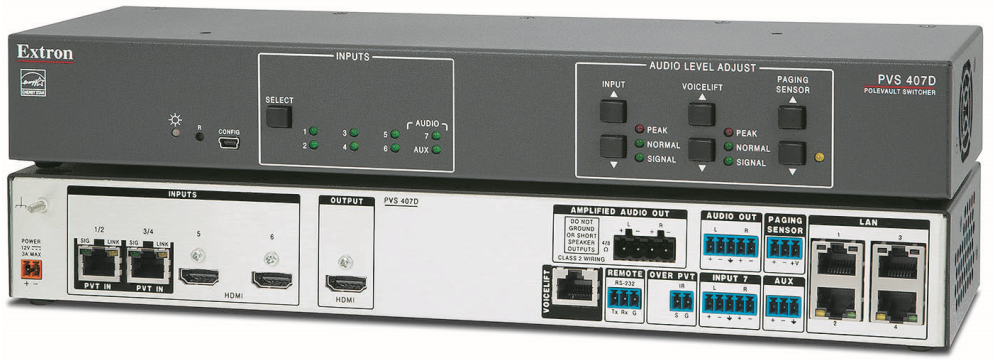
User Guide

PoleVault Switchers

PVS 407D

PoleVault Digital Switcher



Extron

68-2776-01 Rev. F
01 21

Safety Instructions

Safety Instructions • English

WARNING: This symbol, ⚠,when used on the product, is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

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Istruzioni di sicurezza • Italiano

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ATTENTZIONE: Il simbolo, ⚠, se usato sul prodotto, serve ad avvertire l'utente della presenza di importanti istruzioni di funzionamento e manutenzione nella documentazione fornita con l'apparecchio.

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UWAGI: Ten symbol, ⚠, gdy używany na produkt, jest przeznaczony do ostrzegania użytkownika ważne operacyjne oraz instrukcje konserwacji (obsługi) w literaturze, wyposażone w sprzęt.

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Инструкция по технике безопасности • Русский

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

FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. The Class A limits provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference. This interference must be corrected at the expense of the user.

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:

WARNING: Potential risk of severe injury or death.

AVERTISSEMENT : Risque potentiel de blessure grave ou de mort.

ATTENTION:

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

NOTE: A note draws attention to important information.

Software Commands

Commands are written in the fonts shown here:

```
^AR Merge Scene,,Op1 scene 1,1 ^B 51 ^W^C
[01] R 0004 00300 00400 00800 00600 [02] 35 [17] [03]
```

Esc X1 * X17 * X20 * X23 * X21 CE ←

NOTE: For commands and examples of computer or device responses mentioned in this guide, the character "Ø" 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**.

Contents

Introduction

This guide covers the installation, operation, and configuration of the Extron PVS 407D PoleVault Switcher. Topics covered in this section include:

- **PVS 407D Description**
- **Application Diagrams**

Throughout the guide, this switcher is interchangeably referred to as the “PVS 407D”, the “PoleVault switcher”, or the “switcher”.

NOTE: In this guide, where used, the generic term “12 VDC power supply”, refers to either the 12 VDC, 48 Watt 4 Amp power supply, or the 12 VDC, 50 Watt, 4.2 Amp power supply ONLY, as supplied by Extron.

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 to 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 HD 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 4096x2160 at 30 Hz with 4:4:4 chroma sampling, and data rates up to 10.2 Gbps. 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.

With the Audio Decoding LinkLicense upgrade enabled, the PVS 407D switcher is capable of decoding network streamed audio from Extron GlobalViewer Campus Communication Suite (GVCCS) web-based application software.

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 130 feet away for 4K/30 Hz rate (see Note below), or 150 feet for 2K rates. The signals are sent over shielded twisted pair (STP) cable.

NOTE: PVS 407D must have firmware version 2.00 or greater for 4K support on all HDMI inputs.

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-to-HDMI 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 10/100Base-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 **Power Save Modes** on page 14 for full details and the SIS command **Power save mode** on page 25 .

See the *PVS 407D Help File* for details on how to set the auto power feature using PCS.

Application Diagrams

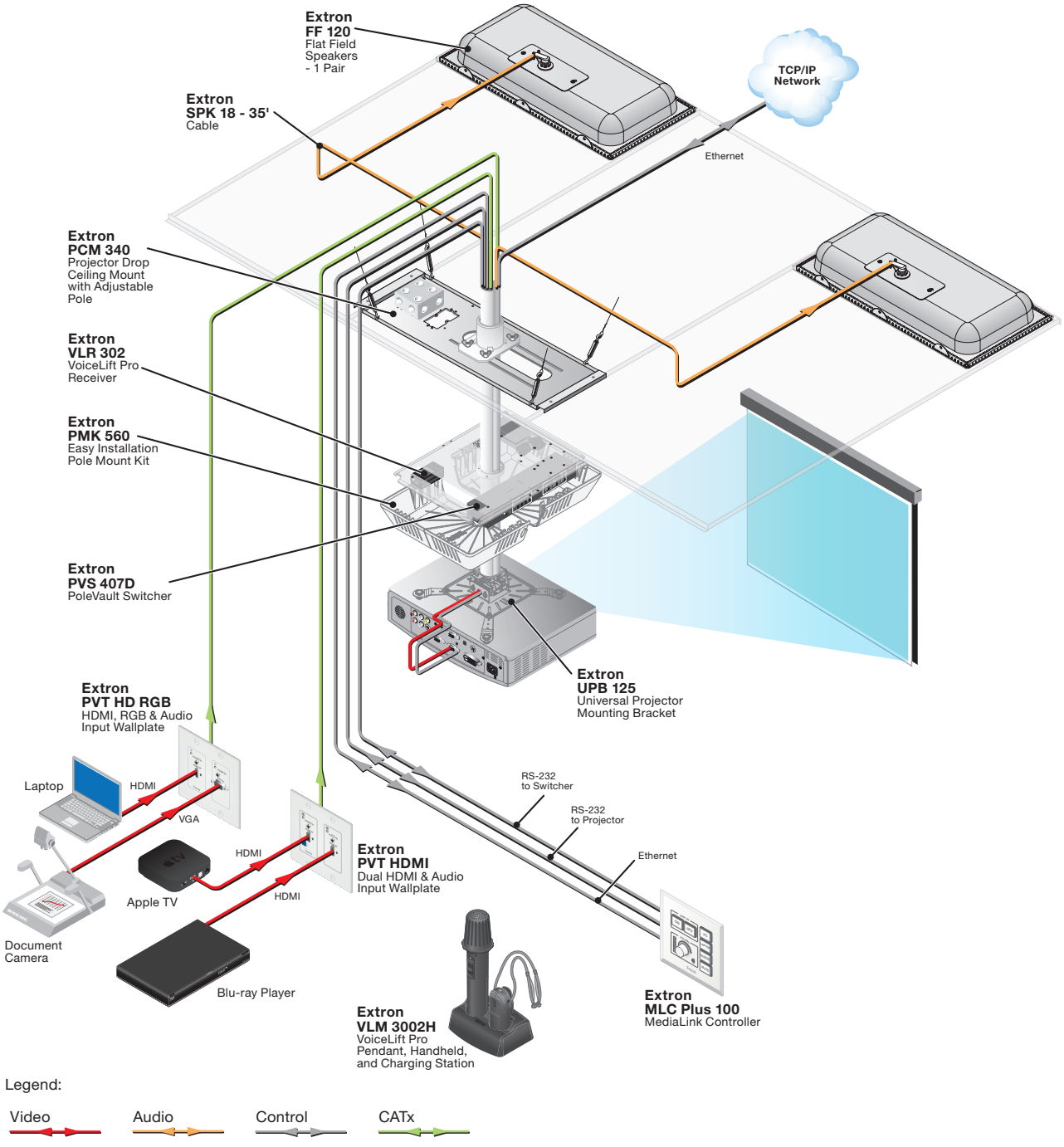


Figure 1. Typical PVS 407D Application

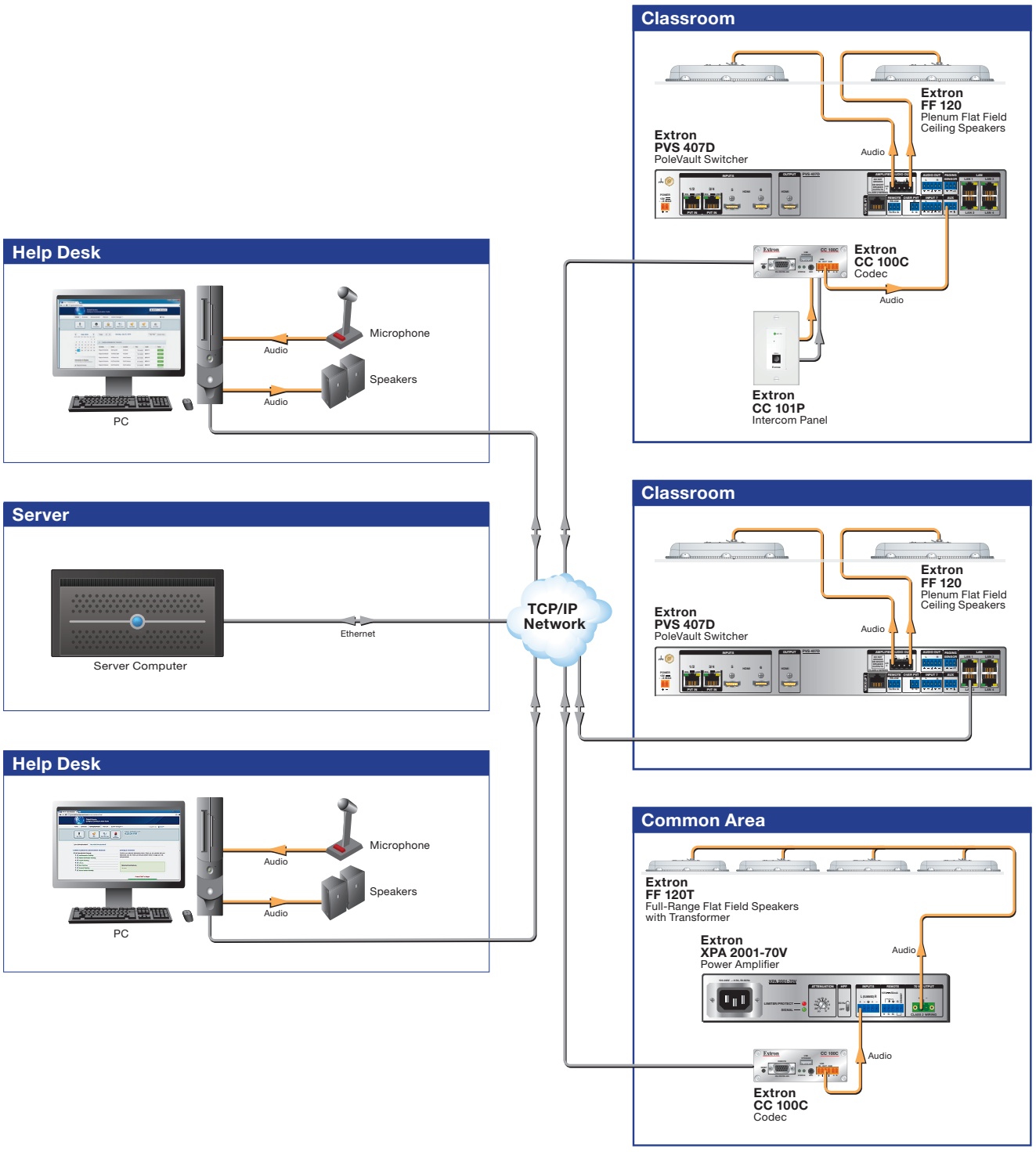


Figure 2. **PVS 407D Application using GVCCS and Multiple Classrooms**

Rear Panel Connections

This section describes cable connections to a PVS 407D switcher.

NOTE: This equipment is to be connected only to networks without routing to the outside plant.

Rear Panel Connectors

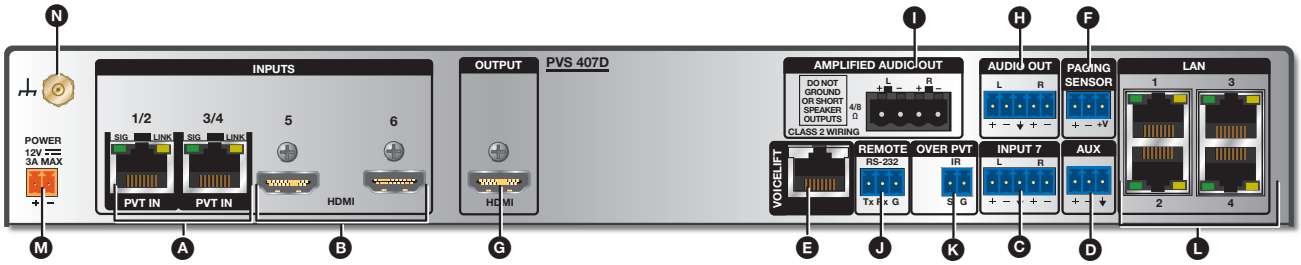


Figure 3. PVS 407D Rear Panel Features

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 to 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 HD RGB or PVT HDMI wallplates (four input sources) to these two RJ-45 female connectors using shielded twisted pair cable (XTP DTP 24). The 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** on page 57, for wiring details).

NOTE: Extron XTP DTP 24 shielded twisted pair cable is required for optimal performance.

Ⓑ **Inputs 5 and 6** (see **figure 3** on the previous page) — 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 9 for securing the cable).

Ⓒ **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 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 **Input 7 Connector Wiring** on page 63 for wiring details).

Ⓓ **Aux audio port** — Connect an aux audio device to this 3.5 mm captive screw 3-pole connector for dedicated mono audio only input.

Ⓔ **VoiceLift port** — This RJ-45 jack is dedicated for use with the optional VLR 102 or VLR 302 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.

Ⓕ **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 is an optional accessory, purchased separately. See the Extron **website** for details about the Priority Page Sensors. To install a Priority Page Sensor system, see the installation guide supplied with the applicable device.

Outputs

Ⓖ **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 9 for securing the cable).

Ⓗ **Line out audio output** — Connect an external amplifier, recording, podcasting, or assisted listening device to this 3.5 mm captive screw 5-pole connector.

Ⓘ **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** on page 56 for wiring details).

Control Ports

J **Remote RS-232 control port** (see **figure 3** on page 5) — Connect a host computer, control system, or MLC controller to this 3.5 mm captive screw 3-pole connector for direct switcher control via RS-232 (see figure 4).

> **NOTE:** The PVS 407D PoleVault switcher may also be Enternet controlled from control systems and MediaLink controllers that support this option.

K **Over PVT (IR insert port)** — For IR control for a source device, connect the IR port on the MLC to this 3.5 mm captive screw 2-pole connector (see figure 4). This routes IR transport control signals via an IR device connected to the PVT wallplate front panel.

L **LAN ports** — These four RJ-45s act as a built-in 4-port 10/100Base-T network switch. These ports allow communication with the switcher via TCP/IP for 3rd-party control systems firmware updates over the network, as well as configuration and operation using PCS software or the embedded web pages.

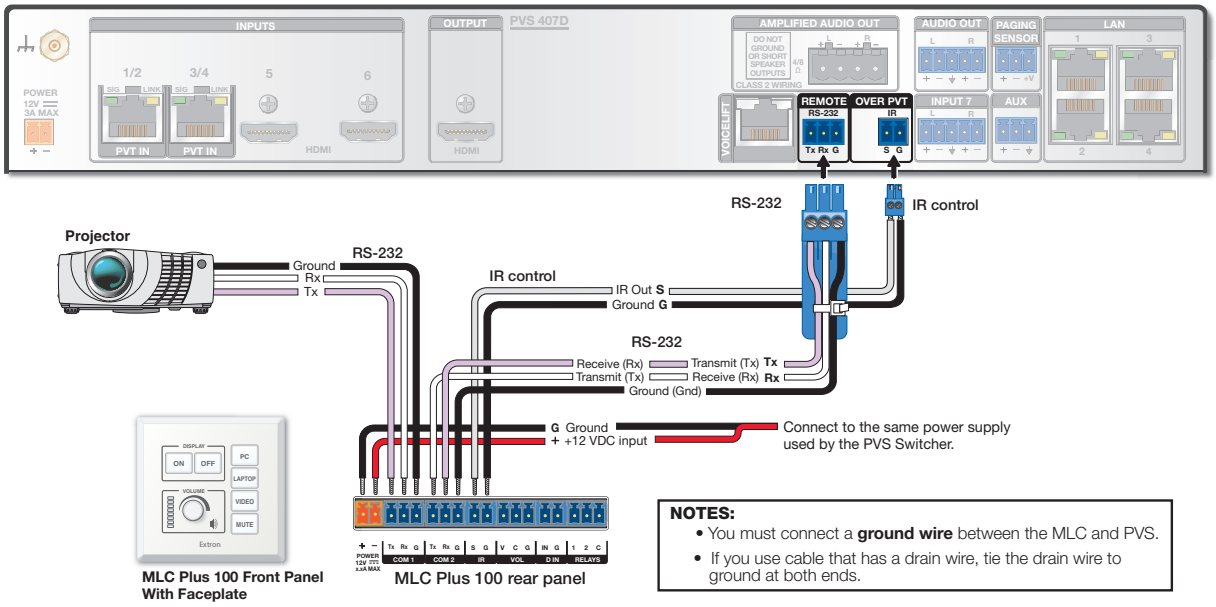


Figure 4. MLC Plus 100 RS-232 and IR Connections to the PVS 407D

Power

M **Power receptacle** — Connect the supplied 12 VDC power supply to this orange female 2-pole captive screw connector (see **Power Supply Wiring** on page 58).

