Extron Electronics
INTERFACING, SWITCHING AND CONTROL

IN1606 • Setup Guide

The Extron IN1606 Scaling Presentation Switcher is a six input, HDCP-compliant video scaler that accepts a wide variety of audio and video formats. This guide allows an experienced user to set up and configure the IN1606. 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**.
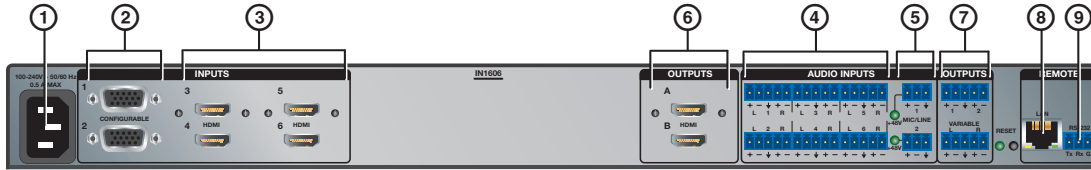
Installation

Rear Panel Features

Figure 1. Rear Panel Connectors

Power and Input Connections	Output Connections	Control Connections
① AC power connector	⑥ HDMI output connectors	⑧ LAN connector
② Configurable analog 15-pin HD (VGA) connectors (inputs 1 and 2)	⑦ Analog audio output connectors	⑨ RS-232 connector
③ HDMI input connectors (inputs 3 through 6)		
④ Analog audio input connectors (associated with inputs 1 through 6)		
⑤ Mic/Line audio input connectors and adjacent phantom power LEDs		

Mounting and Cabling

Step 1 — Mounting

a. Turn off or disconnect all equipment power sources.

b. Mount the IN1606 to a rack using the pre-installed rack ears (see figure 2) or remove the rack ears and use an optional mounting kit for under-the-desk mounting (see figure 3).

Step 2 — Connecting inputs

a. Connect analog video sources to the 15-pin HD connectors (see ② above).

b. Connect digital HDMI or DVI (with an appropriate adapter) sources to the HDMI connectors (see ③ above).

c. Connect audio input sources to the 5-pole captive screw connectors (see ④ above).

d. Connect Mic/Line input sources to the 3-pole captive screw connectors (see ⑤ above).

Step 3 — Connecting outputs

a. Connect suitable video displays to the HDMI connectors (see ⑥ above).

b. Connect audio output devices to the 5-pole captive screw connectors (see ⑦ above).

ATTENTION: For unbalanced outputs, do not connect wires to the "-" poles (see the *IN1606 and IN1608 Series User Guide* for wiring details).

Step 4 — Connecting control devices

a. For control through Ethernet, connect a LAN or WAN to the RJ-45 connector (see ⑧ above). The default IP address is 192.168.254.254. The default subnet mask is 255.255.0.0.

b. For serial RS-232 control, connect a host device to the 3-pole captive screw connector (see ⑨ above). The default baud rate is 9600.

c. For control through USB, connect a host device to the front panel mini USB B port. (see ① on page 2).

Step 5 — Connecting power

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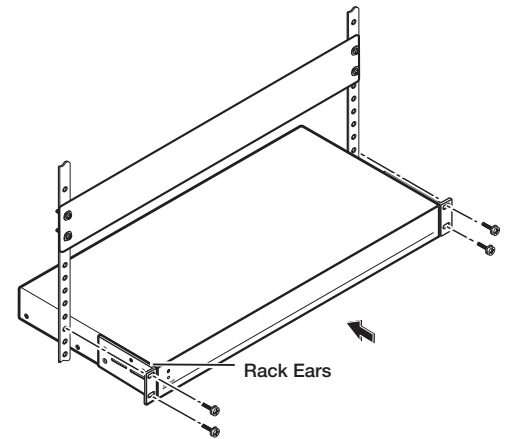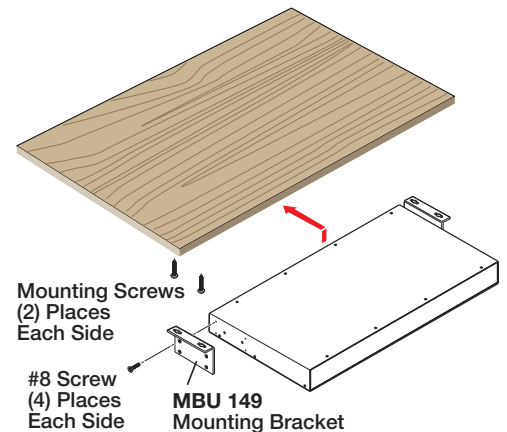

