

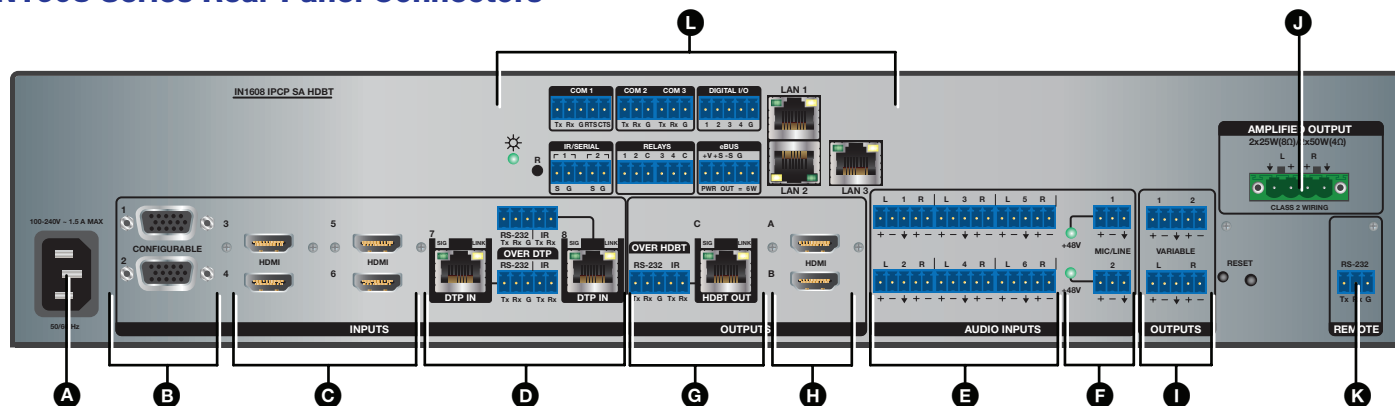
## IN1608 HDBT Series • Setup Guide

The Extron IN1608 HDBT Scaling Presentation Switcher is an eight input, HDCP-compliant video scaler that accepts a wide variety of audio and video formats and provides HDMI and HDBaseT video outputs. This guide allows an experienced user to set up and configure IN1608 HDBT, IN1608 SA HDBT, IN1608 MA 70 HDBT, IN1608 IPCP SA HDBT, and IN1608 IPCP MA 70 HDBT scalers. It covers how to perform basic operations using the front panel controls and selected Simple Instruction Set (SIS™) commands.

**NOTE:** For full installation, configuration, menus, connector wiring, and operation details, see the *IN1606 and IN1608 Series User Guide* at [www.extron.com](http://www.extron.com). For installation, configuration, and operation details of the IPCP Pro 350 control processor, see the *IPCP Pro Series User Guide*.

## Installation

### IN1608 Series Rear Panel Connectors



Power and Input Connections	Output Connections	Control Connections
<b>A</b> AC power connector <b>B</b> Configurable analog 15-pin HD (VGA) connectors (inputs 1 and 2) <b>C</b> HDMI input connectors (inputs 3 through 6) <b>D</b> DTP input and corresponding RS-232/IR Over DTP connectors (inputs 7 and 8) <b>E</b> Analog audio input connectors (associated with inputs 1 through 6) <b>F</b> Mic/Line audio input connectors and adjacent phantom power LEDs	<b>G</b> HDBaseT output connector and corresponding RS-232/IR Over HDBT connector (output C) <b>H</b> HDMI output connectors (outputs A and B) <b>I</b> Analog audio output connectors <b>J</b> Amplified audio output connector (SA and MA models only)	<b>K</b> Remote RS-232 connector <b>L</b> IPCP Pro 350 control processor (IPCP models only) <b>M</b> LAN connector (non-IPCP models only)

**Figure 1. IN1608 Series Rear Panel Connectors (IN1608 IPCP SA HDBT Shown)**

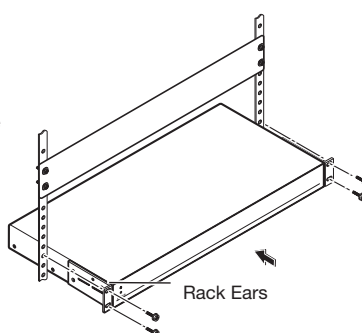
The IN1608 IPCP HDBT models feature a built-in Extron IPCP Pro 350 control processor for controlling and monitoring a variety of external devices, such as projectors and lights. See the *IPCP Pro Series Setup Guide* for more details.