> **NOTES:**
>
> - Use only the supplied 12 V, 4 A or 12 V, 4.2 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 Plus 100, 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.

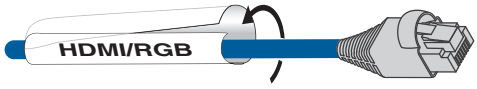
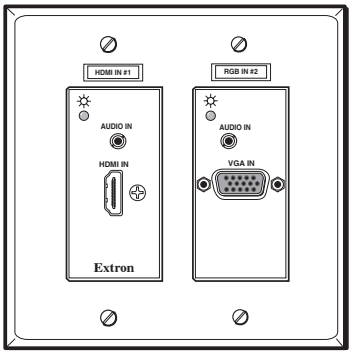


Figure 5. Wrap the Label Around the Cable, Colored Part First.

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 Faceplates

To help identify the input number and type of signal that a PVT 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 decorator-style 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.

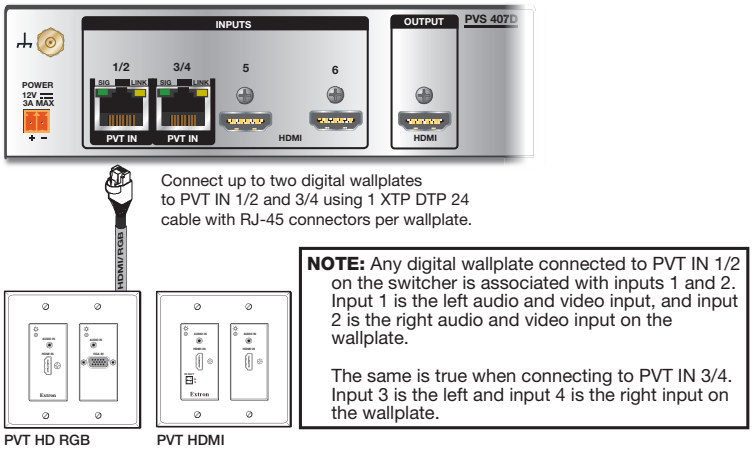


Figure 6. Wallplate to Switcher Input Association

Final Setup

With an MLC Plus 100 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 Plus 50/100/200 Series Setup Guide* for full MLC installation, configuration, and operating details.

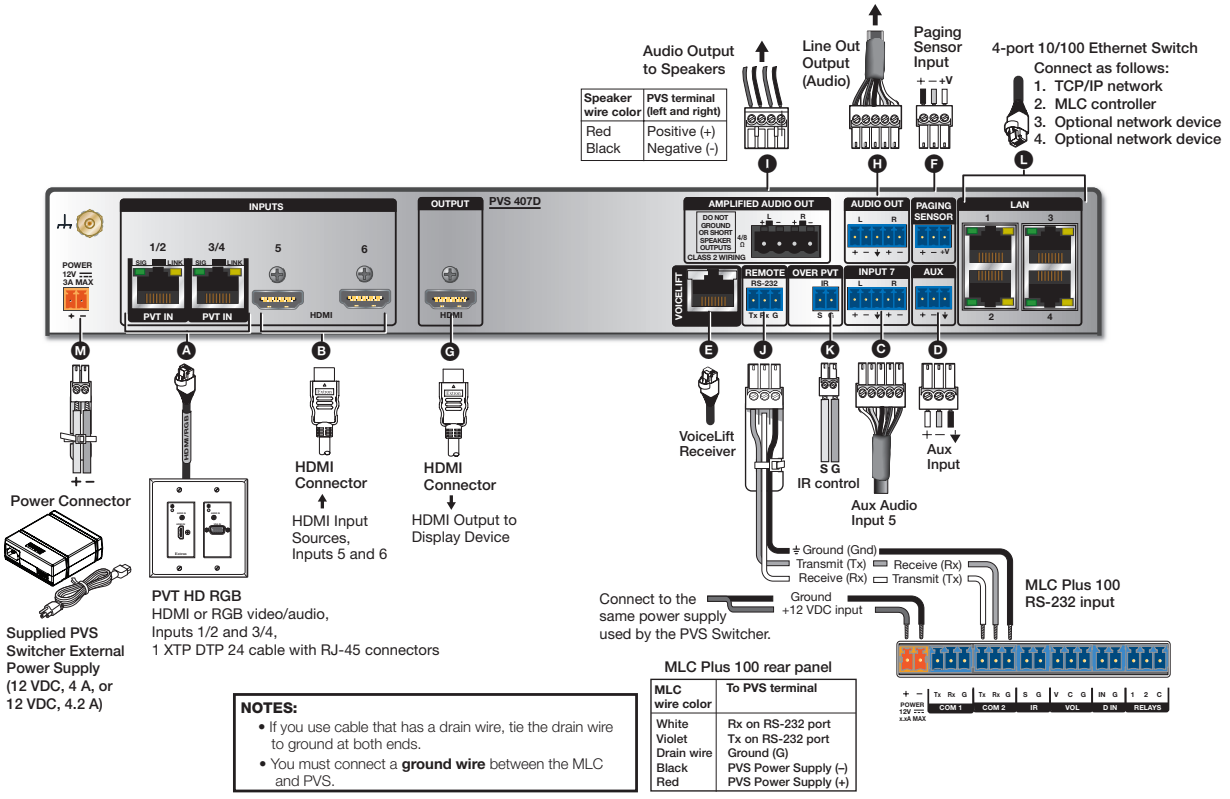
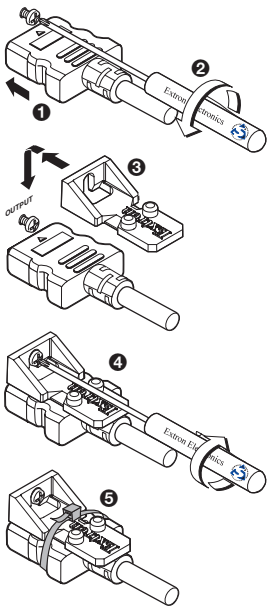


Figure 7. PVS 407D Connections

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 (see image at right):

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. Lightly 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.

Operation

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

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

Front Panel Overview

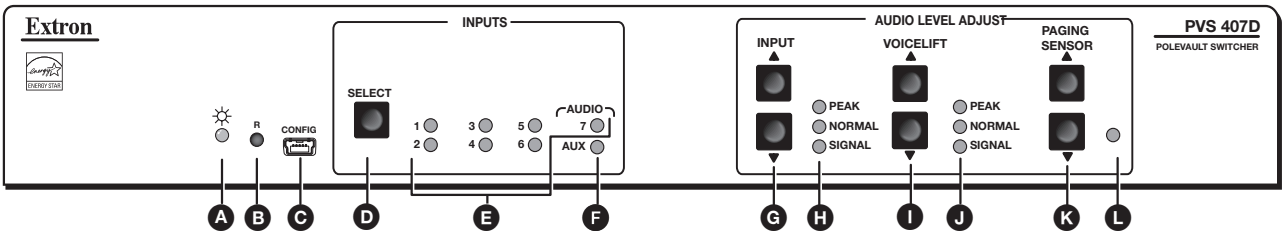


Figure 8. PVS 407D Front Panel Features

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 to 7 status LEDs	K	Paging Sensor adjustment buttons
F	Aux input status LED	L	Paging Sensor indication LED

Front Panel Features

A **Status LED** — This LED lights green when the unit is powered up, and amber when it is in power save mode.

B **Device Reset button** — Pressing this inset button resets the switcher to default settings. There are three reset modes (see **Resetting the Switcher** on page 12 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 button toggles through and selects inputs 1 to 7 and the Aux input.

E **Input selection LEDs (1 to 7, Aux)** (see **figure 8** on page 10) — The applicable input LED lights green when that input is selected and active.

- **Inputs 1 to 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 and 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 a source such as an iPod device or an MP3 player.

NOTE: No video signals are supported on input 7.

F **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 is Ø dB).

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 15 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 Ø dB.

J **VoiceLift level adjustment LEDs** — These three LEDs indicate the active audio level (peak, normal, and signal).

K **Paging Sensor sensitivity adjustment buttons** — These allow the user to adjust the paging sensor sensitivity level for the optional Page Sensor.

L **Paging Sensor indication LED** — This LED lights amber during paging system broadcasts.

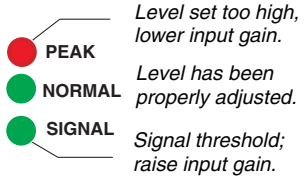
Front Panel Operation

NOTE: See the **Front Panel Overview** on page 10 for the location of input buttons, adjustment buttons, LEDs, and configuration port.

- To change inputs, toggle the input **Select** button (see **figure 8**, D, on the previous page) 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 = Ø dB).
- To adjust VoiceLift microphone levels, press the **VoiceLift** adjustment buttons (I) in 1 dB steps (-18 to +24 dB, default = Ø 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 5Ø).

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 SIS commands or use the Extron Product Configuration Software (PCS).

NOTE: See **SIS Communication and Control** starting on page 19 for a full list of the relevant SIS commands.

Firmware updates (using Firmware Loader or PCS) can be made via the front panel USB port or a TCP/IP connection over the network.

Resetting the Switcher

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

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

The reset button on the front panel (see **figure 8** on page 10) 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 3** *(Available in firmware version 5.02 or above)***:** Reset all device settings to factory default values, but retains user loaded files and IP settings. This reset mode is equivalent to **SIS command ZXXX**.
- **Mode 4**: If the reset button is held down long enough for the Status LED (see **figure 8 ,** Ⓐ) 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. Also, DHCP is turned off.
- **Mode 5**: If the reset button is held down long enough for the Status LED to blink three times (about 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**.
  With firmware version 5.02 and higher, Mode 5 also clears the device passwords if they were set previously.

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.

Enabling and Activating LinkLicense

Refer to **LinkLicense** starting on page 53 to enable and activate the Audio Decoding LinkLicense through the PVS 407D internal webpage. A couple of things to consider:

- **PVS 407D Audio Decoding LinkLicense** – The PVS 407D switcher must have firmware 5.00 or above with the Audio Decoding LinkLicense, part 79-2558-01, enabled to directly playback bells and announcements from GlobalViewer Campus Communication Suite server version 2.0.0.
- **Audio Stream Settings** – The Audio Stream settings on the PVS 407D default webpage are disabled until the PVS 407D Audio Decoding LinkLicense is applied to the switcher. With the LinkLicense successfully added, audio stream settings are accessible. IP address and UDP port settings should be coordinated with your GlobalViewer Campus Communication Suite and network administrators for proper operation.

For assistance with LinkLicense activation, please contact your Extron Support Representative.

Front Panel Security Lockout (Executive Mode)

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 the front panel security lockout 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 (executive mode)** on page 25).

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 (approximately 8 seconds).
2. Release the button. The LEDs go out except for the currently selected input. The switcher has enabled or disabled the executive mode.

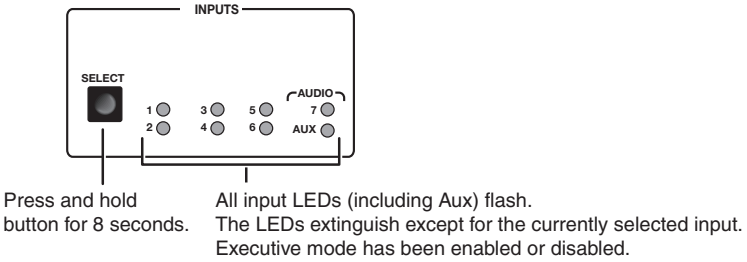


Figure 9. Setting the Executive Mode via the Front Panel

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** on page 19 or the *PVS 407D PCS Help* file.

Power Save Modes

The PVS 407D is an ENERGY STAR® qualified device, and has five Power Save modes, (see the table below for mode descriptions and **Power save mode** on page 25).

Mode	Type	Activation	Device and System power	Wake-up trigger	Setup Command
0	Normal	None	Fully powered. Status 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 to 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 Status LED is green in mode 1.	An active switchable program audio signal which is referring to selectable inputs 1 to 7, 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 Status LED is amber.	If entered from mode 1, can be woken by an active switchable program audio signal which is referring to selectable inputs 1 to 7, 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. Status 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 Status 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 Ø dB.

   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 and 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 16 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 is not 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 17 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** on page 16 for details). Aux input can be adjusted via PCS.
7. Press the **Select** button to exit the Aux adjustment 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 Ø dB.

NOTE: Adjusting input sensitivity for all inputs ensures consistent signal to noise ratios across all inputs.

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 ▲ **Input** 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).

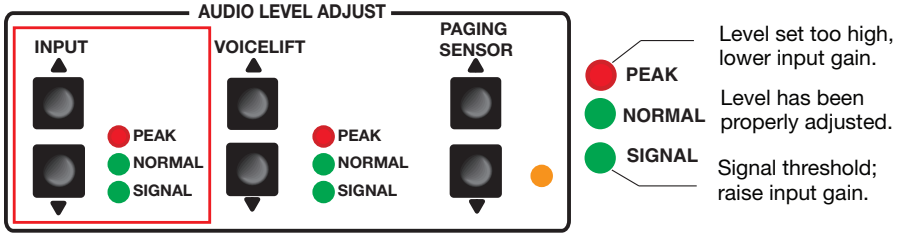


Figure 10. Front Panel Audio Input Peak/Normal/Signal LEDs and Adjustment Buttons

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 Ø 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 Ø dB.

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

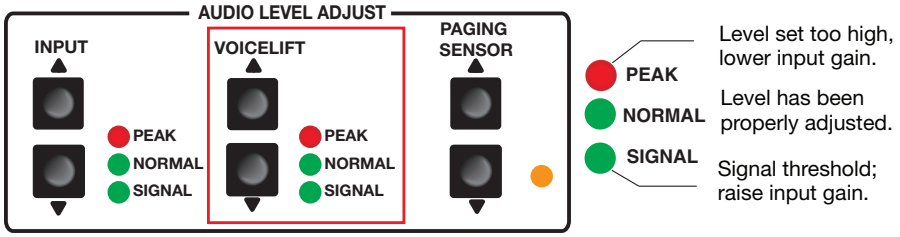


Figure 11. Front Panel VoiceLift Mic Peak/Normal/Signal LEDs and Adjustment Buttons

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 to 7).

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

NOTE: The 1Z SIS command mutes all embedded audio on the HDMI, line out and amplifier outputs.

The VoiceLift microphone input can be muted via a separate SIS command (see **SIS Communication and Control** starting on page 19 for details).

Paging Sensitivity Adjustment

When the 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.

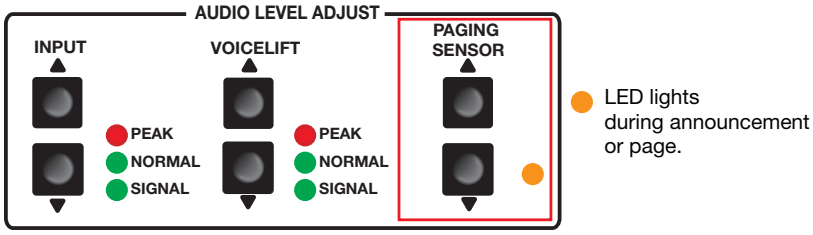


Figure 12. Front Panel Paging Sensor Min/Max LED and Adjustment Buttons

Paging Sensor hold time (see page 32) (1 to 8, in 1 second steps, **Ø** = 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**
- **System Definitions**
- **Command and Response Tables**

The switcher uses a protocol of 9600 baud, 1 stop bit, no parity, and no flow control (see **Control Ports** on page 7).

