User Guide

XTP Systems

XTP CrossPoint Series

Configurable Digital Video Matrix Switchers

Extron

68-1736-01 Rev. J
06 19

Safety Instructions

Safety Instructions • English

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This product contains a battery. **Do not open the unit to replace the battery.** If the battery needs replacing, return the entire unit to Extron (for the correct address, see the Extron Warranty section on the last page of this guide).

CAUTION: Risk of explosion. Do not replace the battery with an incorrect type. Dispose of used batteries according to the instructions.

ATTENTION : Risque d'explosion. Ne pas remplacer la pile par le mauvais type de pile. Débarrassez-vous des piles usagées selon le mode d'emploi.

Conventions Used in this Guide

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The following notifications are used in this guide:

WARNING: Potential risk of severe injury or death.
AVERTISSEMENT : Risque potentiel de blessure grave ou de mort.

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.

TIP: A tip provides a suggestion to make working with the application easier.

Software Commands

Commands are written in the fonts shown here:

```
^AR Merge Scene,,Øp1 scene 1,1 ^B 51 ^W^C.Ø
[Ø1] R ØØØ4 ØØ3ØØ ØØ4ØØ ØØ8ØØ ØØ6ØØ [Ø2] 35 [17] [Ø3]
Esc X1 * X17 * X20 * X23 * X21 CE ←
```

NOTE: For commands and examples of computer or device responses used 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**.

Extron Glossary of Terms

A glossary of terms is available at **http://www.extron.com/technology/glossary.aspx**.

Contents

Introduction

This section contains basic information about this guide and the XTP CrossPoint Series. Topics in this section include the following:

- **Guide Overview**
- **Product Description**
- **Features**

Guide Overview

This guide contains installation, configuration, and operating information for the Extron XTP CrossPoint1600 Matrix Switcher (see figure 1) and XTP CrossPoint 3200 Matrix Switcher. These customizable matrix switchers support up to 16 (XTP CrossPoint1600) or 32 (XTP CrossPoint 3200) inputs and outputs.

NOTE: In this guide, the terms "XTP CrossPoint Series matrix switchers" and "matrix switchers" refer to any of the matrix switcher models unless otherwise specified.

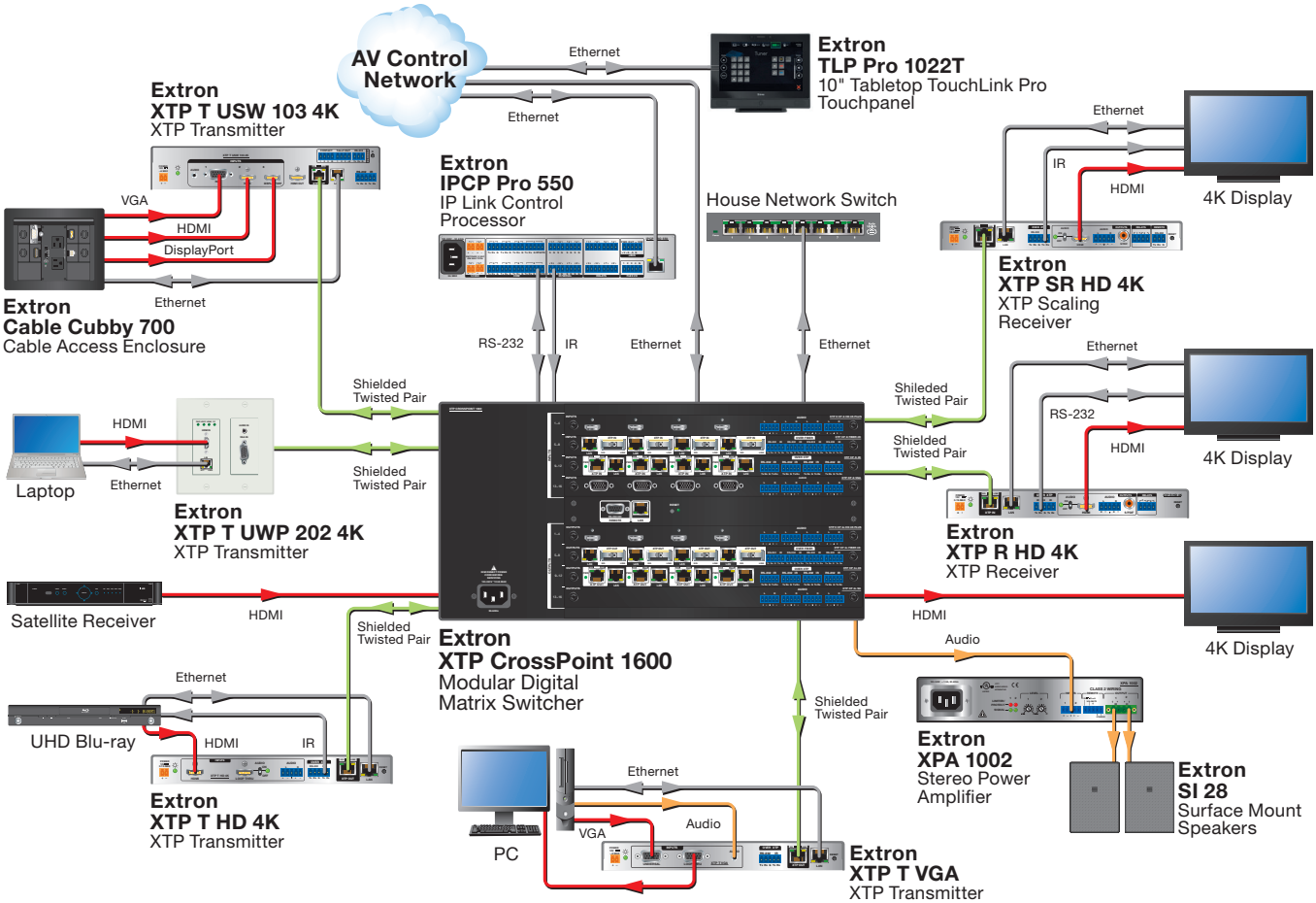

Figure 1. Typical XTP CrossPoint Application

Product Description

The XTP CrossPoint Series matrix switchers are configurable, modular switchers that distribute a variety of video, audio, and data types, depending on its configuration. A matrix switcher routes any input signal to any combination of outputs. It can route multiple signals at once.

The XTP CrossPoint Series models are assembled from user-installed and hot-swappable input and output boards in the following quantities:

- **XTP CrossPoint 1600** — Supports up to four input boards and four output boards.
- **XTP CrossPoint 3200** — Supports up to eight input boards and eight output boards.

The table below identifies the various types of input boards and output boards currently available, each of which can receive (input boards) or output (output boards) up to four signals (see **Input and Output Boards and Signal Types** on page 4 for details).

Available Input and Output Board Table	
Input Boards	**Output Boards**
XTP CP 4i and XTP CP 4i 4K (XTP input board) Receives inputs from Extron XTP transmitters and local serial port and IR inserts.	**XTP CP 4o and XTP CP 4o 4K** (XTP output board) Outputs signals to Extron XTP receivers, Includes local serial port and IR inserts.
XTP CP 4i Fiber 4K (fiber optic input board) Receives fiber optic and local serial port and IR inserts.	**XTP CP 4o Fiber 4K** (fiber optic output board) Outputs fiber optic outputs. Includes local serial port and IR inserts.
XTP II CP 4i HD 4K PLUS (HDMI input board) Receives 4K HDMI signals and analog audio inputs.	**XTP II CP 4o HD 4K PLUS** (HDMI output board) Outputs 4K HDMI nd analog audio outputs. Output is HDCP-compliant if the input is HDCP-compliant.
XTP CP 4i HDMI (HDMI input board) Receives HDMI signals and analog audio inputs.	**XTP CP 4o HDMI** (HDMI output board) Outputs HDMI and analog audio outputs. Output is HDCP-compliant if the input is HDCP-compliant.
XTP CP 4i HDMI DMA (HDMI input board) Receives HDMI signals and analog audio inputs. SUpports audio downmixing.	
XTP CP 4i DVI Pro (DVI Pro input board) Receives DVI Pro signals and analog audio inputs.	**XTP CP 4o DVI Pro** (DVI Pro output board) Outputs DVI Pro signals and analog audio outputs.
	XTP CP 4o SA (Analog audio output board) Outputs analog audio outputs.
XTP CP 4i 3G-SDI (3G-SDI input board) Receives 3G-SDI, HD-SDI, and SDI video inputs and analog audio inputs.	
XTP CP 4i VGA (universal analog VGA input board) Receives RGBHV, RGBs, RGsB, HDTV, and YUV component video, S-video, and composite video analog inputs and analog audio inputs.	

The input boards convert their non-XTP inputs into the digital XTP format used by Extron XTP transmitters and receivers and place them on the matrix switcher backplane. The output boards with non-XTP outputs convert the XTP signal to the appropriate format for that output board type. Thus, as a system, the XTP CrossPoint matrix switchers can transcode inputs in any valid format to the output formats supported by the family of output boards, making them single box solutions to complex digital video signal routing applications. Each input and output is individually isolated and buffered, and any input can be switched to any one or all outputs with virtually no crosstalk or signal noise between channels.

By adding or removing I/O boards within certain rules are detailed in **Input and Output Boards** on page 14, you can expand and contract the matrix switcher from a 4-input by 4-output matrix to up to:

- **XTP CrossPoint 1600** — A 16-input by 16-output matrix
- **XTP CrossPoint 3200** — A 32-input by 32 output matrixThe matrix switchers can be remotely controlled via their rear panel Remote
  RS-232/RS-422 ports, their rear panel LAN port, and their front panel Configuration (USB) port by any of the following:
- A control system
- A PC
- An Extron MKP 2000 remote control panel
- An Extron MKP 3000 remote control panel
- **(RS-232/RS-422 only)** An Extron MCP 100 remote control panel
- **(RS-232/RS-422 only)** An Extron MKP 1000 remote keypad

Control can be via the Extron XTP System Configuration Software, the Simple Instruction Set (SIS), or HTML pages (LAN port control only). The SIS is a set of basic ASCII code commands (see **Programming Guide** on page 76) that provide simple control through a control system or PC. The built-in Web pages (see **HTML operation** on page 121) can be accessed via the LAN port using a Web browser such as the Microsoft® Internet Explorer®.

The matrix switchers are housed in rack-mountable, metal enclosures with mounting flanges for standard 19-inch racks.

- **XTP CrossPoint 1600** — 5U high
- **XTP CrossPoint 3200** — 10U high

The base XTP CrossPoint1600 ships with two internal power supplies on a single AC connection that provide 12 V and 48 V. It can be ordered with two additional optional redundant (12 V and 48 V) power supplies. The customer cannot install the redundant power supplies.

The XTP CrossPoint 3200 ships with three 12 V internal power supplies and one 48 V power supply, on a single AC connection. The matrix switcher can operate using two of the 12 V supplies with the third as a hot backup. The fourth supply provides power over the XTP connection to remote devices (Power over XTP [PoX]).

The 100 VAC to 240 VAC, 50-60 Hz power supplies in the XTP CrossPoint 1600 and XTP CrossPoint 3200 provide worldwide power compatibility and reliability. Front panel LEDs indicate good and failed status for each supply.

Endpoint Configuration

In an XTP system, the transmitters connected to the input boards and the receivers connected to the output boards are known as “endpoints.”

When you configure an XTP system (consisting of an XTP CrossPoint matrix switcher and its connected endpoints), connect a computer to the matrix switcher and configure the endpoints from the matrix switcher. Do not connect the computer directly to the endpoint for configuration when it is part of an XTP system.

Input and Output Board and Signal Types

The XTP CrossPoint Series matrix switchers are assembled from user-installed and hot-swappable input and output boards. This section details the signal types processed by each board and the function of boards.

The boards have a primary signal type that is identified by the name of the board and used as the subsections of the **Primary signal type, by board** section starting on the next page. Most boards have secondary signal types that are used as the subsections of the **Secondary signal type** on page 7.

See the tables below and the following subsections for an explanation of the various input and output board capabilities.

Input Board Signal Type Table

Input Board	Signal Type										
	XTP	Fiber	HDMI 4K	HDMI	DVI Pro	3G/HD-SDI/SDI	Analog Video	Remote Power	RS-232 Inserts	Dedicated UARTs	Analog Audio
XTP CP 4i and XTP CP 4i 4K	•							•	•	•	
XTP CP 4i Fiber 4K		•							•	•	
XTP II CP 4i HD 4K PLUS			•								•
XTP CP 4i HDMI				•							•
XTP CP 4i HDMI DMA				•							•
XTP CP 4i DVI Pro					•						•
XTP CP 4i 3G-SDI						•					•
XTP CP 4i VGA							•				•

Output Board Signal Type Table

Output Board	XTP	Fiber	HDMi 4K	HDMI	DVI Pro	Remote Power	RS-232 Inserts	Dedicated UARTs	Analog Audio
XTP CP 4o and XTP CP 4o 4K	•					•	•	•	
XTP CP 4o Fiber 4K		•					•	•	
XTP CP 4o HD 4K PLUS			•						•
XTP CP 4o HDMI				•					•
XTP CP 4o DVI Pro					•				•
XTP CP 4o SA									•

Primary signal type, by board

XTP input and output boards

The XTP boards are essentially receivers (input boards) and transmitters (output boards).

The input board receives up to four XTP inputs, on either Extron XTP DTP 24 SF/UTP cable or shielded Category 5e, 6, or 7 (CAT x) shielded twisted pair (STP) cable, terminated with RJ-45 connectors, from Extron XTP transmitters.

The output board transmits XTP signals to as many as four XTP receivers.

The XTP signals can include digital video signals (or digitized analog video if the tied input is from a universal VGA input board), audio, RS-232, IR, Ethernet, and remote power capability. A second RJ-45 connector is present that allows you to insert Ethernet communications onto the XTP cable to passively extend them to a LAN (Ethernet) port on the connected endpoint. The maximum transmission distance is 330 feet (100 m).

Each XTP board features remote power (48 VDC @ 13 watts per output) on the XTP inputs and outputs for XTP transmitters and receivers.

Both XTP boards also support RS-232 inputs and dedicated universal asynchronous receiver/transmitters (UARTs) (see **Serial port inserts** and **Dedicated UARTs**, both on page 7).

Fiber input and output boards

The fiber input boards have four fiber optic input connectors. The fiber output boards have four fiber optic output connectors. The boards are compatible with any Extron fiber “Plus” product. The fiber signals can include digital video signals, audio, RS-232, and IR.

An RJ-45 connector is present that allows you to insert Ethernet communications onto the fiber cable to passively extend them to a LAN (Ethernet) port on the connected endpoint.

Both fiber boards also support RS-232 inputs and dedicated UARTs (see **Serial port inserts** and **Dedicated UARTs**).

The boards are further categorized by the type of fiber optic cable, multimode or singlemode, which defines the effective range of transmission:

XTP CP 4i Fiber 4K MM — Multimode, long distance, up to 500 m (1640 feet) (depending on the fiber cable)

XTP CP 4i Fiber 4K SM — Singlemode, very long distance, up to 10 km (6.2 miles)

NOTE: The multimode and singlemode boards are physically and functionally identical, with the exception of the effective range of transmission. In this guide, any reference applies to either transmission mode unless otherwise specified.

HDMI 4K, HDMI, and DVI Pro input and output boards

The HDMI input boards have four HDMI input connectors. The HDMI output boards have four HDMI output connectors. The boards also support digital DVI-D signals with adapters.

The DVI Pro input board has four DVI-I input connectors. The DVI Pro output board has four DVI-I output connectors. Although equipped with DVI-I connectors, the DVI Pro boards support digital DVI-D signals (and HDMI connectors with adapters) only.

The boards meet the DVI 1.0 and HDMI 1.3 specifications, support a maximum resolution of 1920 x 1200 @ 60 Hz and 1080p @ 60 Hz (deep color), and are HDCP-compliant.

The output boards perform down-conversion automatic color bit depth to match the signal to display capabilities.

All digital video input boards support 256 bytes of EDID and can save, import, and export EDID data.

HDMI input boards and DVI Pro input boards both also have four analog balanced stereo inputs on captive screw connectors (see **Analog audio inputs** on the next page). HDMI output boards and DVI Pro output boards both also have four analog balanced stereo outputs on captive screw connectors (see **Analog audio outputs** on the next page).

DMA input boards

The DMA input boards provide multi-channel audio downmixing to 2-channel PCM stereo audio for separable audio routing. They can decode and process licensed, branded digital source formats from Dolby®[1] and DTS®[2], including Dolby TrueHD and DTS-HD Master Audio™.

3G-SDI, HD-SDI, or SDI video input boards

NOTE: 4K video can be routed only to boards that support that resolution.

The 3G/HD-SDI/SDI video input board automatically recognizes and accepts common SMPTE and ITU serial digital data rates, including 2.97 Gbps 3G-SDI, 1.485 Gbps HD-SDI, and 270 Mbps SDI with automatic input equalization. Each input has a buffered and re-clocked loop-through outputs. The 3G input board converts the incoming signal to digital Transition Minimized Differential Signaling (TMDS, the core technology used in HDMI and DVI) before converting to the XTP format used on the backplane.

The board also has four analog balanced stereo inputs on captive screw connectors (see **Analog audio inputs**).

VGA universal analog input boards

The VGA universal analog video input board accepts RGBHV, RGBS, RGsB, HDTV component video, YUV component video, S-video, or composite video on 15-pin HD connectors. S-video and composite video require BNC to VGA adapters. The inputs feature auto-detect as the default condition, which automatically recognizes the input signal with no user configuration. The input format can also be forced via remote control.

The VGA input board converts the incoming signal to digital TMDS, the core technology used in HDMI and DVI, before converting to the XTP format used on the backplane. The board de-interlaces and digitizes S-video and composite video to NTSC 480p or PAL 576p.

The VGA input board delivers one block of 128 bytes of analog DDC/EDID handshake data for each input that can be used as an EDID reference for each of the source devices. If no output references are stored, the matrix switcher can use one of the stored EDID data files.

The VGA input board also have four analog balanced stereo inputs on captive screw connectors (see **Analog audio inputs**).

Analog audio output boards

The audio output board has four analog stereo audio output connectors for balanced or unbalanced 2-channel audio. These boards extract 2-channel audio from the embedded stream for analog audio outputs with mute and audio volume controls.

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Secondary signal type

Serial port inserts

The XTP and fiber input and output boards also have four local RS-232 and IR insert inputs on captive screw connectors. The insert inputs support up to a 115k baud rate. Each RS-232 and IR insert and local output is for the associated input or output only and cannot be tied to other outputs or inputs.

Dedicated UARTs — Ethernet insertion

The XTP CrossPoint Series matrix switcher can send control signals to inputs and outputs on the XTP and fiber input and output boards using dedicated UART ports. Each XTP and fiber input and output has a dedicated UART port to allow bidirectional communication on every XTP port simultaneously. Once the Ethernet-to-RS-232 feature is enabled, via the XTP Configuration Software or an SIS command, the XTP input or output is unable to pass any RS-232 commands from the local insert connections on the I/O board but instead passes the communications via the UART.

Analog audio inputs

Boards listed in the **table** on page 4 as supporting analog audio input have four stereo audio input captive screw connectors for balanced or unbalanced 2-channel audio. These boards can perform analog-to-digital conversion of analog audio inputs for audio breakaway ties. Analog audio input levels can be adjusted through a range of +24 dB gain through –18 dB attenuation.

Analog audio outputs

Boards listed in the **table** as supporting analog audio output have four stereo audio output captive screw connectors for balanced or unbalanced 2-channel audio. These boards extract 2-channel audio from the embedded stream for analog audio outputs with mute and audio volume controls.

Features

- **Available in I/O sizes from 4x4 to 32x32** — System configuration is flexible to match a wide variety of small to large-sized installations.
- **15.2 Gbps data-rate digital backplane** — Ensures switching and distribution of video signals without degradation, offering the performance required to maintain signal integrity with the most demanding high resolution signals.
- **Compatible with all XTP integrated system products** — XTP CrossPoint Series is a flexible, reliable signal switching and distribution system that provides a completely integrated solution for multiple digital and analog formats.
- **Fully digital signal routing** — Analog signals are digitized, sending a reliable, high quality digital video signal to the output destination.
- **Wide selection of input and output boards** — Boards provide integration for a variety of signal types and formats, ensuring system customization appropriate for a wide range of applications.
- **Serial port insertion from the Ethernet control port** — System level device control to all remote locations via the Ethernet port of the matrix switcher, providing comprehensive control of endpoints and attached devices without needing additional cabling.

- **Remote power to XTP transmitters and receivers** — To simplify installation in space-challenged locations, an XTP CrossPoint Series matrix switcher can provide power to remote XTP transmitters and receivers over the same STP cable that is used for sending AV signals. This avoids the need for external power supplies at remote endpoints.
- **HDMI compatible** — Supports HDMI specification features, including data rates up to 15.2 Gbps, Deep Color up to 12-bit, 3D formats, Lip Sync, and HD lossless audio formats.
- **HDCP compliant** — Ensures display of content-protected media and interoperability with other HDCP-compliant devices.
- **HDCP authentication and signal confirmation via RS-232 or Ethernet** — The XTP CrossPoint Series matrix switcher provides real-time verification of HDCP status for each digital video input and output. This allows for simple, quick, and easy signal and HDCP verification through RS-232/RS-422 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.
- **SpeedSwitch Technology** — Provides exceptional switching speed for HDCP-encrypted content.
- **SD Pro processing provides deinterlacing of standard definition video** — Deinterlaces 480i and 576i signals for compatibility with HDMI and DVI-equipped displays, without the need for additional scalers.
- **EDID Minder** — Automatically manages EDID communication between connected devices, ensuring that all sources power up properly and reliably output content for display.
- **Key Minder** — Continuously verifies HDCP compliance for quick, reliable switching. 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.
- **Modular, field-upgradeable and hot-swappable design** — The XTP CrossPoint Series matrix switcher provides substantial flexibility, expandability, and affordability by allowing users to select the configuration required for a system. Additional input and output boards may be added at any time for quick and easy upgradeability or expansion. Hot-swappable components allow the user to replace an I/O board at any time without the need to power down the matrix switcher. This is especially useful for mission-critical applications that require continuous system operation.
- **Audio breakaway** — Provides the capability to separate an embedded audio signal from its corresponding video signal within the matrix switcher, allowing the audio and video signals from one source to be switched to different destinations.
- **Ethernet extension** — Centralized 10/100 Ethernet communication can be implemented via an Ethernet pass-through port to reduce the amount of independent network drops required within a system.
- **Digital output boards provide +5 VDC, 250 mA power on each output for powering external peripheral devices** — Power provided via the digital output of a board eliminates the need of a separate power supply for the connected peripheral device.

- **Automatic cable equalization for each digital input to 100 feet (30 m) when used with Extron HDMI or DVI Pro cables** — Cable input equalization optimizes signal performance for all incoming signals, ensuring pristine image quality is delivered throughout an XTP CrossPoint System.
- **Automatic output reclocking** — Reshapes and restores timing of digital video signals at each output, eliminating high frequency jitter to ensure reliable transmission over long cables.
- **Audio input gain and attenuation** — Allows the level of gain or attenuation to be set, eliminating noticeable volume differences when switching between sources.
- **Audio output volume adjustment and muting** — Audio output can be set dynamically for each channel through the front panel or serial control eliminating the need for audio preamplifiers in many system designs.
- **Ethernet monitoring and control** — Engineered to meet the needs of professional AV environments, Ethernet control provides proactive monitoring and system management over a LAN, WAN, or the Internet, using standard TCP/IP protocols. Ethernet control provides for remote selection of input and output ties, adjustment and control of audio input and output levels, and advanced system diagnostics.
- **Tri-color, backlit buttons** — Buttons can be custom labeled for easy identification. The buttons illuminate red, green, or amber, depending on function, for ease of use in low-light environments.
- **QuickSwitch Front Panel Controller (QS-FPC)** — Provides a discrete button for each input and output, allowing for simple, intuitive operation.
- **Global presets** — Frequently used I/O configurations may be saved and recalled either from the front panel, serial, or Ethernet control. This time-saving feature allows I/O configurations to be set up and stored in memory for future use.
- **View I/O mode** — Users can easily view which inputs and outputs are actively connected.
- **Front panel configuration port** — Enables easy configuration without having to access rear panel of the matrix switcher.
- **Front panel security lockout** — Prevents unauthorized use in non-secure environments. In Lock mode, a special button combination is required to operate the matrix switcher from the front panel controller.
- **Optional remote control** — The optional MKP 2000 and MKP 3000 X-Y Remote Control Panels provide the flexibility to control the matrix switcher from a remote location.
- **JITC Certified** — Successfully completed interoperability and information assurance testing for use in government applications and other mission-critical environments.
- Rack-mountable 5U (XTP CrossPoint 1600) or 10U (XTP CrossPoint 3200) full rack width metal enclosure.

- **Internal universal power supply** — The 100-240 VAC, 50/60 Hz, international power supply provides worldwide power compatibility.
- **Primary and redundant power supplies** — Redundant power supplies (optional for the XTP CrossPoint 1600, standard for the XTP CrossPoint 3200) are available for continuous, mission-critical applications where power reliability is crucial.
- **Permanent, rechargeable battery** — The matrix switcher has a rechargeable lithium battery to track time of day when power is disconnected.

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

AVERTISSEMENT : Si la pile est mal remplacée, il y a un risque d'explosion. Remplacez la batterie seulement avec le même type ou un type similaire de pile, recommandé par le fabricant. Débarrassez-vous des piles utilisées selon les instructions du fabricant.

ATTENTION:

- Non-Extron personnel must not attempt to remove the battery. Doing so voids the warranty.
- Du personnel ne faisant pas partie d'Extron ne doit pas essayer de retirer la batterie. Cela annulerait la garantie.

Installation

This section details the installation and configuration of the XTP CrossPoint Series matrix switchers, including:

- **Setup and Installation Checklist**
- **Rear Panel Cabling and Features**
- **Front Panel Configuration Port and Power LEDs**

Setup and Installation Checklist

Get ready

☐ Familiarize yourself with the XTP CrossPoint Series matrix switcher.

☐ Obtain IP setting information for the matrix switcher from the local network administrator (see **Ethernet Connection** on page 150).

Configure the matrix switcher

☐ Install the desired input and output boards (see **Installing an Input or Output Board or Blank Panel** on page 145). Use a screwdriver to tighten the captive screws that lock the boards in place.

Perform physical installation

☐ If desired, create and replace button labels (see **Removing and Installing Button Labels** on page 146).

☐ If desired install the matrix switcher in a rack (see **Mounting the Matrix Switcher** on page 143).

☐ Cable input and output devices to the input and output boards (see **Input and Output Boards** on page 14).

☐ If desired, connect computers or control systems to any of the remote control ports (a serial port [see **Remote Control Ports** on page 26], a USB port [see **Configuration port** on page 27], and a LAN port [see **Ethernet Connection** on page 26]) on the matrix switcher.

☐ Connect power (see **Power** on page 27).

☐ Test the matrix switcher by creating a tie (see **Example 1: Create a set of video and audio ties** on page 38).

Ancillary operations

☐ Install the XTP System Configuration software (see the *XTP System Configuration Software Help* file).

Rear Panel Cabling and Features

Figure 2 shows an XTP CrossPoint 1600. **Figure 3** on the next page shows an XTP CrossPoint 3200. The models have similar features, but different-sized enclosures and a different arrangement of the features.

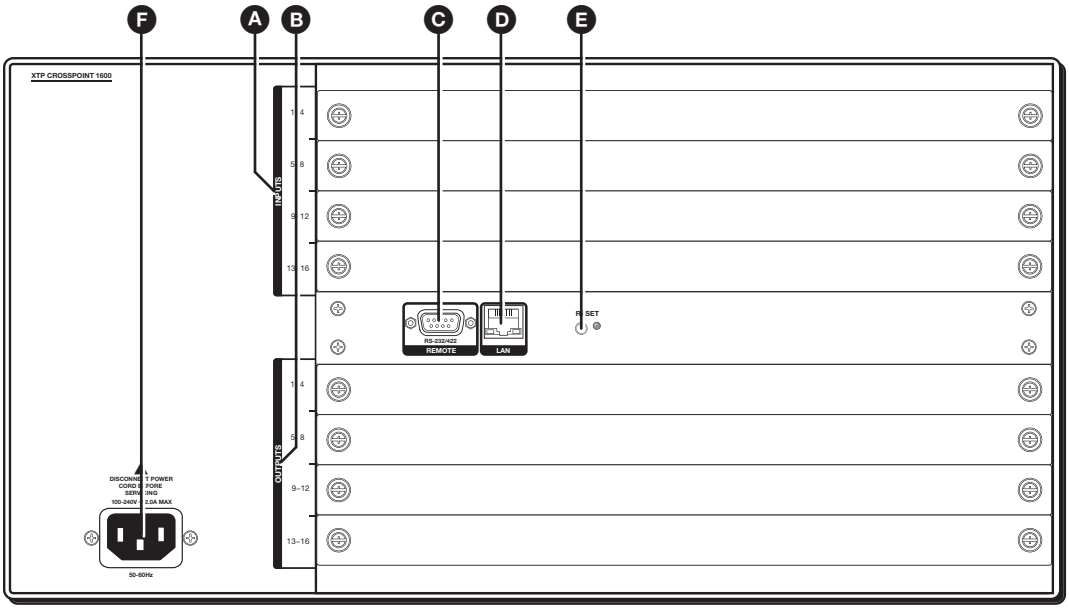


Figure 2. XTP CrossPoint 1600 Matrix Switcher Rear Panel

ATTENTION:

- Use electrostatic discharge (ESD) precautions (be electrically grounded) when making connections. Electrostatic discharge can damage equipment, even if you cannot feel, see, or hear it.
- Prenez des précautions contre les décharges électrostatiques (ESD) (soyez électriquement relié à la terre) lorsque vous effectuez des connexions. Les décharges électrostatiques peuvent endommager l'équipement, même si vous ne pouvez pas le sentir, le voir ou l'entendre.

- Remove system power before making all connections.
- Débranchez l'alimentation du système avant de faire n'importe quelle connexion.

A **Input boards space** (see page 14)

B **Output boards space** (see page 17)

C **Remote RS-232/RS-422 port** (see page 26)

D **LAN port (Ethernet connector)** (see page 26)

E **Reset button and LED** (see page 27)

F **Power connector** (see page 27)

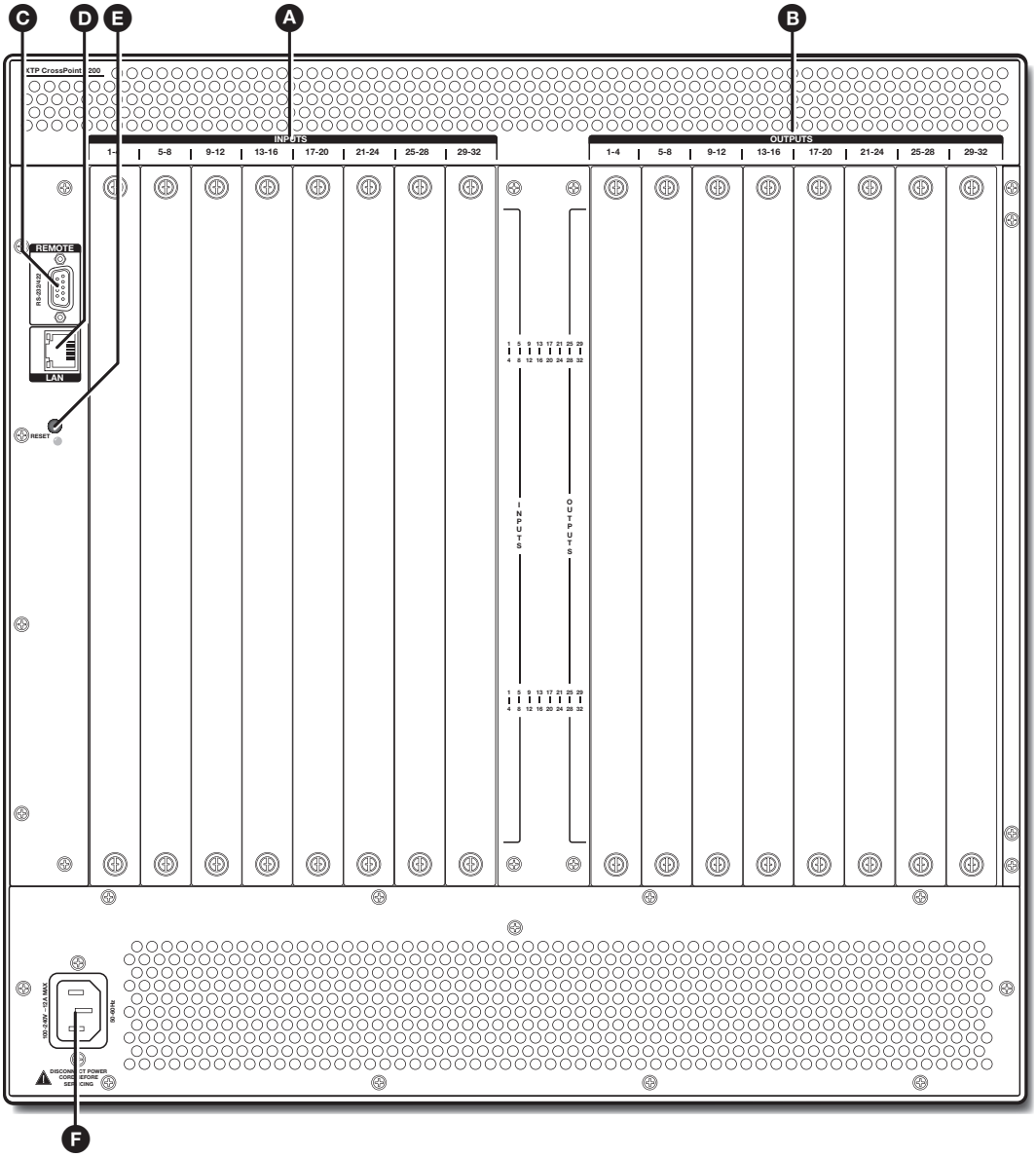


Figure 3. XTP CrossPoint 3200 Matrix Switcher Rear Panel

- **A** **Input boards space** (see page 14)
- **B** **Output boards space** (see page 17)
- **C** **Remote RS-232/RS-422 port** (see page 26)
- **D** **LAN connection (Ethernet connector)** (see page 26)
- **E** **Reset button and LED** (see page 27)
- **F** **Power connector** (see page 27)

Input and Output Boards

On the XTP CrossPoint 1600, the top slots are for input boards and the bottom slots are for output boards. On the XTP CrossPoint 3200, slots on the left are for input boards and slots on the right are for output boards. Each board installed in a slot supports up to four inputs or outputs of the applicable type (see **Input and Output Boards and Signal Types** on page 4, **Input boards space** below, and **Output boards space** on page 17).

Input boards can be installed in any order in the input slot locations. Output boards can likewise be installed in any order in the output slot locations. You can skip a slot with the only result being that the inputs or outputs serviced by that slot location are not present in the matrix. For example, if you omit installing a board in input slot 3, inputs 9 through 12 are not present and the first connector in input slot 4 remains input 13.

NOTE: Audio ground pins on the input and output boards may be labeled as ⏚ or ⏚. The wiring and function are the same, whichever way the board is labeled.

Ⓐ Input boards space —

NOTE: See **figure 2** on page 12 and **figure 3** on page 13.

Install input boards as desired in input slots 1 through 4 (XTP CrossPoint 1600) or slots 1 through 8 (XTP CrossPoint 3200) and make connections. See **Installing the Input or Output Board or Blank Panel** on page 145 and the individual board descriptions below.

NOTE: Install blank panels in unused locations to ensure proper ventilation.

XTP CP 4i and XTP CP 4i 4K (XTP input board)

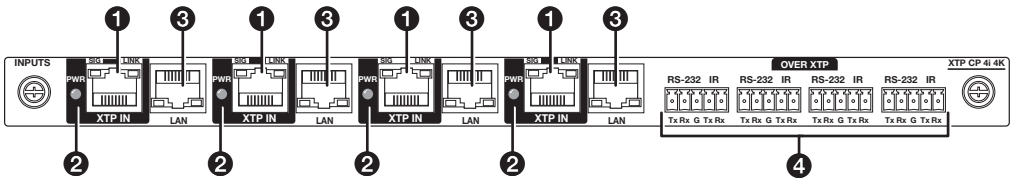


Figure 4. XTP Input Board Connectors and Indicators (XTP CP 4i 4K)

ATTENTION:

- The XTP input board can provide power over XTP (PoX) to connected devices. PoX is intended for indoors use only. No part of a network that uses PoX can be routed outdoors.
- La carte entrée XTP peut fournir l'alimentation sur XTP (PoX) aux appareils connectés. PoX est destiné à une utilisation en intérieur uniquement. Aucune partie d'un réseau qui utilise PoX ne peut être routée en extérieur.

NOTE: PoX must be enabled using:

- SIS commands (see the applicable **XTP Power** SIS commands on page 93)
- Built-in HTML pages (see **XTP Power Page** on page 141)
- The XTP System Configuration software (see the *XTP System Configuration Software Help File*, available at **www.extron.com**)

❶ XTP input connectors — Connect an STP cable between a compatible Extron XTP transmitter and this connector (see **TP connectors** on page 19 to wire the connector).

❷ XTP power indicators — Light to indicate that the input board is providing power over XTP (PoX) to the transmitter connected to this RJ-45 connector.

❸ **LAN (Ethernet connectors** — As desired, connect a TP cable between a host device or control LAN and this connector for passive extension to the LAN (Ethernet connector on the connected endpoint (see **TP connectors** on page 19 to wire the connector).

❹ **IR/RS-232 Over XTP connectors** — If desired, connect serial RS-232 signals, modulated IR signals, or both to these 3.5 mm, 5-pole captive screw connectors for bidirectional RS-232 and IR communications on the associated inputs (see **RS-232 and IR connectors** on page 22 to wire the connectors).

XTP CP 4i Fiber 4K (fiber optic input board)

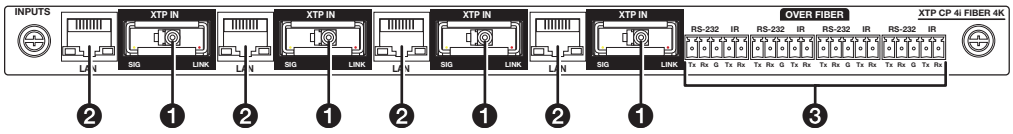


Figure 5. Fiber Optic Input Board Connectors and Indicators

❶ **XTP In connectors** — Connect a fiber optic cable between the Tx connector on a compatible Extron fiber optic transmitter and this connector. This board uses small form factor pluggable (SFP) modules with industry-standard LC fiber optics connectors to provide reliable physical connectivity and precise fiber core alignment.

Signal LED — Indicates that a cable is connected to a fiber optic transmitter.

Link LED — Indicates that a valid fiber optic signal is detected.

❷ **LAN (Ethernet) connectors** — As desired, connect a TP cable between a host device or control LAN and this connector for passive extension to the LAN (Ethernet) connector on the connected endpoint (see **TP connectors** on page 19 to wire the connector).

❸ **IR/RS-232 Over Fiber connectors** — If desired, connect serial RS-232 signals, modulated IR signals, or both to these 3.5 mm, 5-pole captive screw connectors for bidirectional RS-232 and IR communications on the associated inputs (see **RS-232 and IR connectors** on page 22 to wire the connectors).

XTP II CP 4i 4K PLUS and XTP CP 4i HDMI (HDMI input boards)

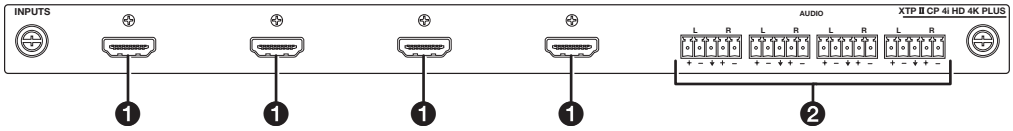


Figure 6. 4K HDMI Input Board Connectors

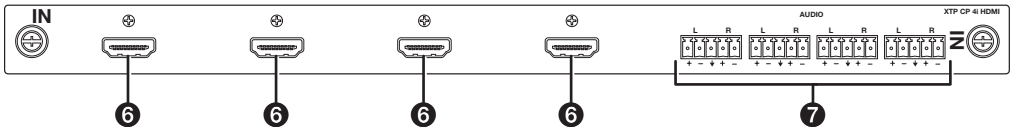
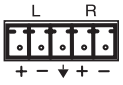


Figure 7. HDMI Input Board Connectors

❶ **Input connectors** — Connect an HDMI cable between this port and the HDMI output port of the digital video source (see **HDMI connectors** on page 22 for pin assignments and to use the LockIt HDMI Cable Lacing Bracket to secure the connector to the transmitter).

❷ **Audio Inputs (analog audio) connectors** — Connect balanced or unbalanced stereo audio inputs to these 3.5 mm, 5-pole captive screw connectors (see **Analog audio input connectors** on the page 24 to wire the connectors).



XTP CP 4i DVI Pro (DVI Pro input board)

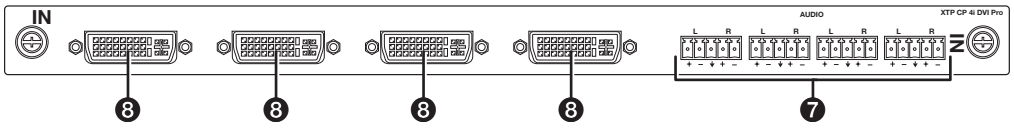


Figure 8. DVI Pro Input Board Connectors

NOTE: Although the DVI Pro boards use DVI-I connectors, the matrix switchers handle only DVI-D (digital) video.

❶ **Input connectors** — Connect a DVI cable between this port and the DVI output port of the digital video source (see **DVI connectors** on page 23 for pin assignments).

❷ **Audio inputs (analog audio) connectors** — Connect balanced or unbalanced stereo audio inputs to these 3.5 mm, 5-pole captive screw connectors (see **Analog audio input connectors** on page 24 to wire the connectors).

XTP CP 4i 3G-SDI (3G/HD-SDI/SDI input board)

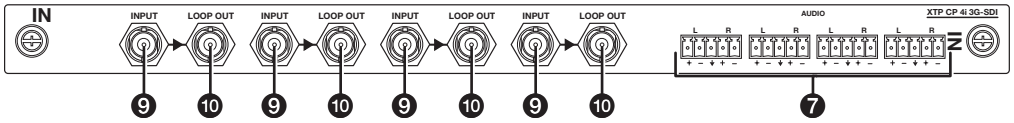
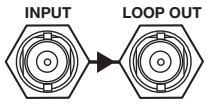


Figure 9. 3G Input Board Connectors

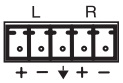
❶ **Input connectors** — Connect a 3G-SDI, HD-SDI, or SDI video input to this BNC connector. The board also accepts embedded digital audio on this port.



❷ **Loop Out connector** — Connect a local digital display to this BNC connector for a buffered loop-through on the input signal.

NOTE: The board ships with 75 ohm terminators on the Loop Out connectors. Extron recommends leaving these installed when the loop out is not used.

❸ **Audio inputs (analog audio) connectors** — Connect balanced or unbalanced stereo audio inputs to these 3.5 mm, 5-pole captive screw connectors (see **Analog audio input connectors** on page 24 to wire the connectors).



XTP CP 4i VGA (VGA Input board)

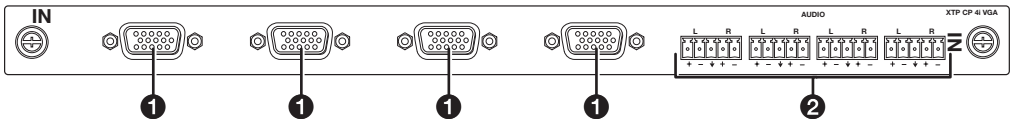
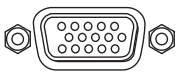
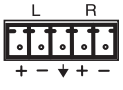


Figure 10. VGA Input Board Connectors

❶ **Input connectors** — Connect a VGA cable between this port and the analog video output port of the digital video source (see **Analog video connectors** on page 23 for pin assignments and non-RGB video formats).



❷ **Audio Inputs (analog audio) connectors** — Connect balanced or unbalanced stereo audio inputs to these 3.5 mm, 5-pole captive screw connectors (see **Analog audio input connectors** on page 24 to wire the connectors).



B Output boards space —

NOTE: See **figure 2** on page 12 and **figure 3** on page 13.

Install output boards as desired in output slots 1 through 4 (XTP CrossPoint 1600), slots 1 through 8 (XTP CrossPoint 3200) and make connections. See **Installing the Input or Output Board or Blank Panel** on page 145 and the individual board descriptions below.

NOTE:

- Install blank panels in unused slots to ensure proper ventilation.
- **XTP CrossPoint 3200**: To ensure reliable operation, it is recommended that unused output slots (especially slots 5 through 8) be populated with either active output boards or load boards.

XTP CP 4o and XTP CP 4o 4K (XTP Output board)

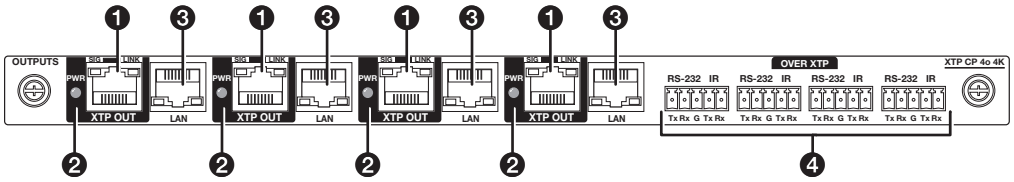


Figure 11. XTP Output Board Connectors and Indicators (XTP CP 4o 4K)

ATTENTION:

- The XTP output board can provide power over XTP (PoX) to connected devices. PoX is intended for indoors use only. No part of a network that uses PoX can be routed outdoors.
- La carte sortie XTP peut fournir l'alimentation sur XTP (PoX) aux appareils connectés. PoX est destiné à une utilisation en intérieur uniquement. Aucune partie d'un réseau qui utilise PoX ne peut être routée en extérieur.

NOTE: PoX must be enabled using:

- SIS commands (see the applicable **XTP Power** SIS commands on page 106)
- Built-in HTML pages (see **XTP Power Page**, on page 141)
- The XTP System Configuration software (see the XTP System Configuration Software help file, available at **www.extron.com**)

1 XTP output connectors — Connect an STP cable between this connector and a compatible Extron XTP receiver (see **TP connectors** on page 19 to wire the connector).

2 XTP Power indicators — Lights to indicate that the output board is providing power over XTP (PoX) to the receiver connected to this RJ-45 connector.

3 LAN (Ethernet) connectors — As desired, connect a TP cable between a host device or control LAN and this connector for passive extension to the LAN (Ethernet) connector on the connected endpoint (see **TP connectors** on page 19 to wire the connector).

4 IR/RS-232 Over XTP Connectors — If desired, connect serial RS-232 signals, modulated IR signals, or both to these 3.5 mm, 5-pole captive screw connectors for bidirectional RS-232 and IR communications on the associated outputs (see **RS-232 and IR connectors** on page 22 to wire the connectors).

XTP CP 4o Fiber 4K (fiber optic output board)

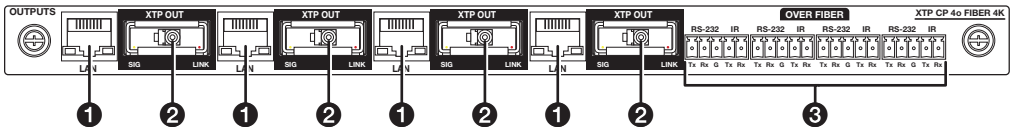


Figure 12. Fiber Optic Output Board Connectors and Indicators

❶ **XTP Out connectors** — Connect a fiber optic cable between the Rx connector on a compatible Extron fiber optic receiver and this connector. This board uses SFP modules with industry-standard LC fiber optics connectors to provide reliable physical connectivity and precise fiber core alignment.

Signal LED — Indicates that a cable is connected to a fiber optic receiver.

Link LED — Indicates that a valid fiber optic signal is detected.

❷ **LAN (Ethernet) connectors** — As desired, connect a TP cable between a host device or control LAN and this connector for passive extension to the LAN (Ethernet) connector on the connected endpoint (see **TP connectors** on page 19 to wire the connector).

❸ **IR/RS-232 Over Fiber Connectors** — If desired, connect serial RS-232 signals, modulated IR signals, or both to these 3.5 mm, 5-pole captive screw connectors for bidirectional RS-232 and IR communications on the associated inputs (see **RS-232 and IR connectors** on page 22 to wire the connectors).

XTP II CP 4o 4K PLUS and XTP CP 4o HDMI (HDMI Output board)

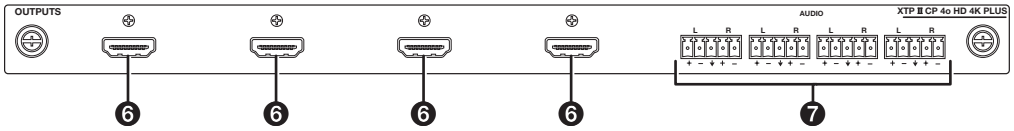


Figure 13. 4K HDMI Output Board Connectors

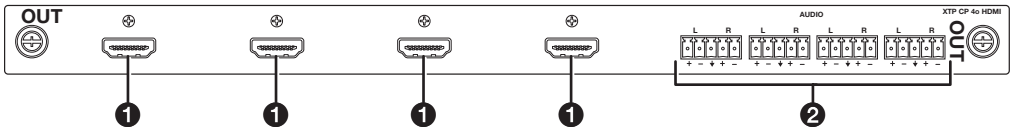
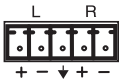


Figure 14. HDMI Output Board Connectors

❶ **Output connector** — Connect an HDMI cable between this port and an HDMI video display (see **HDMI connectors** on page 22 for pin assignments and to use the LockIt HDMI Cable Lacing Bracket to secure the connector to the transmitter).

❷ **Audio Outputs (analog audio) connectors** — Connect audio devices such as an audio amplifier or powered speakers, to these 3.5 mm, 5-pole captive screw connectors. These connectors output unamplified, level audio, whether it is tied from an analog input or de-embedded from a digital input (see **Analog audio output connectors** on page 25 to wire the connectors).



XTP CP 4o DVI Pro (DVI Pro Output board)

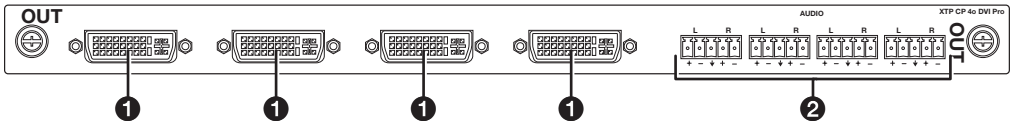
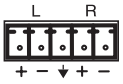


Figure 15. DVI Pro Output Board Connectors

NOTE: Although the DVI Pro boards use DVI-I connectors, the matrix switchers handle only DVI-D (digital) video.

