



NETWORK HD





Abu Dhabi Global Market Courts  
Abu Dhabi, UAE

# THE POWER OF THREE

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 five year experience in AV over IP into our unique NetworkHD™ line, comprising of three distinct AV over IP technology platforms. With them all sharing the same installation and configuration experience, each series is designed for integrators to provide solutions perfectly tailored to their application.

**finch**  
RHYTHM & BREWS  
GEETA KIRPALANI

*"They've been doing IP-based solutions longer than anyone else, and they were very helpful and supportive"*

*"Using the NetworkHD solution gave us the flexibility we needed. The solid performance made it an easy selection"*

**OPUS|2**  
RICHARD PAGE

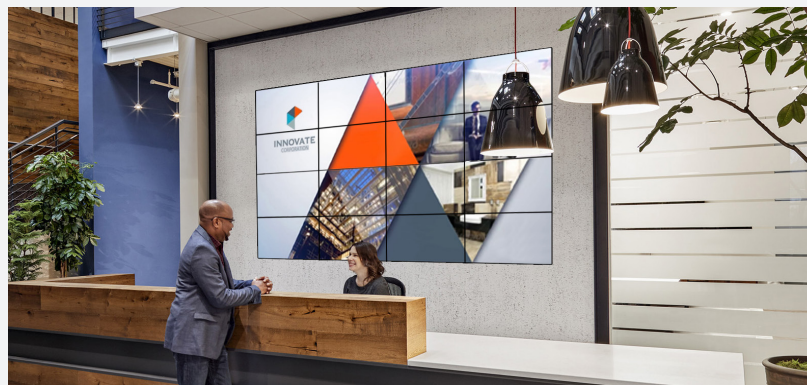


# WHAT IS AV OVER IP?

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.



# ADVANTAGES OF USING AN AV OVER IP SOLUTION



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

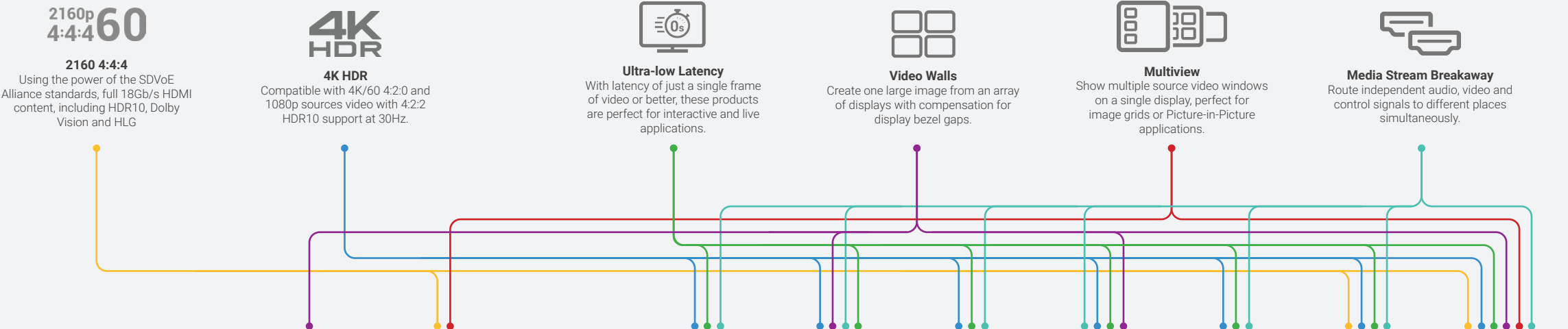


Overcome distance limitations by utilizing optical fiber network links



AV distribution is now as flexible as your network

# WHAT IS THE RIGHT SOLUTION FOR YOUR INSTALL?



	NHD-100-TX	NHD-100-RX	NHD-140-TX	NHD-200-TX	NHD-210-RX	NHD-250-RX	NHD-300-TX	NHD-400-E-TX	NHD-400-E-RX	NHD-400-TX	NHD-400-RX	NHD-400-DNT-TX	NHD-600-TX	NHD-600-RX
Max. Resolution	1920x1200 (1080p)	1920x1200 (1080p)	1920x1200 (1080p)	1920x1200 (1080p)	1920x1200 (1080p)	3840x2160 (4K)	1920x1200 (1080p)	4K UHD	4K UHD	4K UHD	4K UHD	4K UHD	4K UHD/DCI	4K UHD/DCI
Compression Codec	H.264	H.264	H.264	H.264	H.264	H.264	H.264	JPEG 2000	JPEG 2000	JPEG 2000	JPEG 2000	JPEG 2000	SDVoE	SDVoE
Max. 4K Timing	✗	✗	✗	✗	✗	60fps 4:4:4	✗	60fps 4:2:0	60fps 4:2:0	60fps 4:2:0	60fps 4:2:0	60fps 4:2:0	60fps 4:4:4	60fps 4:4:4
Multichannel Audio	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓
Min. Latency	250ms (High Quality Mode) 60ms (Low Latency Mode)	250ms (High Quality Mode) 60ms (Low Latency Mode)	250ms (High Quality Mode) 60ms (Low Latency Mode)	250ms (High Quality Mode) 60ms (Low Latency Mode)	250ms (High Quality Mode) 60ms (Low Latency Mode)	250ms (High Quality Mode) 60ms (Low Latency Mode)	RTP, RTSP: ~500ms HTTP: ~1.5s	16ms 60fps	16ms 60fps	16ms 60fps	16ms 60fps	16ms 60fps	0ms (Genlock)	0ms (Genlock)
PoE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Video Wall	✓	✗	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓
Bezel Gap Correction	NA	NA	NA	NA	✓	NA	✗	NA	✓	NA	✓	NA	NA	✓
Image Rotation	✗	✗	✗	✗	✓	✗	✗	✗	✓	✗	✓	✗	✗	✓
Bandwidth Control	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✓	✓
CEC	✗	✓	✗	✗	✓	✓	✗	✗	✓	✗	✓	✗	✗	✓
HDMI Passthrough	✗	✗	✗	✗	✗	✗	✓	✓	✗	✓	✗	✓	✗	✗
HDR	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓
Instant Switching	✓	✓	✓	✓	✓	✓	NA	✗	✗	✗	✗	✗	✓	✓
Max. Video Wall Size	✗	NA	NA	NA	10x10	NA	NA	NA	16x16	NA	16x16	NA	NA	8x8
Multiview	✓	✗	✓	✓	✗	✓	✗	✗	✗	✗	✗	✗	✓	✓
Network Type	1Gb Multicast	1Gb Multicast	1Gb Multicast	1Gb Multicast	1Gb Multicast	1Gb Multicast	1Gb Multicast/ Unicast	1Gb Multicast	1Gb Multicast	1Gb Multicast	1Gb Multicast	1Gb Multicast	10Gb Multicast	10Gb Multicast
Peak Bandwidth	30 Mb/s	30 Mb/s	120 Mb/s	30 Mb/s	30 Mb/s	270 Mb/s	?	850 Mb/s	850 Mb/s	850 Mb/s	850 Mb/s	850 Mb/s	10 Gb/s	10 Gb/s
Rack Mountable	✓ NHD-000-RACK4	✓ NHD-000-RACK4	✓ NHD-000-RACK4 NHD-140-RACK-1U	✓ NHD-000-RACK4	✓ NHD-000-RACK4	✓ NHD-000-RACK4	✓ NHD-000-RACK4 NHD-140-RACK-1U	✓ NHD-000-RACK4	✓ NHD-000-RACK4	✓ NHD-000-RACK4	✓ NHD-000-RACK4	✓ NHD-000-RACK4	✓ NHD-000-RACK3	✓ NHD-000-RACK3
Warranty (years)	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Drivers	Crestron™, AMX™, RTI™, Control4™	Crestron™, AMX™, RTI™, Control4™	Crestron™, AMX™, RTI™, Control4™	Crestron™, AMX™, RTI™, Control4™	Crestron™, AMX™, RTI™, Control4™	Crestron™, AMX™, RTI™, Control4™	NA	Crestron™, AMX™, RTI™, Control4™	Crestron™, AMX™, RTI™, Control4™	Crestron™, AMX™, RTI™, Control4™	Crestron™, AMX™, RTI™, Control4™	Crestron™, AMX™, RTI™, Control4™	Crestron™, RTI™, Control4™	Crestron™, RTI™, Control4™



NETWORKHD™ 600 SERIES

NETWORKHD™

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.

