

# PoleVault® Systems

Complete audio/video solutions  
designed for classrooms with  
ceiling mounted projectors



- ▶ Complete, centralized AV switching and control systems with stereo amplification
- ▶ Designed for classrooms with a ceiling mounted projector
- ▶ Extron-exclusive Auto Power Save and Standby modes lower energy usage and reduce operating costs
- ▶ Systems use CAT 5-type cable for quick and easy connections and low-cost installation
- ▶ Network connectivity for Web-based monitoring, support and AV asset management



**Extron® Electronics**  
INTERFACING, SWITCHING AND CONTROL

# A Simpler AV Solution

Extron PoleVault® Systems are easy-to-use, network-enabled, all-inclusive packages, making them ideal for single-projector K-12 classrooms. These systems were specifically developed for classrooms with a ceiling mounted projector. PoleVault Systems use economical twisted pair cable for transmitting signals and include network connectivity for Web-based asset management, monitoring, and control. Extron PoleVault Systems take their name from the unique PMK 550 Pole Mount Kit that securely mounts and conceals system components above the projector.

## Designed for K-12 Classrooms

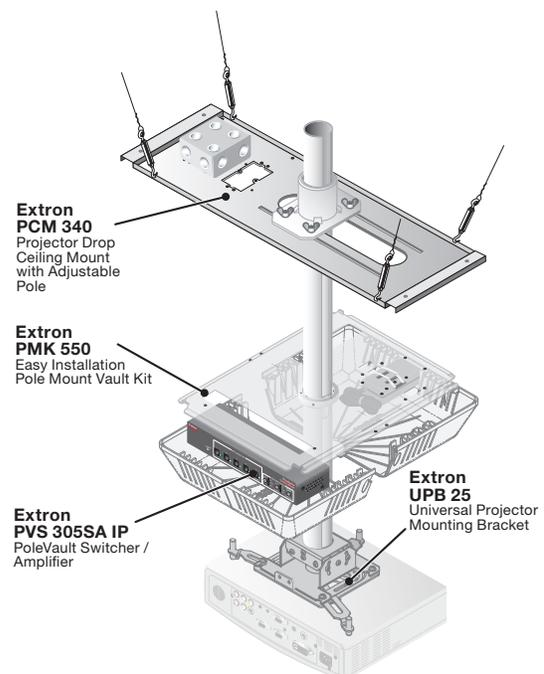
When it comes to adding an AV control system to the classroom, educators, instructional technologists, and school administrators have told us they have three primary concerns: the system should be easy to use, reliable, and sized properly to meet the needs of the classroom.

PoleVault Systems are designed to create a complete classroom AV technology integration solution that offers benefits for teachers, students, and administrators alike. Teachers will enjoy the simplicity of the system controller and enhanced sound quality. Students will benefit because technology that is easy to use gets used more often. Administrators will appreciate the ability to centrally monitor all classroom systems using the network, as well as the expandability offered by the PoleVault switcher, which enables the addition of video and audio sources beyond the capacity of the projector.

All of the products in the PoleVault Systems are designed and made by Extron and are optimized to work together, providing the most economical system solution. PoleVault Systems are predesigned for quick and easy installation, resulting in a significant reduction in design and installation costs.



A teacher can control the entire classroom AV system through the intuitive wall- or lectern-mounted Extron MediaLink® controller, which eliminates the need for a handheld IR projector remote and can significantly reduce calls for help. Overall, PoleVault Systems help schools integrate technology in the classroom to the benefit of educators and students alike.



With PoleVault Systems, switching and audio amplification equipment are securely mounted above the projector, away from tampering hands.

# PoleVault System Benefits

## Complete System

PoleVault Systems, whether standard or customized, streamline the design and procurement process, saving both time and money. Each system includes nearly 20 separate products, yet the entire system is ordered using a single part number. PoleVault Systems include all the necessary audio and video switching, audio amplification, system control, source connectivity, speakers, mounting hardware, and cabling for a complete classroom AV solution. All that remains is to add the video projector, projection screen, and video sources.



## Simplifies Installation While Saving on Space

In typical classroom AV systems, audio and video switching and amplification devices are mounted in a lectern or on a shelf or desktop. Too often, the equipment is unsecured, unsightly cables are visible, and valuable floor space is used. PoleVault Systems place the key products at the projector, so no equipment rack or tabletop space is required and cables are hidden away. Installation is simplified through the use of CAT 5 twisted pair cable, wall-mounted source signal transmitters, and easy-to-use projector mounting hardware.

## View Ease of Installation

To see how easy it is to install Extron Classroom AV Systems, view our installation videos online at <http://www.extron.com/pvinstall>.

## Power Saving Features

At the heart of each PoleVault System is the PVS 305SA IP Five Input IP-Enabled Switcher with Integrated 50 Watt Audio Amplifier that offers two Extron-exclusive power saving modes designed to lower energy usage and reduce operating costs.

- **Auto Power Save Mode:** This mode automatically shuts off the audio amplifier after 30 minutes of inactivity, providing a close to 50% reduction in energy usage compared to normal, idle operation.
- **Standby Mode:** This mode shuts off both the audio amplifier and the AV input wallplates, reducing power consumption of the switcher over 60%.



## Active Wallplates

PoleVault System video and audio connections are made using proven, reliable, and cost-effective CAT 5-type twisted pair cable.

## Economical, Easy-to-Install Cables

PoleVault Systems use proven, reliable, and cost-effective CAT 5 twisted pair cable for carrying video and audio input source signals between the wallplate input and switcher. In most cases, power and high resolution AV signals are sent over the same CAT 5 cables.

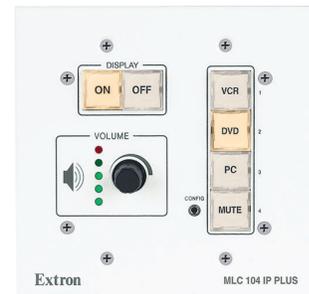
Twisted pair cable is lighter, smaller, and more flexible than coaxial cable, so it is easier to route through walls and pull through small conduit, making it ideal for use in retrofitting existing classrooms and even easier for new construction. The connectors used with CAT 5 cable are also easier to attach to the cable and don't require skilled and costly technicians for installation.

## Active Wallplate

PoleVault Systems use active, balanced twisted pair transmission technology. Active, balanced signals are resistant to signal loss as well as interference, insuring optimum picture quality at the display. All these features add up to make PoleVault Systems more economical to purchase and install than those using standard coaxial cable for audio and video.

## Easy To Control

The MLC 104 IP Plus MediaLink Controller included in standard PoleVault Systems is designed to simplify operation of the classroom AV system. With large, backlit buttons and a simple volume control knob, the controller is almost as easy to use as a light switch. Teachers with little or no training can learn to operate the system in a few minutes.



The MediaLink controller is easy to use.

# PoleVault System Benefits

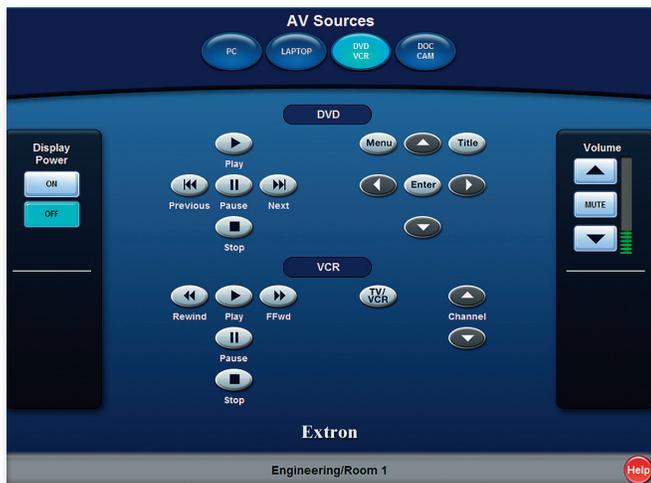
The standard controller employs only six buttons: two for ON/OFF control of the projector, and four source control buttons for selecting between a computer, VCR, DVD player, or any other source connected to the system. Removable button caps make it easy to label each button to clearly indicate its function; labels can be quickly changed and don't require programming or engraving. Controlling the volume of the presentation is as simple as turning the volume knob. For added functionality, optional controller models are available, all based on the same simple user interface.

## Eliminate Multiple Remotes

The MediaLink controller eliminates the need for multiple handheld IR remotes that can be lost or stolen. There are no batteries to replace and no confusing menus to memorize. When PoleVault Systems are installed in multiple classrooms, teachers will confidently move from room to room when necessary, always encountering the same familiar control panel, no matter which projector is used.

