User Guide

Seamless Switchers

ISS 608

True Seamless 4K/60 HDMI and DisplayPort Switcher

Extron

68-2994-01 Rev. A
01 20

Safety Instructions

Safety Instructions • English

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

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Istruzioni di sicurezza • Italiano

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안전 지침 • 한국어

경고: 이 기호 ⚠ 가 제품에 사용될 경우, 제품의 인클로저 내에 있는 접지되지 않은 위험한 전류로 인해 사용자가 감전될 위험이 있음을 경고합니다.

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안전 가이드라인, 규제 준수, EMI/EMF 호환성, 접근성, 그리고 관련 항목에 대한 자세한 내용은 Extron 웹 사이트(**www.extron.com**)의 Extron 안전 및 규제 준수 안내서, 68-290-01 조항을 참조하십시오.

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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.

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.

Conventions Used in this Guide

Notifications

The following notifications are used in this guide:

ATTENTION:

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

NOTE: A note draws attention to important information.

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

Software Commands

Commands are written in the fonts shown here:

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

NOTE: For commands and examples of computer or device responses used in this guide, the character "0" is the number zero and "O" is the capital letter "o."

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

```
Reply from 208.132.180.48: bytes=32 times=2ms TTL=32
C:\Program Files\Extron
```

Variables are written in slanted form as shown here:

```
ping xxx.xxx.xxx.xxx –t
SOH R Data STX Command ETB ETX
```

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

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

Click the **OK** button.

Specifications Availability

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

Extron Glossary of Terms

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

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Introduction

The topics in this section are:

- **About this Manual**
- **About the Integration Seamless Switcher**
- **Features**

About this Manual

This manual contains installation, configuration, and operating information for the Extron ISS 608 Integration Seamless Switcher.

About the Integration Seamless Switcher

The Extron ISS 608 is an eight-input, scaling, video and audio seamless switcher for the dynamic presentation of HDMI and DisplayPort content at resolutions up to 4K/60 Hz. With six HDMI 2.0 and two DisplayPort 1.2 inputs that support signals up to 4096x2160 at 60 Hz with 4:4:4 color sampling, the ISS combines true seamless switching with advanced Vector™ 4K scaling technology.

NOTE: The terms ISS, ISS 608, scaler, and switcher refer to the ISS 608.

The ISS provides multiple seamless transition effects, an independent preview output, and intuitive front panel operation. Logo insertion, video keying, and Picture In Picture (PIP) capabilities complement primary content, and audio de-embedding simplifies integration. **Matrix Mode** (see page 33) adds automatic, seamless transitions to matrix switchers with HDMI outputs. In addition, RS-232 and Ethernet provide optimal control options.

These features and capabilities enable the ISS 608 to deliver a true seamless digital signal switching solution perfect for high-end, live presentation environments.

Figure 1 on page 2 shows a typical ISS 608 application. The switcher accepts up to eight video inputs of various resolutions, scales the video inputs, and outputs video and audio.

The ISS 608 seamlessly switches between the program and preview inputs without a loss of video or sync. The ISS offers a wide range of effects that eliminate distracting jumps, glitches, and delays, as well as allows the user to choose transitions most appropriate for the material. Effects include wipes with selectable direction and duration, a dissolve with selectable duration, and a seamless cut. The audio transition can also be accompanied by either a cut or a fade audio effect.

Each video input is individually configurable to support different video formats. The ISS allows the various high-resolution and low-resolution video formats to be seamlessly switched between for display in high profile, professional presentation spaces.

The ISS provides two separate outputs:

- **Program** output — The program output is the video seen by the audience.
- **Preview** output — The preview output allows the switcher operator to view the video before it is transitioned to the program output for the audience to see.

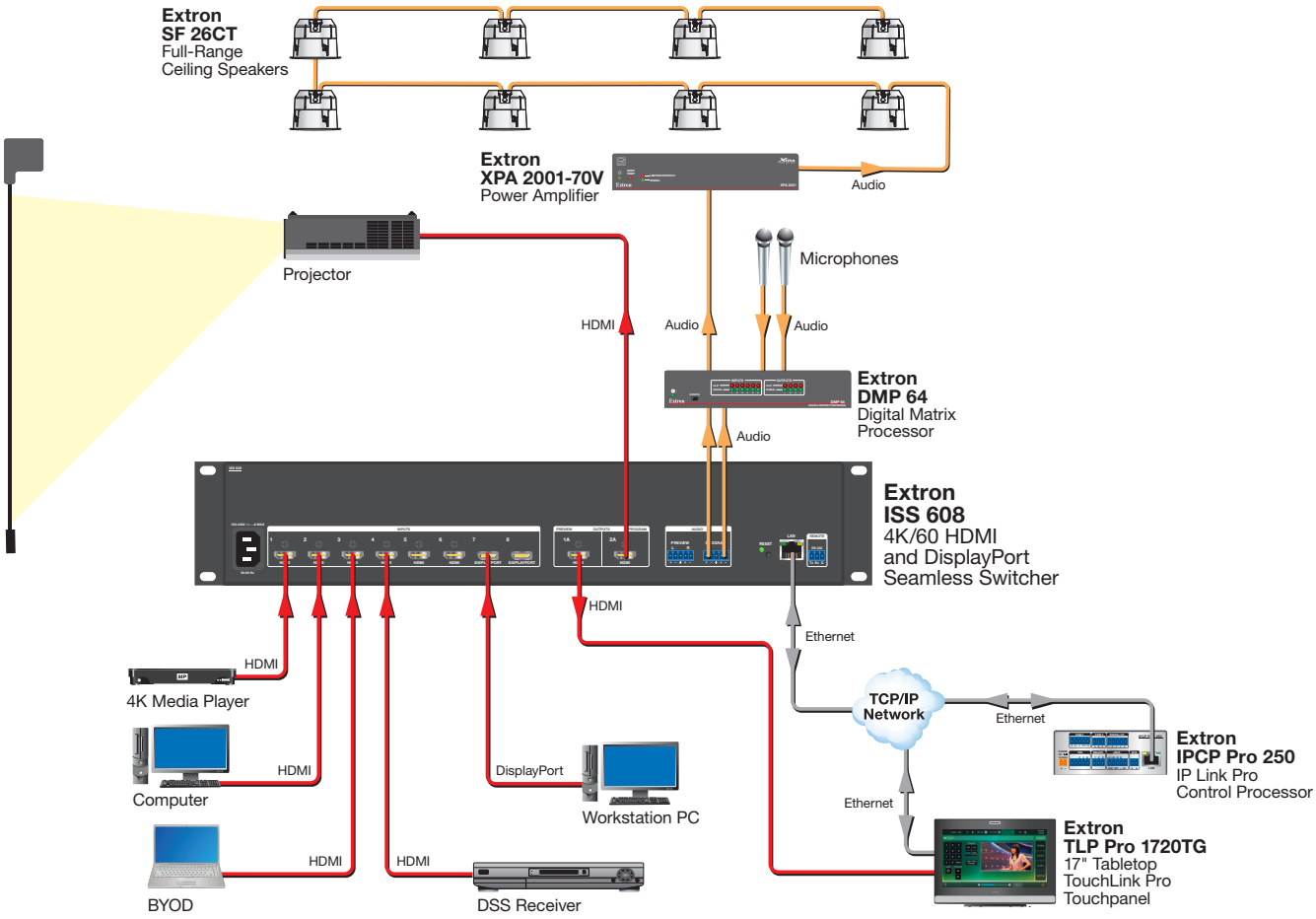


Figure 1. Typical ISS 608 Integration Seamless Switcher Application

The ISS 608 scales the input up or down to any of a wide variety of output resolutions and rates. The scaler outputs the scaled video on two connectors, one HDMI program connector and one HDMI preview connector.

The switcher features built-in test patterns to aid in display setup and evaluation.

The switcher is housed in a rack-mountable, 2U high, 17.4 inch wide, metal enclosure. The ISS has an internal 100 VAC to 240 VAC, 50-60 Hz, 45 watts internal power supply that provides worldwide power compatibility.

Features

- **Inputs:** Six female HDMI type-A and two female DisplayPort connectors.
- **Outputs:** Two female HDMI type-A and two 3.5 mm 5-pole captive screw connectors.
- **True seamless switching between eight digital inputs** — Provides sophisticated transition effects for presentations and live events.
- **Multiple transition effects include wipes, dissolve, and cut** — Offers a wide range of effects that eliminate distracting jumps, glitches, and delays, as well as allows the user to choose transitions most appropriate for the material. Effects include wipes with selectable direction and duration, a dissolve with selectable duration, and a seamless cut.
- **Preview and Program outputs** — Independent video buses for Preview and Program outputs enable the operator to preview and adjust video prior to displaying on the main display.

- **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 computer and video resolutions up to 4K/60 @ 4:4:4** — Supports HDMI 2.0 and DisplayPort 1.2 signals up to 4096x2160 at 60 Hz with 4:4:4 color sampling.
- **Supported HDMI 2.0 specification features include data rates up to 18 Gbps**, Deep Color, and HD lossless audio formats.
- **HDCP 2.2 compliant** — Ensures display of content-protected media and interoperability with other HDCP-compliant devices.
- **Matrix Mode** — HDMI inputs 1 and 2 support Matrix Mode, which adds seamless switching and transition effects to any matrix switcher with HDMI outputs.
- **PIP - picture-in-picture** — Allows any input to be displayed on-screen simultaneously with another. The PIP window can be dynamically sized and positioned anywhere within the output and is transitioned into or out of the output using the dissolve effect. Sixteen PIP presets are also available.
- **Video keying** — Title information or other content from an input source can be keyed over the Program image.
- **Logo image keying and display** — A logo graphic can be positioned and keyed over live video. Logo graphics in BMP, 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. Up to 16 logo images can be stored.
- **Take button sends preview content to the audience using the selected effect** — Pressing the Take button on the front panel sends the preview content from the local monitor to the main display device. The switch is performed with the selected effect, providing a seamless transition between sources.
- **Aspect ratio control** — The aspect ratio of the video output can be controlled by selecting a FILL mode that 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 originating from film.
- **Auto-Image setup** — 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 image settings.
- **Layout presets** — Memory presets are available to store and recall user settings. This provides a quick method to set up content preview in anticipation of transitioning it to the Program output.
- **Output mute** — Allows independent muting for Preview and Program output signals.
- **Output freeze** — Provides independent freeze control of the program and preview output signals. Frozen content can be switched to the Program output using any transition effect.

- **User-selectable HDCP authorization** — Allows each HDMI input 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.
- **HDCP Visual Confirmation provides a green signal when encrypted content is sent to a non-compliant display** — A green window with an alert message is displayed when HDCP-encrypted content is transmitted to a non-HDCP compliant display, providing immediate visual confirmation that protected content cannot be viewed on the display.
- **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.
- **SpeedSwitch Technology delivers virtually instantaneous switching speeds for HDCP-encrypted content.**
- **EDID Minder automatically manages EDID communication between connected devices** — EDID Minder ensures that all sources power up properly and reliably output content for display.
- **EDID capture mode** — EDID information can be captured and stored from connected program and preview display devices.
- **Comprehensive picture controls for Preview and Program output buses** — Fine tune displayed content with picture controls for brightness, contrast, sizing, positioning, and zoom.
- **Internal video test patterns and pink noise generator for calibration and setup** — The ISS offers several video test patterns and audio pink noise to facilitate proper system setup and calibration of display devices.
- **Audio management** — Embedded two-channel digital audio can be extracted from any input and sent to the Preview and Program analog audio outputs. Multi-channel audio formats can be passed to the Preview and Program HDMI outputs.
- **Easy setup and commissioning with Extron PCS - Product Configuration Software** — Convenient configuration and preset design from a single easy-to-use software application.
- **Front panel controls with LCD display** — Back-lit front panel buttons and an LCD menu system with navigation controls ensure simplified operation in live presentation environments and provide quick access to configuration settings.
- **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 simple troubleshooting over an intuitive web interface.
- **RS-232 control port** — Supports the use of serial commands for integration into a control system. Extron products use the SIS - Simple Instruction Set command protocol, a set of basic ASCII commands that allow for quick and easy programming.
- **Front panel USB configuration port** — Enables easy configuration without having to access the rear panel.
- **Executive Mode lockout** — Provides restriction to access of controls.
- **Includes LockIt HDMI cable lacing brackets.**
- **Rack-mountable 2U, full rack width metal enclosure.**

- **Internal Extron Everlast power supply** — Provides worldwide power compatibility, with high demonstrated reliability and low power consumption for reduced operating cost.
- **Extron Everlast Power Supply is covered by a 7-year parts and labor warranty.**

Installation

The topics covered in this section are:

- **Mounting the ISS 608**
- **Rear Panel Overview**

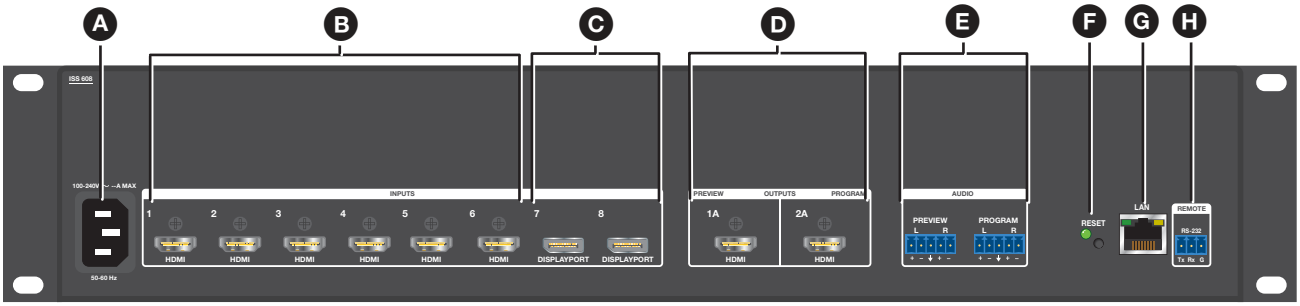
Mounting the ISS 608

The ISS 608 is housed in a 2U high, full rack width metal enclosure that can sit on a table with the provided rubber feet or be mounted using the attached rack mounts.

Select a suitable mounting location (see **Mounting the Switcher** on page 74), then choose an appropriate mounting option.

- Before connecting the ISS 608, turn off all devices that are to be connected.
- Connect all external devices to the ISS before applying power.

Rear Panel Overview



- **A** **AC power connector**
- **B** **HDMI input connectors 1 through 6**
- **C** **DisplayPort input connectors 7 and 8**
- **D** **HDMI output connectors**
- **E** **Analog audio outputs**
- **F** **Reset button and LED**
- **G** **LAN connector**
- **H** **Remote RS-232 connector**

Figure 2. ISS 608 Rear Panel Connectors

Power Connection

A **AC power connector** — Plug a standard IEC power cord into this connector to connect the seamless switcher to a 100 to 240 VAC, 50 Hz or 60 Hz power source.

Video Input Connections

B **HDMI input connectors 1 through 6** — Connect HDMI video to these inputs.

C **DisplayPort input connectors 7 and 8** — Connect DisplayPort video to these inputs.

Output Connections

Video output connections

Ⓓ **HDMI output connectors** (see **figure 2** on page 6) — Connect displays to the Program and Preview HDMI output connectors.

- The Program connector (2A) outputs the video image for the program display or projector.
- The Preview connector (1A) outputs the video image for the local display.

Audio output connections

Ⓔ **Analog audio outputs** — Connect audio devices, such as an audio amplifier or powered speakers, to these 3.5 mm, 5-pole captive screw connectors. The connectors output the selected unamplified, line level audio de-embedded from the HDMI and DisplayPort inputs (see figure 3 to properly wire an output connector). Use the supplied tie-wrap to strap the audio cable to the extended tail of the connector.

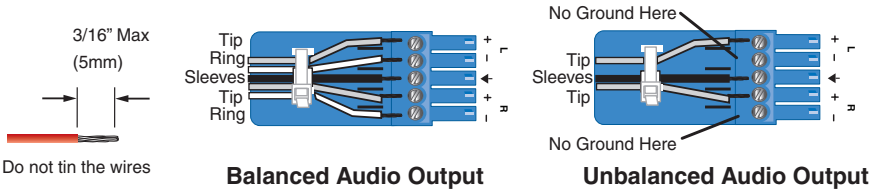


Figure 3. Captive Screw Connector Wiring for Audio Output

ATTENTION:

- Connect the sleeve to the ground (Gnd) terminal. Connecting the sleeve to a negative (-) terminal will damage the audio output circuits.
- Connectez le manchon à la borne de terre (Gnd). Connecter le manchon à une borne négative (-) endommagera les circuits de la sortie audio.
- The length of the exposed wires in the stripping process is important. The ideal length is 3/16 inches (5 mm). Any longer and the exposed wires may touch, causing a short circuit between them. Any shorter and the wires can be easily pulled out even if tightly fastened by the captive screws.
- La longueur des câbles exposés est importante lorsque l'on entreprend de les dénuder. La longueur idéale est de 5 mm (3/16 inches). S'ils sont trop longs, les câbles exposés pourraient se toucher et provoquer un court-circuit. S'ils sont trop courts, ils peuvent être tirés facilement, même s'ils sont correctement serrés par les borniers à vis.

By default, the de-embedded analog audio output follows the video switch, but it can be split via SIS commands (see **Audio follow** on page 49). Audio output can also be muted via SIS commands (see **Audio mute (digital and analog - persists beyond a power cycle)** on page 49)

Reset Button

Ⓕ **Reset button and LED** — Initiates four levels of reset to the switcher. Use an Extron Tweeker or small screwdriver to press and hold the button while the switcher is running or while you power up the switcher for different reset levels.

See the **ISS 608 Reset Modes** table on page 8 and **figure 4** on page 9 for a summary of the function of the reset modes and how to perform them.

ATTENTION:

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

ISS 608 Reset Modes

	Mode	Activation	Result	Purpose and Notes
Use Factory Firmware	1	Hold in the recessed rear panel **Reset** button while applying power to the unit.	The ISS 608 reverts to the factory default firmware for a single power cycle.	Use mode 1 to revert to the factory default firmware for a single power cycle if incompatibility issues arise with user-loaded firmware. All user files and settings are maintained.
		NOTE: Do not operate with the default firmware loaded by a mode 1 reset. Use it only to load the most current firmware to the device.		
Reset All IP Settings	*4	Hold in the **Reset** button until the **Reset** LED blinks twice (once at 3 seconds, again at 6 seconds). Then, release and press the **Reset** button again within 1 second*.	• Sets port mapping back to factory default. • Sets the IP address back to factory default (192.168.254.254). • Sets the subnet mask address back to the factory default (255.255.255.0). • Sets the gateway IP address to the factory default (0.0.0.0). • Turns DHCP off. • The **Reset** LED on the rear panel of the unit flashes four times in succession.	Mode 4 is used to set IP address information using ARP and the MAC address. `Resetting IP Settings` appears on a connected display.
Reset to Factory Defaults	*5	Hold in the **Reset** button until the **Reset** LED blinks three times (once at 3 seconds, again at 6 seconds, again at 9 seconds). Then, release and press the **Reset** button again within 1 second*.	Performs a complete reset to factory defaults (except the firmware). • Does everything mode 4 does. • Clears port configurations. • Resets all IP options. • Clears all user settings. • Clears all files from the unit. • The **Reset** LED on the rear panel of the unit flashes four times in succession.	Mode 5 is useful to start over with default configuration and uploading, and also to replace events. `Resetting ISS 608` appears on a connected display. Mode 5 is equivalent to SIS command ZQQQ (see SIS command **Resets** on page 55).

NOTES:

- *For modes 4 and 5, nothing happens if the momentary press does not occur within 1 second.
- The factory configured passwords for all accounts on this device have been set to the device serial number. In the event of a complete system reset, the passwords convert to the default, which is no password (see **Passwords** on page 57 to change a password).

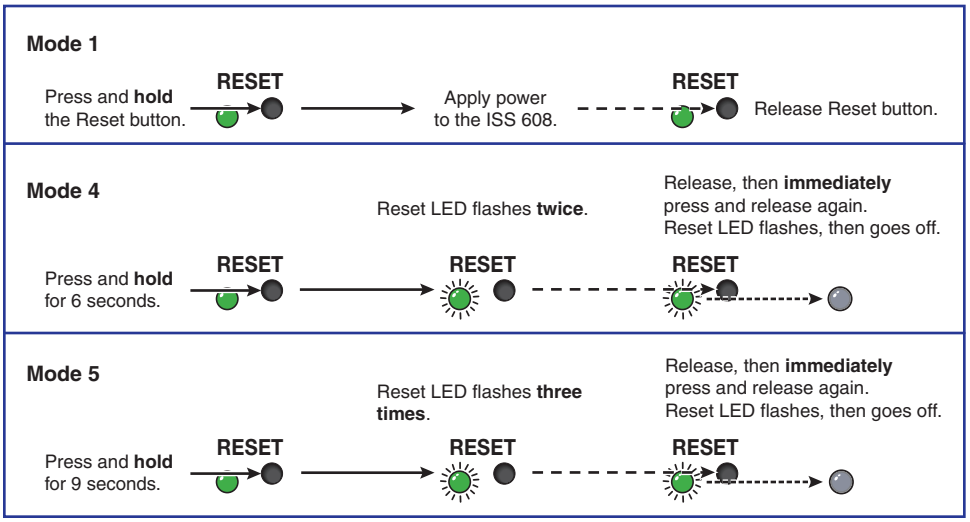


Figure 4. Whole Switcher and Absolute Resets

Control Connections

Ethernet connection

G **LAN connector** (see **figure 2** on page 6) — Connect the seamless switcher to an Ethernet LAN or WAN via this RJ-45 connector. Ethernet control allows the operator to control the seamless switcher from a remote location. When connected to an Ethernet LAN or WAN, the seamless switcher can be accessed and operated from a computer running a standard Internet browser.

Ethernet connection indicators — The Link and Activity LEDs indicate the status of the Ethernet connection.

- **Link LED** — Indicates the seamless switcher is properly connected to an Ethernet LAN. This LED should light steadily.
- **Activity LED** — Indicates transmission of data packets on the RJ-45 connector. This LED should flicker as the seamless switcher communicates.

Choosing a network cable

Ethernet links use Category (CAT) 3, 4, 5, 5e, or 6, unshielded twisted pair (UTP) or shielded twisted pair (STP) cables, terminated with RJ-45 connectors. Ethernet cables are limited to 328 feet (100 m).

ATTENTION:

- Do not use standard telephone cables. Telephone cables do not support Ethernet or Fast Ethernet. Do not stretch or bend cables. This can cause transmission errors.
- Ne pas utiliser de câbles téléphone standard. Les câbles de téléphone ne sont pas compatibles avec les liaisons Ethernet ou Fast Ethernet. Ne pas étirer ou plier les câbles. Cela pourrait provoquer des erreurs de transmission.

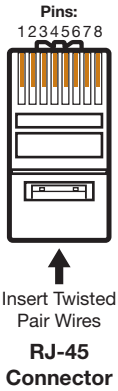
The cable used depends on network speed. The ISS supports 10 Mbps (10Base-T) and 100 Mbps (100Base-T), half-duplex and full-duplex Ethernet connections.

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

Wiring the network cable

The cable can be terminated as either a patch cable or a crossover cable (see figure 5) and must be properly terminated for the application:

- **Patch (straight-through) cable** — Connection of the ISS to an Ethernet hub, router, or switch that also hosts a controlling computer.
- **Crossover cable** — Direct connection between the ISS and a controlling computer.



Crossover Cable
(for direct connection to a PC)

End 1 Pin	End 1 Wire Color	End 2 Pin	End 2 Wire Color
1	white-orange	1	white-green
2	orange	2	green
3	white-green	3	white-orange
4	blue	4	blue
5	white-blue	5	white-blue
6	green	6	orange
7	white-brown	7	white-brown
8	brown	8	brown
	T568B		T568A

A cable that is wired as TIA/EIA T568A at one end and T568B at the other (Tx and Rx pairs reversed) is a "crossover" cable.

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

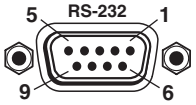
End 1 Pin	End 1 Wire Color	End 2 Pin	End 2 Wire Color
1	white-orange	1	white-orange
2	orange	2	orange
3	white-green	3	white-green
4	blue	4	blue
5	white-blue	5	white-blue
6	green	6	green
7	white-brown	7	white-brown
8	brown	8	brown
	T568B		T568B

A cable wired the same at both ends is called a "straight-through" cable because no pin/pair assignments are swapped.

Figure 5. RJ-45 Connector Pinout Table

Serial port connection

Ⓗ **Remote RS-232 port** (see **figure 2** on page 6) — Connect a host device, such as a computer or touchpanel controller, to the rear panel bidirectional RS-232 port (see figure 6 for wiring). The default baud rate is 9600.



Pin	RS-232	Function
1	—	Not used
2	Tx	Transmit data
3	Rx	Receive data
4	—	Not used
5	Gnd	Signal ground
6	—	Not used
7	—	Not used
8	—	Not used
9	—	Not used

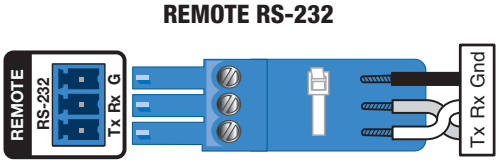


Figure 6. Remote Port Pin Assignments and Wiring Diagram

See **SIS Configuration and Control** starting on page 35 for definitions of the SIS commands and **Configuration Software** starting on page 58 to install and use the control software.

Front panel configuration port

Ⓕ **USB Configuration port** (see figure 7 or **figure 8** on page 11)— This USB mini-B port serves the same serial communications function as the rear panel Remote port, but is easier to access than the rear port after the switcher has been installed and cabled.

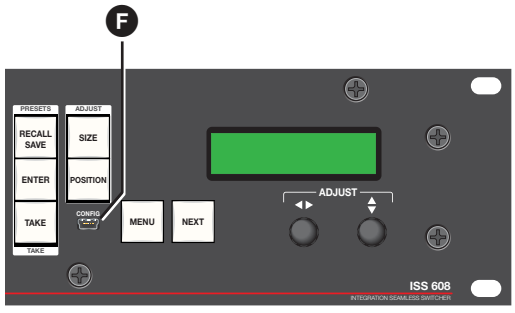


Figure 7. Front Panel Configuration Port

Operation

This topics in this section are:

- **Front Panel Controls and Indicators**
- **Front Panel Menu Operation**
- **Front Panel Button Operations**
- **Power Save Mode**
- **Matrix Mode**
- **Upstream Signal Switching and Local Video Bus Switching**

Front Panel Controls and Indicators

All of the switcher controls and indicators, with the exception of the Reset button, are on the front panel (see figure 8). The 16 x 2 character LCD window indicates the switcher status, menu selections, the data rate, and the status of additional system features.

