



The Essential AV Ecosystem Guide for a Connected Classroom

A more competitive higher education landscape means institutions must be strategic in how they're reaching students. Universities and colleges increasingly have to ensure in-class student participation while having the flexibility to include and engage with remote students and speakers equitably. To achieve this, there is a greater emphasis on ease of use, interoperability, flexibility and a 360-degree approach to classroom and campus-wide AV.

Continuity Is Key

Higher education leaders are reimagining classroom design in the wake of the pandemic and increasing demands for flexibility. The need for new models in education delivery are prompting universities to adapt and think creatively. Universities and colleges are augmenting the in-person experience with hybrid modalities to guarantee the continuity of education and engagement. Wherever they are, students should feel like they belong in their learning community.

Ensuring an equitable experience for all students—remote, hybrid and in-person—is paramount. To support that goal, tech managers are investing in classroom AV that is easy to use, scalable and serves the mission of institutional *resilience*. From videoconferencing platforms to interactive whiteboards, microphones, projectors and Open Educational Resources (OER) textbooks, classroom technology can support effective teaching and learning in a fast-changing landscape.

In addition to supporting instructors and students, Ed Tech has also become a vital recruitment tool. As schools scramble to attract and retain students, cutting-edge tech, distance learning options, customizable systems and personalized learning pathways add points of distinction.

Image courtesy of Texas A&M

GLOBAL SPENDING ON ED TECH: "THE GLOBAL EDUCATION TECHNOLOGY MARKET WAS VALUED AT USD 123.40 BILLION IN 2022 AND IS EXPECTED TO EXPAND AT A COMPOUND ANNUAL GROWTH RATE (CAGR) OF 13.6% FROM 2023 TO 2030."

Source: [Grandview Research](#)



Ecosystem Approach

Technology itself is only one element of the plan. Hybrid and distance-learning setups require radical adaptability, so all students feel valued. New tools must integrate into a broader, adaptable classroom ecosystem, and AV/IT must be seamless. It must be agile enough to enhance various pedagogies, accommodations and modalities.

Emphasis on Flexibility

A survey conducted by The New York Times in 2023 revealed a surprising consensus. When college technology leaders were asked the question, "How will college students experience their classes in 2025—in person, online or with a hybrid combination?," only 6% answered, "fully online." **The vast majority of Ed Tech officers forecasted that they will conduct classes flexibly, with a mixture of primarily onsite courses and hybrid/online classes.** This massive shift toward an elastic approach to education is driving the push for a cohesive, 360-degree AV ecosystem.





For Texas A&M University's new Innovative Learning Classroom Building (ILCB), the university aimed to bring forth a complete, networked-AV ecosystem to help nurture a heightened user experience no matter where students and faculty are tuning in—from in the classroom, overflow spaces or in a remote location off campus.

Petro Shimonishi agrees. She is the PIVS Director, Product Management & Planning, Panasonic Connect of North America. In her role, she sees how network-based AV is user-centric, flexible and future-proof. Shimonishi is confident that the industry's "digital transformation" since the analog sunset in 2012 means higher education departments are now better equipped to support the "close tie-in between IT and AV management on a campus."

Immediate Advantages

The benefits of connected classroom AV are significant. "Once you have devices all on the same network talking to each other, then you can do really interesting and powerful things," she added.

This is the guiding vision for Panasonic's Connected Classroom initiative. "With devices communicating with each other over a network, they will be easier to install, easier to program and easier to manage. They will work better together versus separately. We are doing this today with the integration between our wireless

microphone systems, our lecture capture server and our auto-tracking software with PTZ cameras," Shimonishi added.

Thinking Ahead

A connected ecosystem will help Ed Tech leaders take a big-picture approach and build learning spaces that are as dynamic as they are reliable. This method is the only surefire way to guarantee a consistently excellent education experience when the future is impossible to predict.

"We believe many universities would prefer to have students back in the classroom, but being able to offer remote learning with lecture-capture and smart-tagged recordings as learning enhancements is important," Shimonishi noted. "We don't see any drawdown in the number of students that are looking to attend a university or college until 2035. This is still a very growth-attractive market, and an essential market for the future of society. We want to make sure students are well educated and can learn effectively, especially in this changing world."

In this guide, we will explore strategies and solutions for building a seamless educational AV ecosystem and how connected classrooms are shaping the future of learning.



Images courtesy of Stephen M. Ross School of Business

An integral element of the Ross School of Business is its embrace of interoperable AV, devices and solutions that work flawlessly and play well together.

Classroom AV Ecosystem in Action

Use Case: The Stephen M. Ross School of Business, University of Michigan

Active learning within a connected ecosystem fuels the success of the Stephen M. Ross School of Business at the University of Michigan. To prepare graduates for an ever-evolving world, "Michigan Ross" raises the bar in business education. Take one glance at their stellar team and facilities, and it's easy to see why approximately 4,200 students earn an MBA at the school each year.