## Built-in Ethernet Control

The MLC 104 IP Plus MediaLink Controller features built-in IP Link® Ethernet control and is configurable using the Free Global Configurator software, which makes installation as simple as selecting choices from intuitive, drop-down menus instead of



With the default Web-based graphical user interface for PoleVault Systems, you can control the system on a computer screen in the classroom or from a remote location.

writing, compiling, and de-bugging complicated programming code. The MLC 104 IP Plus supports Extron's Free GlobalViewer®, a Web-based campus-wide resource management and control software application that provides a powerful, flexible way to manage, monitor, and control IP Link products remotely and in the classroom.

## Graphical User Interface Option

Technology enhanced classrooms provide instructors with new tools to teach and interact within the presentation environment. Many instructors prefer the flexibility of not only controlling the environment via an in-room controller mounted on a wall or lectern, but also from a control page on a computer monitor or wireless device. With PoleVault Systems, an instructor can control the projector, DVD player, VCR, screen, lights, and more from a colorful Web page on a laptop or classroom computer equipped with a mouse or touchscreen monitor.

Each PoleVault System includes a ready-to-use default Graphical User Interface or GUI. In addition, there are two ways to create a customized GUI. You can select one of our free templates to create your own, or let Extron software developers do the work for you with our economical GUI Customization Service.

## Enhance the Classroom Audio

Attempting to run the presentation audio through the projector might be seen as a money saving option, but it results in poor quality sound and a low volume level. Projectors just don't have the speakers or amplification to produce quality sound and overcome noise in the classroom.

## Extron Patented Flat Field® Speakers

Many classrooms have acoustical tile ceilings that are suspended from the roof or floor structure above the classroom. This forms a space or "plenum" between the suspended ceiling and the building. For voice and program material, standard PoleVault Systems provide code required plenum rated wide dispersion ceiling speakers that distribute the sound across the entire classroom. Extron patented Flat Field FF 120 Speakers are specially designed to work with PoleVault Systems and offer ease of integration with standard ceiling tiles. The FF 120 utilizes Extron's unique Flat Field Technology for consistent sound levels across the listening area, thus reducing the number of speakers required. As an option, you could select wall mounted program speakers which can be mounted near the projection screen. **For a technical white paper on the Extron exclusive, patented Flat Field FF 120 Speaker, go to [www.extronclassroom.com/whitepapers](http://www.extronclassroom.com/whitepapers)**



FF 120 plenum rated speakers utilize Extron exclusive Flat Field Technology and wide dispersion to fill the room with high quality sound.

# PoleVault System Benefits

Together with the included PoleVault System speakers, the powerful new 50 watt audio amplifier built into the PoleVault switcher offers all the power necessary to deliver more sound level than needed for the small to medium size classroom. The PoleVault System switcher with integrated audio amplifier offers a robust and even distribution of audio throughout the classroom.



## Flexible and Expandable Source Switching

The PoleVault 50 watt switcher/amplifier at the heart of the system does all the work of signal routing externally to the projector. This allows expansion of the classroom AV signal switching capability beyond what is available using projector switching alone. Students will enjoy the presentation experience and teachers will enjoy presenting. The energy efficient PVS 305SA IP features new Auto Power Save and Power Standby modes to reduce power consumption by as much as 60% when idle. Standard PoleVault Systems accept two, three, or four source input signals. The four input system offers two high resolution computer video signals and two configurable inputs for either computer or composite video signals. PoleVault Systems also support HDMI and DVI video in classrooms with projectors that offer these inputs. Optional extenders transmit the video directly to the projector and audio playback is handled by the PoleVault switcher/amplifier.

PoleVault Systems allow for the integration of existing AV sources, such as computers, laptops, DVD players, VCRs, document cameras, and more. In addition, PoleVault is designed to readily adapt to future changes. If you upgrade your DVD players, for example, audio and video connections are easy to make and the system will operate exactly as before the upgrade. PoleVault Systems offer the flexibility and expandability to ensure they will meet tomorrow's needs as well as the needs of today.

## Extron VoiceLift® Microphone Option

The Extron VoiceLift Microphone is an infrared wireless microphone system that integrates seamlessly into PoleVault installations. The VoiceLift series of products includes an IR receiver, a charging station, and a wireless pendant microphone with DSP technology for feedback elimination. Adding the VoiceLift Microphone to a PoleVault System enables the teacher's voice to be heard clearly throughout the room. The lightweight pendant microphone can be



worn around the neck or clipped onto clothing, while the handheld microphone is easy for students to use and increases classroom participation.

## Intelligent PA Sensing and Audio Muting Option

To ensure that important public address announcements are never missed, the PoleVault System is capable of sensing sound in the facility's PA speakers. With the addition of an optional Priority Page Sensor Kit, any sound transmitted through the PA system will be detected immediately, and the PVS 305SA IP Switcher will mute the program audio. Once the announcement has ended, the program audio will be restored.



The PoleVault System's GlobalViewer Web application can be used to monitor and control AV systems in a single building or across an entire campus.

## Network Connectivity Helps Save Time and Money

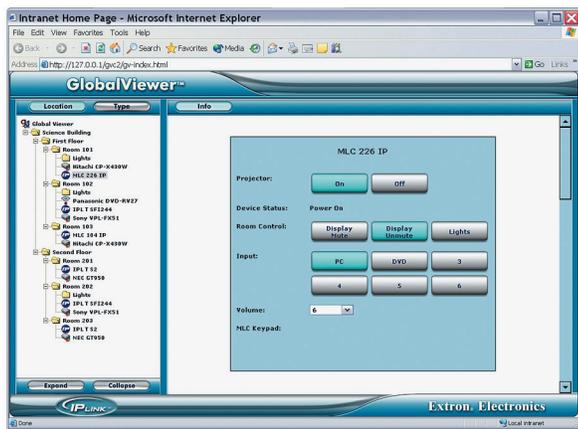
The controller offered with standard PoleVault Systems features Extron's IP Link, a network integration technology we specifically engineered to meet the needs of professional AV environments — from small K-12 classrooms to university and business applications. The IP Link-enabled MediaLink controller combined with the Free GlobalViewer Web application provides a powerful and flexible way to remotely monitor, schedule, and control AV equipment over a network.

**Loss prevention with theft alerts:** PoleVault System room controllers are always on and routinely poll their attached devices for status information. If any projector is physically disconnected from the network, the PoleVault System monitoring its status will know immediately. In such an event, it can send an e-mail message notifying security personnel of the possible theft. For fast action, e-mails can be sent to multiple addresses as well as cell phones and wireless PDAs.

# PoleVault System Benefits

**Reduced projector lamp and power costs:** A projector that is left on over the weekend uses more power and lamp time than a week's worth of typical classroom use. Projector lamps are relatively expensive, ranging from \$200 to \$400 or more. An administrator may want to turn off all projectors every day at a preset time. She might also want to schedule the controller's front panel to lock out any unauthorized use after hours. With the controller's internal clock and the free Extron software, these and many other automated tasks are easy to set up.

**Accessible from anywhere:** Because they are Web-based, GlobalViewer Web pages stored on the MediaLink controller can be viewed using Internet Explorer® version 6.0 or higher from any computer with access to the network. GlobalViewer can also store and display information about connected devices like serial numbers, owner identification, maintenance history, and installed firmware versions. This centralized data can be collected and used to reduce maintenance costs and guide future purchasing decisions.



Remotely control all devices in the room with GlobalViewer's Room View screen.

**Rapid problem resolution:** You can troubleshoot PoleVault Systems remotely, thanks to the real-time status of connected devices provided through the Free GlobalViewer Web application. Information such as connection status, power state, and current source selection is displayed in a central location. For many connected devices, technicians can toggle power on or off, switch sources, control volume, and more without leaving their office. Many common problems can be resolved without a trip to where the equipment is located.

**Avoid surprises through preventative maintenance:** Projector lamps generally have a lifespan of around 2500 hours of usage. It can be very frustrating when a lamp reaches the end of its lifespan in the middle of a presentation. The networked PoleVault System controller keeps track of the projector's lamp usage and, thanks to the controller's e-mail capabilities, you can set it up to send an e-mail when a predetermined number of lamp hours have been reached. This will alert an administrator to purchase a new lamp before it burns out.

## IP Link vs. Proprietary Projector Software

We have found that most institutional installations do not have a single brand of projector in use across their entire campus. In addition, support personnel often need visibility to all of the components in an AV system when working through trouble calls. Extron's IP Link technology

is designed to network-enable every major brand of projector and unify them under a common support platform.

