


# Full HD IP H.264 Low Bandwidth Streaming Encoder suitable for decoding by IPTV

NHD-230-TX

**WyreStorm**

## 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.

**HDMI™ HDCP P/E H.264 AAC**

### In the Box

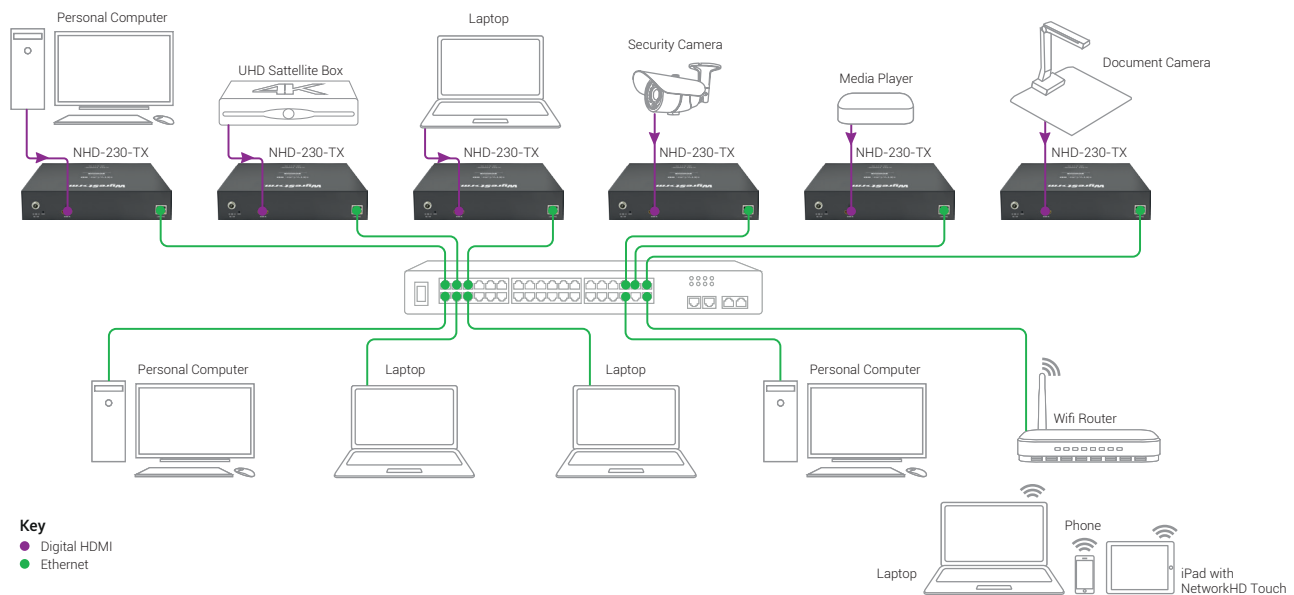
- 1x NHD-230-TX
- 1x 12v DC 1A Power Supply (US, UK, EU)
- 2x Mounting Ears
- 1x Quick Start Guide (This Document)

### 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 Mapping Worksheet
- 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 encoder. Read through this section in its entirety before running or terminating the wires to ensure proper operation and to avoid damaging equipment.

### HDMI/Ethernet Cable Wiring

#### 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 HDMI and Ethernet transmission limiting performance. Steps should be taken to minimize or remove these factors completely during installation for best results.
- WyreStorm recommends using high quality HDMI cables such as WyreStorm Express to ensure the highest content performance available.

Ethernet Cable Performance Guide											NHD-230-TX
0m	10m	20m	30m	40m	50m	60m	70m	80m	90m	100m	
0ft	32ft	65ft	98ft	131ft	164ft	197ft	230ft	262ft	295ft	328ft	

### HDMI Wiring

WyreStorm recommends using pre-terminated HDMI 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.

