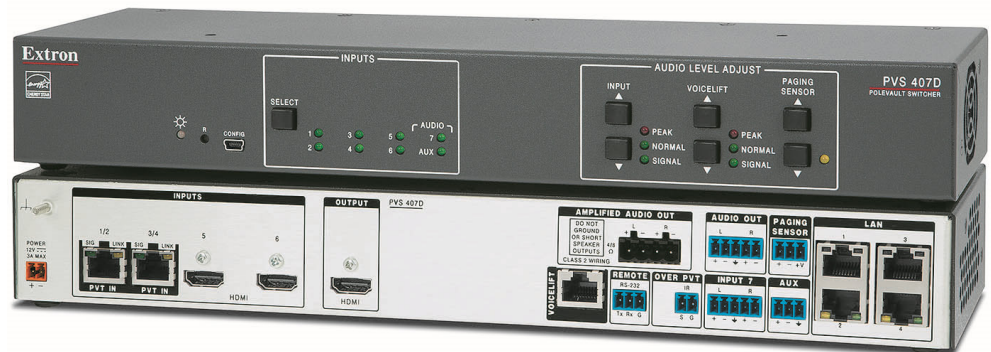


PoleVault Switchers

PVS 407D

PoleVault Digital Switcher



Extron Electronics
INTERFACING, SWITCHING AND CONTROL

Safety Instructions

Safety Instructions • English

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주의: 이 기호 ⚠ 가 제품에 사용될 경우, 장비와 함께 제공된 책자에 나와 있는 주요 운영 및 유지보수(정비) 지침을 경고합니다.

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NOTE: 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.

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Conventions Used in this Guide

Notifications

The following notifications are used in this guide:

DANGER:

- Will result in serious injury or death.
- Entraînera des blessures graves ou la mort.

WARNING: Potential risk of severe injury or death.**AVERTISSEMENT :** Risque potentiel de blessure grave ou de mort.**CAUTION:** Risk of minor personal injury.**ATTENTION :** Risque de blessure mineure.**ATTENTION:**

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

NOTE: A note draws attention to important information.**TIP:** A tip provides a suggestion to make working with the application easier.

Software Commands

Commands are written in the fonts shown here:

```
^ARMerge Scene, ,Op1 scene 1,1 ^B 51 ^W^C  
[01] R0004 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 mentioned in this guide, the character “0” is used for the number zero and “O” is the capital letter “o.”

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

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

Variables are written in slanted form as shown here:

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

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

```
From the File menu, select New.  
Click the OK button.
```

Specifications Availability

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

Extron Glossary of Terms

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

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Introduction

This guide covers the installation, operation, and configuration of the Extron PVS 407D PoleVault Switcher. Throughout the guide, this switcher is interchangeably referred to as the “PVS 407D” or the “PoleVault switcher” or just the “switcher”.

PVS 407D Description

The Extron PVS 407D is part of the PoleVault System and is used in conjunction with the Extron PVT series of transmitters and Extron speakers. It has four video and audio twisted pair inputs, two HDMI inputs, and one HDMI output, and incorporates a built-in audio amplifier. The switcher accepts a combination of up to six HDMI digital signals, four of which can be computer video signals with stereo audio, and supports up to two analog VGA signals on the wallplates.

A seventh input is a switchable analog audio only input for line-level audio such as an Apple iPod® or MP3 player. The dedicated auxiliary (Aux) mixed input on rear panel is always active, and it is independent of the switchable audio inputs (1-7).

As part of the Extron PoleVault system, the PVS 407D can be installed above a suspended ceiling in the Extron PVM 220 plenum rated enclosure, or installed at ceiling level within the Extron PMK 560 Pole Mount Kit. Alternatively it can be mounted in either the Extron WMK 160 or USFM 100 wall mount kits that can be installed on a wall close to a projector or display device.

The PVS 407D switcher is used in conjunction with the Extron digital PVT wallplates, (such as the PVT HDMI RGB), and the VoiceLift microphone system. It is equipped with an integrated 50 watt rms stereo amplifier capable of driving 4 or 8 ohm speakers.

The switcher supports all standard single link HDMI 1.4 signals at resolutions up to 1920x1200 @ 60 Hz and HDTV resolutions up to 1080p @ 60 Hz, with 12-bit color. The switcher and the PVT wallplates feature EDID Minder technology, which automatically manages the EDID information between the display device and each HDMI and RGB input source.

The switcher has DSP audio processing incorporated that provides advanced control of ducking and other audio features.

The switcher is also equipped with Ethernet control via the rear panel LAN ports, and supports audio file playback for pre-recorded announcements.

The PVS 407D is ENERGY STAR® qualified. The switcher is an energy efficient product that conserves energy and reduces running costs.

Inputs

The PoleVault switcher receives the video and audio signals sent from PVT Wallplates, which can be located up to 150 feet away. The signals are sent over shielded twisted pair (STP) cable.

In addition there are two HDMI inputs (inputs 5 and 6) for HDMI source inputs, such as Apple TV® or Extron ShareLink devices. DVI inputs can also be connected to these two HDMI connectors when using the appropriate DVI adapter.

The PVS 407D switcher has a separate analog audio input (input 7) that can be switched with the other six inputs. In addition, there is a dedicated port for connecting the optional VoiceLift microphone system, and another port for connecting an optional Priority Page Sensor. A third dedicated port allows the user to connect an auxiliary audio device.

Outputs

The PVS 407D has one HDMI output, an amplified audio output, and a line out audio output for assistive listening or recording devices.

Control and Configuration

The PoleVault switcher can be controlled from either the front panel buttons, or software via the front panel USB, rear panel LAN ports, or RS-232 control via a MediaLink controller.

The switcher has an RS-232 port which can be connected to a MediaLink Controller for remote control of the switcher. An IR pass-through port is available for routing IR transport control signals from a controller to the source device.

In addition, the PVS 407D can be configured and controlled using the Extron Simple Instruction Set (SIS) of commands or through the Extron Product Configuration Software (PCS) program connected via the front panel USB port and TCP/IP connection. The female USB mini B connector located on the front panel can also be used for configuring the switcher settings and flash upgrading the firmware. Firmware upgrades can also be made remotely over the network by connecting to one of the four rear panel LAN ports.

Four 10/100 Base-T network switch ports are also provided allowing network connectivity for multiple other devices, such as MLC controller, TouchLink panel and Ethernet controlled products, using a single LAN drop within the installation location.

Three front panel controls allow the user to adjust the independent input gains, the VoiceLift microphone input level, and the Page Sensor sensitivity.

Power Save

This product is an ENERGY STAR® qualified product. It has two Power Save modes (Standby and Auto) that can be enabled or disabled by SIS commands, or through the Product Configuration Software (PCS). When either of these modes are enabled and the product is in a low power state, it can be taken out of that state by a front panel operation.

See the [Power Save Modes](#) section on page 13 for full details and the [Power Save](#) mode SIS commands on page 27

See [Setting the auto Power Save Mode](#) on page 57, for details on how to set the auto power feature using PCS.

Application Diagram

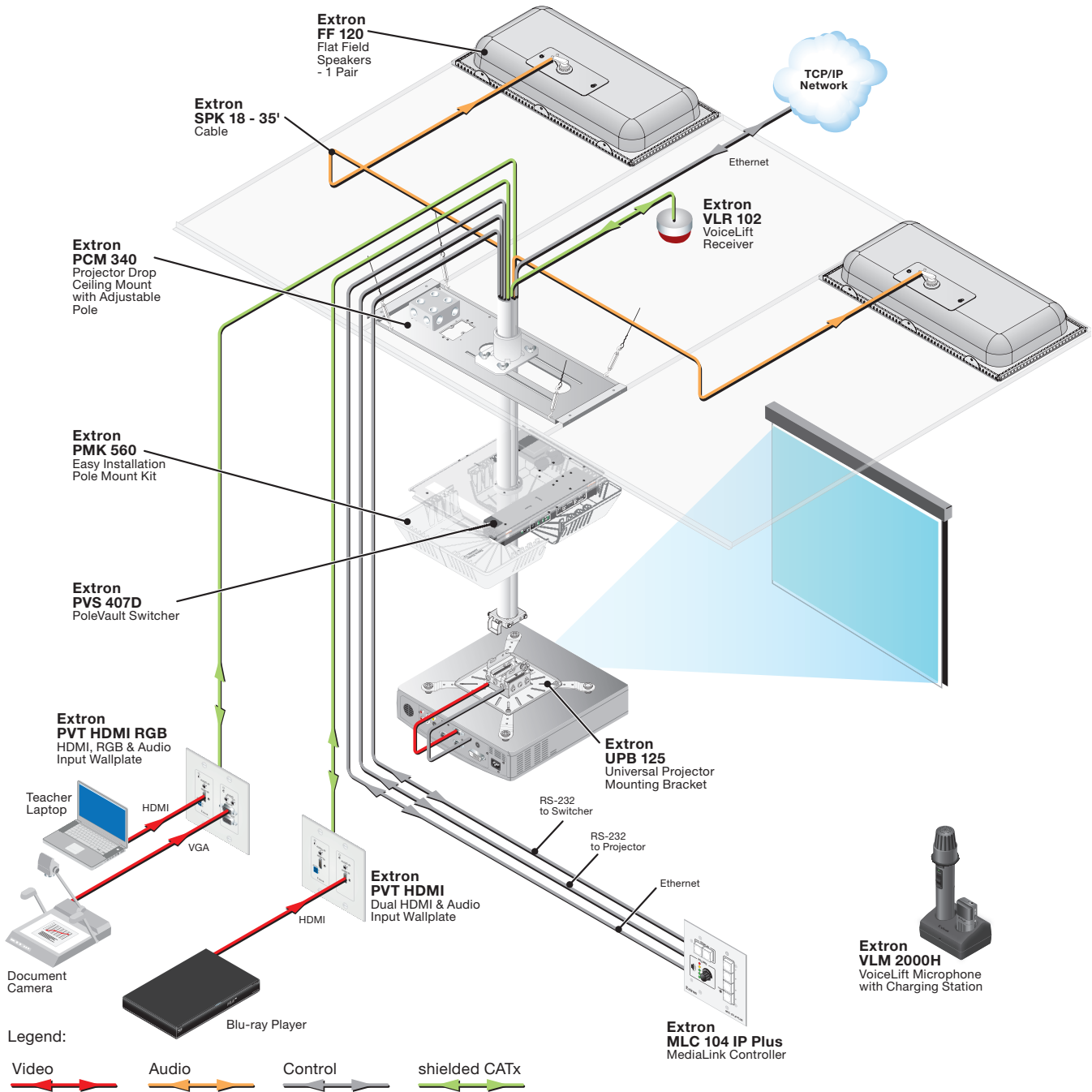


Figure 1. Typical PVS 407D Application

Rear Panel Connections

This section describes which cables connect to a PVS 407D switcher.

Rear Panel Connectors

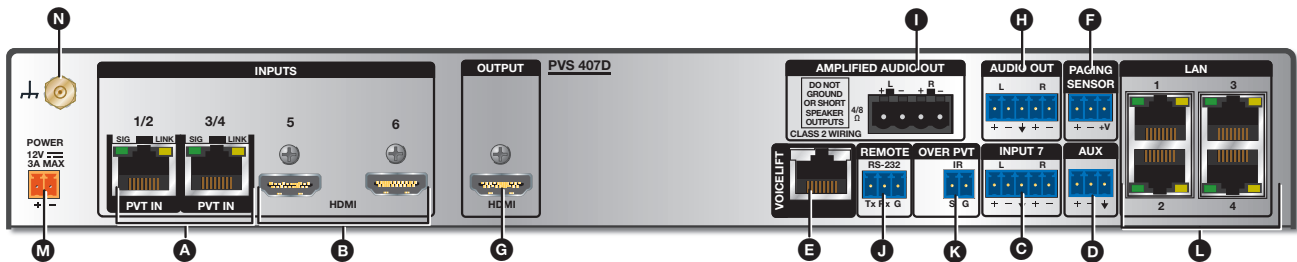


Figure 2. PVS 407D Rear Panel Features

Inputs and Outputs	Control and Power
A Inputs 1/2 and 3/4	J Remote RS-232 control port
B Inputs 5 and 6	K Over PVT (IR Insert port)
C Input 7	L LAN ports (LAN 1-4)
D Aux audio port	M Power receptacle
E VoiceLift port	N Grounding stud
F Paging Sensor port	
G HDMI video output	
H Line out audio output	
I Amplified audio output	

Inputs

- A** **Inputs 1/2 and 3/4** — Connect up to two PVT HDMI RGB or PVT HDMI wallplates (four input sources) to these two RJ-45 female connectors using shielded twisted pair cable (XTP DTP 24). These four inputs can be up to four HDMI with embedded audio or two HDMI and two high resolution computer video and audio sources or any combination of both. The RGB input is digitized at the PVT input wallplate. The front panel input selection button toggles the inputs 1 through 4 as required. See ["TP Cable Termination and Recommendations"](#), page 71, for wiring details.

NOTE: Extron recommends the use of XTP DTP 24 cables

- B** **Inputs 5 and 6** — Connect up to two HDMI sources (such as an Extron ShareLink device) to these female HDMI digital video connectors. Use the Extron LockIt device to secure the HDMI cable at the switcher (see ["Securing the HDMI cable"](#) on page 8 for securing the cable).

- C Input 7** — Input 7 is a dedicated audio-only input for an auxiliary, stereo, line-level analog audio signal from an output source such as iPod device or an MP3 player. Connect a cable from the source to this 5-pole captive screw connector. It can be wired as balanced or unbalanced (see **Connector Wiring**, page 77, for wiring details).
- D Aux audio port** — Connect an aux audio device to this 3.5 mm captive screw 3-pole connector for dedicated mono audio only input.
- E VoiceLift port** — This RJ-45 jack is dedicated for use with the optional VLR 102 VoiceLift Receiver for integration of a VoiceLift Microphone system.

NOTE: To install the VoiceLift Microphone system, see the *VoiceLift Installation Guide*, supplied with the device.

- F Paging Sensor port** — Connect the optional Priority Page Sensor (PPS 35 or PPS 25) to this port, to enable program audio interruptions during paging system broadcasts.

NOTE: The Extron Priority Page Sensor (PPS 35, part **#70-1064-01**) is an optional accessory, purchased separately. The switcher also supports the PPS 25 Priority Page Sensor (part number **70-619-01**). See the Extron [website](#) for details about the Priority Page Sensors. To install a Priority Page Sensor system, see the relevant installation guide supplied with the applicable device.

Outputs

- G HDMI video output** — Connect a suitable display device to this female HDMI digital video output connector. Use the Extron LockIt device to secure the HDMI cable at the switcher (see **Securing the HDMI cable** on page 8 for securing the cable).
- H Line out audio output** — Connect an external amplifier, recording, podcasting, or assisted listening device to this 3.5 mm captive screw 5-pole connector.
- I Amplified audio output** — Connect speakers to this 5 mm captive screw 4-pole connector. The amplified audio is capable of outputting 50 watts (2 x 25 watts rms) for 4 and 8 ohm speakers (see **Speaker Configuration**, page 70, for wiring details.)

Control Ports

- J Remote RS-232 control port** — Connect a host computer, control system, or MLC controller to this 3.5mm captive screw 3-pole connector for direct switcher control via RS-232 (see figure 3 below).
- K Over PVT (IR insert port)** — For IR control for a source device, connect the IR Out port on the MLC to this 3.5 mm captive screw 2-pole connector (see figure 3 below). This routes IR transport control signals via an IR device connected to the PVT wallplate front panel.

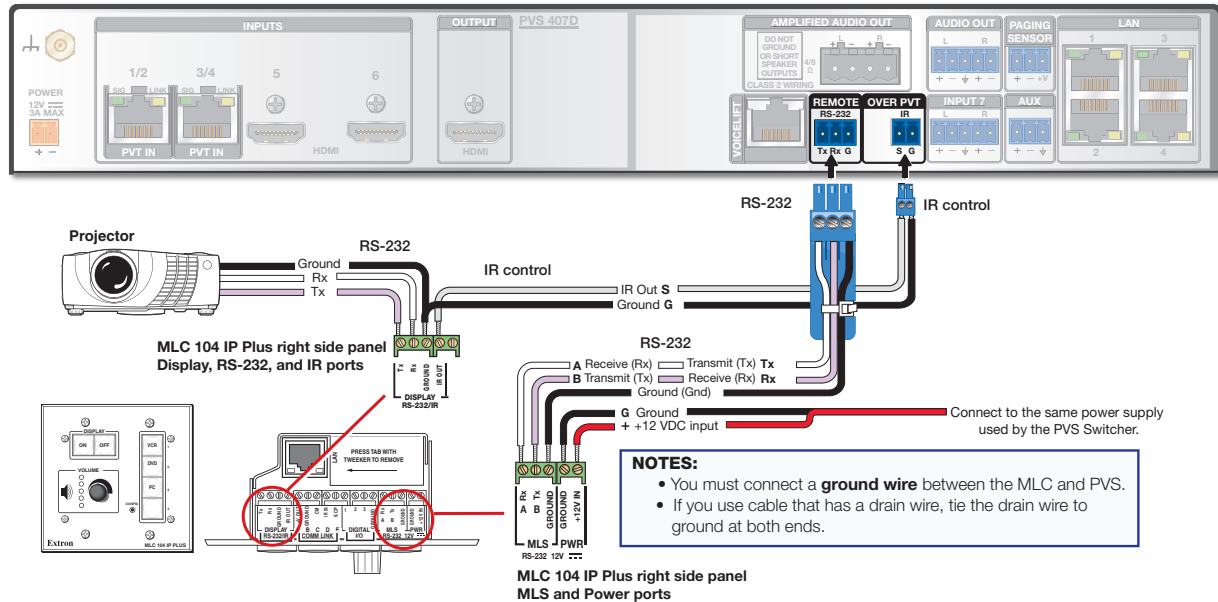


Figure 3. MLC 104 IP Plus RS-232 and IR Connections to the PVS 407D

- L LAN ports** — Connect to these four RJ-45s that act as a built-in 4-port 10/100Base-T network switch. These ports allow communication with the switcher via TCP/IP for firmware updates over the network, as well as configuration and operation using PCS software or the embedded web pages.

Power

- M Power receptacle** — Connect to the supplied 12 VDC 4 A power supply to this orange female 2-pole captive screw connector (see the [wiring diagram](#) on page 72).

NOTES:

- Use only the supplied 12 V, 4 A power supply for this switcher.
- The PVS 407D power supply can support a typical system: for example, a PVS 407D, 2 PVT Wallplates, 2 or 4 speakers, an MLC 104 IP Plus with an IRCM DV+, and a VoiceLift Microphone system.

- N Grounding stud** — Connect a ground cable to this stud and tie it to the closest grounded electrical box, so as to reduce any ESD affects that may be caused when connecting to other sources.

Labeling the AV Inputs

A sheet of labels is supplied for the installer to label the cables as an aid to easy identification of the input signal type running from the PVT Wallplates to the switcher. Once the labels are attached to the cables, the signal type transmitted on any cable can clearly be identified, enabling correct cable connection during installation. To label the cables,

1. Peel off the label corresponding to the cable signal type (HDMI or RGB) and affix it close to one end of the cable.

NOTE: Align and press the colored section of the label to the cable first, then wrap the clear section around the cable, allowing the signal type name to be easily read.

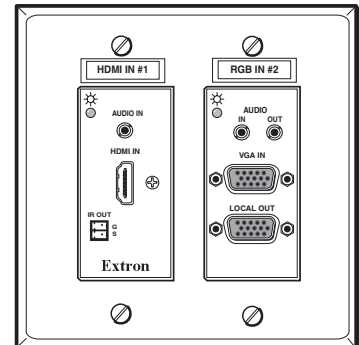


Figure 4. Wrap the label around the cable, colored part first.

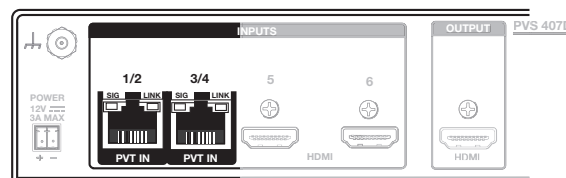
2. Repeat step 1 for the other end of the cable, using the same label type.
3. Using the correct label type, repeat steps 1 and 2 as necessary for all signal cables that are to be connected to the PVS 407D.
4. Connect the designated input cable to the corresponding input.

Labeling the PVT Decora Faceplates

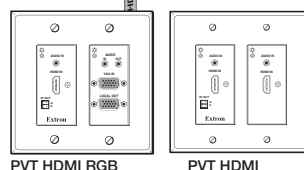
To help identify the input number and type of signal that a PVT Decora wallplate sends to the PVS switcher when the wallplate is installed, a series of small labels are supplied. A label identifying the transmitted signal type should be affixed to each Decora face plate (top or bottom) where it can easily be seen after installation. This aids the user to connect a device corresponding to the plate transmission signal type, allowing correct input switching (for example input 1, input 3 and so on) at the PVS 407D.



Each digital wallplate has two inputs. Up to two wallplates can be connected to the PoleVault digital switcher. See image below for an explanation of input association.



Connect up to two (2) digital wallplates to PVT IN 1/2 and 3/4 using one (1) XTP DTP 24 cable with RJ-45 connectors per wallplate.



NOTE: Any digital wallplate connected to PVT IN 1/2 on the switcher is associated with inputs 1 and 2. Input 1 is the left audio and video input (on the wallplate) and input 2 is the right audio and video input.

The same is true when connecting to PVT IN 3/4. Input 3 is the left and input 4 is the right input on the wallplate.

Figure 5. Wallplate to Switcher Input Association

Final Setup

With an MLC 104 IP Plus as a standard MLC controller in the PoleVault system package, the PVS 407D switcher completed setup should look similar to the figure below.

Ensure all connections are correctly made and secure. Use LockIt brackets to secure HDMI cables (see below).

NOTE: See the *PoleVault System Installation Guide* and *MLC 104 Plus Series Setup Guide* for full MLC installation, configuration, and operating details.

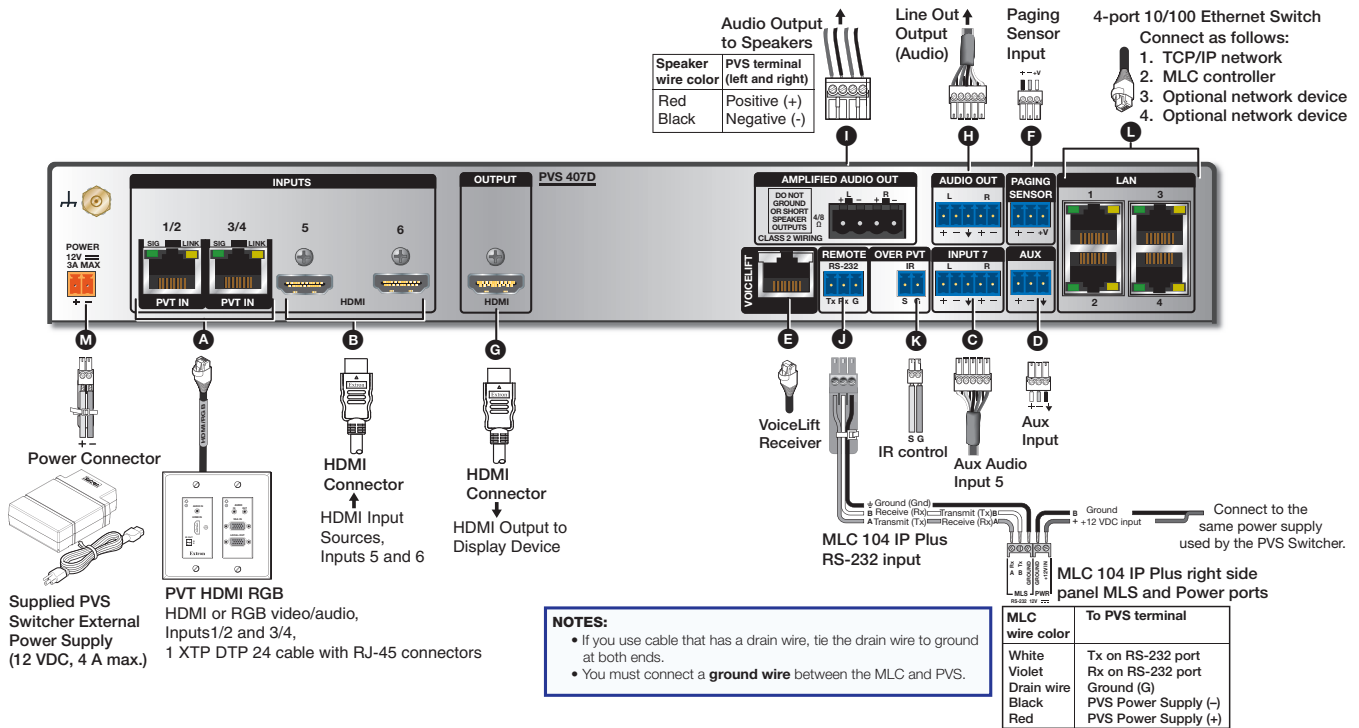


Figure 6. PVS 407D Connections

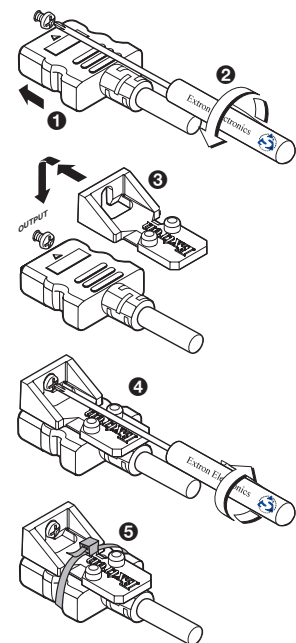
Securing the HDMI Cable

The supplied Extron LockIt HDMI cable lacing bracket makes it possible to secure a standard HDMI cable to the PVS 407D switcher.

To securely fasten an HDMI cable to the PVS 407D:

1. Plug the HDMI cable into the rear panel HDMI connector.
2. Loosen the HDMI connection mounting screw from the rear panel enough to allow the LockIt lacing bracket to be placed over it. The screw does not have to be removed.
3. Place the LockIt lacing bracket on the screw and against the HDMI cable connector.
4. Tighten the screw to secure the bracket.
5. Place the included tie wrap around the HDMI connector and the LockIt lacing bracket and tighten as shown in the images at right.

NOTE: The tie wrap can be tightened using pliers or similar tools.



Operation

This section of the manual discusses the operation of a PVS 407D device. Topics covered include:

- [Front Panel Overview](#)
- [Configuration](#)
- [Resetting the Switcher](#)
- [Executive Mode \(Front Panel Security Lockout\)](#)
- [Power Save Modes](#)
- [Setting Up and Optimizing the Audio](#)

Front Panel Overview

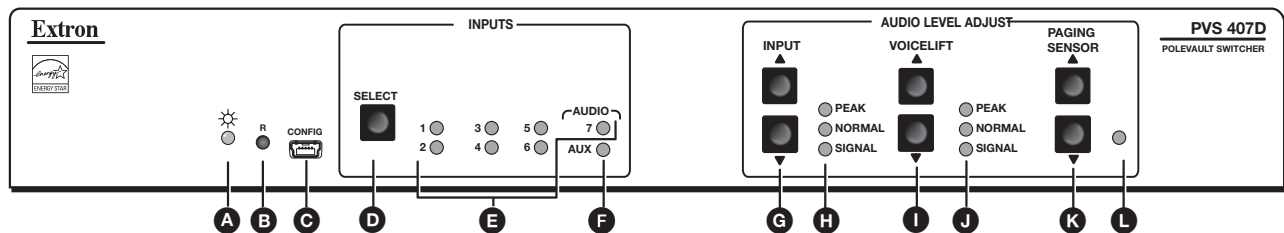


Figure 7. PVS 407D Front Panel Features

Input Selection, Configuration, Status, and Reset	Audio Level Adjustments
A Status LED	G Audio Input adjustment buttons
B Device reset button	H Audio Input adjustment LEDs
C Mini USB Configuration port	I VoiceLift adjustment buttons
D Input selection button	J VoiceLift adjustment LEDs
E Inputs 1-7 status LEDs	K Paging Sensor adjustment buttons
F Aux Input status LED	L Page Sensor indication LED

Front Panel Features

- A** [Status LED](#) — This LED lights green when powered up, and amber when in power save mode.
