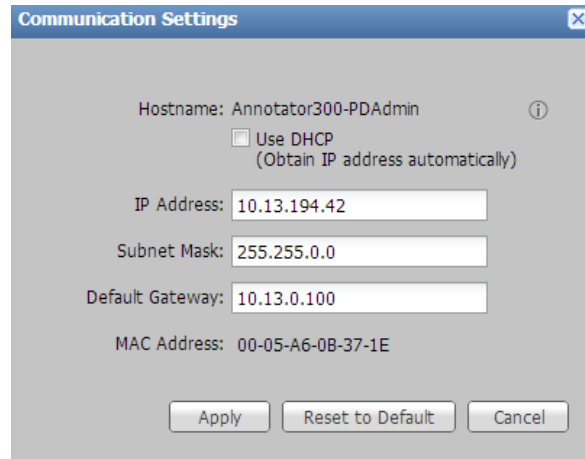


Figure 56. Communications Settings Dialog

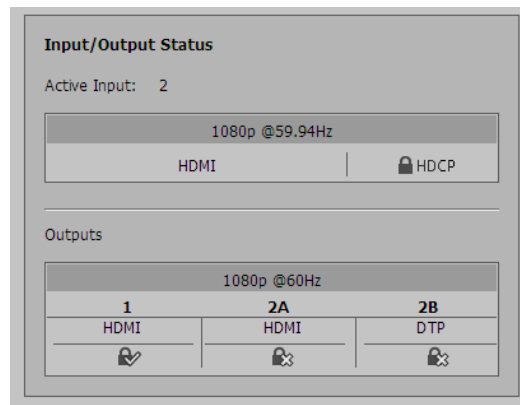
2. To obtain an IP address automatically check the DHCP check box. Alternatively, to manually assign IP, Subnet Mask, and Default gateway addresses complete all the fields as desired.
3. Click the **Apply** button to accept the pending changes.

Clicking the **Cancel** button cancels any pending changes and closes the dialog box.

Clicking the **Reset to Default** button resets the device to the factory default IP address (192.168.254.254).

Input/Output Status

This read-only section displays the current input and output status. These are not configurable via the web page.



Input/Output Status		
Active Input: 2		
1080p @59.94Hz		
HDMI		HDCP
Outputs		
1080p @60Hz		
1	2A	2B
HDMI	HDMI	DTP

Figure 57. Input and Output Status Section

NOTE: An lock icon with a cross indicates that an input or output is not HDCP-encrypted. A closed lock with a check mark icon or the text "HDCP", indicate that an input or output is HDCP-encrypted.

The Active Input section displays the active input number, the resolution and refresh rate, the signal format and the HDCP encryption status.

The Outputs section displays the output number, the resolution and refresh rate, the output format and the HDCP encryption status.

Date and Time

This section displays the current device date and time settings.

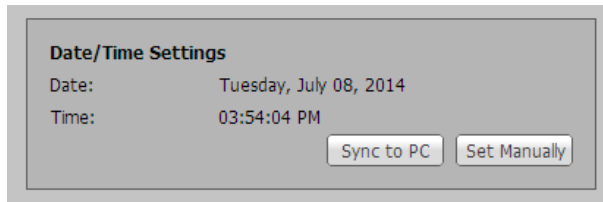


Figure 58. Date and Time Section

To sync the date and time of the device to a connected PC, click on the **Sync to PC** button and click **Apply**

To change the Date and Time settings manually:

1. Click on the **Set Manually** button. The **Date and Time Settings** dialog box opens.

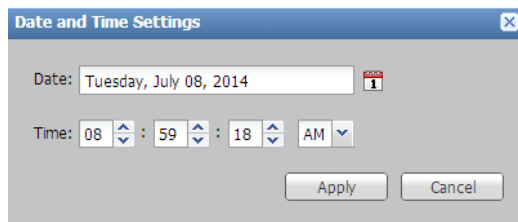


Figure 59. Date and Time Settings Dialog

2. In the **Date** field, click on the calendar icon at the right and select the month and day as applicable.
3. In the **Time** field, enter the time directly, or click on each drop-down arrow to set the hours, minutes, and seconds.
4. Select AM or PM as applicable
5. Click **Apply**.

Clicking the **Cancel** button cancels any pending changes and closes the dialog box.

Configure This Device

This section allows the user to install the device configuration software, PCS.

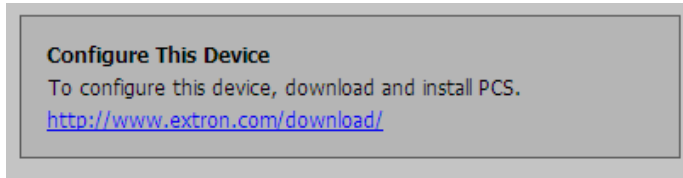


Figure 60. Configure This Device Section

To configure the device, click on the link and install the software. Follow the embedded help file instructions for device configuration.