❶ **Output connector** — Connect a DVI cable between this port and an DVI video display (see **DVI connectors** on page 23 for pin assignments).

❷ **Audio Outputs (analog audio) connectors** — Connect audio devices such as an audio amplifier or powered speakers, to these 3.5 mm, 5-pole captive screw connectors. These connectors output unamplified, level audio, whether it is tied from an analog input or de-embedded from a digital input (see **Analog audio output connectors** on page 25 to wire the connectors).



XTP CP 4o SA (Analog Audio Output board)

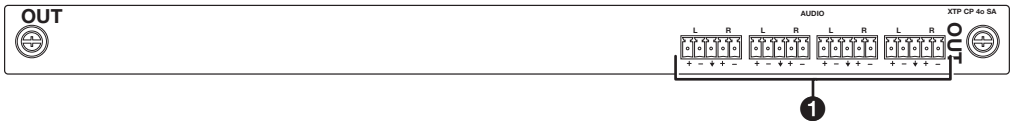
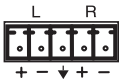


Figure 16. Analog Audio Board Connectors

❶ **Audio Outputs (analog audio) connectors** — Connect audio devices such as an audio amplifier or powered speakers, to these 3.5 mm, 5-pole captive screw connectors. These connectors output unamplified, level audio, whether it is tied from an analog input or de-embedded from a digital input (see **Analog audio output connectors** on page 25 to wire the connectors).



Input and output pin assignments and wiring

TP connectors

It is essential that your cables (on the XTP and LAN [Ethernet] connectors) be the correct type and that they be properly terminated with the correct pinout. These links use unshielded twisted pair (UTP) or shielded twisted pair (STP) cables, terminated with RJ-45 connectors. XTP and LAN cables are limited to a length of 330 feet (100 m).

NOTES:

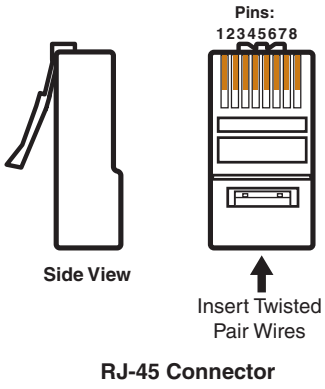
- Do not use standard telephone cables. Telephone cables do not support Ethernet or Fast Ethernet.
- Do not stretch or bend cables. Transmission errors can occur.

The cable used depends on your network speed. The matrix switcher LAN port supports both 10 Mbps (10Base-T — Ethernet) and 100 Mbps (100Base-T — Fast Ethernet), half-duplex and full-duplex Ethernet connections. Input and output boards support 100Base-T only.

- 10Base-T Ethernet requires CAT 3 UTP or STP cable at minimum.
- 100Base-T Fast Ethernet requires CAT 5e UTP or STP cable at minimum.

The TP 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 XTP CrossPoint matrix switcher.
- **Patch (straight) cable** — Connection of the XTP CrossPoint matrix switcher to an Ethernet LAN and connection to the input and output board XTP connectors.



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

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

Crossover Cable
(for direct connection to a PC)

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

Figure 17. RJ-45 Connector and Pinout Tables

Matrix switcher and XTP board LAN ports —

The LAN ports require CAT 3, CAT 5e, or CAT 6a, crossover or patch cables.

XTP board XTP ports —

The XTP input boards and output boards are compatible with shielded twisted pair (F/UTP, SF/UTP, and S/FTP) and unshielded twisted pair (U/UTP) cables.

ATTENTION:

- Do not connect these boards to a computer data or telecommunications network.
- Veuillez ne pas connecter ces cartes (appareils) (port) à un réseau de données informatiques ou à un réseau de télécommunications.

- Do not use Extron UTP23SF-4 Enhanced Skew-Free AV UTP cable or STP201 cable to link the XTP products.
- N'utilisez pas le câble AV Skew-Free UTP version améliorée UTP23SF d'Extron ou le câble STP201 pour relier les produits XTP.

- To ensure FCC Class A and CE compliance, STP cables and STP connectors are required.
- Afin de s'assurer de la compatibilité entre FCC Classe A et CE, les câbles STP et les connecteurs STP sont nécessaires.

Extron recommends using the following practices to achieve full transmission distances up to 330 feet (100 m) and reduce transmission errors.

- Use the following Extron XTP DTP 24 SF/UTP cables and connectors for the best performance:

• **XTP DTP 24/1000**	Non-Plenum 1000' (305 m) spool	22-236-03
• **XTP DTP 24P/1000**	Plenum 1000' (305 m) spool	22-235-03
• **XTP DTP 24 Plug**	Package of 10	101-005-02

- If not using XTP DTP 24 cables, at a minimum, Extron recommends 24 AWG, solid conductor, STP cable with a minimum bandwidth of 400 MHz.
- Terminate cables with shielded connectors to the TIA/EIA-T568B standard only (patch cables, see **figure 17** on the previous page).
- Limit the use of more than two pass-through points, which may include patch points, punch down connectors, couplers, and power injectors. If these pass-through points are required, use shielded couplers and punch down connectors.

NOTE: When using cable in bundles or conduits, consider the following:

- Do not exceed 40% fill capacity in conduits.
- Do not comb the cable for the first 20 m, where cables are straightened, aligned, and secured in tight bundles.
- Loosely place cables and limit the use of tie wraps or hook and loop fasteners.
- Separate twisted pair cables from AC power cables.

RS-232 and IR connectors

Figure 18 shows how to wire the RS-232 and IR connector.

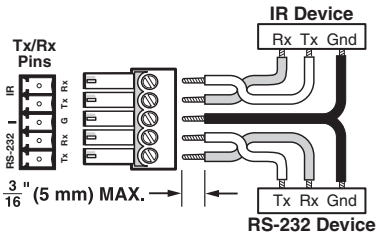


Figure 18. RS-232 and IR Connector Wiring

NOTES:

- The length of exposed wires is critical. The ideal length is 3/16 inch (5 mm).
  - If the stripped section of wire is longer than 3/16 inch, the exposed wires may touch, causing a short circuit.
  - If the stripped section of wire is shorter than 3/16 inch, wires can be easily pulled out even if tightly fastened by the captive screws.
- Do not tin the power supply leads before installing them in the connector. Tinned wires are not as secure in the connector and could be pulled out.

HDMI connectors

Figure 19 defines the pin arrangement for the HDMI connector.

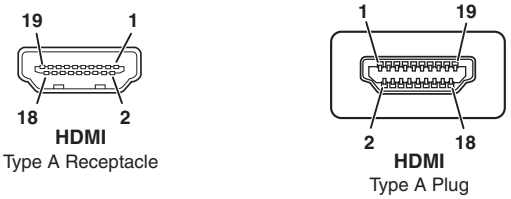


Figure 19. HDMI Connector

Use the LockIt Lacing Brackets, supplied with the input or output board, to securely fasten HDMI cables to devices as follows:

1. Plug the HDMI cable into the panel connection (see figure 18, ❶).

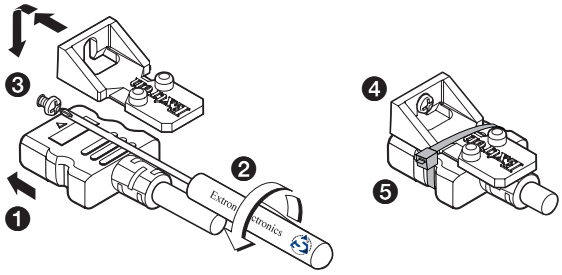


Figure 20. Installing the LockIt Lacing Bracket

2. Loosen the HDMI connection mounting screw from the panel enough to allow the LockIt lacing bracket to be placed over it (❷). The screw does not have to be removed.
3. Place the LockIt lacing bracket on the screw and against the HDMI connector, then tighten the screw to secure the bracket (❸).

ATTENTION:

- Do not overtighten the HDMI connector mounting screw. The shield it fastens to is very thin and can easily be stripped.
- Ne serrez pas trop la vis de montage du connecteur HDMI. Le blindage auquel elle est attachée est très fin et peut facilement être dénudé.

4. Loosely place the included tie wrap around the HDMI connector and the LockIt lacing bracket as shown (❹).
5. While holding the connector securely against the lacing bracket, use pliers or similar tools to tighten the tie wrap, then remove any excess length (❺).

DVI connectors

Figure 21 defines the pin arrangement for the DVI connector.

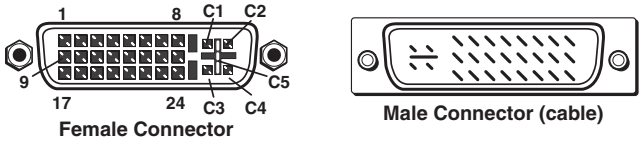


Figure 21. DVI Connectors

Analog video connectors

The 15-pin HD (VGA) universal analog input ports accept RGB (RGBHV, RGBs, RGsB), HDTV, component video (bi- or tri-level sync), S-video, or composite video signals, and support EDID emulation. Figure 22 shows the pinouts for each format type on the connector.

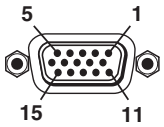


Figure 22. VGA Connectors

15-Pin HD Connector Pinout Table

Pin	RGBHV	RGBs	RGsB	Component	S-video	Composite
1	Red	Red	Red	R-Y		
2	Green	Green	Green/Sync	Y	Luma	Video
3	Blue	Blue	Blue	B-Y	Chroma	
4						
5						
6	Red return	Red return	Red return	R-Y return		
7	Green return	Green return	Green return	Y return	Luma return	Video return
8	Blue return	Blue return	Blue return	B-Y return	C return	
9						
10	Ground	Ground	Ground			
11						
12	EDID/DDC	EDID/DDC	EDID/DDC			
13	H sync	C sync				
14	V sync					
15	EDID/DDC return	EDID/DDC return				

Analog audio input connectors

Connectors are included with the matrix switcher, but you must supply the audio cable. See figure 23 to wire a connector for the appropriate input type. Use the supplied tie-wrap to strap the audio cable to the extended tail of the connector. High impedance is generally over 800 ohms.

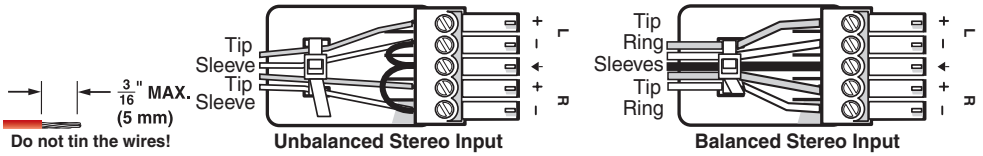


Figure 23. Captive Screw Connector Wiring for Audio Inputs

NOTE: The length of exposed wires is important. The ideal length is 3/16 inch (5 mm) (see the **NOTES** on page 22 for details).

A mono audio connector consists of a tip and sleeve. A stereo audio connector consists of a tip, ring and sleeve. See figure 24 to identify the tip, ring, and sleeve parts of the connector when you are making connections for the matrix switcher from existing audio cables. The ring, tip, and sleeve wires are also shown on the captive screw audio connector diagrams, figure 23, above, and **figure 25** on the next page.

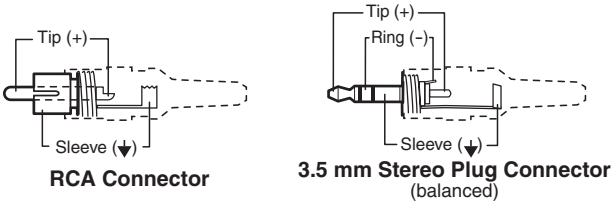


Figure 24. Typical Audio Connectors

The level for each analog audio input can be individually set via the front panel or remote control to ensure that the level on the output does not vary from input to input (see **Viewing and Adjusting the Input Audio Level** on page 48). You can also use an SIS command (see page 93), the XTP System Configuration software (see the XTP System Configuration help file, or the HTML pages (see **Changing the input gain and attenuation** on page 137).

Analog audio output connectors

Connect audio devices, such as an audio amplifier or powered speakers, to these 3.5 mm, 5-pole captive screw connectors. These connectors output the tied unamplified, line level audio. See figure 25 to wire an output connector. Use the supplied tie-wrap to strap the audio cable to the extended tail of the connector.

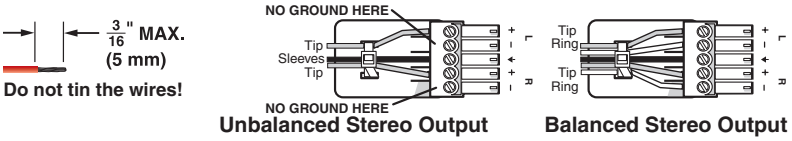


Figure 25. Captive Screw Connector Wiring for Audio Outputs

ATTENTION:

- For unbalanced audio, connect the sleeves to the ground contact. DO NOT connect the sleeves to the negative (-) contacts.
- Pour l'audio asymétrique, connectez les manchons au contact au sol. Ne PAS connecter les manchons aux contacts négatifs (–).
- The length of exposed wires is important. The ideal length is 3/16 inch (5 mm) (see the **NOTES** on page 22 for details).
- La longueur des câbles exposés est importante lorsque l'on entreprend de les dénuder. La longueur idéale est de 5 mm (3/16 inches) (voir les **NOTES** à la page 22 pour plus d'informations).

NOTE: The audio that is output on these connectors is converted from the tied embedded input signal or the analog audio input. This feature allows you to duplicate the outputs while eliminating the need for extra receivers.

The volume level for each analog output can be individually set via the front panel or remote control (see **Viewing and Adjusting the Analog Output Volume** on page 54). You can also use an **SIS command** (see page 104), the XTP System Configuration software (see the *XTP System Configuration Software Help File*, available at **www.extron.com**), or the HTML pages (see **Changing the output volume level** on page 138).

By default, the audio ties follow the video ties. Audio breakaway, which can be activated via the front panel or under remote control, allows you to select from any one of the audio input sources and route it separately from its corresponding video source (see **Example 3: Remove a tie from a set of ties** on page 40). You can also use an **SIS command** (see page 87), the XTP System Configuration software (see the XTP System Configuration Software help file, available at **www.extron.com**), or the HTML pages (see **Set and View Ties Page** on page 135).

Remote Control Ports

C **Remote RS-232/RS-422 port** (see **figure 2** on page 12 and **figure 3** on page 13) — Connect a host device, such as a computer or touchpanel control, to the matrix switcher via this 9-pin D connector for serial RS-232 or RS-422 control (see figure 26).

Remote RS-232 and RS-422 Pinout Table		
Pin	**RS-232**	**RS-232**
1		
2	Tx	Tx-
3	Rx	Rx-
4		
5	Gnd	Gnd
6		
7		Rx+
8		Tx+
9		

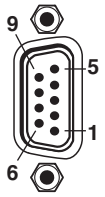


Figure 26. Remote RS-232/RS-422 Port

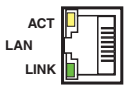
See **Programming Guide** on page 76, for definitions of the SIS commands (serial commands to control the matrix switcher and connected endpoints via this connector).

NOTE: The matrix switcher can support either the RS-232 or RS-422 serial communication protocol, and can operate at 9600, 19200, 38400, or 115200 baud rates.

See **Selecting the Rear Panel Remote Port Protocol and Baud Rate** on page 61 to configure the RS-232/RS-422 port from the front panel.

If desired, connect an MKP 2000 or MKP 3000 remote control panel to the rear panel Remote port on the matrix switcher. See to the *MKP 2000 Remote Control Panel User Guide* or the *MKP 3000 User Guide* for details.

Ethernet Connection



D **LAN port** (see **figure 2** and **figure 3**) — If desired, for IP control of the system, connect the matrix switcher to a PC or to an Ethernet LAN via this RJ-45 connector. You can use a PC to control the networked matrix switcher with SIS commands from anywhere in the world. You can also control the matrix switcher from a PC that is running the Extron XTP Configuration Software or has downloaded HTML pages from the matrix switcher (see **TP connectors** on page 19 to wire the connector).

Act LED indicator — Indicates transmission of data packets on the RJ-45 connector. This LED should blink quickly as the matrix switcher communicates.

Link LED indicator — Indicates that the matrix switcher is properly connected to an Ethernet LAN. This LED should light steadily.

Reset Button and LED

E **Reset button** (see **figure 2** on page 12 and **figure 3** on page 13) — The **Reset** button initiates four levels of matrix switcher reset. For resets, press and hold the button while the matrix switcher is running or while you power up the matrix switcher (see **Rear Panel Operations** on page 62 for details).

Power

F **AC power connector** —

> **NOTE:** See **figure 2** on page 12 and **figure 3** on page 13.

Plug a standard IEC power cord into this connector to connect the matrix switcher to a 100 VAC to 240 VAC, 50-60 Hz power source.

Front Panel Configuration Port and Power LEDs

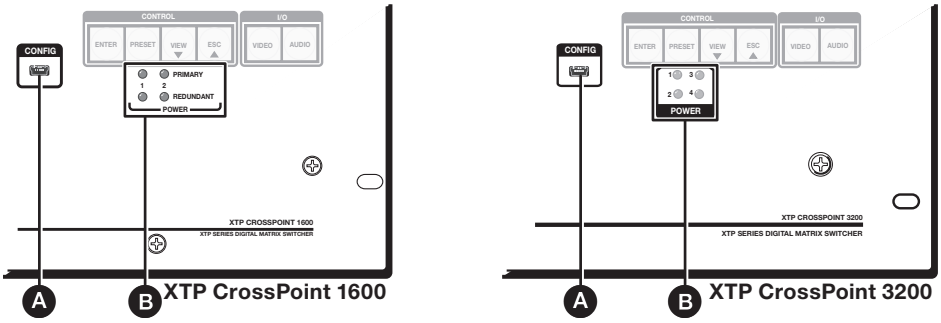


Figure 27. Front Panel Configuration (Config) Port and Power LEDs

A **Configuration port** — This USB mini-B port serves a similar communications function as the rear panel Remote port, but it is easier to access than the rear port after the matrix switcher has been installed and cabled.

> **NOTE:** A front panel Configuration port connection and a rear panel Remote port connection can both be active at the same time. If commands are sent to both simultaneously, the command that reaches the processor first is handled first.

Ⓑ **Power LEDs** —

NOTES:

- The XTP CrossPoint 3200 has four power supplies installed. These power supplies are indicated by the following LEDs:
  - **LEDs 1 and 2** — Indicate the status of the two primary 12 V supplies.
  - **LED 3** — Indicates the status of the redundant 12 V supply.
  - **LED 4** — Indicates the status of the 48 V power supply, which provides PoX.
- The XTP CrossPoint 1600 has two power supplies, which provide 12 V and 48 V in its standard configuration, with two optional, redundant second power supplies available. These power supplies are indicated by the following LEDs:
  - **Primary LED 1** — Indicates the status from the standard primary 12 V supply.
  - **Redundant LED 1** — Indicates the status of 12 V from the optional redundant supply.
  - **Primary LED 2** — Indicates the status from the standard primary 48 V supply, which provides PoX.
  - **Redundant LED 2** — Indicates the status of 48 V from the optional redundant supply.

Green — Indicates that the associated power supply is operating within normal tolerances.

Red — Indicates that the associated power supply is operating outside the normal tolerances or has failed.

Operation

This section describes the front panel operation of the XTP CrossPoint Matrix Switcher, including:

- **Front Panel Controls and Indicators**
- **Front Panel Operations**
- **Rear Panel Operations**
- **Optimizing the Analog Audio**
- **RS-232 Insertion**
- **Troubleshooting**
- **Configuration Worksheets**

Front Panel Controls and Indicators

The front panel controls (see figure 28 and **figure 29** on the next page) are grouped into two sets. The input and output buttons, Ⓐ and Ⓑ, are grouped on the left side of the control panel. The control buttons and video/audio (I/O) selection buttons, Ⓒ through Ⓗ, are grouped on the right side of the panel.

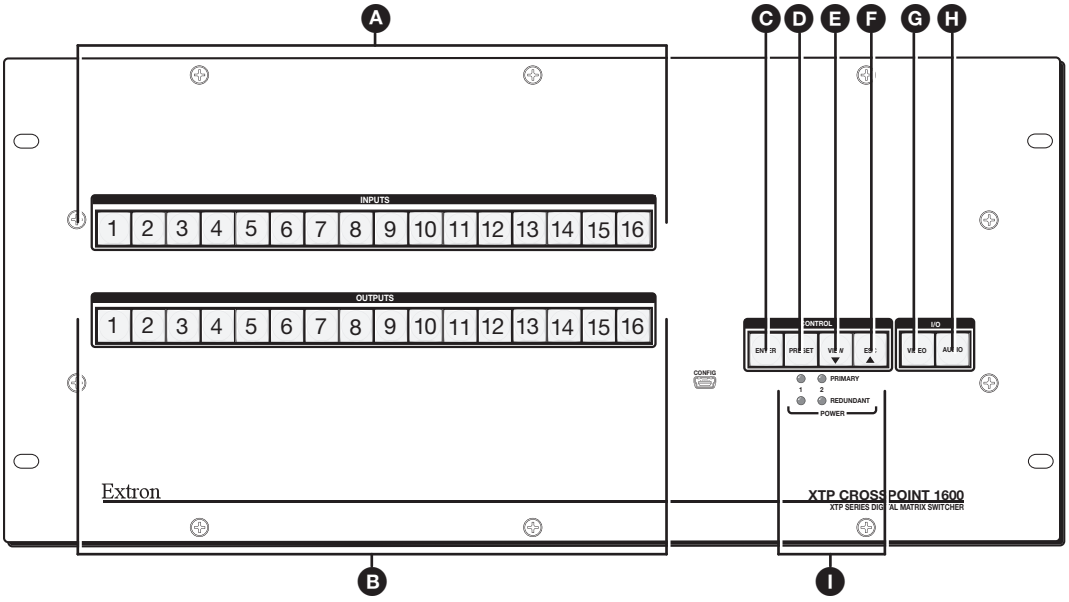


Figure 28. Front Panel, XTP CrossPoint 1600 Matrix Switcher

Ⓐ **Input buttons** (see page 31)
Ⓑ **Output buttons** (see page 31)
Ⓒ **Enter button** (see page 32)
Ⓓ **Preset button** (see page 32)
Ⓔ **View button** (see page 33)
Ⓕ **Esc button** (see page 33)
Ⓖ **Video button** (see page 34)
Ⓗ **Audio button** (see page 34)
Ⓘ **Power LEDs** (see page 34)

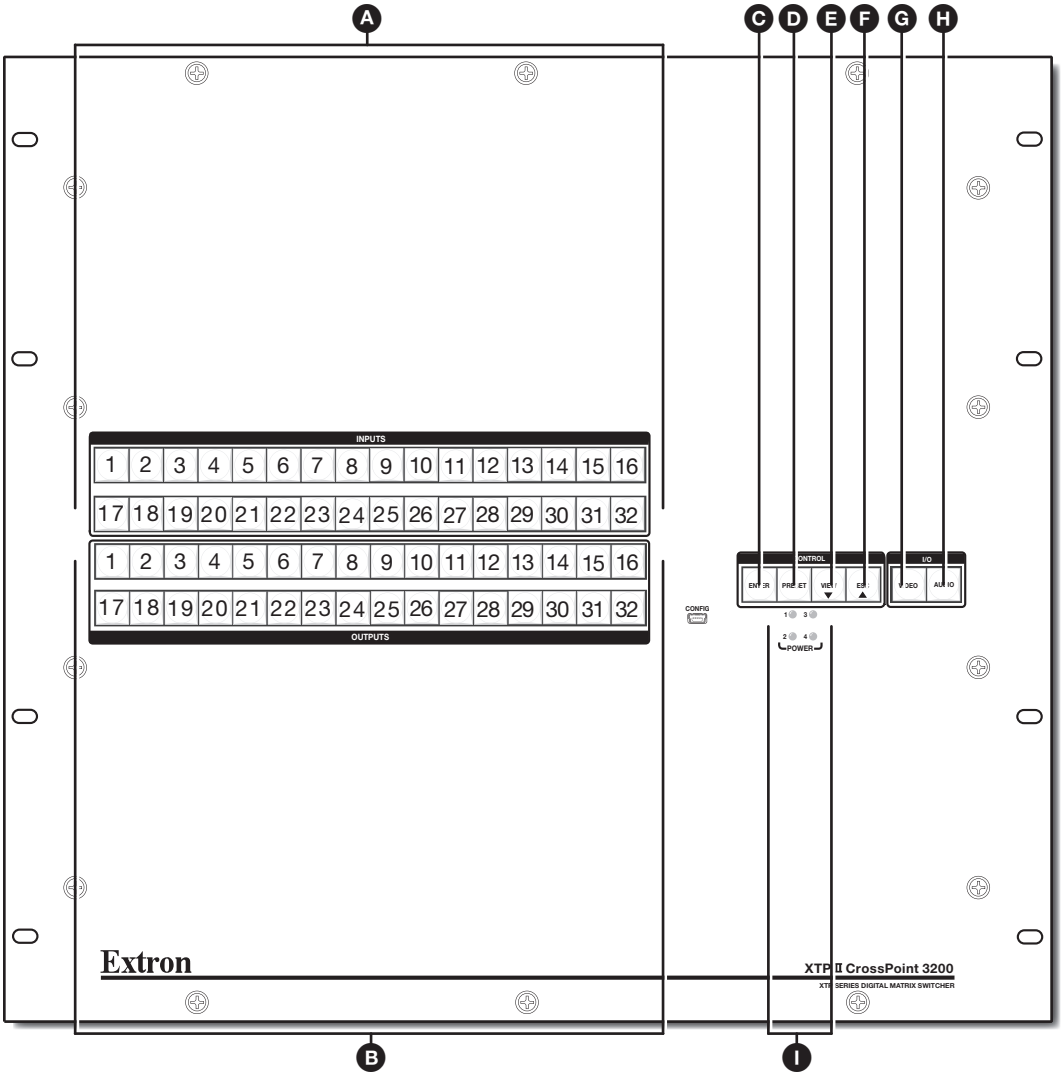


Figure 29. Front Panel, XTP CrossPoint 3200

- **A** **Input buttons** (see page 31)
- **B** **Output buttons** (see page 31)
- **C** **Enter button** (see page 32)
- **D** **Preset button** (see page 32)
- **E** **View button** (see page 33)
- **F** **Esc button** (see page 33)
- **G** **Video button** (see page 34)
- **H** **Audio button** (see page 34)
- **I** **Power LEDs** (see page 34)

The illuminated buttons can be labeled with text, graphics, or both. The buttons can be set to provide amber background illumination all the time, or the background illumination can be turned off (see **Background Illumination** on page 61). The buttons blink or are lit at full intensity (depending on the operation) when selected.

Input and Output Buttons

NOTES:

- Input and output buttons cannot select an input or output number that is higher than your matrix size or if the board that supports it is not installed. Unselectable buttons do have other functions as described in the following pages.
- See **Front Panel Operations**, beginning on page 35, for detailed descriptions of the following operations.

Primary functions		
	Action	Select input or output for tie being created.
	Indication	**Color: LED appearance:** *Amber*: video and audio tie *Green*: video only tie *Red*: audio only tie *Blink*: potential tie/untie. *Lit*: current tie
		1 2 3 through 16 or 32
Secondary functions		
Presets	Action	Select a preset in Preset mode.
	Indication	*Lit*: A preset has already been saved to this location. *Blink*: Preset location is selected to be saved.
Input audio level	Action	***Input buttons***: Select the input for audio gain or attenuation adjustment.
	Indication	***Input buttons*** *lit*: Input audio selected for adjustment.
	Indication	***Output buttons*** *lit* or *blinking*: Indicate the input gain or attenuation level.
Output audio volume	Action	***Output buttons***: Select the output for audio volume adjustment.
	Indication	***Output buttons*** *lit*: Output audio is selected for adjustment.
	Indication	***Input buttons*** *lit* or *blinking*: Indicated the output volume level.
Output mutes	Action	***Output buttons***: Press and hold to mute or unmute the output.
	Indication	***Output buttons*** *blinking*: Output is muted.
Background illumination	Action	**`Input 1`** ***and*** **`Input 2`** ***buttons***: Toggle between background illumination or buttons unlit.

Ⓐ **Input buttons** (see **figure 28** on page 29 or **figure 29** on page 30) — The input buttons have one primary (☐) and three secondary functions (•):

- ☐ Select and identify an input for creating ties or for audio level adjustment.
- • Select a preset.
- • Display the output volume level.
- • (Input 1 and Input 2 only) Toggle background illumination of the buttons on and off.

Ⓑ **Output buttons** (see **figure 28** or **figure 29**) — The output buttons have one primary (☐) and three secondary functions (•):

- ☐ Select and identify an output for ties or for volume adjustment.
- • Select a preset.
- • Mute the output.
- • Display the audio level of the selected input.

Control Buttons

NOTE: See **Front Panel Operations**, beginning on page 35, for detailed descriptions of the following operations.

Primary functions					
	Action	Save changes	Select Preset mode	Select View mode	Cancel or Escape
	Indication	*Blink*: Save needed	*Blink*: Save preset *Lit*: Recall preset	View mode selected	Blinks once
		ENTER	PRESET	VIEW ▼	ESC ▲
Secondary functions					
Port configuration	Action 1	Select Configuration mode.			
	Action 2	Select 9600 baud	Select 19200 baud	Select 38400 baud	Select 115200 baud
	Indication	*Blink*: 9600 baud	*Blink*: 19200 baud	*Blink*: 38400 baud	*Blink*: 115200 baud
Front panel locks	Action 1			Select Lock mode 1 or toggle between mode 2 and mode 1.	
	Action 2		Select Lock mode 2 or toggle between mode 0 and mode 2.		
Audio	Action			In Audio mode, decrease **input level** or **output volume**.	In Audio mode, increase **input level** or **output volume**.

Ⓒ **Enter button** (see **figure 28** on page 29 or **figure 29** on page 30) — **`Enter`** has two primary (☐) and two secondary functions (•):

- ☐ Saves configuration or preset changes that you make on the front panel. To create a simple configuration:
  - Specify video, audio, or both (see I/O buttons [Ⓖ] and [Ⓗ]).
  - Press the desired input button (Ⓐ).
  - Press the desired output button or buttons (Ⓑ).
  - Press the Enter button.
- ☐ Indicates that a potential tie has been created but not saved.
- With the **`Preset`**, **`View`**, and **`Esc`** buttons, selects Serial Port Configuration mode.
- Selects 9600 baud for the rear panel Remote port in Serial Port Configuration mode and indicates the selection.

Ⓓ **Preset button** (see **figure 28** or **figure 29**) — Preset has two primary (☐) and three secondary functions (•):

- ☐ Activates Save Preset mode to save a configuration as a preset and Recall Preset mode to activate a previously-defined preset.
- ☐ Blinks when Save Preset mode is active and lights steadily when Recall Preset mode is active.
- With the **`Enter`**, **`View`**, and **`Esc`** buttons, selects Serial Port Configuration mode.
- Selects 19200 baud for the rear panel Remote port in Serial Port Configuration mode and indicates the selection.
- With the **`View`** and **`Esc`** buttons, selects front panel security Lock mode 2 or toggles between mode 0 (unlocked) and mode 2.

Ⓔ **View (▼) button** (see **figure 28** on page 29 or **figure 29** on page 30) — The **View** (▼) button has one primary function (☐) and six secondary functions (•):

☐ Select and indicate View-only mode, which displays the current configuration.

> **NOTE:** View-only mode also provides a way to mute and unmute the outputs.

- Decreases the audio level of the selected analog input.
- Decreases the volume of the selected analog output.
- With the **Enter**, **Preset**, and **Esc** buttons, selects Serial Port Configuration mode.
- Selects 38400 baud for the rear panel Remote port in Serial Port Configuration mode, and indicates the selection.
- With the **Preset** button and **Esc** button, selects between front panel locks (Lock mode 2 and Lock mode 0).
- With the **Esc** button, selects between front panel locks (Lock mode 2 and Lock mode 1).

Ⓕ **Esc (▲) button** (see **figure 28** or **figure 29**) — The **Esc** (▲) button has two primary functions (☐) and six secondary functions (•):

☐ Cancels operations or selections in progress and resets the front panel button indicators.

☐ Blinks once to indicate that the escape function has been activated.

- Increases the audio level of the selected analog input.
- Increases the volume of the selected analog output.
- With the **Enter**, **Preset**, and **View** buttons, selects Serial Port Configuration mode.
- Selects 115200 baud for the rear panel Remote port in Serial Port Configuration mode and indicates the selection.
- With the **Preset** button and **View** button, selects between front panel locks (Lock mode 2 and Lock mode 0).
- With the **View** button, selects between front panel locks (Lock mode 2 and Lock mode 1).

I/O Controls

NOTE: See **Front Panel Operations**, beginning on page 35, for detailed descriptions of the following operations.

Primary functions			
	Action	Select video	Select audio
	Indication	*Green*: selected	*Red*: selected
		VIDEO	AUDIO
Secondary functions			
Resets	Action 1:	Perform a system reset.	
Port Configuration	Action	Select RS-232.	Select RS-422
	Indication	*Blink*: selected	*Blink*: selected
Audio	Action		Select Audio mode.

G **Video button** (see **figure 28** on page 29 or **figure 29** on page 30) — Video has one primary (☐) and two secondary functions (•):

- ☐ Selects and deselects video for a configuration that is being created or viewed and lights green to indicate that video is available for configuring or for viewing.
- • With the **Audio** button, commands the front panel system reset.
- • Selects the RS-232 protocol for the rear panel Remote port in Serial Port Configuration mode and indicates the selection.

H **Audio button** (see **figure 28** or **figure 29**) — Audio has one primary (☐) and three secondary functions (•):

- ☐ Selects and deselects audio for a configuration that is being created or viewed and lights to indicate that audio is available for configuration or viewing.
- • Selects the Audio mode, in which you can adjust the analog input audio level and the analog output audio volume.
- • With the **Video** button, commands the front panel system reset.
- • Selects the RS-422 protocol for the rear panel Remote port in Serial Port Configuration mode and indicates the selection.

Power LEDs

I **Primary and Redundant Power Supply LEDs** —

NOTE: See **Power LEDs** on page 28 to identify the power supplies indicated by the LEDs.

Green — Indicates that the associated power supply is operating within normal tolerances.

Red — Indicates that the associated power supply is operating outside the normal tolerances or has failed.

Button Icons

The numbered translucent covers on the input and output buttons can be removed and replaced to insert labels behind the covers.

Input and output labels can be created easily with the Extron Button-Label Generator software, which is shipped with every Extron matrix switcher. Each input and output can be labeled with names, alphanumeric characters, or color bitmaps for easy and intuitive input and output selection (see figure 30). See the **Removing and Installing Button Labels** on page 146 for details on using the labeling software, blank labels you can fill in yourself, and a procedure for removing and replacing the translucent covers.

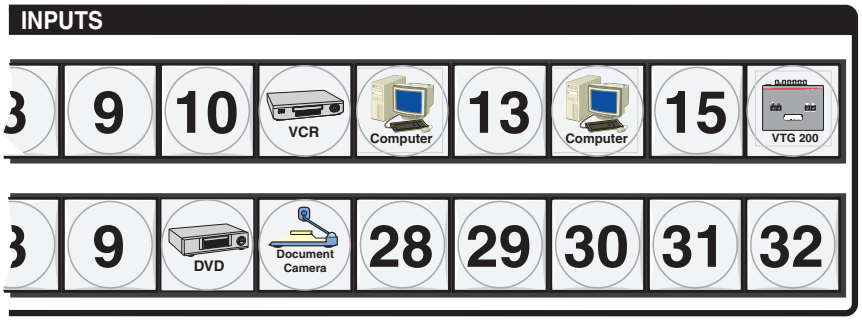


Figure 30. Sample Button Icons

Front Panel Operations

See **figure 28** on page 29 or **figure 29** on page 30 for front panel views.

The following sections detail the power-up process and then provide sample procedures for the following actions:

- **Creating ties, sets of ties, and configurations** (see page 38)
- **Changing a configuration** (see page 39)
- **Viewing ties, sets of ties, and configurations** (see page 41)
- **Saving a preset** (see page 44)
- **Recalling a preset** (see page 45)
- **Muting and unmuting outputs** (see page 46)
- **Viewing and adjusting the analog input audio level** (see page 48)
- **Viewing and adjusting the analog output volume** (see page 54)
- **Locking and unlocking the front panel** (see page 59)
- **Performing front panel resets** (see page 60)
- **Toggling background illumination on and off** (see page 61)
- **Reading and setting the Remote port settings** (see page 61)

Definitions

The following Extron matrix switcher terms are used throughout this guide:

Tie — An input-to-output connection

Set of ties — An input tied to two or more outputs.

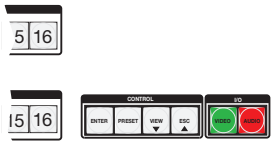
NOTE: An output can never be tied to more than one input.

Configuration — One or more ties or one or more sets of ties

Current configuration — The configuration that is currently active in the matrix switcher (also called configuration 0)

Global memory preset — A configuration that has been stored. Up to 32 global memory presets can be stored in memory. Preset locations are assigned to the input buttons and (where necessary) output buttons. When a preset is retrieved from memory, it becomes the current configuration.

Power



Apply power by connecting the IEC power cord between the matrix switcher and an AC source. The matrix switcher performs a self-test that blinks the front panel button indicators red, green, and amber and then turns them off. An error-free power-up self-test sequence leaves all input, output, and control buttons either unlit or showing background illumination and the **Video** button and the **Audio** button lit.

The current configuration and all presets are saved in non-volatile memory. When power is applied, the most recent configuration is retrieved. The previous presets remain intact.

If an error occurs during the self-test, the matrix switcher locks up and does not operate. If your matrix switcher locks up on power-up, call the Extron S3 Sales and Technical Support Hotline. See **www.extron.com** for the phone number in your region of the world.

Front Panel Security Lockouts

In the procedural descriptions that follow, it is assumed that the matrix switcher is in Lock mode 0 (fully unlocked). The following two Lock modes are also available:

- **Lock mode 1** — All changes are locked from the front panel (except for setting Lock mode 2). Some functions can be viewed.
- **Lock mode 2** — Advanced features are locked and can be viewed only. Basic functions are unlocked.

NOTE: The matrix switcher is shipped from the factory in Lock mode 2. See **Setting the Front Panel Locks (Executive Modes)** on page 59 for a detailed list of basic and advanced functions and the procedure to set the various front panel locks.

Creating a Configuration

The current configuration can be changed using the front panel buttons. Change the current configuration as follows:

1. Press the **Esc** button to clear any input button indicators, output button indicators, or control button indicators that may be lit.
2. Press the **Video** button and **Audio** button as necessary to select video, audio, or both for configuration.
3. Press the input and output buttons to select the desired input and one or more outputs.
   - Input buttons and output buttons light or blink:
     - **Amber** to indicate video and audio ties
     - **Green** to indicate video only ties
     - **Red** to indicate audio only ties
   - To indicate potential ties, output buttons blink the appropriate color when an input is selected.
   - To indicate current ties, output buttons light steadily the appropriate color when an input is selected.
   - To clear unwanted outputs, press and release the associated lit output buttons. To indicate potential unties, output buttons blink the appropriate color when an output is deselected but not untied from the input.
4. Press and release the **Enter** button to accept the tie or to break an existing tie.
5. Repeat steps 1 through 4 to create or clear additional ties until the desired configuration is complete.

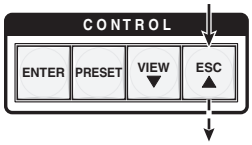
NOTES:

- Only one video input and one audio input can be tied to an output.
- If a tie is made between an input and an output, and the selected output was previously tied to another input, the older tie is broken in favor of the newer tie.
- If an input with no tie is selected, only the button for the selected input lights.
- When the **Video** button and the **Audio** button are lit, if an input with an audio tie but no video tie is selected, the button for the input and the button for the output light the appropriate color (amber, green, or red).
- As each input and output is selected, the associated output button blinks the appropriate color to indicate a tentative tie. Buttons for outputs that were already tied to the input light the appropriate color steadily. Outputs that are already tied can be left on, along with new blinking selections, or toggled off by pressing the associated output button.

Example 1: Create a set of video and audio ties

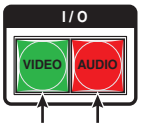
1. **Clear all selections**: Press and release **Esc**.

Press the **Esc** button to clear all selections.



The button flashes once.

2. **Select video and audio for the tie**: If necessary, press and release **Video** and **Audio** to light both.

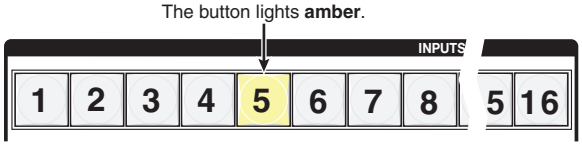


Press the **Video** button to toggle on and off. The button lights **green** when selected.

Press the **Audio** button to toggle on and off. The button lights **red** when selected.

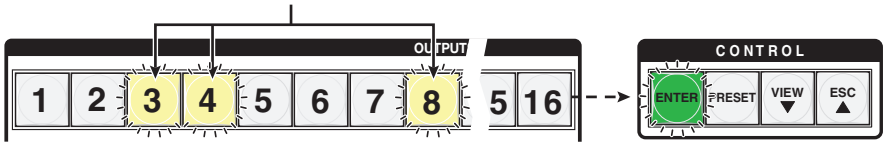
3. **Select an input**: Press and release **Input 5**.

Press the button.
The button lights **amber**.



4. **Select the outputs**: Press and release **Output 3**, **Output 4**, and **Output 8**.

Press the buttons.
The buttons blink **amber** to indicate that the selected **video** and **audio** inputs will be tied to these outputs.

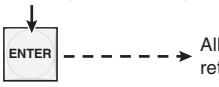


The **Enter** button blinks **green** to indicate the need to confirm the change.

NOTE: You can cancel the entire set of ties at this point by pressing and releasing the **Esc** button. The **Esc** button blinks once.

5. **Confirm the change**: Press and release **Enter**.

Press the **Enter** button to confirm the configuration change.



All **input buttons** and **output buttons** return to unlit or background illumination.

The **Enter** button returns to unlit or background illumination.

The current configuration (see figure 31) is now input 5 video and audio are tied to output 3, output 4, and output 8.

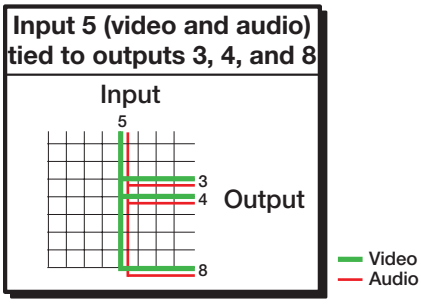


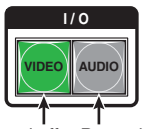
Figure 31. Final Configuration, Example 1

Example 2: Add a video tie to a set of video and audio ties

In the following example, a new video tie is added to the current configuration. The example shows the front panel indications that result from your actions.

NOTE: This example assumes that you have performed **example 1** on page 38.

1. **Clear all selections**: Press and release **Esc**.
2. **Select video only for the tie**: Press and release **Video** and **Audio** as necessary to light Video only.



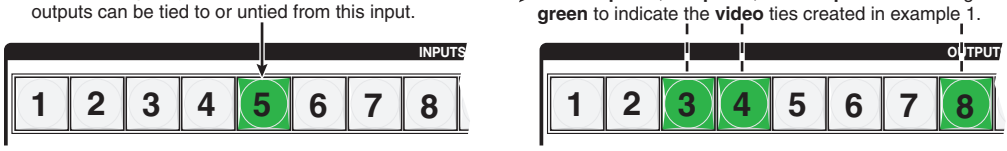
Press the **Video** button to toggle on and off. The button lights **green** when selected.

Press the **Audio** button to toggle on and off. The button is **unlit** or **background illuminated** when deselected

3. **Select an input**: Press and release **Input 5**.

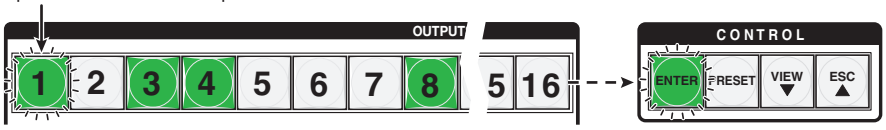
Press the button.
The button lights **green** to indicate that **video** outputs can be tied to or untied from this input.

The **Output 3**, **Output 4**, and **Output 8** buttons light **green** to indicate the **video** ties created in example 1.



4. **Select the output**: Press and release **Output 1**.

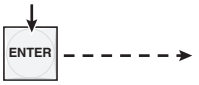
Press the button.
The button blinks **green** to indicate that only the selected **video** input will be tied to this output.



The **Enter** button blinks **green** to indicate the need to confirm the change.

5. **Confirm the change**: Press and release **Enter**.

Press the **Enter** button to confirm the configuration change.



All **input buttons** and **output buttons** return to unlit or background illumination.

The **Enter** button returns to unlit or background illumination.

The current configuration (see figure 32) is now:

- **Video** — Input 5 video is tied to output 1, output 3, output 4, and output 8.
- **Audio** — Input 5 audio is tied to output 3, output 4, and output 8.

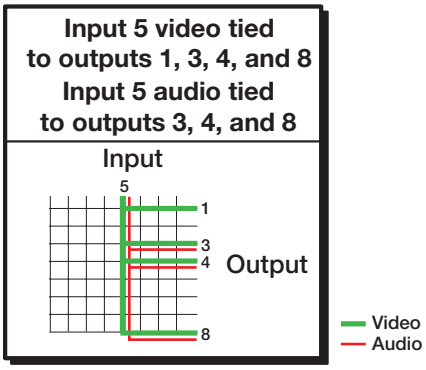


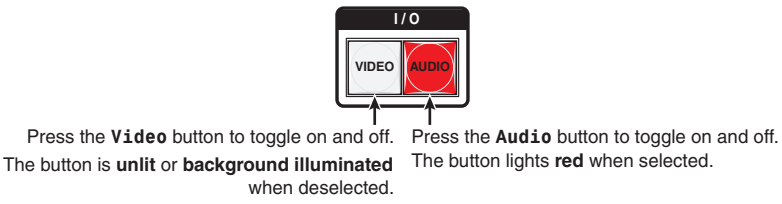
Figure 32. Final Configuration, Example 2

Example 3: Remove a tie from a set of ties

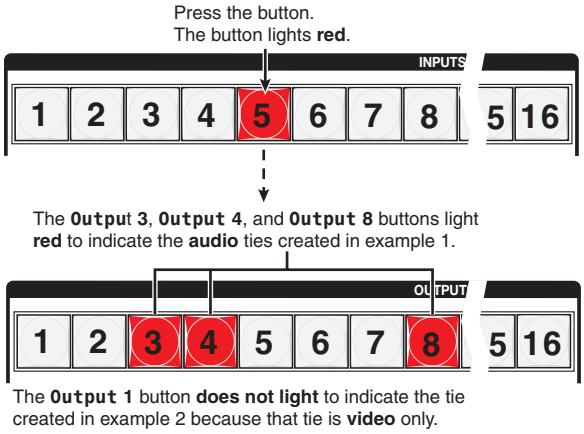
In the following example, an existing tie is removed from the current configuration. The example shows the front panel indications that result from your actions.

NOTE: This example assumes that you have performed **example 1** on page 38 and **example 2** on page 39.

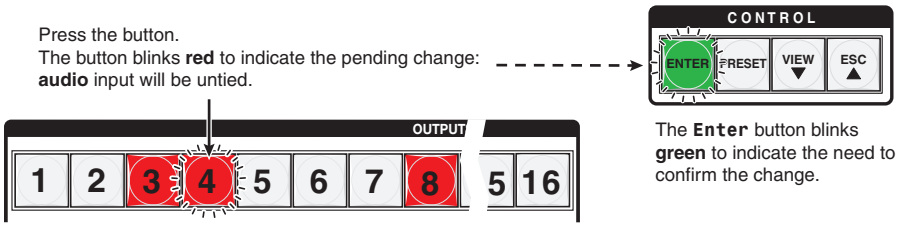
1. **Clear all selections**: Press and release **Esc**.
2. **Select audio only for the tie**: Press and release **Video** and **Audio** as necessary to light Audio only.



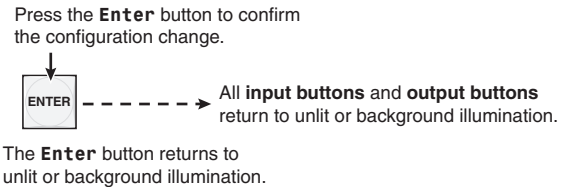
3. **Select an input**: Press and release **Input 5**.



4. **Select the output**: Press and release **Output 4**.



5. **Confirm the change**: Press and release **Enter**.



The current configuration (see figure 33) is now:

- **Video** — Input 5 video is tied to output 1, output 3, output 4, and output 8.
- **Audio** — Input 5 audio is tied to output 3 and output 8.

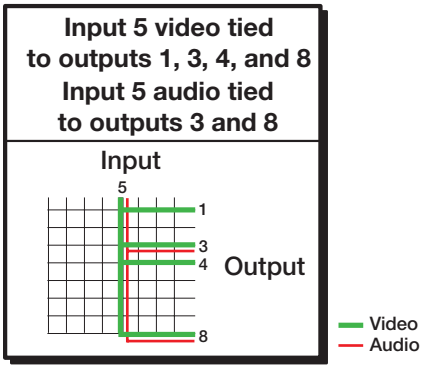


Figure 33. Final Configuration, Example 3

Viewing the Configuration

The current configuration can be viewed using the front panel buttons. The View-only mode prevents inadvertent changes to the current configuration. View-only mode also provides a way to mute audio outputs (see **Muting and Unmuting Audio Outputs** on page 46).

View the current configuration as follows:

1. Press the **Esc** button to clear any input button indications, output button indications, or control button indications that may be on.
2. Press and release the **View** button. All of the buttons light for outputs that are not tied as follows:
   - **Amber**: No tied video or audio input
   - **Green**: No tied video input
   - **Red**: No tied audio input

   If you press an output button for which there are no ties, the output buttons light for all outputs without ties.
3. Select video, audio, or both to view by pressing the **Video** button, **Audio** button, or both.