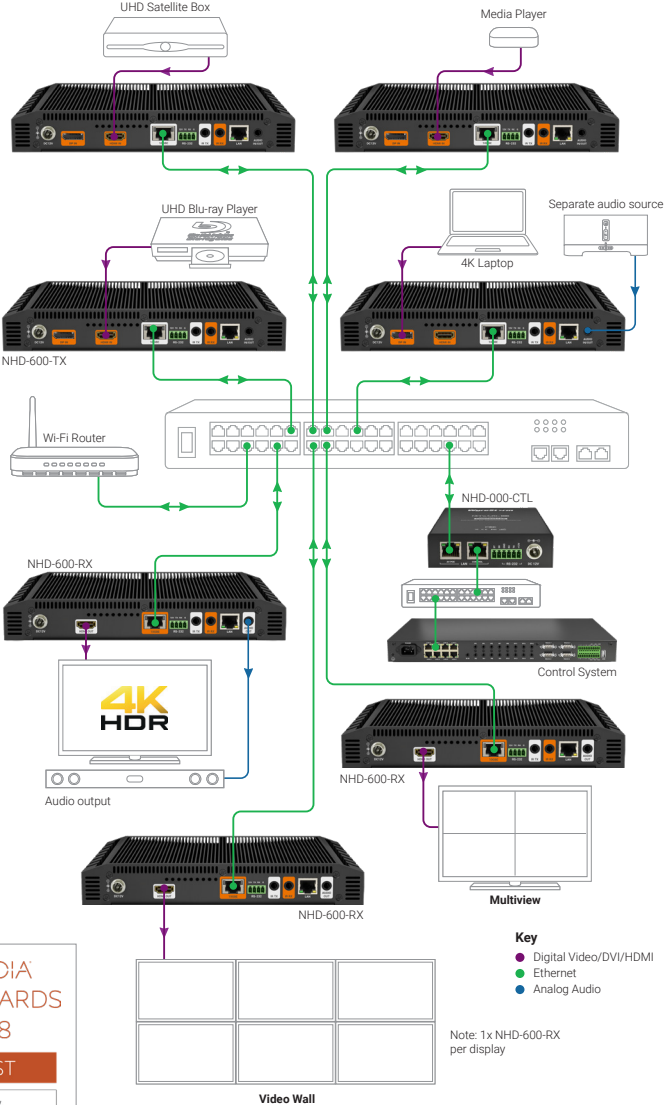
FEATURES

- 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 8x8 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

SUITABLE APPLICATIONS



WyreStorm written drivers available for major control systems:



NHD-600-TX  
NHD-600-RX



Compatible with Domotz Remote Network Monitoring and Management Software

Please contact your authorized WyreStorm representative or [marketing@wyrestorm.com](mailto:marketing@wyrestorm.com) for product comparison tables.



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



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
- Integrates with major control systems, including the free NetworkHD Touch™ iPad control app
- Dual Ethernet ports for complete isolation of control and AV network traffic
- Optional PoE power



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



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



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



# NETWORKHD™ 400 SERIES

# NETWORK HD™

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

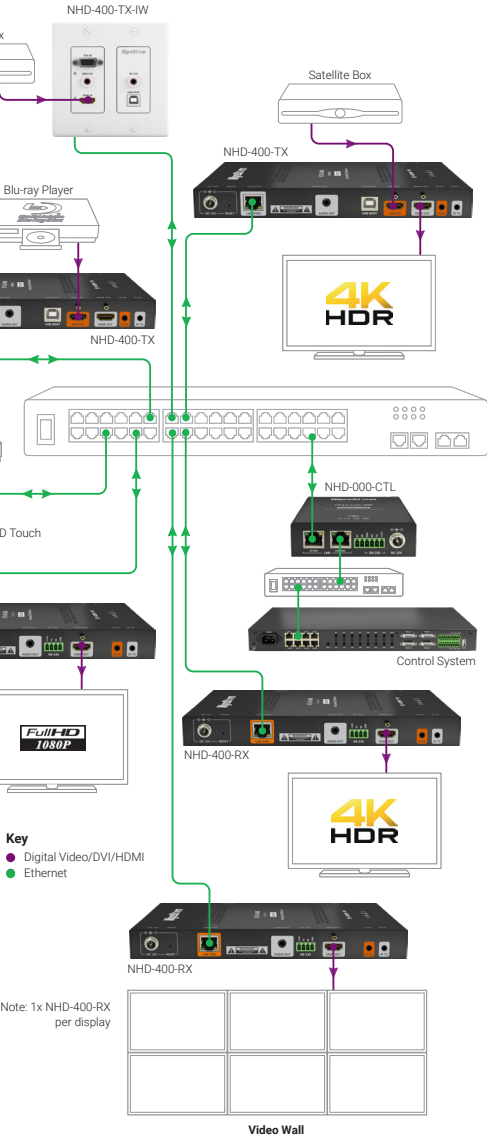
The NetworkHD™ 400 Series offers stunning 4K HDR video, multi-channel audio support and 4K/2K auto-scaling to seamlessly handle distribution of mixed resolution sources, content and display devices over a 1GbE network.

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 only 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 breakaway 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



NHD-400-TX

NHD-400-RX



Compatible with Domotz Remote Network Monitoring and Management Software

WyreStorm written drivers available for major control systems:



### NetworkHD™ 400 Series 4K AV over IP JPEG 2000 Encoder/Decoder

#### NHD-400-TX | NHD-400-RX

- Stunning visually lossless 4K UHD video with HDR and multi-channel audio up to DTS:X and Dolby Atmos
- Ultra low, single frame latency
- 4K/1080p image scaling for mixed resolution installs
- NetworkHD Touch™ iPad control app for live video previews and drag and drop source selection
- Breakaway, independent routing of all video, audio, IR, USB and RS-232 streams
- Up to 16x16 video walls
- USB passthrough, CEC display control and bidirectional IR control of connected devices



### NetworkHD™ 400 Series 4K AV over IP JPEG 2000 Encoder/Decoder

#### NHD-400-E-TX | NHD-400-E-RX

- Type E devices provide the 400 Series core features while keeping cost at a minimum
- Stunning visually lossless 4K UHD video distribution with HDR and multi-channel audio support
- Ultra-low, single frame latency
- NetworkHD Touch™ iPad control app for live video previews with Drag & Drop source selection
- Video and Audio breakaway allows separate routing for media streams
- Build scalable A/V distribution systems based on reliable and mature network standards
- Use with 400 Series decoders to support video walls up to 16x16 displays



### ONE PER SYSTEM



### Controller for NetworkHD™ Systems

#### NHD-000-CTL



### NetworkHD™ 400 Series 4K AV over IP JPEG 2000 Encoder with Dante

#### NHD-400-DNT-TX

- Integrated 2-channel Dante encoder for independent audio streaming with AES67 support
- Stunning visually lossless 4K UHD video distribution with HDR and multi-channel audio support
- Ultra-low, single frame latency
- NetworkHD Touch™ iPad control app for live video previews with Drag and drop source selection
- Video, Audio, USB and Infrared breakaway allows separate routing for media streams
- Custom Infrared and RS-232 control of video sources
- Use with 400 Series decoders to support video walls up to 16x16 displays



### NetworkHD™ 400 Series In-Wall 4K AV over IP JPEG 2000 Encoder

#### NHD-400-TX-IW

- Stunning visually lossless 4K UHD video with HDR and multichannel audio support
- Ultra-low latency for both HDMI or VGA sources
- 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 breakaway can route audio separately from video to any decoder
- Up to 16x16 video walls
- USB passthrough and RS-232 control of connected devices