Device Info

This section displays the device information. It also gives access to update the installed device firmware.

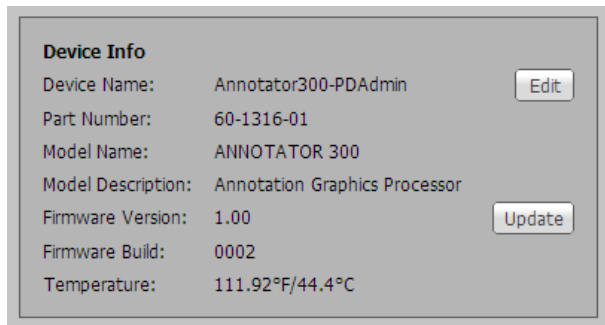


Figure 61. Device Info Section

To edit the device name click on the **Edit** button. The **Device Name** dialog box opens.

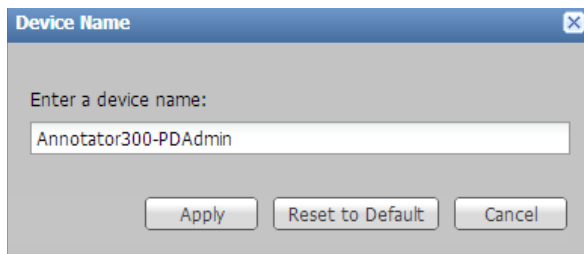


Figure 62. Device Name Dialog

Enter a suitable name for the device and click the **Apply** button to accept the pending changes.

Clicking the **Cancel** button cancels any pending changes and closes the dialog box.

Clicking the **Reset to Default** button resets the device to the factory default device name. Default name, (Annotator-300 + last 3 pairs of the MAC address).

To update the installed device firmware click on the **Update** button. The **Firmware Update** dialog box opens.



Figure 63. Firmware Update Dialog

1. Click **Browse** to find and select the downloaded firmware file. Valid firmware files have an S19 file extension.
2. Click **Open**. This returns you to the **Firmware Update** dialog box.
3. Click **Update**. The progress bar shows the progress of the firmware upload to the device. After uploading is completed, the device restarts. Reconnection to the device must be made to enable live configuration.

Clicking the **Cancel** button cancels any pending changes and closes the dialog box.

Passwords

This section gives access to set and change the passwords for the connected device.



Figure 64. Passwords Section

To set or change existing passwords click on the **Set** button. The **Passwords** dialog box opens.

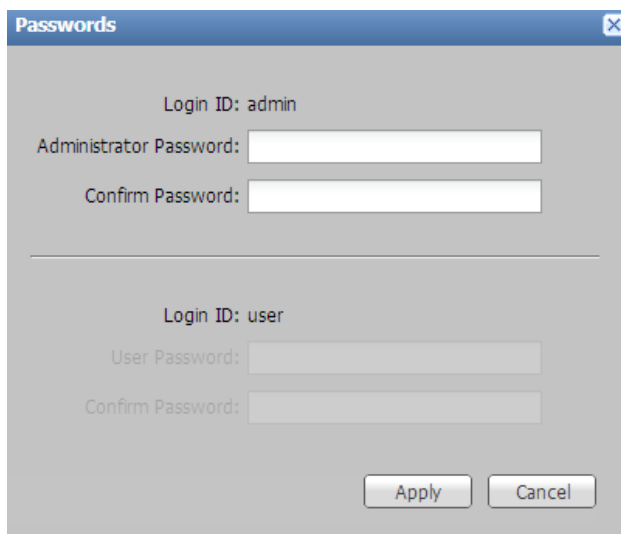


Figure 65. Passwords Dialog

1. Enter a password in the administrator password field for the administrator.

2. Enter the same password in the confirm password field and click **Apply**. The password is now set.

After a password has been set for the administrator, a user password can be set.

1. Enter a password in the user password field for the user.
2. Enter the same password in the confirm password field and click **Apply**. The user password is now set.

Ethernet Connection

This section describes connection to the Ethernet.

Ethernet Link

The rear panel Ethernet connector on the Annotator 300 can be connected to an Ethernet LAN or WAN. This connection makes SIS or software 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.

- **Crossover cable** — Direct connection between the computer and the Annotator.
- **Patch (straight) cable** — Connection of the Annotator 300 to an Ethernet LAN.