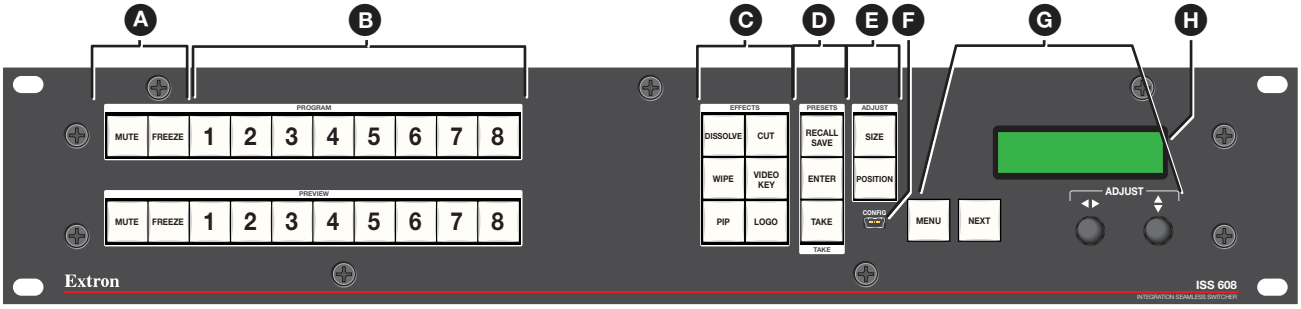


Figure 8. ISS 608 Front Panel

- **A** MUTE and FREEZE buttons
- **B** Input selection buttons
- **C** EFFECTS buttons
- **D** PRESETS and TAKE buttons
- **E** ADJUST buttons
- **F** USB Configuration port
- **G** Menu navigation controls
- **H** Status LCD display

Mute, Freeze, Input Selection, and Effects Controls

A MUTE and FREEZE buttons —

- **FREEZE buttons** — Lock the program or preview output display to the currently selected input image. When the freeze function is enabled, these buttons light amber. Press the FREEZE button again to unfreeze the image, and the button dims.
- **MUTE buttons** — Mute the video on the program or preview output display. The MUTE buttons light amber for video mute and red for sync mute. Sync mute can be enabled and disabled only via SIS commands (see **Video mute** on page 45) or PCS (see the *ISS 608 PCS Help File*).

B Input selection buttons — The two sets of input 1 through 8 buttons select the associated input to scale and display on the program and preview monitors. The input buttons light amber when video and audio are selected.

C **EFFECTS buttons** (see **figure 8** on page 11) — Press one of these **EFFECTS** buttons to select the effect to use to transition between the Preview output to the Program output (see **Effect Configuration Menu** on page 20).

- **DISSOLVE** — Press to seamlessly cross fade the video from the preview output into the program output in user defined fade duration.
- **CUT button** — Press to seamlessly switch the input selected as the preview output to the program output, with no switching effects added.
- **WIPE** — Press to unroll the image in the preview output over the top of the program output using the user-defined duration and wipe effect.
- **VIDEO KEY** — Press to key video from the preview input over the program video input using an RGB key, a luminosity level key, or a transparency effect.
- **PIP button** — Press to display the selected Preview input as a picture in picture window on the Program output.
- **LOGO button** — Press to recall one of the stored logo presets on top of the Preview input.

D **PRESETS and TAKE buttons** —

- **PRESETS button** — Press to recall and save layout presets.
- **TAKE button** — Press to invoke the effect selected, as indicated by the lit **EFFECTS** button (C), using the video on the preview bus.

Picture Adjustment and Menu System Controls

E **ADJUST buttons** —

- **SIZE button** — Press to adjust the image or PIP window size.
- **POSITION button** — Press to adjust the image or PIP window position.

G **Menu navigation controls** —

- **MENU button** — Press to enter and move through the main menu system in the ISS (see **Front Panel Menu Operation** on page 13 and **Front Panel Button Operations** on page 29).
- **NEXT button** — Press to move through the submenus in the ISS menu system (see **Front Panel Menu Operation** and **Front Panel Button Operations**).
- **ADJUST ◄► (horizontal) and ADJUST ▲▼ (vertical) knobs** — Rotate to change settings when used in conjunction with the menu system or the **ADJUST** buttons (E).

NOTE:

- If the PIP mode is selected, the preview output is shown and adjusted in the picture-in-picture window and the program output is shown and adjusted in the main (full-size) window.
- For more information on these buttons and adjustments, see **Adjusting the Size and Position of the Program or Preview** on page 32).

H **Status LCD display** — Displays configuration menus, submenus, and status information (see **Front Panel Menu Operation** and **Front Panel Button Operations**).

Front Panel Security Lockout (Executive Modes)

There are four levels of front panel security lockout that limit the various aspects of the operation of the ISS 608 from the front panel. Four of the executive modes can be enabled via SIS commands (see **Executive mode** on page 54).

- **Unlocked Front Panel** — Unlock all front panel functions (default).
- **Mode 1: Lock Front Panel** — Lock all front panel functions (disabled).
- **Mode 2: Limit Front Panel to input switching (Program, Preview, and Take)** — Disable all front panel controls except the PROGRAM, PREVIEW, FREEZE, MUTE, and TAKE buttons.

  NOTE: Only this mode can be enabled via the front panel buttons (see below).

- **Mode 3: Disable Program Bus only** — Disable all changes to the Program bus.

  NOTE: In `Program lockout` mode, the Preview input selection, FREEZE, LOGO, and all other controls remain unlocked.

Enable Switching-only mode or disable any mode via the front panel as follows:

1. Press and hold the **`MENU`** and **`NEXT`** buttons for approximately 5 seconds).
   - If enabled, the LCD screen displays `Executive Mode Enabled`.
   - If disabled, the LCD screen displays `Executive Mode Disabled`.
2. Release the buttons.

Front Panel Menu Operation

Menu Navigation

- **MENU button** — Press to activate the menu system and scroll through the eight main menus.
- **NEXT button** — Press to move between the submenus of a selected main menu, to activate a submenu for viewing or configuration, and to save a selection. Pressing the **`NEXT`** button during input configuration causes the current input number and format type to be displayed on the LCD window.
- **ADJUST (horizontal) ◄► and ADJUST (vertical) ▲▼ knobs** — When a submenu is active, rotate the knobs to scroll through the submenu options and select a setting.

  When one of the picture adjustment buttons is selected, rotate these knobs to change picture settings.

  Refer to the flowcharts in this chapter and to specific sections for explanations of the knob adjustments.

  NOTES:

  - If the **`MENU`** button is pressed while a main menu is active, the next main menu becomes active.
  - If the **`MENU`** button is pressed while a submenu is active, the LCD window returns to the main menu for the submenu.
  - To return to the default screens, let the switcher remain idle for 30 seconds until the selected screen times out, or press the **`MENU`** button until the `EXIT` menu appears, then press the **`NEXT`** button.
  - From any menu or submenu, after 30 seconds of inactivity, the ISS saves all adjustment settings and times out to the default LCD display cycle.

Menu Overview

After start-up, when no adjustments are actively being made, the default display cycle (see figure 9) runs on the menu display LCD. The screen progressively cycles through the program and preview input format information, showing the number and video format of the active input and the current output resolution.

NOTE: If a signal is not present on the currently selected input, `No Valid Signal` appears in place of the input type (for example, `Prev #4 No Valid Signal`).

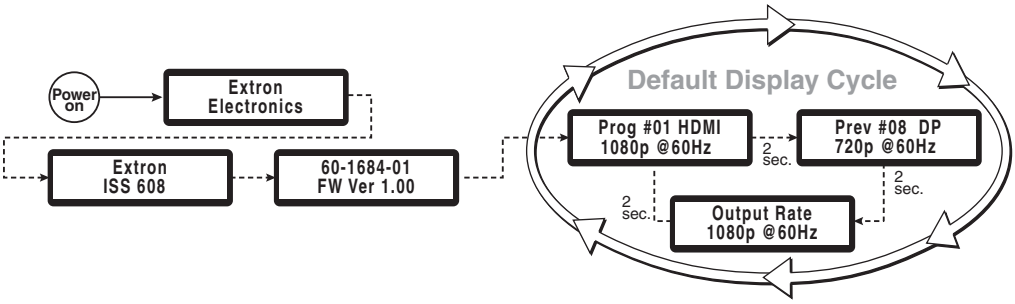


Figure 9. ISS Default Display Cycle

Press the **MENU** button once to bring up the first main (top level) menu (see figure 9). Each successive **MENU** button press cycles to the next main menu (see figure 10 for a flowchart of the main menus in the menu system).

NOTES:

- From any menu or submenu, after 30 seconds of inactivity, the ISS 608 times-out to the default display cycle.
- In all the flowcharts in this chapter, solid lines indicate screen changes initiated by the operator. Dashed lines indicate screen changes resulting from a timeout.
- A complete schematic of the menus and submenus is in the reference section (see **Front Panel Menu Diagrams** on page 76).

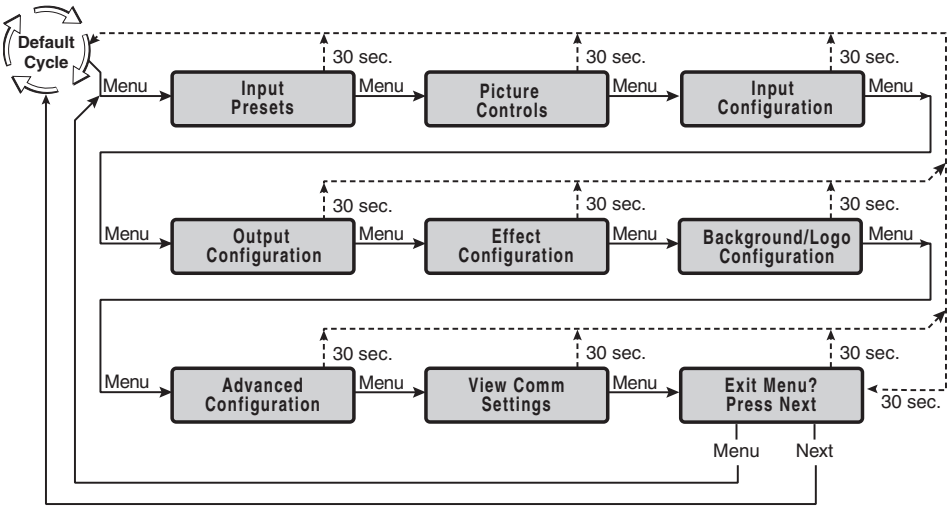


Figure 10. Menu System Flowchart

The top level menus are displayed, in order, on the LCD panel by pressing the **MENU** front panel button. To return to the default cycle from a top level menu or submenu, press **MENU** repeatedly until `EXIT MENU?` shows, then press **NEXT**.

Press **NEXT** when a menu displays to access its submenu. Within the submenu, press **MENU** to exit the submenu and return to the currently active menu. Press **NEXT** to move to the next submenu. Submenu details with configuration and options are on the following pages.

Input Presets Menu

From the `Input Presets` menu the user can recall, save, and clear input presets from and to the selected video bus (see figure 11).

- From the default menu, press **`MENU`** to cycle to the `Input Presets` menu.
- Press **`NEXT`** to enter the submenus.
- Press **`NEXT`** to advance to the relevant submenu: `Select Output`, `Recall Input Preset`, `Save Input Preset`, or `Clear Input Preset`.
- Within the submenu, use the **`ADJUST`** knobs to:
  - Select the output to reference or affect.
  - Recall the image configuration of the selected `Input Preset` number to the selected video bus.
  - Save the image configuration of the selected video bus to the selected `Input Preset` number.
  - Clear the image configuration of the selected `Input Preset` number.
- Then press **`NEXT`** to recall or save the selection.
- Press **`MENU`** to exit the submenu.

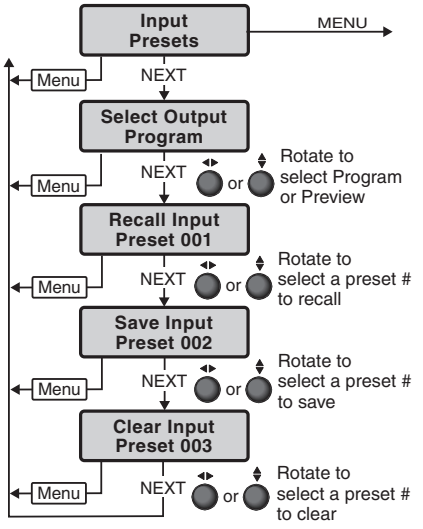


Figure 11. Input Presets Menu

There are 128 input presets available to all inputs. These input presets are configured via SIS commands (see **SIS Configuration and Control** starting on page 35) using the settings for the features in the table below.

Input Presets	
Input preset name	Image horizontal (H) position
Film mode	Image vertical (V) position
Contrast	Image horizontal (H) size
Brightness	Image vertical (V) size
Detail	

When an input preset is recalled, it fills the output based on the sizing and positioning it had at the time it was saved. For example, if a video source was zoomed into when it was saved as the full screen source, it is still zoomed in when it is recalled to the PIP window.

Input presets are saved per input.

Picture Controls Menu

From the **Picture Controls** menu picture settings such as brightness and contrast can be adjusted, as well as perform a one-time Auto-Image on the selected video bus.

- From the **Picture Controls** menu, press **NEXT** to move to the desired submenu.
- Within the submenu, use the **ADJUST** knobs to select and change values as required.
- Press **MENU** to exit the submenu.

NOTE: If a value is a default value, an asterisk appears next to the value. For example:

- Brit (brightness) = *064
- Cont (contrast) = *064
- Detail = *064

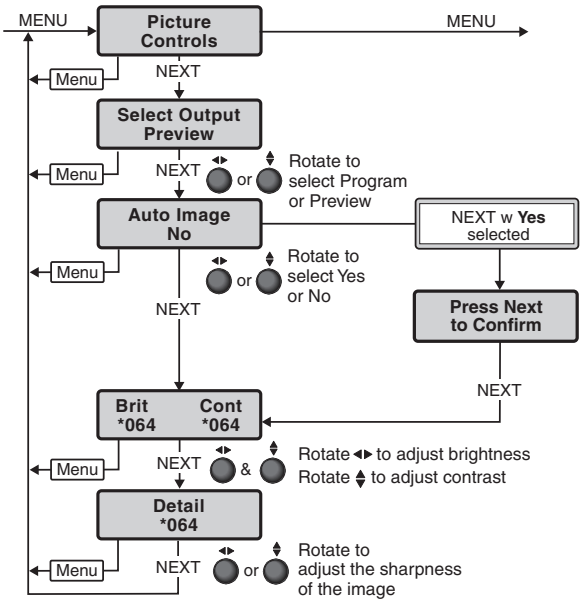


Figure 12. Picture Controls Menu

Auto-Image

Auto-Image automatically sizes and positions incoming video signal to fill the channel window when a new input signal is detected.

Rotate either **ADJUST** knob to select **Yes** or **No** to perform an Auto-Image on the selected video bus.

Brightness and Contrast

This submenu is used to adjust the brightness and contrast of the input signal. To use this submenu:

- Rotate the horizontal (◄►) **ADJUST** knob to change the brightness of the video for the selected input. The range of settings is **000** to **127**. The default is ***064**.
- Rotate the vertical (▲▼) **ADJUST** knob to change the contrast of the video for the selected input. The range of settings is **000** to **127**. The default is ***064**.

Detail

This submenu is used to adjust the detail of the input signal.

- Rotate either **ADJUST** knobs to adjust the detail of the video for the selected input. The range of settings is **000** to **127**. The default is ***064**.

Input Configuration Menu

From the `Input Configuration` menu configure the settings for the inputs of the scaler including Input format, Film mode, HDCP authorization, and input EDID.

From the `Input Configuration` menu, press **`NEXT`** to enter the submenus (see figure 13).

Input Select

Rotate either **`ADJUST`** knob to select the desired input number (see figure 13).

Film Detect

The `Film Detect` submenu turns PAL film mode on and off for each input. Film detection supports 2:2 and 3:2 detection. The processing maximizes image detail and sharpness for interlaced sources that originated from film. Film detection is valid for any interlaced input type. The ISS 608 de-interlaces NTSC, PAL, and 1080i inputs.

Rotate either **`ADJUST`** knob to select **`Auto`** or **`Off`**.

Horizontal and Vertical Active Values

This menu displays the horizontal and vertical active values of the incoming signal. These values can be viewed only. They are not adjustable.

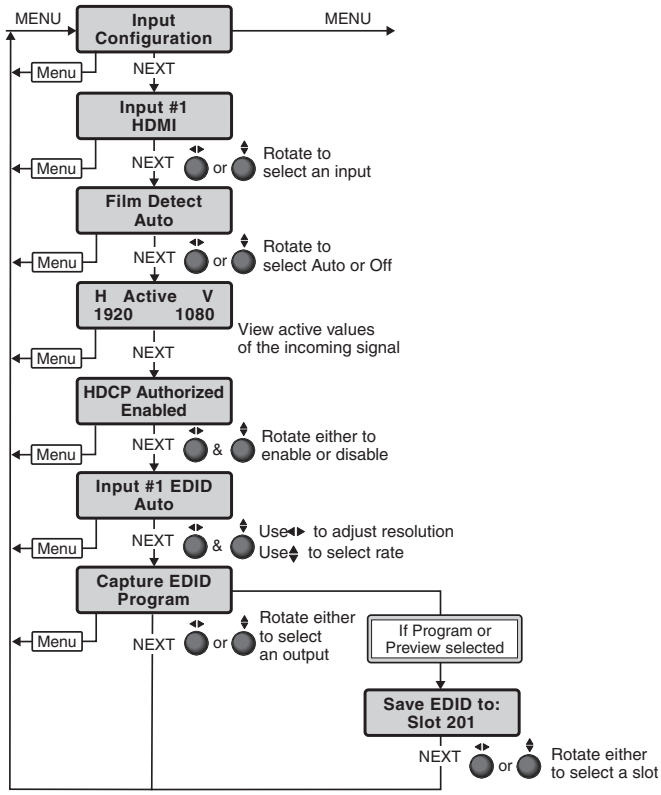


Figure 13. Input Configuration Menu

HDCP Authorized

The user can disable HDCP communication for the current input. By default, the `HDCP Authorized` option shows `Enabled` on all HDMI and DisplayPort inputs.

Rotate either **`ADJUST`** knob to select **`Enabled`** or **`Disabled`**.

Input EDID

EDID (Extended Display Identification Data) emulation is available on HDMI and DisplayPort inputs. By default, all EDIDs are set to `Auto`. The selected input is displayed in the first line.

- Rotate the horizontal (◄►) **`ADJUST`** knob to select the desired EDID.
- Rotate the vertical (▲▼) **`ADJUST`** knob to select the rate for select resolutions (see the **Scaler Resolution/EDID Emulation Table** on page 19).

Capture EDID

Capture the EDID from the connected displays. Rotate either **`ADJUST`** knob to select **`N/A`**, **`Program`**, or **`Preview`**.

Save EDID to Slot

Save the selected EDID from the connected displays to a slot. Rotate either **`ADJUST`** knob to select a slot **`201`** to **`210`**.

Output Configuration Menu

From the **Output Configuration** menu the user can configure the settings for the outputs of the scaler including output resolution, HDMI format, and HDCP notification.

From the **Output Configuration** menu, press **NEXT** to enter the submenus (see figure 14).

Output Rate

Select the output resolution and refresh rate:

- Rotate the horizontal (◄►) **ADJUST** knob to select one of the available output resolutions.
- Rotate the vertical (▲▼) **ADJUST** knob to select the rate for select resolutions.

See **Scaler Resolution/EDID Emulation Table** on page 19 for the available resolutions and rates.

The resolution is the same for the Program and Preview outputs.

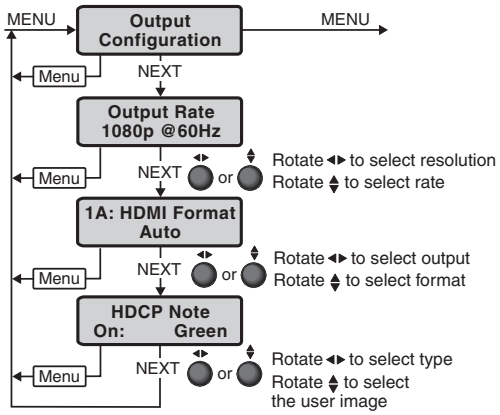


Figure 14. Output Configuration Menu

HDMI Format

Select the HDMI format for each output:

- Rotate the horizontal (◄►) **ADJUST** knob to select an output.
- Rotate the vertical (▲▼) **ADJUST** knob to select an HDMI format. The options are:
  - **Auto** (default)
  - **DVI RGB 444**
  - **RGB 444 FULL**
  - **RGB 444 Limited**
  - **YUV 444 Limited**
  - **YUV 422 Limited**
  - **YUV 420 Limited** (available only for 3840x2160 and 4096x2160 resolutions)

HDCP Note

Select the HDCP notification to be displayed on the output when HDCP content is selected but the connected display does not support HDCP:

- Rotate the horizontal (◄►) **ADJUST** knob to select the type of notification. The options are:
  - **Green** screen (default)
  - **Black** screen
  - **User Image**
- Rotate the vertical (▲▼) **ADJUST** knob to select a user-created image file, if **User Image** is selected.

NOTE: Upload images through PCS (see the *ISS 608 PCS Help File*).

Scaler Resolution/EDID Emulation Table								
Automatic: Match Scaler Current Output Resolution**				0				
Output 1A (Preview EDID export only)				1	**Output 2A (Program EDID export only)**			2
Resolution	**23.98 Hz**	**24 Hz**	**25 Hz**	**29.97 Hz**	**30 Hz**	**50 Hz**	**59.94 Hz**	**60 Hz**
640x480								10
800x600								11
1024x768								12
1280x768								13
1280x800								14
1280x1024								15
1360x768								16
1366x768								17
1440x900								18
1400x1050								19
1600x900								20
1680x1050								21
1600x1200								22
1920x1200								23
480p							24	25
576p						26		
720p			29	30	31	32	33	34
1080i						35	36	37
1080p	38	39	40	41	42	43	44	45*
2048x1080 (2K)	46	47	48	49	50	51	52	53
2048x1200								54
2048x1536								55
2560x1080								56
2560x1440								57
2560x1600								58
3840x2160	59	60	61	62	63	64	65	66
4096x2160* **	69	70	71	72	73	74	75	76
Custom EDID/Output Rate #1				201	**Custom EDID/Output Rate #2**			202
Custom EDID/Output Rate #3				203	**Custom EDID/Output Rate #4**			204
Custom EDID/Output Rate #5				205	**Custom EDID/Output Rate #6**			206
Custom EDID/Output Rate #7				207	**Custom EDID/Output Rate #8**			208
Custom EDID/Output Rate #9				209	**Custom EDID/Output Rate #10**			210

* Default output resolution

** Default EDID

*** Not available as an EDID, only as an output rate option

Effect Configuration Menu

Figure 15 shows an overview of the `Effect Configuration` menu, the submenus, and the available settings.

From the `Effect Configuration` menu, press **`NEXT`** to enter the submenus, and rotate ether of the **`ADJUST`** knobs to scroll to the desired effect.

NOTE: The front panel effect button does not light when configuring the effect. The effect button only lights when it is selected.

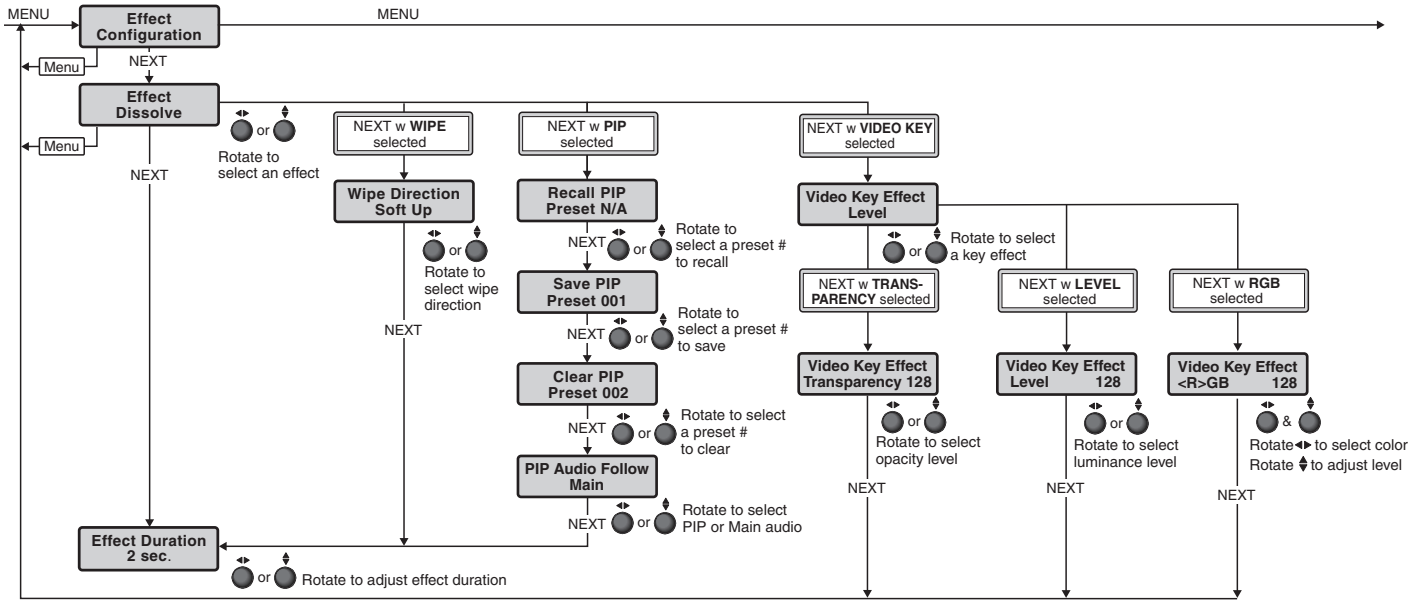


Figure 15. Effect Configuration Menu

Dissolve

Set the duration of the dissolve effect applied when switching the preview output to the program output:

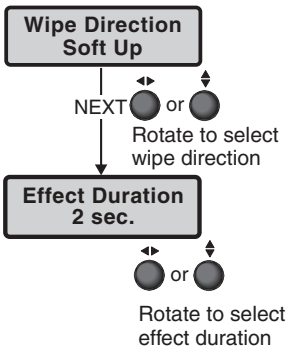
1. From the `Effect Dissolve` submenu press **`NEXT`**. The `Dissolve Duration` submenu displays.
2. Use either **`ADJUST`** knob to select the effect duration from **`0.1`** seconds to **`5.0`** seconds in `0.1` second increments. The default is `0.5` seconds.

