

DXP HD 4K PLUS Series • Setup Guide

IMPORTANT:
Go to www.extron.com for the complete user guide, installation instructions, and specifications before connecting the product to the power source.

The DXP HD 4K PLUS Series are digital matrix switchers that route HDMI signals from multiple sources to HDMI-equipped display devices. They support computer and video resolutions up to 4K @ 60 Hz. They also support HDMI 2.0b specifications, including data rates up to 18 Gbps, HDR Deep Color up to 12-bit, 3D, and HD lossless audio formats. These switchers are HDCP 2.2 compliant and incorporate Extron technologies including SpeedSwitch, EDID Minder, and Key Minder. Digital audio can be de-embedded from any input and assigned to digital or analog stereo outputs. The following matrix sizes are available:

- **DXP 44 HD 4K PLUS** — 4 inputs by 4 outputs
- **DXP 84 HD 4K PLUS** — 8 inputs by 4 outputs
- **DXP 88 HD 4K PLUS** — 8 inputs by 8 outputs

This setup guide enables you to quickly set up and configure your DXP matrix switcher. Step-by-step instructions show you how to connect the hardware and to perform basic operations using both the front panel controls and selected Simple Instruction Set (SIS) commands. The guide also shows you how to connect to the built-in web page and load and start up the Product Configuration Software (PCS), which you can also use to configure and operate the switcher. For additional information and specifications, see the DXP HD 4K PLUS product page at www.extron.com.

The terms “DXP,” “matrix,” “switcher,” and “DXP matrix switcher” are used interchangeably in this guide to refer to all DXP HD 4K PLUS models.

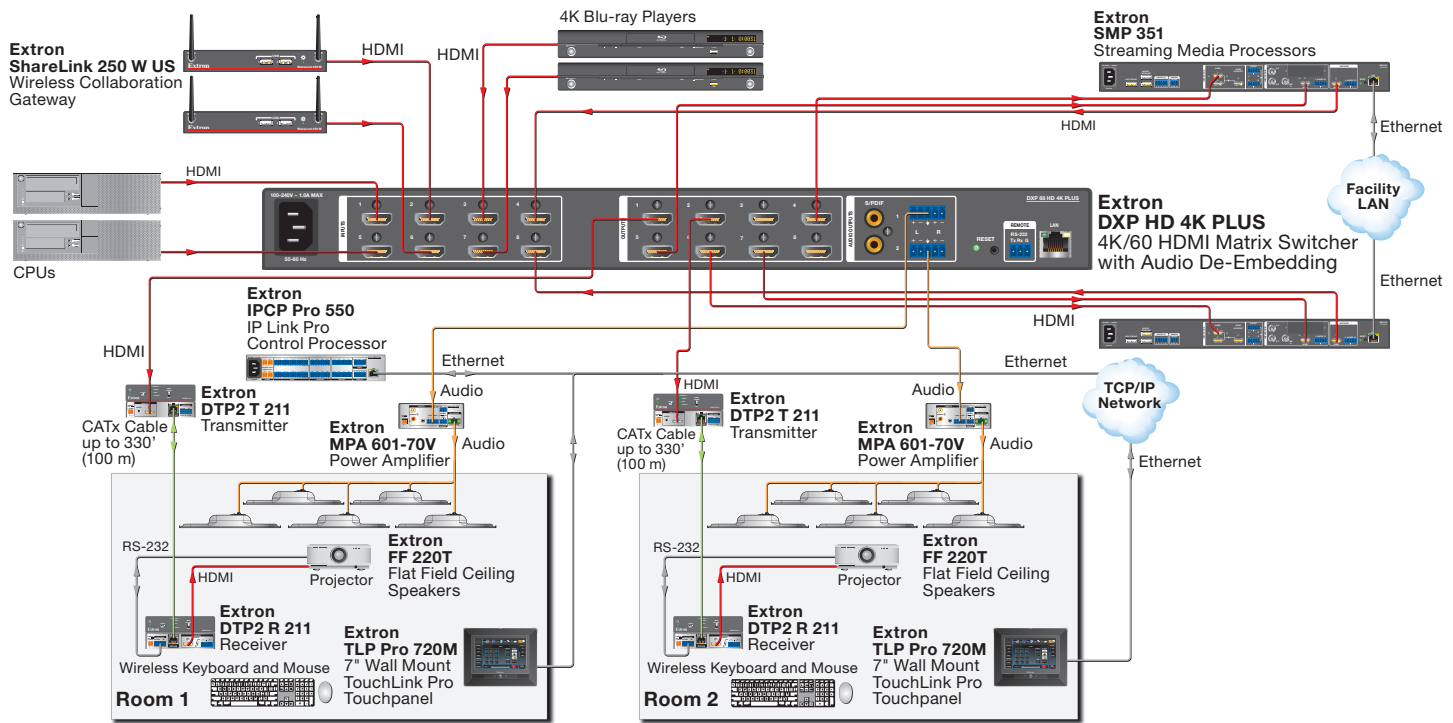


Figure 1. Typical Application of the DXP 88 HD 4K PLUS

Setup Steps

Follow these steps to set up and start operating the DXP matrix switcher (see the **Operation** section, beginning on page 6, for additional setup procedures you may want to perform).

1. Turn off power to the input and output devices that will be connected, and disconnect their power cords.
2. Connect HDMI input devices to the rear panel input connectors (see **figure 2, A**, on the next page).
3. Connect HDMI audio and video output devices to the rear panel output connectors (**B**).
4. Connect control devices as desired:
 - Connect a computer or control system to the Remote RS-232 (**E**) or the front panel USB Config port (see **figure 5, A**, on page 5).
 - Connect a computer, control system, or network switch to the RJ-45 LAN (Ethernet) port (see **figure 2, F**).
5. Plug the DXP switcher into a grounded AC source, and connect power to the input and output devices.

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- Download the PCS program from www.extron.com.
- Select EDID files to apply to inputs as desired, using PCS (see the *DXP HD 4K PLUS Help* file for details).
- Create ties and presets as desired (see [Creating Ties](#) on page 6 and [Saving or Recalling a Preset](#) on page 7).

Rear Panel Connections

Most of the connectors are on the rear panels of the DXP HD 4K PLUS. Figure 2 shows the rear panel of DXP 88 model.

CAUTION: Remove power from the system before making any connections.

ATTENTION : Couper l'alimentation avant de faire l'installation électrique.

ATTENTION:

- Use electrostatic discharge precautions (be electrically grounded) when making connections. Electrostatic discharge (ESD) can damage equipment, although you may not feel, see, or hear it.
- Prenez des précautions contre les décharges électrostatiques (soyez électriquement relié à la terre) lorsque vous effectuez des connexions. Les décharges électrostatiques (ESD) peuvent endommager l'équipement, même si vous ne pouvez pas le sentir, le voir ou l'entendre.

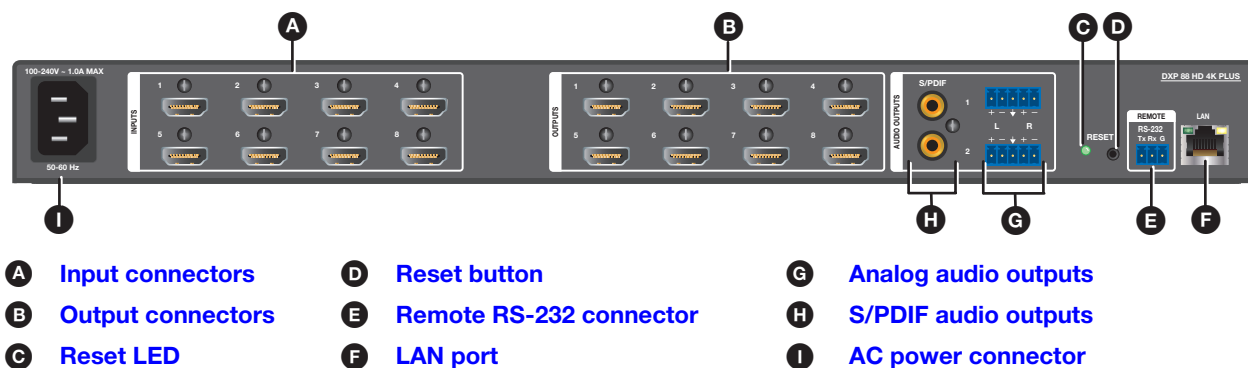





Figure 2. DXP 88 HD 4K PLUS Rear Panel

NOTE: Figure 2 shows the DXP 88 HD 4K, with 8 inputs and 8 outputs. The rear panels of the DXP 44, 84, and 88 are identical except for the number of inputs and outputs.