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 2Ø19, Extron Electronics, PVS 4Ø7D, Vx.xx, 6Ø-1466-Ø1↵ (where Vx.xx is the firmware version number and 6Ø-1466-Ø1 is the product number).
- 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 4Ø7D, V*x.xx*, 6Ø-1466-Ø1↵ *Ddd*, *DD MMM YYYY HH*:*MM*:*SS* ↵ (day, date, and time as in Fri, 2Ø Nov 2Ø15 11:27:33).

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.

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

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
E10 — Invalid command
E12 — Invalid port number
E13 — Invalid parameter
E14 — Not valid for this configuration
E17 — System timed out
E18 — System/command timed out
E22 — Busy
E24 — Privilege violation
E25 — Device not present
E26 — Maximum number of connections exceeded
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 give an E28 (file not found) error

SIS Overview

Using the Command and Response Tables

The **Command and Response Tables** (see page 24) for SIS commands 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.

space →

ASCII to HEX Conversion Table																Esc	1B	CR	ØD	LF	ØA
	2Ø	!	21	"	22	#	23	$	24	%	25	&	26	'	27						
(	28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F						
Ø	3Ø	1	31	2	32	3	33	4	34	5	35	6	36	7	37						
8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F						
@	4Ø	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	5Ø	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						
`	6Ø	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	7Ø	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 13. ASCII to Hexadecimal Character Conversion Table

System 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 at any time)	
14, 24, 28	=	Superscripts indicate the error message displayed if the command is entered incorrectly or with invalid parameters (see **Error Responses** on page 20).	
X1	=	Input selection	Video and audio input selection, 1 to 7
X2	=	Status	Ø = Off/disable/unmute (default for active program, VoiceLift, and Aux) 1 = On/enable/mute (default for embedded HDMI audio out)
X3	=	PVT Wallplate type	Ø = No PVT wallplate detected 1 = PVT HDMI wallplate detected 2 = PVT HDMI RGB wallplate detected 3 = PVT HD RGB wallplate detected
X4	=	Audio input	1 to 7 = Active Program (post switch) 8 = VoiceLift 9 = Aux 1Ø = Embedded HDMI audio out
X5	=	Audio status	**Signal detection threshold**: Ø = Off (signal level is too low to detect) 1 = On (a signal of at least -6Ø dBFS is present) **Normal range**: Ø = Off (input level too low) 1 = On (input is in the right range if at least -3Ø dBFS is present) **Peak level**: Ø = 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 to 6 only
X7	=	Video signal status	Ø = Video/TMDS signal not detected 1 = Video/TMDS signal detected 2 = Unknown
X8	=	Audio format	Ø = Analog 1 = Digital
X9	=	Audio mute to DSP	Ø = Audio unmuted 1 = Audio muted
X10	=	Input HDCP status	Ø = 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 to 62), see **SIS variables table** on page 23
NOTE: PVS 407D must have firmware version 2.00 or greater for 4K/UHD support on all HDMI inputs.			
X20	=	Power save mode/ state	Ø = 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)
X25	=	Output port to play back audio	1 = All 2 = Amplified audio output 3 = Lineout audio output
X26	=	Audio file play back mode	Ø = Play once 1 to 3 = Play continuously with a Ø-299 second delay between repeats. Send Play command again with mode = to stop audio file playback.
X28	=	Audio priority level	Ø to 3, optional, with Ø = least. Defaults to Ø if not specified.
X29	=	PVT HD RGB or PVT HDMI RGB wallplate inputs (2 and 4 only)	2 = Input 2 4 = Input 4
X30	=	Pixel phase	Ø to 63 (32 = default)
X31	=	Total pixels (phase)	±255 of the default value (depends on input rate)
X32	=	Horizontal start	Ø to 255 (default midpoint of 128 translates to the default value in the input lookup tables)

X33	=	Vertical start	Ø to 255 (default midpoint of 128 translates to the default value in the input lookup tables)
X34	=	Status	Ø = Off/disable 1 = On/enable
X35	=	Audio output volume	ØØØ to 1ØØ, (-1ØØ dB to Ø dB), [default Ø8Ø]
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, Ø-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	=	Audible Chime	Ø =Off/disable 1 = On/enable (default) E25 = Device not present/ detected
X38	=	LINK slot 1	Ø =LINK slot 1 is not paired to a microphone or pairing fails 1 = LINK slot 1 is paired microphone 9 = Microphone is on/ connected or LINK slots are occupied and cannot pair.
X39	=	LINK slot 2	Ø =LINK slot 2 is not paired to a microphone or pairing fails 1 = LINK slot 2 is paired 9 = Microphone is on/connected or LINK slots are occupied and cannot pair.
X40	=	VoiceLift VLR 302 relay 1 status	Ø = Off 1 = On
X41	=	VoiceLift VLR 302 relay 2 status	Ø = Off 1 = On
X42	=	VLR 302 firmware version with build	*Example response:* 1.ØØ.ØØ42↵
X43	=	Feedback suppressor	Ø =Off/disable (default) 1 = On/enable E25 = Device not present/ detected
X44	=	Number of connections	Number of open connections
X45	=	Relay status (VLR 102)	Ø = Off 1 = On
X46	=	Contact closure input state (VLR 102)	Ø = Open 1 = Closed
X47	=	VoiceLift status (VLR 102)	Ø = No carrier/microphone is off 1 = Channel A or C 2 = Channel B or D 3 = Channels A or C and B or D
X101	=	Default name	Combination of model name and last 3 hex pairs of MAC address (for example PVS-4Ø7D-Ø7-4B-E9)
X102	=	Verbose mode	Ø = Clear/none; 1 = Verbose mode 2 = Tagged responses for queries 3 = Verbose mode, tagged responses for queries

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

X103	=	Baud rate	Ø = 96ØØ (Default) 1 = 192ØØ 2 = 384ØØ 3 = 1152ØØ
X104	=	Hardware (MAC) address	(ØØ-Ø5-A6-xx-xx-xx)
X105	=	Unit name	Text string up to 24 characters drawn from the alphabet (A to Z), digits (Ø to 9), and 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 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 human-readable characters are permitted except "/", "\", "|", " ", and "*". Passwords are case-sensitive and cannot be a single space.

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

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.Ø.Ø
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: Ø.Ø.Ø.Ø
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.Ø.Ø is represented as a prefix value by /16.

SIS X18 variables for EDID resolution/refresh rate combination (where X18 = 1 through 62)

Analog

Resolution	Refresh (Hz)	Rate Type	Video Format	Audio Format	X18
800x600	60	PC	VGA	N/A	1
1024x768	60	PC	VGA	N/A	2
1280x720	60	PC	VGA	N/A	3[a]
1280x768	60	PC	VGA	N/A	4
1280x800	60	PC	VGA	N/A	5
1280x1024	60	PC	VGA	N/A	6
1360x768	60	PC	VGA	N/A	7
1366x768	60	PC	VGA	N/A	8
1400x1050	60	PC	VGA	N/A	9
1440x900	60	PC	VGA	N/A	10
1600x900	60	PC	VGA	N/A	11
1600x1200	60	PC	VGA	N/A	12
1680x1050	60	PC	VGA	N/A	13
1920x1080	60	PC	VGA	N/A	14[b]
1920x1200	60	PC	VGA	N/A	15
2048x1080	60	PC	VGA	N/A	16
800x600	60	PC	DVI	N/A	17
1024x768	60	PC	DVI	N/A	18
1280x720	60	PC	DVI	N/A	19
1280x768	60	PC	DVI	N/A	20
1280x800	60	PC	DVI	N/A	21
1280x1024	60	PC	DVI	N/A	22
1360x768	60	PC	DVI	N/A	23
1366x768	60	PC	DVI	N/A	24
1400x1050	60	PC	DVI	N/A	25
1440x900	60	PC	DVI	N/A	26
1600x900	60	PC	DVI	N/A	27
1600x1200	60	PC	DVI	N/A	28
1680x1050	60	PC	DVI	N/A	29
1920x1080	60	PC	DVI	N/A	30
1920x1200	60	PC	DVI	N/A	31
2048x1080	60	PC	DVI	N/A	32

[a] Default analog EDID for Firmware version 3.00 or below

[b] Default analog EDID for Firmware version 4.00 or below

Digital

Resolution	Refresh (Hz)	Rate Type	Video Format	Audio Format	X18
800x600	60	PC	HDMI	2-ch	33
1024x768	60	PC	HDMI	2-ch	34
1280x768	60	PC	HDMI	2-ch	35
1280x800	60	PC	HDMI	2-ch	36
1280x1024	60	PC	HDMI	2-ch	37
1360x768	60	PC	HDMI	2-ch	38
1366x768	60	PC	HDMI	2-ch	39
1400x1050	60	PC	HDMI	2-ch	40
1440x900	60	PC	HDMI	2-ch	41
1600x900	60	PC	HDMI	2-ch	42
1600x1200	60	PC	HDMI	2-ch	43
1680x1050	60	PC	HDMI	2-ch	44
1920x1200	60	PC	HDMI	2-Ch	45
2048x1080	60	PC	HDMI	2-Ch	46
480	60	HDTV	HDMI	2-Ch	47
576p	50	HDTV	HDMI	2-Ch	48
720p	50	HDTV	HDMI	2-Ch	49
720p	60	HDTV	HDMI	2-Ch	50[x]
1080i	50	HDTV	HDMI	2-Ch	51
1080i	60	HDTV	HDMI	2-Ch	52
1080p	50/25	HDTV	HDMI	2-Ch	53
1080p	50	HDTV	HDMI	2-Ch	54
1080p	60/24	HDTV	HDMI	2-Ch	55
1080p	60	HDTV	HDMI	2-Ch	56[y]
4K/UHD	30	HDTV	HDMI	2-Ch	62
Output 1 (Automatic mode)					57
User loaded slot 1					58
User loaded slot 2					59
User loaded slot 3					60
User loaded slot 4					61

[x] Default digital EDID for Firmware version 2.02 or below

[y] Default digital EDID for Firmware version 3.00 or above

NOTE: PVS 407D must have firmware version 2.00 or greater for 4K/UHD support on all HDMI inputs.

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	! *Verbose mode 2/3*	X1 ↵ Chn X1 ↵	View current input.
Video mute (output)			
Disable TMDS clock	1B	Vmt1 ↵	Disable TMDS clock.
Unmute output video	0B	Vmt0 ↵	Unmute the output.
View output video mute status	B *Verbose mode 2/3*	X2 ↵ Vmt X2 ↵	View the mute status on output.

KEY: X1 = Input selection — 1 to 7
X2 = Status — Ø = Off/disable/unmute (default for active program, VoiceLift, and Aux); 1 = On/enable/mute (default for embedded HDMI audio out)

Audio mute (output)

NOTES:
- The 1Z command 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	Amt1 ↵	Turn audio mute on.
Unmute output audio	0Z	Amt0 ↵	Turn audio mute off.
View output audio mute status	Z *Verbose mode 2/3*	X2 ↵ Amt X2 ↵	View audio mute status.
Input mute control			
Set input audio mute	Esc X4 * X2 IMUT ←	Imut X4 * X2 ↵	Set mute control to X4.
View input audio mute status	Esc X4 IMUT ← *Verbose mode 2/3*	X2 ↵ Imut X4 * X2 ↵	View the audio input mute status. Default is X2 = 0, unmuted.

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.

KEY: X2 = Status — Ø = Off/disable/unmute (default for active program, VoiceLift, and Aux); 1 = On/enable/mute (default for embedded HDMI audio out)
X4 = Audio input selection — 1 = Active program (post switch), 8 = VoiceLift, 9 = Aux, 1Ø = Embedded HDMI audio out

Output volume

Set specific volume	X35 V	Vol X35 ↵	Set volume to X35.
Increment	+V	Vol X35 ↵	Increase volume.
Decrement	-V	Vol X35 ↵	Decrease volume.
View volume	V	X35 ↵	View current volume setting.
	Verbose mode 2/3	Vol X35 ↵	

KEY: X35 = Audio output volume — ØØØ to 1ØØ, (-1ØØ dB to Ø dB), [default Ø8Ø]

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
Front panel lockout mode (executive mode)			
Enable locked mode	1X	Exe1↵	Lock the entire front panel.
Disable locked mode	0X	Exe0↵	Unlock the front panel.
View status	X	X34↵	View the lock mode.
KEY: X34 = Status Ø = Off/disabled (default) 1 = On/enabled			
Power save mode			
Disable power save	Esc Ø PSAV↵	Psav X20↵	Turns off power save mode, sets timer to zero (default).
Enable auto power save	Esc 1 PSAV↵	Psav X20↵	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	Esc 2 PSAV↵	Psav X20↵	Turns on auto power save mode.
Force standby power save on	Esc 3 PSAV↵	Psav X20↵	Turns on standby power mode.
Force network standby power save on	Esc 4 PSAV↵	Psav X20↵	Turns on standby power mode (network switch off).
View setting	Esc PSAV↵	X20↵	View power save status.
	Verbose mode 2/3	Psav X20↵	
KEY: X20 = Power save mode	Ø = 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 peripheral devices except network switch) 4 = network standby power save on (turn off network switch)		
Device information requests			
View fan status	21S	X34↵	View status of internal fan.
	Verbose mode 2/3	Sts21* X34↵	
View switchable Signal, Normal, and Peak status	1S	Sig X34•Norm X34•Clp X34↵	View switchable audio Signal, Normal, and Peak status.
	Verbose mode 2/3	Sts01*Sig X34• Norm X34•Clp X34↵	
View VoiceLift receiver Mic input Signal, Normal, and Peak status	4S	Sig X34•Norm X34•Clp X34↵	View VoiceLift receiver Mic input Signal, Normal, and Peak status.
	Verbose mode 2/3	Sts04*Sig X34• Norm X34•Clp X34↵	
View Aux input Signal, Normal, and Peak status	5S	Sig X34•Norm X34•Clp X34↵	View Aux input audio Signal, Normal, and Peak status.
	Verbose mode 2/3	Sts05*Sig X34• Norm X34•Clp X34↵	
View video signal presence	Esc LS↵	X7•X7•X7•X7•X7•X7↵	View which input video signals are present for inputs (L-R, Inputs 1 to 6).
	Verbose mode 2/3	Sig X7•X7•X7•X7•X7•X7↵	
KEY: X7 = Video signal status Ø = Video/TMDS signal not detected 1 = Video/TMDS signal detected 2 = Unknown X34 = Status Ø = Off/disable 1 = On/enable			

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
View detected audio format	Esc 4Ø STAT ←	X8 ↵	View detected audio input format for selected input.
	Verbose mode 2/3	4ØStat•X6*X8 ↵	
View PVS 407D serial number	19I	<Extron serial number>↵ Inf19*<Extron serial number>↵	
View PVT wallplate type	35I	PVTplate X3•X3 ↵	Identify wallplate type; PVT (plate 1)•(plate 2).
Query both LINK statuses	38I	X34•X34 ↵	Query LINK; PVT In (port 1)•(port 2).
	Verbose mode 2/3	Inf38*X34•X34 ↵	
View audio mute to DSP	4ØS	X9 ↵	Unmutes when 2-Chn PCM is available only. Mutes when other formats are available.
	Verbose mode 2/3	Sts40*X9 ↵	
View paging sensor status	42S	X34 ↵	View the priority paging sensor status.
	Verbose mode 2/3	Sts42*X34 ↵	

KEY:

X3 = PVT wallplate type	Ø = No PVT wallplate detected 1 = PVT HDMI wallplate detected	2 = PVT HDMI RGB wallplate detected 3 = PVT HD RGB wallplate detected
X6 = Video inputs	Inputs 1 to 6 only	
X8 = Audio format	Ø = Analog	1 = Digital
X9 = Audio mute to DSP	Ø = Audio unmuted	1 = Audio muted
X34 = Status	Ø = Off/disable	1 = On/enable

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 (58 to 61).
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 ← *Verbose mode 2/3*	X14 ↵ EdidN X14 ↵	View the EDID native resolution for input X6 (for example: 1080x768).
Import EDID to user slot	Esc I X18, <*filename*>EDID ←	EdidI X18 ↵	Import from <*filename*> to specified user slot. (X18 = 58 to 61).
Upload file to unit	Esc +UF*size*, <*filename*> ←	Upl ↵	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.