**NOTE:** The non-IPCP models have a LAN connector next to the Remote RS-232 connector (see **M** to the right) instead of the IPCP Pro 350 control processor.

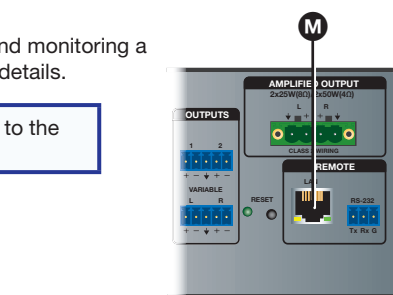
## Mounting and Cabling

### Step 1 — Mount the device

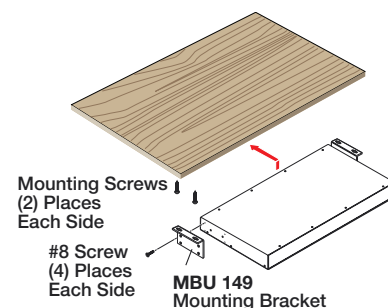
- Turn off or disconnect all equipment power sources.
- Mount IN1608 HDBT scaler to a rack using the pre-installed rack ears or use an optional mounting kit for under-the-desk mounting (see the two images to the right). The IN1608 HDBT comes in a 1U, full rack width enclosure. All other IN1608 HDBT models come in 2U, full rack width enclosures.



**Rack Mounting**



**IN1608 SA HDBT**



**Furniture Mounting**

# IN1608 HDBT Series • Setup Guide (Continued)

## Step 2 — Connect inputs

- Connect analog video sources to the VGA connectors (see figure 1, **B** on page 1).
- Connect digital HDMI or DVI (with an appropriate adapter) sources to the HDMI connectors (see figure 1, **C**).
- Connect a DTP transmitter to the DTP input connectors (see figure 1, **D**). For cable wiring and recommendations, see **Twisted Pair Recommendations for DTP and HDBaseT Communication** below.  
**Signal LED** — Lights green when the unit is receiving an active video signal from a DTP transmitter.  
**Link LED** — Lights amber when a valid link is established to a DTP transmitter.
- To pass serial or infrared data, connect the control device to the RS-232 and IR Over DTP captive screw connectors (see **RS-232 and IR Over TP Wiring** on page 3).
- Connect analog audio input sources to the 5-pole captive screw connectors (see figure 1, **E**). See **Audio Wiring** on page 3.
- Connect Mic/Line audio input sources to the 3-pole captive screw connectors (see figure 1, **F**).

## Step 3 — Connect outputs

- Connect an HDBaseT-compatible device to the HDBT output connector (see figure 1, **G**). For cable wiring and recommendations, see **Twisted Pair Recommendations for DTP and HDBaseT Communication** below.  
**Signal LED** — Lights green when the scaler is outputting active video.  
**Link LED** — Lights amber when a valid link is established between the scaler and HDBaseT sink.
- To pass serial or infrared data, connect a control device to the RS-232 and IR Over HDBT captive screw connector (see **RS-232 and IR Over TP Wiring** on page 3).
- Connect suitable video displays to the HDMI connectors (see figure 1, **H**).
- Connect analog audio output devices to the 3.5 mm, 5-pole captive screw connectors (see figure 1, **I**). See **Audio Wiring** on page 3.
- For SA and MA models, connect an audio output device to the 5 mm, 4-pole or 2-pole captive screw connector (see figure 1, **J**).