NOTE: Directly access the `Effect Dissolve` submenu by pressing the **`EFFECTS DISSOLVE`** button.

Wipe

Set the wipe direction and duration of the wipe effect when switching the preview output to the program output.

1. From the `Effect Wipe` submenu press **`NEXT`**. The `Wipe Direction` submenu displays.
2. Use either **`ADJUST`** knob to select the direction of the wipe: **`Soft Up`**, **`Soft Down`**, **`Soft Right`**, **`Soft Left`**, **`Hard Up`**, **`Hard Down`**, **`Hard Right`**, or **`Hard Left`** (see figure 16).
3. Press **`NEXT`**.
4. Use either **`ADJUST`** knob to select the effect duration from **`0.1`** seconds to **`5.0`** seconds in `0.1` second increments. The default is `0.5` seconds.



NOTE: Directly access the `WIPE` submenu by pressing the `EFFECTS` **`WIPE`** button.

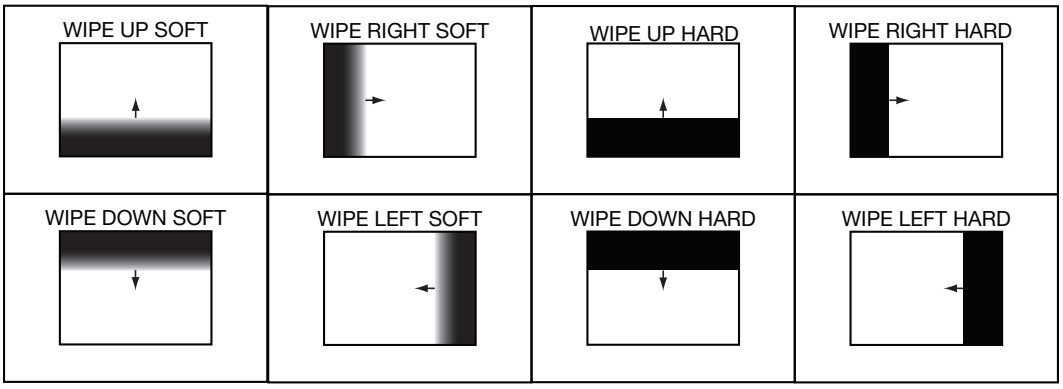
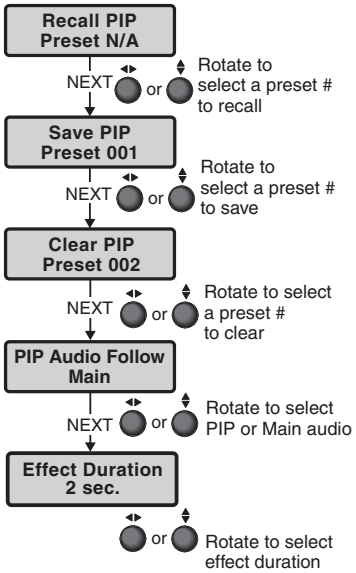


Figure 16. Wipe Effects

PIP

Recall, save, or clear a PIP preset, select the audio source while a PIP effect is active, and set the effect duration from this menu.

The image in the preview output appears in the program output as a picture-in-picture window using a dissolve effect and the user-defined effect duration.



To recall a PIP preset:

1. Press the **`PIP`** button to go to the `Recall PIP Preset` submenu.
2. Rotate the **`ADJUST`** knobs to select a preset (1 through 16) with the PIP image and window size and position preconfigured.
3. Press the **`NEXT`** button to recall the selected preset.

To save a PIP preset:

1. Press the **`PIP`** button and press **`NEXT`** to go to the `Save PIP Preset` submenu.
2. Rotate the **`ADJUST`** knobs to select a preset (1 through 16) with the PIP image and PIP window size and position preconfigured (see the *ISS 608 PCS Help File* to preconfigure a preset).
3. Press the **`NEXT`** button to save the selected preset.

To clear a PIP preset:

1. Press the **PIP** button and press **NEXT** twice to go to the `Clear PIP Preset` submenu.
2. Rotate the **ADJUST** knobs to select a preset (1 through 16) with the image and window size and position preconfigured.
3. Press the **NEXT** button to clear the selected preset.

To select the audio source while the PIP effect is active:

1. Press the **PIP** button and press **NEXT** three times to go to the `PIP Audio Follow` submenu.
2. Rotate the **ADJUST** knobs to select the audio (**PIP** or **Main** [default]) to route to the output when in PIP mode.
3. Press the **NEXT** button to select the audio to output.

To define the effect duration:

1. Press the **PIP** button and press **NEXT** four times to go to the `Effect Duration` submenu.
2. Rotate either **ADJUST** knob to select the effect duration from **0.1** seconds to **5.0** seconds in `0.1` second increments. The default is `0.5` seconds.
3. Press the **NEXT** button.

When the PIP effect is selected, the preview output displays the input in a PIP window at a preset, or user defined, size and position. Four predefined PIP presets allow the user to place the PIP window in any of the four corners of the output raster. For a 1080p output, the size and positions of the PIP presets are:

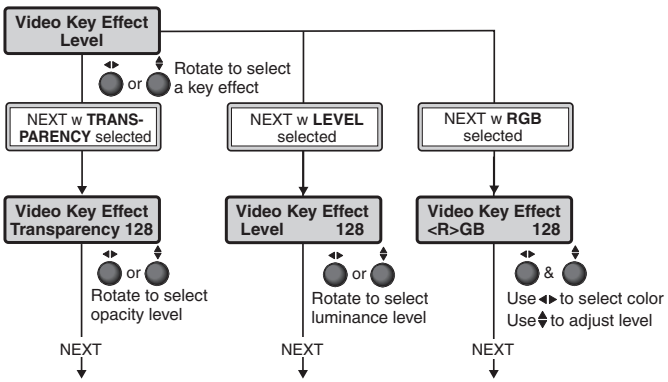
Default PIP Presets		
PIP Preset Number	**Default Size**	**Default Position**
1, 5, 9, 13	424x240	30, 30 (left top corner)
2, 6, 10, 14	424x240	1466, 30 (right top corner)
3, 7, 11, 15	424x240	30, 810 (left bottom corner)
4, 8, 12, 16	424x240	1466, 810 (right bottom corner)

NOTE: Directly access the `PIP` submenu by pressing `EFFECTS` **PIP**.

Video Key

Configure the key effect type and level for displaying the selected preview source over the active program video.

1. From the `Video Key` submenu press **NEXT**. The `Video Key Effect` submenu displays.
2. Rotate either **ADJUST** knob to select a video key effect. The options are: **Transparency**, **RGB**, or **Level**.
3. Press **NEXT**.
4. For `Transparency` or `Level`, rotate either **ADJUST** knob to select the opacity level for transparency or the luminance level for level, from `0` to `255`. For **RGB**:
   - Rotate the horizontal (◄►) **ADJUST** knob to select **R**, **G**, or **B**.
   - Rotate the vertical (▲▼) **ADJUST** knob to select the color tolerance, from `0` to `255`.



NOTE: Directly access the `Video Key` submenu by pressing `EFFECTS` **VIDEO KEY**.

Background/Logo Configuration Menu

Figure 17 shows an overview of the `Background/Logo Configuration` menu, the submenus, and the available settings.

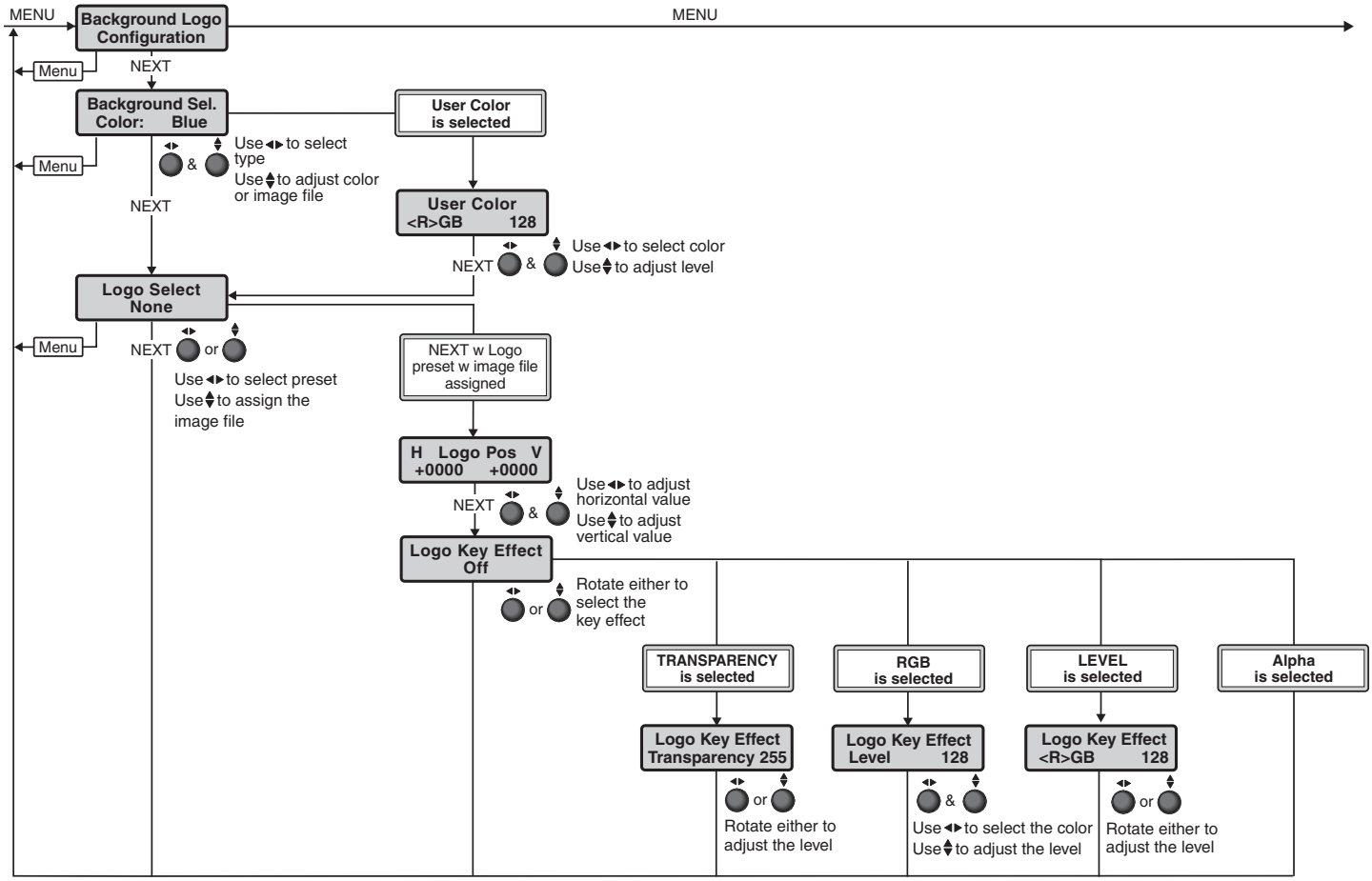


Figure 17. Background/Logo Configuration Menu

Background Select

Select the image or color to be displayed as a background. By default, black is selected. Position adjustments are not allowed for background images and all images are centered.

1. Rotate the horizontal (◄►) **ADJUST** knob to select image (**IMG**) or color.

   NOTE: Upload images to the ISS 608 through PCS (see the *ISS 608 PCS Help File*).

2. Rotate the vertical (▲▼) **ADJUST** knob to select a user-created image if `IMG:` or a color if `Color:`. Color options are: **Black** (default), **Red**, **Green**, **Blue**, **White**, **Magenta**, **Cyan**, **Yellow**, or **User Color**.

   For **User Color**:

   - Rotate the horizontal (◄►) **ADJUST** knob to select **R**, **G**, or **B**.
   - Rotate the vertical (▲▼) **ADJUST** knob to select the color tolerance, from **0** to **255.**

Logo Select

Select the user created image to be saved to one of the 16 selected logo locations. By default, no image is selected. The last logo location displayed will be selected and activated when the front panel **LOGO** button is pressed. The **Logo Select** menu is displayed when the **LOGO** button is pressed to easily switch between logos.

NOTE: Upload images to the ISS 608 through PCS (see the *ISS 608 PCS Help File*).

1. Rotate the horizontal (◄►) **ADJUST** knob to select the logo preset number.
2. Rotate the vertical (▲▼) **ADJUST** knob to select an image to assign to the logo preset number.
3. Press **NEXT**

Logo Position

Adjust the horizontal and vertical position of the logo image. By default, the logo is located at **0**, **0**.

1. Rotate the horizontal (◄►) **ADJUST** knob to adjust the horizontal position.
2. Rotate the vertical (▲▼) **ADJUST** knob to adjust the vertical position.
3. Press **NEXT**

Logo Key Effect

Select and adjust the settings for the key effect to apply to a logo.

1. Rotate either **ADJUST** knob to select the key effect to apply to the logo. Options are:
   - **Off** (default)
   - **Transparency** — The amount of transparency of the image on the screen, which determines the visibility of the video input through the logo.
   - **RGB** — The levels of red, green, or blue to make transparent (key out) in the logo image on the display.
   - **Level** — Makes areas of the image that have a luma value at or below the set key level value transparent.
   - **Alpha** — If the logo image contains an alpha layer, selecting this item makes the alpha layer transparent, so the video input shows through it.
2. Press **NEXT**
3. Rotate either **ADJUST** knob to adjust the settings for the effect. Options are:
   - **Transparency** — **0** - **255** (Default = **255**)
   - **RGB** — **0** - **255** for each color (Default = **0** for each color)
   - **Level** — **0** - **255** (Default = **0**)
   - **Alpha** — No adjustment

Advanced Configuration Menu

Figure 19 is an overview of the `Advanced Configuration` menu, which allows for the configuration of advanced settings including aspect ratio, auto memory, test patterns, screen saver, and factory reset.

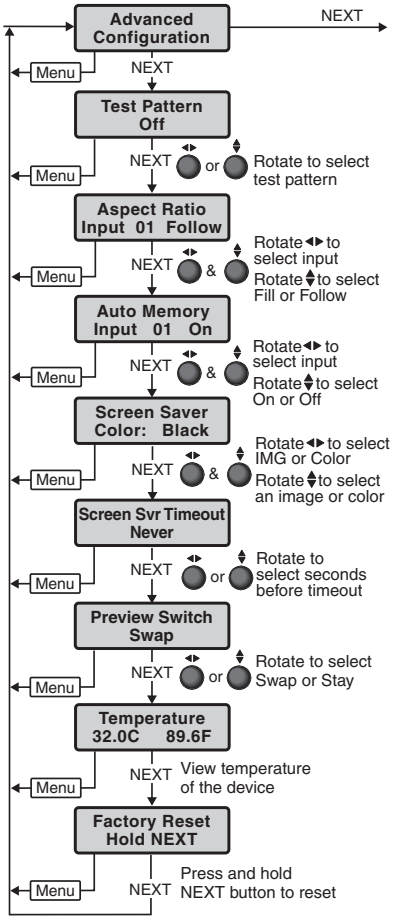


Figure 19. Advanced Configuration Menu

Test Pattern

From the `Test Pattern` submenu select a test pattern (see figure 18) to show on both outputs. The test patterns are helpful when adjusting the connected displays for color, convergence, focus, resolution, contrast, grayscale, and aspect ratio.

- Rotate either **`ADJUST`** knob to select a test pattern.

The available test patterns are:

- `Crop`
- `Color Bars`
- `Alt Pixels`
- `Grayscale`
- `Crosshatch`
- `Audio+Crop`

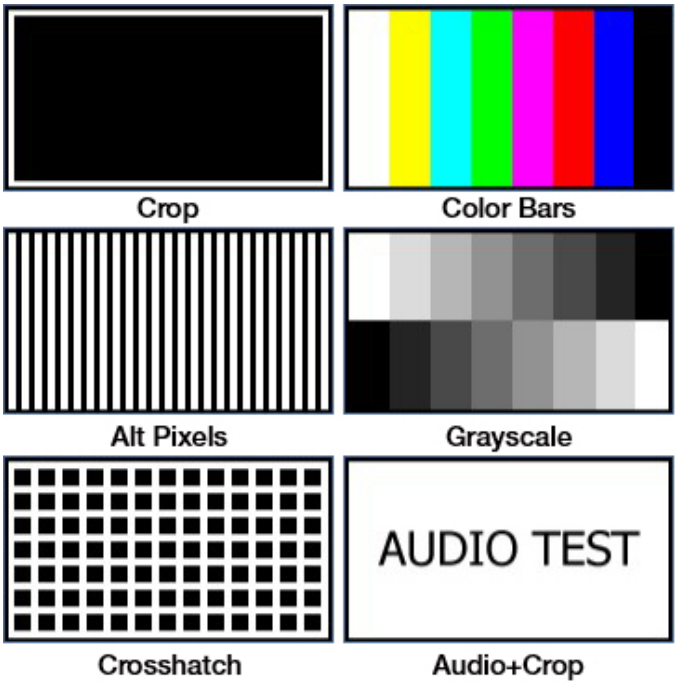


Figure 18. Test Patterns

Aspect Ratio

Select the aspect ratio for each input individually to fill the entire window for that channel (`Fill`), or to allow each input rate to display in its native aspect ratio with respect to the channel window (`Follow`) (see figure 19).

1. Rotate the horizontal (◄►) **`ADJUST`** knob to select the input.
2. Rotate the vertical (▲▼) **`ADJUST`** knob to select **`Fill`** (default) or **`Follow`**.

Auto Memory

`Auto Memory` is enabled on all inputs by default (see **figure 19** on page 25). It should only be disabled if the user desires to have a source applied to the input treated as a new source, regardless of whether the source was detected previously.

Auto Memory saves the main window size, main image size , PIP image size and position, brightness, contrast, and detail settings. Digital inputs are automatically set up using information regarding image size and refresh provided by the digital input. This allows for non-standard rates (not found in the input lookup table) to display correctly. Digital inputs that do not match an existing lookup table are saved to Auto Memory as unique entries based on the total line count, H/V active, and vertical refresh rate.

1. Rotate the horizontal (◄►) **ADJUST** knob to select the input.
2. Rotate the vertical (▲▼) **ADJUST** knob to select **On** (default) or **Off**.

Screen Saver

Select a screen saver to display when an input with no detected source is routed to an output (see **figure 19**).

1. Rotate the horizontal (◄►) **ADJUST** knob to select **Color** or **IMG**.
2. Rotate the vertical (▲▼) **ADJUST** knob:
   - If **Color** was previously selected, select **Black** (default) or **Blue**.
   - If **IMG** was previously selected, select a preconfigured image.

Screen Saver Timeout

Select whether the screen saver should timeout or remain until a new input is routed to the output. Screen saver mode is activated when an input with no detected signal is routed to an output (see **figure 19**).

NOTE: If **PIP** or **VIDEO KEY** is enabled, the screen saver should not be enabled, regardless of signal presence. If **PIP** or **VIDEO KEY** is enabled while in screen saver mode, the ISS exits screen saver mode.

- Rotate either **ADJUST** knob to select a timeout setting. Options are: **Never** or a duration from **Instant (0)** to **500** seconds in `1` second intervals.

Preview Switch Mode

Set the channel the preview output displays after a switch has occurred (see **figure 19**).

- Rotate either **ADJUST** knob to select the preview switch mode. Options are: **Swap** (default) or **Stay.**
  - **Swap mode** — The preview and program outputs are swapped. The video and audio signals on the preview output are applied to the program output. The video and audio signals that had been applied to the program output are applied to the preview output.
  - **Stay mode** — The video and audio signals on the preview output are applied to the program output and also continue on the preview output until another input is selected.

Temperature

View the internal temperature of the unit. The temperature displays in both Celsius (°C) and Fahrenheit (°F) (see **figure 19**).

Factory Reset

Reset the ISS 608 to the default values. This reset is the same as the `ZXXX` reset via SIS commands (see **Soft reset** on page 55).

- Press and hold the **NEXT** button. The LCD window displays `Factory Reset Please Wait` while the unit is resetting. When the reset is complete, release the **NEXT** button.

View and Edit Communications Settings Menu

Figure 20 is an overview of both the `View User Comm Settings` and the `Edit User Comm Settings` menus, the submenus, and the available settings.

The default menu is `View Comm Settings` and all of the submenus are display only, unable to be edited. To access the `Edit Comm Settings` menu and submenus, press and **hold** the **NEXT** button until the menu changes to `Edit Comm Settings`. Release the **NEXT** button.

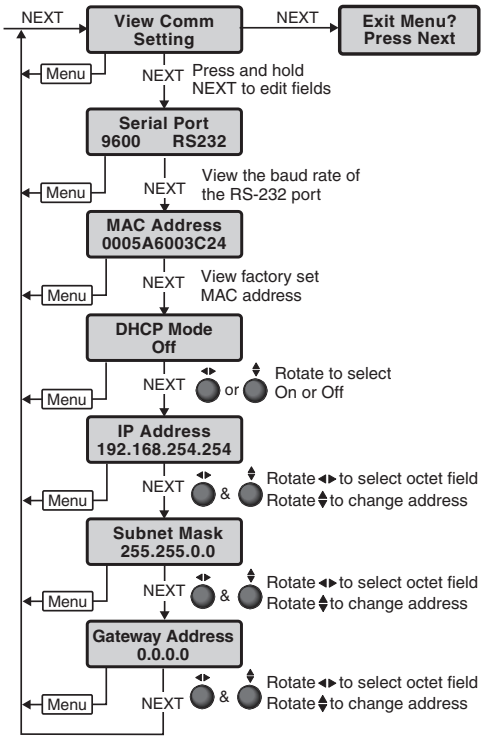


Figure 20. View and Edit Communication Settings Menu

Serial Port

The read-only `Serial Port` submenu displays the baud rate of the ISS 608 rear panel RS-232 port. This is a read-only submenu in both the `View Comm Settings` menu and the `Edit Comm Settings` menu (see **Serial port configuration** on page 55 to configure via SIS commands).

MAC Address display

The read-only `MAC Address` display shows the hardcoded, factory assigned hardware address. This is a read-only submenu in both the `View Comm Settings` menu and the `Edit Comm Settings` menu.

DHCP Mode

The `DHCP Mode` submenu displays the on or off status of the Dynamic Host Configuration Protocol (DHCP) method of IP addressing. If DHCP is on, the switcher ignores any entered IP addresses and obtains its IP address from a DHCP server (only if the network is DHCP capable).

From the `Edit Communications Settings` menu, rotate either **ADJUST** knob to select **DHCP Mode**. Options are **ON** or **OFF** (default).

IP Address, Subnet Mask, and Gateway Address

These submenus display the ISS 608 IP address, subnet mask, and gateway server address (if any) (see **figure 20** on page 27).

Valid IP addresses consist of four 1-, 2-, or 3-digit numeric subfields, properly called octets, separated by dots (periods). Each octet can be numbered from 000 through 255. Leading zeroes, up to 3 digits total per octet, are optional. Values of 256 and above are invalid. Contact the local system administrator for these addresses.

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

When these submenus are selected from the `Edit Comm Settings` menu:

- Rotate the (◄►) **ADJUST** knob to select an octet to edit.
- Rotate the (▲▼) **ADJUST** knob to change the value of the selected octet.

Exit Menu

From the `Exit` menu (see figure 21), press the **NEXT** button to return to the default display cycle, or press the **MENU** button to return to the beginning, the `Input Presets` menu.

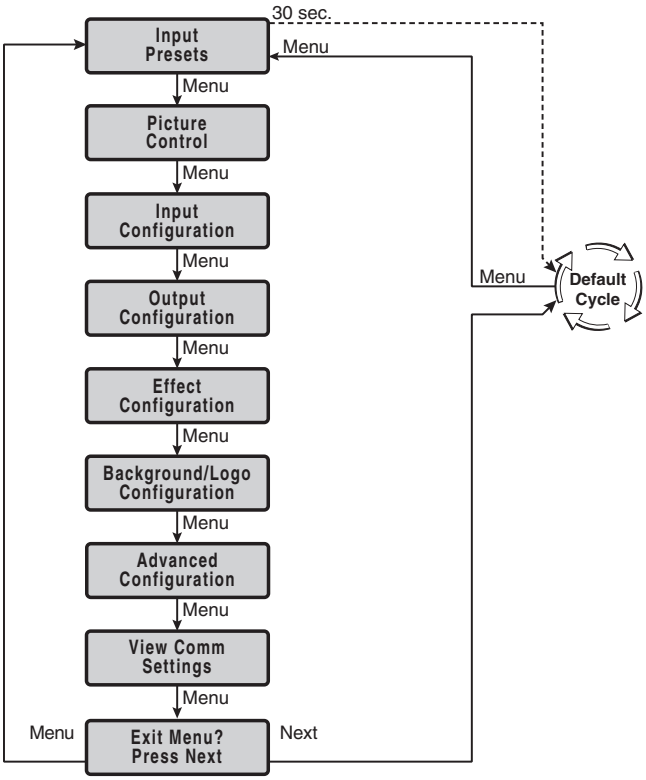


Figure 21. Exit Menu

Front Panel Button Operations

The following information details features and functions of the front panel buttons.

Front Panel Button Shortcuts

Front panel buttons can be used as shortcuts to the related LCD menu item, making it easier to change settings without navigating through the entire LCD menu. These button presses are shortcuts only and the standard LCD menu structure and timeouts should be followed. Please see the table below for details.

