User Guide

Scalers

IN1806 and IN1808 Series

Scaling Presentation Switchers

Extron

68-3131-01 Rev. A
05 19

Safety Instructions

Safety Instructions • English

WARNING: This symbol, ⚠, when used on the product, is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

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.

For information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the Extron Safety and Regulatory Compliance Guide, part number 68-290-01, on the Extron website, **www.extron.com**.

Sicherheitsanweisungen • Deutsch

WARNUNG: Dieses Symbol ⚠ auf dem Produkt soll den Benutzer darauf aufmerksam machen, dass im Inneren des Gehäuses dieses Produktes gefährliche Spannungen herrschen, die nicht isoliert sind und die einen elektrischen Schlag verursachen können.

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

Weitere Informationen über die Sicherheitsrichtlinien, Produkthandhabung, EMI/EMF-Kompatibilität, Zugänglichkeit und verwandte Themen finden Sie in den Extron-Richtlinien für Sicherheit und Handhabung (Artikelnummer 68-290-01) auf der Extron-Website, **www.extron.com**.

Instrucciones de seguridad • Español

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ATENCIÓN: Este símbolo, ⚠, cuando se utiliza en el producto, avisa al usuario de la presencia de importantes instrucciones de uso y mantenimiento recogidas en la documentación proporcionada con el equipo.

Para obtener información sobre directrices de seguridad, cumplimiento de normativas, compatibilidad electromagnética, accesibilidad y temas relacionados, consulte la Guía de cumplimiento de normativas y seguridad de Extron, referencia 68-290-01, en el sitio Web de Extron, **www.extron.com**.

Instructions de sécurité • Français

AVERTISSEMENT : Ce pictogramme, ⚠, lorsqu'il est utilisé sur le produit, signale à l'utilisateur la présence à l'intérieur du boîtier du produit d'une tension électrique dangereuse susceptible de provoquer un choc électrique.

ATTENTION : Ce pictogramme, ⚠, lorsqu'il est utilisé sur le produit, signale à l'utilisateur des instructions d'utilisation ou de maintenance importantes qui se trouvent dans la documentation fournie avec le matériel.

Pour en savoir plus sur les règles de sécurité, la conformité à la réglementation, la compatibilité EMI/EMF, l'accessibilité, et autres sujets connexes, lisez les informations de sécurité et de conformité Extron, réf. 68-290-01, sur le site Extron, **www.extron.com**.

Istruzioni di sicurezza • Italiano

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ATTENTZIONE: Il simbolo, ⚠, se usato sul prodotto, serve ad avvertire l'utente della presenza di importanti istruzioni di funzionamento e manutenzione nella documentazione fornita con l'apparecchio.

Per informazioni su parametri di sicurezza, conformità alle normative, compatibilità EMI/EMF, accessibilità e argomenti simili, fare riferimento alla Guida alla conformità normativa e di sicurezza di Extron, cod. articolo 68-290-01, sul sito web di Extron, **www.extron.com**.

Instrukcje bezpieczeństwa • Polska

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UWAGI: Ten symbol, ⚠, gdy używany na produkt, jest przeznaczony do ostrzegania użytkownika ważne operacyjne oraz instrukcje konserwacji (obsługi) w literaturze, wyposażone w sprzęt.

Informacji na temat wytycznych w sprawie bezpieczeństwa, regulacji wzajemnej zgodności, zgodność EMI/EMF, dostępności i Tematy pokrewne, zobacz Extron bezpieczeństwa i regulacyjnego zgodności przewodnik, część numer 68-290-01, na stronie internetowej Extron, **www.extron.com**.

Инструкция по технике безопасности • Русский

ПРЕДУПРЕЖДЕНИЕ: Данный символ, ⚠, если указан на продукте, предупреждает пользователя о наличии неизолированного опасного напряжения внутри корпуса продукта, которое может привести к поражению электрическим током.

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Для получения информации о правилах техники безопасности," соблюдении нормативных требований, электромагнитной" совместимости (ЭМП/ЭДС), возможности доступа и других" вопросах см. руководство по безопасности и соблюдению" нормативных требований Extron на сайте Extron: , **www.extron.com**, номер по каталогу - 68-290-01.

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注意: ⚠ 产品上的这个标志意在提示用户设备随附的用户手册中有重要的操作和维护(维修) 说明。

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安全記事 • 繁體中文

警告: ⚠ 若產品上使用此符號，是為了提醒使用者，產品機殼內存在著可能會導致觸電之風險的未絕緣危險電壓。

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有關安全性指導方針、法規遵守、EMI/EMF 相容性、存取範圍和相關主題的詳細資訊，請瀏覽 Extron 網站:**www.extron.com**，然後參閱《Extron 安全性與法規遵守手冊》，準則編號 68-290-01。

安全上のご注意 • 日本語

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安全上のご注意、法規厳守、EMI/EMF適合性、その他の関連項目については、エクストロンのウェブサイト **www.extron.com** より『Extron Safety and Regulatory Compliance Guide』(P/N 68-290-01) をご覧ください。

안전 지침 • 한국어

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FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. 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:

- This unit was tested with shielded I/O cables on the peripheral devices. Shielded cables must be used to ensure compliance with FCC emissions limits.
- 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.

VCCI-A Notice

この装置は、クラスＡ情報技術装置です。この装置を家庭環境で使用すると、電波妨害を引き起こすことがあります。その場合には使用者が適切な対策を講ずるよう要求されることがあります。
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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,,Op1 scene 1,1 ^B 51 ^W^C.O
[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 used for the number zero and "O" is the capital letter "o."