Looking further, a combination of projectors, VCRs, DVD players, switchers, and other devices is the reality of most institutional installations. When we looked at the task of network enabling, monitoring, scheduling, and supporting projectors and their related equipment, we found IP Link and GlobalViewer to be the best and most flexible approach to meet this need.

The universal architecture of IP Link-enabled devices allows facilities to support a mixture of different brands, models, and versions of projectors on the same network. Older and lower cost projectors do not have built-in network connectivity. IP Link supports both network-enabled and non-network models. In addition to the projector, IP Link is designed to network-enable many other AV system components.

Another factor to consider is the often expensive software needed to monitor, schedule, troubleshoot, and control the projectors. IP Link interface hardware works in conjunction with our Free GlobalViewer Web-based resource management application. GlobalViewer software was created specifically to work with many makes and models of devices simultaneously.

## Extron Satisfaction Guarantee

To underscore our commitment to quality, performance, and value, we offer our Satisfaction Guarantee. This means we will work diligently to resolve any issue you have with your purchase until you are completely satisfied. Extron employees are prepared to do whatever it takes to make certain that the entire process of doing business with us is a positive and professionally rewarding experience for you.

## Extron PoleVault System Design and Installation Support Program

Extron has assembled a dedicated team of system specialists with the technical expertise necessary to assist during every step of a PoleVault System project. From initial design and bill of material creation, they will assist with providing reseller referrals, including information on state contracts that may be available in your area. The Extron PoleVault Team has access to documentation to assist your project planners or architects with data submittals that are required for certain state construction agencies.

Our Integration Support Specialists provide support during and after installation, including a final call after installation, to ensure customer satisfaction and system optimization.

## PoleVault System Grant Program For Schools

The interaction of educational technology boosts student interest and achievement. To assist districts in the creation of a pilot classroom for evaluating and defining AV system standards, Extron has developed a PoleVault System Grant Program. For more information, or to apply for the program, contact the Extron Education Support Team, or visit our Web site at [www.extronclassroom.com/grant](http://www.extronclassroom.com/grant).

## State Contract/GSA Pricing

Extron offers State Contract/GSA pricing on PoleVault Systems for use in purchasing for state and federal contracts. For more information, please contact the Extron Education Support Team.

# PoleVault Systems

## EACH STANDARD SYSTEM INCLUDES THE FOLLOWING CORE COMPONENTS:

- One PVS 305SA IP Five Input IP-Enabled Switcher with Integrated 50 Watt Audio Amplifier - not available separately
- One MLC 104 IP Plus MediaLink Controller with IP Link - White
- One PCM 340 Projector Drop Ceiling Mount with Adjustable Pole
- One PMK 550 Pole Mount Kit
- One UPB 25 Universal Projector Bracket - White
- One pair of FF 120 plenum rated Flat Field Speakers
- One length of SPK 18 Precut Speaker Cable - Plenum, 35' (10.6 m)
- One MLC IR/RS-232 Projector Communication Cable - Plenum, 50' (15.2 m)
- One MLC PW/RS-232/VC Power, Switcher Communications Cable - Plenum, 50' (15.2 m)
- One AV RCA Male to Male RCA Cable - 3' (1 m)
- One MVGA M-M/3 Male to Male VGA Cable - 3' (1 m)
- Two, three, or four exclusive PoleVault AV input wallplates - see below
- One or two lengths of CAT 5 twisted pair cable per wallplate - Plenum, 50' (15.2 m)

The only difference between the systems is the quantity and type of AV input wallplates and video cables included - see Unique Features for each system.

### PVS 200

#### Two Input PoleVault System

##### Unique Features

- Includes one PVT RGB D - PoleVault VGA Computer-Video and Stereo Audio Input - Decora® Wallplate
- Includes one PVT CV D - PoleVault Composite Video and Stereo Audio Input for a VCR or DVD Player - Decora Wallplate

Model	Version Description	Part Number
PVS 200	Two Input PoleVault System	42-108-03



The PVS 200 two input PoleVault System has one VGA computer-video input and one DVD/VCR input

### PVS 300

#### Three Input PoleVault System

##### Unique Features

- Includes two PVT RGB D - PoleVault VGA Computer-Video and Stereo Audio Input - Decora Wallplate
- Includes one PVT CV D - PoleVault Composite Video and Stereo Audio Input - Decora Wallplate
- Additional VGA input wallplate provides increased flexibility for adding an additional VGA source, such as a laptop or document camera

Model	Version Description	Part Number
PVS 300	Three Input PoleVault System	42-109-03



The PVS 300 PoleVault System adds one VGA computer-video input - three inputs total

### PVS 400

#### Four Input PoleVault System

##### Unique Features

- Includes two PVT RGB D - PoleVault VGA Computer-Video and Stereo Audio Inputs - Decora Wallplate
- Includes two PVT CV D - PoleVault Composite Video and Stereo Audio Inputs - Decora Wallplate
- Additional video input wallplate provides increased flexibility for adding an additional composite video source, such as a VCR

Model	Version Description	Part Number
PVS 400	Four Input PoleVault System	42-110-03



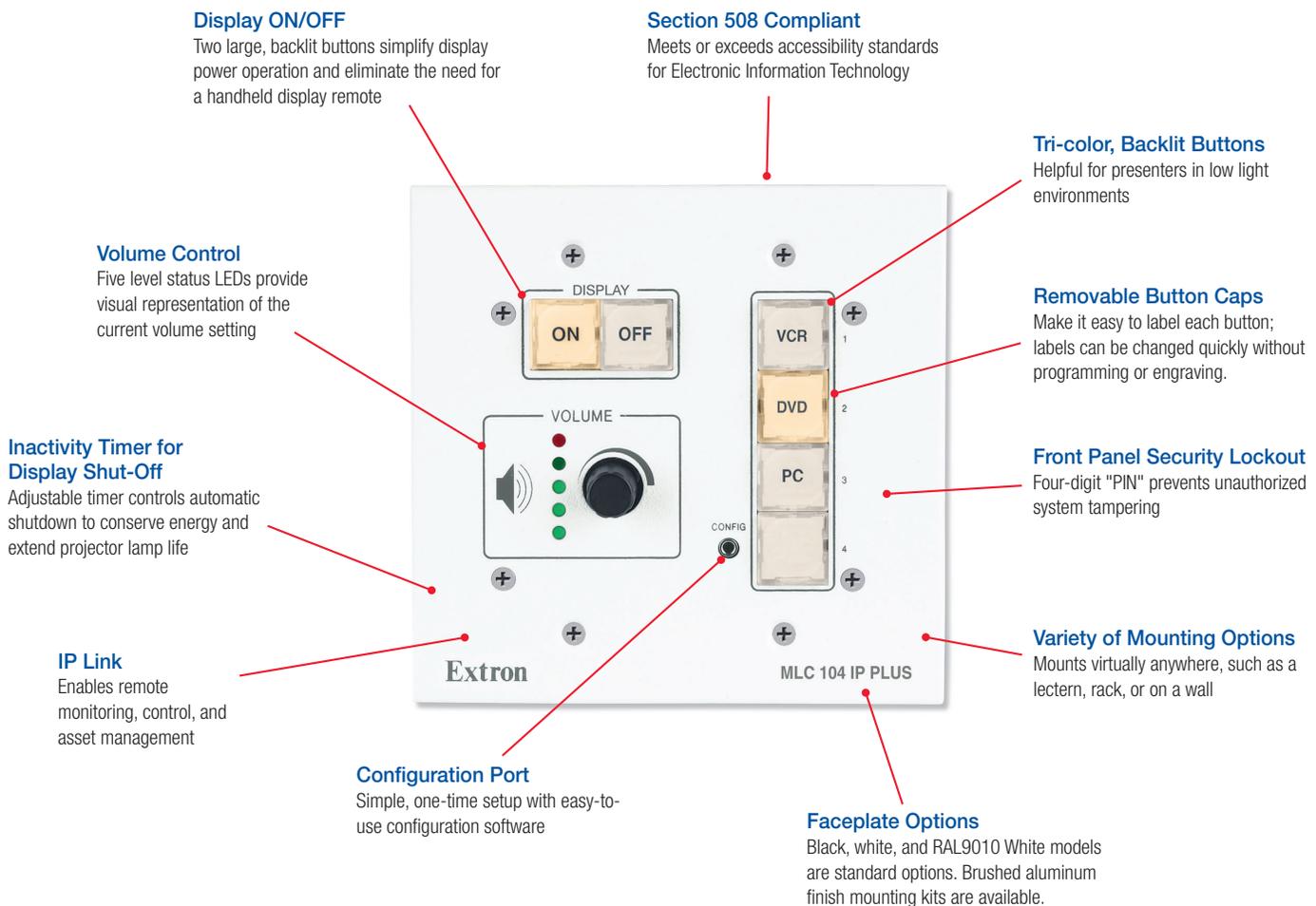
The PVS 400 PoleVault System adds one VGA computer-video and one DVD/VCR input - four inputs total

For State Contract/GSA pricing and details about the PoleVault Grant Program, contact an Extron Customer Service Representative.