Front Panel Button	Goes to LCD Menu	Submenu
DISSOLVE	Effect Configuration	Effect Duration
CUT	NA	NA
WIPE	Effect Configuration	Wipe Direction
VIDEO KEY	Effect Configuration	Video Key Effect
PIP	Effect Configuration	Recall PIP Preset
LOGO	Background/Logo Configuration	Logo Select
RECALL/SAVE	Layout Presets	First press = Recall Layout Preset Press and hold 2 seconds = Save Layout Preset

Front Panel Button Colors

Front Panel Button	Button Color	Condition
Input buttons	• Off • Amber • Green • Red	• Not tied to an output • Audio and video tie • Video only tie • Audio only tie
FREEZE	• Off • Amber	• Off • Activated
MUTE	• Off • Amber • Red	• Off • Video mute • Sync mute
EFFECTS	• Off • Amber • Flash Green • Flash Amber	• Off • Effect selected • **LOGO** button pressed but no logo assigned • Effect is on Program output
PRESETS RECALL/ SAVE	• Amber	• Preset Save or Recall LCD menu is active
ENTER	• Amber	• When pressed and Preset is **Saved** or **Recalled**
SIZE AND POSITION	• Amber	• When Size or Position LCD menu is active
MENU AND NEXT	• Amber	• Always
TAKE	• Amber	• Always

Selecting an Input

- Press and release the desired **PROGRAM** or **PREVIEW** input selection button. The button lights and the selected input displays on the program or preview monitor.
- Press the **MUTE** or **FREEZE** buttons to mute or freeze the **PROGRAM** or **PREVIEW** output video.

Switching the Preview Output to the Program Output

1. Press and release a preview input button.
2. Press and release one of the **EFFECTS** buttons.
   - **CUT** — This effect does not need to be configured. When used, the image instantly swaps between the preview output and the program output without any effect.
   - **DISSOLVE** — The previous program output fades out while the image from the preview output fades into the program output using the user-defined duration. To configure, see **Dissolve** on page 20.
   - **WIPE** — The image in the preview output "unrolls" over the top of the program output using the user-defined duration and direction. To configure, see **Wipe** on page 21.
   - **PIP** — The image in the preview output appears in the program output as a picture-in-picture window using a dissolve effect and the user-defined duration. To recall a PIP preset, see **PIP** on page 21.
   - **VIDEO KEY** — Video on the preview bus can be keyed to appear over the existing video on the program bus, using an RGB key, a luminosity level key, or a transparency effect. To configure, see **Video Key** on page 22.
3. Press and release the **TAKE** button to execute the selected effect.

Recalling a Layout Preset

Layout presets are used to preconfigure a presentation prior to going live (see the *ISS 608 PCS Help File* to configure a layout preset). This minimizes missed cues or incorrect video layout. A layout preset captures transition effect settings, a logo preset, the input channel, and any picture control adjustments made to the preview output (for a list of all the layout preset options, see the Layout Presets table below). When recalled, layout presets apply the settings to the preview output to review the configuration before **TAKE** is pressed to make it live on the program output.

Layout Presets		
Selected effect	Logo preset	Contrast
Effect duration	Window size	Brightness
Wipe effect type	Window position	Detail
Video Key effect type	Image position	Background image
Video Key effect levels	Image size	Selected preview input

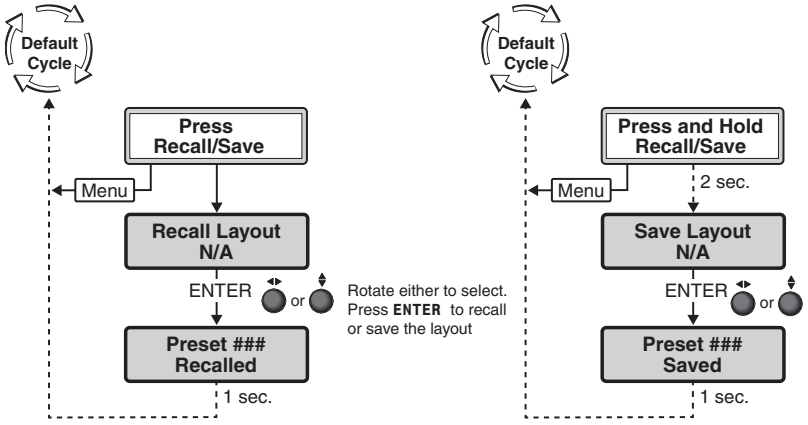


Figure 22. Recall/Save Menu

To recall or save a layout preset:

1. Press the **RECALL/SAVE** button (see figure 22) to go to the `Recall Layout` menu.
2. Rotate either **ADJUST** knob to select a saved layout preset.
3. Press the **ENTER** button to recall the selected preset to the preview output.

Configuring and Recalling a Logo Preset

NOTE: User images must first be uploaded via Extron Product Configuration Software (PCS) available at **www.extron.com**.

To configure a logo preset:

1. Press the **MENU** button to go to the `Background/Logo Configuration` menu.
2. Press the **NEXT** button to go to the `Logo Select` submenu.
3. Rotate the horizontal (◄►) **ADJUST** knob to select the logo preset to configure.
4. If needed, rotate the vertical (▲▼) **ADJUST** knob to change the assigned image file (the image file shows on the preview output).
5. Press the **NEXT** button to adjust the position of the logo.
6. Rotate the (◄►) **ADJUST** knob to adjust the horizontal (H) position and rotate the (▲▼) **ADJUST** knob to adjust the vertical (V) position.
7. Press the **NEXT** button to select a `Logo Key Effect`, if desired.

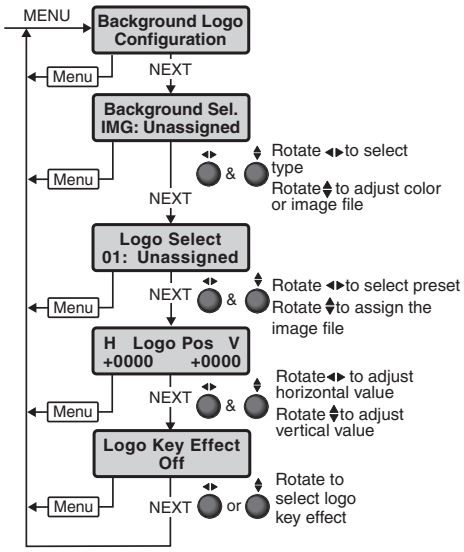


Figure 23. Configure Logo

8. Rotate either **ADJUST** knob to select the `Logo Key Effect`:
   - **`Transparency`** — Applies a transparency level (`0-255`) to the entire graphic. A setting of `0` transparency indicates 100% opacity. No content below the graphic is mixed.
   - **RGB** — Defines an RGB color (`0-255`) to be keyed out of the image. This setting supports signals which may have color noise or slight variance in brightness.
   - **`Level`** — Defines a luminance level (`0-255`) in which any video information with a luminance below the defined value will be keyed out of the layer
   - **`Alpha`** — Uses the alpha layer data found in the graphic file. Only PNG files containing alpha data will be supported.

To recall a logo preset:

1. Press the **LOGO** button (if no logo preset was previously selected, `Logo Error` shows on the LCD screen for 2 seconds). The `Logo Select` menu shows in the LCD screen.
2. Rotate the (◄►) **ADJUST** knob to select the logo preset.
3. Wait a second or press the **NEXT** button and the logo preset is recalled onto the preview output.
4. Press the **TAKE** button to switch the preview output, with the included logo preset, to the program output using the selected effect, displaying the logo preset on the program output.

   A different logo preset can be recalled or removed on the preview output by pressing the **LOGO** button again.
5. Press the **TAKE** button again to switch the preview output to the program output.
   - If a different logo preset was recalled on the preview output, the new logo preset is displayed on the program output.
   - If no logo preset is on the preview output, the logo on the program output is removed.

NOTE: The **LOGO** button lights solid if there is a logo on preview output but not on program output. The **LOGO** button blinks if there is a logo on program output whether there is a logo on preview output or not.

Adjusting the Size and Position of the Program or Preview

The size and position of the program or preview image can be adjusted using the **ADJUST SIZE** and **POSITION** buttons.

- Press the **SIZE** or **POSITION** buttons to toggle between the **PREVIEW** image and the **PROGRAM** image adjustments.
- When the **PIP** effect is selected, press the **SIZE** and **POSITION** buttons to cycle through the PIP window, PIP image, and program image adjustments.

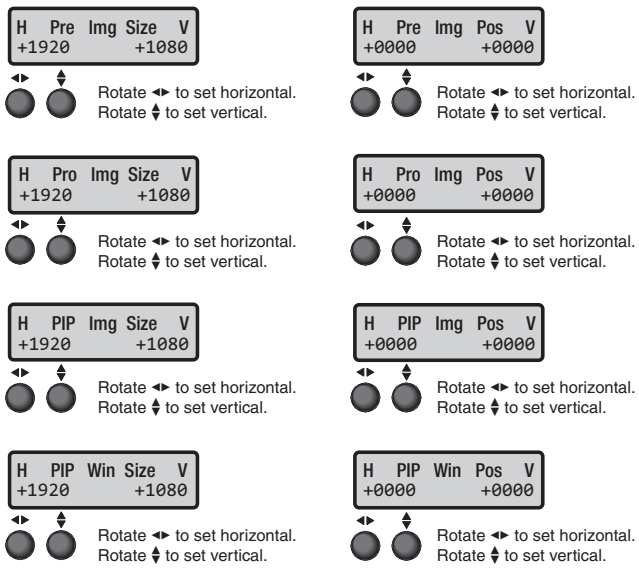


Figure 24. Size and Position Menus

NOTE: Image adjustments can be made via PCS, SIS commands, and the front panel LCD. Window adjustments can be made via PCS and SIS commands only. By default, the window size matches the output raster unless in PIP mode.

- Window position refers to the window size and position within the output raster.
- Image position refers to the size and position of the image within the window.

Power Save Mode

The ISS can be forced into a low power, standby mode using an SIS command. In this mode, all non-essential hardware is shut down to conserve power. To restore the ISS back to full power mode:

- Execute an SIS command (via IP, RS-232, or USB) (see **Power save (Action takes place instantly)** on page 48).
- Press any front panel button.
- Power cycle the device.

While in power save mode, the front panel LCD backlight is disabled, but the LCD displays `POWER SAVE ENABLED`.

Matrix Mode

The ISS can be set to Matrix Mode, which allows an upstream Extron matrix switcher to be used as a seamless switcher. When a matrix switcher is connected upstream of the ISS 608, all of the matrix inputs essentially become inputs to the ISS 608 and transition effects can be automatically applied to the source switches.

Matrix Mode only works with HDMI inputs 1 and 2 and requires the matrix switcher to toggle source routes between these two connections.

To use Matrix Mode:

- Initially, Program is set to input 1 and Preview is set to input 2. Preview switch setting is set to **`SWAP`**, and switch effect is set to **`CUT`**. The switch effect can be changed to **`DISSOLVE`** or **`WIPE`** if desired using SIS or PCS.
- Use the matrix switcher to route the new source to the matrix output connected to the ISS input currently selected on the Preview bus (initially input 2).
- The ISS 608 automatically performs a seamless switch with the selected effect (**`CUT`**, **`WIPE`**, or **`DISSOLVE`**) when new video is acquired and stable on the Preview channel input.
- The next source to be displayed must now be routed to the opposite ISS input previously routed to, because the Program and Preview channels have been swapped.

NOTE: When in this mode, the front panel will be completely locked.

Consider an example system where a matrix switcher has outputs 11 and 12 connected to ISS 608 inputs 1 and 2, respectively.

- When Matrix Mode is initially enabled, the source tied to matrix output 11 is currently live on the Program output and the source tied to output 12 is on the Preview output.
- The first switch on the matrix should be to output 12, at which point the ISS seamlessly switches to that source.
- The next switch on the matrix should be to output 11, which triggers the ISS to seamlessly switch back.
- The following switch would be to output 12 on the matrix, and the toggling between output 11 and 12 on the matrix would continue as needed.

Upstream Signal Switching and Local Video Bus Switching

Whether switching from an upstream switcher or from the local ISS inputs, detection of loss of sync and acquisition of the new signal on the video bus (Program or Preview) must be managed properly to accomplish a pseudo seamless switch.

Select from the following options to customize how new inputs automatically transition to the output when the signal is lost (see **Upstream/Local effect select** on page 53 SIS command or the I*SS 608 PCS Help File* to configure):

- **Cut through black** — The video in the window immediately mutes to black and cuts to the new signal once it is applied (default).
- **Fade through black** — The window freezes the last solid frame of the old signal and fades down to black and fades the new signal on once it is applied.
- **Seamless cut** — The window freezes the last solid frame of the old signal and seamlessly cuts to the new signal once it is applied. If no signal is applied for 1 second, the image within the window cuts to black.
- **Seamless fade** — The window freezes the last solid frame of the old signal and performs a seamless dissolve to the new signal once applied. If no signal is applied for 1 second, the image within the window fades to black.
- **Low Latency** — The video in the window immediately mutes to black when the signal is lost and cuts to the new signal once it is applied. A frame of video delay is removed from the product video processing logic and may introduce video artifacts during the upstream switch effect.

SIS Configuration and Control

The topics covered in this section are:

- **Connections Options**
- **Host-to-Switcher Communications**
- **Switcher-Initiated Messages**
- **Using the Command and Response Tables**
- **Command and Response Tables**

Connections Options

The ISS 608 can be configured and controlled using SIS commands or embedded web pages. Configure and control the ISS 608 remotely via a host computer or other device (such as a control system) by connecting to the rear panel RS-232 port, LAN port, or the front panel USB Config port of the ISS device.

Rear Panel RS-232 Port

The ISS 608 has a rear panel serial port (see **figure 2**, **H** on page 6) that can be connected to a host device such as a computer running a HyperTerminal utility, or the Extron DataViewer utility. The port makes serial control of the ISS possible. Use the protocol information listed below to make the connection (see **Host-to-Switcher Communications** on page 36).

The default protocol for the port is as follows:

- 9600 baud
- no parity
- 8 data bits
- 1 stop bit
- no flow control

The ports can be configured to operate at the `9600`, `19200`, `38400`, or `115200` baud rate.

NOTE: The switcher can operate at `9600`, `19200`, `38400`, or `115200` baud rates (see **Serial port connection** on page 10 to configure the rear panel RS-232 port from the front panel).

Front Panel Configuration USB Port

The mini B USB port is located on the front panel (see **figure 8**, **F** on page 11). Connect to a host computer for configuration using SIS commands with DataViewer, available at www.extron.com. To connect the ISS 608 to a host computer, download the USB driver, follow the on-screen instructions, and configure the ISS as required.

Ethernet Link

The rear panel Ethernet connector on the switcher (see **figure 2**, **G**) can be connected to an Ethernet LAN or WAN. This connection makes SIS control of the switcher possible using a computer connected to the same LAN or WAN (see **Wiring the network cable** on page 10 to wire the LAN connection).

Default Address

To access the switcher via the LAN port, the switcher IP address is needed. If the address has been changed to an address comprised of words and characters, the actual numeric IP address can be determined using the front panel (see **View and Edit Communications Settings Menu** on page 27), PCS (see **Device Menu** on page 65), or the internal web page (see **Network Settings Panel** on page 70). If the address has not been changed, the factory-specified default is `192.168.254.254`.

Symbols

Symbols (Xn values), defined below, are used throughout the discussions of the switcher-initiated messages that begin on the next page and the **Symbol definitions** starting on page 39. The symbols represent variables in the switcher-initiated messages and the Command and Response table fields.

Host-to-Switcher Communications

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

Switcher-Initiated Messages

When a local event such as power-up or a front panel operation occurs, the switcher responds by sending a message to the host. The switcher-initiated messages are listed on the following pages. The switcher does not expect a response from the host, but the host program may request a new status.

Power-up

(c) `Copyright 2019, Extron Electronics, ISS 608 Series,` V*x.xx*, `60-`*nnnn-nn*↵

`Tue, 15 Aug 2019 10:14:07`↵

The copyright message is initiated by the switcher when it is first powered on. 60-*nnnn-nn* is the product part number. V*x.xx* is the firmware version number.

Input Frequency Change

`Reconfig`X1↵ — Broadcast upon detection of any change of the input frequency for the input has occurred. X1 is the input number.

`In00•`X61`*`X61`*...*`X61↵ — Broadcast upon detection of any change of the input video presence.

Hot Plug and HDCP Events

`HplgO`X2`*`X69↵ — Broadcast upon detection of a Hot Plug event on the HDMI outputs.

`HplgI`X1`*`X44↵ — Broadcast upon detection of a change in the HDCP status of input X1.

`HplgO`X2`*`X44↵ — Broadcast upon detection of a change in the HDCP status of output X2.

Effect Select

SwefO1*X19↵	Broadcast upon selection of a new effect (for example: dissolve, cut, wipe, video key, and PIP).

Logo Event

LogoEX2*X80↵	Broadcast when a Logo is turned on for output X2.
LogoEX2*0↵	Broadcast when a Logo is turned off for output X2.

Take Event

Tke↵	Broadcast upon a Take event.
Bsy1↵	Broadcast upon the start of a Take effect.
Bsy0↵	Broadcast upon the completion of a Take effect.

Video Mute Event

VmtX2*1↵	Broadcast when video is muted on output X2.
VmtX2*2↵	Broadcast when video and sync are muted on output X2.
VmtX2*0↵	Broadcast when video is unmuted on output X2.

Video Freeze Event

FrzX2*1↵	Broadcast when video is frozen on output X2.
FrzX2*0↵	Broadcast when video is unfrozen on output X2.

Switcher Error Responses

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

- E01 — Invalid input number
- E10 — Invalid command
- E11 — Invalid preset number
- E12 — Invalid port or output number
- E13 — Invalid parameter
- E14 — Invalid for this configuration
- E17 — Invalid command for signal type
- E22 — Busy
- E24 — Privilege violation
- E25 — Device not present
- E26 — Maximum number of connections exceeded
- E28 — Bad Filename / File not Found

NOTE: If the unit does not support or recognize the entered commands, no response will be issued.

Using the Command and Response Tables

The Command and Response table begins on the next page. The table below shows the hexadecimal equivalent of each ASCII command.

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

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."

Symbol definitions

↵ = CR/LF (carriage return/line feed)

← = Carriage return

or | = or pipe symbol (no line feed, hex = 0D)

• = Space

Esc = Escape

or W

X1 = Input selection 1 to 8 (two-digit response with 0 padding)

X2 = Output selection (two-digit response with 0 padding)
1* = Preview (1A - HDMI - for mute or format type commands)
2* = Program (2A - HDMI - for mute or format type commands)
5 = Analog Preview (Analog audio – for mute or format type commands only)
6 = Analog Program (Analog audio – for mute or format type commands only)

NOTE: *Values 1 and 2 can apply to global settings on a bus (for example: input switching)

X3 = Input format
0 = No signal
1 = HDMI
2 = DVI
3 = DisplayPort

X6 = Total lines (four-digit response – 0 padding)

X7 = Total pixels (four-digit response – 0 padding)

X8 = Active pixels (four-digit response – 0 padding)

X9 = Active lines (four-digit response – 0 padding)

X10 = Enable/disable
0 = OFF/disable
1 = ON/enable

X12 = Internal temperature in Celsius (two-digit response – 0 padding)

X13 = Horizontal and Vertical frequencies (formatted three digits with single decimal and leading zeros) (for example: 075.3)

X14 = Text label – Up to 32 characters but cannot contain , (comma) ,*, or |.
Default name for unsaved locations = [Unassigned]
Default name for inputs = Input *xx* (Input 07)
Default name for saved Layout preset name = Layout Preset *xxx* (Layout Preset 005)
Default name for saved Input preset name = Input Preset *xxx* (Input Preset 005)
Default name for saved PIP preset name = PIP Preset *xx* (PIP Preset 05)
Default name for saved Logo name = Logo *xx* (Logo 05)

X15 = Picture adjustment – 0 to 127 (Default = 64) (three-digit response – 0 padding)

X16 = H and V position (five-digit response with 0 padding and leading "+" or "–" symbol)

NOTE: Position is ±4096 horizontally and ±2160 vertically.

X17 = H and V size (five-digit response with 0 padding and leading "+" or "–" symbol)

NOTE: Size is up to 8192 horizontally and 4320 vertically. Minimum H/V size is 10.

X18 = Image/Window number
1 = Preview
2 = Program/Main
3 = PIP

X19 = Take video effect
0 = Cut
1 = Dissolve
2 = Wipe
3 = PIP
4 = Video key

X20 = Wipe switch effect

1 = Soft wipe up	5 = Hard wipe up
2 = Soft wipe down	6 = Hard wipe down
3 = Soft wipe right	7 = Hard wipe right
4 = Soft wipe left	8 = Hard wipe left

X21 = Scaler resolution/EDID emulation (three-digit response – 0 padding) (see **Scaler Resolution/EDID Emulation Table** on page 42)

X22 = Test patterns (two-digit response - 0 padding)
0 = Off (Default)
1 = Crop
2 = Alternating Pixels
3 = Crosshatch
4 = Color Bars
5 = 32-level split grayscale
6 = Audio test (Crop pattern and outputs Pink Noise: CH 1/2, 48 kHz, 24 bit)

X23 = Upstream/local effect
0 = Cut through black - Cut to black on loss or change of sync (Default)
1 = Fade thru black - Freeze last frame on loss or change of sync and immediately fade to black.
2 = Seamless fade - Freeze last frame on loss or change of sync and seamlessly dissolve to new signal when locked.
3 = Seamless cut - Freeze last frame on loss/change of sync and seamlessly cut to new signal when locked.
4 = Low latency - Cut to black on loss/change of sync. Also removes one frame of video delay which may introduce video artifacts during the switch transition.

X25 = Layout Presets — 1 to 128 (three-digit response — 0 padding)

X26 = Input Presets — 1 to 128 (three-digit response — 0 padding)

X27 = PIP Presets — 1 to 16 (two-digit response — 0 padding)

X28 = Output sync timeout (Default = 501 – Never)
(three-digit response – 0 padding)
0 = output sync is instantly disabled with no active video on any of the inputs
1 to 500 (1 second increments)
501 = output sync never times out

X29 = Executive mode status:
0 = Off/disabled (Default)
1 = Mode 1 - Complete front panel lockout
2 = Mode 2 - Partial front panel lockout (Menu and Next buttons disabled)
3 = Mode 3 - Program lockout (all changes to Program are locked out)

X30 = Auto switch mode
0 = Off/manual input switching only (Default)
3 = Matrix Mode

X31 = Baud rate — 300, 600, 1200, 1800, 2400, 3600, 4800, 7200, 9600 (Default), 14400, 19200, 28800, 38400, 57600, 115200

X32 = Parity — **O**dd, **E**ven, **N**one (Default), **M**ark, **S**pace (only the first letter is required)

X33 = Data bits — 7 or 8 (Default)

X34 = Stop bits — 1 (Default) or 2

X35 = Configuration type
0 = 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.

X39 = Aspect ratio setting
1 = Fill (each input automatically fills the entire output raster; Default)
2 = Follow (each input is displayed in its native aspect ratio)

X40 = Screen saver modes
1 = Black screen (Default)
2 = Blue screen
3 = User image

X42 = Mute
0 = OFF/disable
1 = Mute to black
2 = Mute output sync and video

X44 = HDCP status
0 = No sink or source device detected
1 = Sink or source detected but no HDCP
2 = Sink or source detected with HDCP

X46 = HDCP output mode
0 = OFF – Disables all HDCP authentication and encryption attempts
1 = Follow input – Encrypts outputs only when necessary per the selected source. A max of 10-seconds of authentication trials
2 = Always encrypt – Encrypts output regardless of selected input. A max of 10-seconds of authentication trials
3 = Follow input (with continuous trials) – Mode 1, but with continuous authentication trials (Default)
4 = Always encrypt (with continuous trials) – Mode 2, but with continuous authentication trials

X47 = HDCP notification mode
0 = Black screen
1 = Green screen (Default)
2 = User file with black screen

X48 = HDMI output format
0 = Auto - HDMI – RGB FULL to a CEA sink, or DVI to a non-CEA sink (Default)
1 = DVI - RGB 444, 0-255, no audio, no InfoFrames) (165 MHz Max output) *
2 = HDMI RGB “FULL” - RGB 444, 0-255, audio, InfoFrames
3 = HDMI RGB “LIMITED” - RGB 444, 16-235, audio, InfoFrames
5 = HDMI YUV “LIMITED” - YUV 444, 16-235, audio, InfoFrames)
7 = HDMI YUV “LIMITED” - YUV 422, 16-235, audio, InfoFrames)
9 = HDMI YUV “LIMITED” - YUV 420, 16-235, audio, audio, InfoFrames**

* If in DVI mode and a rate greater than 165 MHz is selected, the output will default back to Auto

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

** If rates other than 4K/UHD 50/59.94/60 Hz are set, the Auto output format only outputs HDMI RGB Full and an E17 is returned if the user attempts to set X48 = 9.

** If X48 = 9 and the output rate is changed to a rate other than 4K/UHD 50/59.94/60 Hz X48 is automatically set to 0, and an unsolicited response is broadcast.

X51 = Audio output format
1 = Dual mono
2 = Stereo (Default)

X58 = Audio input type
0 = None - input muted
2 = LPCM-2Ch (Default for all inputs)
3 = Multi-Ch

X61 = Video signal status
0 = Video/TMDS signal not detected
1 = Video/TMDS signal detected

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

X63 = Screen saver status
0 = Active input detected - timer not running
1 = No active inputs - timer is running - output sync still active
2 = No active inputs - timer has expired - output sync disabled

X69 = Hot Plug change/detect
1 = Assertion (a new sink has been connected)
2 = De-Assert (a sink has been disconnected)

X70 = Effect variable
0 = Transparency (not available for screen saver or background)
1 = Red of RGB Key
2 = Green of RGB Key
3 = Blue of RGB Key
4 = Level Key (not available for screen saver or background)

X71 = Effect setting — 0 to 255

X73 = Effect duration — 01 to 50, in 0.1 second increments (Default = 05 = 0.5 seconds)

X74 = Key effect
0 = Disabled (only used for Logo Key Effect)
1 = Transparency
2 = RGB Key
3 = Level Key
4 = Alpha Key (only used for Logo Key Effect)

X75 = Color/background options

0 = Black (Default)	5 = Magenta
1 = Red	6 = Cyan
2 = Green	7 = Yellow
3 = Blue	8 = User defined color
4 = White	9 = User image file

X78 = RGB color value — 0 to 255

X79 = Preview switch mode
0 = Swap (Default)
1 = Stay

X80 = Logo assignments (three-digit response, 0 padding)
1-16 = Logos (available to all scaled outputs)
101 = No Signal/Screen Saver Image
201 = HDCP Image
301 = Background Image

X81 = Verbose mode
0 = None (Default for LAN connection)
1 = Verbose mode (Default for RS-232 and USB connection)
2 = Tagged responses to queries
3 = Verbose mode and tagged responses

X85 = Password — Maximum length 128 characters. All alpha-numeric characters permitted except |, and "space".

NOTE: The factory configured passwords for all accounts on this device have been set to the device serial number. In the event of a complete system reset, the passwords convert to the default, which is no password.