4. Select the desired input or outputs whose ties you wish to view by pressing the input and output buttons.

NOTES:

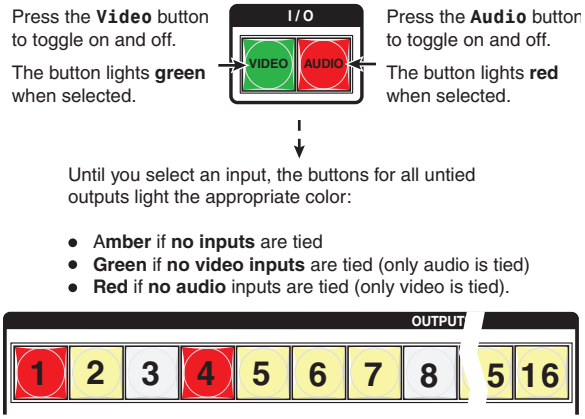
- To see all ties of the current configuration, press and release each input and output button, one at a time, with the **Video** button and the **Audio** button lit.
- When you view video and audio ties, the **Video** button is lit green and the **Audio** button is lit red. After you select an input or output, the output buttons light different colors to show where video and audio ties are not the same (audio is broken away). Amber indicates video and audio, green indicates video only, and red indicates audio only.
- After 30 seconds of front panel inactivity, View-only mode automatically deselects.

Example 4: Viewing video and audio, audio only, and video only ties

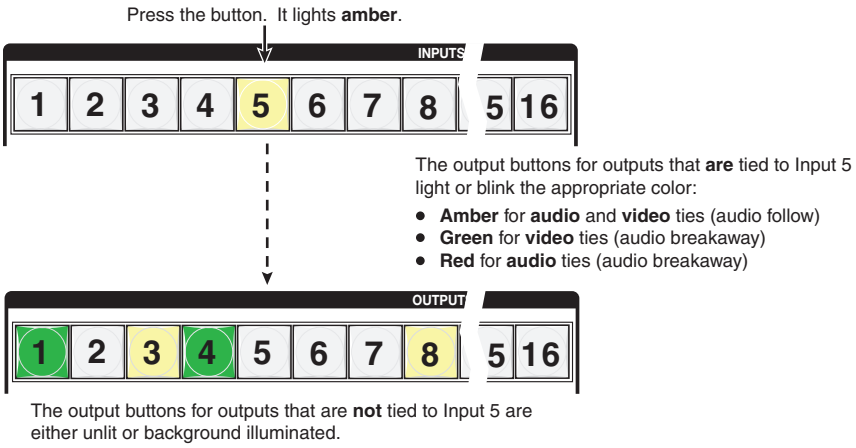
In the following example, we view the video and audio, audio only, and video-only ties in the current configuration. The steps show the front panel indications that result from your action.

NOTE: This example assumes that you have performed **example 1** on page 38, **example 2** on page 39, and **example 3** on page 40.

1. **Clear all selections**: Press and release **Esc**.
2. **Select View-only mode**: Press and release **View**. **View** lights red.
3. **Select video and audio for viewing**: Press and release **Video** and **Audio** as necessary to light both.



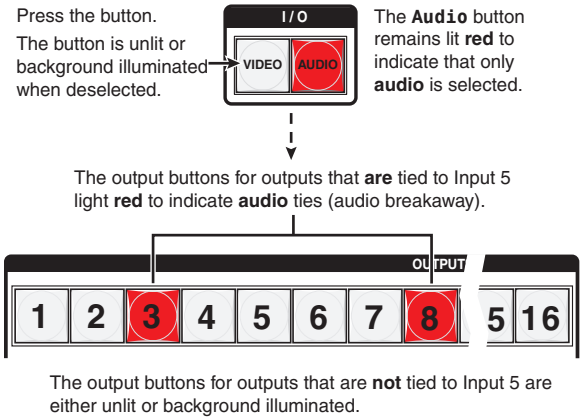
4. Select an input: Press and release Input 5.



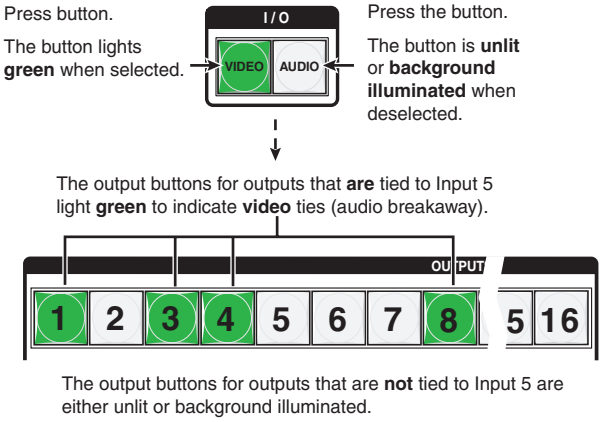
NOTE: You can also view a set of ties by selecting a tied output. Demonstrate this as follows:

- Note the number of a lit output button, and then press and release the output button for an untied (unlit or background illumination) output.
- Observe that all of the untied outputs light.
- Then press the output button that you noted previously.
- Observe that the selected output button, the tied input button (input 5), and the output buttons light for all of the outputs that are tied to the input.

5. **Deselect video**: Press and release **`Video`**.

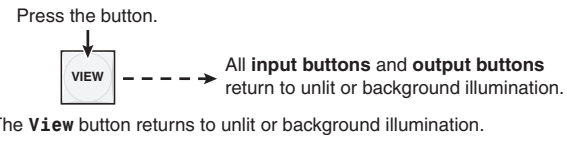


6. **Toggle audio off and video on**: Press and release **`Video`** and **`Audio`**.



If video ties are established for input 5, the output buttons light green for all video outputs tied to input 5. If no ties are established for input 5, all output buttons return to either unlit or to background illumination.

7. **Exit View-only mode**: Press and release **`View`**.



Using Presets

The current configuration (configuration Ø) can be saved as a preset in any one of 32 preset memory locations. All 32 presets are assigned to the input buttons and (where necessary) output buttons and are available to be either saved or retrieved from the front panel. When a preset is recalled from memory, it becomes the **current configuration**.

NOTES:

- Only the audio and video ties are stored and recalled; audio gain settings are not saved, and they do not change when a preset is recalled.
- Presets **cannot** be viewed from the front panel unless they are recalled as the current configuration.
- The current configuration and all presets are stored in non-volatile memory. When power is removed and restored, the current configuration is still active and all presets are retained.
- When a preset is recalled, it replaces the current configuration, which is lost unless it is also stored as a preset. The recalled preset overwrites all of the current configuration ties in favor of the preset configuration ties.
- All models have 32 presets; on the XTP CrossPoint 1600, preset numbers 17 through 32 are available using the output buttons. Figure 34 shows the presets associated with the input and output buttons on the XTP CrossPoint 1600.

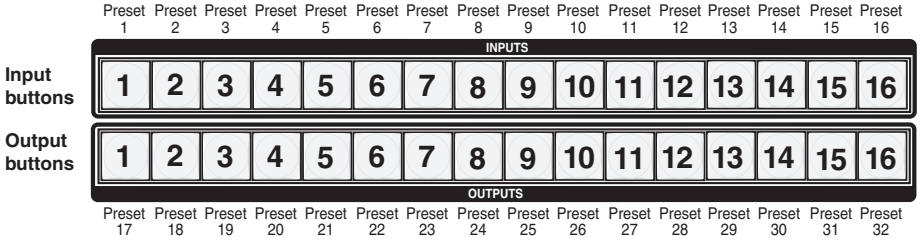
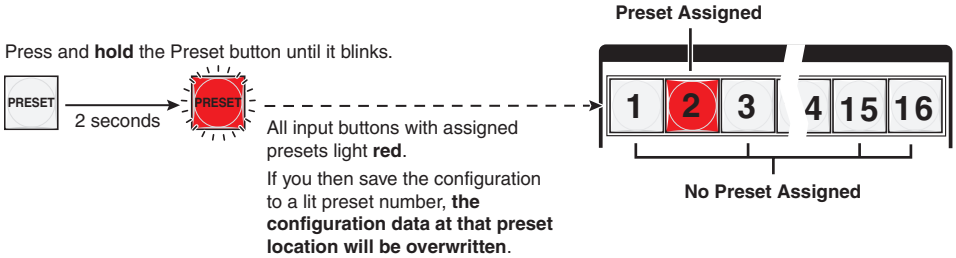


Figure 34. XTP CrossPoint 1600 Preset Locations

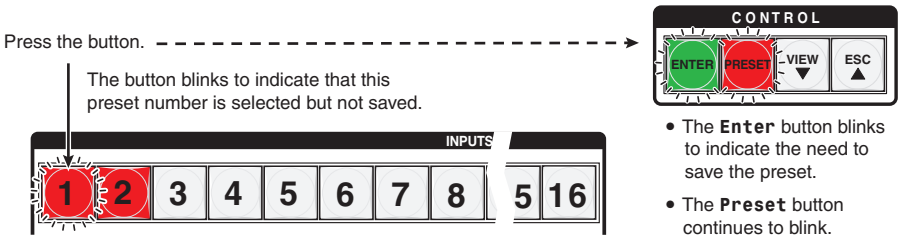
Example 5: Saving a preset

In the following example, the current configuration is saved as a preset. The example shows the front panel indications that result from your actions.

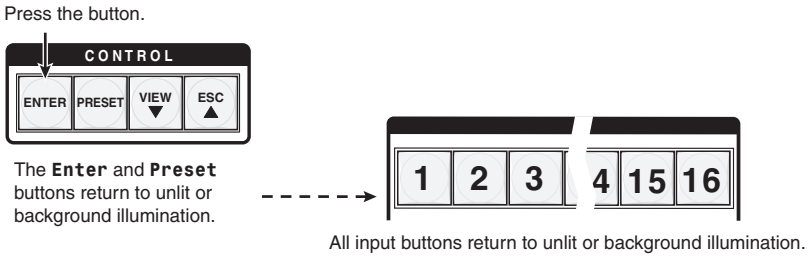
1. **Clear all selections**: Press and release **Esc**.
2. **Select Save Preset mode**: Press and hold **Preset** for approximately 2 seconds until it blinks.



3. **Select the preset**: Press and release the input or output button for the desired preset.



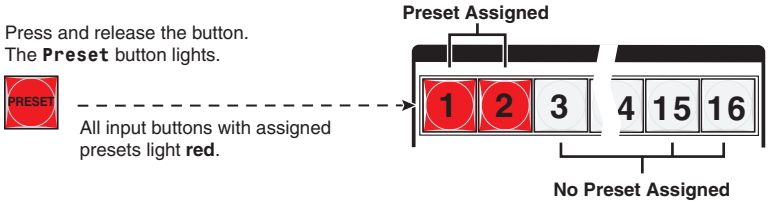
4. **Save the Preset**: Press and release **Enter** to save the preset. The current configuration is now stored in the selected memory location.



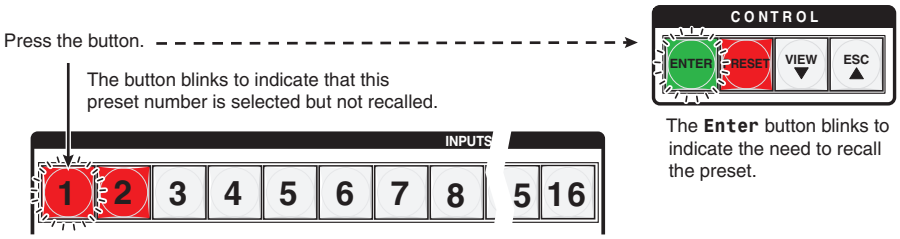
Example 6: Recalling a preset

In the following example, a preset is recalled to become the current configuration. The steps show the front panel indications that result from your action.

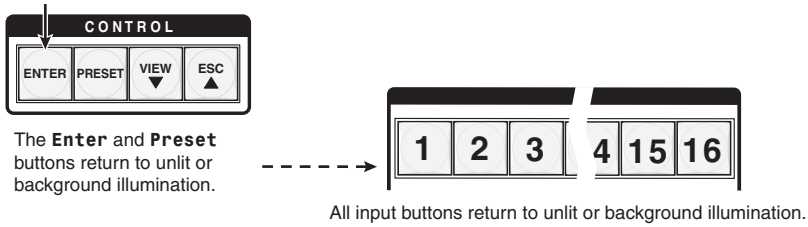
1. **Clear all selections**: Press and release **Esc**.
2. **Select Recall Preset mode**: Press and release **Preset**.



3. **Select the preset**: Press and release the input button or output button for the desired preset.



4. **Recall the preset**: Press and release **Enter**. The configuration stored in the selected memory location is now the current configuration and can be viewed in the View-only mode (see **example 4** on page 42).



Muting and Unmuting Video and Audio Outputs

Individual outputs can be muted or unmuted as follows:

NOTE: Output mutes are protected when front panel Lock mode 2 is selected. You can view the status of the output (muted or unmuted) in Lock mode 2 but you cannot change it from the front panel (see **Setting the Front Panel Locks (Executive Modes)** on page 59).

1. Press the **Esc** button to clear any input button indications, output button indications, or control button indications that may be on.
2. Press and release the **View** button.
3. Select video, audio, or both to mute or unmute by pressing the **Video** button and the **Audio** button.
4. One at a time, press and hold the buttons for the desired outputs for approximately 2 seconds. The output buttons for the selected outputs blink to indicate the mute or return to their previous state to indicate the unmute.
5. Press and release the **View** button to return to normal matrix switcher operation.

NOTES:

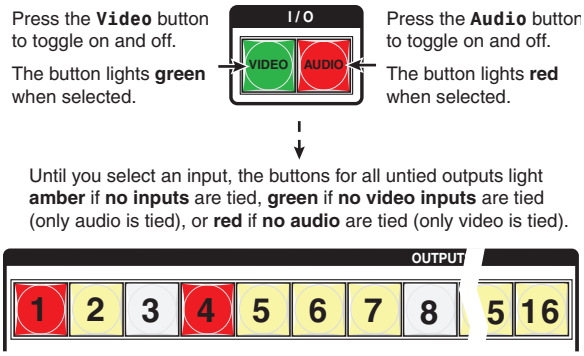
- You can mute video and audio, video-only, or audio-only outputs. Pressing and releasing the **Video** button and the **Audio** button toggles each selection on and off.
- When you enter View-only mode, the output buttons turn **on** for all outputs without ties.
- Mutes are saved to non-volatile memory. When power is removed and restored, the mute settings are retained.

Example 7: Muting and unmuting an output

In the following example, a matrix switcher output is muted and unmuted. The steps show the front panel indications that result from your action.

1. **Clear all selections**: Press and release the **Esc** button.
2. **Select View-only mode**: Press and release the **View** button. The button lights red.
3. **Select both video and audio for viewing and muting**: If necessary, press and release the **Video** button and the **Audio** button.

NOTE: This example assumes that you have performed **example 1** on page 38, **example 2** on page 39, and **example 3** on page 40.



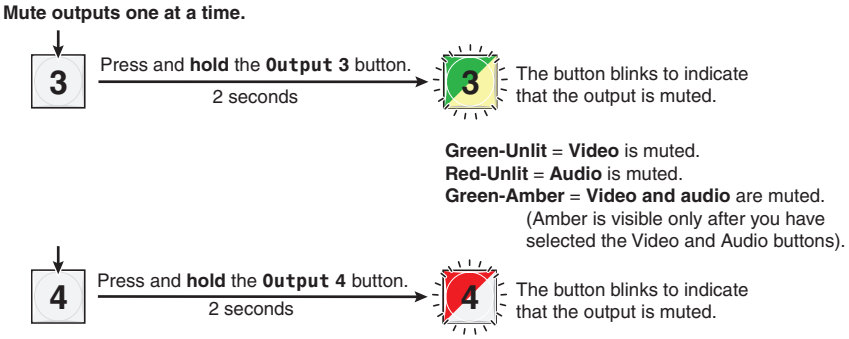
NOTE: Output mutes are protected when front panel Lock mode 2 is selected. You can view the mutes in Lock mode 2 but you cannot change them from the front panel (see **Setting the Front Panel Locks (Executive Modes)** on page 59).

If front panel Lock mode 2 is selected and you try to perform steps 4 and 5, the actions are ignored.

4. **Mute outputs**: One at a time:

   a. Press and **hold** the **Output 3** button for approximately 2 seconds until the button begins to blink.

   b. Press and **hold** the **Output 4** button for approximately 2 seconds until the button begins to blink.



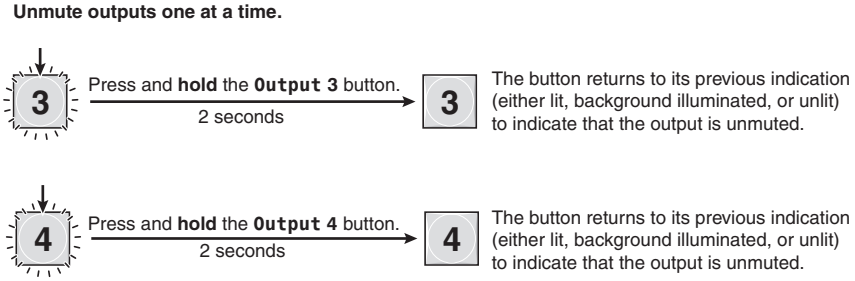
NOTES:

- If both video and audio are selected, the mute action toggles both the video and audio outputs. If either the video output or the audio output is already muted, the unmuted output is muted and the muted output is unmuted.
- If both video and audio are selected and only video is muted, the output button blinks between green and amber. If only audio is selected, the output button blinks between red and amber.

5. **Mute outputs**: One at a time:

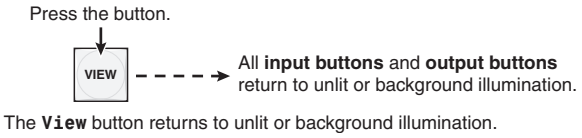
   a. Press and **hold** the **Output 3** button for approximately 2 seconds until the button returns to its previous state. The output 3 video and audio signals are unmuted.

   b. Press and **hold** the **Output 4** button for approximately 2 seconds until the button returns to its previous state. The output 4 video and audio signals are unmuted.



NOTE: If both video and audio are selected, the unmute action toggles both the video and audio outputs. If either the video output or the audio output is already unmuted, the muted output is unmuted and the unmuted output is muted.

6. Exit View-only mode: Press and release the **View** button.



Viewing and Adjusting the Input Audio Level

The level of each analog audio input can be displayed and adjusted through a range of -18 dB to +24 dB to ensure that there is no noticeable volume difference among sources (see figure 35). The audio level can be adjusted from the front panel or under remote control. The default audio level is 0 dB.

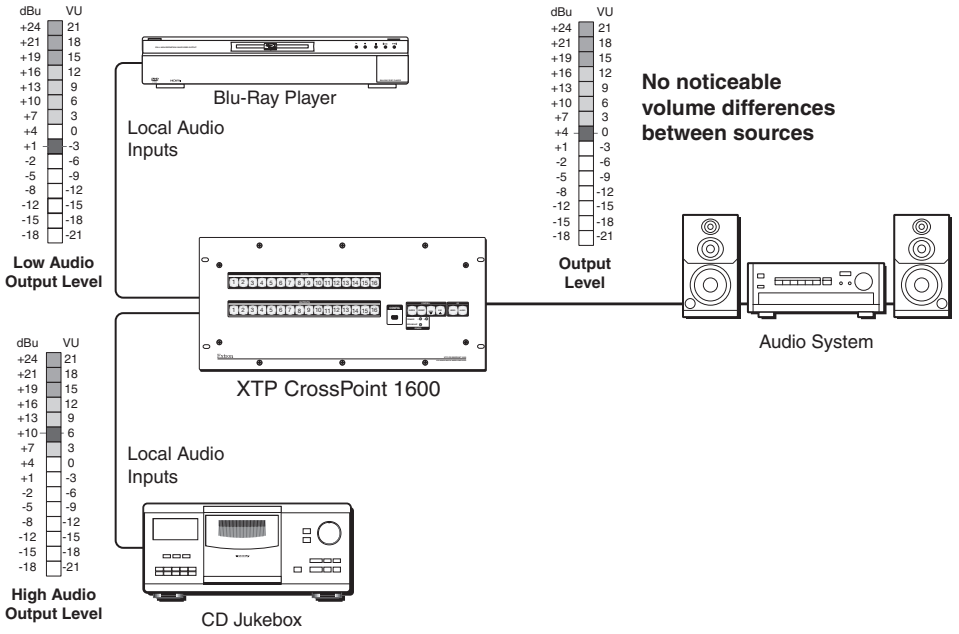


Figure 35. Audio Gain and Attenuation

1. Press the **Esc** button to clear any input buttons, output buttons, or control buttons that may be lit.
2. Press and **hold** the **Audio** button until the button begins to blink red to enter Audio mode. Release the button.
3. Press and release an input button to select an input that has analog audio. The output buttons display the audio level for the selected input; the more output buttons lit, the greater the gain or attenuation.
   - **Green** output buttons indicate a **gain** (+) audio level.
   - **Red** output buttons indicate an **attenuation** (–) level.

   Audio gain and attenuation is displayed differently on different models.
   - **XTP CrossPoint 3200** — Each output button indicates 1 dB when lit steadily (see the **table** on the next page).
   - **XTP CrossPoint 1600** — Each output button indicates 1 dB when blinking and 2 dB when lit steadily (see the **table** on page 51).
4. Press and release the **Esc** (▲) and **View** (▼) buttons to increase and decrease the audio level.
5. Press and release the **Audio** button to exit the Audio mode. The **Audio** button stops blinking.

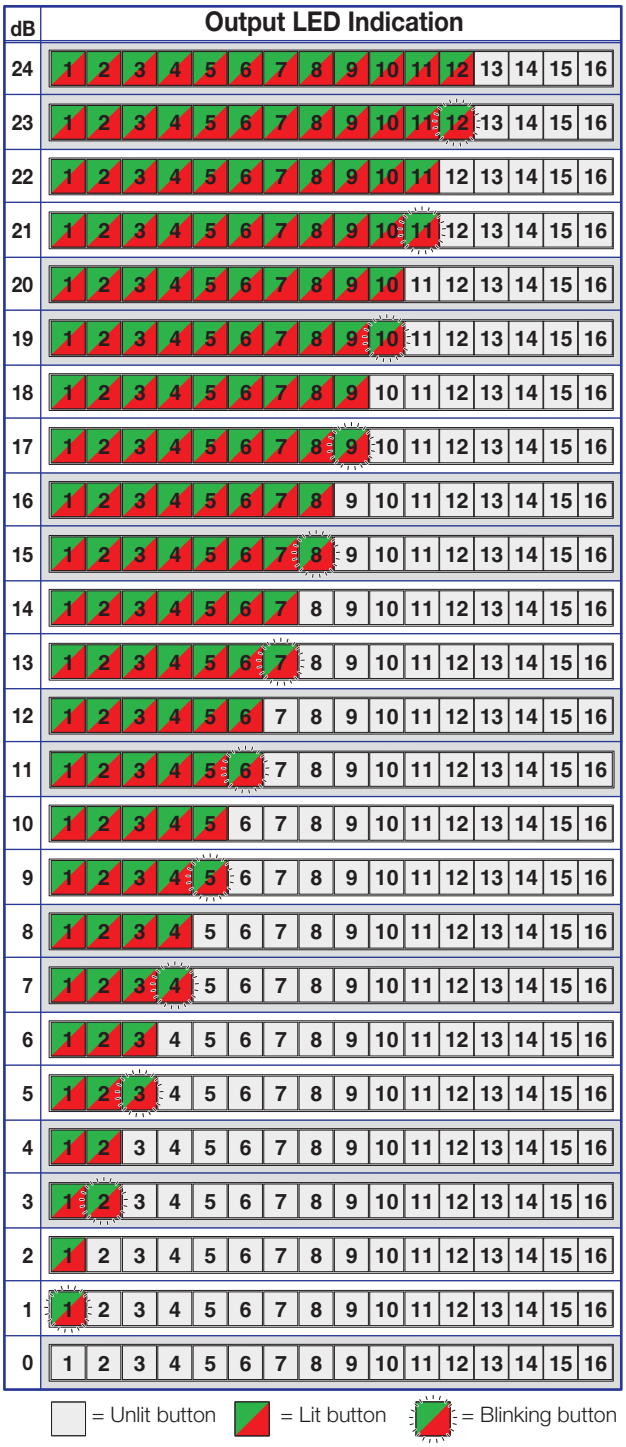
NOTES:
- Pressing the **Enter** or **Preset** button also exits Audio mode. Pressing the **Preset** button changes to Recall Preset mode.
- There is one level setting per analog audio input. The audio level setting is shared by the left and right audio inputs.
- The audio level settings are stored in non-volatile memory. When power is removed and restored, the audio level settings are retained.
- Exiting Audio mode by pressing the **Audio** button always returns the I/O configuration to video and audio selected for configuration (the **Video** and **Audio** buttons lit).

dB	Output LED Indication	dB	Output LED Indication
12	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	24	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
11	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	23	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
10	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	22	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
9	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	21	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
8	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	20	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
7	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	19	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
6	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	18	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
5	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	17	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
4	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	16	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
3	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	15	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	14	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
1	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	13	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
0	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32		

= unlit button

= lit button

Green indicates a positive (gain) level.
Red indicates a negative (attenuation) level.



Green indicates a positive (gain) level.
Red indicates a negative (attenuation) level.

Example 8: Viewing and adjusting an input audio level

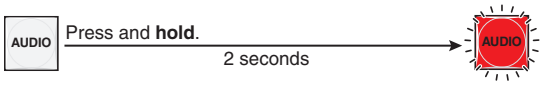
Because of the different gain and attenuation display schemes, the input audio levels that result from the following example are shown two times:

- As displayed on an XTP CrossPoint 3200 matrix switcher
- As displayed on an XTP CrossPoint 1600 matrix switcher

The XTP CrossPoint 3200 drawings show the actions that led up to the display. The XTP CrossPoint 1600 drawings show the gain or attenuation display only, not the actions that caused it. The actions are the same for both models.

In the following example, an audio level is viewed and adjusted. The steps show the front panel indications that result from your action.

1. **Clear all selections**: Press and release the **`Esc`** button.
2. **Select Audio mode**: Press and hold the **`Audio`** button for approximately 2 seconds until it blinks.



3. **Select an input with analog audio**: Press and release the **`Input 5`** button (see figure 36).

   Figure 36 and figure 37 show an audio gain level of +8 dB.

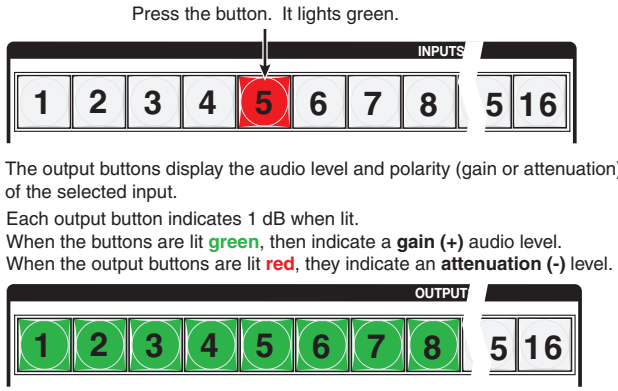


Figure 36. Select an Input

Figure 37 shows the same +8 dB level as figure 36, but displayed on an XTP CrossPoint 1600 matrix switcher.

Figure 37. Level Display on an XTP CrossPoint 1600 Matrix Switcher

4. **Change the audio level**: Press and release the **View** (▼) button once (see figure 38) to decrease the input audio level by 1 dB.

   Press and release the **View** (▼) button several more times (see figure 36) to decrease the input audio level by 1 dB per button press. Note the output button indication changes that occur each time the **View** (▼) button is pressed.

   Figure 38 and figure 39 show the result of pressing the **View** (▼) button a total of nine times, an audio attenuation level of -1 dB. Note that the level is now displayed in red to indicate a negative level.

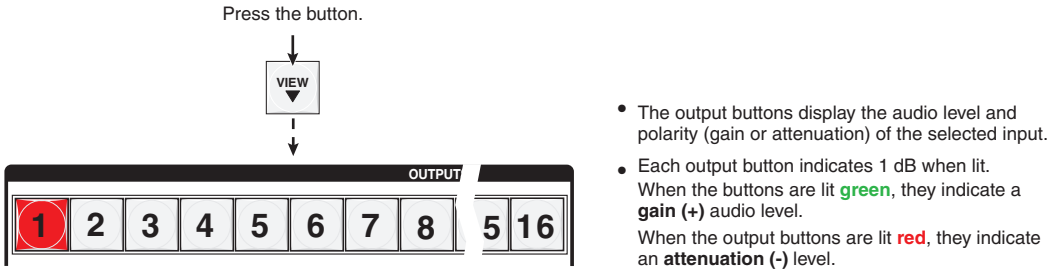
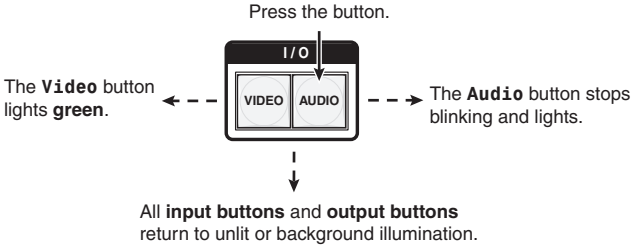


Figure 38. Adjust the Analog Input Audio Level

Figure 39 shows the same –1 dB level as in figure 38, but displayed on an XTP CrossPoint 1600 matrix switcher.

Figure 39. Level Display on an XTP CrossPoint 1600 Matrix Switcher

5. **Exit Audio mode**: Press and release the **Audio** button.



Viewing and Adjusting the Analog Output Volume

The level of each analog audio output can be displayed and adjusted through a range of 100% (no attenuation) to 0% (maximum [76 dB] attenuation). The audio level can be adjusted from the front panel or under serial port, USB port, or Ethernet control. The default volume is 100% (no attenuation).

NOTE: Output volume is protected when front panel Lock mode 2 is selected. You can view the volume in Lock mode 2 but you cannot adjust it from the front panel (see **Setting the Front Panel Locks (Executive Modes)** on page 59).

1. Press the **Esc** button to clear any input buttons, output buttons, or control buttons that may be lit.
2. Press and **hold** the **Audio** button until the button begins to blink red to enter Audio mode. Release the button.
3. Press and release an output button to select an output that has analog audio. The input buttons display the volume level for the selected output. As a general rule, the more buttons that are lit, the higher the volume. The fewer buttons that are lit, the lower the volume.

   For a more detailed analysis of decoding the displayed value, see "Reading the displayed volume" below.
4. Press and release the **Esc** (▲) and **View** (▼) buttons to increase or decrease the audio volume.
5. Press and release the **Audio** button to save the audio settings and exit the Audio mode. The **Audio** button stops blinking.

NOTES:

- Only the volume for the analog audio outputs is adjustable.
- There is one audio volume level setting per analog output. The audio level setting is shared by the left and right audio inputs.
- The audio volume levels are stored in non-volatile memory. When power is removed and restored, the audio level settings are retained.
- Exiting Audio mode by pressing the **Audio** button always returns the I/O buttons to **Video** lit green and **Audio** lit red.
- Pressing the **Enter** or **Preset** button also exits Audio mode. Pressing the **Preset** button changes to Recall Preset mode.

Reading the displayed volume

This section is a detailed look at reading the output volume display on the front panel. If you do not need to read the exact value of the volume setting, skip this section.

There are 65 steps of volume attenuation, with 1 dB per step (button push), except for 0-to-1, which is 13 dB. At maximum attenuation, no input buttons are lit, 76 dB of attenuation is applied, and the audio output is effectively muted. At no attenuation, all input buttons are lit and the output volume is equal to the input signal plus any gain or attenuation that is applied to that specific input using the input audio level adjustment (see **Viewing and Adjusting the Input Audio Level** on page 48). Other than the minimum and maximum volume, the matrix switchers indicate the volume differently, depending on the model (see the **table** on page 56 to read the volume display for each display scheme).

For each display scheme, the input buttons blink or light sequentially to indicate the approximate volume of the selected output. Volume is defined as a percentage of the input audio signal that is applied to the output. From 0% of volume, the first **Esc** (▲) button push applies 5.5% of the input audio signal. From 5.5% on, each **Esc** (▲) push applies 1.5% more of the input audio signal to the output:

- **Push Esc (▲) button again** — 5.5% + 1.5% = 7% volume
  - **XTP CrossPoint 1600** — **Input 1** blinks slowly
  - **XTP CrossPoint 3200** — **Input 1** lights steadily
- **Push Esc (▲) button twice more** — 7% + 1.5% + 1.5% = 10% volume
  - **XTP CrossPoint 1600** — **Input 1** lights steadily
  - **XTP CrossPoint 3200** — **Input 1** and **Input 2** light steadily
- **Push Esc (▲) button 19 times more** — 10% + (19 times 1.5%) = 38.5% volume
  - **XTP CrossPoint 1600** — Input 1 through **Input 5** light steadily and Input 6 blinks
  - **XTP CrossPoint 3200** — **Input 1** through **Input 11** light steadily and Input 12 blinks

When all input buttons are lit, the audio output is 100% of the audio input level.

Another way to view the volume level is to think in terms of the attenuation that is applied to the output. Attenuation reduction is indicated by the lit or blinking input buttons: when fewer input buttons are lit, attenuation is greater (and the volume is quieter).

- At minimum volume, all input buttons are unlit or background illuminated and 76 dB of attenuation is applied to the output. The audio output is effectively muted.
- The first step of volume increase causes **Input 1** to blink. Attenuation is reduced by 13 dB (63 dB of attenuation is applied to the output).
- The second step of volume increase reduces the attenuation by an additional 1 dB (62 dB of attenuation is applied to the output). (On the XTP CrossPoint 3200, **Input 1** lights steadily.)
- Successive steps of volume increase cause consecutive input buttons to first blink and then light steadily. (On the XTP CrossPoint 3200, each consecutive button indicates a **1 dB** attenuation reduction when blinking and a **2 dB** attenuation reduction when lit.)

  For example: When lit steadily, **Input 3** indicates the following, depending on the matrix switcher model:

  - **XTP CrossPoint 1600** — 52 dB of attenuation when compared to **Input 3** blinking (53 dB to 55 dB of attenuation). **Input 4** blinking (49 dB to 51 dB of attenuation) is at least 2 dB less than **Input 3** blinking (53 dB minus 51 dB) and at most 6 dB less (55 dB **minus** 49 dB).
  - **XTP CrossPoint 3200** — 58 dB of attenuation when compared to **Input 3** blinking (59 dB of attenuation). **Input 4** blinking (57 dB of attenuation) is 6 dB less than **Input 2** steadily-lit (60 dB **minus** 57 dB).
- **On the XTP CrossPoint 3200**, the volume indications of the buttons are additive.

  For example: **Input 1** lit (*23 dB* [22 dB + 1 dB] of **attenuation reduction**), **Input 2** lit (*2 dB* [1 dB + 1 dB] of **attenuation reduction**), and **Input 3** blinking (*1 dB* of **attenuation reduction**) indicate that the output **attenuation has been reduced** by a total of *25 dB* (*22 dB + 2 dB + 1 dB = 25 dB*).
- At full volume, no attenuation is applied to the output and all input buttons are lit steadily.

Highest # input button lit		dB of attenuation	Output volume	Highest # input button lit		dB of attenuation	Output volume
XTP CrossPoint 1600	XTP CrossPoint 3200			XTP CrossPoint 1600	XTP CrossPoint 3200		
None	None	76	0%				
	1	63	5.5%		17	31	53.5%
1	1	62	7%	9	17	30	55%
	2	61	8.5%		18	29	56.5%
1	2	60	10%	9	18	28	58%
	3	59	11.5%		19	27	59.5%
2	3	58	13%	10	19	26	61%
	4	57	14.5%		20	25	62.5%
2	4	56	16%	10	20	24	64%
	5	55	17.5%		21	23	65.5%
3	5	54	19%	11	21	22	67%
	6	53	20.5%		22	21	68.5%
3	6	52	22%	11	22	20	70%
	7	51	23.5%		23	19	71.5%
4	7	50	25%	12	23	18	73%
	8	49	26.5%		24	17	74.5%
4	8	48	28%	12	24	16	76%
	9	47	29.5%		25	15	77.5%
5	9	46	31%	13	25	14	79%
	10	45	32.5%		26	13	80.5%
5	10	44	34%	13	26	12	82%
	11	43	35.5%		27	11	83.5%
6	11	42	37%	14	27	10	85%
	12	41	38.5%		28	9	86.5%
6	12	40	40%	14	28	8	88%
	13	39	41.5%		29	7	89.5%
7	13	38	43%	15	29	6	91%
	14	37	44.5%		30	5	92.5%
7	14	36	46%	15	30	4	94%
	15	35	47.5%		31	3	95.5%
8	15	34	49%	16	31	2	97%
	16	33	50.5%		32	1	98.5%
8	16	32	52%	16	32	0	100%

= blinking LED

Example 9: Viewing and adjusting an analog output volume level

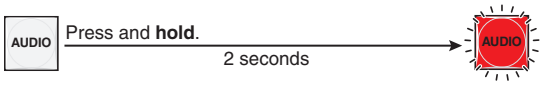
In the following example, the audio output volume is viewed and adjusted. The steps show the front panel indications that result from your action.

Because of the different volume display schemes, the output audio levels that result from the following example are shown twice:

- As displayed on an XTP CrossPoint 3200 matrix switcher
- As displayed on an XTP CrossPoint 1600 matrix switcher

The XTP CrossPoint 3200 drawings show the actions that led up to the display.
The XTP CrossPoint 1600 drawing shows the volume display only, not the actions that caused it.

1. **Clear all selections**: Press and release the **Esc** button.
2. **Select Audio mode**: Press and **hold** the **Audio** button for approximately 2 seconds until it blinks.



3. **Select an output**: Press and release the **Output 1** button (see figure 38).

   In figure 40 and figure 41, the lit or blinking input buttons indicate 41.5 percent of the applied audio input. The unlit input buttons indicate an audio volume attenuation of 39 dB.

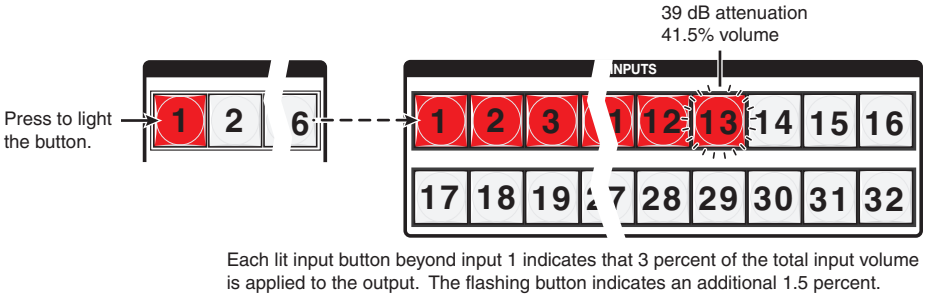


Figure 40. Select Output 1

Figure 41 shows the same volume as figure 40, but displayed on an XTP CrossPoint 1600.

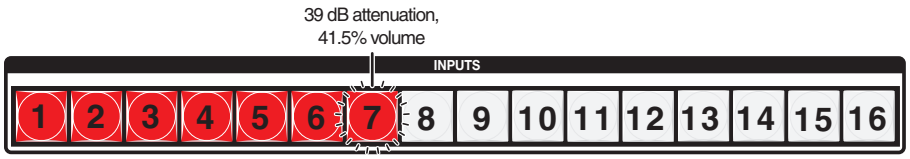


Figure 41. Volume Display on an XTP CrossPoint 1600 Matrix Switcher

NOTE: Volume is protected when front panel Lock mode 2 is selected. You can view the volume in Lock mode 2 but you cannot change it from the front panel (see **Setting the Front Panel Locks (Executive Modes)** on page 59).

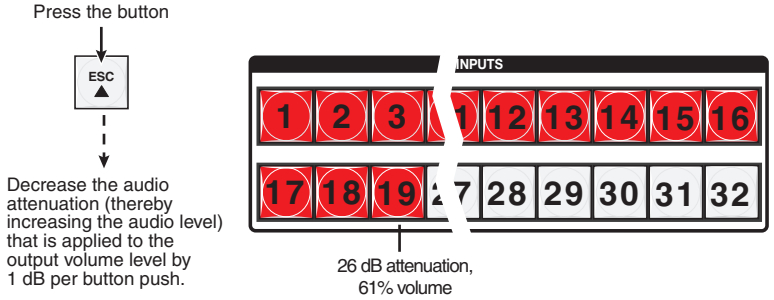
If front panel Lock mode 2 is selected and you try to perform step 4, the actions are ignored and the **Enter**, **Video**, and **Audio** buttons blink.

4. **Change the volume**: Press and release the **Esc** (▲) button once (see figure 42) to increase the volume by 1.5%.

   Press and release the **Esc** (▲) button several more times (figure 42) to increase the volume by 1.5% per button press. Note the input button indication changes that occur each time the **Esc** (▲) button is pressed and released.

   NOTE: You can press and **hold** the **Esc** (▲) or **View** (▲) button to ramp the level up or down by 3 dB per second to the high or low limit.

   Figure 42 shows the result of pressing the **Esc** (▲) button a total of 13 times. In figure 42 and figure 43, the lit or blinking input buttons indicate 61 percent of the applied audio input. The unlit input buttons indicate an audio volume attenuation of 26 dB.



Each lit input button beyond input 1 indicates that 3 percent of the total input is applied to the output.

Figure 42. Adjust the Output Audio Volume

Figure 43 shows the same volume (61%) as in figure 42, but displayed on an XTP CrossPoint 1600 matrix switcher.

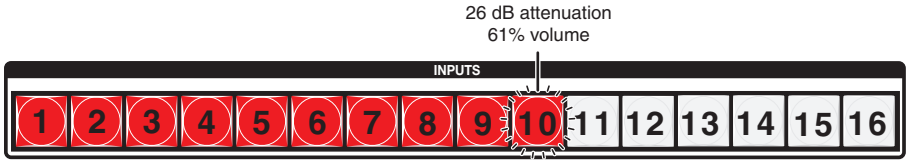
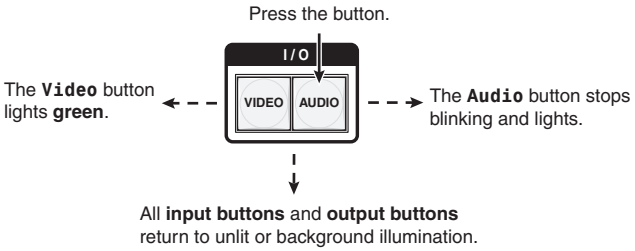


Figure 43. Volume Display on an XTP CrossPoint 1600 Matrix Switcher

5. **Exit Audio mode**: Press and release the **Audio** button.



Setting the Front Panel Locks (Executive Modes)

The matrix switcher has three levels of front panel security lock that limit the operation of the matrix switcher from the front panel. The three levels are:

- **Lock mode 0** — The front panel is completely unlocked. All front panel functions are available.
- **Lock mode 1** — All changes are locked from the front panel (except for setting Lock mode 2). Some functions can be viewed.
- **Lock mode 2** — Basic functions are unlocked. Advanced features are locked and can be viewed only.

  Basic functions consist of:

  - Making ties
  - Saving and recalling presets
  - Setting input audio gain and attenuation
  - Changing Lock modes

  Advanced functions consist of:

  - Setting audio output mutes
  - Setting audio output volume
  - Setting the rear panel remote port protocol and baud rate

NOTE: The matrix switcher is shipped from the factory in Lock mode 2.

Selecting Lock mode 2 or toggling between mode 2 and mode 0

NOTE: If the matrix switcher is in Lock mode 0 or mode 1, this procedure selects mode 2. The **Preset**, **View**, and **Esc** buttons blink twice.

If the matrix switcher is in Lock mode 2, this procedure selects mode 0 (unlocks the matrix switcher). The **View** and **Esc** blink twice.

Toggle the lock on and off by pressing and holding the **Preset** button, the **View** button, and the **Esc** button simultaneously for approximately 2 seconds (see figure 44).

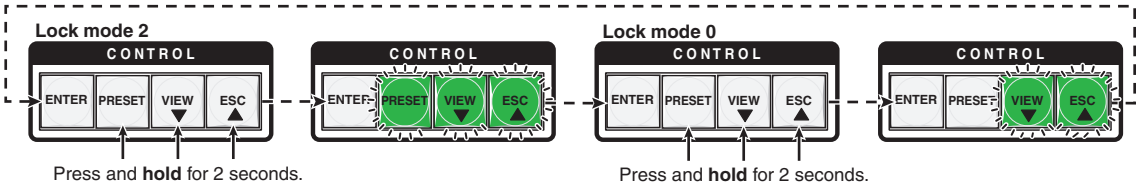


Figure 44. Toggle Front Panel Lock Between Mode 2 and Mode 0

Selecting Lock mode 2 or toggling between mode 2 and mode 1

NOTE:

- If the matrix switcher is in Lock mode 0 or mode 1, this procedure selects mode 2.
- If the matrix switcher is in Lock mode 2, this procedure selects mode 1.

Toggle the lock on and off by pressing and holding the **View** button and the **Esc** button simultaneously for approximately 2 seconds (see figure 45).

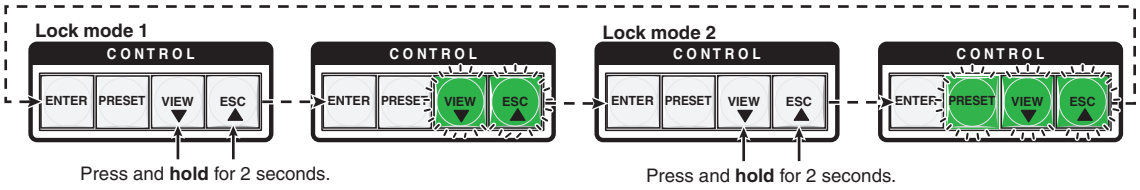


Figure 45. Toggle Front Panel Lock Between Mode 2 and Mode 1

Performing a System Reset from the Front Panel

The front panel reset is identical to issuing the Esc ZXXX← SIS command defined on page 112. A system reset performs the following functions:

NOTES:

- System reset does not reset the Internet protocol (IP) or serial port settings or replace user-installed firmware.
- This function resets not only the matrix switcher, but any connected endpoints.

- Clears all ties and presets
- Clears all mutes
- Disables all RS-232 output inserts
- Resets all input audio levels to unity gain (0 dB)
- Sets all output volume levels to 100% (0 dB of attenuation)

Reset the matrix switcher to the factory default settings by pressing and **holding** the **View** button and **Esc** button simultaneously **while** you apply AC power to the matrix switcher (see figure 46).

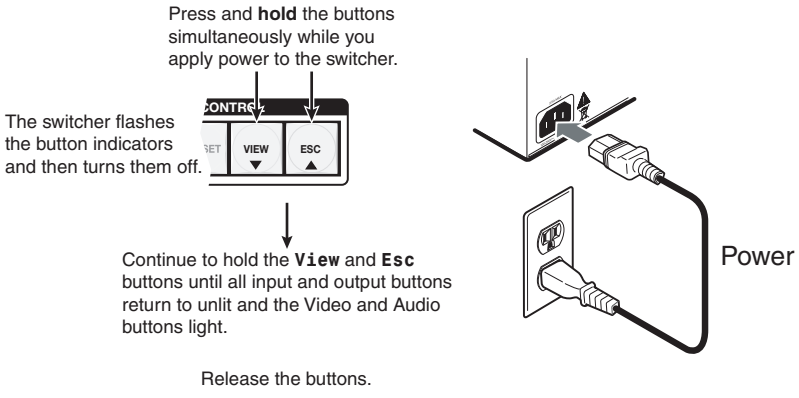


Figure 46. System Reset

NOTE: If background illumination was turned on before the reset, all buttons are unlit after the reset. But, when you cycle power, background illumination returns to the condition that you previously selected.

Background Illumination

The buttons on the front panel can be set to provide amber background illumination at all times or the background illumination can be turned off. To toggle the background illumination on or off, press and hold the **Input 1** and **Input 2** buttons simultaneously for approximately 2 seconds (see figure 47).

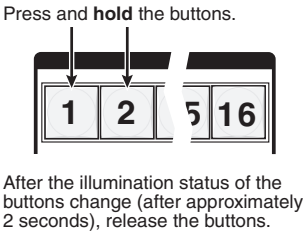


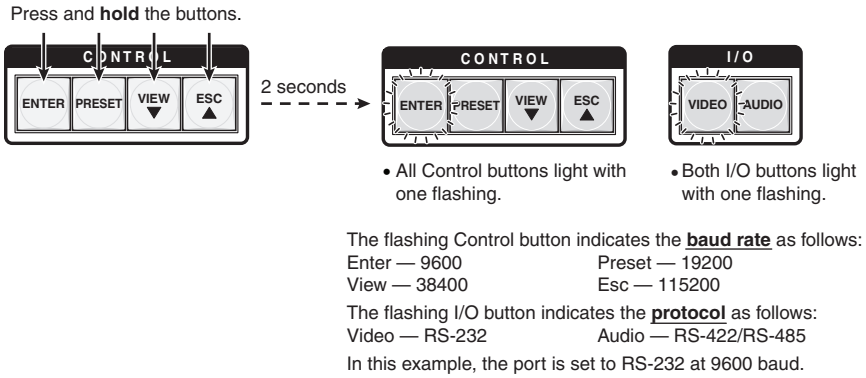
Figure 47. Toggle Background Illumination on or off

Selecting the Rear Panel Remote Port Protocol and Baud Rate

The matrix switchers can operate at the 9600, 19200, 38400, and 115200 baud rate and can support either RS-232 or RS-422 serial communication protocol. The settings of these variables can be viewed and changed from the front panel.

View and configure the serial communications settings as follows:

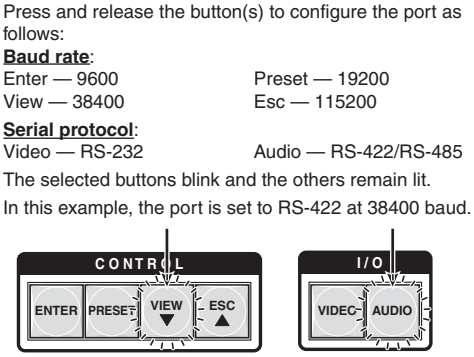
1. **Select Serial Port Configuration mode**: Simultaneously press and **hold all** Control buttons (**Enter**, **Preset**, **View**, and **Esc**).



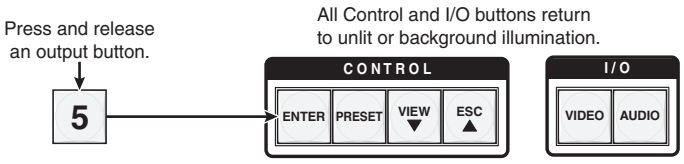
2. Release the Control buttons.

> **NOTE:** If front panel Lock mode 2 is selected and you try to perform step 3, the actions are ignored and the **Enter**, **Video**, and **Audio** buttons blink (see **Setting the Front Panel Locks (Executive Modes)** on page 59).

3. **Change a value**: Press and release the button that relates to the desired value.



4. **Exit the Serial Port Configuration mode**: Press and release an output button.



Rear Panel Operations

The rear panel has a **Reset** button that initiates four levels of resets (numbered 1, 3, 4, and 5 for the sake of comparison with an Extron IPL product). The **Reset** button is recessed, so use a small screwdriver, a pointed stylus, or a ballpoint pen. See the table on the next page for a summary of the modes.