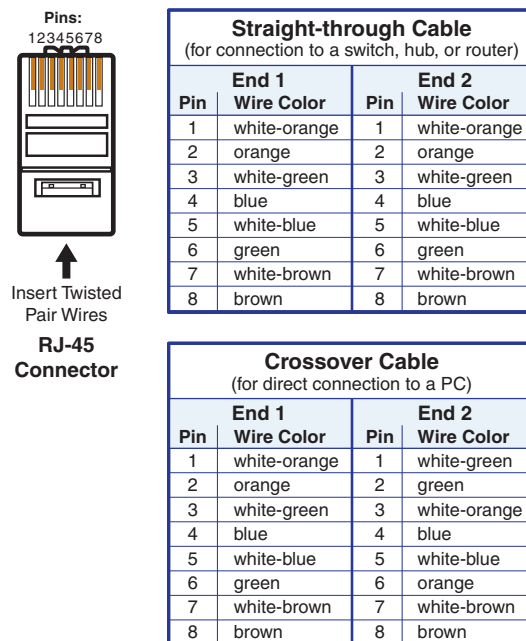


Figure 66. RJ-45 Connector Pinout Tables

Default Address

To access the Annotator 300 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 300.

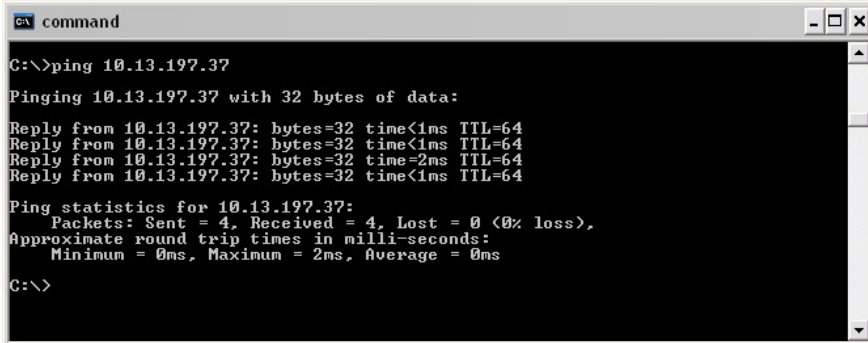
Ping to determine Extron IP address

The ping utility is available at the command (Cmd) prompt. Ping tests the Ethernet interface between the computer and the Annotator 300. 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` (for example, `10.13.197.37`). The computer returns a display similar to the figure below.

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



```
command
C:\>ping 10.13.197.37
Pinging 10.13.197.37 with 32 bytes of data:
Reply from 10.13.197.37: bytes=32 time<1ms TTL=64
Reply from 10.13.197.37: bytes=32 time<1ms TTL=64
Reply from 10.13.197.37: bytes=32 time=2ms TTL=64
Reply from 10.13.197.37: bytes=32 time<1ms TTL=64
Ping statistics for 10.13.197.37:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms
C:\>
```

Figure 67. 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 above, 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 command prompt. Telnet allows you to input SIS commands to the Annotator 300 from the PC via the Ethernet link and the LAN.

Access the 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 command window opens.

4. At the prompt, enter `Telnet`. The computer returns a display similar to the figure below.



Figure 68. 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 300 via Telnet.

Connecting to the Annotator 300 (Open command)

You connect to the Annotator 300 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 300.

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 300.

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 300 intact.

The Escape key is the `<Esc>` key on the computer keyboard.

Local echo

Once your computer is connected to the Annotator 300, 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 300, 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 300, access the Telnet prompt by entering the escape sequence (<Ctrl> + <]>).

Subnetting Basics

A subnet is a subset of a network — 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 300 and the mail server gateway. To understand subnetting at the level required to install and operate the Annotator 300, you must understand the concepts of a gateway, local and remote devices, IP addresses and octets, and subnet masks and octets.

Gateways

The Annotator 300 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 300.

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 61). 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.

Typical IP Address: 192,168,254,254
Octets

Figure 69. IP Address and Octets

Subnet masks and octets

The subnet mask (figure 62) 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.

255 indicates that this octet will be compared between two IP addresses. 0 indicates that this octet will **not** be compared between two IP addresses.

Typical Subnet Mask: 255,255,0,0
Octets

Figure 70. 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 63 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 the figure below).

- 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 the figure below).

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

If the two unmasked fields do not match (indicated by an unequal sign in the figure below, 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:	<u>192.168.2.25</u>	<u>190.190.2.25</u>	<u>192.190.2.25</u>
Match?:	<u>=.=.X.X — Match</u> (Same subnet)	<u>≠.≠.X.X — No match</u> (Different subnet)	<u>=.≠.X.X — No match</u> (Different subnet)

Figure 71. Comparing the IP Addresses

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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:

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Chiyoda-ku, Tokyo 102-0082
Japan

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The Netherlands

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Songjiang District
Shanghai 201611
China

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135 Joo Seng Road, #04-01
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Singapore 368363
Singapore

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Japan: 81.3.3511.7655

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.

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