KEY:

X6 = Video inputs	Inputs 1 to 6 only
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
X18 = DDC value (EDID emulation or output rate)	(1 to 62), see **SIS variables table** on page 22

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
HDCP status			
View input HDCP	Esc I X6 HDCP ←	X10 ↵	View the HDCP status on input X6.
	Verbose mode 2/3	HdcpI X6 * X10 ↵	
View output HDCP	Esc O HDCP ←	X12 ↵	View the HDCP status on output.
	Verbose mode 2/3	HdcpO X12 ↵	
View HDCP status for all HDMI inputs	Esc I HDCP ←	X10 • X10 • X10 • X10 • X10 • X10 ↵	View the HDCP status on inputs 1 to 6.
	Verbose mode 2/3	HdcpI X10 • X10 • X10 • X10 • X10 • X10 ↵	

KEY:
- X6 = Video inputs — 1 to 6 only
- X10 = Input HDCP status — Ø = No video source detected; 1 = Video detected without HDCP (incoming video is not encrypted); 2 = Video detected with HDCP (incoming video is encrypted)
- X12 = Output HDCP status (see **page 20** for full details) — Ø = No active sink detected; 1 = Non-HDCP sink detected; 2 = HDCP sink detected, output not encrypted; 3 = HDCP sink detected, output encrypted

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 *0 HDCP ←	HdcpE X6 *0 ↵	Disable HDCP encryption support for input X6.
View HDCP encryption status	Esc E X6 HDCP ←	X11 ↵	View HDCP encryption support setting for input X6.

KEY:
- X6 = Video inputs — 1 to 6 only
- X11 = HDMI input HDCP Authorization status — Ø = Block HDCP encryption, 1 = Allow HDCP encryption (default)

HDMI Output Sync mode			
Set output sync mode	Esc M X15 SSAV ←	SsavM X15 ↵	Set HDMI output sync mode to X15.
View output sync mode	Esc MSSAV ←	X15 ↵	View HDMI output sync mode.
	Verbose mode 2/3	SsavM X15 ↵	

KEY:
- X15 = HDMI output sync mode — Ø = Disable output sync (default), 1 = Enable output sync

Play audio file

NOTES:
- This command responds with an E28 error (file not found) if the alphanumeric audio file does not exist.
- This command responds with an E22 error (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.
- Firmware sends out a "Play99" unsolicited response after an audio file is finished playing (after the file playing duration).

Play an audio file	Esc X25 * X36 * X26 * X28 PLAY ←	Play X25 * X36 * X26 * X28 ↵ PLAY99 ↵	Start audio file playback. Unsolicited response (see Note above).
Stop (abort) playback	Esc 0 PLAY ←	Play0 ↵	Stop audio file playback.
View play status	Esc PLAY ←	0 ↵ or X25 * X36 * X26 * X28 ↵	Audio not playing. Audio currently playing.

KEY:
- X25 = Output port to play back audio — 1 = All; 2 = Amplified audio output; 3 = Lineout audio output
- X26 = Audio file playback mode — Ø = Play once (or use to stop audio file playback). 1 to 3ØØ = Play continuously (with a Ø to 299 second delay between repeats).
- X28 = Audio priority level — Ø to 3, optional, Ø = least. Defaults to Ø if not specified
- X36 = Audio filename — Alphanumeric filename (see **page 21** for details)

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
Picture adjustment (PVT HD RGB and 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 ←	X30 ↵	View pixel phase X30 for X29.
	Verbose mode 2/3	Phas X29 * X30 ↵	
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 ←	X31 ↵	View total pixels X31 for X29.
	Verbose mode 2/3	Tpix X29 * X31 ↵	

KEY: X29 = PVT HD RGB or PVT HDMI RGB wallplate inputs (2 and 4 only) 2 = Input 2 4 = Input 4
X30 = Pixel phase Ø to 63 (32 = default)
X31 = Total pixels ±255 of the default value

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.
	Verbose mode 2/3	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.
	Verbose mode 2/3	Vsrt X29 * X33 ↵	

KEY: X29 = PVT HD RGB or PVT HDMI RGB wallplate inputs (2 and 4 only) 2 = Input 2 4 = Input 4
X32 = Horizontal start Ø to 255 (default = 128)
X33 = Vertical start Ø to 255 (default = 128)

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
VoiceLift – VLR 302 and VLR 102			
Request VoiceLift status information (VLR 302)	34I	Rly1 X40 •Rly2 X41 •Pair X38 X39 •Ver X42 ↵ or E25↵	View information on VoiceLift status. Device is not present.
	Verbose mode 2/3	Inf34*Rly1 X40 •Rly2 X41 •Pair X38 X39 •Ver X42 ↵ or Inf34*E25↵	Device is not present.
View VoiceLift status (VLR 102)	34I	X45 •X46 •X47 ↵ or E25↵	View information on VoiceLift status. Device is not present.
	Verbose mode 2/3	Inf34* X45 •X46 •X47 ↵ or Inf34*E25↵	Device is not present.

NOTES:

- Returns E25 (device not present) when VoiceLift receiver is not detected/present.
  Example A: Rly11 Rly20 Pair11 Ver1.00.0002. *Example B:* Inf34* Rly11 Rly20 Pair11 Ver1.00.0002
- Switcher sends out the unsolicited responses (with tag) via Ethernet/USB/RS-232 whenever there is any state change on the VoiceLift receiver.

KEY:

X38 = LINK slot 1	0 = LINK slot 1 is not paired or pairing fails. 1 = LINK slot 1 is paired to a microphone. 9 = Microphone is on/ connected or LINK slots are occupied and cannot pair.		
X39 = LINK slot 2	0 = LINK slot 2 is not paired or pairing fails. 1 = LINK slot 2 is paired to a microphone. 9 = Microphone is on/ connected or LINK slots are occupied and cannot pair.		
X40 = Relay 1	Ø = Off	1 = On	
X41 = Relay 2	Ø = Off	1 = On	
X42 = Firmware Version	Firmware version info with build. *Example response:* 1.ØØ.ØØ42		
X45 = Relay	Ø = Off	1 = On	
X46 = Contact closure input state	Ø = Open	1 = Closed	
X47 = VoiceLift microphone status	Ø = No carrier/ microphone is off 1 = Channel A or C	2 = Channel B or D 3 = Channels A or C and B or D	

VoiceLift Pro Microphone Usage			
View microphone usage (hours)	Esc USAG←	HHHHH:MM↵ or E25↵ or E14↵	HHHHH:MM = hours: minutes Device is not present. VLR 102 detected, expected VLR 302.
	Verbose mode 2/3	Usag HHHHH:MM↵ or Usag*E25↵ or Usag*E14↵	
Reset microphone usage	Esc 0USAG←	Usag00000:00↵ or Usag*E25↵ or Usag*E14↵	Reset usage to zero. Device is not present. VLR 102 detected, expected VLR 302.

NOTES:

- Maximum hours with five digits from 00000 to 99999 values. Maximum minutes with two digits from 00 to 59 values (ex. 12345:15).
- Value is capped at 99999:59 and remains until it is reset.
- Returns E25 (device not present) when VoiceLift receiver is not detected/present.

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
VoiceLift Pro Microphone Pairing			
Initiate pairing	Esc 1PAIR↵	Pair1↵ Pair X38 X39↵ or Pair*E25↵ or Pair*E14↵	Default is On. Unsolicited response is sent out when one of the LINK slots is successfully paired or pairing fails after 30 second timeout (for example Pair10). Only one microphone can be paired at a time. Device is not present. VLR 102 detected, expected VLR 302.
NOTE: When both LINK slots are occupied, user/PCS must clear the existing pairing first (0 PAIR) prior to initiate pairing (1 PAIR) otherwise firmware sends out Pair99 response indicating both LINK slots are already occupied.			
Clear pairing	Esc 0PAIR↵	Pair0↵ Pair00↵ or Pair*E25↵ or Pair*E14↵	Remove all pairing. Unsolicited response sent after the Pair0 response that previous pairing has been successfully cleared. Device is not present. VLR 102 detected, expected VLR 302.
View pairing	Esc PAIR↵ *Verbose mode 2/3*	X38 X39↵ or E25↵ or E14↵ Pair X38 X39↵ or Pair*E25↵ or Pair*E14↵	Indicates whether microphones are paired to each LINK slot. Device is not present. VLR 102 detected, expected VLR 302.
NOTES: • *Example A:* Pair99 unsolicited response is sent out when the VLR 302 receiver is unable to enter pairing mode due to an already paired microphone is On and connected, or both LINK slots are already occupied. • *Example B:* Pair11 response indicates that microphones are paired to both LINK slots 1 and 2. User must clear the pairing first (0 PAIR) prior to initiate pairing (1 PAIR) to pair new microphone otherwise firmware sends out Pair99 (see above).			
KEY: X38 = LINK slot 1		0 = LINK slot 1 is not paired or pairing fails. 1 = LINK slot 1 is paired to a microphone. 9 = Microphone is on/ connected or LINK slots are occupied and cannot pair.	
X39 = LINK slot 2		0 = LINK slot 2 is not paired or pairing fails. 1 = LINK slot 2 is paired to a microphone. 9 = Microphone is on/ connected or LINK slots are occupied and cannot pair.	
VoiceLift Pro Chime Setting			
Set audible chime	Esc X37 CHIM↵	Chim X37↵ or Chim*E25↵ or Chim*E14↵	Default is On. Device is not present. VLR 102 detected, expected VLR 302.
View audible chime	Esc CHIM↵ *Verbose mode 2/3*	X37↵ or E25↵ or E14↵ Chim X37↵ or Chim*E25↵ or Chim*E14↵	View audible chime status. Device is not present. VLR 102 detected, expected VLR 302.
KEY: X37 = Audible Chime		0 = Off/disable 1 = On/enable (default) E25 = Device not present/detected	

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
VoiceLift Pro Reset			
NOTE: VLR 302 receiver reboots itself after reset is complete.			
Absolute System Reset, but retains microphone pairing	Esc v1*0RSTD←	Rstd•v1*Ø↵ or Rstd*E25↵ or Rstd*E14↵	Reset the system, but keep pairing. Device is not present. VLR 102 detected, expected VLR 302.
Absolute System Reset	Esc v1*1RSTD←	Rstd•v1*1↵ or Rstd*E25↵ or Rstd*E14↵	Reset to factory default. Device is not present. VLR 102 detected, expected VLR 302.
NOTE: This reset is same as the first reset, except microphone pairing is cleared.			
Reboot Device	Esc v1*9RSTD←	Rstd•v1*9↵ or Rstd*E25↵ or Rstd*E14↵	Device reboot Device is not present. VLR 102 detected, expected VLR 302.
VoiceLift Pro Feedback Suppressor			
Set feedback suppressor	Esc X43 FSEN←	Fsen X43↵ or E25↵ or E14↵	Default is Off. Device is not present. VLR 102 detected, expected VLR 302.
View feedback suppressor	Esc FSEN←	X43↵ or Fsen*E25↵ or Fsen*E14↵	View feedback suppressor status. Device is not present. VLR 102 detected, expected VLR 302.
	Verbose mode 2/3	Fsen X43↵ or Fsen*E25↵ or Fsen*E14↵	
KEY: X43 = Feedback suppressor	Ø = Off/disable (Default)	1 = On/enable	E25 = Device not present/detected
Special Function Commands			
Set Line out mode			
Set Line out to variable	55*1#	LineOut*1↵	Where 1 = variable (default).
Set Line out to fixed	55*2#	LineOut*2↵	Where 2 = fixed.
View Line out 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).

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
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 to 100 (paging sensor sensitivity range); default = 50.
View sensitivity	83#	PageSen*X↵	
RS-232 Serial port parameters			
Configure RS-232 seral port parameters	Esc X103 CP←	Ccp X103↵	Set the baud rate for the RS-232 port.
View RS-232 seral port parameters	Esc CP← *Verbose mode 2/3*	X103↵ Ccp X103↵	Query the baud rate for the RS-232 port.
KEY: X103 = Baud rate 0 = 9600 (Default) 1 = 19200 2 = 38400 3 = 115200			
Information request (also see **Device information requests** on page 25)			
Request A/V input number	I	Vid•X1•Aud•X1↵	Reports input number for active video and audio signals.
KEY: X1 = Input selection 1 to 7			
Query model name	1I *Verbose mode 2/3*	PVS 407D↵ Inf01*PVS 407D↵	Reports model name.
Query model description	2I *Verbose mode 2/3*	PoleVault Digital Switcher with Ethernet Control↵ Inf02*PoleVault Digital Switcher with Ethernet Control↵	
Query system-memory usage	3I *Verbose mode 2/3*	# Bytes Used out of # KBytes↵ Inf03*# Bytes Used out of # KBytes↵	
Query user-memory usage	4I Verbose mode 2/3	# Bytes Used out of # KBytes↵ Inf04*# 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 Verbose mode 2/3	<part number>↵ Pno<part number>↵	View the part number.
Query VoiceLift firmware version	34Q Verbose mode 2/3	*x.xx.xxxx*↵ or E25↵ Ver34**x.xx.xxxx*↵ or Ver34*E25↵	View firmware version. E25 = device not present
Query PVT wallplate 1 firmware version	36Q Verbose mode 2/3	*x.xx.xxxx*↵ or E25↵ Ver36**x.xx.xxxx*↵ or Ver36*E25↵	View firmware version. E25 = device not present
Query PVT wallplate 2 firmware version	38Q Verbose mode 2/3	*x.xx.xxxx*↵ or E25↵ Ver38*x.xx.xxxx↵ or Ver38*E25↵	View firmware version. E25 = device not present

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
Query VoiceLift Receiver part number	34N	60-1637-01↵ or 60-938-01↵ or E25↵	View the part number. E25 = device not present
	Verbose mode 2/3	Pno34*<part number>↵ or Pno34*E25↵	
Query PVT wallplate 1 part number	36N	60-1756-03 ↵ or 60-1335-13 ↵ or 60-1270-13 ↵ or E25↵	60-1756-03 = PVT HD RGB 60-1335-13 = PVT HDMI RGB 60-1270-13 = PVT HDMI E25 = device not present
	Verbose mode 2/3	Pno36*<part number>↵ or Pno36*E25↵	
Query PVT wallplate 2 part number	38N	60-1756-03 ↵ or 60-1335-13 ↵ or 60-1270-13 ↵ or E25↵	60-1756-03 = PVT HD RGB 60-1335-13 = PVT HDMI RGB 60-1270-13 = PVT HDMI E25 = device not present
	Verbose mode 2/3	Pno38*<part number>↵ or Pno38*E25↵	
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.

NOTES:

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

Erase all files from flash (user) memory	Esc ZFFF←	Zpf↵	See Note below.

NOTE: This reset only removes files created in the user space, and includes those created by the backup/restore functions, software configuration tools, EDID settings, 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.

Absolute system reset	Esc ZQQQ←	Zpq↵	See Note below.

NOTE: This command resets all device settings to factory default; however, firmware version remains the same.

IP system reset	Esc 1ZQQQ←	Zpq1↵	See Note below.

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.

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
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.

KEY:

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 and tagged (where additional information responses is provided in response to a query)
X105 = Unit name	Text string up to 24 characters drawn from the alphabet (A to Z), digits (0 to 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 represent hours and minutes (hh:mm) offset from GMT.
E24 - Privilege violation	

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.
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.

KEY:

X107 = On/Off status	0 = off/disable; 1 = on/enable
X109 = IP address	*xxx.xxx.xxx.xxx* (192.168.254.254 = default)

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.

KEY:

X110 = Subnet address	*xxx.xxx.xxx.xxx* (255.255.0.0 = default)
X111 = Gateway address	*xxx.xxx.xxx.xxx* (0.0.0.0 = default)

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
Reboot system	Esc 1BOOT↵	Boot1↵	Restarts the system after a firmware upgrade (required).
Reboot network	Esc 2BOOT↵	Boot2↵	Restarts network (see Note below).

NOTE: Changes made to any TCP/IP settings do not take effect until the reboot network command, Esc 2BOOT is issued.

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

NOTE: Setting any values with the CISG command changes DHCP from on to off (default). Settings take place immediately without the need for Esc 2BOOT.