ATTENTION:

- Review the reset modes carefully. Some reset modes delete all user loaded content and revert the device to default configuration.
- Étudier de près les différents modes de réinitialisation. Certains modes de réinitialisation suppriment la totalité du contenu chargé de l'utilisateur et remettent l'appareil en mode de configuration par défaut.

NOTE: The reset modes listed below close all open IP and Telnet connections and close all sockets. Also, the following modes are separate functions, not a continuation from Mode 1 to Mode 5.

Mode	Activation	Result	Purpose and Notes
1	Hold down the recessed **Reset** button while applying power to the matrix switcher. **NOTE:** After a mode 1 reset is performed, update the matrix switcher firmware to the latest version. Do not operate the matrix switcher firmware version that results from the mode 1 reset. If you want to use the factory default firmware, you must upload that version again (see **Firmware Upgrade Page** on page 132 for details on uploading firmware).	**The matrix switcher reverts to the factory default firmware**. Event scripting will not start if the matrix switcher is powered on in this mode. All user files and settings (such as drivers, adjustments, and IP settings) are maintained. **NOTE:** If you do not want to update firmware, or you performed a mode 1 reset by mistake, cycle power to the matrix switcher to return to the firmware version that was running before the mode 1 reset. Use the ØQ SIS command (see **page 115**) to confirm that the factory default firmware is no longer running (look for the asterisk [*] following the version number.	Use mode 1 to revert to the factory default firmware version if incompatibility issues arise with user-loaded firmware.
3	Hold down the **Reset** button until the Reset LED blinks once (about 3 seconds), then press and release **Reset** (<1 second) within 1 second.	**Mode 3 turns events on** or **off**. During resetting, the Reset LED blinks 2 times if events are starting, 3 times if events are stopping.	Mode 3 is useful for troubleshooting.

4	Hold down the **Reset** button twice (once at 3 seconds and again at 6 seconds). Then press and release **Reset** (<1 second) within 1 second.	**Mode 4**: • Enables ARP capability. • Sets the IP address to the factory default. • Sets the subnet address to the factory default. • Sets the gateway address to the factory default. • Sets port mapping to the factory default. • Turns DHCP off. • Turn events off. The Reset LED blinks four times in quick succession during the reset.	Mode 4 enables you to set IP address information using ARP and the MAC address.

5	Hold down the **Reset** button until the Reset LED blinks three times (once at 3 seconds, again at 6 seconds, and then again at 9 seconds). Then press and release **Reset** (<1 second) within 1 second.	**Mode 5 performs a complete reset to factory defaults (with the exception of the firmware)**:
		• Does everything mode 4 does.
		• Resets most real time adjustments, including:
		  • clears all ties and presets
		  • clears all mutes
		  • disables all RS-232 output inserts
		  • clears all audio settings
		• Resets all IP options.
		• Removes/clears all files for the matrix switcher.
		The reset LED blinks four times in quick succession during the reset.
			Mode 5 is useful if you want to start over with configuration and uploading or to replace events.

Performing a Hard Reset (Reset 1)

The hard reset function restores the matrix switcher to the base firmware that it was shipped with. After a hard reset, events do not automatically start, but user settings and files are restored.

Perform a hard reset as follows:

NOTE: The hard reset restores the factory-installed firmware. The matrix switcher reverts to that factory firmware the next time power is cycled off and on **unless** a firmware update is performed before the power cycle.

1. If necessary, turn off power to the matrix switcher.
2. Press and **hold** the **Reset** button on the rear panel **while** you apply AC power to the matrix switcher (see figure 48).

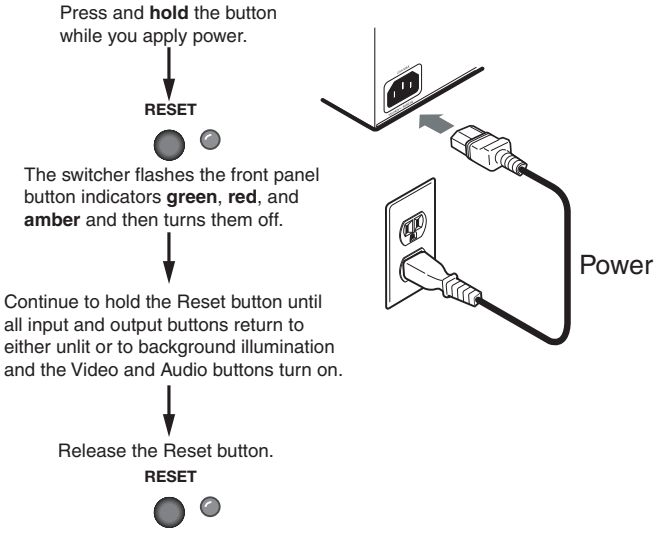


Figure 48. Hard Reset

Performing Soft System Resets (Resets 3, 4, and 5)

Perform a soft reset of the matrix switcher as follows:

1. Use a small screwdriver to press and **hold** the rear panel **Reset** button until the Reset LED and the front panel **Video** and **Audio** buttons blink the number of times for the desired reset: once (events reset), twice (system reset), or three times (absolute reset) (see figure 49).

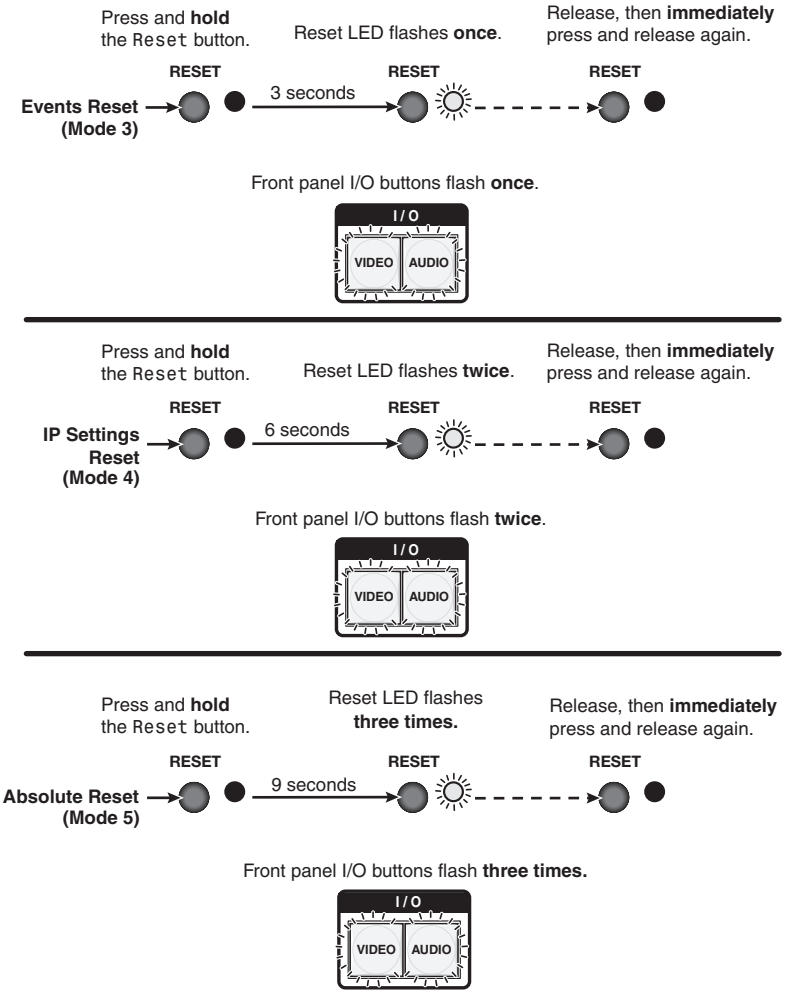


Figure 49. Soft System Resets

2. Release the **Reset** button and then immediately press and release the **Reset** button again. Nothing happens if the second momentary press does not occur within 1 second.

Optimizing the Analog Audio

The level for each analog audio input can be adjusted within a range of -18 dB to +24 dB, so there are no noticeable volume differences between sources and for the best headroom and signal-to-noise ratio. The volume for each analog audio output can be adjusted from full loudness to effectively muted. Adjust the levels as follows:

1. Connect analog audio sources to all desired inputs and connect the analog audio outputs to output devices such as audio players (see **Input and Output Boards** on page 14). For best results, wire all of the inputs and the outputs balanced.
2. Power on the audio sources, the matrix switcher, and the audio players.
3. Switch among the inputs (see **Creating a Configuration** on page 37), listening to the audio with a critical ear or measuring the output audio level with test equipment, such as a VU meter.
4. As necessary, adjust the input audio level of each input (see **Viewing and Adjusting the Input Audio Level** on page 48) so that the approximate output level is the same for all selected inputs.
5. Tie an audio input to each analog audio output.
6. As necessary, adjust the output audio level of each output (see **Viewing and Adjusting the Analog Output Volume** on page 54).

RS-232 Insertion

The XTP twisted pair and fiber input and output boards allow you to insert RS-232 control signals onto the same XTP cable that carries video and audio to extend them to the Over XTP port on a connected endpoint (see **figure 50** on the next page and **figure 51** on page 70). The control signals can be inserted two ways:

Ethernet to RS-232 insertion (see **Ethernet to RS-232 Insertion** on the next page) —

- A control signal applied to the matrix switcher LAN port can be routed to any matrix switcher XTP port.

Captive screw insertion (see **Captive Screw Signal Insertion** on page 69) —

- A control signal applied to an RS-232 captive screw port on an XTP board is tied directly to the same-numbered XTP port on that board.
  - RS-232 port 1 is tied to XTP port 1 only, 2 is tied to 2, and so on.
- You must physically connect a cable connected to the captive screw connector where a control signal is to be inserted.

The insert inputs and outputs, whether inserted via Ethernet or captive screw connectors, can support up to a 115k baud rate.

Enabling Ethernet and Captive Screw Insertion

For an XTP port to distribute the inserted signal, it must be enabled for either Ethernet insertion or captive screw insertion (default). The simplest way to make this selection is using the XTP Configuration Software.

Alternatively, you can make this selection via SIS commands.

- For the input XTP and fiber boards, see the **input board Captive screw and Ethernet serial port insertion enables** SIS commands on page 92.
- For the output XTP and fiber boards, see the **output board Captive screw and Ethernet serial port insertion enables** SIS commands on page 105.

Ethernet to RS-232 Insertion

Figure 50 is an example of a typical Ethernet to RS-232 insertion, in which an Extron IPCP module provides control of an HD camera via the matrix switcher. Configure this type of insertion as follows:

1. Connect a TP cable from the IPCP module to the LAN port, directly or via a network.
2. If necessary, enable the port (input port 4 in this example) for Ethernet (see **Enabling Ethernet and Captive Screw Insertion** on the previous page).
3. If necessary to match the device to be controlled, configure the port RS-232 protocol (baud rate, parity, data bits, and stop bits) (see **RS-232 protocol** on page 69).
4. Connect the XTP cable to the endpoint as usual.
5. Connect a serial cable from the endpoint to the device to be controlled.

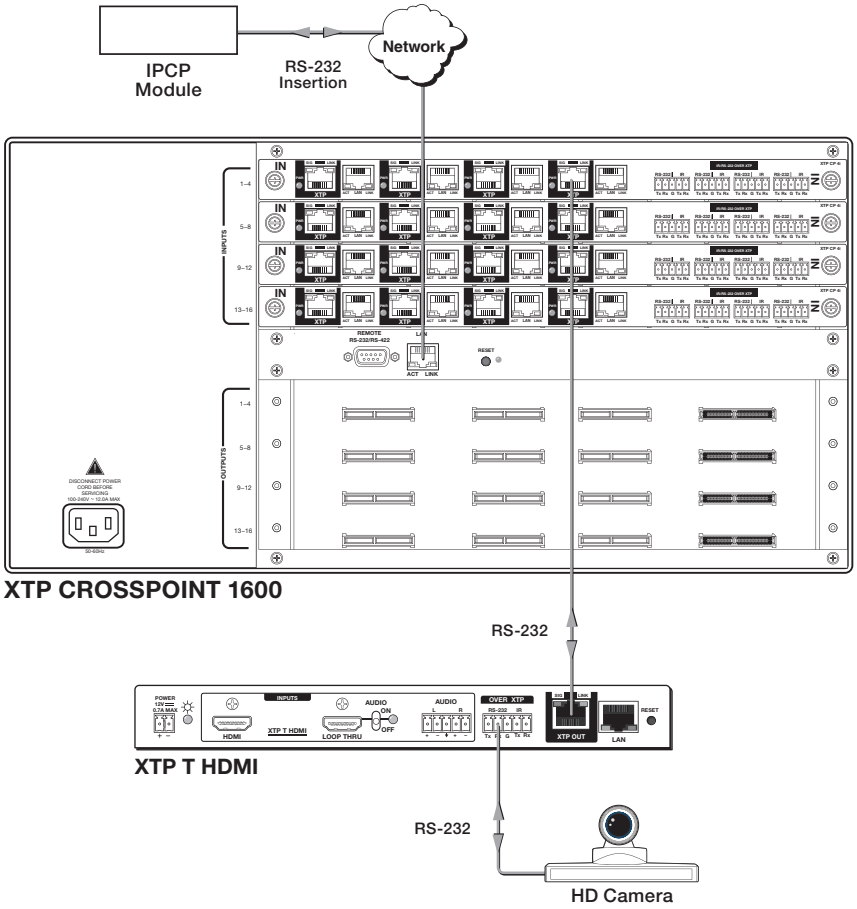


Figure 50. Typical Ethernet to RS-232 Insertion to an Input Endpoint

Port number

For Ethernet to RS-232 insertion, the insertion port number must be stated from a specific starting point. This number is entered as the Telnet port number when you establish communication with the insertion port.

For the purposes of this discussion, consider the Ethernet insertion ports as serial (RS-232) ports. The rear panel Remote RS-232/RS-422 port and all input serial ports in the matrix switcher are numbered sequentially (see the **table** on the next page for the default values). Output serial ports start 34 XTP CrossPoint positions out from the starting point and continue on sequentially.

UART Default Values					
Port	**1600**	**3200**	**Port**	**1600**	**3200**
Serial	1999				
Input 1	2001		Output 1	2033	
Input 2	2002		Output 2	2034	
Input 3	2003		Output 3	2035	
Input 4	2004		Output 4	2036	
Input 5	2005		Output 5	2037	
Input 6	2006		Output 6	2038	
Input 7	2007		Output 7	2039	
Input 8	2008		Output 8	2040	
Input 9	2009		Output 9	2041	
Input 10	2010		Output 10	2042	
Input 11	2011		Output 11	2043	
Input 12	2012		Output 12	2044	
Input 13	2013		Output 13	2045	
Input 14	2014		Output 14	2046	
Input 15	2015		Output 15	2047	
Input 16	2016		Output 16	2048	
Input 17		2017	Output 17		2049
Input 18		2018	Output 18		2050
Input 19		2019	Output 19		2051
Input 20		2020	Output 20		2052
Input 21		2021	Output 21		2053
Input 22		2022	Output 22		2054
Input 23		2023	Output 23		2055
Input 24		2024	Output 24		2056
Input 25		2025	Output 25		2057
Input 26		2026	Output 26		2058
Input 27		2027	Output 27		2059
Input 28		2028	Output 28		2060
Input 29		2029	Output 29		2061
Input 30		2030	Output 30		2062
Input 31		2031	Output 31		2063
Input 32		2032	Output 32		2064

Changing the starting point

You can change the starting port number. The simplest way to make this change is using the XTP Configuration Software.

Alternatively, you can change the starting port number via SIS commands.

- For the input XTP and fiber boards, see the input board **Set UART starting point** SIS command on page 92.
- For the output XTP and fiber boards, see the output board **Set UART starting point** SIS commands on page 106.

RS-232 protocol

You may also need to set the RS-232 protocol of the addressed port to match the connected device. The simplest way to make this change is using the XTP Configuration Software.

Alternatively, you can change the port RS-232 settings via SIS commands.

- For the input XTP and fiber boards, see the input board **Set serial port parameters** SIS command on page 92.
- For the output XTP and fiber boards, see the output board **Set serial port parameters** SIS commands on page 105.

Captive Screw Signal Insertion

Figure 51 is an example of a typical captive screw insertion, in which an Extron IPCP module provides control of a Blu-Ray player via the matrix switcher. Configure this type of insertion as follows:

NOTE: Each captive screw insert is for the associated input or output only and cannot be tied to any other input or output.

1. Connect a TP cable from the IPCP module to the RS-232 captive screw port (input port 13 in this example).
2. If necessary, enable the port for captive screw (see **Enabling Ethernet and Captive Screw Insertion** on page 66).

   The RS-232 control signal is inserted directly onto the XTP port of the same number and cannot be tied to any other port.
3. Connect the XTP cable to the endpoint as usual.

4. Connect a serial cable from the endpoint to the device to be controlled.

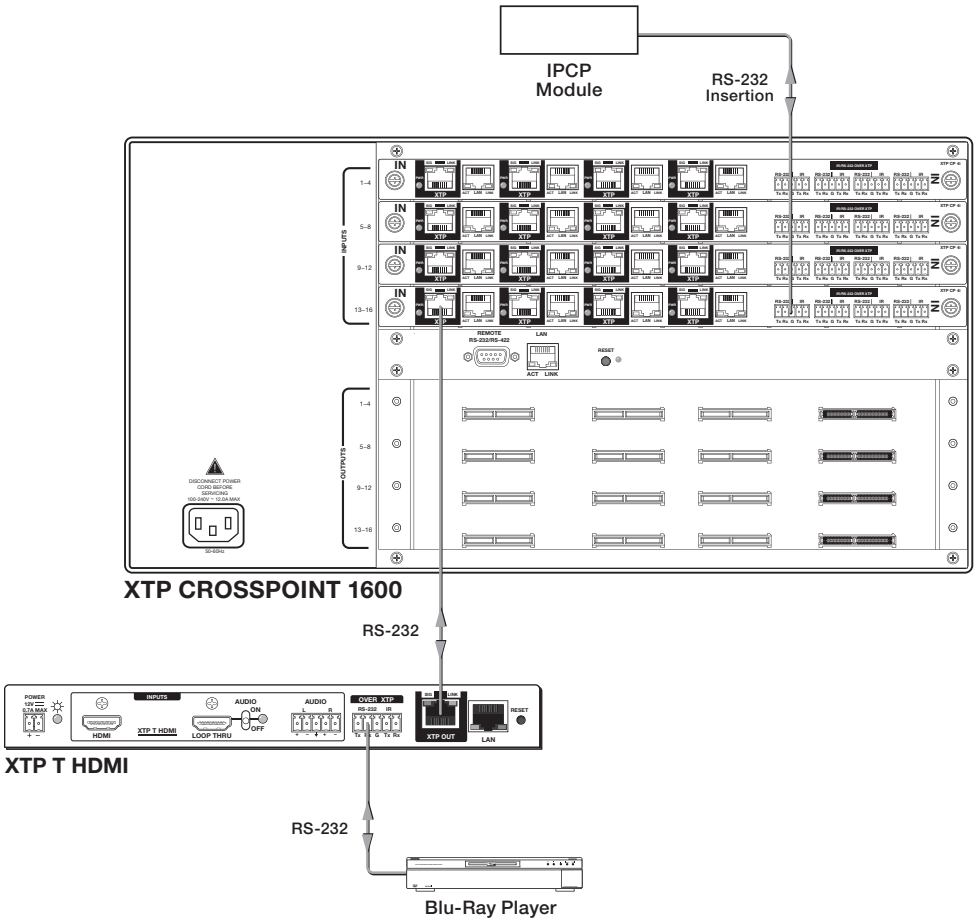


Figure 51. Typical Captive Screw Insertion to an Input Endpoint

Troubleshooting

This section recommends what to do if you have problems operating the matrix switcher.

1. Ensure that all devices are plugged in and powered on.
2. Check to see if one or more outputs are muted.
3. Ensure an active input is selected for output on the matrix switcher.
4. Ensure that the proper signal format is supplied.
5. Check the cabling and make corrections as necessary.
6. Call the Extron S3 Sales and Technical Support Hotline if necessary. See **www.extron.com** for the phone number in your region of the world.

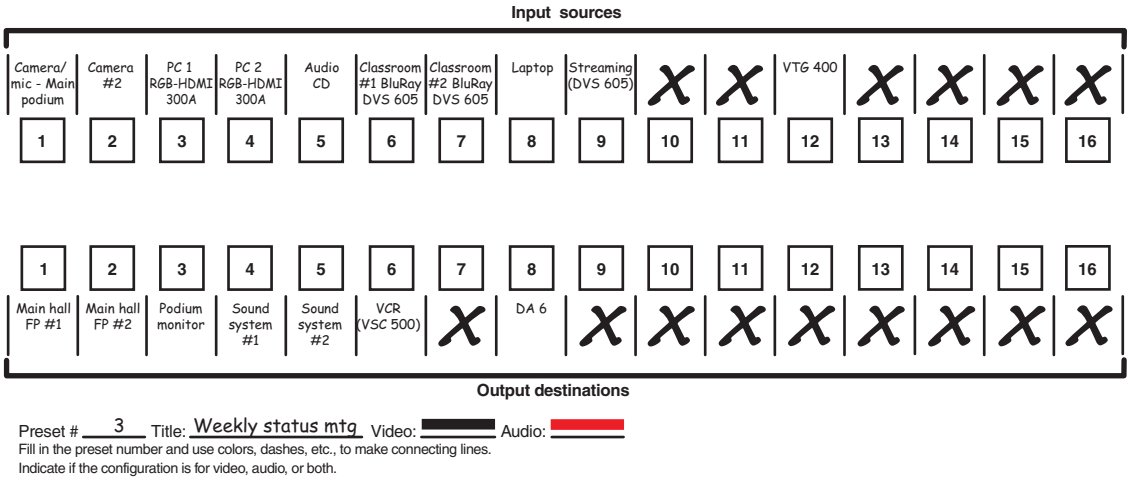
Configuration Worksheets

Rather than trying to remember the configuration for each preset, use worksheets to record this information. Make copies of the blank worksheet on page 74 (XTP CrossPoint 3200) or page 75 (XTP CrossPoint 1600) and use one for each preset configuration. Cross out all unused or inactive inputs and outputs. Use different colors for video and audio.

NOTE: All of the equipment in the following examples is connected through the appropriate input board, output board, transmitter, or receiver.

Worksheet Example 1: System Equipment

Figure 52 shows a portion of a worksheet for an XTP CrossPoint 1600 in a fictional organization with the system hardware annotated. Inputs 10, 11, and 13 have no connection in this organization, so they are crossed out on the worksheet. Similarly, outputs 7 and 9 through 16 are crossed out.



Preset # 3 Title: Weekly status mtg Video: Audio:
Fill in the preset number and use colors, dashes, etc., to make connecting lines.
Indicate if the configuration is for video, audio, or both.

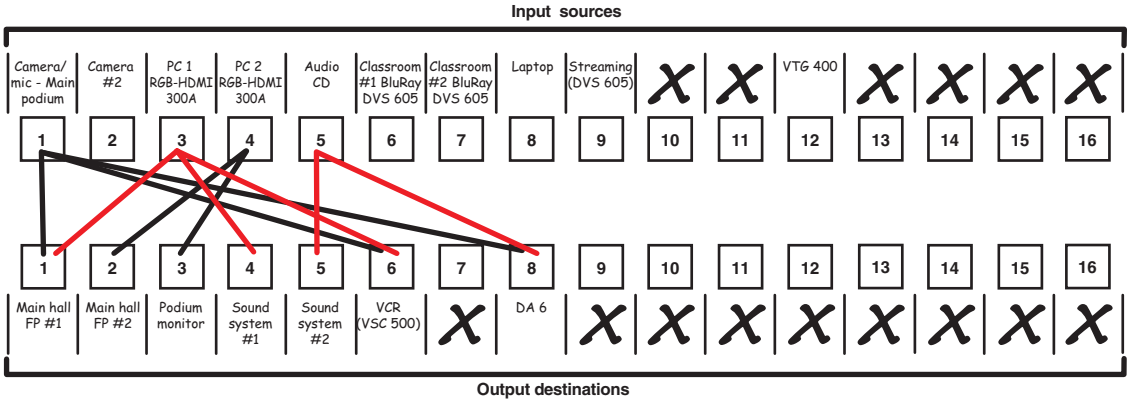
Figure 52. Worksheet Example 1: System Equipment

Inputs include PCs, an audio CD player, cameras, and an Extron VTG 400DVI. Output devices include monitors, projectors, a stereo, a VCR for recording presentations, and a DA.

The VTG 400DVI video test generator connected to input 12 enables a video test pattern to be sent to one, several, or all output devices for problem isolation or adjustment purposes. An audio test tape or CD could be used in a similar manner to check out the audio components.

Worksheet Example 2: Daily Configuration

Figure 53 continues from worksheet example 1 by showing the video and audio ties that make up the configuration of preset 1. Black lines show video ties and red lines show the audio ties.



Preset # 3 Title: Weekly status mtg Video: Audio:
Fill in the preset number and use colors, dashes, etc., to make connecting lines.
Indicate if the configuration is for video, audio, or both.

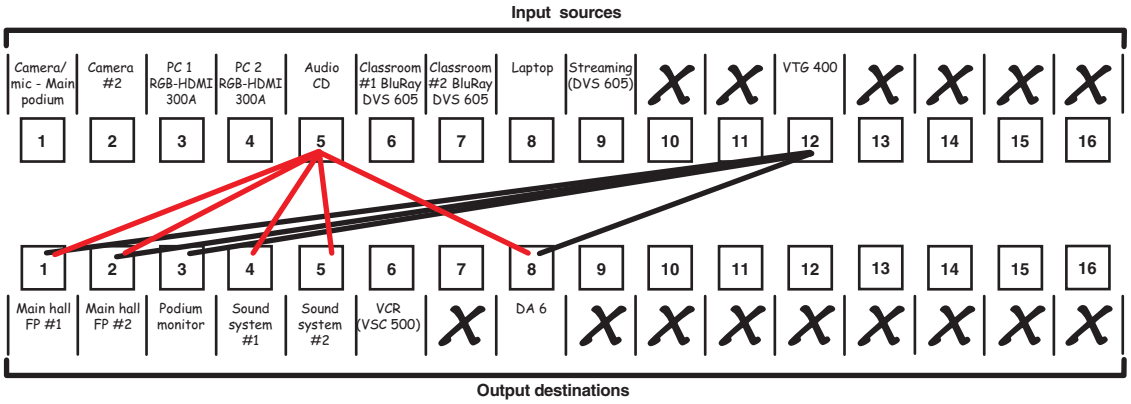
Figure 53. Worksheet Example 2: Daily Configuration

In this example:

- The image of the presenter, from the main podium camera (input 1), is:
  - Displayed in the main hall (output 1)
  - Displayed in the lobby via a distribution amplifier (output 8)
  - Tied to the VCR (output 6)
- The presenter has a presentation on her laptop computer (input 4) that is:
  - Displayed in the main hall (output 2)
  - Displayed locally on the podium (output 3)
- The audio from the microphone the presenter uses (input 1) is:
  - Played in the hall (output 1)
  - Played in the conference room (output 4)
  - Sent to the VCR (output 6)
- Classical music from the CD player (input 5) is:
  - Played in the background in the main hall on sound system #2 (output 5)
  - Played in the lobby via a distribution amplifier (output 8)

Worksheet Example 3: Test Configuration

The AV system in our fictional organization needs to be fine tuned on a regular basis. Figure 54 shows a typical test configuration, with an Extron video test generator (input 12) generating a test pattern to all monitors (outputs 1, 2, 3, and 8). Sound checks are run from the CD player (input 5) to all audio systems (outputs 1, 2, 4, 5, and 8).



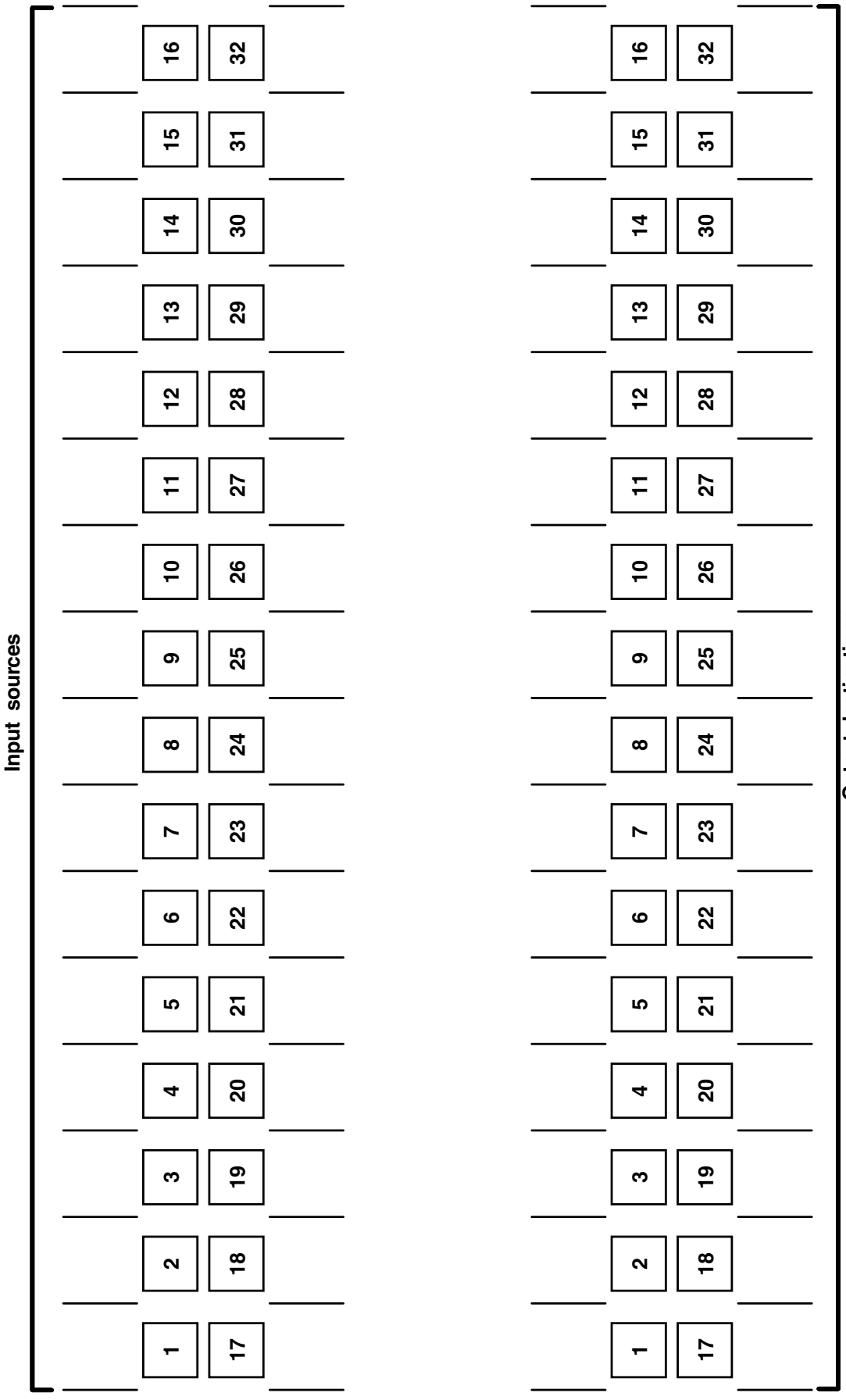
Preset # 3 Title: Weekly status mtg Video: Audio:

Fill in the preset number and use colors, dashes, etc., to make connecting lines.

Indicate if the configuration is for video, audio, or both.

Figure 54. Worksheet Example 3: Test Configuration

XTP CrossPoint 3200 Matrix Switchers Configuration Worksheet

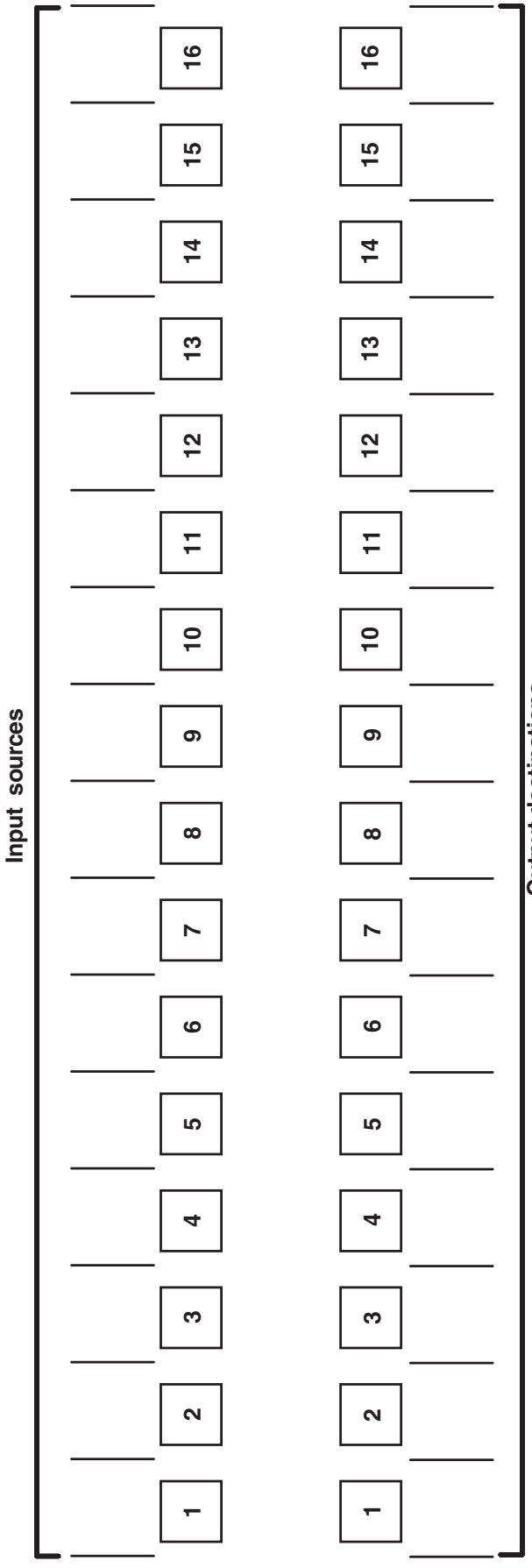


Preset # _____ Title: _____ Video: _____ Audio: _____

Fill in the preset number and use colors, or dashes, etc. to make connecting lines.

Indicate if the configuration is for Video, Audio, or both.

XTP CrossPoint 1600 Matrix Switchers Configuration Worksheet



Preset # _____ Title: _____ Video:_____ Audio:_____

Fill in the preset number and use colors, or dashes, etc. to make connecting lines.

Indicate if the configuration is for video, audio, or both.

Programming Guide

The XTP CrossPoint Series Matrix Switcher can be remotely controlled via:

- The XTP System Configuration software (see the *XTP System Configuration Software Help* file, available at **www.extron.com**).
- Built-in HTML pages (see **HTML Operation**, beginning on page 121)
- SIS commands (see below)

This section describes the operation of the XTP CrossPoint Series Matrix Switchers via SIS commands, including:

- **Local Host-Control Ports**
- **Ethernet (LAN) Port**
- **Host-to-Matrix-Switcher Instructions**
- **Matrix-Switcher-Initiated Messages**
- **Matrix Switcher Error Responses**
- **Using the Command and Response Tables**
- **SIS Command and Response Table for Basic Matrix Switcher Commands**
- **SIS Command and Response Table for Input-Board-Specific Commands**
- **SIS Command and Response Table for Input-Endpoint-Specific Commands**
- **SIS Command and Response Table for Output-Board-Specific Commands**
- **SIS Command and Response Table for Output-Endpoint-Specific Commands**
- **SIS Command and Response Table for Advanced Matrix Switcher Commands**
- **SIS Command and Response Table for IP- and Remote Port-Specific Commands**
- **Special Characters**

Local Host-Control Ports

The matrix switcher has two local ports that can be directly connected to a host device such as a computer running the Extron DataViewer utility or a control system. These ports make remote control of the matrix switcher possible using a direct connection. The local ports are:

- The rear panel Remote RS-232/RS-422 port, a serial port on a 9-pin D female connector (see **Remote RS-232/RS-422 port** on page 26)

  NOTES:

  - The rear panel and front panel ports are independent of one another. A front panel Configuration port connection and a rear panel Remote port connection can be active at the same time.
  - The serial port protocol of the rear panel Remote RS-232/RS-422 port is:
    - 9600 baud
    - No parity
    - 8-bit
    - No flow
    - 1 stop bit
  - See **Selecting the Rear Panel Remote Port Protocol and Baud Rate** on page 61 to configure the rear panel Remote port from the front panel.
  - Extron recommends leaving the Remote RS-232/RS-422 port at 9600 baud.

- The front panel Configuration port, a mini USB B port (see **Configuration port** on page 27). A standard USB cable and the Extron DataViewer utility, version 2.0 or newer, can be used for connection to the Configuration port.

  NOTE: Before you use the Configuration (USB) port for the first time, you need to install and activate the USB driver on your computer. The simplest way to do this is to install and run the XTP System Configuration software (see the *XTP System Configuration Software* help file, available at **www.extron.com**).

Ethernet (LAN) Port

The Ethernet cable can be terminated as a straight-through cable or a crossover cable and must be properly terminated for your application (see **LAN port** on page 26).

- **Crossover cable** — Direct connection between the computer and the XTP CrossPoint Series matrix switcher.
- **Patch (straight-through) cable** — Connection of the XTP CrossPoint Series matrix switcher to an Ethernet LAN.

Default IP addresses

To access the XTP CrossPoint Series matrix switcher via the LAN port, you need the IP address for the unit, 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, you can determine the actual numeric IP address using the ping (ICMP) utility (see **Ethernet Link** on page 150 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 an XTP CrossPoint Series matrix switcher as follows:

1. Open a TCP socket to port 23 using the IP address of the matrix switcher.

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

   NOTES:

   - If the matrix switcher is **not** password-protected, the device is ready to accept SIS commands immediately after it sends the copyright message.
   - If the matrix switcher **is** password-protected, a `password` prompt appears below the copyright message.

2. If the matrix switcher is password-protected, enter the appropriate administrator or user password.

   If the password is accepted, the matrix switcher responds with `Login User` or `Login Administrator`.

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

Connection Timeouts

The Ethernet link times out after a designated period of time of no communications. By default, this timeout value is set to five minutes but the value can be changed (see the **Configure port timeout** SIS commands on page 120).

NOTE: Extron recommends leaving the default timeout at 5 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

An XTP CrossPoint Series matrix switcher can have up to 200 simultaneous TCP connections, including all http sockets and telnet connections. When the connection limit is reached, the matrix switcher 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 an XTP CrossPoint Series matrix switcher can be used to monitor for changes that occur on the matrix switcher, 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 matrix switcher, the telnet session must be in verbose mode 1 or 3 (see the **Verbose mode** definitions on page 118). In verbose mode 1 and 3, the telnet socket reports changes in messages that resemble SIS command responses.

Host-to-Matrix-Switcher Instructions

The matrix switcher accepts SIS (Simple Instruction Set) commands through the rear panel Remote RS-232/RS-422 port, the front panel Configuration port, and the rear panel Ethernet (LAN) Port. 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 matrix switcher 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.

Matrix-Switcher-Initiated Messages

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

The matrix switcher does not expect a response from the host, but, for example, the host program might request a new status.

`(c) Copyright 20yy, Extron Electronics, XTP CP nn00, Vx.xx, 60-nnnn-01`↵
`<day, date, time>`↵

The matrix switcher initiates the Copyright message when it is first powered on or when a connection via Internet protocol (IP) is established. `Vx.xx` is the firmware version number and `60-nnnn-01` is the matrix switcher part number.

NOTE: `<day, date, time>` are reported only if the connection is via the LAN port.

`Password:`↵

The matrix switcher initiates the Password message immediately after the copyright message when the controlling system is connected using TCP/IP or Telnet and the matrix switcher is password protected. This message means that the matrix switcher requires an administrator or user level password before it will perform the commands entered via this link. The matrix switcher repeats the password message response for every entry other than a valid password until a valid password is entered.

↵`Login Administrator`↵

↵`Login User`↵

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

`Qik`↵

The matrix switcher initiates the `Qik` message when a front panel tie creation has occurred.

`PrstSnn`↵

The matrix switcher initiates the `PrstS` message when a memory preset has been saved from the front panel. "*nn*" is the preset number.

`PrstRnn`↵

The matrix switcher initiates the `PrstR` message when a memory preset has been recalled from the front panel. "*nn*" is the preset number.

`Innn●Audxx`↵

The matrix switcher initiates the `Aud` message when a front panel input audio level change has occurred. "*n*" is the input number and "*xx*" is the dB level.

Out*nn*●Vol*xx*↵

The matrix switcher initiates the Vol message when a front panel output audio volume change has occurred. *nn* is the output number and *xx* is the volume level.

Vmt*nn***x*↵

The matrix switcher initiates the Vmt message when an output video mute is toggled on or off from the front panel. *nn* is the output number and *x* is the mute status: 1 = on, Ø = off.

Amt*nn***x*↵

The matrix switcher initiates the Amt message when an output audio mute is toggled on or off from the front panel. *nn* is the output number and *x* is the mute status: 1 = on, Ø = off.

Exec*n*↵

The matrix switcher initiates the Exec message when the front panel security lockout (Executive mode) is switched from the front panel. "*n*" is the Executive mode: Ø, 1, or 2.

Matrix Switcher Error Responses

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

E01 — Invalid input channel number (out of range)
E10 — Invalid command
E11 — Invalid preset number (out of range)
E12 — Invalid output number (out of range)
E13 — Invalid value (out of range)
E14 — Invalid command for this configuration
E17 — Timeout (caused only by direct write of global presets)
E22 — Busy
E24 — Privileges violation (Users have access to all view and read commands [other than the administrator password], and can create ties, presets, and audio mutes
E25 — Device not present
E26 — Maximum number of connections exceeded
E27 — Invalid event number
E28 — Bad filename / file not found

Using the Command and Response Tables

The **command and response tables** begin on page 87. Symbols used in the tables represent variables in the command and response fields. Command and response examples are shown throughout the tables. With the exception of the audio input gain and attenuation commands, the SIS commands are not case sensitive. The ASCII to HEX conversion table below is for use with the command and response table.

ASCII to Hex Conversion Table

Space →	20	!	21	"	22	#	23	$	24	%	25	&	26	'	27	Esc	1B
(	28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F	CR	0D
0	30	1	31	2	32	3	33	4	34	5	35	6	36	7	37	LF	0A
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		

Arrangement of Command and Response Tables

Different board types and endpoint types accept different types of commands. There is some repetition in the command and response tables, depending on the input and output for which the commands are appropriate. Additionally, basic whole-matrix-switcher commands, more advanced whole-matrix-switcher commands, and IP- and remote port setup commands are presented in separate command and response tables.

The following pages present seven command and response tables, each defining a subset of SIS commands and their responses, with examples where appropriate. The tables that are presented are listed below. For increased detail as to where each command family is presented, see the table below, the **table** on the next page, and the **table** on page 83.

- **SIS Command and Response Table for Basic Matrix Switcher Commands**, starting on page 87 — SIS commands for basic, everyday functions of the XTP CrossPointSeries matrix switcher frame.
- **SIS Command and Response Table for Input-Board-Specific Commands**, starting on page 88 — SIS commands to control and monitor the inputs to the matrix switcher via assorted input boards.
- **SIS Command and Response Table for Input-Endpoint-Specific Commands**, starting on page 96 — SIS commands to control and monitor XTP transmitter and XTP switcher endpoints from the matrix switcher.
- **SIS Command and Response Table for Output-Board-Specific Commands**, starting on page 103 — SIS commands to control and monitor the outputs from the matrix switcher via assorted output boards.
- **SIS Command and Response Table for Output-Endpoint-Specific Commands**, starting on page 107 — SIS commands to control and monitor XTP receiver endpoints from the matrix switcher.
- **SIS Command and Response Table for Advanced Matrix Switcher Commands**, starting on page 111 — SIS commands for advanced functions of the XTP CrossPoint Series matrix switcher frame.
- **SIS Command and Response Table for IP- and Remote Port-Specific Commands**, starting on page 119 — SIS commands to control and monitor the IP interface and Remote RS-232/RS-422 port of the XTP CrossPoint matrix switcher.

Matrix Switcher Enclosure Commands			
Command family	**Basic**	**Advanced**	**IP and Remote Port**
Create ties	Page 87		
View ties	Page 88		
Recall global presets	Page 88		
Black video resolution within matrix switcher		Page 111	
Test patterns		Page 111	
Names		Page 111	
Front panel locks		Page 111	
Create global presets		Page 112	
Resets		Page 112	
View settings		Page 113	
File directory		Page 114	
Information requests		Page 115	
IP and remote port setup			Page 119

	Input boards						Input Endpoints			
Command family	**XTP XTP 4K**	**Fiber**	**4K HDMI HDMI HDMI DMA**	**DVI Pro**	**3G HD-SDI SDI**	**VGA**	**XTP T HDMI XTP T HD 4K XTP T HWP 101 XTP T HWP 101 4K XTP FT HD 4K**	**XTP T USW 103 XTP T USW 103 4K**	**XTP T VGA**	**XTP T FB 202 XTP T FB 202 4K XTP T UWP 202 XTP T UWP 202 4K XTP T UWP 302 XTP T EU 202 XTP T MK 202**
EDID	Page 88	Page 88	Page 88	Page 88	Page 88	Page 88	Page 96	Page 96	Page 96	Page 96
Input sync detection	Page 91	Page 91	Page 91	Page 91	Page 91	Page 91	Page 97	Page 99	Page 101	Page 102
Input audio level	N/A	N/A	Page 91	Page 91	Page 91	Page 91	Page 96	Page 96	Page 96	Page 96
Audio routing selections	N/A	N/A	Page 91	Page 91	Page 91	N/A	Page 97	Page 99	N/A	Page 101
HDCP authorized device	N/A	N/A	Page 91	Page 91	N/A	N/A	Page 97	Page 99	N/A	Page 101
HDCP status	N/A	N/A	Page 92	Page 92	N/A	N/A	Page 97	Page 99	N/A	Page 102
Captive screw and Ethernet serial port insertions	Page 92	Page 92	N/A	N/A	N/A	N/A				
Ethernet serial port insert parameters	Page 92	Page 92	N/A	N/A	N/A	N/A				
XTP power	Page 93	N/A	N/A	N/A	N/A	N/A				
AES digital audio	N/A	N/A	N/A	N/A	Page 93	N/A				
Input selection	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Page 98	N/A	N/A
Input video format	N/A	N/A	N/A	N/A	N/A	Page 94	N/A	Page 98	Page 99	Page 102
Image reset	N/A	N/A	N/A	N/A	N/A	Page 94	N/A	Page 98	Page 99	Page 102
Color	N/A	N/A	N/A	N/A	N/A	Page 94	N/A	N/A	Page 100	N/A
Tint	N/A	N/A	N/A	N/A	N/A	Page 94	N/A	N/A	Page 100	N/A
Brightness	N/A	N/A	N/A	N/A	N/A	Page 94	N/A	N/A	Page 100	N/A
Contrast	N/A	N/A	N/A	N/A	N/A	Page 94	N/A	N/A	Page 100	N/A
Pixel phase	N/A	N/A	N/A	N/A	N/A	Page 95	N/A	Page 98	Page 100	Page 102
Horizontal shift	N/A	N/A	N/A	N/A	N/A	Page 95	N/A	Page 98	Page 101	Page 102
Vertical shift	N/A	N/A	N/A	N/A	N/A	Page 95	N/A	Page 98	Page 101	Page 102
Save and recall analog input presets	N/A	N/A	N/A	N/A	N/A	Page 95	N/A	Page 98	Page 101	N/A

	Output boards					Output endpoints	
Command family	**XTP XTP 4K**	**Fiber**	**4K HDMI HDMI**	**DVI Pro**	**Analog audio**	**XTP R HDMI XTP R HD 4K XTP R HWP 201 XTP R HWP 201 4K XTP FR HD 4K**	**XTP SR HDMI XTP SR HD 4K XTP SFR HD 4K**
Audio routing selections	N/A	N/A	**Page 103**	**Page 103**	N/A	**Page 107**	**Page 109**
HDCP status	N/A	**Page 103**	**Page 103**	**Page 103**	N/A	**Page 108**	**Page 109**
Captive screw and Ethernet serial port insertions	**Page 105**	**Page 105**	N/A	N/A	N/A	N/A	N/A
Ethernet serial port insert parameters	**Page 105**	**Page 105**	N/A	N/A	N/A	N/A	N/A
XTP power	**Page 106**	N/A	N/A	N/A	N/A	N/A	N/A
Video mutes	N/A	**Page 103**	**Page 103**	**Page 103**	N/A	**Page 107**	**Page 108**
Output audio volume	N/A	N/A	**Page 104**	**Page 104**	**Page 104**	**Page 107**	**Page 109**
Audio mutes	N/A	N/A	**Page 105**	**Page 105**	**Page 105**	**Page 107**	**Page 109**
Relay controls						**Page 108**	**Page 110**
View video and audio mutes	N/A	**Page 105**	**Page 105**	**Page 105**	**Page 105**	**Page 108**	**Page 110**

Symbol definitions

↵	=	Carriage return and line feed	
←	=	Carriage return	(| pipe can be used interchangeably)
•	=	Space character	
Esc	=	Escape key	(W can be used interchangeably)
X1	=	Input number (for ties)	Ø0 to 16 or 32 (ØØ = untied)
X2	=	Output number	Ø1 to 16 or 32
X3	=	Global preset number	Ø0 to 32 (ØØ = current configuration, applies to view ties command only)
X4	=	EDID value	See the **table** beginning on page 89.
X5	=	Input signal status	Ø = no signal detected 1 = sync detected
X6	=	Input number (for other functions than ties)	Ø1 to 16 or 32 (also addressed input on matrix switcher endpoints [sub-inputs])
X7	=	Audio gain	Ø0 to 24 (1 dB steps)
X8	=	Numeric dB value	-18 to +24 (43 steps of gain or attenuation) (Ø dB = default)
X9	=	Audio attenuation	1 to 18 (1 dB steps)
X10	=	Resolution and rate for black screen	2 = 1280x720p @ 50 Hz 4 = 1280x720p @ 60 Hz 6 = 1920x1080p @ 60 Hz
X11	=	Input audio source	Ø = auto (see the **example** on page 91) 1 = HDMI (de-embedded digital audio) (default) 2 = analog 2-channel audio
X12	=	HDCP authorized device	Ø = off 1 = on (default)
X13	=	HDCP status (for inputs)	Ø = no source device connected 1 = source connected is HDCP-compliant 2 = source connected is not HDCP-compliant
X14	=	Captive screw or UART	Ø = captive screw RS-232 insert (default) 1 = Ethernet RS-232 insert (UART)

X15	=	Port number	Ø1 = remote RS-232/RS-422 port Ø2 = unused
X16	=	Baud rate	3ØØ, 6ØØ, 12ØØ, 18ØØ, 24ØØ, 36ØØ, 48ØØ, 72ØØ, 96ØØ, 144ØØ, 192ØØ, 288ØØ, 384ØØ, 576ØØ, 1152ØØ
X17	=	Parity	0 = odd E = even N = none (default) M = mark S = space
X18	=	Data bits	7, 8 (default)
X19	=	Stop bits	1 (default), 2
X20	=	Port timeout interval (in 10 second increments)	1 (10 seconds) to 65ØØØ 3Ø = 300 seconds or 5 minutes (default)

NOTE: X15 through X20 are repeated on page 118 as X79 through X83 and X92.

