



WyreStorm®

Because the Technology Matters

e[®] **SISTEMAS**
VISUAL COMMUNICATION SOLUTIONS
MULTIMEDIA PRODUCTS

NETWORK HD

AV over IP Solutions **2018**



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What is AV over IP?

AV over IP (AVoIP) is a method of distributing audio, video, control signals and more over standard IP Networks utilizing a variety of compression technologies to encode and decode transmissions between source and display depending on network demands and desired image quality.

AVoIP was initially used in a variety of ProAV applications due to its low bandwidth characteristics, compatibility with existing network infrastructures and cost-efficient scalability for large footprint arrays.

However, AVoIP technology has evolved to include low and zero latency transmissions, seamless switching and lossless video quality supporting 4K UHD, high frame rates, 4:4:4 and HDR to become an increasingly viable alternative to conventional AV transmission over distance technologies for both residential and commercial applications.

Key Advantages of AVoIP



An AV solution for the IT professionals



Perfect for decentralized system designs



Cost scales in-line to Inputs/Outputs



Utilizes tried and tested industry network standards to distribute content cost-efficiently and reliably over IP Networks with PoE support



Dynamic AV routing without the need for additional distribution amplifiers or multiple transmitters at a back-end patch panel



True convergence of AVoIP and other IT services reduces hardware and installation costs when compared to non-IP AV



Connect a display device to any room Network port and the video will automatically be routed to it



Ideal for projects 16x16 and over, AVoIP is capable of the largest AV distribution spanning multiple floors or buildings



Far greater flexibility than fixed port matrix solutions for large-scale installations perfectly tailored to applications



Overcome distance limitations by utilizing optical fiber network links



AV distribution is now as flexible as your network



The Power of Three AVoIP

As there is no one AV over IP technology for all applications, you want to make sure you're using the one best-suited for yours.

We've channeled our extensive four year experience in AVoIP into our unique NetworkHD™ line, comprising three distinct AVoIP platforms. All sharing the same installation and configuration experience and each designed for integrators to provide solutions perfectly tailored to their application.



100/200 Series

Low Bandwidth HD over 1GbE using H.264 technology

SUITABLE APPLICATIONS



400 Series

Low Latency 4K HDR over 1GbE using JPEG 2000 technology

SUITABLE APPLICATIONS



600 Series

Lossless 4K/60 4:4:4 and HDR over 10GbE using SDVoE technology

SUITABLE APPLICATIONS



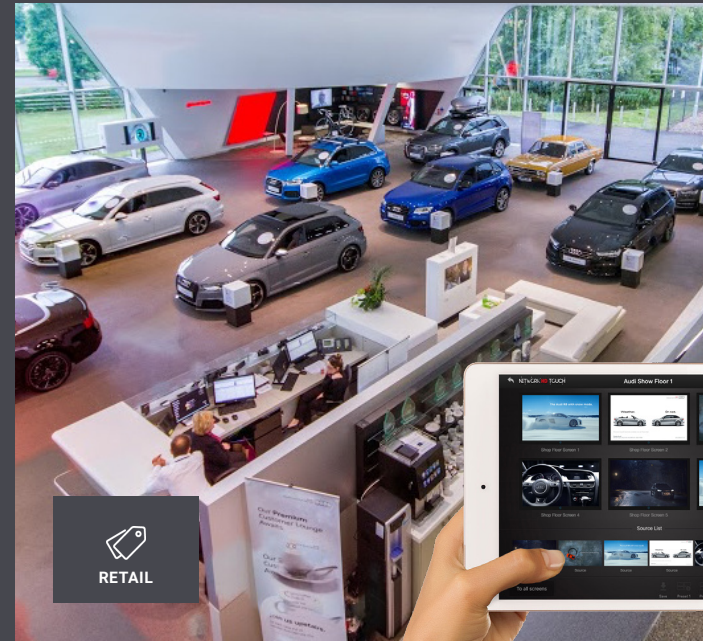
NetworkHD™ at a Glance

- Supports resolutions up to 1920x1200 (100/200 Series), 4K with HDR over 1GbE (400 Series) and lossless 4K/60 4:4:4 and HDR over 10GbE (600 Series)
- 4K/2K image scaling on 400 and 600 Series
- Easy network set-up using standard managed PoE switches
- Plug-and-play scalability enables effortless system expansion thanks to automatic detection on new components
- Multi-view and video wall up to 16x16 with bezel correction, rotation for portrait and image flipping
- Major control system integration, including WyreStorm Enado™ with 3rd party driver support for the entire NetworkHD™ line
- Free award-winning NetworkHD Touch™ control app on 100, 200 and 400 Series systems, featuring access to an entire system, live video previews of all connected sources, selections and video walls, drag and drop selection and Enado™ integration
- Unified setup and administration environment across all three NetworkHD™ platforms with no new learning curve to migrate between them
- All three platforms can happily co-exist on the same 10GbE network utilizing the same NetworkHD™ controller without any clash by sharing the same subnet.
- Market leading switching speeds and reliability, including unique chassis design on 600 Series to maximize heat dissipation
- All three NetworkHD™ platforms can be managed simultaneously on the same managed 10GbE switch by a single NetworkHD™ controller
- 5 year warranty for ultimate peace of mind





HOSPITALITY

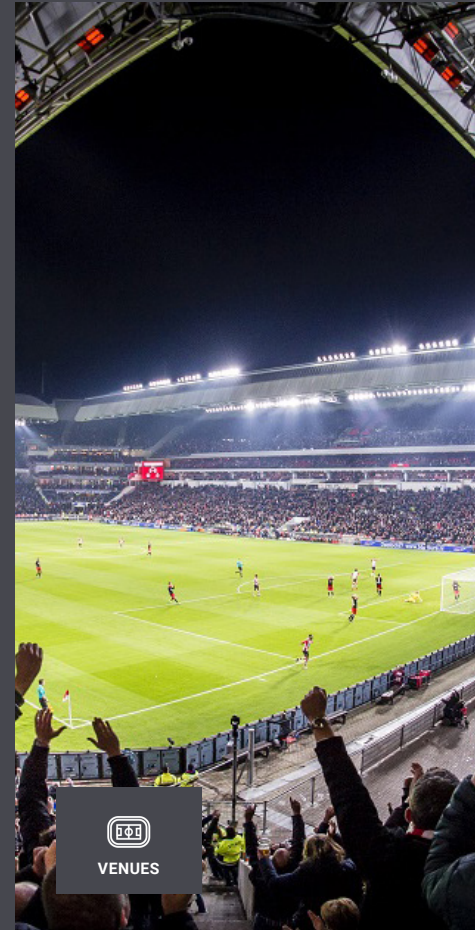


RETAIL



SUITABLE APPLICATIONS

NETWORKHD™ 100 SERIES



VENUES



RETAIL



CORPORATE



VENUES



HOSPITALITY



CORPORATE

NetworkHD™ 200 Series

Low bandwidth multi-format HD over 1GbE with video wall and multiview processing using H.264 technology

The NetworkHD™ 200 Series utilizes the same low bandwidth, infinitely scalable H.264 technology as the 100 Series, but adds powerful video wall support up to 10x10 and multi-format input connectivity of HDMI, DVI-D, Component and VGA for the best all-round solution for commercial AV installations.