Rack Ears

Figure 2. Rack Mount

Mounting Screws (2) Places Each Side

#8 Screw (4) Places Each Side

MBU 149 Mounting Bracket

Figure 3. Furniture Mount
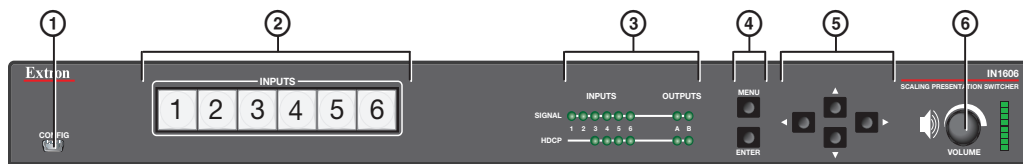
Front Panel Overview

Figure 4. Front Panel Features

① **Front panel config port** — Connect a host device to the mini USB B port for device configuration, control, and firmware upgrades.

② **Input selection buttons (1-6)** — 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.

③ **Status LED indicators** —
  Input Signal LEDs — Light for the corresponding input when active video content is detected on that input.
  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 for each input signal that is HDCP-encrypted. Analog inputs 1 and 2 cannot be HDCP-encrypted.
  Output HDCP LEDs — Light for an output when it is currently HDCP-encrypted.

④ **Menu and Enter buttons** — Press these buttons to access and navigate the on-screen display (OSD) menu system.

⑤ **Navigation buttons** — Press these buttons to navigate through the on-screen display menu system or change selected settings.

⑥ **Volume knob and LED indicators** — Rotate the Volume knob to adjust the variable analog audio output (default), mic, or program volume (see the *IN1606 and IN1608 Series User Guide* to configure the knob through group masters). The eight Volume LED indicators light in order according to the audio volume level. The bottom LED blinks when the volume is muted. They light in order from bottom to top to indicate a 12.5% increase or decrease in volume (12.5 dB) from 1% (-99 dB) to 99% (-1 dB). The top LED blinks when the volume is 100% (0 dB).

Setting Front Panel Lockout Modes (Executive Modes)

The IN1606 has two modes of front panel security lock that limit the operation of the device from the front panel.

- **Executive mode 0** — The front panel is fully unlocked. This is the default setting.

- **Executive mode 1** — The front panel is completely locked. This can only be enabled or disabled using SIS commands or the internal web pages (see the *IN1606 and IN1608 Series User Guide* for web page details or the rear page of this guide for the SIS command).

- **Executive mode 2** — The front panel is locked except for input switching and volume control. Press and hold the Menu and Enter buttons simultaneously for 3 seconds to enable or disable this mode.

Configuring the IN1606

The IN1606 can be configured through front panel controls and the OSD menu, the internal web pages, the Extron Product Configuration Software, or SIS commands. To access the internal web pages or send SIS commands, connect a host device to the IN1606 via RS-232, USB, or Ethernet connection (the internal web pages can only be accessed through an Ethernet connection).

On-Screen Display (OSD) Menu System

The IN1606 has an OSD menu consisting of nine submenus that can be accessed using the front panel Menu or Enter button. View the menu on a display connected to either HDMI output connector (see ⑥ on page **1**). The submenus are:


| Quick Setup | User Presets | Picture Controls | Input | Output |
| Audio | Advanced | Communication | Device Into | |

To use any submenu:

1. Press the Menu or Enter button to access the main menu.

2. Press the Up or Down arrow button to navigate to the desired submenu.

3. Press the Enter or Right arrow button to access submenu items for the selected submenu.

4. Press the Up or Down arrow button to navigate submenu items.

5. Press the Enter or Right arrow button to adjust a submenu item.

Using the OSD menu to configure the IN1606

- Use the `Quick Setup` submenu to perform an Auto-Image™ the current input, set video input format, input EDID settings, set output resolution, mute audio, activate video test patterns, enable or disable DHCP, and set the IP address.

- Use the `User Preset` submenu to save picture control settings to each input for later manual recall.