An integral element of the Ross School of Business is its embrace of interoperable AV, devices and solutions that work flawlessly and play well together. Even before the pandemic, Christopher Visel, Senior Technical Engineer at the Ross School of Business, was looking to upgrade the wireless microphones in the classrooms. Concerns about cross talk and interference informed the team's decision-making process. Also, the new mic system "had to be easy for faculty to use and for our IT department to support," said Visel. "After testing

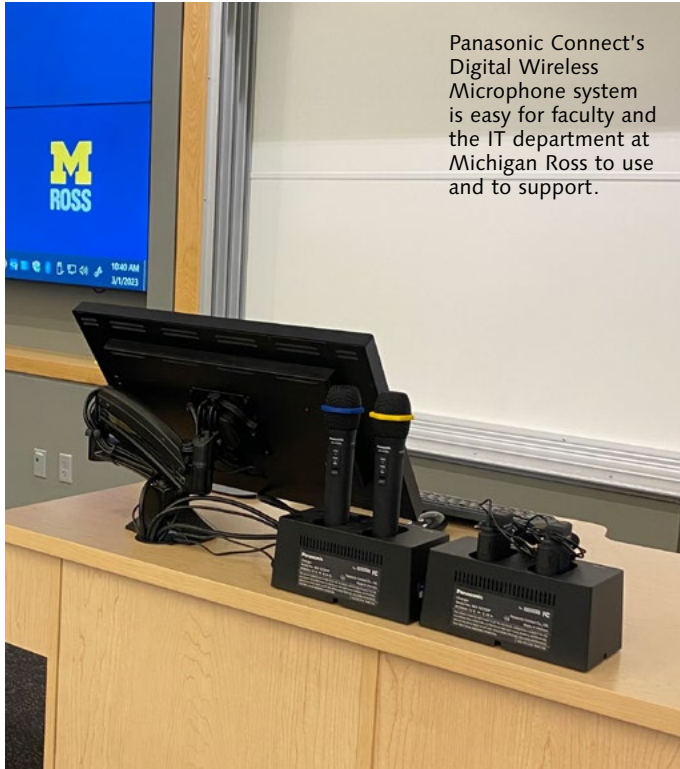
Panasonic Connect's Digital Wireless Microphone system at our facility for several months, it was clear the Panasonic Connect system was the right choice."

Natural Dialogue in Hybrid Setups

The Michigan Ross tech team wants to foster natural dialogue between students and instructors in hybrid classes consisting of both remote and in-room learners. To accomplish this, Visel mounted three ceiling microphones, later adding a fourth to capture speech near the professor's desk, along with another over the desk. The mics were run through a Biamp Tesira digital signal processor (DSP), with a line out to the Panasonic Digital Wireless Microphone System. This put priority on the Panasonic lavalier microphone, so the professor could always be heard, wherever they are in the room.

Intuitive and Adaptable

Michigan Ross boasts a "Zoom gallery" comprising 80-inch displays. Lecture desks are motorized for adjustable height and have touch panels that double as room control and confidence monitors. These rooms have occupancy sensors that automatically wake up the touch panels and turn on the lights when the professor



walks into the room. Professors can control the volume levels on the Panasonic Connect digital wireless microphones from the touch panel and can see the audio level as well as the battery-level status. For ease of use, instructors can choose to bring their own laptop for presentations or insert a USB thumb drive into the computer locked in the desk.

Standardization

To optimize its AV technology, the Ross School of Business chose to standardize all 33 classrooms along key priorities: reliability, functionality, interoperability, longevity, future friendliness, life-cycle planning and support. "Those are the elements we looked at when we were asking: how do we go forward?" said Cheryl Sobkow, Director of Technology Operations, Ross School of Business, University of Michigan.

After exploring its options, the team chose Panasonic Connect technology. Standardizing with Panasonic Connect significantly helps with the install process, and "it increases familiarity," Sobkow said.

Beyond life-cycle support, "we've realized the benefits of standardization immediately. We can more effectively concentrate the training of our techs," she said. Another benefit: "Our instructors can use the technology in a very straightforward and totally uncomplicated way."

Collaborative Pods

Michigan Ross is also witnessing the ascent of "the pod concept" trend. Think huddle space with a post-pandemic twist.

GLOBAL VIRTUAL CLASSROOM INFRASTRUCTURE MARKET WILL REACH \$58.9 BILLION BY 2027

Source: Education Technology Market by Infrastructure, Systems, Devices, and Solutions 2022-2027. [Research and Markets](#) (July 2022)



Cheryl Sobkow explained how it works: "We have instructors who like to create classroom pods and groups where students can sit at a table, have a screen, send items to the screen and work collaboratively. Interest in these types of configurations has increased since the pandemic."

As the academic year progresses, "the interest in pods has grown even more," Sobkow said.

The key to this type of organic, modular group work is a strong network, and the Panasonic Connect ecosystem gives students and instructors more flexibility and access.

Lecture Capture and Interoperability

"We have a lecture-capture system," said Michigan Ross's Cheryl Sobkow, "and we have also standardized with Zoom. We had to take all that into consideration as we updated. Everything needs to work together. Our mics were updated, cameras changed, and we updated the touch-panel interface to make the integration of all our AV technology much more simplistic."