A 200 Series encoder can either be paired with a 100 Series decoder for matrix switching to individual screens or NHD-210-RX decoder for video wall decoding, with both decoders including HDMI and analog audio breakout outputs, or an NHD-220-RX decoder for multiview monitoring.

FEATURES

- Shared 100 Series H.264 platform offering highly scalable low-bandwidth HD over IP distribution
- Matrix switching functionality with NHD-100-RX decoder
- Video wall processing functionality up to 10x10 screens with NHD-210-RX decoder
- Multi-screen monitoring or PiP video wall-like capabilities with 4K scaling using the NHD-220-RX decoder
- Free NetworkHD Touch™ iPad control app for live video previews and drag and drop source selection
- Quick Sync™ instant source switching
- Full RS-232 control of connected displays and CEC commands for connected display
- Supports video previewing on a PC or third party device
- Standards-based H.264/MPEG-4 AVC video compression

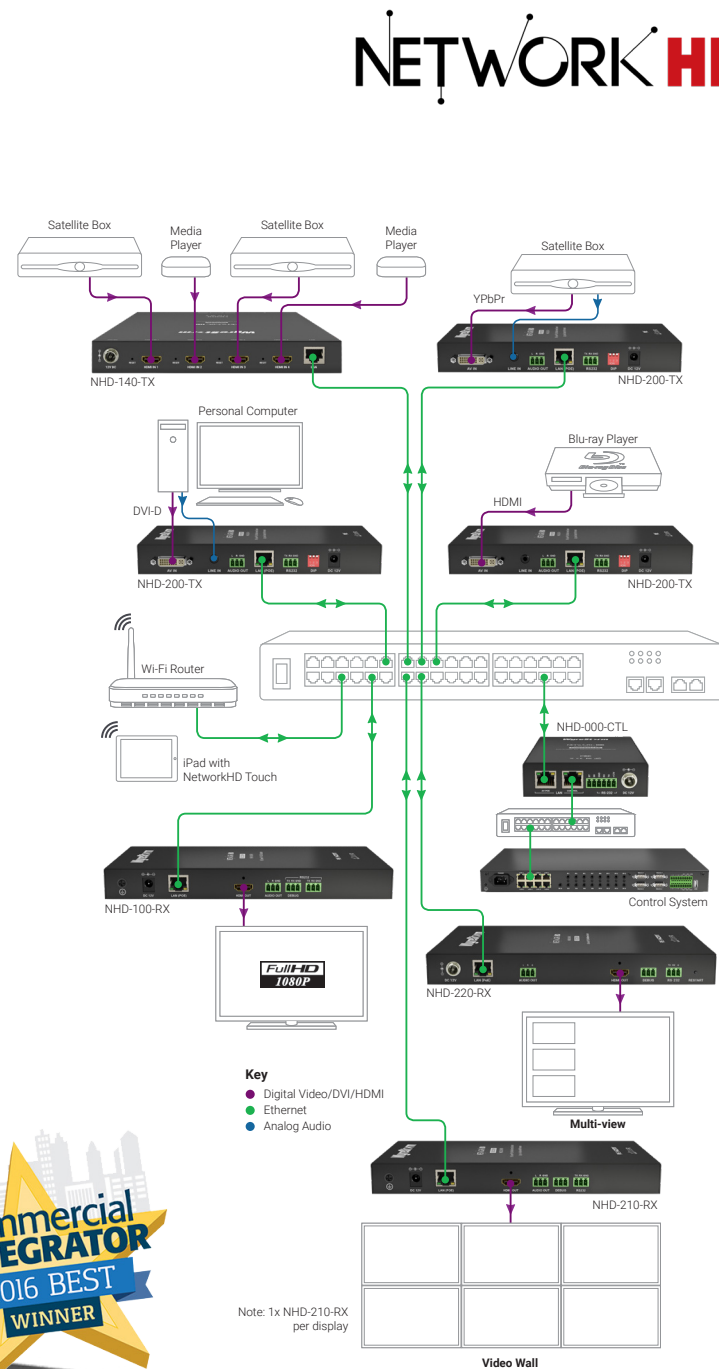
SUITABLE APPLICATIONS



WyreStorm written drivers available for major control systems:



NETWORK HD™



Key
 ● Digital Video/DVI/HDMI
 ● Ethernet
 ● Analog Audio

Note: 1x NHD-210-RX per display

NHD-200-TX

NHD-210-RX



Compatible with Domotz Remote Network Monitoring and Management Software

Please contact your authorized WyreStorm representative or marketing@wyrestorm.com for product comparison tables.



NetworkHD™ 200 Series AV Over IP H.264 Encoder

NHD-200-TX

- Highly scalable full HD over IP solution using H.264 for very large commercial AV deployments requiring alternative input signal types
- Multi-format DVI-I input supports DVI-D, HDMI, Component and VGA with stereo audio
- Plug and Play configuration with auto IP addressing and auto discovery of components
- Manual DIP switch setting for signal type



NetworkHD™ 200 Series AV over IP H.264 Decoder with Multiview

NHD-220-RX

- Multi-view capable of displaying 1 to 8 simultaneous NetworkHD™ Encoder streams on a single display
- Multiple layouts to choose from including grid view and special layouts
- 4K output for high quality scaling of single or native display of multiple 1080p images
- Industry-leading switching speeds of <500ms for virtually instantaneous seamless source switching
- Integration with leading 3rd party control systems including WyreStorm Enado™ and the new NetworkHD Touch™ app



INPUT	OUTPUT
5	1+1

SCREENLINK™



NetworkHD™ 5x1 Presentation Switcher with ScreenLink™

NHD-SW-0501 (SW-0501-HDBT HDBASET MODEL ALSO AVAILABLE)

- 4x HDMI and 1x VGA + audio source inputs to mirrored NetworkHD™ (IP) and HDMI outputs
- WyreStorm ScreenLink™ allows screen mirroring from multiple network connected Windows or MacOS computers
- Microphone input with phantom power mixed with audio output
- Auto-scaling up to 1920x1200 60Hz and auto CEC for display on/off
- NetworkHD Touch™, Enado™ and other major control system support



NOTE: Please see full NetworkHD™ user guide for system design guidelines, including bandwidth, PoE and rack design.