X87 = Device name — 63 characters, max, drawn from the alphabet (A-Z), digits (0-9), minus sign/hyphen (-). No blank or space characters are permitted. Not case sensitive. The first character must be an alpha character. The last character must not be a minus sign/hyphen.
Must comply with internet host name standards.

X89 = Time zone acronym (2 to 6 letters)

X90 = Greenwich Mean Time (GMT) offset value: -12:00 to 14:00. Represents hours and minutes (*HH*:*MM*) offset from GMT including the time zone name.

X91 = IP address in dotted decimal notation (*xxx.xxx.xxx.xxx*)
Default: 192.168.254.254 (no padding)
Default gateway IP address: 0.0.0.0
Default DNS server IP address: 0.0.0.0

X92 = Subnet mask
Default: 255.255.255.0 (no padding)

X93 = Hardware MAC address — (00-05-A6-*NN-NN-NN*)

X94 = Default name — Combination of the model name and the last three pairs of the MAC address (Example: ISS-608-13-59-0C)

Scaler Resolution/EDID Emulation Table								
Automatic: Match Scaler Current Output Resolution**				0				
Output 1A (Preview EDID export only)				1	**Output 2A (Program EDID export only)**			2
Resolution	**23.98 Hz**	**24 Hz**	**25 Hz**	**29.97 Hz**	**30 Hz**	**50 Hz**	**59.94 Hz**	**60 Hz**
640x480								10
800x600								11
1024x768								12
1280x768								13
1280x800								14
1280x1024								15
1360x768								16
1366x768								17
1440x900								18
1400x1050								19
1600x900								20
1680x1050								21
1600x1200								22
1920x1200								23
480p							24	25
576p						26		
720p			29	30	31	32	33	34
1080i						35	36	37
1080p	38	39	40	41	42	43	44	45*
2048x1080 (2K)	46	47	48	49	50	51	52	53
2048x1200								54
2048x1536								55
2560x1080								56
2560x1440								57
2560x1600								58
3840x2160	59	60	61	62	63	64	65	66
4096x2160* **	69	70	71	72	73	74	75	76
Custom EDID/Output Rate #1				201	**Custom EDID/Output Rate #2**			202
Custom EDID/Output Rate #3				203	**Custom EDID/Output Rate #4**			204
Custom EDID/Output Rate #5				205	**Custom EDID/Output Rate #6**			206
Custom EDID/Output Rate #7				207	**Custom EDID/Output Rate #8**			208
Custom EDID/Output Rate #9				209	**Custom EDID/Output Rate #10**			210

* Default Output Resolution

** Default EDID

*** Not available as an EDID, only as output rate option

Command and Response Tables

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
Input Configuration			
Input switch			
Tie input to output (audio and video)	X1*X2!	OutX2•InX1•All↵	Tie input X1 to output X2 (All)
Tie input to output (video only)	X1*X2%	OutX2•InX1•Vid↵	Tie input X1 to output X2 (Vid)
Tie input to output (audio only)	X1*X2$	OutX2•InX1•Aud↵	Tie input X1 to output X2 (Aud)
Read ties			
Read video output tie	X2% Verbose mode 2/3	X1↵ OutX2•InX1•Vid↵	Video input X1 is tied to output X2
Read audio output tie	X2$	X1↵ OutX2•InX1•Aud↵	Audio input X1 is tied to output X2
Input video format			
View detected format	X1*\ Verbose mode 2/3	X3↵ VtypX1*X3↵	View detected video format on input X1

KEY: X1 = Input number **1** – **8** (two-digit response with **0** padding)
X2 = Output number **1** = Preview **2** = Program
X3 = Input format **0** = No signal **1** = HDMI **2** = DVI **3** = DisplayPort

Input EDID			
Specify a value	EscAX1*X21EDID←	EdidAX1*X21↵	Set the EDID resolution and refresh for the X1 input
View	EscAX1EDID←	X21↵	View EDID resolution and refresh for the X1 input
Save an output EDID	EscSX2*X21EDID←	EdidSX2*X21↵	Save output X2 EDID to X21 (Valid for X21 = 201 to 210 only)
Export EDID file	EscEX21,<*filename*>EDID←	EdidEX21↵	Exports EDID table X21 to <*filename*>
Import EDID file	EscIX21,<*filename*>EDID←	EdidIX21↵	Imports EDID table X21 from <*filename*>

NOTES:
- <*filename*> can optionally carry a full path name. EDID file format will by .bin carrying **128** or **256** bytes of binary data.
- Exporting a default EDID table (X21 value of **10** or greater) results in HDMI with LPCM-2Ch audio EDID being exported.
- For the Import EDID command, X21 can be **201** through **210** only.

KEY: X1 = Input number **1** – **8** (two-digit response with **0** padding)
X2 = Output number **1** = Preview **2** = Program
X21 = EDID Emulation Scaler resolution/EDID emulation (three-digit response – **0** padding)
(see the **Scaler Resolution/EDID Emulation Table** on page 42)

HDCP input authorization			
Enable authorization	EscEX1*1HDCP←	HdcpEX1*1↵	Enable HDCP Authorization for input X1 (Default)
Disable authorization	EscEX1*0HDCP←	HdcpEX1*0↵	Disable HDCP Authorization for input X1
Query status	EscEX1HDCP←	X10↵	Query HDCP Authorization for input X1

KEY: X1 = Input number **1** – **8** (two-digit response with **0** padding)
X10 = Enable/Disable **0** = OFF/disable **1** = ON/enable

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
Input Configuration (continued)			
Input aspect ratio (per input)			
Set for FILL	Esc X1 *1ASPR ←	Aspr X1 *1 ↵	Set input X1 to always fill the entire window (Default)
Set for FOLLOW	Esc X1 *2ASPR ←	Aspr X1 *2 ↵	Set input X1 to correctly display in the window with its native aspect
View aspect setting	Esc X1 ASPR ←	X39 ↵	View the current aspect ratio setting for input X1
KEY: X1 = Input number; X39 = Aspect ratio setting; **1** – **8** (two-digit response with **0** padding); **1** = Fill (each input automatically fills the entire; output raster; Default) in its native aspect ratio); **2** = Follow (each input is displayed			
Input name			
Write name	Esc X1 , X14 NI ←	Nmi X1 , X14 ↵	Set the name X14 for input X1
View name	Esc X1 NI ←	X14 ↵	View the name of input X1
KEY: X1 = Input number; X14 = Text label; **1** – **8** (two-digit response with **0** padding); Up to 32 characters but cannot contain , (comma) ,*, or | ; Default name for unsaved locations = [Unassigned]; Default name for inputs = Input *xx* (Input 07). Default name for saved Layout preset name = Layout Preset *xxx* (Layout Preset 005). Default name for saved Input preset name = Input Preset *xxx* (Input Preset 005). Default name for saved PIP preset name = PIP Preset *xx* (PIP Preset 05). Default name for saved Logo name = Logo *xx* (Logo 05)			
NOTE: To clear an input name, enter a single space character for X14. This action resets the input name back to the default settings.			
Auto Image			
Execute	X2 *0A	Img X2 *0 ↵	Execute auto image on output X2 (follows aspect setting)
Execute and fill	X2 *1A	Img X2 *1 ↵	Execute auto image and fill the output/PIP
Execute and follow	X2 *2A	Img X2 *2 ↵	Execute auto image and follow the input aspect ratio
KEY: X2 = Output number; **1** = Preview; **2** = Program			
Active pixels (view only)			
View the active pixels value	Esc X1 APIX ← Verbose mode 2/3	X8 ↵ Apix X1 * X8 ↵	Show the active pixels for input X1
Active lines (view only)			
View the active lines value	Esc X1 ALIN ← Verbose mode 2/3	X9 ↵ Alin X1 * X9 ↵	Show the active lines for input X1
KEY: X1 = Input number; **1** – **8** (two-digit response with **0** padding); X8 = Active pixels (four-digit response – **0** padding); X9 = Active lines (four-digit response – **0** padding)			
Film mode detect (includes 3:2, 2:2, and 24:1 cadence detection)			
Enable film mode	Esc X1 *1FILM ←	Film X1 *1 ↵	Enable film mode detection (Default)
Disable film mode	Esc X1 *0FILM ←	Film X1 *0 ↵	Disable film mode detection
View setting	Esc X1 FILM ←	X10 ↵	View setting
KEY: X1 = Input number; **1** – **8** (two-digit response with **0** padding); X10 = Enable/Disable; **0** = OFF/disable; **1** = ON/enable			

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
Picture Adjustments			
Video mute			
Mute output	X2*1B	Vmt X2 *1 ↵	Mutes video only on output X2
Mute output and sync	X2*2B	Vmt X2 *2 ↵	Mutes video and sync on output X2
Unmute output	X2*0B	Vmt X2 *0 ↵	Unmutes output X2
View mute status	X2B	X42 ↵	View the mute status for output X2
KEY: X2 = Output number **1** = Preview **2** = Program X42 = Mute **0** = OFF/disable **1** = Mute to black **2** = Mute output sync and video			
Freeze			
Enable	X2*1F	Frz X2 *1 ↵	Freeze output X2
Disable	X2*0F	Frz X2 *0 ↵	Unfreeze output X2
View freeze status	X2F	X10 ↵	Show the freeze status
KEY: X2 = Output number **1** = Preview **2** = Program X10 = Enable/Disable **0** = OFF/disable **1** = ON/enable			
Contrast			
Specific value	Esc X1 * X15 CONT ←	Cont X1 * X15 ↵	Sets contrast level to X15 for input X1
Increment up	Esc X1 +CONT ←	Cont X1 * X15 ↵	Increments contrast level
Decrement down	Esc X1 -CONT ←	Cont X1 * X15 ↵	Decrements contrast level
View	Esc X1 CONT ←	X15 ↵	View current setting for input X1
Brightness			
Specific value	Esc X1 * X15 BRIT ←	Brit X1 * X15 ↵	Sets brightness level to X15 for input X1
Increment up	Esc X1 +BRIT ←	Brit X1 * X15 ↵	Increments brightness level
Decrement down	Esc X1 -BRIT ←	Brit X1 * X15 ↵	Decrements brightness level
View	Esc X1 BRIT ←	X15 ↵	View current setting for input X1
Detail filter			
Set detail level	Esc X1 * X15 HDET ←	Hdet X1 * X15 ↵	Sets the detail level to X15 for input X1
Increment up	Esc X1 +HDET ←	Hdet X1 * X15 ↵	Increase the detail level
Decrement down	Esc X1 -HDET ←	Hdet X1 * X15 ↵	Decrease the detail level
View	Esc X1 HDET ←	X15 ↵	Show the detail setting for input X1
KEY: X1 = Input number **1** – **8** (two-digit response with **0** padding) X15 = Picture adjustment **0** to **127** (Default = 64) (three-digit response – **0** padding)			
Horizontal shift (Window)			
Specific value	Esc W X18 * X16 HCTR ←	HctrW X18 * X16 ↵	Set horizontal position to X16 for window X18
Increment up	Esc W X18 +HCTR ←	HctrW X18 * X16 ↵	Shift window right 1 pixel
Decrement down	Esc W X18 -HCTR ←	HctrW X18 * X16 ↵	Shift window left 1 pixel
View	Esc W X18 HCTR ←	X16 ↵	View horizontal centering value X16 for window X18
NOTE: Position is ± H/V of the highest output resolution.			
KEY: X16 = H and V position (five-digit response with **0** padding and leading "**+**" or "**–**" symbol) X18 = Image/Window number **1** = Preview **2** = Program/Main **3** = PIP			

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
Picture Adjustments (continued)			
Vertical shift (Window)			
Specific value	Esc W X18 * X16 VCTR ←	VctrW X18 * X16 ↵	Set vertical position to X16 for window X18
Increment up	Esc W X18 +VCTR ←	VctrW X18 * X16 ↵	Shift window down by 1 line
Decrement down	Esc W X18 -VCTR ←	VctrW X18 * X16 ↵	Shift window up by 1 line
View	Esc W X18 VCTR ←	X16 ↵	View vertical centering value X16 for window X18
NOTE: Position is ± H/V of the highest output resolution.			
KEY: X16 = H and V position (five-digit response with 0 padding and leading "+" or "–" symbol) X18 = Image/Window number **1** = Preview **2** = Program/Main **3** = PIP			
Horizontal size (Window)			
Specific value	Esc W X18 * X17 HSIZ ←	HsizW X18 * X17 ↵	Set horizontal size to X17 for window X18
Increment up	Esc W X18 +HSIZ ←	HsizW X18 * X17 ↵	Widen the window 1 pixel
Decrement down	Esc W X18 -HSIZ ←	HsizW X18 * X17 ↵	Narrow the window by 1 pixel
View	Esc W X18 HSIZ ←	X17 ↵	View horizontal size X17 for window X18
Vertical size (Window)			
Specific value	Esc W X18 * X17 VSIZ ←	VsizW X18 * X17 ↵	Set vertical size to X17 for window X18
Increment up	Esc W X18 +VSIZ ←	VsizW X18 * X17 ↵	Make the window taller by 1 line
Decrement down	Esc W X18 -VSIZ ←	VsizW X18 * X17 ↵	Make the window shorter by 1 line
View	Esc W X18 VSIZ ←	X17 ↵	View vertical size X17 for window X18
NOTE: Size is up to 2x the H/V of the highest output resolution. Minimum H/V size is 10.			
KEY: X17 = H and V size (five-digit response with 0 padding and leading "+" or "–" symbol) X18 = Image/Window number **1** = Preview **2** = Program/Main **3** = PIP			
Horizontal shift (Image)			
Specific value	Esc I X18 * X16 HCTR ←	HctrI X18 * X16 ↵	Set horizontal position to X16 for image X18
Increment up	Esc I X18 +HCTR ←	HctrI X18 * X16 ↵	Shift image right 1 pixel
Decrement down	Esc I X18 -HCTR ←	HctrI X18 * X16 ↵	Shift image left 1 pixel
View	Esc I X18 HCTR ←	X16 ↵	View horizontal centering value X16 for image X18
Vertical shift (Image)			
Specific value	Esc I X18 * X16 VCTR ←	VctrI X18 * X16 ↵	Set vertical position to X16 for image X18
Increment up	Esc I X18 +VCTR ←	VctrI X18 * X16 ↵	Shift image down by 1 line
Decrement down	Esc I X18 -VCTR ←	VctrI X18 * X16 ↵	Shift image up by 1 line
View	Esc I X18 VCTR ←	X16 ↵	View vertical centering value X16 for image X18
NOTE: Position is ± H/V of the highest output resolution.			
KEY: X16 = H and V position (five-digit response with 0 padding and leading "+" or "–" symbol) X18 = Image/Window number **1** = Preview **2** = Program/Main **3** = PIP			

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
Picture Adjustments (continued)			
Horizontal size (Image)			
Specific value	Esc I X18 * X17 HSIZ ←	HsizI X18 * X17 ↵	Set horizontal size to X17 for image in X18
Increment up	Esc I X18 +HSIZ ←	HsizI X18 * X17 ↵	Widen the image 1 pixel
Decrement down	Esc I X18 -HSIZ ←	HsizI X18 * X17 ↵	Narrow the image 1 pixel
View	Esc I X18 HSIZ ←	X17 ↵	View horizontal size X17 for image X18
NOTE: Size is up to 2x the H/V of the highest output resolution. Minimum H/V size is 10.			
KEY: X17 = H and V size (five-digit response with 0 padding and leading "+" or "–" symbol) X18 = Image/Window number **1** = Preview **2** = Program/Main **3** = PIP			
Vertical size (Image)			
Specific value	Esc I X18 * X17 VSIZ ←	VsizI X18 * X17 ↵	Set vertical Size to X17 for output X18
Increment up	Esc I X18 +VSIZ ←	VsizI X18 * X17 ↵	Make the image taller by 1 line
Decrement down	Esc I X18 -VSIZ ←	VsizI X18 * X17 ↵	Make the image shorter by 1 line
View	Esc I X18 VSIZ ←	X17 ↵	View vertical size X17 for image X18
NOTE: Size is up to 2x the H/V of the highest output resolution. Minimum H/V size is 10.			
KEY: X17 = H and V size (five-digit response with 0 padding and leading "+" or "–" symbol) X18 = Image/Window number **1** = Preview **2** = Program/Main **3** = PIP			
Compound Window position/size			
Specific value	Esc X18 , X16 * X16 * X17 * X17 XWIN ←	Xwin X18 , X16 * X16 * X17 * X17 ↵	Set x,y position X16 and x,y size X17 for window X18
View	Esc X18 XWIN ←	X16 * X16 * X17 * X17 ↵	View x,y position and x,y size for window X18
Compound Image position/size			
Specific value	Esc X18 , X16 * X16 * X17 * X17 XIMG ←	Ximg X18 , X16 * X16 * X17 * X17 ↵	Set x,y position X16 and x,y size X17 for image X18
View	Esc X18 XIMG ←	X16 * X16 * X17 * X17 ↵	View x,y position and x,y size for image X18
NOTE: Size is up to 2x the H/V of the highest output resolution. Minimum H/V size is 10.			
KEY: X16 = H and V position (five-digit response with 0 padding and leading "+" or "–" symbol) X17 = H and V size (five-digit response with 0 padding and leading "+" or "–" symbol) X18 = Image/Window number **1** = Preview **2** = Program/Main **3** = PIP			
Output Configuration			
Output scaler rate (Program output rate = Preview output rate)			
Set output rate	Esc X21 RATE ←	Rate X21 ↵	Select output resolution and refresh rate X21
View output rate	Esc RATE ←	X21 ↵	Show output rate selected
KEY: X21 = Scaler resolution/EDID emulation (three-digit response – 0 padding) (see **Scaler Resolution/EDID Emulation Table** on page 42)			

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
Output Configuration (continued)			
HDMI output format			
Set format	Esc X2*X48VTPO←	VtpoX2*X48↵	Sets the color space/format for output X2 to X48
View setting	Esc X2VTPO←	X48↵	View the currently set output color space/format for output X2
View auto output format	Esc X2* VTPO←	X48↵	Useful when format X48 is set to 0 = Auto (Valid responses 1-9)
KEY: X2 = Output number X48 = IHDMI output format	**1** = Preview **2** = Program **0** = Auto - HDMI – RGB FULL to a CEA sink,or DVI to a non-CEA sink (Default) **1** = DVI - RGB **444**, **0-255**, no audio, no InfoFrames) (**165** Mhz Max output) **2** = HDMI RGB "FULL" - RGB **444**, **0-255**, audio, InfoFrames **3** = HDMI RGB "LIMITED" - RGB **444**, **16-235**, audio, InfoFrames **5** = HDMI YUV "LIMITED" - YUV **444**, **16-235**, audio, InfoFrames **7** = HDMI YUV "LIMITED" - YUV **422**, **16-235**, audio, InfoFrames **9** = HDMI YUV "LIMITED" - YUV **420**, **16-235**, audio, audio, InfoFrames		
HDCP output mode			
Set HDCP mode	EscSX46HDCP←	HdcpSX46↵	Set the HDCP mode to X46
Query HDCP mode	EscSHDCP←	X46↵	Query HDCP mode
KEY: X46 = HDCP output mode	**0** = OFF – Disables all HDCP authentication and encryption attempts **1** = Follow input – Encrypts outputs only when necessary per the selected source. A max of **10**-seconds of authentication trials **2** = Always encrypt – Encrypts output regardless of selected input. A max of **10**-seconds of authentication trials **3** = Follow input (with continuous trials) – Mode **1**, but with continuous authentication trials (Default) **4** = Always encrypt (with continuous trials) – Mode **2**, but with continuous authentication trials		
Power save (Action takes place instantly)			
Power save OFF	Esc0PSAV←	Psav0↵	Unit runs in full power mode (Default)
Power save ON	Esc1PSAV←	Psav1↵	Unit enters low power state that can only be exited via power cycle, SIS, or pressing a button on front panel
View setting	EscPSAV←	X62↵	View the current power save status
KEY: X62 = Power save modes	**0** = Full power mode (Default) **1** = Low power state		

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
Output Configuration (continued)			
Screen saver (Action takes place when there is no active video on an output)			
Set mode	Esc M X40 SSAV ←	SsavM X40 ↵	Sets the screen saver mode to X40 (Default: 1 = black)
View mode	Esc MSSAV ←	X40 ↵	View the current screen saver mode X40
Set time out duration	Esc T X28 SSAV ←	SsavT X28 ↵	Sets the screen saver time out duration to X28 seconds (Default: 501 = never)
View time out duration	Esc TSSAV ←	X28 ↵	View the current screen saver time out duration X28
View screen saver status	Esc S X2 SSAV ← Verbose mode 2/3	X63 ↵ SsavS X2 * X63 ↵	View the screen saver status X63

KEY: X2 = Output number 1 = Preview 2 = Program
X28 = Output sync timeout (three-digit response – 0 padding)
0 = Output sync is instantly disabled with no active video on any of the inputs
1 to 500 (1 second increments)
501 = output sync never times out (default)
X40 = Screen saver modes 1 = Black screen (Default) 2 = Blue screen 3 = User image
X63 = Screen saver status 0 = Active input detected - timer not running
1 = No active inputs - timer is running - output sync still active
2 = No active inputs - timer has expired - output sync disabled

Audio Configuration

Audio mute (digital and analog - persists beyond a power cycle)

Enable global audio mute	1Z	Amt1 ↵	Mutes all audio outputs
Disable global audio mute	0Z	Amt0 ↵	Unmutes all audio outputs
Enable/disable discrete mute	X2 * X10 Z	Amt X2 * X10 ↵	Set mute of audio output X2 to X10
View discrete mute	X2 * Z	X10 ↵	View mute status X10 of audio output X2
View global mute status	Z Verbose mode 2/3	X10 • X10 • 0 • X10 • X10 • 0 ↵ Amt X10 • X10 • 0 • X10 • X10 • 0 ↵	View audio mute status (Preview: HDMI, analog; Program: HDMI, analog)

KEY: X2 = Output number 1 = Preview 2 = Program
X10 = Enable/Disable 0 = OFF/disable 1 = ON/enable

Audio input format

Set none	Esc I X1 *0AFMT ←	AfmtI X1 *0 ↵	Mutes audio for input X1
Set LPCM-2CH digital	Esc I X1 *2AFMT ←	AfmtI X1 *2 ↵	Select LPCM-2CH digital audio for input
Set MULTI-2CH digital	Esc I X1 *3AFMT ←	AfmtI X1 *3 ↵	Select Multi-CH digital audio for input
View	Esc I X1 AFMT ←	X58 ↵	Show audio input type for input

KEY: X1 = Input number 1 – 8 (two-digit response with 0 padding)
X58 = Audio input type 0 = None - input muted 2 = LPCM-2Ch (Default for all inputs) 3 = Multi-Ch

Audio follow

Select main audio	Esc 2AFLW ←	Aflw2 ↵	Sets audio output to follow main window (Default)
Select PIP audio	Esc 3AFLW ←	Aflw3 ↵	Sets audio output to follow PIP window
View	Esc AFLW ←	X18 ↵	View audio follow setting

KEY: X18 = Image/Window number 2 = Program/Main 3 = PIP

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
Audio Configuration (continued)			
Set audio output format			
Set format	Esc O X2 * X51 AFMT ←	AfmtO X2 * X51 ↵	Set the audio output format
View	Esc O X2 AFMT ←	X51 ↵	View output audio format
KEY: X2 = Output number **1** = Preview **2** = Program X51 = Audio output format **1** = Dual mono **2** = Stereo (Default)			
Background/Logo Configuration			
Background setting			
Set background source	Esc S X75 BSET ←	BsetS X75 ↵	Set the background to X75
View setting	Esc S BSET ←	X75 ↵	View setting
Set background color	Esc C X70 * X71 BSET ←	BsetC X70 * X71 ↵	Define a custom background color
View settings	Esc C X70 BSET ←	X70 * X71 ↵	View setting
KEY: X70 = Effect variable **1** = Red of RGB Key **2** = Green of RGB Key **3** = Blue of RGB Key X71 = Effect setting **0** to **255** X75 = Color/background **0** = Black (Default) **1** = Red **2** = Green **3** = Blue **4** = White **5** = Magenta **6** = Cyan **7** = Yellow **8** = User defined color **9** = User image file			
Logo/User image assignment			
Assign file to logo	Esc A X80 ,<*filename*> LOGO ←	LogoA X80 ,<*filename*> ↵	Assigns file to Logo X80
View file assigned	Esc A X80 LOGO ←	<*filename*> ↵	View file assigned to Logo X80
KEY: X80 = Logo assignments (three-digit response, **0** padding) **1**-**16** = Logos (available to all scaled outputs) **101** = No Signal/Screen Saver Image **201** = HDCP Image **301** = Background Image			
Clear Logo/User image setting			
Clear logo	Esc X4 * X80 PRST ←	PrstX4 * X80 ↵	Clear Logo X80 and set setting name to [unassigned]
KEY: X80 = Logo assignments (three-digit response, **0** padding) **1**-**16** = Logos (available to all scaled outputs) **101** = No Signal/Screen Saver Image **201** = HDCP Image **301** = Background Image			
Logo on/off			
Logo on	Esc E X2 * X80 LOGO ←	LogoE X2 * X80 ↵	Enables logo X80 on output X2
Logo off	Esc E X2 * 0 LOGO ←	LogoE X2 * 0 ↵	Disables logo on output X2
View logo status	Esc E X2 LOGO ←	X80 ↵	View logo assigned to output X2
View logo status all	Esc E LOGO ←	X80 • X80 ↵	View logo assigned to all outputs (Preview then Program)
KEY: X2 = Output number **1** = Preview **2** = Program X80 = Logo assignments (three-digit response, **0** padding) **1**-**16** = Logos (available to all scaled outputs)			
Logo key effect (only for logo presets)			
Disabled	Esc X80 * 0 LKEF ←	Lkef X80 * 0 ↵	Disables key effect for Logo X80
Transparency	Esc X80 * 1 LKEF ←	Lkef X80 * 1 ↵	Enables transparency for Logo X80
RGB key	Esc X80 * 2 LKEF ←	Lkef X80 * 2 ↵	Enables RGB Key for Logo X80
Level key	Esc X80 * 3 LKEF ←	Lkef X80 * 3 ↵	Enables Level Key for Logo X80
Alpha key	Esc X80 * 4 LKEF ←	Lkef X80 * 4 ↵	Enables Alpha Key for Logo X80
View setting	Esc X80 LKEF ←	X74 ↵	View current setting for Logo X80
KEY: X74 = Key effect **0** = Disabled (default) **1** = Transparency **2** = RGB Key **3** = Level Key **4** = Alpha Key X80 = Logo assignments (three-digit response, **0** padding) **1**-**16** = Logos (available to all scaled outputs)			

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
Background/Logo Configuration (continued)			
Logo key effect level (only for logo presets)			
Specific value	Esc X80 * X70 * X71 LKEY ←	Lkey X80 * X70 * X71 ↵	Sets key level for setting X70 to X71 for logo X80
View setting	Esc X80 * X70 LKEY ←	X71 ↵	View current setting for X70 for logo X80

KEY: X70 = Effect variable **0** = Transparency **1** = Red of RGB Key **2** = Green of RGB Key **3** = Blue of RGB Key **4** = Level Key
X71 = Effect setting **0** to **255**
X80 = Logo assignments (three-digit response, **0** padding) **1**-**16** = Logos (available to all scaled outputs)

Logo/User image name			
Write name	Esc L X80 , X14 UNAM ←	UnamL X80 , X14 ↵	Sets name for logo X80
View name	Esc L X80 UNAM ←	X14 ↵	View name for logo X80

KEY: X14 = Text label Up to 32 characters but cannot contain , (comma) ,*, or |
X80 = Logo assignments (three-digit response, **0** padding) **1**-**16** = Logos (available to all scaled outputs)
101 = No Signal/Screen Saver Image **201** = HDCP Image **301** = Background Image

Logo/User image availability			
Query	Esc QLOGO ←	*<16 Characters>*<1 Character>*<1 Character>*<1 Character>* ↵	
Verbose mode 2/3		LogoQ00*<16 Characters>*<1 Character>*<1 Character>*<1 Character> ↵	
			1 = Enable, 0 = Disable

NOTE: The first 16 digits denote logo images, the digit immediately following the first * is for the Screen Saver, the second for the HDCP, the last digit for Background.

