

IN1804 Series

Seamless Scaling Switchers



Extron

Safety Instructions

Safety Instructions • English

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

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Instructions de sécurité • Français

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. The Class A limits provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference. This interference must be corrected at the expense of the user.

ATTENTION:

- The Twisted Pair Extension technology works with unshielded twisted pair (UTP) or shielded twisted pair (STP) cables; **but to ensure FCC Class A and CE compliance, STP cables and STP Connectors are required.**
- La technologie extension paires torsadées fonctionne avec les câbles paires torsadées blindées (UTP) ou non blindées (STP). Afin de s'assurer de la compatibilité entre FCC Classe A et CE, les câbles STP et les connecteurs STP sont nécessaires.

NOTES:

For more information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the [Extron Safety and Regulatory Compliance Guide](#) on the Extron website.

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VCCI-A

Battery Notice

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

Notifications

The following notifications are used in this guide:

CAUTION: Risk of minor personal injury.

ATTENTION : Risque de blessure mineure.

ATTENTION:

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

NOTE: A note draws attention to important information.

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,,0p1 scene 1,1 ^B 51 ^W^C.0  
[01] R 0004 00300 00400 00800 00600 [02] 35 [17] [03]  
Esc[X1]*[X17]*[X20]*[X23]*[X21]CE←
```

NOTE: For commands and examples of computer or device responses used in this guide, the character “0” is 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 208.132.180.48: 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>.



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Introduction

This section provides general information about this guide and the Extron IN1804. Topics in this section include:

- **About this Guide**
- **Product Description**
- **Features**
- **Application Diagrams**
- **Control Methods**

About this Guide

This guide describes how to install, configure, and operate the unit.

In this guide, the terms “switcher” and “IN1804” are used interchangeably to refer to all IN1804 models. The term “standard model” refers to the basic IN1804 containing no twisted pair input or output. “Twisted pair models” refers to the IN1804 DI, IN1804 DO, and IN1804 DI/DO.

Product Description

The Extron IN1804 is a compact, four input seamless scaling switcher that supports signal resolutions up to 4K @ 60 Hz, with 4:4:4 chroma sampling. It incorporates Extron-patented Vector 4K scaling technology specifically engineered for 4K signal processing applications. It features DisplayPort and HDMI inputs with DI, DO, and DI/DO models that provide Extron DTP2 extension of video, audio, and control signals up to 330 feet (100 meters) over a shielded CATx twisted pair cable.

The IN1804 Series also provide automatic switching, audio embedding and de-embedding, seamless transition effects, and logo keying. Designed for professional AV integration, the IN1804 can be controlled and configured via Ethernet, RS-232, USB, and contact closure with tally outputs.

Models

The IN1804 is available in the following models:

Model	Description	
IN1804	Standard model	Inputs: 1 DisplayPort, 3 HDMI Outputs: 2 HDMI
IN1804 DI	DTP2 input	Inputs: 1 DisplayPort, 2 HDMI, 1 DTP2/XTP Outputs: 2 HDMI
IN1804 DO	DTP2 output	Inputs: 1 DisplayPort, 3 HDMI Outputs: 1 DTP2/XTP/HDBT, 1 HDMI
IN1804 DI/DO	DTP2 input and output	Inputs: 1 DisplayPort, 2 HDMI, 1 DTP2/XTP Outputs: 1 DTP2/XTP/HDBT, 1 HDMI

Integrated Digital Twisted Pair Extension

The DTP2 inputs and outputs are proprietary signals that are created within any of the Extron DTP Extender systems and transmitted over a single shielded twisted pair (STP) cable. The IN1804 accepts DTP inputs from transmitting devices such as the DTP T USW 333.

NOTE: Extron XTP DTP 24 shielded twisted pair cable is strongly recommended for optimal performance.

- The IN1804 DI and IN1804 DI/DO can receive signals from remote DTP or DTP2 transmitters at a conference table, lectern, or wall.
- The IN1804 DO and IN1804 DI/DO can transmit to a DTP or DTP2 receiver or directly to an HDBaseT enabled display device.

All twisted pair models can be integrated into an XTP II matrix switcher system. Additionally, they can send power to selected DTP or DTP2 endpoints over the same shielded CATx cable, streamlining system design and installation.

DTP transmitters and receivers are available in compact, low-profile enclosures, plus decorator-style wallplate and floorbox versions to suit the installation requirements of a specific application.

RS-232 and IR signal insertion

Bidirectional RS-232 and IR signals can be inserted from a control system and transmitted over the single shielded CATx cable together with the video and audio, enabling control of a source or display. The DTP2/XTP/HDBT output on IN1804 DO and IN1804 DI/DO can be configured for compatibility with HDBaseT-enabled displays to send digital video and embedded audio, plus bidirectional RS-232 and IR signals up to 330 feet (100 meters) over a shielded CATx cable.

Matrix switcher integration

In addition to supporting DTP endpoints, the IN1804 twisted pair models can be integrated into an XTP CrossPoint matrix switcher system. This enables facility-wide AV system applications with a centralized AV signal distribution infrastructure, as well as several presentation spaces with local AV switching and processing.

Features

- **Integration of DisplayPort, HDMI, and audio sources into presentation systems** — All IN1804 models provide centralized switching for a wide range of AV sources.
- **DisplayPort, HDMI, and optional DTP2 inputs** —
 - IN1804 standard and IN1804 DO models feature one DisplayPort and three HDMI inputs.
 - The IN1804 DI and IN1804 DI/DO feature two HDMI, one DisplayPort, and one DTP2 input.
- **HDMI and optional DTP2 outputs** —
 - The IN1804 and IN1804 DI models feature dual mirrored HDMI outputs.
 - The IN1804 DO and IN1804 DI/DO feature one DTP2 output and one mirrored HDMI output.

- **Advanced Extron Vector 4K scaling engine** — The Vector 4K scaling engine is specifically designed for critical-quality 4K imagery, with best-in-class image upscaling and downscaling.
- **Supports signal resolutions up to 4K @ 60 Hz with 4:4:4 color sampling.**
- **Supports DisplayPort Single Stream Transport (SST) data rates up to 21.6 Gbps.**
- **Supports HDMI 2.0 specification features** — Features include data rates up to 18 Gbps, Deep Color, and HD lossless audio formats.
- **Logo image keying and display** — A logo graphic can be positioned and keyed over the live video output. Logo graphics in BMP, GIF, JPG, PNG, or TIFF format can be uploaded to the unit. Full screen images up to 4K resolution can also be displayed to eliminate loss of video between presentations.
- **Selectable seamless switching transitions** — Seamless cut and fade, cut through black, and fade through black transition effects are available.
- **Auto-switching between inputs** — Auto-input switching allows for unmanaged installation in locations such as in a lectern or under a conference table. When multiple inputs are active, the switching priority is configurable, including last-connected input and user-selectable priority.
- **HDCP 2.2 compliant** — Ensures display of content-protected 4K video media and maintains interoperability with earlier versions of HDCP.
- **Stereo audio embedding** — Analog audio signals can be embedded onto the DTP2 or HDMI output.
- **Stereo audio de-embedding** — Embedded HDMI two-channel PCM audio can be extracted to the analog outputs, or multi-channel bitstream formats can be passed to the DTP2 or HDMI output.
- **Displays user-supplied images for screen saver, corporate branding, logo insertion, and HDCP notification** — Custom, user-loaded images can be displayed as a screen saver after a predefined duration of inactivity at the video input, or whenever the input is disconnected between presentations. User-supplied images can also be displayed for HDCP Visual Confirmation, whenever HDCP-encrypted content is transmitted to a non-HDCP compliant display. A user-loaded image can be displayed as a corporate logo at any time during the video.
- **Consumer Electronics Control (CEC) capability** — Standard, built-in CEC commands can be triggered to control displays or other AV devices connected to the HDMI or DTP2 outputs. The ability to control specific functions, such as power on and off, input selection, or volume level, is dependent on implementation by the device manufacturer.
- **Integrated DTP2 extension** — IN1804 DI and IN1804 DI/DO feature one DTP2/XTP input. The IN1804 DO and IN1804 DI/DO feature one DTP2/XTP/HDBT output, which support transmission of video, audio, and control up to 330 feet (100 meters) over a shielded CATx cable.
 - **Compatible with CATx shielded twisted pair cable** — IN1804 DI, IN1804 DO, and IN1804 DI/DO support a maximum transmission distance of 330 feet (100 meters) for all compatible resolutions when used with CATx shielded twisted pair cable. Shielded twisted pair cabling with solid center conductor sizes of 24 AWG or better is recommended for optimal performance.
 - **Remote powering of DTP transmitter or receiver** — IN1804 DI, IN1804 DO, and IN1804 DI/DO can provide power to a DTP or DTP2 endpoint over the twisted pair connection, eliminating the need for a separate power supply at the remote unit.

- **RS-232 insertion from the Ethernet control port** — Saves system resources and simplifies installation by enabling a control processor to access remote RS-232 devices over Ethernet.
- **Additional analog stereo audio signals accepted** — IN1804 DI, IN1804 DO, and IN1804 DI/DO support stereo analog audio signals for simultaneous transmission over the same shielded twisted pair cable.
- **Bidirectional RS-232 and IR pass-through for AV device control** — Bidirectional RS-232 control and IR signals can be transmitted alongside the video signal over the DTP connection, allowing the remote device to be controlled without additional cabling. Bidirectional control extension eliminates control system wiring to remote devices.
- **Compatible with all DTP-enabled products, plus XTP CrossPoint matrix switchers** — Enables mixing and matching with desktop and wallplate endpoints, as well as other DTP or DTP2-enabled products to meet application requirements. The twisted pair models can be integrated with XTP II matrix switchers to provide connectivity between presentation spaces and a larger, facility-wide system.
- **DTP2 output compatible with HDBaseT-enabled devices** — The IN1804 DO and IN1804 DI/DO can be configured to send video and embedded audio, plus bidirectional RS-232 and IR signals, to an HDBaseT-enabled display.
- **RJ-45 signal and link LED indicators for DTP port** — Provides a means for validating signal flow and operation, allowing quick identification of connectivity issues.
- **User-selectable HDCP authorization** — Allows inputs 2 through 4 to appear HDCP compliant or non-HDCP compliant to the connected source, which is beneficial if the source automatically encrypts all content when connected to an HDCP-compliant device. Protected material is not passed in non-HDCP mode.
- **Key Minder continuously verifies HDCP compliance** — Key Minder authenticates and maintains continuous HDCP encryption between input and output devices to ensure quick and reliable switching in professional AV environments, while enabling simultaneous distribution of a single source signal to one or more displays.
- **EDID Minder manages EDID communication between connected devices** — EDID Minder ensures the source powers up properly and reliably outputs content for display.
- **Custom EDID and output resolutions supported** — User-defined scaling output resolutions can be supported by uploading custom EDID files, or capturing EDID from a display or other destination device.
- **HDCP authentication and signal presence confirmation** — 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, USB, or Ethernet, providing feedback to a system operator or helpdesk support staff.
- **HDCP Visual Confirmation** — 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.
- **Aspect ratio control** — The aspect ratio of the video output can be controlled by selecting a fill mode, which provides a full screen output, or a follow mode, which preserves the original aspect ratio of the input signal.
- **Motion-adaptive deinterlacing for signals up to 1080i** — Advanced deinterlacing for all interlaced signals up to 1080i delivers optimized image quality.

- **Automatic 3:2 and 2:2 pulldown detection** — Advanced film mode processing techniques help maximize image quality for content sources that originated from film.
- **Auto-Image setup** — When Auto-Image is activated, the unit automatically optimizes the image by analyzing and adjusting to the video input signal.
- **Auto Input Memory** — When Auto Input Memory is activated, the unit stores size, position, and picture settings based on the incoming signal. When the same signal is detected again, these image settings are recalled from memory.
- **Input presets** — Memory presets are available to store and recall optimized image settings.
- **Output muting control** — The video and audio output can be muted independently.
- **Image freeze control** — A live image can be frozen using RS-232, USB, or Ethernet control.
- **On-screen menus** — Intuitive on-screen menus allow for easy system setup using the front panel controls. Key parameters such as input and output video formats are conveniently grouped on the initial Quick Setup screen, while additional screens provide full control over the unit's other functions and settings.
- **Picture controls** — Controls are provided for brightness, contrast, and detail, as well as horizontal and vertical sizing, and positioning.
- **Internal video test patterns and pink noise generator** — All IN1804 models offer several video test patterns and audio pink noise to facilitate proper system setup and calibration of display devices.
- **HDMI to DVI Interface Format Correction** — Automatically enables or disables embedded audio and InfoFrames, and sets the correct color space for proper connection to HDMI and DVI displays.
- **Color bit depth management** — Automatically adjusts color bit depth based on the display EDID, preventing color compatibility conflicts between source and display.
- **Audio file playback** — Up to 16 prerecorded messages may be stored and played back over the program audio output.
- **Output volume control** — Provides master volume control for the analog line level output, two-channel PCM HDMI audio, and DTP analog audio for the IN1804 DO and IN1804 DI/DO models.
- **Audio input gain and attenuation** — Gain or attenuation can be adjusted for the analog audio input to eliminate noticeable differences when switching between sources.
- **Audio switching transitions** — The audio output level automatically ramps down and then ramps up to match the video during switching transitions.
- **Integrated audio delay** — The audio output is automatically delayed to compensate for latency introduced by the video processing.
- **Audio input assignment** — The audio input can be associated with one or more video inputs.
- **Multiple embedded audio formats** — All IN1804 models are compatible with a broad range of multi-channel audio signals, providing reliable operation with HDMI sources.
- **Output Standby Mode** — All models can be set to automatically mute video and sync output to the display device when no active input signal is detected. This allows the projector or flat-panel display to automatically enter into standby mode to save energy and enhance lamp or panel life.
- **Power Save Mode** — All IN1804 models can be placed in a low power standby state to conserve energy when not in use.

- **Front panel security lockdown** — This feature locks out all front panel functions. All functions, however, are available through Ethernet, USB, or RS-232 control.
- **Ethernet monitoring and control** — Enables control and proactive monitoring over a LAN or WAN.
- **Built-in web pages** — Enables the use of a standard browser for device monitoring and troubleshooting over an intuitive web interface.
- **RS-232 control port** — Enables the use of serial commands for integration into a control system. Extron products use the Simple Instruction Set (SIS) command protocol, a set of basic ASCII commands that allow for quick and easy programming.
- **Contact closure remote control with tally output** — Contact closure ports enable remote video input selection control, while tally outputs provide +5 VDC to illuminate LEDs for video input identification. The contact and tally ports may be configured for independent use when the IN1804 is connected to an external control processor.
- **Compatible with Teamwork Show Me Cables** — Show Me cables provide convenient connectivity and user input selection and control for TeamWork Collaboration Systems.
- **Front panel USB configuration port** — Enables easy system configuration without having to access the rear panel.
- **Front panel LED indicators for signal presence, HDCP status, and power** — Provides visual indication of system status for real-time feedback and monitoring of key performance parameters.
- **Extron Product Configuration Software (PCS)** — The PCS program enables configuration of multiple products using a single software application.
- **Compact 1U, half rack width metal enclosure** — The half rack width enclosure can be mounted under furniture using the UTS Series Under Table Shelf System or MBU 123 Low Profile Mount Kit, available separately.
- **Includes LockIt HDMI cable lacing brackets**
- **Internal Extron Everlast power supply** — Provides worldwide power compatibility, with high-demonstrated reliability and low power consumption for reduced operating cost. The Extron Everlast Power Supply is covered by a 7-year parts and labor warranty.

Control Methods

Control the IN1804 series switchers using one or more of the following methods:

- The front panel controls and the on-screen display (OSD) menu (see [Using the On-Screen Menu System](#) on page 22).
- A computer, a touch screen panel, or any other device that sends and receives serial communications through the USB, RS-232, or Ethernet port. Use the Extron DataViewer utility on the computer to enter SIS commands (see [SIS Configuration and Control](#) beginning on page 48).
- The Extron Product Configuration Software (PCS) on a computer with a Windows® operating system (see [Configuration Software](#) beginning on page 82 and the *IN1804 Series PCS Help File*).
- Internal web pages, providing a web browser-based interface for monitoring the switcher from a computer over a LAN network (see [Internal Web Page](#) beginning on page 92).

Application Diagrams

The following diagrams show examples of typical applications for different IN1804 models.

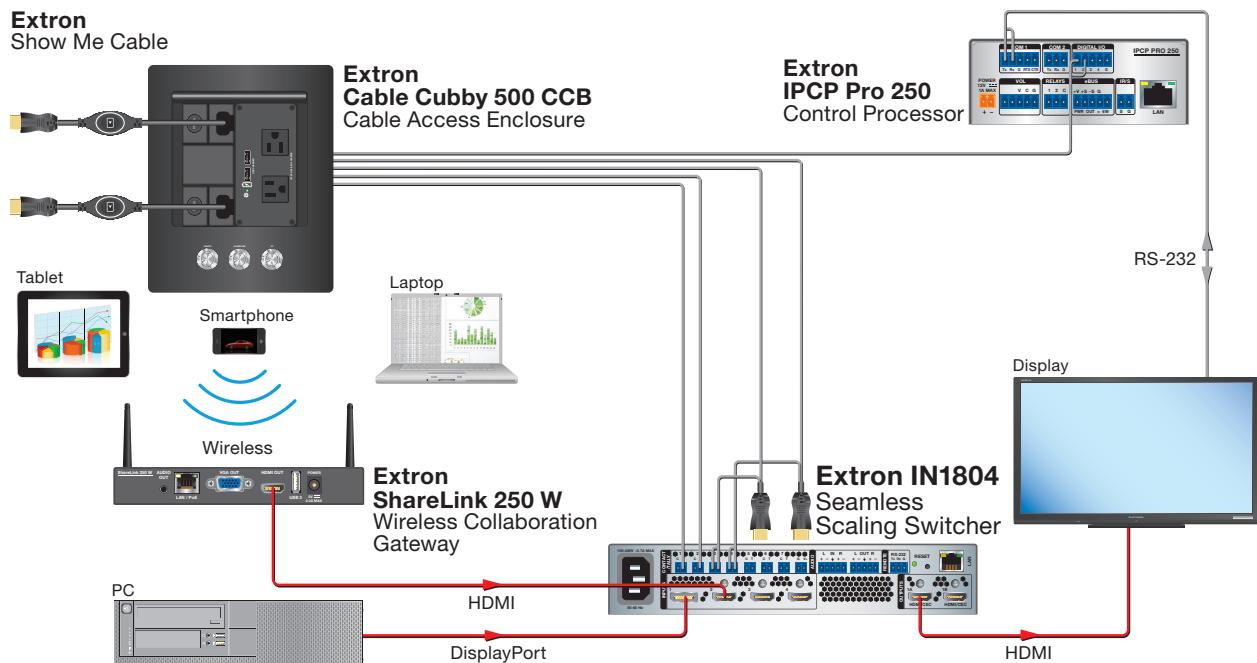


Figure 1. IN1804 Standard Model Application Example — Teamwork System

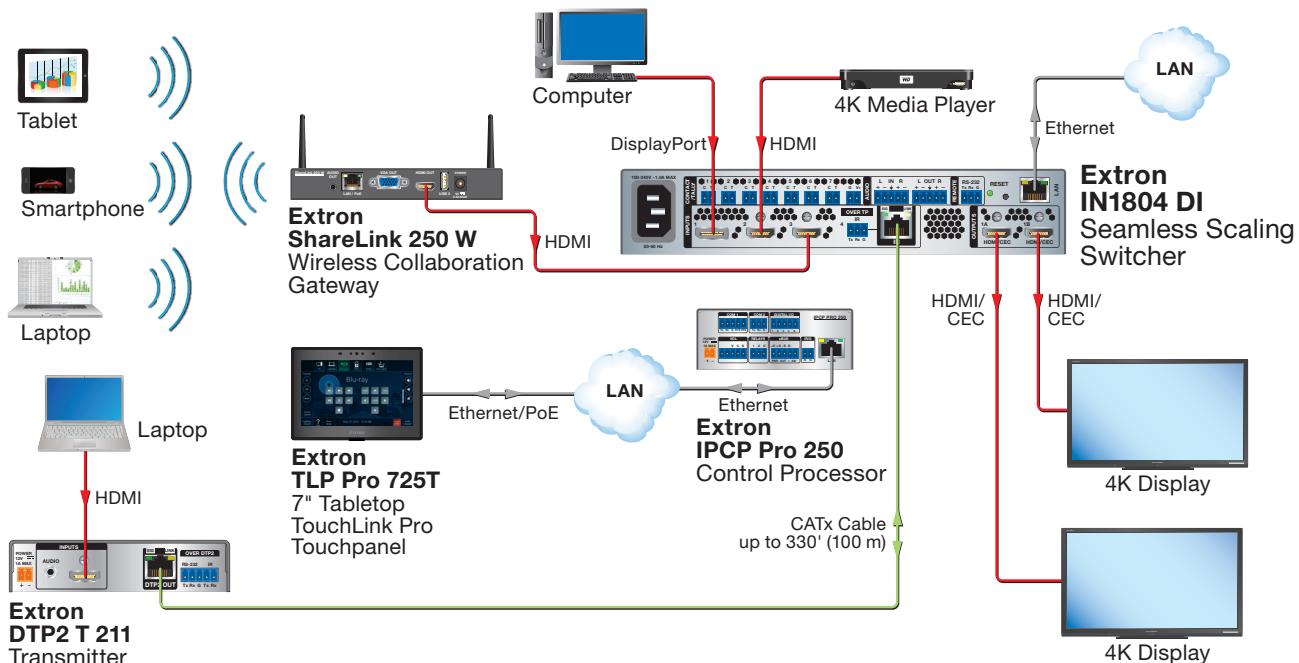


Figure 2. IN1804 DI Meeting Room Application Example

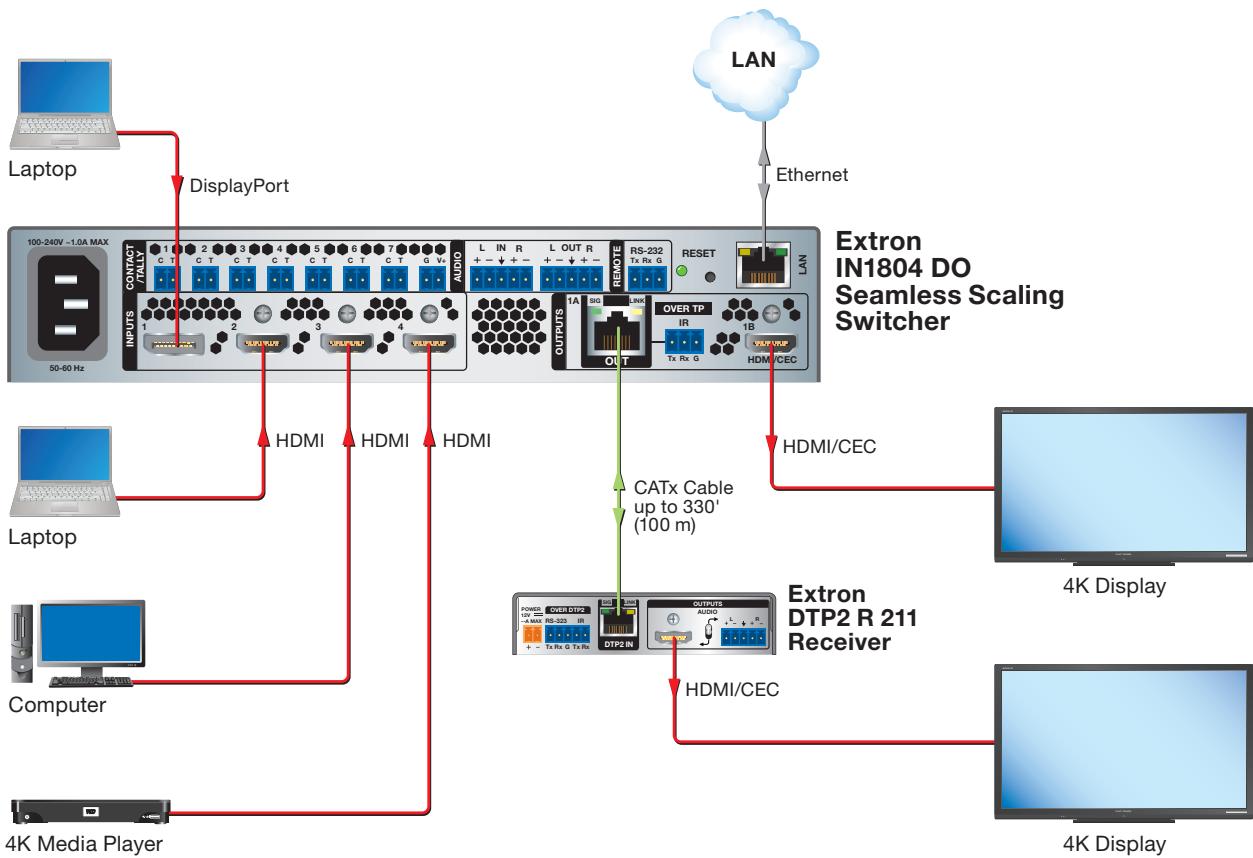


Figure 3. IN1804 DO Training Room Application Example

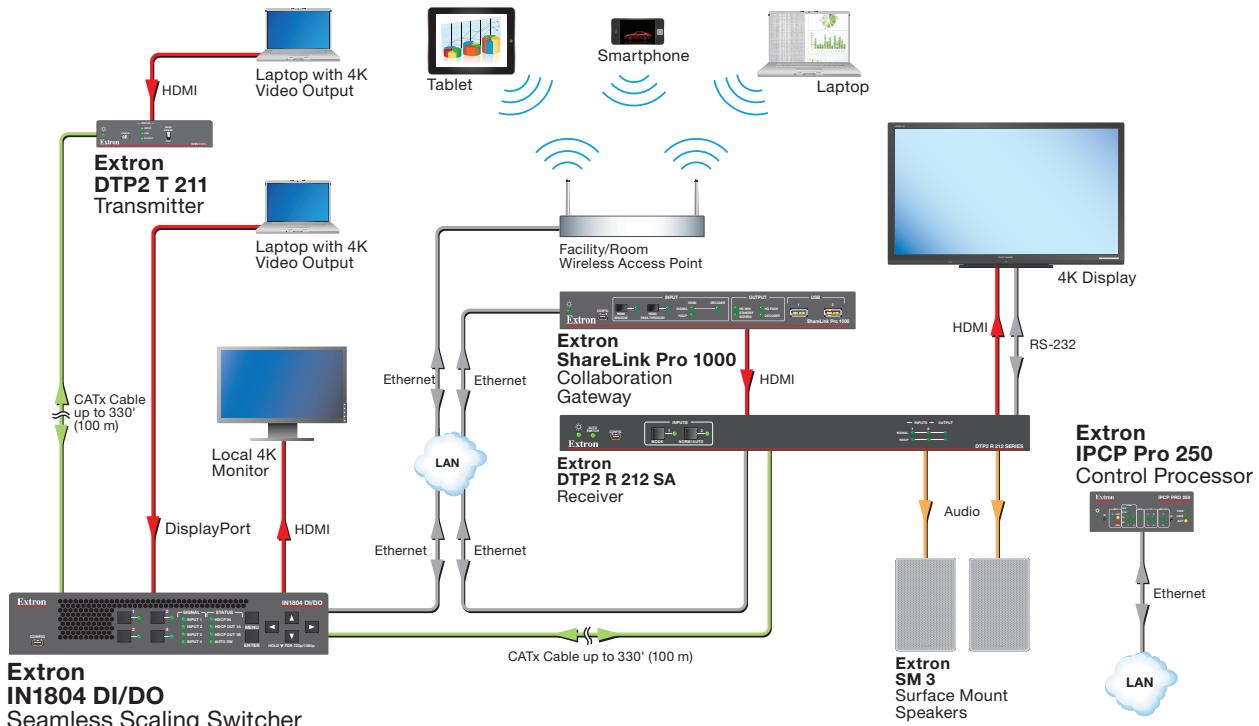


Figure 4. IN1804 DI/DO Application Example

Installation

This section contains information on how to connect cables to the IN1804 models. Topics in this section include:

- [Installation Overview](#)
- [Rear Panel Connections](#)
- [Connection Details](#)

Installation Overview

1. Turn off or disconnect all related equipment. Ensure that video sources and output displays are all turned off and disconnected from the power source.
2. Mount the switcher (see [Mounting](#) on page 102).
3. Connect input sources (see [Rear Panel Connections](#) on page 10).
4. Connect output devices (see [Rear Panel Connections](#)).
5. Connect desired control devices (see [Rear Panel Connections](#)).
6. (Optional) Connect contact closure and tally indicator devices and any needed Show Me cables (see [Wiring the Contact/Tally Connectors](#) on page 19).
7. Connect a power source to the switcher (see [AC power connector](#) on page 11).
8. Configure the switcher using any of the following methods:
 - Front panel menus (see [Operation](#) beginning on page 21)
 - PCS (see [Configuration Software](#) beginning on page 82 to download the software, and see the *IN1804 Series PCS Help File* to configure the system)
 - SIS commands (see [SIS Configuration and Control](#), beginning on page 48)

Rear Panel Connections

Figures 5 through 8 show the rear panels of the four IN1804 models: IN1804 (standard), IN1804 DI, IN1804 DO, and IN1804 DI/DO.

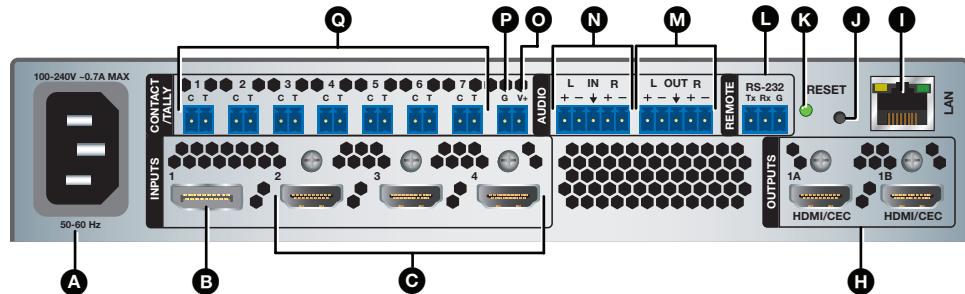


Figure 5. IN1804 Standard Rear Panel

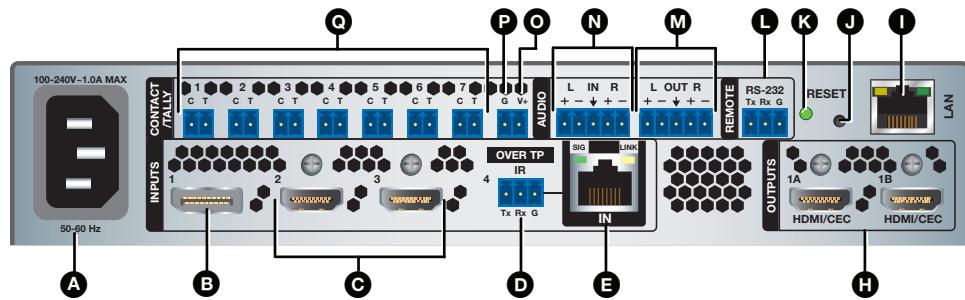


Figure 6. IN1804 DI Rear Panel

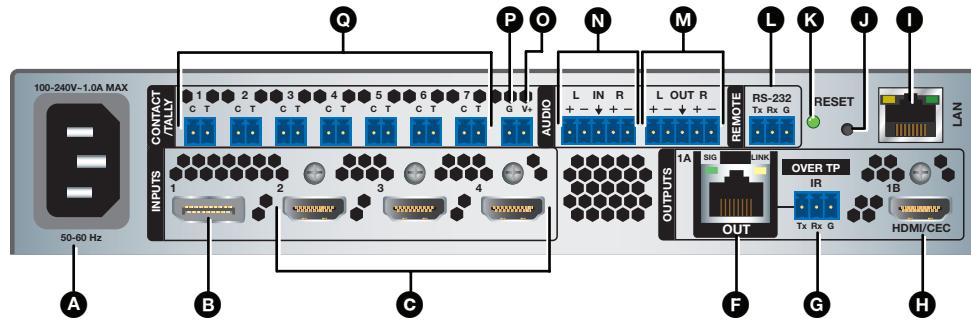


Figure 7. IN1804 DO Rear Panel

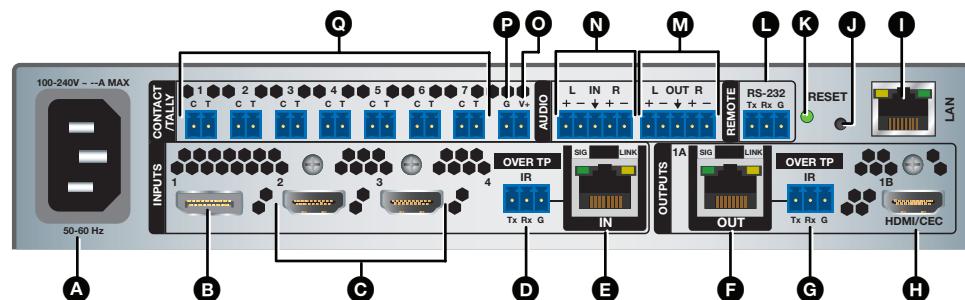


Figure 8. IN1804 DI/DO Rear Panel

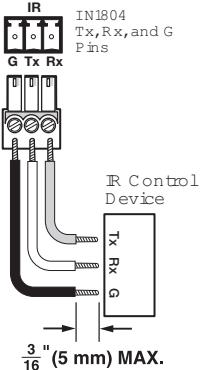
- A AC power connector**
- B DisplayPort input connector** — Input 1
- C HDMI input connectors** —
Inputs 2-4 (standard and DO models)
Inputs 2-3 (DI and DI/DO models)
- D Over TP IR pass-through input port**
(DI and DI/DO models)
- E DTP2/XTP input connector** — Input 4
(DI and DI/DO models)
- F DTP2/XTP/HDBT output connector** —
Output 1A (DO and DI/DO models)
- G Over TP IR pass-through port**
(DO and DI/DO models)
- H HDMI mirrored output connectors** —
Outputs 1A and 1B (Standard and DI
models)
- HDMI output connector** — Output 1B
(DO and DI/DO models)
- I LAN connector**
- J Reset button**
- K Reset LED**
- L Remote RS-232 connector**
- M Analog audio output connector**
- N Analog audio input connector**
- O +V connector** (for tally voltage output)
- P Ground pin** (for contact/tally ports)
- Q Contact/Tally ports**

- A AC Power connector** — Connect a standard IEC power cord (provided) from a 100 to 240 VAC, 50-60 Hz power source to this connector. The front panel button LED for the selected input (see **figure 16**, **B**) on page 21) blinks for approximately 30 seconds. When the unit is ready for operation, the input selection LED lights steadily. If auto-input switching has been enabled, the Auto SW LED lights also (see **Auto Switch** on the OSD Advanced submenu on page 39).