# System Controller

## MLC 104 IP PLUS MEDIALINK CONTROLLER

The Extron MLC 104 IP Plus MediaLink Controller with built-in IP Link® Ethernet Control included in standard PoleVault Systems is an easy-to-use control panel. It is designed to simplify operation of the classroom AV system and enables Web-based remote diagnostics, asset management, and support. When PoleVault Systems are installed in multiple classrooms, the MLC 104 IP Plus standardizes the control interface, making AV systems simple to use for anyone.



## FEATURES

- Bidirectional RS-232 port for universal display control
- Three digital I/O ports configurable as a digital input or digital output for sensors, switches, LEDs, and relays
- Dedicated IR port for control of IR-controllable display devices and source equipment, such as VCRs and DVD players
- IR learning capability for capturing IR remote codes from a device's handheld remote control
- Adjustable timer controls automatic shutdown to preserve energy and extend projector lamp life
- Front panel security lockout prevents unauthorized tampering
- Tri-color, backlit, easy-to-label buttons
- Volume control knob with volume indication
- IP Link Ethernet monitoring and control
- Integral high performance Web server with 7.25 MB flash memory for storing device drivers, GlobalViewer, and custom user Web pages

# System Switcher

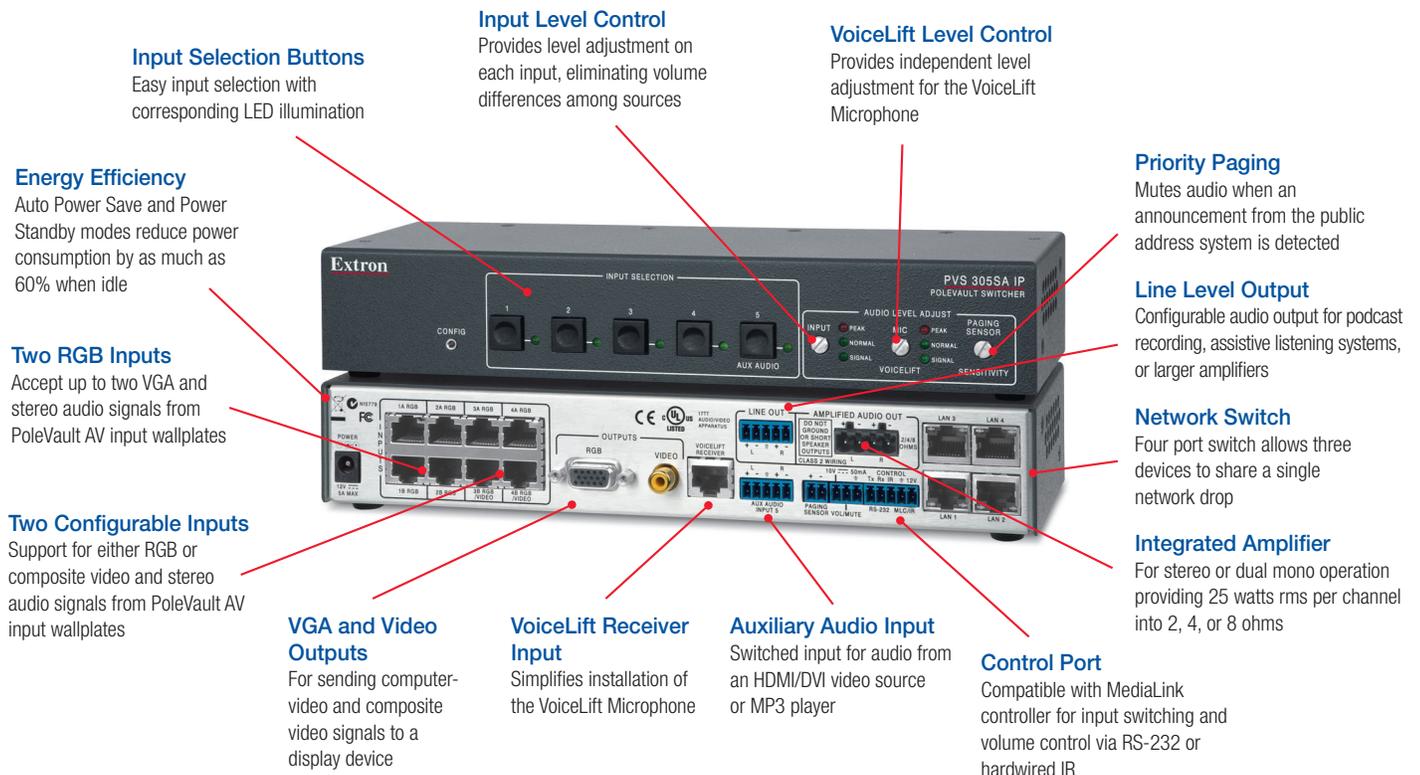
## POLEVAULT SWITCHER/AMPLIFIER

The heart of each PoleVault System is the PVS 305SA IP Switcher/Amplifier. With four video inputs, a switched audio input, and an integrated 50 watt rms stereo audio amplifier, this switcher meets the needs of most single projector AV environments.

The PVS 305SA IP Switcher offers two high resolution RGB computer-video signals with stereo audio and two configurable inputs with stereo audio that support either RGB or composite video. The switched audio input supports audio from an HDMI video source or MP3 player.

The PVS 305SA IP features an integrated 50 watt rms stereo audio amplifier capable of driving up to four Extron speakers and filling the room with full, rich sound. A line level output allows system audio to be used with podcasting or assistive listening systems.

Also included in the PVS 305SA IP is an integrated four port network switch. This allows up to three devices within the classroom to share a single network drop.



## FEATURES

- Available exclusively as part of a PoleVault System
- Receives VGA computer video, composite video, and stereo audio signals from PoleVault AV input wallplates
- Integrated 50 watt rms audio amplifier for stereo or dual mono audio
- Receives audio and video signals, and provides power to AV input wallplates over CAT 5-type cable
- Integrated four port network switch allows three classroom devices to share a single network drop
- VoiceLift Receiver input simplifies installation of the VoiceLift Microphone
- A switched auxiliary audio input provides support for audio from an HDMI/DVI video source or MP3 player
- Independent input sensitivity adjustments are provided for program audio and VoiceLift Microphone
- Configurable audio line output for podcast recording, assistive listening systems, or adding an additional amplifier
- Paging sensor input mutes program audio when a public address system announcement is detected by the optional Priority Page Sensor Kit (part# 70-619-01)
- Auto Power Save and Power Standby modes provide energy efficiency to reduce operating costs

# System Components

## INCLUDED PRODUCTS

Each PoleVault System product is designed and manufactured by Extron, ensuring that they will work together and function properly as a system. Each of the standard PoleVault Systems includes nearly 20 separate components, including a switcher/amplifier, two to four video inputs, a MediaLink controller, projector mounting hardware, speakers, and cables. The following two pages provide an overview of the standard input wallplates, controller, speakers, and projector mounting hardware included in each system. See page 12 for optional products used to customize PoleVault Systems.