X21	=	UART starting point	The starting point (X21) is the front panel RS-232/RS-422 port. The next position (X21+1) is not used. X21+2 to X21+17 = inputs (XTP CrossPoint 1600) X21+2 to X21+33 = inputs (XTP CrossPoint 3200) X21+33 to X21+48 = outputs (XTP CrossPoint 1600) X21+34 to X21+85 = outputs (XTP CrossPoint 3200) Default values: 1999 = rear panel remote RS-232/RS-422 port 2ØØØ = unused 2ØØ1 to 2Ø16 = XTP CrossPoint 1600 inputs 2ØØ1 to 2Ø32 = XTP CrossPoint 3200 inputs 2Ø33 to 2Ø48 = XTP CrossPoint 1600 outputs 2Ø33 to 2Ø64 = XTP CrossPoint 3200 outputs
X22	=	Enable or disable	Ø = disable 1 = enable
X23	=	Amount of power requested	ØØ or 13 (watts)
X24	=	Power status	Ø = unpowered endpoint 1 = power provided to endpoint 2 = power available but disabled 3 = no power available, but enabled 4 = fault
X25	=	Wattage	Power usage in 0.1 watt increments. Example: 26Ø = 26.0 watts.
X26	=	Power supply status	Ø = ok 1 = no ok
X27	=	AESC digital channel pair	1 (default) or 2
X28	=	AESG digital channel group	1 (default) or 2
X29	=	Input video source	Ø = auto 1 = video 2 = s-video 3 = RGBcvS (SCART) 4 = YUV interlace 5 = RGB 6 = YUV

X30	=	Detected video format	Ø = no signal detected 1 = video 2 = s-video 3 = RGBcvS (SCART) 4 = YUV interlace 5 = RGB 6 = YUV
X31	=	Picture adjustments	ØØØ to 255 (128 = default)
X32	=	Shift	Ø to 65535
X33	=	Analog input preset	Ø through 8
X34	=	Output audio source	Ø = original HDMI audio 1 = embed audio
X35	=	HDCP status (for outputs)	Ø, 2, 4, or 6 = no monitor connected 1, 3, or 5 = monitor connected but the video signal is not encrypted 7 = monitor connected and the video signal is encrypted
X36	=	Volume adjustment range	ØØ through 64 (1 dB per step except for Ø to 1, which is 13 dB) (see the **table** on page 104)
X37	=	Digital and analog audio mute status	Ø = no mutes (default) 1 = digital audio mute 2 = analog audio mute 3 = analog and digital audio mute
X38	=	Video and audio mute status	Ø = no mutes (default) 1 = video mute 2 = digital audio mute 3 = video and digital audio mute 4 = analog audio mute 5 = video and analog audio mute 6 = digital and analog audio mute 7 = video, digital audio, and analog audio mute
X39	=	Relay on endpoint	1 or 2
X40	=	Pulse duration	Ø to 65535 (each step = 16 ms, see the **Example** on page 108)
X41	=	Relay status	Ø = off 1 = on
X42	=	Test pattern	ØØ = disable (default) Ø1 = color bars, 720p @ 50 Hz Ø2 = black field, 720p @ 50 Hz Ø3 = color bars, 720p @ 60 Hz Ø4 = black field, 720p @ 60 Hz Ø5 = color bars, 1080p @ 60 Hz Ø6 = black field, 1080p @ 60 Hz Ø7 = color bars and audio, 720p @ 50 Hz Ø8 = black field and audio, 720p @ 50 Hz Ø9 = color bars and audio, 720p @ 60 Hz 1Ø = black field and audio, 720p @ 60 Hz 11 = color bars and audio, 1080p @ 60 Hz 12 = black field and audio, 1080p @ 60 Hz

X43	=	Name	12 characters maximum

NOTE: The HTML language reserves certain characters for specific functions (see **Special Characters** on page 120).

X44	=	Lock mode	Ø = mode 0 1 = mode 1 2 = mode 2 (default)
X45	=	Number of inputs	4, 8, 12, 16, 2Ø, 24, 28, or 32
X46	=	Number of outputs	4, 8, 12, 16, 2Ø, 24, 28, or 32
X47	=	Installed input board	A = XTP CP 4i 4K (TP) F = XTP CP 4i VGA G = XTP CP 4i (TP) H = XTP CP 4i HDMI I = XTP CP 4i DVI Pro K = XTP CP 4i HDMI DMA N = XTP CP 4i Fiber 4K P = XTP CP 4i 3G-SDI T = XTP CP 4i HD 4K PLUS X = no board installed
X48	=	Installed output board	B = XTP CP 4o 4K (TP) D = XTP CP 4o (TP) E = XTP CP 4o HDMI J = XTP CP 4o DVI Pro M = XTP CP 4o SA (stereo audio) O = XTP CP 4o Fiber 4K U = XTP CP 4o HD 4K PLUS X = no board installed
X49	=	Firmware version number to second decimal place (x.xx)	
X50	=	Verbose firmware version-description-upload date/time (see **Query firmware version (verbose)** command on page 115)	
X51	=	Voltage	Positive or negative voltage and magnitude
X52	=	Internal temperature	Degrees Fahrenheit
X53	=	Fan speed	in RPM
X54	=	Power supply installed status	Ø = no power supply installed 1 = power supply installed
X55	=	Transmitter endpoint input	1 to 2 or 1 to 3 depending on the transmitter

SIS Command and Response Table for Basic Matrix Switcher Commands

The table that starts below shows commands for basic operation of the XTP CrossPoint Series matrix switcher frame. Commands shown affect the entire matrix switcher, regardless of the input boards and output boards installed or any connected endpoints.

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Create Ties			
NOTES: • Commands can be entered back-to-back in a string, with no spaces. For example: `1*1!Ø2*Ø2&ØØ3*ØØ3%4*8$`. • The quick multiple tie and tie input to all output commands activate all I/O switches simultaneously. • The matrix switchers support 1-, 2-, and 3-digit numeric entries (`1*1`, `Ø2*Ø2`, or `ØØ1*ØØ1`). • The **&** **tie** command for RGB and the **%** **tie** command for video can be used interchangeably on the matrix switchers.			
Tie input video and audio to output	X1*X2!	OutX2•InX1•All↵	Tie the input X1 video and audio to output X2.
Example:	1*3!	OutØ3•InØ1•All↵	Tie input 1 video and audio to output 3.
Tie input video (RGB) only to output	X1*X2&	OutX2•InX1•RGB↵	Audio breakaway.
Example (see last Notes bullet, above):	1Ø*4&	OutØ4•In1Ø•RGB↵	Tie input 10 RGB to output 4.
Tie input video only to output	X1*X2%	OutX2•InX1•Vid↵	Audio breakaway.
Example (see last Notes bullet, above):	7*5%	OutØ5•InØ7•Vid↵	Tie input 7 video to output 5.
Tie input audio only to output	X1*X2$	OutX2•InX1•Aud↵	Audio breakaway.
Example:	12*4$	OutØ4•In12•Aud↵	Tie input 12 audio to output 4.
NOTE: Audio is **not** routed to an output HDMI connector if there is no video input tied to it. Insert a black video signal into audio breakaway ties using the Esc BAFMT command on **page 103** and the Esc EAFMT commands on **page 97** and **page 99** to make an audio-only tie.			
Untie input video and audio	Ø*X2!	OutX2•InØØ•All↵	Untie the video and audio input from output X2.
Quick multiple tie	Esc+QX1*X2!...X1*X2$←	Qik↵	
Example:	Esc+Q3*4!3*5%3*6$←	Qik↵	Tie input 3 video and audio to output 4, tie input 3 video to output 5, and tie input 3 audio to output 6.
Tie input to all outputs, video and audio	X1*!	InX1•All↵	
Example:	5*!	In Ø5•All↵	Tie input 5 video and audio to all outputs.
NOTE: `Ø*!` clears all ties.			
Tie input to all outputs, RGB (video) only	X1*&	InX1•RGB↵	Audio breakaway.
Example (see last Notes bullet, above):	8*&	InØ8•RGB↵	Tie input 8 RGB to all outputs.
Tie input to all outputs, video only	X1*%	InX1•Vid↵	Audio breakaway.
Example (see last Notes bullet, above):	1Ø*%	In1Ø•Vid↵	Tie input 10 video to all outputs.
Tie input to all outputs, audio only	X1*$	InX1•Aud↵	Audio breakaway.

KEY:
X1 = Input number — ØØ – 16, 32, or 64 (ØØ = untied)
X2 = Output number — Ø1 – 16, 32, or 64

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Read ties			
NOTE: The & **read tie** command for RGB and the % **read tie** command for video can be used interchangeably on the matrix switchers.			
Read RGB (video) output tie	X2&	X1↵	RGB input X1 is tied to output X2.
Read video output tie	X2%	X1↵	Video input X1 is tied to output X2.
Read audio output tie	X2$	X1↵	Audio input X1 is tied to output X2.
Recall global input presets			
NOTES: • Save presets from the front panel (see **Example 5: Saving a preset** on page 44) or via the **Save current configuration as a global preset** SIS command on page 112). • If you try to recall a global preset that is not saved, the matrix switcher responds with the error code E11.			
Recall a global input preset	EscRX3PRST←	PrstRX3↵	
Example:	EscR5PRST←	PrstRØ5↵	Recall preset 5, which becomes the current configuration.

SIS Command and Response Table for Input-Board-Specific Commands

The table that starts below shows commands that affect inputs only and, in general, apply to installed input boards. Where a command does not apply to all input board types, the valid board types are noted.

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
EDID commands			
NOTES: • See the **table** on the next two pages for X4 values. • Leading zeroes are optional for the entry of the inputs (X6s) and EDID values (X4s). Leading zeroes are reported in the response.			
Assign EDID data to an input	EscAX6*X4EDID←	EdidAX6*X4↵	Assign an EDID value of X4 to input X6.
*Example (***XTP CrossPoint 3200***):*	EscA7*36EDID←	EdidAØ7*Ø36↵	Assign an EDID value of 1280x720 at 60 Hz to input 7.
*Example (***XTP CrossPoint 1600***):*	EscA7*36EDID←	EdidAØ7*Ø36↵	Assign an EDID value of 1600x900 at 60 Hz to input 7.
Assign EDID data to all inputs	EscA*X4*EDID←	EdidAØØ*X4↵	Assign an EDID value of X4 to all inputs.
View EDID assignment	EscAX6EDID←	X4↵	
Save output 1 EDID to user assigned slot	EscSX4EDID↵	EdidSX4↵	Save the output 1 EDID to location X4.
NOTE: For this command, X4 is valid only in the range of 117 through 124 (XTP CrossPoint 1600) or 133 through 140 (XTP CrossPoint 3200).			
*Example (***XTP CrossPoint 3200***):*	EscS133EDID←	EdidS133↵	Save the output 1 EDID to user location 1.
*Example (***XTP CrossPoint 1600***):*	EscS117EDID←	EdidS117↵	Save the output 1 EDID to user location 1.

KEY:		
	X1 = Input number (for tie)	ØØ – 16 or 32 (ØØ = untied)
	X2 = Output number	Ø1 – 16 or 32
	X3 = Global preset number	Ø1 - 32
	X4 = EDID value (resolution and rate)	See the **table** on the next two pages.
	X6 = Input number (for other than tie)	Ø1 – 16 or 32

X4 3200	X4 1600	Source or value	X4 3200	X4 1600	Source or value	X4 3200	X4 1600	Source or value	X4 3200	X4 1600	Source or value	X4 3200	X4 1600	Source or value
Assigned output values														
Ø01	Ø01	Output 1	Ø08	Ø08	Output 8	Ø15	Ø15	Output 15	Ø22		Output 22	Ø29		Output 29
Ø02	Ø02	Output 2	Ø09	Ø09	Output 9	Ø16	Ø16	Output 16	Ø23		Output 23	Ø3Ø		Output 30
Ø03	Ø03	Output 3	Ø1Ø	Ø1Ø	Output 10	Ø17		Output 17	Ø24		Output 24	Ø31		Output 31
Ø04	Ø04	Output 4	Ø11	Ø11	Output 11	Ø18		Output 18	Ø25		Output 25	Ø32		Output 32
Ø05	Ø05	Output 5	Ø12	Ø12	Output 12	Ø19		Output 19	Ø26		Output 26			
Ø06	Ø06	Output 6	Ø13	Ø13	Output 13	Ø2Ø		Output 20	Ø27		Output 27			
Ø07	Ø07	Output 7	Ø14	Ø14	Output 14	Ø21		Output 21	Ø28		Output 28			
VGA – PC values														
Ø33	Ø17	1024x768 @ 50 Hz	Ø4Ø	Ø24	1280x800 @ 60 Hz	Ø47	Ø31	1400x1050 @ 50 Hz	Ø54	Ø38	1600x1200 @ 60 Hz	Ø61	Ø45	2048x1080 @ 50 Hz
Ø34	Ø18	1024x768 @ 60 Hz	Ø41	Ø25	1280x1024 @ 50 Hz	Ø48	Ø32	1400x1050 @ 60 Hz	Ø55	Ø39	1680x1050 @ 50 Hz	Ø62	Ø46	2048x1080 @ 60 Hz
Ø35	Ø19	1280x720 @ 50 Hz	Ø42	Ø26	1280x1024 @ 60 Hz	Ø49	Ø33	1440x900 @ 50 Hz	Ø56	Ø4Ø	1680x1050 @ 60 Hz			
Ø36	Ø2Ø	1280x720 @ 60 Hz	Ø43	Ø27	1360x768 @ 50 Hz	Ø5Ø	Ø34	1440x900 @ 60 Hz	Ø57	Ø41	1920x1080 @ 50 Hz			
Ø37	Ø21	1280x768 @ 50 Hz	Ø44	Ø28	1360x768 @ 60 Hz	Ø51	Ø35	1600x900 @ 50 Hz	Ø58	Ø42	1920x1080 @ 60 Hz			
Ø38	Ø22	1280x768 @ 60 Hz	Ø45	Ø29	1366x768 @ 50 Hz	Ø52	Ø36	1600x900 @ 60 Hz	Ø59	Ø43	1920x1200 @ 50 Hz			
Ø39	Ø23	1280x800 @ 50 Hz	Ø46	Ø3Ø	1366x768 @ 60 Hz	Ø53	Ø37	1600x1200 @ 50 Hz	Ø6Ø	Ø44	1920x1200 @ 60 Hz			
DVI – PC values														
Ø63	Ø47	1024x768 @ 50 Hz	Ø7Ø	Ø54	1280x800 @ 60 Hz	Ø77	Ø61	1400x1050 @ 50 Hz	Ø84	Ø68	1600x1200 @ 60 Hz	Ø91	Ø75	2048x1080 @ 50 Hz
Ø64	Ø48	1024x768 @ 60 Hz	Ø71	Ø55	1280x1024 @ 50 Hz	Ø78	Ø62	1400x1050 @ 60 Hz	Ø85	Ø69	1680x1050 @ 50 Hz	Ø92	Ø76	2048x1080 @ 60 Hz
Ø65	Ø49	1280x720 @ 50 Hz	Ø72	Ø56	1280x1024 @ 60 Hz	Ø79	Ø63	1440x900 @ 50 Hz	Ø86	Ø7Ø	1680x1050 @ 60 Hz			
Ø66	Ø5Ø	1280x720 @ 60 Hz	Ø73	Ø57	1360x768 @ 50 Hz	Ø8Ø	Ø64	1440x900 @ 60 Hz	Ø87	Ø71	1920x1080 @ 50 Hz			
Ø67	Ø51	1280x768 @ 50 Hz	Ø74	Ø58	1360x768 @ 60 Hz	Ø81	Ø65	1600x900 @ 50 Hz	Ø88	Ø72	1920x1080 @ 60 Hz			
Ø68	Ø52	1280x768 @ 60 Hz	Ø75	Ø59	1366x768 @ 50 Hz	Ø82	Ø66	1600x900 @ 60 Hz	Ø89	Ø73	1920x1200 @ 50 Hz			
Ø69	Ø53	1280x800 @ 50 Hz	Ø76	Ø6Ø	1366x768 @ 60 Hz	Ø83	Ø67	1600x1200 @ 50 Hz	Ø9Ø	Ø74	1920x1200 @ 60 Hz			

X4 3200	X4 1600	Source or value	X4 3200	X4 1600	Source or value	X4 3200	X4 1600	Source or value	X4 3200	X4 1600	Source or value	X4 3200	X4 1600	Source or value
HDMI – PC values, all with 2-channel embedded audio														
Ø93	Ø77	1024x768 @ 50 Hz	Ø99	Ø83	1280x1024 @ 50 Hz	1Ø5	Ø89	1400x1050 @ 50 Hz	111	Ø95	1600x1200 @ 50 Hz	117	1Ø1	2048x1080 @ 50 Hz
Ø94	Ø78	1024x768 @ 60 Hz	1ØØ	Ø84	1280x1024 @ 60 Hz	1Ø6	Ø9Ø	1400x1050 @ 60 Hz	112	Ø96	1600x1200 @ 60 Hz	118	1Ø2	2048x1080 @ 60 Hz
Ø95	Ø79	1280x768 @ 50 Hz	1Ø1	Ø85	1360x768 @ 50 Hz	1Ø7	Ø91	1440x900 @ 50 Hz	113	Ø97	1680x1050 @ 50 Hz			
Ø96	Ø8Ø	1280x768 @ 60 Hz	1Ø2	Ø86	1360x768 @ 60 Hz	1Ø8	Ø92	1440x900 @ 60 Hz	114	Ø98	1680x1050 @ 60 Hz			
Ø97	Ø81	1280x800 @ 50 Hz	1Ø3	Ø87	1366x768 @ 50 Hz	1Ø9	Ø93	1600x900 @ 50 Hz	115	Ø99	1920x1200 @ 50 Hz			
Ø98	Ø82	1280x800 @ 60 Hz	1Ø4	Ø88	1366x768 @ 60 Hz	11Ø	Ø94	1600x900 @ 60 Hz	116	1ØØ	1920x1200 @ 60 Hz			
HDMI – HDTV values														
119	1Ø3	480p @ 60 Hz 2-channel audio	**122***	**1Ø6***	720p @ 60 Hz 2-channel audio	125	1Ø9	1080i @ 50 Hz 2-channel audio	128	112	1080i @ 60 Hz multi-channel audio	131	115	1080p @ 50 Hz multi-channel audio
12Ø	1Ø4	576p @ 50 Hz 2-channel audio	123	1Ø7	720p @ 50 Hz multi-channel audio	126	11Ø	1080i @ 60 Hz 2-channel audio	129	113	1080p@ 50 Hz 2-channel audio	132	116	1080p @ 60 Hz multi-channel audio
121	1Ø5	720p @ 50 Hz 2-channel audio	124	1Ø8	720p @ 60 Hz multi-channel audio	127	111	1080i @ 50 Hz multi-channel audio	13Ø	114	1080p @ 60 Hz 2-channel audio			
User – Assigned EDIDs														
133	117	User assigned 1	135	119	User assigned 3	137	121	User assigned 5	139	123	User assigned 7			
134	118	User assigned 2	136	12Ø	User assigned 4	138	122	User assigned 6	14Ø	124	User assigned 8			

* Default value, digital

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Input sync detection			
View all input connections	ØLS	X5[1]X5[2]X5[3]... X5[n]↵	16 or 32 (n) X5s; each is the connection status of an input, starting from input 1.
Example (**XTP CrossPoint 3200**):	ØLS	No input detected / Sync detected / Sync detected Response Status: Ø Ø Ø 1 1 1 Ø 1 Ø Ø 1 Ø 1 . . . Ø↵ Input: 1 2 3 4 5 6 7 8 9 10 11 12 13 32	
Inputs on XTP CP 4i HD 4K PLUS, XTP CP 4i HDMI, XTP CP 4i HDMI DMA, XTP CP 4i DVI Pro, XTP CP 4i 3G, XTP CP 4i VGA Boards			
Audio input gain and attenuation			
NOTE: The set gain (G) and set attenuation (g) commands **are** case sensitive.			
Set audio input gain to +dB value	X6*X7G	InX6•AudX8↵	
Example:	1*2G	InØ1•Aud+Ø2↵	Set input 1 audio gain to +2 dB.
Set audio input attenuation to -dB value	X6*X9g	InX6•AudX8↵	
Increment gain	X6+G	InX6•AudX8↵	Increase gain by 1 dB.
Example:	5+G	InØ5•Aud+Ø3↵	Increase audio input 5 level from +2 dB to +3 dB.
Decrement gain	X6–G	InX6•AudX8↵	Decrease gain by 1 dB.
Example:	7–G	InØ7•Aud-Ø9↵	Decrease audio input 7 level from -8 dB to -9 dB.
Read input gain	X6G	X8↵	
Example:	3G	-Ø6↵	Audio input 3 level is at -6 dB.
Inputs on XTP CP 4i HD 4K PLUS, XTP CP 4i HDMI, XTP CP 4i HDMI DMA, XTP CP 4i DVI Pro, and XTP CP 4i 3G Boards			
Audio routing selections			
NOTE: These commands select between the audio embedded in the digital video stream and the 2-channel analog audio.			
Input audio selection	EscIX6*X11AFMT←	AfmtIX6*X11↵	Use audio from the X11 source.
Example 1:	EscI1*1AFMT←	AfmtIØ1*1↵	Use digital audio from the HDMI port of input 1.
Example 2:	EscI1*ØAFMT←	AfmtIØ1*Ø↵	Auto (**Ø**): Digital audio takes priority over analog audio.
View input audio selection	EscIX6AFMT←	X11↵	
View all input audio selections	EscIAFMT←	X11[1]X11[2]X11[3] ... X11[n]↵	16 or 32 (n) sequential audio input selections, starting from input 1.
Inputs on XTP CP 4i HD 4K PLUS, XTP CP 4i HDMI, XTP CP 4i HDMI DMA, and XTP CP 4i DVI Pro Boards			
Input reports as an HDCP-authorized device			
HDCP authorized device on	EscEX6*1HDCP←	HdcpEX6*1↵	Set the input as an HDCP authorized device (**default**).
HDCP authorized device off	EscEX6*ØHDCP←	HdcpEX6*Ø↵	Set the input as not an HDCP authorized device.
View HDCP authorized status	EscEX6HDCP←	X12↵	Show HDCP authorized device status.

KEY:

X5 = Input signal status	Ø = No signal detected	1 = Sync detected	
X6 = Input number (for other than tie)	Ø1 – 16 or 32		
X7 = Audio gain	Ø – 24 (1 dB per step)		
X8 = Numeric dB value	–18 to +24 (43 steps of gain or attenuation) (0 dB = **default**)		
X9 = Audio attenuation	1 – 18 (1 dB per step)		
X10 = Resolution and rate for black screen	2 = 1280x720p @50 Hz	4 = 1280x720p @60 Hz	6 = 1920x1080p @60 Hz
X11 = Input audio source	Ø = Auto (see the example above) 1 = HDMI (de-embedded digital audio) (**default**) 2 = Analog 2-channel audio		
X12 = HDCP authorized device	Ø = off	1 = on (**default**)	

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Inputs on XTP CP 4i HD 4K PLUS, XTP CP 4i HDMI, XTP CP 4i HDMI DMA, and XTP CP 4i DVI Pro Boards (continued)			
HDCP status			
View input HDCP status	Esc I X6 HDCP ←	X13 ↵	
View HDCP status of all inputs	Esc IHDCP ←	X13[1] X13[2] X13[3]... X13[n] ↵	
Inputs on XTP CP 4i [XTP], XTP CP 4i 4K [XTP], and XTP CP 4i Fiber 4K Boards			
Captive screw and Ethernet serial port insertion enables			
NOTE: See **RS-232 Insertion** on page 66 for an overview of using serial port insertions.			
Enable an input captive screw serial port insertion	Esc I X6 *ØLRPT ←	LrptI X6 *Ø ↵	Enable the captive screw serial port insert on input X6. This disables the Ethernet RS-232 insert.
Enable an input Ethernet serial port insertion	Esc I X6 *1LRPT ←	LrptI X6 *1 ↵	Enable the Ethernet serial port insert on input X6. This disables the captive screw serial port insert.
Set all RS-232 input insertions	Esc I X14 *LRPT ←	LrptIØØ* X14 ↵	
View input insertion	Esc I X6 LRPT ←	X14 ↵	
View all input insertions	EscILRPT ←	X14[1] X14[2] X14[3]... X14[n] ↵	One X14 for each available (installed) input, starting at input 1. Inputs that are not on an XTP CP 4i [XTP], XTP CP 4i 4K [XTP], or XTP CP 4i Fiber 4K board report as Ø.
Ethernet serial port insert parameters			
Set serial port parameters	Esc X15 *X16 , X17 , X18 , X19 CP ←	Cpn X15 •Ccp X16 , X17 , X18 , X19 ↵	
Read serial port parameters	Esc X15 CP ←	X16 , X17 , X18 , X19 ↵	
Configure current port timeout	Esc Ø* X20 TC ←	PtiØ* X20 ↵	
Read current port timeout	EscØTC ←	X20 ↵	
Configure global IP port timeout	Esc 1* X20 TC ←	Pti1* X20 ↵	
Read global IP port timeout	Esc 1TC ←	X20 ↵	
Set UART starting point	Esc X21 MD ←	Pmd X21 ↵	Sets the initial (lowest) port number for the range of numbers assigned to the serial port and UARTs.
Read UART starting point	EscMD ←	X21 ↵	

KEY:

X6 = Input number (for other than tie)	Ø1 — 16 or 32
X13 = HDCP status (for inputs)	Ø = No source device connected 1 = Source connected is HDCP-compliant 2 = Source connected is not HDCP-compliant
X14 = Captive screw or UART	**Ø** = Captive screw RS-232 insert (**default**) 1 = Ethernet RS-232 insert (UART)
X15 = Port number	Ø3 — 18 or 34 = UARTs (inputs) 1 — 16 or 32
X16 = Baud rate	3ØØ, 6ØØ, 12ØØ, 18ØØ, 24ØØ, 36ØØ, 48ØØ, 72ØØ, 96ØØ (**default**), 144ØØ, 192ØØ, 288ØØ, 384ØØ, 576ØØ, 1152ØØ
X17 = Parity	**o**dd, **e**ven, **n**one, **m**ark, **s**pace (only the first letter is required) (**n = default**)
X18 = Data bits	7, **8** (**default**)
X19 = Stop bits	**1** (**default**), 2
X20 = Port timeout (10-sec. increments)	1 (= 10 seconds) - 65ØØØ (**default is 3Ø = 300 seconds = 5 minutes**)
X21 = UART starting point	The starting point (X21) is the rear panel RS-232/RS-422 port. The next position (X21[+1]) is not used. For the XTP CrossPoint 1600, X21[+2] through X21[+17] are XTP inputs. For the XTP CrossPoint 3200, X21[+2] through X21[+33] are XTP inputs. **Default values**: 1999 = Rear panel remote RS-232/RS-422 port 2ØØØ is unused 2ØØ1 through 2Ø16 (**XTP CrossPoint 1600**) = Input 1 through 16 2ØØ1 through 2Ø32 (**XTP CrossPoint 3200**) = Input 1 through 32

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Inputs on XTP CP 4i [XTP] and XTP CP 4i 4K [XTP] Boards			
XTP power			
ATTENTION: • Power over XTP (PoX) is intended for indoors use only. No part of a network that uses PoX can be routed outdoors. • PoX est destiné à une utilisation en intérieur uniquement. Aucune partie d'un réseau qui utilise PoX ne peut être routée en extérieur.			

NOTE:
• PoX is supplied by the XTP CrossPoint 48 V power supply.
• XTP CrossPoint 1600:
  • Can power up to 28 total (input and output) endpoints at up to 364 watts.
  • Is available with optional 48 V power supply redundancy.
• XTP CrossPoint 3200:
  • Can power up to 24 total (input and output) endpoints at up to 312 watts.
  • No 48 V power supply redundancy is available.			

Enable or disable power to input endpoint and report status	Esc I X6 * X22 POEC ←	PoecI X6 * X22 * X23 * X24 ↵	Enable or disable (X22) remote power to input X6. The endpoint is requesting X23 watts and the power status is X24.
Example:	Esc I1*1POEC ←	PoecIØ1*1*13*1 ↵	Enable remote power on input 1, which is requesting 13 watts. The board is providing power to the endpoint.
View input power status	Esc I X6 POEC ←	X22 * X23 * X24 ↵	
Enable or disable input power and report status, all inputs	Esc I X22 *POEC ←	PoecIØØ* X22¹ X22² ... X22ⁿ ↵	Each X22 is the enable or disable status of an input, starting at 1. *n* is 16 or 32.
View input power status, all inputs	Esc IPOEC ←	X22¹ X22² X22³ ... X22ⁿ ↵	
View XTP power usage	Esc TPOEC ←	X25 * X26 ↵	Show PoX wattage applied and the status of the 48 V power supply.
Inputs on XTP CP 4i 3G Boards			
AES digital audio channel selection			
NOTE: Eight-channel audio is divided into two groups, each consisting of two channel pairs (four channels). The table at right shows the channels contained within each group.			
Select channel	Esc I X6 * X27 AESC ←	AescI X6 * X27 ↵	Select digital audio channel pair on which audio will be embedded.
View selected channel	Esc I X6 AESC ←	X27 ↵	
AES digital audio group selection			
Select group	Esc I X6 * X28 AESG ←	AesgI X6 * X28 ↵	Select digital audio channel group on which audio will be embedded.
View selected group	Esc I X6 AESG ←	X28 ↵	

Group 1				Group 2			
Ch Pair 1		Ch Pair 2		Ch Pair 1		Ch Pair 2	
Ch 1	Ch 2	Ch 1	Ch 2	Ch 1	Ch 2	Ch 1	Ch 2

KEY:

X6 = Input number (for other than tie)	Ø1 – 16 or 32		
X22 = Enable or disable for power	Ø = Disable (**default**)	1 = Enable	
X23 = Amount of power requested	ØØ or 13 (watts)		
X24 = Power status	Ø = Unpowered endpoint	2 = Power available, disabled	4 = Fault
	1 = Power provided to endpoint	3 = No power available, enabled	
X25 = Wattage	Power usage in Ø.1 watt increments. Example: 26Ø = 26.0 watts		
X26 = Power supply status	Ø = Ok	1 = Not Ok	
X27 = AESC digital channel pair	1 (**default**) or 2		
X28 = AESG digital channel group	1 (**default**) or 2		

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Inputs on XTP CP 4i VGA (Analog Video) Boards			
Input video format			
Set format	X6*X29\	ItypX6*X29*X30↵	Set input X6 to X29 video format. The board reports the detected video format, X30, in the response.
Example:	1*Ø\	ItypØ1*Ø*5↵	Set input 1 to auto. The board reports RGB video.
View format	X6\	X29*X30↵	View set (X29) and detected (X30) video format of input X6.
Image reset			
Execute an image reset	EscIX6*2AADJ←	AadjIX6*2↵	Reset input signal timing to Extron default for input X6.
Color			
NOTE: Color adjustments are available for RGBcvS (SCART), interlaced component video (YUVi), S-video, and NTSC composite video inputs.			
Set a specific color value	EscIX6*X31COLR←	ColrIX6*X31↵	Specify the color adjustment.
Increment color value	EscIX6+COLR←	ColrIX6*X31↵	Increase the color setting by one.
Decrement color value	EscIX6–COLR←	ColrIX6*X31↵	Decrease the color setting by one.
View the color value	EscIX6COLR←	X31↵	Show the color setting.
Tint			
NOTE: Tint adjustments are available for NTSC S-video, and NTSC composite video inputs.			
Set a specific tint value	EscIX6*X31TINT←	TintIX6*X31↵	Specify the tint adjustment.
Increment tint value	EscIX6+TINT←	TintIX6*X31↵	Increase the tint setting by one.
Decrement tint value	EscIX6–TINT←	TintIX6*X31↵	Decrease the tint setting by one.
View the tint value	EscIX6TINT←	X31↵	Show the tint setting.
Brightness			
NOTE: Brightness adjustments are available for RGBcvS (SCART), interlaced component video (YUVi), S-video, and NTSC composite video inputs.			
Set a specific brightness value	EscIX6*X31BRIT←	BritIX6*X31↵	Specify the brightness adjustment.
Increment brightness value	EscIX6+BRIT←	BritIX6*X31↵	Increase the brightness setting by one.
Decrement brightness value	EscIX6–BRIT←	BritIX6*X31↵	Decrease the brightness setting by one.
View the brightness value	EscIX6BRIT←	X31↵	Show the brightness setting.
Contrast			
NOTE: Contrast adjustments are available for RGBcvS (SCART), interlaced component video (YUVi), S-video, and NTSC composite video inputs.			
Set a specific contrast value	EscIX6*X31CONT←	ContIX6*X31↵	Specify the contrast adjustment.
Increment contrast value	EscIX6+CONT←	ContIX6*X31↵	Increase the contrast setting by one.
Decrement contrast value	EscIX6–CONT←	ContIX6*X31↵	Decrease the contrast setting by one.
View the contrast value	EscIX6CONT←	X31↵	Show the contrast setting.

KEY:

X6 = Input number (for other than tie) — Ø1 – 16 or 32

X29 = Input video source — **Ø = Auto (default)**, 1 = Video, 2 = S-video, 3 = RGBcvS (SCART), 4 = YUV interlace, 5 = RGB, 6 = YUV

X30 = Detected video format — Ø = no signal detected, 1 = Video, 2 = S-video, 3 = RGBcvS (SCART), 4 = YUV interlace, 5 = RGB, 6 = YUV

X31 = Picture adjustments — ØØØ through 255 **(128 = default)**

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Inputs on XTP CP 4i VGA (Analog Video) Boards (continued)			
Pixel phase			
NOTE: Pixel phase adjustments are available for RGBHV and non-interlaced component video (YUVp) video inputs.			
Set a specific pixel sampling phase	Esc I X6 * X31 PHAS ←	PhasI X6 * X31 ↵	Specify the pixel sampling phase.
Increment sampling value	Esc I X6 + PHAS ←	PhasI X6 * X31 ↵	Increase the phase value.
Decrement sampling value	Esc I X6 – PHAS ←	PhasI X6 * X31 ↵	Decrease the phase value.
View the sampling value	Esc I X6 PHAS ←	X31 ↵	Show the pixel sampling phase.
Horizontal shift			
Specify a value	Esc I X6 * X32 HCTR ←	HctrI X6 * X32 ↵	Set the horizontal location of first active pixel in input X6.
Increment value	Esc I X6 – HCTR ←	HctrI X6 * X32 ↵	Increase the value by one pixel (shift the image to the right).
Decrement value	Esc I X6 + HCTR ←	HctrI X6 * X32 ↵	Decrease the value by one pixel (shift the image to the left).
View	Esc I X6 HCTR ←	X32 ↵	Show the horizontal location of first active pixel in input X6.
Vertical shift			
Specify a value	Esc I X6 * X32 VCTR ←	VctrI X6 * X32 ↵	Set the vertical location of first active pixel in input X6.
Increment value	Esc I X6 + VCTR ←	VctrI X6 * X32 ↵	Increase the value by one line (shift up).
Decrement value	Esc I X6 – VCTR ←	VctrI X6 * X32 ↵	Decrease the value by one line (shift down).
View	Esc I X6 VCTR ←	X32 ↵	Show the vertical location of first active pixel in input X6.
Save and recall analog input presets			
NOTES: • Analog input presets are available for analog (RGB, YUVp, YUVi, S-video, composite) video input signals on an XTP CP 4i VGA universal analog input board only. • Analog input presets save a set of analog variables, such as: horizontal and vertical shift, pixel phase, color and tint, brightness and contrast, and input type.			
Save an analog input preset	X6 * 1 * X33 ,	Spr X6 * 1 * X33 ↵	Command character is a comma.
Recall an analog input preset	X6 * 1 * X33 .	Rpr X6 * 1 * X33 ↵	Command character is a period.

KEY:

X6 = Input number (for other than tie)	Ø1 – 16 or 32	
X32 = Shift	ØØØØØ through 65535	
X33 = Analog input preset	1 through 8	

SIS Command and Response Table for Input-Endpoint-Specific Commands

The table that starts below shows commands that affect the following endpoints connected through XTP input boards only.

- XTP T HDMI and XTP T HD 4K
- XTP T USW 103 and XTP T USW 103 4K
- XTP T VGA
- XTP T HWP 101 and XTP HWP 101 4K
- XTP T FB 202 and XTP T FB 202 4K
- XTP T UWP 202 and XTP T UWP 202 4K
- XTP T UWP 302
- XTP T EU 202
- XTP T MK 202
- XTP FT HD 4K

The XTP CrossPoint Series matrix switcher receives the commands and forwards them to the endpoint.

Command Function	SIS Command (Host to Unit to Endpoint)	Response (Endpoint to Unit to Host)	Additional Description
EDID commands			
NOTE: Leading zeroes are optional for the entry of the inputs (X6s) and EDID values (X4s). Leading zeroes are reported in the response.			
Assign EDID data to an input	EscAX6*X4EDID↵	EdidAX6*X4↵	Assign an EDID value of X4 to input X6.
*Example (***XTP CrossPoint 3200***):*	EscA7*36EDID↵	EdidAØ7*Ø36↵	Assign an EDID value of 1280x720 at 60 Hz to input 7.
*Example (***XTP CrossPoint 1600***):*	EscA7*36EDID↵	EdidAØ7*Ø36↵	Assign an EDID value of 1600x900 at 60 Hz to input 7.
Assign EDID data to all inputs	EscA*X4*EDID↵	EdidAØØ*X4↵	Assign an EDID value of X4 to all inputs.
View EDID assignment	EscAX6EDID↵	X4↵	
Save output 1 EDID to user assigned slot	EscSX4EDID↵	EdidSX4↵	Save the output 1 EDID to location X4.
NOTE: For this command, X4 is valid only in the range of 117 through 124 (XTP CrossPoint 1600) or 133 through 140 (XTP CrossPoint 3200).			
*Example (***XTP CrossPoint 3200***):*	EscS133EDID↵	EdidS133↵	Save the output 1 EDID to user location 1.
*Example (***XTP CrossPoint 1600***):*	EscS117EDID↵	EdidS117↵	Save the output 1 EDID to user location 1.
Audio input gain and attenuation			
NOTE: The set gain (G) and set attenuation (g) commands **are** case sensitive.			
Set audio input gain to +dB value	X6*X7G	InX6•AudX8↵	
Example:	1*2G	InØ1•Aud+Ø2↵	Set input 1 audio gain to +2 dB.
Set audio input attenuation to -dB value	X6*X9g	InX6•AudX8↵	
Increment gain	X6+G	InX6•AudX8↵	Increase gain by 1 dB.
Example:	5+G	InØ5•Aud+Ø3↵	Increase audio input 5 level from +2 dB to +3 dB.
Decrement gain	X6-G	InX6•AudX8↵	Decrease gain by 1 dB.
Example:	7-G	InØ7•Aud-Ø9↵	Decrease audio input 7 level from -8 dB to -9 dB.
Read input gain	X6G	X8↵	
Example:	3G	-Ø6↵	Audio input 3 level is at -6 dB.

KEY:

X4 = EDID value (resolution and rate)	See the **table** beginning on page 89.	
X6 = Input number (for other than tie)	Ø1 – 16 or 32	
X7 = Audio gain	Ø – 24 (1 dB per step)	
X8 = Numeric dB value	–18 to +24 (43 steps of gain or attenuation) (**default = 0 dB**)	
X9 = Audio attenuation	1 – 18 (1 dB per step)	

Command Function	SIS Command (Host to Unit to Endpoint)	Response (Endpoint to Unit to Host)	Additional Description
XTP T HDMI , XTP T HD 4K, XTP T HWP 101, XTP T HWP 101 4K, and XTP FT HD 4K transmitter commands			
Audio routing selections			
Input audio selection	Esc I X6 *X11 AFMT ←	AfmtI X6 *X11 ↵	Use audio from the X11 source.
Example 1:	Esc I1*1AFMT ←	AfmtIØ1*1 ↵	Use digital audio from the HDMI port of input 1.
Example 2:	Esc I1*ØAFMT ←	AfmtIØ1*Ø ↵	**Auto** (Ø): Digital audio takes priority over analog audio.
View input audio selection	Esc I X6 AFMT ←	X11 ↵	
View all input audio selections	Esc IAFMT ←	X11[1] X11[2] X11[3] ... X11[n] ↵	16 or 32 (n) sequential audio input selections, starting from input 1.
Enable black signal for XTP T endpoint	Esc E X6 *1AFMT ←	AfmtE X6 *1 ↵	Enable an audio only tie for the connected XTP transmitter.
Disable black signal for XTP T endpoint	Esc E X6 *ØAFMT ←	AfmtE X6 *Ø ↵	Disable an audio only tie for the connected XTP transmitter.
View black signal output status for XTP T endpoint	Esc E X6 *AFMT ←	X22 ↵	The black signal status of XTP transmitter endpoint X6 is X22.
Input reports as an HDCP-authorized device			
HDCP authorized device on	Esc E X6 *1HDCP ←	HdcpE X6 *1 ↵	Set the input as an HDCP authorized device.
HDCP authorized device off	Esc E X6 *ØHDCP ←	HdcpE X6 *Ø ↵	Set the input as not an HDCP authorized device.
View HDCP authorized status	Esc E X6 HDCP ←	X12 ↵	Show HDCP authorized device status.
HDCP status			
View input HDCP status	Esc I X6 HDCP ←	X13 ↵	
View HDCP status of all inputs	Esc I*HDCP ←	X13[1] X13[2] X13[3]... X13[n] ↵	
Input sync detection			
View all input connections	ØLS	X5[1] X5[2] X5[3]... X5[n] ↵	16 or 32 (n) X5s; each is the connection status of an input, starting from input 1.
*Example (***XTP II CrossPoint 3200***):*	ØLS	No input detected; Sync detected; Sync detected Response Status: Ø Ø Ø 1 1 1 Ø 1 Ø Ø 1 Ø 1 . . . Ø ↵ Input: 1 2 3 4 5 6 7 8 9 10 11 12 13 32	

KEY:

X5 = Input signal status	Ø = No signal detected	1 = Signal detected
X6 = Input number (for other than tie)	Ø1 – 16 or 32	
X11 = Input audio source	Ø = Auto (see the example above)	2 = Analog 2-channel audio
	1 = HDMI (de-embedded digital audio) (**default**)	
X12 = HDCP authorized device	Ø = off	1 = on (**default**)
X13 = HDCP status (for inputs)	Ø = No source device connected	
	1 = Source connected is HDCP-compliant	
	2 = Source connected is not HDCP-compliant	
X22 = Enable or disable (for black video ties)	Ø = Disable	1 = Enable (**default**)

Command Function	SIS Command (Host to Unit to Endpoint)	Response (Endpoint to Unit to Host)	Additional Description
XTP T USW 103 and XTP T USW 103 4K switcher commands			
Select an endpoint switcher input			
Select an input	Esc X6 * X55 * 3ETIE ←	EtieX6*X55video*X55audio ↵	Select input X55 on input X6. The two X55s are always the same.
Show selected input	Esc X6 ETIE ←	X6*X55video*X55audio ↵	
Input video format (available for endpoint input 1 only)			
Set format	X6*X29\	ItypX6*X29*X30 ↵	Set input X6 to X29 video format. The endpoint reports the detected video format, X30, in the response.
Example:	1*Ø\	ItypØ1*Ø*5 ↵	Set input 1 to auto. RGB is detected.
View format	X6\	X29*X30 ↵	View set (X29) and detected (X30) video format of input X6.
Image reset (available for endpoint input 1 only)			
Execute an image reset	Esc T X6*1*2AADJ ←	AadjT1*1*2 ↵	Reset input 1 signal timing to default.
Pixel phase			
NOTE: Pixel phase adjustments are available for RGBHV and non-interlaced component video (YUVp) video inputs.			
Set a specific pixel sampling phase	Esc I X6*X31PHAS ←	PhasI X6*X31 ↵	Specify the pixel sampling phase.
Increment sampling value	Esc I X6+PHAS ←	PhasI X6*X31 ↵	Increase the phase value.
Decrement sampling value	Esc I X6–PHAS ←	PhasI X6*X31 ↵	Decrease the phase value.
View the sampling value	Esc I X6PHAS ←	X31 ↵	Show the pixel sampling phase.
Horizontal shift (available for endpoint input 1 only)			
Specify a value	Esc I X6*X32HCTR ←	HctrI X6*X32 ↵	Set the horizontal location of first active pixel in input X6.
Increment value	Esc I X6–HCTR ←	HctrI X6*X32 ↵	Increase the value by one pixel (shift the image to the right).
Decrement value	Esc I X6+HCTR ←	HctrI X6*X32 ↵	Decrease the value by one pixel (shift the image to the left).
View	Esc I X6HCTR ←	X32 ↵	Show the horizontal location of first active pixel in input X6.
Vertical shift (available for endpoint input 1 only)			
Specify a value	Esc I X6*X32VCTR ←	VctrI X6*X32 ↵	Set the vertical location of first active pixel in input X6.
Increment value	Esc I X6+VCTR ←	VctrI X6*X32 ↵	Increase the value by one line (shift up).
Decrement value	Esc I X6–VCTR ←	VctrI X6*X32 ↵	Decrease the value by one line (shift down).
View	Esc I X6VCTR ←	X32 ↵	Show the vertical location of first active pixel in input X6.
Save and recall analog input presets (available for endpoint input 1 only)			
NOTES: • Analog input presets are available for analog (RGB, YUVp, YUVi, S-video, composite) video input signals on an XTP CP 4i VGA universal analog input board only. • Analog input presets save a set of analog variables, such as: horizontal and vertical shift, pixel phase, color and tint, brightness and contrast, and input type.			
Save an analog input preset	X6*1*X33,	SprX6*1*X33 ↵	Command character is a comma.
Recall an analog input preset	X6*1*X33.	RprX6*1*X33 ↵	Command character is a period.

KEY:

X6 = Input number (for other than tie)	Ø1 – 16 or 32 for an input				
X29 = Input video source	**Ø** = Auto (**default**)	2 = S-video	4 = YUV interlace	6 = YUV	
	1 = Video	3 = RGBcvS (SCART)	5 = RGB		
X30 = Detected video format	Ø = No signal detected	2 = S-video	4 = YUV interlace	6 = YUV	
	1 = Video	3 = RGBcvS (SCART)	5 = RGB		
X31 = Picture adjustments	ØØØ through 255 **(128 = default)**				
X32 = Shift	ØØØØØ through 65535				
X33 = Analog input preset	1 through 8				
X55 = Transmitter endpoint input	1-3 for the XTP T USW 103				

Command Function	SIS Command (Host to Unit to Endpoint)	Response (Endpoint to Unit to Host)	Additional Description
XTP T USW 103 and XTP T USW 103 4K switcher commands (continued)			
Audio routing selections			
Enable black signal for XTP T endpoint	Esc E X6 *1AFMT ←	AfmtE X6 *1 ↵	Enable an audio only tie for the connected XTP transmitter.
Disable black signal for XTP T endpoint	Esc E X6 *ØAFMT ←	AfmtE X6 *Ø ↵	Disable an audio only tie for the connected XTP transmitter.
View black signal output status for XTP T endpoint	Esc E X6 *AFMT ←	X22 ↵	The black signal status of XTP transmitter endpoint X6 is X22.
Input reports as an HDCP-authorized device			
HDCP authorized device on	Esc E X6 *1HDCP ←	HdcpE X6 *1 ↵	Set the input as an HDCP authorized device.
HDCP authorized device off	Esc E X6 *ØHDCP ←	HdcpE X6 *Ø ↵	Set the input as not an HDCP authorized device.
View HDCP authorized status	Esc E X6 HDCP ←	X12 ↵	Show HDCP authorized device status.
HDCP status			
View input HDCP status	Esc I X6 HDCP ←	X13 ↵	
View HDCP status of all inputs	Esc I *HDCP ←	X13[1] X13[2] X13[3]... X13[n] ↵	
Input sync detection			
View all input connections	ØLS	X5[1] X5[2] X5[3]... X5[n] ↵	16 or 32 (n) X5s; each is the connection status of an input, starting from input 1.
Example (**XTP II CrossPoint 3200**):	ØLS	No input detected / Sync detected / Sync detected Response Status: Ø Ø Ø 1 1 1 Ø 1 Ø Ø 1 Ø 1 . . . Ø ↵ Input: 1 2 3 4 5 6 7 8 9 10 11 12 13 32	
XTP T VGA transmitter commands			
Input video format			
Set format	X6 *X29 \	Ityp X6 *X29 *X30 ↵	Set input X6 to X29 video format. The board reports the detected video format, X30, in the response.
Example:	1*Ø\	Ityp Ø1*Ø*5 ↵	Set input 1 to auto. The board reports RGB video.
View format	X6 \	X29 *X30 ↵	View set (X29) and detected (X30) video format of input X6.
Image reset			
Execute an image reset	Esc T X6 *1*2AADJ ←	AadjT X6 *1*2 ↵	Reset input signal timing to Extron default for input X6.

