WyreStorm®

EDUCATION
HYBRID MATRIX
BROCHURE

OFFERING THE BEST IN AV DISTRIBUTION
SOLUTIONS FOR YOUR EDUCATION ENVIRONMENTS

WYRESTORM.COM

AV FOR A SMARTER FUTURE IN HIGHER EDUCATION

ENHANCE THE LEARNING EXPERIENCE

Cater to different learning styles. Visual aids, videos, and interactive presentations can make complex concepts more accessible and engaging.

COLLABORATION & INTERACTION AMONG STUDENTS

Group projects become more dynamic with tools like interactive displays and video conferencing. Plus, it prepares students for the tech-driven work environment they'll likely encounter after graduation.

ACCESSIBILITY FOR ALL STUDENTS

AV technology can be leveraged to accommodate diverse learners, including those with disabilities. Closed captions, visual aids, and audio descriptions can make educational content more inclusive.

PREPARATION IS KEY IN EDUCATION

Staying up-to-date with advancements in can be motivating for both students and educators. It creates environments that reflect the real world and fosters digital literacy - a crucial skill in today's society.

THE WYRESTORM DIFFERENCE

We're a leading manufacturer of award-winning Audio-Visual signal distribution and collaboration solutions for a multitude of different markets. WyreStorm is an expert in providing both innovative single-platform and hybrid methodologies.

WyreStorm solutions are **Powerful. Reliable. Simple.**

Developed to minimize system complexity with installer ready IT solutions for increased ease of integration and reliability, WyreStorm believes in offering exceptional performance for the best value and user experience.

Clear, Unbiased Advice We prefer to deal in facts and aim to demystify what can be a confusing landscape with clear, impartial advice to ensure the best-suited technology is used for the most successful application.

Tailored Solutions There's no such thing as one size fits all, so we make sure you're using the right one. WyreStorm's unique multi-platform product offering provides the best possible solution for any AV project.

Award Winning Manufacturer With trade awards for products and WyreStorm-installed projects throughout the world, we prove time and again why, when it comes to AV projects, the technology matters.

Global Network of Offices With global offices, our own R&D production facilities, and an ever-growing worldwide network of distribution partners, WyreStorm is ideally placed as a total solutions provider.

TESTIMONIAL

"As video solutions and the great potential offered by them become more and more an intrinsic part of the wider education process... WyreStorm sits front and centre in what is underpinning an educational revolution."

William Jepps – *Managing Director, Reflex*

EDUCATION MATRIX OVERVIEW

Versatile Input Compatibility
A wide range of inputs, including USB-C; HDMI; HDBaseT; AV over IP; Audio and Microphone, makes it compatible with devices used in Education.

Effortless Signal Management
With a plethora of multi-format outputs, efficiently route audio and video signals to multiple displays, ensuring a clear view of the content being presented.

Seamless Presentations
An integrated amplifier enhances audio quality, creating a more immersive learning experience, while audio and microphone inputs cater to the needs of presenters and educators, making sure their voices are clearly heard.

Dynamic Content Switching
Lecturers can easily switch between different inputs, without the need for a complex setup, allowing for dynamic and engaging presentations.

Control and Automation
Use the SYN-TOUCH10 control panel with premade templates, adding convenience for educators to control the system from a single interface.

Reliable and High-Quality Outputs
4K resolution ensures sharp, clear video for presentations. It's also compatible with various audio formats, creating an fully immersive experience.

Enhanced Collaboration
HDMI and HDBaseT outputs facilitate collaboration, enabling content sharing on different screens simultaneously, fostering student engagement.

Cost-Efficient Scaling
Expand the setup easily by connecting additional displays or projectors, making it a cost-effective solution that can adapt to evolving needs.

Scalable Audio and Video Distribution
The switcher can distribute both audio and video signals to multiple destinations, ensuring every corner of the room receives content.

Future-Proof Technology
With USB-C and high-res HDMI, the matrix switcher is ready for future technological advancements, making it a sound investment for education.

Enhanced Learning Experience
All features contribute to an enhanced learning experience, where educators and students can focus on the content rather than worrying about issues.

Remote Monitoring and Control
Cloud monitoring allows educators and AV technicians to remotely monitor and control the matrix switcher, providing real-time access to system status, configuration, and performance.

MX-1007-HYB

VIDEO SPECIFICATIONS

Support multi-format video inputs and outputs, include at the local and in the remote, via both point-to-point HDBaseT transmissions and AVoIP NHD-500 distributions.

INPUT PORT	• 1x USB-C, include 4K60, USB3.2 gen1(5G), 1G network, and 60watt host charging • 7x HDMI input, up to 4K60 • 1x HDBaseT3.0 input, which transmits 4K60, USB2.0, control and PoE+ up to 330ft/100m • 1x NHD-500 input, which decodes 4K60, USB2.0, control from NHD-500 encoder, another MX-1007-HYB, or network
OUTPUT PORT	• 4x HDMI output, up to 4K60 • 2x HDBaseT3.0 output, which transmits 4K60, USB2.0, control and PoE+ up to 330ft/100m • 1x NHD-500 output, which encodes 4K60, USB2.0, from NHD-500 decoder, another MX-1007-HYB, or network
HDCP	• HDCP2.3 and backwards compatible
INPUT/OUTPUT RESOLUTION SUPPORTED	800x600^8, 1024x768^8, 1280x768^8, 1280x800^8, 1280x960^8, 1280x1024^8, 1360x768^8, 1366x768^8, 1440x900^8, 1600x900^8, 1600x1200^8, 1680x1050^8, 1920x1200^8, 720x576P^6, 1280x720P^{6,7,8}, 1920x1080P^{2,5,6,7,8}, 3840x2160^{2,3,5,6,8}, 4096x2160^{2,3,5,6,8} 2 = at 24 Hz, 3 = at 25 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = 60 Hz
MAXIMUM DATA RATE	18Gbps

AUDIO SPECIFICATIONS

Support varieties of audio connections and audio DSP functions for hybrid teaching. It supports to convert DSP audio to USB then feed that to meeting software such as Teams and Zoom.