- B** [Device Reset button](#) — Pressing this inset button resets the switcher to default settings. There are two reset modes (see “[Resetting the Switcher](#)” on page 11 for details).
- C** [Front panel mini USB configuration port](#) — Connect a computer to this mini USB port (cable not supplied), for device configuration, control, and upgrading the firmware.

- D Input selection button** — Pressing this toggles through and selects inputs 1-7 and the Aux input.
 - E F Input selection LEDs (1-7, Aux)** — The applicable input LED lights green when that input is selected and active.
 - Inputs 1 - 4** — Inputs 1 through 4 are HDMI with embedded audio, or high resolution RGB signals input via the PVT wallplates. The analog RGB signal is digitized at the wallplate.
 - Inputs 5 - 6** — Inputs 5 and 6 are HDMI source inputs (such as Apple TV or an Extron ShareLink device) with embedded audio.
 - Input 7** — Input 7 is a dedicated-audio only input for an auxiliary, stereo, line-level analog audio signal from an output source such as an iPod device or an MP3 player.
- NOTE:** Input 7 is audio only. No video signals are supported on this input.
- Aux Input** — This input is mono analog audio only.
 - G Audio input level adjustment buttons** — Use these buttons to adjust the input levels in 1 dB steps (-18 to +24 dB, default = 0).
 - H Audio input level adjustment LEDs** — These three LEDs (peak, normal and signal), indicate the active audio level (see [Setting Up and Optimizing the Audio](#) on page 14 for details).
 - I VoiceLift level adjustment buttons** — These allow the user to adjust the level of the VoiceLift (microphone) input level in 1 dB steps. The VoiceLift Microphone Receiver input range is from -18 dB to +24 dB, default is 0 dB.
 - J VoiceLift level adjustment LEDs** — These three LEDs indicate the active audio level (peak, normal and signal).
 - K Page Sensor sensitivity adjustment buttons** — These allow the user to adjust the paging sensor sensitivity level for the optional PPS 35 Priority Page Sensor or the PPS 25 Priority Page Sensor.
 - L Page Sensor indication LED** — This LED lights amber during paging system broadcasts.

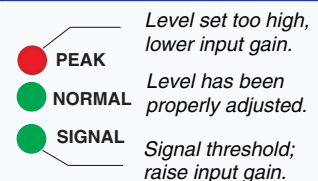
Front panel Operation

NOTE: See the [Front Panel Overview](#) on page 9 for the location of input buttons, adjustment buttons, LEDs, and configuration port.

- To change inputs, toggle the input button **D**, 1 through 6 (video and audio), or input 7 (mono audio only).
- To adjust audio input levels, press the input adjustment buttons **G** in 1 dB steps (-18 to +24 dB, default = 0 dB).
- To adjust VoiceLift microphone levels, press the VoiceLift adjustment buttons **I** in 1dB steps (-18 to +24 dB, default = 0 dB).

NOTES:

- Front panel LEDs indicate input, aux, and mic levels (see image at right).
- On initial switcher power-up the volume level is automatically adjusted to 80%.



- To adjust paging sensitivity, press the Paging Sensor sensitivity buttons **K** to increase or decrease sensitivity (default setting is 50).

Configuration

The PVS 407D switcher can be controlled by a MediaLink Controller (MLC) or by an RS-232 device acting through the MLC. Alternatively, the switcher can be set up and controlled via a host computer or other device (such as a control system) attached to the front panel USB connector or direct connection to the Ethernet, or to the rear panel RS-232 remote port of the switcher.

The control device (host) can use either the Extron Simple Instruction Set (SIS) commands, the Global Configurator (GC) program for Windows®, or the Product Configuration Software (PCS), available at www.extron.com.

Firmware updates can be made via the front panel USB port via Firmware Loader or PCS.

NOTE: See the **SIS Communication and Control** section, starting on page 18, for a full list of the relevant SIS commands..

Resetting the Switcher

The switcher can be reset to the factory defaults via the front panel, USB, or RS-232, in addition to using PCS software or SIS commands, when connected via USB or TCP/IP (LAN connection).

The reset button on the front panel (see [figure 7](#), **B**, on page 9) is a small recessed switch that allows the user to put the switcher into any one of three different reset modes. The PVS 407D switcher reset modes are:

- **Mode 1:** If the reset button is held down while the switcher is being powered up, the switcher runs the base factory firmware instead of any newer version that was loaded after it shipped.
- **Mode 4:** If the reset button is held down long enough for it to blink twice, (about 6 seconds) then released and momentarily pressed again (within 1 second), the switcher resets all of its IP settings including IP address, subnet mask, gateway address, and port maps. In addition, DHCP is turned off.
- **Mode 5:** If the reset button is held down long enough for it to blink three times (9 seconds), then released and momentarily pressed again (within 1 second), the switcher resets all its settings (switcher AV & IP settings) back to factory default condition. All files (including audio files) are removed/ cleared. This reset mode is equivalent to SIS command **ZQQQ**.

NOTES:

- If the second momentary press does not occur within 1 second, the reset procedure is aborted.
- SIS commands **ZXXX**, **ZY**, and **ZQQQ** resets also reset the connected wallplate(s).
- It takes approximately 4 seconds for the connected wallplate(s) to fully boot up after a reset.

Executive Mode (Front Panel Security Lockout)

To prevent accidental or unauthorized changes to settings, the PVS switcher has a front panel security lockout (executive mode) that limits access to front panel controls.

When executive mode is active, all front panel functions are locked except the reset button. This mode can also be turned on or off via an SIS command (see [Front Panel Lockout mode](#) SIS command on page 27).

All the input LED indicators light up for one second to indicate that executive mode has been enabled or disabled.

To turn executive mode on or off via the front panel:

1. Press and hold the input Select button until all input LEDs blink (approx. 8 seconds).
2. Release the button. The LEDs extinguish except for the currently selected input. The switcher has enabled or disabled the executive mode.

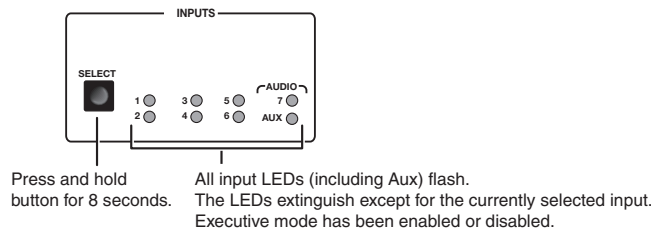


Figure 8. Setting the Executive Mode via the Front Panel

This mode can also be turned on or off through PCS software, TCP/IP, USB, or RS-232 control.

For details, see [SIS Communication and Control](#) section, starting at page 18, or [Using the Extron Product Configuration Software](#) section, starting on page 38.

Power Save Modes

The PVS 407D is an ENERGY STAR qualified device, and has five power save modes, (see table below for mode descriptions).

See the relevant **SIS commands** on page 27.

Mode	Type	Activation	Device and System power	Wake-up trigger	Setup Command
0	Normal	None	Fully powered. LED is green.	N/A	Default state, SIS command reset
1	Auto Power Save	Timed after setup. If no audio and video signal (from inputs 1-6) or audio signal (from switchable program inputs, Aux input, and VoiceLift input) is detected for 25 consecutive minutes, mode 2 is enabled.	Amplifier and rest of system is powered until mode 2 is entered. The LED is green in mode 1.	An active audio signal detected, or when an input is switched, or if the volume is adjusted. The audio timer is reset. Can also be woken by SIS command (resets device to mode 0).	By SIS command or Configuration Software (PCS).
2	Forced Auto Power Save	Instant	Amplifier is off. Rest of system is powered. The LED is amber.	If entered from mode 1, can be woken by an active audio signal, or when an input is switched, or if the volume is adjusted. Reverts to mode 1.	Either from mode 1 or set instantly by SIS command.
				If set instantly by SIS command, can only be woken by SIS command, input selection, or volume adjustment. Reverts to the previously set mode (0 or 1).	
3	Forced Standby Power Save	Instant	Amplifier is off. Wallplates off. VLR 102 receiver off. Rest of system is powered. LED is amber. On PVS 407D, only USB, RS-232, network switch ports, and input buttons are functional.	Pressing the front input toggle button, or switching the inputs from the attached MLC controller. Reverts to the previously set mode (0 or 1). Can also be woken by SIS command.	SIS command only.
4	Forced Network Standby Power Save	Instant	Amplifier is off. Wallplates off. VLR 102 receiver off. Network switch off. Rest of system is powered. The LED is amber. On PVS 407D, only USB, RS-232, and input buttons are functional.	Pressing the front input toggle button, or switching the inputs from the attached MLC controller. Reverts to the previously set mode (0 or 1). Can also be woken by SIS command.	SIS command only.

NOTE: Front USB and rear remote RS-232 ports are powered and active all the time regardless of the current power save mode.

Setting Up and Optimizing the Audio

The following steps ensure optimal sound is achieved by configuring the switcher. For each step, refer to the sections indicated for more information.

Steps for Optimizing the Audio

1. Ensure all the settings are at default. These are the settings the PVS has upon initial power up. The default settings are as shown below.
 - Volume is set at 80%.
 - Bass and treble are set at 0.

NOTE: Output volume can be adjusted via USB, Ethernet, RS-232, or configuration software.

2. Ensure that the PVT transmitters are connected to the PVS and that there is an audio input source present at each of the transmitters. Refer to the transmitter user guide for installation/connection information.
3. Ensure a set of speakers is connected to the PVS 407D.
4. Adjust the input gain level for one input through the front panel or by configuration software to a level just below where audio input is peaking (see **Front panel input sensitivity adjustment** on page 15 for details). Repeat for all inputs.

NOTE: Adjusting input gain level for all inputs ensures that all inputs are at the same level, and at the highest level possible before peaking occurs. Step 4 ensures that when the volume is at 100% the audio signal will not be distorted (clipped).

5. Fine tune the audio by making adjustments to the bass and treble until the desired settings are reached (see **Bass and Treble Control** on page 16 for details).
6. The Aux input is selectable for configuration only. To do this press and hold the **Select** button for 3 seconds until the Aux LED lights. Then increase or decrease using the buttons to the level desired (see **Front panel input sensitivity adjustment** section on page 15 for details). Aux input can be adjusted via PCS.
7. Press the **Select** button to exit the Aux adjust mode.

Gain Control

Individual channel input sensitivity control

Individual channel input gain control adjustments are made by pressing the adjustment buttons for the selected input button. The adjustment range is -18 dB to +24 dB, with the default set at 0 dB.

NOTE: Adjusting input sensitivity for all inputs ensures that all inputs are at the same level and at the highest level possible before clipping occurs.

Front panel input sensitivity adjustment

To make sure the correct input sensitivity is attained, do the following:

For the active input (with the LED lit), press the up ▲ level adjustment button until the **Normal** LED is lit and the **Peak** LED only lights occasionally. Press the down ▼ adjustment button for compensation if the **Peak** LED stays on too long.

NOTE: Having the audio level beyond the point at which the peak LED flashes results in a distorted output signal (clipping).

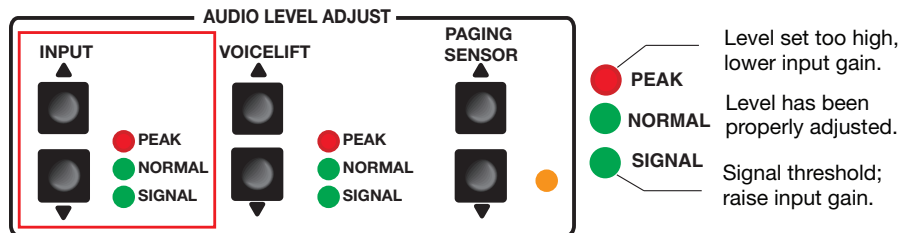


Figure 9. Front Panel Audio Input Peak/Normal/Signal LEDs and Adjustment Buttons

Individual gain adjustment can also be made by configuration software.

Repeat the steps for the other inputs as desired.

NOTE: The Peak, Normal, and Signal LEDs function as the Aux Input level indicator only when the switcher is in the "Aux Adjust" mode.

Bass and Treble Control

For optimum audio quality, the audio input levels and the bass and treble controls must all be set up properly. Input audio levels may need to be adjusted depending on the variation of the output levels from different source devices.

NOTE: By default these levels are set for the consumer product level of -10 dBV.

Bass and treble should be adjusted once the input and output levels have been adjusted. These are adjusted by configuration software only, with a range from -24 dB to +12 dB. By default the bass and treble have been set at 0 dB.

VoiceLift Level Adjustment

To adjust VoiceLift microphone levels, press the VoiceLift adjustment buttons (in 1 dB steps) from -18 dB to +24 dB, default is 0 dB.

While speaking into the microphone, increase the gain until the Normal LED is lit and the Peak LED only lights occasionally.

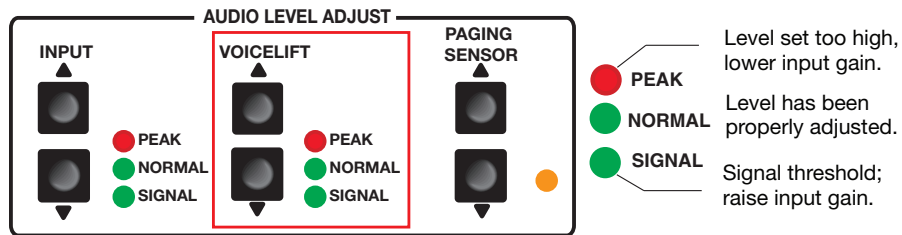


Figure 10. Front Panel VoiceLift Mic Peak/Normal/Signal LEDs and Adjustment Buttons

The VoiceLift Microphone Receiver input signal is not affected by the system volume adjustment and tone control via SIS or an MLC controller attached to the switcher. The VoiceLift audio channel is always active, and it is independent of the selectable audio inputs (1 - 7).

The VoiceLift Receiver Microphone input audio can be heard throughout a presentation, whether or not audio from the selected input (1-6) is active or muted.

NOTE: If output audio is muted via the “1Z” SIS command, all embedded audio on the HDMI, line out and amplifier outputs will not be heard.

The VoiceLift Microphone input can be muted via a separate SIS command (see the [SIS Communication and Control](#) section, page 18, for details).

Paging Sensitivity Adjustment

When the PPS 25 Priority Page Sensor, or the microphone interface, or the PPS 35 Priority Page Sensor is connected to the Priority sensor input on the rear panel, the HDMI output audio, amplified and line out audio outputs are muted during a system announcement. The amber LED indicator lights when an announcement or page is made over the facility PA system.

The PPS 25 Priority Page Sensor works with 25 V/70 V and 4/8 ohms paging systems. The PPS 35 Priority Page Sensor works with any public address system speakers.

To adjust paging sensitivity, use the Paging Sensor Sensitivity buttons to increase or decrease sensitivity.

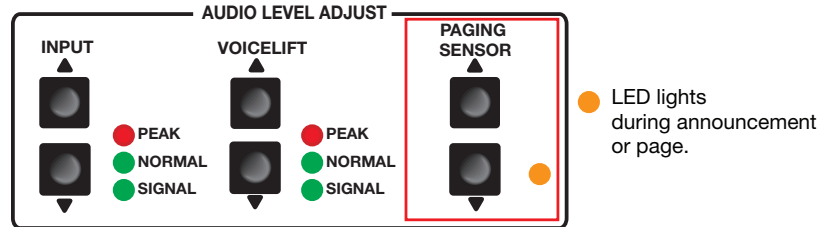


Figure 11. Front Panel Paging Sensor Min/Max LED and Adjustment Buttons

Paging sensor delay (1-8, in 1 second steps, 0 = disabled) can be set via SIS or configuration software. The default = 3 (enabled).

NOTE: The Paging Sensor port must be enabled in order to operate fully.

The paging sensor hold time can be set via SIS or configuration software to ensure the amplified and line out audio outputs stay muted for a specific duration after an announcement or page is finished. This is to prevent the audio being un-muted if the announcer pauses or stops talking while making the announcement or page.

SIS Communication and Control

The switcher can be configured and controlled with Extron Simple Instruction Set (SIS) commands when connected to a host computer or other device (such as a control system). Attach the host device to the rear panel RS-232 connector, the LAN port, or the front panel USB port. Commands can be entered using a Telnet application such as the Extron DataViewer, available at www.extron.com (see the *DataViewer Help* file for more details). This section describes SIS communication and control. Topics in this section include:

- [Host and Switcher Communication](#)
- [SIS Overview](#)
- [Command and Response Tables](#)

The switcher uses a protocol of 9600 baud, 1 stop bit, no parity, and no flow control (see [Remote RS-232 control port](#) on page 6).

Host and Switcher Communication

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command sequence. When the switcher determines that a command is valid, it executes the command and sends a response to the host device. All responses from the switcher to the host end with a carriage return and a line feed (CR/LF = `↵`), indicating the end of the response character string (one or more characters).

Switcher-Initiated Messages

When a local event such as a front panel selection or adjustment takes place, the PVS 407D responds by sending a message to the host. No response is required from the host. Example switcher-initiated messages are listed here.

- `↵ © Copyright 2015, Extron Electronics, PVS 407D, Vx.xx, 60-1466-01↵`
- `Chn x1 ↵` (where `x1` is the input number when an input switches).

Copyright Information

The copyright message is displayed upon connecting to a switcher via TCP/IP or Telnet or via RS-232 after a power cycle.