## AV INPUT WALLPLATES



### PVT CV D

#### WallVault® Composite Video and Stereo Audio Input - Decora Wallplate

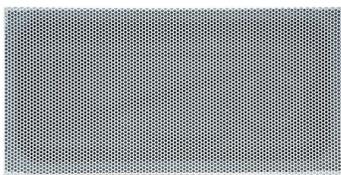
- Transmits composite video and stereo audio signals to a PVS 305SA IP Switcher over a single CAT 5-type cable
- Composite video and stereo audio input on female RCA connectors
- IR pass-through provides control connections for IR-controllable devices

### PVT RGB D

#### WallVault VGA Computer Video and Stereo Audio Input - Decora Wallplate

- Transmits VGA computer video and stereo audio signals to a PVS 305SA IP Switcher over two CAT 5-type cables
- VGA video input on a female 15-pin HD connector and audio input on a 3.5 mm stereo mini jack
- EDID Emulation provides selectable resolutions and refresh rates to ensure reliable operation
- IR pass-through provides control connections for IR-controllable source devices

## SPEAKERS



### FF 120

#### Extron Exclusive Patented Flat Field Speaker

- Plenum rated ceiling speakers designed for classrooms with a drop ceiling
- 1' x 2' (30.5 cm x 61 cm), 4.7 lb (2.1 kg) drop-in ceiling tile enclosure for suspended ceilings
- Extron patented Flat Field Technology for consistent sound levels across the listening area
- Full-range driver with a horn-loaded design provides extended low frequency response
- Wide 170° dispersion
- Designed and manufactured by Extron

## CONTROLLER



### MLC 104 IP Plus

#### MediaLink Controller with IP Link

- Two bidirectional RS-232 ports for display and switcher control
- **IP.LINK. Network monitoring and control**
- Front panel security lockout
- Configurable tri-color backlit buttons
- Volume control with indicators
- Support for optional IRCM control modules

# System Components

## MOUNTING HARDWARE



### PCM 340

#### Projector Drop Ceiling Mount with Adjustable Pole

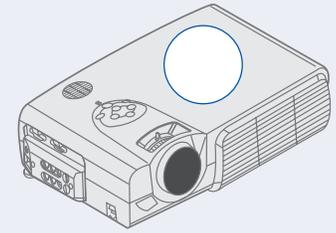
- Patent-pending projector drop ceiling mount with adjustable pole for use with suspended ceilings using 2'x2' or 2'x4' tiles
- Provides time- and cost-effective integration of projectors in small boardrooms and classrooms
- Includes single-space and double-space junction box openings
- 25" (63.5 cm) adjustable pole with range from 1.5" to 23" in 0.5" increments
- Dimensions: 1.2" H x 26.4" W x 8.0" D (2.9 cm H x 67.0 cm W x 20.3 cm D)



### UPB 25

#### Universal Projector Bracket

- Universal projector mount compatible with nearly every projector up to 25 pounds
- Independent adjustments of horizontal tilt or roll, vertical angle or pitch, and rotation or yaw
- Precise positioning adjustments are maintained even if projector is removed for service
- Built-in security tabs to prevent theft
- Projector mounting hardware included for attaching projectors to the UPB 25
- Optional security hardware, part # 70-555-01



## Selecting A Projector For PoleVault Systems

PoleVault Systems work with virtually any projector. However, in order to enable the full benefits of system control and network monitoring, it is important to select a projector that includes the following features:

### RS-232 Control Port with Bidirectional Communication:

Many projectors provide only IR control or unidirectional RS-232. Bidirectional RS-232 allows a projector to both receive commands and provide status feedback to the control system. This capability is important for transmitting information about the projector to the GlobalViewer Web application via the controller's IP Link technology.

### Communication During Standby Mode:

Some projectors do not have the ability to communicate with a control system while in standby mode. In order to fully utilize the security features in IP Link technology, such as the detection of a projector that has been disconnected, it is important to select a projector that can communicate during standby mode.

### Rich Set of Monitoring Commands:

The more data available from the projector via RS-232, the better. Examples of useful data include: lamp hours, temperature, filter status, current input selected, projector on/off, video mute status, etc.

### Brightness:

A projector of at least 2000 ANSI lumens is recommended in order to provide good visibility in brightly lit rooms.

**For more information, contact the Extron Education Support Team**

## MOUNTING HARDWARE



### PMK 550

#### PoleVault Pole Mount Kit

- Securely mounts PoleVault equipment above the projector, which prevents unauthorized access and reduces tampering or theft.
- Provides adequate space for PoleVault equipment with designated locations for the switcher and power supply
- Low profile only requires 3" (7.7 cm) of height between projector and ceiling
- Lightweight design for reduced ceiling structure support requirements
- Built-in cable management with several tie down points for proper strain relief and dressing of excess cable.

## SWITCHER/AMPLIFIER



### PVS 305SA IP

#### Five Input IP-Enabled PoleVault Switcher with Integrated 50 Watt Audio Amplifier

- Available exclusively as part of a PoleVault System
- Receives high resolution VGA computer-video, composite video, and stereo audio signals from PoleVault AV input wallplates
- Integrated 50 watt rms audio amplifier for stereo or dual mono audio
- Four port network switch allows three devices to share a single network drop
- Voicelift Receiver input for Voicelift Microphone
- Switched auxiliary audio input for audio from an HDMI/DVI video source or MP3 player

# System Components

## OPTIONAL PRODUCTS

PoleVault Systems can be customized to meet the specific requirements of the room. A wide range of options is available, including optional controller models, additional AV inputs, speakers, mounting hardware, and more. For example, users can specify an additional pair of speakers, add microphone support, select optional mounting hardware, and specify black components, rather than the standard white color. The following two pages provide details on just a few of the options available. Extron System Design and Support Specialists are standing by to assist with any PoleVault System design and customization.

### OPTIONAL AV INPUTS



#### PVT RGB D Plus

WallVault VGA Computer Video and Stereo Audio Input with Local Monitor Output - Decora Wallplate

- Transmits VGA computer video and stereo audio signals to a PVS 305SA IP Switcher over two CAT 5-type cables
- EDID Minder® automatically manages EDID communications between connected devices
- Built-in distribution amplifier provides local monitor output
- IR pass-through provides control connections for IR-controllable devices
- 3.5 mm audio pass-through connector allows WallVault audio to be available for podcasting or assistive listening systems



#### HDMI 201

HDMI Twisted Pair Extender

- Intended for use with display devices that support HDMI video
- Uses active technology to transmit HDMI signals over two CAT 5-type cables up to 200 feet (60 meters)
- Video input on a female HDMI connector and audio input on RCA connectors
- HDCP compliant
- Supports DDC transmission
- RS-232 or IR pass-through for controlling source devices



#### WPD 110A and HDMI Pro Series

HDMI Pass-Through Wallplate and Cable

- Intended for use with display devices that support HDMI video
- Uses passive technology to transmit HDMI signals over included HDMI Pro Series cable up to 50 feet (15 meters)
- Video input on a female HDMI connector and audio input on a 3.5mm stereo mini jack
- HDCP compliant
- Supports DDC transmission
- RS-232 or IR pass-through for controlling source devices

### OPTIONAL AV INPUTS



#### PVT RGB CV

WallVault VGA Computer Video, Composite Video, and Stereo Audio Input

- Transmits VGA, composite video, and stereo audio signals to a PVS 305SA IP Switcher over three CAT 5-type cables
- Two input model accepts composite video with audio on female RCA jacks and VGA on a female 15-pin HD connector with audio on a 3.5 mm stereo mini jack
- Rack-mountable, 1U, quarter rack width metal enclosure



#### PVT SW RGB

Dual WallVault VGA Computer Video and Stereo Audio Input with Integrated Switcher

- Increases the quantity of high resolution video inputs allowed in a WallVault System
- Transmits computer video and stereo audio signals to a PVS 305SA IP Switcher over two CAT 5-type cables
- Two VGA video inputs on female 15-pin HD connectors and two audio inputs on 3.5 mm stereo mini jacks

### PAGE SENSOR KIT



#### Priority Page Sensor Kit

Priority Page Sensor w/Cable & Connectors

- Detects audio signal in a public address system speaker to mute classroom audio
- Designed for use with PVS 305SA IP PoleVault Switcher
- Compatible with 25/70 volt and 4/8 ohm public address systems
- Priority Page Sensor, 35' (10.6 m) sensor cable, and metal junction box included

# System Components

## VOICELIFT MICROPHONE



### VoiceLift Microphone Infrared Wireless Microphone

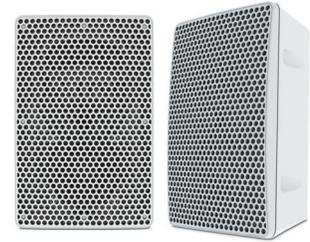
- Lightweight pendant microphone
- Volume/mute control
- Instant Alert e-mail messaging capability
- Auxiliary input for additional audio source
- Advanced DSP maximizes sound quality
- Supports up to two microphones
- Student handheld microphone for increased classroom participation

## OPTIONAL SPEAKERS



### SI 3C LP Full-Range Ceiling Speakers

- Plenum rated speakers designed for classrooms with a drop ceiling
- 4" (10.2 cm) deep low profile metal back can for plenum environments
- 3" (7.6 cm) full-range driver with a tuned port
- Locking arms for quick ceiling installation
- 170° conical dispersion
- Includes C-ring & V-rail kit