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

```
Reply from 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**.

Contents

Introduction

This section provides general information about this guide and the Extron IN1806 and IN1808 Series. Topics in this section include:

About this Guide

This guide describes how to install, operate, and configure the IN1806 and IN1808 Series Seamless Presentation Switchers.

In this guide, the **model names** as listed on the next page refer to specific IN1806 and IN1808 Series models. The terms “scaler” and “switcher” are used interchangeably to refer to any of the IN1806 and all IN1808 models.

The following terms refer to groups of IN1806 and IN1808 Series models:

- “IN1808 base model” refers to the basic IN1808 containing no amplifier module.
- “Amplifier models” and “IPCP models” refer to IN1808 IPCP SA and the IN1808 IPCP MA 70 models.

Product Description

The Extron IN1806 and IN1808 Series are seamless presentation switchers that support signal resolutions up to 4K @ 60 Hz at 4:4:4. The IN1806 has six inputs while the IN1808 Series each have eight. All models incorporate Extron-patented Vector 4K seamless scaling technology engineered for the most demanding applications. They feature DisplayPort, HDMI, and DTP2 inputs, an HDMI output, and a mirrored Extron DTP2 output extension to send video, audio, and control signals up to 330 feet (100 meters) over a shielded CATx cable. The IN1806 and IN1808 Series deliver excellent image quality, fast and reliable switching, Extron ProDSP audio processing, seamless video transition effects, logo keying, and HDMI loop-through.

The IN1808 IPCP SA and IPCP MA 70 models each have a built-in Extron IPCP Pro 355M Control Processor, and an integrated class D power amplifier.

- IN1808 IPCP SA supports stereo audio output from a 2 x 25 watts amplifier.
- IN1808 IPCP MA 70 supports mono audio output from a 100 watts amplifier.

The IN1806 and IN1808 Series also provide automatic switching, audio embedding and de-embedding, seamless transition effects, and logo keying. Designed for professional AV integration, the IN1806 and IN1808 Series can be controlled and configured via Ethernet, RS-232, and USB.

Models

The presentation switchers are available in the following models:

Model	Description	Inputs	Outputs
IN1806	1U high	1 DisplayPort 5 HDMI	1 HDMI 1 DTP2/XTP/HDBT 1 HDMI Loop Out
IN1808	1U high	1 DisplayPort 5 HDMI 2 DTP2/XTP	1 HDMI 1 DTP2/XTP/HDBT 1 HDMI Loop Out
IN1808 IPCP SA	Stereo amplifier model 2U high	1 DisplayPort 5 HDMI 2 DTP2/XTP	1 HDMI 1 DTP2/XTP/HDBT 1 HDMI Loop Out
IN1808 IPCP MA 70	70 V mono amplifier model 2U high	1 DisplayPort 5 HDMI 2 DTP2/XTP	1 HDMI 1 DTP2/XTP/HDBT 1 HDMI Loop Out

Integrated Digital Twisted Pair Extension

The DTP2/XTP inputs and DTP2/XTP/HDBT 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.

Depending on the range of the transmitting or receiving device, the twisted pair (TP) inputs and outputs can each travel up to 330 feet (100 meters) without a loss of signal integrity. They also support IR (output only) and RS-232 insertion, and dedicated universal asynchronous receiver/transmitters (UARTs).

Shielded twisted pair cabling with solid center conductor sizes of 24 AWG or better is recommended for optimal performance.

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

- **Input** —The IN1808 Series can receive signals from a remote DTP or DTP2 transmitter (such as the DTP T USW 333) at a conference table, lectern, or wall. It can also be integrated into an XTP CrossPoint matrix switcher system.
- **Output** —The IN1806 and IN1808 Series can transmit to a DTP or DTP2, XTP, or HDBaseT receiver or directly to an HDBaseT enabled display device. It can also be integrated into an XTP CrossPoint matrix switcher system.
- **Power over DTP** —The IN1806 and IN1808 Series can send power to selected DTP or DTP2 endpoints over the same shielded CAT*x* cable, streamlining system design and installation.

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

RS-232 and IR signal insertion

The DTP2 inputs and output are configured for unidirectional RS-232 Ethernet insertion as the twisted pair control connection. Ethernet insertion allows you to employ Ethernet drivers from either the local controller or an external controller connected on the IP network.

IR output 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 the IN1806 and IN1808 Series can be configured for compatibility with HDBaseT-enabled displays to send digital video and embedded audio.

Matrix switcher integration

In addition to supporting DTP endpoints, the IN1806 and IN1808 Series 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.

Audio Integration Capabilities and Available Power Amplifiers

The IN1806 and IN1808 Series can also serve as the central component for audio system integration. It includes eight-input audio switching, two mic/line inputs with phantom power, HDMI audio embedding and de-embedding, and several audio processing features for mixing, ducking, tone adjustments, and more. Audio configuration features and options can be accessed through the Product Control Software (PCS) and the on-screen display (OSD).

The IN1808 Series are available with a choice of integrated power amplifiers. IN1808 IPCP SA models deliver stereo power amplification with 50 watts rms per channel into 4 ohms or 25 watts rms per channel into 8 ohms, while IN1808 IPCP MA 70 models provide mono 70 volt amplification with 100 watts rms output.

Features

- **Integrates DisplayPort, HDMI, and audio sources into presentation systems** — The IN1806 and IN1808 Series provide centralized switching for a wide range of AV sources.
- **DTP2, DisplayPort, and HDMI inputs** — The IN1806 and IN1808 Series features one DisplayPort, five HDMI, one HDMI loop-through output selectable for any input. In addition, the IN1808 Series has two DTP2/XTP inputs.
- **DTP2 and HDMI outputs** — The IN1806 and IN1808 Series feature one DTP2 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.**
- **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 may 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 freeze and cut, freeze and fade, cut through black, and fade through black transition effects are available.
- **Auto-switching between inputs** — Auto-switching allows for intuitive operation in collaboration spaces. Multiple switching priority modes are available, including last-connected input and user-selectable priority.

- **Integrated DTP2 extension supports transmission of 4K/60 video, audio, and control up to 330 feet (100 meters) over a shielded CATx cable.**
- **HDCP 2.2 compliant** — Ensures display of content-protected 4K video media and maintains interoperability with earlier versions of HDCP.
- **Integrated audio digital signal processor with ProDSP 64-bit processing** — The IN1806 and IN1808 Series feature 64 bit floating point audio DSP processing, which maintains very wide dynamic range and audio signal transparency to simplify gain stage management while reducing the possibility of DSP signal clipping.
- **Library of enhanced Extron Certified device drivers** — Device drivers allow Extron products to control various display and source devices, such as projectors, flat-panel displays, and Blu-ray players. Extron has produced fully tested Ethernet, serial, and IR device drivers.
- **Supports DisplayPort Single Stream Transport (SST) data rates up to 21.6 Gbps.**
- **Supported HDMI 2.0 specification features include data rates up to 18 Gbps, Deep Color, and HD lossless audio formats.**
- **Stereo audio embedding and de-embedding** — Analog audio signals can be embedded onto the DTP2 and HDMI outputs, and embedded two-channel PCM audio can be extracted to the analog outputs, or multi-channel bitstream formats can be passed to the DTP2 and HDMI outputs.
- **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.
- **Displays user-supplied images for screen saver, corporate branding, logo insertion, and HDCP notification** — Custom user-loaded images can be displayed as screen savers 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.
- **CEC - Consumer Electronics Control 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/off, input selection, or volume level, is dependent on implementation by the device manufacturer.
- **Extron XTP DTP 24 shielded twisted pair cable is strongly recommended for optimal performance.**
- **Compatible with CAT*x* shielded twisted pair cable** — The IN1806 and IN1808 Series supports a maximum transmission distance of 330 feet (100 meters) for all compatible resolutions when used with CATx shielded twisted pair cable.
- **Remote powering of select DTP transmitters and receivers** — The IN1806 and IN1808 Series can provide power to select DTP or DTP2 transmitters and receivers over the twisted pair connections, eliminating the need for separate power supplies at the remote units.
- **Accepts additional analog stereo audio** — The IN1806 and IN1808 Series supports stereo analog audio signals for simultaneous transmission over the same shielded twisted pair cable.
- **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 for DTP2 and HDMI inputs** — Allows inputs 2 through 6 or 2 through 8 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 for quick, reliable switching** — Key Minder authenticates and maintains continuous HDCP encryption between input and output devices to ensure quick and reliable switching in professional AV environments, while enabling simultaneous distribution of a single source signal to one or more displays.
- **Comprehensive EDID management** — Use PCS software to access EDID Minder for setting video input EDID, capturing EDID from connected displays, or uploading custom EDID files. Proper EDID management ensures that sources and displays are easily integrated into a system resulting in optimized system operation. Freely downloadable EDID Manager 2.0 software is available for advanced EDID editing and creating custom EDID files.
- **EDID Minder automatically manages EDID communication between connected devices** — EDID Minder ensures that the source powers up properly and reliably outputs content for display.
- **SpeedSwitch Technology provides exceptional switching speed for HDCP-encrypted content.**
- **Supports custom EDID and output resolutions** — User-defined 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 signal and HDCP verification through RS-232, USB, or Ethernet, providing feedback to a system operator or helpdesk support staff.
- **HDCP visual confirmation** — When HDCP-encrypted content is transmitted to a non-HDCP compliant display, a full screen green signal is sent to the display for immediate visual confirmation that protected content cannot be viewed on that 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 that help maximize image quality for content sources that originated from film.
- **Auto-Image setup** — When activated, the unit automatically optimizes the image by analyzing and adjusting to the video input signal. This can save time and effort in setting up a newly connected source, particularly in presentation environments where different guest presenter laptops with various output resolutions will be connected.
- **Auto Input Memory** — When activated, the unit automatically stores size, position, and picture settings based on the incoming signal. When the same signal is detected again, these image settings are automatically recalled from memory.
- **Input presets** — Memory presets are available to store and recall optimized image settings.
- **Output muting control** — The video and audio output may 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 other functions and settings of the unit.
- **Picture controls for brightness, contrast, detail, horizontal and vertical sizing and positioning, and overscan.**
- **Internal video test patterns and pink noise generator for calibration and setup** — The IN1806 and IN1808 Series provides 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.
- **Automatic 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 pre-recorded messages may be stored and played back over analog and embedded audio outputs.
- **Audio input gain and attenuation** — Gain or attenuation can be adjusted for the audio input to eliminate noticeable differences when switching between sources.
- **Two mic/line inputs with 48 volt phantom power** — Two mic or line level audio sources can be independently mixed with program audio. Selectable 48 volt phantom power allows the use of condenser microphones.
- **Two independent line inputs** — Two line level audio sources, or a single audio source such as a conferencing codec, can be independently mixed with program and mic audio.
- **Mic ducking** — Automatically reduces program audio when a microphone or line level incoming audio signal is detected, replacing the need for a separate audio ducking processor.
- **Studio grade 24 bit/48 kHz analog-to-digital and digital-to-analog converters** — Professional converters fully preserve the integrity of the original audio signal.
- **Low latency DSP processing** — The IN1806 and IN1808 Series features very low, deterministic latency from input to output, regardless of the number of active channels or processes. This keeps audio in sync with video, and prevents distractions to presenters or performers resulting from delayed live audio.
- **Group masters** — The group master volume range can be limited using soft limits to maintain optimal minimum and maximum levels when using external volume control. This prevents operators from over or under-adjusting levels when using Ethernet, USB, or RS-232 control.
- **Soft limits provide optimal group master adjustment range** — The group master volume adjustment range can be limited to maintain optimal minimum and maximum levels when using external volume control. This prevents operators from over or under-adjusting levels. The DSP Configurator Software provides quick adjustment of limits from the `Group Controls` screen.
- **Building Blocks processor settings** — A collection of pre-designed processor settings optimized for a specific type of input or output device, such as microphones and Extron speakers, with pre-set levels, filters, dynamics, and more. Flexible Building Blocks are available on each I/O strip and allow system designers to fully customize their own Building Blocks, further streamlining audio system design and integration.

- **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.
- **Supports multiple embedded audio formats** — The IN1806 and IN1808 Series is compatible with a broad range of multi-channel audio signals, providing reliable operation with HDMI sources.
- **Output Standby Mode** — The IN1806 and IN1808 Series can be set to automatically mute video and sync output to the display device when no active input signal is detected. This allows the projector or flat-panel display to automatically enter into standby mode to save energy and enhance lamp or panel life.
- **Power Save Mode** — The IN1806 and IN1808 Series can be placed in a low power standby state to conserve energy when not in use.
- **Front panel security lockout** — 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.
- **Front panel USB configuration port** — Enables system configuration without the need to access the rear panel.
- **Front panel LED indicators for signal presence, HDCP status, and power** — Provide visual indication of system status for real-time feedback and monitoring of key performance parameters.
- **Easy setup and commissioning with the Extron Product Configuration Software (PCS)** — Configure multiple products using a single software application.
- **Rack-mountable metal enclosure** — The standard IN1806 and IN1808 Series features a 1U, full rack width metal enclosure. Models with a built-in power amplifier and control processor are housed in a 2U, full rack width metal enclosure.
- **Includes LockIt HDMI cable lacing brackets**
- **Internal Extron Everlast power supply** — Provides worldwide power compatibility, with high reliability and low power consumption for reduced operating cost. The Extron Everlast Power Supply is covered by a 7-year parts and labor warranty.

Additional Features of the IN1808 Series IPCP Models

- **Integrated IPCP Pro control processor** — A built-in IPCP Pro 3355M control processor enables complete AV system control.
- **Energy efficient Class D stereo or mono amplifier: 2 x 50 watts @ 4 ohms, 2 x 25 watts @ 8 ohms, or 1 x 100 watts @ 70 volts** — An Extron exclusive Class D amplifier with Class D Ripple Suppression (CDRS), an Extron patented technology that provides a smooth, clean audio waveform and high signal fidelity. CDRS eliminates the high frequency switching ripple characteristic of Class D amplifiers, a source of RF emissions which can interfere with sensitive AV equipment such as wireless microphones.
- **Support TouchLink Pro touchpanels, NPB Network Button Panels, and eBUS button panels.**
- **Integrated three-port AV LAN switch allows AV devices to be isolated from the corporate network** — Enable local control of AV devices connected to the AV LAN switch while isolating the AV LAN network traffic from outside interference or intrusion.
- **AV LAN ports** — Allow Extron devices on the AV LAN to receive firmware updates and be remotely monitored, managed, and controlled through Extron GlobalViewer Enterprise. AV LAN ports permit only communications from the Ethernet port for remote management and firmware updates to Extron devices.
- **Support secure industry standard communications protocols** — Use industry standard communication protocols, including HTTP (insecure), HTTPS, SSH, SFTP, SMTP, NTP, Discovery Service, DHCP, DNS, ICMP, and IPv4.
- **Two bidirectional RS-232 ports with software handshaking** — Captive screw serial ports can control two RS-232 devices.
- **One bidirectional RS-232 port with hardware and software handshaking** — Captive screw serial port can communicate with one RS-232 serially controlled device.
- **Two IR/Serial ports for one-way control of external devices.**
- **Four Digital I/O ports** — Allows for interfacing with other systems in the room.
- **Four relays for controlling room functions** — Enable control of lighting, screen settings, and other device functions.
- **eBUS port for connecting eBUS button panels and accessories.**
- **Ethernet monitoring and control on each Ethernet port** — Manage, monitor, and control AV devices using a standard Ethernet network.
- **DHCP server for AV LAN** — Automatically distributes IP addresses and network configuration parameters for AV devices connected to the local AV LAN, which streamlines system setup and management.
- **Support Building Management System (BMS) protocols such as BACnet, KNX, and DALI** — These protocols allow for centralized monitoring and control of mechanical and electrical systems that include HVAC, lighting, power, fire, and security.
- **Support LinkLicense** — Extron LinkLicense unlocks features that add convenience, expand system functionality, and enhance the capabilities of Extron products.
- **Support 10/100/1000Base-T.**
- **Support Ethernet-controllable devices** — Allow for control of multiple Ethernet enabled AV devices such as displays, switchers, and sources.
- **Automatic clock synchronization allows touchpanel to display the accurate time and date.**
- **Support control system synchronization** — Synchronization allows users to retain and recover the state of their configured endpoints in case of network or power failure.

- **Multi-level password protection** — Allows security to be set based on user roles.
- **Create controller groups** — Allows multiple IP Link Pro control processors to be grouped together to function as one when configured with Global Configurator Professional.

Control Methods

Control the IN1806 and IN1808 Series scalers 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 26).
- 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 connected device to enter SIS commands (see **SIS Configuration and Control** beginning on page 51).
- The Extron Product Configuration Software (PCS) on a computer with a Windows® operating system (see **Configuration Software** beginning on page 93 and the *IN1806 and IN1808 Series PCS Help File*).

Application Diagrams

The following diagrams show examples of typical applications for the IN1806 and IN1808.

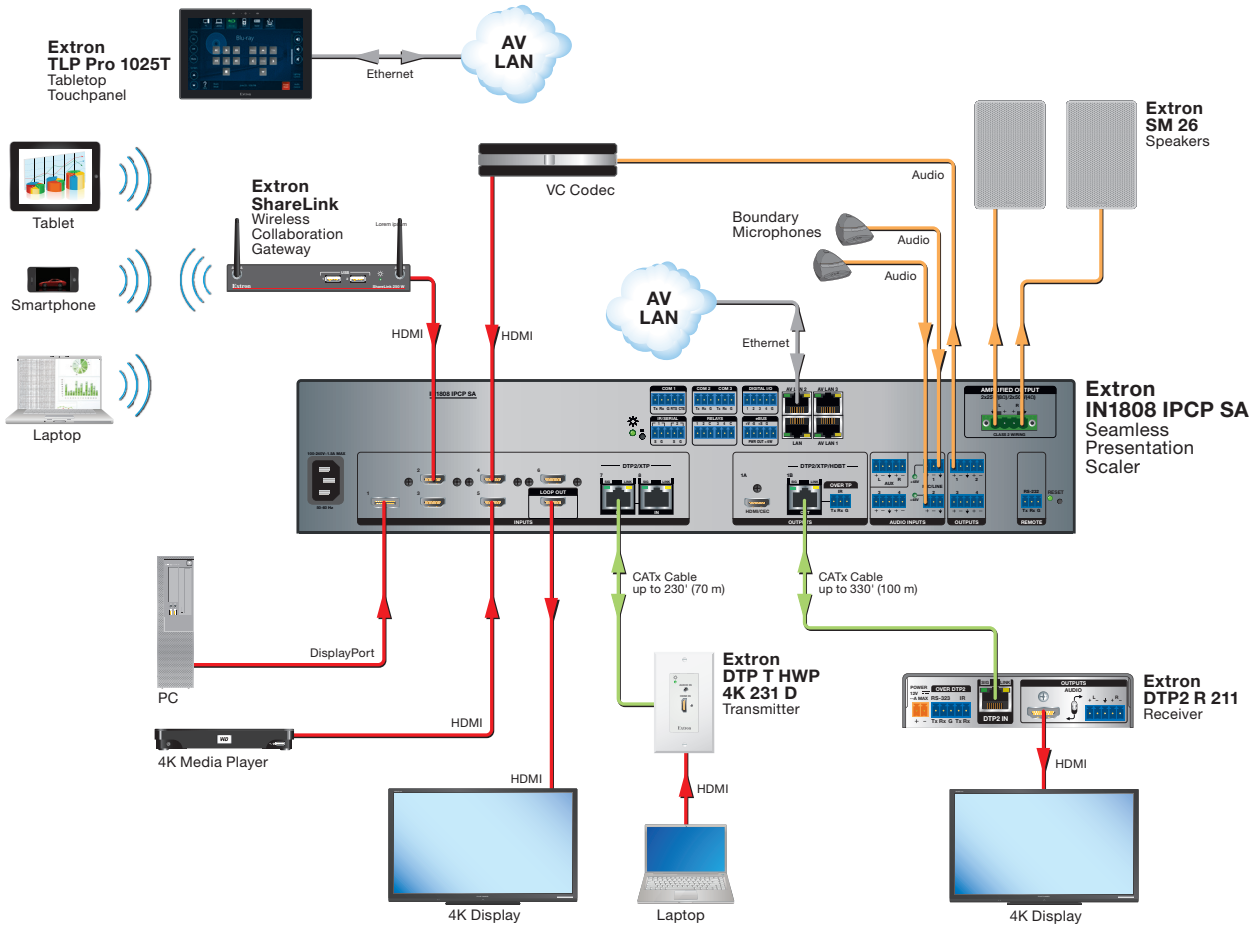


Figure 1. IN1808 IPCP SA Application Example

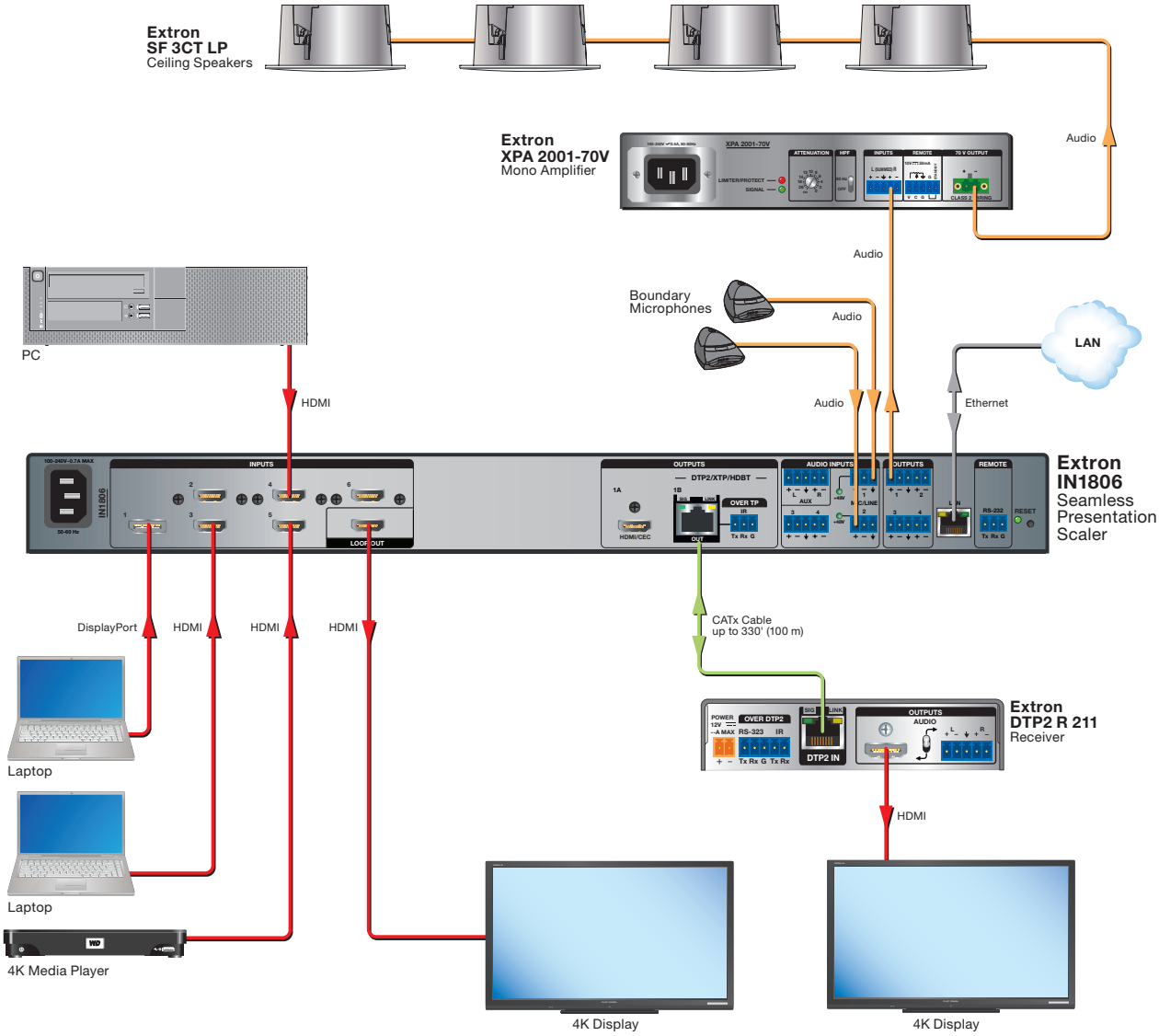


Figure 2. IN1806 Application Example

Licensed Third-Party Software Used in the Scalers

The scalers use various licensed third-party software packages during operation. To view details about third-party packages and associated licensing, see the following:

- **PCS** — To view a copy of a listed package license, select **About PCS** from the PCS menu. Click the **Licenses** button in the About Extron PCS dialog box, then click the View PDF link beside the desired license. A copy of the package license opens in a separate page. See the *IN1806 and IN1808 Series PCS Help File* for more information.
- **IPCP Pro 355M web page** — For IN1808 Series IPCP models, you can view details about third-party packages and associated licensing used by the IPCP control processor by clicking the **License Information** button on the internal web pages of the IPCP Pro 355M control processor. A License Information window opens. To view a copy of a listed package license, in the License Information window, click the link in the License column for the relevant package. This opens a copy of the package license in a separate window. A list of licenses is also available in the Pro Series Control Product Network Ports and Licenses Guide at **www.extron.com**.