```
↵ © Copyright YYYY, Extron Electronics, PVS 407D, Vx.xx, 60-1466-01↵  
Ddd, DD MMM YYYY HH:MM:SS ↵ (day, date, and time as in Fri, 20 Nov 2015  
11:27:33). Vx.xx is the firmware version number.
```

Password Information

The `↵ Password:` prompt requires a password (administrator level or user level) followed by a carriage return. The prompt is repeated if the correct password is not entered. If the correct password is entered, the unit responds with `↵ Login Administrator ↵` or `↵ Login User ↵`, depending on password entered. If passwords are the same for both administrator and user, the unit defaults to administrator privileges.

Error Responses

When the switcher receives a valid command, it executes the command and sends a response to the host device. If the unit is unable to execute the command, it returns an error response to the host.

Error codes

E01 — Invalid input channel	E18 — System/command timed out
E10 — Invalid command	E22 — Busy
E12 — Invalid port number	E24 — Privilege violation
E13 — Invalid parameter	E25 — Device not present
E14 — Not valid for this configuration	E26 — Maximum number of connections exceeded
E17 — System timed out	E28 — Bad filename or file not found

Error response references

These references in the command and response tables note particular error responses to that command.

¹⁴ = Commands that give an E14 (invalid command for this configuration) error if sent to a product whose current configuration does not support the command

²⁴ = Commands that give an E24 (privilege violation) error if not administrator level

²⁸ = Commands that may give an E28 (file not found) error

SIS Overview

Using the Command and Response Tables

The **Command and Response Tables** for SIS commands beginning on page 26 lists the commands that the switcher recognizes as valid, the responses that are returned to the host, a description of the command function or the results of executing the command, and examples of commands in ASCII (Telnet) and URL encoded (Web).

NOTE: Upper and lower case text can be used interchangeably unless otherwise stated.

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

Figure 12. ASCII to Hexadecimal Character Conversion Table

Symbol Definitions

•	=	Space	
↵	=	Carriage return with line feed	
←	=	Carriage return with no line feed	
|	=	Pipe (vertical bar) character (URL equivalent to carriage return)	
Esc , W	=	Escape key, or hex 1B (use W instead of Esc for web browsers)	
^{14, 24, 28}	=	Superscripts indicate the error message displayed if the command is entered incorrectly or with invalid parameters (see Error response references on page 19)	
X1	=	Input selection	Video and audio input selection, 1-7
X3	=	PVT Wallplate type	∅ = No PVT wallplate detected 1 = PVT HDMI wallplate is detected 2 = PVT HDMI RGB wallplate is detected
X4	=	Audio input	1 = Active Program (post switch) 8 = VoiceLift 9 = Aux 1∅ = Embedded HDMI audio out
X5	=	Audio Status	Signal detection threshold: ∅ = Off (signal level is too low to detect) 1 = On (a signal of at least -60 dBFS is present) Normal range: ∅ = Off (input level too low) 1 = On (input is in the right range if at least -30 dBFS is present) Peak level: ∅ = Off (audio input has been set up properly) 1 = On (the level or gain is too high, audio clips/distorts when -6 dBFS and above is detected). Adjust the input level so only the Normal LED is blinking (the Peak LED should not turn on).
X6	=	Video input selection	Inputs 1-6 only
X7	=	Video signal status	∅ = Video/TMDS signal not detected 1 = Video/TMDS signal detected 2 = Unknown
X8	=	Audio format	∅ = Analog 1 = Digital
X9	=	Audio mute to DSP	∅ = Audio unmuted 1 = Audio muted
X10	=	Input HDCP status	∅ = No video source detected* 1 = Video detected without HDCP (incoming video is not encrypted) 2 = Video detected with HDCP (incoming video is encrypted)

NOTE: *Video source is active if +5 VDC from the source is present and the incoming TMDS clock is locked.

- | | | |
|------------|--|--|
| X11 | = HDMI input HDCP Authorization status | Ø = Block HDCP encryption
1 = Allow HDCP encryption (default) |
| X12 | = Output HDCP status | Ø = No active sink detected**
1 = Non-HDCP sink detected (connected sink is not HDCP compliant)
2 = HDCP sink detected, output not encrypted (connected sink is HDCP compliant. HDCP is not active)
3 = HDCP sink detected, output encrypted (connected sink is HDCP compliant. HDCP is active) |

NOTE: **Sink is active if HPD (hotplug detection) is detected and TMDS clock is terminated.

- | | | |
|------------|-------------------------|---|
| X13 | = EDID in HEX format | 128 or 256 Byte EDID raw HEX (text form) |
| X14 | = Native resolution | Native resolution and refresh rate from selected EDID |
| X15 | = HDMI output sync mode | Ø = Disable output sync (default)
1 = Enable output sync |

X18 = DDC value (EDID emulation or output rate) (1-61), see table below

SIS X18 variables for EDID resolution/refresh rate combination (where X18 = 1 through 61)												
Analog						Digital						
Resolution	Refresh (Hz)	Rate Type	Video Format	Audio Format	X18	Resolution	Refresh (Hz)	Rate Type	Video Format	Audio Format	X18	
800x600	60	PC	VGA	N/A	1	800x600	60	PC	HDMI	2-ch	33	
1024x768	60	PC	VGA	N/A	2	1024x768	60	PC	HDMI	2-ch	34	
1280x720	60	PC	VGA	N/A	3*	1280x768	60	PC	HDMI	2-ch	35	
1280x768	60	PC	VGA	N/A	4	1280x800	60	PC	HDMI	2-ch	36	
1280x800	60	PC	VGA	N/A	5	1280x1024	60	PC	HDMI	2-ch	37	
1280x1024	60	PC	VGA	N/A	6	1360x768	60	PC	HDMI	2-ch	38	
1360x768	60	PC	VGA	N/A	7	1366x768	60	PC	HDMI	2-ch	39	
1366x768	60	PC	VGA	N/A	8	1400x1050	60	PC	HDMI	2-ch	40	
1400x1050	60	PC	VGA	N/A	9	1440x900	60	PC	HDMI	2-ch	41	
1440x900	60	PC	VGA	N/A	10	1600x900	60	PC	HDMI	2-ch	42	
1600x900	60	PC	VGA	N/A	11	1600x1200	60	PC	HDMI	2-ch	43	
1600x1200	60	PC	VGA	N/A	12	1680x1050	60	PC	HDMI	2-ch	44	
1680x1050	60	PC	VGA	N/A	13	1920x1200	60	PC	HDMI	2-Ch	45	
1920x1080	60	PC	VGA	N/A	14	2048x1080	60	PC	HDMI	2-Ch	46	
1920x1200	60	PC	VGA	N/A	15	480	60	HDTV	HDMI	2-Ch	47	
2048x1080	60	PC	VGA	N/A	16	576p	50	HDTV	HDMI	2-Ch	48	
800x600	60	PC	DVI	N/A	17	720p	50	HDTV	HDMI	2-Ch	49	
1024x768	60	PC	DVI	N/A	18	720p	60	HDTV	HDMI	2-Ch	50**	
1280x720	60	PC	DVI	N/A	19	1080i	50	HDTV	HDMI	2-Ch	51	
1280x768	60	PC	DVI	N/A	20	1080i	60	HDTV	HDMI	2-Ch	52	
1280x800	60	PC	DVI	N/A	21	1080p	50/25	HDTV	HDMI	2-Ch	53	
1280x1024	60	PC	DVI	N/A	22	1080p	50	HDTV	HDMI	2-Ch	54	
1360x768	60	PC	DVI	N/A	23	1080p	60/24	HDTV	HDMI	2-Ch	55	
1366x768	60	PC	DVI	N/A	24	1080p	60	HDTV	HDMI	2-Ch	56	
1400x1050	60	PC	DVI	N/A	25	Output 1 (Automatic mode)					57	
1440x900	60	PC	DVI	N/A	26	User loaded Slot 1					58	
1600x900	60	PC	DVI	N/A	27	User loaded Slot 2					59	
1600x1200	60	PC	DVI	N/A	28	User loaded Slot 3					60	
1680x1050	60	PC	DVI	N/A	29	User loaded Slot 4					61	
1920x1080	60	PC	DVI	N/A	30	** Default digital EDID						
1920x1200	60	PC	DVI	N/A	31							
2048x1080	60	PC	DVI	N/A	32							
* Default analog EDID												

X19	= Pass-through mode	0 = Not in pass-through mode (default) 1 = In pass-through mode
X20	= Power save mode/state	0 = auto power save and standby power mode off (power save off) (default) 1 = set auto power save timer running, but not triggered 2 = auto power save on (timer triggered) 3 = standby power save on (turn off all peripheral devices except network switch) 4 = network standby power save on (turn off network switch)
X21	= Relay status (VLR 102 response)	0 = Off 1 = On
X22	= Contact closure input state (VLR 102 response)	0 = Open 1 = Closed
X23	= VoiceLift status (VLR 102 response)	0 = No carrier/ microphone is off 1 = Channel A or C 2 = Channel B or D 3 = Channels A or C and B or D
X25	= Output port to play back audio	1 = All 2 = Amplified audio output 3 = Lineout audio output
X26	= Audio file play back mode	0 = Play once 1-300 = Play continuously with a 0-299 second delay between repeats. Send PLAY command again with mode = 0 to stop audio file playback.
X28	= Audio priority level	0-3, optional, with 0 = least. Defaults to 0 if not specified.
X29	= PVT HDMI RGB wallplate inputs (2 and 4 only)	2 = Input 2 4 = Input 4
X30	= Pixel phase	0-63 (32 = default)
X31	= Total pixels (phase)	±255 of the default value (depends on input rate)
X32	= Horizontal vertical start	0-255 (default midpoint of 128 translates to the default value in the input lookup tables)
X33	= Vertical start	0-255 (default midpoint of 128 translates to the default value in the input lookup tables)
X34	= Status	0 = Off/disable 1 = On/enable
X35	= Audio output volume	000 to 100, (-100 dB to 0 dB), [default 080]

X36 = Audio filename

Alphanumeric, up to 32 characters (for example, "lunchtime"). File name must contain alphanumeric characters. Symbols, special characters and spaces are not allowed except underscore. Valid characters are A-Z, a-z, 0-9 and _ (underscore). The file name can start with a number or underscore. It cannot end with an underscore.

NOTE: The audio file must be in specific audio format type supported by the firmware e.g. 8.0 kHz, 16 bit mono PCM format.

X37 = Model name

PVS 407D

X44 = Number of connections

Number of open connections

X101 = Default name

Combination of model name and last 3 hex pairs of MAC address (for example PVS-407D-07-4B-E9).

X102 = Verbose mode

0 = Clear/none;
1 = Verbose mode
2 = Tagged responses for queries
3 = Verbose mode tagged responses for queries.

NOTE: If tagged responses is enabled, all read commands will return the constant string + the data, like setting the value does.
For example command: **Esc** CN ← response:
lpn • **X106** ←

X103 = Baud rate

0 = 9600 (Default)
1 = 19200
2 = 38400
3 = 115200

X104 = Hardware (MAC) address

(00-05-A6-xx-xx-xx)

X105 = Unit name

Text string up to 24 characters drawn from the alphabet (A-Z), digits (0-9), minus sign/hyphen (-). No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case. The first character must be an alpha character. The last character must not be a minus sign/hyphen.

X106 = Date and time

Set local date and time format (MM/DD/YY-HH:MM:SS) for example, 06/21/15-10:54:00

X107 = On/Off status

0=off/disable; 1=on/enable

X108 = Password

Password: maximum length is 12 characters. All man-readable characters are permitted except “/”, “\”, “|”, “ “, and “*”. Passwords are case-sensitive and cannot be a single space.

NOTE: A user password cannot be assigned if an admin password does not exist and will return “E14”. If admin password gets cleared, then user password and all extended security-level passwords are also removed.

X109 = IP address (xxx.xxx.xxx.xxx)

Leading zeros in each of 4 fields are optional in setting values, and are suppressed in returned values.

Factory default IP address: 192.168.254.254

X110 = Subnet mask (xxx.xxx.xxx.xxx)

Leading zeros in each of 4 fields are optional in setting values, and are suppressed in returned values.

Default subnet mask: 255.255.0.0

X111 = Gateway address (xxx.xxx.xxx.xxx)

Leading zeros in each of 4 fields are optional in setting values, and are suppressed in returned values.

Default gateway address: 0.0.0.0

X112 = GMT offset

Greenwich Mean Time (GMT) offset value (-12:00 to 14:00). This represents hours and minutes (hh:mm) offset from GMT.

X113 = Prefix (subnet mask bits)

Subnet 255.255.0.0 is represented as a prefix value by /16.

Command and Response Tables

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
Input selection			
Select an input	[X1]!	Chn [X1] ←	Select video and audio from input [X1] .
View current input	! <i>Verbose mode 2/3</i>	[X1] ← Chn [X1] ←	View current input.
Video mute (output)			
Mute output video	1B	Vmt 1 ←	Mute HDMI video output.
Unmute output video	ØB	Vmt Ø ←	Unmute the output.
View output video mute status	B <i>Verbose mode 2/3</i>	[X34] ← Vmt [X34] ←	View the mute status on output.
Audio mute (output)			
NOTES:			
<ul style="list-style-type: none"> Mutes the embedded audio on the HDMI, line out, and amplifier outputs. If output audio mute is on and input is switched or volume is changed, the switcher is unmuted automatically and sends out the unmute response. Audio file playback is excluded from the Z mute command and cannot be muted. 			
Mute output audio	1Z	Amt 1 ←	Turn audio mute on.
Unmute output audio	ØZ	Amt Ø ←	Turn audio mute off.
View output audio mute status	Z <i>Verbose mode 2/3</i>	[X34] ← Amt [X34] ←	View audio mute status.
Input mute control			
Set input audio mute	[Esc][X4]*[X34]IMUT ←	Imut [X4]*[X34] ←	Set mute control to [X4] .
View input audio mute status	[Esc][X4]IMUT ← <i>Verbose mode 2/3</i>	[X34] ← Imut [X4]*[X34] ←	View the audio input mute status. Default is [X34] = 1 , muted.
NOTE: If active program is muted and input is switched or volume is changed, the program audio is unmuted automatically and sends out the unmute response.			

NOTES:

[X1] = Input selection	1 - 7
[X4] = Audio input selection	1 = Active Program (post switch) 8 = VoiceLift 9 = Aux 1Ø = Embedded HDMI audio out
[X34] = Status	Ø = Off/disabled/unmuted 1 = On/enabled/muted (default)

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
Output volume			
Set specific volume	<code>[X35]V</code>	<code>Vol[X35]↵</code>	Set volume to <code>[X35]</code> .
Increment	<code>+V</code>	<code>Vol[X35]↵</code>	Increase volume.
Decrement	<code>-V</code>	<code>Vol[X35]↵</code>	Decrease volume.
View volume	<code>V</code>	<code>[X35]↵</code>	View current volume setting.
	<i>Verbose mode 2/3</i>	<code>Vol[X35]↵</code>	
Front panel lockout mode (executive mode)			
Enable locked mode	<code>1X</code>	<code>Exe1 ↵</code>	Lock the entire front panel.
Disable locked mode	<code>ØX</code>	<code>ExeØ ↵</code>	Unlock the front panel.
View status	<code>X</code>	<code>[X34]↵</code>	View the lock mode.
Pass-through mode (dedicated VoiceLift port)			
Configure pass-through mode	<code>[Esc]1CD↵</code>	<code>Cpn1 ↵</code>	Set VoiceLift port to pass-through mode.
Terminate pass-through mode	<code>[Esc]ØCD↵</code>	<code>CpnØ ↵</code>	Stop pass-through mode (default).
View pass-through mode	<code>[Esc]CD↵</code>	<code>[X19]↵</code>	View pass-through mode status.
	<i>Verbose mode 2/3</i>	<code>Cpn[X19]↵</code>	
Power save mode			
Disable power save	<code>[Esc]ØPSAV↵</code>	<code>Psav[X20]↵</code>	Turns off power save mode, sets timer to zero (default).
Enable auto power save	<code>[Esc]1PSAV↵</code>	<code>Psav[X20]↵</code>	Timer starts count but is not triggered. Switcher enters auto power save mode if there is no active AV signal for 25 minutes.