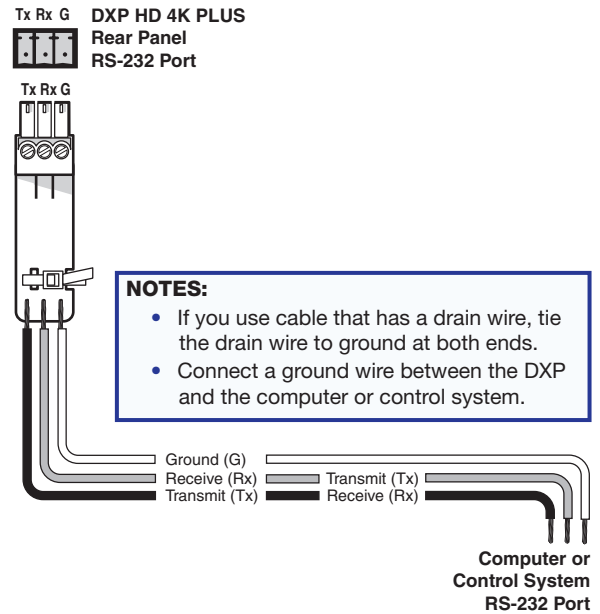
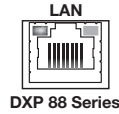
- Input connectors** — Connect HDMI sources to these female 19-pin type A HDMI input connectors for video input. LockIt™ cable lacing brackets, one for each HDMI input and output connector, are provided with the DXP HD 4K PLUS. These brackets can be used to secure the HDMI cables to the DXP connectors to reduce stress on the HDMI connectors and prevent signal loss due to loose cable connections (see [Securing HDMI Cables with the LockIt HDMI Cable Lacing Bracket](#) on page 4). 
- Output connectors** — Connect HDMI output devices to these female 19-pin type A HDMI output connectors for buffered video output (see [Securing HDMI Cables with the LockIt HDMI Cable Lacing Bracket](#)). 
- Reset LED** — While you are holding the **Reset** button, this green LED blinks every 3 seconds to indicate the level of reset that will occur if the button is released at that point (see figure 2, **D**, **Reset button**). 
- Reset button** — This recessed button initiates four levels (modes) of reset. Use a pointed object such as a small screwdriver to press and hold the **Reset** button.
 - Factory firmware reset (mode 1)** — Hold the **Reset** button while powering up the switcher to restore the DXP to the factory firmware for a single power cycle. This type of reset maintains all the current user settings, such as audio adjustments, IP settings, and the configuration.
 - IP settings reset (mode 4)** — While the DXP is running, press and hold the **Reset** button until the LED blinks twice (approximately 6 seconds). Release the button and press it again momentarily to reset the switcher IP functions. This reset does not replace any user-installed firmware.
 - Absolute reset (mode 5)** — While the DXP is running, press and hold the **Reset** button until the LED blinks three times (approximately 9 seconds). Release the button and press it again momentarily to restore the switcher to the default factory conditions.

E Remote RS-232 connector — Connect an RS-232 capable host device such as a computer or a touch panel control to this 3.5 mm 3-pole captive screw connector to configure and control the switcher via SIS commands. Connect the 9-pin end of the RS-232 cable to the serial port of your computer or control system. The default port parameters are 9600 baud, 8 data bits, 1 stop bit, no parity.

F LAN port — Connect a computer, a network switch, or a control system to this RJ-45 connector. With the Ethernet connection, you can use a computer to configure and control the networked switcher with SIS commands, the PCS configuration program, or the embedded HTML page.

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

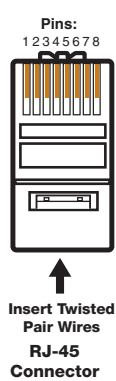
- **Link** — Indicates that the switcher is properly connected to an Ethernet LAN. This green LED should light steadily.
- **Act (Activity)** — Indicates transmission of data on the RJ-45 connector. This amber LED should flicker as the switcher communicates.



Ethernet links use Category (CAT) 3, 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 meters).

NOTES:

- Do not use standard telephone cables. Telephone cables do not support Ethernet or Fast Ethernet.
- Do not stretch or bend the cables because this can cause transmission errors.



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

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

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

T568B T568B
A cable that is wired the same at both ends is called a "straight-through" cable because no pin or pair assignments are swapped. Both ends of the cable can be T568B (as shown) or T568A (not shown).

Default Ethernet settings:

- **IP address** — 192.168.254.254
- **Subnet mask** — 255.255.0.0
- **Gateway address** — 0.0.0.0

Figure 3. RJ-45 Connector and Pinout Tables

The cable you use depends on your network speed. The switcher supports both 10 Mbps (10Base-T — Ethernet) and 100 Mbps (100Base-T — Fast Ethernet), half-duplex and full-duplex Ethernet connections.

- 10Base-T Ethernet requires CAT 3 or higher UTP or STP cables.
- Fast Ethernet requires CAT 5e or higher UTP or STP cables.

Terminate the Ethernet cable as required:

- **Network connection** — Wire as a patch (straight-through) cable.
- **Computer or control system connection** — Wire as a crossover cable.

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- G Analog audio outputs** — Connect powered speakers, an amplifier, or other audio output device to these 5-pole 3.5 mm captive screw connectors for 2-ch stereo analog audio output. These connectors can de-embed LPCM audio that was routed from any DXP HDMI input and convert it to a stereo analog signal. The **figure 4** on the next page shows how to wire these connectors. Use the supplied tie-wrap to strap the audio cable to the extended tail of the connector.

NOTE: Analog output 1 and S/PDIF output 1 are always connected to the video input tied to it. Analog and S/PDIF output 2 can be broken away (switched separately from the video).

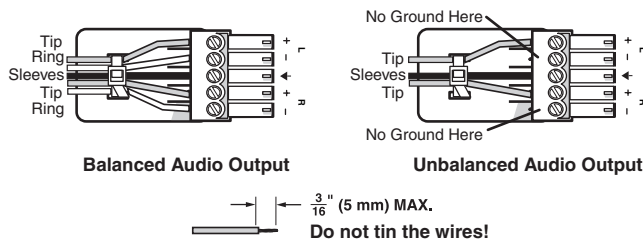


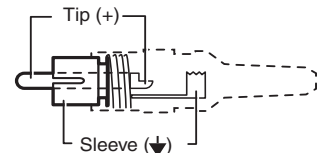
Figure 4. Connecting Analog Audio

ATTENTION:

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

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

- H S/PDIF digital audio outputs** (Sony/Philips Digital Interface Format) — Use 75 ohm digital audio cables to connect audio signal processors (such as the Extron SSP 7.1 Surround Sound Processor) or other compatible devices to these female RCA connectors (see the illustration at right). The connected processor then converts digital signals from these ports to analog for encoded standard definition bitstream audio for Dolby or DTS multi-channel surround sound.