Set IP	Esc 1*X109CISG↵	Cisg●1*X109 / X113 *X111↵	1= NIC number.
Set IP/subnet or	Esc 1*X109 *X110 CISG↵	Cisg●1*X109 / X113 *X111↵	
Set IP/subnet	Esc 1*X109/X113 CISG↵	Cisg●1*X109 / X113 *X111↵	
Set IP/subnet/Gateway or	Esc 1*X109*X110* X111CISG↵	Cisg●1*X109 / X113 *X111↵	
Set IP/subnet/Gateway	Esc 1*X109 /X113* X111CISG↵	Cisg●1*X109/X113 *X111↵	
View IP/subnet/Gateway (all)	Esc 1CISG↵	X109 / X113 *X111↵	

KEY:
- 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.*

Read MAC address	Esc CH↵ *Verbose mode 2/3*	X104↵ Iph●X104↵	00-05-A6-*xx-xx-xx*
View number of Ethernet connections	Esc CC↵	X44↵	View the number of open connections.

KEY:
- X44 = Number of open connections
- X104 = Hardware MAC address (00-05-A6-*xx-xx-xx*)

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional Description
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).

NOTES:

- The factory configured passwords for all accounts on this device have been set to the device serial number. In the event of a complete system reset, the passwords convert to the default, which is no password for this device. Passwords are case sensitive.
- Reading password: RS-232 and IP connections responds with 4 asterisks (****) if password exists and empty if not, instead of the actual password.

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 above).
Reset (clear) user password	Esc ●CU←	Ipu●↵	Reset (clear) the user password.

KEY: X108 = Password

- Need to be logged in as administrator to perform these tasks.
- Maximum length is 12 characters.
- All human-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.

Configuration Software

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

This section describes installation and communication (see the *PVS 407D Help File* for detailed control information). The topics covered in this section include:

- **Installing the Software**
- **Connecting to PCS**
- **Software Overview**

PCS is compatible with Windows 7, Windows 8, and Windows 10.

Installing the Software

The PCS software can be downloaded from **www.extron.com** and installed onto the hard drive of a connected PC.

NOTES:

- You can also download the latest versions of firmware for your product.
- An Extron Insider account is required to download the firmware or software.

Installation

1. On **www.extron.com**, hover the mouse pointer over **Download**, ❶ (see figure 14) and select PCS Product Configuration Software ❷.

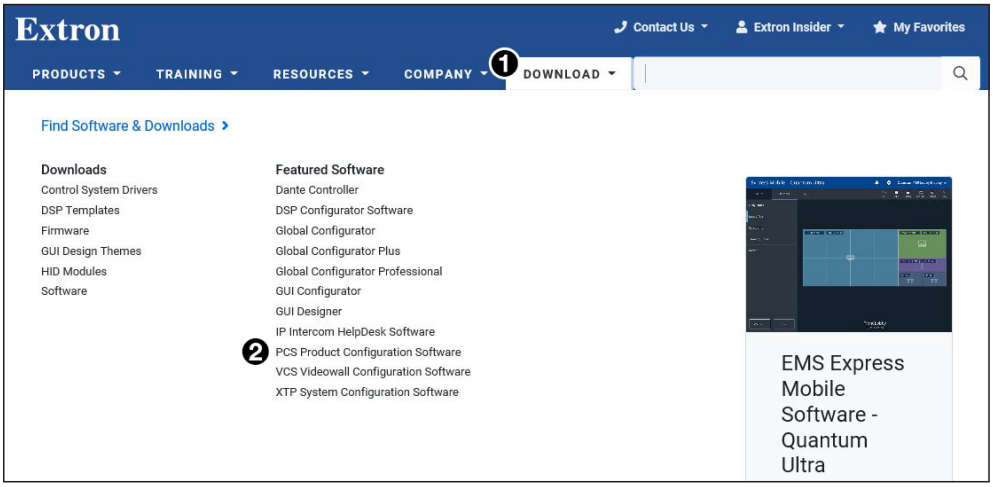


Figure 14. Software Links on Download Screen

2. Click **Download** (figure 15, ❶) and follow the onscreen instructions to download and install the program on your PC.

Figure 15. PCS Download

Connecting to PCS

1. Ensure that the PVS 407D is connected to the control PC.
2. 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.

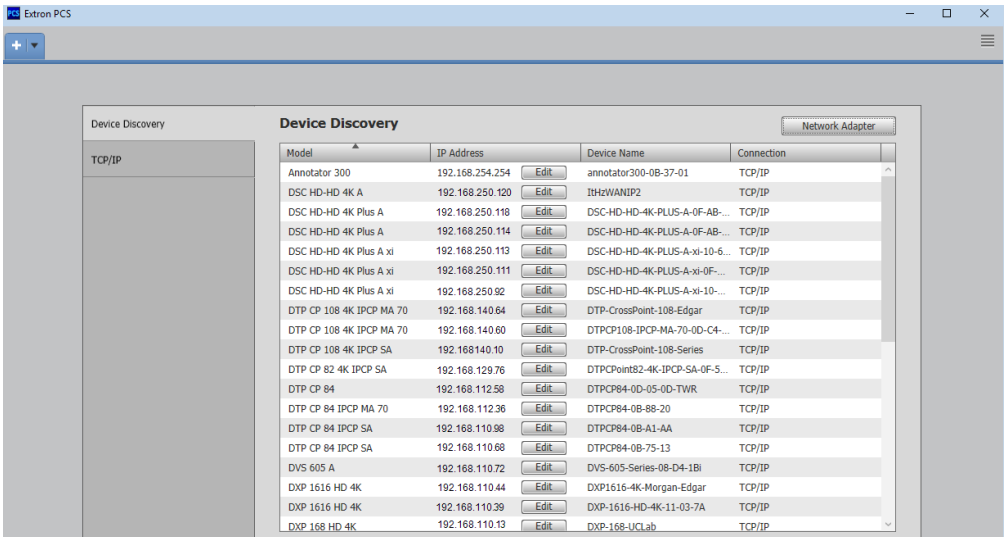


Figure 16. Device Discovery Window

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

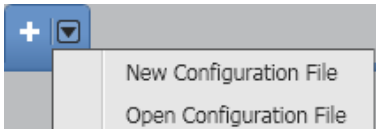


Figure 17. New or Open Configuration File menu

   c. 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**.

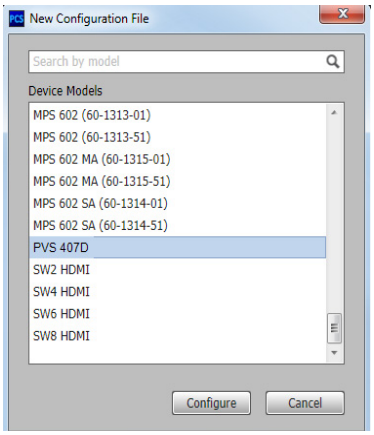


Figure 18. Select the Device from the New Configuration File List

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

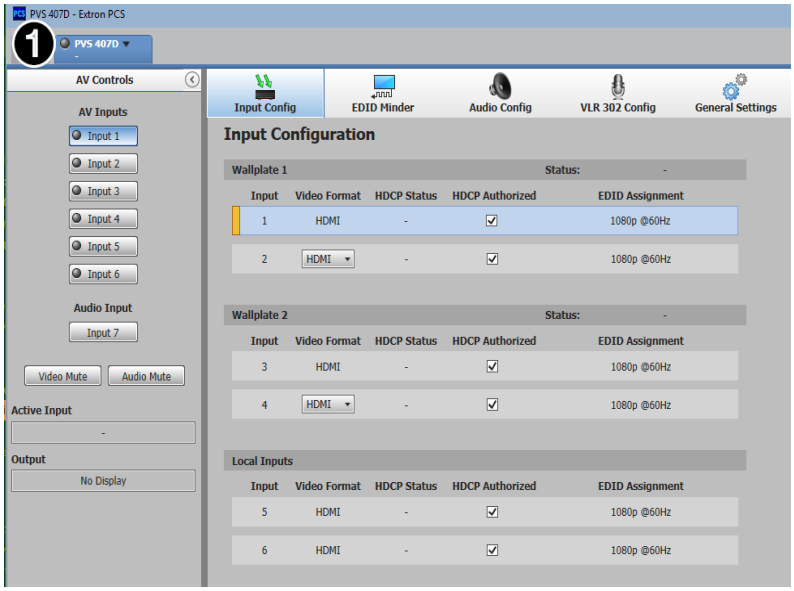


Figure 19. Device Input Configuration Page.

NOTE: The PVS 407D tab (1) has a round, gray connection status indicator 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 the applicable item on the ribbon menu. For menu details see the applicable sections (**Input Config**, **EDID Minder**, **Audio Config**, **VLR 302 Config**, and **General Settings**) within the Help file (see the **Software Overview** section on the next page for how to open the Help file).

Any configurations made in emulation mode can be saved and uploaded to a connected device later (see **Connect to a Device** on page 42 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.

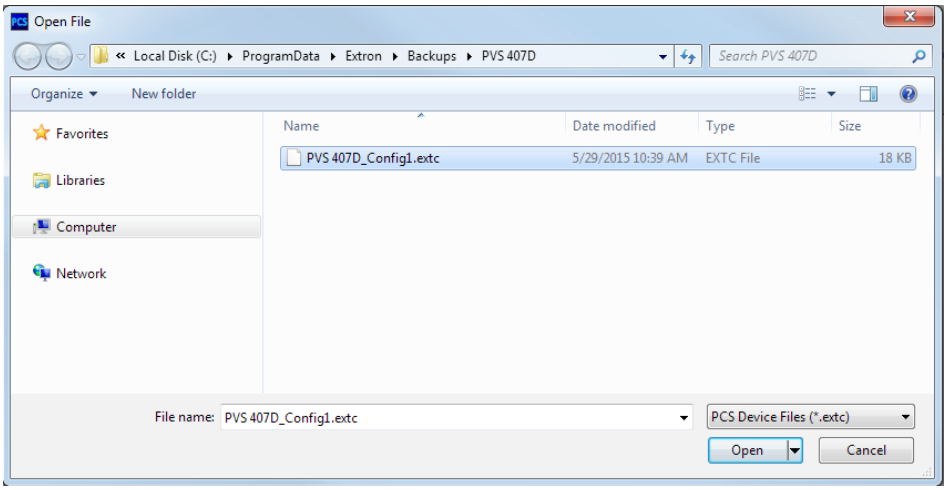


Figure 20. Select the Saved Configuration File.

Click **Open**. This opens in offline configuration (emulation mode) and the PVS 407D **Device Input Configuration** page appears (see **figure 19** on previous page).

Software Overview

NOTE: For details about specific PCS features and to control the PVS 407D, see the *PVS 407D PCS Help File*.

The PVS 407D product tab has a device menu, accessible by clicking on the drop-down arrow on the name tab.

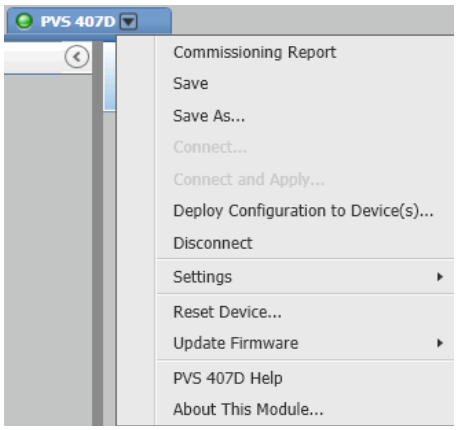


Figure 21. Device Menu

The device configuration items available through this menu are:

Commissioning Report — Allows the user to create and save a commissioning report to aid with troubleshoot device issues.

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** on the next page 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.

Disconnect — Disconnects from a connected device.

Settings — This opens to two submenus:

- **Hardware Settings** — Opens the `Hardware Settings` window that accesses a read-only `Unit Information` page and a `Device Name` option page.
- **Communication Settings** — Opens the `Communication Settings` window that allows the user to change the settings for the TCP/IP connection to the device.

Reset Device — Allows the user to reset the device.

> **NOTE:** The factory configured password for all accounts on this device have been set to the device serial number. If the switcher is reset, the password reverts to the default, which is no password.

Update Firmware — Opens to two submenus to start the update process for either this device or multiple devices.

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

PVS 407D Help — Opens the device specific Help 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 details of these menus see the *PVS 407D Help 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.

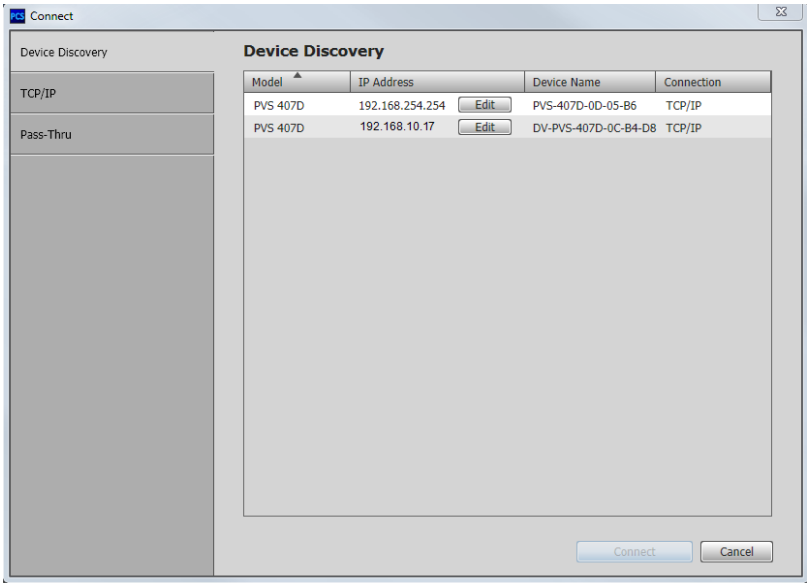


Figure 22. Connect Dialog Box

2. Choose the device from the `Device Discovery` list (TCP/IP or USB connection) or select the `Pass-Thru` 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.

NOTE: The factory configured password for all accounts on this device have been set to the device serial number. Passwords are case sensitive. If the switcher is reset, the password reverts to the default, which is no password. A new password would need to be configured to secure the device.

- **For a USB or TCP/IP connection**, select a listed device (see figure 22).
- **For a Pass-Thru connection**:
  a. Click the **`Pass-Thru`** tab. The `Pass-Thru` panel appears (see **figure 23** on the next page).
  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).

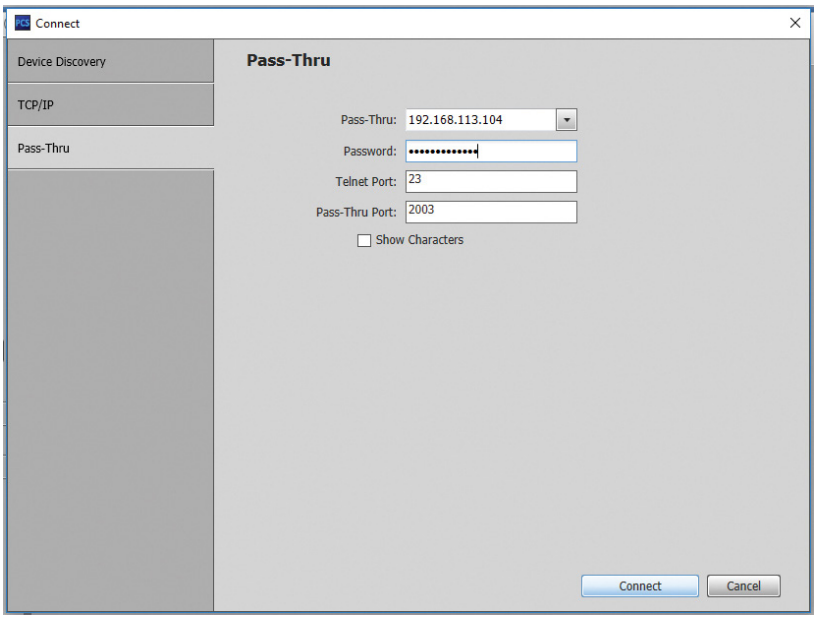


Figure 23. Example Connection via Pass-Thru Option

- **For a device not listed but where the IP address is known:**
  - **a.** Click the **TCP/IP** tab. The TCP/IP panel appears (see figure 24).
  - **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).