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

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

Licensed Third-party Software Used in IN1806 and IN1808 Series Models			
Package	**License**	**Package**	**License**
avahi	GNU LGPL v2.1	lightpd	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
ifplugd	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 LGPL 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		

Installation

This section contains information on how to connect cables to the IN1806 and IN1808 Series 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 scaler (see **Mounting** on page 111).
3. Connect video and audio input sources (see **Rear Panel Connections**).
4. Connect video and audio output devices (see **Rear Panel Connections**).
5. Connect desired control devices (see **Rear Panel Connections**).
6. Connect a power source to the scaler (see **AC power connector** on page 14).
7. Configure the scaler using by any of the following methods:
   - Front panel menus (see **Operation** beginning on page 23)
   - PCS (see **Configuration Software** beginning on page 93 to download the software, and see the *IN1806 and IN1808 Series PCS Help File* to configure the system)
   - SIS commands (see **SIS Configuration and Control**, beginning on page 51)

Rear Panel Connections

Figures 3 through 6 show the rear panels of the IN1806 and the three IN1808 Series models (see the **legend** on the next page).

Figure 3. IN1806 Rear Panel

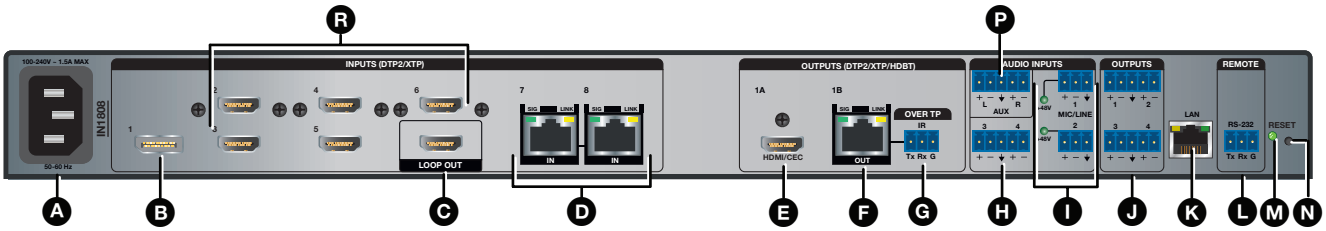


Figure 4. IN1808 Base Model Rear Panel

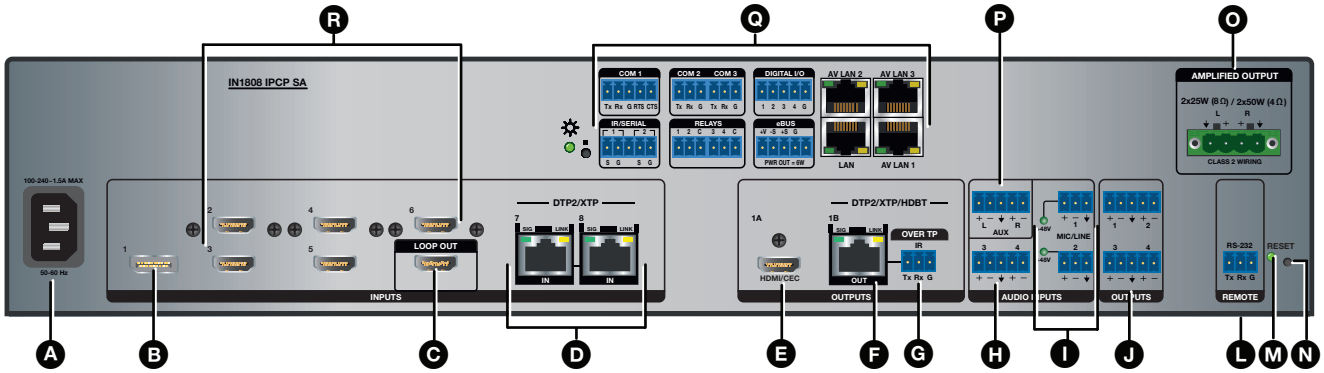


Figure 5. IN1808 IPCP SA Rear Panel

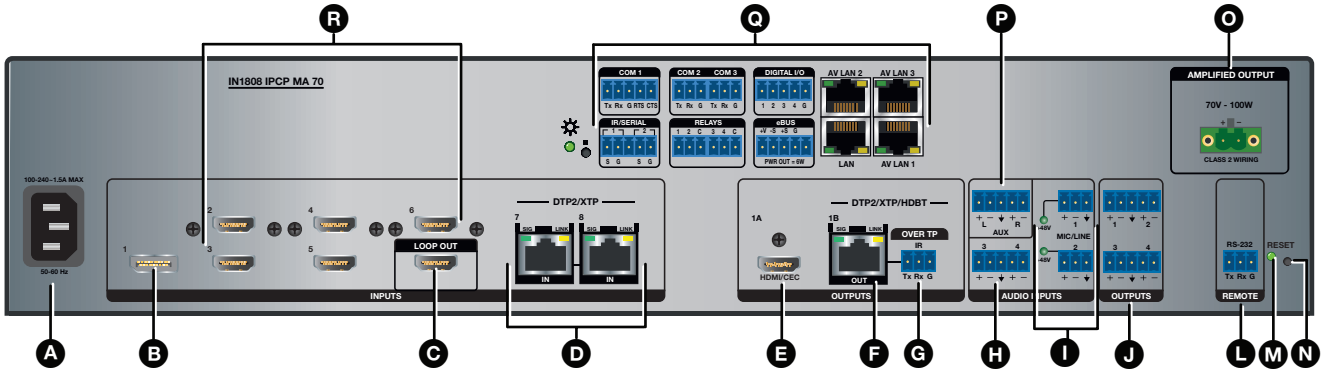


Figure 6. IN1808 IPCP MA 70 Rear Panel

- **A** **AC power connector**
- **B** **DisplayPort input connector** — Input 1
- **C** **HDMI (with CEC) Loop Out connector**
- **D** **DTP2/XTP input connectors** — Inputs 7-8 (IN1808 Series only)
- **E** **HDMI/CEC output connector** — Output 1A
- **F** **DTP2/XTP/HDBT output connector** (with CEC) — Output 1B
- **G** **Over TP IR pass-through connector**
- **H** **Analog audio Line inputs 3 and 4**
- **I** **Analog audio Mic/Line inputs 1 and 2**
- **J** **Analog audio Line outputs 1 through 4**
- **K** **LAN connector** (IN1806 and IN1808 base model only)
- **L** **Remote RS-232 connector**
- **M** **Reset LED**
- **N** **Reset button**
- **O** **Amplified audio output connector** (IPCP models only)
- **P** **Aux analog line audio connector**
- **Q** **IPCP control processor** (IPCP models only)
- **R** **HDMI input connectors** — Inputs 2 - 6

Ⓐ **AC power connector** — Connect a standard IEC power cord (provided) from a 100 to 240 VAC, 50-60 Hz power source to this connector (see **figure 3** on page 12 and **figures 4 through 6** on the previous page).

Ⓑ **DisplayPort input connector (input 1)** — Connect a DisplayPort source to this female DP connector (see **figure 3** and **figures 4 through 6**).

Ⓒ **HDMI (with CEC) Loop Out connector** — Connect a monitor to this buffered loop out connector (see **figure 3** and **figures 4 through 6**). This output can be tied to any input via SIS (see **SIS Configuration and Control** beginning on page 51) or PCS (see the *IN1806 and IN1808 Series Help File* within the IN1806 and IN1808 module of PCS).

Ⓓ **DTP2/XTP input connectors (inputs 7 and 8)** — (IN1808 Series only) Connect one or two DTP transmitters to the DTP2/XTP RJ-45 input connectors 7 and 8 (see **figures 4 through 6** on the previous page). These connectors also allow for remote powering of DTP transmitters.

You can configure the TP inputs for DTP or XTP mode via SIS commands (see the **Twisted Pair Protocol commands** on page 79), the on-screen display (see **Input Submenu** on page 33), or PCS (see the *IN1806 and IN1808 Series Help File* within the IN1806 and IN1808 module of PCS). For cable wiring and recommendations, see **Twisted Pair Recommendations for DTP, XTP, and HDBaseT Communication** on page 22.

ATTENTION:

- Do not connect these connectors 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 exclusivement réservée à un usage en intérieur. Un réseau utilisant une alimentation à distance ne peut pas être routé en extérieur.

The connectors for inputs 7 and 8 correspond to the following front panel LEDs:

- **Signal (Sig) LED** — Lights when the scaler is receiving an active video signal from a DTP2 transmitter or XTP matrix switcher.
- **Link LED** — Lights when a valid link is established to a transmitter device.

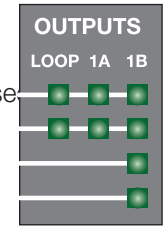
Ⓔ **HDMI (with CEC) output connector (output 1A)** — Connect an HDMI or DVI (with an appropriate adapter) output device to this HDMI output connector for HDMI video with embedded audio (see **figure 3** and **figures 4 through 6**). This connector and the DTP2/XTP/HDBT output connector are mirrored, meaning that they display the same image.

TIP: Use Extron HDMI LockIt Lacing Brackets to secure HDMI cables to the device (see **HDMI Connections** on page 20).

Consumer Electronics Control (CEC) — CEC control commands control basic control functions such as power on and off, input switching, volume, and mute. The IN1806 and IN1808 Series can issue CEC commands to a display device through the HDMI and DTP2 ports.

F DTP2/XTP/HDBT output connector (output 1B) — This connector and the HDMI output connector (1A) are mirrored, meaning that they display the same image (see **figure 3** on page 12 and **figures 4 through 6** on page 13).

- Connect a DTP or DTP2 receiver, an XTP matrix switcher, or an HDBaseT-compatible receiver to this RJ-45 twisted pair Out connector. For cable wiring and recommendations, see **Twisted Pair Recommendation for DTP, XTP, and HDBaseT Connectors** on page 22.
- This output also allows for remote powering of DTP and DTP2 receivers, as well as over-DTP analog audio which matches the 5-pole analog audio output of the receiver.
- To transmit or receive infrared data to and from a sink connected to the DTP/DTP2/HDBaseT receiver or XTP matrix, connect a control device to the 3-pole IR Over TP captive screw port (see **G Over TP IR pass-through port** on the next page).



The output 1B connector corresponds to the following front panel LEDs (see illustration at right):

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

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 DTP2 à distance est exclusivement réservée à un usage en intérieur. Un réseau utilisant une alimentation à distance ne peut pas être routé en extérieur.

Signal Support	
DTP Mode	**XTP Matrix and HDBaseT Mode**
• 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 (see **RS-232 and IR Signal Insertion** on page 47) • Remote power to a DTP receiver	• 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 (see **RS-232 and IR Signal Insertion**)

G **Over TP IR pass-through connector** — To transmit or receive infrared data to and from a sink connected to a DTP or DTP2 receiver, XTP matrix, or HDBaseT display, connect a control device to the 3-pole Over TP IR captive screw port (see **figure 3** on page 12 and **figures 4 through 6** on page 13). Figure 7 shows how to wire the connector.

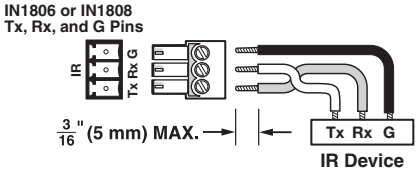


Figure 7. Wiring the Over TP IR Connector

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 control signal applied to an IN1806 or IN1808 Series LAN or AV LAN port can be routed to the RS-232 port of any connected twisted pair device (see **Ethernet to RS-232 Insertion** on page 48).

H **Analog audio line input connectors 3 and 4** — Connect line level analog audio sources to audio input connectors 3 and 4 on the 5-pole captive screw connector for balanced or unbalanced stereo audio (see **figure 3** and **figures 4 through 6**). Connectors are included with the unit, but the audio cable is not (see **figure 10** on page 19 for wiring).

I **Analog audio Mic/Line input connectors 1 and 2** — Connect balanced or unbalanced mic or line level inputs to these 3-pole Mic/Line captive screw connectors These inputs support optional +48 VDC phantom power, which is indicated by the LEDs at the left of the connectors.

J **Analog audio line output connectors 1 through 4** — Connect balanced or unbalanced analog audio output devices to one or both 5-pole captive screw audio output connector pairs 1 and 2 or 3 and 4 (see **Analog Audio Connections** on page 19).

ATTENTION:

- For unbalanced audio, connect the sleeves to the ground contact. **Do not** connect them to negative (–) contacts.
- Pour l'audio asymétrique, connectez les manchons au contact au sol. Ne PAS connecter les manchons aux contacts négatifs (–).

- 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.

K **LAN connector (IN1806 and IN1808 base model only)** — To control the IN1806 and the IN1808 base model through Ethernet, connect a LAN or WAN to this RJ-45 LAN connector (see **figure 3** on page 12 and **figures 4 through 6** on page 13). Ethernet control allows you to configure and control the scaler from a remote location via SIS commands, the PCS software, or the embedded web pages.

NOTE: For the IPCP models, connect a LAN or WAN to any of the AV LAN connectors or to the LAN connector on the IPCP Pro control processor (see **Q** on the next page).

L **Remote RS-232 connector** — Connect a host device to this 3-pole captive screw connector for RS-232 serial control of the scaler (see **figure 3** and **figures 4 through 6**). The default baud rate is 9600.

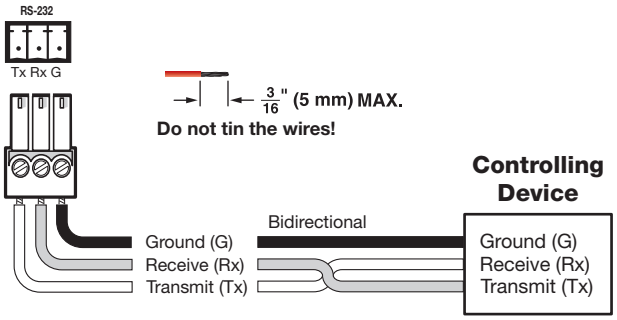


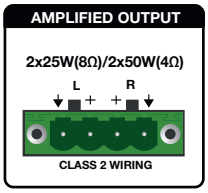
Figure 8. RS-232 Wiring

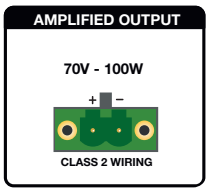
M **Reset LED** — This green LED remains lit while the IN1806 and IN1808 Series has power (see **figure 3** and **figures 4 through 6**). While the **Reset** button (see **N**, below) is being pressed and held, this LED blinks every 3 seconds to indicate the level of reset initiated if the button is released at that point (see **Reset Modes** on page 46 for more information).

N **Reset button** — This recessed button initiates levels (modes) of reset on the IN1806 and IN1808 Series. To initiate the different reset levels, use a pointed object such as a small Philips screwdriver or a stylus to press and hold the button while the scaler is running or while it is being powered up (see **Reset Modes**).

O **Amplified audio output connector** (see **figures 4 through 6**) —

- **IN1808 IPCP SA** — Connect unpowered speakers, 4-ohm @ 50 watts or 8-ohm @ 25 watts, to the 4-pole Amplified Output connector (shown at right) to play amplified stereo audio.
- **IN1808 IPCP MA 70** — Connect unpowered, high impedance speakers to the 2-pole Amplified Output connector (shown at right) to play amplified mono audio.





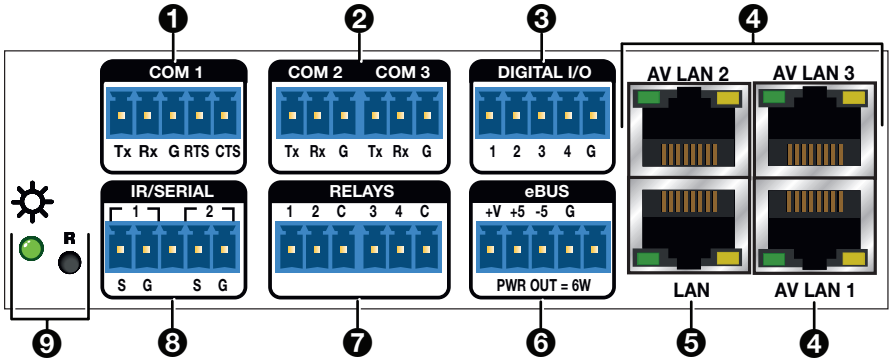
ATTENTION:

- Ensure the rated input voltage of the speakers matches the rated output voltage of the IN1806 or IN1808.
- Assurez-vous que la tension nominale d'entrée des enceintes soit compatible avec la tension nominale de sortie du IN1806 ou IN1808.

P **Aux line audio input connector** — Connect a line level analog audio source to this 5-pole captive screw connector for balanced or unbalanced mono or stereo audio (see **figure 3** and **figures 4 through 6**). The Aux input is shared and can be associated with one or more video inputs (see **Analog Audio Connections** on page 19).

Q IPCP control processor (IN1808 IPCP SA and IN1808 IPCP MA 70 only) — The IN1808 IPCP models include a built-in IPCP Pro 355M Control Processor (see **figures 5 and 6** on page 13). For these models, the LAN connector is incorporated in the IPCP control processor. For connection and installation details of this control processor, see the *IPCP Pro Series User Guide* at **www.extron.com**.

The IPCP module contains the following:



❶ **COM 1 Port**
❷ **COM 2 and COM 3 ports**
❸ **Digital I/O port**
❹ **AV LAN ports**
❺ **LAN port**
❻ **eBUS port**
❼ **Relay ports**
❽ **IR/Serial ports**
❾ **Reset button and LED**

Figure 9. IPCP Control Module (IPCP Models Only)

The IPCP module ports are configurable via Global Configurator (GC) software, available at **www.extron.com**.

❶ **COM 1 port** — 5-pole captive screw bidirectional RS-232/RS-422/RS-485 port for Tx/Rx/G/RTS/CTS

❷ **COM 2 and COM 3 ports** — Bidirectional 3-pole captive screw RS-232 ports for Tx/Rx/G

Use the COM ports for serial control of a display or other device and to receive status messages from the connected devices.

❸ **Digital I/O ports** — 5-pole captive screw connector, supporting four TTL level digital inputs or outputs, with or without +5 VDC pull-up. Connect switches, sensors, LEDs, relays, or similar items to these ports, which enable monitoring of connected devices and trigger functions on the control processor.

❹ **AV LAN ports 1 - 3** — Network switch with its own network interface that keeps the AV subnetwork separate from the corporate network for security purposes and to reduce traffic on the corporate or outside network.

To connect the IPCP to an Ethernet network (for configuration and control of the IPCP module and the devices connected to it), connect an internet cable between any of these RJ-45 sockets and a network switch, hub, router, or PC connected to a local network or the Internet.

AV LAN ports 1 - 3 use a separate network interface from that of the LAN port.

NOTE: A dedicated AV LAN safeguards AV systems from outside intrusion or interference by separating device control and other network traffic from a corporate or campus network. To ensure the control processor LAN and AV LAN connections (ports) are connected to separate networks, the LAN and AV LAN IP address schemes must be on different subnetworks.

5. **LAN port** — Single Ethernet connector. The IN1806 and the IN1808 base model each have a LAN connector to the left of the Remote RS-232 connector (see **figures 3 and 4**, K, on pages 12 and 13) instead of the LAN and AV LAN ports on the IPCP models (see **figures 5 and 6**, Q, on page 13).

6. **eBUS port** — 5-pole captive screw connector supporting up to eight eBUS endpoints, with a maximum power output of 9 watts

7. **Relay ports** — Four relays on two 3-pole captive screw connectors containing individual contacts for each relay and a shared Common (C) connector. Each relay supports 24 VDC of power and up to 1 amp of current.

8. **IR/Serial ports** — Two unidirectional RS-232 or IR ports (configurable), which share a single 5-pole captive screw connector

9. **Reset button and LED** — Pressing this recessed button causes various IPCP settings to be reset to the factory defaults. The green power LED blinks depending on the selected reset mode.

R **HDMI input connectors (Inputs 2 through 6)** — Connect HDMI video sources to these female HDMI connectors.

> **TIP:** Use Extron HDMI LockIt Lacing Brackets to secure HDMI cables to the device (see **HDMI Connections** on page 20).

Connection Details

Analog Audio Connections

Wire the audio input and output connectors as shown in figure 10. Use the supplied tie wrap to strap the audio cable to the extended tail of the connector.

> **NOTE:** These instructions do not apply to the amplified audio output connector on the IN1808 IPCP SA and MA models.

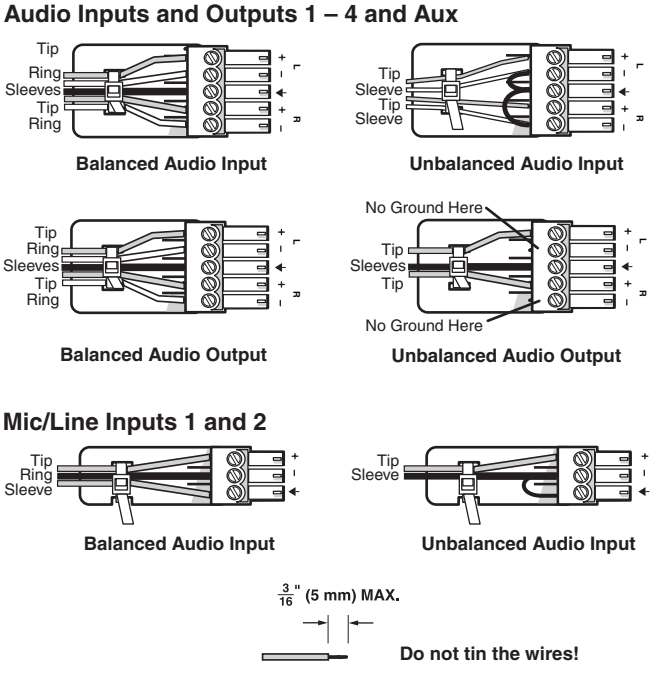


Figure 10. Analog Audio Wiring

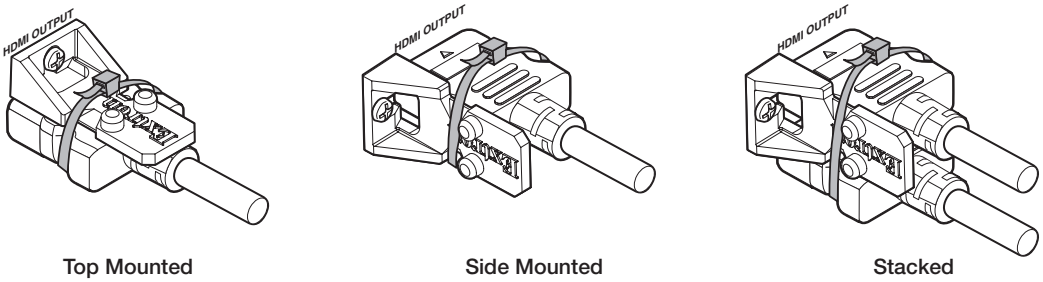
ATTENTION:
• The length of the exposed wires in the stripping process is critical. The ideal length is 3/16 inch (5 mm). If the exposed portion is longer, the wires may touch, causing a short circuit between them. If the exposed wires are shorter, they can be easily pulled out, even if tightly fastened 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 wires are not as secure in the captive screw terminals <connector> and could pull out. • 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 Extron LockIt cable lacing brackets to secure HDMI cables to the unit.

Mounting orientations

The HDMI device must have an HDMI connection mounting screw for this bracket to be used. Depending on the location of the mounting screw in relation to the HDMI connector, the LockIt bracket can be mounted to the screw at the right of the connector (side mounted) or below it (top mounted). Two HDMI cables can also be attached to one side mounted bracket (stack mounted).

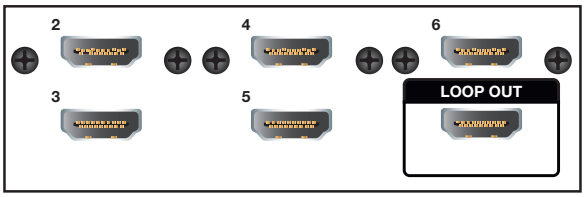


Top Mounted Side Mounted Stacked

Figure 11. LockIt Bracket Mounting Orientations

The IN1806/IN1808 connectors require the LockIt brackets to be mounted as follows:

- **HDMI inputs 2, 4, and 6** — Side mounted. Can be stacked with the connectors below them.
- **HDMI inputs 3 and 5, HDMI Loop Out** — Stack mounted. Because these connectors have no mounting screws of their own, each must be stack-mounted with the connector above it:
  - HDMI Input 2 with HDMI Input 3
  - HDMI Input 4 with HDMI Input 5
  - HDMI Input 6 with Loop Out



- **HDMI Output 1A** — Top mounting (shown in figure 12)

Bracket mounting procedure

To securely fasten an HDMI cable to a device:

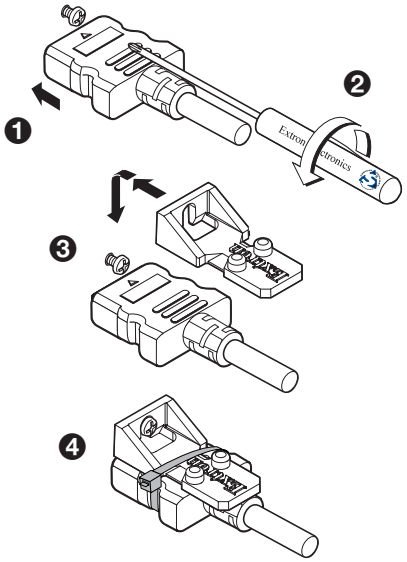


Figure 12. Top Mounting a LockIt Cable Lacing Bracket

1. Plug the HDMI cable into the panel connection (see figure 12, ❶).
2. Loosen the HDMI connection mounting screw from the panel enough to allow the LockIt lacing bracket to be placed over it (❷). The screw does not have to be removed.
3. Place the LockIt lacing bracket on the screw and against the HDMI connector, then tighten the screw to secure the bracket (❸).
4. Loosely place the included tie wrap around the HDMI connector and the LockIt lacing bracket as shown. If using a stacked pair of connectors (such as HDMI Inputs 2 and 3), place the tie wrap around both connectors and the bracket (see **figure 11** on the previous page).
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 (❹).

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 DTP, XTP, and HDBT Communication

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

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

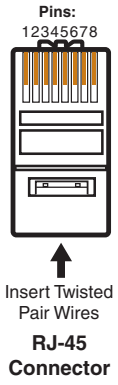


Figure 13. Twisted Pair Cable Configuration

Supported cables

The scalers 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.

- 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
  - **XTP DTP 24P/1000** Plenum 1000 ' (305 m) spool
  - **XTP DTP 24 Plug** Package of 10
- 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.

Operation

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

- **Front Panel Overview**
- **Powering Up**
- **Selecting an Input**
- **Selecting a Logo**
- **Using the On-Screen Menu System**
- **Front Panel Lockout (Executive Modes)**
- **Reset Modes**
- **RS-232 and IR Signal Insertion**

Front Panel Overview

The IN1806 and IN1808 Series front panel features differ from each other as follows (see the **legend** on the next page): both IN1808 IPCP models have IPCP Pro 355 Control Processors, while IN1806 and the IN1808 base model do not. The two IPCP models have identical front panels, except for their product names.

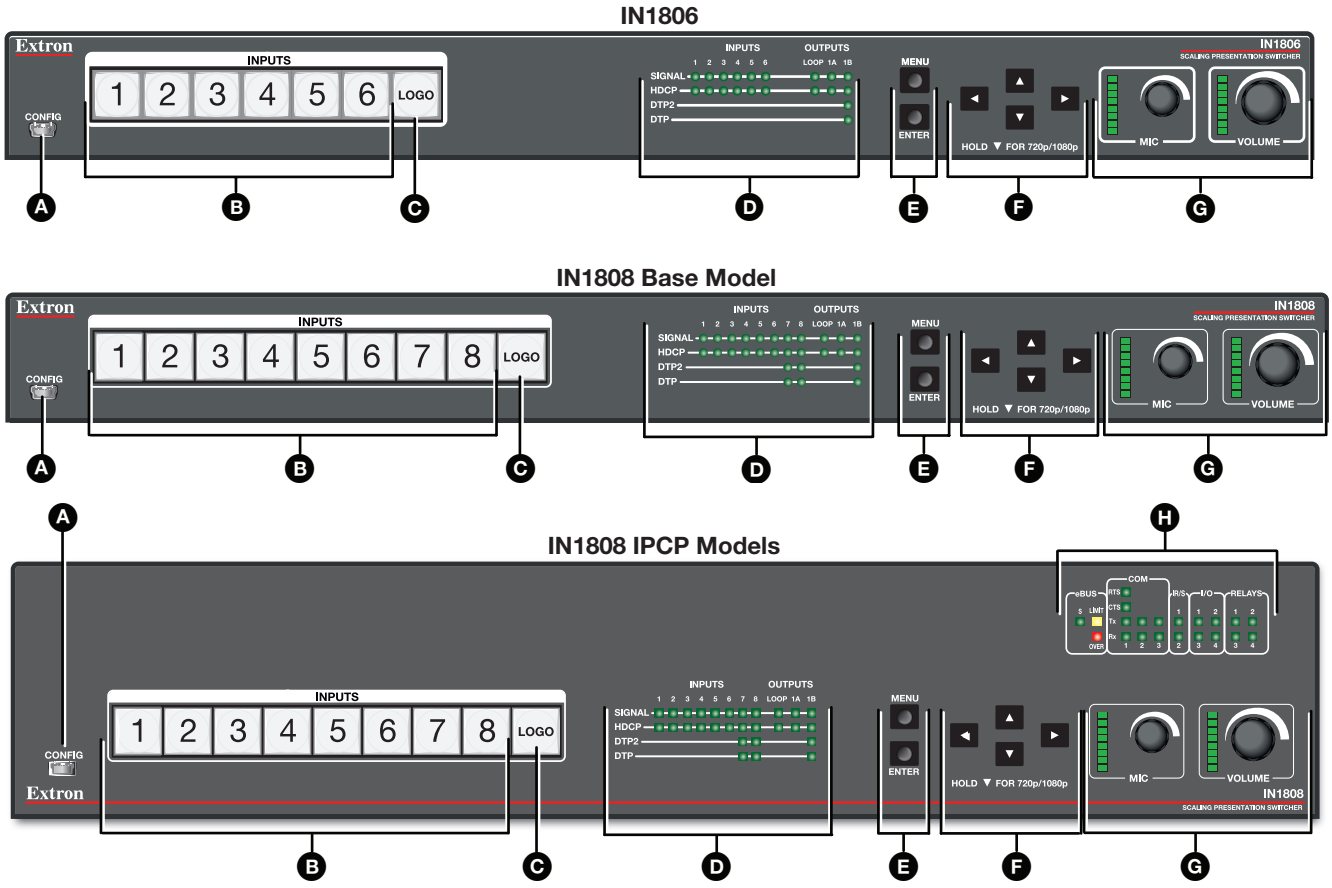


Figure 14. IN1806 and IN1808 Series Front Panels

A **Front panel configuration port** — Connect a host device to the USB mini-B port for device configuration, control, and firmware upgrades.

B **Input selection buttons** — (1 through 6 on IN1806, 1 through 8 on IN1808 Series) Press one of these buttons to select an input. The buttons light amber for audio and video, green for video only, or red for audio only.

C **Logo button** — Press this button to enable or disable the most recently selected logo. Press and hold the button to select the logo in the desired slot, using the input selection buttons:

- **IN1806** — Slots **1** through **6** (slots 7 through 16 are available only via SIS commands and PCS).
- **IN1808 series** — Slots **1** through **8** (slots 9 through 16 are available only via SIS commands and PCS).

See **Selecting a Logo** on the next page for more information.

D **Status LED indicators**

- **Input signal LEDs** — These eight LEDs light green for their corresponding inputs when active video content is detected on that input.
- **Output signal LEDs** — Output LEDs 1A, 1B, and Loop light green when active video is being output, and blink amber when output video and sync are disabled.
- **Input HDCP LEDs** — These eight LEDs light green for each input signal that is HDCP-encrypted.
- **Output HDCP LEDs** — These three LEDs light green for an output when it is currently HDCP-encrypted.
- **DTP2 and DTP Input LEDs** — These two LEDs light green if DTP or DTP2 power has been enabled on the corresponding input.
- **DTP2 and DTP Output LEDs** — These Output LEDs light green if DTP or DTP2 power has been enabled on DTP output 1B.

E **Menu and Enter buttons** — Press these buttons to access and navigate the on-screen display menu system.

F **Navigation buttons** — Press these buttons to navigate through the on-screen display menu system or change settings.

G **Mic and Volume knobs and LED indicators** — Rotate the **Mic** knob to adjust the microphone level. Rotate the **Volume** knob to adjust the program or output volume level (configurable, see the *IN1806 and IN1808 Series PCS Help File* for more information). The eight LED indicators for each knob light according to the level being adjusted. The LEDs light in order from bottom to top to indicate steps from 0% to 100% of the set limits. The LEDs blink when levels are approaching the lower or upper limits.

