

CLASSROOM SYSTEM- EXTRON

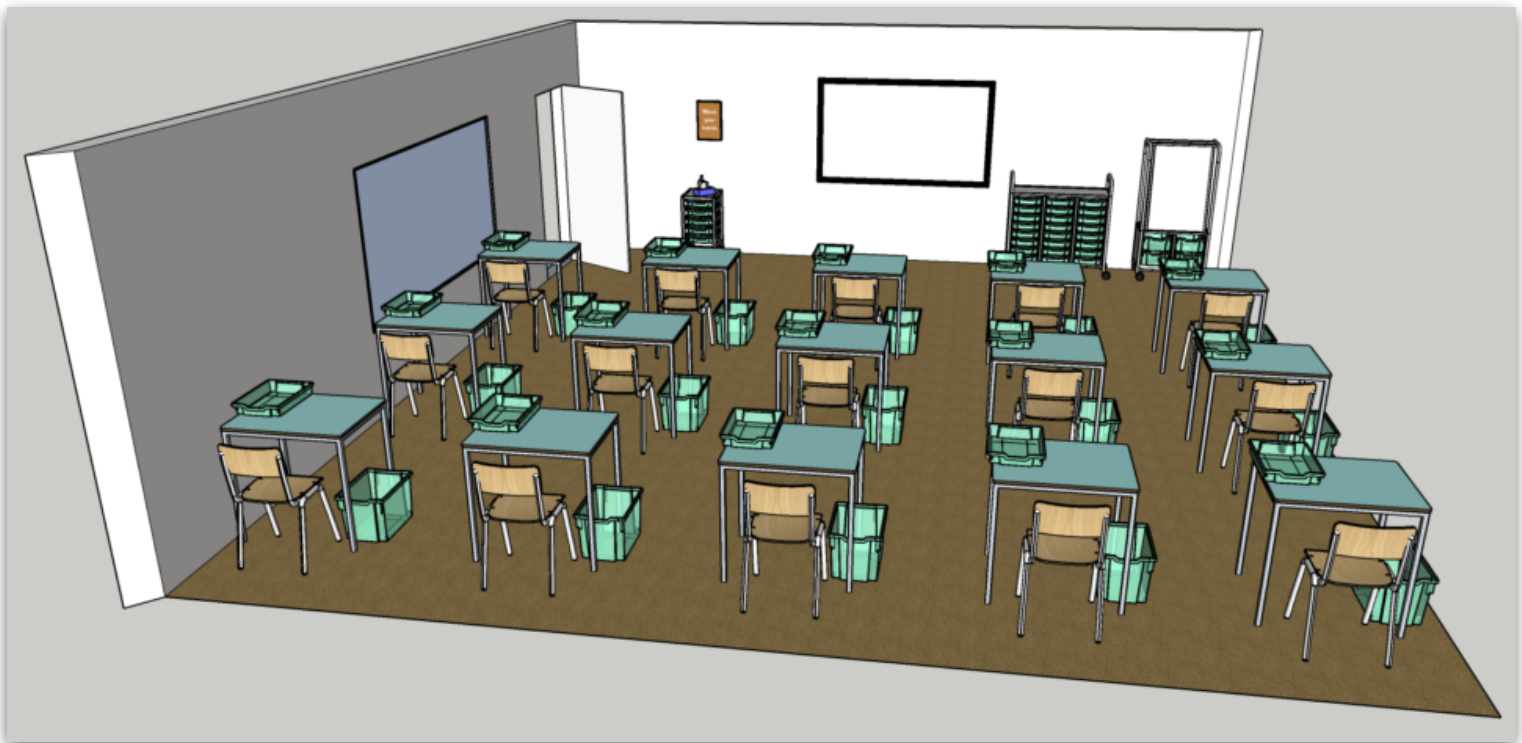
Project Proposal

Prepared for:

Prepared by: David Bradshaw, Ui Consulting

11 June 2021

Proposal number: 999-1000



EXECUTIVE SUMMARY

Objective

Provide an audio and video system for a small teaching classroom environment using only Extron components.

Goals

A suitably sized video image easily seen in typical lighting environments by the students. Provide an easy connection for the teacher's computer and audio source, using HDMI, VGA and analogue audio. Intuitive control for untrained operators to use. Evenly distributed audio across the classroom area, and voice reinforcement for the teacher, with wireless microphone and charging dock.

