



**NTI**® NETWORK  
TECHNOLOGIES  
INCORPORATED

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## XTENDEX® Series

# ST-IPHD-LC-V4

## HDMI Over IP Extender

### Installation and Operation Manual



ST-IPHD-LC-V4  
(Front view)



ST-IPHD-R-LC-V4  
(Rear view)

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**CHANGES**

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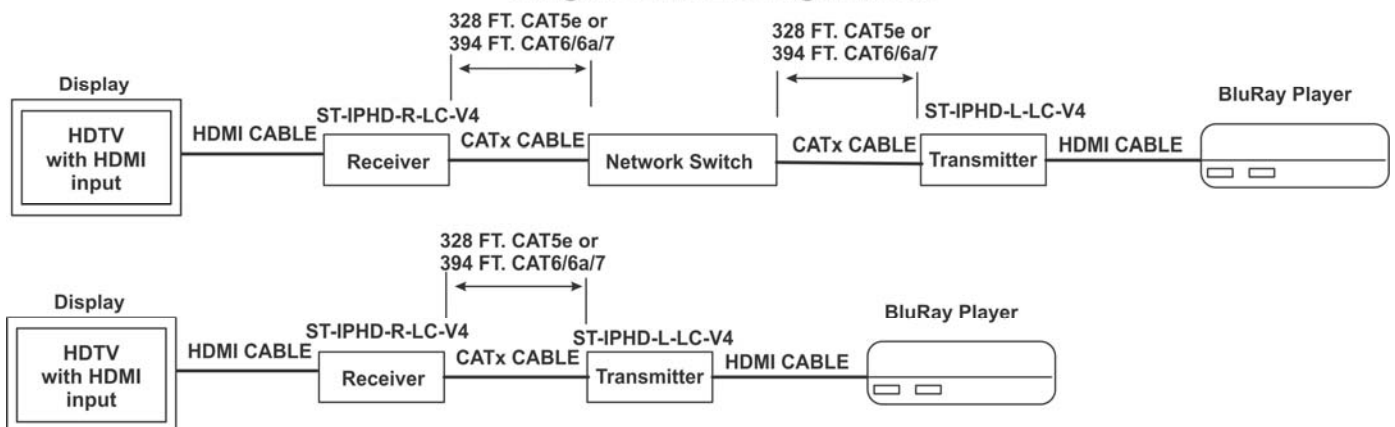
# INTRODUCTION

The XTENDEX® Low-Cost HDMI Over Gigabit IP Extender multicasts digital video and audio signals to one or more receivers up to 394 feet away over a 100/1000 Base-T Gigabit Network connected with CAT6/6a/7 cable.

Each Low-Cost HDMI Over Gigabit IP Extender consists of a local unit that connects to an HDMI source, and a remote unit that connects to an HDMI display. The local and remote units can be connected together for a Point-to-Point connection via CATx or a Point-to-Many connection via a network switch. Support for multiple transmitters requires a managed network switch.

- Supports HDTV resolutions to 1080p.
  - Extend up to 394 feet (120 meters) with CAT6/6a/7 cable.
  - Extend up to 328 feet (100 meters) with CAT5e cable.
- Cascade network switches to extend the length long distances.
  - The max cable lengths between the first switch/transmitter and between the last switch/receiver are 394 feet (120 meters) for CAT6/6a/7 or 328 feet (100 meters) for CAT5e cables.
  - The max cable lengths between switches is switch dependent, but 328 feet (100 meters) is typical.
  - An unlimited number of switches can be cascaded.
- Ideal solution for digital signage applications.
- Broadcast real-time HDMI video and audio signals to multiple display locations with a managed or unmanaged (also known as non-managed) network switch.
- Transmits an HDMI signal over one CATx cable.
- Plug-and-Play installation allows receivers to find the transmitters automatically on the same subnet. (Network configuration may be required for managed network switch.)
- Web interface for firmware updates.
- Easily expandable. Add remote units as you add monitors.
- Inexpensive CATx cable replaces bulky video cables.
- Supports 100/1000 Base-T Ethernet connection.
- Built in default EDID table.
- HDMI 1.3 and HDCP 1.4 compliant.
- Support for multiple transmitters requires a managed network switch with VLAN support. Standard LAN switches can only support one transmitter.
  - The managed switch must support port-based IEEE 802.1Q VLAN.
  - Each VLAN acts as a separate HDMI Over IP Channel on the network.
    - Each VLAN channel supports one transmitter.
  - Number of local and remote units that can be used is dependent on the backplane bandwidth of the switch.
- For a point-to-many connection, a standalone network with an unmanaged network switch, hub, or router can be used instead of a managed network switch.
  - Up to 253 receivers supported.
  - It is not recommended to use any other network devices on this standalone network as it may cause a degradation in performance.
- Uses H.264 technology to process image compression.
- Local and remote units must be in the same LAN. The units do not support WAN connections.