Horizontal shift (Logo only)			
Specific value	Esc L X80 * X16 HCTR ←	Hctr L X80 * X16 ↵	Set horizontal centering to X16 for logo X80
Increment up	Esc L X80 + HCTR ←	Hctr L X80 * X16 ↵	Shift logo right for logo X80
Decrement down	Esc L X80 - HCTR ←	Hctr L X80 * X16 ↵	Shift logo left for logo X80
View	Esc L X80 HCTR ←	X16 ↵	Horizontal centering value is X16 for logo X80
Vertical shift (Logo only)			
Specific value	Esc L X80 * X16 VCTR ←	Vctr L X80 * X16 ↵	Set vertical centering to X16 for logo X80
Increment up	Esc L X80 + VCTR ←	Vctr L X80 * X16 ↵	Shift logo down for logo X80
Decrement down	Esc L X80 - VCTR ←	Vctr L X80 * X16 ↵	Shift logo up for logo X80
View	Esc L X80 VCTR ←	X16 ↵	Vertical centering value is X16 for logo X80

NOTE: Position is ± H/V of the highest output resolution. Logo vertical position allows up to ±2400.

KEY: X2 = Output number **1** = Preview **2** = Program
X16 = H and V position (five-digit response with **0** padding and leading "+" or "–" symbol)
X80 = Logo assignments (three-digit response, **0** padding) **1**-**16** = Logos (available to all scaled outputs)

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
Presets			
Layout presets (includes picture adjustments and video effect parameters)			
Recall preset	1*1*X25.	1Rpr1*X25↵	Recalls layout preset X25 to Preview output
Save preset	1*1*X25,	1Spr1*X25↵	Saves parameters of Preview output to layout preset X25
Delete/clear preset	EscX1*X25PRST←	PrstX1*X25↵	Clears layout preset X25, sets preset name to [unassigned]

NOTE: **TAKE** is required to push the recalled layout onto the Program output. An **E14** is issued if the ISS has an effect active (**SIS Bsy1**).

KEY: X25 = Layout Presets **1** to **128** (three-digit response — **0** padding)

Layout preset name			
Write name	Esc1*X25,X14PNAM←	Pnam1*X25,X14↵	Set the name X14 for layout preset X25
View name	Esc1*X25PNAM←	X14↵	View the name for layout preset X25

KEY: X14 = Text label — Up to 32 characters but cannot contain , (comma) ,*, or |. Default name for saved layout preset name = "Layout Preset xxx" (Layout Preset 005)
X25 = Layout Presets — **1** to **128** (three-digit response — **0** padding)

Input presets			
Recall preset	2*X2*X26.	2RprX2*X26↵	Recalls input preset X26 to the selected input on video bus X2
Save preset	2*X2*X26,	2SprX2*X26↵	Saves input parameters of input on video bus X2 to input preset X26
Delete/clear preset	EscX2*X26PRST←	PrstX2*X26↵	Clears input preset X26, sets preset name to [unassigned]

KEY: X2 = Output number **1** = Preview **2** = Program
X26 = Input Presets **1** to **128** (three-digit response — **0** padding)

Input preset name			
Write name	Esc2*X26,X14PNAM←	Pnam2*X26,X14↵	Set the name X14 for input preset X26
View name	Esc2*X26PNAM←	X14↵	View the name of input preset X26

KEY: X14 = Text label — Up to 32 characters but cannot contain , (comma) ,*, or |. Default name for inputs = "Input xx" (Input 07)
X26 = Input Presets — **1** to **128** (three-digit response — **0** padding)

PIP presets			
Recall PIP preset	3*1*X27.	3Rpr1*X27↵	Recalls PIP preset X27 to the Preview bus
Save PIP preset	3*1*X27,	3Spr1*X27↵	Saves PIP parameters of Preview bus to PIP preset X27
Delete/clear PIP preset	EscX3*X27PRST←	PrstX3*X27↵	Clears PIP preset X27, sets preset name to [unassigned]

KEY: X27 = PIP Presets **1** to **16** (two-digit response — **0** padding)

PIP preset name			
Write name	Esc3*X27,X14PNAM←	Pnam3*X27,X14↵	Set the name X14 for PIP preset X27
View name	Esc3*X27PNAM←	X14↵	View the name of PIP preset X27

KEY: X14 = Text label — Up to 32 characters but cannot contain , (comma) ,*, or |. Default name for saved PIP preset name = "PIP Preset xx" (PIP Preset 05)
X27 = PIP Presets — **1** to **16** (two-digit response — **0** padding)

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
Presets (continued)			
Auto-memory (per input)			
Enable	Esc X1 *1AMEM ←	Amem X1 *1 ↵	Set auto memory on for input X1 Previous settings for incoming signal are auto recalled
Disable	Esc X1 *0AMEM ←	Amem X1 *0 ↵	Set auto memory off for input X1 Manual recall of input presets needed to configure input
View setting	Esc X1 AMEM ←	X10 ↵	View current auto memory status for input X1
KEY: X1 = Input number **1** – **8** (two-digit response with **0** padding) X10 = Enable/Disable **0** = OFF/disable **1** = ON/enable			
Effect Configuration			
Take effect select			
Set Take effect	Esc 01*X19SWEF ←	Swef01*X19 ↵	Sets the Take effect to X19
View setting	Esc 01SWEF ←	X19 ↵	View current setting (Default = 0)
KEY: X19 = Take video effect **0** = Cut **1** = Dissolve **2** = Wipe **3** = PIP **4** = Video Key			
Upstream/Local effect select			
Set sub-switch effect	Esc U1*X23SWEF ←	SwefU1*X23 ↵	Sets the sub-switch switch effect to X23
View setting	Esc U1SWEF ←	X23 ↵	View current setting (Default = 0)
NOTE: Applies to both upstream switching and local video bus switching (for example, switching from Input **1** to Input **3** on the Preview bus).			
KEY: X23 = Upstream/Local switch effect **0** = Cut through black **1** = Fade through black **2** = Seamless fade **3** = Seamless cut **4** = Low latency			
Take (with Cut, Dissolve, or Wipe effect selected)			
Take	%	Tke ↵	Switch the previous and program outputs per the preview switch setting
		Bsy1 ↵	Effect is underway
		Bsy0 ↵	Effect is complete
Take (with PIP or Video Key effect selected)			
Begin effect	%	Tke ↵	Enables PIP or Video key on Program output
		Bsy1 ↵	Effect is active
End effect	%	Tke ↵	Ends effect and removes PIP or Video Key from the program output
		Bsy0 ↵	Effect is underway
Preview switch mode			
Set Swap mode	Esc 0PSWM ←	Pswm0 ↵	Set preview and program outputs to swap after TAKE command
Set Stay mode	Esc 1PSWM ←	Pswm1 ↵	Set preview output to remain unchanged after TAKE command
View mode	Esc PSWM ←	X79 ↵	View preview switch mode
KEY: X79 = Preview switch mode **0** = Swap (Default) **1** = Stay			
Effect duration (applies to dissolve and wipe effects)			
Set effect duration	Esc X73 EDUR ←	Edur X73 ↵	Sets the effect duration to X73
View setting	Esc EDUR ←	X73 ↵	View current setting
KEY: X73 = Effect duration **01** to **50**, in **0.1** second increments (Default = **05** = **0.5** seconds)			

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
Effect Configuration (continued)			
Wipe effect select			
Set Wipe duration	Esc X20 WIPE ←	Wipe X20 ↵	Sets the wipe effect to X20
View setting	Esc WIPE ←	X20 ↵	View current setting
KEY: X20 = Wipe switch effect	**1** = Soft wipe up **2** = Soft wipe down **3** = Soft wipe right **4** = Soft wipe left **5** = Hard wipe up **6** = Hard wipe down **7** = Hard wipe right **8** = Hard wipe left		
Video key effect select			
Transparency	Esc 1VKEF ←	Vkef1 ↵	Enables Transparency
RGB key	Esc 2VKEF ←	Vkef2 ↵	Enables RGB Key
Level key	Esc 3VKEF ←	Vkef3 ↵	Enables Level Key
View setting	Esc VKEF ←	X74 ↵	View current setting
KEY: X74 = Key effect	**1** = Transparency **2** = RGB Key **3** = Level Key		
Video key effect level			
Specific value	Esc X70*X71 VKEY ←	Vkey X70*X71 ↵	Sets key level for setting X70 to X71
View setting	Esc X70 VKEY ←	X71 ↵	View key level for setting X70
KEY: X70 = Effect variable X71 = Effect setting	**0** = Transparency **1** = Red of RGB Key **2** = Green of RGB Key **3** = Blue of RGB Key **4** = Level Key **0** to **255**		
Advanced Configuration			
Test pattern			
Set pattern	Esc X22 TEST ←	Test X22 ↵	Sets test pattern to X22 on all outputs
View test pattern	Esc TEST ←	X22 ↵	View current test pattern
KEY: X22 = Test patterns (two-digit response - 0 padding)	**0** = Off (Default) **1** = Crop **2** = Alternating pixels **3** = Crosshatch **4** = Color bars **5** = 32-level split grayscale **6** = Audio test (Crop pattern and outputs Pink Noise: CH 1/2, 48 kHz, 24 bit		
Auto switch mode			
Disable	Esc 0AUSW ←	Ausw0 ↵	Manual input switching only
Matrix mode	Esc 3AUSW ←	Ausw3 ↵	Auto switch when new sync is detected on the preview input
View setting	Esc AUSW ←	X30 ↵	View current setting
KEY: X30 = Auto switch mode	**0** = Off/manual input switching only (Default) **3** = Matrix Mode		
Executive mode			
Enable (mode 1)	1X	Exe1 ↵	Lock out entire front panel
Enable (mode 2)	2X	Exe2 ↵	Limited front panel adjustments (only inputs and Take enabled)
Enable (mode 3)	3X	Exe3 ↵	Program lockout (all changes to Program bus are locked out)
Disable	0X	Exe0 ↵	All adjustments and selections can be made from front panel
View status	X	X29 ↵	Show executive mode status
KEY: X29 = Executive mode status	**0** = Off/disabled (Default) **1** = Mode 1 - Complete front panel lockout **2** = Mode 2 - Partial front panel lockout (Menu and Next buttons disabled) **3** = Mode 3 - Program lockout (all changes to Program are locked out)		

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
Advanced Configuration (continued)			
HDCP notification (Green screen/message)			
Enable Notification	Esc N1*X47 HDCP ←	HdcpN1*X47 ↵	Enable the HDCP notification
Query Notification	Esc N1 HDCP ←	X47 ↵	Query the HDCP notification
KEY: X47 = HDCP notification mode **0** = Black screen/notification disabled (Mute output) **1** = Green screen (Default) **2** = User file with black screen			
HDCP status			
Query input	Esc I X1 HDCP ← Verbose mode 2/3	X44 ↵ HdcpI X1 *X44 ↵	Query the HDCP status of input X1
Query output	Esc O X2 HDCP ← Verbose mode 2/3	X44 ↵ HdcpO X2 *X44 ↵	Query the HDCP status of output X2
KEY: X1 = Input number **1** – 8 (two-digit response with **0** padding) X2 = Output selection **1** = Preview **2** = Program X44 = HDCP status **0** = No sink or source device detected **1** = Sink or source detected but no HDCP **2** = Sink or source detected with HDCP			
Video signal presence			
View video signal presence	Esc 0 LS ← Verbose mode 2/3	X61 *X61 *...*X61 ↵ In00•X61 *...*X61 ↵	IN#1 ... IN#8
KEY: X61 = Video signal status **0** = Video/TMDS signal not detected **1** = Video/TMDS signal detected			
Resets			
NOTE: The factory configured passwords for all accounts on this device have been set to the device serial number. In the event of a complete system reset, the passwords convert to the default, which is no password (see **Passwords** on page 57 to change a password).			
Soft reset	Esc ZXXX ←	Zpx ↵	Reset all device settings to factory default
Absolute system reset	Esc ZQQQ ←	Zpq ↵	Reset all device and IP settings to factory default
Absolute system reset retain IP	Esc ZY ←	Zpy ↵	Same as absolute system reset except that IP address, subnet mask, gateway address, DHCP, and port mapping are not reset
Serial port configuration			
Set serial port parameters	Esc 1*X31,X32,X33,X34 CP ←	Cpn1•CcpX31,X32,X33,X34 ↵	Set the RS-232 port parameters
Query software version	Esc 1CP Verbose mode 2/3	X31,X32,X33,X34 ↵ Cpn1•CcpX31,X32,X33,X34 ↵	View port parameters X31, X32, X33, and X34 of the RS-232 port
KEY: X31 = Baud rate of port 300, 600, 1200, 1800, 2400, 3600, 4800, 7200, 9600 (Default), 14400, 19200, 28800, 38400, 57600, 115200 X32 = Parity **O**dd, **E**ven, **N**one (Default), **M**ark, **S**pace (only the first letter is required) X33 = Data bits **7** or **8** (Default) X34 = Stop bits **1** (Default) or **2**			
Backup and restore configuration			
Save unit configuration	Esc 1*X35 XF ←	Cfg1*X35 ↵	Back up the current unit configuration as type X35 to a file on the ISS
Restore unit configuration	Esc 0*X35 XF ←	Cfg0*X35 ↵	Restore the saved configuration, type X35
KEY: X35 = Configuration type **0** = IP configuration (ip.cfg) **2** = Unit-specific parameters (box.cfg)			

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
Information requests			
General information (input)	X1*I Verbose mode 2/3	Vid X1 • Typ X3 • Hrt X13 • Vrt X13 ↵ Inf00*Vid X1 • Typ X3 • Hrt X13 • Vrt X13 ↵	
Query part number	N/n Verbose mode 2/3	60-1684-01 ↵ Pno60-1684-01 ↵	
Request model name	1I/i Verbose mode 2/3	ISS•608 ↵ Inf01*ISS•608 ↵	
Request model description	2I/i Verbose mode 2/3	Integration•Seamless•Switcher ↵ Inf02*Integration•Seamless•Switcher ↵	
View internal temperature	Esc 20STAT Verbose mode 2/3	X12 ↵ 20Stat•X12 ↵	Internal temperature in degrees Celsius
Set verbose mode	Esc X81 CV ←	Vrb X81 ↵	
View verbose mode	Esc CV ←	X81 ↵	

KEY:
- X1 = Input selection — **1** to **8** (two-digit response with **0** padding)
- X3 = Input format — **0** = No signal **1** = HDMI **2** = DVI **3** = DisplayPort
- X12 = Internal temperature in Celsius (two-digit response – **0** padding)
- X13 = Horizontal and Vertical frequencies (formatted three digits with single decimal and leading zeros (for example: **075.3**)
- X81 = Verbose mode — **0** = None (Default for LAN connection) **1** = Verbose mode (default for RS-232 and USB connection) **2** = Tagged responses to queries **3** = Verbose mode and tagged responses

Query firmware version	Q	*n.nn* ↵	View the firmware version to the second decimal place
Query full firmware version	*Q	*n.nn.nnnn* ↵	View the firmware version with its build number
LAN/IP Configuration and Setup			
Set unit name	Esc X87 CN ←	Ipn•X87 ↵	
Set unit name to factory default	Esc •CN ←	Ipn•X94 ↵	
View unit name	Esc CN ←	X87 ↵	
Set DHCP mode	Esc X10 DH ←	Idh•X10 ↵	Default is **0** = OFF/disable
Query DHCP mode	Esc DH ←	X10 ↵	

KEY:
- X10 = Enable/Disable — **0** = OFF/disable **1** = ON/enable
- X87 = Device name — 63 characters, max, drawn from the alphabet (A-Z), digits (**0-9**), minus sign/hyphen (**-**). No blank spaces permitted. Not case sensitive. The first character must be an alpha character. The last character must not be a minus sign/hyphen. Must comply with internet host name standards.
- X94 = Default name — Combination of the model name and the last three pairs of the MAC address. (Example: ISS-608-13-59-0C)

Command	ASCII (Telnet) (host to switcher)	Response (switcher to host)	Additional description
LAN/IP Configuration and Setup (continued)			
Set IP address	Esc X91 CI ←	Ipi•X91 ↵	Default = 192.168.254.254
Query IP address	Esc CI ←	X91 ↵	
Set subnet mask	Esc X92 CS ←	Ips•X92 ↵	Default = 255.255.255.0
Query subnet mask	Esc CS ←	X92 ↵	
Set gateway IP address	Esc X91 CG ←	Ipg•X91 ↵	Default = 0.0.0.0
Query gateway IP address	Esc CG ←	X91 ↵	
Set DNS server IP address	Esc X91 DI ←	Ipd•X91 ↵	Default = 0.0.0.0
Query DNS server IP address	Esc DI ←	X91 ↵	
Query hardware MAC address	Esc CH ←	X93 ↵	
Query connection listing	Esc CC ←	{*number of connections*} ↵	
Restart the network	Esc 2BOOT ←	Boot2 ↵	
Set IP address, subnet mask, gateway	Esc 1*X91*X92*X91 CISG ←	Cisg1*IP/subnet bits*gateway ↵	
View IP address, subnet mask, gateway	Esc 1CISG ← Example:	IP/subnet bits*gateway ↵ 192.168.254.254/16*0.0.0.0 ↵	

NOTE: Setting any values with a CISG command changes the DHCP seeing to Off and Cisg response is followed by Boot2 response (when in verbose mode 2 or 3).

KEY: X91 = IP Address (*xxx.xxx.xxx.xxx*) Leading zeros in each of the 4 fields are optional in setting values and are expressed in returned values: Factory Default IP address: 192.168.254.254, Default Gateway IP address: 0.0.0.0, Default DNS Server IP address: 0.0.0.0.
X92 = Subnet mask (*xxx.xxx.xxx.xxx*). Leading zeros in each of the 4 fields are optional in setting values and are expressed in returned values. Default subnet mask: 255.255.0.0.
X93 = Hardware (MAC) address (00-05-A6-##-##-##).

Passwords

NOTE: The following rules apply to passwords:

- Length is 1-128 characters.
- All human-readable characters are permitted except |.
- The password cannot be a single space.
- Passwords are case-sensitive.
- A user password cannot be assigned if no administrator password exists. An E14 error code is returned.
- If the Admin password is cleared, the user password is cleared as well.
- The factory configured passwords for all accounts on this device have been set to the device serial number. In the event of a complete system reset, the passwords convert to the default, which is no password.

Set administrator password	Esc X85 CA ←	Ipa•X85 ↵	
Clear administrator password	Esc •CA ←	Ipa•↵	
Query administrator password	Esc CA ←	X85 ↵	
Set user password	Esc X85 CU ←	Ipu•X85 ↵	
Clear user password	Esc •CU ←	Ipu•↵	
Query user password	Esc CU ←	X85 ↵	

KEY: X85 = Password — Maximum length is 0 to 128 characters. All alpha-numeric characters permitted except |, and "space".

Configuration Software

The ISS 608 switcher can be easily configured using Extron Product Configuration Software (PCS). 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 *ISS 608 PCS Help File* for detailed control information). The topics covered in this section are:

- **Software/Firmware Installation**
- **Connecting to PCS**
- **Software Overview**

Software/Firmware Installation

Visit **www.extron.com** to download and install the PCS software.

NOTES:

- Also download the latest versions of software and firmware for your product. To update firmware, download and install Firmware Loader.
- An Extron Insider account is required to download either firmware or software

1. Mouse over the **Download** link at the top of the page (see figure 25, ❶).

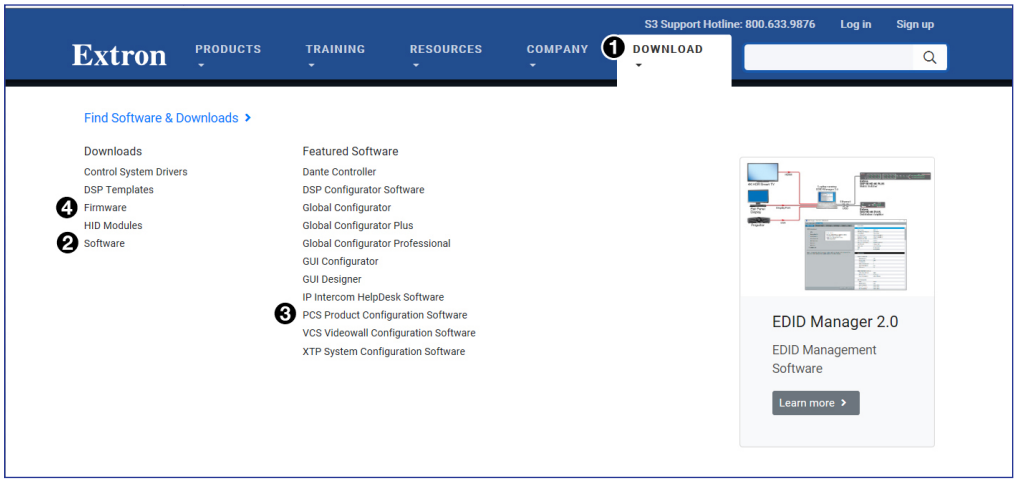


Figure 25. Software Links on Download Screen

2. Click the appropriate link on the drop-down list.

   For software, either click the **Software** link (❷) or, if the software is listed, click directly on that link (see the **PCS Product Configuration Software** link ❸) and skip to **step 5** on page 59.

   For firmware, click the **Firmware** link (❹).

3. If there is no direct link to your software, click the **Software** link (❷).
4. Scroll down to the alphabetic navigation bar (see figure 26).

Figure 26. Software Installation

5. Click the appropriate letter to locate the software or firmware.
6. Click **Download** and follow the on-screen instructions (see figure 27, ❶ for PCS).

Figure 27. PCS Software Download

For Firmware:

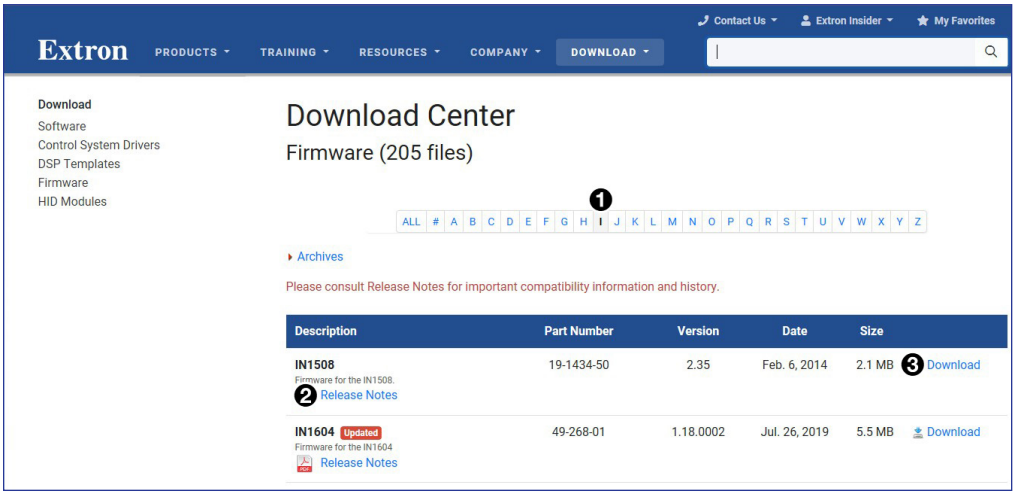


Figure 28. Firmware Page with Alphabetic Navigation Bar

a. Click the letter **I** from the alphabetic navigation bar (see figure 28, ❶).
b. Scroll down the page to find the firmware for the ISS 608.
c. (Optional) Click **Release Notes** (❷) for more information about the firmware update.
d. Click **Download** (❸). The product download screen opens.
e. Enter the required user information and click **Download**. An executable (.exe) file is downloaded to the PC. Run this program to place the firmware on the PC for future use. Make a note of the folder where the firmware file was saved.

7. Install the software.
   a. Navigate to the folder where the software file was downloaded.
   b. Double-click the executable file and follow the on-screen directions to install the software.

   For Firmware:

   a. To install via PCS, see Update Firmware in the **Device Menu** on page 65.
   b. To install via the internal web pages, see the **Firmware Panel** on page 72.

Connecting to PCS

The Extron Product Configuration Software window opens with the **Device Discovery** panel open. Connect to the switcher using the **Device Discovery** panel or the **TCP/IP** panel (see figure 29).

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.

1. Open the Product Configuration Software program from the **Start** menu or desktop shortcut.

   Start > Programs > Extron Electronics > Extron Product Configuration Software > Extron Product Configuration Software

   The Extron PCS window opens to the **Device Discovery** panel (see figure 29).