Force auto power save on	<code>[Esc]2PSAV↵</code>	<code>Psav[X20]↵</code>	Turns on auto power save mode.
Force standby power save on	<code>[Esc]3PSAV↵</code>	<code>Psav[X20]↵</code>	Turns on standby power mode.
Force network standby power save on	<code>[Esc]4PSAV↵</code>	<code>Psav[X20]↵</code>	Turns on standby power mode (network switch off).
View setting	<code>[Esc]PSAV↵</code>	<code>[X20]↵</code>	View power save status.
	<i>Verbose mode 2/3</i>	<code>Psav[X20]↵</code>	

NOTES:

- | | |
|--|--|
| <code>[X19]</code> = Pass-thru mode | <code>Ø</code> = Not in pass-through mode (default) |
| | <code>1</code> = In pass-through mode |
| <code>[X20]</code> = Power save mode | <code>Ø</code> = auto power save and standby power mode off (power save off) (default) |
| | <code>1</code> = set auto power save timer running, but not triggered |
| | <code>2</code> = auto power save on (timer triggered) |
| | <code>3</code> = standby power save on (turn off peripheral devices except network switch) |
| | <code>4</code> = network standby power save on (turn off network switch) |
| <code>[X34]</code> = Status | <code>Ø</code> = Off/disabled (default) |
| | <code>1</code> = On/enabled |
| <code>[X35]</code> = Audio output volume | <code>ØØØ</code> to <code>1ØØ</code> , (-1ØØ dB to <code>Ø</code> dB), [default <code>Ø8Ø</code>] |

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
Device Information Requests			
View fan status	21S <i>Verbose mode 2/3</i>	X34 ↵ Sts21* X34 ↵	View status of internal fan.
View switchable Signal, Normal, and Peak status	1S <i>Verbose mode 2/3</i>	Sig X34 •Norm X34 • Clp X34 ↵ Sts01*Sig X34 • Norm X34 •Clp X34 ↵	View switchable audio Signal, Normal, and Peak status.
View VoiceLift receiver Mic input Signal, Normal, and Peak status	4S <i>Verbose mode 2/3</i>	Sig X34 •Norm X34 • •Clp X34 ↵ Sts04*Sig X34 • Norm X34 •Clp X34 ↵	View VoiceLift receiver Mic input Signal, Normal, and Peak status.
View Aux input Signal, Normal, and Peak status	5S <i>Verbose mode 2/3</i>	Sig X34 •Norm X34 • •Clp X34 ↵ Sts05*Sig X34 • Norm X34 •Clp X34 ↵	View Aux input audio Signal, Normal, and Peak status.
View video signal presence	Esc LS↵ <i>Verbose mode 2/3</i>	X7 • X7 • X7 • X7 • X7 • X7 ↵ Sig X7 • X7 • X7 • • X7 • X7 • X7 ↵	View which input video signals are present for inputs
View detected audio format	Esc 40STAT↵ <i>Verbose mode 2/3</i>	X8 ↵ 40Stat• X6 * X8 ↵	View detected audio input format for selected input.
View VoiceLift status	34I <i>Verbose mode 2/3</i>	X21 • X22 • X23 ↵ Inf34* X21 • X22 • X23 ↵	View information on VoiceLift status.

NOTES:

X6 = Video inputs

X7 = Video signal status

X8 = Audio format

X21 = Relay status (VLR 102 response)

X22 = Contact closure input state (VLR 102 response)

X23 = VoiceLift status (VLR 102 response)

X34 = Status

Inputs 1-6 only

0 = Video/TMDS signal not detected

1 = Video/TMDS signal detected

2 = Unknown

0 = Analog

1 = Digital

0 = Off

1 = On

0 = Open

1 = Closed

0 = No carrier/ microphone is off

1 = Channel A or C

2 = Channel B or D

3 = Channels A or C and B or D

0 = Off/disable

1 = On/enable

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
View PVT wallplate type	35I	PVTplate[X3]•[X3]↵	Identify wallplate type; PVT (plate 1)•(plate 2).
View audio mute to DSP	40S	[X9]↵	Unmutes when 2-Chn PCM is available only. Mutes when other formats are available.
	<i>Verbose mode 2/3</i>	Sts40*[X9]↵	
View paging sensor status	42S	[X34]↵	View the priority paging sensor status.
	<i>Verbose mode 2/3</i>	Sts42*[X34]↵	
EDID minder (VGA and HDMI)			
Assign EDID to input	[Esc]A[X6]*[X18]EDID↵	EdidA[X6]*[X18]↵	Assign EDID [X18] to input [X6].
View assigned EDID	[Esc]A[X6]EDID↵	[X18]↵	View the EDID for input [X6].
Save display EDID to custom slot	[Esc]S[X18]EDID↵	EdidS[X18]↵	Save output EDID to [X18] (3-8, 201, 202).
View/read EDID in Hex format	[Esc]R[X6]EDID↵	[X13]↵	View the EDID in Hex format.
View EDID native resolution	[Esc]N[X6]EDID↵	[X14]↵	View the EDID native resolution for input [X6].
	<i>Verbose mode 2/3</i>	EdidN[X14]↵	
Import EDID to user slot	[Esc]I[X18], <filename>EDID↵	EdidI[X18]↵	Import from <filename> to specified user slot. [X18] = 58-61).
Upload file to unit	[Esc]+UFsize, <filename>↵	Up1↵	Upload file from PC to <filename>, (where size = 128 or 256).
Export EDID file	[Esc]E[X18], <filename>EDID↵	EdidE[X18]↵	Export EDID from specified EDID slot [X18] to <filename>.
Send file from unit to PC	[Esc]<filename>SF↵	file data(128 or 256 bytes)	Send <filename> from unit to PC.

NOTES:

[X3] = PVT wallplate type

[X6] = Video inputs

[X9] = Audio mute to DSP

[X13] = EDID in Hex format

[X14] = Native resolution

[X18] = DDC value (EDID emulation or output rate)

[X34] = Status

0 = No PVT wallplate detected

1 = PVT HDMI wallplate is detected

2 = PVT HDMI RGB wallplate is detected

Inputs 1-6 only

0 = Audio unmuted

1 = Audio muted

128 or 256 Byte EDID raw HEX (text form)

Native resolution and refresh rate from selected EDID

(1-61), see table on page 22

0 = Off/disable

1 = On/enable

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
HDCP status			
View input HDCP	[Esc] I [X6] HDCP ← <i>Verbose mode 2/3</i>	[X10] ← HdcpI [X6] * [X10] ←	View the HDCP status on input [X6] .
View output HDCP	[Esc] O HDCP ← <i>Verbose mode 2/3</i>	[X12] ← HdcpO [X12] ←	View the HDCP status on output.
View all HDMI inputs HDCP	[Esc] I HDCP ← <i>Verbose mode 2/3</i>	[X10] • [X10] • [X10] • [X10] • [X10] • [X10] ← HdcpI [X10] • [X10] • [X10] • [X10] • [X10] • [X10] ←	View the HDCP status on inputs 1-6.
HDCP authorized setting (valid for HDMI inputs only, to allow or block HDCP input signals)			
Enable HDCP encryption	[Esc] E [X6] * 1 HDCP ←	HdcpE [X6] * 1 ←	Enable HDCP encryption support for input [X6] (default).
Disable HDCP encryption	[Esc] E [X6] * Ø HDCP ←	HdcpE [X6] * Ø ←	Disable HDCP encryption support for input [X6] .
Query HDCP encryption status	[Esc] E [X6] HDCP ←	[X11] ←	View HDCP encryption support setting for input [X6] .
HDMI Output Sync mode			
Set output sync mode	[Esc] M [X15] * S SAV ←	SsavM [X15] ←	Set HDMI output sync mode to [X15] .
Query output sync mode	[Esc] M S SAV ← <i>Verbose mode 2/3</i>	[X15] ← SsavM [X15] ←	View HDMI output sync mode.

NOTES:

[X6] = Video inputs

[X10] = Input HDCP status

[X11] = HDMI input HDCP Authorization status

[X12] = Output HDCP status

[X15] = HDMI output sync mode

Inputs 1-6 only

Ø = No video source detected

1 = Video detected without HDCP (incoming video is not encrypted)

2 = Video detected with HDCP (incoming video is encrypted)

Ø = Block HDCP encryption

1 = Allow HDCP encryption (default)

Ø = No active sink detected (see [page 21](#) for full details)

1 = Non-HDCP sink detected

2 = HDCP sink detected, output not encrypted

3 = HDCP sink detected, output encrypted

Ø = Disable output sync (default)

1 = Enable output sync

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
Play audio file			
NOTES:			
<ul style="list-style-type: none"> This command responds with an E28 (file not found) if the alphanumeric audio file does not exist. This command responds with an E22 (busy) if the audio file is not played due to low priority. Only one audio file is played at a time. The firmware cannot play audio file 1 on lineout audio output and then start audio file 2 on amplified audio output until lineout audio output finishes audio file 1. 			
Play an audio file	Esc X25 * X36 * X26 * X28 PLAY←	Play X25 * X36 * X26 * X28 ←	Start audio file playback.
Stop (abort) playback	Esc ØPLAY←	PlayØ←	Stop audio file playback.
View play status	Esc PLAY←	Ø← or X25 * X36 * X26 * X28 ←	Audio not playing. Audio currently playing.
Picture adjustment (PVT HDMI RGB inputs 2 and 4 only)			
Set pixel phase value	Esc X29 * X30 PHAS←	Phas X29 * X30 ←	Set pixel phase X30 for X29 .
Increment pixel phase value	Esc X29 +PHAS←	Phas X29 * X30 ←	Increase pixel phase to X30 for X29 .
Decrement pixel phase value	Esc X29 -PHAS←	Phas X29 * X30 ←	Decrease pixel phase to X30 for X29 .
View pixel phase value	Esc X29 PHAS← <i>Verbose mode 2/3</i>	X30 ← Phas X29 * X30 ←	View pixel phase X30 for X29 .
Set total pixel value	Esc X29 * X31 TPIX←	Tpix X29 * X31 ←	Set total pixels X31 for X29 .
Increment total pixel value	Esc X29 +TPIX←	Tpix X29 * X31 ←	Increase total pixels to X31 for X29 .
Decrement total pixel value	Esc X29 -TPIX←	Tpix X29 * X31 ←	Decrease total pixels to X31 for X29 .
View total pixel value	Esc X29 TPIX← <i>Verbose mode 2/3</i>	X31 ← Tpix X29 * X31 ←	View total pixels X31 for X29 .

NOTES:

X25 = Output port to play back audio

X26 = Audio file playback mode

X28 = Audio priority level

X29 = PVT HDMI RGB wallplate inputs (2 and 4 only)

X30 = Pixel phase

X31 = Total pixels

X36 = Audio filename

1 = All

2 = Amplified audio output

3 = Lineout audio output

Ø = Play once (or use to stop audio file playback).

1-3ØØ = Play continuously (with a Ø-299 second delay between repeats).

Ø-3, optional, Ø = least. Defaults to Ø if not specified

2 = Input 2

4 = Input 4

Ø-63 (32 = default)

±255 of the default value

Alphanumeric filename (see [page 24](#) for details)

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
Set horizontal start value	Esc X29 * X32 HSRT ←	Hsrt X29 * X32 ↵	Set horizontal start at X32 for X29 .
Increment horizontal start value	Esc X29 +HSRT ←	Hsrt X29 * X32 ↵	Increase horizontal start to X32 for X29 .
Decrement horizontal start value	Esc X29 -HSRT ←	Hsrt X29 * X32 ↵	Decrease horizontal start to X32 for X29 .
View horizontal start value	Esc X29 HSRT ←	X32 ↵	View horizontal start X32 for X29 .
	<i>Verbose mode 2/3</i>	Hsrt X29 * X32 ↵	
Set vertical start value	Esc X29 * X33 VSRT ←	Vsrt X29 * X33 ↵	Set vertical start at X33 for X29 .
Increment vertical start value	Esc X29 +VSRT ←	Vsrt X29 * X33 ↵	Increase vertical start to X33 for X29 .
Decrement vertical start value	Esc X29 -VSRT ←	Vsrt X29 * X33 ↵	Decrease vertical start to X33 for X29 .
View vertical start value	Esc X29 VSRT ←	X33 ↵	View vertical start X33 for X29 .
	<i>Verbose mode 2/3</i>	Vsrt X29 * X33 ↵	

NOTES:

X29 = PVT HDMI RGB wallplate inputs (2 and 4 only)

X32 = Horizontal start

X33 = Vertical start

2 = Input 2

4 = Input 4

Ø - 255 (default = 128)

Ø - 255 (default = 128)

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
Special Function Commands			
Set Lineout mode			
Set Lineout to variable	55*1#	LineOut*1↵	where 1 = variable (default).
Set Lineout to fixed	55*2#	LineOut*2↵	where 2 = fixed.
View Lineout mode	55#	LineOut*X↵	where X = 1 (variable, default), or 2 (fixed).
Set audio output mode			
Set audio output mode to dual mono	18*1#	PreAmpMod*1↵	where 1 = dual mono (default).
Set audio output mode to stereo	18*2#	PreAmpMod*2↵	where 2 = stereo.
View audio output mode	18#	PreAmpMod*X↵	where X = 1 (dual mono, default) or 2 (stereo).
Paging Sensor hold time			
Set Paging Sensor hold time	75*X#	PageDly*X↵	X = paging hold time in seconds, in 1 second steps. 0 = 0 second (disabled), 1 = 1.0, 2 = 2.0, ... 8 = 8.0 seconds. Default is 3.0 seconds
View Paging Sensor hold time	75#	PageDly*X↵	
Paging Sensor sensitivity			
Set Paging Sensor sensitivity	83*X#	PageSen*X↵	where X = 0-100 (paging sensor sensitivity range). Default = 50.
View sensitivity	83#	PageSen*X↵	
RS-232 Serial port parameters			
Configure RS-232 serial port parameters	Esc X103 CP ←	Ccp X103 ↵	Set the parameters (baud rate) for the RS-232 port.
View RS-232 serial port parameters	Esc CP ← Verbose mode 2/3	X103 ↵ Ccp X103 ↵	Query the baud rate for the RS-232 port.

NOTES:

X103 = Baud rate

0 = 9600 (Default)
1 = 19200
2 = 38400
3 = 115200

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
Information request			
Request A/V input number	I	Vid ● [X1] ●Aud ● [X1] ↵	Reports input number for active video and audio signals.
Query model name	1I <i>Verbose mode 2/3</i>	[X37] ↵ Info01* [X37] ↵	Reports model name.
Query model description	2I <i>Verbose mode 2/3</i>	PoleVault Digital Switcher with Ethernet Control↵ Info02*PoleVault Digital Switcher with Ethernet Control↵	
Query system-memory usage	3I <i>Verbose mode 2/3</i>	# Bytes Used out of # KBytes↵ Info03*# Bytes Used out of # KBytes↵	
Query user-memory usage	4I <i>Verbose mode 2/3</i>	# Bytes Used out of # KBytes↵ Info04*# Bytes Used out of # KBytes↵	
Query firmware version	Q	x.xx↵	View firmware version.
Query full firmware version	*Q	x.xx.xxxx↵	View full firmware version.
Query part number	N <i>Verbose mode 2/3</i>	<part number>↵ Pno<part number>↵	View the part number.
Query PVT wallplate 1 firmware version	36Q <i>Verbose mode 2/3</i>	x.xx.xxxx↵ Ver 36*x.xx.xxxx↵	View firmware version.
Query PVT wallplate 2 firmware version	38Q <i>Verbose mode 2/3</i>	x.xx.xxxx↵ Ver 38*x.xx.xxxx↵	View firmware version.
Reset (Zap) command			
Reset all device settings to factory defaults	[Esc] ZXXX↵	Zpx↵	[Esc] ZXXX command resets all video and audio settings.
Absolute system reset, retain IP	[Esc] ZY↵	Zpy↵	See Note below.
<p>NOTE: This reset is same as ZQQQ except it excludes IP settings such as IP address, subnet mask, gateway IP address, unit name, DHCP setting, and port mapping (Telnet/Web/direct access) in order to preserve communication with the device. (This reset is recommended after a firmware update.) Also erases file system and passwords.</p>			

NOTES:	
[X1] = Input selection	1 - 7
[X37] = Model name	PVS 407D

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
Erase all files from flash (user) memory	Esc ZFFF←	Zpf←	See Note below.
<p>NOTE: This reset only removes files created in the user space, which includes those created by the backup/restore functions, software configuration tools, image captures, user-supplied HTML files, and so forth. Space being used by firmware for internal operations (such as saving of non-volatile settings) is not removed.</p>			
Absolute system reset	Esc ZQQQ←	Zpq←	Esc ZQQQ.
<p>NOTE: This command resets all device settings to factory default; however, firmware version remains the same.</p>			
IP system reset	Esc 1ZQQQ←	Zpq1←	See Note below.
<p>NOTE: This resets only IP settings such as IP address, subnet mask, gateway IP address, unit name, DHCP setting and port mapping (telnet/web/direct access) back to factory defaults.</p>			

IP Setup Commands

Set verbose mode	Esc X102 CV←	Vrb X102 ←	Enable or disable verbose mode and tagged responses.
View verbose mode	Esc CV←	X102 ←	View the verbose mode.
Set unit name ²⁴	Esc X105 CN←	Ipn● X105 ←	Set the device name to X105 .