ONE PER SYSTEM



Controller for NetworkHD™ Systems

NHD-000-CTL



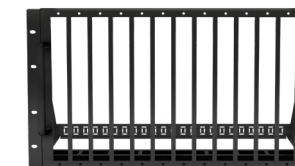
NetworkHD™ 200 Series AV Over IP H.264 Decoder with Video Wall Processing

NHD-210-RX

- Multi-format HD over IP AV distribution solution utilizing H.264 compression
- Offers video wall functionality up to 10x10 screens and matrix switching
- Analog audio breakout
- Instant switching between video sources with high quality and low latency modes
- Plug and play configuration, auto IP addressing and auto-discovery
- Supports NetworkHD Touch™ iPad control app, WyreStorm Enado™ and major control systems



Available Q4 2018



6U/12 Slot Rack Mount for NetworkHD™ 100/200/400 Series

NHD-000-RACK4



NetworkHD™ Standard H.264 AV over IP Encoder

NHD-230-TX

- Standard H.264 PoE encoder for streaming to PCs, IPTVs, set-top boxes, tablets and smartphones
- Supports all input video resolutions up to 1920x1200
- UDP, RTP, unicast and multicast streaming support
- Supports up to 10 simultaneous unicast RSTP sessions and very scalable multicast sessions (requires a managed network)
- Separate video and audio encoder bitrate control
- Simple web based configuration





HOSPITALITY

SUITABLE APPLICATIONS

NETWORKHD™ 200 SERIES



EDUCATION



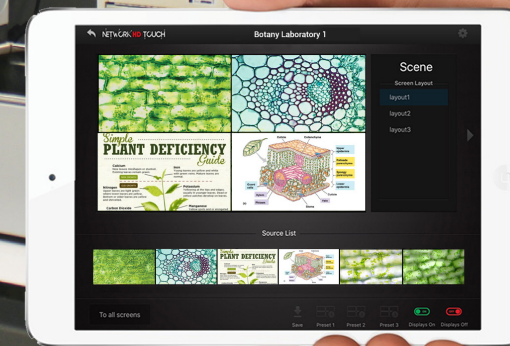
CORPORATE



RETAIL



R.T.O.C



THE AV OVER IP CONNECTED CLASSROOM

Sharing screens and AV sources in the classroom creates the ideal learning environment

The modern classroom is a place the next generation of doctors, scientists, engineers and technicians interact with the next generation of AV technology.

WyreStorm's extensive line of award-winning NetworkHD™ AV over IP solutions facilitate that learning experience with truly scalable, campus-wide AV distribution of 2K and 4K content over a standard IP network.

Including wired and wireless multi-input presentation switching with WyreStorm ScreenLink collaboration software, multi-view scaling and video wall support, NetworkHD™ features full control with major third-party control systems, including WyreStorm Enado™ and our groundbreaking free NetworkHD Touch™ app for iPad.

SCREENLINK

NETWORK HD TOUCH

enado

NetworkHD™ 400 Series

Low latency 4K HDR over 1GbE with image scaling, multichannel audio and video wall processing using JPEG 2000 technology

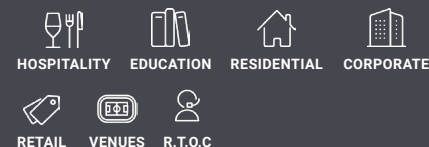
The NetworkHD™ 400 Series offers stunning 4K HDR video, multi-channel audio support and 4K/2K auto-scaling to seamlessly handle distribution of mixed resolution sources, content and display devices over a 1GbE network.

Featuring incredibly low latency matrix switching and video wall capabilities, the 400 Series is the ideal AV over IP solution for systems where high quality and low latency are key requirements; making it perfect for both residential and commercial applications.

FEATURES

- Stunning visually lossless 4K UHD video with HDR and multi-channel audio up to DTS:X and Dolby Atmos
- Ultra-low latency of less than a single frame
- 4K/1080p image scaling for mixed resolution installs
- NetworkHD Touch™ iPad control app for live video previews and drag and drop source selection
- Powerful audio breakout can route audio separately from video to any decoder
- Up to 16x16 video walls
- CEC display control, bidirectional IR or RS-232 control of connected devices

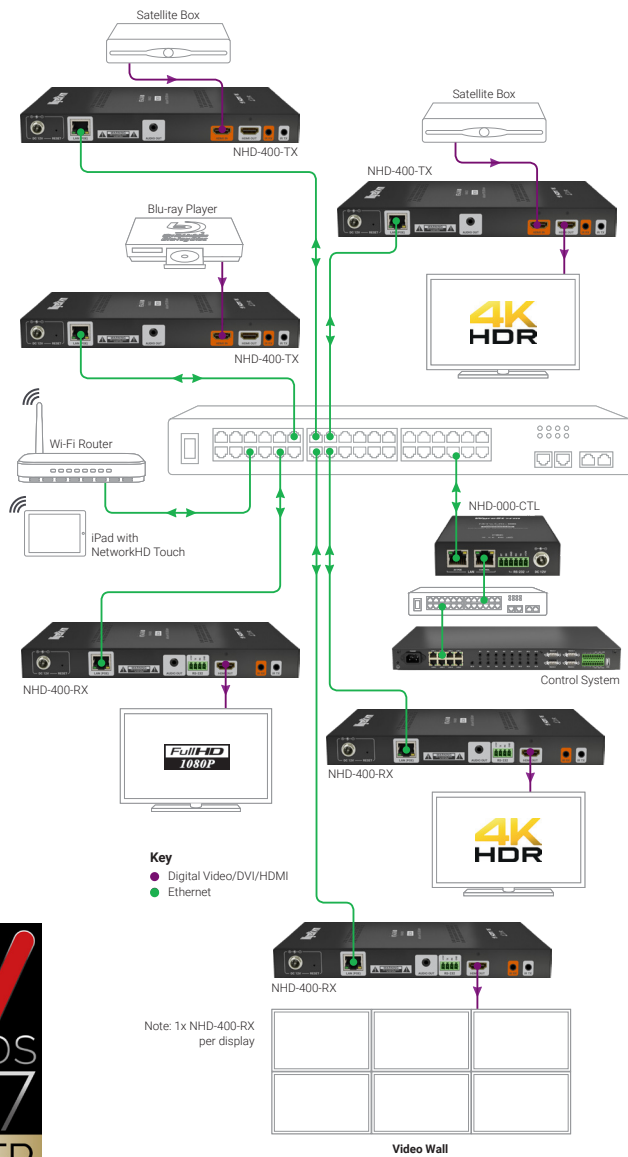
SUITABLE APPLICATIONS



WyreStorm written drivers available for major control systems:



NETWORK HD™



NHD-400-TX

NHD-400-RX



Compatible with Domotz Remote Network Monitoring and Management Software

5 YEAR WARRANTY
 Please contact your authorized WyreStorm representative or marketing@wyrestorm.com for product comparison tables.