Solution

Components from the Extron PoleVault system have been chosen for ease of use and ability to easily replicate and scale the system for similar environments across the campus. Thus giving the operator familiarity no matter which location they are teaching in.

Project Outline

- Wall mounted video and audio inputs
- Wall mounted intuitive control panel
- Ceiling mounted video projector
- Ceiling mounted wide dispersion speakers
- Wireless pendant microphone

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BILL OF MATERIALS

S.No.	Description	Brand	Model	Qty	Unit Price (GBP)	Amount (GBP)
Video						
1	The latest IDEA Screen features upgraded durability, surface uniformity and rigidity to ensure a superior interactive experience.	Da Lite	25944	1	£1,362.00	£1362.00
2	Projector, 3600 Lumens,1920 x 1080 resolution	EPSON	EB-735	1	£0.00	£0.00
3	PoleVault Digital input, HDMI and VGA - Decorator-Style Wallplate	Extron	PVT HD RGB	1	£0.00	£0.00
4	PoleVault Digital Switcher	Extron	PVS 407D	1	£0.00	£0.00
Audio						
5	VoiceLift Receiver	Extron	VLR302	1	£0.00	£0.00
6	VoiceLift Charging Dock	Extron	VLC 302	1	£0.00	£0.00
7	VoiceLift Pendant Microphone	Extron	VLP302	1	£0.00	£0.00
8	Full-Range Flat Field Speakers with 1	Extron	FF 120T	4	£0.00	£0.00
Control						
9	MediaLink Plus Controller	Extron	MLC Plus 100	1	£0.00	£0.00
Other						
10	White Low Profile Pole Mount Kit for Multiple Products	Extron	PMK 350	1	£106.00	£106.00
11	White, 23" Projector Drop Ceiling Mount with Adjustable Pole	Extron	PCM 340	1	£212.00	£212.00
12	Universal Projector Mounting Bracket - White	Extron	UPB 125	1	£0.00	£0.00
					Total	£1680.00

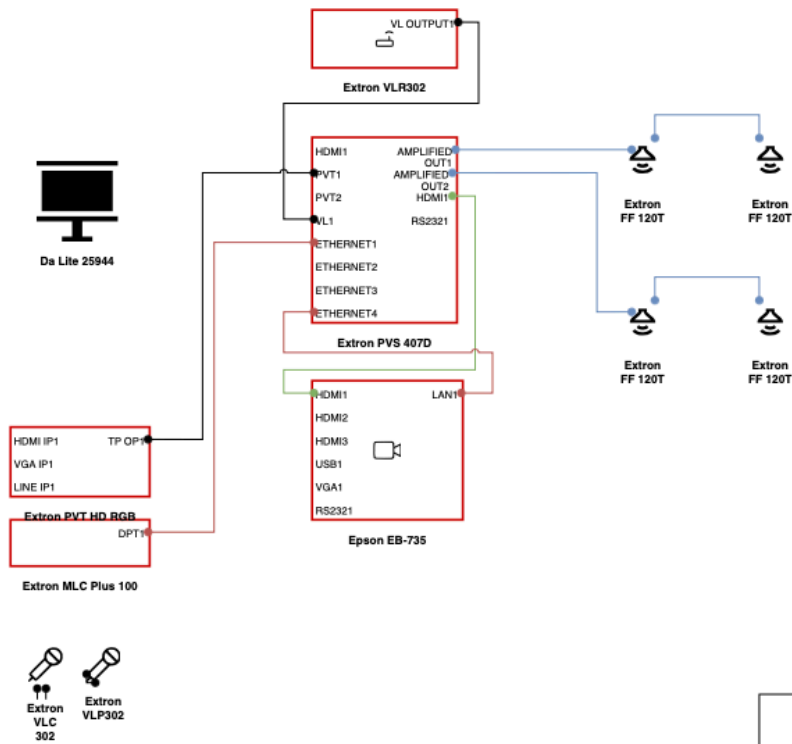
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CABLE SCHEDULE