- B DisplayPort input connector (input 1)** — Connect a DisplayPort source to this female DP connector.
- C HDMI input connectors** — Connect HDMI video sources to these female HDMI connectors. (The standard and DO models have three HDMI input connectors while the DI and DI/DO models have two.)

TIP: Use Extron HDMI Lockit Lacing Brackets to secure HDMI cables to the device (see **HDMI Connections** on page 17).

- D Over TP IR pass-through port for input (IN1804 DI and IN1804 DI/DO only)** — To transmit and receive infrared data to and from a source connected to the DTP2 transmitter or XTP matrix switcher, connect a control device (such as an Extron IPCP Pro Control Processor) to this 3-pole IR Over TP captive screw port (see the illustration at right).

NOTE: RS-232 communication can also be sent to the far end of the twisted pair connection, but it must be done through RS-232 insertion via Ethernet. A signal sent to an IN1804 LAN port can be routed to the RS-232 port of any connected twisted pair device (see **Ethernet to RS-232 Insertion** on page 44).



E DTP2/XTP input connector (input 4, IN1804 DI and IN1804 DI/DO only) —

Connect a DTP2 transmitter or XTP matrix switcher to this DTP IN RJ-45 connector to send and receive DTP or XTP signals over a single twisted pair cable (see [Twisted Pair Recommendations for DTP2, XTP, and HDBaseT Communication](#) on page 18 for wiring and cable recommendations).

The input 4 connector has the following LEDs:

- **Signal LED** — Lights when the switcher is receiving an active video signal from a DTP2 transmitter.
- **Link LED** — Lights when a valid link is established to a DTP transmitter.

ATTENTION:

- Do not connect these ports to a computer or telecommunications network.
- Ne connectez pas ces ports à des données informatiques ou à un réseau de télécommunications.
- DTP2 remote power is intended for indoor use only. No part of the network that uses DTP2 remote power should be routed outdoors.
- L'alimentation DTP2 à distance est destiné à une utilisation en intérieur seulement. Aucune partie du réseau qui utilise l'alimentation DTP2 à distance ne peut être routée en extérieur.

NOTE: Depending on the connected transmitter, the DTP2 input can travel up to 330 feet (100 meters) without loss of signal integrity.

F DTP2/XTP/HDBT output connector (output 1A, IN1804 DO and IN1804 DI/DO only) —

The DTP output signal can travel up to 330 feet (100 meters) without a loss of signal integrity.

Connect a DTP or DTP2 receiver, an XTP matrix, or an HDBaseT-compatible device to this twisted pair OUT connector. For cable wiring and recommendations, see [Twisted Pair Recommendations for DTP2, XTP, and HDBaseT Communication](#).

The output 1A connector has the following LEDs:

- **Signal LED** — Lights when the switcher is sending a signal.
- **Link LED** — Lights when a valid link is established.

Signal Support	
DTP Mode	HDBaseT Mode
<ul style="list-style-type: none">• HDCP-compliant digital video• Embedded audio into the TMDS output or analog audio• DTP standard IR pass-through signals on the associated 3-pole captive screw connector• Ethernet insertion of RS-232 control signals• Remote power to a DTP receiver	<ul style="list-style-type: none">• HDCP-compliant digital video• Embedded audio into the TMDS output• IR pass-through signals on the associated 3-pole captive screw connector• Ethernet insertion of RS-232 control signals

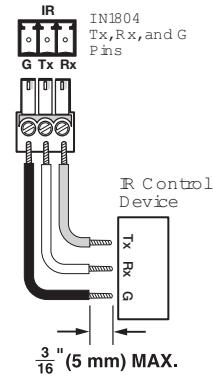
ATTENTION:

- Do not connect this connector to a computer or telecommunications network.
- Ne connectez pas ce port à des données informatiques ou à un réseau de télécommunications.
- DTP remote power is intended for indoor use only. No part of the network that uses DTP remote power should be routed outdoors.
- L'alimentation DTP à distance est destiné à une utilisation en intérieur seulement. Aucune partie du réseau qui utilise l'alimentation DTP à distance ne peut être routée en extérieur.

G Over TP IR pass-through port (IN1804 DO and IN1804 DI/DO only)

To transmit or receive infrared data to and from a sink connected to your DTP2 receiver, XTP matrix, or HDBaseT display, connect a control device (such as an Extron IPCP Pro Control Processor) to the 3-pole IR Over TP captive screw port (see the illustration at right).

NOTE: RS-232 communication can also be sent to the far end of the twisted pair connection, but it must be done through RS-232 insertion via Ethernet. A signal sent to an IN1804 LAN port can be routed to the RS-232 port of any connected twisted pair device (see [Ethernet to RS-232 Insertion](#) on page 44).

**H HDMI/CEC mirrored output connectors (outputs 1A and 1B, standard IN1804 and IN1804 DI only)**

Connect one or two HDMI or DVI (with an appropriate adapter) output devices to rear panel HDMI output connectors 1A, 1B, or both for HDMI video with embedded audio. These mirrored outputs display the same image. You can use either of the connectors for a local monitor to display the OSD menus (see [Operation](#) beginning on page 21).

HDMI/CEC output connector (output 1B, IN1804 DO and IN1804 DI/DO only) — Connect an HDMI or DVI (with an appropriate adapter) output device to this rear panel HDMI output connector for HDMI video with embedded audio. This HDMI/CEC output and DTP2/XTP/HDBT output 1B are mirrored, displaying the same image.

TIP: Use Extron HDMI Lockit Lacing Brackets to secure HDMI cables to the device (see [HDMI Connections](#) on page 17).

Consumer Electronics Control (CEC) — CEC control commands are basic control functions such as power on and off, input switching, volume, and mute. The IN1804 can issue CEC commands to a display device through the HDMI output connectors.

I LAN connector — To control the IN1804 device through Ethernet, connect a LAN to this RJ-45 LAN connector.

Ethernet control allows you to configure and control the IN1804 from a remote location using SIS commands, the PCS software, or the embedded web pages.

In addition, RS-232 communication can be sent to the far end of the twisted pair connection. A signal sent to an IN1804 LAN port can be routed to the RS-232 port of any connected twisted pair device (see [Ethernet to RS-232 Insertion](#) on page 44).

When connected to an Ethernet LAN, the IN1804 can be accessed from a computer running a standard Internet browser. Use a patch or crossover cable to connect the IN1804 to a computer, control device, router, or switch. The default IP address of the switcher is 192.168.254.254, the default subnet mask is 255.255.255.0, and the default gateway address is 0.0.0.0.

The LAN connector contains two LEDs (see the illustration at right):

- **Act LED** — This amber LED blinks to indicate LAN signal activity.
- **Link LED** — This green LED lights steadily to indicate a LAN connection.

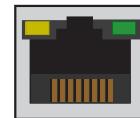


Figure 9 shows how to wire the LAN connector.

Pin	T568A Wire Color	T568B Wire Color
1	White-green	White-orange
2	Green	Orange
3	White-orange	White-green
4	Blue	Blue
5	White-blue	White-blue
6	Orange	Green
7	White-brown	White-brown
8	Brown	Brown

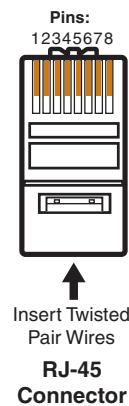


Figure 9. Connecting to the LAN Port

- **J Reset button** — This recessed button initiates levels (modes) on the IN1804. To initiate the different reset levels, use a pointed object such as an Extron Tweaker (or other small Philips screwdriver) or a stylus to press and hold the button while the switcher is running or while it is being powered up (see **Reset Modes** beginning on page 42).
- **K Reset LED** — This green LED remains lit while the IN1804 has power. While the **Reset** button (see **J**, above) is being pressed and held, this LED blinks every 3 seconds to indicate the level of reset initiated if the button is released at that point (see **Reset Modes** for more information).
- **L Remote RS-232 connector** — Connect a host device to this 3-pole captive screw connector for RS-232 serial control. The baud rate is 9600.

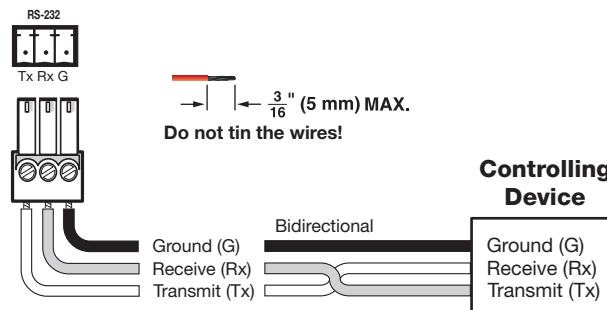


Figure 10. RS-232 Wiring

- M Analog audio output connector** — Connect a balanced or unbalanced audio output device to this 5-pole captive screw Audio Out connector (see [Analog Audio Connections](#) on page 16).

ATTENTION:

- For unbalanced audio, connect the sleeves to the ground contact. **Do not** connect them to negative (–) contacts (see the *Extron Audio Wiring Card*).
- Pour l'audio asymétrique, connectez les manchons au contact au sol. Ne PAS connecter les manchons aux contacts négatifs (–) (voir le Audio Wiring Card d'Extron).
- The length of the exposed wires in the stripping process is critical. The ideal length is 3/16 inch (5 mm). If the exposed portion is longer, the wires may touch, causing a short circuit between them. If the exposed wires are shorter, they can be easily pulled out, even if tightly fastened by the captive screws.
- La longueur des câbles exposés est primordiale lorsque l'on entreprend de les dénuder. S'ils sont un peu plus longs, les câbles exposés pourraient se toucher et provoquer un court circuit. S'ils sont un peu plus courts, ils pourraient sortir, même s'ils sont attachés par les vis captives.
- Do not tin the wires. Tinned wire does not hold its shape and can become loose over time.
- Ne pas étamer les câbles. Les câbles étamés ne sont pas aussi bien fixés dans les terminaisons des connecteurs à vis captives et pourraient sortir.

- N Analog audio input connector** — Connect a balanced or unbalanced audio source to this 5-pole captive screw Audio In connector to embed analog audio in the HDMI output signal. Input gain range is -18 dB to +24 dB. The default is 0 dB (see [Analog Audio Connections](#)).

- O +V connector** — The +V pin constantly outputs +5 VDC power with 200 mA total (shared between pins). Use this pin when power is needed for external Tally LEDs, such as those on the Extron CCB 30 contact closure remote.

- P Ground pin for Contact/Tally ports** (see “**Q Contact/Tally ports**,” below)

- Q Contact/Tally ports** — (Optional) Wire contact closure and tally devices or Show Me cables to these seven 2-pole captive screw connectors as desired. Each port contains two pins, labeled C and T.

- **Ports 1 through 4** (for input switching) — Each Contact/Tally connector is labeled with the number of the video input associated with it. Wire a push-button switch or other contact closure device to pin C (contact) and pin G (ground) of the 2-pole connector (**P**). These ports can also be used for AV mute and sync mute.

Alternatively, wire an SM cable to the C and T pins (see [Connecting using an SM Cable](#) on page 20 for connection instructions).

- **Ports 5 through 7** (configurable via PCS) — Wire a switch to contact port pin C pin to initiate a command on the IN1804 (for example, video or audio mute), or to issue a CEC command to connected display devices.

See [Wiring the Contact/Tally Connectors](#) on page 19 for more information.

Connection Details

Analog Audio Connections

Wire the audio input and output connectors as shown in figure 11. Use the supplied tie wrap to strap the audio cable to the extended tail of the connector.

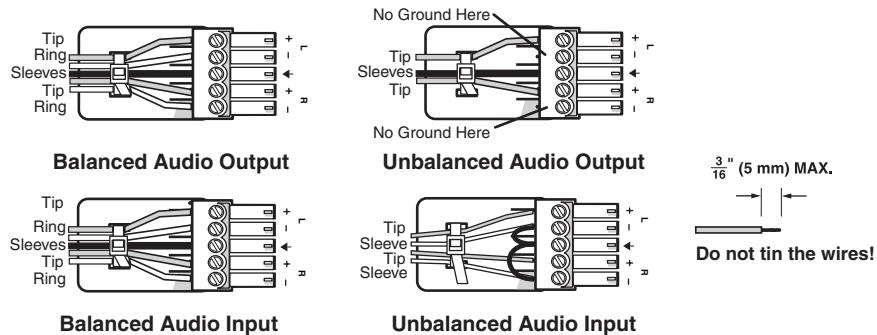


Figure 11. Analog Audio Wiring Configuration

ATTENTION:

- The length of the exposed wires in the stripping process is critical. The ideal length is 3/16 inch (5 mm). If the exposed portion is longer, the wires may touch, causing a short circuit between them. If the exposed wires are shorter, they can be easily pulled out, even if tightly fastened by the captive screws.
- La longueur des câbles exposés est primordiale lorsque l'on entreprend de les dénuder. La longueur idéale est de 5 mm (3/16 inches). S'ils sont un peu plus longs, les câbles exposés pourraient se toucher et provoquer un court circuit. S'ils sont un peu plus courts, ils pourraient sortir, même s'ils sont attachés par les vis captives.
- Do not tin the wires. Tinned wire does not hold its shape and can become loose over time.
- Ne pas étamer les câbles. Les câbles étamés ne sont pas aussi bien fixés dans les terminaisons des <connecteurs> à vis captives et pourraient sortir.
- For unbalanced audio, connect the sleeves to the ground contact. **Do not** connect them to negative (-) contacts (see the *Extron Audio Wiring Card*).
- Pour l'audio asymétrique, connectez les manchons au contact au sol. Ne PAS connecter les manchons aux contacts négatifs (-) (voir le *Audio Wiring Card* d'Extron).

HDMI Connections

Use an Extron LockIt cable lacing bracket to secure HDMI cables to the device.

NOTE: The HDMI device must have an HDMI connection mounting screw for this bracket to be used.

To securely fasten an HDMI cable to a device:

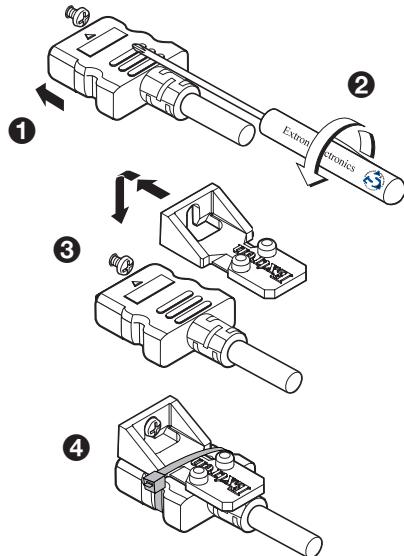


Figure 12. Mounting a LockIt Cable Lacing Bracket

1. Plug the HDMI cable into the panel connection (see figure 12, ①).
2. Loosen the HDMI connection mounting screw from the panel enough to allow the LockIt lacing bracket to be placed over it (②). 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 (③).
4. Loosely place the included tie wrap around the HDMI connector and the LockIt lacing bracket as shown.
5. While holding the connector securely against the lacing bracket, use pliers or a similar tool to tighten the tie wrap, then remove any excess length (④).

ATTENTION:

- Do not overtighten the HDMI connection mounting screw. The shield to which it is fastened 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.

Twisted Pair Recommendations for DTP2, XTP, and HDBaseT Communication

Use the following pin configurations for shielded twisted pair cables used for DTP or HDBaseT communication.

Pin	T568B Wire Color
1	White-orange
2	Orange
3	White-green
4	Blue
5	White-blue
6	Green
7	White-brown
8	Brown

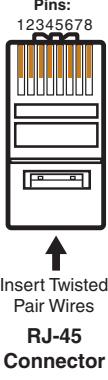


Figure 13. Twisted Pair Cable Configuration

Supported cables

The switchers are compatible with shielded twisted pair (F/UTP, SF/UTP, and S/FTP) cable.

ATTENTION:

- Do not use Extron UTP23SF-4 Enhanced Skew-Free AV UTP cable or STP201 cable to link the device with DTP transmitters or receivers.
- N'utilisez pas le câble AV Skew-Free UTP version améliorée UTP23SF d'Extron ou le câble STP201 pour relier le appareil avec les émetteurs ou les récepteurs DTP.

Cable recommendations

Extron recommends using the following practices to achieve full transmission distances and reduce transmission errors when connecting to a remote DTP2 endpoint, XTP matrix switcher, or HDBaseT receiver:

- 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 cable, 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.
- 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 shielded twisted pair 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 meters, 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.

Wiring the Contact/Tally Connectors

The CONTACT/TALLY portion of the rear panel on all models contains seven sets of contact and tally captive screw connectors (numbered 1 through 7), each with two pins labeled C and T, for contact closure and tally indicator devices. The CONTACT/TALLY panel also contains a 2-pole captive screw connector with a G (ground) pin and a +V pin that provides +5 VDC power to the indicator devices connected to the tally (T) ports.

These ports can be used for triggering and feedback associated with the selected input, for contact-based input switching, and for other triggered functions such as CEC display control or video mute. Contact/Tally ports are typically used with Extron Show Me (SM) cables or with external equipment (such as the Extron CCB 30) to control IN1804 functions, depending on which Contact/Tally port is used.

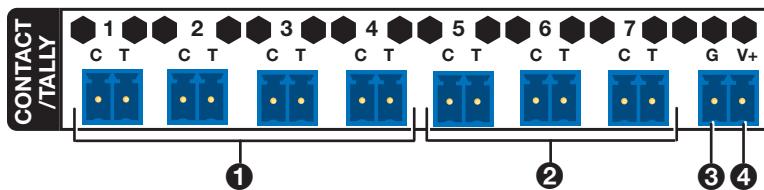


Figure 14. Contact/Tally Panel

- **Contact/Tally ports 1 through 4** — (See figure 14, ①) Each CONTACT/TALLY connector is labeled with the number of the video input associated with it. Wire a push button or other contact closure switch to pin C (Contact) and to the shared pin G (ground, ③).
 - If using a tally indicator, connect the indicator device to the shared +V pin (5 VDC, required for tally devices without a power supply, ④) and the T (Tally) pin.

In other words, the V+ pin of the switcher connects to the voltage in (anode) of the indicator, and the T pin connects to the tally output (cathode) of the indicator device.

NOTE: If the indicator has an internal power supply, it is not necessary to connect it to the V+ pin. It can be connected directly to the T pin of the Contact/Tally input connector.

- If using an SM cable, see [Connecting Using an SM Cable](#) on the next page.
- **Ports 5 through 7 (configurable via PCS)** — (②) Wire a push button or other contact closure switch to pin C and to the shared pin G. If using a tally indicator, connect the indicator device to the shared +V pin and the T pin.

See the *IN1804 Series Help File* for instructions on configuring these ports using PCS.

Connecting Using an SM Cable

The Contact/Tally connectors can also be used with Extron SM cables. Figure 15 shows how to wire an SM cable to a contact input.

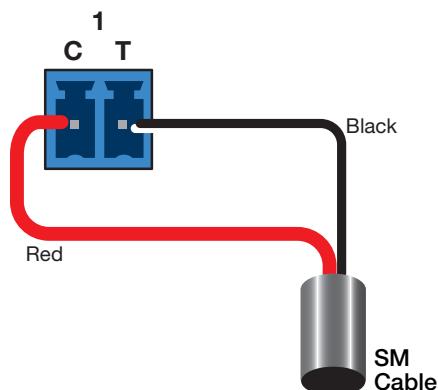


Figure 15. SM Cable Connecting Contact and Tally Ports

For each SM cable:

- Connect the **red** (contact) pigtail to the C pin corresponding to the input being used.
- Connect the **black** (tally out) pigtail to the T pin.

NOTE: In an SM cable, the ground source needed to trigger the contact and the voltage to drive the tally indicator are supplied by HDMI source device. Therefore, it is not necessary to connect the cable to a G (ground) pin.

Operation

This section contains information on the front panel operation, on-screen display menu system, presets, and reset modes of the switchers. Topics in this section include:

- [Front Panel Overview](#)
- [Powering Up](#)
- [Selecting an Input](#)
- [Using the On-Screen Menu System](#)
- [Front Panel Lockout \(Executive Modes\)](#)
- [Input Presets](#)
- [Reset Modes](#)
- [RS-232 and IR Signal Insertion](#)

Front Panel Overview

All IN1804 Series models have the same front panels.

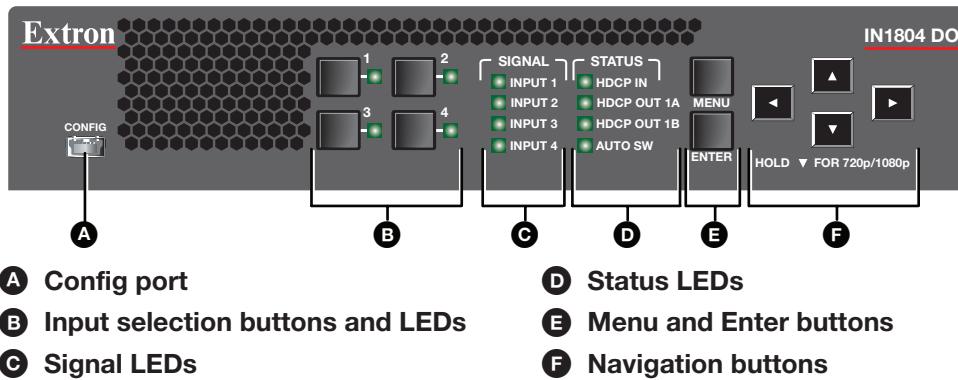


Figure 16. Front Panel Features (IN1804 DO Example)

- Ⓐ **USB configuration port** — Connect a host device to the USB mini-B connector for device configuration, control, file transfer, and firmware upgrades.
- Ⓑ **Input selection buttons and LEDs (1-4)** — Press one of these four buttons to select an input. Each button has a green LED that lights when the input is selected.
- Ⓒ **Signal (input) LEDs** — For each input, these green LEDs light when an active video signal is detected.
- Ⓓ **Status LEDs** — These green LEDs light to indicate the state of their corresponding HDCP and auto-switch settings:
 - **HDCP IN** — Lights if the current input video signal is encrypted.
 - **HDCP OUT 1A and 1B** — Light if the current output video signal is encrypted.
 - **AUTO SW** — Lights if the unit is in an auto-switch mode.
- Ⓔ **Menu and Enter buttons** — Press the **Menu** button to enter or exit the on-screen menu system. Press the **Enter** button to select options from the OSD menus.
- Ⓕ **Navigation buttons** — Press any of the four buttons to navigate the on-screen menu system or change values of adjustable features.

Powering Up

When power is applied to the switcher, the Input 1 LED blinks prior to the full boot-up of the product. When boot-up is complete or nearing completion, each of the input LEDs lights, one at a time, in ascending order (1 through 4).

Next, each of the signal status LEDs lights in the same manner. When boot-up is complete and after the LED lighting sequences occur, normal operation begins.

Selecting an Input

Press any of the four input buttons on the front panel to select an input. The green LED for the selected input lights.

You can also select inputs via the Contact/Tally ports. See [Wiring the Contact/Tally Connectors](#) on page 19 for more information.

Using the On-Screen Menu System

The OSD menus are used primarily for the initial setup of the device. The on-screen menu presents configuration options on a local monitor and can be adjusted with front panel controls.

NOTE: The on-screen menu has a default timeout of 60 seconds.

Menu Selection Buttons

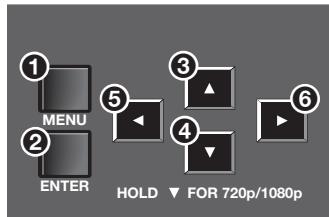


Figure 17. Menu Selection Buttons

- **Menu button** — Press the **Menu** button (see figure 17, ①) to activate or exit the on-screen menu, deselect a submenu, or cancel a pending change.
- **Enter button** — Press the **Enter** button (②) to access the on-screen menu, select submenus, or submenu items, or to accept pending changes.
- **Navigation buttons** — Press these buttons to navigate through the menu system:
 - Press the ▲ (**Up**) (③) or the ▼ (**Down**) (④) arrow button to navigate submenus or submenu items.
 - Press the ► (**Right**) arrow button (⑤) to access currently selected submenus or submenu items.
 - Press the ◀ (**Left**) (⑥) arrow button to exit currently selected submenus or submenu items. You can also use the navigation buttons to adjust settings according to specific setting directions.

Menu Overview

In the on-screen menu, the product name is displayed at the top of the right column. The active input and output resolutions are displayed in the bottom border. The on-screen menu contains eight submenus with various submenu items of adjustable settings or device information (see the Submenus table, below).

Submenus	Submenu Items							
Device Info (Read Only)	Unit Name	Firmware	Temperature	Active Input Details	Output 1A Details	Output 1B Details		
Quick Setup	INn: Input Mode	INn: EDID	Output Rate and Resolution	Audio Mute Status	Test Pattern	DHCP Mode	IP Address	
Picture Controls	Auto-Image	Image Position	Image Size	Brightness (Selected Input)	Contrast (Selected Input)	Detail		
Input	Selected Input Mode	Film Detect Mode (Selected Input)	Active Video	HDCP Authorized (Selected Input)	INn:EDID	Capture EDID		
Output	Output Rate and Resolution	IN1804 DI and Standard: HDMI 1A Format IN1804 DO and DI/DO: TP 1A Format	IN1804 DI and Standard: -- -- -- IN1804 DO and DI/DO: TP 1A Mode	HDMI 1B Format	HDCP Notification	User Logo	Logo Position (H and V)	
Audio	Audio Mute	Audio Format (Selected Input)	Audio Gain and Attenuation (Selected Input)	Audio Output Format	Output Volume			
Advanced	Test Pattern	Screen Saver	Screen Saver Timeout	Aspect Ratio (Selected Input)	Auto Memory (Selected Input)	Auto Switch	Input Switch Effect	Factory Reset