Key Benefits of Panasonic Connect's Lecture Capture Solution:

- **Optimized hybrid environments** ensuring information delivery in an attention-grabbing way
- **Engaging experiences** for immersive interaction with presentation content and visuals
- **Advanced, uncomplicated technology** with automatic and accurate motion detection and facial recognition
- **Flexible, easy-to-install and simple-to-manage** options available for various environments

Classroom Equity —Audio for All

There is no technology that can enable and ensure classroom equity quite like proper audio. Just ask the AV and Ed Tech experts at California State University East Bay.

On-premises and virtually, audio quality matters. "The priority now is to ensure audio is always at its peak performance," said Randy Bo, Audio Video Engineer at Cal State East Bay. "Making sure people over Zoom can be heard clearly, and in the Zoom recording itself, is critical."

Jacob Cambra, Lead of Educational Technology at Cal State East Bay, maintains 150 classrooms across three campuses: Hayward, Concord and Oakland.

"We have about 150 classrooms," he said, "with different layers: level one, two and three. Most of our rooms are standard, meaning one display, one source at a time. We have hybrid classroom capabilities and distance learning environments. Since COVID, we have been adding cameras and microphones for Zoom capabilities and video conferencing in general. We are about 90 percent done with that upgrade."

The university's more specialized, elaborate rooms have two, three and even up to seven displays within them. "In the advanced rooms, I can source my document camera on the left, my PC on the right, the laptop in the middle," said Jacob Cambra.

Across all 150 rooms, audio quality and standardization have been crucially important.

"I don't like having to carry more than one product. I want everything to be standardized," Cambra added. "If you teach in one room, then you go to another room, you will see the same exact product in each room. This helps the faculty feel more comfortable."

Panasonic Connect was the clear choice for standardization at California State University East Bay, due to the merger of user-friendliness and phenomenal quality.

Frederick Price, Audio Video Engineer at California State University East Bay, appreciates the benefits of Panasonic Connect audio. "One of the things I noticed right off the bat was the connectivity," Prince said. "It was a lot easier to set up. With other vendors, we had



Panasonic Connect was the clear choice for standardization at California State University East Bay

to make sure we weren't crossing frequencies or pairing to another room that happened to be nearby. Panasonic Connect's professional audio was really good at isolating. It was extremely easy, from an engineering standpoint, to set the gain and sensitivity levels. The volume was a lot better too."

Price was impressed with the audio quality and simple set up. "We used to have to do a lot more in our DSP, and a lot more fine-tuning. With the Panasonic Connect equipment, when we connected them and tested them, we had almost no issues at all. The quality is really on par with the best of the best."

Students Need Good Classroom Audio

"What serves us the best in our current capacity is having crystal-clear audio for recordings and lecture capture. For students who want to go back during a lecture and replay a section, having that audio quality is so important." —Jacob Cambra, Lead of Educational Technology, California State University, East Bay Hayward





LEARNING MANAGEMENT SYSTEM (LMS) MARKET ESTIMATED TO GARNER USD 42.31 BILLION BY 2027, AT A CAGR OF 21.20% - REPORT BY MARKET RESEARCH FUTURE (MRFR)

Source: [Market Research Future](#)



Use Case: California State University East Bay Hayward

Frederick Price, Audio Video Engineer at California State University East Bay, notices a new trend, and he wants to optimize it.

"We are seeing more events on campus where onsite facilitators or professors want to tie in remote participants," Price said.

For instance, at a recent alumni association event: "We set up a monitor, we set up a camera, and we were able to host the conference both live and online."

This is a trend Price thinks will continue, especially for smaller or specialized graduate ceremonies, such as nurse pinning, alumni meet-ups and ribbon ceremonies. "If you want to make sure families can join in the celebration via Zoom and really participate, this is a great option. I see it continuing to grow a lot and enable much more remote participation," Price said.



California State University East Bay team: Jacob Cambra, Lead of Educational Technology; Frederick Price, Audio Video Engineer; Randy Bo, Audio Video Engineer

But there's a catch. "For this, the audio and video quality have to be absolutely pristine and work great, because it is something that will be noticeable immediately. We try to make sure that it's as foolproof as possible."



Next-Gen Classroom Technologies

Panasonic Connect's laser projectors are outfitted with features to enhance many venues, creating large, vivid images.

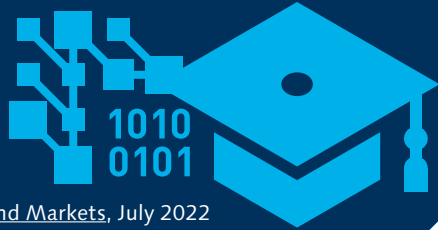
As student and faculty needs change, scalability is the name of the game. Next-generation classroom technologies need to perform now while promising streamlined updates and maintenance in the future. It's a "growth mindset" applied to AV.

That's why Panasonic Connect offers a layered, "good, better, best" ecosystem of auto-tracking. "This way, we can meet the needs of every venue and any size," Panasonic Connect's Shimonishi stated.