### Single Source Configurations



## Power Supply

The ST-IPHD-LC-V4 comes with two power supplies, one for the Transmitter, one for the Receiver. The ST-IPHD-R-LC-V4 is a Receiver only and comes with a single power supply. The type of power supply provided depends on the model ordered, which determines the type of plug that will be included to connect to your power source.

Model	Power Cord Plug Supplied
ST-IPHD-LC-V4	US NEMA 1-15P
ST-IPHD-LC-V4EU	Europlug CEE 7/16
ST-IPHD-LC-V4UK	UK BS1363
ST-IPHD-LC-V4AU	AS/NZS 3112
ST-IPHD-LC-V4UNVxx	US NEMA 1-15P with country-specific universal power plug adapter

The ST-IPHD-LC-V4UNVxx will include a universal power plug suitable for the power connections found in the country the power supply was ordered for (xx).

xx	Country
ZA	South Africa
IT	Italy
CH	Switzerland
IN	India
UK	United Kingdom
RU	Russia
IL	Israel
AU	Australia
EU	Europe
DK	Denmark

# INSTALLATION

## Cable Connections

1. Order the desired length of cables for your application.

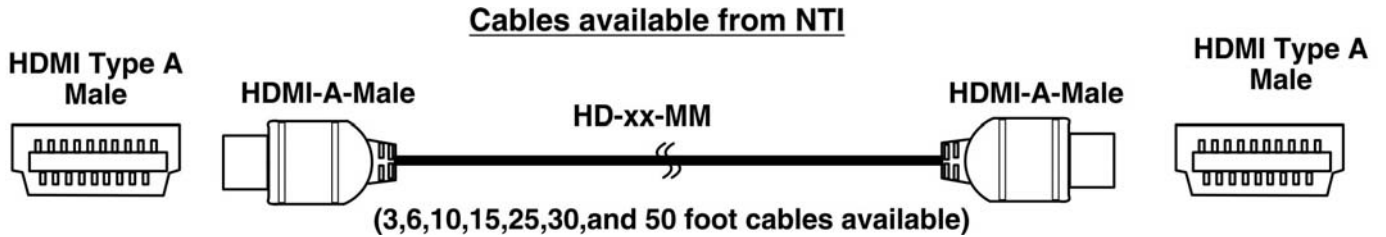


Figure 1- HDMI Cables Available

**Note:** Using HDMI cable lengths greater than 50 feet may result in unsatisfactory video quality or even no video at all depending upon the quality of the video source and display device used.