Communications	Serial Port Baud Rate	MAC Address	DHCP	IP Address	Subnet Mask	Gateway		

Using the Menu Screens

Extron	IN1804 DO
DEVICE INFO	IN4: Input Mode HDMI
QUICK SETUP	IN4: EDID 3840x2160 @ 30
PICTURE CONTROLS	Output Rate 1080p @ 60
INPUT	Audio Mute Off
OUTPUT	Test Pattern Off
AUDIO	DHCP Mode Off
ADVANCED	IP Address 192 . 168 . 254 . 254
COMMUNICATIONS	
Input 2 3840x2160 @ 30.00Hz	Scaled Output 1080p @ 60.00Hz

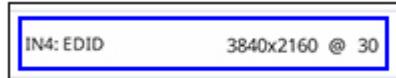
Figure 18. On-screen Menu Example

To open the on-screen menu:

1. Connect a display device to an HDMI output connector (see [Rear Panel Connections](#) on page 10).
2. Press the **Menu** or **Enter** button to open the on-screen menu.

To navigate the on-screen menu:

1. Press the ▲ and ▼ buttons to move through the submenus (left) panel. The [table](#) on the previous page shows the eight submenus and the items they contain.
2. Press **Enter** or ► to select a submenu and display its items in the right panel.
3. Press the ▲ and ▼ buttons to move the blue selection border to the desired submenu item (see the example at right).
4. Press **Enter** to select the item.
5. Press the ◀ button to return to the list of submenus in the left panel.



To adjust the settings of a submenu item:

1. Navigate to an adjustable submenu item and press the **Enter** or ► button to select the item.
2. Press the ◀ and ► buttons to adjust the setting or select a specific adjustable setting within the selected submenu item.
If the selected submenu item has multiple adjustable settings, press the ▲ and ▼ buttons to select a value.
3. Press the **Enter** button to accept the new value.

NOTE: To cancel a change, press the ◀ button to return to the submenu list (left column) **without** pressing **Enter**. Then, press the ▲ or ▼ button to move to a different submenu.

To exit the on-screen menu system:

From any menu screen, press the **Menu** button to close the on-screen menu and exit the system.

Device Info Screen

Extron		IN1804 DO
DEVICE INFO		Unit Name: IN1804-15-9E-CE Firmware: 1.00.0001-b007 Temp: 35.0C / 95.0F
QUICK SETUP		Input 4: HDMI 3840x2160 @30.00Hz Format: RGB 444 Limited Signal: 297.929 MHz 2250 Total Lines HDCP: No
PICTURE CONTROLS		
INPUT		Output 1A: 1920x1080 @ 60.00 Hz Format: HDMI RGB 444 Full Mode: -- Display: 3840x2160 @ 60 Hz (SNY) HDCP: Compliant
OUTPUT		
AUDIO		Output 1B: 1920x1080 @ 60.00 Hz Format: HDMI RGB 444 Full Display: 1920x1080 @ 60 Hz (EXN) HDCP: Compliant
ADVANCED		
COMMUNICATIONS		
Input 2 3840x2160 @ 30.00Hz		Scaled Output 1080p @ 60.00Hz

Figure 19. Device Info Screen

The read-only Device Info screen is listed first in the submenus (left) panel. This screen contains information about your IN1804, including unit name, firmware version, internal temperature in Celsius and Fahrenheit, selected input device format and signal information, and output signal information for all outputs.

Quick Setup Submenu

Extron	IN1804 DO	
DEVICE INFO	IN4: Input Mode	HDMI
QUICK SETUP	IN4: EDID	3840x2160 @ 30
PICTURE CONTROLS	Output Rate	1080p @ 60
INPUT	Audio Mute	Off
OUTPUT	Test Pattern	Off
AUDIO	DHCP Mode	Off
ADVANCED	IP Address	192 . 168 . 254 . 254
COMMUNICATIONS		
Input 2 3840x2160 @ 30.00Hz		Scaled Output 1080p @ 60.00Hz

Figure 20. Quick Setup Submenu

The Quick Setup submenu is displayed by default when the OSD is first opened, and provides quick access to frequently-used settings. This submenu contains the following items, which also appear on other submenus in the system:

- **INn: Input Mode** — Displays the format of the selected input. For HDMI or DVI inputs, this field is read-only. For twisted pair inputs, press the ▲ and ▼ buttons to select **DTP** or **XTP**.
- **INn: EDID** — Press the ◀ and ▶ buttons to select the resolution or the rate list. Press the ▲ and ▼ buttons to navigate through the selected list. Selecting **Auto** (the default) from the resolutions list matches the current output resolution. There are five custom options, prefaced by **C1** through **C5**.
- **Output Rate** — Press the ▲ and ▼ buttons to select from a list of output resolutions and refresh rates (see **Output Rate** on the **Output** submenu on page 32). There are five custom options, prefaced by **C1** through **C5**. The default setting is **1080p @ 60 Hz**.
- **Audio Mute** — Press the navigation buttons to mute (**On**) or unmute (**Off**) the audio. You can also select **Analog** to mute analog audio or **Digital** to mute embedded digital audio.
- **Test Pattern** — Press the navigation buttons to select an available test pattern to display or to turn a test pattern off (see **Test Pattern** on the OSD Advanced submenu on page 37). The available test pattern selections are **Crop**, **Alternating Pixels**, **Crosshatch**, **Color Bars**, **Grayscale**, and **Audio Test** (pink noise). The default setting is **Off**.
- **DHCP Mode** — Press the ▲ and ▼ buttons to enable (**On**) or disable (**Off**) DHCP mode.
- **IP Address** — Press the ◀ and ▶ buttons to switch between octets. Press the ▲ and ▼ buttons to change the value of a selected octet.

Picture Controls Submenu



Figure 21. Picture Controls Submenu

The Picture Controls submenu adjusts picture settings.

NOTE: When the aspect ratio changes as a result of **Fill** or **Follow** commands being entered, the **Image Position** and **Image Size** values are updated accordingly.

- **Auto-Image** — To restore the image on the active input to the default size and position, press the **Enter** button, then press **►** to execute an Auto-Image. Auto-Image updates horizontal and vertical image position, and horizontal and vertical image size settings.

NOTE: The **Auto-Image** submenu item is the same as the standard Auto-Image Execute SIS command. However, there are other Auto-Image options available through SIS commands (see the **Auto-Image SIS commands** on page 61 or PCS (see the *IN1804 Series PCS Help File*). The options include to execute an Auto-Image and fill the output and to execute an Auto-Image and maintain the input aspect ratio. These commands ignore the current aspect mode setting, perform Auto-Image on the input, and then select **Fill** or **Follow**.

- The following is performed during an Auto-Image when the aspect ratio is set to **Fill**:
 - Horizontal and vertical image positions return to **0000**.
 - Horizontal and vertical image sizes match the current output resolution.
- The following is performed during an Auto-Image when the aspect ratio is set to **Follow**:
 - The horizontal and vertical image position and image size are set to maintain the native aspect of the input rate with regard to the current output resolution.

Set the aspect ratio on the Advanced submenu (see **INn: Aspect Ratio** on page 38).

- **Image Position** — Press the **◀** and **▶** buttons to select the horizontal (H) or vertical (V) position of the image. Press the **▲** and **▼** buttons to adjust the value of the selected position. The ranges are:
 - **Horizontal position:** **-4096** through **+4096** pixels. The default is **0000**.
 - **Vertical position:** **-2160** through **+2160** lines. The default is **0000**.
- **Image Size** — Press the **◀** and **▶** buttons to select the horizontal (H) or vertical (V) size of the image. Press the **▲** and **▼** buttons to adjust the value of the selected position.
 - **Horizontal size (width):** **10** through **8192** of signal.
 - **Vertical size (height):** **10** through **4320** of signal.
- **INn: Brightness** — Press the **▲** and **▼** buttons to adjust the black level of the video signal. The range is **0** through **127**. The default is **64**.
- **INn: Contrast** — Press the **▲** and **▼** buttons to adjust the range of white to black levels of the video signal. The range is **0** through **127**. The default is **64**.
- **Detail** — Press the **▲** and **▼** buttons to adjust the image sharpness. The range is **0** through **127**. The default is **64**.

Adjusting the picture controls

When you select a **Picture Controls** submenu item, the **OSD** menu collapses so that the item is displayed alone on the screen to facilitate adjustment (see figure 22). The separate item field contains blue arrows that indicate which front panel arrow buttons to press to adjust the item.



Figure 22. Example of a Selected Picture Controls Submenu Item

After selecting the item to adjust, do the following:

1. With the separate item field displayed, use the navigation buttons to select and adjust the desired settings as indicated by the blue arrows on the screen. (To rapidly increment or decrement the values, press and hold the arrow button.)

Example: In figure 22, the blue right and left arrows before the **H** setting indicate that you can press the **◀** and **▶** buttons on the front panel to adjust the horizontal size. To adjust the vertical size, press the **▲** and **▼** buttons, as indicated by the blue up and down arrows after the **V** setting.

2. When finished, press **Enter** to return to the **OSD** menu.

Input Submenu

Extron		IN1804 DO	
DEVICE INFO		IN4: Input Mode	HDMI
QUICK SETUP		IN4: Film Detect	On
PICTURE CONTROLS		Active Video	H: 3840 V: 2160
INPUT		IN4: HDCP Authorized	On
OUTPUT		IN4: EDID	3840x2160 @ 30
AUDIO		Capture EDID	Press ENTER
ADVANCED			
COMMUNICATIONS			
Input 2 3840x2160 @ 30.00Hz		Scaled Output 1080p @ 60.00Hz	

Figure 23. Input Submenu (IN1804 Standard and IN1804 DO)

The Input submenu adjusts the active input.

- **INn: Input Type** —

- **On standard and DO models:** Displays the format of the selected input (read-only).
- **On DI and DI/DO models:** If input 4 (the DTP2/XTP input) is selected, use the ▲ and ▼ buttons to select between **DTP** and **XTP**. For all other inputs, this item is read-only.

- **INn: Film Detect** — Film mode detection helps maximize image detail and sharpness for video sources originating from film. After pressing **Enter** to select the item, press the ▲ and ▼ buttons to toggle between **On** (default) and **Off**.

If **On** is selected, the IN1804 detects and applies reverse pull-down for:

- 3:2 pull-down for 480i and 1080i @ 59.94 Hz
- 2:2 and 24:1 pull-down for 576i and 1080i @ 50 Hz
- **Active Video** — This view-only field shows the width in pixels (the H value) and the height in lines (the V value) of the applied input signal.
- **HDCP Authorized** — This feature determines if a digital input reports as an HDCP authorized sink to a source. Select this item to enable or disable HDCP communication by selecting whether the IN1804 input reports to the source as an authorized HDCP sink. After pressing **Enter** to select this item, press the ▲ or ▼ button to toggle between **On** (default) and **Off**.

For source devices that require encryption, enable HDCP Authorized. If HDCP Authorized is disabled for sources that require encryption (for example, a Blu-ray player), the output is muted or a warning message is displayed. Some source devices may encrypt their output even if the source material does not require HDCP encryption, preventing content from being displayed on a non-HDCP compliant display. Disable HDCP Authorized to allow the output of the switcher to remain unencrypted.

NOTE: HDCP Authorized is permanently enabled on DisplayPort Input 1.

- **INn:EDID** — Press the navigation buttons to select an EDID for the active input. Select a discrete EDID from a list of factory-supplied EDID or select **Auto** to use the current output resolution and refresh rate. The Input EDID Resolutions table below lists the available EDID selections, including their SIS command variable numbers (see the [Input EDID commands](#) on page 60 for information on the SIS commands).

Input EDID Resolutions

Input EDID								
Resolution	23.98 Hz	24 Hz	25 Hz	29.97 Hz	30 Hz	50 Hz	59.94 Hz	60 Hz
640x480								10
800x600								11
1024x768								12
1280x768								13
1280x800								14
1280x1024								15
1360x768								16
1366x768								17
1440x900								18
1400x1050								19
1600x900								20
1680x1050								21
1600x1200								22
1920x1200								23
480p							24	25
576p						26		
720p			29	30	31	32	33	34
1080i						35	36	37
1080p	38	39	40	41	42	43	44	45**
2048x1080 (2K)	46	47	48	49	50	51	52	53
2048x1200								54
2048x1536								55
2560x1080								56
2560x1440								57
2560x1600								58
3840x2160	59	60	61	62	63	64***	65***	66***
4096x2160****	69	70	71	73	73	74****	75****	76****
Automatic*	0* — Match current switcher output resolution							
Output 1A HDMI	1 (EDID export only)							
Output 1B HDMI	2 (EDID export only)							
Custom EDIDs	201 through 205							

*Default input EDID

**Default output resolution

***Rate supported only with 4:2:0 color sampling for IN1804 twisted pair models when in DTP, XTP, or HDBT mode. 4:4:4 sampling is available via HDMI outputs or DTP2 endpoints only.

****Rate available only with 4:2:0 color sampling when using any twisted pair output. 4:4:4 sampling is available via HDMI outputs only.

*****4096x2160 rates are available only for output resolution and cannot be selected for input EDID.

- **Capture EDID** — Select this item to capture the EDID of the sink attached to the output and save it to one of the five custom EDID slots. The IN1804 assigns the captured EDID to its selected input. To capture an EDID:
 1. Select **Capture EDID**, then press **Enter**. A list of the five custom EDID slots is displayed at the top of the OSD screen.

NOTES:

- If no EDID has been captured yet, the names displayed for the slots are the default: **1080p @ 60 Hz**.
- If an EDID has been applied to a slot, last three letters of the EDID file name (in parentheses) represent the name of the display manufacturer (for example, EXN is an abbreviation of Extron).

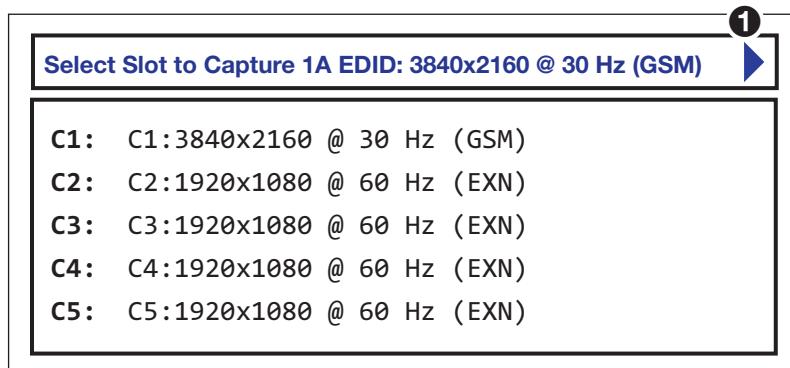


Figure 24. Custom EDID Slots List Example

2. Press the **◀** or **▶** button to select the display (output 1A or 1B) to assign the custom EDID. (The arrow button you press is reflected in the upper-right corner of the screen [see figure 24, **①**]).
3. Press the **▲** or **▼** button to highlight the slot to which you want to save the current display EDID.
4. Press **Enter**. The display EDID is saved to the selected custom slot and assigned to the connected inputs.

Output Submenu

Extron	IN1804 DI-DO
DEVICE INFO	Output Rate 1080p @ 60
QUICK SETUP	TP 1A Format Auto
PICTURE CONTROLS	TP 1A Mode DTP
INPUT	HDMI 1B Format Auto
OUTPUT	HDCP Notification Green w/ OSD
AUDIO	User Logo Off
ADVANCED	Logo Position H: 0000 V: 0000
COMMUNICATIONS	
Input 2 3840x2160 @ 30.00Hz	Scaled Output 1080p @ 60.00Hz

Figure 25. Output Submenu

The Output submenu enables you to configure the output resolution, refresh rate, HDMI format, and HDCP notification. You can also select a user-loaded logo image to display and position it on the screen.

NOTE: Figure 25 shows the Output submenu of the IN1804 DO and DI/DO models.

The IN1804 DI and standard models have **HDMI 1A Format** as the second option (instead of **TP 1A Format**) and **-- -- --** as the third option (instead of **TP 1A Mode**).

- **Output Rate** — Select this item to specify the output resolution and refresh rate. The IN1804 Series switchers have a range of resolutions from which to choose (see the **Output Resolutions and Rates** table on the next page for the available settings). The available rates depend on the selected resolution.

Five custom user-defined output rate slots are also available to be defined via SIS commands or via the **Capture EDID** item on the **Input** menu. If a custom EDID has not been captured from a display device or has not been uploaded to the unit, these slots default to 1080p @ 60 Hz.

When a resolution is applied to a user-defined EDID slot, its name is displayed in the **Output Resolution** panel in the format **cn: nnnnxnnnn @ nn (XXX)**. An example would be **C1: 1280x780 @ 60 Hz (EXN)** (the last three letters in parentheses represent the name of the manufacturer of the device).

NOTE: The five custom, user-defined output rates default to 1080p @ 60 Hz when no custom EDID is captured or uploaded.

Output Resolutions and Rates

Resolution	23.98 Hz	24 Hz	25 Hz	29.97 Hz	30 Hz	50 Hz	59.94 Hz	60 Hz
640x480								X
800x600								X
1024x768								X
1280x768								X
1280x800								X
1280x1024								X
1360x768								X
1366x768								X
1440x900								X
1400x1050								X
1600x900								X
1680x1050								X
1600x1200								X
1920x1200								X
480p							X	X
576p						X		
720p			X	X	X	X	X	X
1080i						X	X	X
1080p	X	X	X	X	X	X	X	X*
2048x1080 (2K)	X	X	X	X	X	X	X	X
2048x1200								X
2048x1536								X
2560x1080								X
2560x1440								X
2560x1600								X
3840x2160	X	X	X	X	X	X**	X**	X**
4096x2160	X	X	X	X	X	X***	X***	X***

*Default output resolution

**Rate supported only with 4:2:0 color sampling for IN1804 DI, DO, and DI/DO models when in DTP, XTP, or HDBT mode. 4:4:4 sampling is available via HDMI outputs or DTP2 endpoints only.

***Rate available only with 4:2:0 color sampling when using any twisted pair output. 4:4:4 sampling is available via HDMI outputs only.

- **HDMI 1A or TP 1A Format** — After selecting **HDMI 1A Format** (IN1804 standard and IN1804 DI) or **TP 1A Format** (IN1804 DO and IN1804 DI/DO) from the list of **Output** submenu items, press the ▲ or ▼ buttons to select the output format. The format choices include:

- **Auto** (based on the EDID of the sink) (default)
- **DVI RGB 444**
- **HDMI RGB 444 Full**
- **HDMI RGB 444 Ltd**
- **HDMI YUV 444 Ltd**
- **HDMI YUV 422 Ltd**
- **HDMI YUV 420 Ltd***

*Available only for 3840x2160 and 4096x2160 resolutions.

- **TP 1A Mode** (IN1804 DO and IN1804 DI/DO only) — This item lets you select the twisted pair mode of the DTP2/XTP/HDBT output on the IN1804 DO or IN1804 DI/DO. To switch among DTP, XTP, and HDBT modes for the TP output port, select this item and press the ▲ or ▼ buttons to select **DTP**, **XTP**, or **HDBT**.

NOTE: For the IN1804 standard and DI models this panel displays -- --. Mode selection is available only for the TP output (1A) on the IN1804 DO or IN1804 DI/DO.

- **HDMI 1B Format** — Select this option to specify an output format for HDMI output connector 1B. Press the ▲ and ▼ buttons to step through the format options.
 - **Auto** (based on the EDID of the sink) (default)
 - **DVI RGB 444**
 - **HDMI RGB 444 Full**
 - **HDMI RGB 444 Ltd**
 - **HDMI YUV 444 Ltd**
 - **HDMI YUV 422 Ltd**
 - **HDMI YUV 420 Ltd***
- *Available only for 3840x2160 and 4096x2160 resolutions
- **HDCP Notification** — This item lets you select what is displayed on the HDMI output when the input signal contains HDCP-protected content and the output is a non-HDCP sink. After pressing **Enter** to select this item, press the ▲ or ▼ button to select between:
 - **Green w/OSD** — Displays a green screen with the message **HDCP Content** on the HDMI output display (default).
 - **Black Screen** — Displays a black screen and the output sync is maintained.
 - **User Image** — Displays a user-uploaded image. To upload images, use the PCS software **Logo** screen (see the *IN1804 Series Help File* for instructions).
- **User Logo** — Select this item to enable or disable display of a user-uploaded logo image. There are 16 slots available for storing logo files. To upload a logo file to the unit, use the **Logo Config** page of the PCS configuration program (see the *IN1804 Series Help File* for the procedures).

To select a logo to display:

1. Select **User Logo** from the **Output** menu and press **Enter**.
2. Press the ▲ or ▼ button to select a logo slot. By default the logo slots are named **01: Unassigned** through **16: Unassigned**. Use the Logo SIS commands (see the **Logos commands** beginning on page 67) or the **Logo Config** screen of the PCS configuration program (see the *IN1804 Series Help File*) to assign a logo file to the selected slot.

When a logo is assigned to a slot, its name changes from **Unassigned** to **nn:Logo n**. You can change this name via SIS or PCS commands.

The default selection for this menu is **Off**.

3. Press **Enter** to confirm your selection.

NOTE: To configure logo key effects (such as RGB keying, alpha keying, and so on) and to key logos over live video see the *IN1804 Series Help File*.

- **Logo Position** — This item lets you specify a position for the selected logo on the display relative to the upper-left corner of the logo. The default is H: **0000** V: **0000**.

To position the logo:

1. Press the **Enter** button to select **Logo Position** from the **Output** submenu. The **Logo Position** item appears as a single field on the OSD.
2. Press the ▲ or ▼ buttons to select the horizontal position of the logo, and the ► or ◀ button to select the vertical position.
3. Press the **Enter** button to confirm your selections.
4. Press ◀ to return to the **Output** submenu.

Audio Submenu

Extron		IN1804 DO	
DEVICE INFO		Audio Mute	Off
QUICK SETUP		IN4: Audio Format	LPCM-2Ch Auto
PICTURE CONTROLS		IN4: Analog Gain/Att	12 dB
INPUT		Audio Output Format	Stereo
OUTPUT		Output Volume	-10 dB
AUDIO			
ADVANCED			
COMMUNICATIONS			
Input 2 3840x2160 @ 30.00Hz		Scaled Output 1080p @ 60.00Hz	

Figure 26. Audio Submenu

The Audio submenu allows you to configure the audio settings. To use this submenu, press **Enter** to select this item, then press the ▲ or ▼ button to step through the selections.

- **Audio Mute** — Select this item to mute and unmute the output audio. You can make the following audio mute selections:
 - **Off** — Audio output is not muted (default).
 - **Analog** — Mutes the analog audio output only.
 - **Digital** — Mutes the embedded digital audio output only.
 - **On** — Mutes both the analog and the embedded digital audio outputs.

- **INn: Audio Format** — Select this item to choose the audio format for the selected input. The first item on the **Audio** menu shows the selected format of the audio.

NOTES:

- For the twisted pair inputs in DTP mode, the analog audio is taken from the analog audio connector on the DTP Tx.
- For the TP inputs in XTP mode, the analog and Auto formats are not available.

Audio Format Selection	Details
None	Configures input EDID with no audio support. All audio outputs are muted.
Analog Audio	Configures input EDID with no audio support. Analog audio from the 5-pole captive screw input is passed to the 5-pole captive screw analog output and embedded into the HDMI output.
LPCM-2Ch	Configures input EDID for LPCM-2Ch support. Passes all digital audio input signals to the HDMI outputs. If LPCM-2Ch audio is present it is also de-embedded to the 5-pole captive screw analog output.