KEY:

X5 = Input signal status	Ø = No signal detected	1 = Sync detected
X6 = Input number (for other than tie)	Ø1 – 16 or 32	
X12 = HDCP authorized device	Ø = Off	1 = **On** (**default**)
X13 = HDCP status (for inputs)	Ø = No source device connected	
	1 = Source connected is HDCP-compliant	
	2 = Source connected is not HDCP-compliant	
X22 = Enable or disable (for black signal output)	Ø = Disable	1 = **Enable** (**default**)
X29 = Input video source	**Ø = Auto (default)**	
	1 = Video	4 = YUV interlace
	2 = S-video	5 = RGB
	3 = RGBcvS (SCART)	6 = YUV
X30 = Detected video format	Ø = no signal detected	
	1 = Video	4 = YUV interlace
	2 = S-video	5 = RGB
	3 = RGBcvS (SCART)	6 = YUV

Command Function	SIS Command (Host to Unit to Endpoint)	Response (Endpoint to Unit to Host)	Additional Description
XTP T VGA transmitter commands (continued)			
Color			
NOTE: Color adjustments are available for RGBcvS (SCART), interlaced component video (YUVi), S-video, and NTSC composite video inputs.			
Set a specific color value	Esc I X6 * X31 COLR ←	ColrI X6 * X31 ↵	Specify the color adjustment.
Increment color value	Esc I X6 +COLR ←	ColrI X6 * X31 ↵	Increase the color setting by one.
Decrement color value	Esc I X6 –COLR ←	ColrI X6 * X31 ↵	Decrease the color setting by one.
View the color value	Esc I X6 COLR ←	X31 ↵	Show the color setting.
Tint			
NOTE: Tint adjustments are available for NTSC S-video, and NTSC composite video inputs.			
Set a specific tint value	Esc I X6 * X31 TINT ←	TintI X6 * X31 ↵	Specify the tint adjustment.
Increment tint value	Esc I X6 +TINT ←	TintI X6 * X31 ↵	Increase the tint setting by one.
Decrement tint value	Esc I X6 –TINT ←	TintI X6 * X31 ↵	Decrease the tint setting by one.
View the tint value	Esc I X6 TINT ←	X31 ↵	Show the tint setting.
Brightness			
NOTE: Brightness adjustments are available for RGBcvS (SCART), interlaced component video (YUVi), S-video, and NTSC composite video inputs.			
Set a specific brightness value	Esc I X6 * X31 BRIT ←	BritI X6 * X31 ↵	Specify the brightness adjustment.
Increment brightness value	Esc I X6 +BRIT ←	BritI X6 * X31 ↵	Increase the brightness setting by one.
Decrement brightness value	Esc I X6 –BRIT ←	BritI X6 * X31 ↵	Decrease the brightness setting by one.
View the brightness value	Esc I X6 BRIT ←	X31 ↵	Show the brightness setting.
Contrast			
NOTE: Contrast adjustments are available for RGBcvS (SCART), interlaced component video (YUVi), S-video, and NTSC composite video inputs.			
Set a specific contrast value	Esc I X6 * X31 CONT ←	ContI X6 * X31 ↵	Specify the contrast adjustment.
Increment contrast value	Esc I X6 +CONT ←	ContI X6 * X31 ↵	Increase the contrast setting by one.
Decrement contrast value	Esc I X6 –CONT ←	ContI X6 * X31 ↵	Decrease the contrast setting by one.
View the contrast value	Esc I X6 CONT ←	X31 ↵	Show the contrast setting.
Pixel phase			
NOTE: Pixel phase adjustments are available for RGBHV and non-interlaced component video (YUVp) video inputs.			
Set a specific pixel sampling phase	Esc I X6 * X31 PHAS ←	PhasI X6 * X31 ↵	Specify the pixel sampling phase.
Increment sampling value	Esc I X6 +PHAS ←	PhasI X6 * X31 ↵	Increase the phase value.
Decrement sampling value	Esc I X6 –PHAS ←	PhasI X6 * X31 ↵	Decrease the phase value.
View the sampling value	Esc I X6 PHAS ←	X31 ↵	Show the pixel sampling phase.

KEY: X6 = Input number (for other than tie) — Ø1 – 16 or 32
X31 = Picture adjustments — ØØØ through 255 **(128 = default)**

Command Function	SIS Command (Host to Unit to Endpoint)	Response (Endpoint to Unit to Host)	Additional Description
XTP T VGA transmitter commands (continued)			
Horizontal shift			
Specify a value	Esc I X6 * X32 HCTR ←	HctrI X6 * X32 ↵	Set the horizontal location of first active pixel in input X6.
Increment value	Esc I X6 – HCTR ←	HctrI X6 * X32 ↵	Increase the value by one pixel (shift the image to the right).
Decrement value	Esc I X6 + HCTR ←	HctrI X6 * X32 ↵	Decrease the value by one pixel (shift the image to the left).
View	Esc I X6 HCTR ←	X32 ↵	Show the horizontal location of first active pixel in input X6.
Vertical shift			
Specify a value	Esc I X6 * X32 VCTR ←	VctrI X6 * X32 ↵	Set the vertical location of first active pixel in input X6.
Increment value	Esc I X6 + VCTR ←	VctrI X6 * X32 ↵	Increase the value by one line (shift up).
Decrement value	Esc I X6 – VCTR ←	VctrI X6 * X32 ↵	Decrease the value by one line (shift down).
View	Esc I X6 VCTR ←	X32 ↵	Show the vertical location of first active pixel in input X6.
Save and recall analog input presets			
NOTES: • Analog input presets are available for analog (RGB, YUVp, YUVi, S-video, composite) video input signals on an XTP CP 4i VGA universal analog input board only. • Analog input presets save a set of analog variables, such as: horizontal and vertical shift, pixel phase, color and tint, brightness and contrast, and input type.			
Save an analog input preset	X6 * 1 * X33 ,	Spr X6 * 1 * X33 ↵	Command character is a comma.
Recall an analog input preset	X6 * 1 * X33 .	Rpr X6 * 1 * X33 ↵	Command character is a period.
Input sync detection			
View all input connections	ØLS	X5[1] X5[2] X5[3] ... X5[n] ↵	16 or 32 (n) X5s; each is the connection status of an input, starting from input 1.
Example (**XTP CrossPoint 3200**):	ØLS	No input detected; Sync detected; Sync detected Response Status: Ø Ø Ø 1 1 1 Ø 1 Ø Ø 1 Ø 1 . . . Ø ↵ Input: 1 2 3 4 5 6 7 8 9 10 11 12 13 32	
XTP T FB 202, XTP T FB 202 4K, XTP T UWP 202, XTP T UWP 202 4K, XTP T UWP 302, XTP T EU 202, and XTP T MK 202 switcher commands			
Audio routing selections			
Enable black signal for XTP T endpoint	Esc E X6 * 1 AFMT ←	AfmtE X6 * 1 ↵	Enable an audio only tie for the connected XTP transmitter.
Disable black signal for XTP T endpoint	Esc E X6 * Ø AFMT ←	AfmtE X6 * Ø ↵	Disable an audio only tie for the connected XTP transmitter.
View black signal output status for XTP T endpoint	Esc E X6 * AFMT ←	X22 ↵	The black signal status of XTP transmitter endpoint X6 is X22.
Input reports as an HDCP-authorized device			
HDCP authorized device on	Esc E X6 * 1 HDCP ←	HdcpE X6 * 1 ↵	Set the input as an HDCP authorized device.
HDCP authorized device off	Esc E X6 * Ø HDCP ←	HdcpE X6 * Ø ↵	Set the input as not an HDCP authorized device.
View HDCP authorized status	Esc E X6 HDCP ←	X12 ↵	Show HDCP authorized device status.

KEY:			
	X5 = Input signal status	Ø = No signal detected	1 = Sync detected
	X6 = Input number (for other than tie)	Ø1 – 16 or 32	
	X12 = HDCP authorized device	Ø = Off	1 = **On** (**default**)
	X22 = Enable or disable black video ties	Ø = Disable	1 = Enable
	X32 = Shift	Ø through 65535	
	X33 = Analog input preset	1 through 8	

Command Function	SIS Command (Host to Unit to Endpoint)	Response (Endpoint to Unit to Host)	Additional Description
XTP T FB 202, XTP T FB 202 4K, XTP T UWP 202, XTP T UWP 202 4K, and XTP T UWP 302 switcher commands (continued)			
HDCP status			
View input HDCP status	Esc I X6 HDCP ←	X13 ↵	
View HDCP status of all inputs	Esc I*HDCP ←	X13[1] X13[2] X13[3]... X13[n] ↵	
Input video format			
Set format	X6*X29\	ItypX6*X29*X30 ↵	Set input X6 to X29 video format. The endpoint reports the detected video format, X30, in the response.
Example:	1*Ø\	ItypØ1*Ø*5 ↵	Set input 1 to auto. The endpoint reports RGB video.
View format	X6\	X29*X30 ↵	View set (X29) and detected (X30) video format of input X6.
Image reset			
Execute an image reset	Esc T X6 *1*2AADJ ←	AadjT X6 *1*2 ↵	Reset input signal timing to Extron default for input X6, sub-input 1.
Pixel phase (available for RGBHV and non-interlaced component video (YUVp) video inputs)			
Set a specific pixel sampling phase	Esc I X6 *X31 PHAS ←	PhasI X6 *X31 ↵	Specify the pixel sampling phase.
Increment sampling value	Esc I X6 +PHAS ←	PhasI X6 *X31 ↵	Increase the phase value.
Decrement sampling value	Esc I X6 –PHAS ←	PhasI X6 *X31 ↵	Decrease the phase value.
View the sampling value	Esc I X6 PHAS ←	X31 ↵	Show the pixel sampling phase.
Horizontal shift			
Specify a value	Esc I X6 *X32 HCTR ←	HctrI X6 *X32 ↵	Set the horizontal location of first active pixel in input X6.
Increment value	Esc I X6 –HCTR ←	HctrI X6 *X32 ↵	Increase the value by one pixel (shift the image to the right).
Decrement value	Esc I X6 +HCTR ←	HctrI X6 *X32 ↵	Decrease the value by one pixel (shift the image to the left).
View	Esc I X6 HCTR ←	X32 ↵	Show the horizontal location of first active pixel in input X6.
Vertical shift			
Specify a value	Esc I X6 *X32 VCTR ←	VctrI X6 *X32 ↵	Set the vertical location of first active pixel in input X6.
Increment value	Esc I X6 +VCTR ←	VctrI X6 *X32 ↵	Increase the value by one line (shift up).
Decrement value	Esc I X6 –VCTR ←	VctrI X6 *X32 ↵	Decrease the value by one line (shift down).
View	Esc I X6 VCTR ←	X32 ↵	Show the vertical location of first active pixel in input X6.
Input sync detection			
View all input connections	ØLS	X5[1] X5[2] X5[3]... X5[n] ↵	16 or 32 (n) X5s; each is the connection status of an input, starting from input 1.
Example (**XTP CrossPoint 3200**)*:*	ØLS	No input detected / Sync detected / Sync detected Response Status: Ø Ø Ø 1 1 1 Ø 1 Ø Ø 1 Ø 1 . . . Ø ↵ Input: 1 2 3 4 5 6 7 8 9 10 11 12 13 32	

KEY:

X5 = Input signal status	Ø = No signal detected	1 = Sync detected	
X6 = Input number (for other than tie)	Ø1 – 16 or 32		
X12 = HDCP authorized device	Ø = Off	1 = **On** (**default**)	
X13 = HDCP status (for inputs)	Ø = No source device connected	2 = Source connected is not HDCP-compliant	
	1 = Source connected is HDCP-compliant		
X29 = Input video source	**Ø = Auto (default)**		
	1 = Video	3 = RGBcvS (SCART)	5 = RGB
	2 = S-video	4 = YUV interlace	6 = YUV
X30 = Detected video format	Ø = no signal detected		
	1 = Video	3 = RGBcvS (SCART)	5 = RGB
	2 = S-video	4 = YUV interlace	6 = YUV
X31 = Picture adjustments	ØØØ through 255 **(128 = default)**		
X32 = Shift	ØØØØØ through 65535		

SIS Command and Response Table for Output-Board-Specific Commands

The table that starts below shows commands that affect outputs only and, in general, apply to installed output boards. Where a command does not apply to all output board types, the valid board types are noted.

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Outputs on XTP CP 4o HD 4K PLUS, XTP CP 4o HDMI, and XTP CP 4o DVI Pro Boards			
Audio routing selections			
NOTE: These commands select between the audio embedded in the digital video stream and the 2-channel analog audio.			
Output audio HDMI select	Esc O X2 * X34 AFMT ←	AfmtO X2 * X34 ↵	When audio is broken away from video, embed audio from the X34 source in the video output.
Example:	Esc O3*ØAFMT ←	AfmtO Ø3*Ø ↵	When audio is broken away from video, use the embedded audio from the input port when creating an audio breakaway tie to output 3.
View output audio breakaway selection	Esc O X2 AFMT ←	X34 ↵	
View output audio breakaway selection, all outputs	Esc OAFMT ←	X34[1] X34[2] X34[3] ... X34[n] ↵	16 or 32 (*n*) sequential audio output selections, starting from output 1.
Enable black signal output for audio only tie	Esc B X2 *1AFMT ←	AfmtB X2 *1 ↵	Enable black signal in audio only tie to output X2.
Disable black signal output for audio only tie	Esc B X2 *ØAFMT ←	AfmtB X2 *Ø ↵	Disable black signal in audio only tie to output X2.
View black signal output status	Esc B X2 AFMT ←	X22 ↵	The black signal status of output X2 is X22.
Enable black signal for all audio only ties	Esc B1*AFMT ←	AfmtB1 ↵	Enable black signal in audio only tie to all outputs.
Disable black signal for all audio only ties	Esc BØ*AFMT ←	AfmtBØ ↵	Disable black signal in audio only tie to all outputs.
HDCP status			
View output HDCP status	Esc O X2 HDCP ←	X35 ↵	
View HDCP status of all outputs	Esc O*HDCP ←	X35[1] X35[2] X35[3] ... X35[n] ↵	
Video mutes (local)			
Video mute	X2 *1B	Vmt X2 *1 ↵	Mute output X2 video (video off).
Video unmute	X2 *ØB	Vmt X2 *Ø ↵	Unmute output X2 video (video on).
Read video mute	X2 B	X22 ↵	X22 = 1 = enable (muted) Ø = disable (unmuted) (**default**).
Global video mute	1*B	Vmt1 ↵	Mute all video outputs.
Global video unmute	Ø*B	VmtØ ↵	Unmute all video outputs.

KEY:

X2 = Output number
X22 = Enable, disable (for black video and mutes, see above)
X34 = Output audio source
X35 = HDCP status (for outputs)

Ø1 – 16 or 32
Ø = Disable
Ø = Original HDMI audio
Ø, 2, 4, or 6 = No monitor connected
1, 3, or 5 = Monitor connected but the video signal is not encrypted
7 = Monitor connected and the video signal is encrypted

1 = Enable
1 = Embed audio (**default**)

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Outputs on XTP CP 4o HD 4K PLUS, XTP CP 4o HDMI, XTP CP 4o DVI Pro, and XTP CP 4o SA Boards			
Audio output volume			
NOTE: The table below the commands defines the value of each audio volume step.			
Set a specific audio volume	X2*X36V	OutX2•VolX36↵	
Example:	1*5ØV	Out Ø1•Vol5Ø↵	Volume setting for output 1 is 50 (79)%.
Increment volume	X2+V	OutX2•VolX36↵	Increment volume by 1 step.
Example:	1+V	Out Ø1•Vol51↵	
Decrement volume	X2–V	OutX2•VolX36↵	Decrease volume by 1 step.
Read output volume	X2V	X36↵	

Audio Output Volume Table

X36 Value	dB of Attenuation	Output Volume	X36 Value	dB of Attenuation	Output Volume	X36 Value	dB of Attenuation	Output Volume
ØØ	76	0						
Ø1	63	5.5%	23	41	38.5%	45	19	71.5%
Ø2	62	7%	24	40	40%	46	18	73%
Ø3	61	8.5%	25	39	41.5%	47	17	74.5%
Ø4	60	10%	26	38	43%	48	16	76%
Ø5	59	11.5%	27	37	44.5%	49	15	77.5%
Ø6	58	13%	28	36	46%	5Ø	14	79%
Ø7	57	14.5%	29	35	47.5%	51	13	80.5%
Ø8	56	16%	3Ø	34	49%	52	12	82%
Ø9	55	17.5%	31	33	50.5%	53	11	83.5%
1Ø	54	19%	32	32	52%	54	10	85%
11	53	20.5%	33	31	53.5%	55	9	86.5%
12	52	22%	34	30	55%	56	8	88%
13	51	23.5%	37	27	59.5%	57	7	89.5%
14	50	25%	36	28	58%	58	6	91%
15	49	26.5%	37	27	59.5%	59	5	92.5%
16	48	28%	38	26	61%	6Ø	4	94%
17	47	29.5%	39	25	62.5%	61	3	95.5%
18	46	31%	4Ø	24	64%	62	2	97%
19	45	32.5%	41	23	65.5%	63	1	98.5%
2Ø	44	34%	42	22	67%	64*	0	100%
21	43	35.5%	43	21	68.5%			
22	42	37%	44	20	70%			

*Default value

KEY: X2 = Output number — Ø1 – 16 or 32
X36 = Volume — ØØ – 64 (1 dB per step except for Ø-to-1, which is 13 dB) (see the table above).

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Outputs on XTP CP 4o HDMI, XTP CP 4o HD 4K PLUS, XTP CP 4o DVI Pro,and XTP CP 4o SA Boards (cont)			
Audio mutes (local)			
Mute digital audio	X2*1Z	AmtX2*1↵	Mute output X2 digital audio (audio off).
Mute analog audio	X2*2Z	AmtX2*2↵	Mute output X2 analog audio (audio off).
Mute digital and analog audio	X2*3Z	AmtX2*3↵	
Unmute both audio	X2*ØZ	AmtX2*Ø↵	Unmute output X2 audio (audio on).
View audio mute status	X2Z	X37↵	
Global digital audio mute	1*Z	Amt1↵	Mute all digital audio outputs.
Global analog audio mute	2*Z	Amt2↵	Mute all analog audio outputs.
Global digital and audio mute	3*Z	Amt3↵	Mute all digital and audio outputs.
Global audio unmute	Ø*Z	AmtØ↵	Unmute all audio outputs.
View video and audio mutes			
View local output mutes	EscVM←	X38[1]X38[2] ... X38[n]↵	Each X38 response is the mute status of an output, starting from 1. *n* = **16** or **32**.
Example : (**XTP II CrossPoint 3200**)	EscVM← Mut02201000000000000000000000003000000↵		Digital audio is muted on outputs 2 and 3, video on output 5, and video and audio on output 26. All other outputs are unmuted.
NOTE: The Mut portion of the response is only present in verbose modes 2 and 3.			
Outputs on XTP CP 4o [XTP], XTP CP 4o 4K [XTP], and XTP CP 4o Fiber 4K Boards			
Captive screw and Ethernet serial port insertion enables			
NOTE: See **RS-232 Insertion** on page 66 for an overview of using serial port insertions.			
Enable an output captive screw serial port insertion	EscOX2*ØLRPT←	LrptOX2*Ø↵	Enable the captive screw serial port insert on output X2. This disables the Ethernet serial port insert.
Enable an output Ethernet serial port insertion	EscOX2*1LRPT←	LrptOX2*1↵	Enable the Ethernet serial port insert on output X2. This disables the captive screw serial port insert.
Set all RS-232 output insertions	EscOX14*LRPT←	LrptOØØ*X14↵	
View RS-232 output insertion	EscOX2LRPT←	X14↵	
View all output insertions	EscOLRPT←	X14[1]X14[2]X14[3]... X14[n]↵	One X14 for each available (installed) output, starting at output 1. Outputs that are not on an XTP CP 4o [XTP], XTP CP 4o 4K [XTP], or XTP CP 4o Fiber Plus board report as Ø.
Ethernet serial port insert parameters			
Set serial port parameters	EscX15*X16,X17,X18,X19CP←	CpnX15•CcpX16,X17,X18,X19↵	
Read serial port parameters	EscX15CP←	X16,X17,X18,X19↵	

KEY:

X2 = Output number	Ø1 – 16 or 32	
X14 = Captive screw or UART	Ø = Captive screw RS-232 insert (**default**)	1 = Ethernet RS-232 insert (UART)
X15 = Port number	35 — 5Ø = UART (outputs) 1 — 16 (XTP CrossPoint 1600) 35 — 66 = UART (outputs) 1 — 32 (XTP CrossPoint 3200)	
X16 = Baud rate	3ØØ, 6ØØ, 12ØØ, 18ØØ, 24ØØ, 36ØØ, 48ØØ, 72ØØ, **96ØØ** (**default**), 144ØØ, 192ØØ, 288ØØ, 384ØØ, 576ØØ, 1152ØØ	
X17 = Parity	**o**dd, **e**ven, **n**one, **m**ark, **s**pace (only the first letter is required) (**n = default**)	
X18 = Data bits	7, 8 (**default**)	
X19 = Stop bits	1 (**default**), 2	
X37 = Digital and analog audio mute status	Ø = No mutes 1 = Digital audio mute	2 = Analog audio mute 3 = Digital and analog audio mute
X38 = Video and audio mute status	Ø = No mutes 1 = Video mute 2 = Digital audio mute 3 = Video and digital audio mute	4 = Analog audio mute 5 = Video and analog audio mute 6 = Digital and analog audio mute 7 = Video, digital audio, and analog audio mute

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Outputs on XTP CP 4o [XTP], XTP CP 4o 4K [XTP], and XTP CP 4o Fiber 4K Boards (continued)			
Ethernet serial port insert parameters (continued)			
Set UART starting point	Esc X21 MD ←	Pmd X21 ↵	Sets the initial (lowest) port number for the range of numbers assigned to the serial port and UARTs.
NOTE: Output insert port 1 is 32 positions from X21 for both 1600 and 3200 matrix sizes.			
Read UART starting point	Esc MD ←	X21 ↵	
Outputs on XTP CP 4o [XTP] and XTP CP 4o 4K [XTP] Boards			
XTP power			
ATTENTION: • Power over XTP (PoX) is intended for indoors use only. No part of a network that uses PoX can be routed outdoors. • PoX est destiné à une utilisation en intérieur uniquement. Aucune partie d'un réseau qui utilise PoX ne peut être routée en extérieur.			

NOTES:
• PoX is supplied by the matrix switcher 48 V power supply.
• XTP CrossPoint 1600:
  • Can power up to 28 total (input and output) endpoints at up to 364 watts.
  • Is available with optional 48 V power supply redundancy.
• XTP CrossPoint 3200:
  • Can power up to 24 total (input and output) endpoints at up to 312 watts.
  • No 48 V power supply redundancy is available.			

Enable or disable power to output endpoint and report status	Esc O X2 * X22 POEC ←	PoecO X2 * X22 * X23 * X24 ↵	Enable or disable (X22) remote power on output X2. The endpoint is requesting X23 watts and the power status is X24.
View output power status	Esc O X2 POEC ←	X22 * X23 * X24 ↵	
Enable or disable output power and report status, all outputs	Esc O X22 * POEC ←	PoecOØØ * X22[1] X22[2]... X22[n] ↵	Each X22 is the enable or disable status of an output, starting at 1. *n* is 16 or 32.
View all output power status	Esc OPOEC ←	X22[1] X22[2] X22[3]... X22[n] ↵	
View XTP power usage	Esc TPOEC ←	X25 * X26 ↵	Show PoX wattage applied and the status of the 48 V power supply.

KEY:

X2 = Output number	Ø1 – 16 or 32	
X21 = UART starting point	The starting point (X21) is the rear panel RS-232/RS-422 port. The next position (X21[+1]) is not used. For the XTP CrossPoint 1600, X21[+2] through X21[+17] are XTP inputs. For the XTP CrossPoint 3200, X21[+2] through X21[+33] are XTP inputs. For the XTP CrossPoint 1600 — X21[+18] through X21[+34] are XTP outputs. For the XTP CrossPoint 3200 — X21[+34] through X21[+65] are XTP outputs. **Default values**: 1999 = Rear panel remote RS-232/RS-422 port 2Ø01 through 2Ø16 (**XTP CrossPoint 1600**) = Inputs 2Ø01 through 2Ø32 (**XTP CrossPoint 3200**) = Inputs 2Ø33 through 2Ø48 (**XTP CrossPoint 1600**) = Output 1 through 16 2Ø33 through 2Ø64 (**XTP CrossPoint 3200**) = Output 1 through 32	
X22 = Enable or disable for power	Ø = Disable (**default**)	1 = Enable
X23 = Amount of power requested	ØØ or 13 (watts)	
X24 = Power status	Ø = Unpowered endpoint 1 = Power provided to endpoint	2 = Power available but disabled 3 = No power available, but enabled 4 = Fault
X25 = Wattage	Power usage in 0.1 watt increments. Example: 26Ø = 26.0 watts	
X26 = Power supply status	Ø = Ok	1 = Not Ok

SIS Command and Response Table for Output-Endpoint-Specific Commands

The table that starts below shows commands that affect XTP R HDMI, XTP R HD 4K, XTP R HWP 201, XTP R HWP 201 4K, XTP SR HDMI, XTP SR HD 4K, XTP FR HD 4K, and XTP SFR HD 4K endpoints connected through an XTP board only. The XTP CrossPoint Series matrix switcher receives the commands and forwards them to the endpoint.

Command Function	SIS Command (Host to Unit to Endpoint)	Response (Endpoint to Unit to Host)	Additional Description
XTP R HDMI, XTP R HD 4K, XTP R HWP 201, XTP R HWP 201 4K, XTP FR HD 4K, and XTP SFR HD 4K receiver commands			
Video mutes			
Video mute	X2*1B	VmtX2*1↵	Mute output X2 video (video off).
Video unmute	X2*ØB	VmtX2*Ø↵	Unmute output X2 video (video on).
Read video mute	X2B	X22↵	X22 = 1 = enable (muted) Ø = disable (unmuted) (**default**).
Global video mute	1*B	Vmt1↵	Mute all video outputs.
Global video unmute	Ø*B	VmtØ↵	Unmute all video outputs.
Audio routing selections			
NOTES: • These commands select between the audio embedded in the digital video stream and the 2-channel analog audio. • These commands are valid only if audio breakaway switching is performed (see the **Create Ties** commands on page 87).			
Output audio HDMI select	EscOX2*X34AFMT←	AfmtOX2*X34↵	When audio is broken away from video, embed audio from the X34 source in the video output.
Example:	Esc03*ØAFMT←	AfmtOØ3*Ø↵	When audio is broken away from video, use the embedded audio from the input port when creating an audio breakaway tie to output 3.
View output audio breakaway selection	EscOX2AFMT←	X34↵	
View output audio breakaway selection, all outputs	EscOAFMT←	X34¹X34²X34³ ... X34ⁿ↵	16 or 32 (ⁿ) sequential audio output selections, starting from output 1.
Audio output volume			
Set the audio volume to a specific value	X2*X36V	OutX2•VolX36↵	
Example:	1*5Øv	OutØ1•Vol5Ø↵	Set output 1 volume to 79%.
Increment volume	X2+V	OutX2•VolX36↵	Increment volume by 1 step.
Example:	1+V	OutØ1•Vol51↵	
Decrement volume	X2-V	OutX2•VolX36↵	Decrease volume by 1 step.
Read output volume	X2V	X36↵	
Audio mutes			
Mute digital audio	X2*1Z	AmtX2*1↵	Mute output X2 digital audio (audio off).
Mute analog audio	X2*2Z	AmtX2*2↵	Mute output X2 analog audio (audio off).
Mute digital and analog audio	X2*3Z	AmtX2*3↵	
Unmute both audio	X2*ØZ	AmtX2*Ø↵	Unmute output X2 audio (audio on).
View audio mute status	X2Z	X37↵	
Global digital audio mute	1*Z	Amt1↵	Mute all audio digital outputs.
Global analog audio mute	2*Z	Amt2↵	Mute all analog audio outputs.
Global digital and analog audio mute	3*Z	Amt3↵	Mute all digital and analog audio outputs.
Global audio unmute	Ø*Z	AmtØ↵	Unmute all audio outputs.

KEY:

- X2 = Output number — Ø1 – 16 or 32
- X22 = Enable and disable for mutes — Ø = Disable; 1 = Enable
- X34 = Output audio source — Ø = Original HDMI audio; 1 = **Embed audio** (**default**)
- X36 = Volume — ØØ – 64 (1 dB per step except for Ø-to-1, which is 13 dB) (see the **table** on page 104)
- X37 = Digital and analog audio mute status — Ø = No mutes; 1 = Digital audio mute; 2 = Analog audio mute; 3 = Analog and digital audio mute

Command Function	SIS Command (Host to Unit to Endpoint)	Response (Endpoint to Unit to Host)	Additional Description
XTP R HDMI, XTP R HD 4K, and XTP FR HD 4K receiver commands (continued)			
HDCP status			
View output HDCP status	Esc O X2 HDCP ←	X35 ↵	
View HDCP status of all outputs	Esc OHDCP ←	X35¹ X35² X35³ ... X35ⁿ ↵	*n* = either 16 or 32
Relay controls			
Turn on an endpoint relay	Esc X2 * X39 * 1RELY ←	Rely X2 * X39 * 1 ↵	Turn on relay X39 in output X2.
Turn off an endpoint relay	Esc X2 * X39 * ØRELY ←	Rely X2 * X39 * Ø ↵	Turn off relay X39 in output X2.
Toggle an endpoint relay	Esc X2 * X39 * 2RELY ←	Rely X2 * X39 * X41 ↵	Toggle (on-to-off or off-to-on) relay X39 in output X2.
Pulse an endpoint relay	Esc X2 * X39 * 3 * X40 RELY ←	Rely X2 * X39 * 3 ↵	Turn on relay X39 in output X2 for an interval defined as X40. Each step of X40 is 16 ms.
Example:	Esc 1*2*3*45RELY ←	Rely1*2*3 ↵	Turn on relay 2 in output endpoint 1 for 720 ms (0.72 sec, X40 = 45 * 16 ms = 720 ms).
View an endpoint relay status	Esc X2 * X39 RELY ←	X41 ↵	On or off.
View video and audio mutes			
View output mutes	Esc VM ←	X38¹ X38² ... X38ⁿ ↵	Each X38 response is the mute status of an output, starting from output 1. *n* = either 16 or 32.
Example : (**XTP CrossPoint 3200**)	Esc VM ←	Ø22Ø1ØØØØØØØØØØØØØØØØØØØØØØ3ØØØØØØØ ↵	Digital audio is muted on outputs 2 and 3, video on output 5, and video and digital audio on output 26. All other outputs are unmuted.
XTP SR HDMI, XTP SR HD 4K, and XTP SFR HD 4K scaler commands			
Video mutes			
Video mute	X2 * 1B	Vmt X2 * 1 ↵	Mute output X2 video (video off).
Video unmute	X2 * ØB	Vmt X2 * Ø ↵	Unmute output X2 video (video on).
Read video mute	X2 B	X22 ↵	X22 = 1 = enable (muted) Ø = disable (unmuted) (**default**).
Global video mute	1*B	Vmt1 ↵	Mute all video outputs.
Global video unmute	Ø*B	VmtØ ↵	Unmute all video outputs.

KEY:

X2 = Output number	Ø1 – 16 or 32		
X22 = Enable and disable for mutes	Ø = Disable	1 = Enable	
X35 = HDCP status (for outputs)	Ø, 2, 4, or 6 = No monitor connected		
	1, 3, or 5 = Monitor connected but the video signal is not encrypted		
	7 = Monitor connected and the video signal is encrypted		
X37 = Digital and analog audio mute status	Ø = No mutes	2 = Analog audio mute	
	1 = Digital audio mute	3 = Digital and analog audio mute	
X38 = Video and audio mute status	Ø = No mutes	4 = Analog audio mute	
	1 = Video mute	5 = Video and analog audio mute	
	2 = Digital audio mute	6 = Digital and analog audio mute	
	3 = Video and digital audio mute	7 = Video, digital audio, and analog audio mute	
X39 = Relay on endpoint	1 or 2		
X40 = Pulse duration	Ø through 65535 (each step = 16 ms, see the example above)		
X41 = Relay status	Ø = Off	1 = On	

Command Function	SIS Command (Host to Unit to Endpoint)	Response (Endpoint to Unit to Host)	Additional Description
XTP SR HDMI, XTP SR HD 4K, and XTP SFR HD 4K scaler commands (continued)			
Audio routing selections			
NOTES: • These commands select between the audio embedded in the digital video stream and the 2-channel analog audio. • These commands are valid only if audio breakaway switching is performed (see the **Create Ties** commands on page 87).			
Output audio HDMI select	Esc O X2 * X34 AFMT ↵	Afmt O X2 * X34 ↵	When audio is broken away from video, embed audio from the X34 source in the video output.
Example:	Esc O3*ØAFMT ↵	AfmtO Ø3*Ø ↵	When audio is broken away from video, use the embedded audio from the input port when creating an audio breakaway tie to output 3.
View output audio breakaway selection	Esc O X2 AFMT ↵	X34 ↵	
View output audio breakaway selection, all outputs	Esc O AFMT ↵	X34[1] X34[2] X34[3] ... X34[n] ↵	16 or 32 (*n*) sequential audio output selections, starting from output 1.
Audio output volume			
Set the audio volume to a specific value	X2 * X36 V	Out X2 •Vol X36 ↵	
Example:	1*5Øv	OutØ1•Vol5Ø ↵	Set output 1 volume to 79%.
Increment volume	X2 +V	Out X2 •Vol X36 ↵	Increment volume by 1 step.
Example:	1+V	OutØ1•Vol51 ↵	
Decrement volume	X2 -V	Out X2 •Vol X36 ↵	Decrease volume by 1 step.
Read output volume	X2 V	X36 ↵	
Audio mutes			
Mute digital audio	X2 *1Z	Amt X2 *1 ↵	Mute output X2 digital audio (audio off).
Mute analog audio	X2 *2Z	Amt X2 *2 ↵	Mute output X2 analog audio (audio off).
Mute digital and analog audio	X2 *3Z	Amt X2 *3 ↵	
Unmute both audio	X2 *ØZ	Amt X2 *Ø ↵	Unmute output X2 audio (audio on).
View audio mute status	X2 Z	X37 ↵	
Global digital audio mute	1*Z	Amt1 ↵	Mute all digital audio outputs.
Global analog audio mute	2*Z	Amt2 ↵	Mute all analog audio outputs.
Global digital and audio mute	3*Z	Amt3 ↵	Mute all digital and and audio outputs.
Global audio unmute	Ø*Z	AmtØ ↵	Unmute all audio outputs.
HDCP status			
View output HDCP status	Esc O X2 HDCP ↵	X35 ↵	
View HDCP status of all outputs	Esc OHDCP ↵	X35[1] X35[2] X35[3] ... X35[n] ↵	

KEY:

X2 = Output number	Ø1 – 16 or 32	
X22 = Enable and disable for mutes	Ø = Disable	1 = Enable
X34 = Output audio source	Ø = Original HDMI audio	1 = Embed audio (**default**)
X35 = HDCP status (for outputs)	Ø, 2, 4, or 6 = No monitor connected 1, 3, or 5 = Monitor connected but the video signal is not encrypted 7 = Monitor connected and the video signal is encrypted	
X36 = Volume	ØØ – 64 (1 dB per step except for Ø-to-1, which is 13 dB) (see the **table** on page 104)	
X37 = Digital and analog audio mute status	Ø = No mutes 1 = Digital audio mute	2 = Analog audio mute 3 = Digital and analog audio mute

Command Function	SIS Command (Host to Unit to Endpoint)	Response (Endpoint to Unit to Host)	Additional Description
XTP SR HDMI, XTP SR HD 4K, and XTP SFR HD 4K scaler commands (continued)			
Relay controls			
Turn on an endpoint relay	Esc X2 * X39 * 1RELY ←	Rely X2 * X39 * 1 ↵	Turn on relay X39 in output X2.
Turn off an endpoint relay	Esc X2 * X39 * ØRELY ←	Rely X2 * X39 * Ø ↵	Turn off relay X39 in output X2.
Toggle an endpoint relay	Esc X2 * X39 * 2RELY ←	Rely X2 * X39 * X41 ↵	Toggle (on-to-off or off-to-on) relay X39 in output X2.
Pulse an endpoint relay	Esc X2 * X39 * 3 * X40 RELY ←	Rely X2 * X39 * 3 ↵	Turn on relay X39 in output X2 for an interval defined as X40. Each step of X40 is 16 ms.
Example:	Esc 1*2*3*45RELY ←	Rely1*2*3 ↵	Turn on relay 2 in output endpoint 1 for 720 ms (0.72 sec, X40 = 45 * 16 ms = 720 ms).
View an endpoint relay status	Esc X2 * X39 RELY ←	X41 ↵	On or off.
View video and audio mutes			
View output mutes	Esc VM ←	X38[1] X38[2] ... X38[n] ↵	Each X38 response is the mute status of an output, starting from 1. *n* = is 16 or 32.
Example : (**XTP CrossPoint 3200**)	Esc VM ←	Ø22Ø1ØØØØØØØØØØØØØØØØØØØØØ3ØØØØØØ ↵	Digital audio is muted on outputs 2 and 3, video on output 5, and video and digital audio on output 26. All other outputs are unmuted.

KEY:			
	X2 = Output number	Ø1 – 16 or 32	
	X38 = Video and audio mute status	Ø = No mutes	4 = Analog audio mute
		1 = Video mute	5 = Video and analog audio mute
		2 = Digital audio mute	6 = Digital and analog audio mute
		3 = Video and digital audio mute	7 = Video, digital audio, and analog audio mute
	X39 = Relay on endpoint	1 or 2	
	X40 = Pulse duration	Ø through 65535 (each step = 16 ms, see the example above)	
	X41 = Relay status	Ø = Off	1 = On

SIS Command and Response Table for Advanced Matrix Switcher Commands

The table that starts below shows commands for advanced operation of the XTP CrossPoint Series matrix switcher frame. Commands shown affect the entire matrix switcher, regardless of the input boards and output boards installed or any connected endpoints.

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Black video resolution within the matrix switcher for audio-breakaway ties			
Set black signal resolution for the inputs — XTP CrossPoint 1600	Esc A17*X10 AFMT ←	AfmtA17*X10 ↵	Set the black video signal resolution for the matrix switcher.
Set black signal resolution for the inputs — XTP CrossPoint 3200	Esc A33*X10 AFMT ←	AfmtA33*X10 ↵	Set the black video signal resolution for the matrix switcher.
View black signal resolution for the inputs — XTP CrossPoint 1600	Esc A17AFMT ←	X10 ↵	
View black signal resolution for the inputs — XTP CrossPoint 3200	Esc A33AFMT ←	X10 ↵	
Video and audio test patterns			
NOTES: • The test pattern (TEST) commands send test patterns to all outputs for setup and calibration. This is separate from the black video signal insertion into audio breakaway ties (Esc BAFMT command on **page 103** and the Esc EAFMT commands on **page 97** and **page 99**). • The available audio test pattern is a 1-kHz audio tone.			
Output test pattern on all outputs	Esc X42 TEST ←	Tst X42 ↵	Output the selected test pattern.
Disable test pattern	Esc ØTEST ←	TstØØ ↵	Normal operation, test pattern disabled.
View test pattern status	Esc TEST ←	X42 ↵	
Names			
NOTE: The HTML language reserves certain characters for specific functions (see **Special Characters** on page 120).			
Write global preset name	Esc X3 , X43 NG ←	Nmg X3 , X43 ↵	
Example:	Esc 1 , Security 1NG ←	NmgØ1 , Security 1 ↵	Name global preset 1 “Security 1”
Read global preset name	Esc X3 NG ←	X43 ↵	
Write input name	Esc X6 , X43 NI ←	Nmi X6 , X43 ↵	
Example:	Esc 1 , Podium camNI ←	NmiØ1 , Podium cam ↵	Name input 1 “Podium cam”
Read input name	Esc X6 NI ←	X43 ↵	Default = Input *#n*
Write output name	Esc X2 , X43 NO ←	Nmo X2 , X43 ↵	
Example:	Esc 1 , Main PJ1NO ←	NmoØ1 , Main PJ1 ↵	Name output 1 “Main PJ1”
Read output name	Esc X2 NO ←	X43 ↵	Default = Output *#n*
Front panel locks			
NOTE: See **Setting the Front Panel Locks (Executive Modes)** on page 59 for more information on the Lock modes.			
Lock all front panel functions	Esc 1EXEC ←	Exec1 ↵	Enable Lock mode 1.
Lock advanced front panel functions	Esc 2EXEC ←	Exec2 ↵	Enable Lock mode 2.
Unlock all front panel functions	Esc ØEXEC ←	ExecØ ↵	Enable Lock mode 0.
View lock status	Esc EXEC ←	Exec X44 ↵	

KEY:

X2 = Output number — Ø1 – 16 or 32

X3 = Global preset number — Ø1 – 32

X6 = Input number (for other than tie) — Ø1 – 16 or 32

X10 = Resolution, rate for black screen — 2 = 1280x720p @ 50 Hz; 4* = 1280x720p @ 60 Hz; 6 = 1920x1080p @ 60 Hz

X42 = Test pattern and resolution — ØØ = Disable (**default**)

	Color bars No audio	Color bars Audio	Black screen No audio	Black screen Audio
720p, 50 Hz	Ø1	Ø7	Ø2	Ø8
720p, 60 Hz	Ø3	Ø9	Ø4	1Ø
1080p, 60 Hz	Ø5	11	Ø6	12

X43 = Name — Up to 12 alphanumeric characters

X44 = Front panel lock — Ø = Lock mode 0 (unlocked); 1 = Lock mode 1; 2 = Lock mode 2 (**default**)

*Default setting

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Save and directly write global presets			
Save current configuration as a global preset	Esc S X3 PRST ←	PrstS X3 ↵	
Example:	Esc S8PRST ←	PrstSØ8 ↵	Save current ties as preset 8.
Direct write process —			
NOTE: The direct write of a global preset should always be preceded by a clear global preset ties command of that same preset number, as shown below. In a directly-written preset, the input for each output position (or no tied input) remains unchanged unless overwritten or cleared. If you do not **clear** the ties in a global preset number before you directly **write** a global preset to that number, ties that are part of the previous version of the specified preset with the same number can unexpectedly become part of the newly-created preset.			
Clear global preset ties	Esc+X3 PØ*! ←	Spr X3 ↵	Clear all ties in preset X3.
Directly write a global preset	Esc+X3 P X1*X2!X1*X2%X1*X2$ ... X1*X2& ←	Spr X3 ↵	Enter as many ties as are valid. The **tie all** (!), **tie RGB** (&), **tie video** (%), and **tie audio** ($) commands are all valid.
Example:	Esc+27PØ*! ←	Spr27 ↵	Clear all ties in preset 27.
	Esc+27P12*5!10*Ø9%3*2$3*8&·	Spr27 ↵	Brackets are shown to separate ties for clarity only. Create global preset 27, which ties video and audio input 12 to output 5, video input 10 to output 9, audio input 3 to output 2, and video input 3 to output 8.
Resets			
Reset global presets and names	Esc ZG ←	Zpg ↵	Clear all global presets and their names.
Reset **one** global preset	Esc X3 ZG ←	Zpg X3 ↵	Clear global preset X3.
Reset audio input levels	Esc ZA ←	Zpa ↵	Reset all audio input levels (gain and attenuation) to 0 dB.
Reset audio output levels	Esc ZV ←	Zpv ↵	Reset all audio output levels (volume) to 100% (no attenuation).
Reset whole matrix switcher	Esc ZXXX ←	Zpx ↵	Clear all ties and presets, reset all audio gains to 0 dB, and reset volume to 100%.
NOTE: The reset whole matrix switcher (Esc ZXXX ←) command resets not only the matrix switcher, but any connected endpoints.			
Absolute reset, including IP settings	Esc ZQQQ ←	Zpq ↵	Similar to **Reset whole matrix switcher**, plus clear the IP address to 192.168.254.254 and subnet mask to 255.255.000.000.
NOTE: The absolute reset (Esc ZQQQ ←) command resets not only the matrix switcher, but any connected endpoints.			
Absolute reset, excluding IP settings	Esc ZY ←	Zpy ↵	Similar to **Absolute reset, including IP settings** (Esc ZQQQ ←), but excludes the following IP settings: IP address, subnet mask, gateway address, unit name, DHCP setting, and port mapping (telnet, Web, and direct address).
NOTES: The absolute reset (Esc ZY ←) command: • Preserves communications with the device and is recommended after a firmware update. • Resets not only the matrix switcher, but any connected endpoints.			

KEY:		
	X1 = Input number	ØØ – 16 or 32 (ØØ = untied)
	X2 = Output number	Ø1 – 16 or 32
	X3 = Global preset number	ØØ – 32 (ØØ = current configuration, applies to view ties command only)

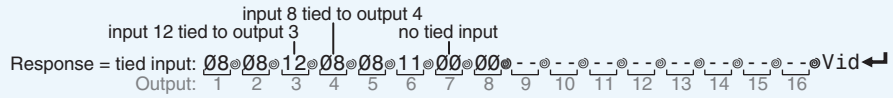
Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
View ties, gain, volume, mutes, presets, and power usage			
Read RGB (video) output tie	X2&	X1↵	Video input X1 is tied to output X2.
Example:	5&	12↵	Input 12 RGB is tied to output 5.
Read video output tie	X2%	X1↵	Video input X1 is tied to output X2.
Example:	7%	Ø2↵	Input 2 video is tied to output 7.
Read audio output tie	X2$	X1↵	Audio input X1 is tied to output X2.
Example:	3$	Ø6↵	Input 6 audio is tied to output 3.
View output volume	X2V	X36↵	
Example:	7V	55↵	Volume setting for output 7 is 55 (86.5)%.
View input gain	X6G	X8↵	
Example:	4G	-Ø2↵	Audio input 4 level is -2 dB.
View output mutes	EscVM←	X38[1]X38[2] ... X38[n]↵	Each X38 is the mute status of an output: left = output 1, right = output *n*. *n* = 16 or 32).
View video global preset configuration	EscX3*X2*1VC←	X1[n]•X1[n+1]•X1[n+2]•X1[n+3]•...•X1[n+15]•Vid↵	Show the video configuration for preset X3. Show the input tied to 16 sequential outputs, starting from output X2.
Command description:	preset number*starting output # (StO#)*1(=video)VC		
Response description:	input # (I#) tied to StO#•I# tied to StO#+1•I# tied to StO#+2• ... •I# tied to StO#+15•Vid↵		

NOTES:

- The starting output number (X2) should always be "1" for the XTP CrossPoint 1600.
- EscX3*X2*1VC← where X3 = Ø returns the current video configuration.

Example
(**XTP CrossPoint 1600**, *with two output boards installed):*

Esc3*1*1VC←



Each position shown in the response is an output: left = starting output (1), right = starting output +15 (output 16). The number in each position is the input tied to that output.

In this example, preset 3, video input 8 is tied to outputs 1, 2, 4, and 5; input 12 is tied to output 3; and input 11 is tied to output 6. No inputs are tied to outputs 7 and 8.

KEY:

X1 = Input number	ØØ – 16 or 32 (ØØ = untied)
X2 = Output number	Ø1 – 16 or 32
X3 = Global preset number	ØØ – 32 (ØØ = current configuration, applies to view ties command only)
X6 = Input number (for other than tie)	Ø1 – 16 or 32
X8 = Numeric dB value	–18 to +24 (45 steps of gain or attenuation) (**0 dB** = **default**)
X36 = Volume	ØØ – 64 (1 dB per step except for Ø-to-1, which is 13 dB) (see the **table** on page 104)
X38 = Video and audio mute status	Ø = No mutes 1 = Video mute 2 = Digital audio mute 3 = Video and digital audio mute 4 = Analog audio mute 5 = Video and analog audio mute 6 = Digital and analog audio mute 7 = Video, digital audio, and analog audio mute

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
View ties, gain, volume, mutes, presets, and power usage (continued)			
View audio global preset configuration	Esc X3 *X2*2VC←	X1^{n}•X1^{n+1}•X1^{n+1}•X1^{n+2}•…•X1^{n+15}•Aud↵	Show the audio configuration for preset X3. Show the input tied to 16 sequential outputs, starting from output X2.
Command description:	preset number*starting output # (StO#)*2(=audio)VC		
Response description:	input # (I#) tied to StO#•I# tied to StO#+1•I# tied to StO#+2• ... •I# tied to StO#15•Aud↵		
NOTES: • The starting output number (X2) should always be "1" for the XTP CrossPoint 1600. • Esc X3 *X2*2VC← where X3 = Ø returns the current audio configuration.			
Example: (**XTP II CrossPoint 3200**)	Esc15*17*2VC←	Response = tied input: Ø1 Ø1 Ø1 Ø1 Ø2 12 12 ØØ ØØ ØØ ØØ ØØ Ø1 Ø8 15 16 Aud↵ (input 1 tied to output 19; no tied input) Output: 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	Each position shown in the response is an output: left = starting output (17 in this example), right = starting output +15 (output 32). The number in each position is the input tied to that output. In this example, preset 15, audio input 1 is tied to outputs 17, 18, 19, 20, and 29; input 2 is tied to output 21; input 12 is tied to outputs 22 and 23; input 8 is tied to output 30; input 15 is tied to output 31; and input 16 is tied to output 32. No input is tied to output 24, 25, 26, 27, and 28.
View XTP power usage	EscTPOEC←	X25*X26↵	Show PoX wattage applied and the status of the 48 V power supply.
Example:	EscTPOEC←	45Ø*Ø↵	The matrix switcher is providing 45.0 watts and the power supply is Ok.
View and erase file directory			
NOTE: The response to the View File Directory command differs, depending on whether the command is sent via SIS or sent via a Web browser connection.			
View file directory RS-232/RS-422 port and Telnet	EscDF←	See below: *filename*1•*date*/*time*•*length*↵ *filename*2•*date*/*time*•*length*↵ *filename*3•*date*/*time*•*length*↵ • • • • *filename*n•*date*/*time*•*length*↵ # of·Bytes·Left↵↵	List user-supplied files.
View file directory Web browser	EscDF←	See below: Var•file•=•new•array•(); File•[1]•=•'*filename*1,*date*1,*filesize*1'; File•[2]•=•'*filename*2,*date*2,*filesize*2'; File•[3]•=•'*filename*3,*date*3,*filesize*3'; • • • • File•[*n*]•=•'*filename*n,*daten*,*filesizen*'; File•[*n+1*]•=•# *of*•Bytes•Left	List user-supplied files.
Erase user-supplied Web pages/files	Esc*filename*EF←	Del•*filename*↵	

KEY:		
X1 = Input number (for tie)	ØØ – 16 or 32 (ØØ = untied)	
X2 = Output number	Ø1 – 16 or 32	
X3 = Global preset number	ØØ - 32 (ØØ = current configuration, applies to view ties command only)	
X25 = Wattage	Power usage in Ø.1 watt increments. Example: 26Ø = 26.0 watts	
X26 = Power supply status	Ø = Ok	1 = Not Ok

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Information requests			
Information request	I	V[X45]X[X46]•A[X45]X[X46]↵	V (video) matrix size•A (audio) matrix size
Request part number	N	6Ø-*nnnn-nn*↵	See the Extron Website for part numbers.
Request input/output board configuration	*N	6Ø-*nnnn-nn*.[X47]^{1}[X47]^{2} ... [X47]^{n}[X48]^{1}[X48]^{2} ... [X48]^{n}↵	Part number, dot, 4 or 8 (*n*) [X47]s; each is the input board installed, starting from input slot 1, followed by 4 or 8 (*n*) [X48]s; each is the output board installed.
NOTE: There are up to three separate sets of Extron firmware on which the matrix switcher can report: the controller firmware, which is the overall control firmware; the Ethernet protocol firmware, which handles the Ethernet interface; and the latest optional Extron firmware update, which is available at **www.extron.com**.			
Query controller firmware version	Q	[X49]↵	
Example:	Q	1.23↵	The factory-installed controller firmware version is 1.23 (sample value only).
Query controller firmware version (verbose)	ØQ	[X49]-[X50]-[X50]↵	Detailed status of the controller firmware and any firmware upgrade. The active firmware is marked by an asterisk (*). A caret (^) indicates a bad checksum or an invalid load. ?.?? indicates that firmware is not loaded.
Response description: Ethernet protocol firmware version-controller firmware version-updated firmware version			
Example:	Øq	See below	

Description — * indicates the version running — Upload date and time

1.23-1.ØØ(1.Ø6-XTP CP Series -Tue, Ø2 Dec 2Ø1Ø ØØ:ØØ:ØØ GMT),-1.ØØ*(1.Ø6-XTP CP Series -Mon, Ø2 Apr 2Ø12 16:39:21 GMT)↵

Ethernet protocol firmware — XTP II CrossPoint firmware version — Updated firmware version

KEY:

[X45] = Number of inputs — 4, 8, 12, 16, 2Ø, 24, 28, or 32

[X46] = Number of outputs — 4, 8, 12, 16, 2Ø, 24, 28, or 32

[X47] = Installed input board

A = XTP CP 4i 4K (TP)	K = XTP CP 4i HDMI DMA
F = XTP CP 4i VGA	N = XTP CP 4i Fiber 4K
G = XTP CP 4i (TP)	P = XTP CP 4i 3G-SDI
H = XTP CP 4i HDMI	T = XTP CP 4i HD 4K PLUS
I = XTP CP 4i DVI Pro	X = No board installed

[X48] = Installed output board

B = XTP CP 4o 4K (TP)	M = XTP CP 4o SA (stereo audio)
D = XTP CP 4o (TP)	O = XTP CP 4o Fiber 4K
E = XTP CP 4o HDMI	U = XTP CP 4o HD 4K PLUS
J = XTP CP 4o DVI Pro	X = No board installed

[X49] = Firmware version number to second decimal place (*x.xx*)

[X50] = Verbose firmware version-description-upload date/time (see the Query firmware version (verbose) command, above.