NOTES:

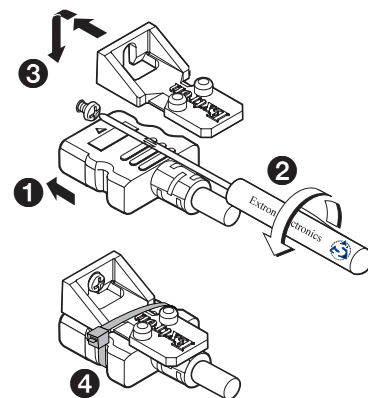
- When the input audio is a high bit rate (HBR) audio stream, mute these outputs.
- S/PDIF output 1 and analog output 1 are always connected to the video input tied to them. S/PDIF and analog output 2 can be broken away (untied).

- I AC power connector** — Plug a standard IEC power cord (provided) into this connector to connect the switcher to a 100 VAC to 240 VAC, 50-60 Hz power source.

Securing HDMI Cables with the LockIt HDMI Cable Lacing Bracket

Use a LockIt HDMI Cable Lacing Bracket to securely fasten each HDMI cable to the switcher:

1. Plug the HDMI cable into the panel connection (see the illustration at right, **1**).
2. Loosen the HDMI connection mounting screw from the panel enough to allow the LockIt lacing bracket to be placed over it (**2**). The screw does not have to be removed.
3. Place the LockIt lacing bracket (**3**) on the screw and against the HDMI connector, then tighten the screw to secure the bracket.



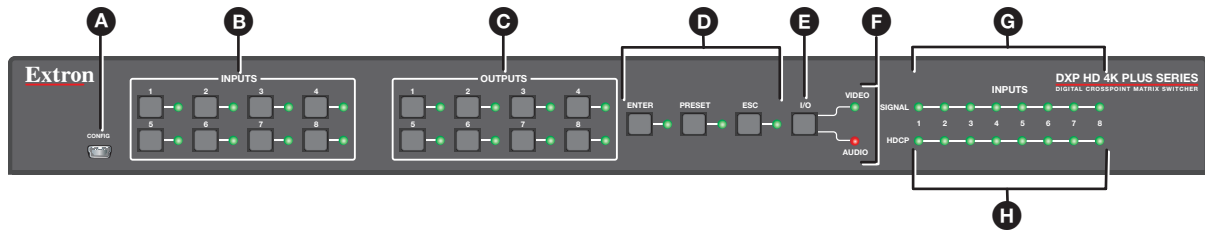
ATTENTION:

- Do not overtighten the HDMI connector mounting screw. The shield it fastens to is very thin and can easily be stripped.
- Ne serrez pas trop la vis de montage du connecteur HDMI. Le blindage auquel elle est attachée est très fin et peut facilement être dénudé.

4. Loosely place the included tie wrap around the HDMI connector and the LockIt lacing bracket as shown (**4**).
5. While holding the connector securely against the lacing bracket, use pliers or similar tool to tighten the tie wrap, then remove any excess length.

Front Panel Features

The front panel buttons of the DXP 88 series are grouped into two sets, with the input and output buttons located on the left side of the control panel and the control buttons on the right side. The front panel buttons have multiple primary and secondary functions. For more details on these functions, see the DXP HD 4K PLUS user guide, available at www.extron.com. Each button has an LED beside it. These bicolor LEDs light green when video is selected and red when audio is selected.



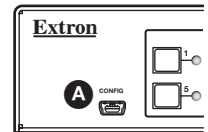
- A** Config port
- B** Input buttons
- C** Output buttons
- D** Control buttons
- E** I/O button
- F** Audio and Video LEDs
- G** Signal LEDs
- H** HDCP LEDs

Figure 5. DXP 88 HD 4K PLUS Front Panel

NOTE: Figure 5 shows the front panel of a DXP 88 HD 4K PLUS. Although the DXP 44 and 84 also have eight input and eight output buttons, not all these buttons are functional:

- **DXP 44:** Only input and output buttons 1 through 4 are functional, except for creating and recalling presets.
- **DXP 84:** Only output buttons 1 through 4 are functional, except for creating and recalling presets.

A **Config port** — This USB mini-B port serves a similar communications function to the rear panel Remote port, but is easier to access than the rear port after the matrix switcher has been installed and cabled. Use a USB type A to mini B cable to connect this port to a USB connector on the computer to enable SIS commands to be sent from the computer, connection to the PCS configuration software, and uploading firmware.



Front Panel Button Functions		
	Primary Function	Secondary Functions
B Input buttons	<ul style="list-style-type: none"> • Select an input. 	<ul style="list-style-type: none"> • Save and recall presets. • View ties.
C Output buttons	<ul style="list-style-type: none"> • Select output or outputs. 	<ul style="list-style-type: none"> • Save and recall presets. • View ties. • Mute video and audio. • View HDMI audio signals de-embedded from input.
D Control buttons		
Enter button	<ul style="list-style-type: none"> • Save changes made on the front panel. • Indicate that a potential tie has been created but not saved. • Indicate that a global preset has been selected to be saved or recalled but the preset action has not been completed. 	<ul style="list-style-type: none"> • Select the baud rate for the Remote RS-232 port. • Set the front panel lock mode (executive mode).
Preset button	<ul style="list-style-type: none"> • Place the switcher in preset saving mode to save a configuration as a preset, and in preset recalling mode to activate a previously-defined preset. • Indicate when preset saving mode is active (blinks) and when preset recalling mode is active (lights steadily). 	<ul style="list-style-type: none"> • Select the baud rate for the Remote RS-232 port.
Esc button	<ul style="list-style-type: none"> • Cancel operations or selections in progress and resets the front panel button indicators. • Indicate that the escape function has been activated (blinks once). 	<ul style="list-style-type: none"> • Select the baud rate for the Remote RS-232 port. • Set the front panel lock mode
<p>NOTE: The Esc button does not reset the current configuration or any presets.</p>		

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Front Panel Button Functions		
	Primary Function	Secondary Functions
E	I/O button — Has two LEDs to its right: a green Video LED and a red Audio LED. Press the I/O button to toggle between video (green LED lights) and audio (red LED lights).	<ul style="list-style-type: none"> Select the baud rate for the Remote RS-232 port. Set the front panel lock mode (executive mode). View the video or audio mute status of the selected input or output. Video LED blinks to indicate that the unit is in power save mode.

NOTE: In addition, if the unit is in **power save mode 1**, pressing any of the front panel buttons cancels this mode (see **Power Save Modes** on the next page).

- F Audio and Video LEDs** — These two LEDs are located to the right of the I/O button and light to indicate whether the selected input or output is audio or video. The Video LED lights green when the I/O button is pressed to toggle to video. The Audio LED lights red when audio is selected.
- G Signal LEDs** — The DXP has a green Signal LED for each input. Each LED lights when a signal (TMDS clock activity) is present on the input.
- H HDCP LEDs** — The DXP has a green HDCP LED for each input. Each of these LEDs lights if the source connected to its input is HDCP encrypted.

Operation

Creating Ties

NOTES:

- "Tie" is an input-to-output connection.
- "Set of ties" is an input tied to two or more outputs. (An output can never be tied to more than one input.)
- "Configuration" is one or more ties, one or more sets of ties, or a combination.
- Audio ties can be made only with de-embedded audio (audio output 2 only).
- If power save mode 2 is enabled (all front panel functions are disabled except for mode 1 selection), you cannot use the front panel to make ties.

- Press and release the **Esc** button to clear any input button, output button, or control button indicators that may be lit (or whose LED might be lit).