INPUT PORT	• 2x Mic inputs, include phantom power control and gain setting • 1x Line input • 7x HDMI extraction audio • 1x USB audio input • 4x Dante inputs

OUTPUT PORT	• 2x Line outputs
	• 1x USB audio output, which converts DSP audio to USB audio output
	• 4x Dante outputs
	• 2x Amplifier outputs
	  • 2x 50watts@4ohm
	  • 4x 25watts@4ohm

AUDIO DSP	• Gain control • Acoustic Echo Cancellation(AEC) • Audio mixing • Ducking • Mute

HYBRID TEACHING BETWEEN THE LOCAL AND REMOTE

MX-1007-HYB supports USB camera and USB audio connection for remote teaching.

Provide USB device extension via HDBaseT and NHD-500 to connect USB cameras, so to share classroom video with remote students.

Convert DSP mixed audio to USB audio, and then feed that back to meeting software via host PC.

Additionally, it supports to cascade 360 ceiling microphones via COM-MIC-HUB to pick up local students audio and send to remote students. So, students from local and remote they are able to discuss a topic on their own.

MATRIX INTERCONNECTION VIA AVOIP

Built-in AVoIP technologies allow the matrix to distribute local contents via 1G network to interconnected matrix switchers, which could be located in a different room or in a different building.

Both NHD-500 encoder and decoder built-in

Distribute up to 4K60 over 1G network for over-flow installations

USB2.0 and control signal transmissions supported

Support Wyrestorm NHD-CTRL app for configuration, deployment and control, which enable IT people to manage media network efficiently

FULLY-FUNCTIONING USB-C

A single USB-C connection to deliver 4K60, USB3.2 gen1, reliable network and continued power charging for host laptop. Wyrestrom also includes a proven 2m USB-C cable in package.

4K 60HZ
DP Alternative Mode up to 4K60

5 GBPS
USB 3.2 gen 1 up to 5Gbps, enough bandwidth for remote teaching

1G network connection, wired and secured

60W
Host charging up to 60watts, continued power supply for teacher's laptop during teaching

Locking USB-C connector for secured connection

SEAMLESS SWITCHING OF 4K60

Seamless switching allows teachers to efficiently choose between different video contents, without seeing black screen which sometimes could be disturbing.

4K 60HZ
4K60 scaler built on each video output, include HDMI outputs, HDBT outputs, NHD-500 output

Each output support free scaling from 480p to 2160p, include both VESA and UHD resolutions

Seamless fast switching without seeing black screen

Support both SDR and HDR video inputs

PROFESSIONAL AUDIO DSP AND AMPLIFICATION

The matrix supports a variety of audio connections and audio DSP capabilities, from both local and remote. It's perfect for hybrid teachings.

Dante 4x4, include 4 Dante inputs and 4 Dante outputs

Local audio include mic and line audio, USB audio, and AV extraction audio

Independent audio matrix up to 15x9
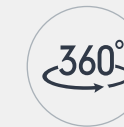
Phantom power and gain control for MIC inputs

Acoustic Echo Cancelation(AEC)

Built-in 3 audio mixers for different spaces and UC meetings

Ducking

360 ceiling microphone connections via Wyrestorm COM-MIC-HUB

SYGMA CLOUD SERVICES

Sygma Cloud agent is built-in the MX-1007-HYB to facilitate monitoring and maintaining integrated projects. Sygma features include:

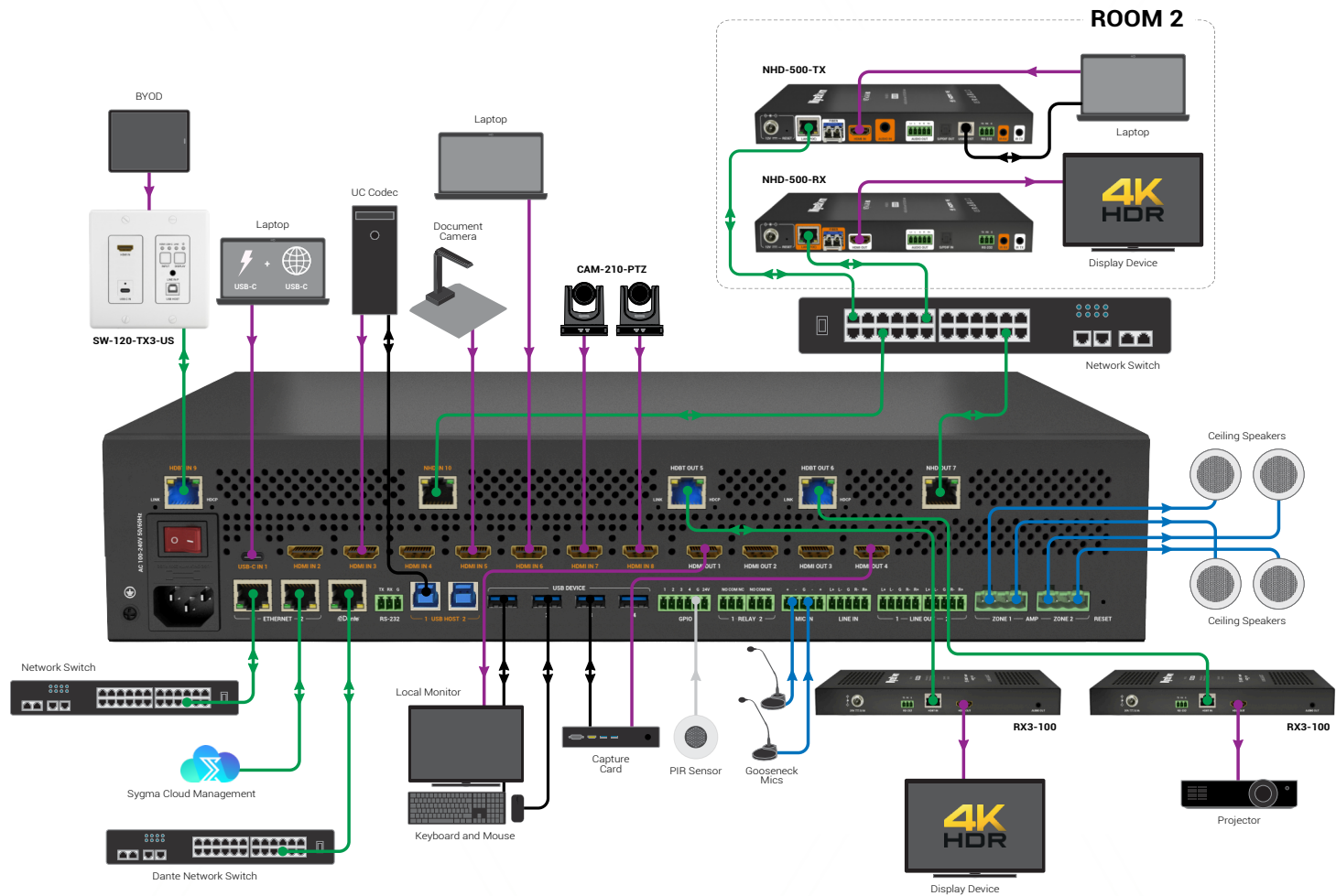Stay connected 7/24/365, from everywhere

Effortless device control

Remote firmware upgrade
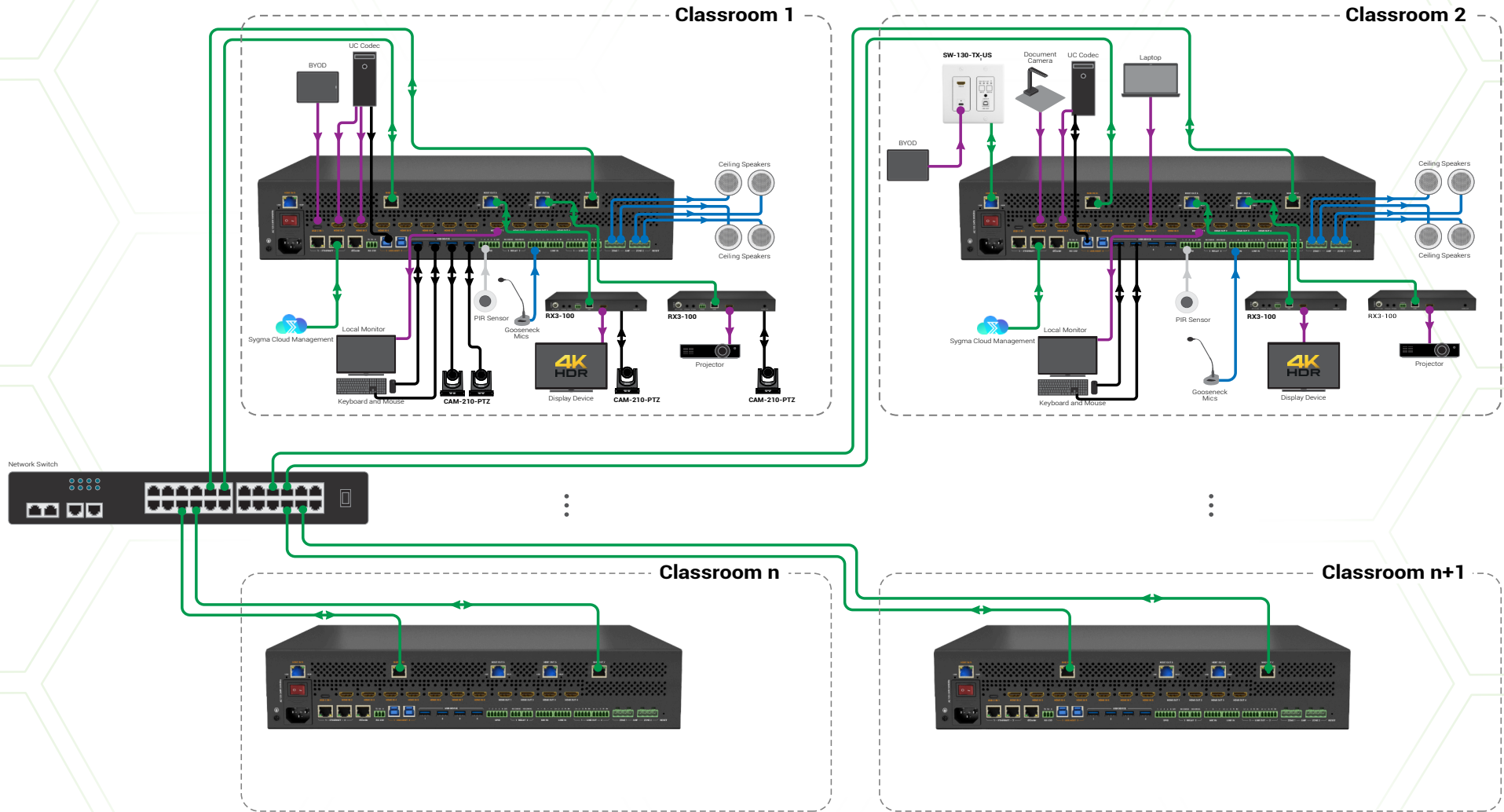
Online support via log dumpping
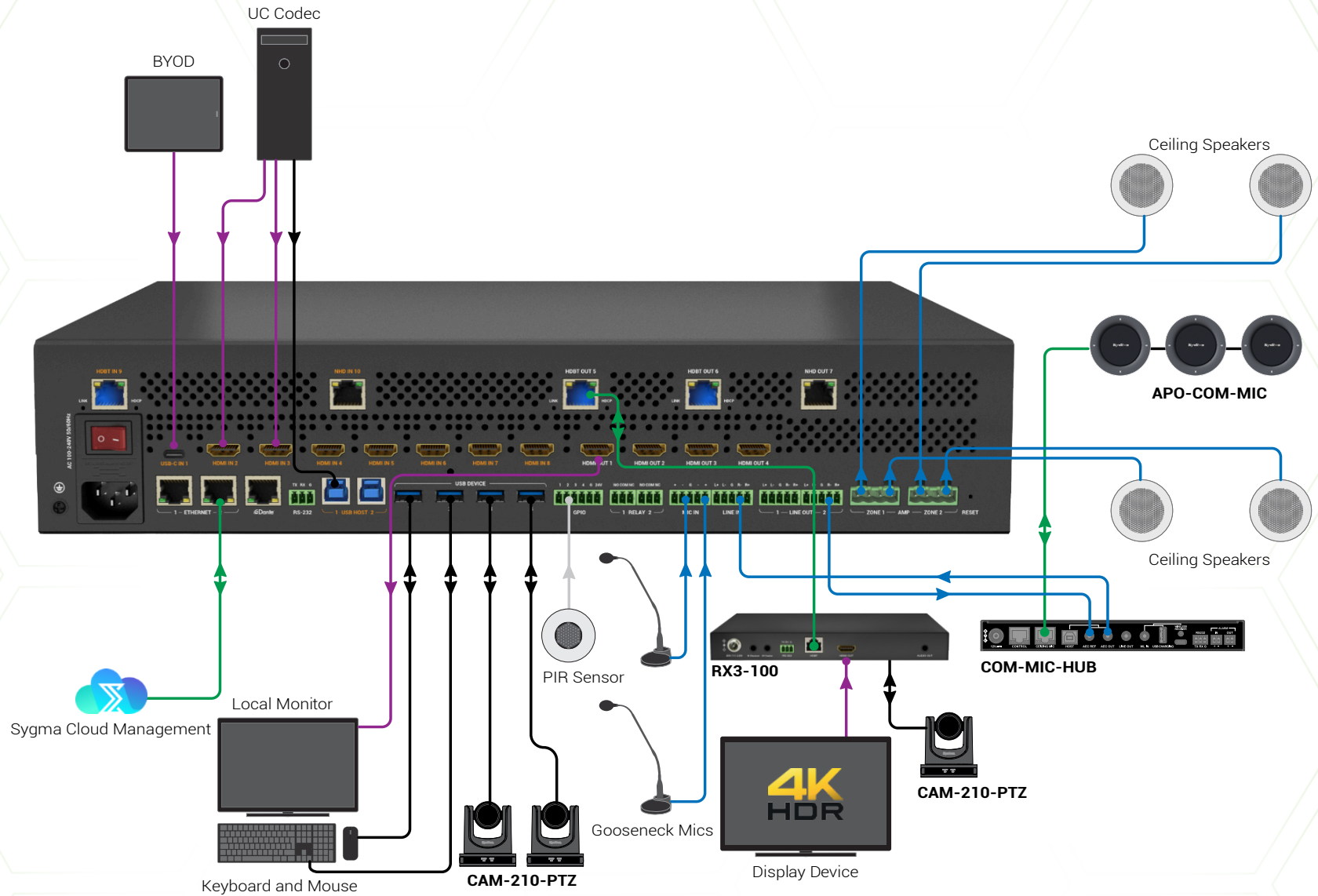
HYBRID LEARNING1- IN A SINGLE CLASSROOM

ROOM 2

NHD-500-TX

NHD-500-RX

Laptop

4K HDR

Display Device

BYOD

Laptop

UC Codec

Document Camera

CAM-210-PTZ

Network Switch

SW-120-TX3-US

Laptop

USB-C   USB-C

HDBT IN 9   NHD IN 10   HDBT OUT 5   HDBT OUT 6   NHD OUT 7

Ceiling Speakers

USB-C IN 1   HDMI IN 2   HDMI IN 3   HDMI IN 4   HDMI IN 5   HDMI IN 6   HDMI IN 7   HDMI IN 8   HDMI OUT 1   HDMI OUT 2   HDMI OUT 3   HDMI OUT 4