S.No.	Cable ID	Source Device	Destination Device	Source Port	Destination Port	Cable Length	Cable Type	Signal Type
1		Extron VLR302	Extron PVS 407D	VL OUTPUT1	VL1		CATx	Audio
2		AMPLIFIED OUT1	Extron FF 120T	AMPLIFIED OUT1	Extron FF 120T		Speaker Cable	Audio
3		Extron PVT HD RGB	Extron PVS 407D	TP OP1	PVT1		CATx	Both
4		Extron MLC Plus 100	Extron PVS 407D	DPT1	ETHERNET1		CATx	Control
5		Extron FF 120T	Extron FF 120T	Extron FF 120T	Extron FF 120T		Speaker Cable	Audio
6		Extron FF 120T	Extron FF 120T	Extron FF 120T	Extron FF 120T		Speaker Cable	Audio
7		Extron PVS 407D	Extron FF 120T	AMPLIFIED OUT2	Extron FF 120T		Speaker Cable	Audio
8		Extron PVS 407D	Epson EB-735	HDMI1	HDMI1		HDMI	Video
9		Epson EB-735	Extron PVS 407D	LAN1	ETHERNET4		CATx	Control

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System Schematic



 ui consulting AV design and consulting services
Account
Project
Classroom v1
Notes
Legends
Design: Small Classroom
Drawn By: David
Checked By:
Created On: 2021-06-10
Revision:

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Ceiling Speaker Layout for FF 120T

S

SPEAKER QUANTITY

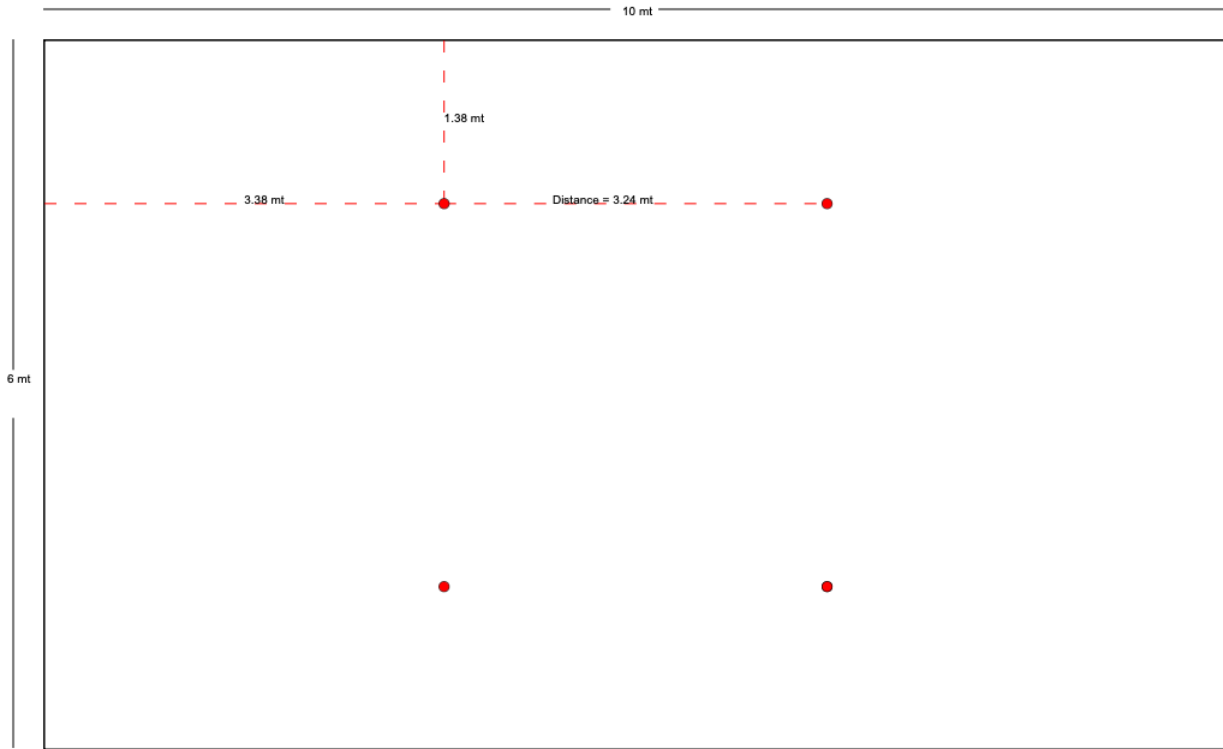
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COVERAGE ANGLE