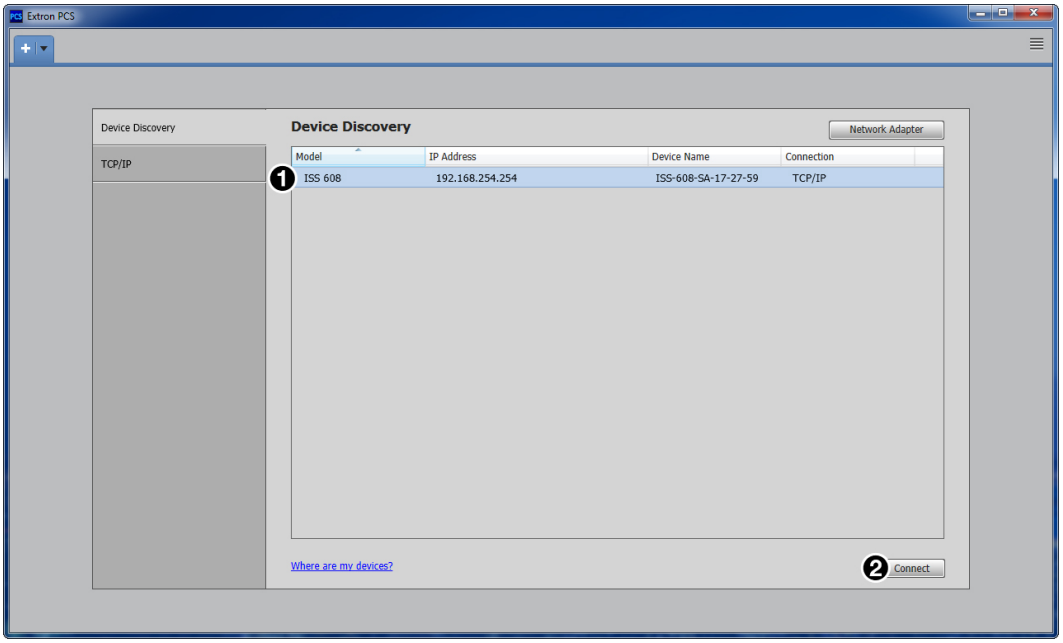


Figure 29. Device Discovery Panel

2. Select the ISS 608 device by clicking on it to highlight it in the list (❶).
3. Click **Connect** (❷).

TCP/IP Panel

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

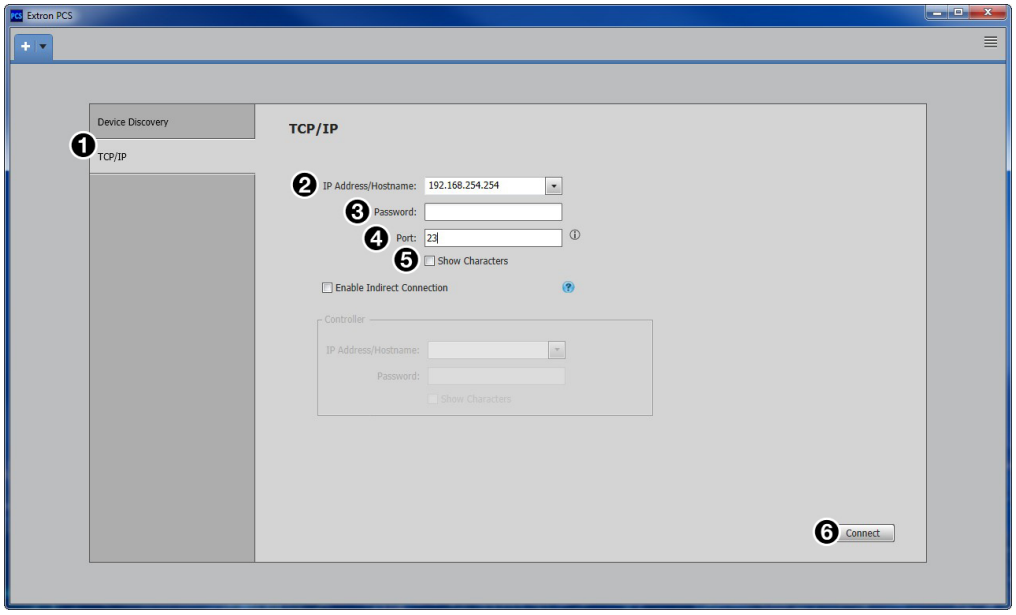


Figure 30. Comm Port Selection Windows

1. Click the **TCP/IP** tab (see figure 30, ❶).
2. In the **IP Address/Hostname** field (❷), enter the IP address of the desired device.

   NOTE: If the IP address has not been changed, it is 192.168.254.254.
3. If required, enter the device password in the **Password** field (❸).

   NOTE: The factory configured passwords for all accounts on this device have been set to the device serial number. In the event of a complete system reset, the passwords convert to the default, which is no password (see **Passwords** on page 57 to change a password).
4. In the **Port** field (❹), enter the Telnet port of the desired device.

   NOTE: Select the **Show Characters** checkbox (❺) to display the password characters.
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 device without connecting to it. However, settings cannot be changed.

To open a scaler device tab:

1. From the **Configuration File** drop-down list, select **New Configuration File** (see figure 31).

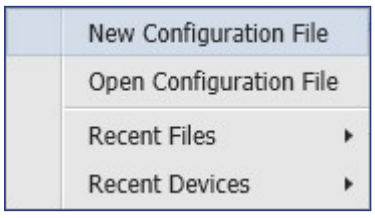


Figure 31. Configuration File Drop-Down List

The **New Configuration File** dialog box opens (see figure 32).

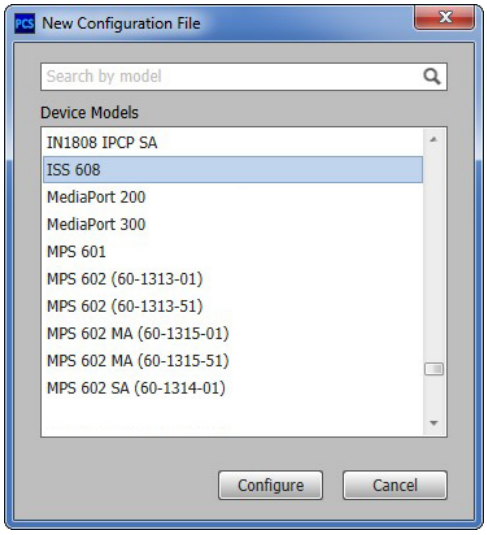


Figure 32. New Configuration File Dialog Box

2. Select the desired device model from the **Device Models** list (see figure 32).
3. Click the **Configure** button. A new offline device configuration tab opens.

Software Overview

NOTE: For details about specific software features, see the *ISS 608 PCS Help File*.

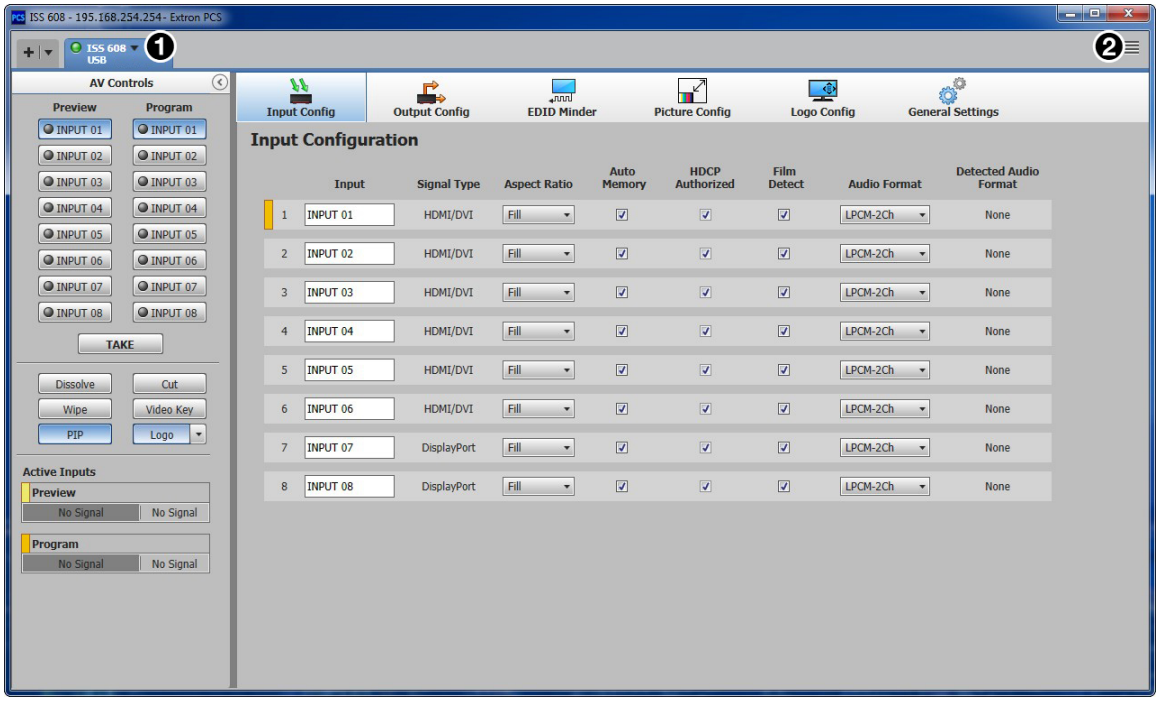


Figure 33. ISS 608 Main Window

Each PCS screen has a **Device** drop-down list (see figure 33, ❶) for device configuration options. The **Software** menu (❷) contains software configuration and information options.

Software Menu

The **Software** menu (see figure 34) contains options pertaining to PCS settings.

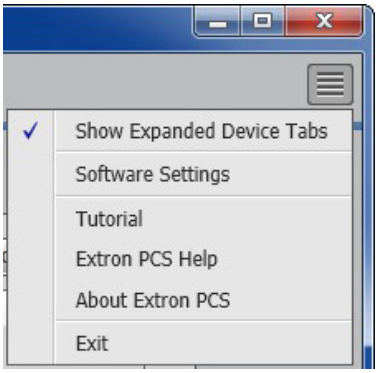


Figure 34. PCS Software Menu

Show Expanded Device Tabs

Selecting **Show Expanded Device Tabs** from the **Software** menu displays the device IP address or connection method in the **Device** tab.

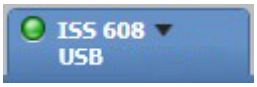


Figure 35. Expanded Device Tab

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.

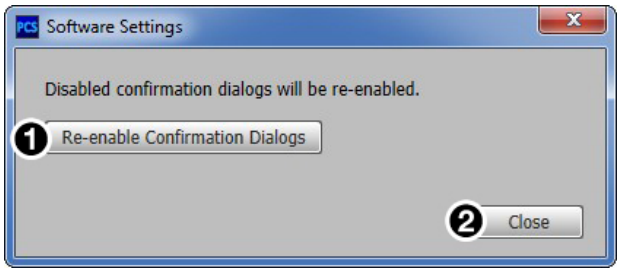


Figure 36. Software Settings Dialog Box

2. Click the **Re-enable Confirmation Dialogs** button (see figure 36, ❶). The dialog box closes and the reset is complete.

   Alternatively, click the **Close** button (❷) to close the dialog box without re-enabling the confirmation dialogs.

Tutorial

Display a general overview of where to find features in the PCS framework.

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

Extron PCS Help

Open the PCS help file for general PCS operations.

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

About Extron PCS

Display information about the current PCS version.

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

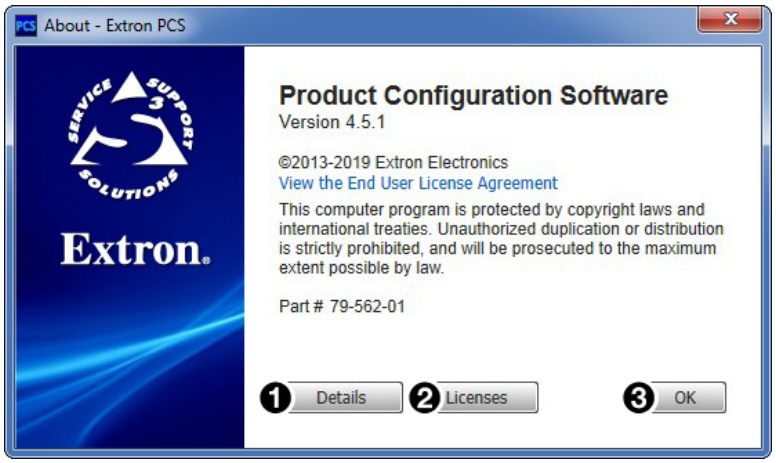


Figure 37. About - Extron PCS Dialog Box

2. Click the **Details** button (see figure 37, ❶) for more information.
3. To display details about third-party software packages and associated licensing, click **Licenses** (❷).
4. Click the **OK** button (❸) to close the dialog box.

Exit

Disconnect connected devices and close the application.

1. From the **Software** menu, select **Exit**. If device tabs are open, the **Exit** dialog box opens (see figure 38).

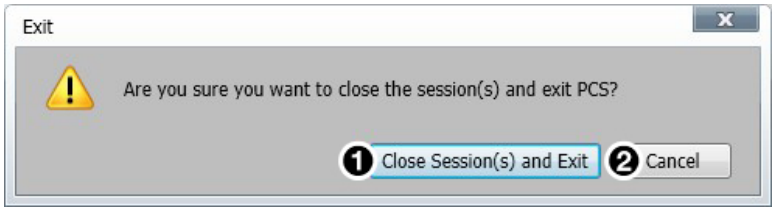


Figure 38. Exit Dialog Box

2. Click the **Close Session(s) and Exit** button (❶) to disconnect the software from connected devices, close all offline device tabs, and close the software.

   Alternatively, click the **Cancel** button (❷) to leave the software open.

Device Menu

The `Device` menu contains options pertaining to device connection, configuration, and information. For details about all these options, see the *ISS 608 PCS Help File*.

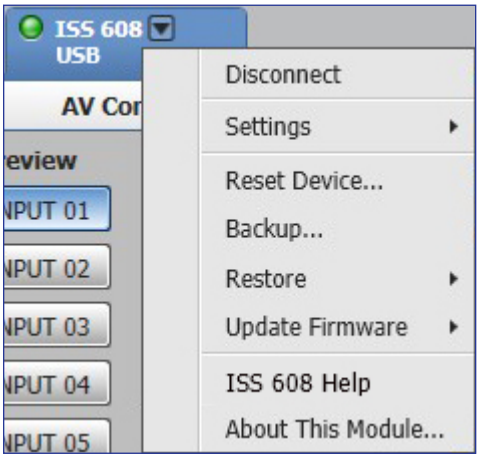


Figure 39. Device Menu

- **Disconnect** — Disconnect the device from the PCS program and close the **`Device`** tab.
- **Settings** — Open a submenu with the following options:
  - **Hardware Settings** — Display the `Hardware Settings` dialog box with device information and side tabs 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** — Open the `Communication Settings` dialog box to change IP settings of the connected device.
- **Reset Device** — Open the `Reset Device` dialog box, with selectable modes for resetting the connected device, as well as the `Unit Information` (also displayed in the `Hardware Settings` dialog box).

  NOTE: The factory configured passwords for all accounts on this device have been set to the device serial number. In the event of a complete system reset, the passwords convert to the default, which is no password (see **Passwords** on page 57 to change a password).
- **Backup** — 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, select specific device settings.
- **Restore** — Open a submenu containing restore options:
  - **`Restore this Device`** — Upload a saved configuration for an ISS 608 to the connected device.
  - **`Restore to Multiple Devices`** — Upload a saved configuration file for an ISS 608 to multiple devices on the network.

    NOTE: The connected devices must be connected via LAN.

- **Update Firmware** — Open a submenu 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 **Software/Firmware Installation** on page 58).

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

    NOTE: The connected devices must be connected via LAN.

- **ISS 608 Help** — Open the *ISS 608 PCS Help File* in a separate window.
- **About This Module** — Open the **`About This Module`** dialog box, with the module part number and firmware version of the connected device.

Internal Web Page

The ISS 608 scaler features an internal web server, displayed as a web page. This page allows you to monitor and adjust certain settings of the ISS 608 via a LAN or WAN connection. Use a web browser to view the pages on a PC connected to the scaler LAN port.

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 Internal Web Page**
- **Web Page Panels**

Accessing the Internal Web Page

Access the ISS 608 internal web page as follows:

1. Connect the ISS to a LAN or WAN using the rear panel RJ-45 LAN connector (see **figure 2**, G on page 6).
2. Open a web browser on a PC connected on the same LAN or WAN.
3. Enter the ISS 608 IP address in the browser **`Address`** field.

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

4. Press the <**`Enter`**> key on the keyboard.

   The ISS checks to see if it is password protected.

   - If the ISS is not password protected, the web page opens.
   - If the device is password protected, enter a user name entry (user or admin) in the **`Username`** field and the password in the **`Password`** field when prompted (see figure 40).

   NOTE: The factory configured passwords for all accounts on this device have been set to the device serial number. In the event of a complete system reset, the passwords convert to the default, which is no password.

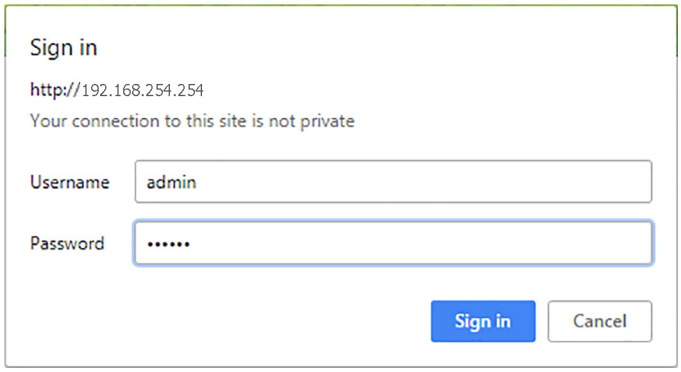


Figure 40. Network Password Prompt

5. Click the **`Sign in`** button, if a the unit is password protected.

Disabling Compatibility Mode

The internal web page does not support compatibility mode in Microsoft® Internet Explorer®. To check compatibility view settings:

1. From the **Tools** menu of the browser, select **Compatibility View Settings**. The **Compatibility View Settings** dialog box opens.
2. Be sure the **Display all websites in Compatibility View** checkbox is clear, and the IP address of the scaler is not in the list of websites that have been added to **Compatibility View**.
3. Click **Close**.

Web Page Panels

The ISS 608 internal web page (see figure 41) provides an overall, read-only view of the status of the seamless switcher, with some editable fields for the following categories:

1. **Device Info Panel** (see page 69)
2. **Device Status Panel** (see page 69)
3. **Network Settings Panel** (see page 70)
4. **Inputs Panel** (see page 70)
5. **Outputs Panel** (see page 71)
6. **RS-232 Panel** (see page 71)
7. **Firmware Panel** (see page 72)
8. **Roles and Permissions Panel** (see page 72)

The panels that can be edited have an **EDIT** link to click to access the panel. To view general information about the ISS 608, click the **ABOUT** link (9).

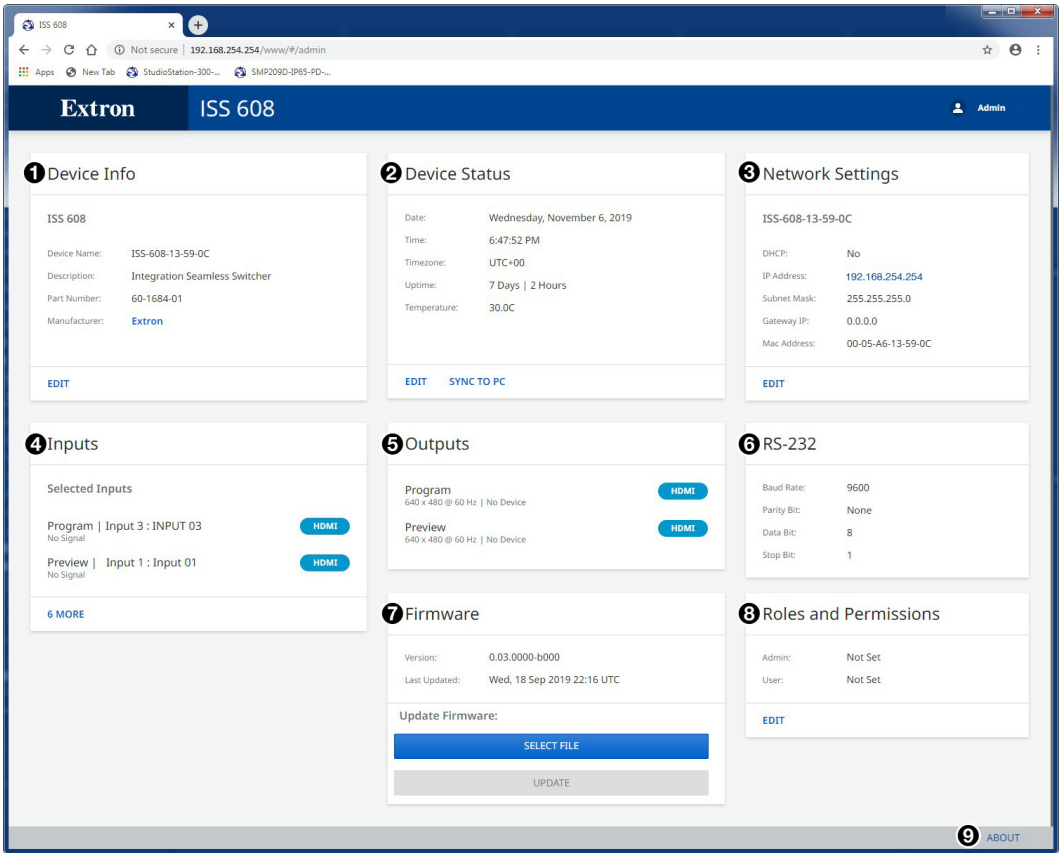


Figure 41. ISS 608 Internal Web Page

The internal web page does not automatically update. To see an updated page, click the **Refresh** button on the web browser.

Device Info Panel

The **Device Info** panel (see **figure 41**, ❶, on page 68) displays the device name, a brief product description, and the part number. The panel also contains an **Extron** link, which opens the **Extron website** in a new window.

To change the name:

1. Click **EDIT** (see figure 42 [left], ❶) in the **Device Info** panel. The **Device Info Settings** panel opens to allow edits (right).

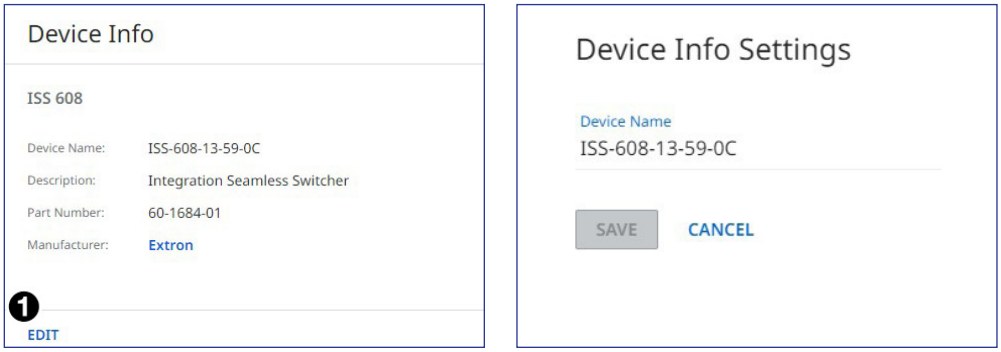


Figure 42. Device Info Panel

2. Edit the **Device Name** as desired.
3. When finished editing, click **SAVE** to confirm your changes or **CANCEL** to close the window without making changes. Clicking the **X** in the upper-right corner of the screen also closes the window.

Device Status Panel

The **Device Status** panel (❷) displays the current date, time, time zone, the amount of time the device has been running (**Uptime**), and the internal temperature in degrees Celsius.

To set the date and time:

1. Click **EDIT** (see figure 43 [left], ❶) in the **Device Status** panel. The **Device Status Settings** panel opens to allow edits (right).

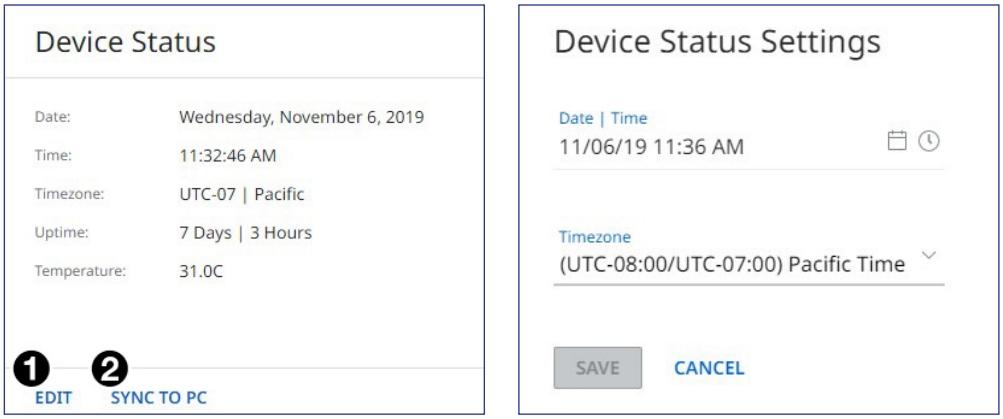


Figure 43. Device Status Panel

2. Edit the **Date/Time** and **Timezone** as desired.
3. When finished editing, click **SAVE** to confirm your changes or **CANCEL** to close the window without making changes. Clicking the **X** in the upper-right corner of the screen also closes the window.
4. Alternatively, click **Sync to PC** (❷) to set the date and time according to your PC.

Network Settings Panel

In the **Network Settings** panel (see **figure 41**, ❸ on page 68), set the IP address, subnet mask, and gateway address for your ISS, and turn DHCP **On** and **Off**.

To set the IP addresses:

1. Click **EDIT** (see figure 44 [left], ❶) in the **Network Settings** panel. The **Network Settings** panel opens to allow edits (right).