2. Connect the cable and supplied power supply to the ST-IPHD-L-LC-V4 Transmitter.

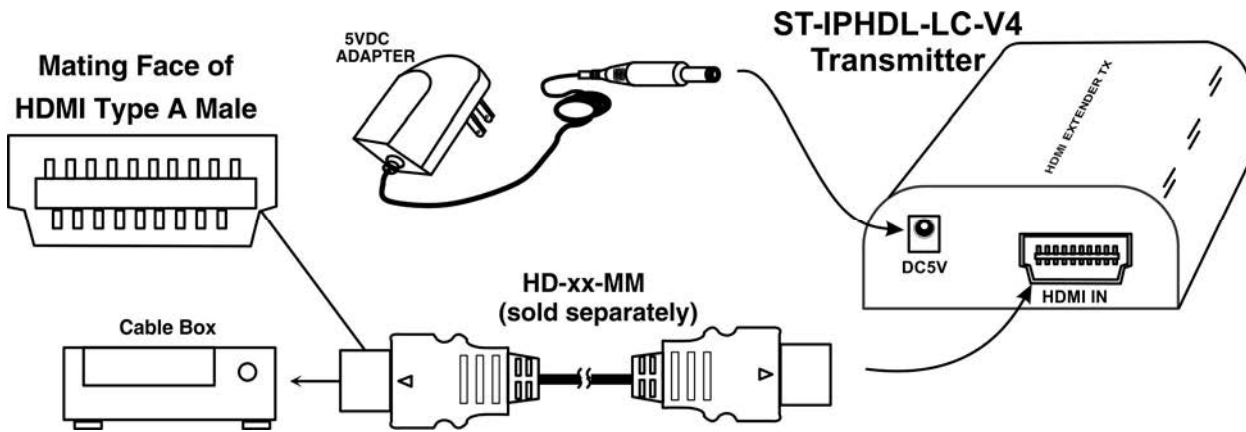


Figure 2- Connect Transmitter to source

3. Connect the cable and supplied power supply to the ST-IPHD-R-LC-V4 Receiver.

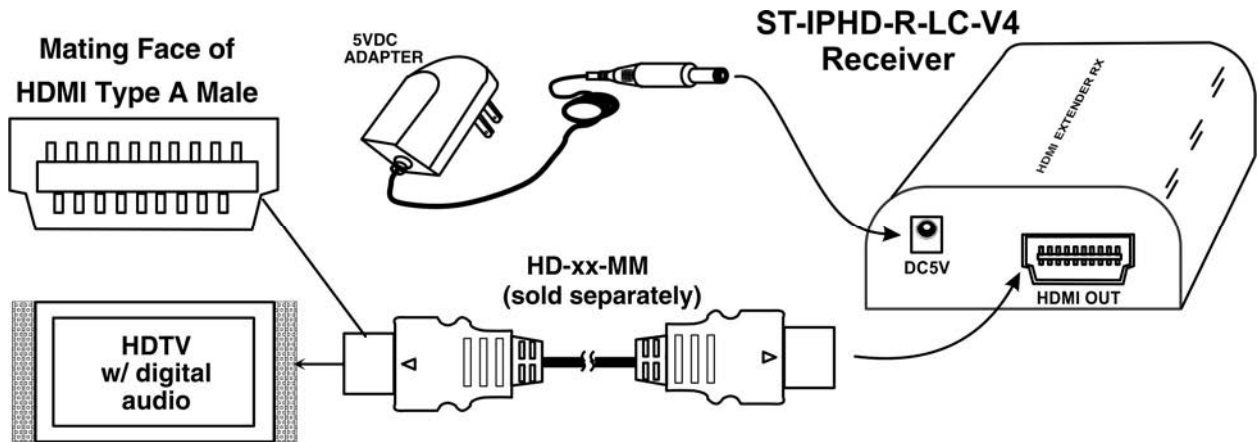


Figure 3- Connect Receiver to display

4. Connect up to 100 meters (328ft) of CAT5e or 120 meters (394ft) of CAT6 cable in the configuration you will use. Connect the Transmitter directly to the Receiver, or connect each of them to a LAN switch or router. Once the Transmitter and Receiver are properly connected and powered, they will sense each other and be ready to extend video. To split the video to more than one display, connect multiple receivers to the LAN switch. (See images below.) No special configuration of the extenders or the LAN switch is required.