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



# NETWORKHD™ 200 SERIES

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

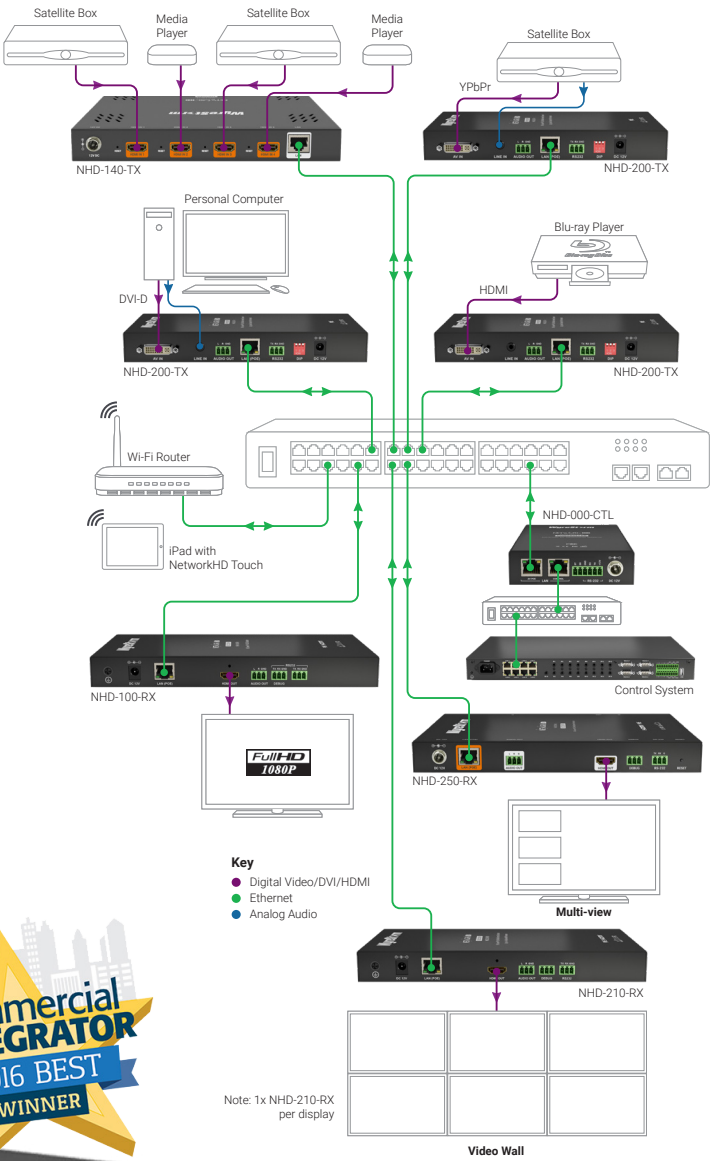
The NetworkHD™ 200 Series utilizes the same low bandwidth, infinitely scalable H.264 technology as the 100 Series, but adds powerful video wall support up to 10x10 and multi-format input connectivity of HDMI, DVI-D, Component and VGA for the best all-round solution for commercial AV installations.

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-250-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-250-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



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

Note: 1x NHD-210-RX per display

Video Wall



NHD-200-TX

NHD-210-RX



### 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™ AV over IP H.264 Multiview Processor

#### NHD-250-RX

- Powerful multiview processor for displaying multiple video sources on a single display
- Arbitrary window size, placement and layering with assignable audio
- 4K video upscaling can present HD sources in native resolutions
- Seamlessly integrates with NetworkHD 100 and 200 Series encoders
- NetworkHD Touch™ control app for live video previews with drag and drop source selection
- Utilizes bandwidth-efficient H.264 encoding for visually lossless HD video distribution
- Audio de-embed, CEC and RS-232 control of connected devices



### ONE PER SYSTEM



### Controller for NetworkHD™ Systems

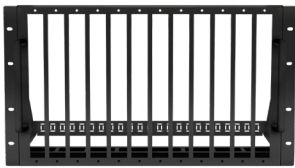
#### NHD-000-CTL



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

#### NHD-210-RX

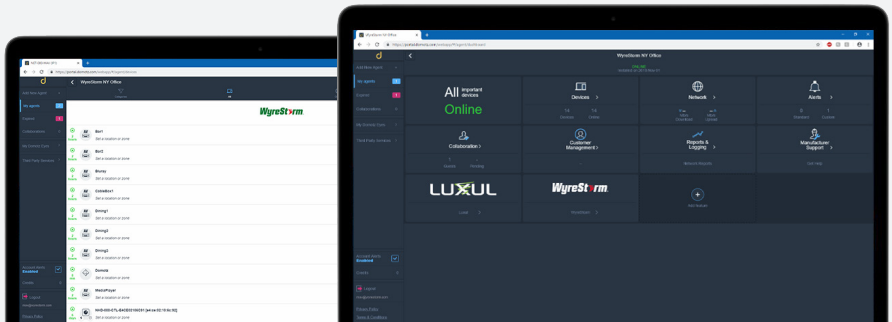
- Multi-format HD over IP AV distribution solution utilizing H.264 compression
- Offers video wall functionality up to 10x10 screens and matrix switching
- Analog audio breakout
- Instant switching between video sources with high quality and low latency modes
- Plug and play configuration, auto IP addressing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



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

#### NHD-000-RACK4

## Working With domotz



Using the powerful network analysis tools, the new WyreStorm Tile within the Domotz management platform allows immediate status updates and remote monitoring of the NetworkHD AV over IP product line. This will reduce truck rolls and increase profits through managed service agreements. The tile provides dealers with detailed information about WyreStorm products allowing a problem to either be resolved remotely or be properly prepared when arriving on site.

Furthermore, the ingenious notifications feature allows an Integrator to be immediately informed when an event occurs, useful for logging or fault-finding purposes. Domotz allows integrators to stay informed and prepared when unexpected events happen and offer the tools to remotely support any installation from anywhere in the world.

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

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](mailto:marketing@wyrestorm.com) for product comparison tables.



NETWORKHD™ 100 SERIES

NETWORKHD™

Low bandwidth HD over 1GbE using H.264 technology

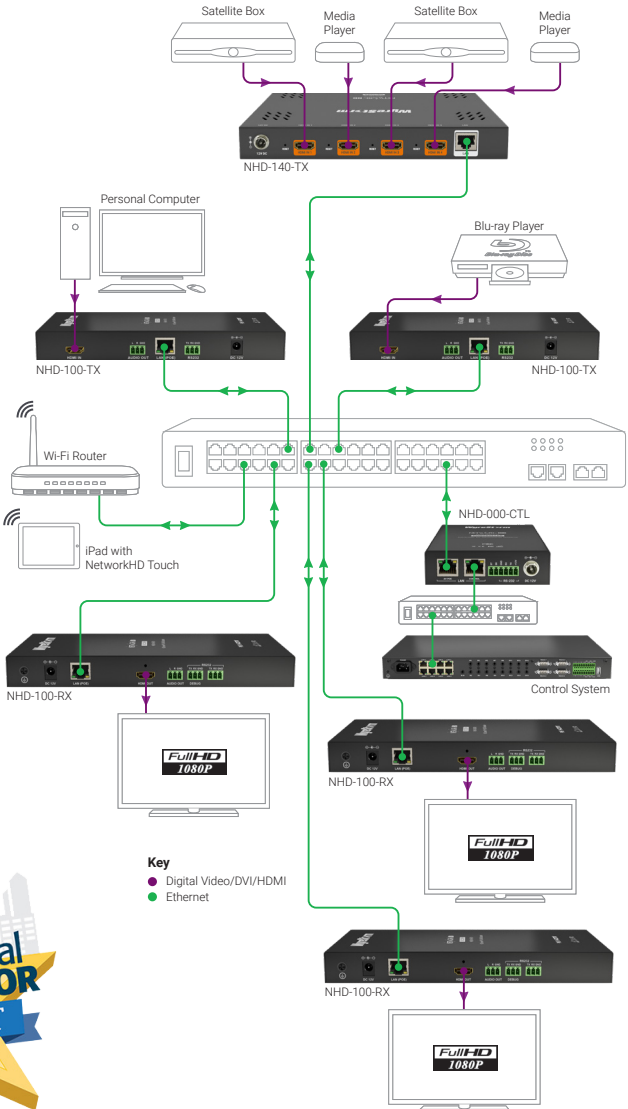
Intended for commercial applications over 16x16, the NetworkHD™ 100 Series is an Ethernet-based HD over IP matrix solution using low bandwidth H.264 technology for distribution of HD video, audio and control signals over a 1GbE network using a standard PoE switch.

Featuring simple set-up and auto-detection of components, the 100 Series offers easy configuration and almost unlimited scalability to suit commercial applications of virtually any size.

FEATURES

- Highly scalable, high quality low-bandwidth solution using the most efficient compression technologies to allow for very large commercial AV deployments
- Supports input signal resolution up to 1920x1200 60Hz
- Plug and Play setup with quick networking configuration and auto discovery of components
- QuickSync™ instant switching
- Provides streaming output via Ethernet port
- Full RS-232 control of connected displays and CEC One-Touch Play
- Free NetworkHD Touch™ iPad control app for live video previews and drag and drop source selection
- Major control systems drivers available

SUITABLE APPLICATIONS



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](mailto:marketing@wyrestorm.com) for product comparison tables.