## Step 4 — Connect control devices

- To control non-IPCP models through Ethernet, connect a LAN or WAN to the LAN connector (see **M** on page 1). For the IPCP models, connect a LAN or WAN to any of the LAN connectors on the IPCP Pro control processor (see figure 1, **L**). The default IP address is 192.168.254.254. The default subnet mask is 255.255.0.0.
- For serial RS-232 control, connect a host device to the 3-pole captive screw connector (see figure 1, **K**). The default baud rate is 9600.
- For control through USB, connect a host device to the front panel USB mini-B port (see figure 2, **A** on page 3).

## Step 5 — Set up the IPCP Pro control processor (IPCP models only)

See the *IPCP Pro Series Setup Guide* for installation details.

## Step 6 — Connect power

Connect a 100 to 240 VAC, 50-60 Hz power source to the AC power connector (see figure 1, **A**).

## Twisted Pair Recommendations for DTP and HDBaseT Communication

Extron recommends using the following practices to achieve full transmission distances and reduce transmission errors:

- Use Extron XTP DTP 24 SF/UTP cable for the best performance. At a minimum, Extron recommends 24 AWG, solid conductor, STP cable with a minimum bandwidth of 400 MHz.
- Terminate cables with shielded connectors to the TIA/EIA-T568B standard (shown to the right).
- Limit the use of more than two pass-through points, which may include patch points, punch down connectors, couplers, and power injectors. If these pass-through points are required, use shielded couplers and punch down connectors.

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

Insert Twisted Pair Wires

### ATTENTION:

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

### NOTE: When using shielded twisted pair cable in bundles or conduits, consider the following:

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

## RS-232 and IR Over TP Wiring

To pass bidirectional serial command signals between DTP or HDBaseT-compatible devices, connect a control device to the three leftmost poles (Tx, Rx, and G) of the 5-pole captive screw connector. To transmit and receive IR signals, connect a control device to the three rightmost poles (G, Tx, and Rx).

**NOTE:** RS-232 and IR data can be transmitted or received simultaneously. The ground pole is shared by both ports.

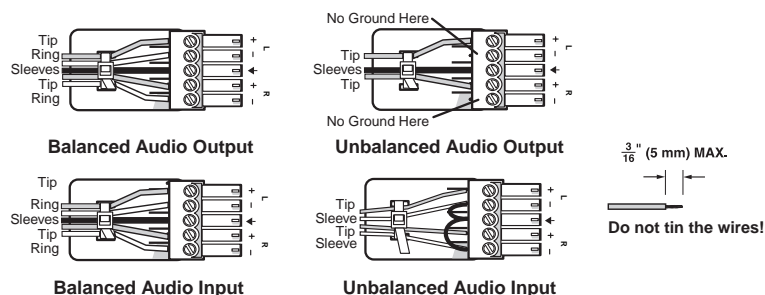
## Audio Wiring

Wire the audio input and output connectors as shown below and to the right. Use the supplied tie wrap to strap the audio cable to the extended tail of the connector. This does not apply to the amplified audio output connector on the SA and MA models.

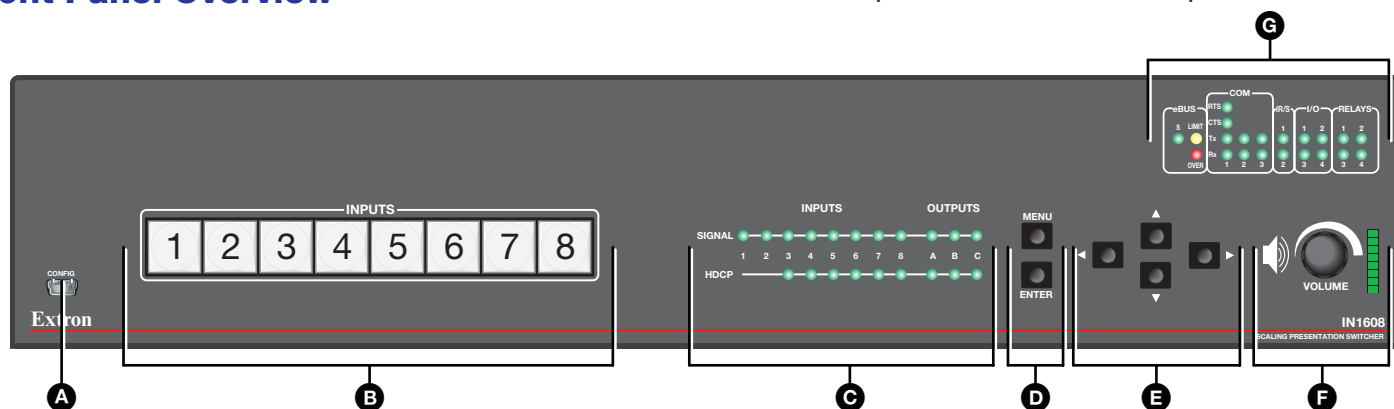
**ATTENTION:** For unbalanced outputs, do not connect wires to the “-” poles (see the Extron *Audio Wiring Card*).