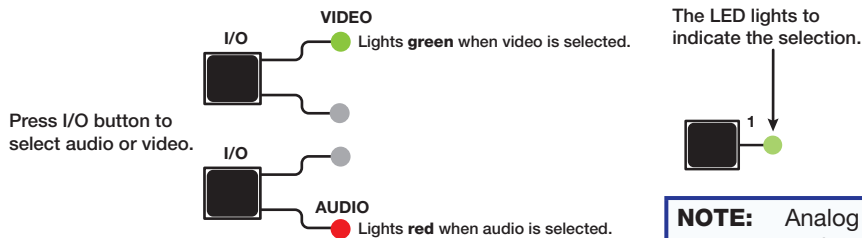


Figure 6. Selecting an Output for the Tie

NOTE: Analog output 1 and S/PDIF output 1 are always connected to the video input tied to them. Analog output 2 and S/PDIF output 2 can be broken away (untied).

- Press the **I/O** button to select video or audio.

NOTE: You cannot select both audio and video for a tie at the same time. You must repeat the tie process for each type of tie (audio and video) for the desired input and output. For example, first create a video tie between an input and output, then create an audio tie for the same input and output.

- Press an input button. The LED lights to indicate the selection.
- Press the output buttons to which the input is to be tied (see the illustration at right).
- Press the **Enter** button. All button indicators become unlit.

Green indicates a video-only tie.
Red indicates an audio-only tie (de-embedded audio outputs 1 and 2).



Saving or Recalling a Preset

A preset is a complete map of all input and output connections. The current configuration (0) can be saved as a preset in any one of 16 preset memory slots. Preset locations are assigned to the input and output buttons, and each switcher has as many presets available from the front panel as it has input and output buttons. In addition, all presets can be saved and recalled from the PCS software and by SIS commands. When a preset is retrieved from memory, it becomes the **current configuration**.

NOTE: Ensure that power save mode 2 (all front panel functions are disabled except for mode 1 selection) is **not** enabled.

- To **save** a preset, press and hold the **Preset** button until it blinks. To **recall** a preset, press and **release** the **Preset** button.

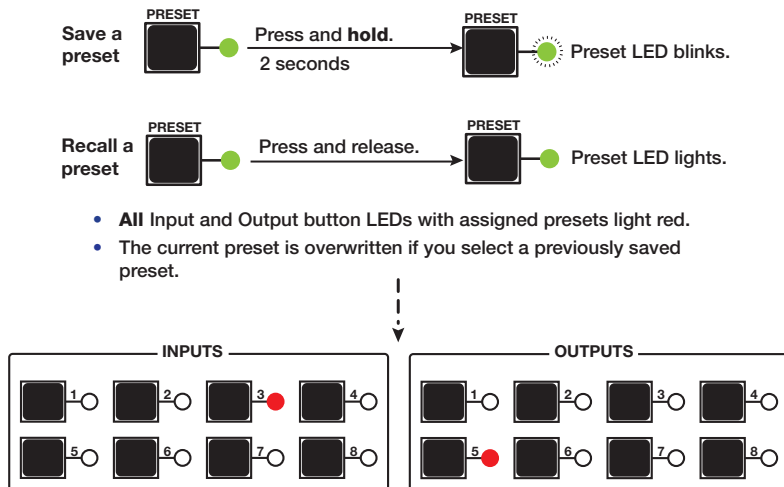
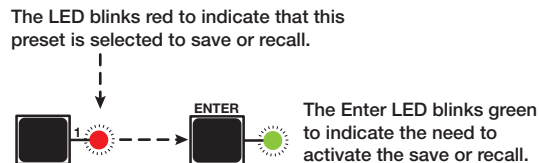


Figure 7. Saving or Recalling a Preset

NOTE: Although the DXP 44, 84, and 88 have only enough front panel buttons for presets 1 through 16 (8 inputs and 8 outputs), presets 17 through 32 can be saved and recalled via SIS and PCS.

- Press the desired input or output button.
- Press the **Enter** button.



Power Save Modes

Power save modes are selectable only by SIS commands. Three modes are available:

- 0** — Normal (full power) operation (default).
- 1** — Disables all functions except RS-232, USB, and IP control, and reduces cooling fan speed. This mode is cancelled if a power is cycled, any front panel buttons are pressed, PCS is opened, or any SIS commands are sent via RS-232, USB, or IP.
- 2** — Locks the front panel, reduces cooling fan speed, and disables all functions except RS-232, USB, PCS, and IP control. This mode can be cancelled only by entering the SIS command `[Esc] Ø PSAV ←` or opening PCS.

NOTE: The green front panel Video LED blinks while the DXP is in power save mode 1 or 2.

Locking and Unlocking the Front Panel (Executive Mode)

The DXP switcher has three levels of security lock that limit the operation of the switcher from the front panel:

- Lock mode 0** — The front panel is completely unlocked.
- Lock mode 1** — All front panel functions are locked (except for setting lock mode 2). Some functions can be viewed.
- Lock mode 2** — Basic functions are unlocked. Advanced functions, such as setting video and audio mute, are locked and can be viewed only (see the table below). The switcher is shipped from the factory in this mode.

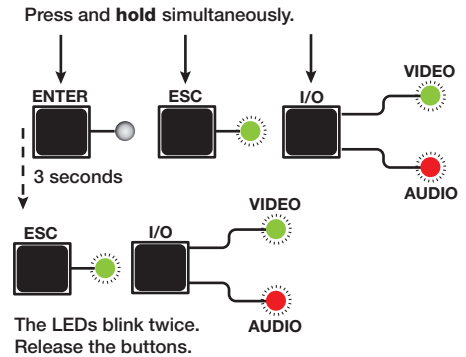
Basic Functions	Advanced Functions
<ul style="list-style-type: none"> Making ties Saving and recalling presets Changing lock modes 	<ul style="list-style-type: none"> Setting video and audio output mutes Setting the RS-232 port baud rate

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Selecting front panel lock mode 2 or toggling between lock modes 2 and 0

NOTES:

- If the switcher is in lock mode 0 or 1, this procedure selects mode 2.
- If the switcher is in lock mode 2, this procedure selects mode 0 (unlocks the switcher).
- Toggle the front panel lock on and off by pressing and holding the **Enter**, **I/O**, and **Esc** buttons simultaneously until the following LEDs blink twice (approximately 3 seconds).
 - If the DXP is now in lock mode **2**, the Esc, Video, and Audio LEDs blink twice.
 - If the DXP is now in lock mode **0**, the Video and Audio LEDs blink twice.

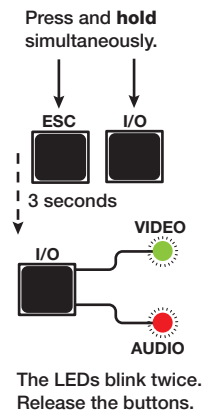


Selecting front panel lock mode 2 or toggling between lock modes 2 and 1

NOTES:

- If the switcher is in lock mode 1, this procedure selects mode 2.
- If the switcher is in lock mode 2, this selects mode 1 (locks all switcher functions except selecting mode 2).
- Toggle the lock on and off by pressing and holding the **Esc** and **I/O** buttons until the following buttons blink twice (approximately 3 seconds).
 - If the DXP is now in lock mode **2**, the **Esc**, **Video**, and **Audio** buttons or LEDs blink twice.
 - If the DXP is now in lock mode **1**, the **Video** and **Audio** buttons or LEDs blink twice.

NOTE: To switch from lock mode 1 (front panel is completely locked) to lock mode 0 (front panel is unlocked), you must first switch to mode 2, then from mode 2 to mode 0.



Viewing Ties

Several methods are available for viewing which inputs and outputs are actively connected (tie configuration) and which outputs are muted, at the same time.

NOTE: Before beginning to view ties and mutes, press the **Esc** button to clear any pending ties. Ensure the unit is **not** in **power save mode 2**.

For the **I/O** button, the **Video** selection routes HDMI signals from any of the inputs to any of the HDMI outputs. The **Audio** selection routes the de-embedded audio from any of the HDMI inputs to any pair of S/PDIF and analog audio outputs.

NOTE: Each S/PDIF output is paired with the analog output with the same number and cannot be selected separately, although they can be individually muted. Any de-embedded audio signal sent from an input goes to both the S/PDIF and analog output with which it is paired.

