NETWORKHD

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

WyreStorm Documentation and Firmware

Download the following items from the product page on wyrestorm.com. They are essential for accurate configuration and use of the NetworkHD system.

- Latest NetworkHD Firmware
- Management Suite v2.3 or Higher

- NetworkHD Installation Guide
- NetworkHD Technical Reference Guide
- NetworkHD Certified Switches
- NetworkHD Switch Configuration Guides
- NetworkHD Switch Mapping Worksheet
- 3rd Party Control System Drivers

Network Switch Requirements

- WyreStorm highly recommends the use of switches listed in the NetworkHD Certified Switches. These switches have been verified by WyreStorm to meet the requirements of a NetworkHD system.
- NetworkHD requires a Layer 2+ / Layer 3 managed switch network with support for Multicast & IGMP Snooping. Ensure that the switch being used supports these features and that they are configured prior to connecting the NetworkHD system.
- Configure all network switches to the exact specifications contained in the WyreStorm Switch Configurations Guides prior to connecting the NetworkHD system. This will ensure proper operation from startup.

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 this entirety before running or terminating the wires to ensure proper operation and to avoid damaging equipment.

⚠ IMPORTANT! Installation Requirements

- 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.

LAN Port Wiring

The NetworkHD 100, 200, 400 & 500 Series network port is a 1GbE link for connection to a 1000BASE-T Ethernet switch. Refer to IEEE 802.3ab for official guidance. Cables must be tested to 100MHz across the entire link. 1000BASE-T uses the IEC 60603-7 8P8C connector.

The NetworkHD 600 Series network port is a 10GbE link for connection to a 10GBASE-T Ethernet switch. Refer to IEEE 802.3an for official guidance. Cables must be tested to 500MHz across the entire link. 10GBASE-T uses the IEC 60603-7 8P8C connector.

RS-232 Wiring

The NetworkHD devices use a 3-pin or a 4-pin phoenix with no hardware flow control. Most control systems and computers are DTE where pin 2 is RX, this can vary from device to device. Refer to the documentation for the connected device for pin functionally to ensure that the correct connections can be made.
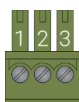
WyreStorm Connector			3rd Party Device
Pin 1	TX (Transmit)	---> To --->	RX (Receive)
Pin 2	RX (Receive)	---> To --->	TX (Transmit)
Pin 3	G (Ground)	---> To --->	G (Ground)
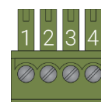
WyreStorm Connector			3rd Party Device
Pin 1	12V DC Out	No Connection	Reserved
Pin 2	TX (Transmit)	---> To --->	RX (Receive)
Pin 3	RX (Receive)	---> To --->	TX (Transmit)
Pin 4	G (Ground)	---> To --->	G (Ground)

Devices that use a 3-pin connection include:

NHD-110-TX	NHD-500-RX
NHD-110-RX	NHD-600-TRX
NHD-250-RX	NHD-600-TRXF
NHD-400-DNT-TX	NHD-610-TX
NHD-500-TX	NHD-610-RX

Devices that use a 4-pin connection include:

NHD-400-E-RX	NHD-600-TX
NHD-400-RX	NHD-600-RX

IR TX/RX Guidelines

- Using WyreStorm infrared emitters and receivers is the best way to ensure that most IR coding formats are transmitted and received by the NetworkHD system. Other 3rd party emitters and receivers can be used; however, these devices must operate in the same manner as the WyreStorm devices.
- Due to differences in IR across 3rd party control systems their IR ports should never be connected directly to a NetworkHD system as an incompatibility may exist. WyreStorm offers a cable that compensates for voltage differences as well adjusts for differences in the pins used within the port. Refer to the CAB-IR-LINK product page for more information.

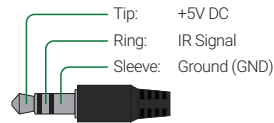### IR TX Port Pinout

Connection for IR TX (transmit) uses a 3.5mm (1/8in) mono plug.

Tip:	Anode
Sleeve:	Cathode (IR Signal)

IR RX Port Pinout

Connection for IR RX (receive) uses a 3.5mm (1/8in) stereo jack that outputs +5V DC to power the included IR receiver.