Set unit name to factory default ²⁴	Esc ●CN←	Ipn● X101 ←	Reset the device name to the factory default.
View unit name	Esc CN←	X105 ←	View the device name.
Set date and time ²⁴	Esc X106 CT←	Ipt● X106 ←	Set the date and time to X106 .
View date and time	Esc CT←	X106 ←	View the device date and time.
View GMT offset	Esc CZ←	X112 ←	View the GMT offset.
Set time zone	Esc <zonename> *TZON←	Tzon●<zonename> *<description>←	Set the time zone.
View time zone	Esc TZON←	<zonename> *<description>←	View the current time zone.
List time zones	Esc *TZON←	<zonename> *<description>← ...<zonename> *<description>←←	Lists all the time zones.

NOTES:

X101 = Default name

Combination of model name and last 3 hex pairs of MAC address (for example PVS-407D-07-4B-E9).

X102 = Verbose mode (where additional information is provided in response to a query)

0 = Clear/none, 1 = Verbose mode, 2 = Tagged responses for queries, 3 = Verbose mode and tagged responses.

X105 = Unit name

Text string up to 24 characters drawn from the alphabet (A-Z), digits (0-9), minus sign/hyphen (-).

No blank or space characters are permitted.

X106 = Date and time

Set local date and time format (MM/DD/YY-HH:MM:SS)

X112 = GMT offset

Greenwich Mean Time (GMT) offset value (-12:00 to 14:00). This represents hours and minutes (hh:mm) offset from GMT.

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
Set DHCP on ²⁴	[Esc] 1DH ←	Idh1 ←	Turn on DHCP.
Set DHCP off ²⁴	[Esc] 0DH ←	Idh0 ←	Turn off DHCP (default).
View DHCP mode	[Esc] DH ←	[X107] ←	View the DHCP setting.
Set IP address ²⁴	[Esc] [X109] CI ←	Ipi ● [X109] ←	Set the IP address to [X109] .
Read IP address ²⁴	[Esc] CI ←	[X109] ←	View the current IP address.
Set subnet mask ²⁴	[Esc] [X110] CS ←	Ips ● [X110] ←	Set the subnet mask to [X110] .
View subnet mask	[Esc] CS ←	[X110] ←	View the subnet mask setting.
Set gateway IP address ²⁴	[Esc] [X111] CG ←	Ipg ● [X111] ←	Set gateway address to [X111] .
View gateway IP address	[Esc] CG ←	[X111] ←	View the gateway IP address.
Reboot System	[Esc] 1B00T ←	Boot1 ←	Restarts the system after a fw upgrade (required).
Reboot Network	[Esc] 2B00T ←	Boot2 ←	Restarts the network (see note below).

NOTE: Changes made to any TCP/IP settings do not take effect until the reboot network command **[Esc]** 2B00T ← is issued.

Set IP, Subnet, and Gateway (all at once)

NOTE: Setting any values with the CISG command will change DHCP from on to off (default).

Set IP	[Esc] 1 * [X109] CISG ←	Cisg ● 1 * [X109] / [X113] * [X109] ←	1 = NIC number.
Set IP/subnet (IPv4)	[Esc] 1 * [X109] * [X110] CISG ←	Cisg ● 1 * [X109] / [X113] * [X109] ←	
Set IP/subnet (IPv6)	[Esc] 1 * [X109] / [X113] CISG ←	Cisg ● 1 * [X109] / [X113] * [X109] ←	
Set IP/subnet/Gateway (IPv4)	[Esc] 1 * [X109] * [X110] * [X109] CISG ←	Cisg ● 1 * [X109] / [X113] * [X109] ←	
Set IP/subnet/Gateway (IPv6)	[Esc] 1 * [X109] / [X113] * [X109] CISG ←	Cisg ● 1 * [X109] / [X113] * [X109] ←	
View IP/subnet/Gateway (all)	[Esc] 1 CISG ←	[X109] / [X113] * [X109] ←	
Read MAC address	[Esc] CH ←	[X104] ←	00-05-A6-xx-xx-xx
	<i>Verbose mode 2/3</i>	Iph ● [X104] ←	

NOTES:

- [X104]** = Hardware MAC address (00-05-A6-xx-xx-xx)
- [X107]** = On/Off status 0=off/disable; 1=on/enable
- [X109]** = IP address xxx.xxx.xxx.xxx (192.168.254.254 = default)
- [X110]** = Subnet address xxx.xxx.xxx.xxx (255.255.0.0 = default)
- [X111]** = Gateway address xxx.xxx.xxx.xxx (0.0.0.0 = default)
- [X113]** = Prefix (subnet mask bits) Subnet 255.255.0.0 is represented as a prefix value by /16.

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
View number of Ethernet connections	Esc CC ←	X44 ←	View the number of open connections.
Passwords			
Set administrator password	Esc X108 CA ←	Ipa ● X108 ←	Set the administrator password to X108.
Read administrator password	Esc CA ←	X108 ←	View whether the administrator password exists (see note below).
<p>NOTE: Reading password: RS-232 and IP connections responds with 4 asterisk (****) if password exists and empty if not, instead of the actual password.</p>			
Reset (clear) administrator password	Esc ● CA ←	Ipa ● ←	Reset (clear) the administrator password.
Set user password	Esc X108 CU ←	Ipu ● X108 ←	Set the user password to X108.
Read user password	Esc X108 CU ←	X108 ←	View whether the user password exists (see note below).
Reset (clear) user password	Esc ● CU ←	Ipu ● ←	Reset (clear) the user password.

NOTES:

X44 = Number of open connections

X108 = Password

Maximum length is 12 characters.
 All man-readable characters are permitted except “/”, “\”, “|”, “ “, and “*”. Passwords are case-sensitive and cannot be a single space. User password cannot be assigned if no admin password exists, (returns E14). If admin password gets cleared, then user password is removed too.

Using the Extron Product Configuration Software

The Extron PVS 407D Product Configuration Software (PCS) offers another way to control the PVS 407D via USB connection or Ethernet Connection, in addition to using the SIS commands.

This section describes installation and gives a basic overview of the software. The topics include:

- [Installing the Software](#)
- [Starting the PVS 407D Product Configuration Software](#)
- [Using PCS – Device Menu](#)
- [Using PCS – Panel and Pages](#)

The graphical interface includes the same functions as those on the device front panel with additional features that are only available through the software.

The Configuration Software is compatible with Windows XP and Windows 7, and Windows 8. The software program and updates can be downloaded from the Extron web site (www.extron.com).

The software incorporates an embedded product WebHelp file, accessible from the Device Menu (see the [Using PCS – Device Menu](#) section on page 41 for method).

Installing the Software

The PCS software can be downloaded from the Extron Website and installed onto the hard drive of a connected PC.

Installation

1. On the Extron Website (www.extron.com), select the **Download** tab. The Download Center screen appears.
2. On the Download Center screen, select **PCS** within **Software** menu from the left sidebar.
3. Click **Download Now**.
4. Follow the on-screen instructions to download and install the program on your PC.

Starting the PVS 407D Product Configuration Software

NOTE: The following pages cover PCS version 2 and greater installations only. If you have installed PCS version 1.x, open the embedded PCS Help file and follow the instructions to access and configure your switcher.

1. Locate and click **C:\Program Files(x86)\Extron\Extron PCS\ EAF.exe**. This opens the PCS program.



Alternatively, if an icon was installed on the desktop, PCS can be started by double-clicking on the icon. The Device Discovery window opens.

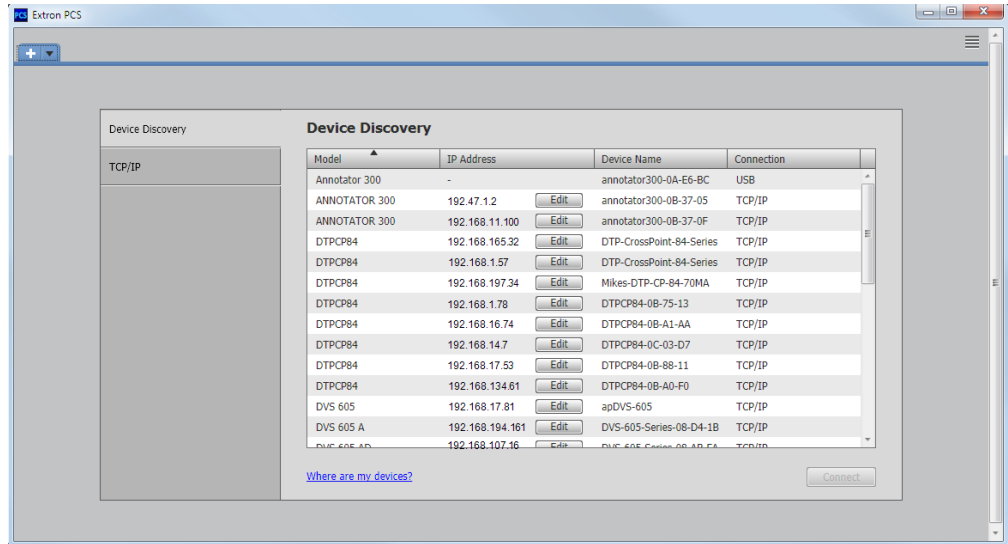


Figure 13. Device Discovery Window

2. Select the desired device either:
 - a. from the Device Discovery list by scrolling to the desired device, or
 - b. from the New Configuration File tab, by clicking on the drop-down arrow. This opens two menu options: **New Configuration File** and **Open Configuration File**.

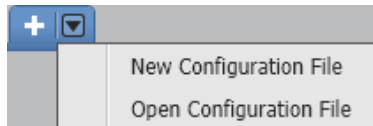


Figure 14. New or Open Configuration File menu

Choose either **New Configuration File** or **Open Configuration File**.

New Configuration File

From the New Configuration File device selection list, either enter the model name in the search field and press <Enter>, or scroll down to select the device and click **Configure**.

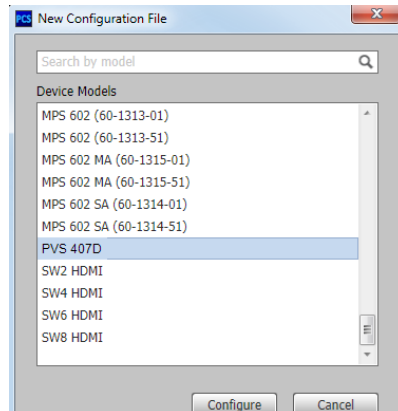


Figure 15. Select the Device from the New Configuration File List.

This opens in offline configuration (emulation mode) and the PVS 407D device input configuration page appears.

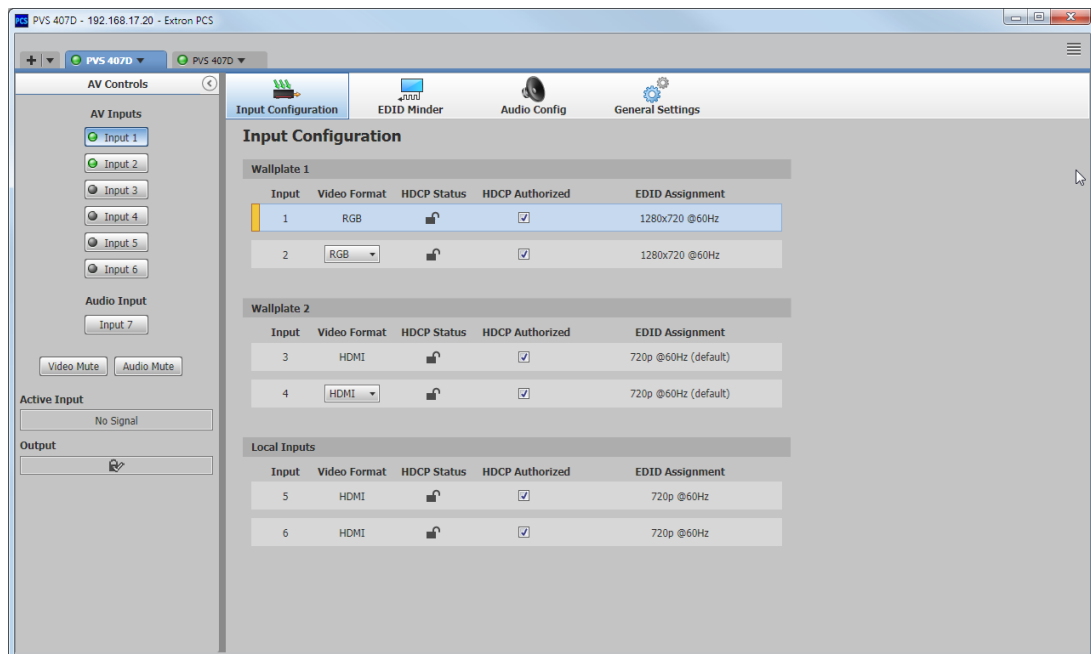


Figure 16. Device Input Configuration Page.

NOTE: The PVS 407D tab (top left) has a gray connection status indicator (circle) that indicates there is no actual device connected and the software is running in emulation mode. When an item on a menu screen is grayed out, that item is not selectable at that time and may only be selectable when in a live (connected) mode.

To configure the emulated device, click on the applicable item on the ribbon menu. For menu details see the applicable sections (Input Configuration, EDID Minder, Audio Config, and General Settings) within the WebHelp file. See the **Using PCS – Device Menu** section on the next page for how to open the WebHelp file.

Any configurations made in emulation mode can be saved and uploaded to a connected device later (see the **Connect to a Device** section on page 42, and the **Deploy Configuration to Devices** section on page 45, for details).

Open Configuration File

From the Open Configuration File window (Open File) navigate to and select the .extc file previously saved on the connected PC.

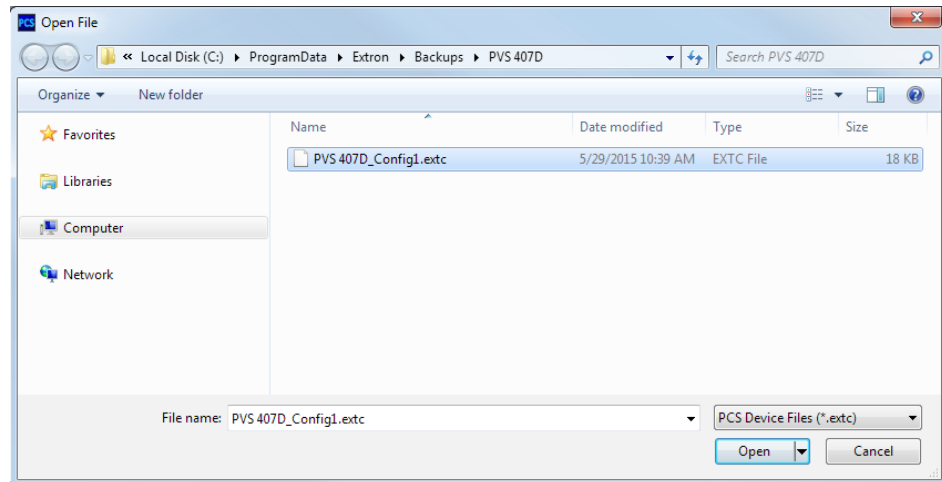


Figure 17. Select the Saved Configuration File.

Click **Open**. This opens in offline configuration (emulation mode) and the PVS 407D device input configuration screen appears (see [figure 16](#) on previous page).

Using PCS – Device Menu

The product tab has a device menu, accessible by clicking on the drop-down arrow on the name tab.



Figure 18. Device Menu

The device configuration items available through this menu are:

Save — Saves current configuration file to an existing saved file (.extc file) on the connected PC.

Save As — Saves current configuration file as a new file on the connected PC.

Connect — Connects to a device (via an existing USB connection, TCP/IP, or Pass-thru via MLC connection) and configuration becomes live (see [Connect to a Device](#) for details).

NOTE: If a device is already connected, the Connect option is disabled until the device is disconnected or the connection times out.

Connect and Apply — Connects to a device (via an existing USB connection, TCP/IP, or Pass-thru via MLC connection) and applies the current PCS configuration.

Deploy Configuration to Device(s) — Connects and deploys current configuration to multiple devices simultaneously (see [Deploy Configuration to Devices](#) for details).

Disconnect — Disconnects from a connected device.

Settings — This opens a single submenu: **Hardware Settings**

Hardware Settings — Opens the **Hardware Settings** window that accesses a read-only Unit Information page and a Device Name option page. |

Reset Device... — Allows the user to reset the device.

Update Firmware... — Opens an **Update Firmware** window to start the update process.

NOTE: If a device is not connected, the Disconnect, Reset, and Update Firmware options are disabled until the device is connected.

Product Help File — Opens the device specific WebHelp file. This file opens in a browser and has an embedded PDF file for printing if desired.

About This Module... — Opens an information box with Module name, version number, and compatible devices details.

For full details of these menus see the PVS 407D WebHelp file.

Connect to a Device

To connect to the device or re-establish the connection:

1. From the device menu, select **Connect . . .**. The **Connect** dialog box opens.

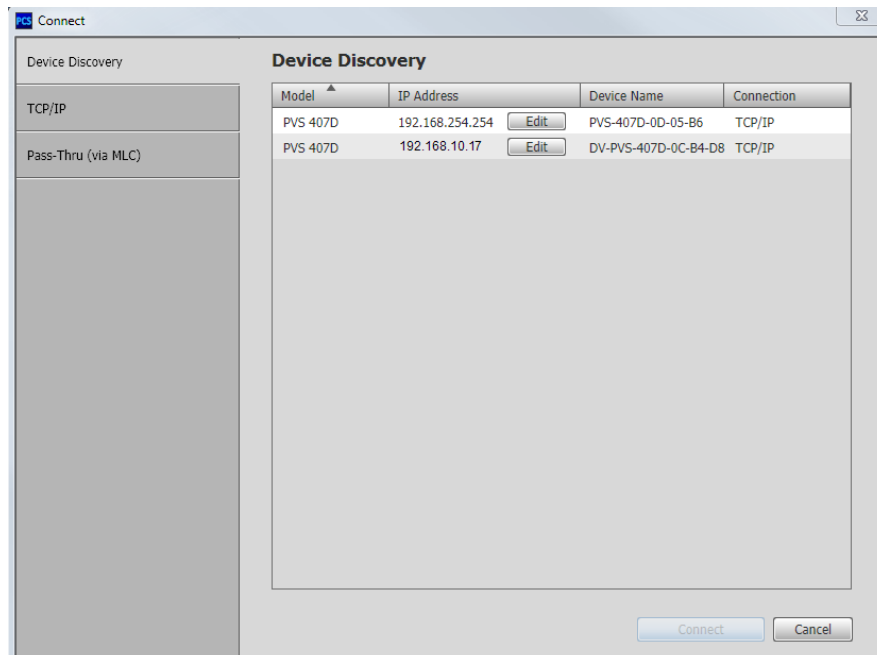


Figure 19. Connection Options Dialog Box

2. Choose the device from the Discovery list (TCP/IP or USB connection) or select the **Pass-Thru (via MLC)** tab, depending on the desired connection method. For devices where the IP address is known, but the device is not listed, select the **TCP / IP** tab.

For a **USB or TCP/IP connection**, select a listed device (see [figure 19](#) on previous page).

For a **Pass-Thru (via MLC) connection**:

- a. Click on the **Pass-Thru (via MLC)** tab.
- b. Enter the IP address of the connected MLC. When checked, the **Show Characters** check box allows the user to see the password letters when typed in.
- c. If applicable, enter the password of the connected MLC.
- d. Enter the Telnet port for the connected MLC (default is 23).
- e. Enter the Pass-Thru port number for the connected MLC (default is 2003).

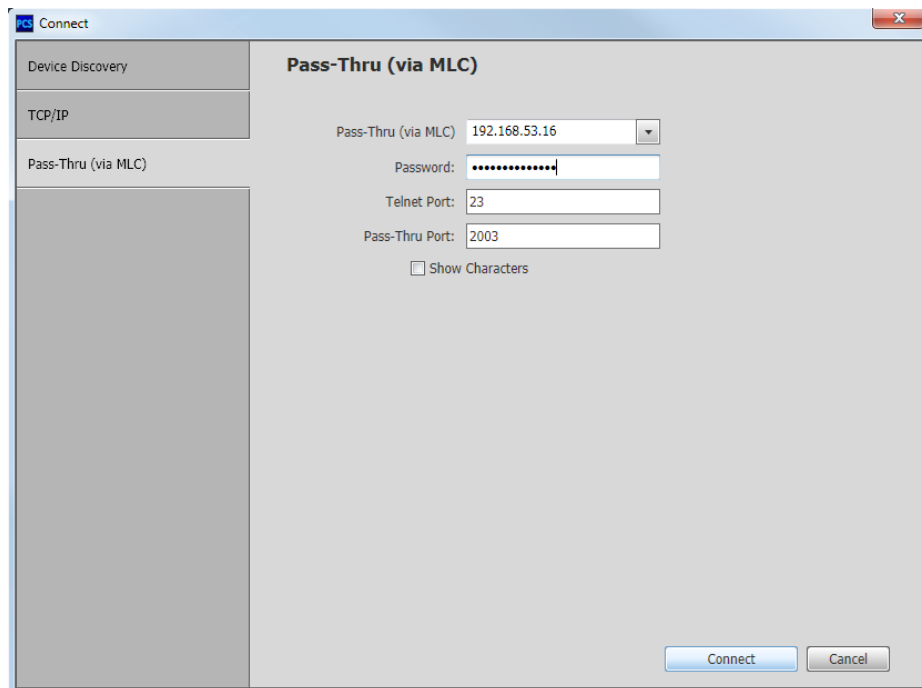


Figure 20. Example Connection via Pass-Thru (MLC) Option

For a device not listed but where the IP address is known:

- a. Click on the **TCP / IP**
- b. Enter the IP address of the PVS 407D.
- c. If applicable, enter the password of the device. When checked, the **Show Characters** check box allows the user to see the password letters when typed in.
- d. Enter the Telnet port for the device (default is 23).

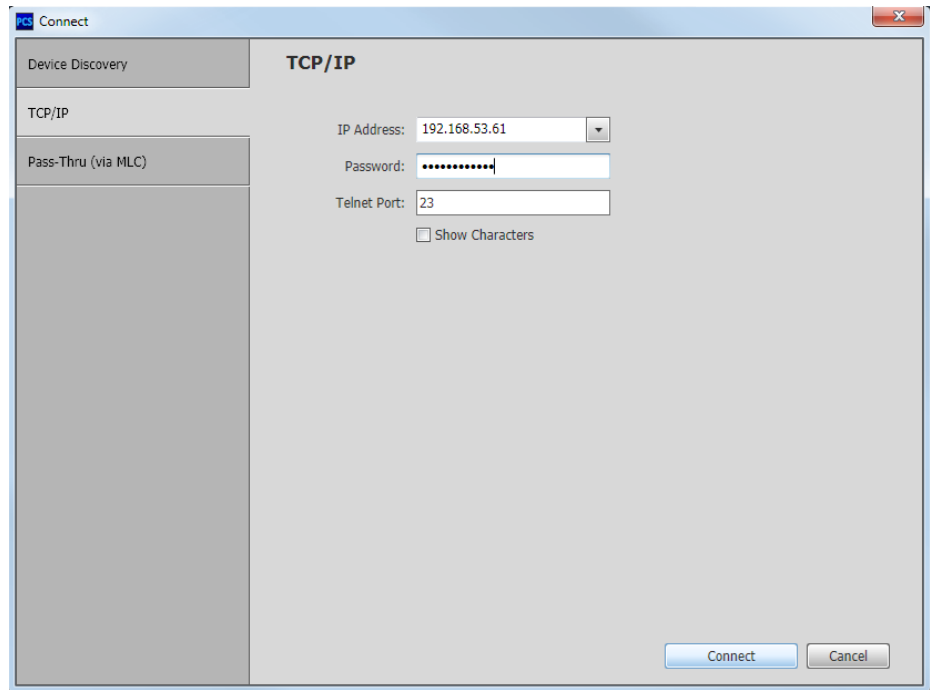


Figure 21. Example Connection Using the TCP/IP Option

3. For all methods, click **Connect**. The Input Configuration Software window opens.

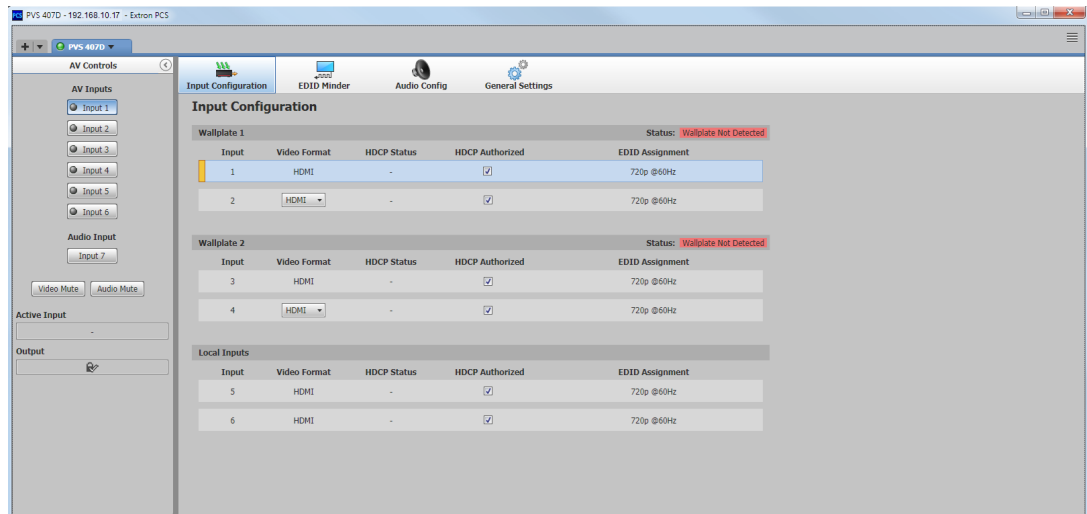


Figure 22. Device Configuration Window for a Connected Device

Deploy Configuration to Devices

The Deploy Configuration to Devices option allows the user to mass deploy the current configuration to multiple PVS 407D switchers simultaneously over the network via the MLC pass-thru port. In addition it allows the user to save a list of added devices as a manifest file (.mfst extension). This manifest file can be imported for later use without the need to manually enter each device details (IP, password and port settings) again.

The user can connect to a device that is online, or open a new or saved configuration file and deploy the configuration to a single or multiple devices within a room or in group of rooms. See **step 2** in the “Connect to a Device” section, detailing **For a Pass-thru (via MLC) Connection** steps on page 43.

Deployment can be made from an online (live) device configuration, or from an emulation (offline) device configuration.

For deployment configuration:

From the drop-down Device menu, select **Deploy Configuration to Device(s)**. This opens a separate window where a list of target devices can be added. This list can also be saved for reuse later.

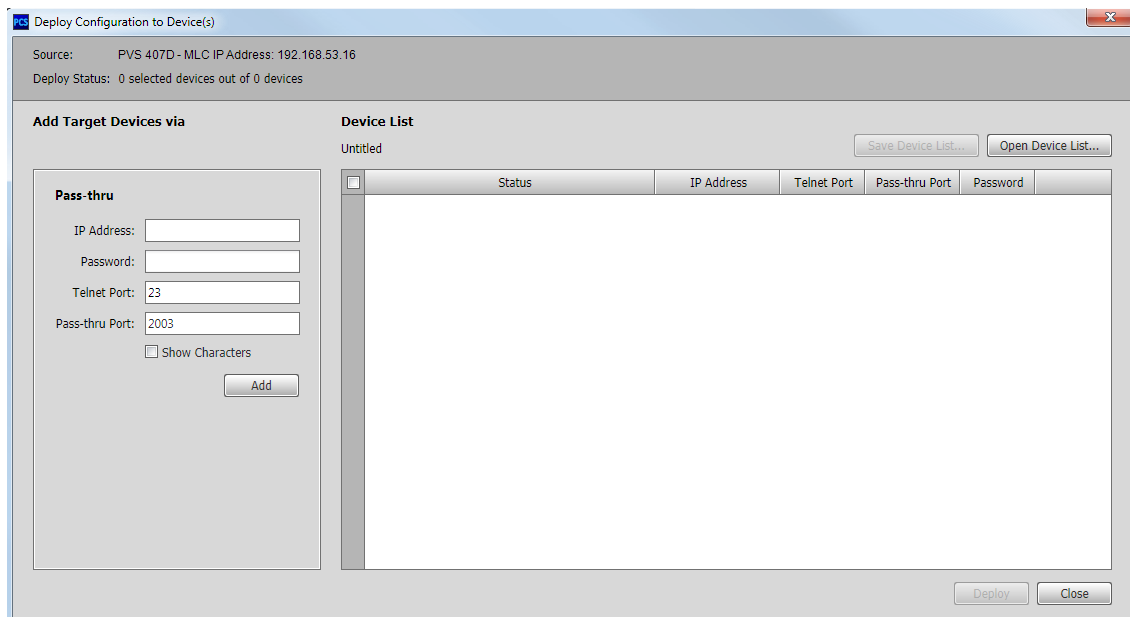


Figure 23. Deploy Configuration to Devices Window

To add devices to the list:

1. Enter the IP address, password (where appropriate) Telnet and Pass-thru port details in each field for a desired target device.
2. Click **Add**. The list is populated with the device details
3. Repeat steps **1** and **2** for each desired target device.

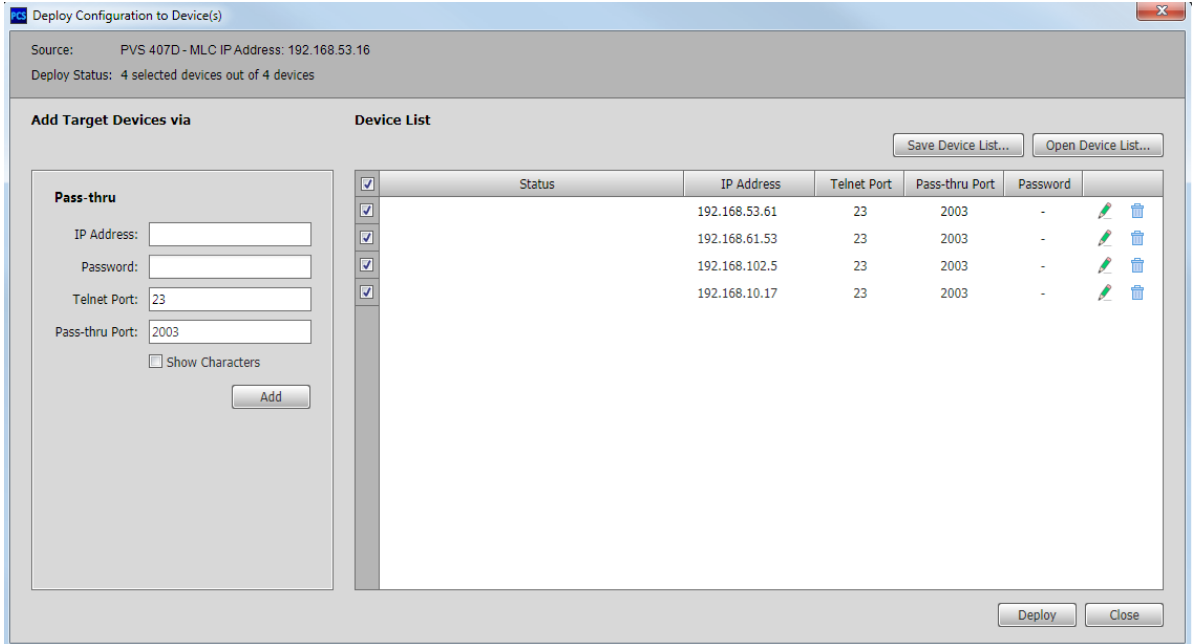


Figure 24. Deploy Configuration to Device Window Populated

Once the list is completed targets can be selected for deployment. As default, all targets are preselected for deployment and have a check mark to the left of the device details list.