NetworkHD™ 100 Series AV Over IP H.264 Encoder

NHD-100-TX

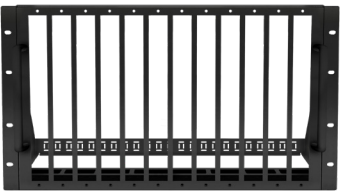
- Highly scalable AV over IP solution using the most efficient H.264 compression technology to allow for very large commercial AV deployments
- Configurable H.264 decoding technologies supporting up to 1920x1200 60fps at 30Mb/s and below
- Plug-and-Play setup with auto discovery of components
- Supports NetworkHD Touch™ iPad control app and major control systems



NetworkHD™ 100 Series AV Over IP H.264 Decoder

NHD-100-RX

- Compatible decoder for both 100 and 200 Series encoders supporting matrix-only functionality
- Industry-leading seamless source switching speeds of <500ms
- Full RS-232 control and CEC commands for connected display
- High or low latency modes (250ms - 60ms)
- Stereo audio breakout
- Supports NetworkHD Touch™ iPad control app and major control systems



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

NHD-000-RACK4

- Supports NetworkHD 100, 200 and 400 Series and NHD-000-CTL Controller
- 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

ONE PER SYSTEM



Controller for NetworkHD™ Systems

NHD-000-CTL

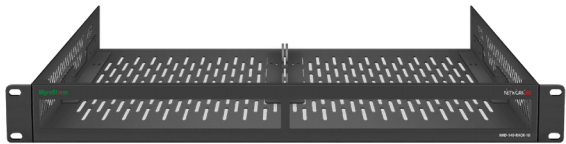
- Provides automatic discovery of NetworkHD encoders and decoders
- Simple, single screen browser configuration of encoder and decoder settings
- Integrates with major control systems, including the free NetworkHD Touch™ iPad control app
- Dual Ethernet ports for complete isolation of control and AV network traffic
- Optional PoE power



NetworkHD™ 100 Series AV over IP H.264 Quad Encoder

NHD-140-TX

- 4-input AV over IP encoder provides class-leading component density for very large commercial deployments
- Combines 4x separate H.264 streams to one Ethernet output at 120Mb/s and below, with 1920x1200 60fps and interlaced format support
- Each stream is compatible with any NetworkHD 100 or 200 Series decoder for matrix, video wall or multiview applications
- Supports NetworkHD Touch™ iPad control app and other leading control systems



1U/2 Slot Rack Mount for NetworkHD™ NHD-140-TX

NHD-140-RACK-1U



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



# NETWORKHD TOUCH

## A FREE, PRECONFIGURED AND POWERFULLY SIMPLE CONTROL INTERFACE FOR NETWORKHD AV OVER IP PRODUCTS.

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 and more.

### 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.

### THE BEST AV CONTROL SOLUTION... PERIOD

A unique real-time video preview of all sources and selection and simple drag and drop source switching provides the best end-user control experience on the market. And it's completely free with NetworkHD.

### MULTI-ZONE DEMONSTRATION MODE

Test drive Touch in demo mode without carrying an entire NetworkHD system with you and show off the incredible capabilities of the interface to clients with a full multi-zone sports bar demonstration.

### CUSTOM, ON-THE-FLY MULTIVIEW LAYOUTS

Drag source windows to a display and resize in real-time using two fingers. Create dynamic Multiview layouts for interactive, live environments.

### PRESETS AND DISPLAY CONTROL

Designed with a simple and intuitive control experience in mind, with a single press, users can recall layout presets or turn display groups on or off.



SCAN QR CODE TO DOWNLOAD  
THE NETWORKHD TOUCH APP  
TO YOUR APPLE IPAD DEVICE



COMING Q3 2020

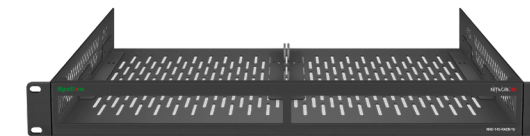
#### NetworkHD™ 300 Series AV over IP H.264 Open Standards Streaming Encoder

##### NHD-300-TX

- Open standard H.264 video encoding with configurable stream parameters
- Supports HTTP, RTSP, RTP, RTMP, HLS, UDP, Multicast, Unicast streaming
- Up to 1080p resolution with configurable EDID and output scaling
- Multiple simultaneous encoded outputs using different stream formats
- HDMI passthrough for in-line applications and optional analog audio embedding
- Compatible with online live streaming services
- Rack mount options include NHD-000-RACK4 and NHD-140-RACK-1U

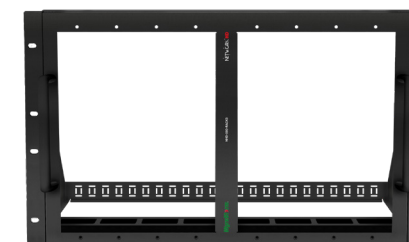


## RACK MOUNTING SOLUTIONS: 3 OPTIONS FOR MOUNTING NETWORKHD AND PRO AV DEVICES



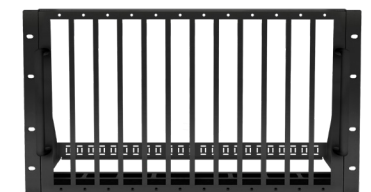
#### 1U/2 Slot Rack Mount for NetworkHD™ NHD-140-TX NHD-140-RACK-1U

- Specifically designed to mount one or two NHD-140-TX, NHD-300 Series or CON-H2-DD-EARC side-by-side
- 1U height and shallow depth allows for high encoder density in an AV or IT equipment rack
- Encoders can be mounted with connections front or rear facing to suit alternative cable management designs
- Provides optimal thermal dissipation in a passively or actively cooled rack design to maintain premium device performance and MTBF
- Enables systems to be pre-built into the rack kit prior to arriving on site to improve speed and efficiency of installation
- Sturdy all-steel design creates a solid structure for supporting NetworkHD NHD-140-TX Quad Encoders
- Includes 4x mounting brackets, 1x blanking plate and screws



#### 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



#### 6U/12 Slot Rack Mount for NetworkHD™ 100/200/300/400 Series NHD-000-RACK4

- Supports NetworkHD 100, 200, 300 and 400 Series and NHD-000-CTL Controller
- 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



# COMMERCIAL CASE STUDY



## Global Market Courtroom

Abu Dhabi, UAE

**Abu Dhabi opens the “world’s first” digital courtroom, a new AV installation that could improve litigation efficiency.**

With a mission to create more streamlined judicial proceedings, the Abu Dhabi Global Market Courts (ADGM) has become a pillar of modernity. A paperless court in the UAE that abides by British law seems a paradoxical sight to behold but could this be the future of the courtroom?

Video distribution was a critical element of the install due to the various information available within courtroom processing that needs to be made available to every delegate/counsel as per their needs and role.

The digital courtroom was set up using the NetworkHD 400 Series, a modular video-over-IP distribution system from WyreStorm, which can connect any source over an open matrix. “We wanted to deploy HDMI-over-IP due to the amount of video distribution taking place. We had 27 desks in the courtroom, each with three screens, and 12 large-format displays that had content that could be controlled both by the control room operators and users working at the desks. Using a video-over-IP solution gave us the flexibility we needed to deliver the solution and will allow us to upgrade the courtroom over the coming years. The solid performance of the WyreStorm encoders also made it an easy selection,” explains Richard Page, head of technical projects at Opus 2.

**Client:** Abu Dhabi Global Market Courts  
**Completion Date:** 2019  
**Product Installed:** NetworkHD 400 Series



# COMMERCIAL CASE STUDY



## London Metropolitan University

London, England

**Abu Dhabi opens the “world’s first” digital courtroom, a new AV installation that could improve litigation efficiency.**

London Metropolitan University came in to existence in 2002, with the merger of the University of North London and the London Guildhall University. In 2006, as part of an ambitious programme to make the institution the leading choice for science students, London Met invested more than £30 million developing a state-of-the-art Science Centre.