1. Press the **I/O** button to select audio or video (selection of both simultaneously is not supported on these models).
2. Select the input or output ties to view:
 - **To view ties to an input:** Press the desired input button. The button LEDs light for all outputs that are tied to that input (green for video ties or red for audio ties).

NOTE: If you press an output button while an input is selected for viewing, the output LED blinks to indicate a pending tie. Press **Esc** to cancel the tie or **Enter** to add the tie to the selected input.

- **To view ties to an output:** Press the desired output button. The buttons LEDs for the tied input and all other outputs tied to that input light.
- **To view all untied outputs:** Press an untied output button while another output is selected. All untied output LEDs light.
3. To turn off all lit LEDs, press the **Esc** button, or wait until the lit button LEDs time out (approximately 15 seconds).

Muting an Output from the Front Panel

NOTES:

- Mutes are protected when front panel lock mode 2 is selected. You can view the status of the output (muted or unmuted) in lock mode 2 but you cannot change it from the front panel.
- To enable changes to the mute settings, set the lock mode to 0.
- Ensure the unit is **not** in power save mode 2.

See [Locking and Unlocking the Front Panel \(Executive Mode\)](#) and [Power Save Modes](#) on page 7 for more information.

1. Press **Esc** to clear any button selections or incomplete ties.
2. Press the **I/O** button to toggle to your desired selection, Video (green LED lights) or Audio (red LED lights).
3. Press the button for the output to be muted, and hold it until its LED begins to blink (approximately 2 seconds). The LED continues to blink until unmuted.

To unmute an output, press and hold the button whose LED is blinking until the blinking stops (approximately 2 seconds).

NOTE: If you want to mute an output, but accidentally press an input button prior to pressing and holding the desired output, this voids the output muting process and activates the tie process.

Viewing the mute configuration

You can view the mute configuration whether the outputs were muted using the front panel, SIS commands, or the PCS software. To view which outputs are currently muted:

1. Press the **Esc** button.
2. Select the type of signal to view (see “Muting an Output from the Front Panel,” step 3).
3. Press the button for the output to be viewed.

If only the audio is muted

- The output button or LED blinks **red**.
- The video button or LED lights steadily **green**.

If only the video is muted

- The output button or LED blinks **green**.
- The output button or LED lights steadily **red**.

Selecting the Remote RS-232 Port Baud Rate

NOTES:

- The serial port baud rate setting is protected when front panel lock mode 2 is selected. You can view the setting in lock mode 2 but you cannot change it from the front panel (see [Locking and Unlocking the Front Panel \[Executive Mode\]](#)).
- To enable changes to the baud rate setting, set the lock mode to 0. Ensure the unit is **not** in [power save mode 2](#).

To set the baud rate from the front panel:

1. Simultaneously press and **hold all** Control buttons (**Enter**, **Preset**, and **Esc**) until all of the Control button LEDs light (approximately 2 seconds). The Control button LED representing the current baud rate blinks steadily.
2. Press the appropriate Control button to select the desired baud rate: **Enter** = 9600, **Preset** = 19200, and **Esc** = 115200. The LED of the selected button blinks.

Press and **hold** simultaneously.



The Control LED that continues blinking indicates the baud rate as follows:

Enter – 9600 **Preset** – 19200 **Esc** – 115200

Figure 8. RS-232 Baud Rate Display

3. Release the Control buttons.
4. Press and release an output button to exit the serial port configuration mode.

DXP HD 4K PLUS Series • Setup Guide (Continued)

Remote Control

You can send SIS commands over an Ethernet link (rear panel RJ-45 LAN port), USB (front panel Config port), or a serial connection (rear panel Remote RS-232 port). The network connection procedure is described below. For information about the serial and USB connections, as well as a complete list of the available SIS commands, see the *DXP HD 4K PLUS Series User Guide*, available at www.extron.com.

Establishing a Network (Ethernet) Connection

To establish a network connection:

1. Open a TCP socket to port 23 using the switcher IP address.

NOTE: The factory default IP address is 192.168.254.254.

The switcher responds with a message consisting of the copyright date, the name of the product, firmware version, part number, and the current date and time. For example, with an internet connection:

```
(c) Copyright 20nn, Extron Electronics, DXP nn HD 4K Plus, Vn.nn, 60-1495-nn ↵  
Ddd, DD Mmm YYYY HH:MM:SS ↵
```

NOTES:

- If the switcher is not password-protected, the device is now ready to accept SIS commands.
- If the switcher is password-protected, a password prompt appears.

2. If the switcher is password-protected, enter the password.
3. If the password is accepted, the switcher responds with Login User or Login Administrator.
4. If the password is not accepted, the Password prompt reappears (see your network admin for the assigned password).

Connection timeouts

The Ethernet link times out and disconnects after a designated period of no communications. By default, this timeout value is set to 5 minutes but the value can be changed.

NOTE: Extron recommends leaving the default timeout at 5 minutes and periodically issuing the Query (Q) command to keep the connection active or disconnecting the socket and reopening the connection when necessary.

Number of connections

A switcher can have up to 200 simultaneous TCP connections, including all HTTP sockets and Telnet connections. When the connection limit is reached, the switcher accepts no new connections until some have been closed. No error message or indication is given that the connection limit has been reached. To maximize performance of your switcher, keep the number of connections low and close unnecessary open sockets.

SIS Commands

The switchers have SIS commands that you can use for operation and configuration. You can issue these commands from a PC connected to the DXP serial port, USB port, or Ethernet port (see [Rear Panel Connections](#) on page 2 for connection information).

Host-to-switcher instructions

The switcher accepts SIS commands through the LAN port, the Remote (RS-232) port, or the front panel USB Config 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.

NOTE: Input and output numbers in commands can be entered as one-digit, two-digit, or three-digit numbers. All input and output numbers are reported as two-digit numbers in the response.

Verbose mode

Telnet connections to a switcher can be used to monitor for changes that occur on the switcher, such as front panel operations and SIS commands from other Telnet sockets or a serial port. For a Telnet session to receive change notices from the switcher, the Telnet session must be in verbose mode 1 or 3 (see the [Set verbose mode](#) command on page 14).

Symbol definitions

↵ = Carriage return and line feed	← or = Carriage return (no line feed)
• = Space	[Esc] or W = <Escape> key
[X2] = Input number (for ties)	∅ through maximum number of inputs for your model (∅ = untied)
[X3] = Output number	∅ through maximum number of outputs for your model
[X4] = De-embedded audio output number	(Analog and S/PDIF) 1 or 2. If the audio output number entered is greater than 2, an E12 error code (“Invalid output number”) is returned.
[X6] = Room number (for room presets)	1∅ maximum. Each room can have up to 10 room presets ([X8]).

NOTE: A room is a subset of operator-selected outputs that relate to each other. The DXP HD 4K PLUS switchers support up to 10 rooms, each of which can consist of from 1 to 16 outputs.

[X7] = Global preset number	∅∅ – 32 (∅∅ = current configuration)
[X8] = Room preset number	∅∅ – current ties for the room in view mode, 10 maximum

NOTE: A room preset is a stored configuration with all of the outputs assigned to a single room. When a room preset is retrieved from memory, it becomes the current configuration.