NetworkHD™ 400 Series 4K AV over IP JPEG 2000 Encoder NHD-400-TX (UPDATE AVAILABLE Q4 2018)

- Stunning visually lossless 4K UHD video with HDR and multi-channel audio up to DTS:X and Dolby Atmos
- Ultra-low latency of less than a single frame
- Image scaling enables a mix of 4K and 1080p screens to be used throughout an install
- Free NetworkHD Touch™ iPad control app with live video preview and major control system integration including WyreStorm Enado™
- Powerful audio matrix functionality routes audio separately from video to any decoder
- Bidirectional IR, HDMI In and Out and analog audio output



ONE PER SYSTEM



Controller for NetworkHD™ Systems NHD-000-CTL

- Provides automatic discovery of NetworkHD encoders and decoders
- Simple, single screen browser configuration of encoder and decoder settings
- Interface to major control systems, including the Enado™ AV Control System
- Dual Ethernet Ports for complete isolation of control and AV network traffic
- Optional PoE Power



NetworkHD™ 400 Series 4K AV over IP JPEG 2000 Decoder NHD-400-RX (UPDATE AVAILABLE Q4 2018)

- Stunning visually lossless 4K UHD video with HDR and multi-channel audio up to DTS:X and Dolby Atmos
- Ultra-low latency of less than a single frame
- Image scaling enables a mix of 4K and 1080p screens to be used throughout an install
- Free NetworkHD Touch™ iPad control app with live video preview and major control system integration including WyreStorm Enado™
- Powerful audio matrix functionality routes audio separately from video to any decoder
- Bidirectional IR and analog audio output



Available Q4 2018



6U/12 Slot Rack Mount for NetworkHD™ 100/200/400 Series NHD-000-RACK4

- Supports NetworkHD 100, 200 and 400 Series, NHD-000-CTL Controller and Enado Mini components
- Shallow depth design allows for high component density in an AV or IT equipment rack
- All-steel design offers solid, secure and professional environment for installed NetworkHD components
- Removable rear cable management lacing bar facilitates correct cabling to optimize thermal efficiency
- Detachable front-facing handles greatly improves rack maneuverability and convenience
- Provides optimal thermal dissipation in a passively or actively cooled rack design to maintain premium device performance and MTBF
- Systems can be pre-built into the rack kit prior to arriving on site to improve speed and efficiency of installation



NOTE: Please see full NetworkHD™ user guide for system design guidelines, including bandwidth, PoE and rack design.



NETWORK HD TOUCH

A Touch of Genius of AV over IP

A revolution in touchscreen control, the award-winning free NetworkHD Touch™ app for iPad puts entire NetworkHD™ 100, 200 and 400 Series AVoIP systems at your fingertips for both single screen and video wall applications.

An app like no other, NetworkHD Touch™ is made for iPad with no training required and zero learning curve for users to negotiate. The result is an unrivalled user experience and effortless AV control using a device and gestures users already know, making it ideal for applications as varied as hospitality, retail, exhibition, residential and more.



SUITABLE APPLICATIONS

NETWORKHD™ 400 SERIES



HOSPITALITY



RESIDENTIAL



CORPORATE



RETAIL



R.T.O.C



BEST AV CONTROL SOLUTION... PERIOD

A unique real-time video preview and simple drag and drop source switching provides the best end-user control experience on the market, while a full multi-zone demo mode enables the incredible capabilities of the interface to be shown off to clients without carrying an entire NetworkHD™ system with you. And it's all completely free with NetworkHD™.



DRAG & DROP SOURCE SWITCHING

Drag what you want to see and drop where you want to see it in zones - instantly. With screen, multiview, video wall and zone presets all handled by the system, its source selection at a flick of the finger.



HASSLE FREE DEPLOYMENT, FULL SYSTEM ACCESS

Control any size system with zero-learning curve. Instantly switch sources to screens and video walls via wireless connection to the free iPad app with no additional programming or training.



POWERFUL ENADO™ INTEGRATION

Seamlessly integrate with the WyreStorm Enado™ control solution to add source control, BYOD connectivity using easy QR code scanning and IFTTT.com compatibility. A simple and unified source, display, audio and lighting control experience that opens a world of system control possibilities is just a finger tap away.



MATRIX SWITCHING, VIDEO WALLS & MULTIVIEW

Put your all your presets at your fingertips with configuration files automatically downloaded from the NetworkHD™ controller to group displays, video walls, multiview devices or predefined zones.



LIVE VIDEO PREVIEWS

See what you're switching with real time video previews of all sources and selections streamed within the iPad user interface itself. Take the guesswork out of your AV control and go live!



NetworkHD™ 600 Series

Lossless 4K/60 4:4:4 and HDR over 10GbE using SDVoE technology

The NetworkHD™ 600 Series offers the ultimate AV over IP platform for when only the absolute best image quality will do.

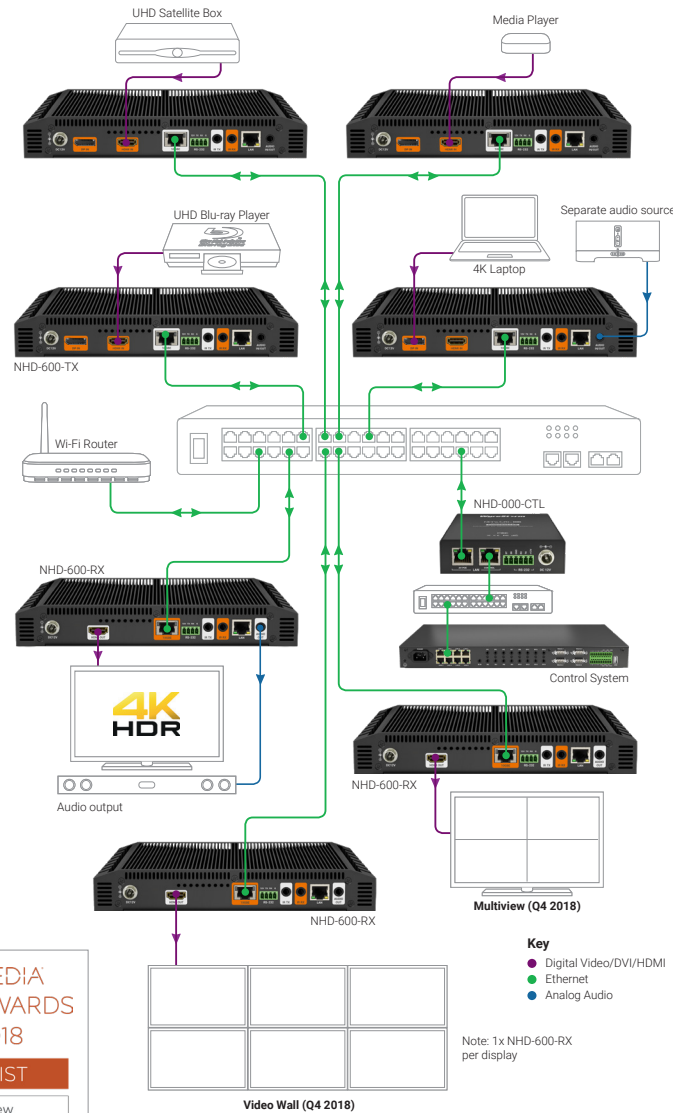
Supporting highly scalable, secure and fully lossless high-bandwidth video content alongside multi-channel audio and a variety of connectivity and control options. The 10GbE system is easily managed in a flexible, unified software environment for the ultimate AV over IP experience for commercial and high-end residential applications.