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Information requests (continued)			
Request system status	S	See below	
XTP CrossPoint 3200:		X51•X51•X51•X51•X51•X52•X53•X53•X53•X53•X53•X53•X53•X54X54X54X54↵	
XTP CrossPoint 1600 *(no redundant power supply):*		X51•X51•X51•X52•X53•X53•X54X54↵	
XTP CrossPoint 1600 *(redundant power supply):*		X51•X51•X51•X51•X51•X52•X53•X53•X54X54X54X54↵	
*Response description (***XTP CrossPoint 3200***):*		*PS1 (12 V)•PS2 (12 V)•PS3 (12 V)•PS4 (48 V)•3.3 V•°F•Fan 1 RPM (F1)•F2•F3•F4•F5•F6•F7•PS status 1 (PS1) PS2 PS3 PS4*↵	
*Response description (***XTP CrossPoint 1600***,* ***without*** *optional redundant power supply):*		*PS1 (12 V)•PS2 (48 V)•3.3 V•temp. (°F)•Fan 1 speed (F1)•F2•PS status 1 (PS1) PS2*↵	
*Response description (***XTP CrossPoint 1600***,* ***with*** *optional redundant power supply):*		*PS1 (12 V)•PS2 (48 V)•PS3 (12 V)•PS4 (48 V)•3.3 V•°F•Fan 1 speed (F1)•F2•PS status 1 (PS1) PS2 PS3 PS4*↵	
NOTE: • If a primary power supply that is **not** backed up by a redundant supply fails, return the matrix switcher to Extron for immediate repairs. • If a backed up power supply, a redundant power supply, or a cooling fan fails, return the matrix switcher at your earliest opportunity.			
*Example (***XTP CrossPoint 3200***):*	S	See below	
		12.Ø1◙11.31◙11.31◙48.ØØ◙+3.3Ø◙+73.4Ø◙ØØ892◙ØØ888◙ØØ892◙Ø1Ø61◙Ø1Ø22◙ØØ892◙ØØ888◙1111↵ 12V power supply 1 at 12.01V; Temperature is 73.4 °F; Fan 2 rotating at 888 RPM; All 4 power supplies installed	
View all input connections	ØLS	X5¹X5²X5³... X5ⁿ↵	16 or 32 (ⁿ) X5s; each is the connection status of an input, starting from input 1.
*Example (***XTP CrossPoint 3200***):*	ØLS	Response Status: Ø Ø Ø 1 1 1 Ø 1 Ø Ø 1 Ø 1 . . . Ø↵ Input: 1 2 3 4 5 6 7 8 9 10 11 12 13 32 No input detected; Sync detected; Sync detected	

KEY:			
	X5 = Input signal status	Ø = No signal detected	1 = Signal detected
	X51 = Voltage	Positive or negative voltage and magnitude	
	X52 = Internal temperature	Degrees Fahrenheit	
	X53 = Fan speed	RPM	
	X54 = Power supply installation status	Ø = No power supply installed	1 = Power supply installed

Symbol definitions for IP and Remote port specific SIS commands

X61 = Matrix name — Up to 24 alphanumeric characters

NOTE: The HTML language reserves certain characters for specific functions (see **Special Characters** on page 120).

X62 = Default name — XTP-CP-*nn*ØØ + Last 3 pairs of MAC address.
nn = 16 or 32.

X63 = Time and date (for set) — In the format: *MM*/*DD*/*YY*•*HH*:*mm*:*SS* where:
MM = month: Ø1 (January) to 12 (December)
DD = day: Ø1 to 31
YY = year: ØØ to 99
HH = hour: ØØ to 23
mm = minute: ØØ to 59
SS = second: ØØ to 59

X64	=	Time and date (for read)	In the format: *Day*,●*DD*●*Mmm*●*YYYY*●*HH*:*mm*:*SS* where: *Day* = day of the week: Mon to Sun *DD* = day: Ø1 to 31 *Mmm* = month: Jan to Dec *YYYY* = year: 2ØØØ to 2Ø99 *HH* = hour: ØØ to 23 *mm* = minute: ØØ to 59 *SS* = second: ØØ to 59
X65	=	GMT offset	-12.Ø to +14.Ø (hours and minutes removed from GMT)
X66	=	Daylight Saving Time	Ø = Daylight Savings Time off or ignore 1 = Daylight Savings Time on (North America) 2 = Daylight Savings Time on (Europe) 3 = Daylight Savings Time on (Brazil)
X67	=	IP address	###.###.###.###
X68	=	Hardware (MAC) address	##-##-##-##-##-##
X69	=	Number of open connections	ØØØ to 2ØØ
X70	=	Password	Up to 12 alphanumeric characters

NOTE: The HTML language reserves certain characters for specific functions (see **Special Characters** on page 120).

X71	=	Domain name	Standard domain name rules apply (for example: *xxx*.com)

NOTE: The @ character is acceptable only as the lead-in to the domain name (such as @extron.com).

X73	=	E-mail account	65 to 72 (65 = e-mail recipient 1, 66 = 2, 67 = 3,... 72 = recipient 8)
X74	=	E-mail address	Typical e-mail address format (for example: *nnn*@*xxx*.com)
X75	=	Notification selections, part 1	I = inputs F = fans P = power supply
X76	=	Notification selections, part 2	If X75 = I, then X76 = ØØ (all inputs, or Ø1 to 16 or 32 (input 1 through 16 or 32) If X75 = F, then X76 = ØØ (all fans) If X75 = P, then X76 = ØØ (all power supplies)
X77	=	Notify when?	Ø = no response 1 = fail/missing 2 = fixed or restored 3 = both 1 and 2 4 = suspend
X78	=	DHCP	Ø = off (default) 1 = on

X79	=	Port number	Ø1 = Remote RS-232/RS-422 port Ø2 = Unused Ø3-66 = UARTs 1-64 (XTP input and output board ports)
X80	=	Baud rate	9600 (default), 19200, 38400, 115200
X81	=	Parity	O = odd E = even N = none (default) M = mark S = space
X82	=	Data bits	7, 8 (default)
X83	=	Stop bits	1 (default), 2

NOTE: X79 to X83 and X92 are repeated on page 84 as X15 to X20.

X84	=	Port type	Ø = RS-232 (default) 1 = RS-422
X85	=	Verbose mode	Ø = clear or non (default for Telnet connection) 1 = verbose mode (default for RS-232 and RS-422 or USB connection) 2 = Tagged responses for queries 3 = Verbose mode and tagged for queries

NOTE: If tagged responses is enabled (modes 2 and 3), all read commands return the constant string and the value as the set command does (for example, the read matrix name command Esc CN←, returns Ipn●X11↵).

X86	=	Flow control	H = hardware S = software N = none (default)
X87	=	Data pacing in MS	ØØØØ to 1ØØØ (ØØØØ = default)
X88	=	Time (in 10 MS increments) to wait for characters	1Ø to 32767 (for example, 1Ø = 100 MS)
X89	=	Time (in 10 MS increments) between characters	2 to 32767 (2 = default)
X90	=	Priority status for receive timeouts	Ø = use the "Send" data string command parameters if they exist (default) 1 = use the Configure receive timeout command parameters
X91	=	Length of message (L) or delimiter (D)	*nnnnn*L = byte count (1 to 32767 or Ø = ignore byte length, use time) <*Delimiter*>D (for example: 13D [carriage return - ←])
X92	=	Port timeout interval in 10 second increments	1 to 65ØØØ (3Ø = default)

SIS command and Response Table for IP- and Remote Port-Specific Commands

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
IP and Remote port setup commands			
Set matrix name	Esc X61 CN ←	Ipn• X61 ↵	
Read matrix name (location)	Esc CN ←	X61 ↵	
Reset matrix name to factory default	Esc •CN ←	Ipn• X62 ↵	
Set time and date	Esc X63 CT ←	Ipt X63 ↵	
Read time and date	Esc CT ←	X64 ↵	
Set GMT offset	Esc X65 CZ ←	Ipz X65 ↵	In the command, the divider between hours and minutes can be either a colon or a period. In the response, the divider is a colon.
Example:	Esc 8.3CZ ←	Ipz+Ø8:3Ø ↵	8.3 = 8:30
Read GMT offset	Esc CZ ←	X65 ↵	
Set Daylight Savings Time	Esc X66 CX ←	Ipx X66 ↵	
Read Daylight Savings Time	Esc CX ←	X66 ↵	
Set IP address	Esc X67 CI ←	Ipi X67 ↵	Default: 192.168.254.254
Read IP address	Esc CI ←	X67 ↵	
Read hardware address	Esc CH ←	X68 ↵	Reads MAC address.
Read # of open connections	Esc CC ←	X69 ↵	
Set subnet mask	Esc X67 CS ←	Ips X67 ↵	Default: 255.255.Ø.Ø
Read subnet mask	Esc CS ←	X67 ↵	
Set gateway IP address	Esc X67 CG ←	Ipg X67 ↵	Default: Ø.Ø.Ø.Ø
Read gateway IP address	Esc CG ←	X67 ↵	
Set administrator password	Esc X70 CA ←	Ipa•**** ↵	
Read administrator password	Esc CA ←	**** ↵ or ↵	If there is a valid password the response is **** ↵. If there is no password, the response is ↵.
Reset (clear) administrator password	Esc •CA ←	Ipa• ↵	
Set user password	Esc X70 CU ←	Ipu•**** ↵	
Read user password	Esc CU ←	**** ↵ or ↵	If there is a valid password the response is **** ↵. If there is no password, the response is ↵.
Reset (clear) user password	Esc •CU ←	Ipu• ↵	
Set mail server, domain name	Esc X67 , X71 , X70 CM ←	Ipm X67 , X71 , X70 , , ↵	
Read mail server, domain name	Esc CM ←	X67 , X71 , X70 , , ↵	
Set e-mail recipient	Esc X73 , X74 CR ←	Ipr X73 , X74 , ↵	This command sets the recipient. To receive e-mail notifications, you must then set the events that the switcher reports, using one or more separate Set e-mail events (EM) commands (see below).
Example:	Esc 72,Jsmith@folklore.netCR ←	Ipr72,Jsmith@folklore.net,↵	
Read e-mail recipient	Esc X73 CR ←	X74 , ↵	
Set e-mail events for recipient	Esc X75 , X73 , X76 , X45 EM ←	Ipe X75 , X73 , X76 , X45 ↵	You must first have set an e-mail recipient for the e-mail account number (X73), using the separate Set e-mail (CR) command (see above).
Example:	Esc I72,Ø,3EM ←	IpeI*72*Ø*3 ↵	E-mail account #72 (recipient #8) (Jsmith, as set by the preceding Set e-mail recipient command), will receive fail/missing and fixed/restore messages for all inputs.
Read e-mail notifications for one account (recipient)	Esc X73 , X84 , X77 EM ←	X84 , X84 , X84 , ... , X84 ↵	

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional Description
Set DHCP on or off	Esc X78 DH ←	Idh X78 ↵	Default: Ø (Off)
Read DHCP on/off status	Esc DH ←	X78 ↵	
IP and Remote port setup commands (continued)			
Set serial port parameters	Esc X79 * X80 , X81 , X82 , X83 CP ←	Cpn X79 • Ccp X80 , X81 , X82 , X83 ↵	
Read serial port parameters	Esc X79 CP ←	X80 , X81 , X82 , X83 ↵	
Configure flow control	Esc X79 * X86 , X87 CF ←	Cpn X79 • Cfl X86 , X87 ↵	
Read flow control	Esc X79 CF ←	X86 , X87 ↵	
Configure receive timeout	Esc X79 * X88 , X89 CE ←	Cpn X79 • Cce X88 , X89 , X90 , X91 ↵	
NOTE: The configure command is sufficient as shown for most users, with the priority (X90) and length or delimiter (X91) omitted). The response in this case is "Cpn X79 • Cce X88 , X89 , Ø , ØØØØØL ↵," with the default X90 and X91 values returned.			
Read receive timeout	Esc X79 CE ←	X88 , X89 , X90 , X91 ↵	
Set mode	Esc X79 * X84 CY ←	Cpn X79 • Cty X84 ↵	
Read mode	Esc X79 CY ←	X84 ↵	
Set verbose mode	Esc X85 CV ←	Vrb X85 ↵	
Read verbose mode	Esc CV ←	X85 ↵	
Configure current port timeout	Esc Ø * X92 TC ←	Pti Ø * X92 ↵	
Read current port timeout	Esc ØTC ←	X92 ↵	
Configure global IP port timeout	Esc 1 * X92 TC ←	Pti 1 * X92 ↵	
Read global IP port timeout	Esc 1TC ←	X92 ↵	

Special Characters

The HTML language reserves certain characters for specific functions. The matrix switcher does not accept these characters are part of names, passwords, or locally created file names.

The matrix switcher rejects the following characters:
<space (spaces are OK for names)> + ~ , @ = ‘ [ ] { } < > ’ “ semicolon (;) colon (:) | \ and ?.

HTML Operation

The XTP CrossPoint Series can be remotely controlled via:

- The XTP System Configuration Software (see the *XTP System Configuration Software* help file, available at **www.extron.com**).
- SIS commands (see **Programming Guide**, beginning on page 76)
- Built-in HTML pages (see below)

This section introduces using the built-in HTML pages to operate the XTP CrossPoint Series, including:

- **Download the Startup Page**
- **Status Tab**
- **Configuration Tab**
- **File Management Tab**
- **Control Tab**

The matrix switcher can be controlled and operated through its LAN port, connected via a LAN or WAN, using a Web browser such as the Microsoft Internet Explorer. The display in the browser of the status or operation of the matrix switcher has the appearance of Web pages. This chapter describes the factory-installed HTML pages, which are always available and cannot be erased or overwritten.

NOTE: If your Ethernet connection to the matrix switcher is unstable, try turning off the proxy server in your Web browser. In Microsoft Internet Explorer, click **`Tools > Internet Options > Connections > LAN Settings`**, uncheck the **`Use a proxy server...`** box, and then click **`OK`**.

Download the Startup Page

Access the matrix switcher using HTML pages as follows:

1. Start the Web browser program.
2. Click in the **Address** field of the browser and highlight any existing text.
3. Enter the Matrix IP address in the **Address** field of the browser.

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

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

   NOTES:

   - The **Address** field of the browser should display the address in the following format: `<xxx.xxx.xxx.xxx>/<optional_file_name>.html`.
   - The HTML language reserves certain characters for specific functions (see **Special Characters** on page 120).

5. Press the keyboard `<Enter>` key. The matrix switcher checks to see if it is password-protected.

   If the matrix switcher is not password-protected, it checks and downloads the HTML pages (proceed to step 8).

   If the matrix switcher is password-protected, the matrix switcher asks for your password (see figure 55).

Figure 55. Sample Password Inquiry

NOTE: A **User name** entry is not required.

6. Click in the **Password** field (see figure 55, ❶) and type in the appropriate administrator or user password.
7. Click the **OK** button (❷).
8. The matrix switcher checks several possibilities, in the following order, and then responds accordingly:

   - If the address includes a specific file name, such as `192.168.254.254/<file_name>.html`, the matrix switcher downloads that HTML page.
   - If there is a file in the matrix switcher memory that is named "`index.html`", the matrix switcher downloads "`index.html`" as the default startup page.
   - If neither of the above conditions is true, the matrix switcher downloads the factory-installed default startup page, "`nortxe_index.html`" (see **figure 56** on the next page), also known as the **System Status** page.

Status Tab

System Status Page

The `System Status` page (see figure 56) provides an overall view of the status of the matrix switcher, including individual voltages, fan operation, and the serial port status. The `System Status` page is the default page that the matrix switcher downloads when you connect to the matrix switcher. Access the `System Status` page from other pages by clicking the **`Status`** tab.

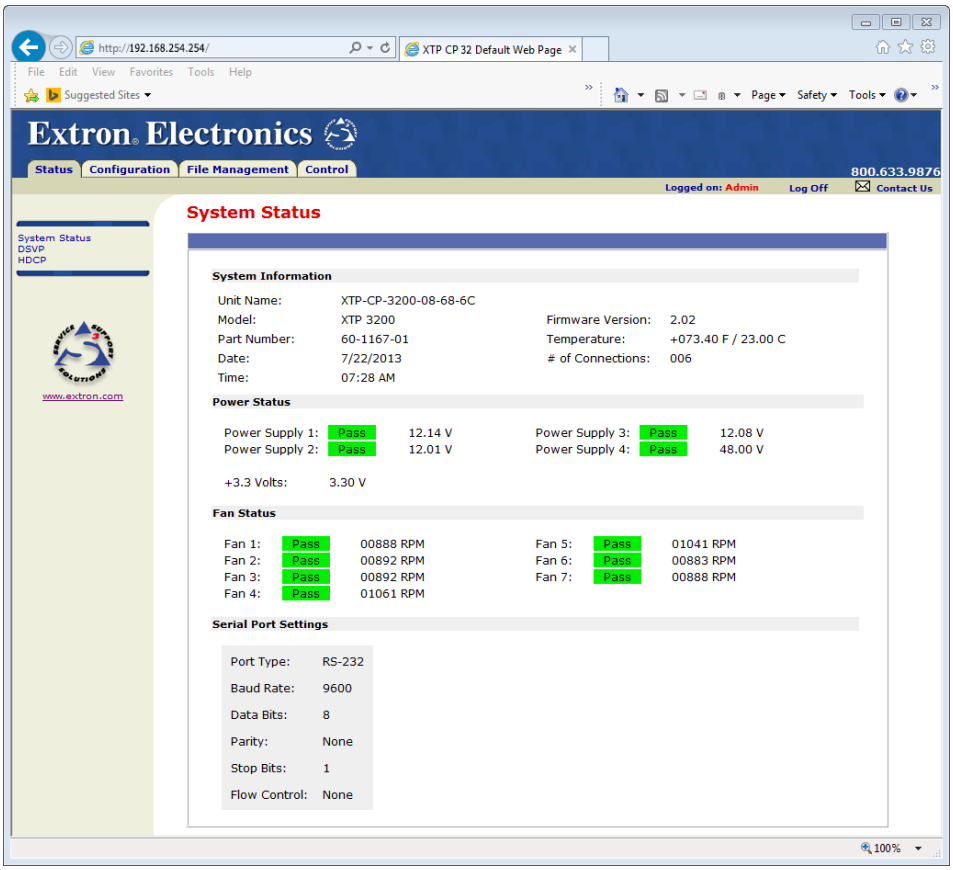


Figure 56. System Status Page

The `System Status` page periodically refreshes itself to reflect the latest status of the matrix switcher components. If a value changes, the display shows the change in status the next time it refreshes.

DSVP Page

The DSVP page (see figure 57) provides the connection status of the matrix switcher. Access the DSVP page from the System Status or HDCP page by clicking the **DSVP** link on either the System Status or HDCP page.

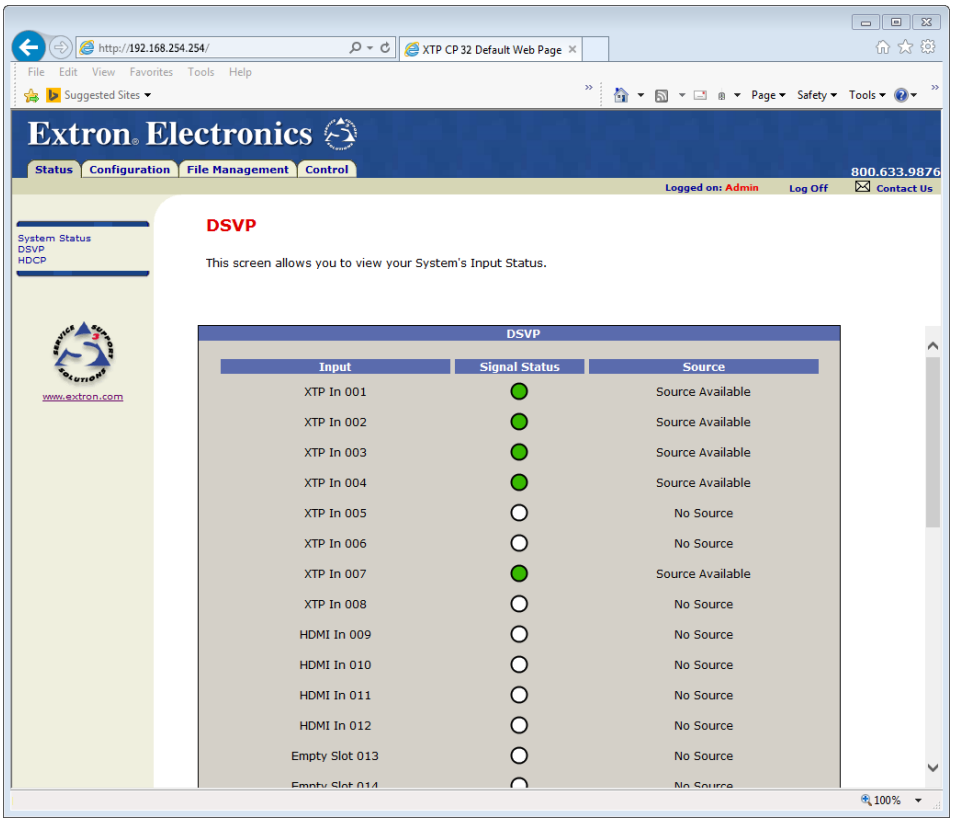


Figure 57. DSVP Page

HDCP Page

The HDCP page (see figure 58) provides the HDCP status of inputs to and outputs from the matrix switcher. Access the HDCP page from the System Status or DSVP page by clicking the **HDCP** link on either the System Status or DSVP page.

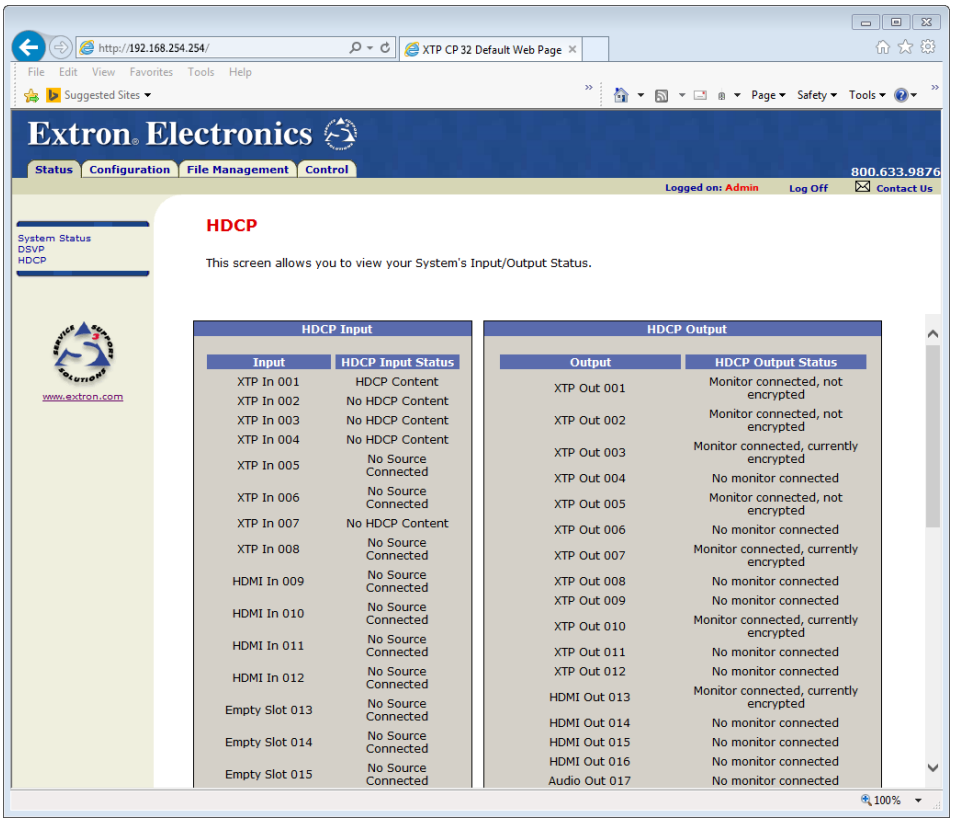


Figure 58. HDCP Page

Configuration Tab

System Settings Page

The XTP CrossPoint Series matrix switcher downloads the **System Settings** page (see figure 59) when you click the **Configuration** tab (❶). The screen consists of fields in which you can view and edit IP administration and system settings. You can access the **Email Settings** and **Passwords** pages by clicking the appropriate link (see **Ethernet Link** on page 150 for basic information about IP addresses and subnetting).

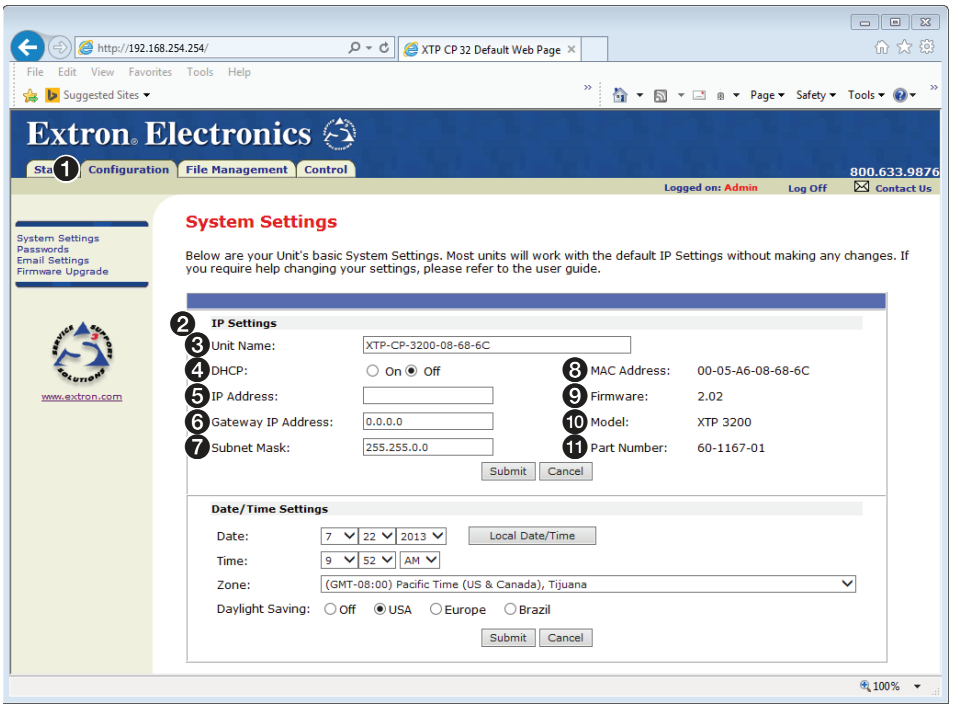


Figure 59. System Settings Page

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

IP Settings panel

NOTE: Editing variables in the **IP Settings** panel can immediately disconnect the user from the matrix switcher. Extron recommends editing these settings using SIS commands (see **SIS Command and Response Table for IP- and Remote Port-Specific Commands**, starting on page 119) and protecting the Ethernet access to this screen by assigning an administrator password to qualified and knowledgeable personnel only.

The **IP Settings** panel (❷) provides a location for viewing and editing settings unique to the Ethernet interface. After editing any of the settings on this page, click the **Submit** button at the bottom of the page to save the changes.

Unit Name field

The **Unit Name** field (see **figure 59** on the previous page, ❸) contains the name used as the "from" information when the matrix switcher e-mails notification of its failed or repaired status. This name field can be any valid name, up to 24 alphanumeric characters.

NOTE: The HTML language reserves certain characters for specific functions (see **Special Characters** on page 120).

DHCP radio buttons

The **DHCP On** radio button (❹) directs the matrix switcher to ignore any entered IP addresses and to obtain its IP address from a Dynamic Host Configuration Protocol (DHCP) server (if the network is DHCP capable). The **DHCP Off** radio button turns DHCP off. Contact the local system administrator to determine if DHCP is appropriate.

IP Address field

The **IP Address** field (❺) contains the IP address of the connected matrix switcher. This value is encoded in the blink memory of the matrix switcher.

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

The factory-installed default address is 192.168.254.254, but if this conflicts with other equipment, you should ask your network administrator for a new, valid address.

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

Gateway IP Address field

The **Gateway IP Address** field (❻) identifies the address of the gateway to the mail server to be used if the matrix switcher and the mail server are not on the same subnet.

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

Subnet Mask field

The **Subnet Mask** field (❼) is used to determine whether the matrix switcher is on the same subnet as the mail server when you are subnetting. For more information, see **Subnetting — A Primer**, beginning on page 155.

MAC Address field

The Media Access Control (**MAC**) **Address** listing (❽) is hardcoded in the matrix switcher and can be changed only as part of a firmware update.

Firmware field

The **Firmware** field identifies (❾) the installed firmware version. This field is hardcoded in the matrix switcher and cannot be changed.

Model field

The **Model** field (❿) identifies the number of video and audio inputs and outputs. This field is hardcoded in the matrix switcher and cannot be changed.

Part Number field

The **Part Number** field (⓫) identifies the part number of your matrix switcher. This field is hardcoded in the matrix switcher and cannot be changed.

Date/Time Settings panel

The **Date/Time Settings** panel (see figure 60) provides a location for viewing and setting the time functions.

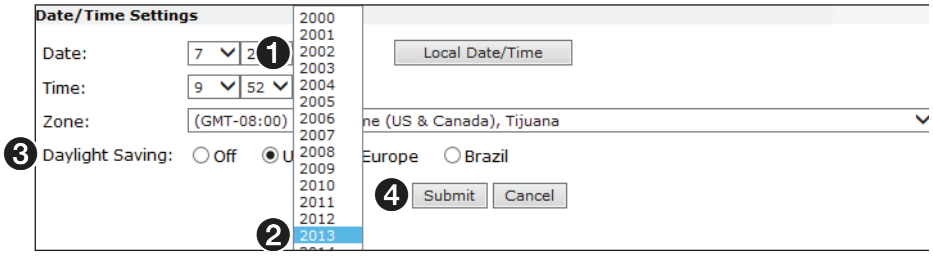


Figure 60. Date/Time Settings Panel

Change the date and time settings as follows:

1. Click the drop-down list for the desired value (see figure 60, ❶). The adjustable variables are month, day, year, hours, minutes, AM/PM, and (time) zone. A drop-down list appears (the year list is selected in figure 60).
2. If necessary, click and drag the slider or click the scroll up button or the scroll down button until the desired value is visible.
3. Click the desired value (❷).

NOTES:

- If setting the time, set the local time. The **Zone** drop-down list allows you to then enter the offset from Greenwich Mean Time (GMT).
- The **Zone** drop-down list identifies the standard time zone selected and displays the amount of time, in hours and minutes, that the local time varies from the GMT international time reference.

4. Repeat steps 1 through 3 for other variables that need to be changed.
5. If appropriate, select the appropriate **Daylight Savings** radio button (❸) to turn on the daylight savings time feature for your region or nation.

NOTE: When **Daylight Savings** is turned on, the matrix switcher automatically updates its internal clock between Standard Time and Daylight Savings Time in the spring and fall on the date that the time change occurs in the country or region selected. When **Daylight Savings** is turned off, the matrix switcher does not adjust its time reference.

6. Click the **Submit** button (❹).

Passwords Page

Access the **Passwords** page (see figure 61) by clicking the **Passwords** link (❶) on the left of the **System Settings**, **Email Settings**, or **Firmware Upgrade** page.

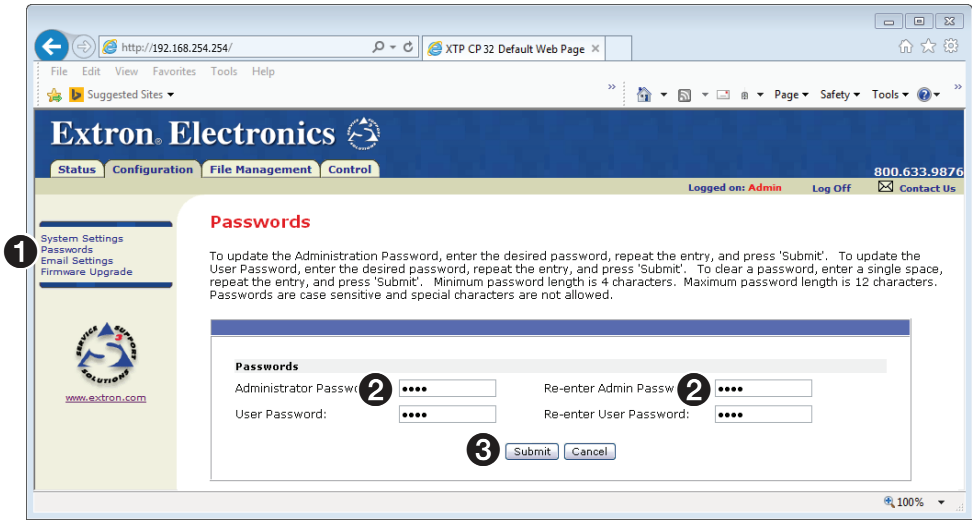


Figure 61. Passwords Page

NOTE: If the matrix switcher is password-protected, fields on this page can be edited only by people logged in as administrators.

The fields on the **Passwords** page are for entering and verifying administrator and user passwords. Passwords are case sensitive and are limited to as many as 12 upper-case and lower-case alphanumeric characters. Each password must be entered twice; once in the **Password** field and then again in the **Re-enter Password** field (see figure 61, ❷). Characters in these fields are masked by asterisks (*****). If you do not want to password protect an access level, leave the **Password** field and the **Re-enter Password** field blank. After entering the password in both fields, click the **Submit** button (❸).

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

Resetting a password

Reset an existing password so that no password is required as follows:

1. Replace any existing password by entering a single space character in the **Password** and **Re-enter Password** fields (see figure 61, ❷).
2. Click the **Submit** button (❸).

Email Settings Page

Reach the `Email Settings` page by clicking the **`Email Settings`** link (see figure 62, ❶) on the left of the `System Settings`, `Passwords`, or `Firmware Upgrade` page. The `Email Settings` page has fields for setting up the e-mail notification capabilities of the matrix switcher. For the e-mail settings and for each row of the e-mail notification settings, click the **`Edit`** button (❷) to make the fields available for editing. The button changes to **`Save`**. After editing the settings associated with the **`Edit`**/**`Save`** button, click the **`Save`** button.

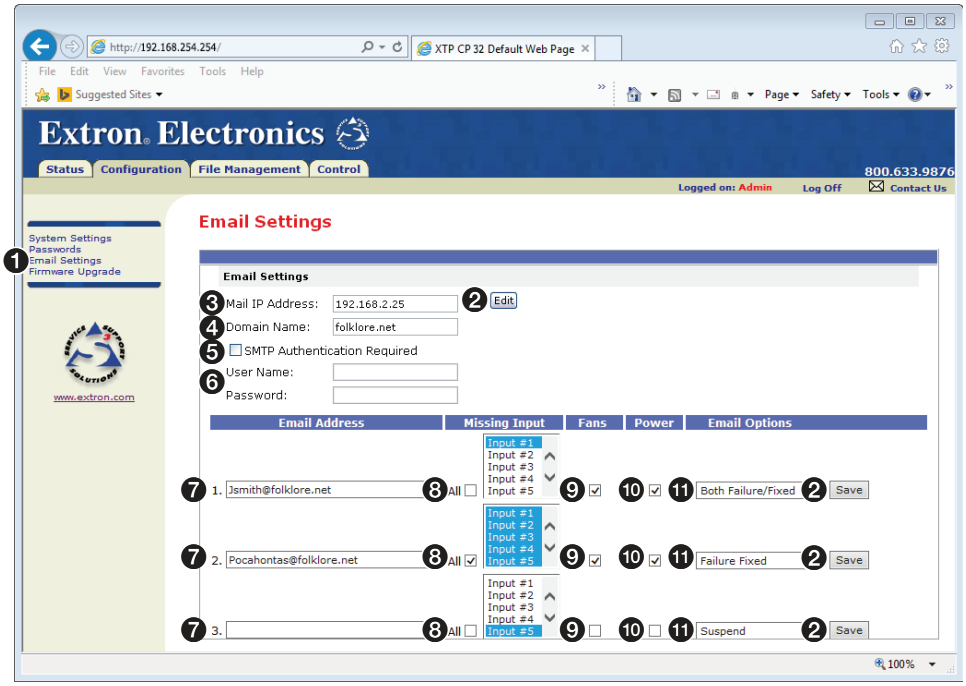


Figure 62. Email Settings Page

Email Settings pane

The `Email Settings` panel displays the **`Mail IP Address`** (❸) and the **`Domain Name`** (❹) of the mail server that handles the e-mail for the facility in which the matrix switcher is installed.

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

Setting up SMTP authorization

If desired, set the XTP CrossPoint to require SMTP authorization before accepting any e-mail as follows:

1. Click **Edit** (see **figure 62** on the previous page, ❷). The button changes to **Save**.
2. Check the **SMTP Authorization Required** check box (❺). This enables the **User Name** and **Password** fields below the check box.
3. Enter a user name and a password in the **User Name** and **Password** fields (❻). For the XTP CrossPoint to accept their e-mail messages, senders must enter the user name and password.

   NOTES:
   - For the User name, any combination of letters, numerals, spaces, and symbols except the comma (**,**) and the single and double quotation marks (‘ and “) are valid. For the password, all characters except the comma are valid. The user name and password can each be from 1 to 30 characters.
   - Both a user name and a password must be specified.

4. Click **Save** to save the user name and password (❷).

Deselecting SMTP authorization

Remove SMTP authorization as follows:

1. Click **Edit** (❷). The button changes to **Save**.
2. Click (deselect) the **SMTP Authorization Required** check box (❹).
3. Click **Save** (❷).

Domain Name field

The **Domain Name** field (❹) displays the domain name that the XTP CrossPoint Series matrix switcher uses to log on to the e-mail server. Standard domain name conventions (for example: *xxx*.com) apply.

NOTE: The HTML language reserves certain characters for specific functions (see **Special Characters** on page 120). The @ character is acceptable only as the lead-in to the domain name (such as @folklore.net).

Email Address fields

The five **Email Address** fields (❼) identify the e-mail addresses of the personnel to whom the XTP II CrossPoint Series matrix switcher e-mails notification of its failure and repair status. Standard e-mail address conventions (*nnnnn*@*xxx*.com) apply.

The check boxes and drop boxes associated with each address field permit the operator to specify specific criteria under which the matrix switcher will e-mail recipients. In the associated **Missing Inputs** scroll boxes (❽), select the inputs to monitor for presence or absence of a signal. Check the **Fans** (❾) and **Power** (❿) boxes to monitor the cooling and power supplies. In the associated **Email Options** drop-down list (⓫), select whether the recipient is to be e-mailed of failures, fixes, both, not notified, or to be removed from the e-mail list. The **Suspend** option is useful for temporarily removing personnel from the e-mail list when they are unavailable, such as if travelling or on vacation. Deleting an e-mail addressee and clicking the **Save** button (❷) removes the recipient from e-mail notification completely.

Firmware Upgrade Page

NOTE: The `Firmware Upgrade` page is only for replacing the matrix switcher firmware To insert your own custom HTML pages, see **File Management Page** on page 134.

The `Firmware Upgrade` page is for replacing the matrix switcher firmware. Access the `Firmware Upgrade` page by clicking the **`Firmware Upgrade`** link (see figure 63, ❶) on the left of the `System Settings`, `Passwords`, or `Email Settings` page.

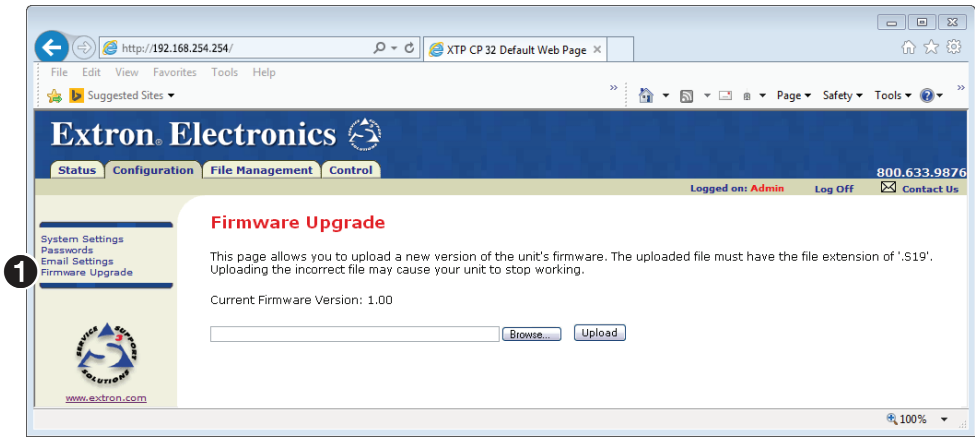


Figure 63. Firmware Upgrade Page

Downloading Firmware

Update the matrix switcher firmware as follows:

1. On the Extron website, **www.extron.com**, go to the **`Download`** tab and click **`Firmware`** (see figure 64, ❶).

Figure 64. Downloading Firmware from the Extron Website

2. Navigate to the desired product (see figure 65, ❷).

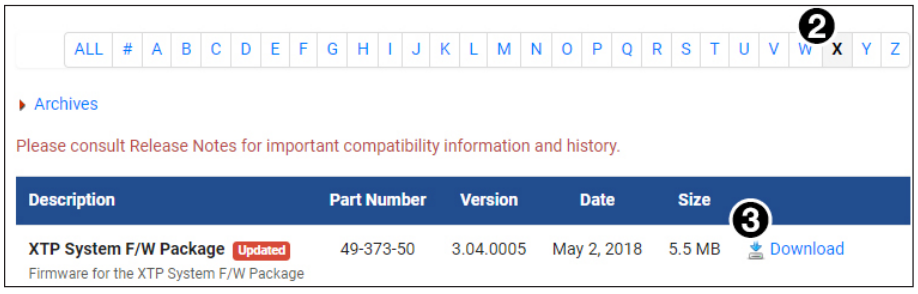


Figure 65. Downloading Firmware from the Extron Website

3. Ensure the available firmware version is a later version than the current one on the device, and click the **Download** link (❸).

NOTE: The firmware release notes are a PDF file that provides details about the changes between different firmware versions. The file can be downloaded from the same page as the firmware.

Updating Firmware

1. Connect the PC to the XTP CrossPoint Series matrix switcher via the LAN port of the matrix switcher.
2. Access the XTP CrossPoint Series matrix switcher using HTML pages (see **Download the Startup Page** on page 122).
3. Click the **Configuration** tab (see figure 66, ❶).

Figure 66. Firmware Upgrade

4. Click the **Firmware Upgrade** link (❷).
5. Click the **Browse** button (❸). An open file window appears.
6. Navigate to the folder where you saved the firmware upgrade file and select it (❹).

ATTENTION:

- The firmware file must have an .s19 extension. Other file types can cause the switcher to stop functioning.
- Le firmware doit avoir une extension .s19. D'autres types de fichiers peuvent nuire au fonctionnement de l'émetteur.

NOTE: The original factory-installed firmware is permanently available on the matrix switcher. If the attempted firmware upload fails for any reason, the matrix switcher reverts to the factory-installed firmware.

7. Click the **Open** button (❺).
8. Click the **Upload** button (❻). The firmware upload to the XTP CrossPoint Series matrix switcher may take a few minutes.

File Management Tab

File Management Page

To delete files such as user-supplied HTML pages from the matrix switcher or to upload your own files to the matrix switcher, click the **`File Management`** tab (see figure 67, ❶). The matrix switcher downloads the `File Management` page.

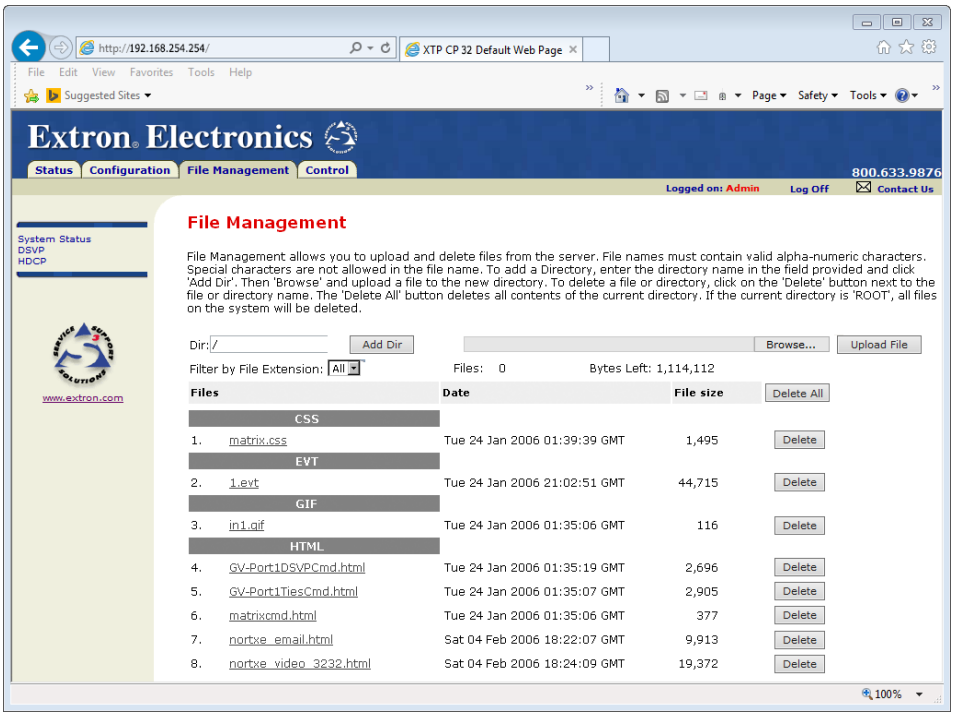


Figure 67. File Management Page

NOTE: The files listed in figure 67 are shown for example only and may not be present on your matrix switcher.

To delete a file, click the **`Delete`** button associated with that file (❷).

Upload your own files as follows:

NOTE: The HTML language reserves certain characters for specific functions (see **Special Characters** on page 120).

1. Click the **`Browse`** button (❸).
2. Browse through your system and select the desired file of files.

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

3. Click the **`Upload File`** button (❹). The file or files that you selected appear in the list.

Control Tab

Set and View Ties Page

You can create ties on the `Set and View Ties` page. Access the `Set and View Ties` page by clicking the **`Control`** tab (see figure 68, ❶).

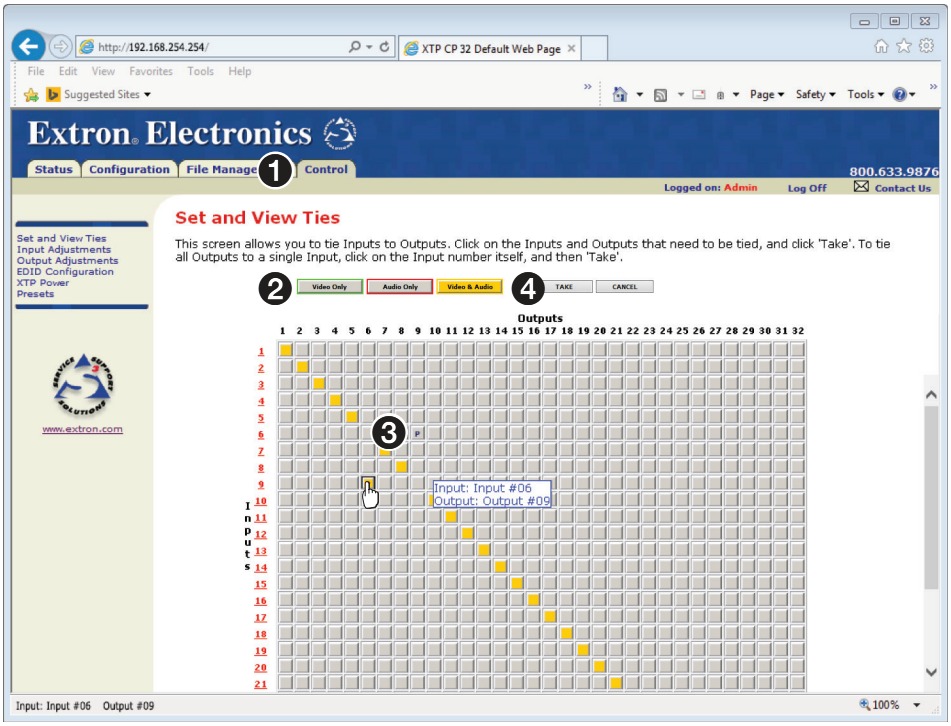


Figure 68. User Control Ties page

The page consists of a matrix of input (rows) and output (columns) selection buttons of four different colors:

- **Amber** buttons indicate **video and audio ties**.
- **Green** buttons indicate **video only ties**.
- **Red** buttons indicate **audio only ties**.
- **Gray** buttons indicate **no ties**.

The page displays only those inputs and outputs that are available on **installed** boards only. Select and switch an input as follows:

1. Click the **`Video Only`**, **`Audio Only`**, or **`Video & Audio`** button (❷) to select video, audio, or both for switching (audio follow or audio breakaway). Each mouse click on a button toggles the other two buttons off.
2. Move the mouse over the matrix of input and output buttons (❸). Click a button to create a pending tie (if a tie does not exist) or pending untie (if a tie exists) of the input and output associated with that button. A "P" (for pending) appears in the button.