The entry level meets the needs of smaller meeting spaces and huddle rooms. "Our PressIT 360 camera speakerphone can be placed easily in the middle of a table. It doesn't require any special software," she said. "You just connect your laptop and start your Zoom meeting. It has seven microphones and four integrated cameras. You're providing remote users a rich, 360-degree view of the room, via Zoom or Microsoft Teams. That's a good solution for any smaller type of room. Its slim design also makes it easy to move around to different huddle spaces and



OVER 70% OF ALL FORMAL EDUCATION PROGRAMS WILL RELY UPON ED-TECH SOLUTIONS BY 2027



Source: [Research and Markets](#), July 2022



Petro Shimonishi, PIVS Director, Product Management & Planning, Panasonic Connect of North America

collaboration areas and it can be easily connected to a PC using a single USB-C cable easy setup."

Climbing the ladder to the "better level" are voice-triggered presets. "When you use a Panasonic Connect microphone and our AW-SF300 software (a plug-in to Panasonic Connect's PTZ control center software), you can map microphone channels to Panasonic Connect PTZ camera presets. And with our PTZ cameras, there can be up to a hundred presets."

A popular education use case for this scenario: an auditorium hosting large lectures and community events. "In a school board meeting, remote users need context so they can understand, hear and see what's going on," Shimonishi said. "You want to be able to see the expression on someone's face as they're talking."

This underscores an important point: "So much of communication is much more than audio. It's context," she said. "You lose that context unless you're able to zoom in and see mannerisms, how people are gesturing, the expression on their face, that helps get the overall message across."

Finally, at the top layer: "The best level of the ecosystem is full-on auto tracking, where you're using Panasonic Connect's auto-tracking software," Shimonishi said. "That software follows the whole



Panasonic Connect: Ideal for Hybrid Learning

With PTZ cameras, high-brightness projectors and interactive displays from Panasonic Connect, you can capture and project a superior, high-resolution image. Add in microphones and you can provide dynamic and complete room coverage. "Regardless of whether you have a hundred percent of students seated in the room, or you've got a mixture of 75 percent seated in the classroom and 25 percent of the students taking class live, remotely, we ensure that everybody can hear and see the instructor equally," Shimonishi said.

presenter by method of both facial and torso detection. Wherever they move, that PTZ camera is focused directly on him or her, even when somebody else might walk in between where the presenter is seated or standing and the PTZ camera."

To deploy a PTZ camera that's always focused on a professor with the fine level of accuracy that Panasonic Connect provides, some processing power is required. "This is why we sell two levels of server performance," she noted. "We have two auto-tracking servers, the ATS-200 and ATS-400. We also have our LCS-100 lecture capture server, which is certified by Panopto and can also run Panasonic Connect's auto-tracking software to provide the ultimate in auto-tracking."

Safety First: AV Ecosystem Boosts School Security

With Panasonic Connect PTZ cameras tied into a network, and the network infrastructure managed by IT, "it is possible to route the PTZ feed to local police, local administrators and fire departments," Shimonishi said. If there is an incident, authorities can gain quicker insights.

The Power of Partnerships

Ross School of Business' Sobkow knows the value of partnerships with faculty. "We worked with faculty early in the process of classroom updates. There was a faculty committee with us. We talked about these things. We had them test products, and we listened to them. We designed our hybrid solution in that committee context. I think the dialogue and the partnership with our faculty was one of the greatest benefits, because everybody was involved in generating the experience. Everyone understood what it took to create that experience, and we had a great outcome. We are helping professors reach their goals."

Just as the technology team partnered with faculty, Michigan Ross sought a similar level of close collaboration with an AV vendor. Sobkow wanted to forge a relationship that would thrive and endure.

"Partnering with the Panasonic Connect team is invaluable," Sobkow said. "When looking at vendor products and considering them, it's all about the partnership and the relationship. We want to know what they offer now, as well as where they want to go in the future, providing us with opportunities to consider. If we have a particular issue or a unique experience we're trying to create, we need to know if they can help us, and Panasonic Connect always delivers."

Randy Bo at Cal State East Bay concurs. "Having quality products, like Panasonic Connect's professional audio, give us confidence."



Professional Services

Panasonic Connect strives to provide services to meet customer needs, whatever they may be. We go beyond equipment and provide support throughout the entire campus. Our extended support offers a dedicated team of technical experts, state-of-the-art repair facilities and high-quality standards for a worry-free ownership experience.

Top of the Class Program



Striving to provide custom professional services to meet education needs, Panasonic Connect is focused on creating value-added services for our customers. Our Top of the Class Program provides competitive and exclusive

pricing, special promotions and offers, exceptional service, warranty and repair programs and personalized, customized attention for every education need.



Cheryl Sobkow, Director of Technology Operations, Ross School of Business, University of Michigan.

THE GLOBAL MARKET FOR INTERACTIVE LEARNING SOLUTIONS WILL REACH \$37.3 BILLION BY 2027



Source: [Research and Markets](#), July 2022

Products

Image courtesy of Texas A&M



Projectors

To maximize learning and productivity, clear, bright visuals with minimal noise are essential. Panasonic Connect's projectors are an excellent choice for learning environments, with a projector portfolio perfect for large lecture halls and auditoriums, all the way to portable projectors for smaller classrooms and huddle rooms, offering whisper-quiet operation without sacrificing image quality.