## Setup and Configuration

### Network Settings

Note: This NHD-230-TX is set to a default static IP Address (192.168.11.243). In order to communicate with it initially the PC must be set to a 192.168.11.xxx address with a subnet of 255.255.0.0. This can be changed back once a static IP is set within a different range.

1. Connect the encoder to the same network as the PC or connect the PC directly to the encoder if not using PoE.
2. Open the IPv4 settings of the PC and record their current state.
  - a. Set the IPv4 settings of the PC as follows
  - b. Static IP Address: 192.168.11.xxx where xxx is between 1 and 255 and not the same as other devices on the network.
  - c. Subnet Mask: 255.255.0.0
3. Open a web browser and enter the IP Address of the encoder. Once the login appears, enter the password assigned to the encoder.  
Default: 192.168.11.243 | Password: admin
4. Navigate to System > Network and set a new IP address. Use an IP address that is outside of the DHCP range of the router and not set on any other device in the system.  
While the network can be set to DHCP, WyreStorm recommends that a static IP address is used in order to avoid the IP address changing due to a power outage or other changes to the network.
5. Click Apply to save the changes and reboot the TX by selecting Reboot under Commands on the System Tab.
6. Close the browser and reset the PCs IPv4 settings back to the previous settings recorded in step 2.
7. Open a web browser and enter the IP address entered in step 5.

After initial configuration access the web UI using the new IP address to make any future configuration settings.

### Accessing the Web UI

Open a web browser and enter the IP Address of the encoder and enter the password once the login appears.  
Default: 192.168.11.243 | Password: admin

## Video Settings

### HDCP Support

If the connected source device requires HDCP it must be enabled in order for content to be sent to the decoder. Please ensure you have the necessary rights to use the content in this way if enabling this function.

1. Navigate to Settings > Video Settings > HDCP Support
2. Select Enable or Disable

### Encoder Parameters

To compensate for differences in display devices and content, the bit rate and desired resolution can be configured. Select a bit rate and resolution that is within the parameters of the decoding and display devices.

1. Navigate to Settings > Video Settings > Encoder Parameters
2. Select the appropriate bit rate from the dropdown list.
3. Select the appropriate output resolution from the drop down list.

### Audio Settings

Like with video, the TX can be configured to output a particular audio stream. Select a bit rate and resolution that is within the parameters of the decoding device and display device. Click Apply after making any changes to these settings.

1. Navigate to Settings > Audio Settings
2. Select the appropriate Encode Type from the dropdown list.
3. Select the appropriate Encode Bit Rate from the drop down list.

## Configuring Stream Settings

How the stream settings are configured is very important to the use of the TX and varies based on the decoding device. Additionally, some of the parameters will need to be different when using multiple TXs in a system.

Program Number	The number of the stream or channel. This should be incremented by 1 or another series when using multiple TXs to allow for proper channel selection on the decoding device.
Stream Enable	Enable-Stream is enabled and can be viewed   Disable-Stream is disabled and cannot be accessed by any decoding device.
Transport Type	We recommend that tsoverrtp is used as default unless rtp is disabled on the network then tsoverutp should be used.
Stream IP address	This address is specific to the stream and must be different on each TX connected to the network. Default 226.1.1.1. Note: If using a non-managed network and multicast is not required set this address to 0.0.0.0 to avoid bogging down the network.
Stream Port	Port number for accessing the stream from outside the network. Default is 12345 and is the recommended setting.

## Configuring Decoding Devices

Once the NHD-230-TX is installed on the network and active, the decoding device must be configured to access and play the stream. While the setup menu structure varies from device to device, the selection of the stream remains the same across all devices. Refer to the decoding devices operation manual for details for proper stream configuration.

### Stream Address

For Unicast: rtsp://[TX IP Address]/live.sdp - Example: rtsp://192.168.11.243/live.sdp

For Multicast: rtp://[Stream IP Address]/[Stream Port] - Example: rtp://@226.1.1.1/12345

Note: Multicast functionality requires a managed switch with multicast and IGMP enabled. Please refer to the guides at [wyrestorm.com](http://wyrestorm.com) or the switch manufacturer's guide for details on how to configure the switch.