170°

COVERAGE PATTERN

Not Applicable in case of user specified quantity



*The above mentioned quantity is based on calculations according to Avixa Guidelines

CLASSROOM SYSTEM- EXTRON

Basic setting

Room size

Width 6.000 m

Height 4.000 m

Depth 10.000 m

Position Desktop Ceiling Wall

Finger Touch ON OFF

Units Meter

Screen Size

Aspect ratio 16:10

Diagonal 90.05 inch

45 110

Screen position

From floor to bottom of screen 1.392 m

Offset 0.000 m

Throw distance

From screen to lens 0.567 m

0.275 0.772 0.947

Advanced setting

Projector angle

Indicate the screen position OFF

Vertical angle OFF 0°

Horizontal angle OFF 0°

Ambient Light Setting

View

Side View

Change the projector position

Available range

Project on outside of front wall

Front View

Change the projector position

Change the screen position

Lens shift range

Top View

Change the projector position

Available range

Project on outside of front wall

3D View

Change the projector position

Brightness & Contrast guide

Brightness on the screen (nit): 406.2

Brightness on the screen (lx): 1276.0

Actual Contrast: 10.6:1

Simulation result


Projector position

- Ceiling to bottom of projector: 1.019 m
- Top of screen to bottom of projector: 0.377 m
- Floor to upper of projector: 2.844 m
- Throw distance (Screen to lens): 0.567 m
- Ceiling to top of screen: 1.396 m
- Floor to bottom of screen: 1.392 m
- Screen size (Wide x Height): 1.940 x 1.212 m
- Screen size (Diagonal): 90.05 inch

Projector setting

- Lens shift (Vertical): N/A
- Lens shift (Horizontal): N/A
- Keystone correction (Vertical): Can be corrected
- Keystone correction (Horizontal): Can be corrected

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 AV design and consulting services



IDEA Screen

The Interactive Dry Erase Application or IDEA™ Screen features a projection-quality surface and can be used as a touch screen and as a magnetic whiteboard that can be written on with dry-erase markers. The erasable surface is hotspot-free under projection with ultra-short throw projectors (0.4:1 throw or less).

The thin bezel ensures minimum interference and maximum surface area for interactivity. A tray for storing markers, erasers and interactive tools make the IDEA Screen ideal for classrooms, conference spaces or other interactive applications.

The IDEA surface features a 2.5 gain and 50-degree viewing angle. Surface uniformity and rigidity ensure a superior interactive experience. The surface is GREENGUARD and GREENGUARD Gold certified to meet and exceed stringent standards for indoor air quality.



Features

- Thin bezel designed for the most demanding ultra-short throw projectors
- Hotspot free when paired with ultra-short throw projectors
- Projection-quality surface can be written on with dry-erase markers
- 24" tray for storing markers, erasers and interactive tools (full size tray available)
- Includes IDEA Marker Kit (dry erase markers, foam eraser, cleaning cloth and cleaning solution)
- Wall brackets for easy installation
- GREENGUARD* Certified GREENGUARD* Gold Certified
- Five-year warranty to keep you confident in your purchase

Optional Accessories

- Touch Interactive Bracket Kit
- IDEA Replacement Marker Kit

16:9 HDTV Format

Viewing Area (H x W)		Nominal Diagonal		Overall Frame Dimensions*	
in.	cm	in.	cm	in.	cm
46" x 81¾"	117 x 208	94"	239	46¾" x 82½"	119 x 210
50" x 89"	127 x 226	102"	259	50¾" x 89¾"	129 x 228
53" x 94¼"	135 x 239	108"	274	53¾" x 95"	137 x 241
59½" x 106"	151 x 269	121"	307	60¼" x 106¾"	153 x 271

16:9+ HDTV Format

Viewing Area (H x W)		Nominal Diagonal		Overall Frame Dimensions*	
in.	cm	in.	cm	in.	cm
51¼" x 87¼"	130 x 222	100"	254	52" x 88"	132 x 224

16:10 Wide Format

Viewing Area (H x W)		Nominal Diagonal		Overall Frame Dimensions*	
in.	cm	in.	cm	in.	cm
46" x 73½"	117 x 187	87"	221	46¾" x 74¼"	119 x 189
50" x 80"	127 x 203	94"	239	50¾" x 80¾"	129 x 205
53" x 84¾"	135 x 215	100"	254	53¾" x 85½"	137 x 217
59½" x 95¼"	151 x 242	112"	284	60¼" x 96"	153 x 244

*Add ¾" (2 cm.) to overall frame height for marker tray and right angle brackets.