H **IPCP Pro LED indicators** (IPCP models only) — These LEDs light to indicate status of the IPCP module ports (see the *IPCP Pro Series User Guide*, available at **www.extron.com**, for details).

Powering Up

To power on the unit, connect the provided IEC power cable between the rear panel power connector and an AC power source. During power-up, the following occurs in the order listed:

1. All backlit buttons (the input buttons and the **Logo** button) blink amber, red, and green for approximately 15 seconds.
2. The backlit buttons light steadily amber and remain lit for approximately 15 seconds.

   On IPCP models, the RTS and I/O IPCP LEDs light and remain lit.
3. The backlit buttons blink in sequence once, then turn off and remain unlit for approximately 10 seconds.
4. When the unit is ready for operation:
   - The button for the previously selected input lights steadily. If audio breakaway is not enabled, one input button lights amber. If audio breakaway has been selected, the selected video input button lights green and the audio input button lights red.
   - If input or output signals are present, the appropriate input and output LEDs light.
   - If a logo has been selected, the **Logo** button lights amber.
   - The green Mic and Volume LEDs light to the level previously set.

Selecting an Input

Press any of the input buttons on the front panel to select an input. The button lights amber.

You can also select inputs via SIS commands (see the **Input Selection commands** on page 62) or PCS (see the *IN1806 and IN1808 Series PCS Help File).*

NOTE: The input buttons cannot select audio and video separately. To select breakaway audio, you must use PCS or SIS commands.

Selecting a Logo

The front panel **Logo** button enables you to select a logo that has been stored in one of logo memory slots 1 through 6 (IN1806) or 1 through 8 (IN1808) (7 or 9 through 16 can be selected only via SIS commands or PCS) and to enable or disable displaying the selected logo on the screen.

To select a logo to display:

1. Press and hold the front panel **Logo** button until the input buttons representing the slots containing logos light green (approximately 3 seconds). The buttons remain lit for about 15 seconds.
2. Press the lit button for the desired logo. The **Logo** button lights amber and the logo stored in the selected slot is displayed on the screen.

To deselect a logo, press the lit **Logo** button. The button turns off and the logo disappears from the screen.

NOTE: To configure logo key effects (such as RGB keying, alpha keying, and so on), you must use PCS (see the *IN1806 and IN1808 Series Help File*).

Using the On-Screen Menu System

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

NOTES:

- The on-screen menu has a default timeout of 60 seconds.
- The screen examples shown in this section show the OSD screens of an IN1808 IPCP SA. The OSD for your product may differ slightly.

Menu Selection Buttons

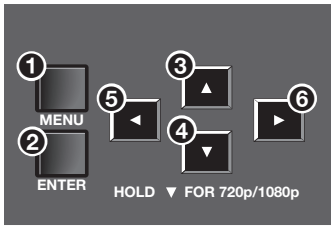


Figure 15. Menu Selection Buttons

- **Menu button** — Press the **Menu** button (see figure 15, ❶) to activate or exit the on-screen menu, deselect a submenu, or cancel a pending change.
- **Enter button** — Press the **Enter** button (❷) 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**) (❸) or the ▼ (**Down**) (❹) arrow button to navigate submenus or submenu items.
  - Press the ► (**Right**) arrow button (❺) to access currently selected submenus or submenu items.
  - Press the ◄ (**Left**) (❻) 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	Temp.	Active Input Details	Output 1A Details	Output 1B Details	Loop Input Details	Loop Output Details
Quick Setup	IN*n*: Input Mode	IN*n*: EDID	Output Rate and Resolution	Audio Mute Status	Test Pattern	DHCP Mode	IP Address	
Picture Controls	Auto-Image	Image Position	Image Size	IN*n*: Brightness (Selected Input)	IN*n*: Contrast (Selected Input)	Detail		
Input	IN*n*: Input Mode	IN*n*: Film Detect mode (Selected Input)	Active Video	IN*n*: HDCP Authorized (Selected Input)	IN*n*:EDID	Capture EDID		
Output	Output Rate and Resolution	HDMI 1A Format	TP 1B Format	TP 1B Mode	HDCP Notification	Loop Out	Loop Out Format	
Audio	Audio Mute	IN*n*: Audio Format (Selected Input)						
Advanced	Test Pattern	Screen Saver	Screen Saver Timeout	IN*n*: Aspect Ratio (Selected Input)	IN*n*: Auto Memory (Selected Input)	Auto Switch	Input Switch Effect	Factory Reset
Communications	Serial Port Baud Rate	MAC Address (view-only)	DHCP On or Off	IP Address	Subnet Mask	Gateway		

Using the Menu Screens

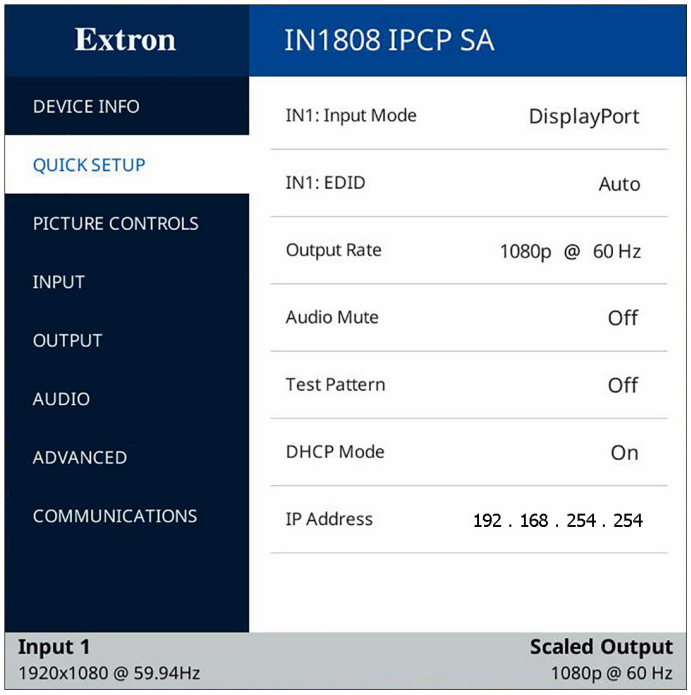


Figure 16. On-screen Menu Example

To open the on-screen menu:

1. Connect a display device to an HDMI output connector (see **Rear Panel Connections**, beginning on page 12).
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 and return to the submenu.

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. Alternatively, wait for the menu display to time out (approximately 60 seconds).

Device Info Screen

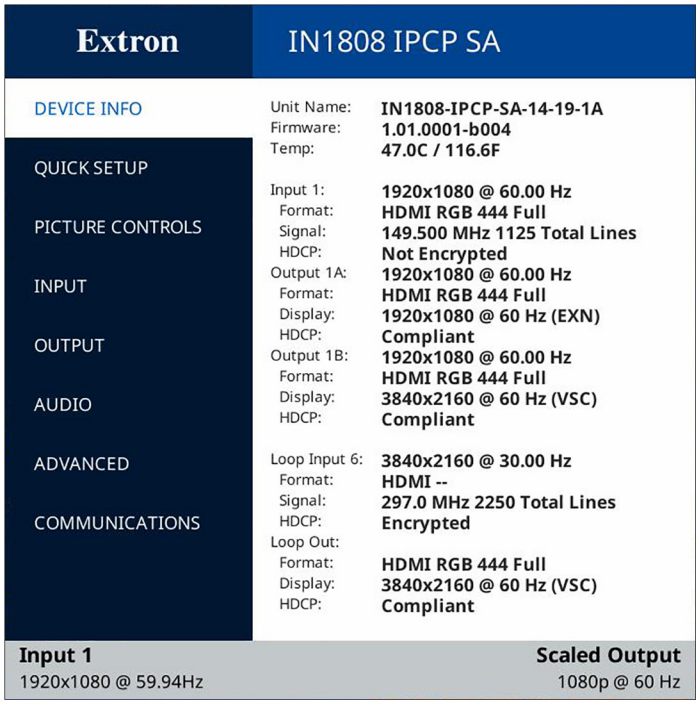


Figure 17. Device Info Screen

The read-only `Device Info` screen is listed first in the submenus (left) panel. This screen contains information about your IN1806 or IN1808, including unit name, firmware version, internal temperature in Celsius and Fahrenheit, and format and signal information for the selected input device, all outputs, and the loop out.

Quick Setup Submenu

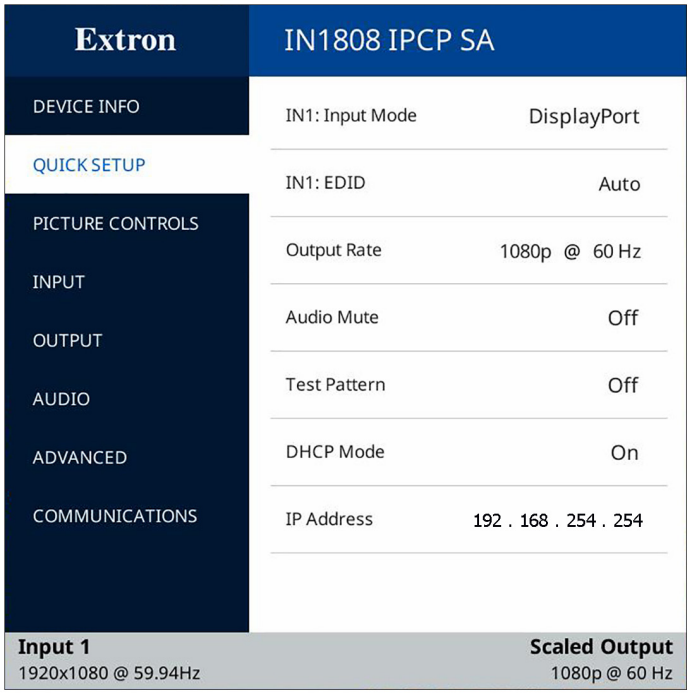


Figure 18. Quick Setup Submenu

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:

- **IN*n*: Input Mode** — Displays the video format (such as HDMI or DisplayPort) of the connected input.
- **IN*n*: 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 also 10 custom options, prefaced by `C1` through `C1Ø`.
- **Output Rate** — Press the ▲ and ▼ buttons to select from a list of output resolutions and refresh rates (see **Output Rate** on the `Output` submenu beginning on page 36). There are 10 custom options, prefaced by `C1` through `C1Ø`. The default setting is `1Ø8Øp @ 6Ø Hz`.
- **Audio Mute** — Press the ▲ and ▼ buttons to toggle between mute (**`On`**) and unmute (**`Off`**) for the audio. The default is **`Off`**.
- **Test Pattern** — Press the ▲ and ▼ buttons to select a test pattern to display, or to turn test patterns off (see **Test Pattern** on the OSD `Advanced` submenu on page 40). 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** — In DHCP mode, the unit is assigned an IP address when it connects to the network. Press the ▲ and ▼ buttons to toggle between enabling (**`On`**) and disabling (**`Off`**) DHCP mode. The default is **`Off`**.
- **IP Address** — Press the ◄ and ► buttons to switch between octets. Press the ▲ and ▼ buttons to change the value of a selected octet. The default address is 192.168.254.254.

Picture Controls Submenu

Figure 19. Picture Controls Submenu

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 20). The separate item field contains blue arrows that indicate which front panel arrow buttons to press to adjust the item.

Figure 20. 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 20, 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.

Available picture controls

The **Picture Controls** submenu adjusts the following 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** — Press the **Enter** button to execute an Auto-Image on the active input, to restore it to the default size and position. 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 63 or PCS (see the *IN1806 and IN1808 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 **IN*n*: Aspect Ratio** on page 41).

- **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**.

  Press **Enter** to select the changes and return to the submenu.

- **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

  Press **Enter** to select the changes and return to the submenu.

- **IN*n*: Brightness** — Press the ▲ and ▼ buttons to adjust the black level of the video signal. The range is **0** through **127**. The default is **64**.

  Press **Enter** or ► to select the changes and return to the submenu.

- **IN*n*: 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**.

  Press **Enter** or ◄ to select the changes and return to the submenu.

- **Detail** — Press the ▲ and ▼ buttons to adjust the image sharpness. The range is **0** through **127**. The default is **64**).

  Press **Enter** or ◄ to select the changes and return to the submenu.

Input Submenu

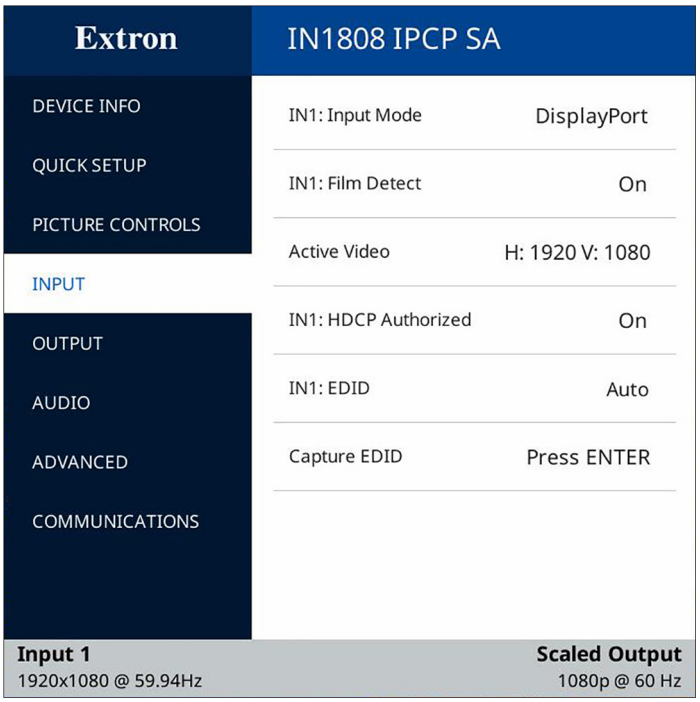


Figure 21. Input Submenu

The `Input` submenu adjusts the active input.

- **IN*n*: Input Mode** — Displays the signal type of the selected input.
  - **For input 1** it shows `DisplayPort` if a DisplayPort source is connected, `No Signal` if not (view-only).
  - **For inputs 2 through 6** it displays `HDMI` or `DVI` as appropriate if a source is connected, `No Signal` if not (view-only).
  - **For inputs 7 and 8** (IN1808 Series only), use the ▲ and ▼ buttons to select between **`DTP`** and **`XTP`**. If no DTP or XTP source is connected, both options also display `(No Signal)`.
- **IN*n*: Film Detect** — Film mode detection helps maximize image detail and sharpness for video sources originating from film. Press **`Enter`** to select the item, then press the ▲ and ▼ buttons to toggle between **`On`** (default) and **`Off`**.

  If **`On`** is selected, the IN1806 and IN1808 Series 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 IN1806 or IN1808 Series input reports to the source as an authorized HDCP sink. Press **Enter** to select this item, then 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 scaler to remain unencrypted.

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

- **IN*n*: 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** on the next page lists the available EDID selections, including their SIS command variable numbers (see the **Input EDID commands** on page 63 for information on the SIS commands).
- **Capture EDID** — Select this item to capture the EDID of the sink device attached to an output and save it to one of the 10 custom EDID slots. The IN1806 or IN1808 assigns the captured EDID to its selected input. To capture an EDID:

  1. Select **Capture EDID**, then press **Enter**. A list of the 10 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: 1Ø8Øp @ 6Ø 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).

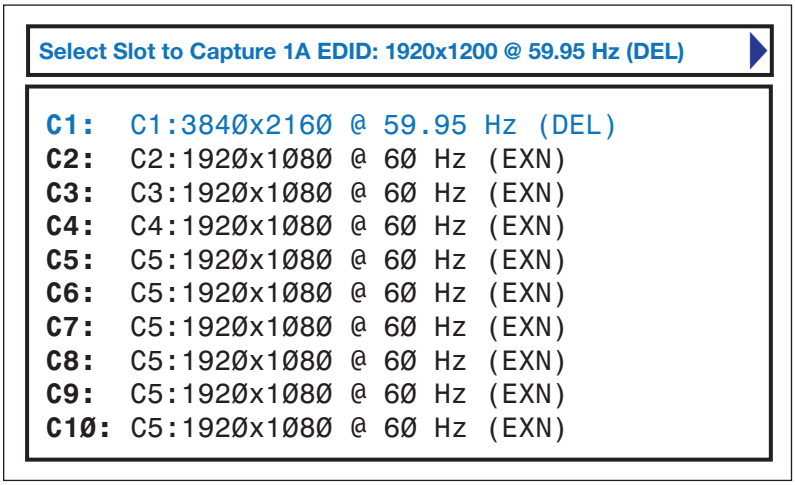
     

     Figure 22. Custom EDID Slots List Example

  2. Press the ▲ or ▼ button to move the highlighting to the slot to which you want to save the current display EDID.
  3. Press the ◄ or ► button to display the output to which the select EDID will be captured. In figure 22, output 1A (HDMI) was selected and appears in the top panel.

4. Press **Enter**. The display EDID is saved to the selected custom slot and assigned to the connected inputs.

Input EDID Resolutions

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***								
Automatic*	Match current scaler output resolution							
Custom EDID	2Ø1 - 21Ø							

***Default input EDID**

****Rates supported only with 4:2:0 color sampling on an input in DTP or XTP mode. 4:4:4 sampling supported from DTP2 transmitters or on DisplayPort or HDMI inputs only.

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

Output Submenu

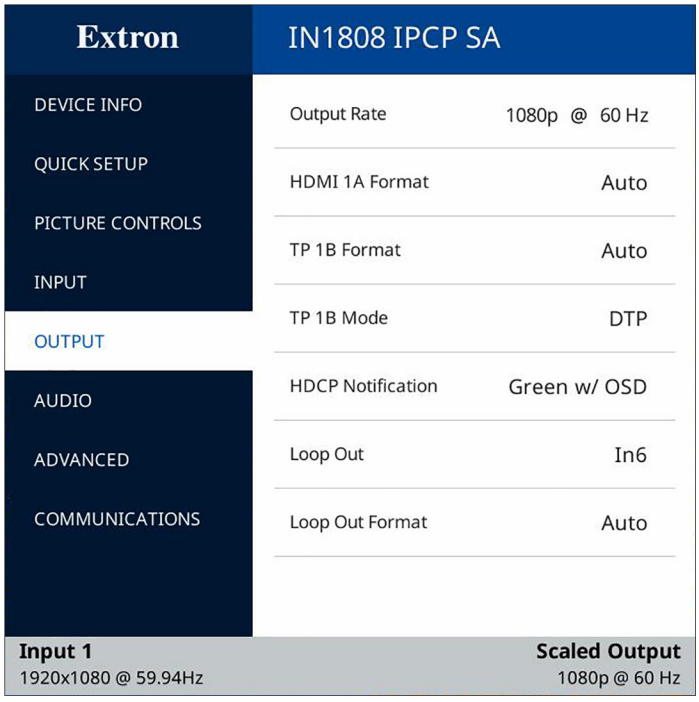


Figure 23. Output Submenu

The `Output` submenu enables you to configure the output resolution, refresh rate, HDMI and TP format, TP mode, HDCP notification, and Loop Out format and connected input.

- **Output Rate** — Select this item to specify the output resolution and refresh rate. The IN1806 and IN1808 Series scalers have a range of resolutions from which to choose (see the **Output Resolutions and Refresh Rates** table on the next page for the available settings). The available rates depend on the selected resolution.

  Ten 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.

  When a resolution is applied to a user-defined EDID slot, its name is displayed in the `Output Resolution` panel in the format c*n*: *nnnn*x*nnnn* @ *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 10 custom, user-defined output rates default to 1080p @ 60 Hz when no custom EDID is captured or uploaded.

Output Resolutions and Refresh 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 on HDMI output or to DTP2 endpoints only.

******* Rate supported on HDMI output only.

- **HDMI 1A Format** — Select **`HDMI 1A Format`** or **`TP 1A Format`** from the list of `Output` submenu items, then 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

- **TP 1B Format** — Select **`TP 1B Format`** from the list of `Output` submenu items, then press the ▲ or ▼ buttons to select the format. The format choices are the same as for HDMI 1A:
  - 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
- **TP 1B Mode** — This item lets you select the twisted pair mode of the DTP2/XTP/HDBT Output 1B. To switch among modes for the TP output port, select this item and press the ▲ or ▼ buttons to select **`DTP`**, **`XTP`**, or **`HDBT`**.
- **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. Press **`Enter`** to select this item, then 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 *IN1806 and IN1808 Series Help File* for instructions).

Audio Submenu

Figure 24. Audio Submenu

The `Audio` submenu allows you to mute the audio and to set the audio input format. To use this submenu, press **`Enter`** to select this item, then press the ▲ or ▼ button to move between the two 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).
  - **On** — Mutes both the analog and the embedded digital audio outputs.
- **IN*n*: 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	Source	Details
`None`	None	All audio outputs are muted.
`Analog Audio`	Analog	Utilizes analog Aux input for inputs 1 through 6. Utilizes DTP Tx analog input for inputs 7 and 8 (IN1808 Series only). Sets the selected input to analog.
`LPCM-2Ch`	Embedded digital.	Sets 2Ch EDID. If LPCM-2Ch audio is present on the input, it is passed to DSP for availability on all analog and digital audio outputs. For 3- or more channel LPCM (such as Dolby or DTS), the signals bypass DSP and are re-embedded in the digital video outputs.
`Multi-Ch`	Embedded digital.	Sets Multi-Ch EDID. If LPCM-2Ch audio is present on the input, it is passed to DSP for availability on all analog and digital audio outputs. For 3- or more channel LPCM (such as Dolby or DTS), the signals bypass DSP and are re-embedded in the digital video outputs.
`LPCM-2Ch Auto*` (Default)	Embedded digital when present, otherwise uses the Aux 5-pole captive screw input (inputs 1-6) or the 5-pole captive screw input of the connected DTP Tx (inputs 7-8).	Sets 2Ch EDID. Defaults to analog audio if digital audio is not detected on the digital video input, or if no digital video input signal is present. If digital audio is detected, LPCM-2Ch signals are passed to DSP. If 3- or more channel LPCM is detected the signals bypass DSP and are re-embedded into the digital video outputs.
`Multi-Ch Auto*`	Embedded digital when present, otherwise uses the Aux 5-pole captive screw input (inputs 1-6) or the 5-pole captive screw input of the connected DTP Tx (inputs 7-8).	Sets Multi-Ch EDID. Defaults to analog audio if digital audio is not detected on the digital video input, or if no digital video input signal is present. If digital audio is detected, LPCM-2Ch signals are passed to DSP. If 3- or more channel LPCM is detected the signals bypass DSP and are re-embedded into the digital video outputs.

*****These Auto modes are useful when it is not known whether a source will provide embedded digital or analog audio (such as a podium laptop connection).

NOTE: DSP is provided to enable configuration of specific audio features, such as Mic/Line mixing, signal processing (ducking, feedback suppression, dynamics, equalization, and delay), gain adjustment, volume control, and phantom power.

- Use PCS to configure DSP and other audio parameters for the audio inputs and outputs (see the *IN1806 and IN1808 Series PCS Help File* for detailed instructions).
- Use SIS commands to configure non-DSP audio parameters (see the **Audio Configuration commands** beginning on page 74).

Advanced Submenu

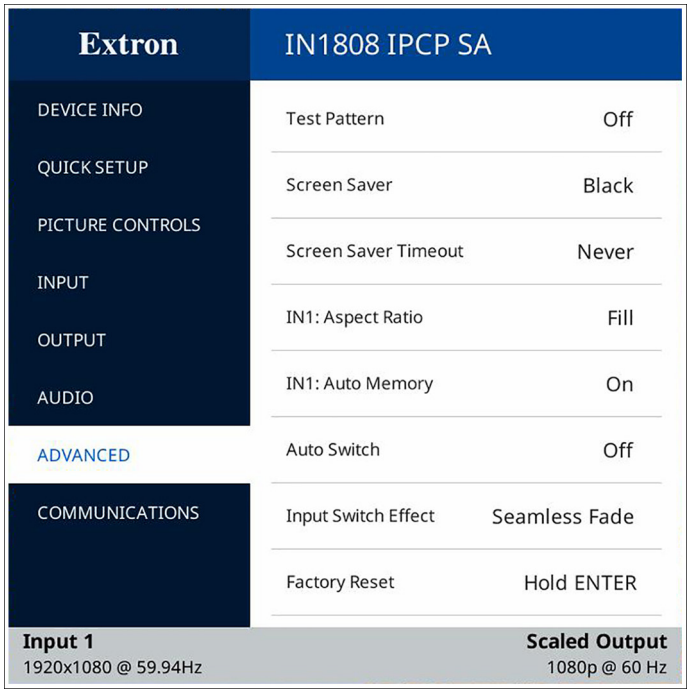


Figure 25. Advanced Submenu

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:

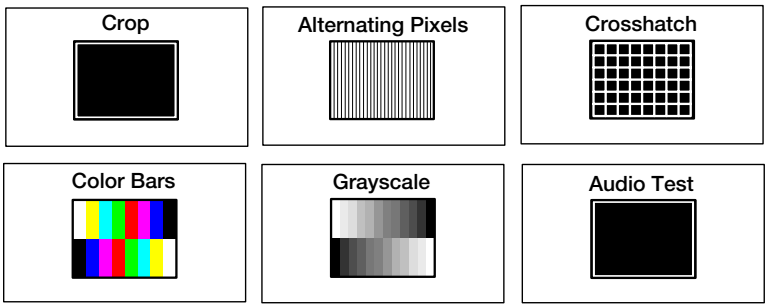


Figure 26. Available Test Patterns

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 configure 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 `IN180`*`n`* `<`*`product name`*`> Input:`*`n`* `No Signal`
     - **User Image** — Displays an image that has been previously uploaded to the unit. The location of this image on the screen can be adjusted using SIS commands (see the **Horizontal Shift (Logo) and Vertical Shift (Logo) commands** on page 71) or PCS (see the *IN1806 and IN1808 Series PCS Help File*).
  3. Press **`Enter`** to confirm your selection.

  NOTE: The scaler 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 44), pressing a front panel button exits the time-out but access to any front panel controls or the menu system is disabled.

- **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`** (501 seconds, the default) to set the sync to never time out.

- **IN*n*: Aspect Ratio** — Sets the aspect ratio for the selected input to **`Fill`** (the default, fills the entire output raster) or **`Follow`** (follows the native aspect ratio of the input).
  - **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**, beginning on page 31).
  - **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`*.

- **IN*n*: Auto Memory** — Enables or disables Auto Memory. When Auto Memory is set to On (default), the IN1806 or IN1808 stores the current input configuration and picture control values.

  The scaler 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 scaler 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 IN1806 and IN1808 switches to the most recently connected input and retains a history of the order in which input signals were previously connected to the scaler. If an input is disconnected or the currently selected input is disabled, the scaler 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	3	1	
6	Input 2 disconnected	3	1		

  - **User Priority** — You can define a priority using PCS (see the *IN1806 and IN1808 Series Help File*) or SIS commands (see the **Auto-input Switch Mode commands** on page 65) 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 scaler is switching inputs (see the examples in figure 27). Press the ▲ or ▼ button to select from the following available effects:

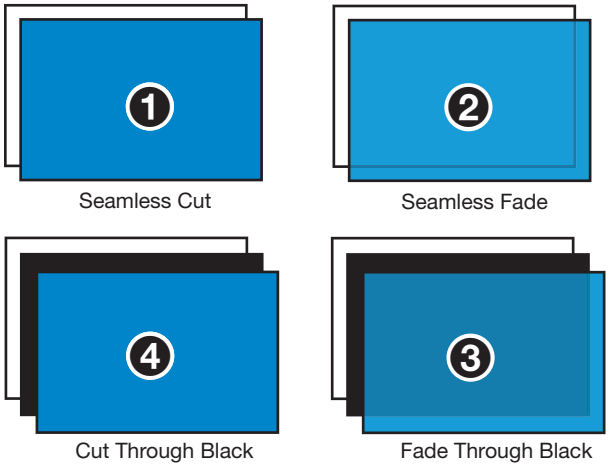


Figure 27. Transition Effects

The switch effects, listed below in order of appearance on the menu, include:

- **Seamless Fade** (default) — Displays a final frozen frame of the previous input while the newly selected input fades in (see figure 27, ❷).
- **Fade thru Black** — The current input fades to black before the newly selected input fades in (❸).
- **Cut thru Black** — The current input instantly cuts to black, then immediately cuts to the newly selected input with no fading in or out (❹).
- **Seamless Cut** — The last frame of video freezes on the screen, then cuts to the newly selected input (❶).

- **Factory Reset** — Resets the unit to its factory default values (removing any user-specified values) while retaining all network 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 IN1806 or IN1808 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 46.

Communication Submenu

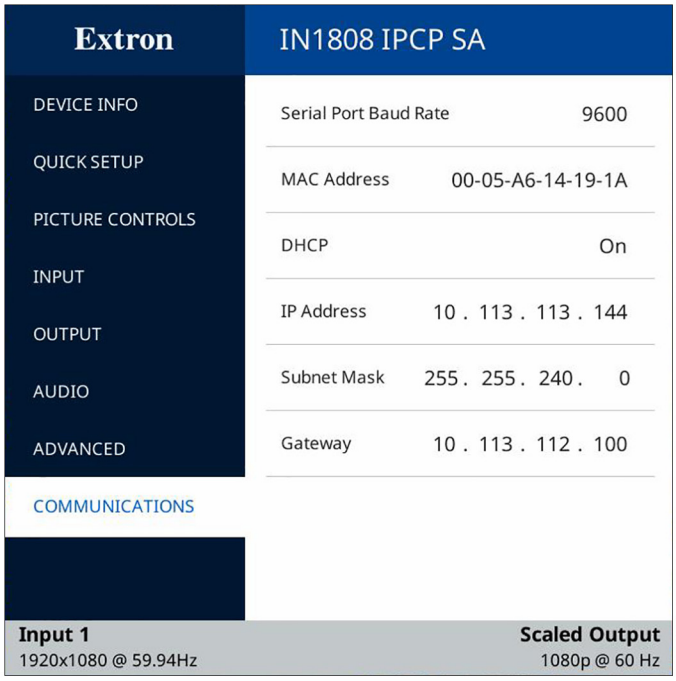


Figure 28. Communication Submenu

The `Communication` submenu enables you to view the serial port baud rate and the unit media access control (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 Remote RS-232 serial 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 82), the PCS software, or the internal web page (see **Network Settings Panel** on page 109).
- **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 IN1806 and IN1808 Series scalers have five modes of front panel security lock that limit the operation of the device from the front panel. When the front panel controls are locked, RS-232, USB, and Ethernet control remain operational.

NOTE: All lock modes persist after a power cycle.

The front panel lock mode can also be selected using SIS commands (see the **Front Panel Lock (Executive Mode) commands** on page 77) and PCS (see the *IN1806 and IN1808 Series PCS Help* file).

The following table shows the functionality that is in place for each mode:

Lock Mode	Input Switching	Logos	Volume Adjustment
0	Unlocked	Unlocked	Unlocked
1	Locked	Locked	Locked
2	Unlocked	Unlocked	Unlocked
3	Unlocked	Unlocked	Locked
4	Locked	Locked	Unlocked

- **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 only via SIS commands and PCS.
- **Mode 2** — Locks all front panel functions except input switching, logos, and volume control. Pressing the **Menu** button in this mode causes the message Executive Mode 2 Enabled to appear on the display. To enable lock mode 2, press and hold the **Menu** and **Enter** buttons simultaneously for 2 seconds.
- **Mode 3** — Locks all front panel functions except input switching and logos.