FEATURES

- Highly scalable modular 10GbE AV distribution system for IP Networks utilizing the SDVoE technology standard
- Mathematically lossless with zero latency supporting 4K/60 4:4:4 encoding up to a pixel clock of 595MHz
- Discrete AV matrix switching with broadcast video scaling
- Secondary video stream with alternate scaling options can be used for Multiview source content using NHD-600-TX*
- Multiview compositing includes arbitrary image placement, resizing, duplication and offset functions*
- Video wall functionality up to 5x5 including display bezel compensation*
- PCM audio downmix, embedding and de-embedding with DAC/ADC functions
- Genlock mode with zero latency between source and display, ultra-fast seamless video source switching
- Integrated 1GbE pass-through, IR/RS-232 routing/generation and additional analog audio routing
- Fan-less chassis combines noiseless operation with optimal heat dissipation to maintain device performance and MTBF

*Video wall and multiview capabilities available via Q4 2018 firmware update

SUITABLE APPLICATIONS



Key
 ● Digital Video/DVI/HDMI
 ● Ethernet
 ● Analog Audio

Note: 1x NHD-600-RX per display

NETWORK HD™



NHD-600-TX

NHD-600-RX

WyreStorm written drivers available for major control systems:



Compatible with Domotz Remote Network Monitoring and Management Software

Please contact your authorized WyreStorm representative or marketing@wyrestorm.com for product comparison tables.



2160p
4:4:4 60

NetworkHD™ 600 Series 4K HDR Premium AV over IP SDVoE Encoder

NHD-600-TX

- Uncompromised mathematically lossless AV encoding over 10GbE SDVoE
- Powerful, discrete AV matrix switching with video scaling
- Supports 4K/60 4:4:4 encoding up to a pixel clock of 595MHz
- HDMI and DisplayPort Inputs, PCM audio downmixing, embedding and de-embedding with DAC/ADC functions
- Genlock mode with zero AV latency between source and display and support for ultra-fast, seamless video source switching
- Integrated 1GbE pass-through, IR/RS-232 routing/generation and additional analog audio routing
- Revolutionary fanless chassis design combines noiseless operation with optimal heat dissipation to maintain premium device performance, reliability and MTBF



2160p
4:4:4 60

NetworkHD™ 600 Series 4K HDR Premium AV over IP SDVoE Decoder

NHD-600-RX

- Lossless AV decoding up to 4K/60 4:4:4 via 10GbE network using SDVoE
- Powerful, discrete AV matrix switching with video scaling
- HDMI output, PCM audio downmixing, embed/de-embed with DAC/ADC support
- Secondary video stream with alternate scaling options can be used for Multiview source content using NHD-600-TX*
- Fully-featured Multiview image compositing includes arbitrary source window placement, resizing, image duplication and image offset functions*
- Video wall functionality, including display bezel compensation*

*Video wall and multiview capabilities available via firmware update



One per system



Controller for NetworkHD™ Systems

NHD-000-CTL

- Provides automatic discovery of all NetworkHD™ encoders and decoders
- Simple, single screen browser configuration of encoder and decoder settings
- Interface to major control systems, including the Enado™ AV Control System
- Dual PoE Ethernet Ports for complete isolation of control and AV network traffic



7U/8 Slot Rack Mount for NetworkHD™ 600 Series

NHD-000-RACK3

- Compact steel 7U 19" rack mount kit for up to 8x NetworkHD™ 600 Series components
- Supports NetworkHD™ 600 Series encoders and decoders, plus NHD-000-CTL controller
- Provides optimal thermal dissipation in a passively or actively cooled rack design to maintain premium device performance and MTBF
- Slimline design less than 6" deep allows for back-to-back mounting in an AV rack for increased equipment density, with lacing points for enhanced cable management
- Enables systems to be pre-built into the rack kit prior to arriving on site to improve speed and efficiency of installation



NOTE: Please see full NetworkHD™ user guide for system design guidelines, including bandwidth, PoE and rack design.



RESIDENTIAL

SUITABLE APPLICATIONS

NETWORKHD™ 600 SERIES



EDUCATION



CORPORATE



WORSHIP



GOVERNMENT



R.T.O.C



MEDICAL

NETWORK HD

Series Comparison Chart

	100/200 Series	400 Series	600 Series
Features			
Maximum resolution	1920x1200 (1080p)	4K UHD	4K UHD/DCI
Video Compression Codec	H.264	JPEG-2000	SDVoE
Maximum 4K Timing	N/A	60fps 4:2:0	60fps 4:4:4
Multichannel Audio	✗	✓	✓
Latency	250ms / 60ms	16ms	0ms
PoE	✓	✓	✗
Analog Audio Breakout	✓	✓	✓
Analog Audio Input	✓ (200 Series)	✗	✓
Analog Video Input	✓ (200 Series)	✗	✗
Audio Delay	✓	✗	✗
Auto-discovery	✓	✓	✓
Background/Failsafe Image or Video	✓	✓	✗
Balanced Audio	✗	✗	✗
Video Wall	✓ (210-RX only)	✓	✓
Bezel Gap Correction	✗	✓	✓
Image Rotation	✗	✓	✗
Bandwidth control	✓	✗	✓
CEC	✓	✓	✗
One-shot Firmware Upgrade	✓	✓	✓
HDCP 2.2	✗	✓	✓
HDMI Pass-through on Tx	✗	✓	✗
HDR	✗	✓	✓
NetworkHD Touch™ Control	✓	✓	✗
Instant Switching	✓	✗	✓
IR Out	✗	✓	✓
IR Passthrough	✗	✓	✓
KVM (Keyboard/Video/Mouse)	✗	✗	✗
Maximum video wall size	10x10	16x16	5x5
Multiview	✓ (220-RX only)	✗	✓
Open Control API	✓	✓	✓
Network Type	1Gb Multi-cast	1Gb Multi-cast	10Gb Multi-cast
PC Software Suite	✓	✓	✓
Peak Bandwidth per Tx	40 Mb/s	850 Mb/s	10 Gb/s
Rack Mountable	Yes - NHD-000-RACK4	Yes - NHD-000-RACK4	Yes - NHD-000-RACK3
Preview Stream	✓	✓	✗
RS-232 Out	✓	✓	✓
Small Form Factor	✓	✓	✓
Warranty (years)	5	5	5
Drivers	Crestron, AMX, RTI, Control4, Enado™	Crestron, AMX, RTI, Control4, Enado™	Crestron, RTI, Control4, Enado™