### SM 3 Compact Full-Range Speaker with SpeedMount™

- Surface mount speakers for rooms without a drop ceiling for wall mounting on each side of the screen
- 3" (7.6 cm) full-range driver with a tuned bass reflex port
- Exclusive SpeedMount mounting system included with 0° and 10° mounting plates
- 8 ohm nominal impedance

## IP INTERCOM®



### IPI 204 Four-Button Stand-Alone IP Intercom Station

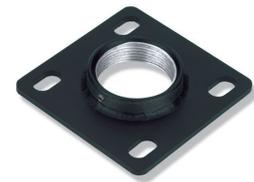
- Provides two-way, half-duplex voice communications over an IP network
- Standalone IP addressable intercom station
- Four backlit, configurable Push To Talk buttons for communicating with four different locations
- Mounts in a two-gang wall box
- Integrated speaker and microphone
- Line level audio output and contact relay port

## OPTIONAL MOUNTING HARDWARE



### ACMP 100 Angled Ceiling Mounting Plate

- Alternative to the PCM 240
- Pivoting angled ceiling mounting plate
- Enables projector to hang level from angled ceilings
- Compatible with Extron PMP Series Projector Mount Poles



### FCMP 44 Flat Ceiling Mounting Plate

- Alternative to the PCM 240
- 4-inch square, low profile mounting plate
- Provides a ceiling mounting point for any Extron PMP Projector Mount Pole
- Enables close ceiling placement of projector

# Additional Control Options

Advances in educational technology are changing the way that instructors interact with the presentation environment. In some cases, it may be inconvenient to access AV capabilities from a fixed controller mounted on a wall or lectern. For these situations, Extron offers a variety of options for controlling the PoleVault System from a Web page, iPad®, or Windows® PC.

## Web-Based Graphical User Interface

Each PoleVault System comes with a Web-based Graphical User Interface or GUI. This allows the classroom AV system to be controlled from any computer running Internet Explorer® with access to the network.



## MediaLink for iPad

Extron's MediaLink for iPad is an AV control system app designed for the Apple® iPad. It provides users with an additional point of control for rooms with an Ethernet-enabled MediaLink controller. Presenters can wirelessly control the AV system using a Wi-Fi network, allowing them the freedom to move throughout the room. MediaLink for iPad is available for download at the Apple iTunes App store.



## MediaLink for Windows

Extron MediaLink for Windows is an AV control system application designed for computers running Microsoft® Windows. It allows the classroom computer to become an additional point of AV system control for rooms equipped with an Ethernet-enabled MediaLink controller. The application is small in size, and may be easily docked and hidden. This provides convenient and easy access to the AV control system, while presenting from the same computer.



# Online System Customization

## POLEVAULT SYSTEMS ARE EASY TO CUSTOMIZE

There are three standard PoleVault System packages that streamline the design and procurement process. These two-, three-, and four-input packages include all the necessary audio and video switching, audio amplification, system control, source connectivity, speakers, mounting hardware, and cabling for a complete classroom AV solution. All that remains is to add the video projector, projection screen, and sources.

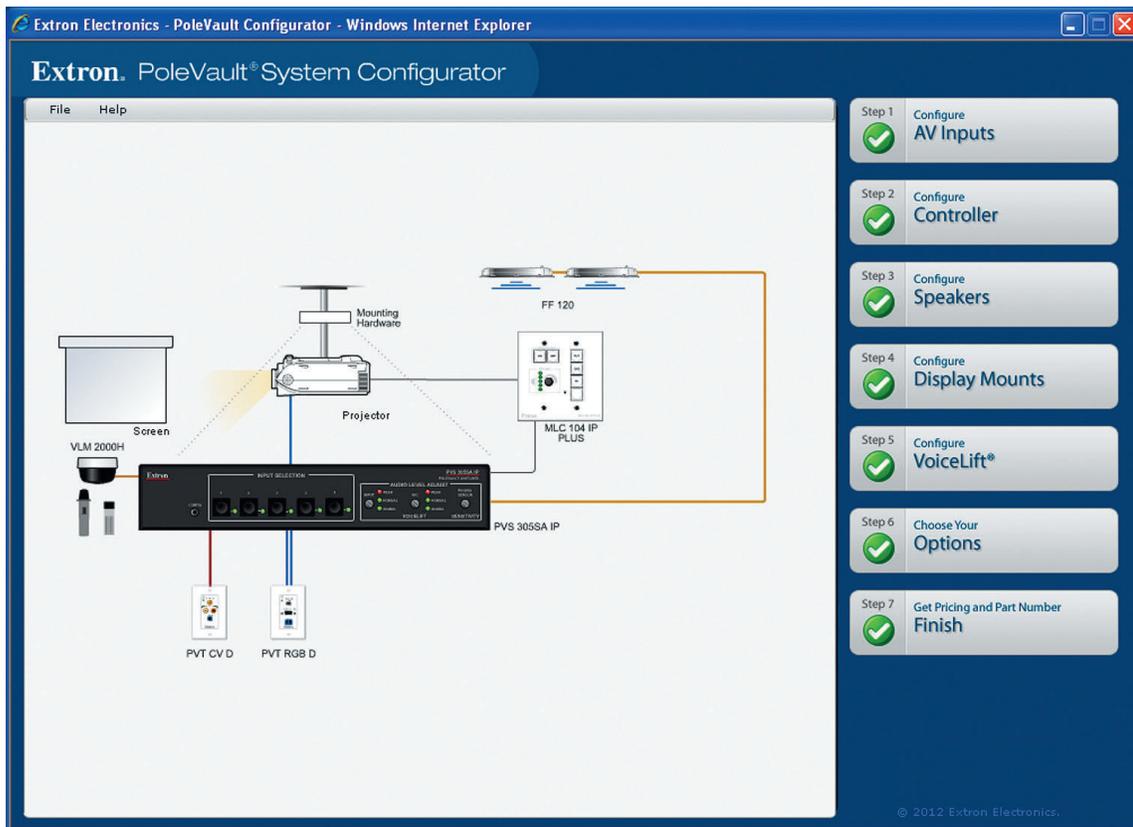
Extron PoleVault Systems take their name from the unique PMK 550 Projector Mounting Kit that securely mounts and conceals the system audio and video switching and audio amplification components mounted above the projector. This provides tamper-resistant theft deterrence for the AV system.

### System Customization

All PoleVault Systems can be customized to meet specific classroom requirements. Each system must always include the PVS 305SA IP PoleVault Switcher, which is available only in a PoleVault System, a PMK 550 Projector Mounting Kit, speakers, and two to four AV input wallplates.