The PT-CMZ50 Ultra-Short Throw LCD Laser Projector delivers exceptionally bright visuals without shadowing. Tailored for educational environments, the PT-CMZ50



projector delivers an expansive 80-inch image from approximately 1cm (1/3 in.), allowing presenters to share information without worrying about on-screen shadows or being blinded by light from the lens. With a shift to bright LED lighting, the PT-CMZ50 projector's laser light source delivers 5,200lm with 3,000,000:1 Dynamic Contrast, while WUXGA (1920x1200) resolution makes the fine text easy to read. And with widescreen content becoming popular, the PT-CMZ50 supports 2560 x 1080 (21:9) and 3240 x 1080 (27:9) input signals, as well as 4K input signals, making it ideal for classrooms or lecture halls using solutions such as Zoom and Microsoft Teams.

Images appear approximately within a second after the projector is powered on, which is accomplished with a CEC command-compatible HDMI signal. An HDMI output is included for connection to a second projector,

if desired. For simple wireless projection, it works with Panasonic Connect's PressIT Wireless Presentation System or the AJ-WM50 Series Wireless Module.

The PT-CMZ50 projector installs easily from the ceiling or using optional wall mounts, including the new ET-WBC100, a lightweight wall-mount system. Ensuring simple and easy adjustment, image improvements are performed via remote control using Digital Zoom Extender and Image Shift function, while the powered focus feature easily allows for center screen and periphery fine tuning after installation. The PT-CMZ50 projector's compact body and whisper-quiet 26 dB operation blend into many education venues, limiting distractions.

For sustainability and reliability, the PT-CMZ50 projector's new high-efficiency optical engine improves watts-per-lumen efficiency by about 25% over comparable lamp-based short-throw models, while the light source and filter do not require maintenance for 20,000 hours, reducing cost, waste and labor. The PT-CMZ50 projector is available in either black or white cabinets for customized installations.

The PT-FRQ60U 1-Chip DLP® SOLID SHINE 4K Laser Projector is a 6,000-lumen 1-Chip DLP® 4K laser projector that meets the need for ultra-fine resolution. Due to the rising demand for higher onscreen resolution, Panasonic Connect has added Quad Pixel Drive to its proven 1-Chip DLP laser projection technology to produce a sharp, crisp detailed 4K image. The PT-FRQ60 projector's ability to reproduce crisp 4K images is ideal for education venues, while also supporting high-speed frame rates with minimal latency, creating an impressive sense of realism with the finest details and textures resulting in smooth, grid-less images. The projector is compact, lightweight and feature a 2.0x optical zoom to increase throw-distance range for easy, flexible 360-degree installation.

The PT-FRQ60U includes two HDMI inputs supporting CEC commands from compatible devices; and an easy-to-integrate DIGITAL LINK connection



for 4K video and control-signal transmission over long distances. Pre-activated Geometry Manager Pro upgrade kits enable automatic, simultaneous multi-screen calibration that streamlines edge-blending and projection-mapping installations, while the Remote Preview Lite function allows content to be checked remotely via a PC. Multi Monitoring & Control Software streamlines maintenance and optional Early Warning functions prevent unexpected downtime.

The PT-FRQ60 is available in a black or white cabinet for a customized look. The PT-FRQ50 1-Chip 4K SOLID SHINE laser projector offers the same great features as the PT-FRQ60, but at 5,200lm of brightness.



PT-VMZ71 Series Portable LCD Laser Projector meets the emerging need for more and smaller huddle rooms and collaboration spaces. The PT-VMZ71 Series, with four WUXGA and two WXGA resolution models ranging from 5,200-7,000 lm and high 3,000,000:1 contrast, is ideal for well-lit classrooms and hybrid learning environments, as well as new workspaces and meetings rooms needing interactive, easy collaboration. This means it not only delivers striking visuals in meeting and classroom spaces to create visually attractive presentations, but the compact body size is easy to install and fits anywhere. The PT-VMZ71 Series replaces the current PT-VMZ60 Series with improved brightness and functionality while retaining the same lightweight and compact body, weighing just 15.87 lbs.

Designed for smooth and effective communication, the PT-VMZ71 Series supports 4K input signals, has a flexible 1.6x optical zoom and HDMI terminals compatible with CEC command signals for easy use with a single remote controller for all compatible AV equipment. A wide range of collaboration options include optional wireless projection and powered USB to easily share a variety of media to the big screen. To reduce running costs and enhance reliability, the PT-VMZ71 Series features Panasonic Connect's laser light-source and Eco Filter that does not require replacement for 20,000 hours.