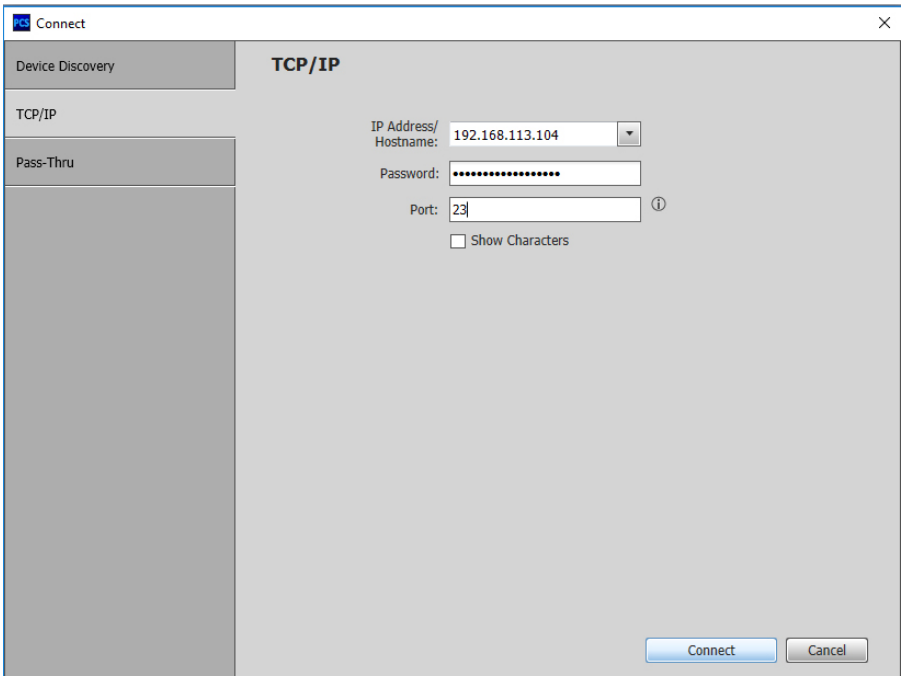


Figure 24. Example Connection Using the TCP/IP Option

For all methods, then click **Connect**. The Input Configuration Software window opens (see **figure 25** on the next page).

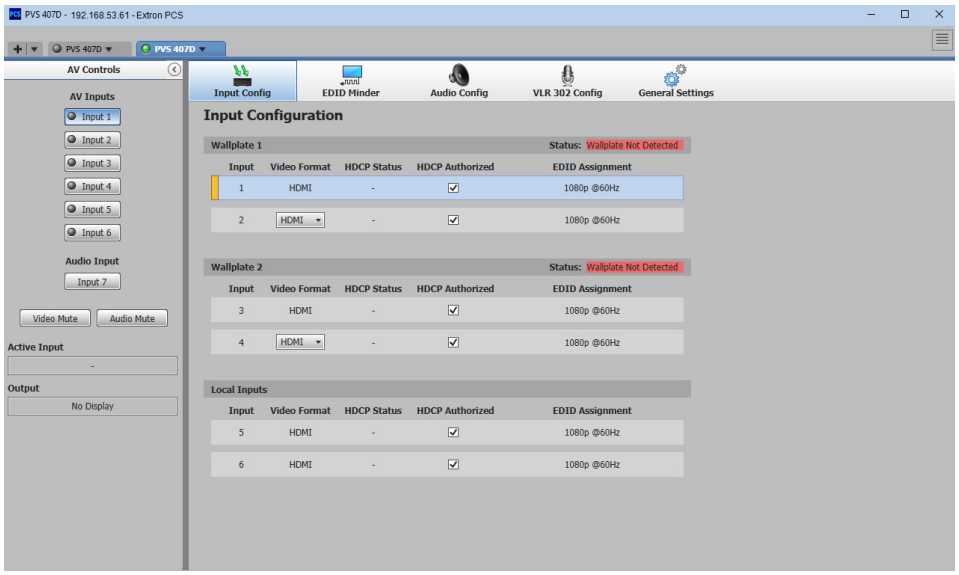


Figure 25. Device Configuration Window for a Connected Device

Disconnect from a Device

To disconnect from a device, select **`Disconnect`** (see **figure 21** on page 40).

PCS Software Menu

PCS has a default Help file and a settings menu that is specific to the software. To access these, click the menu icon in the top right corner of the PCS window.

A drop-down menu appears (see figure 26). These options are available:

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

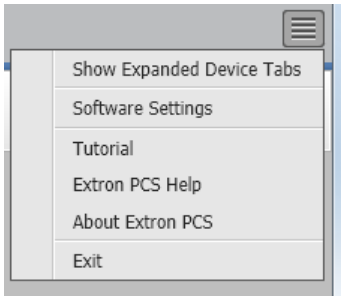


Figure 26. PCS Default Settings Menu

Information and details for using this menu are available in the Extron PCS Help file, opened by clicking **`Extron PCS Help`**. This file opens in a browser and has an embedded PDF file for printing if desired.

Exiting PCS

Disconnect the connected devices and close the PCS application by choosing one of the following:

- Click the **X** at the top right of the PCS window (see **figure 16** on page 38).
- Select the PCS Menu (see **PCS Software Menu** on the previous page) and click **Exit**.

Using the Internal Web Page

The PVS 407D features an internal web server that hosts an embedded web page. This page allows you to:

- Edit the device name
- Set the date and time either manually or to sync with a connected PC
- Edit the TCP/IP and audio stream settings
- Update the firmware version
- Set administrator and user passwords
- Add a LinkLicense to the device

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 latest versions of Microsoft® Edge® Mozilla® Firefox®, Google Chrome™, and Apple® Safari®.

> **NOTE:** If you are using Microsoft Internet Explorer®, the 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**
- **Downloading the Latest Switcher Firmware**

Accessing the Internal Web Page

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

1. Launch the web browser on your computer.
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 your firmware level is lower than 5.02 and the device is not password protected, the web page opens without further input.
   - If the firmware level is 5.02 or above and the device is not password protected, enter **`admin`** or **`user`** to the username field to access and view the default webpage.
   - If the device is password-protected, the screen displays an `Enter Network Password` page.
5. For a password protected device, click in the **`Password`** field and enter the appropriate administrator or user password if prompted.

6. Click **OK**. The web page opens.

NOTE: After accessing the web page, if there has been no activity for 30 minutes, the default web page displays a dialog box asking if you want to keep the session alive. After a short period, the user is logged off automatically if no action is taken.

Turning Off Compatibility Mode

The PVS 407D default web pages do not support **Compatibility Mode** in 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

NOTES:

- PVS 407D firmware version 5.00 or above is needed to show the **Audio Stream** and **LinkLicense** panes shown in the internal web page.
- The screen shots in this section show firmware version 5.02. Screens with older firmware may look slightly different.

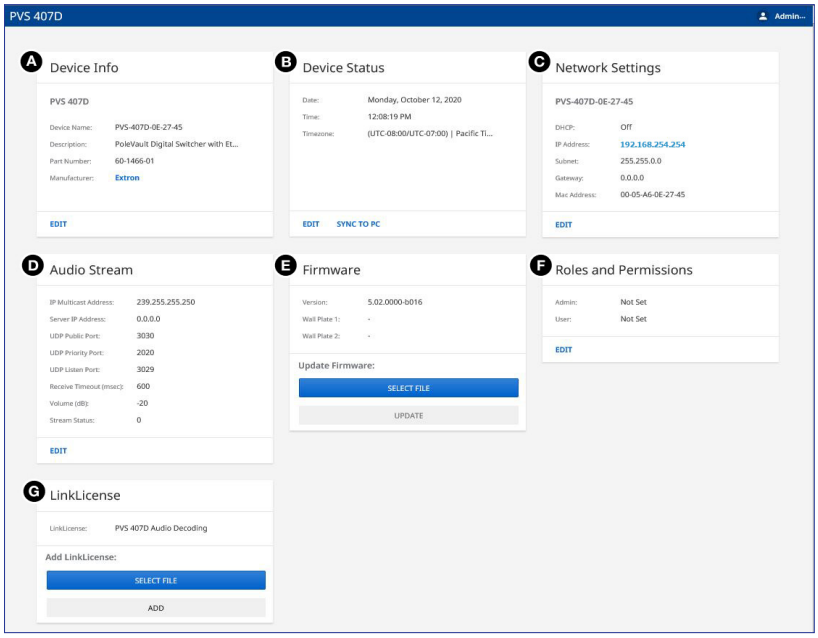


Figure 27. Internal Web Page Example

The PVS 407D default web page (see figure 27) has seven panels:

- **Device Info**
- **Device Status**
- **Network Settings**

- **Audio Stream** *(In the figure, the Audio Stream feature is enabled.)*
- **Firmware**
- **Roles and Permissions**
- **LinkLicense** *(In the figure, the LinkLicense is added.)*

Device Info

The `Device Info` panel (see **figure 27**, **A**, on the previous page) shows the current device name, description, part number, and manufacturer. By clicking **`EDIT`** on the bottom of that panel, the `Device Info Settings` dialog box (see figure 28) opens and allows you to change only the `Device Name`.

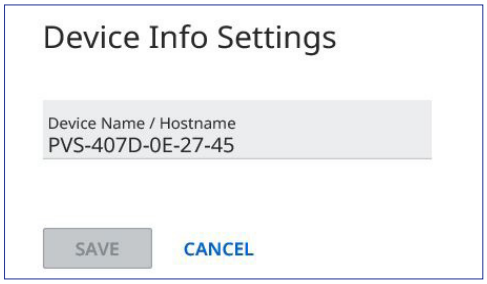


Figure 28. Device Info Settings Dialog Box

To change the device name:

1. Click into the **`Device Name/Hostname`** field.

2. Enter a desired name.

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

3. Click **`SAVE`**. The new name is applied, the dialog box closes, and the device name in the `Network Settings` pane is also updated with the new name.

   Click **`CANCEL`** to exit the process without making any changes.

   NOTE: The default name is a combination of the model name and last 3 pairs of the MAC address (for example, `PVS-4Ø7D-ØA-1B-22`).

Device Status

The `Device Status` panel (see **figure 27** on page 47) shows the date, time, and time zone for the connected switcher, and allows the user to either synchronize the date and time to a connected PC or set the date and time manually.

To synchronize to the connected PC:

1. Click **`SYNC TO PC`** on the `Device Status` panel.

2. After the `Date`, `Time`, and `Timezone` update, a pop-up notification indicates that the synchronization was successful.

To set the information manually:

1. Click **EDIT** on the `Device Status` panel.
2. The `Device Status Settings` dialog box (see figure 29) opens allowing you to change **`Time`**, **`Date`**, and **`Timezone`**. Click **`SAVE`** when done.

   A pop-up notification indicates the update has been successful.

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

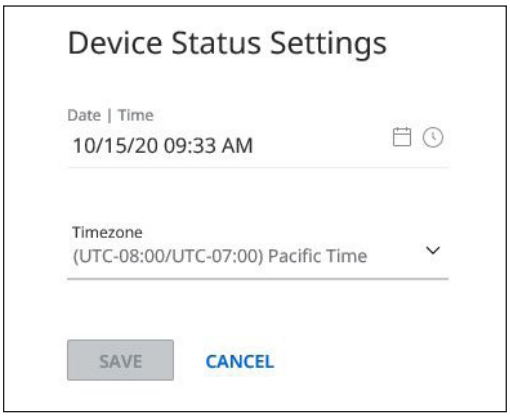


Figure 29. Device Status Settings Dialog Box

Network Settings

The `Network Settings` panel (see **figure 27** on page 47) shows the current network settings for the PVS 407D. To change the TCP/IP settings, click **`EDIT`** to access the `Network Settings` dialog box (see figure 30).

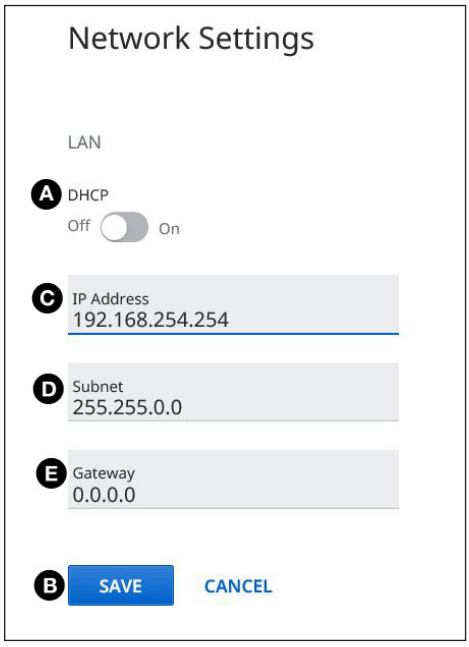


Figure 30. Network Settings Dialog Box

To configure the settings for use with DHCP:

1. Set the DHCP slider (A) to **On**.
2. Click **SAVE** (B). 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. Ensure the DHCP slider (A) is set to **Off**.
2. In the **IP Address** field (C), enter an IP address for the device.
3. In the **Subnet** field (D), enter the subnet mask for the device.
4. In the **Gateway** field (E), enter the default gateway to be used.
5. Click **SAVE** (B) to apply the changes, or click **CANCEL** to exit the process without making any changes.

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

Audio Stream

The Audio Stream panel (see **figure 27** on page 47) shows the current audio stream settings for the PVS 407D. In this example, the settings are shown **after** the LinkLicense is installed. (Refer to **LinkLicense** on page 53 for installation information.)

The **Audio Stream** settings on the PVS 407D default webpage are disabled until the PVS 407D Audio Decoding LinkLicense is applied to the switcher. With the LinkLicense successfully added, audio stream settings are accessible as shown in the figure. IP address and UDP port settings should be coordinated with your GlobalViewer Campus Communication Suite and network administrators for proper operation.

To change the settings, click **EDIT** to access the **Audio Stream Settings** dialog box (see **figure 31** on the next page).

1. Change the desired criteria or click **Reset to default** (A) to return to the factory settings.
2. Click **SAVE** (B) to apply the changes, or click **CANCEL** to exit the process without making any changes.

The settings include:

- **IP Multicast Address** (C): Enter a Multicast address on which to receive an audio stream on the defined UDP Public or Priority port. Default: **239.255.25.250**.
- **Server IP Address** (D): Enter the IP address of the GlobalViewer Campus Communication Suite (GVCCS) server PC. Default is **0.0.0.0**.
- **UDP Public port** (E): Enter the port number for receiving a UDP stream. Set UDP port to a value between **1024** and **65535**. UDP Port numbers **0** to **1023** are reserved and cannot be assigned. Default is **3030**.
- **UDP Priority port** (F): Enter the port number for receiving a priority UDP stream. Set UDP port to a value between **1024** and **65535**. UDP Port numbers **0** to **1023** are reserved and cannot be assigned. Default is **2020**.

- **UDP Listen port** (G): Enter the port number for sending data to the GlobalViewer Campus Communication Suite (GVCCS) server PC. UDP Port numbers Ø to 1Ø23 are reserved and cannot be assigned. Default is 3Ø29.
- **Receive Timeout (msec)** (H): Enter the duration when the next incoming UDP packets are not received in a timely manner for the session to be closed. Minimum is 6ØØ msec and maximum is 5ØØØ msec. Default is 6ØØ msec.
- **Volume (dB)** (I): Adjust the volume slider to set the audio stream volume level.
- **Stream status**: Shown in **figure 27** on page 47, this displays the audio stream status of Ø = idle and 1 = currently streaming.

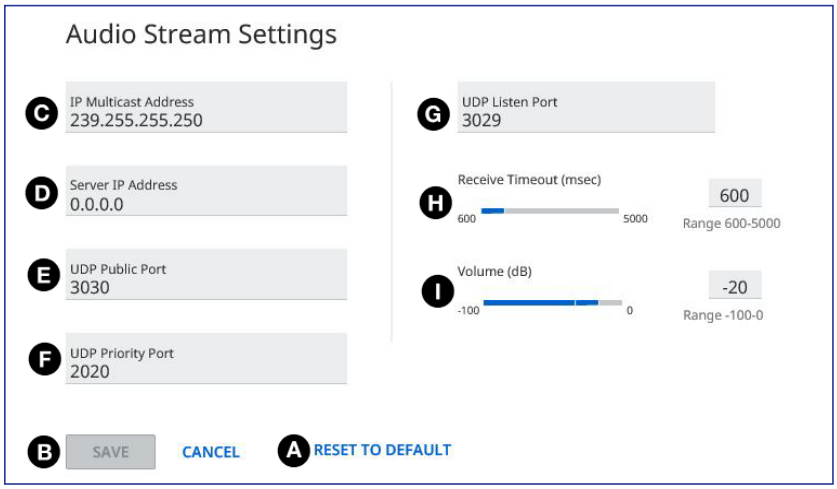


Figure 31. Audio Stream Settings Dialog Box

Firmware

The Firmware panel (see **figure 27** on page 47) shows the current firmware version and when it was last updated to the PVS 407D.