- **Mode 4** — Locks all front panel functions except volume control.

Input Presets

The IN1806 and IN1808 Series scalers have 128 memory slots in which you can save input presets. These presets are global to all inputs that contain the settings for use with a matrix switcher. A matrix switcher with multiple types of video inputs (such as an XTP matrix switcher) can be placed upstream from the IN1806 and IN1808 Series to expand the number of video sources.

Input presets can be saved and recalled only through SIS commands (see the **Presets commands** on page 73) and PCS (see the *IN1806 and IN1808 Series PCS Help File*).

- When you recall an input preset, the unit fills the output raster based on the sizing and positioning that it had at the time the preset 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:

- Preset name
- Film mode detection
- Contrast
- Brightness
- 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 IN1806 or IN1808 with a matrix switcher, do the following to save a preset:

1. Switch each input of the matrix to the IN1806 or IN1808.
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 IN1806 or IN1808 Series input.

Power Save Modes

The IN1806 and IN1808 Series can be placed into a standby (low power) mode via SIS commands (see the **Power Save commands** on page 69) in order to conserve power. To restore the unit to full power mode, enter the appropriate SIS command, press any front panel button, switch inputs via SIS command, or cycle power to the unit. The following power save modes are supported:

- Mode 0 — Full power mode
- Mode 1 — All non-essential hardware is shut down.
- Mode 2 — All non-essential hardware is shut down, but over-TP functionality and remote power remain enabled.

Reset Modes

The IN1806 and IN1808 Series scalers have three reset modes (numbered 1, 4, and 5). Use a small screwdriver or stylus to press and hold the recessed **Reset** button to advance through the modes. The green Reset LED blinks to indicate each mode that is enabled (see the Reset Mode Summary table).

NOTE: This **Reset** button and LED are located in the **lower-right corner** of the rear panel, and are unrelated to the **Reset** button and LED in the IPCP control panel of the IN1808 IPCP models.

You can also perform resets using the OSD (see **Factory Reset** on the Advanced submenu on page 43), SIS commands (see the **Resets commands** beginning on page 79), and PCS (see the *IN1806 and IN1808 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 unit 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	1	Using an Extron Tweeker or other small screwdriver, press and hold in the recessed **Reset** button for 30 seconds while applying power to the scaler. **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 mode reset. This temporarily resets the device to factory default until power is recycled. To use factory default firmware, re-upload that version.	The device reverts to the factory default firmware. • 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. **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.	Use mode 1 to revert to the factory default version if incompatibility issues arise with user-loaded firmware.
Reset IP Settings	4	Press and hold down the **Reset** button until the Reset LED blinks three times (at 9 seconds). Then, press **Reset** momentarily (less than 1 second).	IP settings revert to factory defaults. • 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	Press and 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. • Mode 4 results are performed. • All user modifiable configurations 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 the 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 30** on the next page and **figure 31** on page 49). The control signals can be inserted two ways:

RS-232 communication can be sent to the far end of the twisted pair connection via a LAN or an AV LAN (IPCP models only) connector. A control signal applied to an IN1806 or IN1808 Series LAN port can be routed to the RS-232 port of any connected twisted pair device (see **Ethernet to RS-232 Insertion** on the next page).

When connected to an Ethernet LAN, the scaler can be accessed from a computer running a standard Internet browser. Use a patch or crossover cable to connect the IN1806 or IN1808 Series device to a computer, control device, router, or switch.

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

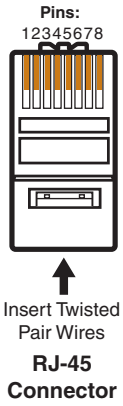
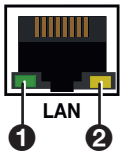


Figure 29. Connecting to the LAN Port

The LAN and AV LAN connectors contain two LEDs (see the illustration at right):



❶ **Link LED** — This green LED lights steadily to indicate a LAN connection.

❷ **Act LED** — This amber LED blinks to indicate LAN signal activity.

The default IP address of the scaler 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 two methods of signal insertion are:

- **Ethernet to RS-232 insertion** (see "Ethernet to RS-232 Insertion") — A control signal applied to the IN1806 and IN1808 Series 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 IR insertion** (see **Captive Screw IR Signal Insertion** on page 49) — (IR only) A control signal applied to the IR Over TP captive screw port is tied directly to TP Output 1B.

  You must physically connect a cable to the captive screw connector where a control signal is to be inserted.

Ethernet to RS-232 Insertion

Figure 30 is an example of an Ethernet to RS-232 insertion, in which an Extron controller provides control of an HD camera via the IN1806 and IN1808 Series 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 scaler 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).

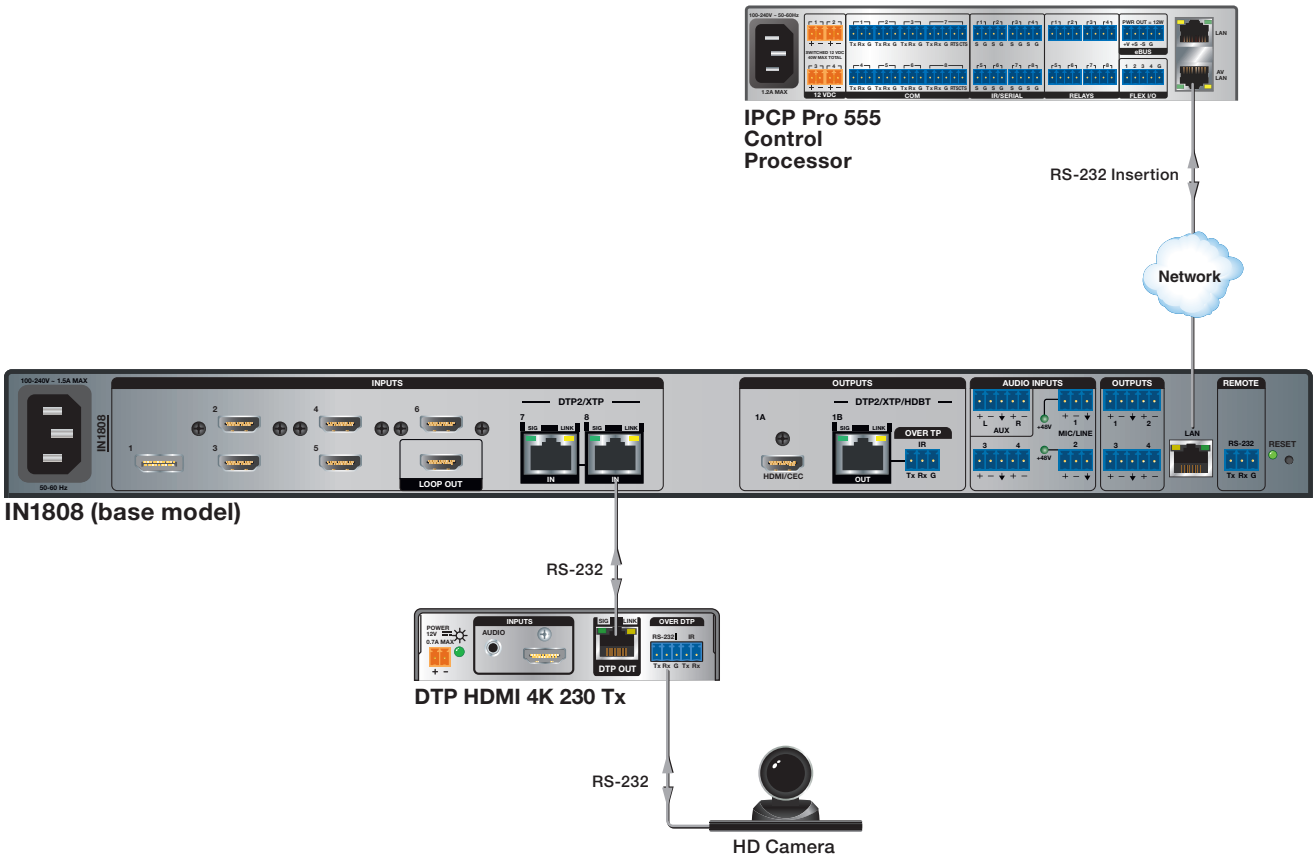


Figure 30. Typical Ethernet to RS-232 Insertion to an Input Endpoint

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 universal asynchronous receiver-transmitter (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 Ports	Insertion Port	Output Port	Insertion Port
7	2001	1B	2003
8	2002		

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 *IN1806 and IN1808 Series PCS Help* file)
- Using SIS commands (see the **Set UART start point SIS command** on page 80)

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 PCS (see the *IN1806 and IN1808 Series PCS Help* file).
- Using SIS commands (see the **Serial Port Configuration SIS commands** on page 80).

Captive Screw IR Signal Insertion

Figure 31 shows an example of a typical captive screw Ethernet insertion, in which an Extron control system provides IR control of a display via the scaler. Configure this type of insertion as follows:

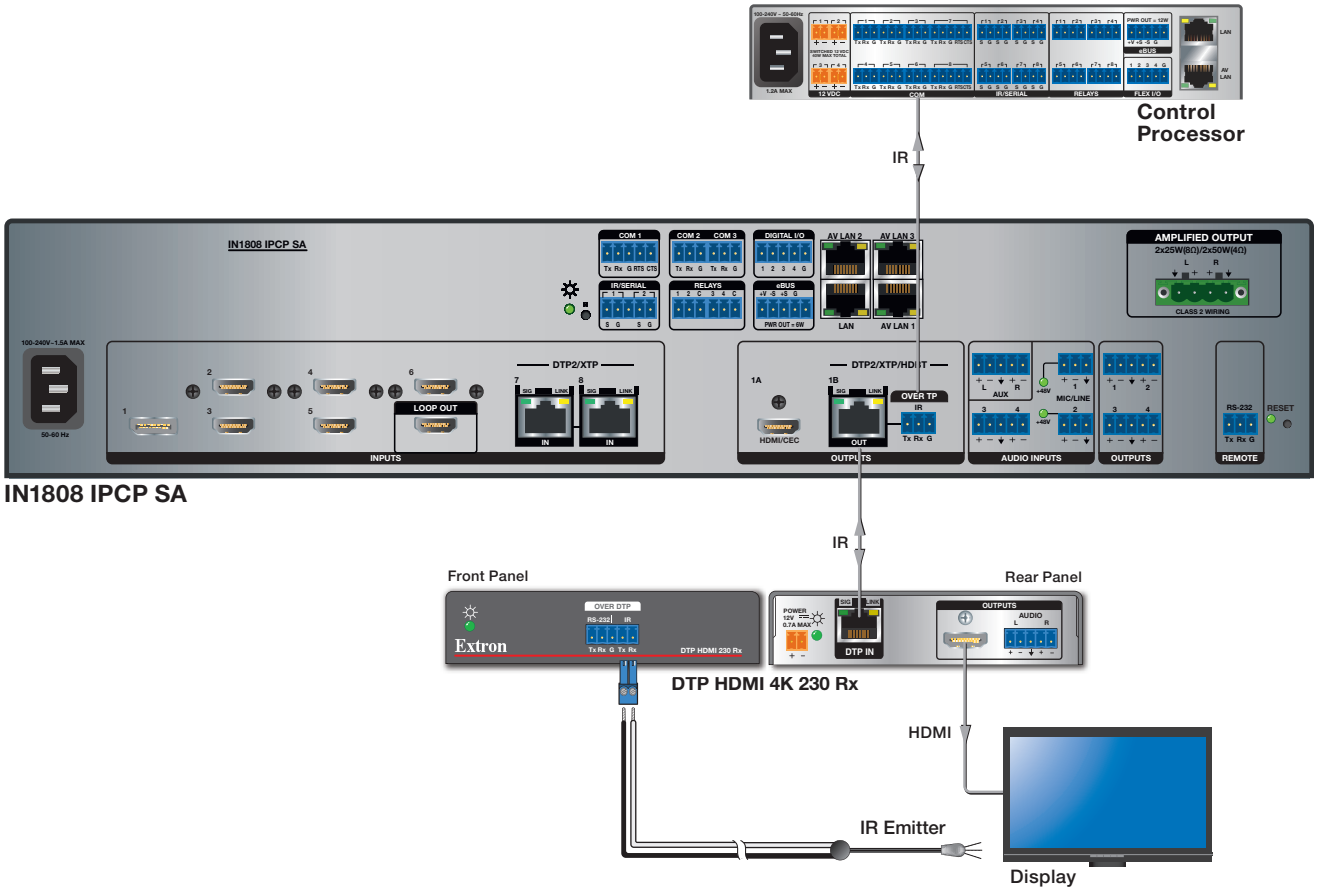


Figure 31. Typical Captive Screw Insertion to an Input Endpoint

To insert IR signals via the Over TP captive screw connector:

1. Connect the COM (serial) port of the control system to the Over TP IR captive screw port (output port 1B in this example).
2. Connect the TP cable from the IN1806 and IN1808 Series 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.

SIS Configuration and Control

The IN1806 and IN1808 Series scalers 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 Scaler Communication**
- **SIS Overview**
- **Command and Response Tables for SIS Commands**

Host and Scaler 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 scaler determines that a command is valid, it executes the command and sends a response to the host device. All responses from the scaler 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 Messages

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

↵ (c) Copyright *YYYY*, Extron Electronics, IN180*n* <*model*>, V*n.nn*, 60-16nn-0*n*↵
Ddd, *DD MMM YYYY HH*:*MM*:*SS* ↵ (day, date, and time as in Mon, 18 Oct 2018 11:27:33)

- *YYYY* is the year.
- <*model*>, if applicable, is IPCP SA or IPCP MA 70
- 60-16nn-0*n* is the model part number:
  - IN1806 — 60-1663-01
  - IN1808 base model — 60-1615-01
  - IN1808 IPCP SA — 60-1615-02
  - IN1808 IPCP MA 70 — 60-1615-03
- V*n.nn* is the firmware version number.

Password Messages

If the IN1806 or IN1808 is protected by a password, the following password message prompts you for the password to access the scaler 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 IN1806 or IN1808, a label is attached containing the following:

  The factory-configured passwords for all accounts on this device have been set to the device serial number. Passwords are case-sensitive.

  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 (entering a **ZQQQ SIS command** or a **mode 5 reset** via the rear panel **Reset** button) 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 84).

  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.

Scaler-initiated Messages

When certain local events occur, such as a change in the status of a contact closure port, the scaler 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.
- HplgO[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].
- HdcpO [X2]*[X44]↵ A change was detected in the HDCP status of output [X2].
- INØØ•[X51]*...*[X51]↵ This message appears when a sync change (detected or removed) occurs on any input.

  [X51] is the video signal status for each input. For [X51], Ø = no input signal detected, 1 = input signal detected.

Error Responses

When the scaler 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
- E10 — Invalid command
- E11 — Invalid preset number
- E12 — Invalid port number
- E13 — Invalid value
- E14 — Not valid for this configuration
- E17 — Invalid command for signal type
- E22 — Busy
- E24 — Privilege violation
- E25 — Device not present
- E28 — Bad filename or File not found
- 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 62, lists the commands that the scaler 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

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

Esc 1B CR 0D LF 0A

Figure 32. ASCII to Hexadecimal Character Conversion Table

Symbol Definitions

NOTES:

- Upper- and lowercase text can be used interchangeably unless otherwise stated.
- If the unit does not support or recognize an entered command, it ignores the command and nothing happens.

• = 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	Response is two digits, padded with a zero. 1 = DisplayPort input 1 (all models) 2 - 6 = HDMI or DVI inputs 2 through 6 (all models) 7 - 8 = DTP2/XTP inputs 7 and 8 (IN1808 Series only) 9 = Aux audio input
X2	=	Output connector selection	1 = HDMI/DVI output 1A 2 = DTP2/XTP/HDBT output 1B 3 = HDMI/DVI Loop output
X3	=	Digital video format	Ø = No signal 1 = DVI 2 = HDMI 3 = DisplayPort
X4	=	Audio input	1 = DP 1 2 = HDMI 2 3 = HDMI 3 4 = HDMI 4 5 = HDMI 5 6 = HDMI 6 7 = TP 7 (IN1808 Series only) 8 = TP 8 (IN1808 Series only) 9 = Aux In 1Ø = Mic/Line 1 11 = Mic/Line 2 12 = Line In 3 13 = Line In 4 14 = File Playback L 15 = File Playback R
X5	=	Audio output connector selection	1 = HDMI 1 2 = TP 2 3 = Over DTP Analog 4 = Line Out 1 5 = Line Out 2 6 = Line Out 3 7 = Line Out 4
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	Ø = 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	*nnn.nn* Response is three digits with two decimal places, padded with zeros. (Example: Ø75.32)
X14	=	Text label	Up to 32 characters. **Cannot** contain , (comma) ,*, 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 Ø5)
- Saving a file name consisting of a single space repopulates the field with the default name.

X15	=	Picture adjustment	Ø-127 (default = 64) Response is three digits, padded with zeros.
X16	=	Horizontal and vertical position (shift)	Range is ± the horizontal or vertical position of the maximum supported output resolution. • Response is five digits, padded with zeros and preceded by + or –. • The logo vertical position allows up to ± 24ØØ.
X17	=	Horizontal and vertical size	Horizontal = 1Ø to two times the maximum supported output resolution Vertical = 1Ø to two times the maximum supported output resolution Response is five digits, padded with zeros.
X20	=	EDID file	128 or 256 bytes of binary data

X21 = EDID emulation or output rate

(See the Input EDID and Output Resolutions table.

Ø = Automatic (default input EDID, matches the current output resolution)
1 = Output 1A HDMI (available for EDID export only)
2 = Output 1B TP (available for EDID export only)
3 = Loop output (available for EDID export only)
2Ø1 – 21Ø = Custom EDID or output rates 1 – 10.

Input EDID and Output Resolutions								
Resolution	**23.98 Hz**	**24 Hz**	**25 Hz**	**29.97 Hz**	**30 Hz**	**50 Hz**	**59.94 Hz**	**60 Hz**
Automatic*	**Ø*** — Match current scaler output resolution							
640x480								1Ø
800x600								11
1024x768								12
1280x768								13
1280x800								14
1280x1024								15
1360x768								16
1366x768								17
1440x900								18
1400x1050								19
1600x900								2Ø
1680x1050								21
1600x1200								22
1920x1200								23
480p							24	25
576p						26		
720p			29	3Ø	31	32	33	34
1080i						35	36	37
1080p	38	39	4Ø	41	42	43	44	**45****
2048x1080 (2K)	46	47	48	49	5Ø	51	52	53
2048x1200								54
2048x1536								55
2560x1080								56
2560x1440								57
2560x1600								58
3840x2160	59	6Ø	61	62	63	64***	65***	66***
4096x2160*****	69	7Ø	71	73	73	74****	75****	76****

*Default input EDID
**Default output resolution
***4:4:4 color sampling at these rates is available only when operating with an HDMI output or a DTP2 endpoint.
****4:4:4 color sampling at these rates is available only with HDMI outputs.
*****4096x2160 rates are available only for output resolution and cannot be selected for input EDID.

X22	=	Test patterns	Ø = 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 kHz, 24-bit. Response is two digits, padded with a zero.
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 5ØØ seconds, in 1-second increments Ø = Output sync is instantly disabled with no active video from the selected input (SSAV command only). 6Ø = Default for the MDUR command. 5Ø1 = Output sync never times out (default for SSAV command).
X29	=	Front Panel Lockout (executive) mode status	Ø = Off or disabled (front panel controls fully accessible) (default). 1 = Mode 1 — Complete front panel lockout 2 = Mode 2 — Input switching, logos, and audio adjustments only 3 = Mode 3 — Input switching and logos only 4 = Mode 4 — Volume adjustments only
X30	=	Auto-input switch mode	Ø = Disabled — Manual switching (default) 1 = User-defined priority mode — The scaler selects the input to which the user assigns priority. If no priority is assigned, the scaler selects the active input with the highest number. 2 = Last connected mode — The scaler 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 scaler 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 5 = Input 5 6 = Input 6 7 = Input 7 (IN1808 Series only) 8 = Input 8 (IN1808 Series only)
X32	=	Auto-input switch timeout	Number of seconds without video that elapse before switching to the previous input. 1 through 5ØØ in 1-second increments 3 = default (3 seconds) Ø = Immediately switch to most recent input if the current input is removed.

X34	= Verbose mode	Ø = 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 IN1806 or IN1808 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 IN1806 or IN1808 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	Model name of the unit: IN18Ø6 IN18Ø8 IN18Ø8 IPCP SA IN18Ø8 IPCP MA 7Ø
X36	= Part number	IN1806 — 6Ø-1663-Ø1 IN1808 (base model) — 6Ø-1615-Ø1 IN1808 IPCP SA — 6Ø-1615-Ø2 IN1808 IPCP MA 70 — 6Ø-1615-Ø3
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	Ø = Unmute 1 = Mute video to black screen 2 = Mute video and sync
X43	= User logo number	1 through 16. Response is three digits padded with zeros. 1Ø1 = No signal user logo 2Ø1 = HDCP user logo
X44	= HDCP status	Ø = 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

Ø = 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.

Between input switches the audio ramps down and then up.

X46 = HDCP output mode

Ø = Off — Disable all HDCP authentication and encryption attempts.
1 = Follow input (with a maximum of 10 seconds of authentication trials, default).
2 = Encrypt output (with a maximum of 10 seconds of authentication trials.
3 = Follow input (with continuous authentication trials).
4 = Encrypt output (with continuous authentication trials).

X47 = HDCP notification mode

Ø = Black screen — Notification disabled (mute output)
1 = Green screen with OSD orbiting message (default)
2 = User image with black screen background

X48 = HDMI output format

Ø = Auto — HDMI RGB Full to a CEA sink, or DVI to a non-CEA sink (default)
1* = DVI — RGB 444, 0-255. Valid for output rates up to 165 MHz
2 = HDMI RGB Full — RGB 444, 0-255
3 = HDMI RGB Limited — RGB 444, 16-235
5 = HDMI YUV 444 Limited — YUV 444, 16-235
7 = HDMI YUV 422 Limited — YUV 422, 16-235

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

X50 = Audio input format

Format Selection	Details
Ø =	**None** (input muted) — All audio outputs are muted.
1 =	**Analog Aux Line input** — 5-pole captive screw connector*
2 =	**LPCM-2Ch digital** — Embedded in the HDMI input signal. LPCM-2Ch audio is requested from the source via EDID.
3 =	**Multi-Ch digital** — Allows any digital audio format requested from the source via EDID. Audio delay is applied and the signal is re-embedded into the HDMI output signal.
4 =	**LPCM-2Ch Auto Aux Line** (default) — LPCM-2Ch audio is requested from the source via EDID. The scaler uses embedded digital audio when it is present, or defaults to the Aux* Line input when digital is not present.
5 =	**Multi-Ch Auto Aux Line** — Multi-Ch audio is requested from the source via EDID. The scaler uses embedded digital audio when it is present, or defaults to the Aux* Line input when digital is not present.

*On the IN1808 Series, when Input 7 or 8 is set to DTP mode, the scaler uses analog audio from the remote DTP transmitter instead of analog audio from the rear panel of the IN1808. Analog and Auto formats are not allowed on inputs 7 and 8 of the IN1808 Series when it is set to XTP mode.

X51	=	Video signal status	Ø = 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) 7 = Universal asynchronous receiver-transmitter (UART) on DTP Input 7 (IN1808 Series only) 8 = Universal asynchronous receiver-transmitter (UART) on DTP Input 8 (IN1808 Series only) 9 = UART on DTP/HDBT Output 1B
X58	=	Baud rate, RS-232 port	300, 600, 1200, 1800, 2400, 3600, 4800, 7200, 9600 (default), 14400, 19200, 28800, 38400, 57600, or 115200
X59	=	Parity	**O**dd, **E**ven, **N**one (default), **M**ark, **S**pace Only the first letter is required.
X60	=	Data bits	7 or 8 (default)
X61	=	Stop bits	1 (default) or 2
X62	=	Power Save mode	Ø = Full power mode (default) 1 = Lowest power state — TP remote power and over TP functions are disabled. 2 = Low power state — Over TP and TP remote power are enabled.
X63	=	Screen saver status	Ø = 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
X64	=	Port timeout	Set time in increments of 10 seconds before the port connection times out. 1 (10 seconds) through 65000 (650,000 seconds) Default = 30 (300 seconds)
X65	=	Start point for UART ports	Start point for UART ports: Rear panel RS-232 = X65 TP IN 7 = X65 + 1 (IN1808 Series only) TP IN 8 = X65 + 2 (IN1808 Series only) TP OUT 1B = X65 + 3 Default = 2000, meaning: IN7 = 2001 IN8 = 2002 TP OUT1B = 2003
X66	=	DTP remote power	Ø = No remote power (default) 1 = DTP — 12 VDC 2 = DTP2 — 48 VDC
X67	=	Twisted Pair format	Ø = DTP format (default) 1 = XTP format 2 = HDBaseT format (supported on output only)
X69	=	Hot plug change or detection	Ø = A sink has been removed (HPD deasserted). 1 = A new sink has been connected (HPD asserted).
X70	=	Key effect variable	Ø = Transparency (available only when X72 = 1) 1 = Red of RGB key (available only when X72 = 2) 2 = Green of RGB key (available only when X72 = 2) 3 = Blue of RGB key (available only when X72 = 2) 4 = Level key
X71	=	Key effect setting	Ø through 255

X72	=	Key effect	Ø = Disabled (default) 1 = Transparency 2 = RGB key 3 = Level key 4 = Alpha key
X80	=	Audio playback file slot number	1 through 16 Highest priority for playback is slot 1, descending to lowest priority slot 16.
X82	=	Playback state	Ø = Stop or stopped 1 = Play or playing
X83	=	Repeat	Ø = No 1 = Yes **NOTE:** Setting the repeat mode to Ø during continuous playback causes play to stop after the end of the current iteration.
X84	=	Playback delay	Number of seconds to wait before the audio file repeats (valid only if X83 = 1 [repeat]). 1 through 3ØØ (1-300 seconds delay between audio playbacks) Ø = No delay
X85	=	Configuration type	Ø = IP configuration (ip.cfg) 2 = Unit-specific parameters (box.cfg)
X86	=	Number of open connections	Ø-<*maximum number of open connections*>
X87	=	IP address	Format *nnn.nnn.nnn.nnn* Default = 192.168.254.254 Leading zeros in each of the four octets are optional in setting values, and are suppressed in returned values.
X88	=	Gateway IP address	Format *nnn.nnn.nnn.nnn* Default = Ø.Ø.Ø.Ø Leading zeros in each of the four octets are optional in setting values, and are suppressed in returned values.
X89	=	Subnet mask	Format *nnn.nnn.nnn.nnn* Default = 255.255.255.Ø Leading zeros in each of the four octets are optional in setting values, and are suppressed in returned values.
X90	=	Hardware (MAC) address	ØØ-Ø5-A6-*xx-xx-xx*
X91	=	Password	• 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:* IN18Ø8-IPCP-SA-15-9E-BØ)
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.

Command and Response Tables for SIS Commands

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Input Configuration			