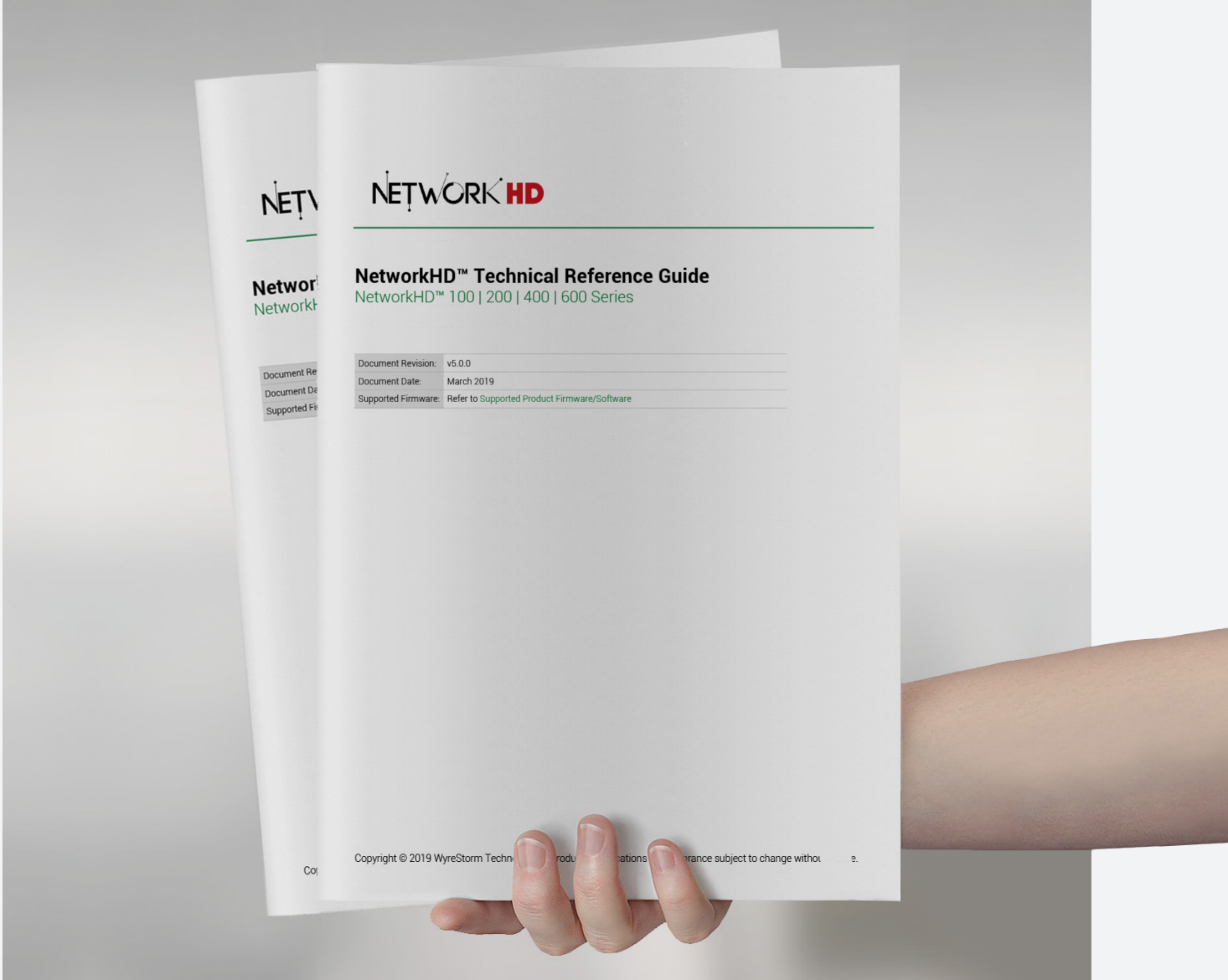
At the time, the ‘Superlab’ as it has become known, achieved a host of firsts. It was the first open plan laboratory that offered the whole range of science to be carried out simultaneously at 280 work stations, the first educational lab to use advanced AV technology and was one of only two university labs to achieve a BREEAM excellent rating. This 800m2 space thus offers exceptional teaching and research facilities and remains the largest, most advanced science teaching facility in Europe.

WyreStorm has rapidly become a leader in AV over IP technologies with its NetworkHD line offering. Reflex duly designed a NetworkHD AV over IP scheme for the Superlab and then in conjunction with WyreStorm, set about extensive testing to ensure that the existing Cat5 infrastructure would be able to handle the planned installation. 12x WyreStorm NetworkHD NHD-400-TX encoders were installed to carry 4K HDMI signals to 268x WyreStorm NHD-400-RX decoders.

**Client:** London Metropolitan University  
**Completion Date:** 2018  
**Product Installed:** NetworkHD 400 Series







## 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 BUILD CHECK LIST

Decoder	Encoder	Platform	Function	Controller	Rack Kit	Control
NHD-100-RX	NHD-100-TX NHD-140-TX NHD-200-TX	H.264	• Matrix with Fast Switch	NHD-000-CTL	NHD-000-RACK4 (NHD-140-RACK-1U)	NetworkHD Touch NetworkHD Device Drivers NetworkHD API
NHD-210-RX	NHD-100-TX NHD-140-TX NHD-200-TX	H.264	• Video Wall	NHD-000-CTL	NHD-000-RACK4 (NHD-140-RACK-1U)	NetworkHD Touch NetworkHD Device Drivers NetworkHD API
NHD-250-RX	NHD-100-TX NHD-140-TX NHD-200-TX	H.264	• Multiview	NHD-000-CTL	NHD-000-RACK4 (NHD-140-RACK-1U)	NetworkHD Touch NetworkHD Device Drivers NetworkHD API
NHD-400-RX	NHD-400-TX NHD-400-TX-IW	JPEG 2000	• 4K HDR Matrix with low-latency • Video wall	NHD-000-CTL	NHD-000-RACK4	NetworkHD Touch NetworkHD Device Drivers NetworkHD API
NHD-600-RX	NHD-600-TX	SDVoE	• 4K60 4:4:4 Matrix with zero-latency • Video wall • Multiview	NHD-000-CTL	NHD-000-RACK3	NetworkHD Device Drivers NetworkHD API

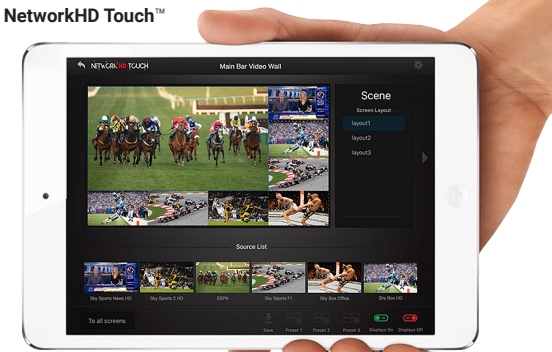


## SYSTEM DESIGN ASSISTANCE

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](mailto:systemdesigns@wyrestorm.com) and let us help you get your project started!





# SPECIFICATIONS 600 SERIES

## NHD-600-TX

AUDIO AND VIDEO	
Inputs	1x DP In: DisplayPort 20-pin 1x HDMI In: 19-pin type A 1x Audio In/Out: 3.5mm (1/8in) TRS Stereo
Outputs	1x 10GbE: 8-pin RJ-45 Female 1x Audio In/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
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	15.24W
ENVIRONMENTAL	
Operating Temperature	+32°F~+104°F (0°C~+40°C)   10%~90% non-condensing
Storage Temperature	-4°F~140°F (-20°C~+70°C)   10%~90% non-condensing
Maximum BTU	52 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

## NHD-600-RX

AUDIO AND VIDEO	
Inputs	1x 10GbE: 8-pin RJ-45 Female
Outputs	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
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	18.64W
ENVIRONMENTAL	
Operating Temperature	+32°F~+104°F (0°C~+40°C)   10%~90% non-condensing
Storage Temperature	-4°F~140°F (-20°C~+70°C)   10%~90% non-condensing
Maximum BTU	63.6 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