Professional Displays

TH-SQE2 Series 4K Professional Displays:

Designed for many locations and applications in education environments, the TH-SQE2 Series 4K professional displays are designed for 24/7 continuous operation. The displays provide brightness of 500cd/m² for crystal-clear viewing clarity, with an anti-glare surface panel and minimum haze treatment of 25% (increasing to 28% on the TH-86SQE2W 86-inch display). This reduces the reflection of ambient light and vastly improves visibility in brightly lit classrooms, training rooms and meeting rooms. For ultimate flexibility and a clean look without set-top boxes or cables, the TH-SQE2 displays are also equipped with a slot for the Intel® SDM specification supporting applications, such as digital signage and broadcasts, using a built-in PC, terminal board or wireless presentation system.

Thanks to its durable panel, the TH-SQE2 Series has the flexibility to be easily installed portrait or at a tilted angle. The displays also have Android OS installed and are compatible with HTML5 Browser for ease of use with digital signage applications. Bluetooth functionality is provided to connect devices such as a mouse and keyboard, making it easy to operate browsers and Android applications. The TH-SQE2 Series is also equipped with Wi-Fi functionality to wirelessly display images from a PC or Android device. For easy connectivity without converters or switchers, the TH-SQE2 Series is equipped with numerous

connection options: four HDMI ports, a USB type-C and three USB-A ports. In addition, the TH-SQE2 Series has Digital Out and DisplayPort. Simultaneous control and batch management over a network is possible via Serial or LAN. This display series offers seven (7) model sizes from 98-inches to 43-inches.

TH-CQE2 Series Professional Displays:

Sharing announcements and updates in real time is critical in many environments, especially for education institutions. Reliable displays that can share content continuously are needed to ensure the entire campus receives accurate and timely messages. Available in seven models, from 98-inch to 43-inch sizes, these displays offer 4K picture quality for highly visible images and clear, legible writing. The TH-CQE2 Series displays are designed for 16-hours/day continuous operation (98": 24/7) and provide brightness of 500cd/m² (86"/75": 400cd/m²) with an anti-glare panel and minimum haze treatment, reducing the reflection of ambient light and vastly improving visibility. For ultimate flexibility and a clean look without set-top boxes or cables, the TH-CQE2 displays are equipped with a built-in TV tuner for access to broadcast, cable and subscription TV services, making them an ideal solution for education applications. The CQE2 Series displays offer numerous connection points for multi-device ecosystems with four HDMI connections for CEC-compatible devices, as well as a standard USB-C terminal for mobile connectivity. Built to VESA standards, suspension from ceiling or wall mounting is simple using a standard mounting bracket. Additionally, the TH-CQE2 can be installed portrait orientation or at a tilted angle.

Collaboration

PressIT360 Camera Speakerphone (TY-CSP1):

As hybrid learning continues to grow, audio and visual technology must work together to ensure that no matter where a user is, they can clearly see, hear and engage during a lesson or meeting. PressIT360 is the all-in-one web conference system with a high-performance 360-degree camera, microphone and speakers. Combining four integrated 360-degree cameras with a microphone and speaker, the solution enables users of any technological background to engage with those in the room and those joining remotely. While offices and classrooms can have challenging architectures and layouts, voice is recognized in a radius greater than 16 feet, meaning a presenter can move around the room while speaking. Its slim design also makes it easy to move around a classroom or conference space. PressIT360 captures the session with five different views that can be transmitted back to a PC using a single USB cable for quick plug-and-play setup.



Lecture Capture Solution

Information sharing and collaboration are the cornerstones of productive learning environments. As education institutions accelerate digital transformation initiatives across hybrid settings, they need agile and flexible technology solutions. A lecture capture solution provides an all-in-one system enabling professors to deliver engaging content that enhances productivity and lesson planning.

Panasonic Connect brings together lecture capture technology for a complete solution for higher education institutions. The solution takes advantage of the facial auto-tracking ability of Panasonic Connect's award winning Pan-Tilt-Zoom (PTZ) cameras by combining auto-tracking server bundles, lecture capture content and video management systems. As more colleges and universities embrace hybrid environments, this solution enables heightened collaboration from all participants through an engaging visual experience, offering more



Pepperdine University installed EduFLEX, a hybrid classroom technology solution inclusive of Panasonic Connect's AW-HE38H HD PTZ camera for remote virtual learning and HyFlex distance classrooms.

Courtesy Pepperdine University

pathways to listen, learn and comprehend. And when used alongside additional AV technology, like Panasonic Connect's digital wireless microphone system, the lecture capture solution eliminates many challenges of hybrid work and learning.

Panasonic Connect offers three flexible, easy-to-install and simple-to-manage packages for learning environments. This includes:

- A two- or four-channel Auto Tracking-capable server
- A full, hybrid Lecture Capture-capable server, which uses the capabilities of auto tracking and file management all within one solution

By equipping educators with digital tools to integrate lectures and supporting materials, they can effectively reach their audiences without any strain on the presenter using the system. Centered around accessibility and character recognition, the lecture hall or meeting space remains front and center to the presenter and its audiences.

Professional Video: Pan/Tilt/Zoom Cameras

Panasonic Connect's top-selling 4K and HD pan/tilt/zoom (PTZ) cameras offer exceptional image quality, versatility, reliability and innovation. From the classroom to lecture halls, from live event broadcasts to video streaming, our best-in-class PTZ cameras offer all the capabilities for these assignments and more.