[X9] = Video and sync mute status	∅ = Video and sync unmuted 1 = Video muted 2 = Video and sync muted
[X10] = Audio mute status	∅ = Audio unmuted 1 = HDMI audio muted 2 = Analog audio muted 3 = HDMI and analog audio muted 4 = S/PDIF audio muted 5 = HDMI and S/PDIF audio muted 6 = Analog and S/PDIF muted 7 = HDMI, analog, and S/PDIF audio muted
[X12] = Audio and video mute status	∅ = All audio and video unmuted 1 = Video muted (one or more outputs) 2 = Audio muted (one or more outputs) 3 = Video and audio muted (one or more outputs)
[X14] = Total inputs	Total number of inputs for this switcher
[X15] = Total outputs	Total number of outputs for this switcher
[X16] = Voltage	Positive or negative voltage and magnitude
[X17] = Temperature	Degrees Centigrade
[X18] = Fan speed	In RPM
[X21] = Firmware version (n.nn)	Shown to second decimal place
[X25] = Front panel lock mode status (executive mode)	∅ = lock mode 0: Front panel unlocked 1 = lock mode 1: Front panel locked except for enabling lock mode 2 2 = lock mode 2: Front panel locked except for making ties, saving and recalling presets, and changing lock modes.
[X36] = IP address or gateway address	nnn . nnn . nnn . nnn
[X37] = Subnet mask	nnn . nnn . nnn . nnn
[X46] = DHCP	∅ = off, 1 = on
[X53] = Verbose mode	∅ = clear/none (default for Telnet connection) 1 = verbose mode (default for RS-232 and USB connections) 2 = tagged responses for queries 3 = verbose mode and tagged

NOTE: If tagged responses is enabled (modes 2 and 3), all read commands return the constant string and the value as the set command does (for example, the read matrix name command [Esc] CN ←, returns Ipn • [X30] ←).

[X54] = Power save mode	∅ = power save mode off (default) 1 = all functions disabled except SIS, USB, and IP communication. Can be cancelled by pressing any front panel button. 2 = front panel buttons and all functions disabled. Can be cancelled only by entering the [Esc] PSAV 0 ← command or by opening PCS.
-------------------------	--

DXP HD 4K PLUS Series • Setup Guide (Continued)

Command and Response Table for SIS Commands

Command Function	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Output Switching (Ties)			
NOTES:			
<ul style="list-style-type: none"> Commands can be entered back-to-back in a string, with no spaces. For example: 1*1!02*02&003*003%4*8\$. The matrix switchers support 1-, 2-, and 3-digit numeric entries (1*1!, 02*02&, or 003*003%). 			
Tie HDMI input to HDMI video and audio outputs. <i>Example</i>	<u>X2</u> * <u>X3</u> ! 1*2!	Out <u>X3</u> •In <u>X2</u> •A11← Out2•In1•A11←	Tie HDMI input <u>X2</u> to video and audio of output <u>X3</u> . Tie input 1 output 2, video and audio.
Tie input to output, HDMI video only <i>Example</i>	<u>X2</u> * <u>X3</u> % 7*5%	Out <u>X3</u> •In <u>X2</u> •Vid← Out5•In7•Vid←	Tie HDMI video <u>X2</u> to HDMI output <u>X3</u> . Tie input 7 video to output 5.
Tie input to output <u>X4</u> de-embedded audio <i>Example</i>	<u>X2</u> * <u>X4</u> \$ 6*4\$	Out <u>X4</u> •In <u>X2</u> •Aud← Out4•In6•Aud←	Tie HDMI audio input <u>X2</u> to audio output <u>X4</u> . Tie input 6 audio to output 4.
Tie multiple inputs to multiple outputs, audio and video	[Esc]+Q <u>X2</u> * <u>X3</u> % . . . <u>X2</u> * <u>X3</u> ! ←	Qik←	Tie multiple inputs <u>X2</u> to multiple outputs <u>X3</u> with one command.
Mutes			
Set HDMI video mute	<u>X2</u> * <u>X12</u> B	Vmt <u>X2</u> * <u>X12</u> ←	Set mute of an output.
NOTE: This command mutes both the HDMI video and the embedded audio.			
Audio mute and unmute	<u>X3</u> * <u>X10</u> Z	Amt <u>X3</u> * <u>X10</u> ←	Set output <u>X3</u> audio to mute status <u>X10</u> .
View audio mute status	<u>X3</u> Z	<u>X10</u> ←	View audio mute status <u>X10</u> for output <u>X3</u> .
NOTE: To set output <u>X3</u> to audio mute status <u>X10</u> :			
<ul style="list-style-type: none"> Outputs 1 and 2 can be set to 0 through 7. Outputs 3 through 8 can be set only to 0 (unmuted) or 1 (muted). 			
Global audio mute	1*Z	Amt1←	Mute all audio outputs.
Global audio unmute	0*Z	Amt0←	Unmute all audio outputs.
View all output mutes	[Esc]VM←	<u>X12</u> ¹ <u>X12</u> ² . . . <u>X12</u> ⁿ ←	Each <u>X12</u> response is the mute status of an output, starting from output 1. n is the maximum number of outputs on the unit.
Power Save Modes			
Set power save mode	[Esc] <u>X54</u> PSAV←	Psav <u>X54</u> ←	Set the unit power save mode to <u>X54</u> .
View power save mode	[Esc]PSAV←	<u>X54</u> ←	View the current power save mode.

NOTE: X2 = Input number
X3 = Output number
X4 = De-embedded audio output number
X9 = Video and sync mute status
X10 = Audio mute status
X12 = Individual mute status
X54 = Power save mode

0 – maximum number of inputs for your model (0 = untied)
1 – maximum number of outputs for your model (0 = untied)
1 or 2 (analog and S/PDIF only). If the audio output number entered is greater than 2, an E12 error code (“Invalid output number”) is returned.
0 = video and sync unmuted, 1 = video muted, 2 = video and sync muted
0 = audio unmuted, 1 = HDMI audio muted, 2 = analog audio muted, 3 = HDMI and analog audio muted, 4 = S/PDIF audio muted, 5 = HDMI and S/PDIF audio muted, 6 = analog and S/PDIF muted, 7 = HDMI, analog, and S/PDIF audio muted
0 = unmuted, 1 = video muted, 2 = audio muted, 3 = video and audio muted
0 = power save mode off (default)
1 = all functions disabled except SIS, USB, and IP ports. Fan speed slows. Cancel by pressing any front panel button, sending an SIS command, or opening PCS.
2 = front panel buttons and all functions disabled except SIS, USB, and IP ports. Fan speed slows. Cancel by entering the [Esc] PSAV0← command or opening PCS.

Command Function	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
Saving and Recalling Presets			
Save current configuration as a global preset <i>Example:</i>	<u>X7</u> , 9,	Spr <u>X7</u> ↵ Spr09↵	Save global preset <u>X7</u> . Command character is a comma. Save current set of ties as preset 9.
Recall a global preset <i>Example:</i>	<u>X7</u> . 5.	Rpr <u>X7</u> ↵ Rpr05↵	Command character is a period. Recall preset 5, which becomes the current configuration.
Save a room preset	<u>X6</u> • <u>X8</u> ,	Rmm <u>X6</u> •Spr <u>X8</u> ↵	Save room preset <u>X8</u> to room <u>X6</u> .
Recall a room preset	<u>X6</u> • <u>X8</u> .	Rmm <u>X6</u> •Rpr <u>X8</u> ↵	Recall room preset <u>X8</u> for room <u>X6</u> .
Front Panel Lock (Executive) Modes			
NOTE: See Locking and Unlocking the Front Panel (Executive Mode) on page 7 for more information on the lock modes.			
Lock all front panel functions	1X	Exe1↵	Enable lock mode 1.
Lock advanced front panel functions	2X	Exe2↵	Enable lock mode 2.
Unlock all front panel functions	0X	Exe0↵	Enable lock mode 0.
View lock status (executive mode)	X	<u>X25</u> ↵	Display current lock mode <u>X25</u> .
Information Requests			
Information request <i>Example:</i> DXP 84 HD 4K PLUS	I I	V <u>X14</u> X <u>X15</u> •A <u>X14</u> X <u>X15</u> ↵ V08X04•A08X02↵	V <u>X14</u> X <u>X15</u> is the video matrix size. A <u>X14</u> X <u>X15</u> is the audio matrix size. In this example, the matrix is eight video and audio inputs by four video and two audio outputs (only outputs 1 and 2 are de-embedded audio outputs).
Request part number	N	60-nnnn-01↵	
Query firmware version <i>Example:</i>	Q Q	<u>X21</u> ↵ 1.23↵	View the unit firmware version. The factory-installed firmware version is 1.23 (sample value only).
Request system status <i>Example:</i>	S S	<u>X16</u> • <u>X17</u> • <u>X18</u> ↵ 12.127•27.062•2155↵	Display power supply voltage <u>X16</u> , temperature <u>X17</u> , and fan speed <u>X18</u> .
IP Setup			
Set IP address	<u>Esc</u> <u>X36</u> CI↵	Ipi <u>X36</u> ↵	Set the unit IP address to <u>X36</u> .
View IP address	<u>Esc</u> CI↵	<u>X36</u> ↵	View unit IP address.
Set subnet mask	<u>Esc</u> <u>X37</u> CS↵	Ips <u>X37</u> ↵	Set the subnet mask for the unit to <u>X37</u> .
View subnet mask	<u>Esc</u> CS↵	<u>X37</u> ↵	View the subnet mask.
Set gateway IP address	<u>Esc</u> <u>X36</u> CG↵	Ipg <u>X36</u> ↵	Set the unit gateway address to <u>X36</u> .
View gateway IP address	<u>Esc</u> CG↵	<u>X36</u> ↵	View the unit gateway address.
Set DHCP on and off	<u>Esc</u> <u>X46</u> DH↵	Idh <u>X46</u> ↵	Set DHCP to <u>X46</u> .
View DHCP on/off status	<u>Esc</u> DH↵	<u>X46</u> ↵	View the DHCP setting.