Multi-Ch	Configures input EDID for Multi-Ch support. Passes all digital audio input signals to the HDMI outputs. If LPCM-2Ch audio is present it is also de-embedded to the 5-pole captive screw analog output.
LPCM-2Ch Auto (Default)	Configures input EDID for LPCM-2Ch support. Passes all digital audio input signals to the HDMI outputs. If LPCM-2Ch audio is present it is also de-embedded to the analog 5-pole captive screw output. If no embedded audio is present on the input the IN1804 passes analog audio from the 5-pole captive screw input.
Multi-Ch Auto	Configures input EDID for Multi-Ch support. Passes all digital audio input signals to the HDMI outputs. If LPCM-2Ch audio is present it is also de-embedded to the analog 5-pole captive screw output. If no embedded audio is present on the input, the IN1804 passes analog audio from the 5-pole captive screw input.

- **INn: Analog Gain/Att** — Select this item to set the analog input gain or attenuation value for the selected input. Press **Enter** to select this item, then press the ▲ or ▼ button to increase or decrease the gain or attenuation in 1 dB increments. The range is **-18 dB** through **24 dB**. The default is **12 dB**.

NOTE: For DTP2/XTP input 4 on the IN1804 DI and DI/DO, the gain is fixed at **0 dB**.

- **Audio Output Format** — Select this item to specify stereo or dual mono (**Mono**) for the analog and embedded digital audio output. Press **Enter** to select this item, then press the ▲ or ▼ button to toggle between the two formats. The default is **Stereo**.
- **Output Volume** — Select this item to set the volume level in decibels for both the analog and embedded digital audio outputs. Press **Enter** to select the item, then press the ▲ or ▼ button to raise or lower the volume in increments of 1 dB. The range is **0 dB** through **-100 dB**. The default is **-10 dB**.

Advanced Submenu

Extron	IN1804 DO	
DEVICE INFO	Test Pattern	Off
QUICK SETUP	Screen Saver	Black
PICTURE CONTROLS	Screen Saver Timeout	Never
INPUT	IN4: Aspect Ratio	Fill
OUTPUT	IN4: Auto Memory	On
AUDIO	Auto Switch	Off
ADVANCED	Input Switch Effect	Seamless Fade
COMMUNICATIONS	Factory Reset	Hold ENTER
Input 2 3840x2160 @ 30.00Hz	Scaled Output 1080p @ 60.00Hz	

Figure 27. Advanced Submenu

The Advanced submenu enables you to configure the global settings for the unit. The following items are available:

- **Test Pattern** — Lets you choose a test pattern to use in setting up a display when outputting different resolutions. The test pattern selections include **Crop**, **Alternating Pixels**, **Crosshatch**, **Color Bars**, **Grayscale**, and **Audio Test** (pink noise). The default is **Off**.

The following test patterns are available:

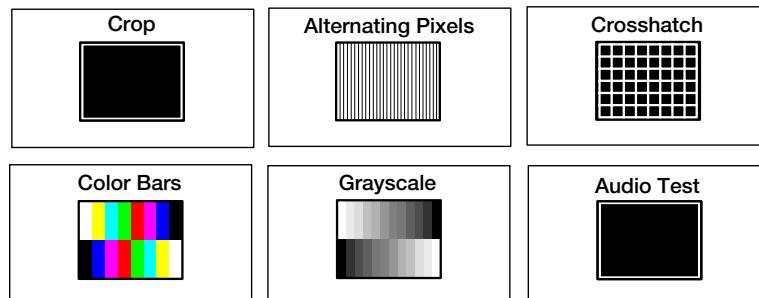


Figure 28. Available Test Patterns

NOTES:

- By default all test patterns include a single pixel wide crop pattern line.
- The Audio Test pattern displays a crop pattern and also outputs pink noise at 48 kHz, 24 bit.
- Test pattern selections persist through a power cycle.

- **Screen Saver** — Configures device behavior when no active input signal is detected. Options include a black (default) or blue screen, or a user provided logo file. Optionally, you can set a timeout to disable the output after a set duration to allow display devices (such as a display screen or projector) to enter a lower power or standby state to increase panel or lamp life.

To select the screen saver:

1. Select **Screen Saver** from the Advanced menu and press **Enter**.
2. Press the ▲ or ▼ button to select the screen saver type. The menu selections are:
 - **Black** (default)
 - **Blue** with the OSD message IN1804 <model name> Input :n No Signal
 - **User Image** — Displays an image that has been previously uploaded to the IN1804. The location of this image on the screen can be adjusted using the OSD menu (see **Logo Position** on the **Output** submenu on page 35), SIS commands (see the **Logo Horizontal Shift and Vertical Shift commands** on page 68) or PCS (see the *IN1804 Series PCS Help File*).
3. Press **Enter** to confirm your selection.

- **Screen Saver Timeout** — Lets you specify the number of seconds the selected screen saver is displayed before the output sync times out.

To set the sync timeout:

- Select **Screen Saver Timeout** from the Advanced menu and press **Enter**.
- Press the ▲ or ▼ button to select the amount of time before output sync times out. You can select a duration of **0** (timeout is immediate) to **500** seconds before the output sync times out. Select **Never** (the default) to set the sync to never time out.

NOTE: The IN1804 exits screen saver mode when the front panel **Menu** or **Enter** button is pressed, a video test pattern is activated, or an active input is detected.

If the unit is in front panel lock mode (see **Front Panel Lockout (Executive Modes)** on page 41), pressing a front panel button exits time out but access to any front panel controls or the menu system is disabled.

- **INn: Aspect Ratio** — Sets the aspect ratio for the selected input to **Fill** (fills the entire output raster) or **Follow** (follows the native aspect ratio of the input).
 - **In fill mode**, if you want to set an aspect ratio adjustment for a single input rate, you can select the correct image size and position manually from the **Picture Controls** submenu (**Image Size and Position**) (see **Picture Controls Submenu** on page 27).
 - **In follow mode**, each input rate is displayed with its native aspect ratio (4:3, 5:4, 16:9, or 16:10) with the correct letter box or pillar box settings, visible under the **Image Size** and **Image Position** items on the **Picture Controls** submenu. If you want a single input to fill the screen in follow mode, you can manually set the **Image Position** item on the **Picture Controls** submenu to **0,0** and set the **Image Size** to match the current output rate X, Y.
- **INn: Auto Memory** — Enables or disables Auto Memory. When Auto Memory is set to On (default), the IN1804 stores the current input configuration and picture control values. The switcher stores 32 auto memories per input, with input configuration and picture control data for each video resolution. The default setting enables these memories to automatically recall input and picture controls for previously applied signals. When auto memories are disabled, the switcher treats every applied signal as a new source.

- **Auto Switch** — Press the ▲ or ▼ button to select the auto-input switch mode. Auto Switch options are:
 - **Off** (default) — Auto-input switching is disabled. Switching occurs only via the front panel buttons or SIS commands.
 - **Last Connected** — The IN1804 automatically switches to the most recently connected input and retains a history of the order in which input signals were previously connected to the switcher. If an input is disconnected or the currently selected input is disabled, the IN1804 reverts to the connected inputs in order. See the example in the following table:

Step	Connected Input	Priority 1	Priority 2	Priority 3	Priority 4
1	Input 1 connected	1			
2	Input 3 connected	3	1		
3	Input 2 connected	2	3	1	
4	Input 4 connected	4	2	3	1
5	Input 4 disconnected	2			
6	Input 2 disconnected	3			

- **User Priority** — You can define a priority for the connected inputs to be selected. The default input selection order is low-to-high (the input with the lowest number is selected first, and so on).
- **Input Switch Effect** — Enables you to select the transition effect that is shown on the display while the IN1804 is switching inputs (see the examples in figure 29). Press the ▲ or ▼ button to select from the following available effects:

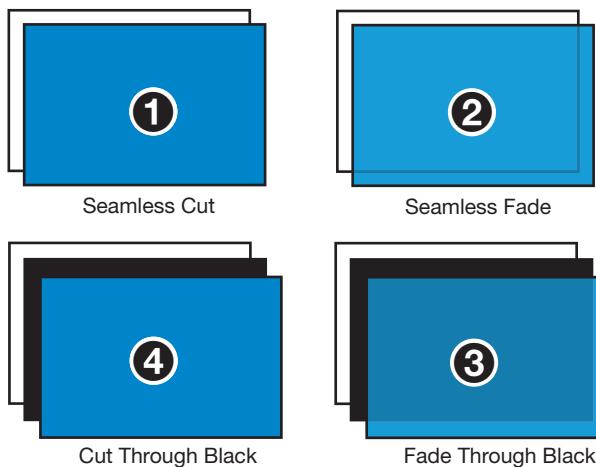


Figure 29. Transition Effects

- **Seamless Cut*** — The last frame of video freezes on the screen, then cuts to the newly selected input (1).
- **Seamless Fade*** (default) — Displays a final frozen frame of the previous input while the newly selected input fades in (2).
- **Fade thru Black** — The current input fades to black before the newly selected input fades in (3).
- **Cut thru Black** — The current input instantly cuts to black, then immediately cuts to the newly selected input with no fading in or out (4).

*When a Seamless switch is performed between two inputs with resolutions of 4K @ 60 Hz, the OSD menu and logos are momentarily disabled during the transition.

However, for 4K @ 60 Hz rate only, either the input resolution **or** the output resolution can be at 4K @ 60, but not both. For example, the input can be 4K @ 60 Hz with a 4K @ 30 Hz output and vice versa, but both the input and output cannot be 4K @ 60 Hz.

NOTE: This special condition applies only to the currently selected input. For example, if the current input is 4K @ 30 Hz and the output is 4K @ 60 Hz, and you switch to a 4K @ 60 source, the OSD menu and logo remain visible. However, if you switch **back** to the 4K @ 30 input, the OSD and logo are disabled.

- **Factory Reset** — Resets the unit to its factory default values (removing any user-specified values) while retaining all TCP/IP settings.

To reset using the OSD menu, press and hold the **Enter** button until **Factory Reset** is displayed (approximately 5 seconds). The message remains for approximately 1 minute after the reset is complete to allow time for the display device to sync with the IN1804 output.

NOTE: The equivalent SIS command is **[Esc] ZXXX ←**. This command does **not** affect the current password, including the initial factory-set serial number.

For other reset methods, see [Reset Modes](#) on page 42.

Communication Submenu

Extron	IN1804 DO
DEVICE INFO	Serial Port Baud Rate 9600
QUICK SETUP	MAC Address 00-05-A6-15-9E-CE
PICTURE CONTROLS	DHCP Off
INPUT	IP Address 192 . 168 . 254 . 254
OUTPUT	Subnet Mask 255 . 255 . 255 . 0
AUDIO	Gateway 0 . 0 . 0 . 0
ADVANCED	
COMMUNICATIONS	
Input 2 3840x2160 @ 30.00Hz	Scaled Output 1080p @ 60.00Hz

Figure 30. Communication Submenu

The Communication submenu enables you to view the serial port baud rate and the unit media access code (MAC) address, and to configure the IP address, subnet mask, and gateway address, and DHCP mode.

- **Serial Port Baud Rate** — Displays the baud rate for the serial RS-232 port (view only).
- **MAC Address** — Displays the MAC address of the device (view only).

- **DHCP Mode** — When this mode is enabled (**On**), the unit obtains an IP address and other network settings from the DHCP server. The default is **Off**.

To enable or disable DHCP mode:

1. Select **DHCP Mode** from the **Communications** submenu and press **Enter**.
2. Press the ▲ and ▼ button to select **On** or **Off** and press **Enter** again.

You can also set the DHCP mode via an SIS commands (see the **DHCP mode commands** on page 79), the PCS software, or the internal web page (see **Network Settings Panel** on page 100).

- **IP Address** — Press the ◀ and ▶ buttons to select an octet of the IP address. Press the ▲ and ▼ buttons to adjust the value of the selected octet. The default is **192.168.254.254**.
- **Subnet Mask** — Press the ◀ and ▶ buttons to select an octet of the subnet mask address. Press the ▲ and ▼ buttons to adjust the value of the selected octet. The default is **255.255.255.0**.
- **Gateway** — Press the ◀ and ▶ buttons to select an octet of the gateway address. Press the ▲ and ▼ buttons to adjust the value of the selected octet. The default is **0.0.0.0**.

Front Panel Lockout (Executive Modes)

The switchers have three modes of front panel security lock that limit the operation of the device from the front panel.

- **Mode 0** — Unlocks front panel functions. This is the default setting.
- **Mode 1** — Locks all front panel functions. Pressing the **Menu** button in this mode causes the message **Executive Mode 1 Enabled** to appear on the display. This mode can be enabled or disabled by SIS commands (see the **Front Panel Lock (Executive Mode) commands** on page 75) and via PCS (see the **IN1804 Series PCS Help** file). All functions performed via USB, RS-232, or Ethernet remain available.
- **Mode 2** — Locks all front panel functions except input switching. Pressing the **Menu** button in this mode causes the message **Executive Mode 2 Enabled** to appear on the display. All functions performed via USB, RS-232, or Ethernet remain available.

To enable executive mode 2, press and hold the **Menu** and **Enter** buttons simultaneously for 2 seconds. This mode can be enabled or disabled by SIS commands (see the **Front Panel Lock (Executive Mode) commands**) and via PCS (see the **IN1804 Series PCS Help** file).

Input Presets

The IN1804 Series switchers have 128 memory slots in which you can save input presets. These presets allow a matrix switcher with multiple types of video inputs (such as an XTP) to be placed upstream from the IN1804 to expand the number of video sources.

Input presets can be saved and recalled through SIS commands (see the [Presets commands](#) on page 70) and through PCS (see the *IN1804 Series PCS Help File*).

- When you recall an input preset, it fills the output raster based on the sizing and positioning that it had at the time it was saved. For example, a video source that was configured to be zoomed when it was previously saved as a preset is still zoomed, even if recalled to a smaller output raster.
- Input presets can be saved based on one input rate and recalled to a different rate. This enables presets to be used as aspect ratio or other quick-sizing shortcuts. Because the size and position is saved as a percent of the raster, the preset can be recalled to any scaled output and the saved size and position are scaled proportionally on the output.

Values for the following settings are saved in input presets:

- | | |
|--|---|
| <ul style="list-style-type: none">• Preset name• Audio gain and attenuation• Film mode detection• Contrast• Brightness | <ul style="list-style-type: none">• Detail• Horizontal image position• Vertical image position• Horizontal image size (width)• Vertical image size (height) |
|--|---|

Saving a preset when using a matrix switcher

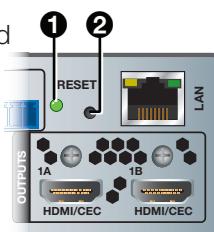
When using the IN1804 with a matrix switcher, do the following to save a preset:

1. Switch each input of the matrix to the IN1804.
2. Configure each input: size, position, detail, brightness, and contrast.
3. Save the settings to a preset for recall by the control system when that matrix input is routed to any IN1804 input.

Reset Modes

The IN1804 series switchers have three reset modes (numbered 1, 4, and 5). Use a small screwdriver or stylus to press and hold the recessed

Reset button on the rear panel (see **2** in the image at right) to advance through the modes. The Reset LED (**1**) blinks to indicate each mode that is enabled (see the [Reset Mode Summary table](#) on the next page for a description of the reset modes and how to select them).



You can also perform resets using the OSD (see [Factory Reset](#) on the Advanced submenu on page 40), SIS commands (see the [Resets commands](#) on page 77), and PCS (see the *IN1804 Series PCS Help file*).

ATTENTION:

- Review the reset modes carefully. Using the wrong reset mode may result in unintended loss of flash memory programming, port reassignment, or processor reboot.
- Étudier de près les différents modes de réinitialisation. Appliquer le mauvais mode de réinitialisation peut causer une perte inattendue de la programmation de la mémoire flash, une reconfiguration des ports ou une réinitialisation du processeur.

NOTE: The reset modes listed close all open IP and Telnet connections and all sockets. Each mode is a separate function, not a continuation from mode 1 to mode 5.

Reset Mode Summary			
Mode	Activation	Result	Purpose/Notes
Use Factory Firmware	<p>1 Using an Extron Tweaker or other small screwdriver, press and hold in the recessed Reset button for 30 seconds while applying power to the switcher.</p> <p>NOTE: After a mode 1 reset, update the device with the latest firmware version. DO NOT operate with the firmware version that results from this type of reset. This temporarily resets the device to factory default until power is recycled. To use factory default firmware, upload that version again.</p>	<p>The device reverts to the factory default firmware.</p> <ul style="list-style-type: none"> Firmware reverts to the factory default for a single power cycle. All user files and settings (drivers, audio and video adjustments, IP settings, and so on) are maintained. <p>NOTE: If you do not want to update the firmware or perform a mode 1 reset by mistake, cycle power to the device to return to the firmware version running prior to the reset.</p>	Use mode 1 to revert to the factory default version if incompatibility issues arise with user-loaded firmware.
Reset IP Settings	4 Hold down the Reset button until the Reset LED blinks twice (approximately 6 seconds). Then, press Reset momentarily (less than 1 second).	IP settings revert to factory defaults. <ul style="list-style-type: none"> Port mapping reverts to factory default. DHCP turns off. IP address is set to 192.168.254.254. Reset LED blinks four times in quick succession during reset. 	Use mode 4 to reset all IP settings back to factory defaults.
Reset to Factory Default	5 Hold down the Reset button until the Power LED blinks three times (approximately 9 seconds). Then, press Reset momentarily (less than 1 second).	The device reverts to the factory defaults except for firmware. <ul style="list-style-type: none"> Mode 4 results are performed. All user modifiable configurations are reset to default values including IP settings and real-time adjustments. All user loaded files are deleted. The Reset LED blinks 4 times in quick succession during the reset. 	Use mode 5 to restart with default configuration. This is equivalent to SIS command ZQQQ. This reset also removes the initial serial number password and sets it to no password.

RS-232 and IR Signal Insertion

The twisted pair input and output ports allow you to insert RS-232 and IR control signals onto the same cable that carries video and audio to extend them to the Over TP port on a connected endpoint (see [figure 31](#) on the next page, [figure 32](#) on page 46, and [figure 33](#) on page 47). The control signals can be inserted in the following ways:

- Ethernet to RS-232 insertion** (see [Ethernet to RS-232 Insertion](#) on the next page) — A control signal applied to the IN1804 LAN port can be routed to the RS-232 port of any connected twisted pair device. The RS-232 insert inputs and outputs inserted via Ethernet can support up to a 115K baud rate.
- Captive screw insertion** (see [Captive Screw IR Signal Insertion](#) on page 46) — (IR only) A control signal applied to the IR Over TP captive screw port is tied directly to the TP IN4 (DI and DI/DO models only) or to the TP Output 1A (DO and DI/DO models only). You must physically connect a cable to the captive screw connector where a control signal is to be inserted.

- **Unidirectional RS-232 insertion via SIS commands** (see [Unidirectional RS-232 Insertion via SIS Commands](#) on page 47) — A control signal can be inserted to the RS-232 port of any connected twisted pair device via SIS commands sent to the IN1804. This method is unidirectional, meaning that the unit receives no response from the device via the TP port.

Ethernet to RS-232 Insertion

Figure 31 is an example of an Ethernet to RS-232 insertion, in which an Extron controller provides control of an HD camera via the IN1804 DI and a DTP HDMI 4K 230 transmitter.

Configure this type of insertion as follows:

1. Connect a TP cable from the control system to the LAN port, directly or via a network.
2. 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 the next page).

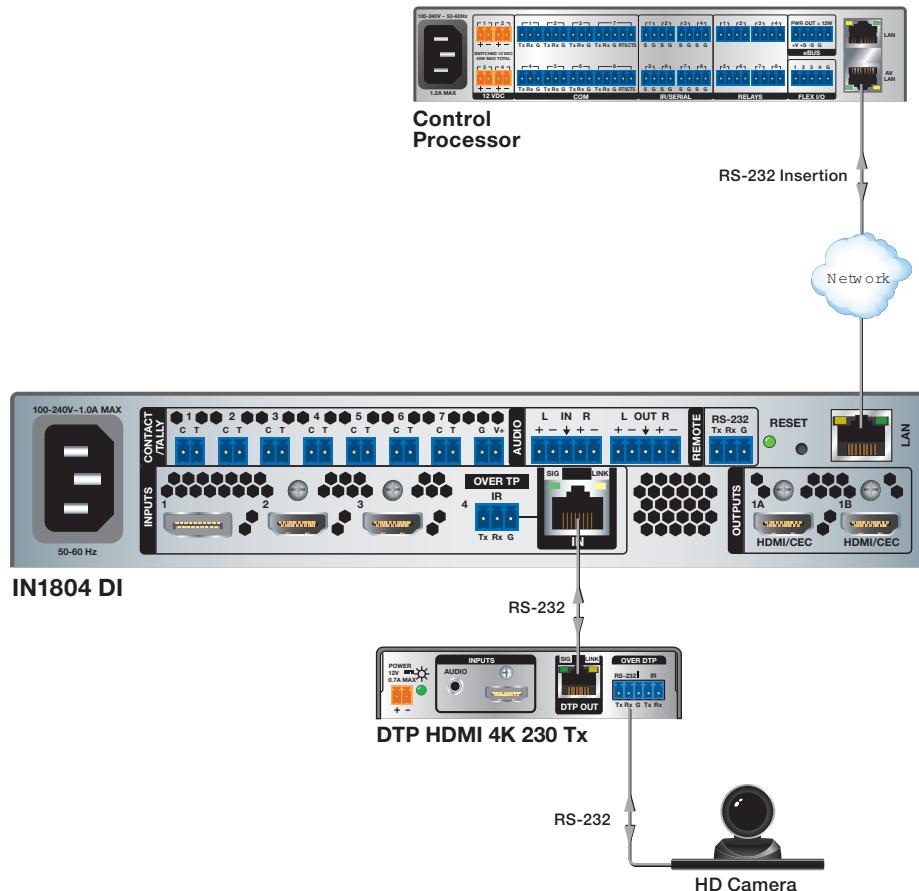


Figure 31. Typical Ethernet to RS-232 Insertion to an Input Endpoint

3. Connect the TP cable to the endpoint as usual.
4. Connect a serial cable from the endpoint to the device to be controlled.

Port number

For Ethernet to RS-232 insertion, the insertion port number must be stated from a specific UART start 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 input insertion port number is the UART start point + 1. The output insertion port number is the UART start point + 3. With the default UART start point of 2000, the input and output insertion ports are:

Input Port	Insertion Port	Output Port	Insertion Port
4	2001	1A	2003

Changing the starting point

By default the UART start point is 2000. You can change the starting port number by any of the following methods:

- Using the Product Configuration Software (see *IN1804 Series PCS Help* file)
- Using SIS commands (see the **Set UART start point SIS command** on page 77)

RS-232 protocol

You also may need to set the RS-232 protocol of the addressed port to match the connected device. You can do this using any of the following methods:

- Using the Product Configuration Software (see the *IN1804 Series PCS Help* file).
- Using SIS commands (see the **Serial Port Configuration SIS commands** on page 77).

Captive Screw IR Signal Insertion

Figure 32 shows an example of a typical captive screw Ethernet insertion, in which an Extron control system provides IR control of a display via the switcher. Configure this type of insertion as follows:

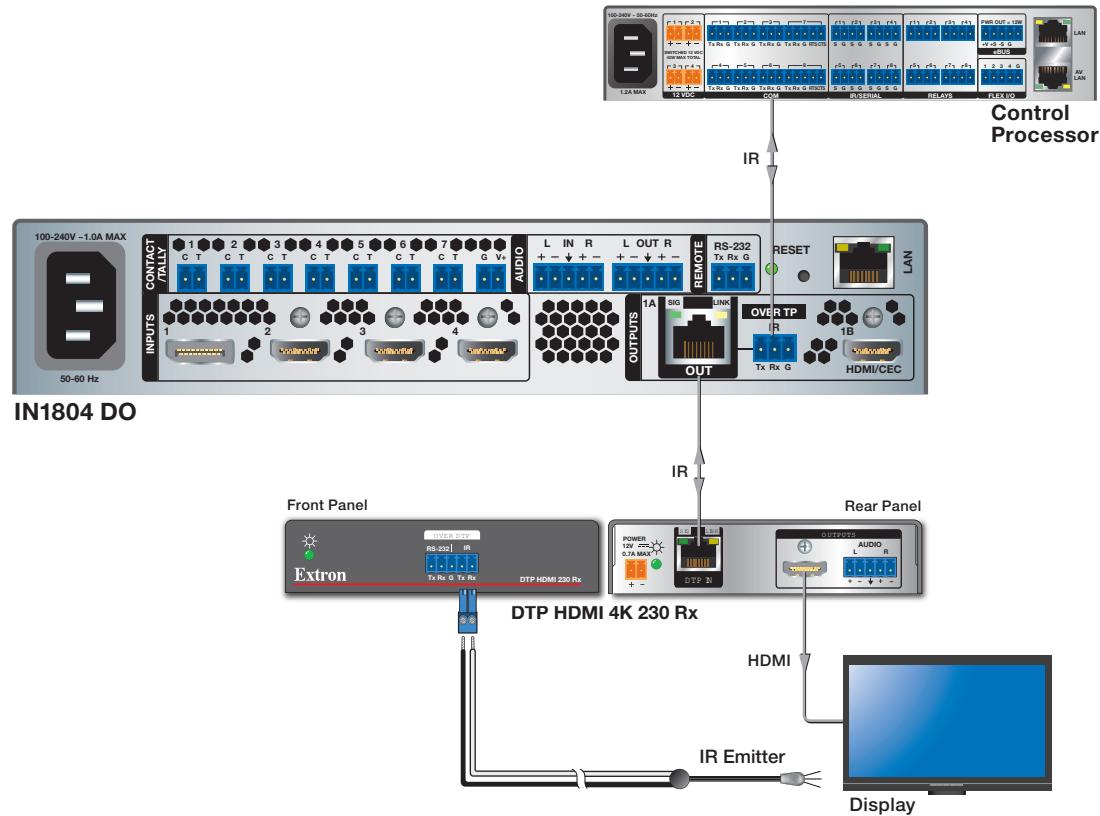


Figure 32. Typical Captive Screw Insertion to an Input Endpoint

1. Connect the control system to the Over TP IR captive screw port (output port 1A in this example).
2. Connect the TP cable from the IN1804 RJ-45 Out connector to the DTP input of the endpoint.
3. Connect the endpoint to the device to be controlled.
4. Wire an IR emitter to the IR connector of the twisted pair receiver and place the emitter on the display device.

Unidirectional RS-232 Insertion via SIS Commands

Figure 33 shows an example of a typical connection for unidirectional RS-232 insertion via SIS commands.

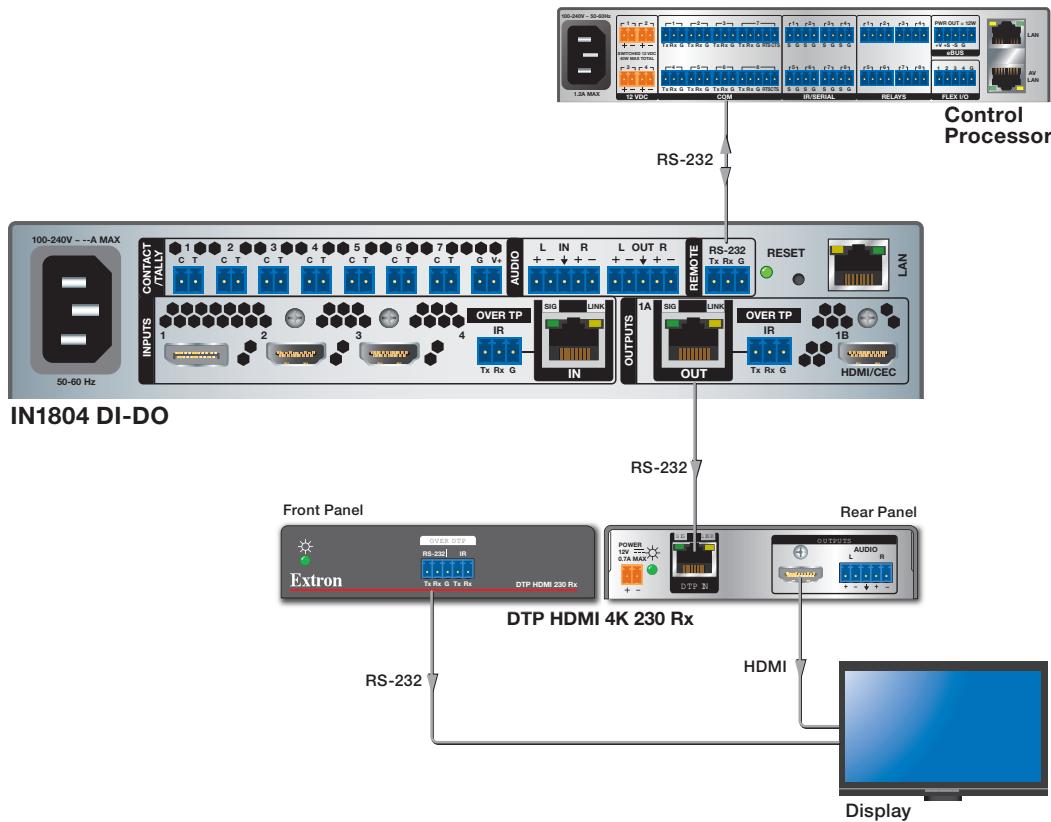


Figure 33. Typical Connection for Unidirectional RS-232 Insertion

1. Connect the control system to the Remote RS-232 port on the IN1804 rear panel.
2. Connect the TP cable from the IN1804 RJ-45 Out connector to the DTP input of the endpoint.
3. Connect the output of the endpoint to the device to be controlled.
4. Connect a serial cable from the Over DTP RS-232 port of the twisted pair receiver to the device to be controlled.

Entering SIS commands for RS-232 insertion

The following SIS command enables insertion of commands into an RS-232 data stream:

```
Esc +snds [X57] * [X33] ←  

<command being sent>
```

[X33] = number of characters in the command

[X57] = TP port number

The unit sends the command when it detects that the specified number of characters ([X33]) have been entered.

You can enter the SIS command through any means: Ethernet, USB, or an RS-232 connection. Any RS-232 command can be sent via this method. Typically, however, this command would be sent through an RS-232 connection to the Remote port on the IN1804.

In the following input selection example, 9 is the TP port and 13 is the number of characters in the command %1Bpoweron%0D (to select input 1):

```
Esc+snds9*13←  

%1Bpoweron%0D
```

SIS Configuration and Control

The IN1804 series switchers can be configured and controlled via Extron Simple Instruction Set (SIS) commands when connected to a host computer or other device (such as a control system). Attach the host device to the rear panel RS-232 connector or LAN connector, or to the front panel USB port. Commands can be entered using a Telnet application such as the Extron DataViewer, available at www.extron.com (see the *DataViewer Help* file for more details). The default protocol for the RS-232 connection is 9600 baud, 8 data bits, 1 stop bit, no parity, and no flow control. This section describes SIS communication and control. Topics in this section include:

- [Host and Switcher Communication](#)
- [SIS Overview](#)
- [Command and Response Tables for IN1804 SIS Commands](#)

Host and Switcher Communication

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command sequence. When the switcher determines that a command is valid, it executes the command and sends a response to the host device. All responses from the switcher to the host end with a carriage return and a line feed (CR/LF = ↴), indicating the end of the response character string (one or more characters).

Copyright Information

The copyright message is displayed upon connecting to a switcher via TCP/IP or Telnet or after a power cycle via RS-232, and depends on the switcher model.

↳ (c) Copyright YYYY, Extron Electronics, IN1804 <model>, Vn.n,
60-1699-nn↳
Ddd, DD MMM YYYY HH:MM:SS ↴ (day, date, and time as in Mon, 18 Oct 2018 11:27:33)

- *YYYY* is the year.
- *Vn.nn* is the firmware version number.
- *60-1699-nn* is the model part number.

Password Messages

If the IN1804 is protected by a password, the following password message prompts you for the password to access the switcher features.

↔Password↔

The prompt requires a password, followed by a carriage return. The prompt is repeated if the correct password is not entered.

- **For initial setup:** On the rear panel of the IN1804, a label is attached containing the following text:

Pursuant to California Senate Bill 327, the password for all accounts on this device have been set to the device serial number. Passwords are case sensitive. See user guide for reset instructions.

This means that, for initial setup, you must enter the serial number of your unit at the password prompt (the serial number can be found on another label on the rear panel). This password allows administrator level access.

If the correct password is entered, access is granted and the command prompt is displayed. If the password is incorrect, the ↔Password↔ prompt reappears.

NOTE: Performing a unit factory reset by entering a **ZQQQ SIS command** (see the Absolute system reset SIS command on page 77) or a **mode 5 reset** via the rear panel **Reset** button (see page 43) removes the serial number password, leaving the unit with no password.

- **After a password change:** After the initial access, you can keep the serial number password or change it. You can also set administrator and user level passwords (see the **Passwords SIS commands** on page 81).

When you enter the new password correctly, the unit responds with one of the following, depending on the password entered:

- ↔Login Administrator↔
- ↔Login User↔

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

The **Login Administrator** response represents administrator level access, while the **Login User** response represents user level access. If the passwords are the same for both administrator and user, the unit defaults to administrator privileges.

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

Switcher-Initiated Messages

When certain local events occur, such as a change in the status of a contact closure port, the switcher responds by sending a message to the host. No response is required from the host. The following messages may be sent:

- **Reconfig** A change in the current input frequency was detected.
- **Hplg0[X2]*[X70]** A hot plug event was detected on output **[X2]**.
For **[X70]**: 1 = assertion, 2 = de-assertion
- **HdcpI [X1]*[X44]** A change was detected in the HDCP status of input **[X1]**.
- **Hdcp0 [X2]*[X44]** A change was detected in the HDCP status of output **[X2]**.
- **IN00*[X61]*[X61]*[X61]** This message appears when a sync change (detected or removed) occurs on any input. **[X61]** is the video signal status for each input.
- **Psav9** The unit has entered power save mode due to an internal overheating.
- **Cntc[X75]*[X76]** Contact closure port **[X75]** (1 through 7) has changed status to **[X76]**.

See **Symbol Definitions** beginning on the next page for an explanation of the **X** variables in these messages.

Error Responses

When the switcher receives a valid command, it executes the command and sends a response to the host device. If the unit is unable to execute the command, it returns an error response to the host.

E01 — Invalid input number	E17 — Invalid command for signal type
E06 — Invalid switch attempt in this mode	E22 — Busy
E10 — Invalid command	E24 — Privilege violation
E11 — Invalid preset number	E25 — Device not present
E12 — Invalid port number	E26 — Maximum number of connections exceeded
E13 — Invalid parameter	E28 — Bad filename or File not found
E14 — Not valid for this configuration	E33 — Bad file type for logo

SIS Overview

Using the Command and Response Tables

The **Command and Response Tables** for SIS commands, beginning on page 60, lists the commands that the switcher recognizes as valid, the responses that are returned to the host, a description of the command function or the results of executing the command, and examples of commands in ASCII (Telnet).

ASCII to Hex Conversion Table												Esc	1B	CR	0D	LF	0A
Space →	20	!	21	"	22	#	23	\$	24	%	25	&	26	'	27		
(28)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F		
Ø	30	1	31	2	32	3	33	4	34	5	35	6	36	7	37		
8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F		
@	40	A	41	B	42	C	43	D	44	E	45	F	46	G	47		
H	48	I	49	J	4A	K	4B	L	4C	M	4D	N	4E	O	4F		
P	50	Q	51	R	52	S	53	T	54	U	55	V	56	W	57		
X	58	Y	59	Z	5A	[5B	\	5C]	5D	^	5E	-	5F		
'	60	a	61	b	62	c	63	d	64	e	65	f	66	g	67		
h	68	i	69	j	6A	k	6B	l	6C	m	6D	n	6E	o	6F		
p	70	q	71	r	72	s	73	t	74	u	75	v	76	w	77		
x	78	y	79	z	7A	{	7B		7C	}	7D	~	7E	DEL	7F		

Figure 34. ASCII to Hexadecimal Character Conversion Table

Symbol Definitions

NOTE: Upper- and lowercase text can be used interchangeably unless otherwise stated.

- = Space
- ← = Carriage return with line feed
- ← = Carriage return with no line feed
- | = Pipe (can be used interchangeably with the ← character)
- Esc** = Escape
- W = Can be used interchangeably with the **Esc** character

X1	= Input selection — 1 through 4	1 = DisplayPort input 1 (all models) 2 = HDMI or DVI input 2 (all models) 3 = HDMI or DVI input 3 (all models) 4 = HDMI or DVI input 4 (IN1804 standard, and IN1804 DO) TP (IN1804 DI and DI/DO)
X2	= Output connector	1 = TP Output 1A (IN1804 DO and DI/DO) HDMI output 1A (IN1804 and IN1804 DI)
X3	= Digital video format	2 = HDMI output 1B 0 = No signal 1 = DVI 2 = HDMI 3 = DisplayPort
X6	= Total lines	Response is four digits, padded with zeros.
X7	= Total pixels	Response is four digits, padded with zeros.
X8	= Active lines	Response is four digits, padded with zeros.
X9	= Active pixels	Response is four digits, padded with zeros.
X10	= Enable or disable	0 = Off or disabled 1 = On or enabled
X12	= Internal temperature	In degrees Celsius. Response is two digits, padded with a zero.
X13	= Horizontal and vertical frequencies	<i>nnn.nnn</i> Response is three digits with two decimal places, padded with zeros. (Example: 075.32)
X14	= Text label	Up to 32 characters but cannot contain , * or .

NOTES:

- Input presets saved without a name are given the default name **INPUT PRESET nnn**. The default logo name is **Logo nn** (for example, **Logo 05**)
- Entering a single space in the field repopulates it with the default name.

X15	= Picture adjustment	0-127 (default = 64)
X16	= Horizontal and vertical position (shift)	Horizontal: -4096 through +4096 Vertical: -2160 through +2160 <ul style="list-style-type: none"> • The response is five digits, padded with zeros and preceded by + or -. • The logo vertical position allows up to ± 2400.
X17	= Horizontal and vertical size	Horizontal = 10 to 8192 Vertical = 10 to 4320 The response is five digits, padded with zeros.
X20	= EDID file	128 or 256 bytes of binary data

X21 = EDID emulation or output rate 0 = Automatic (matches the current output resolution, default)
 1 = Output 1A (available for EDID export only)
 2 = Output 1B (available for EDID export only)
 10-76 = See the Input EDID table below.
 201 – 205 = Custom EDID or output rates 1 – 5.

Input EDID								
Resolution	23.98 Hz	24 Hz	25 Hz	29.97 Hz	30 Hz	50 Hz	59.94 Hz	60 Hz
640x480								10
800x600								11
1024x768								12
1280x768								13
1280x800								14
1280x1024								15
1360x768								16
1366x768								17
1440x900								18
1400x1050								19
1600x900								20
1680x1050								21
1600x1200								22
1920x1200								23
480p							24	25
576p						26		
720p			29	30	31	32	33	34
1080i						35	36	37
1080p	38	39	40	41	42	43	44	45**
2048x1080 (2K)	46	47	48	49	50	51	52	53
2048x1200								54
2048x1536								55
2560x1080								56
2560x1440								57
2560x1600								58
3840x2160	59	60	61	62	63	64***	65***	66***
4096x2160*****	69	70	71	73	73	74****	75****	76****
Automatic*	0* – Match current switcher output resolution							
Output 1A HDMI	1 (EDID export only)							
Output 1B HDMI	2 (EDID export only)							
Custom EDIDs	201 through 205							

*Default input EDID

**Default output resolution

***Rate supported only with 4:2:0 color sampling for IN1804 twisted pair models when in DTP, XTP, or HDBT mode. 4:4:4 sampling is available via HDMI outputs or DTP2 endpoints only.

****Rate available only with 4:2:0 color sampling when using any twisted pair output. 4:4:4 sampling is available via HDMI outputs only.

*****4096x2160 rates are available only for output resolution and cannot be selected for input EDID.

X22	= Test patterns	0 = Off (default) 1 = Crop 2 = Alternating pixels 3 = Crosshatch 4 = Color Bars 5 = Grayscale 6 = Audio test — Crop pattern with orbiting text AUDIO TEST and outputting pink noise at LPCM-2Ch, 48 Hz, 24-bit.
X26	= Input presets	1 through 128 Response is three digits, padded with zeros.
X28	= Output sync or OSD menu timeout	Number of seconds before output sync or the OSD menu times out. 1 through 500 seconds, in 1-second increments 0 = Output sync is instantly disabled with no active video from the selected input (not allowed for MDUR command). 60 = Default for the MDUR command. 501 = Output sync never times out (default for SSAV command).
X29	= Front Panel Lockout (executive) mode status	0 = Off or disabled (front panel controls fully accessible) (default). 1 = Mode 1 — Complete front panel lockout 2 = Mode 2 — Input switching only
X30	= Auto-input switch mode	0 = Disabled — Manual switching (default) 1 = User-defined priority mode — The switcher selects the input to which the user assigns priority. If no priority is assigned, the switcher selects the active priority input with the lowest number. 2 = Last connected mode — The switcher selects the most recently applied input, and retains a history of the order in which active inputs are connected to the unit. If an active input is removed, the switcher switches to the most recently prioritized input.
X31	= Auto-input switching priority	Input number for input switching priority. 1 = Input 1 2 = Input 2 3 = Input 3 4 = Input 4
X32	= Auto-input switch timeout	Number of seconds without video that elapse before switching to the previous input. 1 through 500 in 1-second increments 3 = Default 0 = Immediately switch to most recent input if the current input is removed.
X33	= Number of characters	Number of characters in the command being sent.

X34 = Verbose mode

0 = None (default for LAN connection)

1 = Verbose mode (default for RS-232 and USB connection)

2 = Tagged responses to queries

3 = Verbose mode and tagged responses

NOTES:

- In **verbose response** mode, the IN1804 returns unsolicited responses for value and setting changes that may result from a signal change, or a setting adjustment made via another interface.

Example: The IN1804 can send out a notice of a change in some setting without receiving a query via a PC or a control system. That change could have been a result of an internal process or a selection made via the PCS program. This is a verbose (wordy) relationship between the controller and a connected device.

- If **tagged responses** are enabled, all “view” commands return the command string plus the data, the same as in responses for setting a value. For example:

Command: **X1**

Response: Vtyp**X1*X3←** or **X3←**
(untagged)

X35 = Model name

IN1804, IN1804 DI, IN1804 DO, or IN1804 DI/DO

X36 = Part number

IN1804 (standard) — 60-1699-01 or 60-1699-11

IN1804 DI — 60-1699-02 or 60-1699-12

IN1804 DO — 60-1699-03 or 60-1699-13

IN1804 DI/DO — 60-1699-14

X39 = Aspect ratio setting

1 = Fill — Each input rate fills the entire output raster (default).

2 = Follow — Each input rate is displayed with its native aspect ratio.

X40 = Screen saver mode

1 = Black screen (default)

2 = Blue screen with OSD text

3 = User image on black screen

X42 = Video output mute

0 = Unmute

1 = Mute video to black screen

2 = Mute video and sync

X43 = User logo number

1 through 16. The response is three digits padded with leading zeros.

101 = No signal, screen saver user logo

201 = User HDCP logo

X44 = HDCP status

0 = No sink or source device detected

1 = Sink or source detected but no HDCP present

2 = Sink or source detected with HDCP

X45 = Video switch effect

0 = Cut through black — The input instantly cuts to black, then cuts to the newly selected input with no fading.

1 = Fade through black — The input fades to black before the newly selected input fades in.

2 = Seamless fade* (default) — Displays a final frozen frame of the previous input while the newly selected input fades in.

3 = Seamless cut* — The last frame of video freezes on the screen, then cuts to the newly selected input.

*See **Input Switch Effect** on page 39 for information on exceptions regarding Seamless effects.

X46 = HDCP output mode

0 = Off — Disable all HDCP authentication and encryption attempts.

1 = Follow input (default).

2 = Always encrypt.

3 = Follow input (with continuous authentication trials).

4 = Always encrypt (with continuous authentication trials).

0 = Black screen — Notification disabled (mute output)

1 = Green screen with OSD bug (orbiting message) (default)

2 = User image with black screen background

0* = Auto — HDMI RGB Full to a CEA sink, DVI to a non-CEA sink***

1* = DVI — RGB 444, 0-255. Valid for output rates up to 165 MHz.

2 = HDMI RGB Full — RGB 444

3 = HDMI RGB Limited — RGB 444

5 = HDMI YUV 444 Limited — YUV 444

7 = HDMI YUV 422 Limited — YUV 422

9** = HDMI YUV 420 Limited — Used for transmitting 4K @ 60 Hz at a 4K @ 30 Hz character rate.

* If the IN1804 is in DVI mode and a rate greater than 165 MHz is selected, the HDMI output defaults to HDMI RGB 444 Full.

** 420 formats are available only when the current HDMI output resolution is 4K/UHD @ 50, 59.94, or 60 Hz and use half the TMDS character rate.

If **X48** is set to 9 and the output rate is changed to a rate **other than** 4K/UHD @ 50, 59.95, or 60 Hz, **X48** is automatically set to 0, and an SIS response is broadcast.

*** DVI mode applies only up to a 165 MHz pixel clock.

-100 to 0 in 1 dB steps

Example: -100 = -100 dB and 0 = 0 dB

Default = -10

Response is three digits with a leading + or - sign.

1 = Dual mono

2 = Stereo (default)

X50 = Audio output volume

X51 = Audio output format

X52 = Audio input format

Format Selection	Details
0 =	None (input muted) — Configures input EDID with no audio support. All audio outputs are muted.
1 =	Analog input — Configures input EDID with no audio support. Analog audio from the 5-pole captive screw input is passed to the 5-pole captive screw analog output and embedded into the HDMI output.*
2 =	LPCM-2Ch — Configures input EDID for LPCM-2Ch support. Passes all digital audio input signals to the HDMI outputs. If LPCM-2Ch audio is present it is also de-embedded to the 5-pole captive screw analog output.
3 =	Multi-Ch — Configures input EDID for Multi-Ch support. Passes all digital audio input signals to the HDMI outputs. If LPCM-2Ch audio is present it is also de-embedded to the 5-pole captive screw analog output.
4 =	LPCM-2Ch Auto (default) — Configures input EDID for LPCM-2Ch support. Passes all digital audio input signals to the HDMI outputs. If LPCM-2Ch audio is present it is also de-embedded to the analog 5-pole captive screw output.
	If no embedded audio is present on the input the IN1804 passes analog audio from the 5-pole captive screw input.
5 =	Multi-Ch Auto — Configures input EDID for Multi-Ch support. Passes all digital audio input signals to the HDMI outputs. If LPCM-2Ch audio is present it is also de-embedded to the analog 5-pole captive screw output.
	If no embedded audio is present on the input, the IN1804 passes analog audio from the 5-pole captive screw input.

*On the IN1804 DI and DI/DO, when Input 4 is set to DTP mode, the switcher uses analog audio from the remote DTP transmitter instead of analog audio from the rear panel of the IN1804. Analog and Auto formats are not allowed on input 4 of the IN1804 DI and DI/DO when they are set to XTP mode.

X54 = Analog audio input gain
-18 through +24 dB
 θ = default
Response is two digits.

NOTE: On IN1804 DI and DI/DO, analog gain adjustment is not available on TP Input 4 (fixed at 0 dB).

X55 = Video signal status **0** = Video, TMDS, or DP signal not detected
 1 = Video, TMDS, or DP signal detected

X57 = Remote port number
1 = Remote port (3-pole captive screw)
4 = Universal asynchronous receiver-transmitter (UART) on DTP input 4 (IN1804 DI and DI/DO only)
9 = UART on DTP/HDBT output 1A (IN1804 DO and IN1804 DI/DO only)

X58 = Baud rate
300, 600, 1200, 1800, 2400, 3600, 4800, 7200,
9600 (default), 14400, 19200, 28800, 38400, 57600,
115200

X59 = Parity **Odd, Even, None (default), Mark, Space**
Only the first letter is required.

X60 = Data bits 7 or 8 (default)

X61 = Stop bits 1 (default) or 2

X62	= Power Save mode	0 = Full power mode (default) 1 = Lowest power state — TP remote power and TP links are disabled. Input LEDS 1 through 4 cycle at a 500 ms interval. 2 = Lower power mode — TP links remain active, including remote power, and Ethernet to RS-232 insertion. Input LEDS 1 through 4 cycle at a 500 ms interval. 9 = Low power state due to over-heating (query-response only)
X63	= Screen saver status	0 = Active input detected, timer not running 1 = No active input, timer running, output sync still active 2 = No active input, timer expired, output sync disabled Set time in seconds before the port connection times out. 1 (10 seconds) through 65000 (650,000 seconds) Default = 30 (300 seconds)
X64	= Port timeout	Start point for UART ports: TP IN4 = X65 + 1 (IN1804 DI and DI/DO only) TP OUT 1A = X65 + 3 (IN1804 DO and DI/DO only) Default = 2000
X65	= Start point for UART ports	0 = No remote power (default) 1 = DTP 2 = DTP2
X66	= DTP remote power	0 = DTP format (default) 1 = XTP format 2 = HDBaseT format
X67	= TP format	1 = A new sink has been connection (assertion) 2 = HDBaseT format (available only on Output 1A of the IN1804 DO and IN1804 DI/DO).
X70	= Hot plug change or detection	Local 5-pole captive screw analog output is muted for all IN1804 models
X71	= Audio output mute	1 = Local 5-pole captive screw analog audio output connectors are muted for all IN1804 models. Remote analog audio output connectors (DTP only) are muted on IN1804 DO and IN1804 DI/DO only 2 = Embedded TMDS audio output
X72	= Key effect variable	2 = Embedded TMDS audio output 0 = Transparency (available only when X74 = 1) 1 = Red of RGB key (available only when X74 = 2) 2 = Green of RGB key (available only when X74 = 2) 3 = Blue of RGB key (available only when X74 = 2) 4 = Level key (available only when X74 = 3)
X73	= Key effect setting	0 through 255
X74	= Key effect	0 = Disabled 1 = Transparency 2 = RGB key 3 = Level key 4 = Alpha key
X75	= Contact/Tally port number	1 through 7
X76	= Contact/Tally port mode and status	0 = Open 1 = Closed
X80	= Audio playback file slot number	1 through 16 Highest priority for playback is slot 1, descending to lowest priority slot 16.

X81	= Unit name	Unit name — A text string of up to 32 characters. • A-Z, 0-9, and the hyphen (-) are permitted. • The first character must be a letter . • The last character cannot be a hyphen. • Names are not case sensitive. • Space or blank characters are not permitted.
X82	= Playback state	0 = Stop or stopped 1 = Play or playing
X83	= Repeat	0 = No 1 = Yes
X84	= Playback delay	NOTE: Setting the repeat mode to 0 during continuous playback causes play to stop after the end of the current iteration.
X85	= Configuration type	Number of seconds to wait before the audio file repeats (valid only if X83 = 1 [repeat]). 1 through 300 (1-300 seconds delay between audio playbacks) 0 = No delay
X86	= Number of open connections	0 = IP configuration (ip.cfg) 2 = Unit-specific parameters (box.cfg) 0-<maximum number of open connections>
X87	= IP address	Format <i>nnn.nnn.nnn.nnn</i> Default = 192.168.254.254
X88	= Gateway IP address	Leading zeros in each of the four octets are optional in setting values, and are suppressed in returned values. Format <i>nnn.nnn.nnn.nnn</i> Default = 0.0.0.0
X89	= Subnet mask	Leading zeros in each of the four octets are optional in setting values, and are suppressed in returned values. Format <i>nnn.nnn.nnn.nnn</i> Default = 255.255.255.0
X90	= Hardware (MAC) address	Leading zeros in each of the four octets are optional in setting values, and are suppressed in returned values. 00-05-A6-xx-xx-xx
X91	= Password	<ul style="list-style-type: none"> • Length is 1-128 characters. • All human-readable characters are allowed except . • The password cannot be a single space. • Passwords are case-sensitive. • A user password cannot be assigned if no administrator password exists. An E14 error code is returned. • If the admin password is cleared, the user password is cleared as well.
X92	= Default unit name	Combination of the model name and the last three hexadecimal character pairs of the unit MAC address (Example: IN1804-D0-15-9E-B0)
X93	= Subnet mask in CISG commands	Prefix representing subnet mask bits (subnet mask value in CISG commands). Default = /24, which represents the default subnet mask, 255.255.255.0.

NOTE: Unless otherwise indicated, commands are **not** case-sensitive.

Command and Response Tables for IN1804 SIS Commands

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Input Configuration			
Input Selection			
Select input	[X1]!	In[X1]*All<--	Select input [X1].
View current input	!	[X1]<--	View the current input.
Input Video Format			
View detected input format	[X1]*\	[X3]<-- Verbose modes 2 and 3: Vtyp[X1]*[X3]<--	View video format [X3] of input [X1].
Input Name			
Write input name	[Esc][X1],[X14]NI<--	Nmi[X1],[X14]<--	Set name [X14] for input [X1].
View input name	[Esc][X1]NI<--	[X14]<--	View name [X14] assigned to input [X1].
Input EDID			
Specify an EDID value	[Esc]A[X1]*[X21]EDID<--	EdidA[X1]*[X21]<--	Assign EDID [X21] to input [X1].
View assigned EDID	[Esc]A[X1]EDID<--	[X21]<--	View EDID [X21] for input [X1].
Save the output EDID to a custom slot	[Esc]S[X2]*[X21]EDID<--	EdidS[X2]*[X21]<--	Save the EDID of output [X2] to [X21].
NOTE: For this command, [X21] can be 201 through 205 only.			
View EDID native resolution	[Esc]N[X21]EDID<--	nnnnxnnnn@nn.nnHz Verbose modes 2 and 3: EdidN[X21]* nnnnxnnnn@nn.nnHz	Show the resolution and refresh rate of EDID [X21].
Example:	EdidN013*1280x768 @59.87Hz		
Export EDID file	[Esc]E[X21],<filename>EDID<--	EdidE[X21]<--	Export EDID [X21] to <filename>.
Import EDID file	[Esc]I[X21],<filename>EDID<--	EdidI[X21]<--	Import EDID [X21] from <filename>.

NOTES:

- For the Import EDID file command, [X21] can be 201 through 205 only.
- <Filename> can optionally be a full path name. The EDID file format is .bin, with 128 or 256 bytes of binary data.
- Exporting a default EDID ([X21] value of 10 through 76) results in HDMI with LPCM-2Ch audio EDID being exported.

KEY:

[X1] = Input selection

1 = DisplayPort input 1 (all models)

2 = HDMI or DVI input 2 (all models)

3 = HDMI or DVI input 3 (all models)

4 = HDMI or DVI (standard and DO), TP (DI and DI/DO)

[X2] = Output

1 = TP Output 1A (IN1804 DO and DI/DO)

HDMI output 1A (IN1804 and IN1804 DI)

2 = HDMI output 1B

[X3] = Input digital video format (view only)

0 = No input signal detected, 1 = DVI, 2 = HDMI, 3 = DisplayPort

[X14] = Input name (text label)