- Use the `Picture Controls` submenu to adjust the image position and size, brightness and contrast, color and tint, and detail as needed.

- Use the `Input` submenu to perform an Auto-Image on the current input, set the video input format and film mode, set horizontal and vertical start values, set the number of active horizontal pixels and vertical lines, set the total pixels and phase, set HDCP authorization, and set the EDID for the current input.

- Use the `Output` submenu to set output resolution, HDMI output format for each output, and HDCP notification.
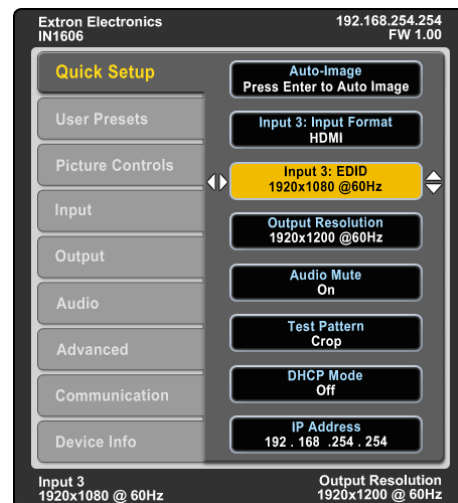
- Use the **Audio** submenu to mute audio, set the audio input format for the selected input, set analog audio gain, set mic/line gain and phantom power, adjust mic/line and program volume, and set audio output format.

- Use the **Advanced** submenu to select a test pattern, set the screen saver, turn on or off Auto-Image, set the aspect ratio and auto memory settings, adjust the overscan settings, and reset the device to factory defaults.

- Use the **Communication** submenu to view remote port baud rate, the device MAC address, DHCP status, the current IP address and subnet mask, and gateway.

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

Audio Input Format	Details
None	Mutes all audio for selected input. Sets "No Audio" EDID.
Analog	Sets the selected input to analog (default for inputs 1 and 2). Sets "No Audio" EDID.
LPCM-2Ch	Sets the selected input to LPCM-2Ch digital audio (default for inputs 3-6). Sets 2Ch audio EDID.
Multi-Ch	Sets the selected input to Multi-Ch digital audio. Sets Multi-Ch audio EDID.
LPCM-2Ch auto	Sets the selected input to prioritize digital audio. Analog audio is passed when digital audio is not present. Sets 2Ch audio EDID.
Multi-Ch auto	Sets the selected input to prioritize digital audio. Analog audio is passed when digital audio is not present. Sets Multi-Ch audio EDID.

- Use the **Device Info** submenu to view the device name, firmware build, temperature, input and output information, and detected displays. This tab is read-only.
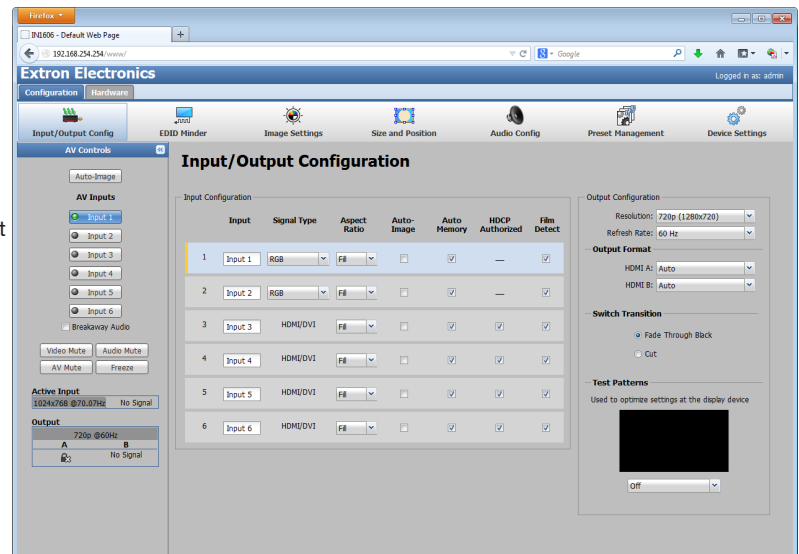
Internal Web Pages

The IN1606 can be configured, controlled, and operated through the Ethernet port when connected to a LAN or WAN, using a web browser. The browser displays the factory-installed web pages, which provide a means of configuring and operating the device. Enter the IP address of the unit in the browser **Address** field to access the web pages (see the *IN1606 and IN1608 Series User Guide* for more details). The default IP address is 192.168.254.254. The default subnet mask is 255.255.0.0.