Input Selection			
Video and audio input	X1*X2!	In X1*X2•All ↵	Select video and audio from input X1 to output X2.
Video input	X1*X2%	In X1*X2•Vid ↵	Select video from input X1 to output X2. X2 = 1 for all models.
Audio input	X1*X2$	In X1*X2•Aud ↵	Select audio from input X1 to output X2. X2 = 1 for all models.
View current input	X2!	X1 ↵	View the input sources for output X2.
View video input	X2%	X1 ↵	View the video source for output X2.
View audio input	X2$	X1 ↵	View the audio source for output X2.
Input Video Format			
View detected input format	X1*\	X3 ↵ *Verbose modes 2 and 3:* Vtyp X1*X3 ↵	View video format X3 detected on input X1.
Video Input Name			
Write input name	Esc I X1*X14 VNAM ←	VnamI X1*X14 ↵	Set name X14 for video input X1.
View input name	Esc I X1 VNAM ←	X14 ↵	View name X14 of video input X1.

NOTE: To clear an input name, enter a single space for X14. The input name is reset to the default.

KEY:

X1 = Input selection	1 = DisplayPort input 1 2-6 = HDMI or DVI input 2, 3, 4, 5, or 6 7-8 = DTP2/XTP input 7 or 8 (IN1808 Series only) 9 = Aux audio input
X2 = Output	1 = HDMI/DVI output 1A 2 = DTP2/XTP/HDBT output 1B 3 = HDMI/DVI Loop output
X3 = Input digital video format (view only)	Ø = No input signal detected 1 = DVI 2 = HDMI 3 = DisplayPort
X14 = Input name (text label)	Can contain up to 32 characters, **excluding: ,** (comma) ,*, and |. Default = Video•Input•X1.

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Input Configuration (continued)			
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 the Save command, X21 can be 201 through 210 only.			
View EDID native resolution	Esc N X21 EDID ←	*nnnn*x*nnnn*•@*nn.nn*Hz ↵	Show the resolution and refresh rate of EDID X21.
		Verbose modes 2 and 3: EdidN X21 * *nnnn*x*nnnn*•@*nn.nn*Hz ↵	
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 ←		Import EDID X21 from <*filename*>.
		EdidI X21 ↵	
NOTES: • For the Import EDID command, X21 can be 10 through 210. For the Export command, X21 can be 201 through 210. • <*Filename*> can optionally be a full path name. The EDID file format is 128 or 256 bytes of binary data with a **.bin** extension. • Exporting a default EDID (X21 value of 10 through 76) results in HDMI with LPCM-2Ch audio EDID being exported.			
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.
KEY: X1 = Input selection		1 = DisplayPort input 1 2-6 = HDMI or DVI input 2, 3, 4, 5, or 6 7-8 = DTP2/XTP input 7 or 8 (IN1808 Series only) 9 = Aux audio input	
X2 = Output		1 = HDMI/DVI output 1A 2 = DTP2/XTP/HDBT output 1B 3 = HDMI/DVI Loop output	
X21 = EDID emulation		See the **Input EDID and Output Resolutions table** on page 56.	

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Input Configuration (continued)			
HDCP Authorized			
Enable HDCP support	Esc E X1 *1HDCP ←	HdcpE X1 *1 ↵	Enable HDCP encryption support for input X1 (default).
NOTE: HDCP Authorized is permanently enabled for DisplayPort IN1.			
Disable HDCP support	Esc E X1 *ØHDCP ←	HdcpE X1 *Ø ↵	Disable HDCP encryption support for input X1.
View HDCP support status	Esc E X1 HDCP ←	X10 ↵	View HDCP encryption support status.
Input Aspect Ratio			
Set for fill	Esc X1 *1ASPR ←	Aspr X1 *1 ↵	Set input X1 to always fill the entire output raster (default).
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 ↵ *Verbose modes 2 and 3:* Apix X1 * X8 ↵	View active pixels X8 on input X1.
View active lines	Esc X1 ALIN ←	X9 ↵ *Verbose modes 2 and 3:* Alin X1 * X9 ↵	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 *ØFILM ←	Film X1 *Ø ↵	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 2-6 = HDMI or DVI input 2, 3, 4, 5, or 6 7-8 = DTP2/XTP input 7 or 8 (IN1808 Series only) 9 = Aux audio input
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	Ø = 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 Scaler)	Response (Scaler to Host)	Additional Description
Input Configuration (continued)			
Auto-input Switch Mode			
Set the auto-input switch mode	Esc X30 AUSW ←	Ausw X30 ↵	Set the auto-input switch mode to X30.
View auto-input switch mode	Esc AUSW ←	X30 ↵	View current auto-input switch mode X30.
Set user priority order	Esc P X31 • X31 • ... • X31 AUSW ←		
		AuswP 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 priority order	Esc P AUSW ←	X31 • X31 • ... • X31 ↵	View the order in which the inputs will be selected (highest to lowest priority).
View memory priority	Esc 0 AUSW ←	X31 • X31 • ... • X31 ↵	View the auto-input switch priority order (highest to lowest) stored in memory.
Set timeout	Esc T X32 AUSW ←	AuswT X32 ↵	Set the amount of time without video to switch to the previous input.
View timeout	Esc TAUSW ←	X32 ↵	View the auto-input switch timeout duration in seconds.

KEY:

X30 = Auto-input switch mode

- Ø = **Disabled** — Manual switching (default)
- 1 = **User-defined priority mode** — The scaler selects the input to which the user assigns priority. If no priority is assigned, the scaler selects the active input with the highest number.
- 2 = **Last connected mode** — The scaler 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 scaler switches to the most recently prioritized input.

X31 = 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, 5 = input 5, 6 = input 6.
7 = Input 7, 8 = input 8 (IN1808 Series only)

X32 = Auto-input switch timeout

Number of seconds without video that elapse before switching to the input with the next priority.
1 through 5ØØ (in 1-second increments, default = 3 seconds)
Ø = Immediately switch to the input with the next priority if the current input is removed.

Picture Adjustments			
Freeze			
Enable	1*1F	Frz1*1 ↵	Freeze the output on the screen.
Disable	1*ØF	Frz1*Ø ↵	Unfreeze the output.
View	1F	X10 ↵	Show the freeze status of the output.

KEY:

X10 = On or Off status

- Ø = Off or disabled (default)
- 1 = On or enabled

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Picture Adjustments (continued)			
Contrast			
Set a specific value	Esc X1 * X15 CONT ←	Cont X1 * X15 ↵	Set the range of image light and dark values (contrast level) to X15 for input X1.
Increment contrast value	Esc X1 + CONT ←	Cont X1 * X15 ↵	Increment contrast level X15 for input X1.
Decrement value	Esc X1 – CONT ←	Cont X1 * X15 ↵	Decrement contrast level X15 for input X1.
View contrast	Esc X1 CONT ←	X15 ↵	View the current contrast level for input X1.
Brightness			
Set a specific value	Esc X1 * X15 BRIT ←	Brit X1 * X15 ↵	Set the intensity of video light on the screen (brightness level) to X15 for input X1.
Increment value	Esc X1 + BRIT ←	Brit X1 * X15 ↵	Increment brightness level X15 for input X1.
Decrement value	Esc X1 – BRIT ←	Brit X1 * X15 ↵	Decrement brightness level X15 for input X1.
View	Esc X1 BRIT ←	X15 ↵	View the current brightness level for input X1.
Detail Filter			
Set detail level	Esc 1 * X15 HDET ←	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 1 HDET ←	X15 ↵	View the current detail setting (X15) for the currently selected input.
Horizontal Position (Shift) — Image			
Specific value	Esc I1 * X16 HCTR ←	HctrI1* X16 ↵	Set the horizontal position of the image in relation to the top left corner of the output raster to X16.
Increment value	Esc I1+HCTR ←	HctrI1 * X16 ↵	Shift the image right 1 pixel.
Decrement value	Esc I1–HCTR ←	HctrI1 * X16 ↵	Shift the image left 1 pixel.
View	Esc I1 HCTR ←	X16 ↵	View image horizontal centering value X16.

KEY:

X1 = Input selection

1 = DisplayPort input 1
2-6 = HDMI or DVI input 2, 3, 4, 5, or 6
7-8 = DTP2/XTP input 7 or 8 (IN1808 Series only)
9 = Aux audio input

X15 = Picture adjustment

Ø-127 (default = 64)

X16 = Horizontal and vertical position (shift)

The position is ± the horizontal or vertical position of the highest output resolution. The response is five digits, padded with zeros and preceded by + or –.

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Picture Adjustments (continued)			
Vertical Position (Shift) — Image			
Specific value	Esc I1*X16VCTR←	VctrI1*X16↵	Set the vertical position of the image in relation to the top left corner of the output raster to X16.
Increment value	Esc I1+VCTR←	VctrI1*X16↵	Shift the image down by 1 line.
Decrement value	Esc I1–VCTR←	VctrI1*X16↵	Shift the image up by 1 line.
View	Esc I1VCTR←	X16↵	View image vertical centering value X16.
Horizontal Size — Image			
Specific value	Esc I1*X17HSIZ←	HsizI1*X17↵	Set the horizontal size (width) of the image to X17.
Increase horizontal size	Esc I1+HSIZ←	HsizI1*X17↵	Widen the image by 1 pixel.
Decrease horizontal size	Esc I1–HSIZ←	HsizI1*X17↵	Narrow the image by 1 pixel.
View	Esc I1HSIZ←	X17↵	View image horizontal size X17.
Vertical Size — Image			
Specific value	Esc I1*X17VSIZ←	VsizI1*X17↵	Set the vertical size (height) of the image to X17.
Increase vertical size	Esc I1+VSIZ←	VsizI1*X17↵	Make the image taller by 1 line.
Decrease vertical size	Esc I1–V SIZ←	VsizI1*X17↵	Shorten the image by 1 line.
View	Esc I1VSIZ←	X17↵	View image vertical size X17.
Compound Image Position and Size — Image			
Specific value	Esc 1,X16*X16*X17*X17XIMG←	Ximg1,X16*X16*X17*X17↵	Set the horizontal (x) and vertical (y) position (X16) and horizontal and vertical size (X17) for the image.
View	Esc 1XIMG←	X16*X16*X17*X17↵	View x, y position and x, y size for image.

KEY:

X16 = Horizontal and vertical position (shift)

The position is ± the horizontal or vertical position of the highest output resolution.

- 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 two times the maximum supported output resolution
- Vertical = 10 to two times the maximum supported output resolution

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Output Configuration			
Output Video Mute			
Unmute output video	X2*ØB	VmtX2*Ø↵	Unmute video output X2.
Mute output video	X2*1B	VmtX2*1↵	Mute 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	ØB	VmtØ↵	Display all outputs.
View global mute	B	X42•X42•X42↵ *Verbose modes 2 and 3:* VmtX42•X42•X42↵	View video mute status X42 of all outputs.
NOTE: Video is unmuted (default) after a power cycle.			
Output Scaler Rate			
Set output rate	Esc1*X21RATE←	Rate1*X21↵	Select the output resolution and refresh rate (X21).
View output rate	Esc1RATE←	X21↵	View the selected output rate.
Video Output Name			
Write output name	EscOX2*X14VNAM←	VnamOX2*X14↵	Set name X14 for video output X2.
View output name	EscOX2VNAM←	X14↵	View name X14 of video output X2.
NOTE: To clear an output name, enter a single space for X14. The output name is reset to the default.			
Loop Out Tie			
Set loop out	EscX1LOUT←	LoutX1↵	Tie the Loop output to input X1.
View loop out setting	EscLOUT←	X1↵	View the Loop output setting. Default = 1

KEY:

X2 = Output	1 = HDMI/DVI output 1A 2 = DTP2/XTP/HDBT output 1B 3 = HDMI/DVI Loop output
X14 = Output name (text label)	Can contain up to 32 characters, **excluding ,** (comma) ,*, and |. Default = Video•Output•X2.
X21 = EDID emulation	See the **Input EDID and Output Resolutions table** on page 56.
X42 = Output video mute	Ø = Unmute video 1 = Mute video to black screen 2 = Mute video and sync

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Output Configuration (continued)			
HDMI Output Format			
Set output format	Esc X2 * X48 VTPO ←	Vtpo X2 * X48 ↵	Set the colorspace and format for HDMI output X2 to X48.
View format setting	Esc X2 VTPO ←	X48 ↵	View the current output colorspace and format for output X2.
View auto output format	Esc X2 * VTPO ←	X48 ↵	View the output format when X48 is set to Ø (Auto).

KEY:

X2 = Output

1 = HDMI/DVI output 1A
2 = DTP2/XTP/HDBT output 1B
3 = HDMI/DVI Loop output

X48 = HDMI output format and colorspace

Ø = Auto — HDMI RGB Full to a CEA sink, or 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, 0-255
3 = HDMI RGB Limited — RGB 444, 16-235
5 = HDMI YUV 444 Limited — YUV 444, 16-235
7 = HDMI YUV 422 Limited — YUV 422, 16-235

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

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.

KEY:

X62 = Power save mode

Ø = Full power mode (default)
1 = Lowest power state — TP remote power and over TP functions are disabled.
2 = Low power state — Over TP and TP remote power are enabled.

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Output Configuration (continued)			
Screen Saver (Enabled when there is no active video on selected input)			
Set mode	Esc M1*X40 SSAV ←	SsavM1*X40 ↵	Set the screen saver mode for the output to X40.
View mode	Esc M1 SSAV ←	X40 ↵	View the screen saver mode X40 for the output. Default = 1 (black).
Set screen saver duration before output sync timeout	Esc T1*X28 SSAV ←	Ssav T1*X28 ↵	Set the screen saver timeout duration to X28 seconds. Default = 501 (never).
View screen saver duration before output sync timeout	Esc T1SSAV ←	X28 ↵	View screen saver timeout duration X28.
View screen saver status	Esc S1SSAV ←	X63 ↵ *Verbose modes 2 and 3:* Ssav S 1* X63 ↵	View screen saver status X63.
OSD Menu Duration			
Set OSD duration	Esc X28 MDUR ←	Mdur X28 ↵	Set the OSD menu duration to X28.
View OSD duration	Esc MDUR ←	X28 ↵	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 SSAV 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

User-supplied Image

Select image file	Esc A X43 ,<*filename*> LOGO ←		
		LogoA X43 ,<*filename*> ↵	Assign logo <*filename*> to logo slot X43.

NOTES:

- The file name must include the extension (.png, .bmp, .jpg, .gif, .tif, and so on).
- If the logo 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	Esc A X43 LOGO ←	<*filename*> ↵	View the filename assigned to logo X43.

KEY:

X43 = User logo number	1 through 16. The response is three digits padded with leading zeros. 101 = A No Signal user logo is displayed. 201 = A user-assigned HDCP logo is displayed.

Command	ASCII Command (Host to Scaler)	Response (Scaler 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> ↵ *Verbose modes 2 and 3:* Logo Q <16 characters>*<1 character>*<1 character> ↵ 1 = Saved, Ø = 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*ØLOGO ←	LogoE1*Ø ↵	Disable display of the current 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)	Up to 32 characters, **excluding ,** (comma) ,*, and |. The default logo name is [unassigned].
X16 = Horizontal or vertical position (shift)	The position is ± the horizontal or vertical position of the highest output resolution. • The response is five digits, padded with zeros and preceded by + or –. • The logo vertical position allows up to ± 2400.
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 Scaler)	Response (Scaler to Host)	Additional Description
Logos (continued)			
Logo Key Effect			
Disabled	Esc X43*Ø LKEF←	Lkef X43*Ø↵	Disable key effect for logo X43.
Transparency	Esc X43*1 LKEF←	Lkef X43*1↵	Enable transparency for logo X43
RGB Key	Esc X43*2 LKEF←	Lkef X43*2↵	Enable RGB key for logo X43.
Level Key	Esc X43*3 LKEF←	Lkef X43*3↵	Enable Level key for logo X43.
Alpha Key	Esc X43*4 LKEF←	Lkef X43*4↵	Enable Alpha key for logo X43.
View setting	Esc X43LKEF←	X72↵ *Verbose modes 2 and 3:* Lkef X43*X72↵	View the current key effect (X72) for logo X43.
Logo Key Effect Level			
Specific value	Esc X43*X70*X71*LKEY←		
		Lkey X43*X70*X71↵	Set the level for key effect variable X70 to X71 for logo X43.
View setting	Esc X43*X70LKEY←	X71↵	View level X71 set for key effect variable X70 for logo X43.

KEY:

X16 = Horizontal or vertical position (shift)	The position is ± the horizontal or vertical position of the highest output resolution. • Response is five digits, padded with zeros and preceded by + or –. • The logo vertical position allows up to ± 24ØØ.
X43 = User logo number	1 through 16. The response is three digits padded with leading zeros. 1Ø1 = No signal, screen saver user logo or image is displayed. 2Ø1 = User HDCP logo displayed
X70 = Key effect variable	Ø = Transparency (available only when X72 = 1) 1 = Red of RGB key (available only when X72 = 2) 2 = Green of RGB key (available only when X72 = 2) 3 = Blue of RGB key (available only when X72 = 2) 4 = Level key (available only when X72 = 3)
X71 = Key effect setting	Ø through 255
X72 = Key effect	Ø = Disable, 1 = Transparency, 2 = RGB key, 3 = Level key, 4 = Alpha key

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Presets			
Input Presets			
Values Saved in Input Presets			
Preset Name / H Image Position			
Film Mode Detection / V Image Position			
Contrast / H Image Size			
Brightness / V Image Size			
Detail			
Recall preset	2*X26.	2RprX26↵	Recall input preset X26 for the selected input.
Save preset	2*X26,	2SprX26↵	Save input preset X26 for the selected input.
Delete preset	EscX 2*X26PRST←	PrstX2*X26↵	Clear input preset X26 and set its name to [unassigned].
Input Preset Name			
Write preset name	Esc2*X26,X14PNAM←	Pnam2*X26,X14↵	Set the name of input preset X26 to X14.
View preset name	Esc2*X26PNAM←	X14↵	View the name (X14) of input preset X26.
Auto Memories			
Enable	EscX1*1AMEM←	AmemX1*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	EscX1*ØAMEM ←	AmemX1*Ø ↵	Set Auto Memory to Off for input X1. Manual recall of input presets is required to configure the input.
View setting	EscX1AMEM ←	X10 ↵ *Verbose modes 2 and 3:* AmemX1*X10 ↵	View current Auto Memory status X10 for input X1.

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.

KEY:

X1 = Input selection	1 = DisplayPort input 1 2-6 = HDMI or DVI input 2, 3, 4, 5, or 6 7-8 = DTP2/XTP input 7 or 8 (IN1808 Series only) 9 = Aux audio input
X10 = On or off, enable or disable	Ø = Off or disabled 1 = On or enabled
X14 = Preset name (text label)	Up to 32 characters, **excluding ,** (comma) ,*, and |.
X26 = Input preset number	1 through 16. Response is three digits, padded with zeros.

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Audio Configuration			
Audio Input Format			
Set input audio format	Esc I X1 * X52 AFMT ←	Afmt I X1 * X52 ↵	Set the audio format for input X1 to X52.
View audio input format	Esc I X1 AFMT ←	X52 ↵	View audio input format X52 for input X1.

NOTE: Audio input formats 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
2-6 = HDMI or DVI input 2, 3, 4, 5, or 6
7-8 = DTP2/XTP input 7 or 8 (IN1808 Series only)
9 = Aux audio input

X52 = Audio input format

Format Selection	Details
Ø =	**None** (input muted) — All audio outputs are muted.
1 =	**Analog Aux Line input** — 5-pole captive screw connector*
2 =	**LPCM-2Ch digital** — Embedded in the HDMI input signal. LPCM-2Ch audio is requested from the source via EDID.
3 =	**Multi-Ch digital** — Allows any digital audio format requested from the source via EDID. Audio delay is applied and the signal is re-embedded into the HDMI output signal.
4 =	**LPCM-2Ch Auto Aux Line** (default) — LPCM-2Ch audio is requested from the source via EDID. The scaler uses embedded digital audio when it is present, or defaults to the Aux* Line input when digital is not present.
5 =	**Multi-Ch Auto Aux Line** — Multi-Ch audio is requested from the source via EDID. The scaler uses embedded digital audio when it is present, or defaults to the Aux* Line input when digital is not present..

*On the IN1808 Series, when Input 7 or 8 is set to DTP mode, the scaler uses analog audio from the remote DTP transmitter instead of analog audio from the rear panel of the IN1808. Analog and Auto formats are not allowed on inputs 7 and 8 of the IN1808 Series when it is set to XTP mode.

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Audio Configuration (continued)			
Audio Input Name			
Write name	Esc I X4 * X14 ANAM ←	AnamI X4 * X14 ↵	Set the name of audio input X4 to X14.
View name	Esc I X4 ANAM ←	X14 ↵	View the name of the audio input.
Audio Output Name			
Write name	Esc O X5 * X14 ANAM ←	AnamO X5 * X14 ↵	Set the name of audio output X5 to X14.
View name	Esc O X5 ANAM ←	X14 ↵	View the name of the audio output.

KEY:

X4 = Audio input	1 = DP 1, 2 = HDMI 2, 3 = HDMI 3, 4 = HDMI 4, 5 = HDMI 5, 6 = HDMI 6, 7 = TP 7 (IN1808 Series only), 8 = TP 8 (IN1808 Series only), 9 = Aux In, 10 = Mic/Line 1, 11 = Mic/Line 2, 12 = Line In 3 13 = Line In 4, 14 = File Playback L, 15 = File Playback R
X5 = Audio output	1 = HDMI 1, 2 = TP 2, 3 = Over DTP Analog, 4 = Line Out 1, 5 = Line Out 2, 6 = Line Out 3, 7 = Line Out 4
X14 = Audio input or output name (text label)	Can contain up to 32 characters, **excluding: ,** (comma) ,*, and |. Default = Audio•Input•X1 or Audio•Output•X2

Configure Playback			
Set file-to-slot association	Esc A X80 ,<*filename*>CPLY ←	CplyA X80 ,<*filename*> ↵	Assign a file to slot X80. <*filename*> can include an optional path.

NOTES:

- <*filename*> must include the full path name if the file is not in the /Audio directory.
- The file name must include the extension. *Example:* *song123.mp3*.
- 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:* */song123.mp3*.

Clear file-to slot-association	Esc A X80 ,•CPLY ←	CplyA X80 ,• ↵	Remove the audio file from slot X80.
View file-to-slot association	Esc A X80 CPLY ←	<*filename*> ↵	View the audio file name in slot X80.
Set repeat mode	Esc M X80 * X83 CPLY ←	CplyM X80 * X83 ↵	Set the audio playback repeat mode for slot X80 to X83.
View repeat mode	Esc M X80 CPLY ←	X83 ↵	View the repeat mode set for slot X80.

KEY:

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

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Audio Configuration (continued)			
Configure Playback (continued)			
Set delay	Esc D X80 * X84 CPLY ←	CplyD X80 * X84 ↵	Set the number of seconds the unit waits before repeating playback of the file in slot X80.
View delay	Esc D X80 CPLY ←	X84 ↵	View number of seconds delay (X84) set for slot X80.
Write name	Esc N X80 * X14 CPLY ←	CplyN X80 * X14 ↵	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 (Audio•File•X14).			