Professional Audio Technology

Panasonic Connect audio solutions can scale to any size or layout of classroom space, huddle rooms, lecture halls or large auditorium to ensure sound is clear for effective communication in-person or remote is critical. Panasonic Connect's wireless microphone, receiver and software integration additions to its 1.9 GHz digital wireless microphone system provide durable technology that delivers superior dialog clarity and a variety of connectivity options for added flexibility.

Panasonic Connect's digital wireless microphone system uses DECT to transmit audio over a 1.9 GHz spectrum—enabling a solid, secure connection that is likely to protect against future mandated frequency spectrum changes. Optimized for presentation, the system delivers excellent sound quality in small to large learning environments with an internal low-cut filter switch to enhance speech.

Wireless microphones, bodepacks and receivers are easy to set up, making the system a best-in-class solution for classroom and remote presentations for many education scenarios.





What are Panasonic Connect's audio solutions for crystal clear intelligibility?

WX-ST700 DECT Wireless Boundary Microphone:

This addition to the portfolio expands the range of applications to meeting spaces such as boardrooms, conference rooms or even smaller huddle spaces. There are two modes of operation selectable on the device: Always ON or Push-to-Talk, a four-level LED indicator for volume and a 3.5-millimeter audio input for transmission of external sound sources over Panasonic Connect's wireless microphone system. The WX-ST600 DECT Wireless Desktop transmitter and WM-KG645 Gooseneck Microphone let speaker locations fluctuate based on the type of meeting, with the flexibility to place a microphone and base anywhere in the room.

WX-ST600 DECT Wireless Desktop transmitter and WM-KG645 Gooseneck Microphone:

As speaker locations can fluctuate based on the type of meeting, flexibility to place a microphone and base anywhere in the room is important. The WX-ST600 wireless transmitter has a XLR3M connection for designed for the WM-KG645 18-inch gooseneck microphone. The base also has two modes of operation: Always ON or Push-to-Talk (selectable on the device). The 18-inch gooseneck microphone securely inserts into the WX-ST600 thanks to the XLR3M Cannon connection and is optimized for speech with a cardioid condenser microphone eliminating background noise.

The Conference Mode feature for compatible Panasonic Connect wireless microphone receivers provides flexibility for the type(s) of wireless microphones used. In conference mode, up to six wireless microphones can be paired with one channel on a compatible wireless mic receiver but only one microphone per channel can be used at a time (WX-SR202DN, WX-SR204, WX-SR204DN, WX-SE200, WX-SE200DN; a firmware upgrade is required for both the compatible wireless mic receiver and WX-SA250 antenna). Conference mode provides users with the flexibility to choose the microphone they wish to use without having to pair/re-pair the microphone with the receiver and be more efficient with channel count. End users can easily set conference mode using the Operation Support Software, available free of charge from [Panasonic Connect's Website](#).





WX-AM800 Ceiling Array Microphone & WX-AU202 Antenna/Receiver:

Auditoriums, lecture halls and large classrooms need crisp, clear audio technology to ensure all participants, whether they are in-person or tuning in remotely, can actively participate in the conversation. Designed to cover a 30' x 30' area with four adjustable zones, the WX-AM800 Ceiling Array microphone automatically adjusts its sensitivity based on the location of the speaker and features built-in integration with a Panasonic PTZ camera for voice tracking without a control system. With the new **WX-AU202 Antenna/Receiver**, users can add up to two Panasonic DECT Wireless microphones without having to use rack space. This new Ceiling Array Microphone & WX-AU202 Antenna/Receiver will be available April 2024.