**ATTENTION :** Pour les sorties asymétriques, ne connectez pas de câbles aux pôles « - » (voir le *Audio Wiring Card* d’Extron).

**NOTE:** The length of exposed wires is critical. The ideal length is 3/16 inch (5 mm).



## Front Panel Overview



**Figure 2.** Front Panel Features (IN1608 IPCP SA HDBT Shown)

- A Front panel configuration port** — Connect a host device to the USB mini-B port for device configuration, control, and firmware upgrades.
- B Input selection buttons (1-8)** — Press one of these buttons to select an input. The buttons light amber for audio and video, green for video only, or red for audio only.
- C Status LED indicators**
  - Input signal LEDs** — Light green for each input when active video content is detected.
  - Output signal LEDs** — Remain lit green when active video is being output or blink amber when output video and sync are disabled.
  - Input HDCP LEDs** — Light green for each input signal that is HDCP-encrypted. Analog inputs 1 and 2 cannot be HDCP-encrypted.
  - Output HDCP LEDs** — Light green for an output when it is currently HDCP-encrypted.
- D Menu and Enter buttons** — Press these buttons to access and navigate the on-screen display menu system.
- E Navigation buttons** — Press these buttons to navigate through the on-screen display menu system or change selected settings.
- F Volume knob and LED indicators** — Rotate the **Volume** knob to adjust the program volume (default). The eight Volume LED indicators light according to the volume level. The LEDs light in order from bottom to top to indicate steps from 1% (-99 dB) to 99% (-1 dB). The bottom LED blinks when the volume is muted. The top LED blinks when the volume is 100% (0 dB).
- G IPCP Pro 350 LED indicators** — See the *IPCP Pro Series Setup Guide* for details.

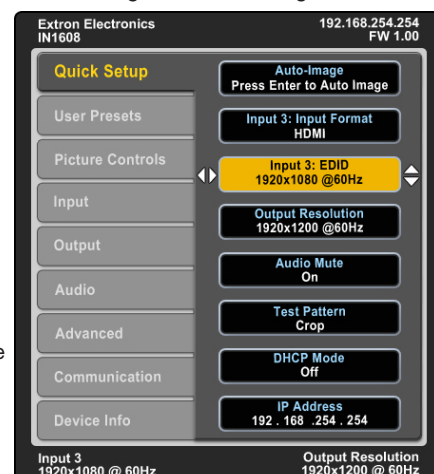
## IN1608 HDBT Series Configuration

To configure IN1608 HDBT scalers, use the front panel controls and the on-screen display (OSD) menu, the internal Web pages, the Extron Product Configuration Software, or SIS commands.

### On-screen Display (OSD) Menu System

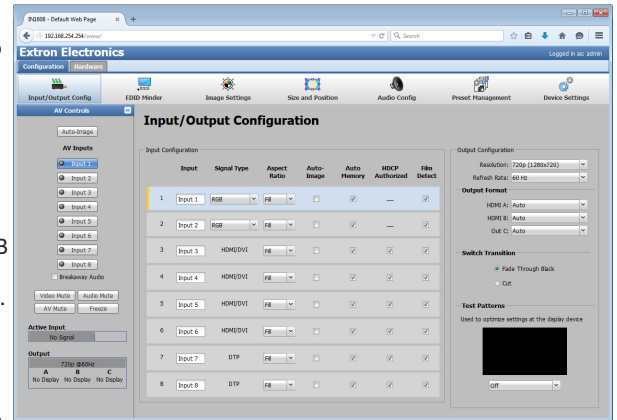
To configure IN1608 HDBT scalers using the OSD menu, connect a display to either HDMI output or to an HDBaseT-enabled device through the HDBT output connector. The OSD menu consists of nine submenus accessed using the front panel **Menu** or **Enter** button (see the example to the right).