AC 100-240V 50/60Hz

ETHERNET 2   Dante   RS-232   1 USB HOST 2   USB DEVICE   GPIO   1 RELAY 2   MIC IN   LINE IN   1 LINE OUT 2   ZONE 1   AMP   ZONE 2   RESET

Ceiling Speakers

Network Switch

Sygma Cloud Management

Dante Network Switch

Local Monitor

Keyboard and Mouse

Capture Card

PIR Sensor

Gooseneck Mics

RX3-100

RX3-100

4K HDR

Display Device

Projector

KEY
- HDMI/USB-C
- Control
- USB
- CATx
- Analog Audio

HYBRID LEARNING2- BETWEEN MULTI CLASSROOMS

Classroom 1

BYOD
UC Codec

Ceiling Speakers
Ceiling Speakers

Sygma Cloud Management
Local Monitor

PIR Sensor
Gooseneck Mics

RX3-100
RX3-100

4K HDR

Keyboard and Mouse
CAM-210-PTZ
Display Device
CAM-210-PTZ
Projector
CAM-210-PTZ

Classroom 2

SW-130-TX-US
Document Camera
UC Codec
Laptop

BYOD

Ceiling Speakers
Ceiling Speakers

Sygma Cloud Management
Local Monitor

PIR Sensor
Gooseneck Mics

RX3-100
RX3-100

4K HDR

Keyboard and Mouse
Gooseneck Mics
Display Device
Projector

Network Switch

Classroom n

Classroom n+1

KEY
● HDMI/USB-C ● Control ● USB ● CATx ● Analog Audio

HYBRID LEARNING3- WITH 360 MIC FOR STUDENTS

BYOD

UC Codec

Ceiling Speakers

APO-COM-MIC

Ceiling Speakers

Sygma Cloud Management

Local Monitor

Keyboard and Mouse

PIR Sensor

Gooseneck Mics

RX3-100

COM-MIC-HUB

CAM-210-PTZ

4K HDR

Display Device

CAM-210-PTZ

KEY

● HDMI/USB-C ● Control ● USB ● CATx ● Analog Audio

LECTURE HALLS

There's nothing worse than trying to learn when you don't feel like you have the right resources. A lecture hall should be fully equipped with everything that is needed for students to be able to properly learn.

By feeling that students have the resources at their fingertips, there is nothing to stop them from learning quickly and effectively and inspiring them to go on to bigger and better things.
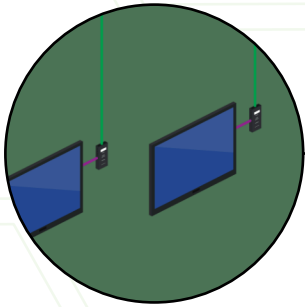
Strategically placing screens on side walls and incorporating NetworkHD receivers creates an immersive viewing experience for students. This technology ensures that educational content is seamlessly distributed to multiple displays, fostering an inclusive atmosphere where every student can clearly see and interact with the presented material.

The NetworkHD capability not only simplifies connectivity but also brings a new level of flexibility to Lecture Halls, allowing educators to create dynamic and captivating presentations that resonate with students throughout the learning process.
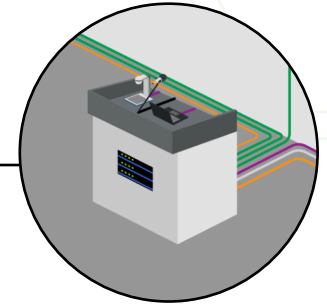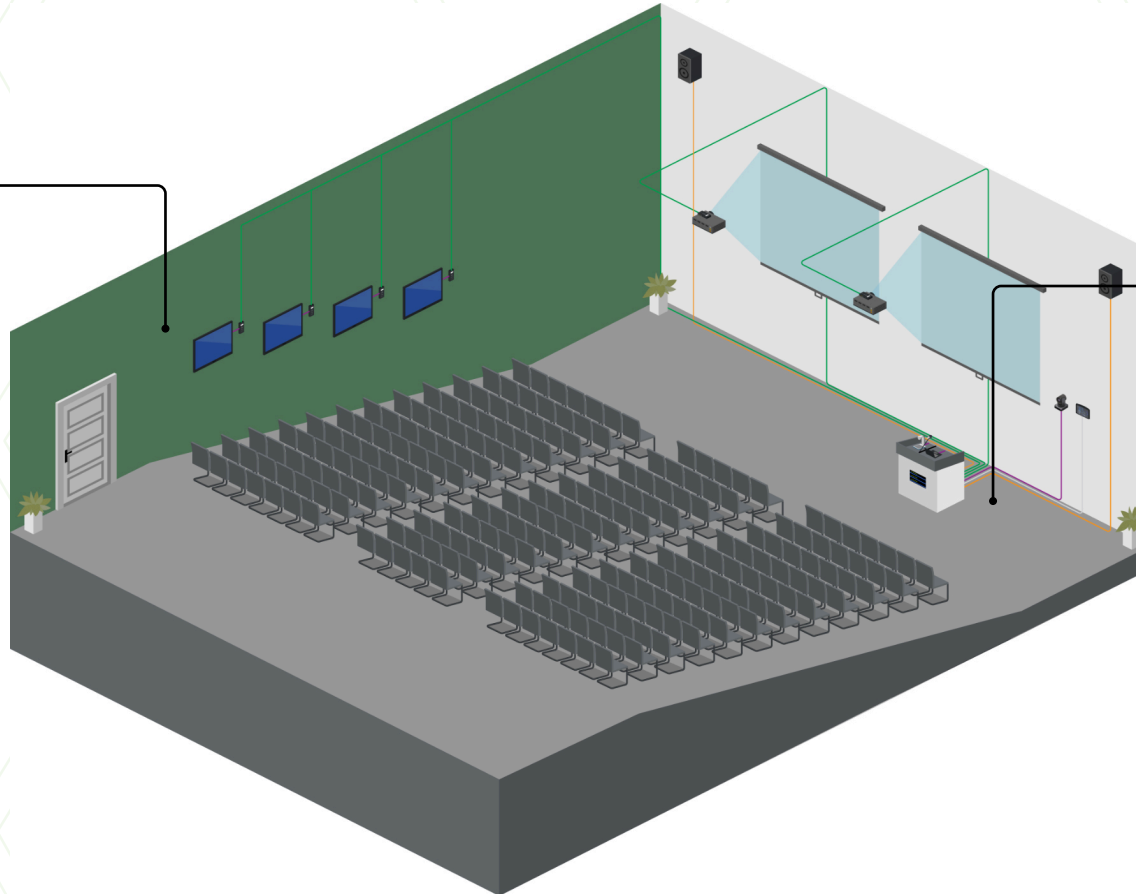
The MX-1007-HYB Matrix Switch puts control in the hands of educators at the podium. With dedicated inputs for a laptop, microphone, and document camera, teachers can seamlessly manage and integrate diverse multimedia sources.