# SPECIFICATIONS 400 SERIES

## NHD-400-DNT-TX

Audio and Video		
Inputs	1x HDMI In: 19-pin HDMI Type A Receptacle 1x Audio In: 3.5mm TRS Stereo Jack Socket	1x IR RX: 3.5mm TRS Jack Socket
Outputs	1x LAN (PoE): 8P8C "RJ45" Socket ANSI/TIA-568 1x Audio Out: 3.5mm TRS Stereo Jack Socket 1x IR TX: 3.5mm TS Jack Socket	1x RS-232: 3-pin Phoenix 1x USB Host: USB 2.0 Type B Receptacle
Transmssion Encoding	Proprietary stream encoding. Video compression based on JPEG 2000 Dante / AES67 compliant audio stream encoding	
End to End Latency	With RX, 1 video frame (Passthrough mode) 2 video frames (scaling/video wall) e.g. 16ms @ 60Hz	
Max Transmission Bit Rate	850Mb/s	
Maximum Data Rate	8.91Gb/s HDMI	
Audio Formats	PCM up to 8ch   Bitstream audio formats including Dolby Atmos & DTS:X   2ch Analog Dante: Up to 2ch PCM (HDMI)   2ch Analog	
Video Resolutions (Max)	1280x720p @50/59.94/60Hz 12bit 4:4:4/RGB 1920x1080i @29.97/30Hz 12bit 4:4:4/RGB 1920x1080p @23.98/24/25/29.97/30/50/59.94/60Hz 12bit 4:4:4/RGB 3840x2160p @23.98/24/25/29.97/30Hz 10/12bit 4:2:2/4:2:0 HDR10 HLG 3840x2160p @23.98/24/25/29.97/30Hz 8bit 4:4:4/RGB 3840x2160p @50/59.94/60Hz 8bit 4:2:0 720x480p @59.94/60Hz 12bit 4:4:4/RGB 720x576p @50Hz 12bit 4:4:4/RGB 60fps Progressive 4:4:4/RGB: 640x480   800x600   1024x768   1280x800   1280x960   1280x1024   1360x768   1366x768   1400x1050   1440x900   1600x1200   1680x1050   1920x1200	
Supported Standards	HDR10   HLG   BT.2020   BT.709   3D Video	
Communication and Control		
HDMI	300MHz Max.TMDS Clock	
Ethernet	IEEE 802.1ab 1000BASE-T	
HDCP	HDCP 2.2   1.x	
EDID	Programmable EDID   EDID Copy/Import   Custom EDID	
RS-232	Programmable RS-232 Commands   Custom Command Generation	
IR	Custom Command Generation	
Dante	Full compatibility with Audinate control and management software tools for Dante	
Power		
Power Over Ethernet	IEEE 802.3af (15.4W at PSE)	
External Power Supply	Optional part: PSU-12V-1A	
Nominal Power Consumption	8W	
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 flat on shelf   6U in NHD-000-RACK4	
Height	25mm/1in	
Width	220mm/8.67in	
Depth	130mm/5.12in	
Weight	0.75kg/1.65lbs	
Regulatory		
Safety and Emission	CE   FCC   RCM   CE LVD   RoHS	

## NHD-400-TX

Audio and Video		
Inputs	1x HDMI In: 19-pin HDMI Type A	
Outputs	1x HDMI Out: 19-pin HDMI Type A 1x Audio Out: 3.5mm (1/8in) TRS Stereo 1x 8-pin RJ-45	
Output Video Encoding	JPEG 2000	
Encoding Data Rate	Max: 850Mbps	
End to End Latency	1 video frame latency (pass-through mode) 16ms @60fps   2 video frames latency (scaler/VW mode) 33ms @60fps	
Audio Formats	2ch LPCM   Multichannel: LPCM Up to 7.1 and Up to DTS:X and Dolby Atmos	
Video Resolutions (Max)	<b>Input at TX</b> 1280x720p @50/59.94/60Hz 12bit 4:4:4 RGB 1920x1080i @29.97/30Hz 12bit 4:4:4 RGB 1920x1080p @23.98/24/25/29.97/30/50/59.94/60Hz 12bit 4:4:4/RGB 12b 3840x2160p @23.98/24/25/29.97/30Hz 10/12bit 4:2:2/4:2:0 HDR-10 HLG 3840x2160p @23.98/24/25/29.97/30Hz 8bit 4:4:4 RGB 3840x2160p @50/59.94/60Hz 8bit 4:2:0 720x480p @59.94/60Hz 12bit 4:4:4 RGB 720x576p @50Hz 12bit 4:4:4 RGB 60fps Progressive 4:4:4/RGB: 640x480   800x600   1024x768   1280x800   1280x960   1280x1024   1360x768   1366x768   1400x1050   1440x900   1600x1200   1680x1050   1920x1200	
	<b>Output at RX</b> <b>Pass-through mode (always RGB)</b> Up to 3840x2160p @30Hz 8bit HDR-10 Up to 1920x2160 @60Hz 12bit	<b>Scaler mode (always RGB 8bit)</b> Up to 3840x2160p @30Hz Up to 1920x1080p @60Hz
	Maximum Pixel Clock	300 MHz
Communication and Control		
HDMI	HDMI   HDCP 2.2   CEC	
Ethernet	1x LAN (PoE): 8-pin RJ-45 ANSI/TIA-568 8P8C, 1000Base-T, PoE PD (IEEE 802.3af)	
USB (Version 2 Only)	RX: 2x USB Device: USB Type A   TX: 1x USB Host: USB Type B	
IR	1x IR TX: 3.5mm (1/8in) TS Mono   1x IR RX: 3.5mm (1/8in) TRS Stereo   Bidirectional Over Ethernet	
RS-232	1x RS-232: 4-pin Phoenix   2 Way (RX only)	
Power		
Power Supply	12V DC	
PoE	IEEE 802.3af (15.4W at PSE)	
Max Power Consumption	8W (with PSU)	
Environmental		
Operating Temperature	+32°F~+104°F (0°C~+40°C)   10%~90% non-condensing	
Storage Temperature	-4°F~140°F (-20°C~+70°C)   10%~90% non-condensing	
Maximum BTU	51.18 BTU/hr	
Dimensions and Weight		
Rack Units   Wall Box	<1U flat on shelf   6U in NHD-000-RACK4	
Height With   Without Feet	25mm/1in	
Width With   Without Brackets	220mm/8.67in	
Depth With   Without Handles	130mm/5.12in	
Weight	0.75kg/1.65lbs	
Regulatory		



NHD-400-RX

Audio and Video		
Inputs	1x 8-pin RJ-45	
Outputs	1x HDMI Out 19-pin type A 1x Audio Out: 3.5mm (1/8in) TRS Stereo	
Output Video Encoding	JPEG 2000	
Encoding Data Rate	Max: 850Mbps	
End to End Latency	1 video frame latency (pass-through mode) 16ms @60fps   2 video frames latency (scaler/VW mode) 33ms @60fps	
Audio Formats	2ch LPCM   Multichannel: LPCM Up to 7.1 and Up to DTS:X and Dolby Atmos	
Video Resolutions (Max)	<b>Input at TX</b> 1280x720p @50/59.94/60Hz 12bit 4:4:4 RGB 1920x1080i @29.97/30Hz 12bit 4:4:4 RGB 1920x1080p @23.98/24/25/29.97/30/50/59.94/60Hz 12bit 4:4:4/RGB 12b 3840x2160p @23.98/24/25/29.97/30Hz 10/12bit 4:2:2/4:2:0 HDR-10 HLG 3840x2160p @23.98/24/25/29.97/30Hz 8bit 4:4:4 RGB 3840x2160p @50/59.94/60Hz 8bit 4:2:0 720x480p @59.94/60Hz 12bit 4:4:4 RGB 720x576p @50Hz 12bit 4:4:4 RGB 60fps Progressive 4:4:4/RGB: 640x480   800x600   1024x768   1280x800   1280x960   1280x1024   1360x768   1366x768   1400x1050   1440x900   1600x1200   1680x1050   1920x1200	
	<b>Output at RX</b> <b>Pass-through mode (always RGB)</b> Up to 3840x2160p @30Hz 8bit HDR-10 Up to 1920x2160 @60Hz 12bit	<b>Scaler mode (always RGB 8bit)</b> Up to 3840x2160p @30Hz Up to 1920x1080p @60Hz
	Maximum Pixel Clock	300 MHz
Communication and Control		
HDMI	HDMI   HDCP 2.2   CEC	
Ethernet	1x LAN (PoE): 8-pin RJ-45 ANSI/TIA-568 8P8C, 1000Base-T, PoE PD (IEEE 802.3af)	
USB (Version 2 Only)	RX: 2x USB Device: USB Type A   TX: 1x USB Host: USB Type B	
IR	1x IR TX: 3.5mm (1/8in) TS Mono   1x IR RX: 3.5mm (1/8in) TRS Stereo   Bidirectional Over Ethernet	
RS-232	1x RS-232: 4-pin Phoenix   2 Way (RX only)	
Power		
Power Supply	12V DC	
PoE	IEEE 802.3af (15.4W at PSE)	
Max Power Consumption	8W (with PSU)	
Environmental		
Operating Temperature	+32°F~+104°F (0°C~+40°C)   10%~90% non-condensing	
Storage Temperature	-4°F~140°F (-20°C~+70°C)   10%~90% non-condensing	
Maximum BTU	51.18 BTU/hr	
Dimensions and Weight		
Rack Units   Wall Box	<1U flat on shelf   6U in NHD-000-RACK4	
Height With   Without Feet	25mm/1in	
Width With   Without Brackets	220mm/8.67in	
Depth With   Without Handles	130mm/5.12in	
Weight	0.75kg/1.65lbs	
Regulatory		
Safety and Emission	CE   FCC   ROHS	