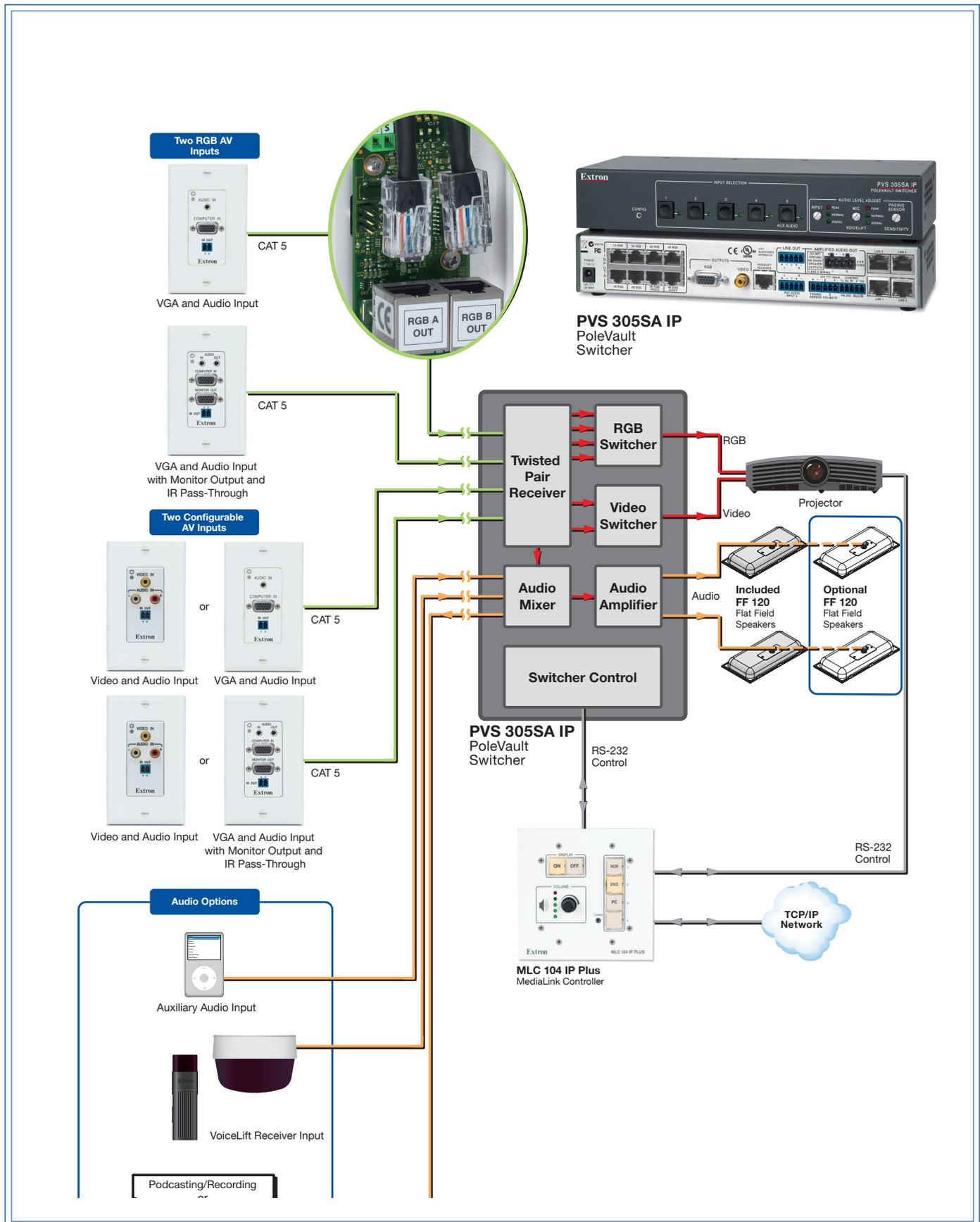
The PoleVault System Configurator at [www.extronclassroom.com/cc](http://www.extronclassroom.com/cc) is an online, drag-and-drop configuration utility that allows users to design PoleVault Systems using the Extron Web site. The dynamic, graphical user interface makes system customization easy. Only the available choices are shown as you build your system. Helpful wizards ensure that only valid systems are built and vital accessories are included. In each standard system, certain components can be changed. For example, users can specify an additional pair of speakers, add wallplates, add or remove optional mounting hardware, and select component colors.

A wide range of options are available. The PoleVault System Configurator can also be used to print or save an equipment list and submit a request for quote to Extron Sales. Extron System Design and Support Specialists are standing by to assist with any PoleVault System design and customization.