View name	Esc N X80 CPLY ←	X14 ↵	View the name assigned to the file in slot X80.
Transport			
Start and stop playback on a slot	Esc X80 * X82 PLAY ←	Play X80 * X82 ↵	Set play/stop state X82 of slot X80.
		Play X80 * Ø ↵	Unsolicited message sent when playback of file X80 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	Esc X80 PLAY ←	X82 ↵	View playback status of the audio file in slot X80.
Global playback status	Esc PLAY ←	X80 ↵	View the slot (X80) that is currently playing.
		Verbose modes 2 and 3:	
		PlayØ*Ø ↵	No slot is currently playing.
		Play X80 *1 ↵	Playback is active on slot X80.

KEY:

X14 = Playback text label	Up to 32 characters, **excluding ,** (comma) ,*, and |. The default file name is Audio•File•X14.
X80 = Playback slot number	1 through 16. Highest priority for playback is slot 1, descending to lowest priority 16.
X82 = Playback state	Ø = Stop or stopped, 1 = Play or playing
X84 = Playback delay	Number of seconds to wait before repeating playback on the current audio file, if repeat has been enabled. 1 through 3ØØ (1-300 seconds delay between repeats). Ø = No delay

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Advanced Configuration			
Test Pattern			
Set test pattern	Esc1*X22TEST←	Test1*X22↵	Select a test pattern (X22).
View test pattern	Esc1TEST←	X22↵	View the currently selected test pattern.
Switch Effects			
NOTE: Between input switches the audio ramps down and then up.			
Set output switch effect	EscO1*X45SWEF←	SwefO1*X45↵	Set the output switch effect to X45.
View setting	EscO1SWEF←	X45↵	View the current output switch effect.
Upstream Video Switch Effects			
Cut	EscU1*ØSWEF←	SwefU1*Ø↵	Set the upstream video switch effect to Off.
Seamless cut	EscU1*1SWEF←	SwefU1*1↵	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	EscU1SWEF←	X45↵	Show current switch effect setting X45.
Video Signal Presence			
View signal presence	EscØLS←	X61*...*X61↵ *Verbose modes 2 and 3:* INØØ•X61*...*X61↵	View video signal status X61 for inputs 1 through 6 (IN1806) or 1 through 8 (IN1808 Series).
Front Panel Lock (Executive Mode)			
Enable lock	X29X	ExeX29↵	Set front panel lock mode X29.
Disable lock mode	ØX	ExeØ↵	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:

X22 = Test patterns
- Ø = 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)

X29 = Front panel lock (executive mode)
- Ø = Off or disabled (front panel controls fully accessible) (default).
- 1 = Mode 1 — Complete front panel lockout
- 2 = Mode 2 — Allows Input switching, logos, and volume control only
- 3 = Mode 3 — Allows Input switching and logos only
- 4 = Mode 4 — Volume control only

X45 = Video switch effect
- Ø = **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.

Between input switches the audio ramps down and then up.

X61 = Video signal status
- Ø = Video, TMDS, or DP signal not detected
- 1 = Video, TMDS, or DP signal detected

Command	ASCII Command (Host to Scaler)	Response (Scaler 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.
HDCP Status			
Query input	Esc I X1 HDCP ←	X44 ↵	Request HDCP status X44 of input X1.
Query output	Esc O X2 HDCP ←	X44 ↵	Request HDCP status X44 of output X2.

KEY:

X1 = Input	1 = DisplayPort input 1 (all models) 2 - 6 = HDMI or DVI inputs 2 through 6 (all models) 7 - 8 = DTP2/XTP inputs 7 and 8 (IN1808 Series only) 9 = Aux audio input
X2 = Output	1 = HDMI/DVI output 1A 2 = DTP2/XTP/HDBT output 1B 3 = HDMI/DVI Loop output
X44 = HDCP status	Ø = No sink or source device detected 1 = Sink or source detected but no HDCP present 2 = Sink or source detected with HDCP
X46 = HDCP output mode	Ø = Off — Disable all HDCP authentication and encryption attempts. 1 = Follow input (with a maximum of 10 seconds of authentication trials, default) 2 = Encrypt output (with a maximum of 10 seconds of authentication trials 3 = Follow input (with continuous authentication trials) 4 = Encrypt output (with continuous authentication trials)
X47 = HDCP notification mode	Ø = 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 HDCP non-compliant display is attached, or if both attached displays are non-HDCP compliant. If the IN1806 and IN1808 Series 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.

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Advanced Configuration (continued)			
Twisted Pair Protocol			
Set input TP type (IN1808 Series only)	Esc I X1 * X67 HDBT ←	HdbtI X1 * X67 ↵	Set the TP protocol for input X1 to X67. (X1 can be 7 or 8 only.)
View input TP protocol (IN1808 Series only)	Esc I X1 HDBT ←	X67 ↵	View current TP protocol setting for input X1.
Set output TP protocol	Esc 0 2 * X67 HDBT ←	HdbtO X2 * X67 ↵	Set the TP protocol for DTP2/XTP/HDBT Output 1B (2) to X67.
View output TP protocol	Esc 0 2 HDBT ←	X67 ↵	View current TP protocol setting for output 1B.

KEY:

X1 = TP input — 7 = DTP2/XTP input 7, 8 = DTP2/XTP input 8

X67 = DTP protocol setting — Ø = DTP format (default); 1 = XTP format; 2 = HDBaseT format (output only)

DTP Remote Power Parameters

ATTENTION:

- 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 (IN1808 Series only)	Esc I X1 * X66 RPWR ←	RpwrI X1 * X66 ↵	Set the remote power on input X1 to X66. (X1 can be 7 or 8 only.)
View input remote power (IN1808 Series only)	Esc I X1 RPWR ←	X66 ↵	View remote power setting for input X1.
Set output remote power	Esc 0 2 * X66 RPWR ←	Rpwr0 2 * X66 ↵	Set the remote power for output 1B (2) to X66.
View output remote power	Esc 0 2 RPWR ←	X66 ↵	View remote power setting for output 1B.

KEY:

X66 = DTP remote power status — Ø = No remote power (default); 1 = DTP – 12 VDC; 2 = DTP2 – 48 VDC

Resets			
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.
Erase user-supplied web page and files[24 28]	Esc <*filename*> EF ←	Del•<*filename*> ↵	

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Advanced Configuration (continued)			
Resets (continued)			
Erase current directory and its files[24 28]	Esc / E F ←	Ddl↵	
Erase current directory and subdirectories[24 28]	Esc / / E F ←	Dd1↵	
Erase flash memory[24]	Esc Z F F F ←	Zpf↵	
Serial Port Configuration			
Set serial port parameters	Esc X57 * X58 , X59 , X60 , X61 C P ←	Cpn X57 •Ccp X58 , X59 , X60 , X61 ↵	Set the Remote RS-232 port parameters.
View the serial port parameters	Esc X57 C P ←	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 M D ←	Pmd X65 ↵	Set the port number start point for the over TP Universal asynchronous receiver-transmitter (UART).
View UART start point	Esc M D ←	X65 ↵	View the port number start point for the over TP UART.

NOTE: The remote power state for HDBT and XTP modes is forced to Off (Ø). 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.

KEY:

X57 = Remote port number	1 = Remote port (3-pole captive screw) 7 = Universal asynchronous receiver-transmitter (UART) on TP input 7 (IN1808 Series only) 8 = Universal asynchronous receiver-transmitter (UART) on TP input 8 (IN1808 Series only) 9 = UART on TP output 1B
X58 = Baud rate of port	3ØØ, 6ØØ, 12ØØ, 18ØØ, 24ØØ, 36ØØ, 48ØØ, 72ØØ, 96ØØ (default), 144ØØ, 192ØØ, 288ØØ, 384ØØ, 576ØØ, 1152ØØ
X59 = Parity	**O**dd, **E**ven, **N**one (default), **M**ark, **S**pace (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: Rear panel RS-232 = X65. TP IN 7 = X65 + 1 (IN1808 Series only) TP IN 8 = X65 + 2 (IN1808 Series only) TP OUT 1B = X65 + 3 Default = 2ØØØ (meaning IN7 = 2ØØ1, IN8 = 2ØØ2, OUT1B = 2ØØ3)

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Backup and Restore Configuration			
Save unit configuration	Esc 1*X85XF ←	Cfg1*X85↵	Back up the current unit configuration as type X85 to a file in the unit file system.
Restore unit configuration	Esc Ø*X85XF ←	CfgØ*X85↵	Restore the saved configuration, type X85.

KEY:

X85 = Configuration type
Ø = IP configuration (ip.cfg)
2 = Unit-specific parameters (box.cfg)

NOTE: Configuration files are stored in the directory /nortxe-backup, created on the unit by the Save command.

Information Requests			
General information	X1*I	VidX1•TypX3•AmtX10•VmtX42•HrtX13•VrtX13↵ *Verbose modes 2 and 3:* InfØØ*VidX1•TypX3•AmtX10•VmtX42•HrtX13•VrtX13 ↵	View video input signal type, audio mute status, video mute status, and horizontal and vertical frequencies.
Query model name	1I	X35↵ *Verbose modes 2 and 3:* InfØ1*X35 ↵	View the unit model name (X35).
Query unit description	2I	Scaling•Presentation•Switcher↵ *Verbose modes 2 and 3:* InfØ2*Scaling•Presentation•Switcher↵	View the IN1806 or IN1808 Series product description.
Query firmware version	Q	*n.nn*↵ *Verbose modes 2 and 3:* VerØ1**n.nn*↵	View the unit firmware version to the second decimal place.
Query full firmware version	*Q	*n.nn.nnnn* ↵ *Verbose modes 2 and 3:* Bld*n.nn.nnnn* ↵	View the unit firmware version with its build number.
Query part number	N	X36↵ *Verbose modes 2 and 3:* PnoX36↵	View unit part number X36 for the model.

KEY:

X1 = Input selection	1 = DisplayPort input 1 (all models) 2-6 = HDMI or DVI inputs 2 through 6 (all models) 7-8 = DTP2/XTP inputs 7 and 8 (IN1808 Series only) 9 = Aux audio input
X3 = Digital video format	Ø = No signal, 1 = DVI, 2 = HDMI, 3 = DisplayPort
X10 = On or off, enable or disable	Ø = Audio unmuted, 1 = Audio muted
X13 = Horizontal and vertical frequencies	*nnn.nn*. Response is three digits with two decimal places.
X35 = Model name	IN18Ø6, IN18Ø8, IN18Ø8 IPCP MA, or IN18Ø8 IPCP SA
X36 = Part number	IN1806 — 6Ø-1663-Ø1 IN1808 (base model) — 6Ø-1615-Ø1 IN1808 IPCP SA — 6Ø-1615-Ø2 IN1808 IPCP MA 70 — 6Ø-1615-Ø3
X42 = Video output mute	Ø = Unmuted, 1 = Muted to black screen, 2 = Muted video and sync

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Information Requests (continued)			
View internal temperature	Esc 2ØSTAT ←	X12 ↵ *Verbose modes 2 and 3:* 2ØStat•X12 ↵	View unit internal temperature X12 in degrees Celsius.
Set verbose mode	Esc X34 CV ←	Vrb X34 ↵	Set the verbose mode to X34 and enable or disable tagged responses (additional information provided in response to a query).
View verbose mode	Esc CV ←	X34 ↵	View the current verbose mode.

KEY:

X12 = Internal temperature	In degrees Celsius. Response is two digits, padded with a zero.
X34 = Verbose mode (see the **verbose mode command description** on page 58 for more information)	Ø = 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

IP Control Port Commands

IP Setup

NOTES:

- Changes made to any TCP/IP settings do not take effect until the reboot network command (Esc 2B00T ←) 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]	Esc X10 DH ←	Idh X10 ↵	Enable or disable DHCP.
View DHCP mode	Esc DH ←	X10 ↵	View the DHCP mode setting.
Set IP address[24]	Esc X87 CI ←	Ipi•X87 ↵	Set the IP address to X87.
Read IP address	Esc CI ←	X87 ↵	View the current IP address.
Set subnet mask[24]	Esc X89 CS ←	Ips•X89 ↵	Set the subnet mask to X89.
View subnet mask	Esc CS ←	X89 ↵	View the subnet mask setting.
Set gateway IP address[24]	Esc X88 CG ←	Ipg•X88 ↵	Set the gateway IP address to X88.
View gateway IP address	Esc CG ←	X88 ↵	View the gateway IP address setting.

KEY:

X10 = On or off, enable or disable	Ø = DHCP disabled (default), 1 = DHCP enabled
X64 = Port timeout	Time in increments of 10 seconds before the port connection times out. 1 (10 seconds) through 65ØØØ (650,000 seconds) Default = 3Ø (300 seconds)
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* (Ø.Ø.Ø.Ø = default)
X89 = Subnet mask	*nnn.nnn.nnn.nnn* (255.255.255.Ø = default)
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.

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
IP Control Port Commands (continued)			
IP Setup (continued)			
Set the port timeout	Esc Ø*X64TC↵	PtiØ*X64↵	Set the amount of time in increments of 10 seconds before the port connection times out.
View current port timeout	EscØTC↵	X64↵	View the set connection timeout of the current port.
Set the global port timeout	Esc1*X64TC↵	Pti1*X64↵	Set the amount of time in increments of 10 seconds on all IP connections to this device before the port connection times out.
View global port timeout	Esc1TC↵	X64↵	View the set timeout of all IP port connections.
View MAC address	EscCH↵	X90↵ *Verbose modes 2 and 3:* Iph•X90↵	View unit Media Access Code (MAC) address X90.
Set LAN IP address, subnet mask, and gateway address[24]	Esc 1*X87/X93*X88CISG↵	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 in **verbose mode 2 or 3**).			
View all IP settings	Esc1CISG↵	X87/X93*X88↵	View the IP address, subnet mask (prefix), and gateway address for the unit.

KEY:

X10 = On or off, enable or disable	Ø = DHCP disabled (default), 1 = DHCP enabled
X64 = Port timeout	Time in increments of 10 seconds before the port connections time out. 1 (10 seconds) through 65ØØØ (650,000 seconds) Default = 3Ø (300 seconds)
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* (Ø.Ø.Ø.Ø = default)
X89 = Subnet mask	*nnn.nnn.nnn.nnn* (255.255.255.Ø = default)
X90 = Hardware (MAC) address	ØØ-Ø5-A6-*xx-xx-xx*
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.

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
IP Control Port Commands (continued)			
IP Setup (continued)			
Query the number of open connections	Esc CC ←	X86 ↵ *Verbose modes 2 and 3:* Icc X86 ↵	View the number of open connections.
Reboot networking	Esc 2BOOT ←	Boot2 ↵	Restart the network after IP setting or DHCP changes.
Set unit name	Esc X81 CN ←	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:

X81 = Unit name
A text string of up to 32 characters.
- A-Z, Ø-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.

X86 = Number of open connections
Ø-<*maximum number of open connections*>

X92 = Default unit name
Combination of the model name and the last three hexadecimal character pairs of the unit MAC address.
Example: IN18Ø8-IPCP-SA-14-9A-BØ.

Passwords

NOTE: The initial password set at the factory is 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 is removed.

Set administrator password	Esc X91 CA ←	Ipa•X91 ↵	Set the administrator password to X91.
View administrator password	Esc CA ←	**** ↵ or ↵ *In verbose modes 2 and 3:* Ipa•**** ↵ or Ipa ↵	View the administrator password.
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 ↵ *In verbose modes 2 and 3:* Ipu•**** ↵ or Ipu ↵	View the user password. If there is a valid password, the response is **** ↵. If there is no password, the response is ↵.
Reset (clear) user password	Esc •CU ←	Ipu• ↵	Reset or clear the user password.

KEY:

X91 = Password
- The original factory configured passwords for all accounts on this device have been set to the device serial number. If the unit is reset to factory settings, this password is set to no password.
- Length is 1-128 characters.
- All human-readable characters are permitted except |.
- The password cannot be a single space.
- Passwords are case-sensitive.
- If the admin password is cleared, the user password is cleared also.

NOTE: A user password cannot be assigned if no administrative password exists. An E14 error code is returned.

Audio Group Master SIS Commands

Group master symbol definitions

• = 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

X100 = Object Identification number (OID)

Input Path OIDs:

Line Input Gain Control (2 per channel)	OIDs
Line Input 1 - DisplayPort	3ØØØØ 3ØØØ1
Line input 2 - HDMI L	3ØØØ2
Line input 2 - HDMI R	3ØØØ3
Line input 3 - HDMI L	3ØØØ4
Line input 3 - HDMI R	3ØØØ5
Line input 4 - HDMI L	3ØØØ6
Line input 4 - HDMI R	3ØØØ7
Line input 5 - HDMI L	3ØØØ8
Line input 5 - HDMI R	3ØØØ9

Line Input Gain Control (continued)	OID
Line input 6 - HDMI L	3ØØ1Ø
Line input 6 - HDMI R	3ØØ11
Line input 7 - DTP2/XTP L	3ØØ12
Line input 7 - DTP2/XTP R	3ØØ13
Line input 8 - DTP2/XTP L	3ØØ14
Line input 8 - DTP2/XTP R	3ØØ15
Aux line input L	3ØØ16
Aux line input R	3ØØ17

Mic/Line/File Player Input Gain	OID
Mic/Line Input 1	4ØØØØ
Mic/Line Input 2	4ØØØ1
Line Input 3	4ØØØ2
Line Input 4	4ØØØ3
File player L	4ØØØ4
File player R	4ØØØ5

Output Attenuation (2 per channel)	OID
HDMI L	6ØØØØ
HDMI R	6ØØØ1
DTP2/XTP/HDBT L	6ØØØ2
DTP2/XTP/HDBT R	6ØØØ3
DTP Analog L	6ØØØ4
DTP Analog R	6ØØØ5

Output Attenuation (continued)	OID
Line Output 1	6ØØØ6
Line Output 2	6ØØØ7
Line Output 3	6ØØØ8
Line Output 4	6ØØØ9
Amp L or Mono	6ØØ1Ø
Amp R	6ØØ11

X101	=	Group master number	1 through 10 Preconfigured group. Can alternatively be an alias, which is the user-defined group name enclosed in braces ({ }).
X103	=	Soft limit high value (in dB)	For gain value with a resolution to 0.1, multiply by 10. The valid range of X103 must be within the range of X105 to set an upper limit of gain group master X101.
X104	=	Soft limit low value (in dB)	For gain value with a resolution to 0.1, multiply by 10. The valid range of X104 must be within the range of X105 to set an upper limit of a gain group master X101.
X105	=	Group master value	For gain value with a resolution to 0.1, multiply by 10. For mute values, use 0 or 1 as the value.
X106	=	Increment or decrement value	For gain value with a resolution to 0.1, multiply by 10. For mute values, use 0 or 1 as the value.
X107	=	Group master mute status	0 = unmuted, 1 = muted

Group Master SIS Command and Response Table

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Audio Group Master			
View Group Master			
View soft limits	Esc L X101 GRPM ←	X103 * X104 ↵ *In verbose modes 2 and 3:* GrpmL X101 * X103 * X104 ↵	View low soft limit X104 and high soft limit X103 for group X101.
Group Master Value			
Set a group fader value	Esc D X101 * X105 GRPM ←	GrpmD X101 * X105 ↵	Set the level of group fader X101 to X105.
Example:	Esc D3*-293GRPM ←	GrpmD3*-293 ↵	Set group 3 fader control to -29.3 dB.
View group fader value	Esc D X101 GRPM ←	X107 ↵ *In verbose modes 2 and 3:* GrpmD X101 * X107 ↵	View the group fader value.
Increment a group fader value	Esc D X101 * X106 +GRPM ←	GrpmD X101 * X105 ↵	Increase the gain value of group X101 by X106 to X105.
Example:	Esc D3*30+GRPM ←	GrpmD3*-263 ↵	Raise the group 3 fader by 3 dB from -29.3 dB (set in the previous example) to -26.3 dB.
Decrement a group fader value	Esc D X101 * X106 –GRPM ←	GrpmD X101 * X105 ↵	Decrease the gain value of group X101 by X106 to X105.
Mute a group	Esc D X101 *1GRPM ←	GrpmD X101 *1 ↵	Mute all blocks in group X101.
Unmute a group	Esc D X101 *ØGRPM ←	GrpmD X101 *Ø ↵	Unmute all blocks in group X101.
View group mute status	Esc D X101 GRPM ←	X107 ↵ *In verbose modes 2 and 3:* GrpmD X101 * X107 ↵	View the group master mute status.

KEY:

X100 =	Object ID (OID) number	See the **Object Identification number table** on page 85.
X101 =	Group master group number	1 through 1Ø. Preconfigured group. Can alternatively be an alias, which is the user-defined group name enclosed in braces ({ }).
X103 =	Soft limit high value in dB	The valid range for X103 must be within the range for the gain block grouped in X101.
X104 =	Soft limit low value in dB	The valid range for X104 must be within the range for the gain block grouped in X101.
X105 =	Group master value	Value in 0.1 dB steps. For gain value with a resolution to 0.1, multiply by 10. For mute values, use Ø or 1. *Example:* -100.0 dB through +80.0 dB is represented by -1ØØØ through 8ØØ. The valid range depends on the type of gain block assigned to the group number (X101).
X106 =	Increment or decrement value	Value in 0.1 dB steps. For gain value with a resolution to 0.1, multiply by 10. For mute values, use 0 or 1 as the value.
X107 =	Group master mute status	Ø = unmuted, 1 = muted

Audio DSP SIS Commands

DSP SIS command structure

Several digital signal processor (DSP) functions can be configured using SIS commands. Commands entered via PCS are also displayed on the host communication utility screen that is being used for SIS commands (for example, Extron DataViewer).

DSP control commands are a subset of the SIS commands with a specific structure.

- For a `Set` command, the form of the command string is:

  Esc <*parameter ID*><*OID*>*<*value*>AU ←

  where:

  - <*OID*> (Object ID) is a six-digit integer identifying the processor (see the **Object Identification Number table** on page 85).
  - <*Parameter ID*> is a letter identifying the parameter.
  - <*Value*> is a number indicating the level being set for the parameter.

- For a `View` (`Get`) command, the value parameter can be eliminated, so that the command structure for viewing a single parameter is:

  Esc <*parameter ID*><*OID*>AU ←

- The unit response to these commands begins with `Ds`. The response format is:

  Ds<*Parameter ID*><*OID*>*<*value*>↵

DSP command symbol definitions

↵	=	Carriage return with line feed	
←	=	Carriage return with no line feed	
Esc	=	Escape	
X100	=	Object ID (OID) number	See the **Object Identification Number table**.
X110	=	Gain value	Levels use a 10x multiplier system with no decimal places. For example, a level of +10.4 dB would be entered as `1Ø4` and a level of -3.2 dB would be entered as `-32`.
X111	=	Mute or Phantom power status	`Ø` = Disabled, `1` = Enabled

DSP SIS Command and Response Table

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Gain Level			
Set gain level	Esc G X100 * X110 AU ←	DsG X100 * X110 ↵	Set gain on OID X100 to a value of X110 dB.
Example (Mic/line input 1):	Esc G4ØØØØ*12Ø AU ←	DsG4ØØØØ*12Ø↵	Set the mic/line input 1 to a level of +12.Ø dB.
View gain level	Esc G X100 AU ←	DsG X100 * X110 ↵	Gain on OID X100 is set to a value of X110 dB.
Example (Mic/line input 1):	Esc G4ØØØØAU ←	DsG4ØØØØ*55Ø↵	Mic/Line input 1 gain is set to +55.Ø dB.
Example (HDMI L output attenuation):	Esc G6ØØØØAU ←	DsG6ØØØØ*-55↵	HDMI L output attenuation is set to a value of -5.5 dB.
Audio Mute			
Audio mute	Esc M X100 *1AU ←	DsM X100 *1↵	Mute audio at X100.
Audio unmute	Esc M X100 *ØAU ←	DsM X100 *Ø↵	Unmute audio at X100.
Mute status	Esc M X100 AU ←	DsM X100 * X111 ↵	View audio mute status X111.