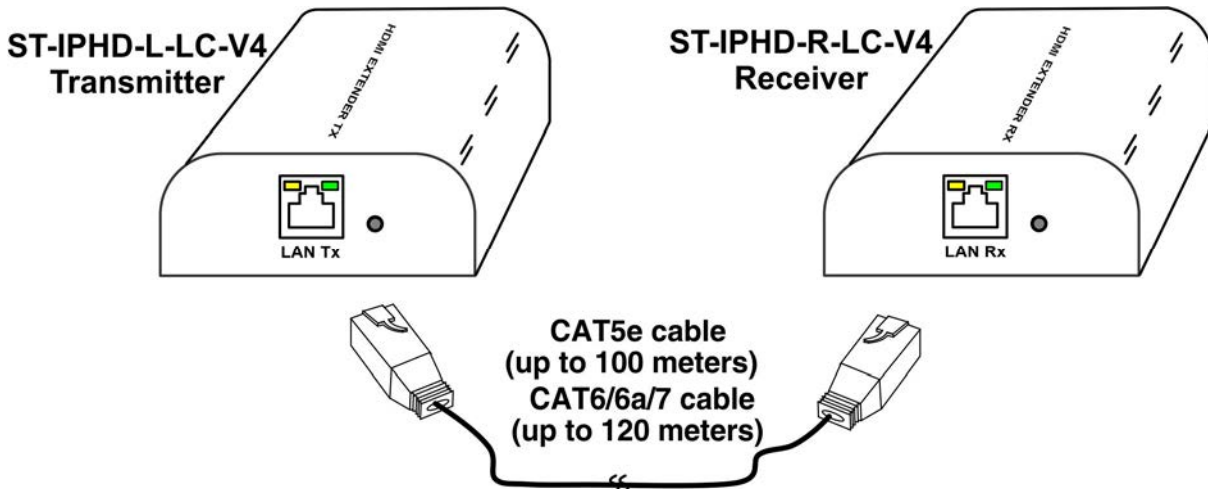


Figure 4- Connect Transmitter to Receiver

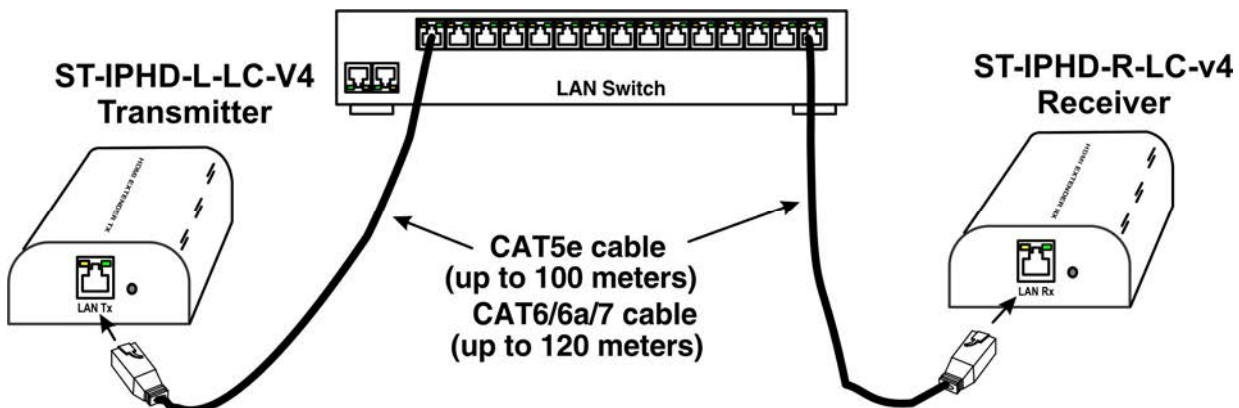


Figure 5- Connect Through LAN switch

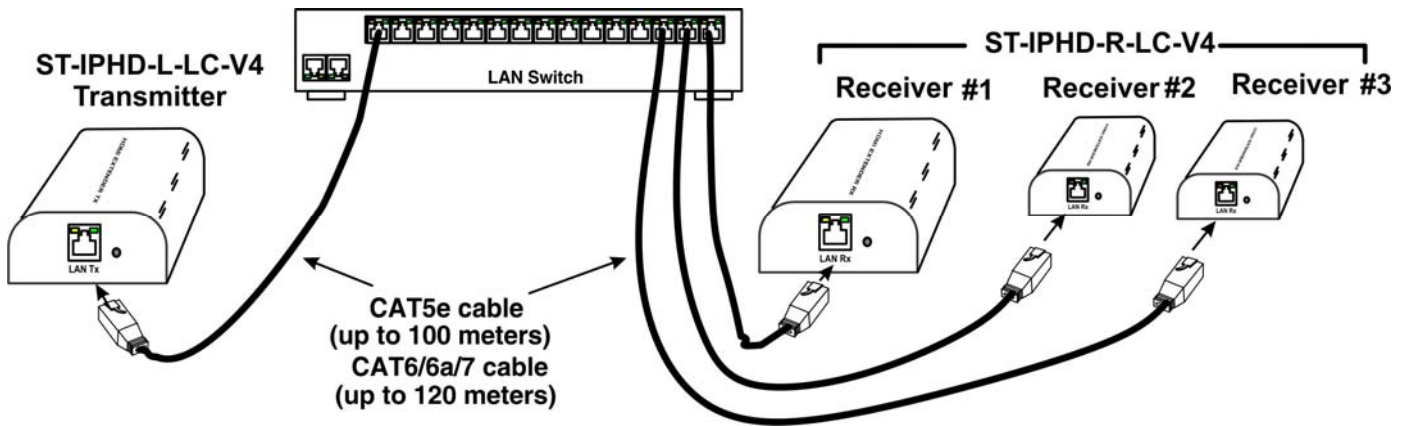


Figure 6- Connect one Transmitter to several Receivers

### Multiple HDMI Source- One or More Displays

For an installation involving multiple HDMI sources and one or more displays, a managed network switch with VLAN support will be required to control which Transmitter is sending HDMI to the Receivers. Connections will be made just as they were with a single-source installation.

**NOTE: Cisco 2960 Series switches do not support many-to-many configurations of ST-IPHD-LC-V4 .**

### Limitations

Be aware that when connecting multiple Transmitters and Receivers to a configuration, they must all have the same version number on them. If you have older Transmitters and/or Receivers ("V1.0" , "V1.1" or "V2.0"), they will not work with Transmitters and/or Receivers with a different version number on them as they are built differently. At present, all units available from NTI have "V4.0" on the back. If your units are older and you require more "V4.0" Transmitters and Receivers in your configuration, contact your NTI product consultant for assistance.



Figure 7- End View of Extender showing version number

## HOW TO PERFORM A FIRMWARE UPGRADE

If updated firmware is available, follow the procedure below to perform a firmware upgrade.

**Note: Be careful not to interrupt power to the extender during the upgrade.**

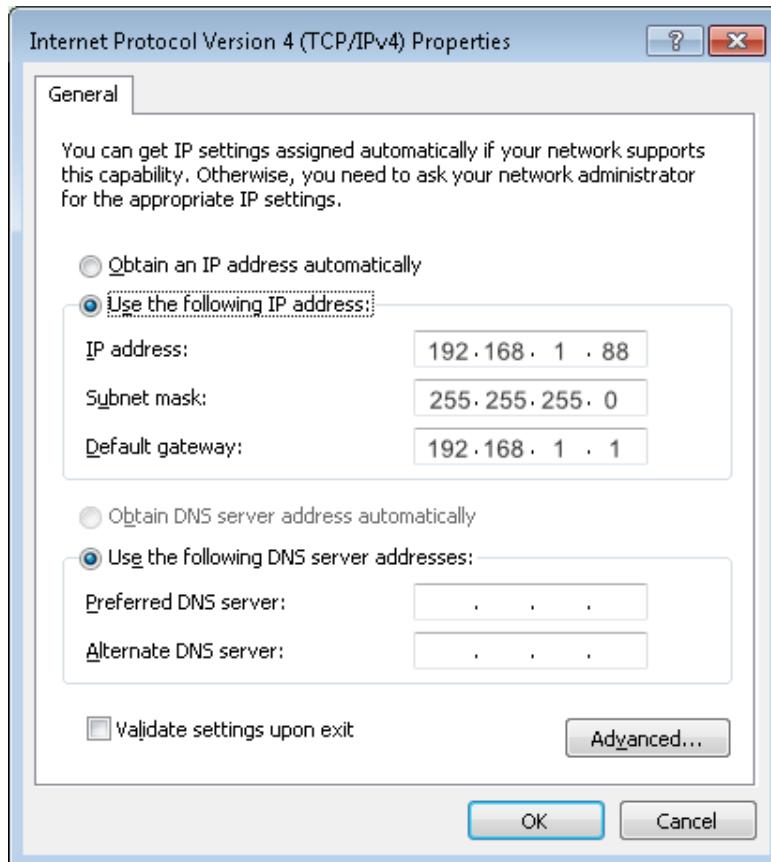
**Note: If you cannot open the upgrade file, please try another browser.**

### Step 1: Prepare a network cable.

This will be an Ethernet patch cable wired straight through (RJ45 plugs on each end wired pin 1 to pin 1, pin 2 to pin 2, etc.).