System Build Check List

Encoder	Decoder	Platform	Function	Controller	Rack	Control	
NHD-100-TX	NHD-100-RX	H.264	Matrix with Fast Switch	NHD-000-CTL	NHD-000-RACK4	NetworkHD Touch™ WyreStorm Enado™	Crestion AMX Control4 RTI
NHD-140-TX	NHD-100-RX	H.264		NHD-000-CTL	NHD-000-RACK4	NetworkHD Touch™ WyreStorm Enado™	
NHD-200-TX	NHD-100-RX	H.264	Matrix with Fast Switch	NHD-000-CTL	NHD-000-RACK4	NetworkHD Touch™ WyreStorm Enado™	Crestion AMX Control4 RTI
NHD-200-TX	NHD-210-RX	H.264	Video Wall	NHD-000-CTL	NHD-000-RACK4	NetworkHD Touch™ WyreStorm Enado™	Crestion AMX Control4 RTI
NHD-200-TX	NHD-220-RX	H.264	Multi View	NHD-000-CTL	NHD-000-RACK4	NetworkHD Touch™ WyreStorm Enado™	Crestion AMX Control4 RTI
NHD-230-TX	N/A	H.264	Streaming	NHD-000-CTL	N/A	NetworkHD Touch™ WyreStorm Enado™	N/A
NHD-400-TX	NHD-400-RX	JPEG 2000	4K UHD with HDR	NHD-000-CTL	NHD-000-RACK4	NetworkHD Touch™ WyreStorm Enado™	Crestion Control4 RTI
NHD-600-TX	NHD-600-RX	SDVoE	18Gbps HDMI 4K UHD with HDR	NHD-000-CTL	NHD-000-RACK3	WyreStorm Enado™	Crestion Control4 RTI



Reference Your Installations

Whether you're new to AV over IP, thinking of specifying your first WyreStorm NetworkHD™ system, or installing a new NetworkHD™ Series solution, you'll no doubt have some questions. Luckily, our new enhanced NetworkHD™ Technical Reference Guide has all the answers.

Subjects include:

- Main advantages of using AVoIP
- What AVoIP technologies WyreStorm offers and the differences between them
- The different components that make up a NetworkHD™ system
- How and when these components should be used
- Which NetworkHD™ AVoIP technology is best for your application?
- Application scenarios
- System design guidelines and requirements
- System infrastructure and requirements
- Relevant PoE standards used within a system
- How multicast is managed
- Ethernet connectivity types required
- Guidance on network switch requirements and what type of switch you should buy
- Installation guidance and checklist

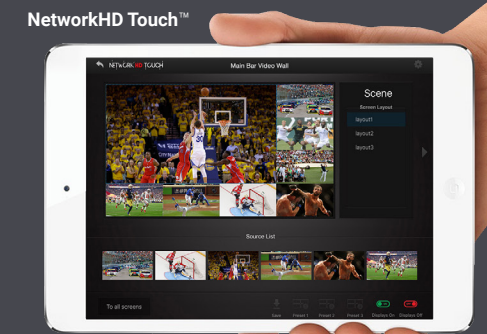


System Design Assistance

Need help planning a project? Our system design team can work with you to produce a focused system schematic, outlining connections and equipment topology required to realize project aims, while utilizing an optimized and budget-aware approach.

Whether you're a designer, specifier, integrator or project manager, working with a WyreStorm system design specialist will help focus your project and ensure the right technology is being used for the application. You'll benefit from functional and easy to follow system diagrams to use in project tenders and proposals that will add value to any opportunity, as well as separating you from the competition.

Get in contact with us at systemdesigns@wyrestorm.com and let us help you get your project started!



SPECIFICATIONS

Audio and Video	
Inputs	TX: 1x HDMI In 19-pin HDMI type A female RX: 1x LAN (PoE) 8-pin RJ-45 female 10/100Base-T
Outputs	TX: 1x LAN (PoE) 8-pin RJ-45 female 10/100Base-T RX: 1x HDMI Out 19-pin HDMI type A female TX/RX: 1x Audio Out: 3-pin Phoenix
Output Video Encoding	H.264/MPEG-4 AVC
Encoding Data Rate	2~30Mb/s
End to End Latency	60~90 ms (Low latency mode) 250~300 ms (High quality mode)
Audio Formats	2ch PCM
Video Resolutions (Max)	Note: Interlaced content at any resolution is not supported, all source content must be progressive. TX: HDMI: 1920x1200p @60Hz 8bit (15m/50ft) Cat6/6a/7: 1920x1200p @60Hz 8bit (100m/328ft Point to Point) Note: The v2 of the NHD-100-RX cannot support resolutions higher than 1920x1080p @60Hz. RX: HDMI: 1920x1080p @60Hz 8bit (15m/50ft) Cat6/6a/7: 1920x1080p @60Hz 8bit (100m/328ft Point to Point)
Color Depth	8bit
Maximum Pixel Clock	150MHz
Communication and Control	
HDMI	HDMI HDCP 1.4
Ethernet	1x 8-pin RJ-45 female 10/100Base-T PoE
RS-232	1x RS-232: 3-pin Phoenix
Power	
Power Supply	12V DC 1A
PoE	IEEE 802.3af 12V 1A 12.95W
Max Power Consumption	6W (DC adapter)
Environmental	
Operating Temperature	0 to + 45°C (32 to + 113 °F), 10% to 90%, non-condensing
Storage Temperature	-20 to +70°C (-4 to + 158 °F), 10% to 90%, non-condensing
Maximum BTU	20.47 BTU/hr
Dimensions and Weight	
Rack Units/Wall Box	<1U
Height	25mm/0.98in
Width	200mm/7.87
Depth	94mm/3.7in
Weight	0.6kg/1.32lbs
Regulatory	
Safety and Emission	CE FCC ROHS