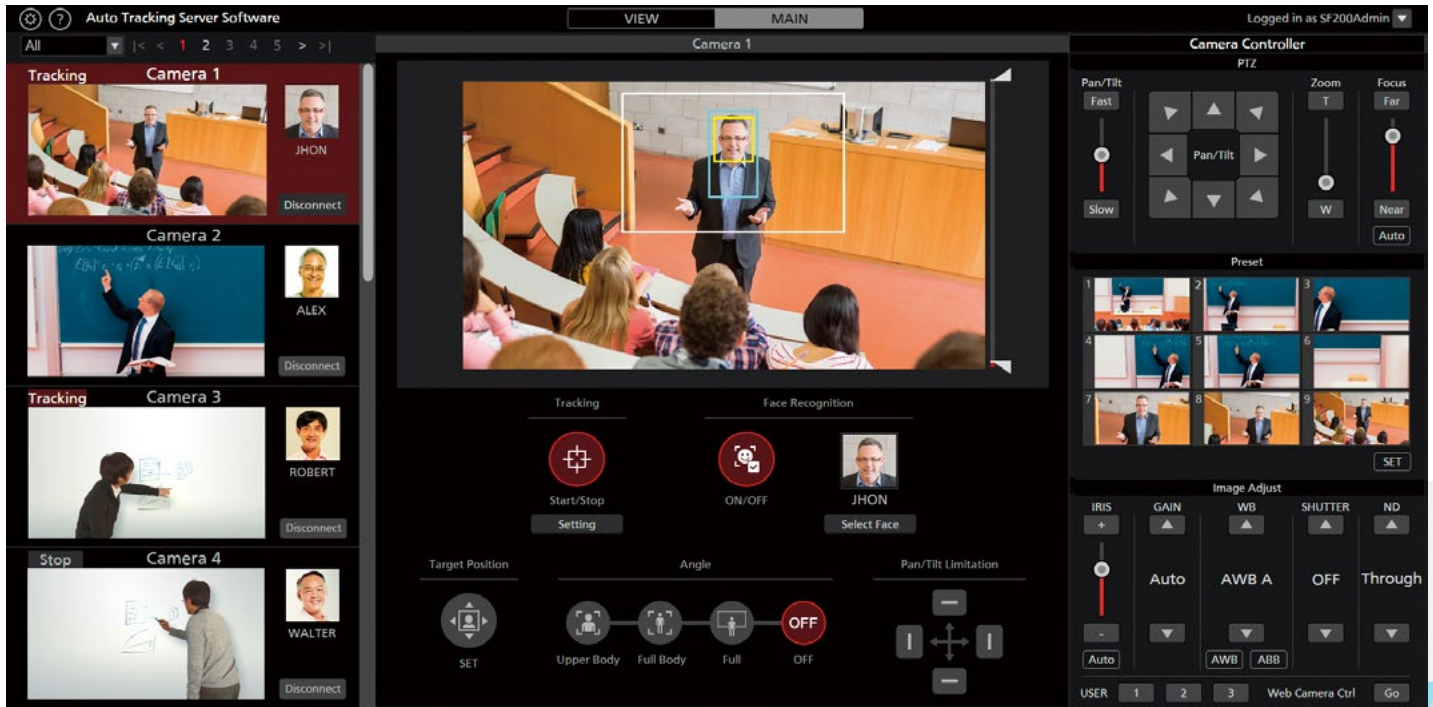
ClearConnect Digital Signage

ClearConnect™ Digital Signage:

Whether your goal is to educate, inform, alert, promote or entertain, Panasonic Connect has the digital signage solution to help you achieve your education objectives. ClearConnect offers a complete digital signage solution with a portfolio of product choices, software and services—from professional displays, projection technology, accessories and media players to software for content, asset and diagnostic management. Combined with content management, ClearConnect digital signage can implement a campus-wide network that communicates important school information, campus activities, emergency alerts and sports events to create a stronger campus community. ClearConnect digital signage plays an important role in the connected campus ecosystem wherever information is shared—whether it's a cafeteria menu, exam schedules or wayfinding route.

CLEARCONNECT
Digital Signage

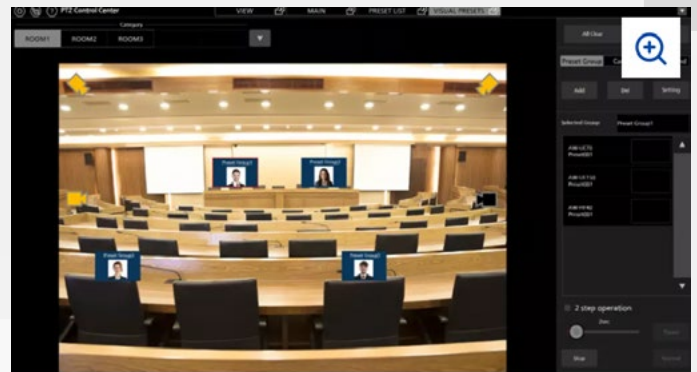




Enhanced AV Software

Panasonic's Connected Classroom Ecosystem is all about designing products to work better together, with voice-triggered PTZ camera presets based on voice input from the Panasonic Connect wireless microphones. This new feature is part of the AW-SF300 Visual Preset paid plug-in which resides in the free downloadable PTZ Control Center software.

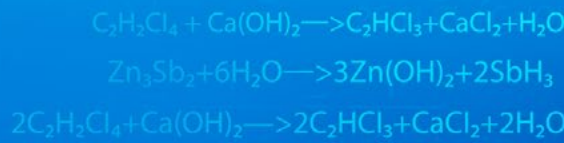
This enhancement to Panasonic's Connected Classroom Ecosystem provides a realistic meeting experience so presenters can focus on presenting and educators can focus on teaching, not on controlling technology. This new software pre-set integration is compatible with the suite of Panasonic Connect PTZ cameras and is compatible with all Panasonic Connect wireless microphones.



AW-SF300 Visual Preset Plug-in for PTZ Camera Control Center Software

Extend your PTZ Camera Control Center software capabilities with the "Visual Preset" plug-in. The Visual Preset plugin allows users to set up multiple Panasonic PTZ cameras for preset switching via an on-screen display. Simply set your presets, then touch the area on screen to move the selected cameras to that area. This extended software functionality assists camera operators with efficient multi-camera control in applications such as legislative sessions, conferences/panels, federal/state/local government meetings, theater performances, live sports and more.

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$(x)(2x+3) = 90$
 $2x^2+3x-90 = 0$
 $(2x+15)(x-6) = 0$



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