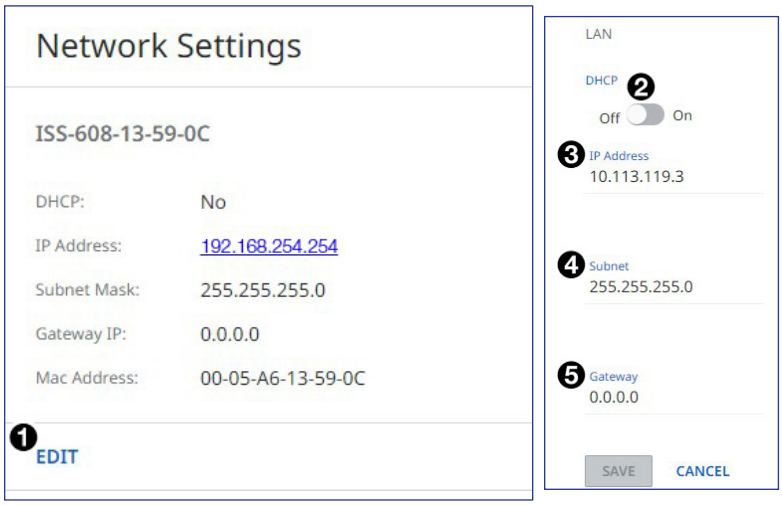


Figure 44. Network Settings Panel

2. Edit the network settings as desired:
   a. Click the **DHCP** switch (❷) 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**.
   b. To set any of the addresses (**IP Address** (❸), **Subnet** mask (❹), and **Gateway** address (❺), 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. Clicking the **X** in the upper-right corner of the screen also closes the window.

Inputs Panel

The **Inputs** panel (see **figure 41**, ❹, on page 68) displays the signal type of the active input signal as well as its HDCP status.

To view the status and type of all inputs, click the **6 MORE** link (see figure 45) in the **Inputs** panel to view the **Inputs** dialog box (see **figure 46** on page 71).

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

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

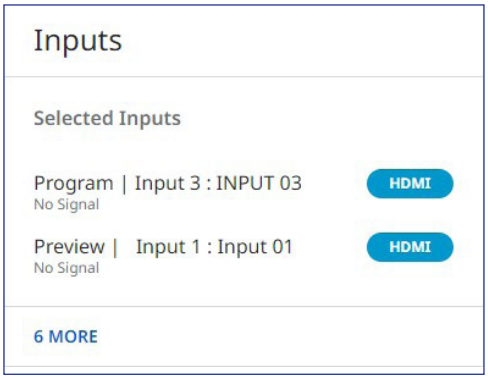


Figure 45. Inputs Panel

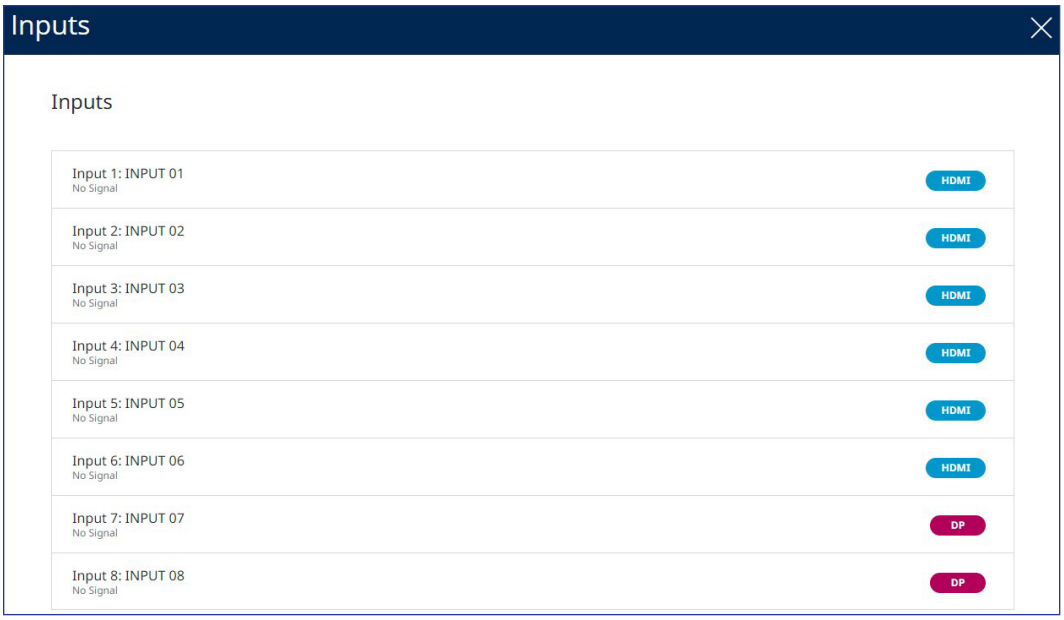


Figure 46. Inputs Panel

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

Outputs Panel

The `Outputs` panel (see **figure 41**, ❺, on page 68) displays the resolution and refresh rate of the outputs, their signal type, and the HDCP status of all connected outputs.

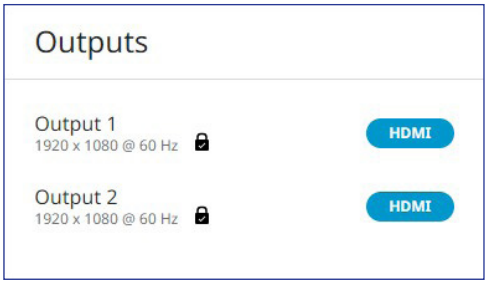


Figure 47. Outputs Panel

The following status symbols may be displayed for connected outputs:

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

RS-232 Panel

The view-only RS-232 panel (❻) displays the RS-232 protocol for the ISS 608 serial port.

Figure 48. RS-232 Panel

The defaults are:

- Baud rate — 9600
- Parity bit — None
- Data bits — 8
- Stop bits — 1

These variables can be changed via SIS commands (see **Serial port configuration** on page 55).

Firmware Panel

The Firmware panel (see **figure 41**, ❼, on page 68) displays the current firmware version and the date it was last updated. Update the firmware on the ISS 608 from this panel (see **Software/Firmware Installation** on page 58 to download the firmware files).

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\ISS 608 after being downloaded from the Extron web page).

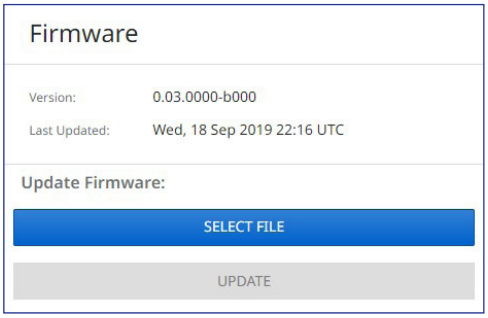


Figure 49. Firmware Panel

NOTE: Firmware files for ISS 608 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.
4. Click **UPDATE** to begin (see figure 50). To cancel the update, click the **X** button in the Update Firmware panel.

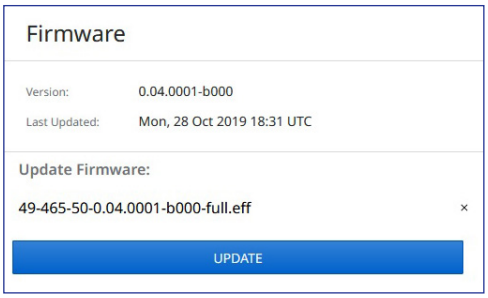


Figure 50. Firmware Update Dialog Box

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.

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.

Roles and Permissions Panel

The Roles and Permissions panel (❽) displays whether Admin and User passwords have been set. It does not display the actual password.

NOTE: The following rules apply to passwords:

- Length is 1-128 characters.
- All human-readable characters are permitted except |.
- The password cannot be a single space.
- Passwords are case-sensitive.
- If the Admin password is cleared, the user password is cleared as well.
- The factory configured passwords for all accounts on this device have been set to the device serial number. In the event of a complete system reset, the passwords convert to the default, which is no password.

To assign a administrator and user passwords:

1. In the **Roles and Permissions** panel, click **EDIT** (see figure 51). The **Role and Permission Settings** dialog box opens.
2. In the **Admin** panel, click the **Change Admin Password** link and enter the new administrator password in the field below (see figure 52).
3. Click in the **Confirm Admin Password** field and enter the password from the **Change Admin Password** field.
4. To assign a user password, repeat steps 2 and 3 in the **User** panel.
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.

Figure 51. Roles and Permissions Panel

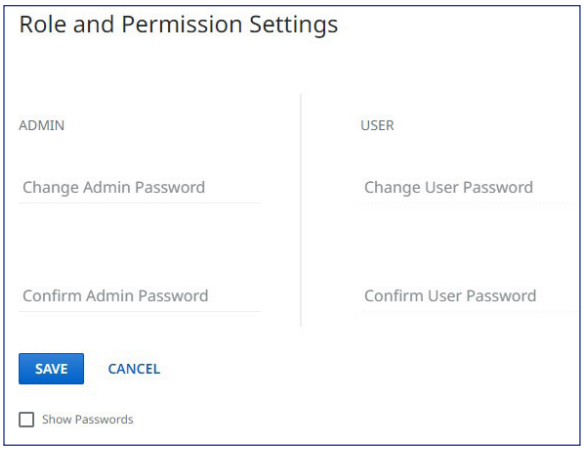


Figure 52. Passwords Dialog Box

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**.

About the ISS 608

Click on the **ABOUT** link (9) to open the **About** dialog box to view general information about the ISS 608, such as the firmware version, copyright, part number, and licenses. Click on the **View the End User License Agreement** link to view the user license.

Figure 53. Roles and Permissions Panel

Reference Information

Topics covered in this section are:

- **Mounting the Switcher**
- **Front Panel Menu Diagrams**

Mounting the Switcher

Four uninstalled rubber feet are included with the seamless switcher. If you are going to rack mount the switcher, mount it before you cable it (see **Rack Mounting**), and do not install the rubber feet. If you are not rack mounting the seamless switcher, see **Tabletop Placement**.

Tabletop Placement

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

Rack Mounting

UL guidelines

The following Underwriters Laboratories (UL) guidelines pertain to the installation of the ISS 608 into a rack.

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

Mounting instructions

For optional rack mounting, do not install the rubber feet. Mount the ISS in a rack as follows:

1. Insert the unit into the rack and align the holes in the mounting brackets with the holes in the rack.
2. Use four machine screws to attach the brackets to the rack (see figure 54).

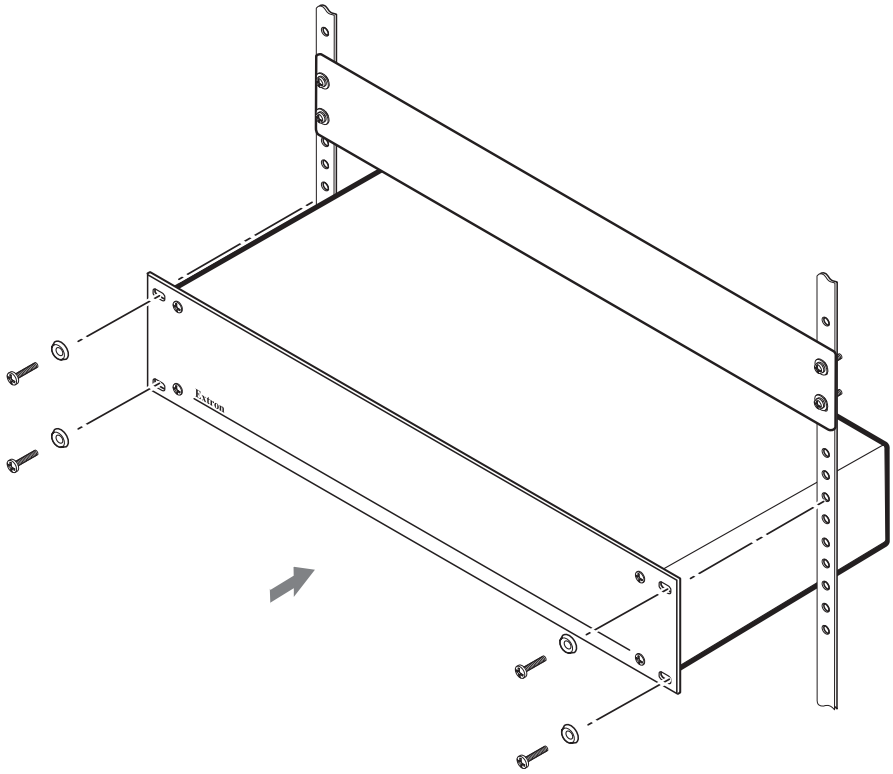
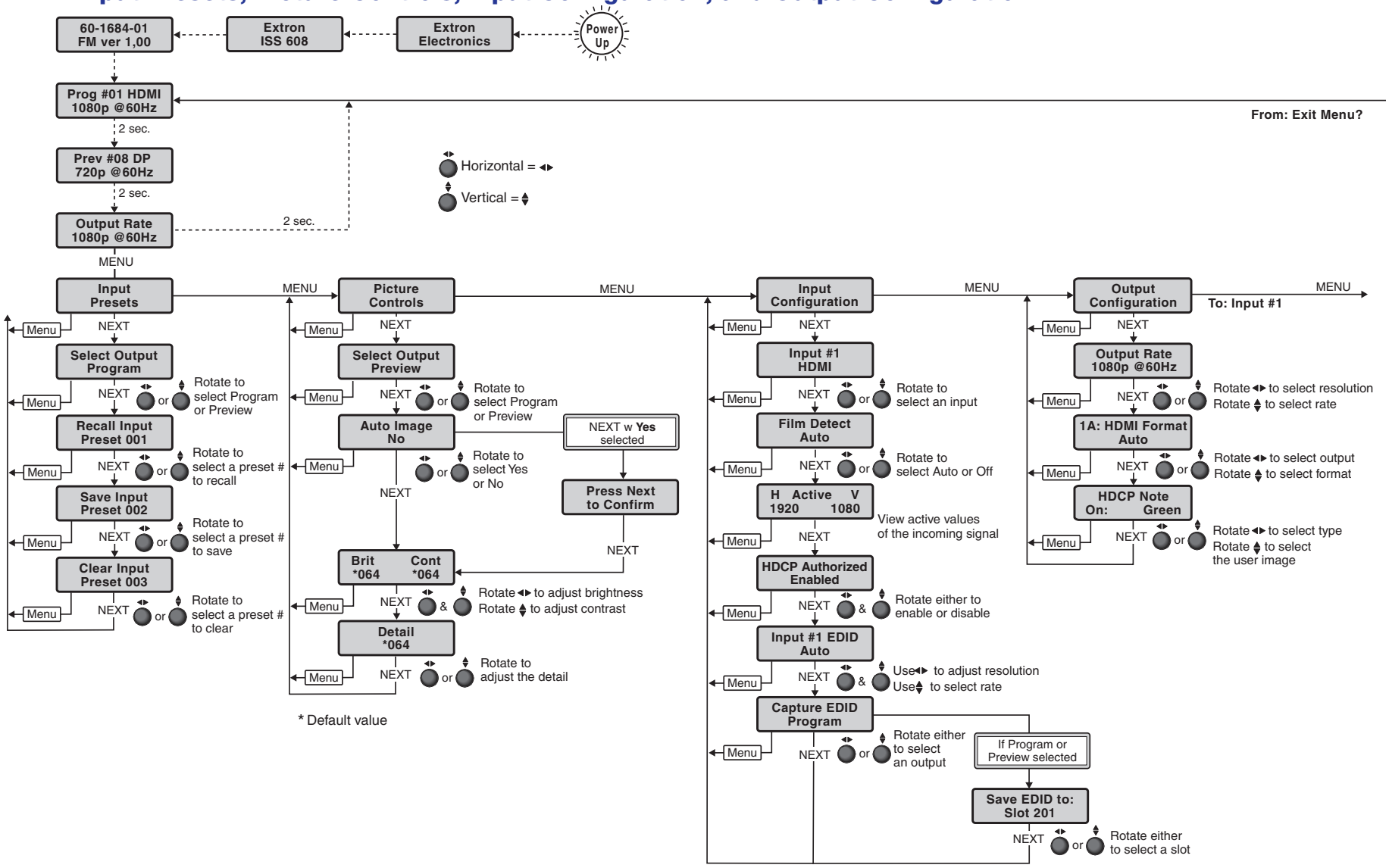


Figure 54. Mounting the Seamless Switcher

Front Panel Menu Diagrams

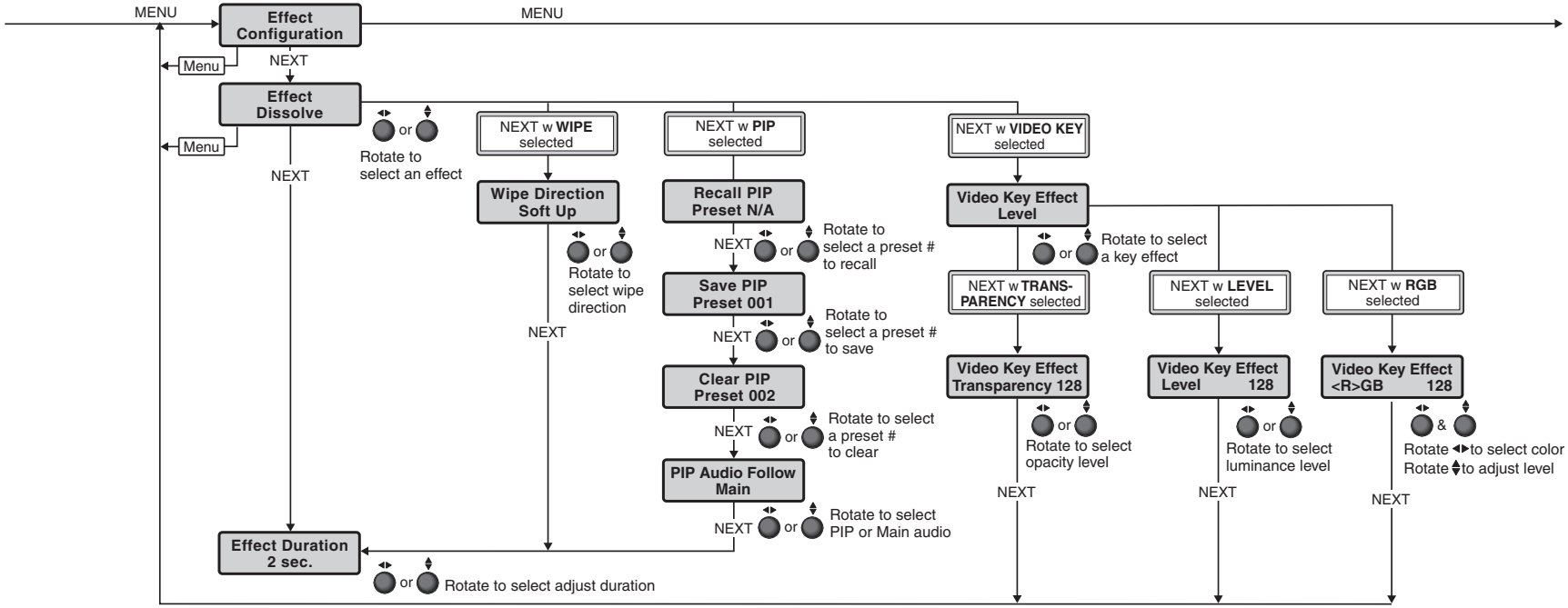
Input Presets, Picture Controls, Input Configuration, and Output Configuration



Effect Configuration

To: Prog #01 HDMI

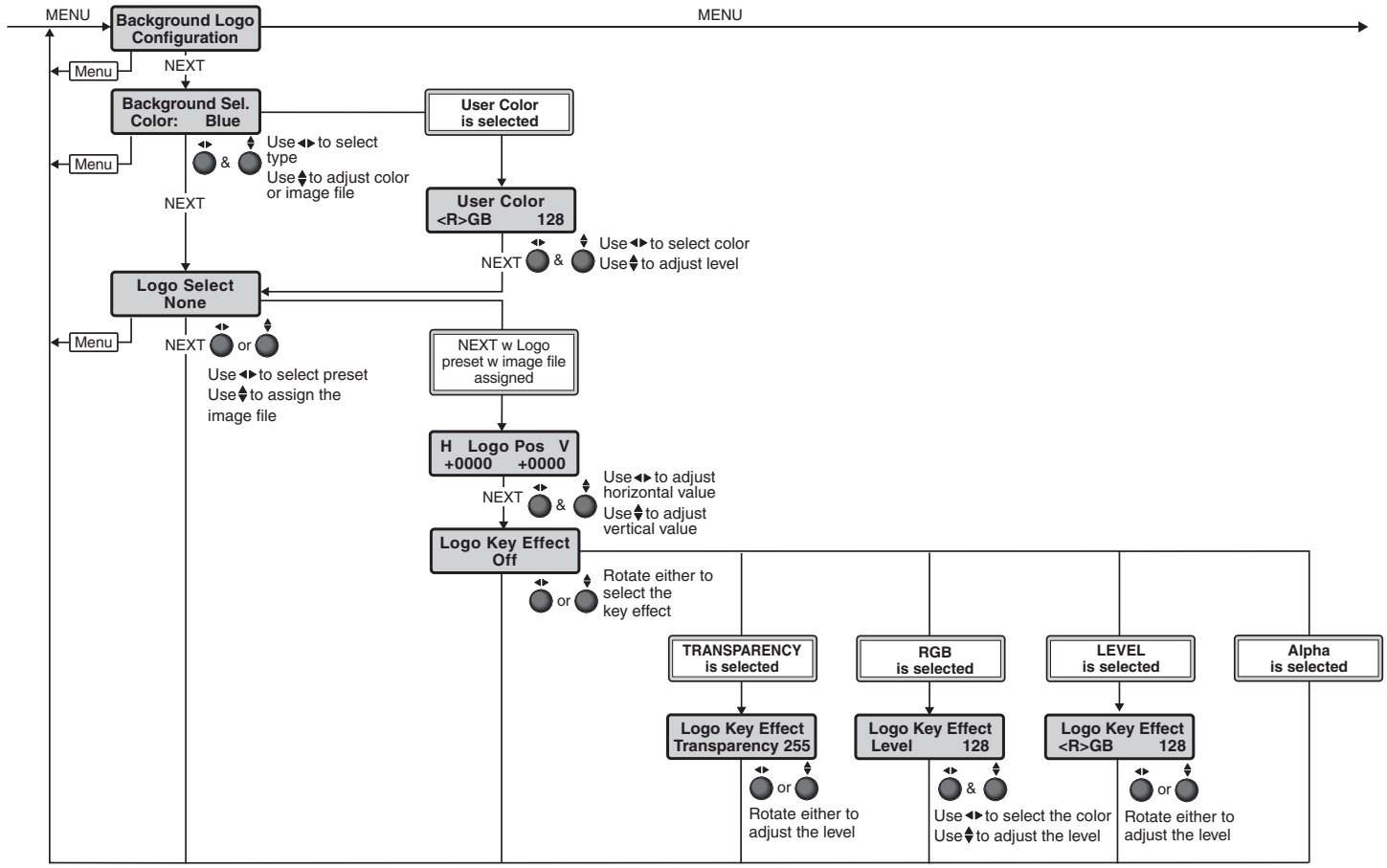
From: Exit Menu?



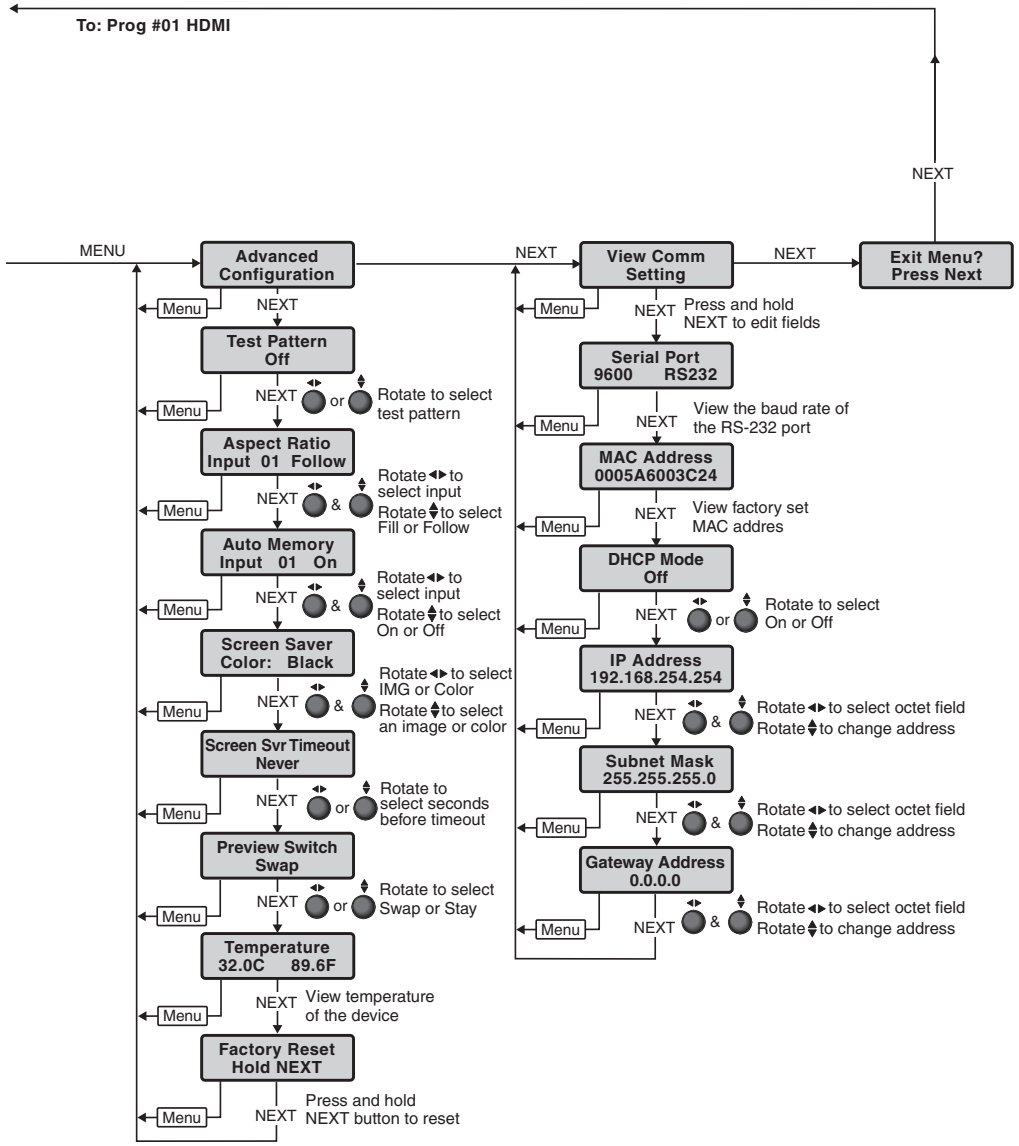
Background/Logo Configuration

To: Prog #01 HDMI

From: Exit Menu?



Advanced Configuration and View Comm Settings



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
3rd Floor, 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.