### Step 2: Change the IP address of a PC/laptop to use for programming.

- 1 ) Open the *Network and Sharing Center* in the *Control Panel*, and click on the *Connections* link.
- 2 ) A new window will open up showing the details about your internet connection. Click on the **Properties** tab.
- 3 ) Another window will open up showing the items used by your connection. Select **Internet Protocol Version 4 (TCP/ IP v4)**.
- 4 ) Select **Use the following IP address** and fill the required details:
  - IP address: **192 . 168 . 1 . 88**
  - Subnet mask: **255 . 255 . 255 . 0**
  - Default Gateway: **192 . 168 . 1 . 1**
- 5 ) Leave the DNS server addresses box blank and click on OK.

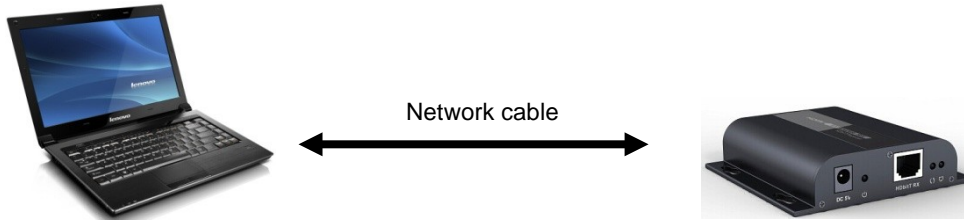


**Figure 8- Update network settings in the PC/laptop**



**Step 3:**

1) Power ON the device that needs to be upgraded, and then connect it to the PC/laptop via the network cable.



**Figure 9- Connect PC/laptop to extender (Tx/Rx)**

2) Open the browser (Internet Explorer is recommended) and enter the appropriate address in the address bar:

Transmitter (TX) upgrade: **192.168.1.210**

Receiver (RX) upgrade: **192.168.1.220**

3) In the webpage that opens, click **Choose File** and select the prepared upgrade file and click **upgrade**

4) When the upgrade is finished, refresh the browser screen (press F5 key) and you will see the latest version number on the webpage. You are done. (The whole process takes about 15-30 seconds)



**Figure 10- Step one- Open the Upgrade Firmware webpage**



**Figure 11- Select the upgrade file**

## RX Server

Version: 5.3.2.10.20200827

File to Upgrade Firmware(\*.PKG):  4.0-RX-20210115.PKG

Firmware upgrading, please wait...

Figure 12- Wait for the upgrade to finish (about 15-30 seconds)

## RX Server

Version: 5.3.2.10.20210115

**New Firmware Version**

File to Upgrade Firmware(\*.PKG):  No file chosen

Figure 13- Upgrade is complete. Refresh the screen. New firmware version is shown.

### Specifications

Transmitter/Local Unit	
Input Port	One female HDMI-A port for source connection
Ethernet connection	One female 1000Mbps RJ45 port for sending high definition video/audio signals.
Supported Input Resolutions	480i@60Hz, 480p@60Hz, 576i@50Hz, 576p@50Hz, 720p@50/60Hz, 1080i@50/60Hz, 1080p@50/60Hz
CODEC	H.264
Encoding Delay	<100 ms
Power consumption	2W
Receiver/Remote Unit	
Output port	One female HDMI-A port for HDTV or computer display.
Ethernet connection	One female 1000Mbps RJ45 port for receiving high definition video/audio signals.
Supported Output Resolutions	480p@60Hz, 576p@50Hz, 720p@50/60Hz, 1080p@50/60Hz
Audio support	Supports embedded digital audio through HDMI compatible TVs or audio receivers.
Power consumption	1.85W
General	
Power	Two 100-240 VAC at 50/60Hz; 5VDC 1A adapter, 5W each (see table on page 2)
CATx Cable	Max. Distance 328 feet (100 meters) over CAT5e; 394 feet (120 meters) over CAT6/6a/7
Working temperature	0°C to 60°C
Operating/Storage Relative Humidity	0-95% non-condensing
Dimensions (WxDxH)	2.28x4.33x1.02 in (58x110x26 mm)
Regulatory Approvals	CE, FCC, RoHS

## WARRANTY INFORMATION

The warranty period on this product (parts and labor) is two (2) years from the date of purchase. Please contact Network Technologies Inc at **(800) 742-8324** (800-RGB-TECH) or **(330) 562-7070** or visit our website at <http://www.networktechinc.com> for information regarding repairs and/or returns. A return authorization number is required for all repairs/returns.

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