EB-735F



Drive agile team collaboration with an affordable, up to 110" display, that will enhance productivity and connectivity in any environment

Whatever the size of workspace, unrestricted and immersive presentations are now possible with this compact, affordable display solution. Due to a large display size, and flexible formats, content can be viewed from every angle, and participants can share directly from their own devices, for the perfect collaborative experience.

With the EB-735F, users are no longer restricted to a single display size, with bright, large scalable options up to 120", with the ability to present at 110" in 16:6 wide format. Unlike flat-panel equivalents, there are no shadows, glare or blind spots, and the high-brightness laser light source can work when ambient lighting is also high. Multi-screen capability makes collaboration easy and intuitive, while a split-screen feature can show up to four inputs in one large display, preventing the need for additional displays..

The viewing experience is more immersive, with multiple connectivity options enhancing exceptional image and sound quality. For the ultimate in engagement; wireless connectivity (including Screen Mirroring via Miracast) allows everyone to share content from their tablets, mobiles or laptops. By connecting an optional Epson document camera you can easily display images of 3D objects with incredible detail that the whole room can see.

Unlike flat panel displays, the EB-735F provides multiple display sizes and formats for one fixed cost. It also offers flexible mounting options to deploy a more comfortable view for delegates.

Sustainability is another strength, based on sustainable manufacturing, product usage and lifecycle.

DATASHEET / BROCHURE



KEY FEATURES

- **Any room, any size**
Bright, large-format display options up to 120" (up to 110" 16:6)
- **For every-angle viewing**
No restricted angles, shadows, glare or blind spots
- **Multiple collaboration options**
Expand connectivity through BYOD devices, VC cameras and more
- **Document camera compatibility**
Create a totally immersive experience with top sound and live visuals
- **Exceptional reliability**
Maintenance-free laser technology for fit-and-forget peace of mind



EPSON
EXCEED YOUR VISION

Switcher/Amplifier

Note: The PVS 407D is available exclusively as a part of PoleVault Digital Classroom AV Systems. Not sold separately.



PVS 407D

PVS 407D

IP-Enabled Digital PoleVault Switcher with Integrated Audio Amplifier

The PVS 407D is the latest generation PoleVault twisted pair AV switcher and the central component of Extron Classroom Systems.

The switcher provides two local HDMI inputs and two PVT twisted pair inputs that support classroom AV sources at resolutions up to 4K. Local inputs are ideal for sources that do not need direct user access such as Extron ShareLink, Apple® TV, CATV tuners, and streaming decoders. The twisted pair inputs work with switching PVT wallplates to provide HDMI and VGA connections within the classroom. They can be installed near the teacher's desk or other locations to provide connectivity for a variety of instructor and student sources, such as a laptop, tablet, Blu-ray player, or document camera. Wallplates transmit high resolution digital audio and video signals to the switcher over a single CATx shielded twisted pair cable.

The PVS 407D features sophisticated audio capabilities. The integrated 50 watt stereo audio amplifier is capable of driving up to four Extron speakers and filling the room with full, rich sound. The VoiceLift® Receiver input simplifies VoiceLift Microphone installation. Switched and auxiliary line-level inputs support audio only sources such as music players or public address systems. A line level output allows system audio to be used for podcasting or assistive listening. Audio file playback allows the system to play pre-recorded audio announcements stored in switcher memory.

As an ENERGY STAR® qualified AV product, the PVS 407D includes Extron-exclusive power saving modes designed to lower energy usage and reduce operating costs.

The PVS 407D also provides Ethernet configuration and a network switch. This allows the switcher to be configured and controlled over the network, as well as data access for three additional devices over a single network drop.