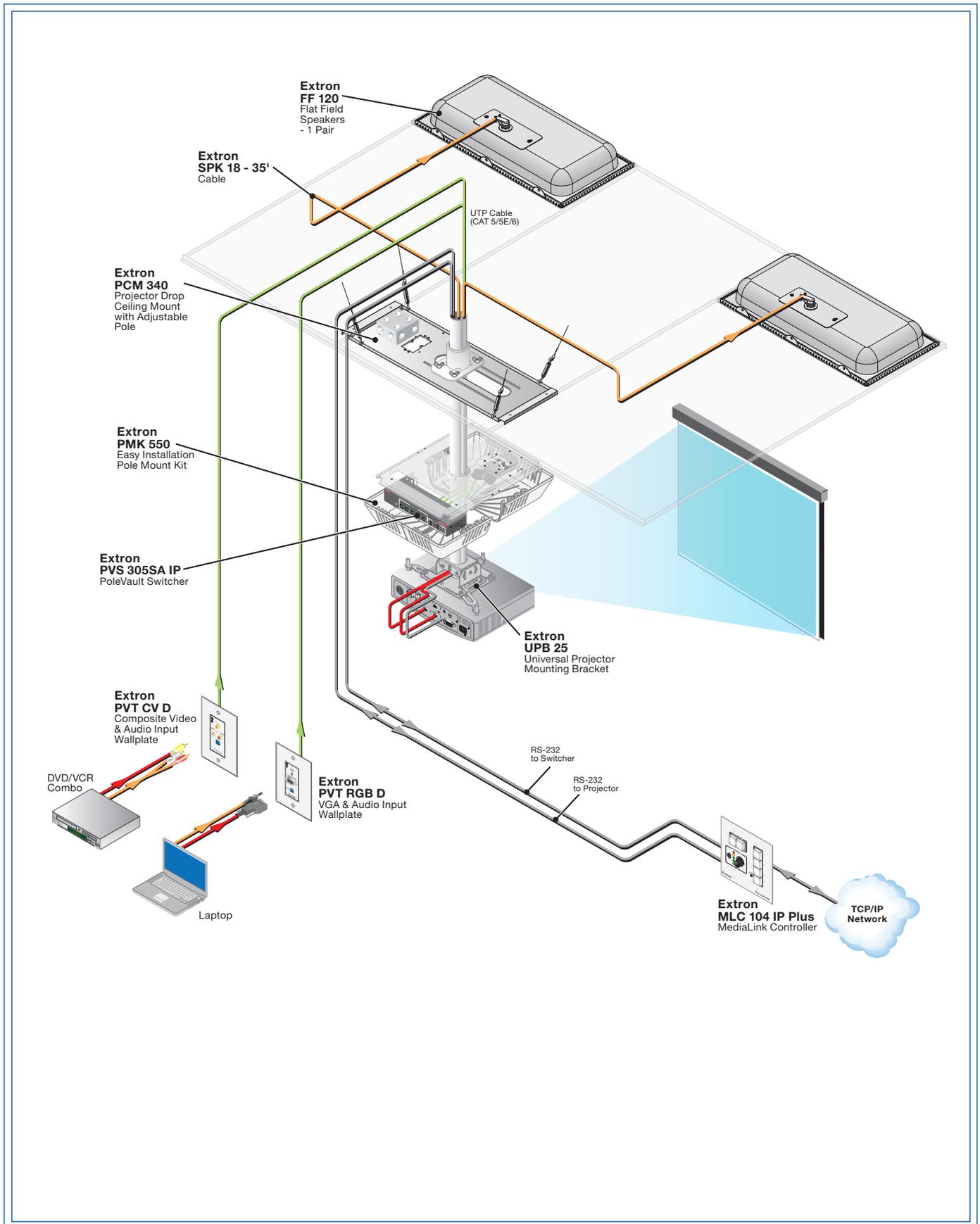


PoleVault System Configurator

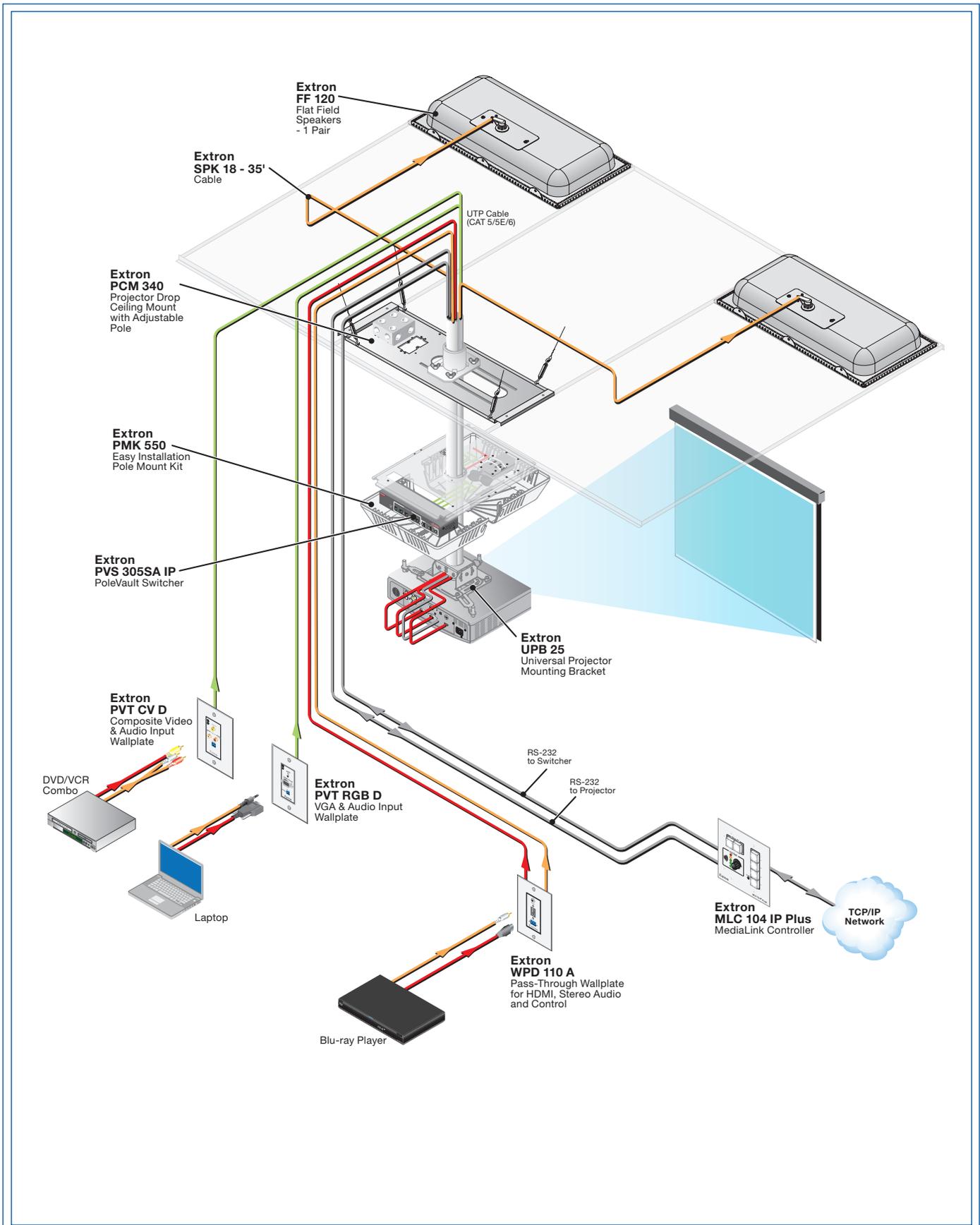
# Block Diagram



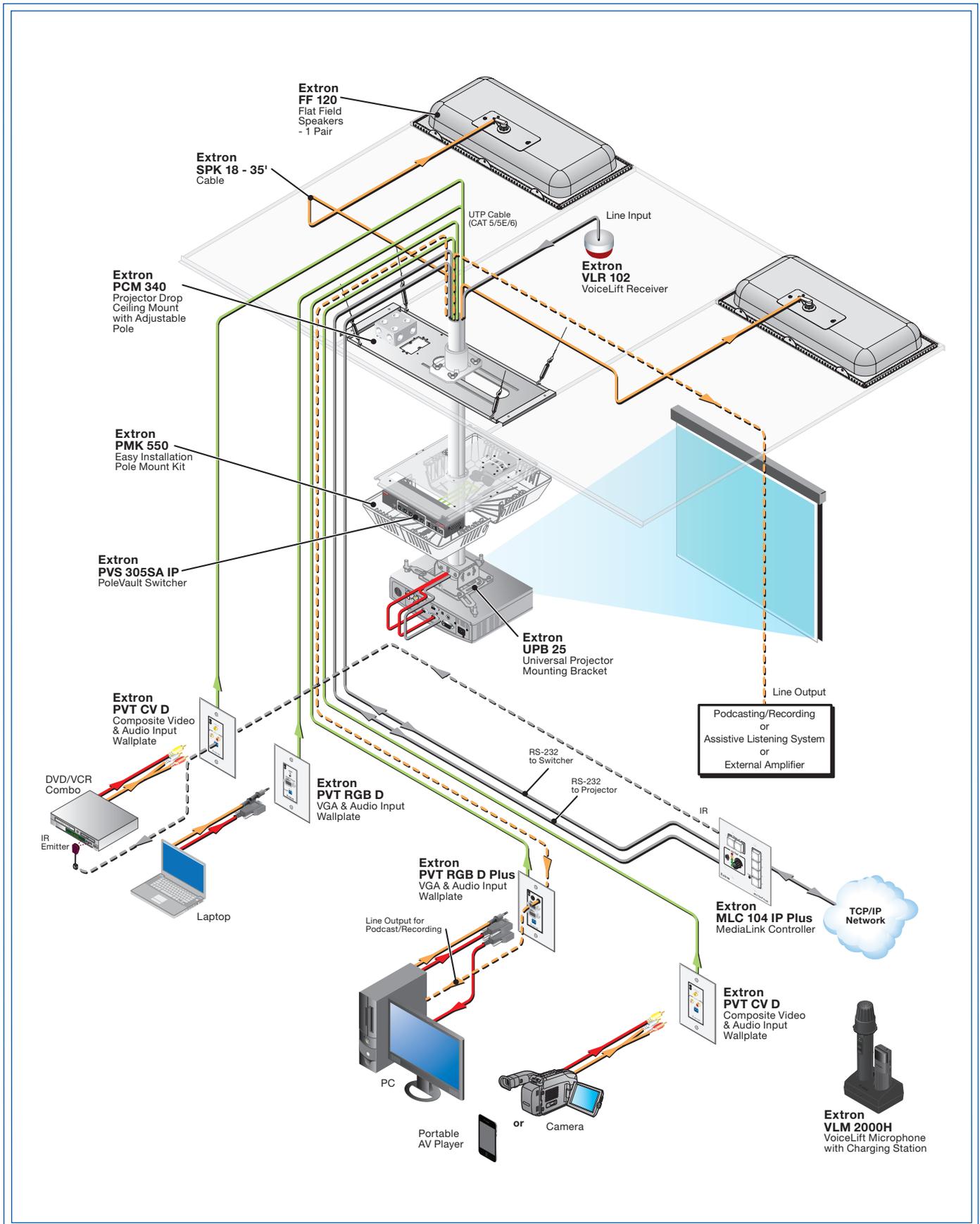
# PVS 200 - Two Input PoleVault System



# Three Input PoleVault System with HDMI



# Four Input PoleVault System with Options



# Extron Classroom AV System Grant Program

The Extron Classroom AV System Grant Program provides increased visibility to K-12 educational technology projects by supplying selected pilot classrooms with advanced audio/video solutions. It has been proven that the use of audiovisual technology in the classroom increases student interest, participation, and achievement. The goal of the pilot classroom is to demonstrate the ease-of-use and benefits of Extron classroom AV technology to both teachers and administrators. The grant award includes installation of an Extron Classroom AV System and complete training.

## How to Apply

Applying for the Extron Classroom System Grant is easy. Our online application at [www.extronclassroom.com/grant](http://www.extronclassroom.com/grant) takes only minutes to complete. Simply provide your contact information and location, as well as details on your classroom environment. Once your information has been submitted, an Extron Grant Administrator will review the application and contact you to discuss your project.

## Training and Installation Included

Once the grant has been awarded, an authorized Extron integrator will contact you to review the details of the system and schedule installation and training. All equipment, installation, and training are provided free of charge, with no required commitment for future purchases.

## 24/7 Customer Support

Your grant classroom is backed by Extron's industry leading S3 support. We offer 24/7 telephone assistance and have a nationwide network of specialists to ensure the system is optimized for your application. In addition, you will have access to the Extron K-12 Web site, which offers additional resources including product information, manuals, white papers, How To videos, case studies, and more.

## Grants are available for the following systems:

**PoleVault Systems for ceiling mounted projectors and**

**WallVault Systems for wall mounted projectors/displays:**

PoleVault and WallVault Systems are designed by Extron for classrooms with either a ceiling mounted projector, wall mounted projector, or flat panel display. They are complete, centralized AV systems which include an AV switcher with integrated 50 watt amplifier, AV input wallplates, MediaLink controller, patented Flat Field speakers, mounting hardware and cables, as well as Free GlobalViewer for remote control and management over a network. Also included is the Extron VoiceLift Microphone which further enhances PoleVault and WallVault Systems by evenly distributing the teacher's voice throughout the room.

## VoiceLift Microphone:

VoiceLift Microphone Systems are infrared wireless microphone systems that evenly distribute the teacher's voice throughout the classroom. Standalone VoiceLift Microphone Systems provide a seamless upgrade path to PoleVault or WallVault with no duplication or replacement of equipment.

## Standardizing on Extron PoleVault, WallVault, or VoiceLift Systems

### Bay District Schools, FL

Over 1,200 Classrooms

### Poway USD, CA

Over 1,100 Classrooms

### Leander ISD, TX

Over 1,100 Classrooms

### Placentia-Yorba Linda USD, CA

Over 1,000 Classrooms

### Indian River CSD, FL

Over 850 Classrooms

### South Washington County Schools, MN

Over 680 Classrooms

### Muscogee County SD, GA

Over 500 Classrooms

### Eagle Pass ISD, TX

Over 450 Classrooms

### Monroe TSD, NJ

Over 150 Classrooms

## Extron Classroom AV System Grant Program

## Apply Today

[www.extronclassroom.com/grant](http://www.extronclassroom.com/grant)

or contact your Education Support Representative at 800.633.9876 for additional information

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