NOTE: The latest firmware can be downloaded from the Extron **website** (see **Downloading the Latest Switcher Firmware** on page 55 for method).

To update the switcher firmware version:

1. Before starting, download the latest version of the firmware (see the note above).
2. On the Firmware panel (see **figure 27** on page 47), click **Select File**. This opens an Explorer window (see figure 32).

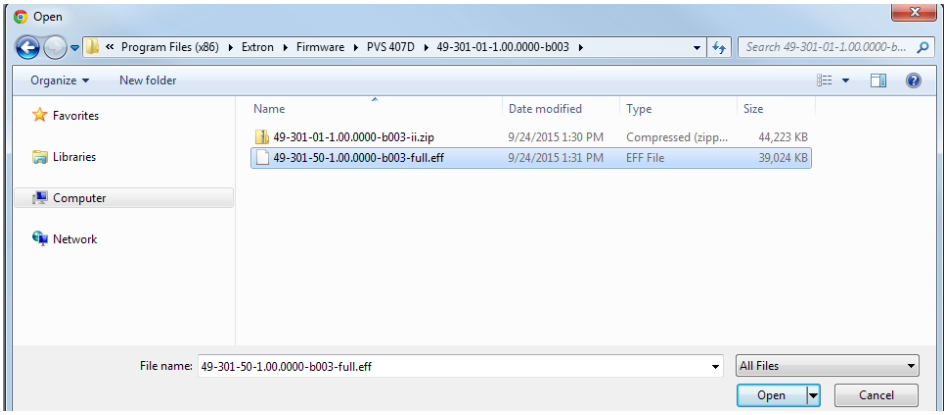


Figure 32. Explorer Window

3. Browse to the location of the firmware and select the file.
4. Click **Open**. The window closes and the Firmware Update dialog box reopens showing the firmware file in the file name field.

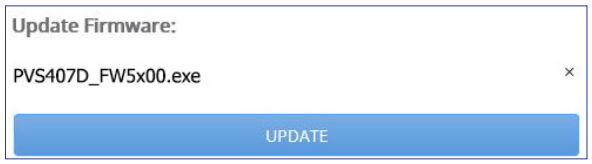


Figure 33. Update Firmware Button

5. Click **UPDATE**. The firmware is uploaded to the connected PVS 407D.

NOTE: When the system is restarted after a firmware update, and PVT wallplates connect to the switcher, the switcher syncs and updates the firmware to the wallplates when needed. When no wallplate is connected, the display shows a "–" (dash).

Roles and Permissions

The Roles and Permissions panel (see **figure 27** on page 47) gives the user access to set the admin and user passwords for the PVS 407D switcher. To change them, click **EDIT** to access the Roles and Permission Settings dialog box (see figure 34).

Change each password field as applicable. Click **SAVE** to apply the changes or **CANCEL** to exit the process without making any changes.

NOTE: The factory configured password for all accounts on this device have been set to the device serial number. Passwords are case sensitive. If the switcher is reset, the password reverts to the default, which is no password. A new password would need to be configured to secure the device.

See the notes on the next page for conditions.

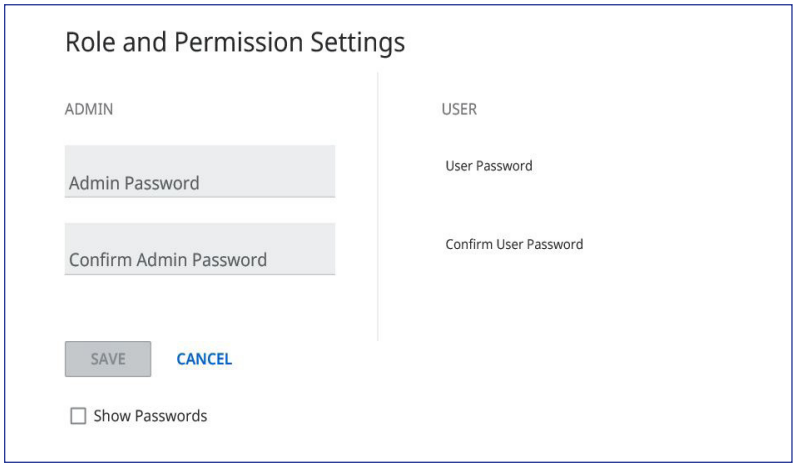


Figure 34. Role and Permission Settings

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***.
- An indicator of the current login status is shown on the top right corner of the main screen.

LinkLicense

The **LinkLicense** panel (see **figure 27** on page 47) shows the status of the LinkLicense as well as lets the user add a LinkLicense.

NOTES:

- A LinkLicense is obtained directly from Extron, usually by email. When received, download the file to your computer in order to upload it to the device.
- In order to install LinkLicense, the device must be using firmware version 5.00 or higher.
- The latest firmware can be downloaded from the Extron **website** (see **Downloading the Latest Switcher Firmware** on page 55 for method).

To add the LinkLicense to your PVS 407D:

1. On the **LinkLicense** panel (see figure 35), click **Select File**.

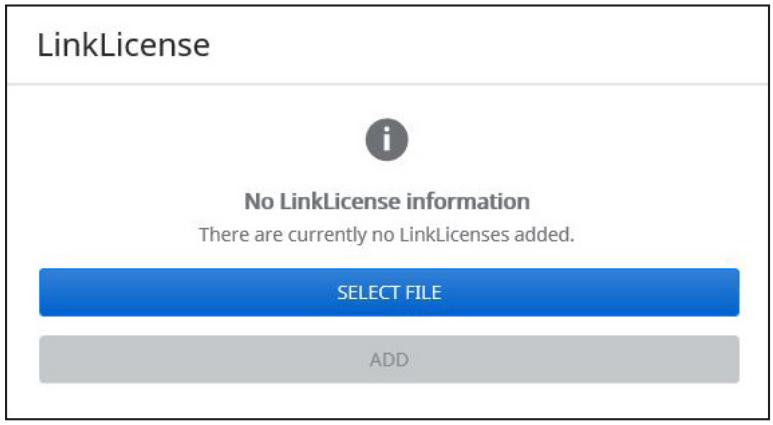


Figure 35. LinkLicense Window

2. This opens an Explorer window (see figure 36). Browse to the location of the LinkLicense and select the LinkLicense file with .ell file extensions.

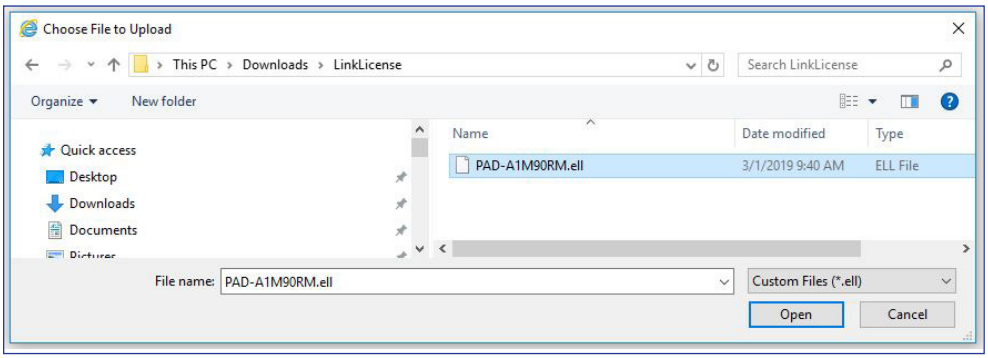


Figure 36. Explorer Window

3. Click **Open**. The window closes and the `LinkLicense` dialog box reopens showing the LinkLicense file in the file name field (see figure 37).

Figure 37. Add LinkLicense Button

To cancel this procedure, click the **x** at the right of the file name.

4. Click **ADD**. The LinkLicense is uploaded and automatically installs to the connected PVS 407D. The switcher automatically performs a system reboot when complete to apply the LinkLicense. When the license is properly installed, your LinkLicense panel looks like figure 38.

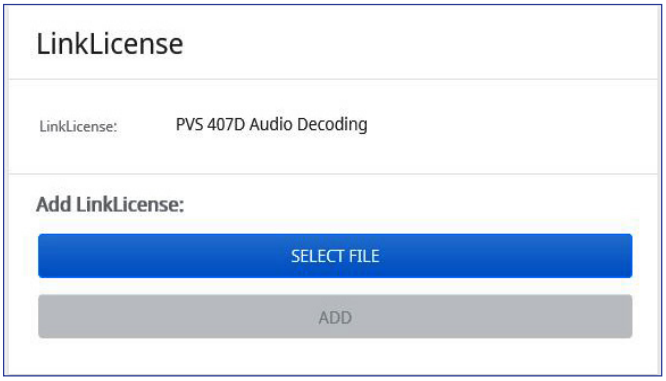


Figure 38. LinkLicense Uploaded

NOTE: If a failure message appears, verify that the serial number of the PVS 407D product matches the one found in the LinkLicense file name. For assistance with LinkLicense activation, please contact your Extron Support Representative.

Downloading the Latest Switcher Firmware

The latest switcher firmware can be downloaded from the Extron website 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 **www.extron.com**, select the **Download** tab. The Download Center screen appears.

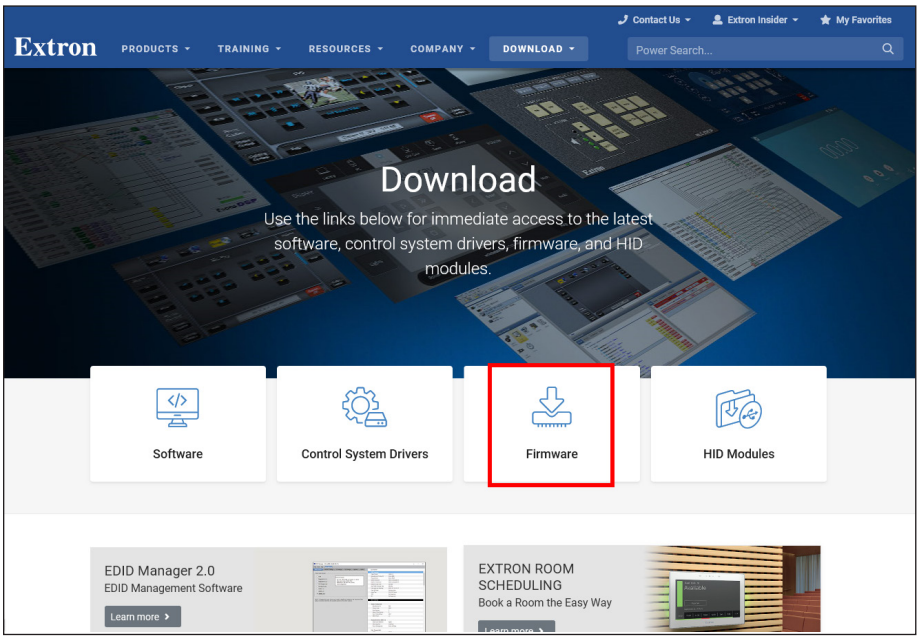


Figure 39. Extron Website Download Center

2. On the Download Center screen, select the **Firmware** menu from the left side-bar, or click the **Firmware** icon on the page. This takes you to the Firmware pages.
3. Click **P** (see figure 40, A) and scroll to the PVS 407D line.

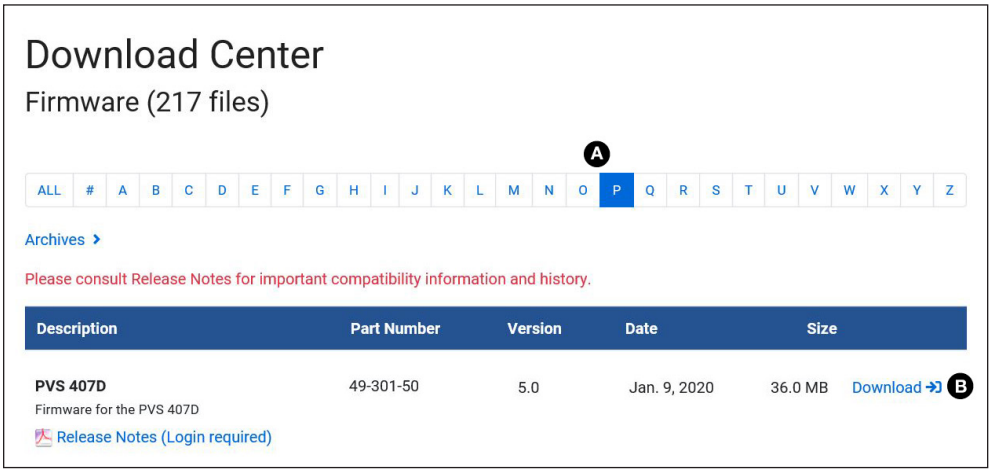


Figure 40. Extron Website Download Center

4. Click **Download** (B).
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 and Recommendations**
- **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.

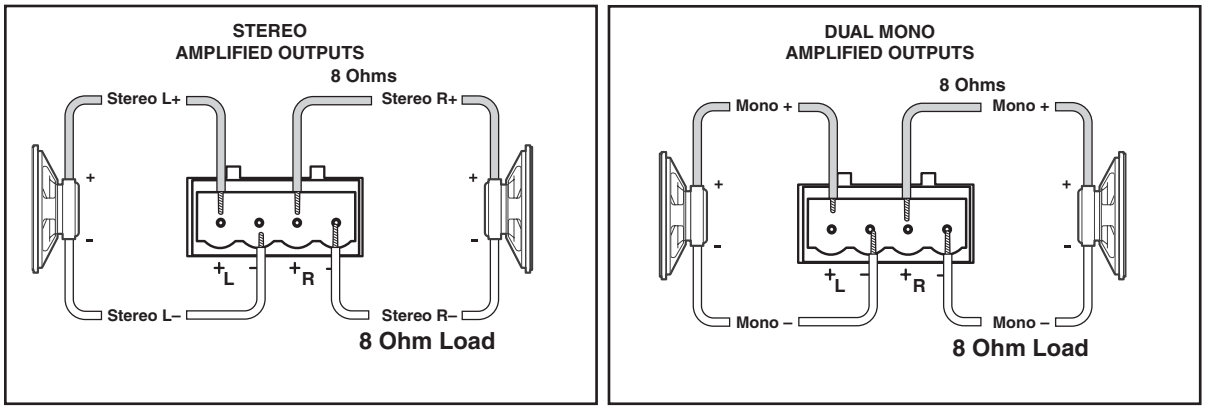


Figure 41. Stereo or Dual Mono Output Using In Line Speaker Wiring

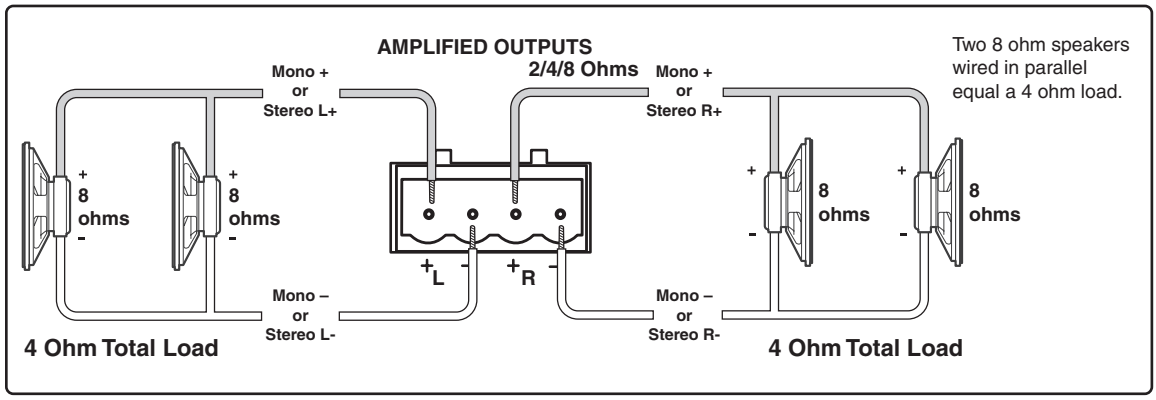
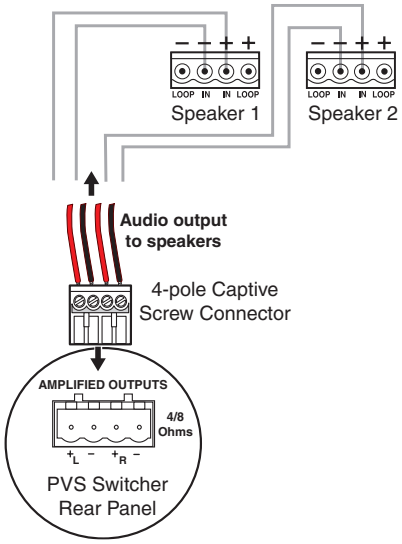


Figure 42. Stereo or Dual Mono Output Using Parallel Speaker Wiring

NOTE: By default, the amplifier is set for dual mono output. Refer to the *PVS 407D PCS Help* file or **SIS Communication and Control** on page 19 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 figure 43.