SPECIFICATIONS

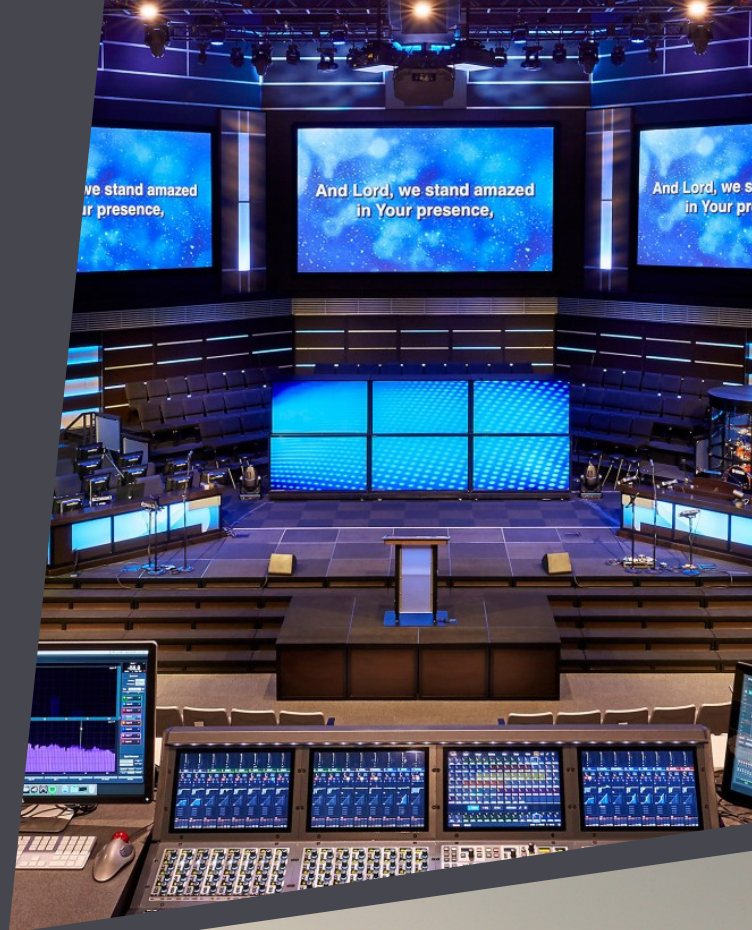
Audio and Video		
Inputs	200-TX: 1x AV IN: 24-pin DVI/I 1x Line In: 3.5mm (1/8in) TRS Stereo 210-RX: 1x LAN (PoE) 8-pin RJ-45 female 10/100Base-T 220-RX: 1x LAN (PoE) 8-pin RJ-45 female 10/100/1000Base-T	
Outputs	200-TX: 1x LAN (PoE) 8-pin RJ-45 female 10/100Base-T 1x Audio Out: 3-pin Phoenix 210-RX: 1x HDMI In 19-pin HDMI type A female 1x Audio Out: 3-pin Phoenix 220-RX: 1x HDMI In 19-pin HDMI type A female 1x Audio Out: 3-pin Phoenix (Disabled on version 1 Future Release Activation)	
Output Video Encoding	H.264/MPEG-4 AVC	
Encoding Data Rate	2~30Mb/s	
End to End Latency	60~90 ms (Low latency mode) 250~300 ms (High quality mode)	
Audio Formats	2ch PCM	
Video Resolutions (Max)	Note: Interlaced content at any resolution is not supported, all source content must be progressive. HDMI: 1920x1080p @60Hz 8bit (15m/50ft) Cat6/6a/7: 1920x1080p @60Hz 8bit (100m/328ft Point to Point)	
Color Depth	8bit	
Maximum Pixel Clock	150MHz	
Communication and Control		
HDMI	HDMI HDCP 1.4	
Ethernet	1x 8-pin RJ-45 female 10/100Base-T PoE	
RS-232	1x RS-232: 3-pin Phoenix	
Power		
Power Supply	12V DC 1A	
PoE	IEEE 802.3af 12V 1A 12.95W	
Max Power Consumption	6W (DC adapter)	
Environmental		
Operating Temperature	0 to + 45°C (32 to + 113 °F), 10% to 90%, non-condensing	
Storage Temperature	-20 to +70°C (-4 to + 158 °F), 10% to 90%, non-condensing	
Maximum BTU	20.47 BTU/hr	
Dimensions and Weight		
	NHD-200-TX NHD-210-RX	NHD-220-RX
Rack Units/Wall Box	<1U	<1U
Height	25mm/0.98in	25mm/0.98in
Width	228mm/8.98	220mm/8.66
Depth	111mm/4.37in	130.2mm/5.13in
Weight	0.6kg/1.32lbs	0.6kg/1.32lbs
Regulatory		
Safety and Emission	CE FCC ROHS	