Can contain up to 32 characters, **excluding**, (comma), *, and |.

[X21] = EDID emulation

See the **input EDID table** on page 53.

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Input Configuration (continued)			
Auto-Image			
Execute	1*0A	Img1*0←	Execute an Auto-Image for the current input (follows the current aspect ratio).
Execute and fill	1*1A	Img1*1←	Execute an Auto-Image and fill the output raster.
Execute and follow	1*2A	Img1*2←	Execute an Auto-Image and maintain the aspect ratio of the current input.
HDCP Authorize			
NOTE: DP Input 1 is fixed with HDCP Authorize enabled and cannot be configured.			
HDCP authorized	[Esc] E [X1]*[X10]HDCP←	HdcpE[X1]*[X10]←	Configure HDCP Authorize for input [X1].
Query HDCP authorized status	[Esc] E [X1]HDCP←	[X10]←	View HDCP Authorized setting for input [X1].
Input Aspect Ratio (per input)			
Set for fill	[Esc][X1]*1ASPR←	Aspr[X1]*1←	Set input [X1] to always fill the entire output raster.
Set to follow	[Esc][X1]*2ASPR←	Aspr[X1]*2←	Set input [X1] to maintain its current native aspect ratio.
View aspect setting	[Esc][X1]ASPR←	[X39]←	View current aspect ratio setting [X39] for input [X1].
Active Pixels and Lines			
View active pixels	[Esc][X1]APIX←	[X8]← <i>Verbose modes 2 and 3: Apix[X1]*[X8]←</i>	View active pixels [X8] on input [X1].
View active lines	[Esc][X1]ALIN←	[X9]← <i>Verbose modes 2 and 3: Alin[X1]*[X9]←</i>	View active lines [X9] on input [X1].
3:2, 2:2, and 24:1 Film Mode Detection			
Auto	[Esc][X1]*1FILM←	Film[X1]*1←	Enable automatic film mode detection for input [X1] (default).
Off	[Esc][X1]*0FILM←	Film[X1]*0←	Disable film mode detection for input [X1].
View film mode setting	[Esc][X1]FILM←	[X10]←	View the film mode setting for input [X1].
KEY:			
[X1]	Input selection	1 = DisplayPort input 1 (all models) 2 = HDMI or DVI input 2 (all models) 3 = HDMI or DVI input 3 (all models) 4 = HDMI or DVI (standard and DO models) TP (IN1804 DI and DI/DO)	
[X8]	Active pixels	Response is four digits, padded with zeros.	
[X9]	Active lines	Response is four digits, padded with zeros.	
[X10]	On or Off status	0 = Off or disabled 1 = On or enabled (default)	
[X39]	Aspect ratio setting	1 = Fill — Each input rate fills the entire output raster (default) 2 = Follow — Each input rate is displayed with its native aspect ratio.	

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Input Configuration (continued)			
Auto-input Switch Mode			
Set the auto-input switch mode	<code>[Esc][X30]AUSW←</code>	Ausw[X30]←	Set the auto-input switch mode to [X30].
View auto-input switch mode	<code>[Esc]AUSW←</code>	[X30]←	View current auto-input switch mode [X30].
Set user priority order for auto-input switch mode 1	<code>[Esc]P[X31]•[X31]•[X31]•[X31]AUSW←</code>	AuswP[X31]•[X31]•[X31]•[X31]←	Set the input priority switching order, highest priority (first) to lowest (last).
NOTE: The Set Priority command returns an E13 error code unless the correct number of [X31] variables are entered.			
View mode 1 priority order	<code>[Esc]P AUSW←</code>	[X31]•[X31]•[X31]•[X31]←	View the order in which the inputs will be selected in auto-input switch mode 1 (highest to lowest priority).
Set timeout	<code>[Esc]T[X32]AUSW←</code>	AuswT[X32]←	Set the amount of time without video to switch to the previous input.
View timeout	<code>[Esc]TAUSW←</code>	[X32]←	View the auto-input switch timeout duration in seconds.
KEY:			
<code>[X30]</code> = Auto-input switch mode	<p>0 = Disabled — Manual switching (default)</p> <p>1 = User-defined priority mode — The switcher selects the input to which the user assigns priority. If no priority is assigned, the switcher selects the active input with the lowest number.</p> <p>2 = Last connected mode — The switcher selects the most recently applied input, and retains a history of the order in which active inputs are connected to the unit. If an active input is removed, the switcher switches to the most recently prioritized input.</p>		
<code>[X31]</code> = Input number for setting user priority	Arrange input numbers in user priority order. 1 = input 1, 2 = input 2, 3 = input 3, 4 = input 4		
<code>[X32]</code> = Auto-input switch timeout	Amount of time without video that elapses before switching to the input with the next priority. 1 through 500 (in 1-second increments, default = 3 seconds) 0 = Immediately switch to the input with the next priority if the current input is removed.		

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Picture Adjustments			
Freeze			
Enable	1*1F	Frz1*1←	Freeze the output on the screen.
Disable	1*0F	Frz1*0←	Unfreeze the output.
View	1F	X10←	Show the freeze status of the output.
KEY:			
X10 = On or Off status		0 = Off or disabled	
		1 = On or enabled (default)	
Contrast			
Set a specific value	[Esc]X1*X15CONT←	ContX1*X15←	Set the range of image light and dark values (contrast level) to X15 for input X1.
Increment contrast value	[Esc]X1+CONT←	ContX1*X15←	Increment contrast level X15 for input X1.
Decrement value	[Esc]X1 - CONT←	ContX1*X15←	Decrement contrast level X15 for input X1.
View contrast	[Esc]X1CONT←	X15←	View the current contrast level for input X1.
Brightness			
Set a specific value	[Esc]X1*X15BRIT←	BritX1*X15←	Set the intensity of video light on the screen (brightness level) to X15 for the current input.
Increment value	[Esc]X1+ BRIT←	BritX1*X15←	Increment brightness level X15 for input X1.
Decrement value	[Esc]X1 - BRIT←	BritX1*X15←	Decrement contrast level X15 for input X1.
View	[Esc]X1BRIT←	X15←	View the current brightness level for input X1.
Detail Filter			
Set detail level	[Esc]1*X15HDET←	Hdet1*X15←	Specify the detail (sharpness) level to X15.
Increment value	[Esc]1+HDET←	Hdet1*X15←	Increment the detail level.
Decrement	[Esc]1-HDET←	Hdet1*X15←	Decrement the detail level.
View	[Esc]1HDET←	X15←	View current detail setting X15 for the input.
KEY:			
X1 = Input selection		1 = DisplayPort input 1 (all models)	
		2 = HDMI or DVI input 2 (all models)	
		3 = HDMI or DVI input 3 (all models)	
		4 = HDMI or DVI (standard and DO models) TP (IN1804 DI and DI/DO)	
X15 = Picture adjustment		0-127 (default = 64)	

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Picture Adjustments (continued)			
Horizontal Position (Shift) — Image			
Specific value	<code>[Esc]I1*[X16]HCTR←</code>	<code>HctrI1*[X16]←</code>	Set the horizontal position of the image in relation to the top left corner of the output raster to [X16] .
Increment value	<code>[Esc]I1+HCTR←</code>	<code>HctrI1*[X16]←</code>	Shift the image right 1 pixel.
Decrement value	<code>[Esc]I1-HCTR←</code>	<code>HctrI1*[X16]←</code>	Shift the image left 1 pixel.
View	<code>[Esc]I1HCTR←</code>	<code>[X16]←</code>	View image horizontal centering value [X16] .
Vertical Position (Shift) — Image			
Specific value	<code>[Esc]I1*[X16]VCTR←</code>	<code>VctrI1*[X16]←</code>	Set the vertical position of the image in relation to the top left corner of the output raster to [X16] .
Increment value	<code>[Esc]I1+VCTR←</code>	<code>VctrI1*[X16]←</code>	Shift the image down by 1 line.
Decrement value	<code>[Esc]I1-VCTR←</code>	<code>VctrI1*[X16]←</code>	Shift the image up by 1 line.
View	<code>[Esc]I1VCTR←</code>	<code>[X16]←</code>	View image vertical centering value [X16] .
Horizontal Size — Image			
Specific value	<code>[Esc]I1*[X17]HSIZ←</code>	<code>HsiziI1*[X17]←</code>	Set the horizontal size (width) of the image to [X17] .
Increase horizontal size	<code>[Esc]I1+HSIZ←</code>	<code>HsiziI1*[X17]←</code>	Widen the image by 1 pixel.
Decrease horizontal size	<code>[Esc]I1-HSIZ←</code>	<code>HsiziI1*[X17]←</code>	Narrow the image by 1 pixel.
View	<code>[Esc]I1HSIZ←</code>	<code>[X17]←</code>	View image horizontal size [X17] .
Vertical Size — Image			
Specific value	<code>[Esc]I1*[X17]VSIZ←</code>	<code>VsiziI1*[X17]←</code>	Set the vertical size (height) of the image to [X17] .
Increase vertical size	<code>[Esc]I1+VSIZ←</code>	<code>VsiziI1*[X17]←</code>	Make the image taller by 1 line.
Decrease vertical size	<code>[Esc]I1-V SIZ←</code>	<code>VsiziI1*[X17]←</code>	Shorten the image by 1 line.
View	<code>[Esc]I1VSIZ←</code>	<code>[X17]←</code>	View image vertical size [X17] .
Compound Image Position and Size — Image			
Specific value	<code>[Esc]1,[X16]*[X16]*[X17]*[X17]XIMG←</code>	<code>Ximg1,[X16]*[X16]*[X17]*[X17]←</code>	Set the horizontal (x) and vertical (y) position ([X16]) and horizontal and vertical size ([X17]) for the image.
View	<code>[Esc]1XIMG←</code>	<code>[X16]*[X16]*[X17]*[X17]←</code>	View x, y position and x, y size for image.
KEY:			
[X16]	= Horizontal and vertical position (shift) [X17] = Horizontal and vertical size		
	$H = -4096 \text{ to } +4096$, $V = -2160 \text{ to } +2160$ The response is five digits, padded with zeros and preceded by + or -. $H = 10 \text{ to } 8192$ $V = 10 \text{ to } 4320$ The response is five digits, padded with zeros.		

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Output Configuration			
Output Video Mute			
Mute output video	X2* 1B	VmtX2*1←	Mute video output X2.
Unmute output video	X2* 0B	VmtX2*0←	Unmute video output X2.
Mute video and sync	X2* 2B	VmtX2*2←	Mute video and sync on output X2.
View mute status	X2* B	X42←	View video mute status X42 for output X2.
Video Mute — All Outputs			
Mute all outputs	1B	Vmt1←	Mute video on all outputs.
Mute sync and video	2B	Vmt2←	Mute video and sync on all outputs.
Unmute video and sync	0B	Vmt0←	Display all outputs.
View global mute	B	X42•X42← Verbose modes 2 and 3: VmtX42•X42←	View video mute status X42 of both outputs.
NOTE: Video is unmuted (default) after a power cycle.			
KEY:			
X2 = Output			1 = TP Output 1A (IN1804 DO and DI/DO) HDMI output 1A (IN1804 and IN1804 DI)
X42 = Output video mute			2 = HDMI output 1B 0 = Unmute video 1 = Mute video to black screen 2 = Mute video and sync
Output Rate			
Set output rate	Esc 1*X21RATE←	Rate1*X21←	Select output resolution and refresh rate X21.
View output rate	Esc 1RATE←	X21←	View the selected output rate.
KEY:			
X21 = Output rate			See the Input EDID table on page 53 for the X21 rates.

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Output Configuration (continued)			
TMDS Output Format			
Set output format	<code>[Esc][X2]*[X48]VTP0←</code>	Vtpo[X2]*[X48]←	Set the colorspace and format for HDMI output X2 to X48 .
View format setting	<code>[Esc][X2]VTP0←</code>	[X48]←	View the current output colorspace and format for output X2 .
View auto output format	<code>[Esc][X2]*VTP0←</code>	[X48]←	View the output format when X48 is set to 0 (Auto). (Responses can be 1 through 9 .)

KEY:

X2 = Output

1 = TP Output 1A (IN1804 DO and DI/DO)
HDMI output 1A (IN1804 and IN1804 DI)

2 = HDMI output 1B

X48 = HDMI output format and colorspace

0* = Auto — HDMI RGB Full to a CEA sink, DVI to a non-CEA sink***

1* = DVI — RGB 444, 0-255, no audio, no InfoFrames. Valid for output rates up to 165 MHz.

2 = HDMI RGB Full — RGB 444

3 = HDMI RGB Limited — RGB 444

5 = HDMI YUV 444 Limited — YUV 444

7 = HDMI YUV 422 Limited — YUV 422

9** = HDMI YUV 420 Limited — Used for transmitting 4K @ 60 Hz at a 4K @ 30 Hz character rate.

* If the IN1804 is in DVI mode and a rate greater than 165 MHz is selected, the HDMI output defaults to HDMI RGB 444 Full.

** 420 formats are available only when the current HDMI output resolution is 4K/UHD @ 50, 59.94, or 60 Hz and use half the TMDS character rate.

If **X48** is set to **9** and the output rate is changed to a rate other than 64-66 Hz or 74-76 Hz, **X48** is automatically set to **0**, and an SIS response is sent.

*** DVI mode applies only up to a 165 MHz pixel clock.

Power Save

Set power save mode `[Esc][X62]PSAV←` Psav[X62]← Set the power save mode to **X62**.

View power save mode `[Esc]PSAV←` [X62]← View the current power save mode.

NOTE: If the unit overheats, it enters PSAV mode 9 (functionally equivalent to mode 1) and sends an unsolicited message to all ports. All normal PSAV mode 1 functionality applies when the unit is in mode 9.

You cannot set the unit to mode 9 manually, it enters that mode only when overheated.

KEY:

X62 = Power save mode

0 = Full power mode (default)

1 = Lowest power state — TP remote power and TP links are disabled. Input LEDs 1 through 4 cycle at a 500 ms interval.

2 = Lower power mode — TP links remain active, including remote power, and Ethernet to RS-232 insertion. Input LEDs 1 through 4 cycle at a 500 ms interval.

9 = Low power state due to over-heating (query-response only)

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description			
Output Configuration (continued)						
Screen Saver						
Set mode	<code>[Esc]M1*[X40]SSAV←</code>	<code>SsavM1*[X40]←</code>	Set the screen saver mode for the output to X40 .			
View mode	<code>[Esc]M1 SSAV←</code>	<code>[X40]←</code>	View the screen saver mode X40 for the output. Default = 1 (black).			
Set screen saver duration before output sync timeout	<code>[Esc]T1*[X28]SSAV←</code>	<code>Ssav T1*[X28]←</code>	Set the screen saver timeout duration to X28 seconds. Default = 501 (never).			
View screen saver duration before output sync timeout	<code>[Esc]T1SSAV←</code>	<code>[X28]←</code>	View screen saver timeout duration X28 .			
View screen saver status	<code>[Esc]S1SSAV←</code>	<code>[X63]←</code> Verbose modes 2 and 3: <code>Ssav S 1*[X63]←</code>	View screen saver status X63 .			
OSD Menu Duration						
Set OSD duration	<code>[Esc][X28]MDUR←</code>	<code>Mdur[X28]←</code>	Set the OSD menu duration to X28 .			
View OSD duration	<code>[Esc]MDUR←</code>	<code>[X28]←</code>	View the OSD menu duration.			
KEY:						
X28	Output sync or OSD menu timeout					
	Number of seconds before output sync or the OSD menu times out. 1 through 500 seconds, in 1-second increments					
	0 = Output sync is instantly disabled with no active video from the selected input (not allowed for MDUR command).					
	60 = Default for the MDUR command.					
	501 = Output sync never times out (default for SSAVE command).					
X40	Screen saver mode					
	1 = Black screen (default) 2 = Blue screen with OSD text 3 = User image on black screen					
X63	Screen saver status					
	0 = Active input detected, timer not running 1 = No active input, timer running, output sync still active 2 = No active input, timer expired, output sync disabled					
Logos						
Logo Assignment						
Select image file	<code>[Esc]A[X43],filename LOGO←</code>	<code>LogoA[X43],filename←</code>	Assign logo <i>filename</i> to logo slot X43 .			
NOTES:						
<ul style="list-style-type: none"> The <i>filename</i> must consist of a full path name if the file is not in the /Graphics directory. The file name must include the extension (.png, .bmp, .jpg, .gif, .tif, and so on). If the file is not in the /Graphics directory, include a / before the filename to indicate that it is in the root directory. Example: /Logo123.bmp. 						
View selected logo file	<code>[Esc]A[X43]LOGO←</code>	<code>filename←</code>	View the logo filename assigned to logo X43 .			
KEY:						
X43	User logo number					
	1 through 16. The response is three digits padded with leading zeros.					
	101 = No signal, screen saver user logo or image is displayed.					
	201 = User HDCP logo displayed					

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Logos (continued)			
Clear Logo			
Clear logo slot	[Esc]X3*[X43]PRST←	PrstX3*[X43]←	Clear logo slot [X43] and change its name to [unassigned].
Logo Name			
Write name	[Esc]L[X43], [X14]UNAM←	Unam L[X43], [X14]←	Assign logo name [X14] to logo [X43].
View logo name	[Esc]L[X43]UNAM←	[X14]←	View the name assigned to logo [X43].
Logo Availability			
View logo availability	[Esc]Q LOGO←	<16 characters>*<1 character>*<1 character>← <i>Verbose modes 2 and 3:</i> Logo Q <16 characters>*<1 character>*<1 character>←	 1 = saved, 0 = empty
NOTE: The first 16 digits denote logo images, the digit immediately following the first * indicates the screen saver logo, and the last digit (following the second *) indicates the HDCP logo.			
Logo On or Off			
Disable logo	[Esc]E1*0LOGO←	LogoE1*0←	Disable display of the current full screen notification logo.
Enable logo	[Esc]E1*[X43]LOGO←	LogoE1*[X43]←	Display the logo assigned to slot [X43].
View logo status	[Esc]E 1LOGO←	[X43]←	View logo slot [X43] for which the logo is enabled.
Horizontal Shift (Logo)			
Specific value	[Esc]L[X43]*[X16]HCTR←	HctrL [X43] * [X16]←	Set the horizontal centering of logo [X43] to [X16].
Increment value	[Esc]L[X43]+HCTR←	HctrL[X43]*[X16]←	Shift logo right 1 pixel.
Decrement value	[Esc]L[X43] - HCTR←	HctrL[X43]*[X16]←	Shift logo left 1 pixel.
View	[Esc]L[X43]HCTR←	[X16]←	View horizontal centering value [X16].
Vertical Shift (Logo)			
Specific value	[Esc]L[X43]*[X16]VCTR←	VctrL[X43]*[X16]←	Set the vertical centering of logo [X43] to [X16].
Increment value	[Esc]L[X43]+VCTR←	VctrL[X43]*[X16]←	Shift logo down 1 pixel.
Decrement value	[Esc]L[X43] - VCTR←	VctrL[X43]*[X16]←	Shift logo up 1 pixel.
View	[Esc]L[X43]VCTR←	[X16]←	View vertical centering value [X16].
KEY:			
[X14] = Logo name (text label)			
[X16] = Horizontal or vertical position (shift)			
[X43] = User logo number			
Up to 32 characters, excluding , (comma) , *, and . The position is ± the horizontal or vertical position of the highest output resolution.			
<ul style="list-style-type: none"> • Response is five digits, padded with zeros and preceded by + or -. • The logo vertical position allows up to ± 2400. 			
1 through 16. The response is three digits padded with leading zeros.			
101 = No signal, screen saver user logo or image is displayed.			
201 = User HDCP logo displayed			

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Logos (continued)			
Logo Key Effect			
Disabled	[Esc] X43*0 LKEF←	LkefX43*0←	Disable key effect for logo X43.
Transparency	[Esc] X43*1 LKEF←	LkefX43*1←	Enable transparency for logo X43.
RGB Key	[Esc] X43*2 LKEF←	LkefX43*2←	Enable RGB key for logo X43.
Level Key	[Esc] X43*3 LKEF←	LkefX43*3←	Enable Level key for logo X43.
Alpha Key	[Esc] X43*4 LKEF←	LkefX43*4←	Enable Alpha key for logo X43.
View setting	[Esc] X43LKEF←	X74← Verbose modes 2 and 3: LkefX43*X74←	View current key effect X74 for logo X43.
Logo Key Effect Level			
Specific value	[Esc] X43*[X72]*[X73]*LKEY←	LkeyX43*[X72]*[X73]←	Set the level for key effect variable X72 to X73 for logo X43.
View setting	[Esc] X43*[X72]LKEY←	X73←	View level X73 set for key effect variable X72 for logo X43.
KEY:			
X16	= Horizontal or vertical position (shift)	The position is ± the horizontal or vertical position of the highest output resolution.	
X43	= User logo number	• Response is five digits, padded with zeros and preceded by + or -. • The logo vertical position allows up to ± 2400. 1 through 16. The response is three digits padded with leading zeros. 101 = No signal, screen saver user logo or image is displayed. 201 = User HDCP logo displayed	
X72	= Key effect variable	0 = Transparency (available only when X74 = 1) 1 = Red of RGB key (available only when X74 = 2) 2 = Green of RGB key (available only when X74 = 2) 3 = Blue of RGB key (available only when X74 = 2) 4 = Level key (available only when X74 = 3)	
X73	= Key effect setting	0 through 255	
X74	= Key effect	0 = Disable, 1 = Transparency, 2 = RGB key, 3 = Level key, 4 = Alpha key	

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description												
Presets															
Input Presets															
<table border="1"> <thead> <tr> <th colspan="2">Values Saved in Input Presets</th> </tr> </thead> <tbody> <tr> <td>Preset Name</td><td>Detail</td></tr> <tr> <td>Audio Gain and Attenuation</td><td>H Image Position</td></tr> <tr> <td>Film Mode Detection</td><td>V Image Position</td></tr> <tr> <td>Contrast</td><td>H Image Size</td></tr> <tr> <td>Brightness</td><td>V Image Size</td></tr> </tbody> </table>				Values Saved in Input Presets		Preset Name	Detail	Audio Gain and Attenuation	H Image Position	Film Mode Detection	V Image Position	Contrast	H Image Size	Brightness	V Image Size
Values Saved in Input Presets															
Preset Name	Detail														
Audio Gain and Attenuation	H Image Position														
Film Mode Detection	V Image Position														
Contrast	H Image Size														
Brightness	V Image Size														
Recall preset	2*[X26].	2Rpr[X26]←	Recall input preset [X26] for the selected input.												
Save preset	2*[X26],	2Spr[X26]←	Save input preset [X26] for the selected input.												
Delete preset	[Esc]X2*[X26]PRST←	PrstX2*[X26]←	Clear input preset [X26] and set its name to [unassigned].												
Input Preset Name															
Write name	[Esc]2*[X26],[X14]PNAM←	Pnam2*[X26],[X14]←	Set the name of input preset [X26] to [X14].												
View name	[Esc]2*[X26]PNAM←	[X14]←	View the name ([X14]) of input preset [X26].												
NOTE: Unsaved input presets are shown as [unassigned]. To restore a default input preset name (with the format Input Preset nnn with leading zeros), enter a single space character for [X14]. These entries are valid only for previously saved presets.															
Auto Memories															
Enable	[Esc]X1*1AMEM←	Amem[X1]*1←	Set Auto Memory to On (default state) for input [X1]. Settings are automatically stored as presets. Previous settings for the incoming signal are recalled.												
Disable	[Esc]X1*0 AMEM ←	Amem[X1]*0 ←	Set Auto Memory to Off for input [X1]. Manual recall of input presets is required to configure the input.												
View setting	[Esc] 1 AMEM ←	[X10]← Verbose modes 2 and 3: Amem[X1]*[X10]←	View current Auto Memory status [X10] for input [X1].												
KEY: <ul style="list-style-type: none"> [X10] = On or off, enable or disable [X14] = Preset name (text label) [X26] = Input preset number 0 = Off or disabled 1 = On or enabled Up to 32 characters, excluding, (comma), *, and . 1 through 128. Response is three digits, padded with zeros. 															

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Audio Configuration			
Audio Input Format			
Set input audio format	<code>Esc I[X1]*[X52]AFMT←</code>	<code>AfmtI[X1]*[X52]←</code>	Set the audio format for input X1 to X52 .
View audio input format	<code>Esc I[X1]AFMT←</code>	<code>[X52]←</code>	View audio input format X52 for input X1 .
NOTE: Digital auto modes 4 and 5 detect and use embedded digital audio when present. If digital audio is not detected, analog audio is used.			
KEY:			
X1 = Input selection	1 = DisplayPort input 1 (all models) 2 = HDMI or DVI input 2 (all models) 3 = HDMI or DVI input 3 (all models) 4 = HDMI or DVI (standard and DO models) TP (IN1804 DI and DI/DO)		
X52 = Audio input format	0 = None (input muted) 1 = Analog input — Configures input EDID with no audio support. Analog audio from the 5-pole captive screw input is passed to the 5-pole captive screw analog output and embedded into the HDMI output.) 2 = LPCM-2Ch — Configures input EDID for LPCM-2Ch support. Passes all digital audio input signals to the HDMI outputs. If LPCM-2Ch audio is present it is also de-embedded to the 5-pole captive screw analog output. 3 = Multi-Ch — Configures input EDID for Multi-Ch support. Passes all digital audio input signals to the HDMI outputs. If LPCM-2Ch audio is present it is also de-embedded to the 5-pole captive screw analog output. 4 = LPCM-2Ch Auto (default) — Configures input EDID for LPCM-2Ch support. Passes all digital audio input signals to the HDMI outputs. If LPCM-2Ch audio is present it is also de-embedded to the analog 5-pole captive screw output. If no embedded audio is present on the input the IN1804 passes analog audio from the 5-pole captive screw input.* 5 = Multi-Ch Auto — Configures input EDID for Multi-Ch support. Passes all digital audio input signals to the HDMI outputs. If LPCM-2Ch audio is present it is also de-embedded to the analog 5-pole captive screw output. If no embedded audio is present on the input, the IN1804 passes analog audio from the 5-pole captive screw input.		
	*On Input 4 of the IN1804 DI and DI/DO, when set to DTP mode the switcher uses the analog audio source connected to the DTP Tx instead of the IN1804 DI or DI/DO rear panel captive screw input. When Input 4 is set for XTP mode, analog and auto audio modes are not available.		

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Audio Configuration (continued)			
Audio Output Mute			
Enable global audio mute	1Z	Amt1 ↵	Mute all audio outputs.
Disable global audio mute	0Z	Amt0 ↵	Unmute audio on all outputs.
Enable or disable discrete mute	X71*X10 Z	AmtX71*X10 ↵	Set mute of audio output X71 to X10.
View discrete mute status	X71 *Z	X10 ↵ Verbose modes 2 and 3: AmtX10 ↵	View mute status X10 of audio output X71.
View global mute status	Z	X10•X10 ↵ Verbose modes 2 and 3: AmtX10•X10 ↵	View audio mute status X10 of both outputs.
NOTE: Audio mute settings persist after a power cycle.			
KEY:			
X10	= On or off, enable or disable	0	= Audio unmuted (default), 1 = Audio muted
X71	= Audio output mode	1	= Local and remote (DTP only) 5-pole captive screw analog audio output connectors (applies to IN1804 DO only)
		2	= Embedded TMDS audio output
Audio Input Gain and Attenuation (analog audio only)			
Set audio input gain or attenuation	X54 G	AudX54 ↵	Set the audio gain or attenuation on the analog input to X54.
Increment	+G	AudX54 ↵	Increase audio level by 1 to X54.
Decrement	-G	AudX54 ↵	Decrease audio level by 1 to X54.
View gain	G	X54 ↵	View audio gain level of the current input.
Volume			
Set volume	X50 V	VolX50 ↵	Set the output volume to X50.
Increment volume	+V	VolX50 ↵	Increase the output volume by 1.
Decrement volume	-V	VolX50 ↵	Decrease the output volume by 1.
View volume	V	X50 ↵	View current volume setting X50.