NHD-400-E-TX

Audio and Video		
Inputs	1x HDMI IN: 19-pin HDMI Type A	
Outputs	1x LAN (PoE): 8P8C "RJ45" Socket ANSI/TIA-568	
Transmssion Encoding	Proprietary stream encoding. Video compression based on JPEG 2000	
End to End Latency	With RX, 1 video frame (Passthrough mode) 2 video frames (scaling/video wall) e.g. 16ms @ 60Hz	
Max Transmission Bit Rate	850Mb/s	
Maximum Data Rate	8.91Gb/s HDMI	
Audio Formats	PCM up to 8ch   Bitstream audio formats including Dolby Atmos & DTS:X	
Video Resolutions (Max)	1280x720p @50/59.94/60Hz 12bit 4:4:4/RGB 1920x1080i @29.97/30Hz 12bit 4:4:4/RGB 1920x1080p @23.98/24/25/29.97/30/50/59.94/60Hz 12bit 4:4:4/RGB 3840x2160p @23.98/24/25/29.97/30Hz 10/12bit 4:2:2/4:2:0 HDR10 HLG 3840x2160p @23.98/24/25/29.97/30Hz 8bit 4:4:4/RGB 3840x2160p @50/59.94/60Hz 8bit 4:2:0 720x480p @59.94/60Hz 12bit 4:4:4/RGB 720x576p @50Hz 12bit 4:4:4/RGB 60fps Progressive 4:4:4/RGB: 640x480   800x600   1024x768   1280x800   1280x960   1280x1024   1360x768   1366x768   1400x1050   1440x900   1600x1200   1680x1050   1920x1200	
	<b>Passthrough mode:</b> Output at RX matches input at TX except for 1) YUV 4:2:0 converted to 8bit RGB 2) For resolutions above 1920x1200 at 50/60Hz framerate is halved	<b>Scaler mode:</b> User-selectable scaled output: 1) All formats converted to 8bit RGB 2) Up to 3840x2160p @30Hz
	Supported Standards	HDR10   HLG   BT.2020   BT.709   3D Video
Communication and Control		
HDMI	300MHz Max.TMDS Clock	
Ethernet	IEEE 802.1ab 1000BASE-T	
HDCP	HDCP 2.2   1.x	
EDID	Programmable EDID   EDID Copy/Import   Custom EDID	
CEC	Programmable CEC Commands   Custom Command Generation (RX Only)	
RS-232	Programmable RS-232 Commands   Custom Command Generation (RX Only)	
Power		
Power Over Ethernet	IEEE 802.3af (15.4W at PSE)	
External Power Supply	Optional part: PSU-12V-1A	
Nominal Power Consumption	8W	
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 flat on shelf   6U in NHD-000-RACK4	
Height	25mm/1in	
Width	220mm/8.67in	
Depth	130mm/5.12in	
Weight	0.75kg/1.65lbs	
Regulatory		
Safety and Emission	CE   FCC   RCM   CE LVD   RoHS	



NHD-400-E-RX

Audio and Video		
Inputs	1x LAN (PoE): 8P8C "RJ45" Socket ANSI/TIA-568	
Outputs	1x HDMI OUT: 19-pin HDMI Type A   1x RS-232: 4-Pin Phoenix	
Transmssion Encoding	Proprietary stream encoding. Video compression based on JPEG 2000	
End to End Latency	With RX, 1 video frame (Passthrough mode) 2 video frames (scaling/video wall) e.g. 16ms @ 60Hz	
Max Transmission Bit Rate	850Mb/s	
Maximum Data Rate	8.91Gb/s HDMI	
Audio Formats	PCM up to 8ch   Bitstream audio formats including Dolby Atmos & DTS:X	
Video Resolutions (Max)	1280x720p @50/59.94/60Hz 12bit 4:4:4/RGB 1920x1080i @29.97/30Hz 12bit 4:4:4/RGB 1920x1080p @23.98/24/25/29.97/30/50/59.94/60Hz 12bit 4:4:4/RGB 3840x2160p @23.98/24/25/29.97/30Hz 10/12bit 4:2:2/4:2:0 HDR10 HLG 3840x2160p @23.98/24/25/29.97/30Hz 8bit 4:4:4/RGB 3840x2160p @50/59.94/60Hz 8bit 4:2:0 720x480p @59.94/60Hz 12bit 4:4:4/RGB 720x576p @50Hz 12bit 4:4:4/RGB 60fps Progressive 4:4:4/RGB: 640x480   800x600   1024x768   1280x800   1280x960   1280x1024   1360x768   1366x768   1400x1050   1440x900   1600x1200   1680x1050   1920x1200	
	Passthrough mode:	Scaler mode:
	Output at RX matches input at TX except for 1) YUV 4:2:0 converted to 8bit RGB 2) For resolutions above 1920x1200 at 50/60Hz framerate is halved	User-selectable scaled output: 1) All formats converted to 8bit RGB 2) Up to 3840x2160p @30Hz
Supported Standards	HDR10   HLG   BT.2020   BT.709   3D Video	
Communication and Control		
HDMI	300MHz Max.TMDS Clock	
Ethernet	IEEE 802.1ab 1000BASE-T	
HDCP	HDCP 2.2   1.x	
EDID	Programmable EDID   EDID Copy/Import   Custom EDID	
CEC	Programmable CEC Commands   Custom Command Generation (RX Only)	
RS-232	Programmable RS-232 Commands   Custom Command Generation (RX Only)	
Power		
Power Over Ethernet	IEEE 802.3af (15.4W at PSE)	
External Power Supply	Optional part: PSU-12V-1A	
Nominal Power Consumption	8W	
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 flat on shelf   6U in NHD-000-RACK4	
Height	25mm/1in	
Width	220mm/8.67in	
Depth	130mm/5.12in	
Weight	0.75kg/1.65lbs	
Regulatory		
Safety and Emission	CE   FCC   RCM   CE LVD   RoHS	

NHD-400-TX-IW

Audio and Video	
Inputs	1x HDMI In: 19-pin HDMI Type A 1x VGA In: 15-pin DE-15 Female 1x Audio In: 3.5mm (1/8in) TRS Stereo (VGA only)
Outputs	1x 8-pin RJ-45 (Transmission to RX)
Output Video Encoding	JPEG 2000
Encoding Data Rate	Max: 850Mb/s
End to End Latency (Max)	1 video frame latency (pass-through mode) 16ms @60fps   2 video frames latency (scaler/VW mode) 33ms @60fps
Audio Formats	2ch LPCM   Multichannel: LPCM Up to 7.1 and Up to DTS:X and Dolby Atmos (HDMI Only)
Video Resolutions (Max)	<b>HDMI Input</b> 1280x720p @50/59.94/60Hz 12bit 4:4:4 RGB 1920x1080i @29.97/30Hz 12bit 4:4:4 RGB 1920x1080p @23.98/24/25/29.97/30/50/59.94/60Hz 12bit 4:4:4/RGB 3840x2160p @23.98/24/25/29.97/30Hz 10/12bit 4:2:2/4:2:0 HDR-10 HLG 3840x2160p @23.98/24/25/29.97/30Hz 8bit 4:4:4 RGB 3840x2160p @50/59.94/60Hz 8bit 4:2:0 720x480p @59.94/60Hz 12bit 4:4:4 RGB 720x576p @50Hz 12bit 4:4:4 RGB 60fps Progressive 4:4:4/RGB: 640x480   800x600   1024x768   1280x800   1280x960   1280x1024   1360x768   1366x768   1400x1050   1440x900   1600x1200   1680x1050   1920x1200
	<b>VGA Input</b> RGB @60Hz Progressive: 640x480   800x600   1024x768   1280x720   1280x768   1280x800   1280x960   1280x1024   1360x768   1366x768   1400x1050   1440x900   1600x900   1600x1200   1680x1250   1920x1080   1920x1200
Maximum Pixel Clock	300 MHz
Communication and Control	
HDMI	HDCP 2.2
Ethernet	1x LAN (PoE): 8-pin RJ-45 ANSI/TIA-568 8P8C, 1000Base-T, PoE PD (IEEE 802.3af)
USB	1x USB Host: USB Type B
RS-232	1x RS-232: 3.5mm (1/8in) TRS Stereo   2 Way
Power	
Power Supply	12V DC
PoE	IEEE 802.3af (15.4W at PSE)
Max Power Consumption	5.7W (with PSU)
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	19.45 BTU/hr
Dimensions and Weight	
Rack Units/Wall Box	2-gang US J-Box
Height	107.2mm/4.2in (without decorative plate)
Width	91mm/3.6in (without decorative plate)
Depth	45.5mm/1.8in (without decorative plate)
Weight	0.37kg/0.81lbs
Regulatory	
Safety and Emission	CE   FCC   RCM   RoHS