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Tip:	+5V DC
Ring:	IR Signal
Sleeve:	Ground (GND)

Audio Wiring

NetworkHD uses three different audio outputs. A 3.5mm (1/8in) TRS Stereo Jack audio connection, a 3-pin phoenix unbalanced audio connection and a 5-pin phoenix balanced audio connection.

Tip:	Left Channel
Ring:	Right Channel
Sleeve:	Ground (GND)
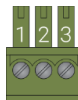
WyreStorm Connector		3rd Party Device
Pin 1	L (Left Signal)	---> To --->	Left Signal (L+)
Pin 2	R (Right Signal)	---> To --->	Right Signal (R+)
Pin 3	GND (Ground)	---> To --->	Left Ground (L-) Right Ground (R-)
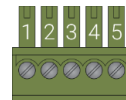
WyreStorm Connector		3rd Party Device
Pin 1	Left Positve (L+)	---> To --->	Left Positive (L+)
Pin 2	Left Negative (L-)	---> To --->	Left Negative (L-)
Pin 3	Ground (G)	---> To --->	Ground (G)
Pin 4	Right Negative (R-)	---> To --->	Right Negative (R-)
Pin 5	Right Positive (R+)	---> To --->	Right Positive (R+)

Devices that use a 3.5mm:
NHD-400-TX
NHD-400-DNT-TX
NHD-500-TX
NHD-600-TX
NHD-600-RX

Devices that use a 3-pin:
NHD-110-TX
NHD-110-RX
NHD-250-RX

Devices that use a 5-pin:
NHD-400-RX v3
NHD-500-TX
NHD-500-RX
NHD-600-TRX

NHD-600-TRXF
NHD-610-TX
NHD-610-RX

Setup and Configuration

⚠️ **IMPORTANT! Installation Requirements**

- Do not connect the power supply until all NetworkHD devices are connected to the network switch.
- NetworkHD Series uses DHCP to assign IP addresses by default. In the absence of a DHCP server an AutoIP address will be assigned in the subnet 169.254.0.0/16. Ensure the PC being used for configuration obtains an IP via DHCP or is set to an address in the AutoIP range prior to starting the configuration process.
- In order to configure the NetworkHD encoders and decoders, the AV port on the NHD-000-CTL MUST be connected to the same LAN/VLAN and Subnet as the NetworkHD encoders and decoders.
- In order for the devices in the system to be controlled via a 3rd party controller on a different VLAN, the CONTROL port MUST be connected to the same LAN/VLAN and Subnet as the control system.
- The NHD-000-CTL's two Ethernet ports are designed to be used in different Networks or VLANs. When using a single Network or VLAN for example when using NetworkHD Touch - do not connect both ports - only use the AV port of the CTL.
- Install NetworkHD devices to allow airflow through the product - WyreStorm recommends using the NetworkHD rack mounts. The install location should be dry, well ventilated and guaranteed to maintain the mandatory operating temperature range of the product.

NetworkHD Console Configuration

In addition to the steps below more information on configuration can be found in the NetworkHD Installation Guide.

1. Connect a computer running Windows™ to the same LAN/VLAN as the NetworkHD components and ensure its IP is within the same subnet as the NetworkHD. The NHD-000-CTL is set to a static address of 169.254.1.1 by default – do not choose this address for your PC.
2. Power On the NetworkHD devices by connecting the included power supplies to the **Power Input** or by powering On the PoE switch.
3. Open the WyreStorm Management Suite (Available from the WyreStorm website) and launch the **NetworkHD 000 Series Console** and press **Search.**
   Note: If a no devices are discovered, verify that encoders/decoders, CTL and PC are within the same subnet scope and within the same range of the CTLs AV Port and disable or create an exception for the **NetworkHD Console** in the **Windows Firewall.**
4. Configure the system as per the instructions in the NetworkHD Installation Guide.

Note: WyreStorm reserves the right to change product specification, appearance or dimensions of this product at any time without prior notice. For full specifications for individual NetworkHD products, visit wyrestorm.com.

Warranty Information

WyreStorm Technologies ProAV Corp 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.