Audio Output Format			
Set audio output format	Esc0*X51 AFMT ↵	Afmt01*X51 ↵	Set the audio output format to X51.
View audio output format	Esc01AFMT ↵	X51 ↵	View audio output format X51.
KEY:			
X50	= Audio output volume	-100 to 0 in 1 dB steps. Default = -10 dB. Example: -100 = -100 dB and 0 = 0 dB.	
X51	= Audio output format	1 = Dual mono 2 = Stereo (default)	
X54	= Audio input gain or attenuation	-18 through +24 dB	

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Audio Configuration (continued)			
Configure Playback			
Set file-to-slot association	<code>[Esc]A[X80],<filename>CPLY←</code> <code>CplyA[X80],<filename>←</code>		Assign a file to slot X80 . <filename> can include an optional path.
NOTES:			
<ul style="list-style-type: none"> <filename> must include the full path name if the file is not in the /Audio directory. The file name must include the extension. Example: <code>song123.mp3</code>. If the file is not in the /Audio directory, a / must be included in front of the name to indicate it is in the root directory. Example: <code>/song123.mp3</code>. 			
Clear file-to slot-association	<code>[Esc]A[X80],•CPLY←</code>	<code>CplyA[X80],•←</code>	Remove audio file from slot X80 .
View file-to-slot association	<code>[Esc]A[X80]CPLY←</code>	<code><filename>←</code>	View the audio file in slot X80 .
Set repeat mode	<code>[Esc]M[X80]*[X83]CPLY←</code>	<code>CplyM[X80]*[X83]←</code>	Set the audio playback repeat mode for slot X80 to X83 .
View repeat mode	<code>[Esc]M[X80]CPLY←</code>	<code>[X83]←</code>	View the repeat mode set for slot X80 .
Set delay	<code>[Esc]D[X80]*[X84]CPLY←</code>	<code>CplyD[X80]*[X84]←</code>	Set the number of seconds the IN1804 waits before repeating playback of the file in slot X80 .
View delay	<code>[Esc]D[X80]CPLY←</code>	<code>[X84]←</code>	View number of seconds delay X84 set for slot X80 .
Write name	<code>[Esc]N[X80]*[X14]CPLY←</code>	<code>CplyN[X80]*[X14]←</code>	Assign name X14 to the file in slot X80 .
NOTE: Saving a file name as a single space repopulates the field with the default name.			
View name	<code>[Esc]N[X80]CPLY←</code>	<code>[X14]←</code>	View the name assigned to the file in slot X80 .
Set file playback volume	<code>[Esc]V[X50]CPLY←</code>	<code>CplyV[X50]←</code>	Set global minimum playback volume level X50 .
View file play back volume	<code>[Esc]VCPLY←</code>	<code>[X50]←</code>	View the current global minimum volume level.
NOTE: If the master output volume V setting (see the Volume commands on the previous page) does not match the file playback level, the volume adjusts to the CplyV setting during playback. It returns to the previous program audio volume and mute settings when playback completes.			
KEY:			
X14	= Playback text label	Up to 32 characters, excluding , (comma), *, and .	
X50	= Audio output volume	-100 to 0 in 1 dB steps. Default = -10 dB.	
X80	= Playback slot number	1 through 16 Highest priority for playback is slot 1, descending to lowest priority 16.	
X83	= Repeat play	0 = No repeat, 1 = Repeat	
X84	= Playback delay	Number of seconds to wait before repeating playback on the current audio file, if repeat has been enabled. 1 through 300 (1-300 seconds delay between repeats). 0 = No delay	

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Audio Configuration (continued)			
Transport			
Start and stop playback	<code>[Esc][X80]*[X82]PLAY←</code>	<code>Play[X80]*[X82]←</code> <code>Play[X80]*0←</code>	Start or stop the audio file playback. Unsolicited message sent when playback of file <code>[X80]</code> is complete.
NOTE: Audio file slots are in order of priority, highest (slot 1) to lowest (slot 16). During playback, if a higher priority slot is requested, it takes precedence. The current slot stops playing and the selected higher priority slot begins. If a lower priority slot is requested during playback of a higher priority one, an E22—Busy error message is returned.			
View slot status	<code>[Esc][X80]PLAY←</code>	<code>[X82]←</code>	View playback status of the audio file in slot <code>[X80]</code> .
Global playback status	<code>[Esc]PLAY←</code>	<code>[X80]←</code> <i>Verbose modes 2 and 3:</i> <code>Play0*0←</code> <code>Play[X80]*1←</code>	View the slot (<code>[X80]</code>) currently playing. No slot is currently playing. Playback is active on slot <code>[X80]</code> .
KEY:			
<code>[X80]</code> = Playback slot number		1 through 16	Highest priority for playback is slot 1, descending to lowest priority 16.
<code>[X82]</code> = Playback state		0 = Stop or stopped, 1 = Play or playing	
Advanced Configuration			
Test Pattern			
Set test pattern	<code>[Esc]1*[X22]TEST←</code>	<code>Test1*[X22]←</code>	Select a test pattern (<code>[X22]</code>).
View test pattern	<code>[Esc]1TEST←</code>	<code>[X22]←</code>	View the currently selected test pattern.
Switch Effects			
Cut	<code>[Esc]U1*0SWEF←</code>	<code>SwefU1*0←</code>	Set the upstream video switch effect to Off.
Seamless cut	<code>[Esc]U1*1SWEF←</code>	<code>SwefU1*1←</code>	Set the switch effect to seamless cut (default): the last frame of video freezes on the screen, then immediately cuts to the newly selected input.
View setting	<code>[Esc]U1SWEF←</code>	<code>[X45]←</code>	Show current switch effect setting <code>[X45]</code> .
Set output switch effect	<code>[Esc]01*[X45]SWEF←</code>	<code>Swef01*[X45]←</code>	Set the output switch effect to <code>[X45]</code> .
View setting	<code>[Esc]01SWEF←</code>	<code>[X45]←</code>	View the current output switch effect.
KEY:			
<code>[X22]</code> = Test patterns		0 = Off (default), 1 = Crop, 2 = Alternating pixels, 3 = Crosshatch, 4 = Color Bars, 5 = Crayscale, 6 = Audio test (crop pattern with orbiting text AUDIO TEST and outputting pink noise at LPCM-2Ch, 48 Hz, 24-bit)	
<code>[X45]</code> = Video switch effect		0 = Cut through black — The input instantly cuts to black, then cuts to the newly selected input with no fading. 1 = Fade through black — The input fades to black before the newly selected input fades in. 2 = Seamless fade* (default) — Displays a final frozen frame of the previous input while the newly selected input fades in. 3 = Seamless cut* — The last frame of video freezes on the screen, then cuts to the newly selected input.	
		*See Input Switch Effect on page 39 for information on exceptions regarding Seamless effects.	

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Advanced Configuration (continued)			
HDCP Output Mode			
Set HDCP mode	[Esc]S[X2]*[X46]HDCP←	Hdcps[X2]*[X46]←	Set the HDCP output mode [X46] for output [X2].
View HDCP mode	[Esc]S[X2]HDCP←	[X46]←	View the HDCP output mode for output [X2].
HDCP Notification			
Set HDCP notification	[Esc]N1*[X47]HDCP←	HdcpN1*[X47]←	Set the HDCP notification to [X47].
View HDCP notification	[Esc] N 1 HDCP←	[X47]←	View the HDCP notification selection.
Video Signal Presence			
View signal presence	[Esc]0LS←	[X61]*[X61]*[X61]*[X61]← Verbose modes 2 and 3: IN00•[X61]*[X61]*[X61]*[X61]←	View video signal status [X61] for inputs 1 through 4.
Front Panel Lock (Executive Mode)			
Enable lock (mode 1)	1X	Exe1←	Lock all front panel controls.
Enable lock (mode 2)	2X	Exe2←	Lock all front panel functions except input switching.
Disable lock mode	0X	Exe0←	Unlock all front panel controls. All front panel adjustments can be made.
View lock mode status	X	[X29]←	View current lock mode status [X29].
KEY:			
[X2] = Output	1 = TP Output 1A (IN1804 DO and DI/DO) HDMI output 1A (IN1804 and IN1804 DI)		
[X29] = Front panel lock (executive mode)	2 = HDMI output 1B 0 = Off or disabled (front panel controls fully accessible) (default). 1 = Mode 1 — Complete front panel lockout 2 = Mode 2 — Input switching only		
[X46] = HDCP output mode	0 = Off — Disable all HDCP authentication and encryption attempts. 1 = Follow input (default). 2 = Always encrypt. 3 = Follow input (with continuous authentication trials). 4 = Always encrypt (with continuous authentication trials).		
[X47] = HDCP notification mode	0 = Black screen — Notification disabled (mute output) 1 = Green screen with OSD bug (orbiting message) (default) 2 = User image with black screen background		
NOTE: A green screen with HDCP Content orbiting text or an HDCP user logo is visible only if a single non-compliant display is attached, or if both attached displays are non-HDCP compliant. If the IN1804 is connected to one compliant and one non-compliant display at the same time, only a green or black screen with no text or logo appears on the non-compliant display.			
[X61] = Video signal status	0 = Video, TMDS, or DP signal not detected 1 = Video, TMDS, or DP signal detected		

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Advanced Configuration (continued)			
Contact Port Status			
View individual contact port status	<code>Esc[X75]CNTC←</code>	<code>X76←</code> Verbose modes 2 and 3: Cnt c[X75]*X76←	View the contact status <code>X76</code> of contact port <code>X75</code> .
View status of all contact ports	<code>EscCNTC←</code>	<code>X76•...X76←</code>	View status <code>X76</code> of all contact ports.
Tally Port Status			
Set individual port state	<code>Esc[X75]*X76TALY←</code>	<code>Taly[X75]*X76←</code>	Set the tally output state for port <code>X75</code> to <code>X76</code> .
Set states of all ports	<code>Esc[X76]...X76TALY←</code>	<code>Taly[X76]...X76←</code>	Set all tally ports at once to port state <code>X76</code> .
View individual tally port status	<code>Esc[X75]TALY←</code>	<code>X76←</code>	View the tally status <code>X76</code> of contact port <code>X75</code> .
View status of all tally ports	<code>EscTALY←</code>	<code>X76•...X76←</code>	View status <code>X76</code> of all tally ports.
KEY:			
<code>X75</code>	= Contact/Tally port number	1 through 7	
<code>X76</code>	= Contact/Tally port state	0 = Open, 1 = Closed	
Twisted Pair Protocol			
Set input TP protocol (IN1804 DI and DI/DO only)	<code>EscI4*[X67]HDBT←</code>	<code>HdbtI4*[X67]←</code>	Set the TP protocol for input 4 to <code>X67</code> .
View input TP protocol	<code>EscI4HDBT←</code>	<code>X67←</code>	View current TP protocol setting for input 4.
Set output TP protocol (IN1804 DO and DI/DO only)	<code>EscO1*[X67]HDBT←</code>	<code>HdbtO1*[X67]←</code>	Set the TP protocol for output 1A to <code>X67</code> .
View output TP protocol	<code>EscO1HDBT←</code>	<code>X67←</code>	View current TP protocol setting for output 1A.
DTP Remote Power Parameters			
ATTENTION:			
<ul style="list-style-type: none"> Ensure that the correct remote DTP power setting is used. Sending DTP2 power to a DTP (series 1) endpoint can result in hardware damage. Enable DTP2 power only to a compatible DTP2 endpoint. Assurez-vous de bien régler l'alimentation DTP à distance. L'envoi d'une alimentation DTP2 à un point de connexion DTP (ancienne gamme) peut provoquer des dommages matériels. Assurez une alimentation DTP2 uniquement vers un point de connexion DTP2 compatible 			
Set input remote power (IN1804 DI and DI/DO only)	<code>EscI4*[X66]RPWR←</code>	<code>RpwrI4*[X66]←</code>	Set the remote power on input 4 to <code>X66</code> .
View input remote power	<code>EscI4RPWR←</code>	<code>X66←</code>	View remote power setting for input 4.
Set output remote power (IN1804 DO and DI/DO only)	<code>EscO1*[X66]RPWR←</code>	<code>RpwrO1*[X66]←</code>	Set the remote power for output 1A to <code>X66</code> .
View output remote power	<code>EscO1RPWR←</code>	<code>X66←</code>	View remote power setting for output 1A.
KEY:			
<code>X66</code>	= DTP remote power status	0 = No remote power (default) 1 = DTP 2 = DTP2	
<code>X67</code>	= DTP protocol setting	0 = DTP format (default), 1 = XTP format, 2 = HDBaseT format	

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Advanced Configuration (continued)			
Resets			
			NOTE: The remote power state for HDBT/XTP mode is forced to Off (0). Attempts to change the power setting while the unit is not in DTP mode result in an E14 (Not valid for current configuration) error message.
System reset (soft reset)	[Esc]ZXXX ←	Zpx←	Reset all device settings to factory defaults.
Absolute system reset	[Esc]ZQQQ ←	Zpq←	Set all device settings plus DHCP and the IP address to factory defaults. DHCP = Off, IP address = 192.168.254.254. This command also removes the initial serial number password that is set at the factory and resets it to no password.
Absolute system reset, retain IP settings	[Esc]ZY ←	Zpy←	Same as absolute system reset except that IP address, subnet mask, gateway address, DHCP, and port mapping are not reset.
Serial Port Configuration			
Set serial port parameters	[Esc][X57]*[X58],[X59],[X60],[X61] CP←	Cpn[X57]•Ccp[X58],[X59],[X60],[X61]←	Set the RS-232 port parameters
View the serial port parameters	[Esc][X57] CP←	[X58],[X59],[X60],[X61]← Verbose modes 2 and 3: Cpn[X57]•Ccp[X58],[X59],[X60],[X61]←	View port parameters [X58], [X59], [X60], and [X61] of port [X57].
Set UART start point	[Esc][X65] MD←	Pmd[X65]←	Set the port number start point for the over TP Universal asynchronous receiver-transmitter (UART).
View UART start point	[Esc] MD←	[X65]←	View the port number start point for the over TP UART.
Send commands over RS-232 insertion	[Esc]+snd s[X57]*[X33]← <i>command</i>	Snd[X57]←	Send a command of [X33] characters from port [X57] to a TP endpoint.
KEY:			
[X33]	= Command length	Number of characters to be sent	
[X57]	= Remote port number	1 = Remote port (3-pole captive screw) 4 = Universal asynchronous receiver-transmitter (UART) on TP input 4 (IN1804 DI and DI/DO only) 9 = UART on TP output 1A (IN1804 DO and IN1804 DI/DO only)	
[X58]	= Baud rate of port	300, 600, 1200, 1800, 2400, 3600, 4800, 7200, 9600 (default), 14400, 19200, 28800, 38400, 57600, 115200	
[X59]	= Parity	Odd, Even, None (default), Mark, Space (only the first letter is required).	
[X60]	= Data bits	7 or 8 (default)	
[X61]	= Stop bits	1 (default) or 2	
[X65]	= UART port start point	Start point for UART ports: TP IN4 = [X65] + 1 (IN1804 DI and IN1804 DI/DO only) TP OUT 1A = [X65] + 3 (IN1804 DO and IN1804 DI/DO only) Default = 2000	

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Backup and Restore Configuration			
Save unit configuration	Esc1*[X85]XF←	Cfg1*[X85]←	Back up the current unit configuration as type X85 to a file on the IN1804.
Restore unit configuration	Esc0*[X85]XF←	Cfg0*[X85]←	Restore the saved configuration, type X85 .

Information Requests				
General information	X1*I	Vid[X1]•Typ[X3]•Amt[X10]•Vmt[X42]•Hrt[X13]•Vrt[X13] ↵ Verbose modes 2 and 3: Inf00*Vid[X1]•Typ[X3]•Amt[X10]•Vmt[X42]•Hrt[X13]•Vrt[X13] ↵		View video input signal type, audio mute status, video mute status, and horizontal and vertical frequencies.
View model name	1I	X35 ↵ Verbose modes 2 and 3: Inf01*X35 ↵		View the IN1804 model name.
View unit description	2I	Seamless•Scaling•Switcher ↵ Verbose modes 2 and 3: Inf02*Seamless•Scaling•Switcher ↵		View the IN1804 series description.
Query firmware version	Q	n.nn ↵ Verbose modes 2 and 3: Ver01*n.nn ↵		View the firmware version to the second decimal place.
Query full firmware version	*Q	n.nn.nnnn ↵ Verbose modes 2 and 3: Bldn.nn.nnnn ↵		View the firmware version with its build number.

KEY:

X1 = Input selection

1 = DisplayPort input 1 (all models)

2 = HDMI or DVI input 2 (all models)

3 = HDMI or DVI input 3 (all models)

4 = HDMI or DVI (standard and DO mod)

TP (IN1804 DI and DI/DO)

X3 = Digital video format

0 = No signal, **1** = DVI, **2** = HDMI, **3** = DisplayPort

X10 = On or off, enable or disable

0 = Audio unmuted, **1** = Audio muted

X13 = Horizontal and vertical frequencies

nnn.nnn. Response is three digits with two decimal places, padded with zeros.

X35 = Model name

IN1804, IN1804 DI, IN1804 DO, or IN1804 DI/DO

X43 – Video output mute

0 – Unmute, **1** – Mute to black screen

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Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Information Requests (continued)			
Query part number	N	X36← Verbose modes 2 and 3: PnoX36←	View unit part number X36 for the model.
View internal temperature	Esc20STAT←	X12← Verbose modes 2 and 3: 20Stat•X12←	View unit internal temperature X12 in degrees Celsius.
Set verbose mode	EscX34CV←	VrbX34←	Set the verbose mode to X34, with or without tagged responses.
View verbose mode	EscCV←	X34←	View the current verbose mode.

KEY:

X12 = Internal temperature

X34 = Verbose mode (see the **verbose mode command description** on page 55 for more information)

X36 = Part number

In degrees Celsius. Response is two digits, padded with a zero.

0 = None (default for LAN connection)

1 = Verbose mode (default for RS-232 and USB connection)

2 = Tagged responses to queries

3 = Verbose mode and tagged responses

IN1804 (standard) — 60-1699-01 or 60-1699-11

IN1804 DI — 60-1699-02 or 60-1699-12

IN1804 DO — 60-1699-03 or 60-1699-13

IN1804 DI/DO — 60-1699-14

IP Control Port Commands

IP Setup

NOTES:

- Changes made to any TCP/IP settings do not take effect until the reboot network command (Esc2B00T←) is issued.
- The following IP address setup commands that are followed by ²⁴ require Administrator permission to enter. Attempts to issue them without Administrator status result in an E24 (privilege violation) error message.

Set DHCP mode ²⁴	EscX10DH←	IdhX10←	Enable or disable DHCP.
View DHCP mode	EscDH←	X10←	View the DHCP mode setting.
Set IP address ²⁴	EscX87CI←	Ipi•X87←	Set the IP address to X87.
Read IP address	EscCI←	X87←	View the current IP address.
Set subnet mask ²⁴	EscX89CS←	Ips•X89←	Set the subnet mask to X89.
View subnet mask	EscCS←	X89←	View the subnet mask setting.
Set gateway IP address ²⁴	EscX88CG←	Ipg•X88←	Set the gateway IP address to X88.
View gateway IP address	EscCG←	X88←	View the gateway IP address setting.

KEY:

X10 = On or off, enable or disable

0 = DHCP disabled (default), 1 = DHCP enabled

X87 = IP address

Format nnn.nnn.nnn.nnn (192.168.254.254 = default)

Leading zeros in each of the four octets are optional in setting values, and are suppressed in returned values.

X88 = Gateway address

nnn.nnn.nnn.nnn (0.0.0.0 = default)

X89 = Subnet mask

nnn.nnn.nnn.nnn (255.255.255.0 = default)

X90 = Hardware (MAC) address

00-05-A6-xx-xx-xx

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
IP Control Port Commands (continued)			
IP Setup (continued)			
View MAC address	[Esc]CH ←	X90 ← <i>Verbose modes 2 and 3: Iph•X90</i> ←	View unit Media Access Code (MAC) address X90 .
Set LAN IP address, subnet mask, and gateway address ²⁴	[Esc]1*[X87]/[X93]*[X88]CISG ←	Cisg 1*[X87]/[X93]*[X88]←	Set the IP address to X87 for the LAN port (1), the subnet mask prefix to /X93 , and the gateway address to X88 at the same time.
NOTE: Setting any values with a CISG command changes the DHCP setting to Off and the Cisg response is followed by Boot2 response (when the unit is in verbose mode 2 or 3).			
View all IP settings	[Esc]1CISG ←	X87/[X93]*[X88] ←	View the IP address, subnet mask (prefix), and gateway address of the unit.
Query the number of open connections	[Esc]CC ←	X86 ← <i>Verbose modes 2 and 3: Icc[X86]</i> ←	View the number of open connections.
Reboot networking	[Esc]2BOOT ←	Boot2 ←	Restart the network after IP setting or DHCP changes.
Set unit name	[Esc]X81CN ←	Ipn•X81 ←	Assign a name for the unit.
Set unit name to factory default	[Esc]•CN ←	Ipn•X92 ←	Reset the unit name to its factory default name.
View unit name	[Esc]CN ←	X81 ←	View current unit name X81 .
KEY:			
X10 = On or off, enable or disable	0 = DHCP disabled (default), 1 = DHCP enabled		
X81 = Unit name	A text string of up to 32 characters. <ul style="list-style-type: none"> • A-Z, 0-9, and the hyphen (-) are permitted. • The first character must be a letter. • The last character cannot be a hyphen. • No distinction is made between uppercase and lowercase letters. • Space or blank characters are not permitted. 0-<maximum number of open connections>		
X86 = Number of open connections	Format nnn.nnn.nnn.nnn (192.168.254.254 = default) Leading zeros in each of the four octets are optional in setting values, and are suppressed in returned values.		
X87 = IP address	nnn.nnn.nnn.nnn (0.0.0.0 = default) nnn.nnn.nnn.nnn (255.255.255.0 = default)		
X88 = Gateway address	00-05-A6-xx-xx-xx		
X89 = Subnet mask	Combination of the model name and the last three hexadecimal character pairs of the unit MAC address.		
X90 = Hardware (MAC) address	<i>Example: IN1804-D0-14-9A-B0.</i>		
X92 = Default unit name	Prefix representing subnet mask bits (subnet mask value in CISG commands).		
X93 = Subnet mask in CISG commands	Default = /24 , which represents the default subnet mask, 255.255.255.0.		

Command	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
IP Control Port Commands (continued)			
Passwords			
NOTE: The initial passwords set at the factory are the serial number of the unit. However, if the unit is reset (via the ZQQQ SIS command or the rear panel Reset button), this password reverts to no password.			
Set administrator password	[Esc][X91]CA←	Ipa•[X91]←	Set the administrator password to [X91].
View administrator password	[Esc]CA←	****← or ←	View the administrator password.
		<i>In verbose modes 2 and 3: Ipa•****← or Ipa←</i>	
Reset (clear) administrator password	[Esc]•CA←	Ipa•←	Reset or clear the administrator password.
Set user password	[Esc][X91]CU←	Ipu•[X91]←	Set the user password.
View user password	[Esc]CU←	****← or ←	View the user password. If there is a valid password, the response is ****←. If there is no password, the response is ←.
		<i>In verbose modes 2 and 3: Ipu•****← or Ipu←</i>	
Reset (clear) user password	[Esc]•CU←	Ipu•←	Reset or clear the user password.
KEY:			
[X91] = Password <ul style="list-style-type: none"> • Length is 1-128 characters. • All human-readable characters are permitted except . • The password cannot be a single space. • Passwords are case-sensitive. • A user password cannot be assigned if no administrative password exists. An E14 error code is returned. • If the admin password is cleared, the user password is cleared also. 			
NOTE: If there is a valid password, the response is ****←. If there is no password, the response is ←.			

Configuration Software

The Extron Product Configuration Software (PCS) offers another way to control the switchers via USB, or TCP/IP connection. The graphical interface includes the same functions as those on the device front panel with additional features that are available only through the software.

This section describes the software installation and communication (see the *IN1804 Series PCS Help file* for detailed control information). Topics in this section include:

- **Software Installation**
- **Software Connection**
- **Software Overview**

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

Software Installation

To download PCS from the Extron website, locate it on the Download Center page or go to the PCS product page.

Software Download Center Page

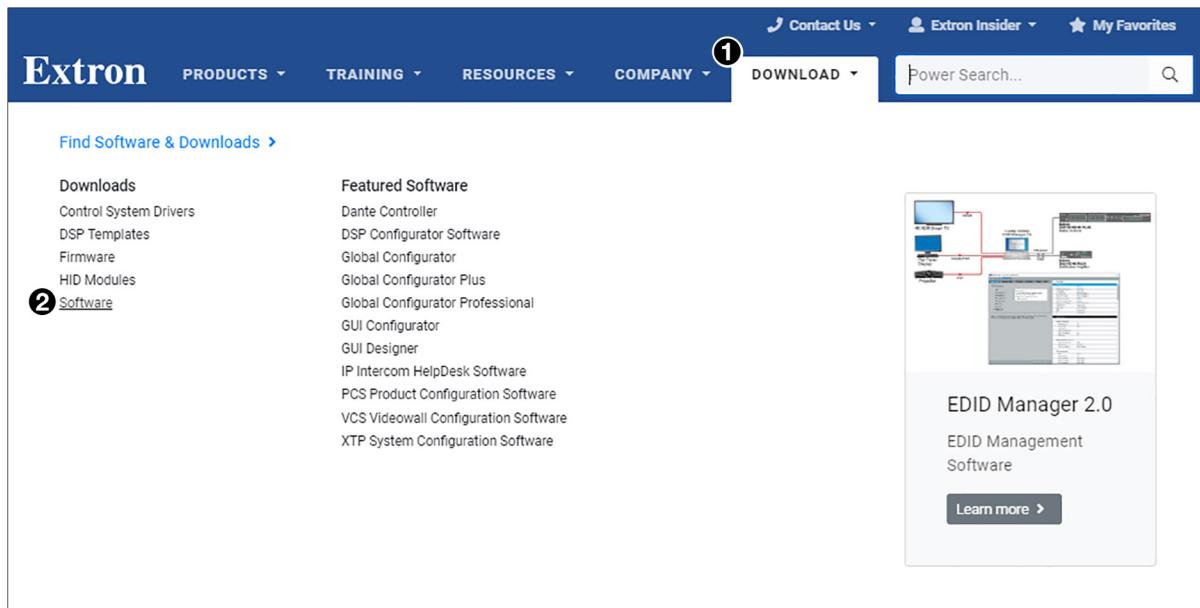


Figure 35. Download Center Page on the Extron Website

1. On the Extron website, select the **Download** tab (see **figure 35**, ①, on the previous page).
2. Move the pointer to the **Software** link (②) in the Downloads column and click it.

Download Center
Software (84 files)

NEW

VCS	Dante Controller	Global Configurator	Global Configurator Plus and Global Configurator Professional	GUI Configurator
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ALL # A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

▶ Archives

Please consult Release Notes for important compatibility information and history.

Description	Part Number	Version	Date	Size	
PCS <small>Updated</small> Product Configuration Software for a variety of standalone products. ▶ Learn more Release Notes	79-562-01	4.3.1	Aug. 15, 2018	170.4 MB	Download ②
PIP 422 & 444 Control Software for PIP 422 & 444. Release Notes	79-522-01	1.0	Jan. 12, 2007	8.9 MB	Download

Figure 36. PCS Download Link

3. On the Download Center page, click the **P** link (see figure 36, ①).
4. If necessary, scroll to locate PCS from the list of available software programs and click the **Download** link to the right of the name (②).
5. On the login page that appears next, fill in the required information to log into www.extron.com (if you need an ID number, see your Extron representative).
6. Follow the instructions on the subsequent screens to complete the software program installation. By default, the configuration program files are stored on your computer at: **C:\Program Files (x86)\Extron\IN1804**.
If there is not already an Extron folder in your Program Files (x86) folder, the installation program creates it as well.

Software Connection

Open the Product Configuration Software program from the Start menu or desktop shortcut. The **Extron Product Configuration Software** window opens with the **Device Discovery** panel open. Connect to the switcher using the **Device Discovery** panel or the **TCP/IP** panel.

Device Discovery Panel

The **Device Discovery** panel displays accessible Extron devices connected directly to the PC or to a LAN or WAN. Devices are identified and sorted by model, IP address, device name, or connection method.

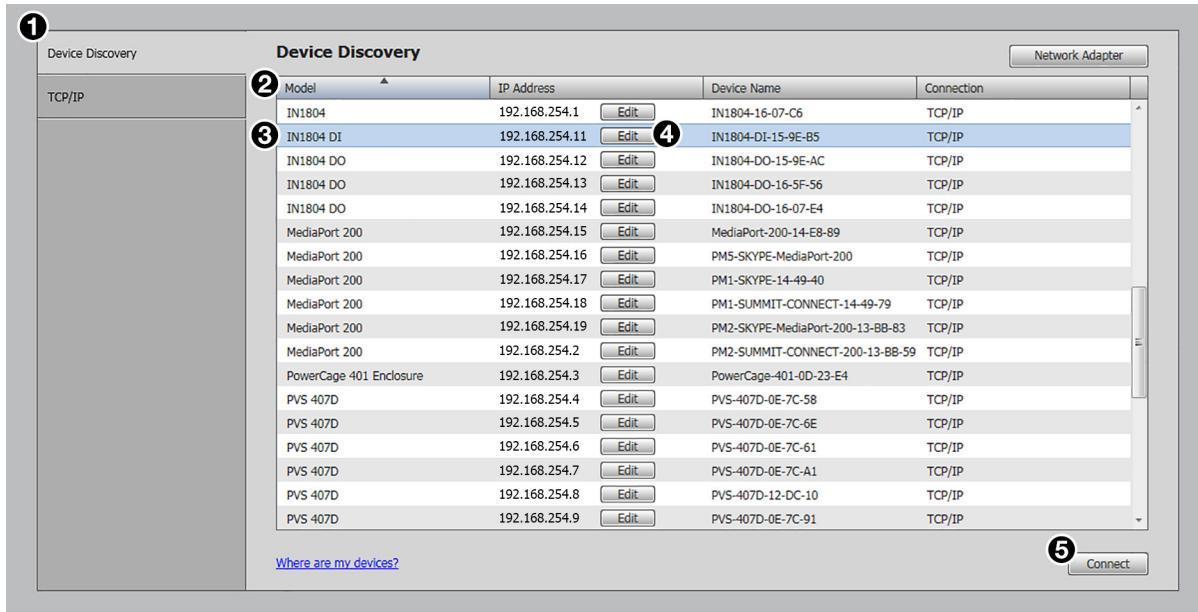


Figure 37. Device Discovery Screen

To sort the list of available devices:

1. Click the **Device Discovery** tab (see figure 37, ①).
2. Click the desired column heading (②) to sort it in ascending or descending order.

To connect to a device:

1. Click the **Device Discovery** tab (①).
2. Select the desired device (③).
3. Click the **Connect** button (⑤). A new device configuration tab opens.

To edit communication settings from the Device Discovery panel:

1. Click the **Device Discovery** tab (①).
2. Click the **Edit** button of the desired device (④). The **Communication Settings** dialog box opens.

3. Finalize the settings in one of the following ways:
 - Click the **Apply** button to accept the changes and return to the **Device Discovery** panel.
 - Click the **Apply and Connect** button to accept the changes and connect to the selected device. A new device configuration tab opens.
 - Click the **Cancel** button to cancel any pending changes and return to the **Device Discovery** panel.

TCP/IP Panel

The TCP/IP panel connects PCS to a specific device through Ethernet.



Figure 38. TCP/IP Panel

1. Click the **TCP/IP** tab (see figure 38, ①).
2. In the **IP Address** field (②), enter the IP address of the desired device.
3. If required, enter the device password in the **Password** field (③).

NOTES:

- The factory configured passwords for all accounts on this device have been set to the device serial number. Passwords are case sensitive.
- Select the **Show Characters** checkbox (⑤) to display the password characters.

4. In the **Telnet Port** field (④), enter the Telnet port of the desired device.
5. Click the **Connect** button (⑥). A new device tab opens.

Offline Device Preview

Opening a new device tab for an offline device displays the interface and configuration options for the chosen model without connecting to it. However, settings cannot be changed.

To open a switcher device tab:

1. From the Configuration File drop-down menu, select **New Configuration File**.

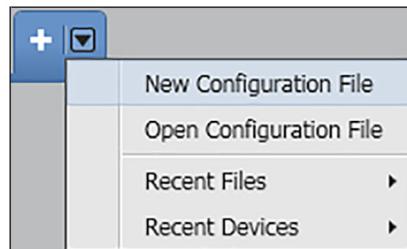


Figure 39. Configuration File Drop-Down Menu

The New Configuration File dialog box opens.

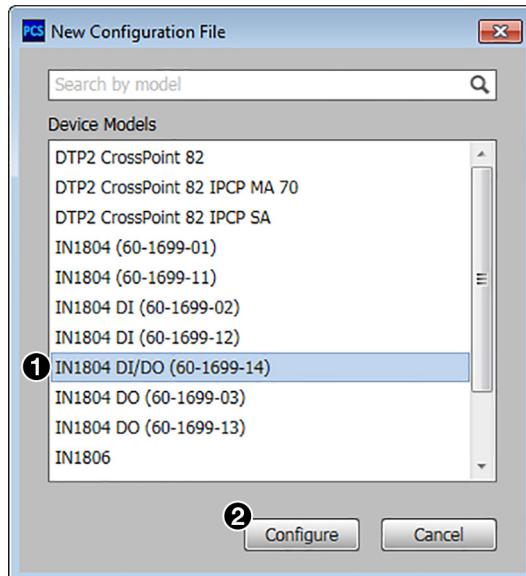


Figure 40. New Configuration File Dialog Box

2. Select the desired device model from the Device Models list (see figure 40, ①). In example, **IN1804** (standard model) was selected.
3. Click the **Configure** button (②). A new offline device configuration tab opens.

Software Overview

When you select a device on the **Device Discovery** screen (see [figure 37](#) on page 84), the IN1804 main screen opens. All configuration tasks are initiated from this screen. Figure 41 shows an example of an IN1804 DI/DO main screen.

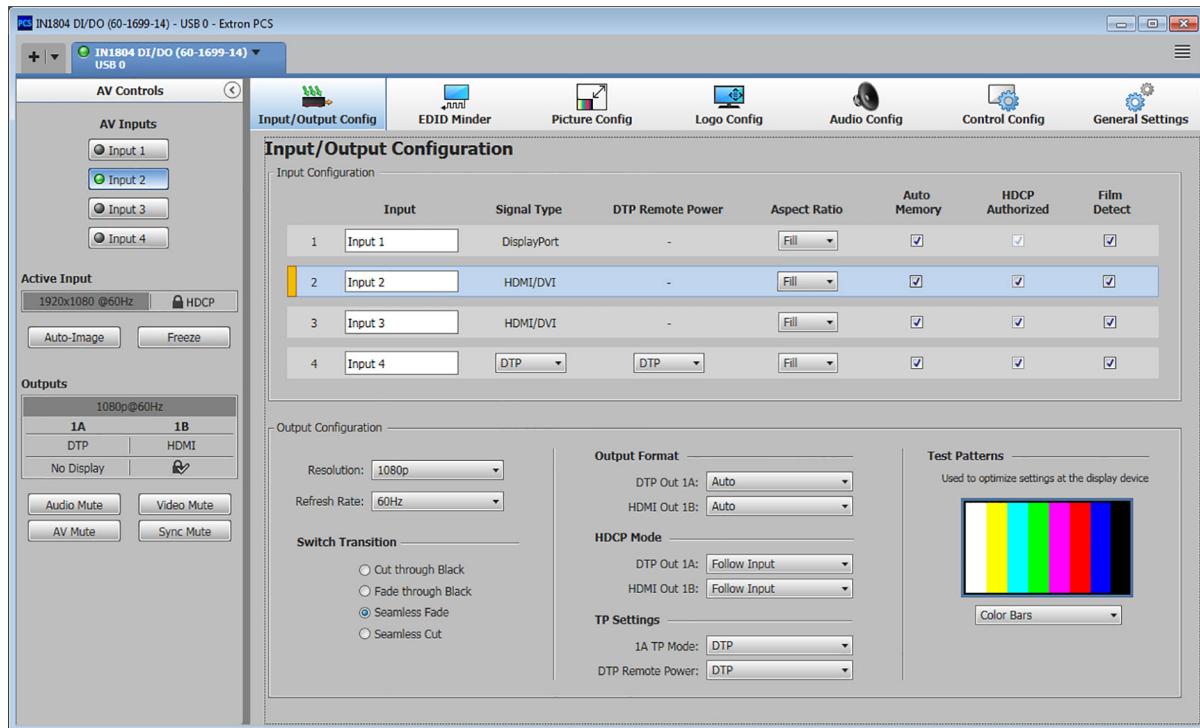


Figure 41. IN1804 DI/DO Main Window

NOTE: For details about specific software features, see the *IN1804 Series PCS Help* file.

Software Menu

Each device screen has a **Software** drop-down menu for configuration options. This menu contains software and information options pertaining to PCS settings. To display this menu, click the PCS icon in the upper-right corner of the main screen (see figure 42, ①)

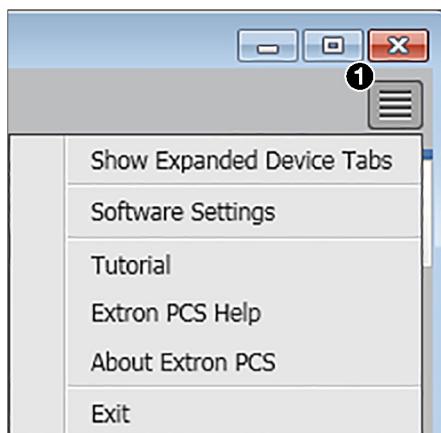


Figure 42. PCS Software Menu

Show Expanded Device Tabs

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

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

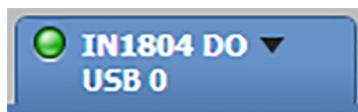


Figure 43. Expanded Device Tab (IN1804 Connected through USB)

Software Settings

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

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

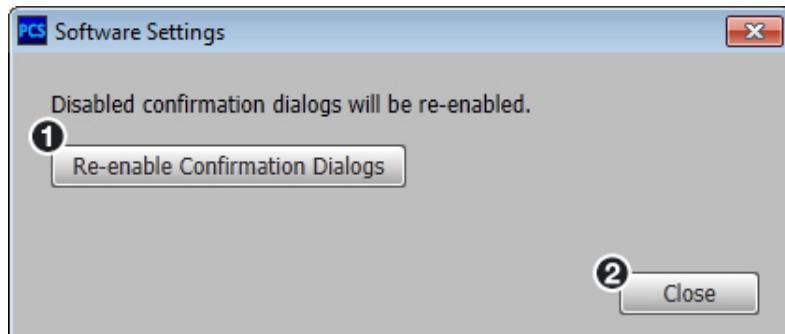


Figure 44. Software Settings Dialog Box

2. Click the **Re-enable Confirmation Dialogs** button (1). The dialog box closes and the reset is complete. Click the **Close** button (2) to close the dialog box without re-enabling the confirmation dialogs.

Tutorial

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

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

Extron PCS Help

This option opens the PCS help file for general PCS operations.

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

About Extron PCS

This option contains information about the current PCS version.

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



Figure 45. About - Extron PCS Dialog Box

- Click the **Details** button (see figure 45, ①) for more information about the software. To display details about third-party software packages and associated licensing, click **Licensing** (②).
- Click the **OK** button to close the dialog box.

Exit

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

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

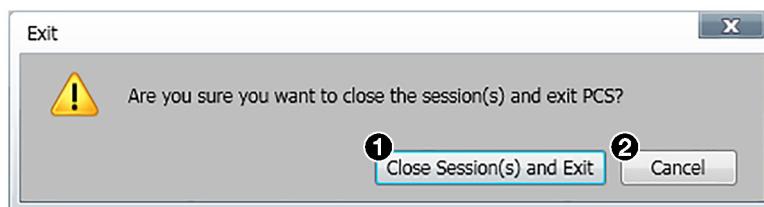


Figure 46. Exit Dialog Box

- If necessary, click the **Close Session(s) and Exit** button (see figure 46, ①) to disconnect the software from connected devices, close all offline device tabs, and close the software. Click the **Cancel** button (②) to leave the software open.

Device Menu

The Device drop-down menu contains options pertaining to device connection, configuration, and information. For details about all these options, see the *IN1804 Series PCS Help File*.

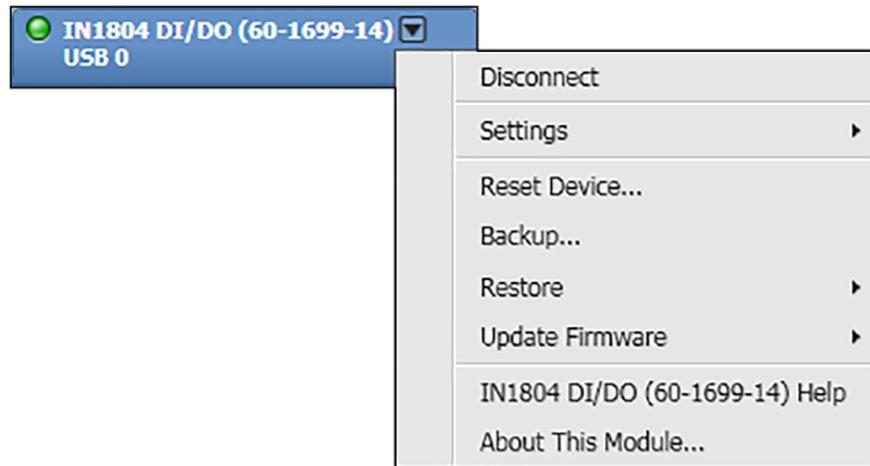


Figure 47. Device Menu

- **Disconnect** — Disconnects the PCS program from the connected device and closes the device tab.

NOTE: If a device is already disconnected, the **Disconnect** option is disabled until the device is connected.

- **Settings** — Opens a submenu containing the following options:
 - **Hardware Settings** — Displays the **Hardware Settings** dialog box containing device information and side tabs that enable you to change the device name, internal clock, and password of the connected device.
It also contains an **Edit Communication Settings** button, which provides an alternative method of accessing the **Communication Settings** dialog box.
 - **Communication Settings** — Opens the **Communication Settings** dialog box on which you can change IP settings of the connected device.
- **Reset Device** — Opens the **Reset Device** dialog box, which contains selectable modes for resetting the connected device. In addition, the **Communication Settings** dialog box contains the unit information that is also displayed in the **Hardware Settings** dialog box.
- **Backup** — Enables you to export all audio, video, and communication settings of the connected device to the PC. This exported configuration can be saved as a backup file (with a **.extz** extension), or used to replicate settings from one device to other devices of the same model. When restoring a configuration, you can select specific device settings.

- **Restore** — Opens a submenu containing the following restore options:
 - **Restore this Device** — Lets you load a saved configuration for any IN1804 Series model to the connected device.
 - **Restore to Multiple Devices** — Lets you load a saved configuration file for any IN1804 Series model to multiple devices on the network.

NOTE: The connected devices must be connected via LAN.

- Saved configurations may include audio, video, and communication settings.
- **Update Firmware** — Opens a submenu from which you can select to upload firmware from the host device to the connected device or to multiple devices.

NOTE: If necessary, download new firmware from the Extron website (see [Downloading Updated Firmware](#) on page 103).

- **Update Firmware to this Device...** — Uploads firmware from the host device to the connected device only.
- **Update Firmware to Multiple Devices...** — Uploads firmware to multiple devices on the network.

NOTE: The connected devices must be connected via LAN.

- **IN1804 <model name> Help** — Opens the *IN1804 Series PCS Help* file in a separate window.
- **About This Module** — Opens **About This Module** dialog box, which contains the module part number and firmware version of the connected device.

Internal Web Page

The IN1804 Series switchers feature an internal web server, displayed as a web page. This page allows you to monitor and adjust certain settings of the IN1804 via a LAN or WAN connection. Use a web browser to view the pages on a PC connected to the switcher LAN port.

NOTE: The switcher internal web page does not support compatibility mode in Microsoft® Internet Explorer® (see [Disabling Compatibility Mode](#) on the next page). Extron recommends using Mozilla® Firefox® or Google Chrome™.

This section gives an overview of the internal web page, which is always available and cannot be erased or overwritten. Topics in this section include:

- [Accessing the Web Page](#)
- [Web Page Components](#)

Accessing the Web Page

1. Connect the switcher to a network using the rear panel RJ-45 LAN connector (see [figures 5, 6, 7, and 8](#), [1](#), on page 10).
2. Open a web browser on a connected PC.
3. Enter the IP address of the device in the browser Address field.

NOTE: The default IP address is 192.168.254.254.
4. Press <Enter> on the computer keyboard. The product sign-in page opens (see [figure 48](#) on the next page).

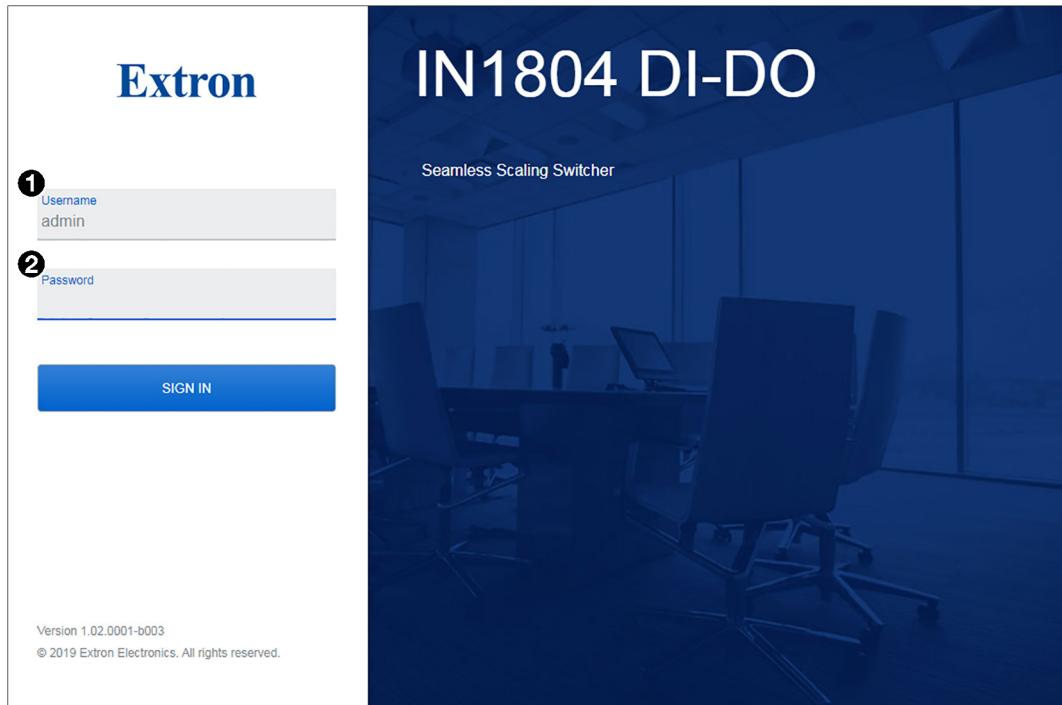


Figure 48. IN1804 DI/DO Sign-in Page

5. Enter admin or user in the **Username** field (see figure 48, ①).
 6. If required, enter the password in the **Password** field (②):
 - If no password has been set since the unit was delivered, enter the unit serial number. This is usually located on a sticker on the side panel of the unit.
- NOTE:** The factory configured passwords for all accounts on this device have been set to the device serial number. Passwords are case sensitive.
- If the unit has had an absolute system reset (the ZQQQ SIS command has been entered, see the **Absolute system reset command** on page 77), or if the factory password has been removed and no new password has been set, click **Sign In** to display the internal web page.
 - If a new password has been set, enter it and click **Sign In**.

To change the password, see **Setting a password** on page 96.

Disabling Compatibility Mode

The internal web page does not support compatibility mode in Microsoft Internet Explorer.

To check compatibility view settings:

From the Tools menu of the browser, select **Compatibility View Settings**. The **Compatibility View Settings** dialog box opens.

Be sure that the **Display all websites in Compatibility View** checkbox is **clear**, and that the IP address of the switcher is **not** in the list of websites that have been added to Compatibility View.

Web Page Components

The screenshot shows the IN1804 DI-DO web interface with the following components:

- 1 Device Info**: Displays device details like Name (IN1804 DI-DO), Description (Seamless Scaling Switcher), and Manufacturer (Extron). Includes an **EDIT** button.
- 2 Inputs**: Shows selected input (Input 2) and other inputs (Input 1A, Input 1B). Includes a **HDMI** button and a **3 MORE** link.
- 3 Roles and Permissions**: Shows Admin and User roles both set to Not Set. Includes an **EDIT** button.
- 4 Device Status**: Displays system status including Date (Thursday, October 3, 2019), Time (2:27:31 PM), Uptime (1 Day | 6 Hours), and Temperature (44.2C). Includes **EDIT** and **SYNC TO PC** buttons.
- 5 Outputs**: Shows outputs (Output 1A, Output 1B) with DTP and HDMI options. Includes a **3 MORE** link.
- 6 Firmware**: Displays current version (1.02.0001-b003) and last update (Tue, 24 Sep 2019 16:58 UTC). Includes **SELECT FILE** and **UPDATE** buttons.
- 7 Network Settings**: Displays network configuration including IP Address (192.168.254.254). Includes an **EDIT** button.
- 8 RS-232**: Displays RS-232 settings including Baud Rate (9600). Includes an **EDIT** button.

- | | | |
|--|--|---|
| 1 Device Info Panel | 4 Device Status Panel | 7 Network Settings Panel |
| 2 Inputs Panel | 5 Outputs Panel | 8 RS-232 Panel |
| 3 Roles and Permissions Panel | | |
| 6 Firmware Panel | | |

Figure 49. IN1804 Web Page

NOTE: Figure 49 shows the web page for an IN1804 DI/DO model. The pages for the other three models are identical except for the product names and the contents of the **Inputs** and **Outputs** panels.

Device Info Panel

The Device Info panel (see **figure 49**, ①, on the previous page) displays device name, brief product description, and part number, with the option to edit the device name. The panel also contains an **Extron** link which opens the **Extron website** in a new window.

Setting the device name

To edit the device name (TCP/IP hostname), click the **Edit** button in the lower-left corner of the Device Info panel. The Device Info Settings dialog box opens.

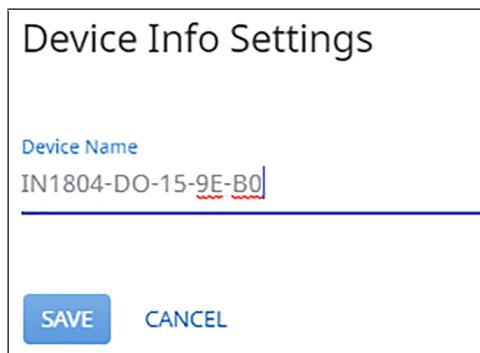


Figure 50. Device Name Dialog Box

To change the name:

1. In the **Device Name** field, enter a name for the IN1804. (The default name is **IN1804-<DI, DO, or DI/DO if applicable>-xx-xx-xx**, where **xx-xx-xx** are the last six characters of the device MAC address.)
2. Click **Save** to apply the new name and close the dialog box, or click **Cancel** to close the dialog box without renaming the device.

Inputs Panel

The Inputs panel (②) displays the resolution and refresh rate and signal type of the active input signal as well as its HDCP status.

The following HDCP status indicators may be displayed for a connected HDMI input:

Symbol	Definition
	The signal is HDCP encrypted.
	The signal is not encrypted.
No Signal	There is no signal detected.

To view the status and type of all inputs, click the **3 More** link in the lower-left corner of the Inputs panel (see **figure 49**, **2**, on page 94) to view the Inputs dialog box. Figure 51 shows an example of an IN1804 DO Inputs dialog box.



Figure 51. Inputs Dialog Box for an IN1804 DO

When finished viewing the input information, click the **X** in the upper-right corner of the dialog box to close it.

Roles and Permissions Panel

In this panel (**3**) you can set and remove administrator and user passwords.

NOTE: The following rules apply to passwords:

- Length is 1-128 characters.
- All human-readable characters are permitted except !.
- The password cannot be a single space.
- Passwords are case-sensitive.
- A user password cannot be assigned if no administrator password exists. An E14 error code is returned.
- If the Admin password is cleared, the user password is cleared as well.

Setting a password

NOTE: The factory configured passwords for all accounts on this device have been set to the device serial number. This password is administrator level. Passwords are case sensitive.

To assign administrator and user passwords:

1. In the Roles and Permissions panel, click **Edit**. The Role and Permission Settings dialog box opens
2. In the Admin panel, click the **Change Admin Password** link and enter the new administrator password in the field below (see **figure 52**, **1**, on the next page).

- Click in the **Confirm Admin Password** field (see figure 52, ②) and repeat the password from the **Change Admin Password** field.

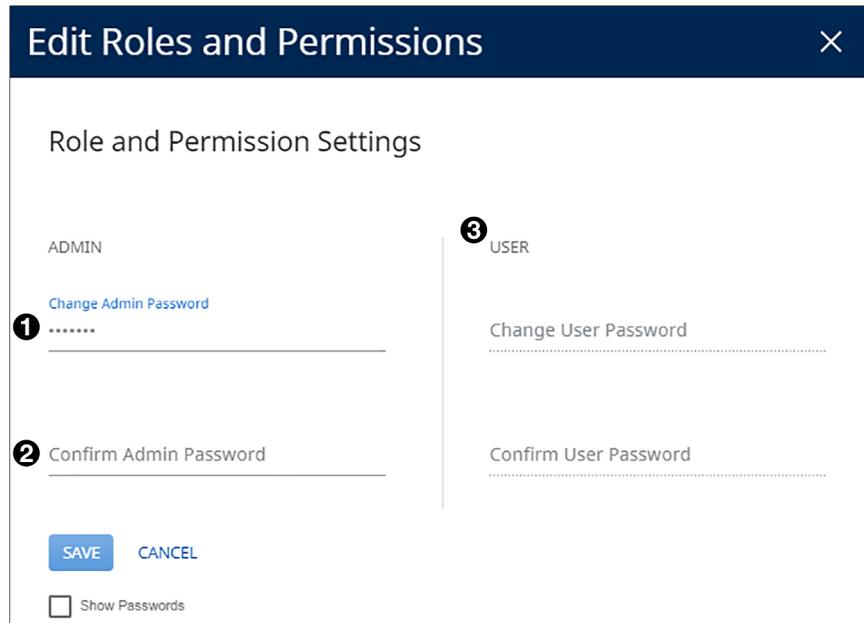


Figure 52. Passwords Dialog Box with Administrator Password Entered

- If you want to assign a user password, repeat steps 2 and 3 in the **User** panel (③).
- When finished, click **Save** to set the passwords. To close the window without saving a password, click **Cancel** or the **X** in the upper-right corner.

To remove an assigned password:

- In the **Change Admin Password** or **Change User Password** field, enter a single space.
- Enter a single space in the appropriate **Confirm Password** field.
- Click **Save**.

Device Status Panel

The **Device Status** panel (see **figure 49**, ④, on page 94) displays the current date, time, time zone, the amount of time the device has been running (**Uptime**), and internal temperature in degrees Celsius.

Syncing the IN1804 to the PC

To set the IN1804 date and time to match that of your computer:

Click **Sync to PC** at the bottom of the **Device Status** panel. When the sync is completed, the message shown in figure 53 appears in the upper-right corner of the screen.

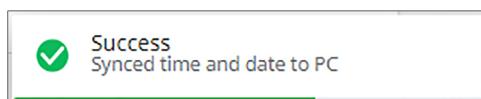


Figure 53. Sync to PC Success Message

Editing the date, time, and time zone

1. Click the **Edit** link in the lower-left corner of the panel. The **Edit Device Status** dialog box opens.

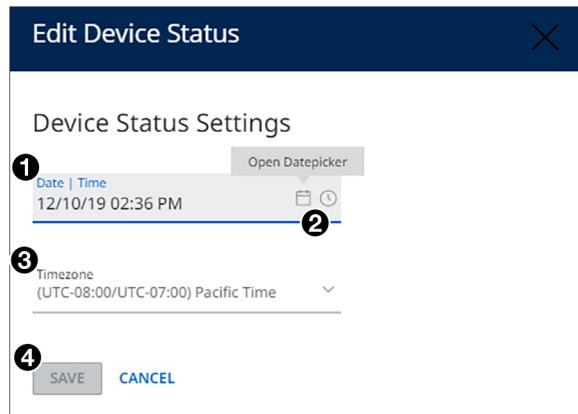


Figure 54. Edit Device Status Panel for Date and Time Setting

2. Set the time, date, and time zone as desired:

- **Date and Time** — In the **Date | Time** field (see figure 54, ①), either click on the hour and minute text fields and type in the time, or click the **Datepicker** or **Timepicker** icons (②) to display the following panels:

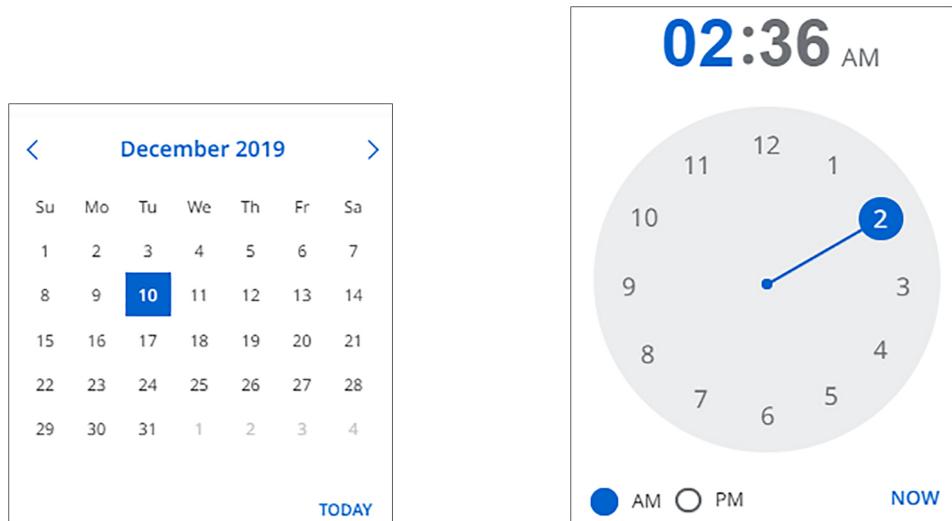


Figure 55. Datepicker and Timepicker Screens

- **Date** — On the Datepicker screen, either select the desired date from the calendar or click **TODAY** to display the current date in the **Date | Time** field. To select a different month, click the right and left arrows at the top of the screen to display the desired month and year.
 - **Time** — On the Timepicker screen, click on the hour or minutes above the clock, then click on the desired number on the clock. To display the current time in the **Date | Time** field, click **NOW**. Select the **AM** or **PM** radio button.
 - **Time Zone** — In the **Timezone** field, select the desired time zone from the drop-down menu (③).
3. When finished entering settings, click **Save** (④) to confirm them, or **Cancel** to close the dialog box without implementing the settings.

Outputs Panel

The Outputs panel (see **figure 49**, ⑤, on page 94) displays the resolution and refresh rate of the outputs, their signal type, and the HDCP status of all connected outputs.

The following status symbols may be displayed for connected outputs:

Symbol	Definition
	The display is HDCP compliant.
	The display is not HDCP compliant, or no signal is being received from the connected display.
No Display	No display is connected.

Firmware Panel

The Firmware panel (⑥) displays the current firmware version and the date it was last updated. You can also update the firmware on your IN1804 from this panel (firmware files can be downloaded from www.extron.com, see **Downloading Updated Firmware** on page 103).

To update firmware:

1. In the Firmware panel, click the **Select File** button.
 2. In the Open dialog box, browse to locate the new firmware file on your computer (by default the file is stored at C:\Program Files (x86)\Extron\Firmware\IN1804 after being downloaded from the Extron web page).
- NOTE:** Firmware files for IN1804 have a .eff extension. Do not attempt to load any other file types.
3. Double-click the firmware file name. The Open window closes, and the selected firmware file name appears in the Update Firmware panel on the web page (see figure 56, ①).

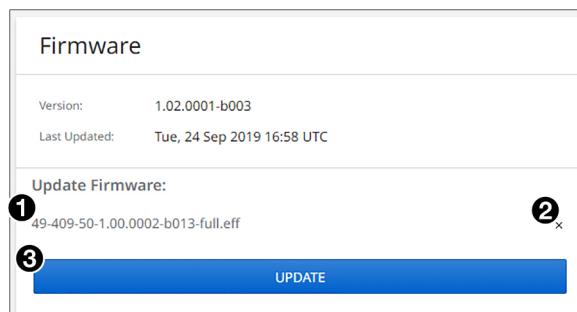


Figure 56. Firmware Update Dialog Box with a Firmware File Selected

4. Click **Update** to begin (③). (If you want to cancel the update, click the **x** (②) at the right of the name.)

During the updating process, a window appears in the middle of the screen, showing messages giving the progress of the update: **Initializing**, **Installing the Firmware**, and **Rebooting Device**.



Figure 57. Firmware Update Message Window

When the update is completed, the message window closes and the message **Firmware Upload Complete** appears near the top of the screen. The new firmware filename appears beside **Version** in the **Firmware** panel of the web page.

Network Settings Panel

In the **Network Settings** panel (see **figure 49**, 7, on page 94), you can set the IP address, subnet mask, and gateway address for your IN1804, and turn DHCP on and off. You can also view the MAC address of the unit. To set the IP addresses:

1. Click **Edit** in the lower-left corner of the **Network Settings** panel. The **EDIT Network Settings** screen opens.

A screenshot of the "Edit Network Settings" screen. The title bar says "Edit Network Settings" with a close button. The main area is titled "Network Settings" and shows "LAN" settings. It includes:

- A "DHCP" toggle switch, with "Off" highlighted by a circled number 1.
- An "IP Address" input field containing "192.168.254.254", with a circled number 2 next to it.
- An "Subnet" input field containing "255.255.255.0", with a circled number 3 next to it.
- A "Gateway" input field containing "0.0.0.0", with a circled number 4 next to it.

At the bottom are "SAVE" and "CANCEL" buttons.

Figure 58. Edit Network Settings Screen

- 2.** Edit the network settings as desired:
 - **DHCP** — Click the **DHCP** button (see **figure 58, ①**, on the previous page) to toggle DHCP on and off. When DHCP is enabled (**On**), the unit configures its IP address and other network settings from the DHCP server. The default is **Off**.
 - **IP Address, (②), Subnet mask (③), and Gateway address (④)** — To set any of these addresses, click in the desired field and enter the address.
- 3.** When finished editing, click **Save** to confirm your changes or **Cancel** to close the window without making changes. You can also close the window by clicking the **X** in the upper-right corner of the screen.

NOTE: If DHCP is being enabled, the web page attempts to redirect and connect to the unit via the unit name (TCP/IP hostname). If a static IP address is being set, the web page attempts to connect to the new IP address.

RS-232 Panel

The view-only RS-232 panel (see **figure 49, ⑧**) displays the RS-232 protocol for the IN1804 serial port. The settings are:

- Baud rate — **9600**
- Parity Bit — **N** (none)
- Data bits — **8**
- Stop bits — **1**

Reference Information

This section provides reference or supplemental information. Topics in this section include:

- [Mounting](#)
- [Downloading Updated Firmware](#)
- [Licensed Third-Party Software Used in the Switchers](#)

Mounting

The IN1804 can be placed on a table or other furniture, mounted to a rack shelf, or mounted on or under furniture. Follow the instructions provided with the mounting kit.

Tabletop Mounting

Attach the provided rubber feet to the bottom four corners of the enclosure.

Rack Mounting

The switchers can be mounted on an optional Extron full rack shelf system, available at www.extron.com.

UL guidelines for rack mounted devices

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

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

Furniture Mounting

The IN1804 can be mounted above or below a desk top, podium, or other furniture. Mounting kits are available at www.extron.com.

Downloading Updated Firmware

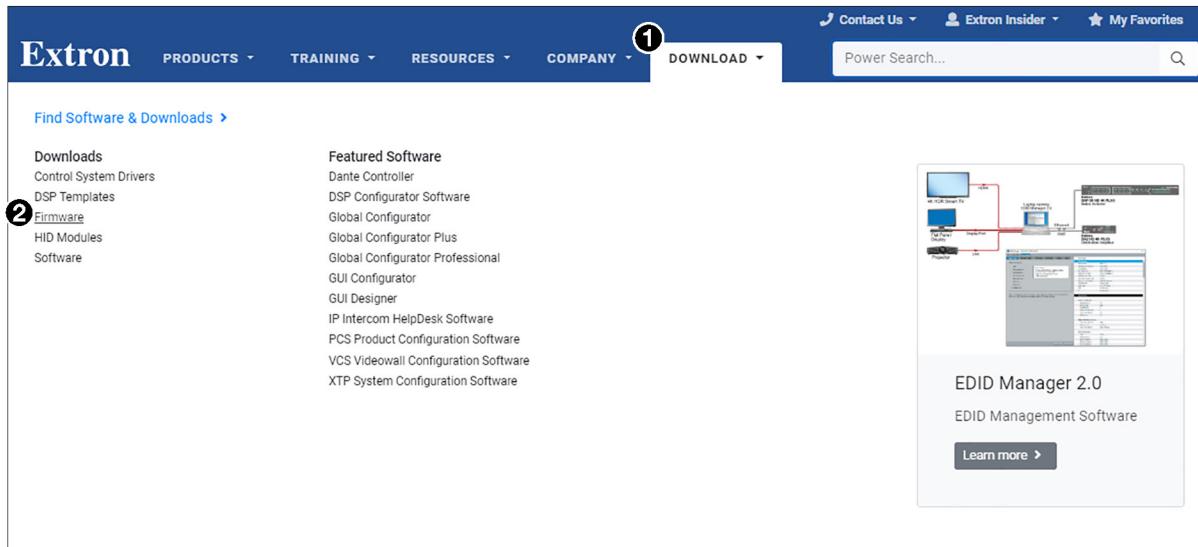


Figure 59. Downloading Firmware from the Extron Website

1. On the [Extron web page](#), click the **Download** tab (see figure 61, ①).
2. Move the pointer to the **Firmware** link (②) in the **Downloads** column and click it.

Download	Download Center					
Software	Firmware (192 files)					
Control System Drivers	IN1508	19-1434-50	2.35	Feb. 6, 2014	2.1 MB	Download
DSP Templates	IN1604	49-268-01	1.16.0002	Nov. 8, 2017	5.9 MB	Download
Firmware	IN1606/IN1608 Firmware	49-172-50	2.36.0003	May 21, 2018	36.9 MB	Download
HID Modules	IN1608 IPCP and IN1608 xi IPCP with Control Processor	49-247-50-IPCP	3.00.0000-b022	Sep. 6, 2018	34.7 MB	Download

Figure 60. I Link on Firmware Download Center Page

3. On the Download Center screen, click the **I** link (see figure 62, ①).
4. Ensure the available firmware is a later version than the current one on the device.

NOTE: The firmware release notes file provides details about the changes between firmware versions, and can be downloaded from the IN1804 firmware page.

5. Click the **Download** link to the right of the desired device.
6. On the login page that appears next, fill in the required information to log into the www.extron.com website (if you need an ID number, see your Extron representative).
7. Follow the instructions on the subsequent screens to complete the software program installation. By default, the configuration program files are stored on your computer at: **C:\Program Files(x86)\Extron\Firmware\IN1804**
If there is not already an Extron folder in your Program Files x86 folder, the installation program creates it as well.

Licensed Third-Party Software Used in the Switchers

The switchers use various licensed third-party software packages during operation. To view details about third-party packages and associated licensing, see the *IN1804 Series PCS Help* file.

To view a copy of a listed package license, in the **License Information** dialog box, click the link in the **License** column for the relevant package. A copy of the package license opens in a separate page.

The following table lists the licensed third-party software packages used by the switchers.

NOTE: Licensed third-party software packages used by the switchers are subject to change without notice.

Licensed Third-party Software Used in IN1804 Models			
Package	License	Package	License
avahi	GNU LGPL v2.1	lighttpd	BSD
bstrib	BSD	Linux	GNU GPL v2
busybox	GNU GPL v2	lua	MIT
bzip2	BSD	lua-cjson	MIT
cjson	MIT	luafilesystem	MIT
expat	MIT	luasocket	MIT
ExtJS 4	Sencha Commercial License	luastruct	MIT
fcgi	fcgi	mtd	GNU GPL v2
freetype	FreeType License	ncurses	MIT
gnupg-1.4.7	GNU GPL v2	openssh	BSD
gpgme	GNU LGPL	openssl	OpenSSL
ifplugged	GNU GPL	PAM	BSD
jpeg	libjpeg	pcre	BSD
libassuan	GNU LGPL	psmisc	GNU GPL v2
libcgicc 3.2.3	GNU LGPL v2.1	qt	GNU GPL v2.1
libcurl	ICS	socat	GNU GPL v2
libdaemon	GNU GPL v2.1	spawn-fcgi	BSD
libdnet	BSD	sqlite	Public Domain
libgpg	GNU LGPL v2.1	xinetd	custom
libpcap	BSD	zlib	zlib
libpng	libpng license		

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

Africa:

Extron South Africa
South Tower
160 Jan Smuts Avenue
Rosebank 2196, South Africa

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

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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