NOTE:

- X6 = Room number for room presets
- X7 = Global preset number
- X8 = Room preset number
- X12 = Individual mute status
- X14 = Total inputs
- X15 = Total outputs
- X16 = Voltage
- X17 = Internal temperature in degrees C
- X18 = Fan speed in RPM
- X21 = Firmware version number
- X25 = Front panel Lock mode status
- X36 = IP or Gateway address
- X37 = Subnet mask
- X46 = DHCP status

10 maximum. Each room can have up to 10 room presets (X8) assigned.
01 – 32
00 – current ties for the room in view mode, 10 maximum
0 = unmuted, 1 = video muted, 2 = audio muted, 3 = video and audio muted
Total number of inputs for this switcher
Total number of outputs for this switcher

Expressed to the second decimal place (n.nn)
0 = lock mode 0 (unlocked), 1 = lock mode 1, 2 = lock mode 2
nnn.nnn.nnn.nnn
nnn.nnn.nnn.nnn
0 = DHCP off (default), 1 = DHCP on

DXP HD 4K PLUS Series • Setup Guide (Continued)

Command Function	ASCII Command (Host to Switcher)	Response (Switcher to Host)	Additional Description
IP Setup (continued)			
Configure current port timeout	<code>[Esc]0*[X58]TC←</code>	<code>Pti0*[X58]←</code>	Set the current port timeout to <code>[X58]</code> .
Read current port timeout	<code>[Esc]0TC←</code>	<code>[X58]←</code>	View the current port timeout setting.
Configure global IP port timeout	<code>[Esc]1*[X58]TC←</code>	<code>Pti1*[X58]←</code>	Set the global IP port timeout to <code>[X58]</code> .
Read global IP port timeout	<code>[Esc]1TC←</code>	<code>[X58]←</code>	View the global IP port timeout setting.
Set verbose mode	<code>[Esc][X53]CV←</code>	<code>Vrb[X53]←</code>	Set the verbose mode and tagged responses to <code>[X53]</code> .
Read verbose mode	<code>[Esc]CV←</code>	<code>[X53]←</code>	View the current verbose mode.
Reset			
System reset to factory defaults	<code>[Esc]ZXXX←</code>	<code>Zpx←</code>	Clear all ties and presets and reset unit to factory default settings.
NOTE: This command excludes IP settings such as IP address and subnet mask. It does not remove the file system.			
Absolute system reset	<code>[Esc]ZQQQ←</code>	<code>Zpq←</code>	Clear all ties and presets and reset unit to factory default settings.
NOTE: This command includes resetting the IP address to 192.168.254.254 and the subnet mask to 255.255.0.0. The firmware version remains the same.			

NOTE: `[X53]` = Verbose mode
`[X58]` = Port timeout interval

0 = clear or none (default for Telnet connection)
 1 = verbose mode (default for RS-232 and USB connection)
 2 = tagged responses for queries
 3 = verbose mode and tagged for queries
 1 (10 seconds) – 65000 (default is 30 = 300 seconds = 5 minutes)

Installing and Starting the Configuration Software

The Extron Product Configuration Software (PCS) is a Windows-based program for the DXP HD 4K PLUS that enables you to configure the input and output, audio, and image settings. It also lets you save and recall presets, select EDID, and perform nearly all the other functions that can be accomplished via the front panel controls or SIS commands.

NOTE: EDID selection is available only through PCS. When the DXP is connected to PCS, the power save mode is reset to 0 (power save off).

Downloading the software

To use PCS, download the program from www.extron.com and install it on the PC that will be connected to the DXP, as described in the following sections. You can also download updates to the DXP HD 4K PLUS PCS as they become available.

1. Open the Extron web page and select the **Download** tab.
2. In the in the left panel of the Download screen, click the **PCS** link under **Software**.
3. On the PCS page, click the **Download** button in the table near the center of the page (see 1 in the illustration at right).
4. On the Login page, enter the requested information. If you need an ID number, contact your Extron representative.



PCS

Product Configuration Software

Print-friendly

Awards

Key Features

- Configure multiple standalone products at once from the same software application
- Includes many modules for Extron products
- All modules have same look and feel for consistency
- Automatic device discovery
- Supports devices with Ethernet or USB connectivity
- Easily backup and restore to one or more devices using Ethernet or USB

See All Features ▶

Image Gallery

VERSION	RELEASE DATE	NEW IN THE CURRENT RELEASE	SIZE
4.2.0	Jan. 31, 2018	<ul style="list-style-type: none"> Added support for DA2/4/6 HD 4K PLUS Added support for SW2/4 HD 4K PLUS Added automatic device discovery when updating configuration or firmware to multiple devices Improved support for PVS 407D and MediaPort 200 Various bug fixes 	146.4 MB

Download (Login required)

SIMILAR PRODUCTS

Dante Controller Configuration Software for Dante-Enabled Audio Products

Show all ▼

- Follow the instructions on the subsequent screens to download the program. By default the installation creates a folder called “Extron PCS” at c:\Program Files (x86)\Extron\Extron PCS or c:\Program Files\Extron\Extron PCS. If there is not already an Extron folder in your Program Files x86 folder, the installation program creates it.

Starting the configuration program

- Ensure that your DXP HD 4K PLUS is connected to your computer via USB (front panel Config port) or TCP/IP (rear panel LAN port).
- To run the PCS configuration program, do either of the following:
 - Double-click on the EAF.exe file, located on your computer at c:\Program Files [or Program Files (x86)]\Extron\Extron PCS.
 - Click **Start** on the computer screen and select **All Programs > Extron Electronics > Extron Product Configuration Software > Extron Product Configuration Software**. The Extron Product Configuration Software window opens.
- The PCS main window opens with a Tutorial screen that points out significant items on the PCS window. When ready to proceed, click **OK** to close the tutorial. The Device Discovery screen opens, with a list of Extron devices connected to your network (see figure 9).

