

# NetworkHD™ 300 Series 1080p AV over IP H.264 Open Standards Encoder

**NHD-300-TX**



## Quickstart Guide

WyreStorm recommends reading through this document in its entirety to become familiar with the product's features prior to starting the installation process.



### IMPORTANT! Installation Requirements

- Visit the NetworkHD product pages download section at [wyrestorm.com](http://wyrestorm.com) to check for the latest firmware, document versions, and WyreStorm Management Suite configuration tools.
- Install the latest firmware onto all encoders using the firmware upgrade section in the Web UI. Full firmware update instructions are included with the firmware download.
- Certain transport protocols of the NHD-300-TX requires a Layer 2+ or Layer 3 managed switch network with support for Multicast & IGMP snooping enabled.
- WyreStorm highly recommends using network switches listed in the NetworkHD Switch Recommendation Guide. These switches have been verified by WyreStorm to meet the requirements of a NetworkHD system.
- Configure all network switches to the exact specification of the guides at [wyrestorm.com](http://wyrestorm.com) prior to connecting any NetworkHD devices.
- WyreStorm recommends the use of the NHD-000-RACK4 for installations containing multiple NetworkHD devices. Use of this product provides an enclosure to mount and secure all NetworkHD devices in a standard 19-inch rack frame (EIA-310).

### In the Box

- 1x NHD-300-TX Encoder
- 1x Set Wall Mounting Brackets
- 1x Set Rack Mounting Brackets (NHD-000-RACK4)
- 4x Silicone Feet
- 4x Panhead Screws
- 1x Quickstart Guide (this document)

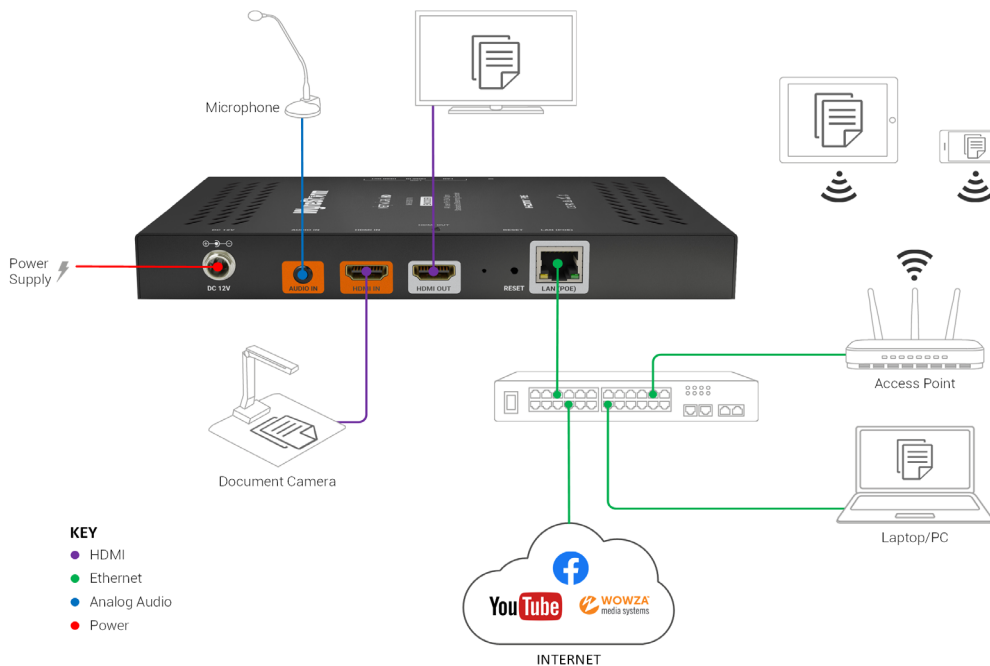
**Note:** This encoder is PoE powered. Optional 12v DC power supply available separately.

### Additional Information

More information and required software can be found within the Download section of the product page on [wyrestorm.com](http://wyrestorm.com).

- NetworkHD Switch Recommendations
- NetworkHD Switch Configuration Guides

### Basic Wiring Diagram



## Wiring and Connections

WyreStorm recommends that all wiring for the installation is run and terminated prior to making connections to the switcher. Read through this section in its entirety before running or terminating the wires to ensure proper operation and to avoid damaging equipment.

### **IMPORTANT! Wiring Guidelines**

- The use of patch panels, wall plates, cable extenders, kinks in cables, and electrical or environmental interference will have an adverse effect on signal transmission which may limit performance. Steps should be taken to minimize or remove these factors completely during installation for best results.
- WyreStorm recommends using pre-terminated HDMI and DP cables due to the complexity of these connector types. Using pre-terminated cables will ensure that these connections are accurate and will not interfere with the performance of the product.

### Cat6 Cable Performance Guide

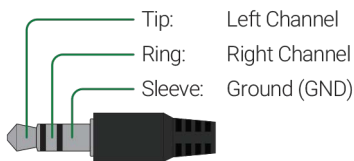
0m	10m	20m	30m	40m	50m	60m	70m	80m	90m	100m
0ft	32ft	65ft	98ft	131ft	164ft	197ft	230ft	262ft	295ft	328ft

 HD Transmission

WyreStorm recommends the use of shielded cable to minimize signal noise and interference

## Audio Wiring

The audio connections use a 3.5mm (1/8in) TRS Stereo Jack.