To deploy the configuration to selected target devices:

1. Determine which targets are selected for deployment. Users can uncheck or check the check box column to select which devices they want to push the configuration to.
2. Click the **Deploy** button. The deployment begins, and the window initially updates with the status of the deployment as **Deploying** or **Pending**. A progress bar, at top left, graphs the deployment percentage completed.

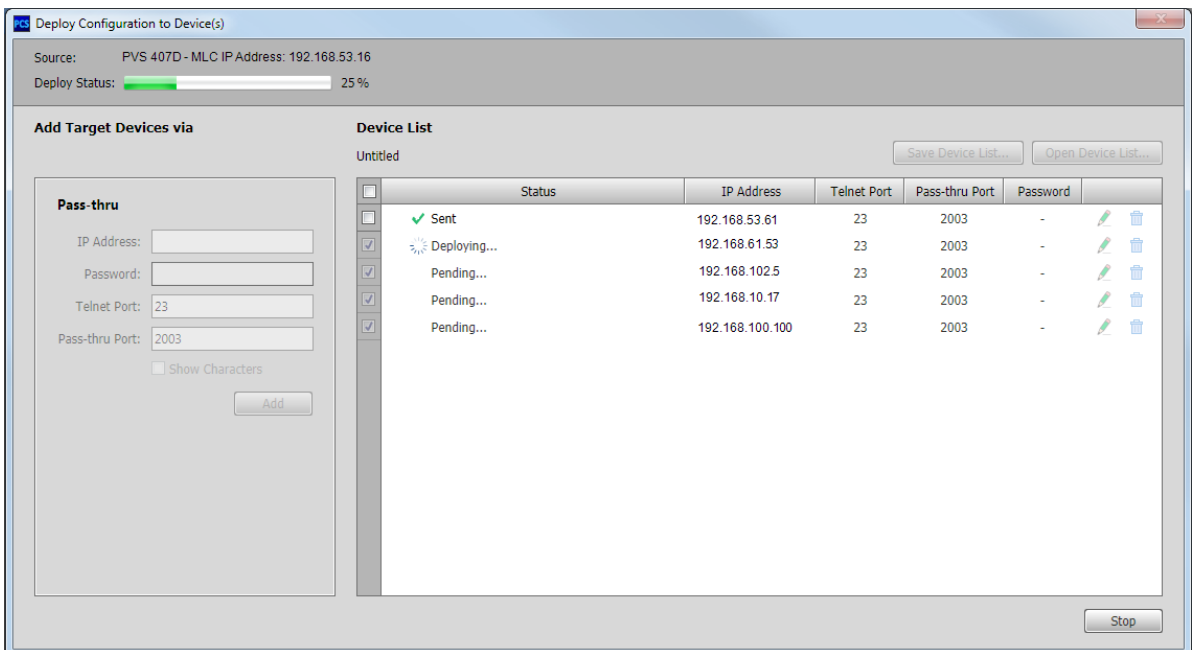


Figure 25. Deployment in Process

When the deployment run is complete, check boxes for any unsuccessful device deployments remain checked. This allows the user to re-deploy the configuration again after making any necessary corrections to the device connection status.

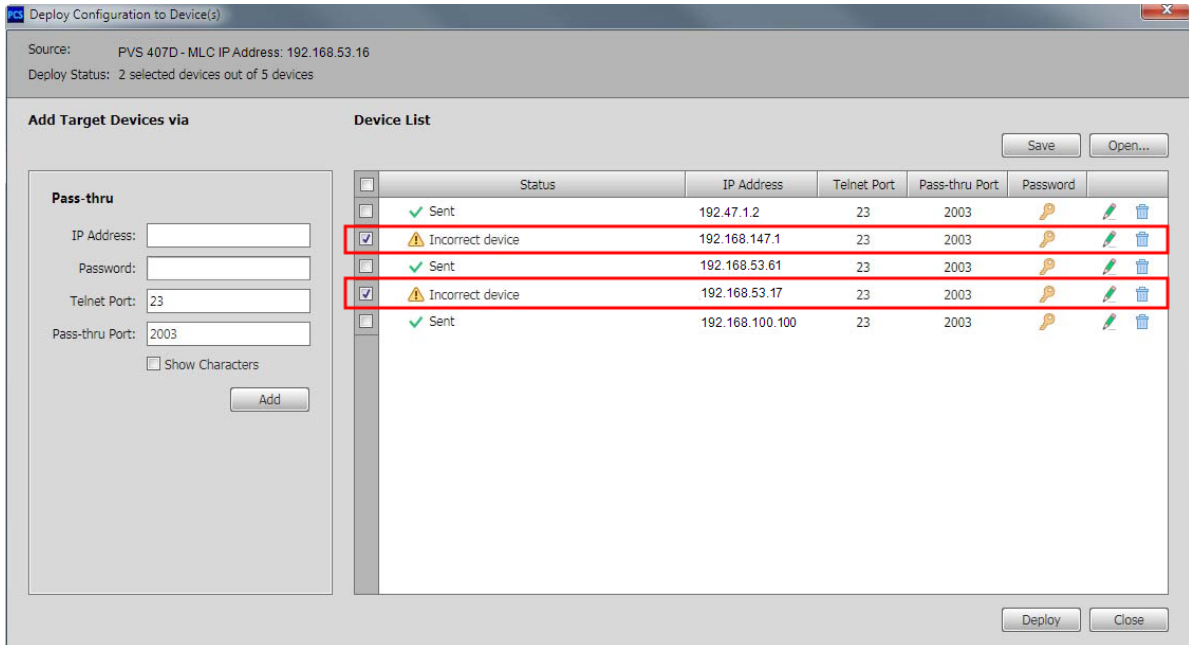


Figure 26. Errors Observed in the Deployment Process

NOTES:

- PCS verifies the correct MLC controller (MLC 104 IP Plus or MLC 226 IP series), the PVS 407D model, Telnet port, pass-thru port and device administrator password for each device in the list upon deploying the configuration. PCS does not push the configuration to the device if one of the above criteria is not valid and this is reflected in the Status column. The user should click on the **Edit** logo to correct the settings where needed. See the "Deploy Configuration to Devices" section in the *PCS-PVS 407D Help file* embedded in the PCS software for full details.
- In addition if a device is not connected, not powered or turned off, a **Device not found status** is returned.

To stop deployment at any time click **Stop**.

If a configuration has been successfully deployed to a target, the status is appended as "Sent."

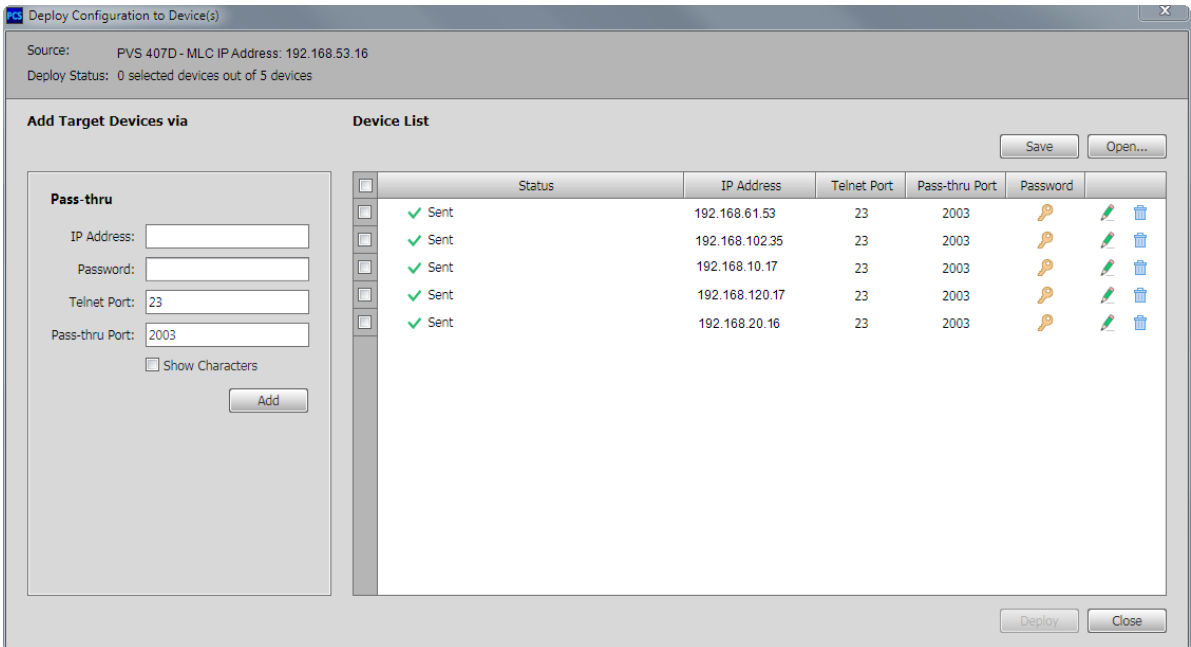


Figure 27. A Typical Successful Deployment Process

When deployment is completed click the **Close** button. If the list has not been saved, you will be prompted to save the list. See *Saving and Opening the List of Target Devices* section in the *PCS-PVS 407D Help file* embedded in the PCS software for full details.

Using PCS – Panel and Pages

The browser screen is set out as two sections: **AV Controls** on the left, and the options pages on the right. The **AV Controls** panel, which can be hidden when not needed, and the four pages (**Input Configuration**, **EDID Minder**, **Audio Config**, and **General Settings**) are used for configuring the PVS 407D.

AV Controls Panel

The **AV Controls** panel is used to control AV settings such as input selection or muting video and audio signals. It also displays details about the active input and output.

NOTE: This panel section can be hidden or revealed by clicking on the section handle (see image at right).

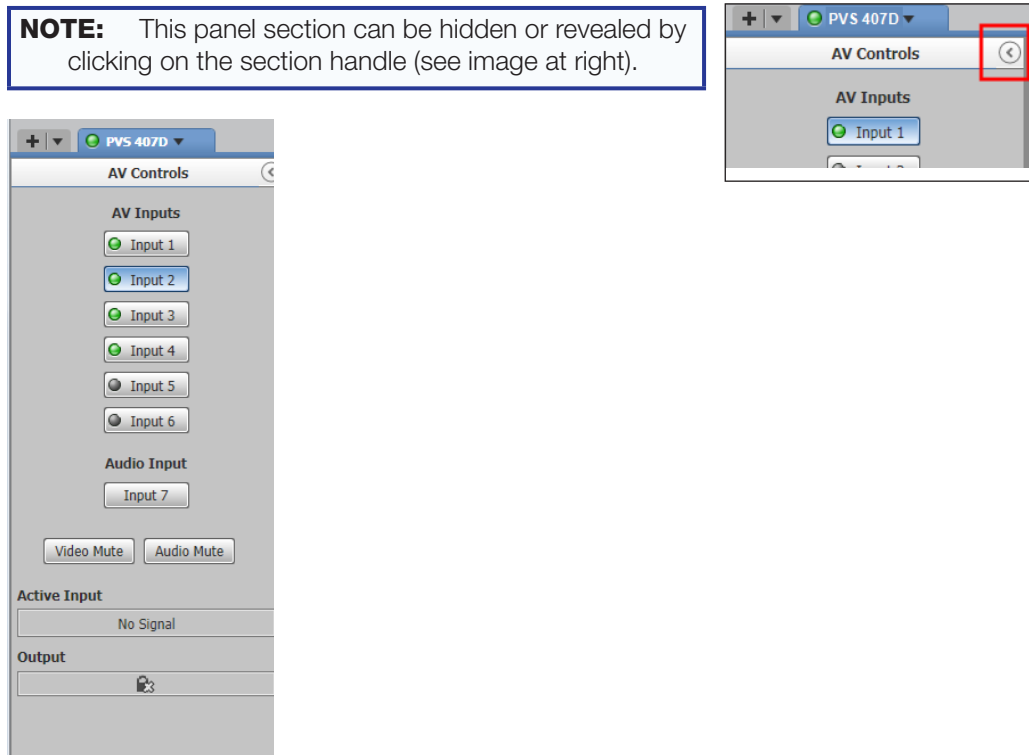


Figure 28. AV Controls Panel

AV input buttons (inputs 1-7)

Click on these to select an input as desired. As a new one is selected, the summary within the panel changes to reflect the new input and output status. Inputs 1-6 are video and audio inputs. Input 7 is audio only and carries no video signal.

Video and audio mute buttons

Select **Video Mute** to mute only the video signal. The button turns red when mute is applied.

Select **Audio Mute** to mute only the audio. The button turns red.

To unmute any signal, click on the appropriate button. The button reverts to the default color, indicating the signal has been unmuted.

Configuration Pages

NOTE: Click on any icon on the global navigation bar to access the associated page.

The configuration page options are:

- **Input Configuration**
- **EDID Minder**
- **Audio Configuration**
- **General Settings**

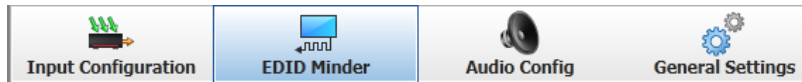


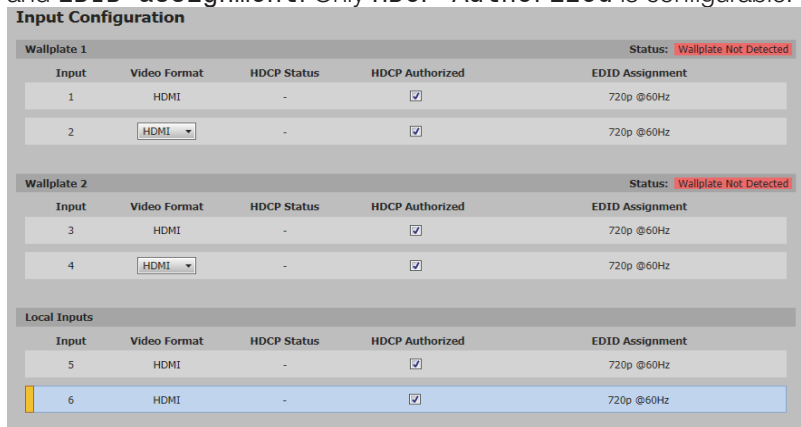
Figure 29. Global Navigation Bar

Input Configuration Page

Click on this button  to open to this page.

Input Configuration panel

The Input Configuration panel consists of fields for each of the inputs. These include; input number video format, HDCP Status, HDCP Authorized, and EDID assignment. Only HDCP Authorized is configurable.



Input Configuration				
Wallplate 1				Status: Wallplate Not Detected
Input	Video Format	HDCP Status	HDCP Authorized	EDID Assignment
1	HDMI	-	<input checked="" type="checkbox"/>	720p @60Hz
2	<input type="text" value="HDMI"/>	-	<input checked="" type="checkbox"/>	720p @60Hz
Wallplate 2				Status: Wallplate Not Detected
Input	Video Format	HDCP Status	HDCP Authorized	EDID Assignment
3	HDMI	-	<input checked="" type="checkbox"/>	720p @60Hz
4	<input type="text" value="HDMI"/>	-	<input checked="" type="checkbox"/>	720p @60Hz
Local Inputs				
Input	Video Format	HDCP Status	HDCP Authorized	EDID Assignment
5	HDMI	-	<input checked="" type="checkbox"/>	720p @60Hz
6	HDMI	-	<input checked="" type="checkbox"/>	720p @60Hz

Figure 30. Input Configuration Panel

Video Format

For inputs 2 and 4, **HDMI** or **RGB** are the available signal types.

For inputs 1, 3, 5 and 6, **HDMI** is the only available signal type.

HDCP Status

This shows the HDCP signal status for the digital inputs (1-6) only.

HDCP Authorized

Select the **HDCP Authorized** check box for inputs 1-6 in order to have the input report as an HDCP Authorized device. If the box is not checked the source will be blocked from encrypting its output. This may result in some content not being passed to the output.

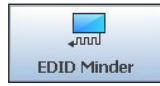
NOTE: The **HDCP Authorized** is only available for HDCP inputs.

EDID Assignment

This shows the EDID resolution and rate for the digital inputs (1-6) only.

EDID Minder Page

Extron EDID Minder is an EDID management process that automatically manages the EDID information between a digital display device and one or more input sources.



Click on this button to open the **EDID Minder** page.

From this page an EDID data set can be assigned to any input with an RGB or an HDMI or DVI input type. The currently assigned EDID properties can be viewed and EDID files can be loaded to and from the PVS 407D.

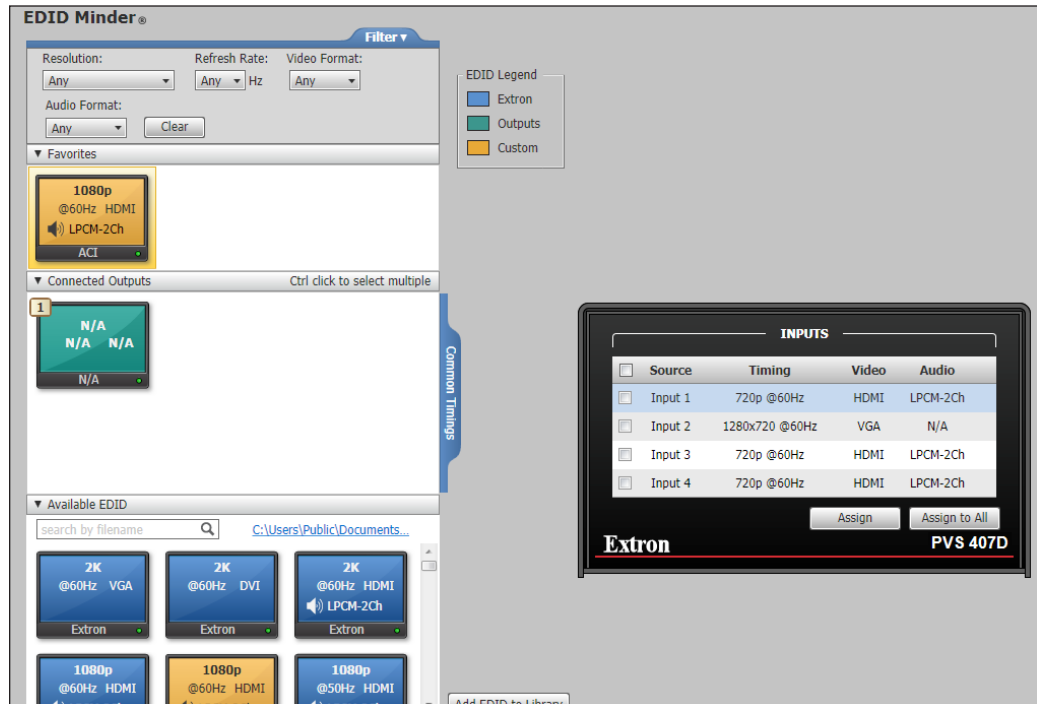


Figure 31. EDID Minder Page

The **EDID Minder** screen displays a table of EDIDs and connected output devices, grouped as favorites, connected outputs, and available EDIDs. These are visually shown as colored output display icons: factory default EDIDs are blue, connected output devices are green, and custom loaded or saved EDIDs are yellow.

The EDID properties currently assigned to each input are displayed in the table of inputs. Audio and video formats for each input are also displayed. The audio input format listed in an EDID is determined by the Audio Input Format on the **Audio Configuration** page. Video input format is configured on the **Input/Output Configuration** page.

Assigning EDIDs

To assign EDID to selected inputs:

1. From the table, select an available EDID (represented by a blue, green, or yellow output display icon).
2. From the inputs screen (table of inputs) on the right, select the desired input or inputs (see figure below).
3. Click the **Assign** button to assign EDID to the selected input or inputs.

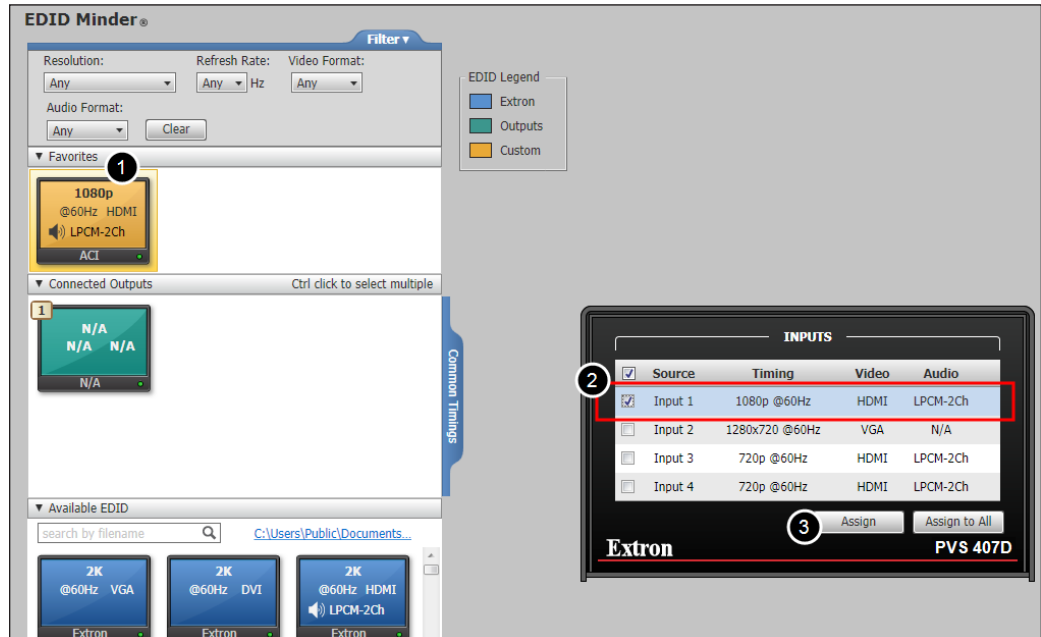


Figure 32. Assigning EDIDs

NOTE: If you do not select any inputs but still click **Assign**, an error message is displayed.

To assign EDID to all inputs:

1. From the EDID table, select an available EDID (represented by a blue, green, or yellow output display icon).
2. Click the **Assign All** button.

NOTE: If you select **Assign All**, all input boxes, checked or unchecked, will be ignored and the EDID will be assigned to all inputs.

Audio Configuration Page

Using this page each of the audio inputs can be configured, including setting the input format and the gain. The output volume and mode can also be configured. A library of saved audio files can be created and later applied to selected devices in the system. In addition the Mic, Aux, and Paging input audio settings can be configured.

The page has three tabs: **Input/Output**, **Mic/Aux/Paging**, and **Audio Files**



Click on this button to open the Audio Configuration page.

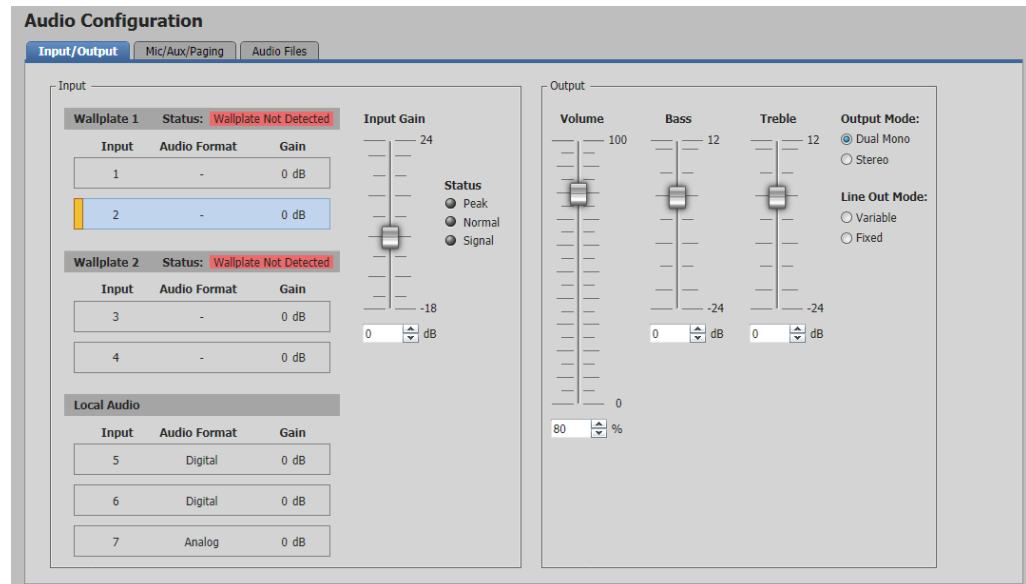


Figure 33. Audio Configuration Page — Input/Output

NOTES:

- For each input that has a gain value, when the input is selected, the current gain value is displayed. All inputs show gain value.
- The input gain setting is also available for adjustment when you are configuring the PVS 407D offline.

Input/Output

To configure audio inputs:

1. Using the input buttons in the **AV Controls** panel to the left, select the applicable input.
2. Click and drag the handle of the **Gain** slider, or click the up ▲ and down ▼ arrows in the field below the slider, or enter a value in the field.

NOTES:

- You can only adjust the gain and attenuation for an input that is in analog or Auto format. Gain only affects analog inputs.
- The Peak, Normal, or Signal LEDs light when each threshold is reached as the input gain is adjusted.

3. Click and drag the handle of the **Bass** slider, or click the up ▲ and down ▼ arrows in the field below the slider, or enter a value in the field.
4. Click and drag the handle of the **Treble** slider, or click the up ▲ and down ▼ arrows in the field below the slider, or enter a value in the field.
5. Select the Output mode (**Dual Mono** or **Stereo**) or the Line Out mode (**Variable** or **Fixed**) for volume adjustment.
6. Click and drag the handle of the **Volume** slider or click the up ▲ and down ▼ arrows in the field below the slider, or enter a value in the field.

Mic/Aux/Paging

Using this page to set the input gain, and where desired, ducking can be enabled and settings configured for both VoiceLift and Aux inputs. In addition the Page Sensor sensitivity and hold time can be set from this page.

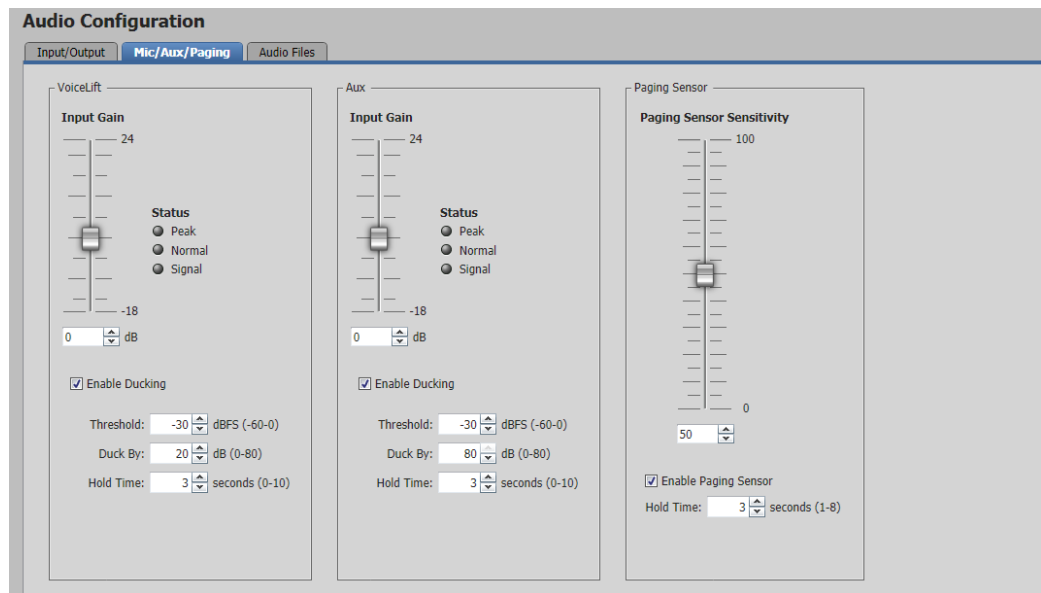


Figure 34. Audio Configuration Page — Mic/Aux/Paging

To set VoiceLift or Aux Input Gain and Ducking Settings:

To adjust audio input gain (-18 to +24 dB), click and drag the handle of the **Input Gain** slider, or click the up and down arrows in the field below the slider, or enter a value in the field. The Peak, Normal, or Signal LEDs light when each threshold is reached as the input gain is adjusted.

To enable and configure set the ducking settings:

1. Select the **Enable Ducking** check box. The ducking setting fields become active.

NOTE: When the **Enable Ducking** check box is left unchecked, then the **Threshold**, **Duck By**, and **Hold Time** settings are grayed out and are not available

2. To set **Threshold** level, click the up and down arrows in the field, or enter a value. The range is 0 to -60 dBFS.
3. To set the **Duck By** level, click the up and down arrows in the field, or enter a value. The range is 0 to +80 dB.
4. To set the **Hold Time** (in seconds), click the up and down arrows in the field, or enter a value. The range is 0-10 seconds.

To set Paging Sensor Sensitivity and Hold Time Setting:

To adjust Paging Sensor sensitivity (0 to 100):

Click and drag the handle of the **Input Gain** slider, or click the up and down arrows in the field below the slider, or enter a value in the field.

To adjust Paging Sensor Hold Time in seconds:

1. Select the **Enable Paging Sensor** check box. The **Hold Time** field become active.
2. Click the up and down arrows in the field, or enter a value in the field. The range is 1 to 8 seconds.

Audio Files

Use this page contains a list of audio files within an audio library, and lists the audio files copied to the switcher. In addition it has a volume adjustment slider.

NOTE: Audio files must be in .wav format and have a size limit of 124 kB.

Audio files can be added to or deleted from the library, played and renamed (if desired), and then copied to the device list. Up to 20 audio files can be loaded to the device.

NOTE: Audio files in the device list cannot be played until the device is synced.

The device list of audio files can be managed by removing, moving up or down in the list, played from the switcher, or saved to the library. In addition the device list can be exported as a.csv file, that can be opened and saved in Excel or Notepad, or a similar program.

Using this page to set select an audio file from the Audio Library.

Audio Configuration

Input/Output | Mic/Aux/Paging | **Audio Files**

Status: **Device is not synced**
Free Space: 2480 KB (of 2480 KB)

Library			Device			
Name	Length	Size	ID	Name	Length	Size
AnnouncementTone.wav	00:01	24 KB	1		00:00	0 KB
BellA.wav	00:05	85 KB	2		00:00	0 KB
BellB.wav	00:02	43 KB	3		00:00	0 KB
BellC.wav	00:04	63 KB	4		00:00	0 KB
Building closed.wav	00:02	39 KB	5		00:00	0 KB
Class cancelled.wav	00:02	37 KB	6		00:00	0 KB
No class.wav	00:02	33 KB	7		00:00	0 KB
			8		00:00	0 KB
			9		00:00	0 KB
			10		00:00	0 KB
			11		00:00	0 KB
			12		00:00	0 KB
			13		00:00	0 KB
			14		00:00	0 KB
			15		00:00	0 KB
			16		00:00	0 KB
			17		00:00	0 KB
			18		00:00	0 KB
			19		00:00	0 KB
			20		00:00	0 KB

Playback Volume: 0 to -100 dB

Buttons: Add to Library, Export List, Cancel Changes, Sync to Device

Figure 35. Audio Configuration Page — Audio Files

To add audio files to the library:

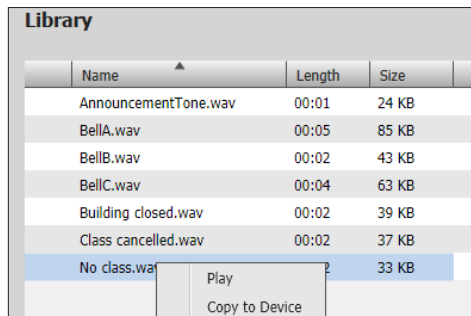
1. Click the **Add to Library** button. This opens an explorer window.
2. Browse to the location of the desired audio (.wav) files on a connected PC.
3. Select the file(s) and click **Open**. The file is added to the list.

NOTE: If the file is not in the correct format or is larger than the 124 kB limit, an error message appears and the file is not added to the library.



To rename an audio files in the library:

1. Select and right-click on an audio file, and select **Rename** from the drop-down menu.



Name	Length	Size
AnnouncementTone.wav	00:01	24 KB
BellA.wav	00:05	85 KB
BellB.wav	00:02	43 KB
BellC.wav	00:04	63 KB
Building closed.wav	00:02	39 KB
Class cancelled.wav	00:02	37 KB
No class.wa		33 KB

Figure 36. Audio Files Management in the Library

2. Type a new name in the file name field and press <Enter>. The name is updated.

To delete an audio file from the library:

Select and right-click on an audio file. From the drop down menu, select **Delete**.

To play an audio file:

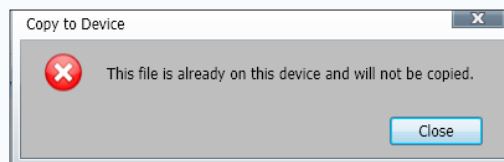
Select an audio file and either click on the **Play** icon , or right-click on an audio file and select **Play** from the drop down menu.