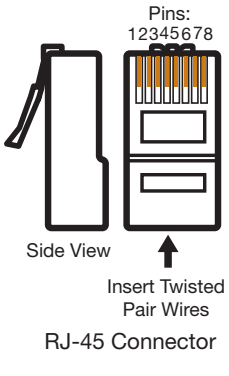


Speaker Wire Color	To PVS 407D Terminal (Left and Right)
Red	Positive (+)
Black	Negative (-)

Figure 43. Wiring the Audio Output Connector

TP Cable Termination and Recommendations

Figure 44 details the recommended termination of both ends of TP cables with RJ-45 connectors in accordance with the **TIA/EIA T568B** wiring standard.



Pin	568A Wire Color
1	White-green
2	Green
3	White-orange
4	Blue
5	White-blue
6	Orange
7	White-brown
8	Brown

Figure 44. 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 VDC, 4 A, or 4.2 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 Plus 100 with an IRCM DV+, and a VoiceLift Microphone system.

Figure 45 shows how to wire the connector.

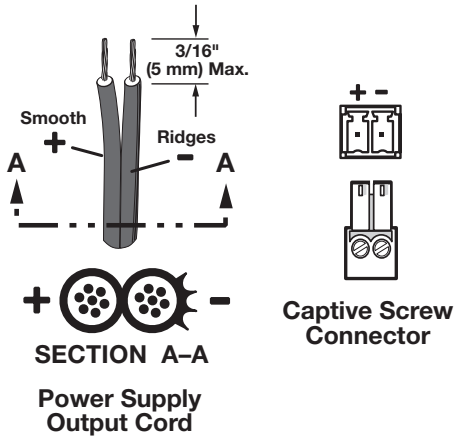


Figure 45. Power Connector Wiring

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 maintenus à l'écart tant que la source d'alimentation est branchée. Coupez l'alimentation avant d'effectuer les raccordements.

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.
- Utilisez toujours une source d'alimentation fournie ou recommandée par Extron. L'utilisation d'une source d'alimentation non autorisée annule toute certification de conformité réglementaire, et peut endommager la source d'alimentation et l'unité.
- Unless otherwise stated, the AC/DC adapters are not suitable for use in air handling spaces or in wall cavities.
- Sauf mention contraire, les adaptateurs CA/CC ne conviennent pas à une utilisation dans les espaces d'aération ou dans les cavités murales.
- 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.
- Cette installation doit toujours être conforme aux dispositions applicables du Code américain de l'électricité (National Electrical Code) ANSI/NFPA 70, article 725, et du Code canadien de l'électricité, partie 1, section 16. La source d'alimentation ne devra pas être fixée de façon permanente à la structure de bâtiment ou à d'autres structures similaires.

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 45** on page 58) 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. Les stries sur le côté du cordon permettent de repérer le pôle négatif du cordon d'alimentation (voir **figure 45** a la page 58).

- 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 wires in the stripping process is **important**. **The ideal length is 3/16 inch (5 mm)**. Any longer and the exposed wires may touch, causing a short circuit between them. Any shorter and the wires can be easily pulled out even if tightly fastened by the captive screws.
- La longueur des câbles exposés est **importante** lorsque l'on entreprend de les dénuder **La longueur idéale est de 5 mm (3/16 inches).** S'ils sont trop longs, les câbles exposés pourraient se toucher et provoquer un court-circuit. S'ils sont trop courts, ils peuvent être tirés facilement, même s'ils sont correctement serrés par les borniers à vis.

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 Plus 100 RS-232 connectors.

NOTE: The MLC Plus 100 is powered from the same supply used by the PVS 407D.

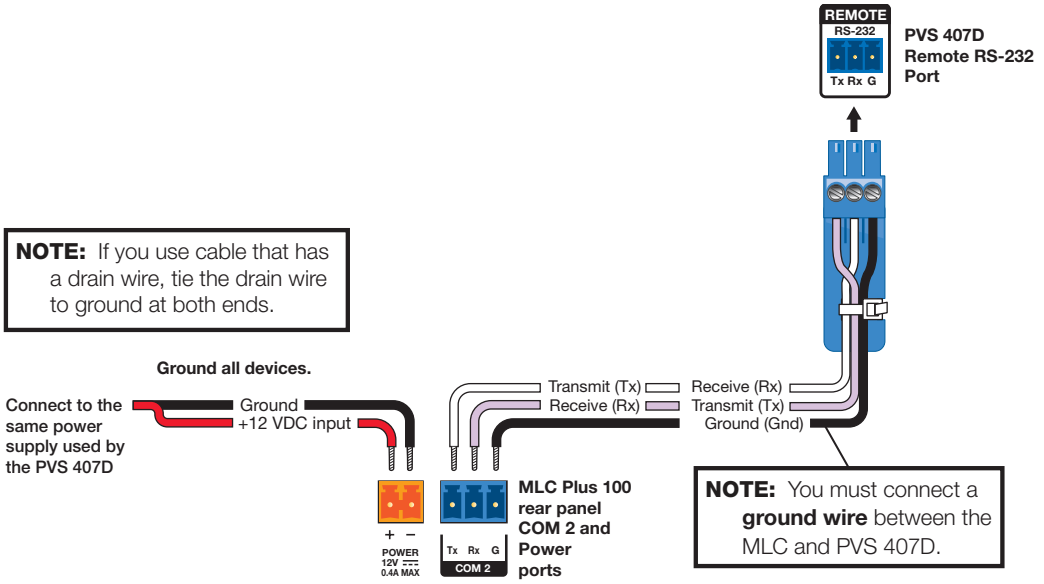


Figure 46. RS-232 Connector Wiring

From MLC Plus 100 Terminal	Wire Color	To PVS 407D Terminal
Rx on the COM 2 port	White	Tx on the RS-232 port
Tx on the COM 2 port	Violet	Rx on the RS-232 port
COM 2 Ground	Drain wire	G - Ground
Power Ground	Black	To PVS 407D Power Supply
12 V In	Red	To PVS 407D Power Supply

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

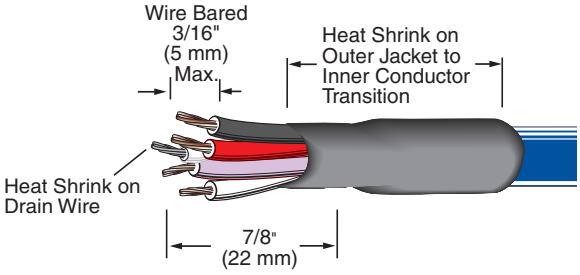
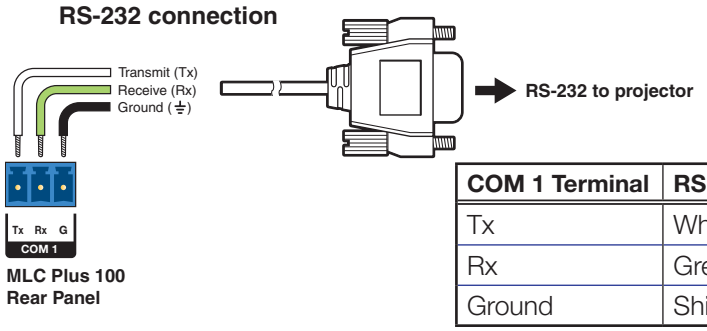


Figure 47. Connector Wire Preparation

Wiring for IR Communication

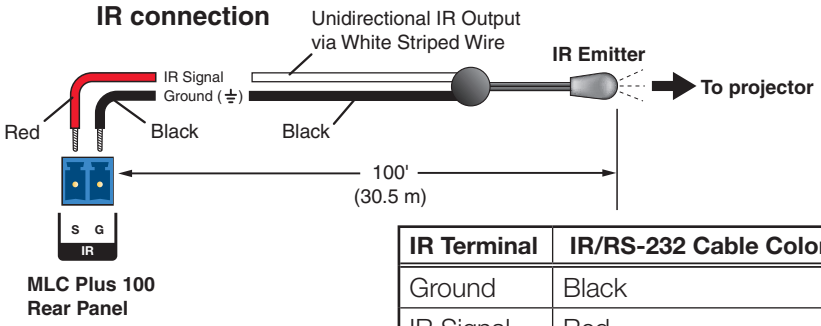
Connect the IR/RS-232 projector communication cable for either RS-232 or IR projector control.



COM 1 Terminal	RS-232 Cable Color	Pin
Tx	White	2
Rx	Green	3
Ground	Shield	5

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

Figure 48. RS-232 Connection to Projector



IR Terminal	IR/RS-232 Cable Color	IR Cable Color
Ground	Black	Black
IR Signal	Red	White/Black

Figure 49. IR Connection to Projector

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

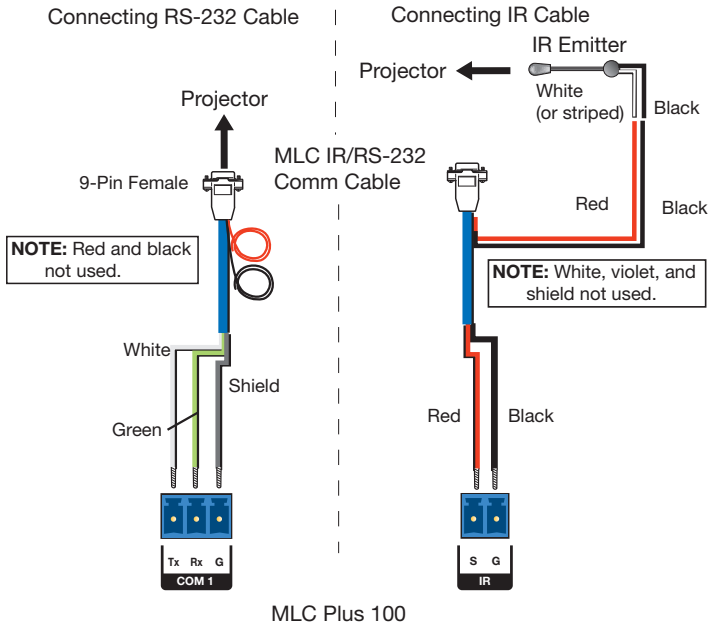


Figure 50. IR Emitter Cable Connection

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

The connections between the MLC Plus 100 and the PVS 407D switcher should look like the figure below.

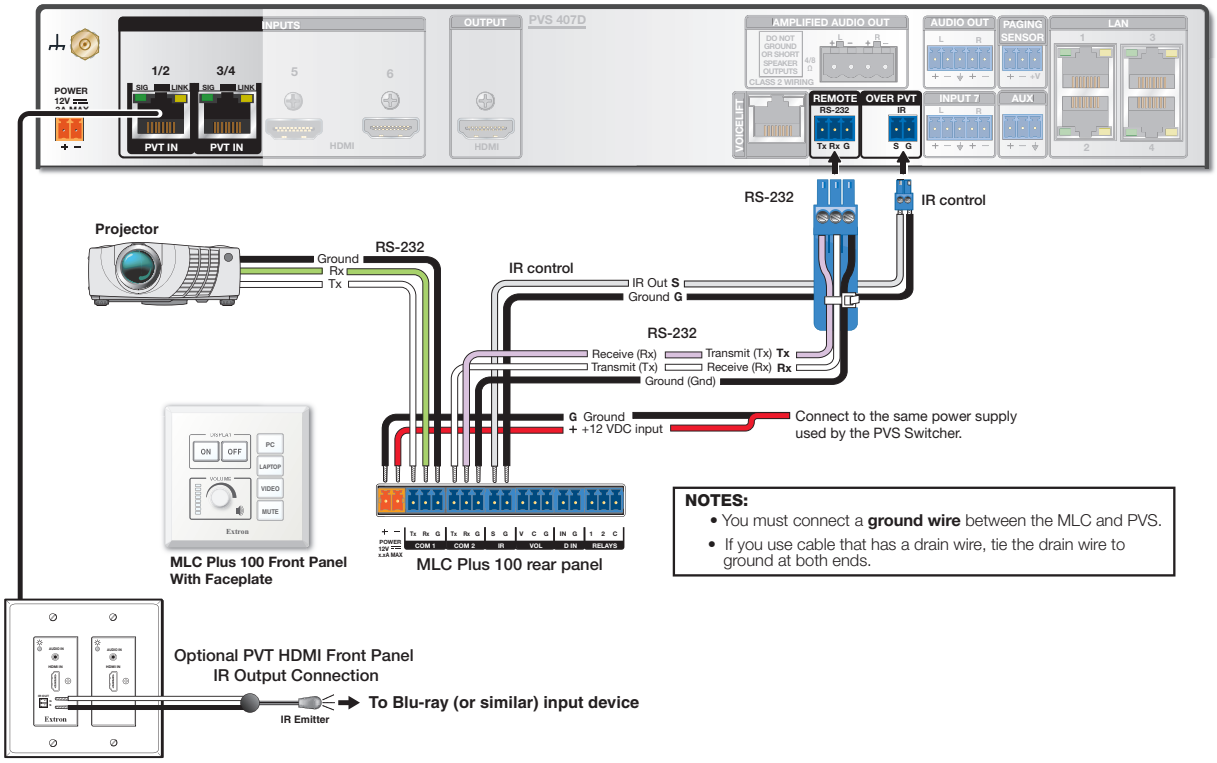


Figure 51. MLC Wiring to the PVS 407D Switcher

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.

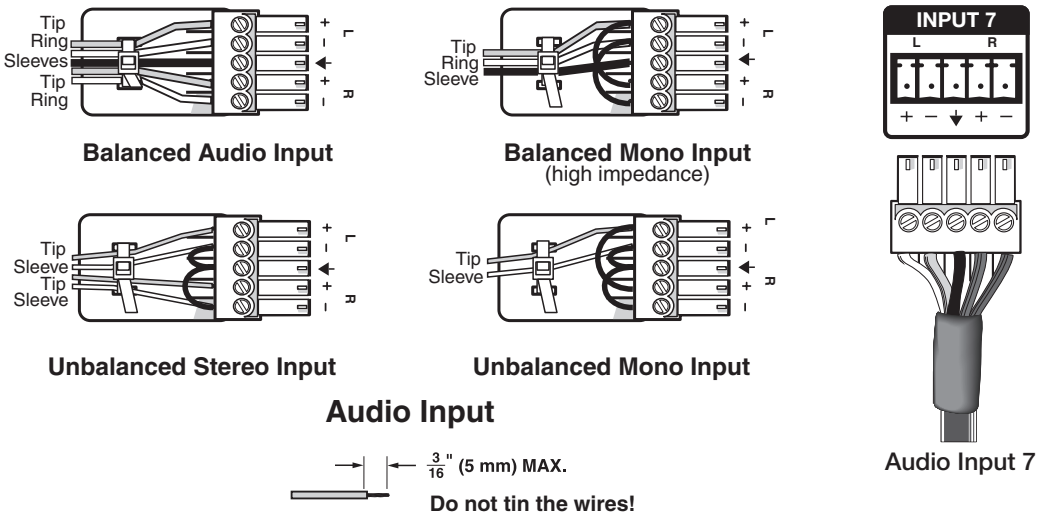


Figure 52. Input 7 Audio Wiring

Extron Warranty

Extron 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 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
1230 South Lewis Street
Anaheim, CA 92805
U.S.A.

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

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

Europe:
Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

China:
Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

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

Africa:
Extron South Africa
South Tower
160 Jan Smuts Avenue
Rosebank 2196, South Africa

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions, or if modifications were made to the product that were not authorized by Extron.

NOTE: If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

USA:	714.491.1500 or 800.633.9876	**Asia**:	65.6383.4400
Europe:	31.33.453.4040 or 800.3987.6673	**Japan**:	81.3.3511.7655
Africa:	27.11.447.6162	**Middle East**:	971.4.299.1800

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron 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 be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.