The matrix's user-friendly design ensures that educators can focus on delivering engaging lessons with ease and precision directly from their podium, enhancing the overall teaching experience.
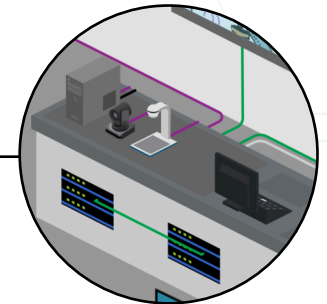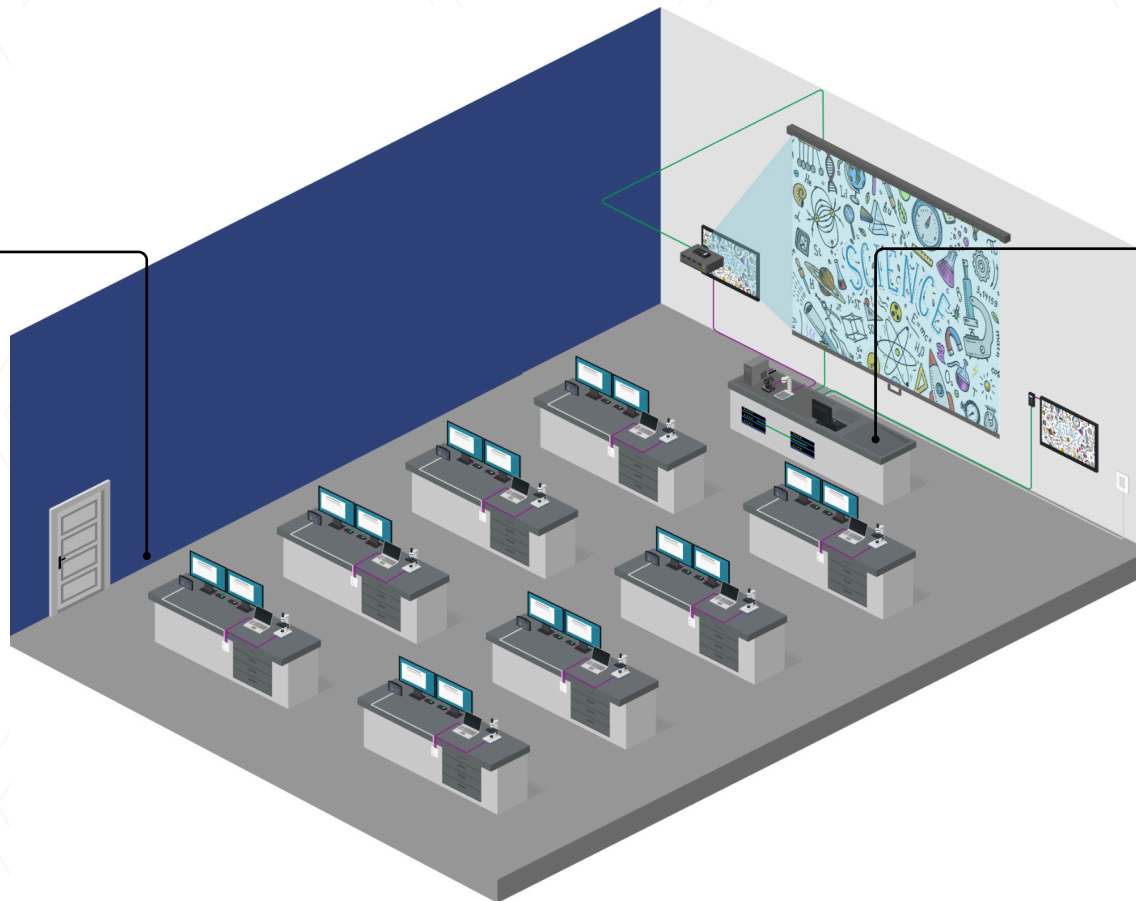
LABORATORY

Research demonstrates that laboratory education can be highly valuable for students' learning and development of a broad range of knowledge.