Phantom Power			
Enable phantom power	Esc Z X100 *1AU ←	DsZ X100 *1↵	Phantom power is available only on Mic/Line Inputs 1 and 2.
Disable phantom power	Esc Z X100 *ØAU ←	DsZ X100 *Ø↵	
Phantom power status	Esc Z X100 AU ←	DsZ X100 * X111 ↵	View Phantom power status X111.

KEY:

X100 = Object ID (OID) number	See the **Object Identification number table** on page 85.
X110 = Gain value	Levels use a 10x multiplier system with no decimal places. For example, a level of +10.4 dB would be entered as 1Ø4 and a level of -3.2 dB would be entered as -32.
X111 = Mute or Phantom power status	Ø = Disabled, 1 = Enabled

CEC SIS Commands

CEC Symbol Definitions

X201 = CEC mode
- Ø = Disable CEC operations for this port (default)
- 2 = Enable insertion (unidirectional)
- 4 = Enable insertion and publish received CEC messages (bidirectional) (recommended)

X202 = CEC status
- Ø = CEC mode Ø disabled
- 2 = CEC mode 2 enabled but no device detected (unidirectional)
- 3 = CEC mode 2 enabled and device detected (unidirectional)
- 4 = CEC mode 4 enabled but no device detected (bidirectional)
- 5 = CEC mode 4 enabled and device detected (bidirectional)

X203 = Source logical address (our pseudo): Ø through 15
(-1 = Not found or port not enabled)

X204 = Destination logical address (theirs): Ø through 15 (-1 = not found or port not enabled)

CEC Logical Addresses	
Address	**Device**
Ø	TV
1	Recording Device 1
2	Recording Device 2
3	Tuner 1
4	Playback Device 1
5	Audio System
6	Tuner 2
7	Tuner 3
8	Playback Device 2
9	Recording Device 3
10	Tuner 4
11	Playback Device 3
12	Reserved
13	Reserved
14	Free Use
15	Unregistered (as initiator address) Broadcast (as destination address)

X205 = CEC command: Predefined actions as strings within double quotes. For example: "*PwrOn*", *"PwrOff"*, or *"ShowMe"*

X206 = Send result
- Ø = Failed (NAK [not acknowledged])
- 1 = Success (ACK [acknowledged]) of entire message
- 2 = Unable to send

X207 = CEC physical address: 4 hexadecimal digits (Example: %32%ØØ)

X208 = CEC device presence:
- Ø-F = Device address
- X = Missing
- — = CEC port is off

X209 = CEC data — User selected elements (Ø through 15) in the form of a percent sign followed by two hex digits. *Example:* %2A%Ø7%FF

X210 = CEC address byte — In the form of percent sign followed by two hex digits
Example: %EØ = Extron output (14) to TV (Ø)

Command and Response Table for CEC SIS Commands

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
Enable or Disable CEC Commands			
Enable/disable one output CEC	Esc O X2 * X201 CCEC ←	CcecO X2 * X201 ↵	
Enable/disable all outputs CEC	Esc O X201 * CCEC ←	CcecO X201 ↵	
View output CEC status	Esc O X2 CCEC ← Verbose mode 2/3.	X202 * X203 * X204 ↵ CcecO X2 * X202 * X203 * X204 ↵	
Send CEC Commands			
Default Discovered Target Logical Address			
Send CEC data to Output (downstream sink)	Esc O X2 * X205 DCEC ← or Esc O X2 * X209 DCEC ←	DcecO X2 * X210 X209 * X206 ↵	For Send CEC Commands, X205 and X209 can be used interchangeably. However, the response is always a hex representation (X209), for example: *%2A%Ø7%FF*.
Broadcast to All Devices			
Send CEC data to Output (downstream sink)	Esc O X2 * 15 * X205 DCEC ← or Esc O X2 * 15 * X209 DCEC ←	DcecO X2 * X210 X209 * X206 ↵	

NOTE: Attempting to send a CEC command to an output that is disabled returns an E14 error.

KEY:

X2 = Output — 1 = HDMI/DVI output 1A, 2 = DTP2/XTP/HDBT output 1B, 3 = Loop Out

X201 = CEC mode — Ø = Disable CEC operations for this IO port (default).
2 = Enable insertion (unidirectional).
4 = Enable insertion and publish received CEC messages (bidirectional).

X202 = CEC status — Ø = CEC mode Ø disabled
2 = CEC mode 2 enabled but no device detected (unidirectional)
3 = CEC mode 2 enabled and device detected (unidirectional)
4 = CEC mode 4 enabled but no device detected (bidirectional)
5 = CEC mode 4 enabled and device detected (bidirectional)

X203 = Source logical address (our pseudo) (see the **CEC Logical Addresses** table on the previous page) — Ø through 15
-1 = not found or port not enabled

X204 = Destination logical address (theirs) (see the **CEC Logical Addresses** table) — Ø through 15
-1 = not found or port not enabled (see **CEC Logical Addresses**)

X205 = CEC command — Predefined actions as strings within double quotes: "PwrOn", "PwrOff", or "ShowMe"

X206 = Send result — Ø = Failed (NAK) device not detected, 1 = Success (ACK) device detected, 2 = Unable to send

X209 = CEC data — User selected elements (Ø to 15) in the form of percent sign followed by 2 hex digits
Example: %2A%Ø7%FF

X210 = CEC address byte — In the form of a percent sign followed by two hex digits
Example: %EØ = Extron output (14) to TV (Ø)

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
CEC Usage Examples			
NOTE: On the DTP2 output, CEC communication reaches the output of the receiver only when the receiver is standalone DTP or DTP2. If the DTP or DTP2 receiver is not standalone, control of its output is ineffective.			
Unidirectional Mode — No CEC received data messages (including answers to queries) desired			
Set mode	Esc02*2CCEC←	Ccec02*2↵	Power on TV on output 2.
Send data	Esc02*"PwrOn"DCEC← or Esc02*%Ø4DCEC←	Dcec02*%EØ%Ø4*1↵	
Bidirectional Mode — CEC received data messages desired			
Set mode	Esc03*4CCEC←	Ccec03*4↵	Switch TV on output 3 to our signal (HDMI 2 on TV).
Send data	EscØ3*"ShowMe"DCEC← or Esc03*15*%82%2Ø%ØØDCEC←	Dcec03*%EF%82%2Ø%ØØ*1↵	
Examples of possible unsolicited messages	Ceco3*%ØF%32%65%6E%67*1↵		TV broadcast command to set the menu language to English ("eng").
	Ceco3*%ØE*1↵		TV pings us to confirm we are still there.
NOTE: Asynchronous received data messages from CEC in bidirectional mode (4) format: Ceco[X2]*[X210][X209]*[X206]↵			
Other CEC Commands			
List CEC device presence	Esc LQCEC←	*[X208]...[X208]↵ *In verbose modes 2 and 3:* QcecL**[X208] ... [X208]↵	*output 1 ... output *n*
Rediscover device on output	Esc O[X2]QCEC←	Qceco[X2]*1↵ Qceco[X2]*Ø*[X206]↵ ... Qceco[X2]*13*[X206]↵	
Report physical address of output port	Esc O[X2]PCEC←	[X207]↵ *In verbose modes 2 and 3:* Pceco[X2]*[X207]↵	For 1000 (usually first HDMI input on TV) *Example:* %1Ø%ØØ

KEY:

[X2] = Output	1 = HDMI/DVI output 1A, 2 = DTP2/XTP/HDBT output 1B, 3 = Loop Out
[X206] = Send result	Ø = Failed (NAK) device not detected, 1 = Success (ACK) device detected, 2 = Unable to send
[X207] = CEC physical address	4 hexadecimal digits (*Example:* %1Ø%ØØ for 1000)
[X208] = CEC device presence	Ø-F = Device address, X = Missing, – = CEC port is off
[X209] = CEC data	User selected elements (Ø to 15) in the form of percent sign followed by 2 hex digits *Example:* %2A%Ø7%FF
[X210] = CEC address byte	In the form of a percent sign followed by two hex digits *Example:* %EØ = Extron output (14) to TV (Ø)

Configuration Software

The Extron Product Configuration Software (PCS) offers a means of controlling the IN1806 and IN1808 Series via a 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 *IN1806 and IN1808 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 **www.extron.com**.

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

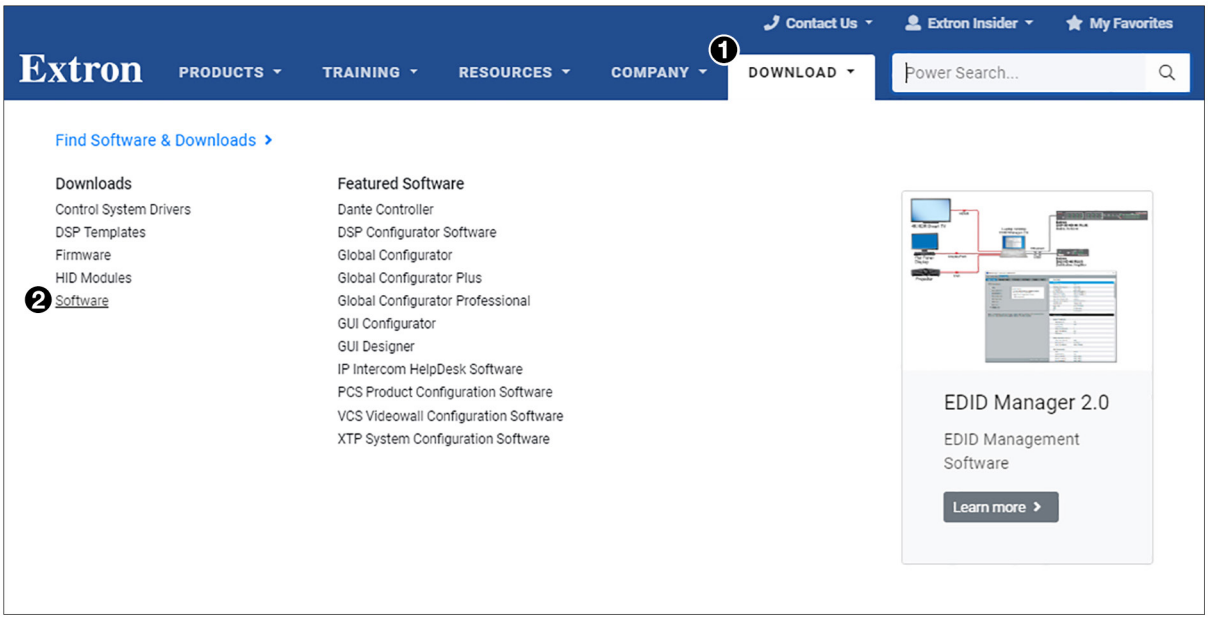


Figure 33. Download Center Page on the Extron Website

1. On the Extron website, select the **Download** tab (see **figure 33**, ❶, on the previous page).
2. Move the pointer to the **Software** link (❷) in the Downloads column and click it.

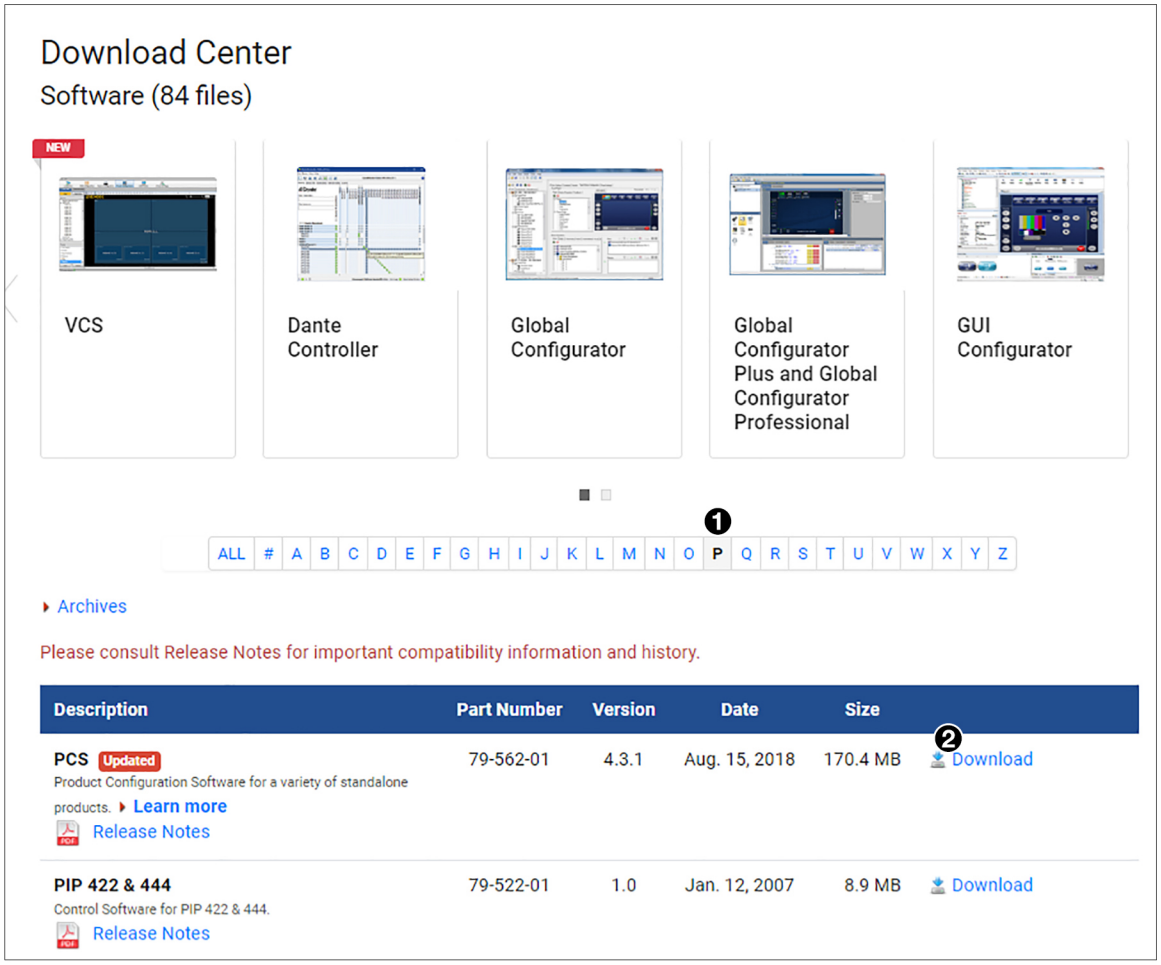


Figure 34. PCS Download Link

3. On the Download Center page, click the **P** link (see figure 34, ❶).
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 (❷).
5. On the login page that appears next, fill in the required information to log in to **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 \ IN180*6 and IN180*8 Series.

   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 PCS program from the **Start** menu or desktop shortcut. The **Extron Product Configuration Software** window opens with the **Device Discovery** panel open. Connect to the scaler 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.

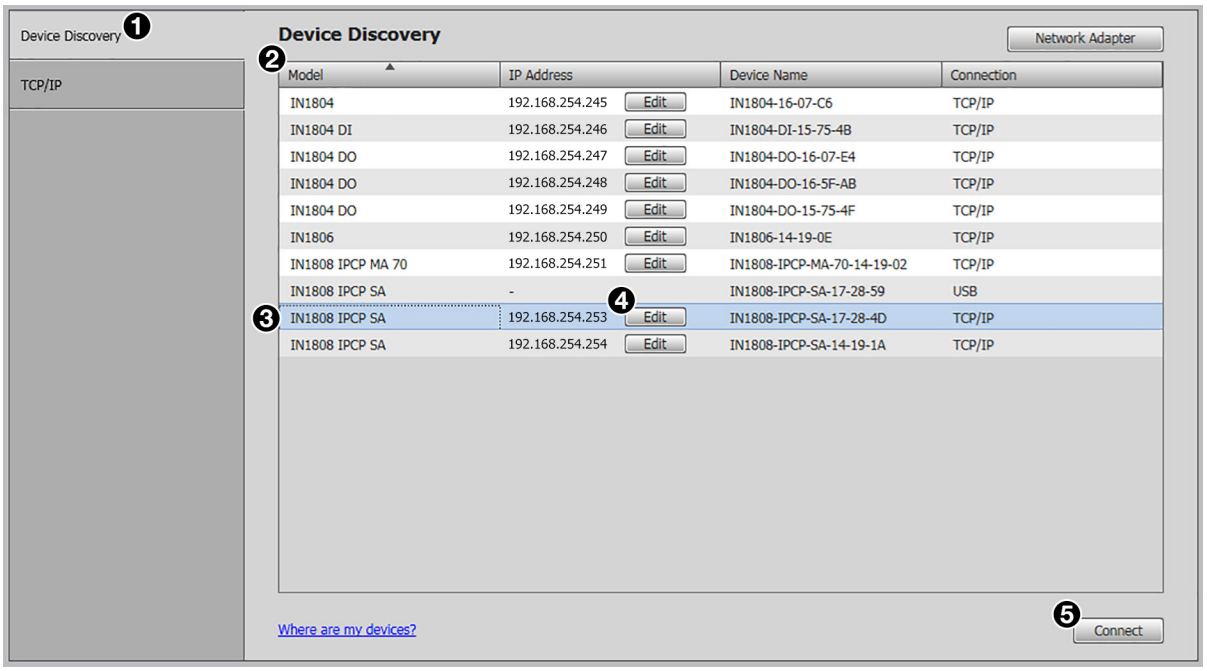


Figure 35. Device Discovery Screen

To sort the list of available devices:

1. Click the **Device Discovery** tab (see figure 35, ❶).
2. Click the desired column heading (❷) to sort it in ascending or descending order.

To connect to a device:

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

To edit communication settings from the Device Discovery panel:

1. Click the **Device Discovery** tab (❶).
2. Click the **Edit** button of the desired device (❹). 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.

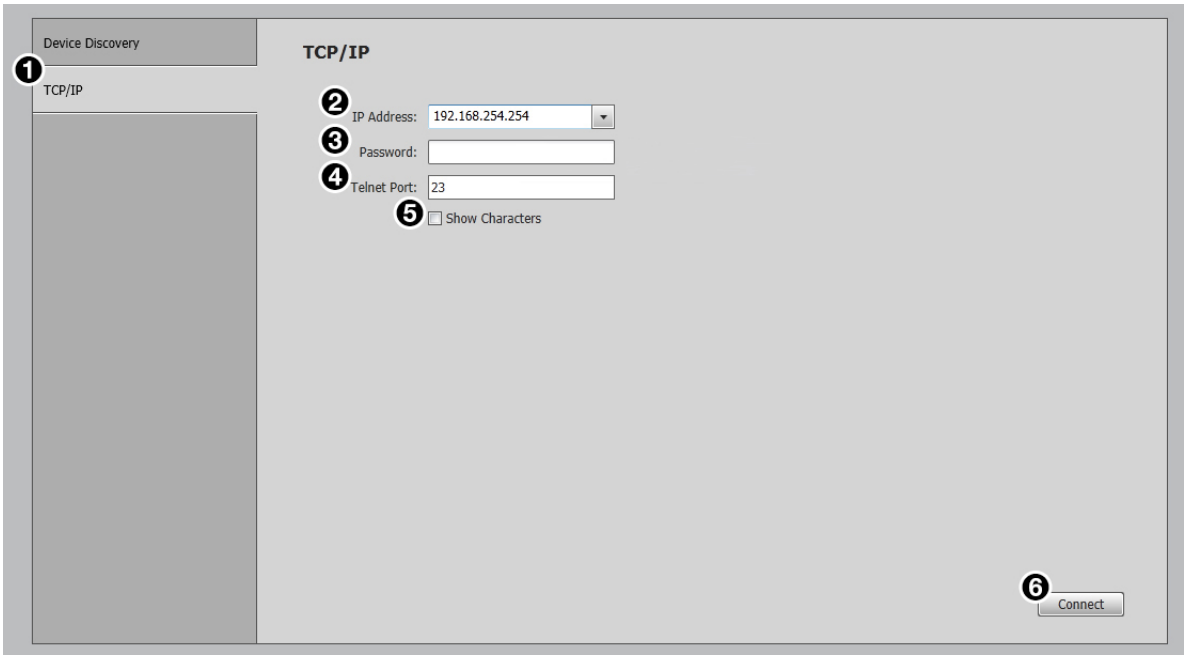


Figure 36. TCP/IP Panel

1. Click the **TCP/IP** tab (see figure 36, ❶).
2. In the **IP Address** field (❷), enter the IP address of the desired device.
3. If required, enter the device password in the **Password** field (❸).

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 (❺) to display the password characters.

4. In the **Telnet Port** field (❹), enter the Telnet port of the desired device.
5. Click the **Connect** button (❻). 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 scaler device tab:

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

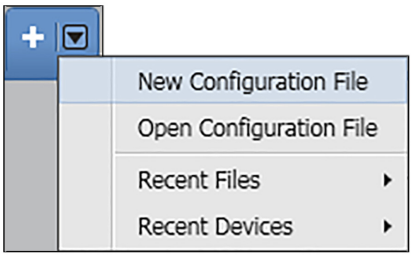


Figure 37. Configuration File Drop-Down Menu

The `New Configuration File` dialog box opens.

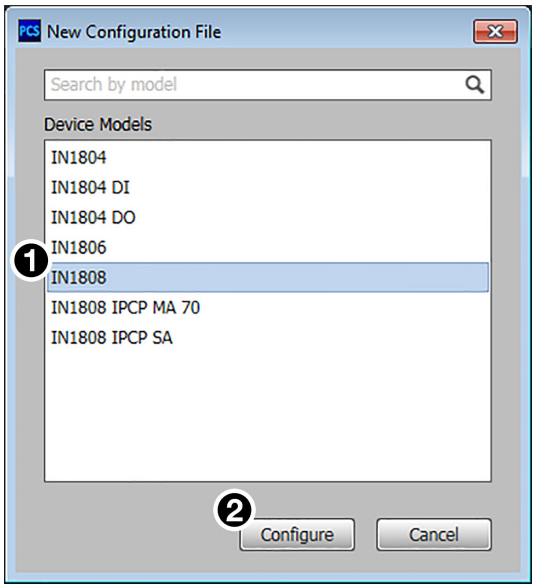


Figure 38. New Configuration File Dialog Box

2. Select the desired device model from the `Device Models` list (see figure 38, ❶). In figure 38, **`IN18Ø8`** (standard model) was selected.
3. Click the **`Configure`** button (❷). A new offline device configuration tab opens.

Software Overview

NOTE: For details about specific software features, see the *IN1806 and IN1808 Series PCS Help* file.

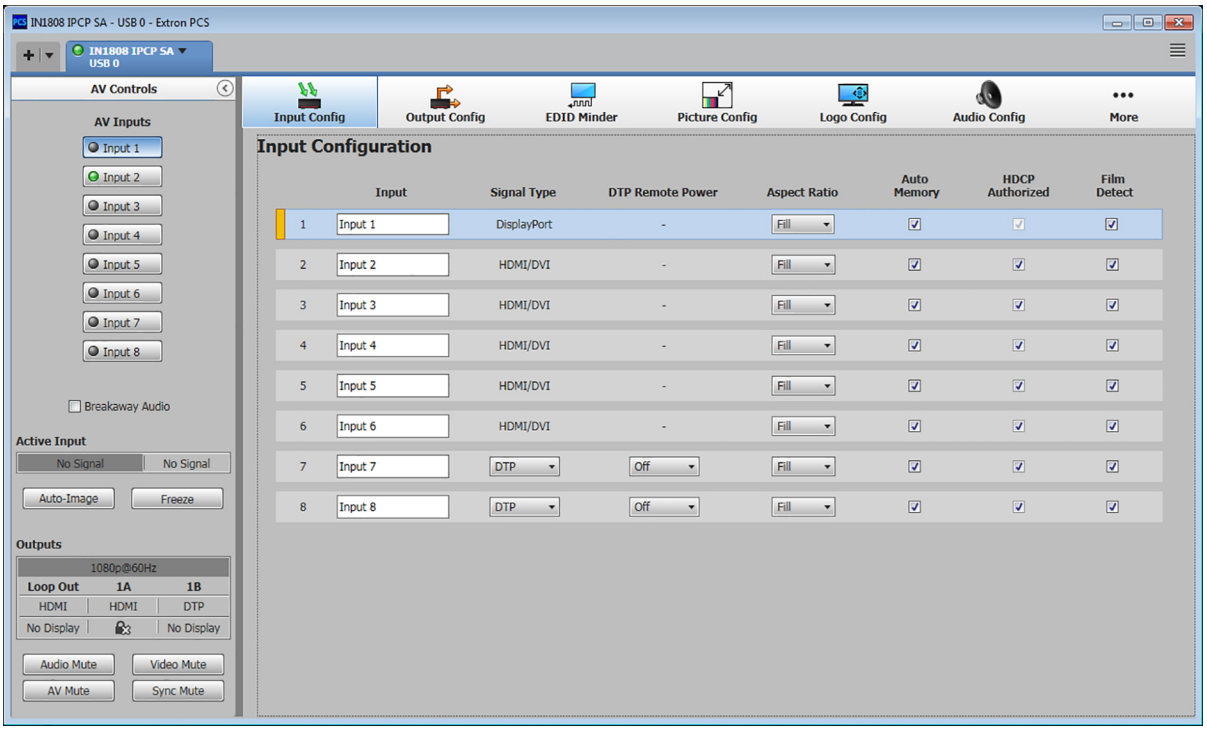


Figure 39. PCS Main Window

Each device screen has a **Device** drop-down menu for configuration options. The **Software** menu contains software configuration and information options.

Software Menu

The PCS **Software** menu (see figure 40) contains options pertaining to PCS settings.

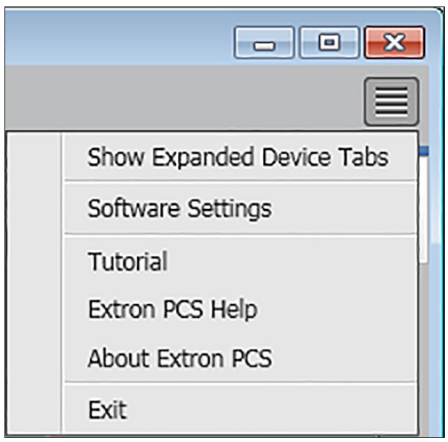


Figure 40. PCS Software Menu

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 41. Expanded Device Tab (IN1806 and IN1808 Series 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.

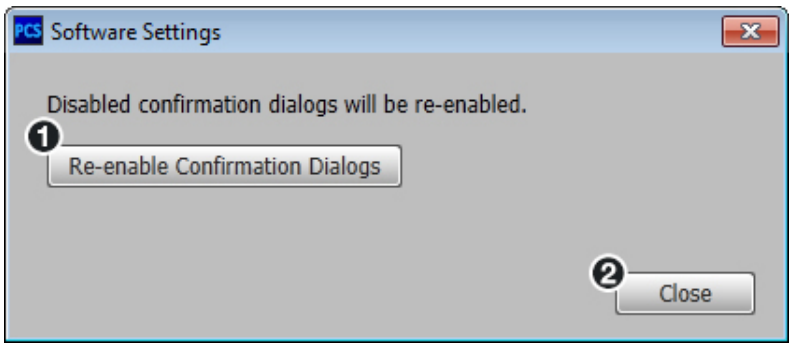


Figure 42. Software Settings Dialog Box

2. Click the **Re-enable Confirmation Dialogs** button (❶). The dialog box closes and the reset is complete. Click the **Close** button (❷) 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 **OK** button to close the dialog box.

Extron PCS Help

This options 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.

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

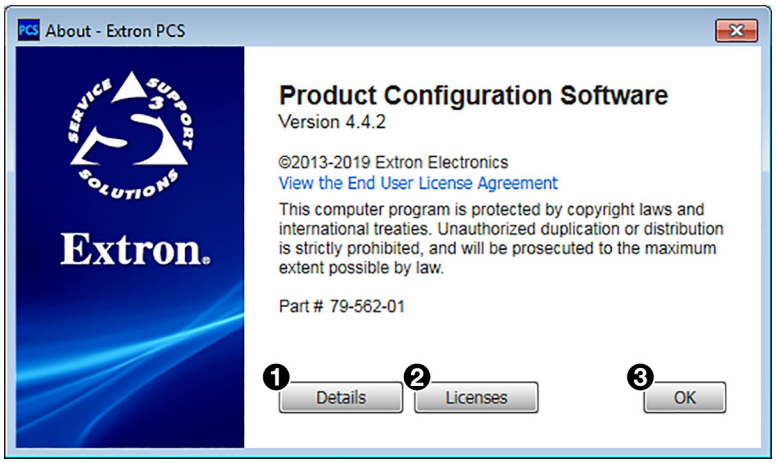


Figure 43. About - Extron PCS Dialog Box

2. Click the **Details** button (see figure 43, ❶) view the software build number and more information.

   To display details about third-party software packages and associated licensing, click **Licenses** (❷).

3. Click the **OK** button (❸) to close the dialog box.

Exit

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

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

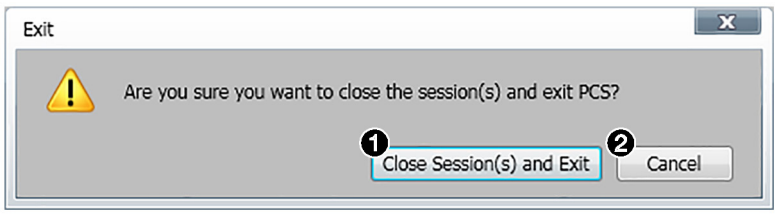


Figure 44. Exit Dialog Box

2. If necessary, click the **Close Session(s) and Exit** button (see figure 44, ❶) to disconnect the software from connected devices, close all offline device tabs, and close the software. Click the **Cancel** button (❷) 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 *IN1806 and IN1808 Series PCS Help File*.

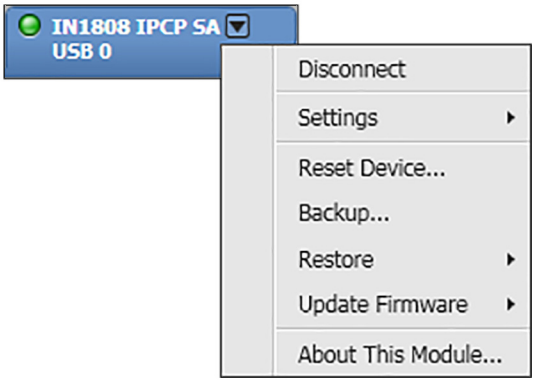


Figure 45. Device Menu

- **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 IN1806 or IN1808 Series model to the connected device.
  - **Restore to Multiple Devices** — Lets you load a saved configuration file for any IN1806 or IN1808 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 112).

  - **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.

- **IN18Ø6 and IN18Ø8 Series** ***<model name>*** **Help** — Opens the *IN1806 and IN1808 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 IN1806 and IN1808 Series scalers feature an internal web server, displayed as a web page. This page allows you to monitor and adjust certain settings of the IN1806 and IN1808 Series via a LAN or WAN connection. Use a web browser to view the pages on a PC connected to the scaler LAN port.

NOTE: The scaler 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 scaler to a LAN or WAN using the rear panel RJ-45 LAN connector (see figures **3** and **4**, **K**, or figures **5** and **6**, **Q**, [IN1808 IPCP SA and IN1808 IPCP MA 70 within the IPCP module], on pages 12 and 13).
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 the <**`Enter`**> key on the keyboard. The scaler checks if it is password-protected.
   - If the device is **not** password-protected, the web page opens. Skip steps 5 through 7.
   - If the device is password-protected, the **`Sign in`** window opens (see figure 46). Proceed to step 5.
5. In the **`Username`** field, enter `admin` or `user` (optional).

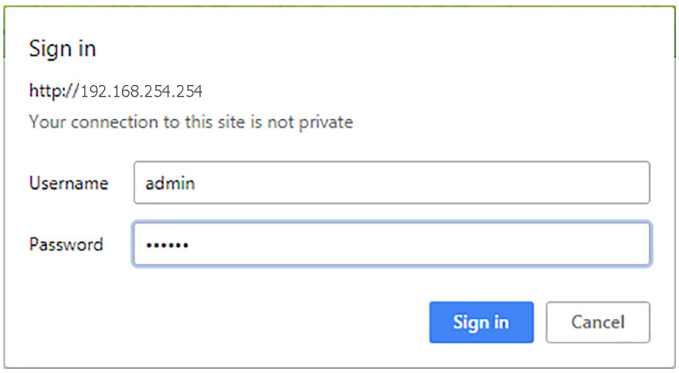


Figure 46. Example of a Network Password Dialog Box

6. Enter the password.

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

   To change the password, see **Setting a password** on page 106.

7. Click the **Sign In** button.

Disabling Compatibility Mode

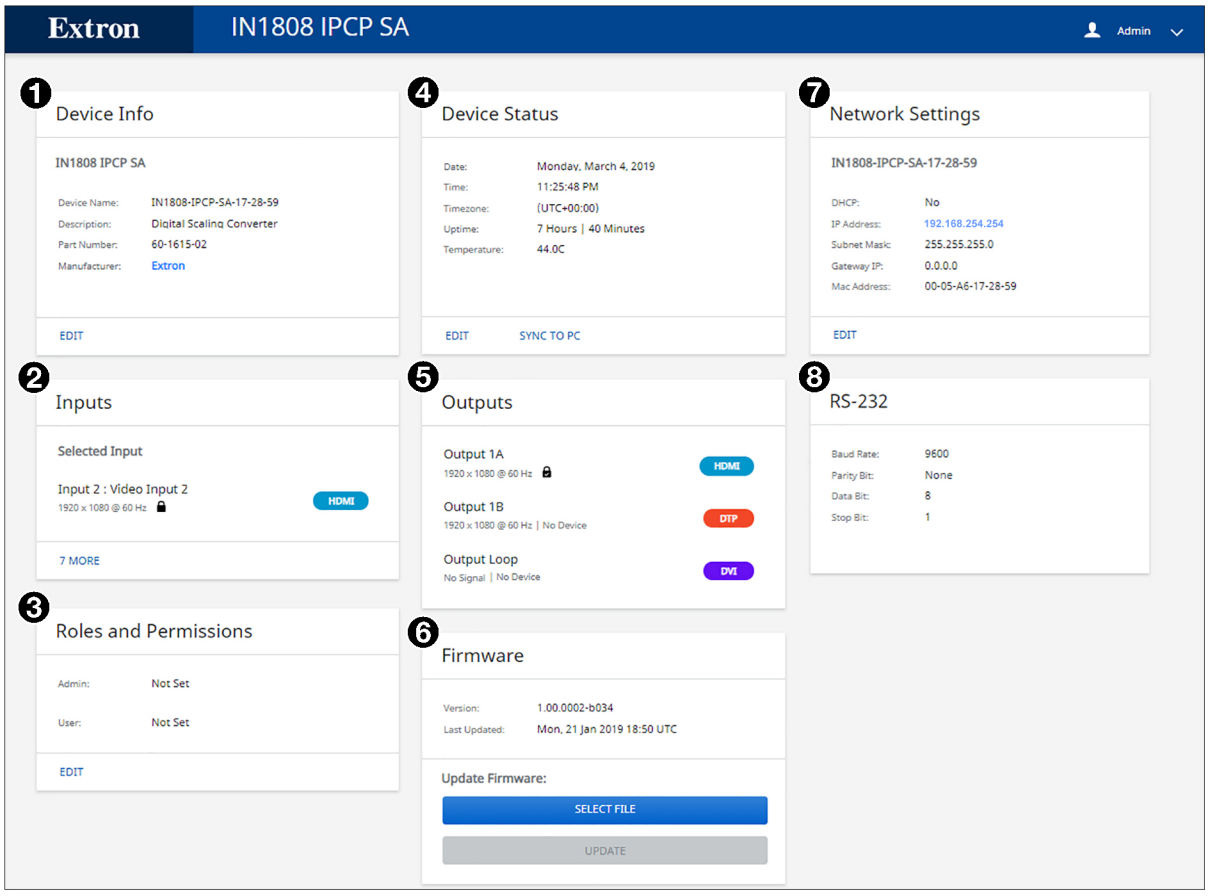
The internal web page does not support compatibility mode in Microsoft Internet Explorer.

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 scaler is **not** in the list of websites that have been added to Compatibility View.

Web Page Components



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

Figure 47. Internal Web Page

NOTE: Figure 47 on the previous page shows the web page for an IN1808 IPCP SA model. The pages for the IN1806 and the other IN1808 Series models are identical except for the product name in the `Device Info` panel, and the `Inputs` panel (the IN1806 page does not contain DTP inputs).

Device Info Panel

The `Device Info` panel (see figure 47, ❶) 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 **www.extron.com** 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.

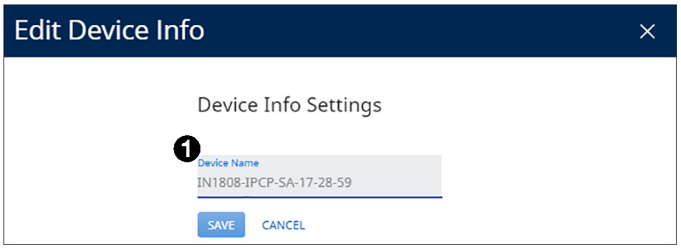


Figure 48. Device Info Settings Dialog Box

To change the name:

1. Click on the default name in the **`Device Name`** field (see figure 48, ❶). A cursor appears. (The default name is the model name followed by *`-xx-xx-xx`*, where *`xx-xx-xx`* are the last six characters of the unit MAC address.)
2. Enter a name for the IN1806 or IN1808.
3. 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 (see figure 47, ❷) displays the name 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 input:

Symbol	Definition
HDCP	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 link (named **`5 More`** for IN1806 and **`7 More`** for the IN1808 Series) in the lower-left corner of the `Inputs` panel to view the `Inputs` dialog box (see figure 49 on the next page for an example).

Figure 49 shows an IN1808 Series `Inputs` dialog box. The IN1806 equivalent screen has six inputs (no DTP2/XTP input 7 and 8).

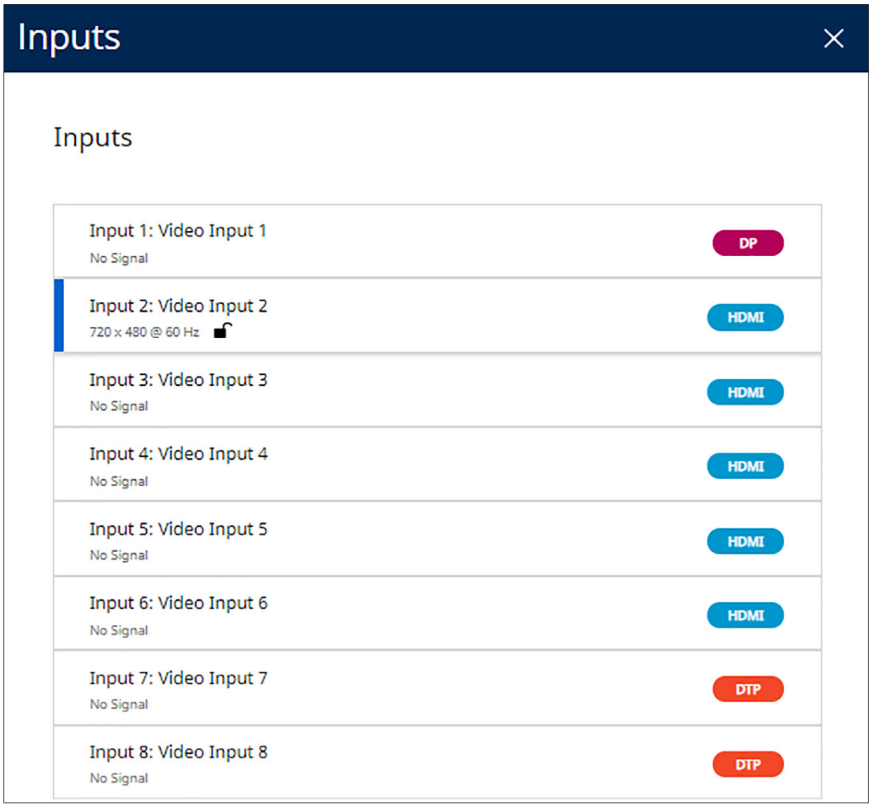


Figure 49. Inputs Dialog Box for an IN1808 Series

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 (see **figure 47**, ❸, on page 103) 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 unless you are removing the password entirely.
- Passwords are case-sensitive.
- A user password cannot be assigned if no administrator password exists.
- If the Admin password is cleared, the user password is cleared as well.

Setting a password

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 new 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 50, ❶).
3. Click in the **Confirm Admin Password** field (❷) and repeat the password from the **Change Admin Password** field.

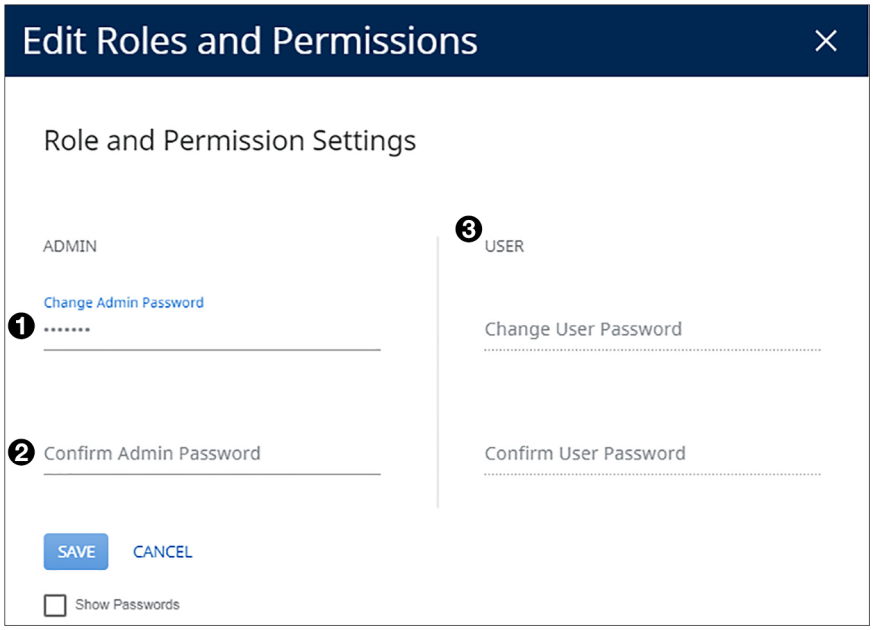


Figure 50. Passwords Dialog Box with Administrator Password Entered

4. If you want to assign a user password, repeat steps 2 and 3 in the **User** panel (❸).
5. 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:

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

Device Status Panel

The **Device Status** panel (see **figure 47**, ❹, on page 103) 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 IN1806 and IN1808 Series to the PC

To set the IN1806 and IN1808 Series 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 51 appears in the upper-right corner of the screen.

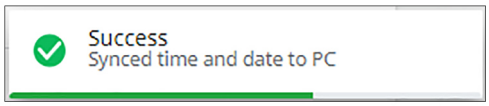


Figure 51. Sync to PC Success Message

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.

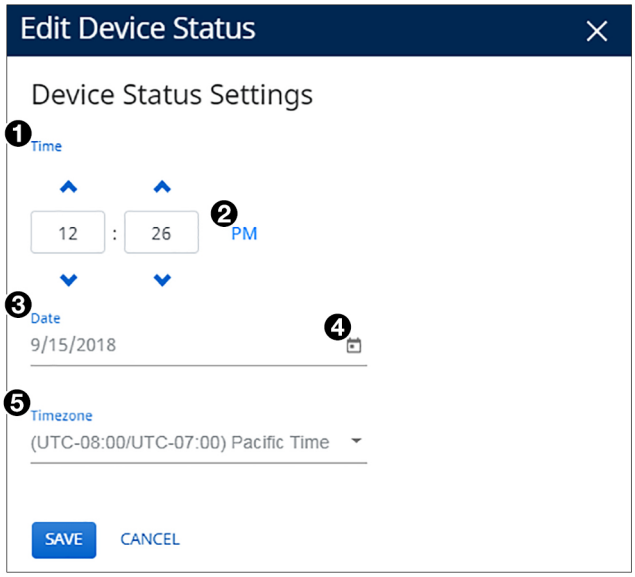


Figure 52. Edit Device Status Panel for Date and Time Setting

2. Set the time, date, and time zone as desired:
   - **Time** — In the **Time** panel (see figure 52, ❶), either click in the hour and minute text fields and enter the time, or click the up and down arrows to display the desired values.
   - **AM or PM** — Click the button (❷) at the right of the time fields to toggle between **AM** and **PM**.
   - **Date** — In the **Date** field (❸), either click in the text field and enter the date, or click the calendar icon (❹) and select the desired date in the pop-up calendar (current month only).
   - **Time Zone** — In the **Timezone** panel, select the desired time zone from the drop-down menu (❺).
3. When finished entering settings, click **Save** to confirm them, or **Cancel** to close the dialog box without implementing the settings.

Outputs Panel

The `Outputs` panel (see **figure 47**, ❺, on page 103) displays the resolution and refresh rate of the outputs, their signal type (`HDMI`, `DTP`, or `DVI`), 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.
`No Display`	No display is connected.

Firmware Panel

The `Firmware` panel (see **figure 47**, ❻) displays the current firmware version and the date it was last updated. You can also update the firmware on your IN1806 or IN1808 Series from this panel (firmware files can be downloaded from **www.extron.com**, see **Downloading Updated Firmware** on page 112).

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` after being downloaded from the Extron web page).

   NOTE: Firmware files for IN1806 and IN1808 Series 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 53, ❶).

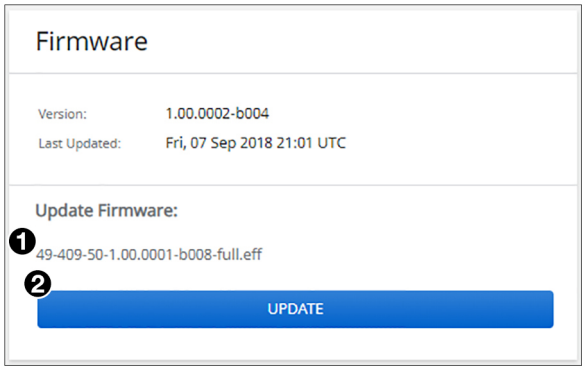


Figure 53. Firmware Update Dialog Box with a Firmware File Selected

4. Click **Update** to begin (❷). (If you want to cancel the update, click the **X** button in the upper-right corner of the Update Firmware panel.)

   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 (see figure 54).

Figure 54. 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 47**, ❼, on page 103), you can set the IP address, subnet mask, and gateway address for your IN1806 or IN1808 Series, 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.

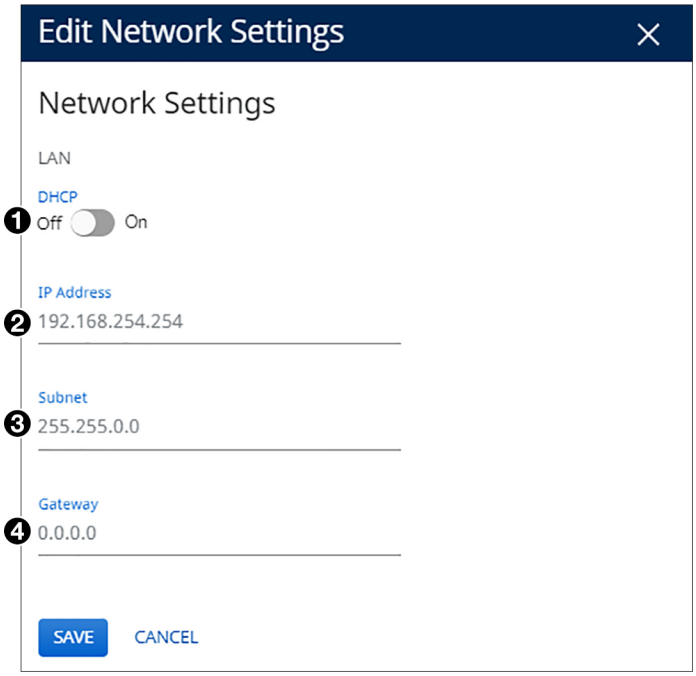


Figure 55. Edit Network Settings Screen

2. Edit the network settings as desired:
   - **DHCP** — Click the **DHCP** button (see **figure 55**, ❶) 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, (❷), Subnet mask (❸), and Gateway address (❹)** — 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 47**, ❽, on page 103) displays the RS-232 protocol for the IN1806 and IN1808 Series serial port. The defaults 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

Tabletop Mounting

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

Rack Mounting

The IN1806 and IN1808 Series can be mounted to a standard 19-inch rack shelf. Mounting kits are available at www.extron.com. To mount the unit, see the instructions provided with the kit.

UL guidelines for rack mounted devices

The following Underwriters Laboratories (UL) guidelines pertain to the safe installation of the scaler 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 scaler in an environment compatible with the maximum ambient temperature (Tma = +122 ˚F, +50 ˚C) specified by Extron.
2. **Reduced air flow** — Install the equipment in a rack so that the amount of air flow required for safe operation of the equipment is no 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).

Downloading Updated Firmware

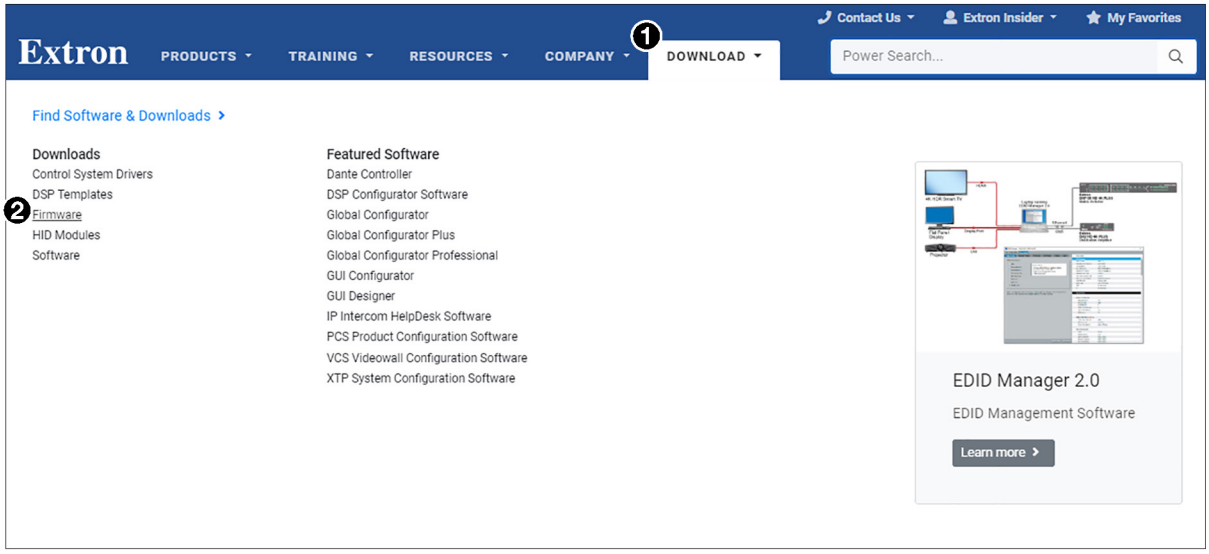


Figure 56. Downloading Firmware from the Extron Website

1. On the **www.extron.com**, click the **`Download`** tab (see figure 56, ❶).
2. Move the pointer to the **`Firmware`** link (❷) in the `Downloads` column and click it.

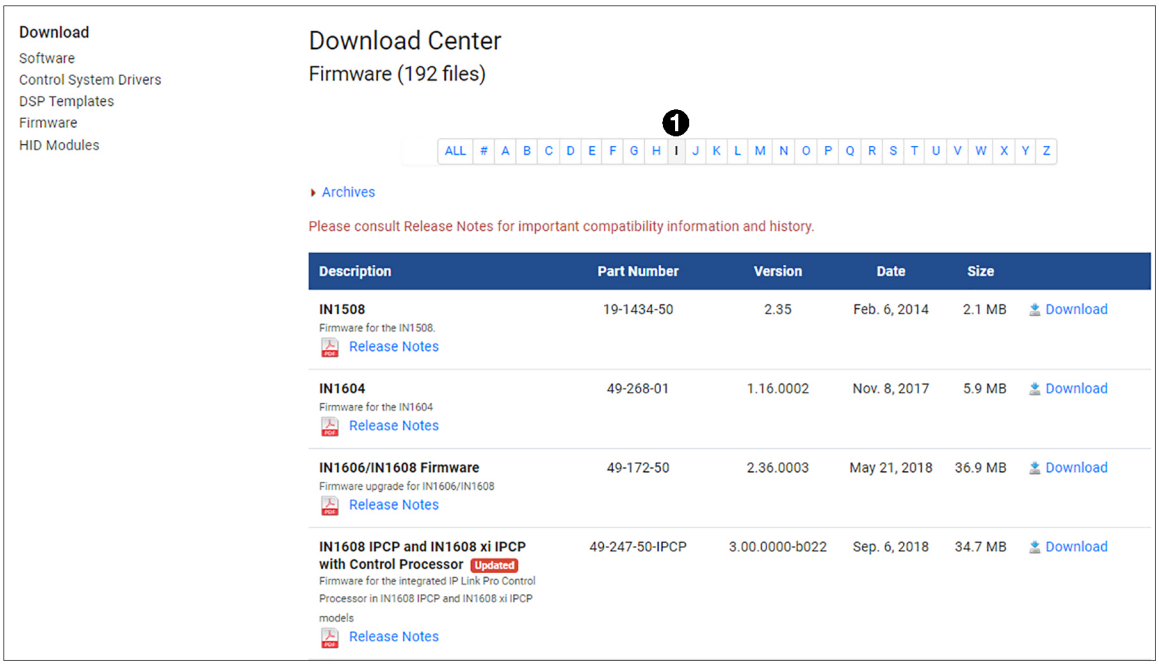


Figure 57. I Link on Firmware Download Center Page

3. On the `Download Center` screen, click the **`I`** link (see figure 57, ❶).
4. Ensure the available firmware version is a later version than the current one on the device.

NOTE: The firmware release notes provide details about the changes between different firmware versions. The file can be downloaded from the same page as the firmware.

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 in to **www.extron.com** (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\IN18Ø6 and IN18Ø8 Series`

   If there is not already an Extron folder in your Program Files x86 folder, the installation program creates it as well.

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.

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

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