## LAN Port Wiring

The NetworkHD 300 Series LAN port is a 1GbE link for connection to a 1000BASE-T Ethernet device port. Refer to IEEE 802.3ab for official guidance on the Ethernet link. Cables must be tested to 100MHz across the entire link. 1000BASE-T uses the IEC 60603-7 8P8C modular connector.

## Installation and Connections


1. Install NetworkHD devices to allow airflow through the product - WyreStorm recommend using the NHD-000-RACK4. The install location should be dry, well ventilated and guaranteed to maintain the mandatory operating temperature range of the product.
2. Connect sources to the NetworkHD encoders using a HDMI cable from a quality brand such as [WyreStorm Essentials](#) ensuring a firm port connection.
3. Connect NetworkHD encoders to the network switch using well terminated and tested category cable, whilst ensuring compliance with IEEE 802.3ab.

## Accessing Web UI

All configuration changes to the NHD-300-TX are performed through the built-in web server. To access the web server follow the steps below. By default, the NHD-300-TX is set to acquire an IP address from a **DHCP** server. If a DHCP server is not located by the encoder it will default to a static IP address of **192.168.11.244**.

1. Log into the web server by opening a web browser and typing in the encoder's IP address. If the NHD-300-TX detects and acquires an IP address from a DHCP server, you will need to check your network DHCP server's client list to verify the IP given to the encoder.
2. When prompted to log in, enter the default password of **admin**.
3. For details on operating the Web UI, visit [wyrestorm.com](http://wyrestorm.com) and download the [NHD-300-TX's User Manual](#).

## Troubleshooting

 Verify that all NHD devices contain the latest version of firmware. This will ensure that all devices are up to date and working at their highest performance level.

### Can't Access the Web UI

- Verify if the NHD-300-TX has been assigned a DHCP IP address from a DHCP server on your network. If no DHCP server is present the encoder will default to 192.168.11.244
- Ensure the PC being used to access the Web UI is in the same IP address range as the encoder.
- Verify if any anti virus, firewalls or policies that could be blocking the connection.
- Attempt to log in through different web browsers.

### No Image Appearing on Displays

- If using multicast, ensure the network switch is a supported model and that all settings have been enabled per the relative switch configuration guide.
- Ensure the stream URL you are entering into your decoding software/hardware has the proper syntax.
- Ensure the proper transmission mode is selected through the encoder's Web UI based on the network hardware and decoding equipment being used.
- Verify the HDMI source is sending a compatible video resolution and timing that can be accepted by the encoder.
- Verify all cables are terminated and seated correctly in the encoder, network equipment and source devices.

## Specifications

Audio and Video	
<b>Inputs</b>	1x HDMI 19-pin HDMI Type A 1x Audio In: 3.5mm (1/8in) TRS Stereo
<b>Outputs</b>	1x LAN (PoE) 8-pin RJ-45 female   1000Base-T 1x HDMI 19-pin HDMI Type A (Loop out)
<b>Output Video Encoding</b>	H.264
<b>Encoding Data Rate</b>	Max: 12Mb/s (Configurable)
<b>Video Resolutions (Max)</b>	HDMI: 1920x1080p @60Hz 8bit (15m/50ft) Cat6/6a/7: 1920x1080p @60Hz 8bit (100m/328ft Point to Point)
<b>Audio Formats</b>	2ch LPCM @ 32KHz, 44.1KHz, 48KHz
<b>Output Audio Encoding</b>	AAC, MP3 @ 320Kb/s (Max)
<b>End to End Latency (Max)</b>	80ms (TCP/UDP), 1500ms (HTTP)
<b>Maximum Pixel Clock</b>	150MHz
Communication and Control	
<b>HDMI</b>	HDMI 1.4b   HDCP Encryption Not Supported
<b>Ethernet</b>	1x LAN: 8-pin RJ-45 ANSI/TIA-568 8P8C, 1000Base-T, PoE
Network	
<b>Protocols</b>	HTTP, RTSP, RTMP, UDP, Multicast, Unicast, DHCP
Power	
<b>Power Supply</b>	12V DC 2A
<b>PoE</b>	IEEE 802.3af (15.4W at PSE)
<b>Max Power Consumption</b>	3.6W (with PSU)
Environmental	
<b>Operating Temperature</b>	32°F ~ 113°F (0°C ~ 45°C)   10% ~ 90%, non-condensing
<b>Storage Temperature</b>	-4°F to ~ 158°F (-20°C ~ +70°C)   10% ~ 90%, non-condensing
<b>Maximum BTU</b>	16 BTU/hr
Unit Dimensions and Weight	
<b>Rack Units/Wall Box</b>	<1U flat on shelf   6U in NHD-000-RACK4   1U in NHD-140-RACK-1U
<b>Height</b>	25mm/1in
<b>Width</b>	215mm/8.46in
<b>Depth</b>	142mm/5.59in
<b>Weight</b>	0.65kg/1.41lbs
Regulatory	
<b>Safety and Emission</b>	CE   FCC   RCM   EAC   ROHS

**Note:** WyreStorm reserves the right to change product specification, appearance or dimensions of this product at any time without prior notice.

### Warranty Information

WyreStorm Technologies LLC warrants that its products to be free from defects in material and workmanship under normal use for a period of five (5) years from the date of purchase. Refer to the [Product Warranty](#) page on [wyrestorm.com](#) for more details on our limited product warranty.