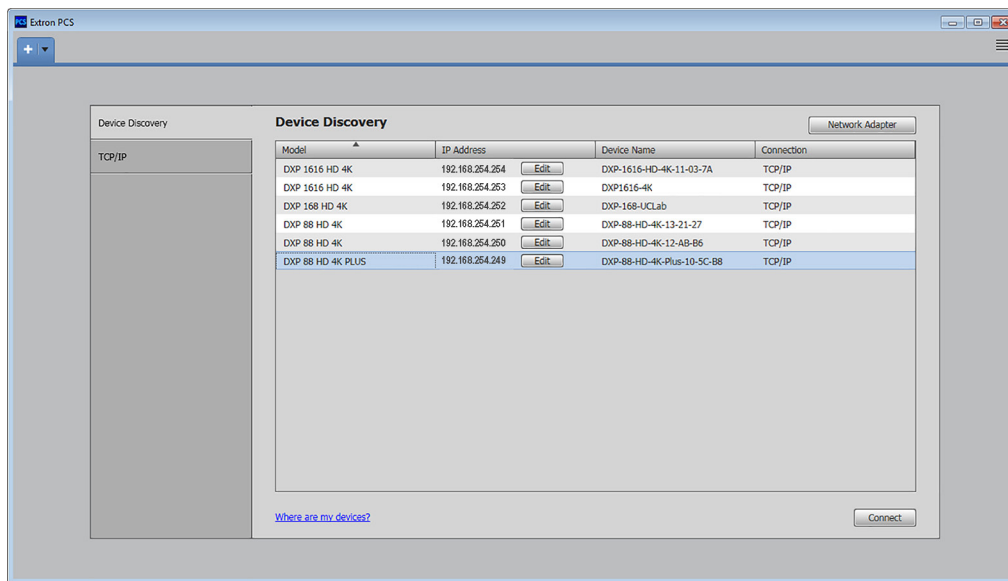
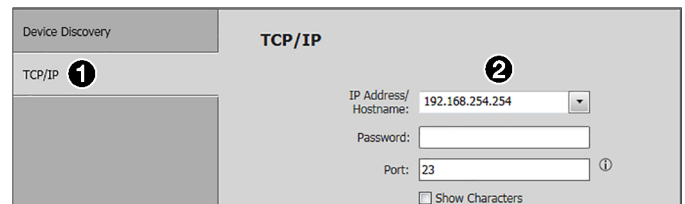


Figure 9. PCS Window

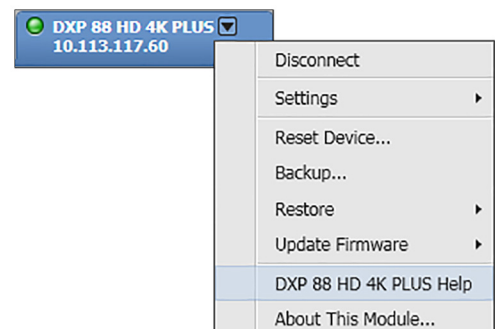
- If your DXP device name is displayed in the Device Discovery panel, select it and click the **Connect** button. If the device name is not listed but the IP address is known:
 - Click the **TCP / IP** tab in the left panel (see ❶ in the illustration at right).
 - Enter the IP information on the TCP/IP screen (❷).
 - Click the **Connect** button at the bottom of the screen.
- The **DXP HD 4K PLUS** device tab and main screen is displayed in the PCS window. When the screen opens, it displays the EDID Minder screen. To display other screens, click the icons on the toolbar.



For more information

For further assistance with using PCS with the DXP, see the *DXP HD 4K PLUS PCS Help* file. To access this file:

- On the DXP HD 4K PLUS main window, click the down arrow on the device tab for your DXP. The **Device** drop-down menu is displayed.
- From the drop-down menu select **DXP <model number> HD 4K PLUS Help** (see the illustration at right).



Accessing the Web Page

The embedded DXP HD 4K PLUS web page enables you to monitor and adjust certain settings of the DXP through its Ethernet port, connected via a LAN or WAN and using a web browser such as Microsoft® Internet Explorer®. This factory-installed Web page is always available and cannot be erased or overwritten.

NOTE: If your Ethernet connection to the DXP is unstable, try turning off the proxy server in your Web browser. To do this in Microsoft Internet Explorer, click **Tools > Internet Options > Connections > LAN Settings**, clear the **Use a proxy server . . .** checkbox, then click **OK**.

1. In the **Address** field of your Web browser, enter the IP address of your unit. The default address for most Extron products is 192.168.254.254. You can change this address using SIS commands, the PCS configuration software, and the DXP HD 4K PLUS Series web page (see the *DXP 4K HD PLUS User Guide*, available at www.extron.com, for instructions).
2. Press the **<Enter>** key. The DXP checks to see if the web page is password protected.
 - If the unit is not password protected, the web page opens.
 - If the unit is password protected, the Authentication Required dialog box opens.
3. If an administrator or user password is required, enter the user name (**admin**, by default) in the **User Name** field and the password in the **Password** field. Click **Log In**. The DXP HD 4K PLUS web page contains the following panels:
 - **Input Status** — Displays the signal type and status of each input (see figure 10, **1**).
 - **Output Status** — Displays the signal and display type of each output (**2**).
 - **Communication Settings** — Displays the IP and gateway addresses and the subnet mask of the DXP, as well as DHCP status and MAC (hardware) address (**3**). To edit these settings (except the MAC address), click the **Edit** button to access editable fields.
 - **Device Info** — Displays information about the DXP model, including the model type, part number, firmware version, and so on (**4**).
 - To assign a new name to the device, click the **Edit** button (**5**) in this panel.
 - To update the firmware, click the **Update** button (**6**).
 - **Date/Time Settings** — Lets you view and edit the date and time on the DXP (**7**). Click **Sync to PC** to set the date and time on the DXP to match that of the computer to which it is connected. Click **Set Manually** to access editable date and time fields.
 - **Passwords** — Click the **Set** button to enter a new password or change the current one (**8**).
 - **Configure This Device** — This panel contains a link to the Extron website, from which you can download the PCS configuration software (**9**).

DXP 88 HD 4K Plus
DXP HD 4K Plus series
Firmware: v0.00

Extron.
Logged in as: admin Logout

1 Input Status

1	Input 1	HDMI	No Signal
2	Input 2	HDMI	No Signal
3	Input 3	HDMI	No Signal
4	Input 4	HDMI	No Signal
5	Input 5	HDMI	No Signal
6	Input 6	HDMI	No Signal
7	Input 7	HDMI	No Signal
8	Input 8	HDMI	No Signal

2 Output Status

1	Output 1	HDMI	No Display
2	Output 2	HDMI	No Display
3	Output 3	HDMI	No Display
4	Output 4	HDMI	No Display
5	Output 5	HDMI	No Display
6	Output 6	HDMI	No Display
7	Output 7	HDMI	No Display
8	Output 8	HDMI	No Display

3 Communication Settings

TCP/IP

Host Name: DXP-88-HD-4K-Plus-10-5C-B8
DHCP: Off
IPv4 IP Address: 10.113.117.60
Subnet Mask: 255.255.0.0
Gateway IP: 0.0.0.0
Mac Address: 00-05-A6-10-5C-B8

Edit

RS-232 Settings

Baud Rate: 9600
Parity Bit: None
Data Bit: 8
Stop Bit: 1

4 Device Info

Device Name: DXP-88-HD-4K-Plus-10-5C-B8 **5** Edit
Part Number: 60-1495-21
Model Name: DXP 88 HD 4K Plus
Model Description: DXP HD 4K Plus series
Firmware Version: 0.00.0003-b017 **6** Update
Temperature: 89.96°F/32.2°C

7 Date/Time Settings

Date: Thursday, February 01, 2018
Time: 03:31:34 PM

Sync to PC Set Manually

8 Passwords

Set

9 Configure This Device

To configure this device, download and install PCS.
<http://www.extron.com/download/>

Figure 10. Device Info Panel on a DXP 88 Web Page

For details on the DXP HD 4K PLUS web page, see the *DXP HD 4K PLUS Series User Guide*, available at www.extron.com.