# SPECIFICATIONS 300 SERIES

## NHD-300-TX

Audio and Video	
Inputs	1x DP In: DisplayPort 20-pin 1x HDMI In: 19-pin type A 1x Audio In/Out: 3.5mm (1/8in) TRS Stereo
Outputs	1x 10GbE: 8-pin RJ-45 Female 1x Audio In/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
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	15.24W
Environmental	
Operating Temperature	+32°F~+104°F (0°C~+40°C)   10%~90% non-condensing
Storage Temperature	-4°F~140°F (-20°C~+70°C)   10%~90% non-condensing
Maximum BTU	52 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

# SPECIFICATIONS 200 SERIES

## NHD-200-TX

Audio and Video	
Inputs	1x AV IN: 24-pin DVI/I   1x Line In: 3.5mm (1/8in) TRS Stereo
Outputs	1x LAN (PoE) 8-pin RJ-45 female   10/100Base-T   1x Audio Out: 3-pin Phoenix
Output Video Encoding	H.264/MPEG-4 AVC
Encoding Data Rate	2~30Mb/s
End to End Latency (Max)	60~90 ms (Low latency mode)   250~300 ms (High quality mode)
Audio Formats	2ch PCM
Video Resolutions (Max)	<b>Note:</b> : Interlaced content at any resolution is not supported, all source content must be progressive. <b>HDMI:</b> 1920x1200p @60Hz 8bit (15m/50ft) <b>Cat6/6a/7 Output:</b> 1920x1200p @60Hz 8bit (100m/328ft Point to Point)
Color Depth	8bit
Maximum Pixel Clock	150 MHz
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	228mm/8.98
Depth	111mm/4.37in
Weight	0.6kg/1.32lbs
Regulatory	
Safety and Emission	CE   FCC   RoHS



NHD-210-RX

Audio and Video	
Inputs	1x LAN (PoE) 8-pin RJ-45 female   10/100/1000Base-T
Outputs	1x HDMI In 19-pin HDMI type A female 1x Audio Out: 3-pin Phoenix
Audio Formats	2ch PCM
Output Video Type	H.264/MPEG-4 AVC
Video Resolutions (Max)	<b>Note:</b> Interlaced content at any resolution is not supported, all source content must be progressive <b>HDMI:</b> 1920x1080p @60Hz 8bit (15m/50ft) <b>Cat6/6a/7:</b> 1920x1080p @60Hz 8bit (100m/328ft Point to Point)
Decoding Data Rate	2~30Mb/s
End to End Latency (Max)	60~90 ms (Low latency mode)   250~300 ms (High quality mode)
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	228mm/8.98in
Depth	111mm/4.37in
Weight	0.6kg/1.32lbs
Regulatory	
Safety and Emission	CE   FCC   RoHS

NHD-250-RX

Audio and Video	
Inputs	1x 8-pin RJ-45 (Transmission from TX)
Outputs	1x HDMI Out: 19-pin HDMI Type A 1x Audio Out: 3-pin Terminal Block (3.5mm)
Audio Formats	2ch LPCM 48KHz
Input Video Encoding	H.264
Decoding Data Rate	Max: 30Mb/s per stream
End to End Latency (Max)	~80ms (low latency mode)   ~300ms (high quality mode)
Video Resolutions (Max)	<b>Note:</b> All resolutions listed are 8bit RGB or 4:4:4 8bit: 3840x2160p @24/30/60Hz (Tile mode only) 1920x1080p @24/25/30/50/60Hz 1280x720p @30/50/60Hz 720x576p @50Hz 720x480p @60Hz 60fps Progressive: 640x480   800x600   1024x768   1280x800   1280x1024   1360x768   1366x768   1400x1050   1440x900   1600x1200   1680x1050   1920x1200
Maximum Pixel Clock	594MHz
Communication and Control	
HDMI	HDCP 1.4   CEC
Ethernet	1x LAN (PoE): 8-pin RJ-45 ANSI/TIA-568 8P8C, 1000Base-T, PoE PD (IEEE 802.3af)
RS-232	2x RS-232: 4-pin Terminal Block (3.5mm)   2 Way
Power	
Power Supply	12V DC
PoE	IEEE 802.3af   (15.4W at PSE)
Max Power Consumption	8.3W (with PSU)
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	31 BTU/hr
Dimensions and Weight	
Rack Units/Wall Box	<1U flat on shelf   6U in NHD-000-RACK4
Height	25mm/0.98in
Width	220mm/8.67in
Depth	130mm/5.12in
Weight	0.78kg/1.72lbs
Regulatory	
Safety and Emission	CE   FCC   RCM   RoHS



# SPECIFICATIONS 100 SERIES

## NHD-100-TX

Audio and Video	
Inputs	1x HDMI In 19-pin HDMI type A female
Outputs	1x LAN (PoE) 8-pin RJ-45 female   10/100Base-T 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)	<b>Note:</b> Interlaced content at any resolution is not supported, all source content must be progressive. HDMI: 1920x1200p @60Hz 8bit (15m/50ft)   Cat6/6a/7: 1920x1200p @60Hz 8bit (100m/328ft Point to Point)
Color Depth	8 Bit
Maximum Pixel Clock	150 MHz
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	+32°F~+104°F (0°C~+40°C)   10%~90% non-condensing
Storage Temperature	-4°F~140°F (-20°C~+70°C)   10%~90% non-condensing
Maximum BTU	20.47 BTU/hr
Dimensions and Weight	
Rack Units   Wall Box	<1U
Height With   Without Feet	25mm/0.98in
Width With   Without Brackets	228mm/8.98
Depth With   Without Handles	111mm/4.37in
Weight	0.6kg/1.32lbs
Regulatory	
Safety and Emission	CE   FCC   ROHS

## NHD-100-RX

Audio and Video	
Inputs	1x LAN (PoE) 8-pin RJ-45 female   10/100Base-T
Outputs	1x HDMI Out 19-pin HDMI type A female 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)	<b>Note:</b> The v2 of the NHD-100-RX cannot support resolutions higher than 1920x1080p @60Hz. HDMI: 1920x1080p @60Hz 8bit (15m/50ft)   Cat6/6a/7: 1920x1080p @60Hz 8bit (100m/328ft Point to Point)
Color Depth	8 Bit
Maximum Pixel Clock	150 MHz
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	+32°F~+104°F (0°C~+40°C)   10%~90% non-condensing
Storage Temperature	-4°F~140°F (-20°C~+70°C)   10%~90% non-condensing
Maximum BTU	20.47 BTU/hr
Dimensions and Weight	
Rack Units   Wall Box	<1U
Height With   Without Feet	25mm/0.98in
Width With   Without Brackets	228mm/8.98
Depth With   Without Handles	111mm/4.37in
Weight	0.6kg/1.32lbs
Regulatory	
Safety and Emission	CE   FCC   ROHS



# NOTES

## NHD-140-TX

Audio and Video	
Inputs	4x HDMI In: 19-pin HDMI Type A
Outputs	1x LAN: 8-pin RJ-45 (AV Transmission to RX)
Audio Formats	2ch LPCM 48KHz
Output Video Encoding	H.264
Video Resolutions (Max)	<b>Note:</b> All resolutions listed are 8bit RGB. 1920x1080p @24/25/30/50/60Hz 1920x1080i @25/30Hz 1280x720p @50/60Hz 720x576p @50Hz 720x576i @25Hz 720x480p @60Hz 720x480i @30Hz 1680x1050   1400x1050   1280x1024   1440x900   1280x800   1366x768   1360x768   1024x768   800x600   640x480 @ 60Hz:
Encoding Data Rate	Max: 30Mb/s – per stream (120 Mb/s total)
End to End Latency	~79ms (low latency mode)   ~250ms (high quality mode)
Maximum Pixel Clock	165 MHz
Communication and Control	
HDMI	HDCP 1.4
Ethernet	1x LAN: 8-pin RJ-45 ANSI/TIA-568 8P8C, 1000Base-T
Power	
Power Supply	12V DC 1A
Max Power Consumption	6W (DC adapter)
Environmental	
Operating Temperature	+32°F~+104°F (0°C~+40°C)   10%~90% non-condensing
Storage Temperature	-4°F~140°F (-20°C~+70°C)   10%~90% non-condensing
Maximum BTU	68 BTU/hr
Dimensions and Weight	
Rack Units   Wall Box	<1U flat on shelf   6U in NHD-000-RACK4   1U in NHD-140-RACK-1U
Height With   Without Feet	25mm/1in
Width With   Without Brackets	215mm/8.46in
Depth With   Without Handles	260.2mm/10.24in
Weight	1.46kg/3.21lbs
Regulatory	
Safety and Emission	CE   FCC   RCM   RoHS



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