SPECIFICATIONS

Audio and Video			
Inputs	TX: 1x HDMI In: 19-pin HDMI type A female RX: 1x 8-pin RJ-45 female - 10/100/1000 Mbps auto-negotiating		
Outputs	TX: 1x HDMI Out: 19-pin HDMI type A female 1x Audio Out: 3.5mm (1/8in) TRS Stereo Jack RX: 1x HDMI Out 19-pin type A Audio: 3.5mm Mini-Jack 1x Audio Out: 3.5mm (1/8in) TRS Stereo Jack		
Output Video Encoding	JPEG-2000		
Encoding Data Rate	Max: 850Mbps - Typical: 150~300Mbps		
End to End Latency	1 frame latency 720p @60fps: 16ms 1080i @30fps: 33ms 1080p @60fps: 16ms 2160p @30fps: 33ms		
Audio Formats	2ch PCM Multichannel: LPCM and Up to DTS-X and Dolby Atmos		
Video Resolutions (Max)	<table border="0"> <tr> <td>HDMI 640x480i @60Hz 8bit (15m/50ft) 1280x720p @60Hz 10bit (15m/50ft) 1920x1080i @60Hz 12bit (15m/50ft) 1920x1080p @60Hz 12bit (15m/50ft) Input: 3840x2160p @60Hz 4:2:0/4:4:4 8bit (7m/23ft) @24Hz 4:2:0 HDR 10bit (3m/9.8ft) Output: 3840x2160p @30Hz 4:4:4 8bit (7m/23ft) @24Hz 4:2:0 HDR 10bit (3m/9.8ft)</td> <td>Ethernet (Cat6/6a/7) 640x480i @60Hz 8bit (100m/328ft Point to Point) 1280x720p @60Hz 10bit (100m/328ft Point to Point) 1920x1080i @60Hz 12bit 1920x1080p @60Hz 12bit (100m/328ft Point to Point) 3840x2160p @60Hz 4:2:0/4:4:4 8bit @24Hz 4:2:0 HDR 10bit (100m/328ft Point to Point) Input: 3840x2160p @60Hz 4:2:0/4:4:4 8bit @24Hz 4:2:0 HDR 10bit (100m/328ft Point to Point) Output: 3840x2160p @30Hz 4:4:4 8bit @24Hz 4:2:0 HDR 10bit (100m/328ft Point to Point)</td> </tr> </table>	HDMI 640x480i @60Hz 8bit (15m/50ft) 1280x720p @60Hz 10bit (15m/50ft) 1920x1080i @60Hz 12bit (15m/50ft) 1920x1080p @60Hz 12bit (15m/50ft) Input: 3840x2160p @60Hz 4:2:0/4:4:4 8bit (7m/23ft) @24Hz 4:2:0 HDR 10bit (3m/9.8ft) Output: 3840x2160p @30Hz 4:4:4 8bit (7m/23ft) @24Hz 4:2:0 HDR 10bit (3m/9.8ft)	Ethernet (Cat6/6a/7) 640x480i @60Hz 8bit (100m/328ft Point to Point) 1280x720p @60Hz 10bit (100m/328ft Point to Point) 1920x1080i @60Hz 12bit 1920x1080p @60Hz 12bit (100m/328ft Point to Point) 3840x2160p @60Hz 4:2:0/4:4:4 8bit @24Hz 4:2:0 HDR 10bit (100m/328ft Point to Point) Input: 3840x2160p @60Hz 4:2:0/4:4:4 8bit @24Hz 4:2:0 HDR 10bit (100m/328ft Point to Point) Output: 3840x2160p @30Hz 4:4:4 8bit @24Hz 4:2:0 HDR 10bit (100m/328ft Point to Point)
HDMI 640x480i @60Hz 8bit (15m/50ft) 1280x720p @60Hz 10bit (15m/50ft) 1920x1080i @60Hz 12bit (15m/50ft) 1920x1080p @60Hz 12bit (15m/50ft) Input: 3840x2160p @60Hz 4:2:0/4:4:4 8bit (7m/23ft) @24Hz 4:2:0 HDR 10bit (3m/9.8ft) Output: 3840x2160p @30Hz 4:4:4 8bit (7m/23ft) @24Hz 4:2:0 HDR 10bit (3m/9.8ft)	Ethernet (Cat6/6a/7) 640x480i @60Hz 8bit (100m/328ft Point to Point) 1280x720p @60Hz 10bit (100m/328ft Point to Point) 1920x1080i @60Hz 12bit 1920x1080p @60Hz 12bit (100m/328ft Point to Point) 3840x2160p @60Hz 4:2:0/4:4:4 8bit @24Hz 4:2:0 HDR 10bit (100m/328ft Point to Point) Input: 3840x2160p @60Hz 4:2:0/4:4:4 8bit @24Hz 4:2:0 HDR 10bit (100m/328ft Point to Point) Output: 3840x2160p @30Hz 4:4:4 8bit @24Hz 4:2:0 HDR 10bit (100m/328ft Point to Point)		
Color Depth	1080p: 16bit 4K UHD: 8bit HDR @24p: 4:2:0 10bit BT.2020		
Maximum Pixel Clock	300 MHz		
Communication and Control			
HDMI	HDCP 2.2 CEC		
Ethernet	1x LAN (PoE): 8-pin RJ-45 female 10/100/1000Mbps PoE		
IR	1x IR TX: 3.5mm (1/8in) TS Mono Jack 1x IR RX: 3.5mm (1/8in) TRS Stereo Jack Bidirectional Over Ethernet		
RS-232	1x RS-232: 4-pin Phoenix Connector 2 Way (RX only)		
Power			
Power Supply	12V DC		
PoE	Standard		
Max Power Consumption	15W		
Environmental			
Operating Temperature	0 to + 45°C (32 to + 113 °F), 10% to 90%, non-condensing		
Storage Temperature	-20 to +70°C (-4 to + 158 °F), 10% to 90%, non-condensing		
Maximum BTU	51.18 BTU/hr		
Dimensions and Weight			
Rack Units Wall Box	0.56U Flat on Shelf 5U in NHD-000-RCK		
Height With Without Feet	N/A 25mm/0.99in		
Width With Without Brackets	250mm/9.85in 220mm/8.67in		
Depth With Without Handles	N/A 130.4mm/5.14in		
Weight	0.75kg/1.65lbs		
Regulatory			
Safety and Emission	CE FCC ROHS		

SPECIFICATIONS

Audio and Video	
Inputs	TX: 1x DP In: DisplayPort 20-pin 1x HDMI In: 19-pin type A 1x Audio In/Out: 3.5mm (1/8in) TRS Stereo RX: 1x 10GbE: 8-pin RJ-45 Female
Outputs	TX: 1x 10GbE: 8-pin RJ-45 Female 1x Audio In/Out: 3.5mm (1/8in) TRS Stereo RX: 1x HDMI Out: 19-pin type A 1x Audio Out: 3.5mm (1/8in) TRS Stereo
Output Video Encoding	SDVoE
Encoding Data Rate	Max: 10Gb/s
End to End Latency	Genlock Mode: Uncompressed = 30us, Compressed <120us Fast Switch Mode: 1~2 video frames = min. between 16.7 – 33.4ms @ 60fps
Audio Formats	2ch PCM Multichannel: LPCM and Up to Dolby Atmos and DTS-X
Video Resolutions (Max)	2160p @60Hz 8bit 4:4:4 2160p @60Hz 12bit 4:2:2
Color Depth	1080p: 12bit 2160p: 12bit 4:2:2 / 8bit 4:4:4
Maximum Pixel Clock	595 MHz
3D	HDMI 1.4b 3D: TnB, SbS, F.P
Communication and Control	
HDMI	HDMI HDCP 2.2
Ethernet	1x 10GbE SDVoE: 8-pin RJ-45 Female 10GBASE-T 1x LAN: 8-pin RJ-45 Female 1000BASE-T
IR	1x IR TX: 3.5mm (1/8in) TS Mono Jack 2 Way Broadcast Routed API Programmable 1x IR RX: 3.5mm (1/8in) TRS Stereo Jack 2 Way Broadcast Routed API Programmable
RS-232	1x RS-232: 4-pin Phoenix Connector 2 Way Broadcast Routed API Programmable
Power	
Power Supply	12V DC 3A
Max Power Consumption	TX: 15.24W RX: 18.64W
Environmental	
Operating Temperature	0 to + 45°C (32 to + 113 °F), 10% to 90%, non-condensing
Storage Temperature	-20 to +70°C (-4 to + 158 °F), 10% to 90%, non-condensing
Maximum BTU	51.18 BTU/hr
Dimensions and Weight	
Rack Units Wall Box	<1U
Height With Without Feet	45mm/1.78in 35mm/1.38in
Width With Without Brackets	263.6mm/10.38in 230mm/9.06in
Depth With Without Handles	139mm/5.48in
Weight	1.52kg/3.34lbs
Regulatory	
Safety and Emission	CE FCC ROHS



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Because the Technology Matters

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