   NOTES:
   - If you lose track of the input and output associated with a specific button, let the mouse rest over one of the tie buttons for a moment. A field pops up (as shown on figure 68) that identifies the input and output for that button.
   - To tie an input to all outputs, click that input number.
3. Click the **`Take`** button (❹) to make the configuration changes or the **`Cancel`** button to abandon the configuration changes.

Input Adjustments Page

The `Input Adjustments` page is a central location for changing how input video and audio are processed and switched. Access the page by clicking the **`Input Adjustments`** link (see figure 69, ❶) on the left of the `Set and View Ties`, `Output Adjustments`, `EDID Configuration`, `XTP Power`, or `Presets` page.

The page tailors the options available for selection for the input boards installed. Options that are not compatible with an input type are unavailable for selection.

NOTE: All options are available for selection for XTP CP 4i and XTP CP 4i 4K (XTP input) boards. If the input to an endpoint connected to the XTP board is compatible with the option, the adjustment is made. The `Input Adjustments` page indicates the change regardless.

Possible adjustments include:

- **`Auto Image`** (❷) — Available for inputs on XTP CP 4i VGA (analog video) boards.
- **`HDCP Authorized`** (❸) — Available for inputs on XTP CP 4i, XTP CP 4i 4K, XTP CP 4i Fiber 4K, XTP II CP 4i HD 4K PLUS, XTP CP 4i HDMI, XTP CP 4i HDMI DMA, and XTP CP 4i DVI Pro boards.
- **`Gain/Attenuation`** (❹) — Available for inputs on all boards. Unavailable if **`HDMI`** is selected in the **`Audio Breakaway Select`** drop-down list.
- **`Audio Breakaway Select`** (❺) — Available for inputs on XTP CP 4i, XTP CP 4i 4K, XTP CP 4i Fiber 4K, XTP II CP 4i HD 4K PLUS, XTP CP 4i HDMI, XTP CP 4i HDMI DMA, and XTP CP 4i DVI Pro boards.

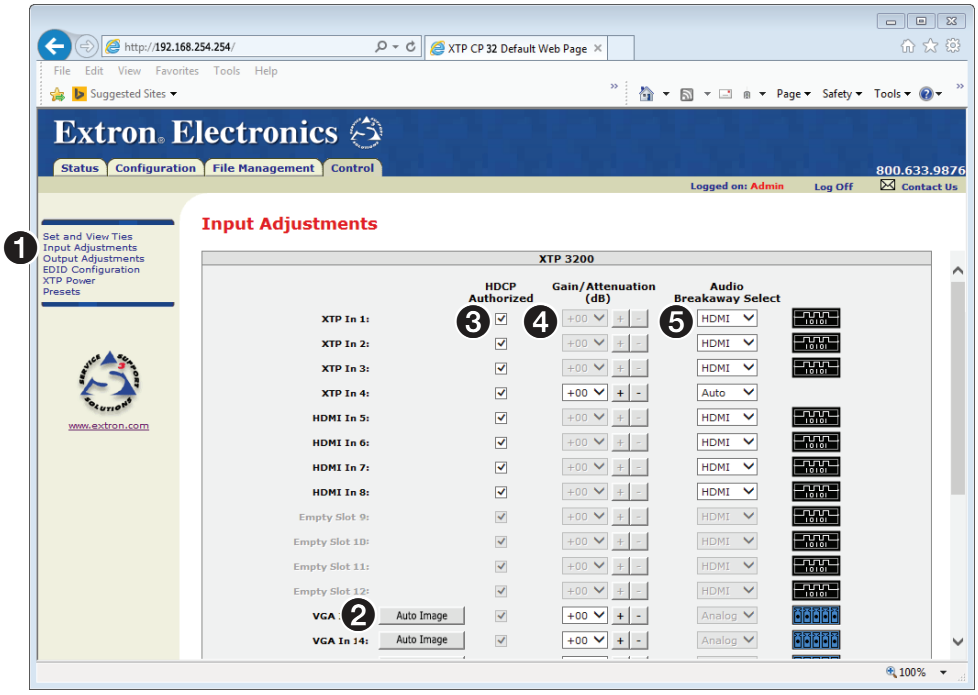


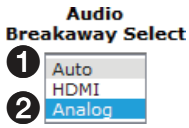
Figure 69. Input Adjustments Page

Selecting audio breakaway

NOTES:

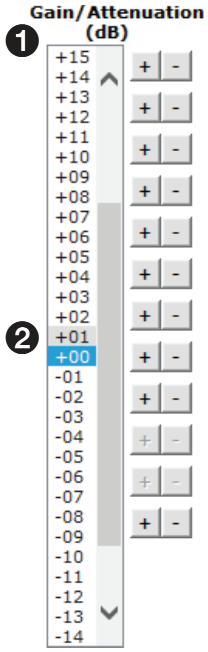
- Available for inputs on XTP CP 4i (XTP), XTP CP 4i 4K (XTP), XTP CP 4i Fiber 4K, XTP II CP 4i HD 4K PLUS, XTP CP 4i HDMI, XTP CP 4i HDMI DMA, and XTP CP 4i DVI Pro boards.
- When **HDMI** is selected, the matrix switcher routes the audio embedded in the digital input.
- When **Analog** is selected, the matrix switcher routes the analog audio from the associated analog audio port.
- When **Auto** is selected, digital audio takes priority over analog audio.

You can select the input audio for output as follows:



1. Click the **Audio Breakaway Select** drop-down list for the desired input (❶, right). A drop-down list appears.
2. Click the desired setting, **Auto**, **HDMI**, or **Analog** (❷).

Changing the input gain and attenuation



You can set the level of gain or attenuation (-18 dB to +24 dB) of each analog audio input from the Input Adjustments page. Adjust the audio levels so there are no noticeable volume differences between sources.

Change the gain and attenuation setting for an analog audio input as follows:

1. Click the **Input Audio Level** drop-down list for the desired input (❶, right). A drop-down list appears.
2. Click and drag the slider or click on the scroll up button or the scroll down button until the desired value is visible.
3. Click and the desired value (❷).

NOTE: As an alternative to steps 2 and 3, or to listen to the audio as you make adjustments, click on the up + button or down - button.

Output Adjustments Page

The Output Adjustments page is a central location for changing how output video and audio are processed and muted. Access the page by clicking the **Output Adjustments** link (see figure 70, ❶ on the next page) on the left of the Set and View Ties, Input Adjustments, EDID Configuration, XTP Power, or Presets page.

The page tailors the options available for selection when a XTP CP 4o SA (analog audio) output board is installed. **Allow Audio Only** and **Audio Breakaway Select** are not available for selection.

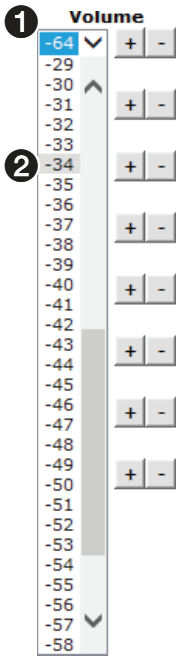
NOTE: All options are available for selection for XTP CP 4o and XTP CP 4o 4K (XTP output) boards. If the output from an endpoint connected to the XTP board is compatible with the option, the adjustment is made. The Output Adjustments page indicates the change regardless.

Figure 70. Output Adjustments Page

Possible adjustments include:

- **`Allow Audio Only`** (❷)
- **`Volume`** (❸)
- **`Mute`** (❹)
- **`Embedded Audio Select`** (❺)

Changing the output volume level



You can set the volume level for each analog audio output volume level from the **`I/O Settings`** page. Volume is adjustable through a range of zero steps of attenuation (full attenuation, minimum volume) to 64 steps of attenuation (no attenuation, full volume).

Change the audio volume setting for an output as follows:

1. Click the **`Volume`** drop-down list for the desired output (❶, right). A drop-down list appears.
2. Click and drag the slider or click on the scroll up button or the scroll down button until the desired value is visible.
3. Click and the desired value (❷).

NOTES:

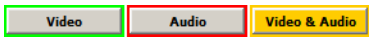
- As an alternative to steps 2 and 3, or to listen to the audio as you make adjustments, click on the up + button or down - button.
- The **table**, on the next page, defines the value of each audio volume step.

Number of Steps	dB of Attenuation	Output Volume	Number of Steps	dB of Attenuation	Output Volume	Number of Steps	dB of Attenuation	Output Volume
00	76	0%	22	42	37%	44	20	70%
01	63	5.5%	23	41	38.5%	45	19	71.5%
02	62	7%	24	40	40%	46	18	73%
03	61	8.5%	25	39	41.5%	47	17	74.5%
04	60	10%	26	38	43%	48	16	76%
05	59	11.5%	27	37	44.5%	49	15	77.5%
06	58	13%	28	36	46%	50	14	79%
07	57	14.5%	29	35	47.5%	51	13	80.5%
08	56	16%	30	34	49%	52	12	82%
09	55	17.5%	31	33	50.5%	53	11	83.5%
10	54	19%	32	32	52%	54	10	85%
11	53	20.5%	33	31	53.5%	55	9	86.5%
12	52	22%	34	30	55%	56	8	88%
13	51	23.5%	35	29	56.5%	57	7	89.5%
14	50	25%	36	28	58%	58	6	91%
15	49	26.5%	37	27	59.5%	59	5	92.5%
16	48	28%	38	26	61%	60	4	94%
17	47	29.5%	39	25	62.5%	61	3	95.5%
18	46	31%	40	24	64%	62	2	97%
19	45	32.5%	41	23	65.5%	63	1	98.5%
20	44	34%	42	22	67%	64	0	100%
21	43	35.5%	43	21	68.5%			

Muting and unmuting an audio output

Mute and unmute a video output, audio output, or both as follows:

1. Click either the **Video**, **Audio**, or **Video & Audio** button to select the output signal stream to mute.



2. **To mute and unmute an output**, click the **A/V Mute** button associated with an output. Each click toggles the mute status.

3. To mute or unmute all outputs, click the **Mute All** or **Unmute All** button, as desired.

EDID Configuration Page

The `EDID Configuration` page allows you to select the EDID for each installed input and save the output 1 EDID to one of the user locations. Access the page by clicking the **`EDID Configuration`** link (see figure 71, ❶) on the left of the `Set and View Ties`, `Input Adjustments`, `Output Adjustments`, `XTP Power`, or `Global Presets` page.

The page displays the EDID drop boxes for inputs on installed boards only.

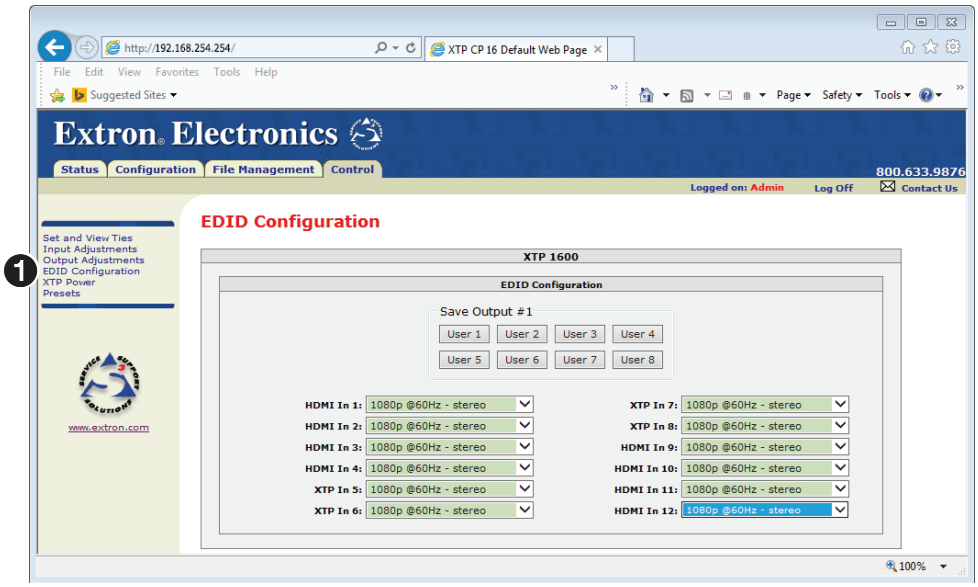


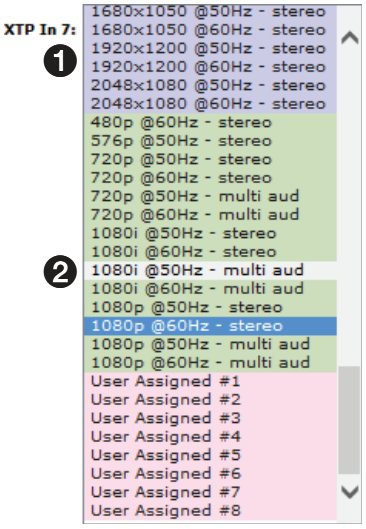
Figure 71. EDID Configuration Page

NOTE: The page displays the EDID drop boxes for inputs and outputs on installed boards only.

Changing the EDID setting

Select the EDID for an input as follows:

1. Click the drop-down list for the desired input (❶, right). A drop-down list appears.
2. Click and drag the slider or click on the scroll up button or the scroll down button until the desired value is visible.
3. Click the desired value (❷).



XTP Power Page

The `XTP Power` page provides a location to enable and disable PoX for all XTP inputs and outputs. Access the `XTP Power` page by clicking the **`XTP Power`** link (see figure 72, ❶) on the left of the `Set and View Ties`, `Input Adjustments`, `Output Adjustments`, `EDID Configuration`, or `Presets` page.

Select (check) and deselect (uncheck) the **`Enable Power`** box (❷) to enable and disable PoX.

NOTES:

- PoX is supplied by the XTP CrossPoint 48 V power supply.
- XTP CrossPoint 1600:
  - Can power up to 28 total (input and output) endpoints at up to 364 watts.
  - Is available with optional 48 V power supply redundancy.
- XTP CrossPoint 3200:
  - Can power up to 24 total (input and output) endpoints at up to 312 watts.
  - No 48 V power supply redundancy is available.

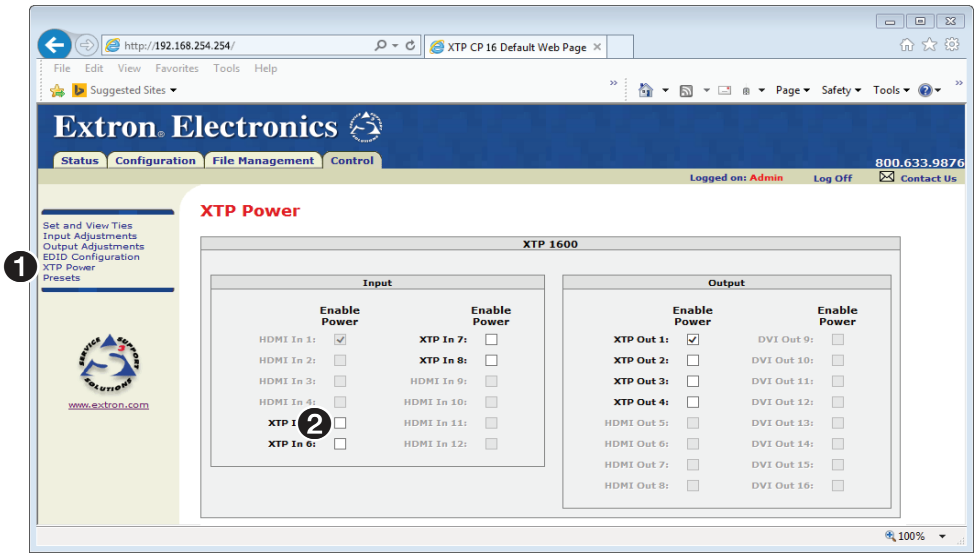


Figure 72. XTP Power Page

Global Presets Page

You can save and recall global presets from the **Global Presets** page. Access the **Global Presets** page by clicking the **Presets** link (see figure 73, ❶) on the left of the **Set and View Ties**, **Input Adjustments**, **Output Adjustments**, **EDID Configuration**, or **XTP Power** page.

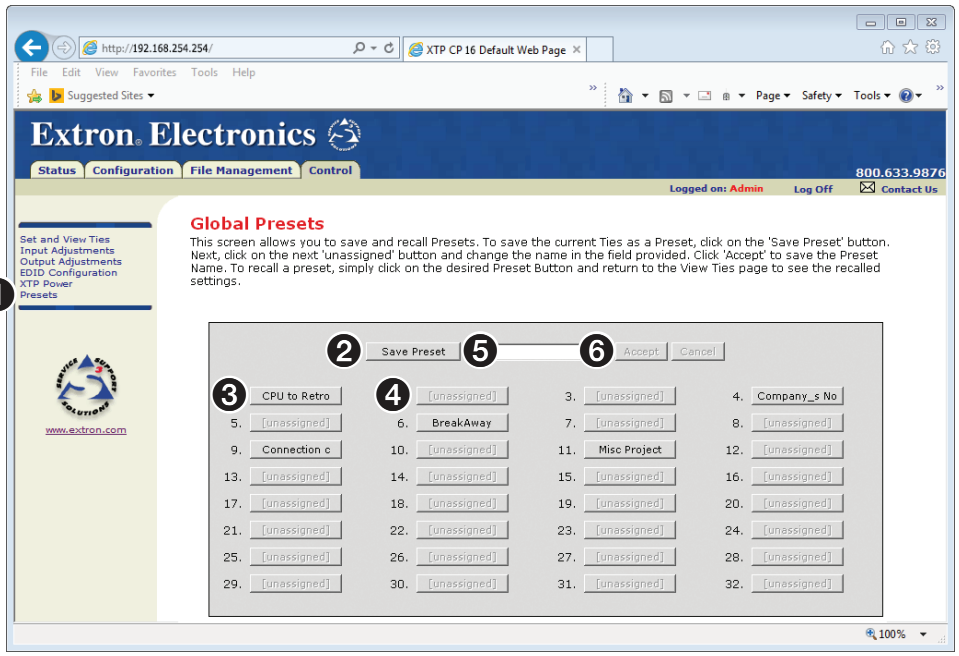


Figure 73. Global Presets Page

Saving a preset

Save the current configuration (configuration Ø) as a preset as follows:

1. Click the **Save Preset** button (❷).
2. Select the desired preset by clicking on one of the presets listed (❸). To create a new preset, click one of the **[unassigned]** buttons (❹). Overwrite an existing preset by clicking an already existing preset.
3. If desired, type over the current name in the box adjacent to the **Save Preset** button (❺).

   NOTE: The HTML language reserves certain characters for specific functions (see **Special Characters** on page 120.

   If you do not rename an unassigned button, the XTP CrossPoint Series matrix switcher names the preset as `Preset <next available number>`.

   If you do not rename an existing preset when it is overwritten, the XTP CrossPoint Series matrix switcher retains the same name.
4. Click the **Accept** button (❻).

Recalling a preset

To recall a global preset as the current configuration, click the button associated with the desired preset (❷).

Maintenance and Modifications

This section covers XTP CrossPoint Series matrix switcher topics, including:

- **Mounting the Matrix Switcher**
- **Battery and Power Precautions**
- **Removing and Installing an Input or Output Board or Blank Panel**
- **Removing and Installing Button Labels**

ATTENTION:

- Installation and service must be performed by authorized personnel only.
- L'installation et l'entretien doivent être effectués par le personnel autorisé uniquement.

Mounting the Matrix Switcher

The XTP CrossPoint 3200 is housed in a rack-mountable, 10U enclosure.
The XTP CrossPoint 1600 is in a 5U high enclosure. All models have built-in mounting flanges for standard 19-inch wide racks.

UL Guidelines

The following Underwriters Laboratories (UL) guidelines pertain to the installation of the matrix switcher into a rack.

- **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. Therefore, consider installing the equipment in an environment compatible with the maximum ambient temperature specified by Extron (Tma = +32 to +122 °F [0 to +50 °C]).
- **Reduced air flow** — Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- **Mechanical loading** — Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- **Circuit overloading** — Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- **Reliable earthing (grounding)** — Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (such as the use of power strips).

Mounting Instructions

If desired, rack mount the matrix switcher as follows:

1. Insert the unit into the rack, aligning the mounting bracket holes with those in the rack.
2. Secure the matrix switcher to the rack using the supplied bolts.

Battery and Power Precautions

The matrix switchers are each provided with a permanently installed (factory-soldered in place) lithium battery. The battery maintains the real time clock in the event of power failure or extended storage periods and does not affect the normal operation of the matrix switcher. If the battery becomes ineffective, return the matrix switcher to Extron for repair.

WARNING: There is a danger of explosion if the battery is incorrectly replaced. Do not attempt to remove or replace the internal battery.

AVERTISSEMENT : Si la pile est mal remplacée, il y a un risque d'explosion. N'essayez pas de retirer ou de remplacer la batterie interne.

Removing and Installing an Input or Output Board or Blank Panel

Circuit boards can be replaced for fault correction. They can be added or removed to increase or decrease the Input or output configuration (size) of the XTP CrossPoint Series matrix switcher.

ATTENTION:

- Do not touch the electronic components or the backplane or circuit board connectors without being electrically grounded. Handle circuit boards by their edges only. ESD can damage circuits, even if you cannot feel, see, or hear it.
- Ne pas toucher les composants électroniques ou les connecteurs sur la carte mère ou sur les circuits imprimés sans être électriquement relié à la terre. Manipuler les circuits imprimés en les tenant seulement par leurs bords. ESD peuvent endommager l'équipement, même si vous ne pouvez pas le sentir, le voir ou l'entendre.

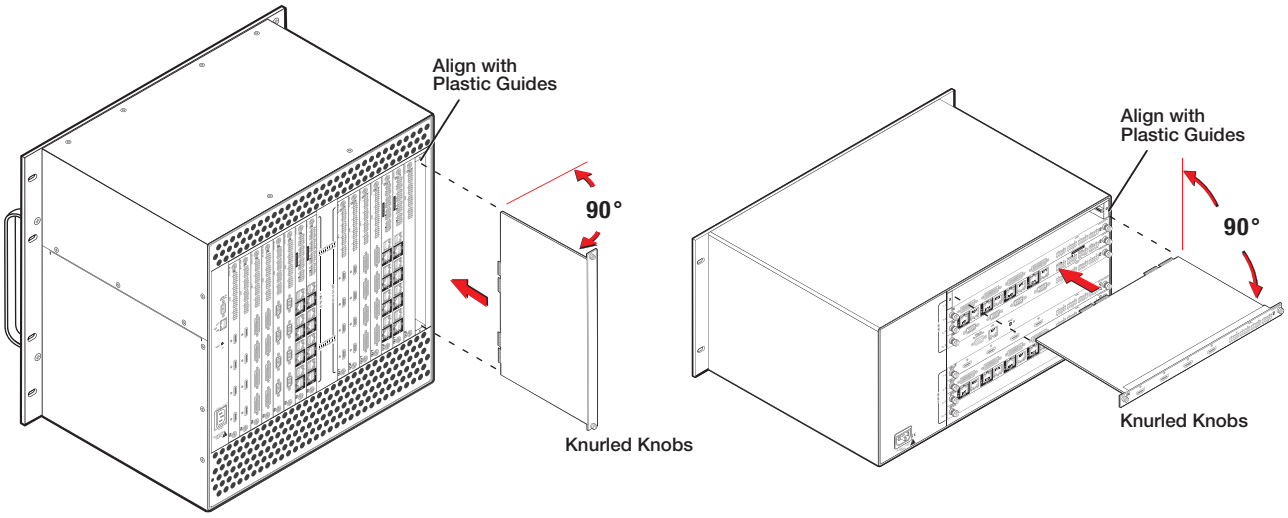
NOTES:

- For proper cooling and air flow, boards or blank panels should be installed in all locations during normal matrix switcher operations.
- The Input and output boards are hot-swappable. You do not need to power down the matrix switcher to remove or install an input or output board.

Removing an Input or Output Board or Blank Panel

Remove an Input or output board or blank panel as follows:

1. **For an input or output board**, disconnect any connected cables.
2. Rotate the top and bottom (XTP CrossPoint 3200) or left and right (XTP CrossPoint 1600) knurled knobs (see **figure 74** on the next page) to completely loosen the screws.
3. Gently pull on the screws to loosen the board or panel from the backplane.
4. Slide the board or panel out of the chassis and place it on an anti-static surface or in an anti-static container.



XTP CrossPoint 3200 XTP CrossPoint 1600

Figure 74. Input or Output Board Replacement

Installing an Input or Output Board or Blank Panel

Install an input or output board or blank panel as follows:

1. **For an input or output board**, orient the board to be installed so that the silk-screened word “In” or “Out” is right-side up and to the top (XTP CrossPoint 3200) or to the left (XTP CrossPoint 1600) (see figure 75).

Figure 75. Board Orientation

2. **For an input or output board**, align the board with the top and bottom (XTP CrossPoint 3200) or left and right (XTP CrossPoint 1600) chassis guides (see figure 74).

ATTENTION:

- Ensure the board goes straight into the chassis, and not angled to either side. Damage to the board may occur.
- Assurez-vous que la carte s’emboîte parfaitement dans le châssis, sans aucune inclinaison latérale, étant donné les risques de détérioration de la carte..

3. Gently slide the board or blank panel into the enclosure. **For an input or output board**, slide the board toward the front panel until it meets resistance.
4. Gently seat the board or panel in the backplane.
5. Use a screwdriver to tighten the captive screws that lock the board or panel in place.

Removing and Installing Button Labels

Making Labels Using the Button-Label Generator Program

The Button Label Generator creates labels that you can place in the translucent covers of the input and output selection buttons. You can create labels with names, alphanumeric characters, or even color bitmaps for easy and intuitive input and output selection (see **Installing Labels in the Buttons** on page 148 for the procedure for removing and replacing the translucent covers).

Installing the Button Label Generator software

The Extron Button Label Generator is available on the Extron website, **www.extron.com**, under the **Download** tab. Click the **Software** link (see figure 76, ❶), and download and install the program on your PC.

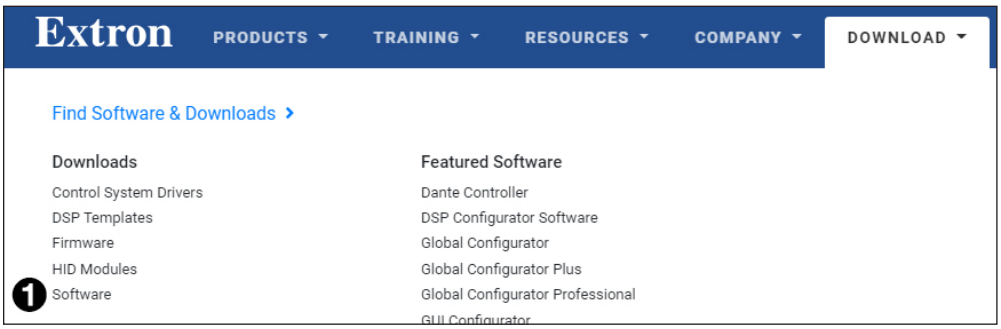


Figure 76. Location of Software on the Website

By default, the Windows installation creates a folder for the software, as follows:

- **64-bit OS:** `C:\Program Files (x86)\Extron\ButtonLabelGenerator`
- **32-bit OS:** `C:\Program Files\Extron\ButtonLabelGenerator`

The installation also places the Button Label Generator icon into a group or folder named "Extron Electronics."

Using the Button-Label Generator software

1. Click **`Start > Programs > Extron Electronics > Button Label Generator > Button Label Generator`**. The Button-Label Generator window opens (see figure 77).

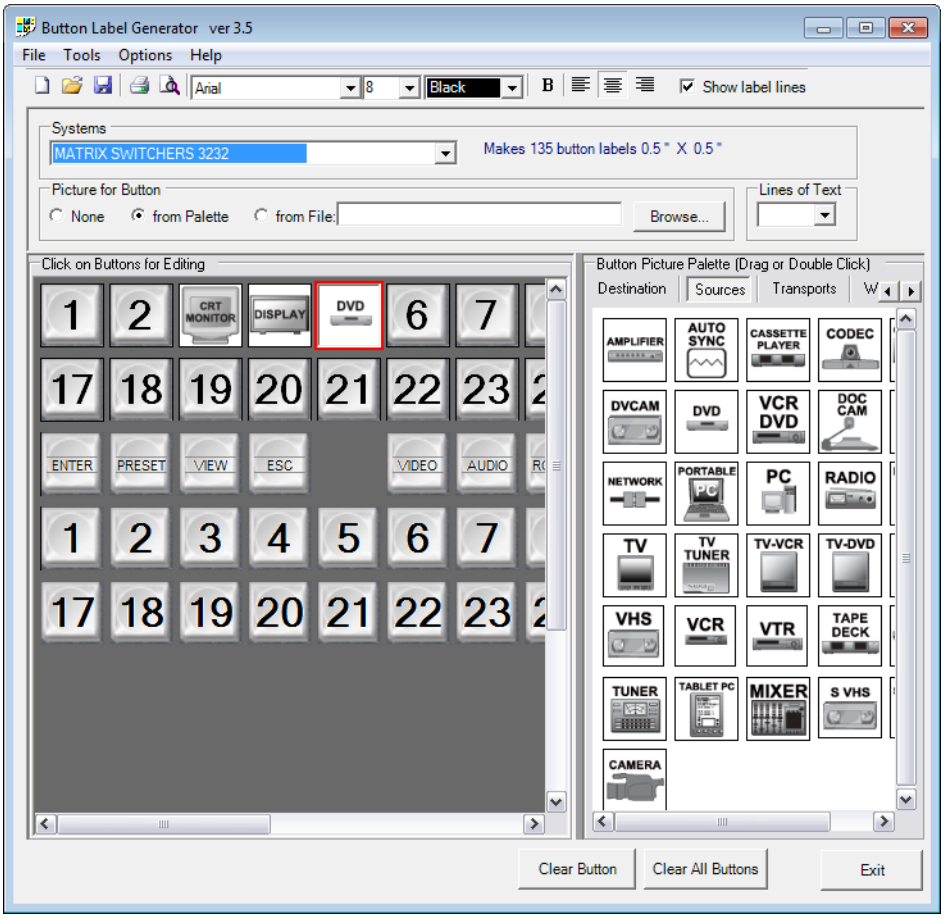


Figure 77. Extron Button-Label Generator Window

2. In the **`Systems`** selection box, choose the **`Matrix Switchers 3232`** option to match, as closely as possible, the button label size and quantities for your matrix switcher.
3. Using normal Windows controls, you can create and print labels that can be placed in the label windows on the front panel of the matrix switcher.

NOTE: For best results, print on transparent or translucent material.

4. Click the **`Clear All Buttons`** button and create new labels as many times as necessary to make all of the button labels that you need.

To access the help program, click the **`Help`** menu.

Making Labels from Paper Templates

Figure 79 on the next page provides strips of blank button labels. If desired, copy them or cut them out, write button information in each button area as desired, and put them in the windows of the input or output buttons.

Installing Labels in the Buttons

Install new labels in the front panel buttons as follows:

1. Remove the button from the matrix switcher; use a small, flat bladed screwdriver such as an Extron Tweeker to gently pry a button out from the front panel (see figure 78).

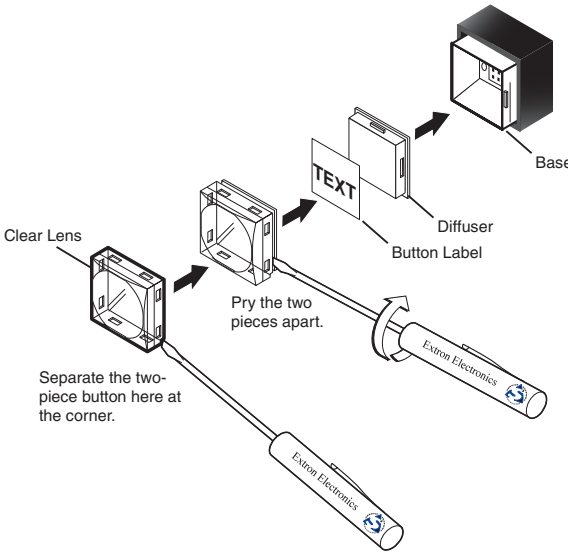


Figure 78. Illuminated Button Label Replacement

2. Locate the notch in the corner of one side of the clear button cap lens.
3. Separate the white backing (diffuser) from the clear button cap (lens); insert the blade of the small screwdriver into the corner notch and gently twist the blade.
4. Save the translucent, white diffuser, but remove the text/label insert from the transparent button cap lens.
5. Insert the replacement button label into the button cap. Check for correct label orientation.
6. Align the white diffuser plate with the cap (lens). The bumps on the diffuser plate should be aligned (top and bottom) with the notches on the clear button cap. Firmly snap it into place.
7. Align the tabs on the base of the matrix switcher with the notches on the diffuser plate. Gently, but firmly, press the reassembled button into place in the front panel of the matrix switcher.
8. Repeat steps 1 to 7 as needed to relabel other buttons.

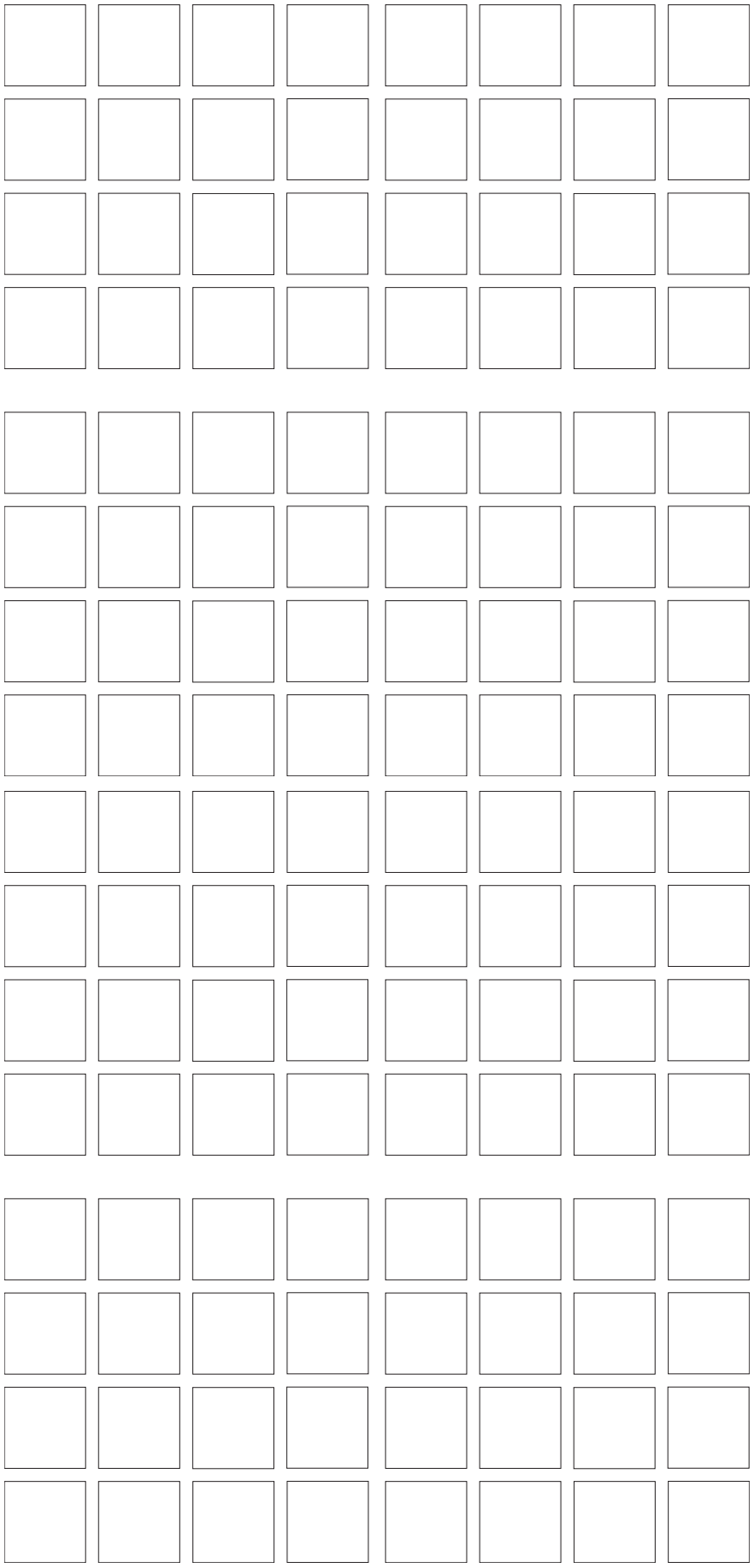


Figure 79. Button Label Blanks

Ethernet Connection

This section provides a high level discussion of the Ethernet connection to the matrix switcher and a primer on the subject of subnetting. Topics that are covered, include:

- **Ethernet Link**
- **Subnetting — A Primer**

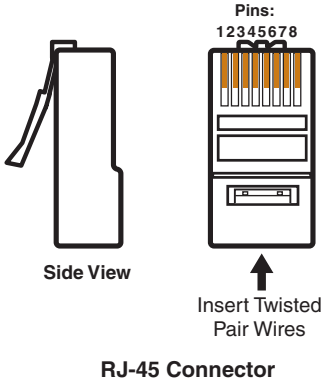
Ethernet Link

The rear panel Ethernet connector on the XTP CrossPoint Series matrix switcher can be connected to an Ethernet LAN or WAN. This connection makes SIS control of the matrix switcher possible using a computer or control system 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 (see figure 80).

- **Crossover cable** — Direct connection between the computer and the XTP CrossPoint Series matrix switcher
- **Patch (straight-through) cable** — Connection of the XTP CrossPoint Series matrix switcher to an Ethernet LAN



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

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

Crossover Cable
(for direct connection to a PC)

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

Figure 80. RJ-45 Connector Pinout Tables

Default IP Address

To access the XTP CrossPoint Series matrix switcher via the LAN port, you need the IP address of the matrix switcher. If the address has been changed to an address comprised of words and characters, you can determine the actual numeric IP address 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 XTP CrossPoint Series matrix switcher.

Pinging to Determine the Extron IP Address

The ping utility is available at the Command prompt. Ping tests the Ethernet interface between the computer and the XTP CrossPoint Series matrix switcher. Ping can also be used to determine the actual numeric IP address from an alias and to determine the Web address.

Ping the matrix switcher as follows:

1. Search for **cmd** in the taskbar (Windows 10) or the Start menu (Windows 10-Vista).
2. Select **cmd**.
3. At the `C:\` prompt, type `ping <IP address>` and then press `<Enter>`. The computer returns a display similar to the one shown in figure 81.

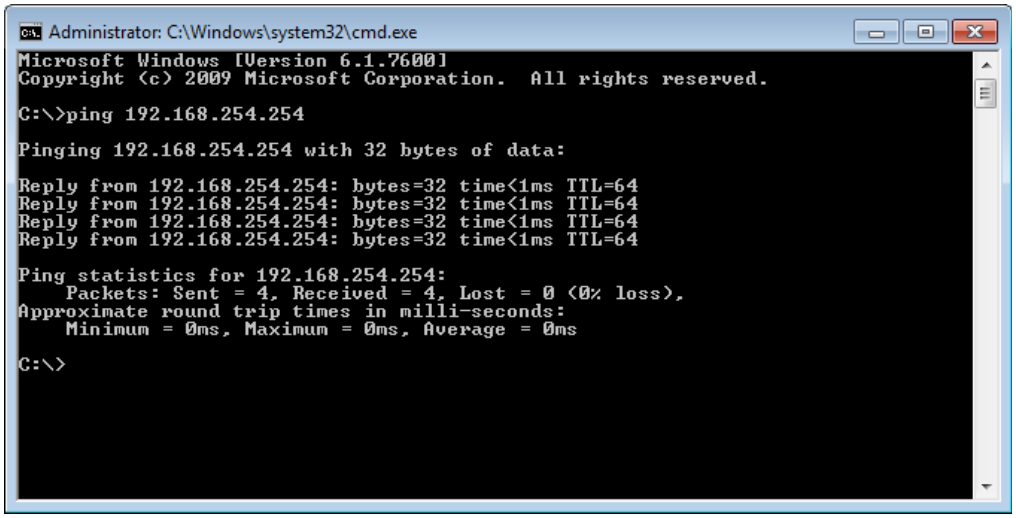


Figure 81. Typical Ping Response

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

Pinging to Determine the 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 `C:\` prompt, type `ping -a <IP address>` and then press `<Enter>`. The return display is similar to the ping response shown in figure 81, except that when you specify the `-a` modifier, the line `Pinging mail...` reports the Web IP address rather than the numeric IP address, regardless of whether you entered the actual numeric IP address or an alias name.

Configuring the XTP CrossPoint Series Matrix Switcher for Network Use via the ARP Command

The ARP (address resolution protocol) command tells your computer to associate the MAC (media access control) address of the XTP CrossPoint Series matrix switcher with the assigned IP address. You must then use the ping utility to access the controller, at which point the IP address of the controller is reconfigured.

Use ARP to configure the IP address as follows:

1. Obtain a valid IP address for the XTP CrossPoint Series matrix switcher from your network administrator.
2. Obtain the MAC address (UID #) of the XTP CrossPoint Series matrix switcher from the label on its rear panel. The MAC address should have this format: 00-05-A6-*xx-xx-xx*.
3. If the XTP CrossPoint Series matrix switcher has never been configured and is still set for factory defaults, proceed to step 4. If not, perform a mode 4 system reset and then proceed to step 4. For detailed information on reset modes, see **Performing Soft System Resets (Resets 3, 4, and 5)** on page 65.

   NOTE: The XTP CrossPoint Series matrix switcher must be configured with the factory default IP address (192.168.254.254) before the ARP command is executed, as described below.

4. At the PC, access the `C:\` prompt (see **Pinging to Determine the Extron IP Address** on the previous page, steps 1 and 2) and enter the **`arp –s`** command. Type in the desired new IP address for the unit (obtained in step 1) and the MAC address of the unit (from the rear panel of the unit). For example:
   `arp –s 10.200.254.254 00-05-A6-03-69-B0` and then press `<Enter>`.

   The computer returns the command prompt (`C:\`).

   After you issue the **`arp -s`** command, the controller changes to the new address and starts responding to the ping requests to the new address, as described in the next step.

   NOTE: You must ping the XTP CrossPoint Series matrix switcher for the IP address change to take place.

5. Execute a ping command by entering ping followed by a space and the new IP address at the command prompt. For example:

   `ping 10.200.254.254`

   NOTE: You can reconnect using either Telnet or a Web browser to verify that the update was successful.

6. After verifying that the IP address change was successful, enter and issue the **`arp –d`** command at the `C:\` prompt. For example:

   `arp –d 192.168.254.254` removes 192.168.254.254 from the ARP table

   or

   `arp –d*` removes all static IP addresses from the ARP table.

Connecting as a Telnet Client

The Microsoft Telnet utility is available from the `C:\` prompt. Telnet allows you to input SIS commands to the XTP CrossPoint Series matrix switcher from the PC via the Ethernet link and the LAN.

Access the `C:\` prompt and start Telnet as follows:

1. Search for **`cmd`** in the taskbar (Windows 10) or the Start menu (Windows 10-Vista).
2. Select **`cmd`**.
3. At the `C:\` prompt, type **`Telnet`** and then press `<Enter>`. The computer returns a display similar to the one shown in figure 80.

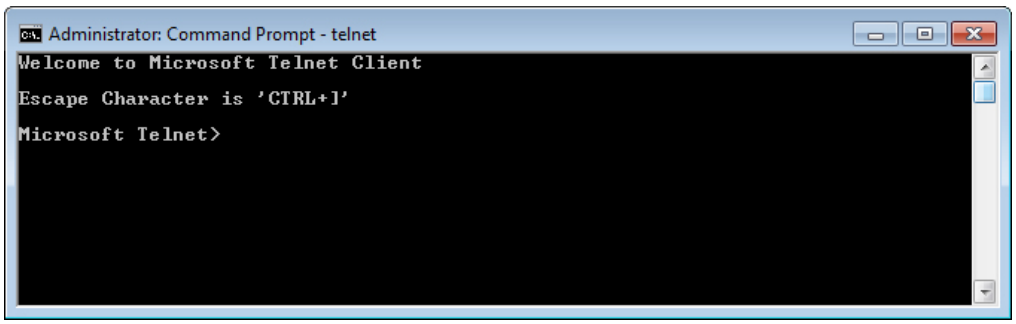


Figure 82. Telnet Window

Telnet Tips

It is not the intention of this guide to detail all of the operations and functionality of Telnet; however, some basic level of understanding is necessary for operating the XTP CrossPoint Series matrix switcher via Telnet.

Open

Connect to the XTP CrossPoint Series matrix switcher using the **`Open`** command. Once you are connected to the matrix switcher, you can enter the SIS commands the same as you would if you were using the RS-232 of RS-422 link.

Connect to the XTP CrossPoint Series matrix switcher as follows:

1. At the Telnet prompt, type open `<IP address>` and then press `<Enter>`.

   If the matrix switcher is not password-protected, no further prompts are displayed until you break or disconnect the connection to the matrix switcher.

   If the matrix switcher is password-protected, Telnet displays the password prompt.

2. If necessary, at the password prompt, type the appropriate password and then press `<Enter>`.

   Connection to the matrix switcher 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 matrix switcher switching capabilities and editing functions. Users can create ties, set mutes, and view all settings with the exception of passwords. By default, the XTP CrossPoint Series matrix switcher is shipped with both passwords set to `<carriage return>`.

Once you are logged in, the matrix switcher returns either `Login Administrator` or `Login User`. No further prompts are displayed until you break or disconnect the connection to the XTP CrossPoint Series matrix switcher.

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 Escape key.

The Telnet Escape character is a key combination, the `<Ctrl>` key and the `<]>` key pressed simultaneously, which returns you to the Telnet prompt while leaving the connection to the XTP CrossPoint Series matrix switcher intact.

The Escape key is the `<Esc>` key on the computer keyboard. Use this key for SIS commands.

Analog echo

Once connected to the XTP CrossPoint Series matrix switcher, by default, Telnet does not display your keystrokes on the screen. SIS commands are typed in blindly and only the SIS responses are displayed on the screen. To command Telnet to show keystrokes, at the Telnet prompt, type `set analog_echo` and then press `<Enter>` before you open the connection to the matrix switcher.

With analog echo turned on, keystrokes and the responses of the matrix switcher are displayed on the same line. For example: `1*1!In1 Out1 All`, where `1*1!` is the SIS command and `In1 Out1 All` is the response.

With analog echo turned on, all keystrokes are displayed, even those that should be masked, such as the password entry. For example, when entering a password with analog 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.

You can turn off analog echo by typing `unset analog_echo` and then pressing `<Enter>` at the Telnet prompt. If you are connected to the XTP CrossPoint Series matrix switcher and need to access the Telnet prompt to turn analog echo off, type the Escape character (`<Ctrl>+<]>`).

Set carriage return-line feed

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

Close

To close the link to the matrix switcher, access the Telnet prompt by typing the Escape character (`<Ctrl>+<]>`). At the Telnet prompt, type `close`, and then press `<Enter>`.

Help

For Telnet command definitions, at the Telnet prompt, type `?` and then press `<Enter>`.

Quit

Exit the Telnet utility by typing `quit` and then pressing `<Enter>` at the Telnet prompt. If you are connected to the XTP CrossPoint Series matrix switcher, access the Telnet prompt by typing the Escape character (`<Ctrl>+<]>`).

Subnetting — a Primer

It is not the purpose of this guide to describe TCP/IP protocol in detail. However, some understanding of TCP/IP subnetting (a subnet is a subset of a network — a set of IP devices that have portions of their IP addresses in common) is necessary in order to understand the interaction of the XTP CrossPoint Series matrix switcher and the mail server gateway. To understand subnetting at the level required to install and operate the XTP CrossPoint Series matrix switcher, you must understand the concepts of a gateway, analog and remote devices, IP addresses and octets, and subnet masks and octets.

Gateways

The XTP CrossPoint Series matrix switcher can communicate with the e-mail server that the matrix switcher 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).

Analog and Remote Devices

The analog and remote devices are defined from the point of view of the function being described. In this guide, subnetting is an issue when you are using the controlling PC to set TCP/IP and e-mail values in the matrix switcher (see **Email Settings Page** on page 130). When you are setting up the variables for e-mail notification, which may include subnetting, the matrix switcher is the analog device and the e-mail server is the remote device.

IP Addresses and Octets

Valid IP addresses consist of four 1-, 2-, or 3-digit numeric subfields, properly called “octets,” separated by dots (periods) (see figure 83). Each octet can be numbered from 000 through 255. Leading zeroes, up to three digits total per octet, are optional. Values of 256 and above are invalid.

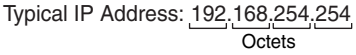


Figure 83. Typical IP Address

Subnet Masks and Octets

The subnet mask (see figure 84) is used to determine whether the analog 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 zeroes, up to three digits total per octet, are optional. Each octet typically contains either 255 or 0. The octets determine whether or not the same octets of two IP addresses will be compared when determining if two devices are on the same subnet.

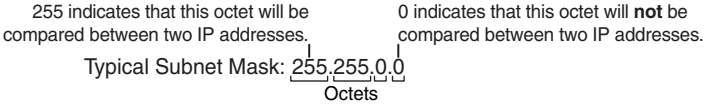


Figure 84. Typical Subnet Mask

Determining Whether Devices Are on the Same Subnet

To determine the subnet, the IP address of the analog device is compared to the IP address of the remote device (see figure 85). The octets of each address are compared or not compared, depending on the value in the related subnet mask octet.

- If a subnet mask octet contains the value 255, the related octets of the IP addresses of the analog device and the remote device are unmasked.

  Unmasked octets are compared (indicated by ? in figure 85).

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

  Masked octets are not compared (indicated by X in figure 85)**.**

If the unmasked octets of the two IP addresses **match** (indicated by = in figure 85, example 1), the two addresses **are on the same subnet**.

If the two unmasked fields **do not match** (indicated by ≠ in figure 85, example 2 and example 3), the addresses **are not on the same subnet**.

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

Figure 85. Comparing the IP Addresses of the Analog and Remote Devices

Extron Warranty

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

USA, Canada, South America, and Central America:
Extron Electronics
1230 South Lewis Street
Anaheim, CA 92805
U.S.A.

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

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

Europe:
Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

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

Middle East:
Extron Middle East
Dubai Airport Free Zone
F13, PO Box 293666
United Arab Emirates, Dubai

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South Tower
160 Jan Smuts Avenue
Rosebank 2196, South Africa

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NOTE: If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

USA:	714.491.1500 or 800.633.9876	**Asia**:	65.6383.4400
Europe:	31.33.453.4040 or 800.3987.6673	**Japan**:	81.3.3511.7655
Africa:	27.11.447.6162	**Middle East**:	971.4.299.1800

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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