They can help to stimulate interest in a subject, deepen understanding, create motivation, and connect theory with practice. They also provide an important opportunity for students to work together on analysing and solving real-world problems - skills and attitudes that will enable them to operate effectively in their chosen professions.

A dedicated desk equipped with two screens, a laptop input, microscope, and control panel becomes a hub of technological integration.

The matrix facilitates seamless switching between the laptop, microscope, and other AV sources, enhancing research and analysis capabilities.

The MX-1007-HYB Matrix Switch elevates laboratory collaboration by seamlessly integrating essential tools at the main desk.

Equipped with a document camera, a local PC, and a camera with content-sharing capabilities, this workstation becomes a central hub for scientific collaboration.

Scientists can effortlessly switch between the document camera, local PC, and other AV sources, fostering dynamic research and analysis.

DIVISIBLE/SPILLOVER

Effective teachers don't just impact their own students' achievement, they can significantly improve the performance of their fellow teachers' students.

Divisible or Spillover rooms can be an essential part of the education environment. These rooms allow students from multiple classrooms to benefit from the teachings of a single lecturer, while avoiding the logistics of squeezing them into a single room.

SPILLOVER
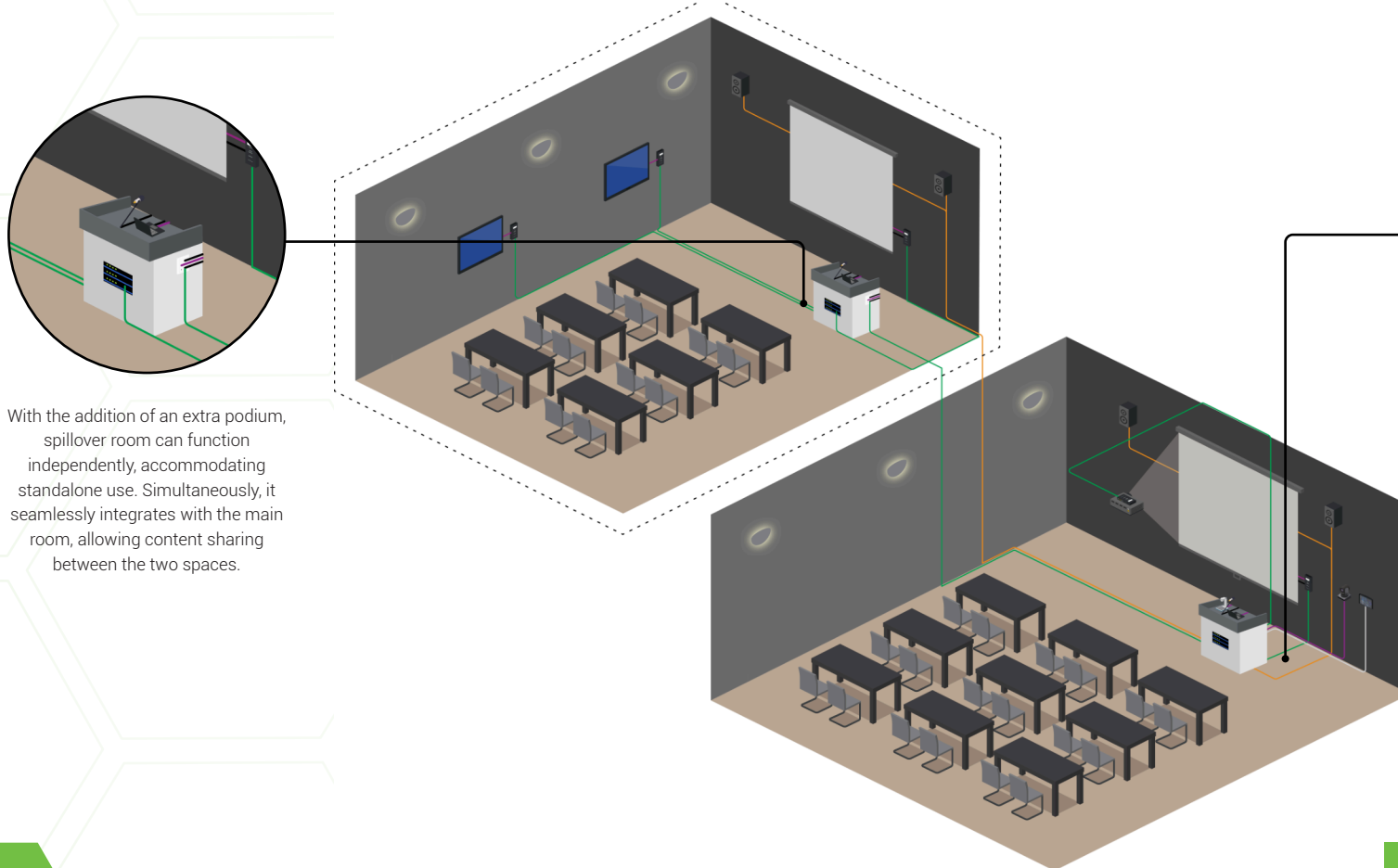
With the addition of an extra podium, spillover room can function independently, accommodating standalone use. Simultaneously, it seamlessly integrates with the main room, allowing content sharing between the two spaces.