To copy an audio file to a device:

Select an audio file and either drag and drop the file onto a device ID slot (1-20), or right-click on an audio file and select **Copy to Device** from the drop down menu.

NOTES:

- If the slot already has an audio file and is copied to, the existing audio file will be overwritten by the new file.
- If an audio file already exists on the device list and is copied again with the same name, an error message appears and the file is not copied over.



Click **Cancel Changes** to remove the recently copied file from the device list. This removes all files copied to the device and not synced.

To remove an existing audio file from the device:

Select an audio file on the device list and right-click. Select **Remove** from the drop down menu. The file is removed from the list. It can be added from the library at a later time.

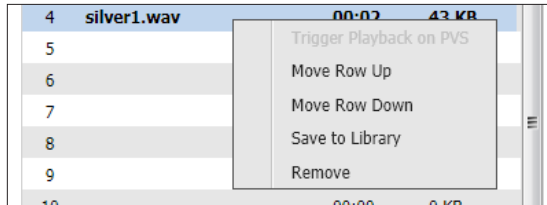



Figure 37. Audio Files Management in the Device

To move an audio file within the device list:

Select an audio file on the device list and either use the up and down arrows at the bottom of the list, or right-click and select **Move Row Up** or **Move Row Down**, as desired, from the drop down menu.

To play an audio file from the device list:

Select an audio file and either click on the **Play** icon  or right-click and select **Trigger Playback on PVS** from the drop-down menu.

NOTE: Audio files in the device list cannot be played until the device is synced.

To save an existing listed audio file to the audio library:

Select an audio file on the device list and right-click. Select **Save to Library** from the drop-down menu. The file is saved to the audio library.

To export the device list:

Click **Export List** to export the list as a .csv file to a connected PC (see example below) for saving. If installed, Excel opens to display the exported file. The .csv file can also be opened in Notepad or a similar software program.

1	Model Name			
2	PVS 407D			
3	Part Number			
4	60-1466-01			
5	Device Name			
6	PVS-407D-0E-27-45			
7	IP Address	Subnet Mask	Default Gateway	
8	192.168.113.104	255.255.240.0	192.168.112.100	
9	MAC Address			
10	00-05-A6-0E-27-45			
11	ID	Device File Name	File Name	
12	1	1.wav	AnnouncementTone.wav	
13	2		Empty	
14	3	3.wav	Bella.wav	
15	4	4.wav	Building closed.wav	
16	5	5.wav	Class cancelled.wav	
17	6		Empty	
18	7	7.wav	No class.wav	
19	8		Empty	
20	9		Empty	
21	10	10.wav	BellB.wav	
22	11		Empty	
23	12		Empty	
24	13		Empty	
25	14		Empty	
26	15		Empty	
27	16		Empty	
28	17		Empty	
29	18		Empty	
30	19		Empty	
31	20		Empty	

Figure 38. Example .csv File of Device Loaded Audio Files


To sync the device:

Click **Sync to Device** to sync the device list on the connected PVS switcher. This allows the audio files to be played from the switcher.

General Settings Page

This page allows you to set the Front Panel lock mode and Auto Power Save mode for the PVS 407D.

This page also allows you to access the device hardware settings by clicking on the **Hardware Settings** button (see the **Hardware Settings** section for details).

From any other configuration page, click on this icon  to open the General Settings page.

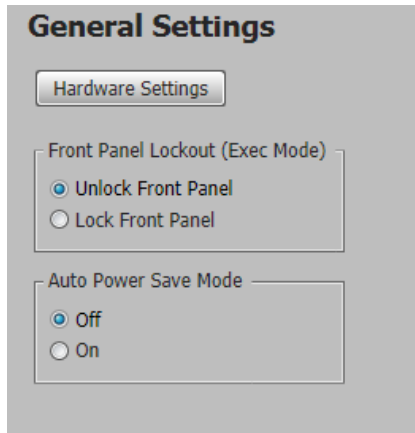


Figure 39. General Settings Page

Setting Executive Mode

There are two executive mode options available:

- Unlock front panel
- Lock front panel

To set executive mode, click the radio button for the desired mode.

Setting the Auto Power Save Mode

The auto power save mode powers down the power amplifier when audio input is not detected for 25 minutes or more.

To set the auto power save mode, click the radio button for the desired power mode (Off = full power, On = low power (auto power state)).

Hardware Settings

These can be accessed either from the drop-down device menu (select **Settings**>**Hardware Settings**) or from the **General Settings** page (click on the **Hardware Settings** button).

The Hardware Settings options are:

- Unit Information
- Device Name

NOTE: The Hardware Settings options are grayed out and not available when the device is offline and not connected.

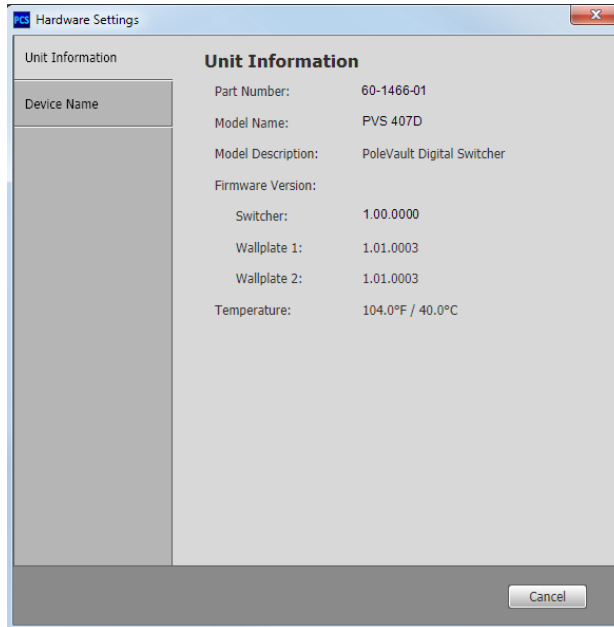


Figure 40. Hardware Settings Page

Unit Information

This gives a non-configurable view of information about the connected unit. This includes part number, model name and model description, firmware versions and build numbers for the switcher and connected wallplates, and the internal temperature of the switcher.

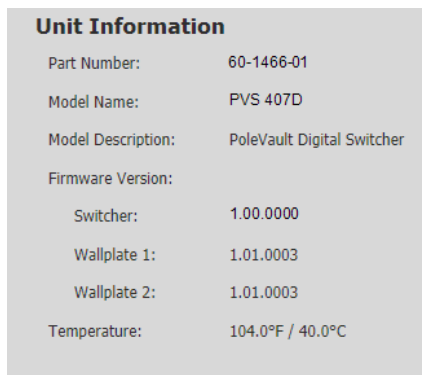
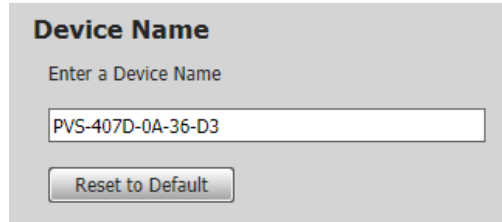


Figure 41. Unit Information Page

Device Name

This page allows the user to enter a name for the device or reset it to the default.



Device Name

Enter a Device Name

PVS-407D-0A-36-D3

Reset to Default

Figure 42. Device Name Page

Assigning a Device Name

NOTE: The device name can only contain alpha-numerical characters and dashes and hyphens.

1. On the **Hardware Settings** page, click the **Device Name** tab. The **Device Name** page opens.
2. Enter a name for the device. The name may be up to 24 alphanumeric characters in length.
3. Click **Apply**.

To reset the name of the device:

NOTE: The default name is the model name followed by the last six digits of the device MAC address (see image above).

1. Click the **Reset to Default** button. A confirmation box opens.
2. Click **Reset**. A pop-up window confirms the device has been reset successfully.

Using PCS – Software Menu

PCS has a default WebHelp file and a settings menu that is specific to the software. To access these click on the menu icon in the top right corner of the PCS browser window. A drop down menu appears. These options are available:

- **Show Expanded Device Tabs**
- **Software Settings**
- **Tutorial**
- **Extron PCS Help**
- **About Extron PCS**
- **Exit**

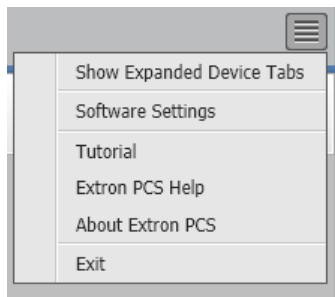


Figure 43. PCS Default Settings Menu

Details and information for using this menu is available in the Extron PCS WebHelp file, opened by clicking on **Extron PCS Help**. This file opens in a browser and has an embedded PDF file for printing if desired.

Using the Internal Web Page

The PVS 407D features an internal Web server, displayed as a default Web page. This page allows you to:

- edit the TCP/IP settings
- edit the device name
- update the firmware version
- set administrator and user passwords,
- either set the date and time to sync with a connected PC, or manually set the date and time as desired.

Connection is made via a LAN or WAN connection through one of the four rear panel LAN (RJ-45) ports, using a Web browser such as the Microsoft® Internet Explorer® 8 or later, Mozilla® Firefox® 6 or later, Google Chrome™ 9 or later, Apple® Safari® 4 or later.

NOTE: If you are using Internet Explorer, compatibility mode must be turned off (see [Turning Off Compatibility Mode](#) on the next page for details).

This section gives an overview of the default Web page, which is always available and cannot be erased or overwritten.

Topics that are covered include:

- [Accessing the Internal Web Page](#)
- [Using the Internal Web Page](#)

Accessing the Internal Web Page

Access the PVS 407D through the internal Web page as follows:

1. Double-click the Web browser icon on the PC desktop to launch the Web browser.
2. Click in the browser **Address** field.
3. Enter the unit IP address in the browser **Address** field.

NOTE: If the local system administrators have not changed the value, the factory-specified default is DHCP set to Off, IP address = 192.168.254.254.

4. Press the keyboard <Enter> key. The PVS 407D checks for password protection. If the device is not password-protected, the Web page opens. If the device is password-protected, it displays an **Enter Network Password** page.

NOTE: A user name entry (“user” or “admin”) is required.

5. Click in the **Password** field and enter the appropriate administrator or user password if prompted.
6. Click **OK**. The Web page opens.

Turning Off Compatibility Mode

The PVS 407D default Web pages do not support compatibility mode in Microsoft Internet Explorer.

To check compatibility view settings:

From the **Tools** menu of the browser, select **Compatibility View Settings**. The Compatibility View Settings dialog box opens.

Be sure that the **Display all websites in Compatibility View** check box is cleared, and that the IP address of the PVS 407D is not in the list of Web sites that have been added to Compatibility view.

Using the Internal Web Page

The PVS 407D default Web page has five panels:

- **Communication Settings**
 - **TCP/IP** — can be changed via **Edit** button
 - **RS-232 Settings** — read only
- **Device Info** — can be changed via **Edit** button
 - **Firmware Version** — can be updated via **Update** button
- **Passwords** — can be changed via **Set** button
- **Configure this device** — has a link to Extron website to download Product Configuration Software (PCS)
- **Date/Time Settings** — can be changed via **Sync to PC** or **Set Manually** buttons

The screenshot displays the internal web page for a PVS 407D PoleVault Digital Switcher. The page has a blue header with the Extron logo and the text "PVS 407D PoleVault Digital Switcher with Ethernet Control Firmware: v1.00". The user is logged in as "admin". The main content area is divided into several panels:

- Communication Settings**: Includes TCP/IP settings (Host Name: PVS-407D-0E-27-45, DHCP: On, IPv4 IP Address: 10.113.113.104, Subnet Mask: 255.255.240.0, Gateway IP: 10.113.112.100, Mac Address: 00-05-A6-0E-27-45) and RS-232 Settings (Baud Rate: 9600, Parity Bit: None, Data Bit: 8, Stop Bit: 1). An "Edit" button is present.
- Device Info**: Shows Device Name (PVS-407D-0E-27-45), Part Number (60-1466-01), Model Name (PVS 407D), and Model Description (PoleVault Digital Switcher with Ethernet Control). An "Update" button is present.
- Configure This Device**: A panel with a link to the Extron website for downloading Product Configuration Software (PCS).
- Date/Time Settings**: Shows Date (Friday, December 31, 1999), Time (04:14:36 PM), and Timezone ((UTC-08:00/UTC-07:00) Pacific Time). Buttons for "Sync to PC" and "Set Manually" are present.
- Passwords**: A panel with a "Set" button.

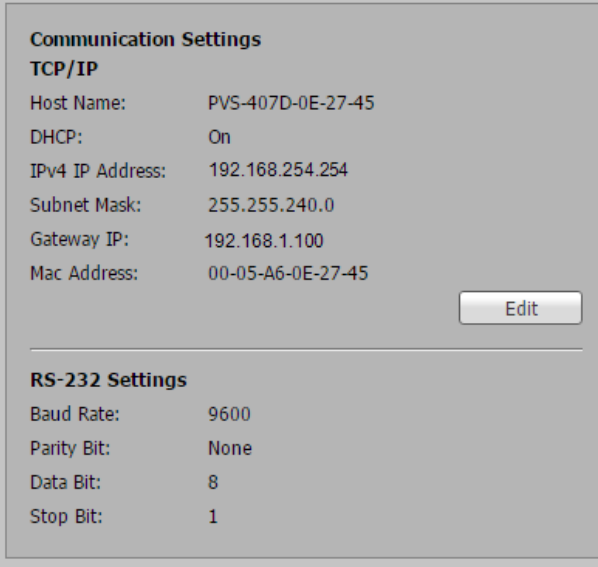
The footer contains the copyright notice "© Extron Electronics 2015" and the version "DWP v1.00.00".

Figure 44. Internal Web Page Example

Communication Settings Panel

The Communication Settings panel is split in two areas: TCP / IP and RS - 232 Settings.

NOTE: The RS-232 settings are read only, and can be changed using PCS.



The screenshot shows a web-based interface for Communication Settings. It is divided into two sections: TCP/IP and RS-232 Settings. The TCP/IP section lists Host Name, DHCP status, IPv4 IP Address, Subnet Mask, Gateway IP, and Mac Address. The RS-232 section lists Baud Rate, Parity Bit, Data Bit, and Stop Bit. An Edit button is located below the TCP/IP settings.

Communication Settings	
TCP/IP	
Host Name:	PVS-407D-0E-27-45
DHCP:	On
IPv4 IP Address:	192.168.254.254
Subnet Mask:	255.255.240.0
Gateway IP:	192.168.1.100
Mac Address:	00-05-A6-0E-27-45
<input type="button" value="Edit"/>	
RS-232 Settings	
Baud Rate:	9600
Parity Bit:	None
Data Bit:	8
Stop Bit:	1

Figure 45. Communication Settings Panel

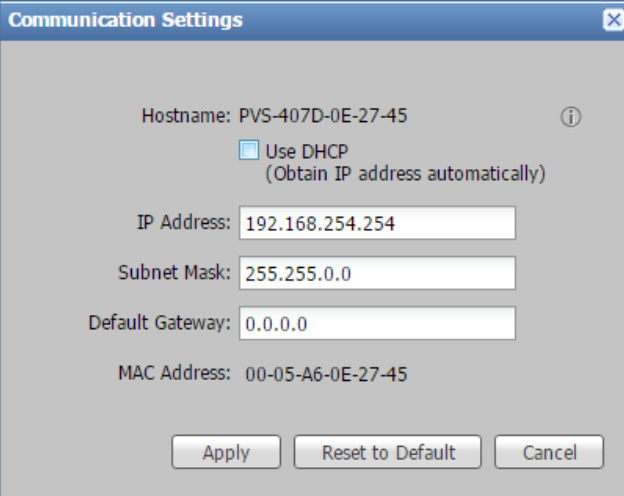
TCP/IP

This section displays host name, DHCP setting, IPv4 IP address, subnet mask, gateway IP, and MAC address information.

Click on the **Edit** button to open a dialog box to change the TCP/IP settings.

NOTES:

- MAC address cannot be changed.
- The host name is generated from the device name, and can only be changed in the Device Info panel, or by using PCS or SIS commands.



The screenshot shows a dialog box titled 'Communication Settings' with a close button (X) in the top right corner. It contains the following settings: Hostname (PVS-407D-0E-27-45), a checkbox for 'Use DHCP (Obtain IP address automatically)' which is checked, and input fields for IP Address (192.168.254.254), Subnet Mask (255.255.0.0), and Default Gateway (0.0.0.0). The MAC Address is displayed as 00-05-A6-0E-27-45. At the bottom, there are three buttons: Apply, Reset to Default, and Cancel.

Figure 46. Communication Settings Panel - TCP/IP

To configure the settings for use with DHCP:

1. Select the **Use DHCP** check box.
2. Click **Apply**. An IP address is automatically assigned to the device. Contact your IT administrator for more information.

Click **Cancel** to exit the process without making any changes.

To configure the settings with a static IP address:

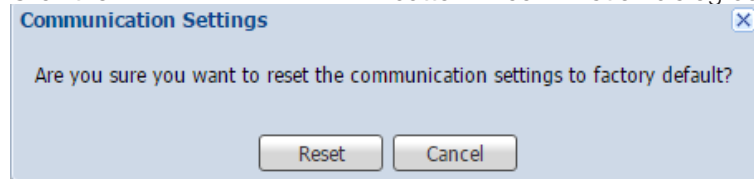
1. In the **IP Address** field, enter an IP address for the device.
2. In the **Subnet Mask** field, enter the subnet mask for the device.
3. In the **Default Gateway** field, enter the default gateway to be used.
4. Click **Apply** to apply the changes, or click **Cancel** to exit the process without making any changes.

To reset the settings to factory default:

NOTE: The default TCP/IP settings are:

- IP address = 192.168.254.254
- Subnet Mask = 255.255.0.0
- Default Gateway = 0.0.0.0

1. Click the **Reset to Default** button. A confirmation dialog box opens.



2. Click **Reset** to reset the settings, or **Cancel** to exit the operation and return to the TCP/IP dialog box.

Device Information Panel

The Device Information panel is split in two areas: **Device info** and **Firmware**.

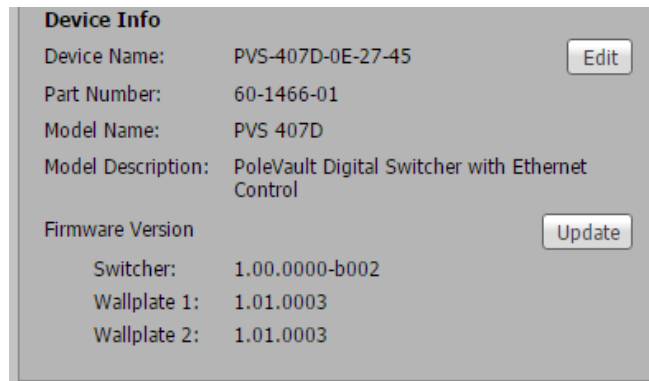


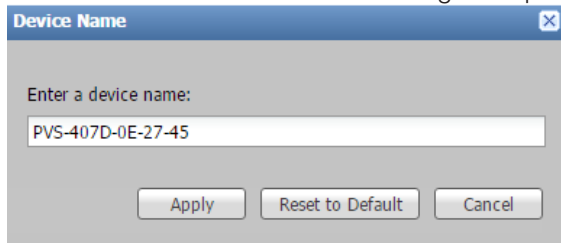
Figure 47. Device Information Panel

This section displays details of the device name, part number, model name, model description, and firmware versions (for PoleVault switcher, wallplate 1 and wallplate 2). Part number, model name, and model description are read only.

Device name

To change the Device Name:

1. Click **Edit**. The Device Name dialog box opens.



2. In the name field, enter a desired name.

NOTE: The name can have alphanumeric characters and hyphen only. Hyphen cannot be the first or last character. An incorrect name is ignored and the current name is not changed.

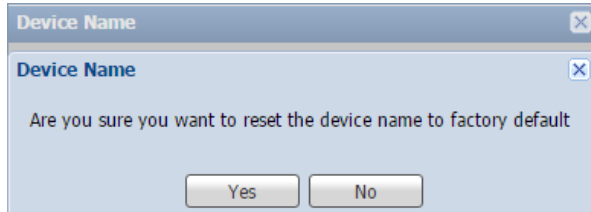
3. Click **Apply**. The new name is applied, the dialog box closes, and the Host Name is also updated with the new name.

Click **Cancel** to exit the process without making any changes.

To reset the Device Name to factory default:

NOTE: The default name is a combination of the model name and last 3 pairs of the MAC address (for example, PVS-407D-0A-1B-22).

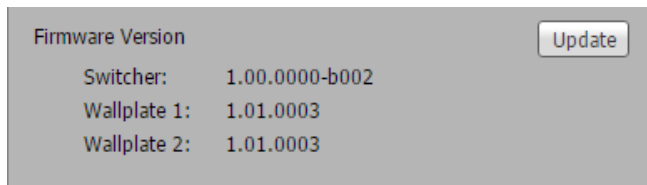
1. Click the **Reset to Default** button. A confirmation dialog box opens.



2. Click **Yes** to reset the settings, or **No** to exit the operation and return to the Device Name dialog box.

Firmware version

This section displays firmware versions for the PoleVault switcher, wallplate 1 and wallplate 2, and allows the user to update the firmware to the switcher.



Firmware Version	
Switcher:	1.00.0000-b002
Wallplate 1:	1.01.0003
Wallplate 2:	1.01.0003

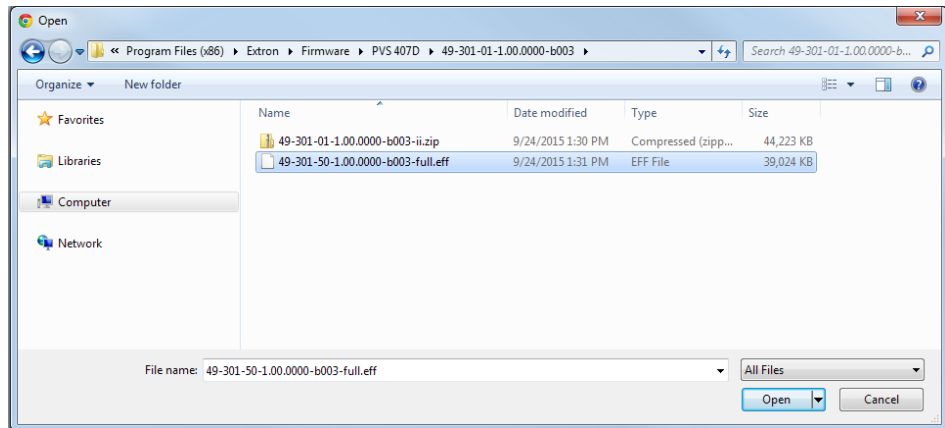
NOTE: The latest firmware can be downloaded from the Extron [website](#) (see [Downloading the Latest Firmware](#) on page 69 for method).

To update the switcher firmware version:

1. Click the **Update** button. The **Firmware Update** dialog box opens.



2. Click the **Browse** button. This opens an explorer window

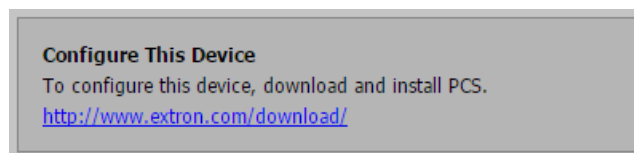


3. Browse to the location of the (previously downloaded and saved) firmware and select.
 4. Click **Open**. The window closes and the **Firmware Update** dialog box reopens showing the firmware file in the name field.
 5. Click **Upload**. The firmware is uploaded to the connected switcher.
- Click **Cancel** at any time to exit the process without making any changes.

NOTE: When the system is restarted after a firmware update, and the PVT wallpates connect to the switcher, the switcher syncs and updates the firmware to the wallplates.

Configure This Device Panel

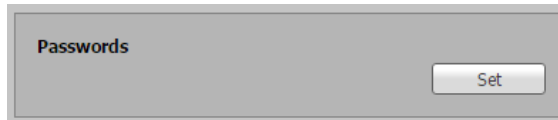
The link in this panel takes the user to the Extron website where the Product Configuration Software (PCS) can be located and then downloaded.



After downloading, consult the software Help file (or see Using the **Product Configuration Software** section in this book) for configuration methods.

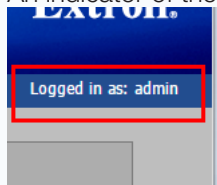
Passwords Panel

This panel gives the user access to setting the admin and user passwords for the PVS 407D switcher.



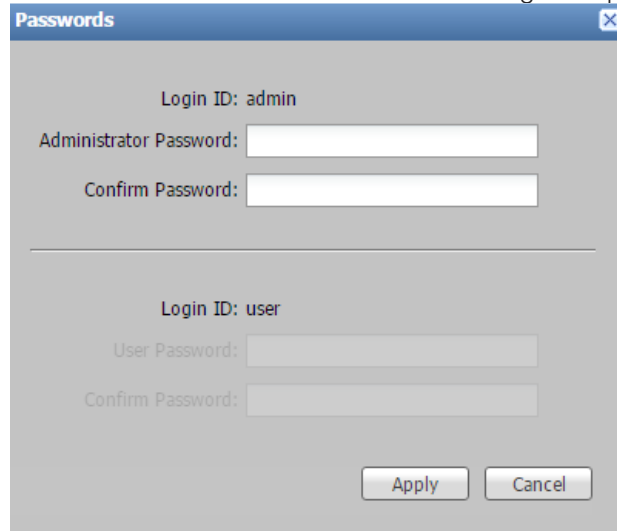
NOTES:

- Only an administrator can set the admin password.
- A user password can only be set if an admin password exists.
- The default admin ID is "*admin*" and the default user ID is "*user*". These can only be changed by an administrator and via SIS commands.
- An indicator of the current login status is shown on the main screen.



To set the passwords for the switcher:

1. Click the **Set** button. The Passwords dialog box opens.

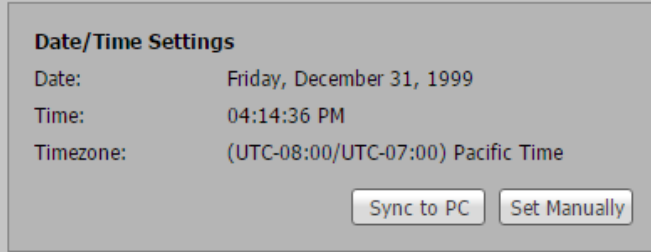
A screenshot of a dialog box titled "Passwords". The dialog box has a blue title bar with a close button (X) on the right. The main content area is light gray and contains two sections. The first section is for the "admin" user, with the text "Login ID: admin" above it. It has two input fields: "Administrator Password:" and "Confirm Password:". The second section is for the "user" user, with the text "Login ID: user" above it. It has two input fields: "User Password:" and "Confirm Password:". At the bottom right of the dialog box, there are two buttons: "Apply" and "Cancel".

2. Change each password field as applicable, and click **Apply**. The passwords are updated and the dialog box closes.

Click **Cancel** at any time to exit the process without making any changes.

Date/Time Settings Panel

This panel shows the date, time, and timezone for the connected switcher, and allows the user to either sync the date and time to a connected PC or set the date and time manually.



Date/Time Settings

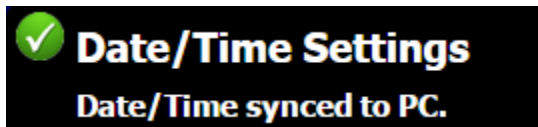
Date: Friday, December 31, 1999

Time: 04:14:36 PM

Timezone: (UTC-08:00/UTC-07:00) Pacific Time

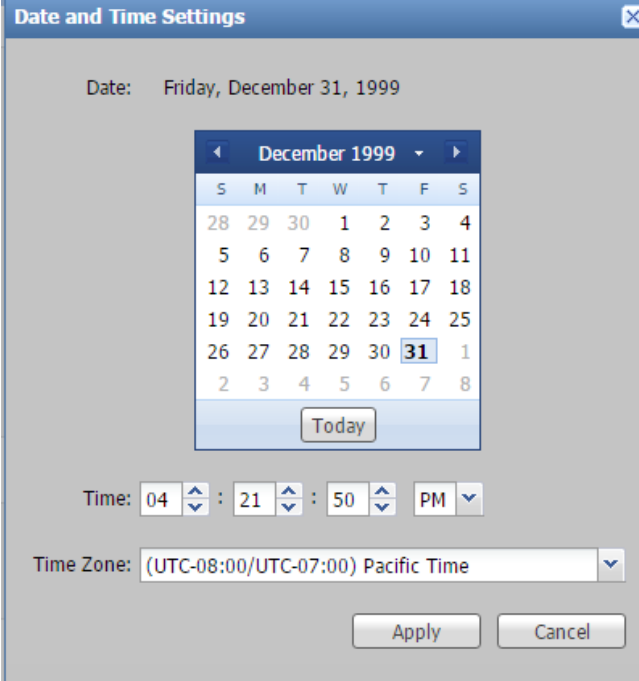
To sync the Date and Time to a connected PC:

Click the **Sync to PC** button. The switcher syncs its date and time to the PC. A popup notification indicates a successful sync is completed.



To set the Date and Time manually:

1. Click the **Set Manually** button. The Date and Time Settings dialog box opens.



Date and Time Settings

Date: Friday, December 31, 1999

December 1999						
S	M	T	W	T	F	S
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

Time: 04 : 21 : 50 PM

Time Zone: (UTC-08:00/UTC-07:00) Pacific Time

2. Click **Today** to choose the current date, or click on the calendar to choose an alternative day.
3. Click in each time field and edit the time manually, or use the up and down arrows to set the time.
4. Choose the applicable time zone from the Time Zone list.
5. Click **Apply**. The date and time changes are applied and the dialog box closes. Click **Cancel** at any time to exit the process without making any changes.

Downloading the Latest Switcher Firmware

The latest switcher firmware can be downloaded from the Extron web site and installed onto the hard drive of a connected PC, ready for uploading to the PVS 407D switcher.

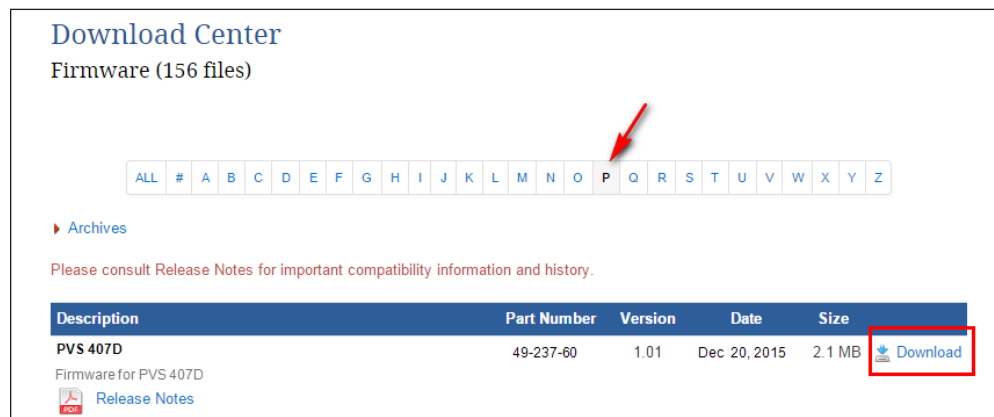
To download from the Website:

1. On the Extron web site (www.extron.com), select the **Download** tab. The **Download Center** screen appears.



Figure 48. Extron Website Download Center

2. On the Download Center screen, select the **Firmware** menu from the left side-bar, or click on the **Firmware** icon on the page. This takes you to the **Firmware** pages.
3. Click on **“P”** and scroll to the PVS 407D line.



4. Click on **Download**.
5. Follow the on-screen instructions to download the firmware to your PC.

Connector Wiring

This section of the manual discusses the connector wiring for a PVS 407D device. Topics covered include:

- [Speaker Configuration](#)
- [TP Cable Termination](#)
- [Power Supply Wiring](#)
- [RS-232 Connector Wiring](#)
- [Input 7 Connector Wiring](#)

Speaker Configuration

When setting up a speaker configuration, the correct speaker impedance loading must be observed.

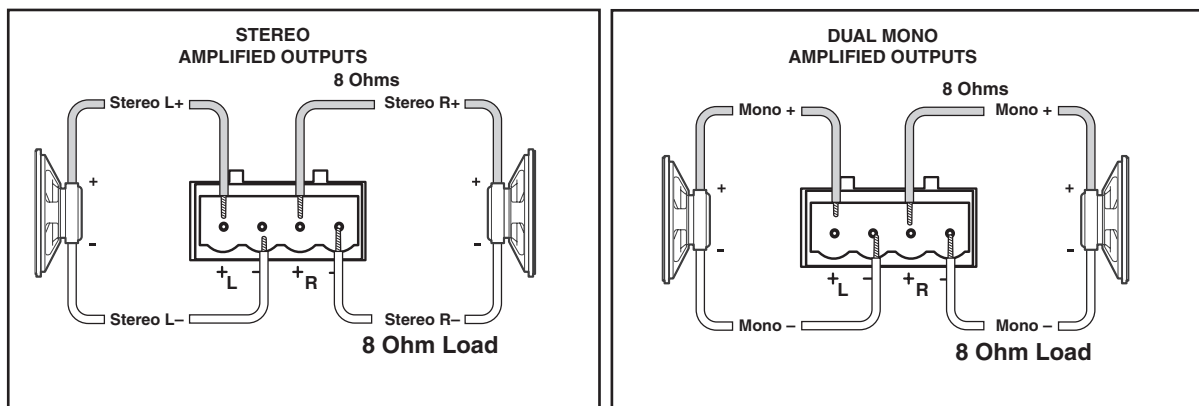


Figure 49. Stereo or Dual Mono Output Using In Line Speaker Wiring

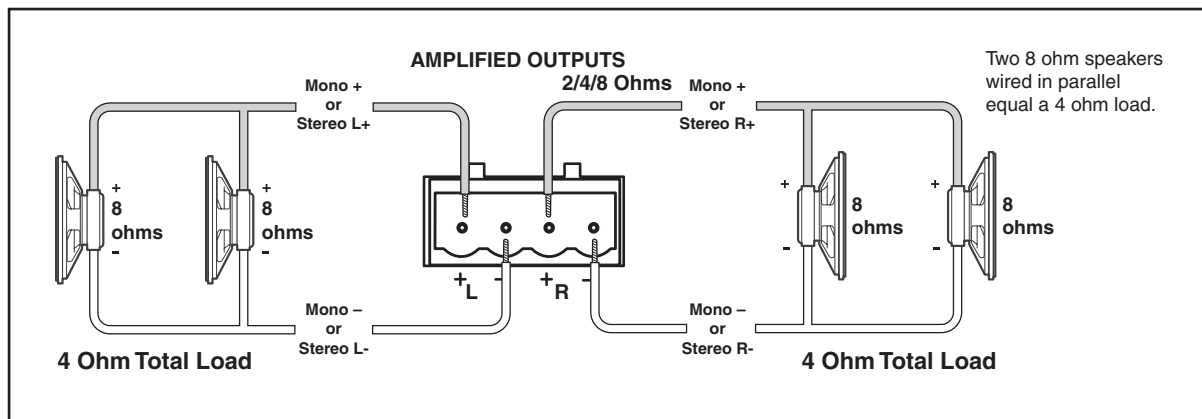


Figure 50. Stereo or Dual Mono Output Using Parallel Speaker Wiring

NOTE: By default, the amplifier is set for dual mono output. Use the Extron Product Configuration Software or SIS commands to change the setting to stereo if desired.

Terminating the Speaker Cable

To terminate the cable, strip the end of the cable 0.2 inch (5 mm) and secure the wires into the supplied 4-pole captive screw connector as shown in the figure below.

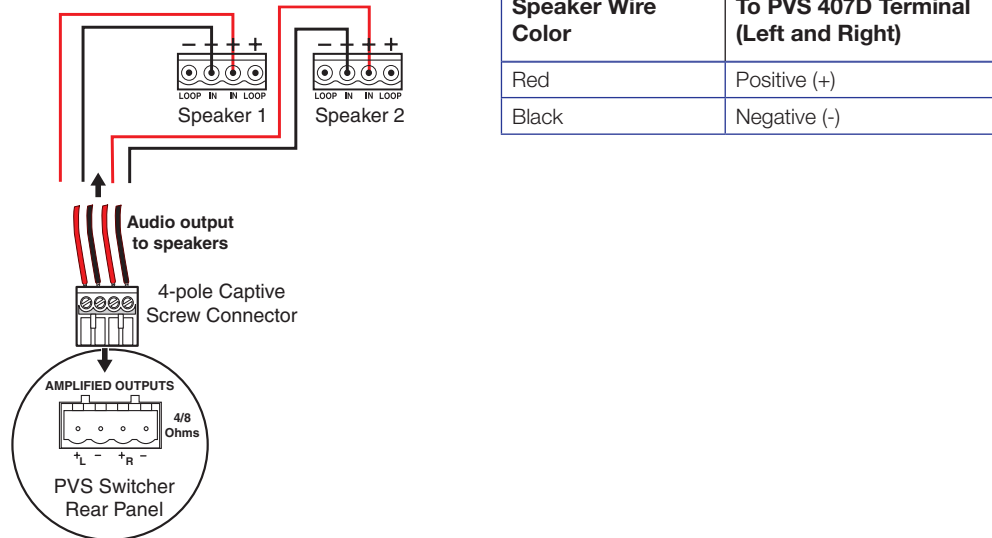


Figure 51. Wiring the Audio Output Connector

TP Cable Termination and Recommendations

The figure below details the recommended termination of both ends of TP cables with RJ-45 connectors in accordance with the **TIA/EIA T568A** wiring standard.

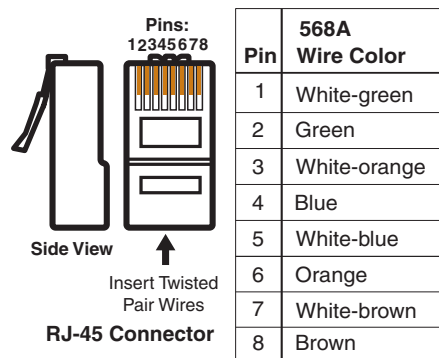


Figure 52. TP Cable Termination

ATTENTION:

- The PoleVault signal transmission method is specific for PVS 407D switchers working with PVT digital wallplates. **DO NOT** connect the input ports to an MTP system or to an Ethernet/LAN or data transmission system.
- La méthode de transmission du signal PoleVault est spécifique pour les sélecteurs PVS 407D qui fonctionnent avec les plaques murales PVT numériques. **Ne PAS** connecter les ports d'entrée à un système MTP ou à un système Ethernet/LAN ou de transmission de données.

Power Supply Wiring

NOTE: Use only the supplied 12 V, 4 A power supply for this switcher. The PVS 407D power supply can support a typical system: for example, a PVS 407D, 2 PVT Wallplates, 2 or 4 speakers, an MLC 104 IP Plus with an IRCM DV+, and a VoiceLift Microphone system.

The image below shows how to wire the connector.

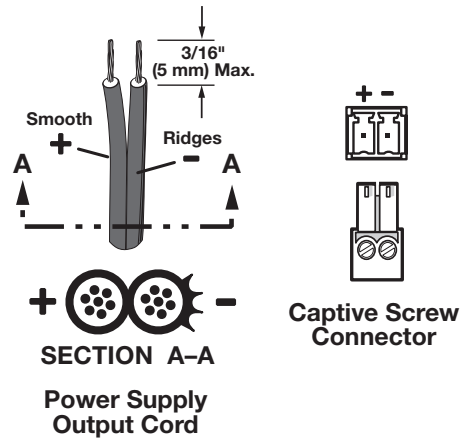


Figure 53. Power Connector Wiring

WARNING: The two power cord wires must be kept separate while the power supply is plugged in. Remove power before wiring.

AVERTISSEMENT : Les deux cordons d'alimentation doivent être tenus à l'écart l'un de l'autre quand l'alimentation est branchée. Couper l'alimentation avant de faire l'installation électrique.

ATTENTION:

- Always use a power supply supplied and or specified by Extron. Use of an unauthorized power supply voids all regulatory compliance certification and may cause damage to the supply and the end product. Unless otherwise stated, the AC/DC adapters are not suitable for use in air handling spaces or in wall cavities. The installation must always be in accordance with the applicable provisions of National Electrical Code ANSI/NFPA 70, article 725 and the Canadian Electrical Code part 1, section 16. The power supply shall not be permanently fixed to building structure or similar structure.
- Utilisez toujours une source d'alimentation fournie ou recommandée par Extron. L'utilisation d'une source d'alimentation non autorisée annule toute conformité réglementaire et peut endommager la source d'alimentation ainsi que le produit final. Sauf mention contraire, les adaptateurs AC/DC ne sont pas appropriés pour une utilisation dans les espaces d'aération ou dans les cavités murales. Cette installation doit toujours être en accord avec les mesures qui s'applique au National Electrical Code ANSI/NFPA 70, article 725, et au Canadian Electrical Code, partie 1, section 16. La source d'alimentation ne devra pas être fixée de façon permanente à une structure de bâtiment ou à une structure similaire.

ATTENTION:

- Power supply voltage polarity is critical. Incorrect voltage polarity can damage the power supply and the unit. The ridges on the side of the cord (see figure 53) identify the power cord negative lead.
- La polarité de la source d'alimentation est primordiale. Une polarité incorrecte pourrait endommager la source d'alimentation et l'unité. Repérez le pôle négatif du cordon d'alimentation grâce aux stries sur le côté du cordon (illustration 53).
- To verify the polarity before connection, plug in the power supply with no load and check the output with a voltmeter.
- Pour vérifier la polarité avant la connexion, brancher l'alimentation hors charge et mesurer sa sortie avec un voltmètre.
- The length of the exposed (stripped) copper wires is important.
The ideal length is 3/16 inch (5 mm). Longer bare wires can short together. Shorter wires are not as secure in the connectors and could be pulled out.
- La longueur des câbles exposés est primordiale lorsque l'on entreprend de les dénuder.
La longueur idéale est de 5 mm (3/16 inches). S'ils sont un peu plus longs, les câbles exposés pourraient se toucher et provoquer un court circuit.
S'ils sont un peu plus courts, ils pourraient sortir, même s'ils sont attachés par les vis captives.

NOTE: Do not tin the power supply leads before installing them in the direct insertion connector. Tinned wires are not as secure in the connectors and could be pulled out.

RS-232 Connector Wiring

Figure 46 shows the wiring for the PVS 407D and the MLC 104 IP Plus RS-232 connectors.

NOTES:

- The MLC 104 IP Plus is powered from the same supply used by the PVS 407D.
- Do not tin the power supply wires before installing them in the direct insertion connector. Tinned wires are not as secure and could be pulled out.

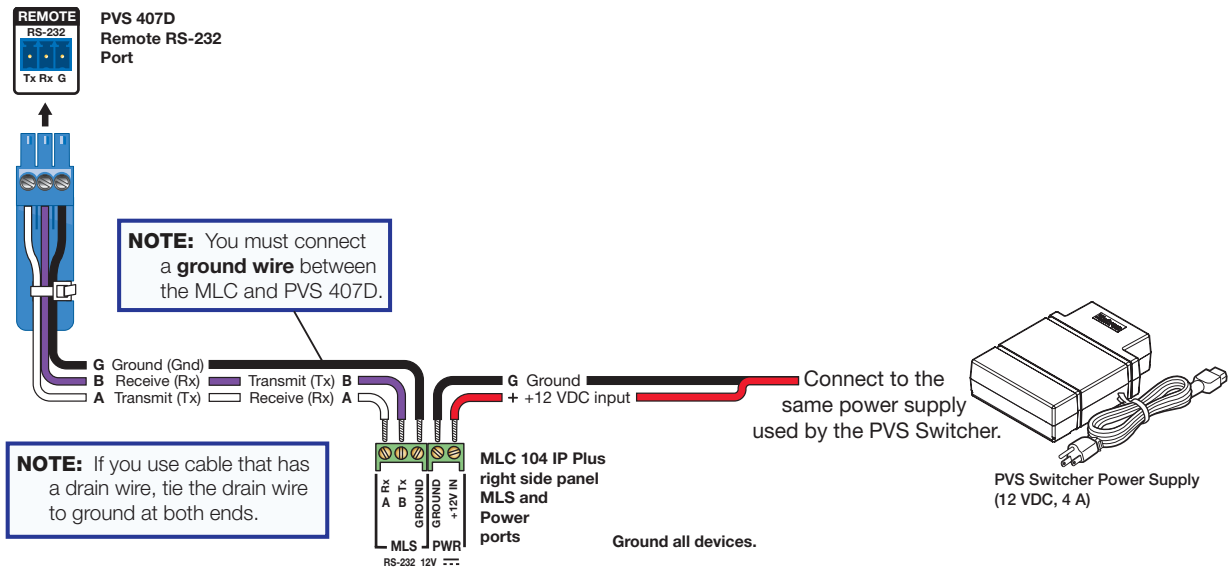


Figure 54. RS-232 Connector Wiring

From MLC 104 IP Plus Terminal	Wire Color	To PVS 407D Terminal
A - (Rx on the MLS port)	White	A - (Tx on the RS-232 port)
B - (Tx on the MLS port)	Violet	B - (Rx on the RS-232 port)
MLS RS-232 Ground	Drain wire	G - Ground
Power Ground	Black	To the PVS 407D Power Supply
12 V In	Red	To the PVS 407D Power Supply

See the **Attention** notice on the previous page for wire length and wire stripping.

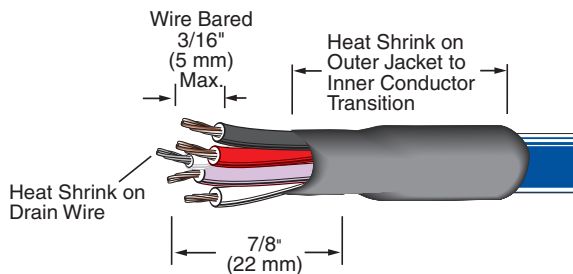


Figure 55. Connector Wire Preparation

Wiring for IR Communication

Connect the IR/RS-232 projector communication cable for either RS-232 or IR projector control.

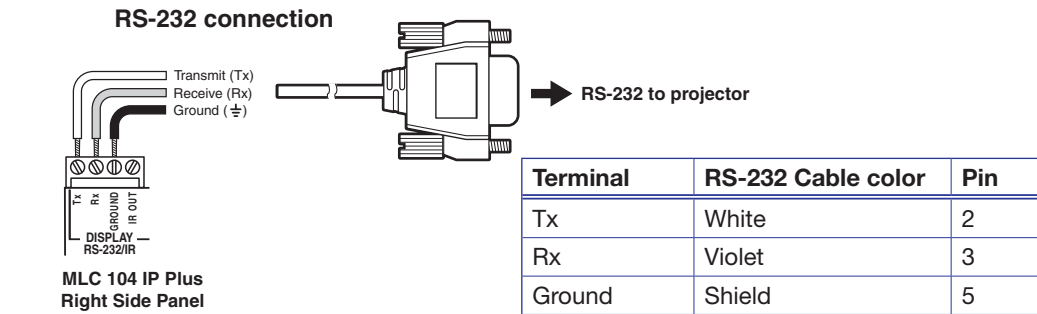


Figure 56. RS-232 Connection to Projector

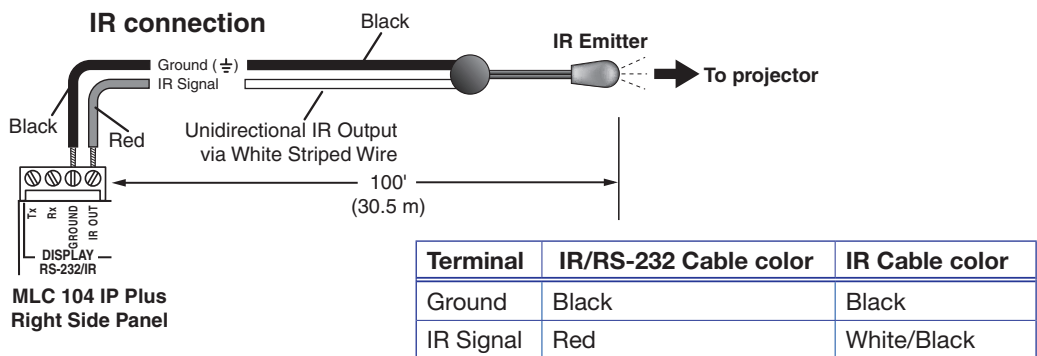


Figure 57. IR Connection to Projector

Connect the MLC to the projector with an RS-232 cable or IR emitter cable, as appropriate

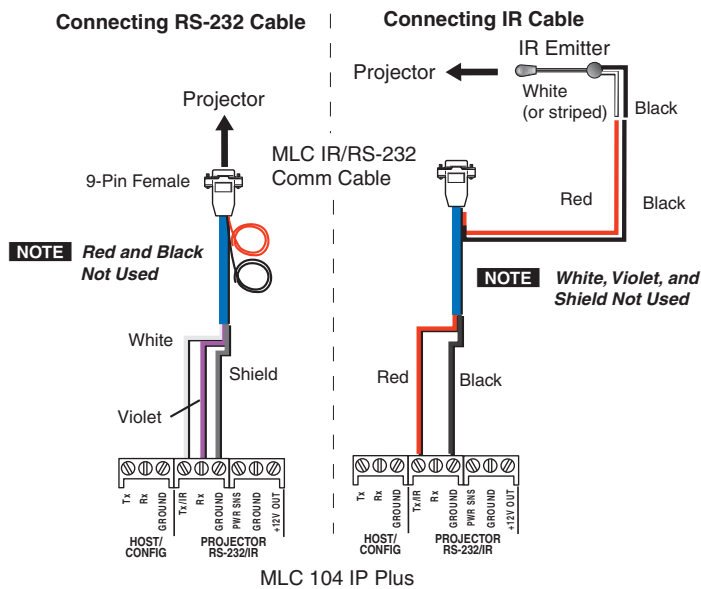


Figure 58. IR Emitter Cable Connection

NOTE: Some projectors require null connection wiring, which inverts the Tx and Rx connections. See the projector guide for details.

IR control for a connected input device such as a BluRay player can be made through the PVT wallplate.

The connections between the MLC 104 IP Plus and the PVS 407D switcher should look like the figure below.

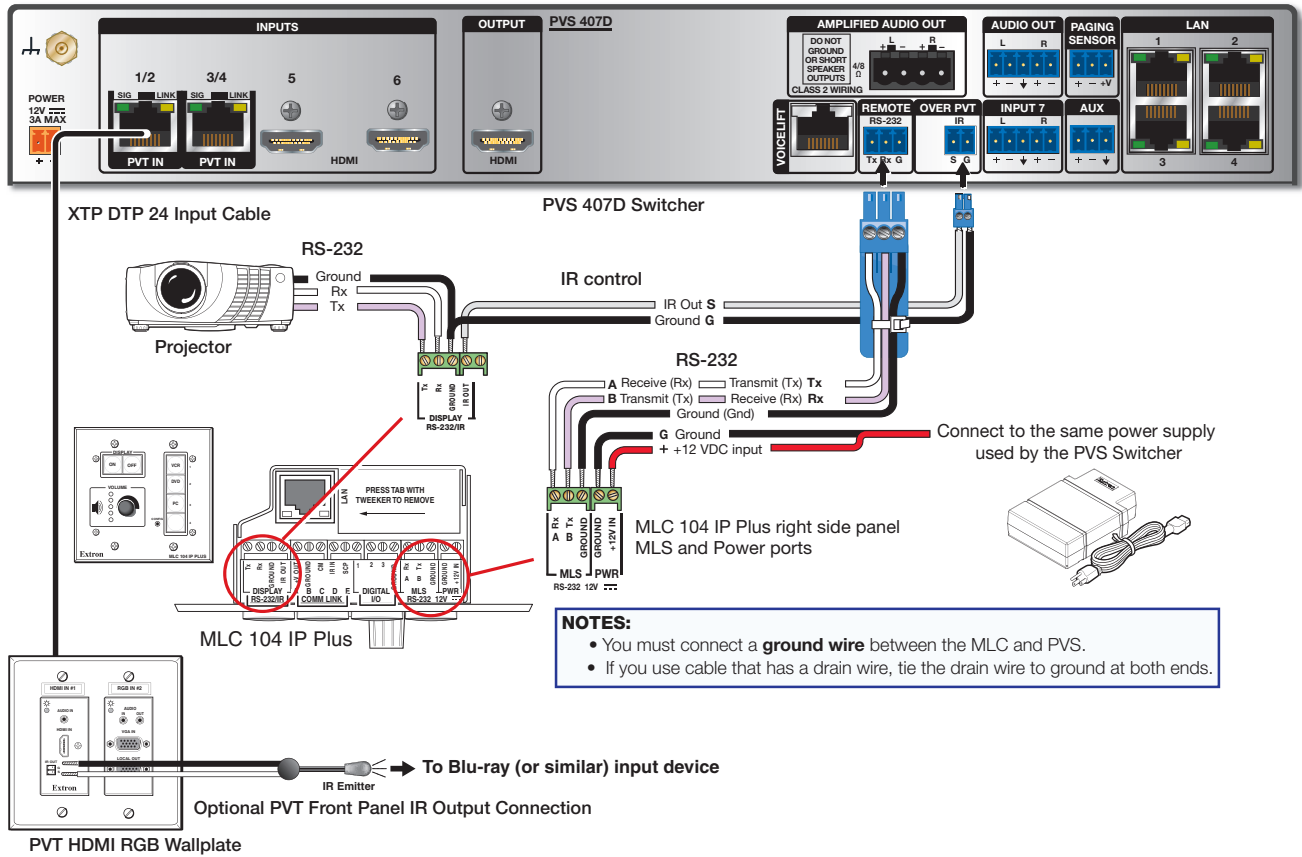


Figure 59. MLC wiring to the PVS 407D Switcher

Input 7 Connector Wiring

Input 7 is a dedicated audio-only input for an auxiliary, stereo, line-level analog audio signal from an output source such as an iPod device or an MP3 player. Connect the cable from the source to this 5-pole captive screw connector. The connector can be wired as balanced or unbalanced as shown below.

NOTE: Input 7 is audio only. No video signals are supported on this input.

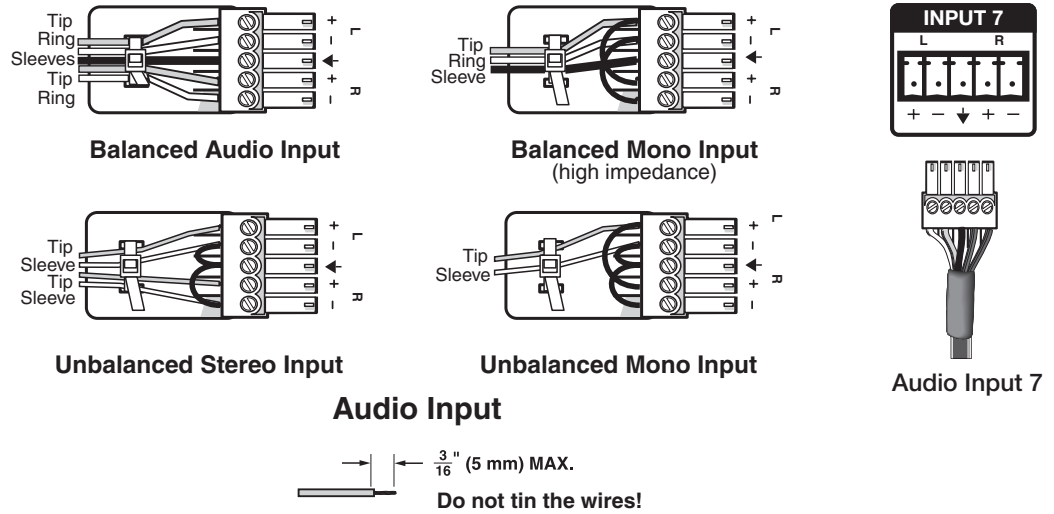


Figure 60. Input 7 Audio Wiring

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.

Japan:

Extron Electronics, Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

Europe and Africa:

Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

China:

Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Asia:

Extron Asia Pte Ltd
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Middle East:

Extron Middle East
Dubai Airport Free Zone
F13, PO Box 293666
United Arab Emirates, Dubai

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
Japan: 81.3.3511.7655

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 and country to country, and that some provisions of this warranty may not apply to you.

Extron Headquarters +1.800.633.9876 (Inside USA/Canada Only) Extron USA - West +1.714.491.1500 +1.714.491.1517 FAX	Extron Europe +800.3987.6673 (Inside Europe Only) Extron USA - East +1.919.850.1000 +1.919.850.1001 FAX	Extron Asia +65.6383.4400 +65.6383.4664 FAX	Extron Japan +81.3.3511.7655 +81.3.3511.7656 FAX	Extron China +86.21.3760.1568 +86.21.3760.1566 FAX	Extron Middle East +971.4.299.1800 +971.4.299.1880 FAX	Extron Korea +82.2.3444.1571 +82.2.3444.1575 FAX	Extron India 1800.3070.3777 (Inside India Only) +91.80.3055.3777 +91.80.3055.3737 FAX
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