Flat Field Speaker



FF 120

FF 120

Extron Exclusive Patented Flat Field® Speaker

The Extron FF 120 is a full-range sound field speaker designed for Extron Classroom AV Systems. It features an Extron exclusive, UL 2043 plenum rated, 1' x 2' (30.5 cm x 61 cm) by 3.25" (8.3 cm) deep enclosure that drops into standard suspended ceilings, resting directly on the T-bar support grid and replacing a portion of an existing ceiling tile. With a low profile enclosure, this speaker is an excellent choice for ceiling installations with tight above-the-ceiling space issues, such as air handling units installed close to the ceiling. The full-range driver features a wide frequency range of 68 Hz to 18 kHz, 16 watts continuous pink noise, and 32 watts continuous program capacity. The FF 120 achieves an unusually deep bass response with our exclusive horn-loaded driver.

Patented Flat Field® Technology

Extron's patented Flat Field Technology makes this speaker truly unique. Flat Field Technology allows the FF 120 to reduce beaming of mid and high frequencies directly under the speaker, delivering consistent sound levels across the listening area to each student.

Extremely Wide Sound Dispersion

The FF 120 offers an extraordinarily wide dispersion of 170 degrees, which provides a very wide room coverage pattern. This is especially important for rooms with low ceilings.

With the combination of Flat Field Technology and wide dispersion, only two FF 120 speakers are required in a standard classroom, as opposed to four or more traditional ceiling speakers.

This speaker is ideal for use with Extron Classroom AV Systems in low ceiling installations for maximum room coverage. This coverage optimizes voice intelligibility, which along with low bass response, is the most critical consideration for classroom microphone and program material applications. The FF 120 provides excellent voice clarity without compromising music reproduction.

For easy installation, the FF 120 drops into the space of a standard 1' x 2' ceiling tile, and includes a T-bar which can be used with a larger ceiling tile trimmed to fill out the space. It also provides theft deterrence with a neutral white, perforated steel grille that matches the appearance of standard air conditioning vents and grid ceilings.


UPB 125

Universal Projector Mounting Bracket

Key Features

- Universal projector mount compatible with most projectors up to 40 pounds (18.1 kg) in weight
- Independent adjustment 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
- Includes all necessary projector mounting hardware
- Available in white
- [See All Features >](#)



 Image Gallery


PCM 340

Projector Drop Ceiling Mount with Adjustable Pole

Key Features

- Projector drop ceiling mount with adjustable pole
- Designed 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
- Lightweight aluminum construction
- [See All Features >](#)



 Image Gallery


PMK 560

PoleVault Digital Pole Mount Kit

Key Features

- Available exclusively as part of a PoleVault® Digital Classroom AV System
- Securely mounts PoleVault equipment above the projector
- Three piece construction with a large base to accommodate PoleVault equipment
- Lightweight design
- Built-in cable management
- Unique design provides access to PoleVault equipment for setup and maintenance while mounted to the pole
- [See All Features >](#)



 Image Gallery

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PVT HD RGB NEW

PoleVault Digital Input, HDMI and VGA - Decorator-Style Wallplate

Key Features

- Available exclusively as part of a PoleVault® Digital Classroom AV System
- Transmits HDMI or VGA computer video and audio signals to a PVS 407D switcher over one CATx shielded twisted pair cable
- HDCP compliant
- User-selectable HDCP authorization
- EDID Minder® automatically manages EDID communication between connected devices
- Mounts in an included Decorator-Style wallplate
- [See All Features >](#)



 Image Gallery




MLC Plus 100

MediaLink Plus Controller

Key Features

- Manage, monitor, and control AV devices using a standard Ethernet network
- Fully configurable using Global Configurator Plus or Global Configurator Professional
- Two bidirectional RS-232 ports
- Two relays for controlling room functions
- One IR port for connecting up to two emitters
- One digital input
- [See All Features >](#)



 Image Gallery



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VoiceLift Pro Microphone NEW

High Performance Wireless Microphone

Key Features

- Advanced RF wireless technology provides superior sound quality, increased reliability, greater range, and reduced interference over traditional systems
- Advanced DSP suppresses feedback while maximizing sound quality and intelligibility
- Convenient RJ-45 connection on receiver simplifies integration with a PoleVault Switcher or PoleVault Controller Amplifier
- Pairing creates an exclusive relationship between the microphones and the receiver, preventing interference between classrooms
- Supports up to two microphones for each receiver
- Lightweight pendant microphone can be worn around the neck or clipped onto clothing
- [See All Features >](#)



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