The matrix enables content sharing between physically divided spaces, allowing teachers to present materials across both rooms.

With the innovative multiview picture-in-picture feature, educators can simultaneously showcase content and themselves using a camera.

GET THE FULL SOLUTION WITH HDBASET3

HDBaseT brings a rich feature set, increased reach, and better performance than most existing solutions, allowing users to deliver uncompressed ultra-high-definition digital video and audio, Ethernet, USB, control signals and power over a single cable. HDBaseT comes into its element when the need arises to distribute high-quality signals over the best, lowest-cost infrastructure, for the longest distance possible. HDBaseT delivers quality of experience, eliminating cable clutter and without compromising performance and high

Synergy™ 2-input 4K60Hz HDBaseT™ 3.0 Switching Transmitter with USB-C Charging and CEC Trigger
SW-120-TX3

With switching of HDMI or USB-C and CEC power triggering via HDBaseT brings a simple user experience.

Further functionality allows for a total of 6 devices that can simultaneously be used in conjunction with each input. Furthermore, rounding out it's long feature list, the SW-120-TX3 boasts 60 watts of charging over the connected USB-C device.

Synergy™ 2-Input 4K60Hz HDBaseT™ 3.0 In-Wall Transmitter
SW-120-TX3-US

An In-wall version of its free-form brethren, it also features switching of HDMI or USB-C and CEC power triggering via HDBaseT brings a simple user experience.

Further functionality allows for a total of 6 devices that can simultaneously be used in conjunction with each input. Furthermore, rounding out it's long feature list, the SW-120-TX3 boasts 60 watts of charging over the connected USB-C device.

Synergy™ 4K60Hz HDBaseT™ 3.0 Receiver with USB Device Inputs, Audio De-embed & PoH
RX3-100

An uncompressed 18G HDBaseT 3.0 receiver that achieves signal transmission up to 100m/328ft at 4K@60Hz. Experience USB data transfers of up to 300Mbps, nearly doubling HDBaseT 2.0's capability of 190Mbps.

Seamlessly pair with any of WyreStorm's HDBaseT 3.0 options for a powerful switching

GET THE FULL SOLUTION WITH NETWORKHD

At its root, AV over IP is a method of distributing audio, video, control signals and more over a standard IP Network. The technology is commonly used in a variety of commercial applications due to its low bandwidth characteristics, compatibility with existing network infrastructures and cost-efficient scalability for large footprints. To send 4K video signals from a single source to an infinite number of screens, HDMI over Ethernet, also known as HDMI over IP, takes advantage of the existing Ethernet infrastructure.

NetworkHD™ 500 Series 4K60 4:4:4 JPEG 2000 Encoder

NHD-500-TX

Capable of encoding up to 4K60 including Dolby Vision, HDR10 and HLG content, the NHD-500-TX comes loaded with a number of advanced features such as the flexibility of Ethernet or Fiber as a transport method.

Ultra-low latency encoding and incredibly fast matrix switching speeds enhance the experience, while a powerful routing engine allows audio, video, USB and control signals to be discretely sent to any endpoint.

NetworkHD™ 500 Series 4K60 4:4:4 JPEG 2000 In-Wall Encoder

NHD-500-TX-IW

The NHD-500-IW-TX brings versatility to your AV over IP applications. This in-wall encoder features HDMI and USB-C switching inputs suited for connecting today's modern laptops and tablets.

Install in a wall, table, desk, podium or anywhere a remote input is needed. Integrated USB extension allows laptops to also connect to peripheral components.

NetworkHD™ 500 Series 4K60 4:4:4 JPEG 2000 Decoder

NHD-500-RX

Capable of decoding 4K60 including Dolby Vision, HDR10 and HLG content, the NHD-500-RX boasts ultra-low latency and incredibly fast matrix switching speeds, while a powerful routing engine allows audio, video, USB and control signals to be discretely sent from any source.

Create captivating video walls up to 16×16 in size and control them with the tap of a button in the amazing NetworkHD Touch control app.

NETWORKHD

Powerful. Reliable.

WyreStorm Technologies

Tech Valley Park
27 Wood Road
Round Lake, NY 12151
USA

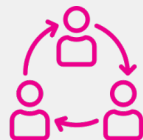# FUTURE AV TRENDS IN HIGHER EDUCATION

Technology is constantly changing, at WyreStorm, we're always researching the next generation technology.

TRENDS ON THE HORIZON

FIBER TRANSMISSION

Cater to different learning styles. Visual aids, videos, and interactive presentations can make complex concepts more accessible and engaging.

AV OVER IP

Group projects become more dynamic with tools like interactive displays and video conferencing. Plus, it prepares students for the tech-driven work environment they'll likely encounter after graduation.

DISPLAY TECHNOLOG

AV technology can be leveraged to accommodate diverse learners, including those with disabilities. Closed captions, visual aids, and audio descriptions can make educational content more inclusive.

ENHANCED AUDIO

Staying up-to-date with advancements in can be motivating for both students and educators. It creates environments that reflect the real world and fosters digital literacy - a crucial skill in today's society.

CONTROLLABILITY

Staying up-to-date with advancements in can be motivating for both students and educators. It creates environments that reflect the real world and fosters digital literacy - a crucial skill in today's society.

Trends on the horizon: Fiber Transmission, AV over IP, Display Tech, Enhanced Audio, Controllability.