Product Configuration Software

To configure the IN1606 using the Product Configuration Software, install the software (available on the Extron website, **www.extron.com**) to a PC connected to the IN1606 via Ethernet, RS-232, or front panel USB Config port. After the installation, start the program. For full instructions, press <F1> or click the **?** button and select **Help File**.

Firmware Upgrades

The onboard firmware of the IN1606 can be upgraded via the internal web pages or the Extron Firmware Loader program (available on the Extron website, **www.extron.com**).

Output Rates

Output rates can be set using the OSD menu, the internal web pages, PCS, or SIS commands. The table below displays the most commonly used resolutions and refresh rates and the corresponding SIS values. The command to set the output rate is $\boxed{Esc}\boxed{X54}RATE\leftarrow$, where $\boxed{X54}$ is the SIS value for the resolution and refresh rate combination as given in the example table below (see the *IN1606 and IN1608 Series User Guide* for the full list).

SIS Variable $\boxed{X54}$ for EDID or Output Resolution and Refresh Rate Combination (Where $\boxed{X54}$ = 10 through 92)									
Resolution	23.98 Hz	24 Hz	25 Hz	29.97 Hz	30 Hz	50 Hz	59.94 Hz	60 Hz	75 Hz
1024x768						19		20	21
1280x800						31		32	33
1440x900						52		53	54
1680x1050						59		60	
1920x1200						63		64	
720p			68	69	70	71	72	73*	
1080p	77	78	79	80	81	82	83	84	

* = default

Basic SIS Command Table

The IN1606 can be configured 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 on the next page 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**.

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 Auto-Image on the current input.
Execute Auto-Image and fill	1*A	Img1↵	Executes Auto-Image and fills the output.
Execute Auto-Image and follow	2*A	Img2↵	Executes Auto-Image and maintains the aspect ratio of the current input.
Set scaler output rate	[Esc] [X54]RATE←	Rate[X54]↵	Specifies an output resolution and refresh rate.
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, adjusting variable volume with the following commands only affects variable analog output (see the *IN1606 and IN1608 Series User guide* to configure the variable volume through group masters).

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Set variable volume level	[Esc]D8*[X44]GRPM←	GrpmD08*[X44]↵	Set the variable volume to a value of [X44].
Raise variable volume	[Esc]D8*[X48]+GRPM←	GrpmD08*[X44]↵	Increase the level of the variable volume by [X48] dB.
Lower variable volume	[Esc]D8*[X48]-GRPM←	GrpmD08*[X44]↵	Decrease the level of the variable volume by [X48] dB.
View variable volume level	[Esc]D8GRPM←	[X44]↵	View the current variable volume level.

> **NOTE:** By default, setting the audio mute with the following commands affects all outputs (see the *IN1606 and IN1608 Series User guide* to configure the master audio mute through group masters).

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
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 out 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 screen saver mode	[Esc]M[X27]SSAV←	SsavM[X27]↵	Set the screen saver mode.
Set screen saver time-out duration	[Esc]T[X23]SSAV←	SsavT[X23]↵	Set the screen saver sync time-out duration.
View screen saver status	[Esc]SSSAV←	[X38]↵	View the status of the screen saver.
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.
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 networking	[Esc]2BOOT←	Boot2↵	Restarts the network after IP or DHCP changes.

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

NOTES:

[X1] = Input selection (1-6)

[X9] = Enable or disable (0 = off or disabled; 1 = on or enabled)

[X23] = Screen saver sync time-out duration (0 = instant time out; 1-500 = in 1 second increments; 501 = never)

[X27] = Screen saver mode (1 = black output [default]; 2 = blue output)

[X38] = Screen saver status (0 = active input detected; 1 = no active input, timer running; 2 = no active input, timer expired, output disabled)

[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)

[X44] = Group volume level (-1000 to 0, where -1000 = -100 dB or 0% volume and 0 = 0 dB or 100% volume)

[X48] = Increment value (dB value multiplied by ten, in 0.1 dB increments, to raise or lower a group fader [for example, 100 = 10 dB])

[X54] = Output rate (see the table on page **3** or the *IN1606 and IN1608 Series User Guide*)

68-2290-50
Rev. B
06 13