## Specifications

Audio and Video	
Inputs	1x HDMI In 19-pin HDMI type A female
Outputs	1x LAN (PoE) 8-pin RJ-45 female, 10/100/1000Base-T Ethernet port LAN (POE)
Output Video Encoding	H.264/MPEG-4 AVC
Encoding Data Rate	2~10Mb/s
End to End Latency	Decoder dependent – Encode latency of 150ms
Audio Formats	In: RAW (PCM 48KHz) Out: LPCM (1.6Mb/s); AAC (32~240Kbps)
Video Resolutions (Max)	<b>HDMI</b> 1920x1200 @60Hz 8bit (15m/50ft) 1920x1080p @60Hz 8bit (7m/23ft) <b>Using Cat6</b> 1920x1080p @60Hz 8bit (100m/328ft)
Color Depth	1080p: 8bit
Maximum Pixel Clock	HDMI: 150MHz
Streaming Formats	
Encapsulation Format	MPEG-2 transport stream
Transmission Format	TS over UDP   TS over RTP
Transmission Method	Unicast   Multicast   RTP over RTSP
Session control	RTSP (SETUP, TEARDOWN, OPTIONS, PLAY, DESCRIBE)
Communication and Control	
HDMI	HDMI 1.4   HDCP 1.4
Ethernet	1x 8-pin RJ-45 female   10/100/1000BaseT   PoE
Power	
Power Supply	12V DC 1A
PoE	IEEE 802.3af 12V 1A 12.95W
Max Power Consumption	10.5W (DC adapter)
Environmental	
Operating Temperature	32°F ~ 113°F (0°C ~ 45°C)   10% ~ 90%, non-condensing
Storage Temperature	-4°F to ~ 158°F (-20°C ~ +70°C)   10% ~ 90%, non-condensing
Maximum BTU	35.82 BTU/hr
Dimensions and Weight	
Rack Units/Wall Box	1U
Height	43.5mm/1.72in
Width	220mm/8.67in
Depth	178.5mm/7.03in
Weight	1.2kg/2.64lbs
Regulatory	
Safety and Emission	CE   FCC   RoHS

## Troubleshooting

### Before Performing any of the Following Troubleshooting Steps

- 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.

#### Cannot access the devices web UI or transport stream

- Verify that the [Network Settings](#), [Video Settings](#), and [Audio Settings](#) are configured properly based on network and content requirements.
- Use another device and attempt to access the web UI or unicast transport stream to check your device settings are correct
- Attempt to ping the unit on the IP address you set during configuration
- Reboot the unit and again attempt to access the web UI or transport stream
- Disconnect the unit from the network and connect you PC directly (setting a static IP address on your PC) and try again
- If the above is not successful factory reset the unit and login using the

default IP 192.168.11.243

- If using a non-managed network and multicast is not required set this address to 0.0.0.0 to avoid bogging down the network.

#### No Source Appearing on Displays

- Verify that the NHD-230-TX, Network, Source, and Display devices are powered On.
- Test sources and displays by connecting them directly together.
- Swap out the HDMI cable
- Connect a power supply to the NHD-230-TX rather than using PoE.

#### All Devices on Network Slow or Unresponsive

- If using a non-managed network and multicast is not required set this address to 0.0.0.0 to avoid bogging down the network.

## Warranty Information

This product is covered by a 3 year limited parts and labor warranty. During this period there will be no charge for unit repair, component replacement or complete product replacement in the event of malfunction. The decision to repair or replace will be made by the manufacturer. This limited warranty only covers defects in materials or workmanship and excludes normal wear and tear or cosmetic damage. Visit the product page located at [wyrestorm.com](http://wyrestorm.com) for additional information on this product including important technical information not provided in this document and warranty terms & conditions.