**NOTE:** Press and hold the **Enter** button for 10 seconds to edit settings in the **Communication** submenu.



## Internal Web Pages

To configure IN1608 HDBT scalers using the factory-installed Web pages in a Web browser (see the example to the right), connect the Ethernet port on the device to a LAN or WAN. The default IP address is 192.168.254.254.



## Extron Product Configuration Software

To configure IN1608 HDBT scalers using the Extron Product Configuration Software (PCS), install the software (available on the Extron website, [www.extron.com](http://www.extron.com)) to a PC connected to the scaler via Ethernet or front panel USB Config port. After the installation, start the program. For full instructions, press <F1> on the keyboard or click the ? button in the software and select **Help File**.

## Basic SIS Command Table

To configure IN1608 HDBT scalers with specific SIS commands via an RS-232, USB, or Ethernet connection, use the Extron DataViewer utility or a control system to send and receive SIS commands. The table below lists a selection of SIS commands. For a full list of SIS commands and variables, see the *IN1606 and IN1608 Series User Guide* at [www.extron.com](http://www.extron.com).

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Select audio and video input	[X1]!	In[X1]•All←	Selects audio and video input [X1].
Select video input only	[X1]&	In[X1]•RGB←	Selects the video only input [X1].
Select audio input only	[X1]\$	In[X1]•Aud←	Selects the audio only input [X1].
Execute Auto-Image™	A	Img0←	Executes an Auto-Image on the current input.
Execute Auto-Image and fill	1*A	Img1←	Executes an Auto-Image and fills the output.
Execute Auto-Image and follow	2*A	Img2←	Executes an Auto-Image and maintains the aspect ratio of the current input.
Mute video to black	1B	Vmt1←	Mutes the video and displays a black output.
Mute video and sync	2B	Vmt2←	Mutes the video and sync output.
Unmute video and sync	0B	Vmt0←	Unmutes the video.

**NOTE:** By default, setting the audio mute with the following commands affects all outputs (configurable through group masters).

Set master audio mute	[Esc]D7*[X9]GRPM←	GrpmD07*[X9]←	Enable or disable master audio mute.
View master audio mute status	[Esc]D7GRPM←	[X9]←	View the current master audio mute status.
Enable executive mode 1	1X	Exe1←	Locks the entire front panel.
Enable executive mode 2	2X	Exe2←	Locks the front panel except for input selection and volume control.
Disable executive modes	0X	Exe0←	Allows all front panel adjustments and selections.
Set scaler IP address	[Esc][X40]CI←	Ipi•[X40]←	Specifies a new scaler IP address.
Set scaler DHCP mode	[Esc][X9]DH←	Idh[X9]←	Enables or disables DHCP (0 = default).
Set subnet mask	[Esc][X41]CS←	Ips•[X41]←	Specifies a new subnet mask.
Set gateway IP address	[Esc][X42]CG←	Ipg•[X42]←	Specifies a new gateway IP address.
Reboot network	[Esc]2B00T←	Boot2←	Restarts the network connection after IP or DHCP changes.

**NOTE:** IP settings will not take effect until the [Esc]2B00T← command is executed.

### NOTES:

- [X1] = Input selection (1 - 8)
- [X9] = Enable or disable (0 = off or disabled; 1 = on or enabled)
- [X40] = IP address (xxx.xxx.xxx.xxx; 192.168.254.254 = default)
- [X41] = Subnet mask (xxx.xxx.xxx.xxx; 255.255.0.0 = default)
- [X42] = Gateway address (xxx.xxx.xxx.xxx; 0.0.0.0 = default)

## Firmware Updates

Download firmware updates from the Extron website and upload them via the internal Web pages or the Extron Firmware Loader program.

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