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TECHNOLOGIES  
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## XTENDEX® Series

# ST-C6HD-HDBT-LC

## 328 FOOT HDMI, Digital Audio and IR Extender

### Installation and Operation Manual

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ST-C6HD-HDBT-LC Remote and Local Unit

**HDMI**®  
HIGH-DEFINITION MULTIMEDIA INTERFACE

**TRADEMARK**

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**CHANGES**

The material in this guide is for information only and is subject to change without notice. Network Technologies Inc reserves the right to make changes in the product design without reservation and without notification to its users.

***Note: CATx connection cable used between NTI XTENDEX Series Local and Remote or any XTENDEX Series products should not be run underground, outdoors or between buildings.***

**WARNING: Outdoor or underground runs of CATx cable could be dangerous and will void the warranty.**

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## INTRODUCTION

The XTENDEX Series ST-C6HD-HDBT-LC HDMI HDBase-T Extender transmits uncompressed digital HDMI signal, IR, and Ethernet up to 328 feet over a single CAT5e/6 cable using HDBase-T technology. Each video extender consists of a local unit that connects to an HDMI source and a remote unit that connects to an HDMI display. The IR transport channel can be forward or backward per your installation.

The XTENDEX Series Extender is extremely simple to install and has been thoroughly tested to insure reliable performance. Through the use of CAT5e/6 (CATx) cable it is possible to economically increase the flexibility of an entertainment system. Here are some of the features and ways this can benefit you:

- Transmits an uncompressed high speed HDMI signal over one CAT5e/6 cable.
- Supports HDTV resolutions to 1080p and computer resolutions to 1920x1200.
- HDMI features supported:
  - 36-bit Deep Color
  - x.v.Color
  - Dolby TrueHD, DTS-HD Master Audio, Dolby Digital, DTS 7.1 and LPCM
  - Bandwidth up to 3.4 GHz
  - 3D
  - Support for CEC (consumer electronic control) compatible devices.
  - Lip Sync
- HDCP compliant.
- Supports the DDC2B protocol.
- High quality, rugged steel construction with durable powder coat finish.
- Full Infrared Remote (IR) control of HDMI source from remote HDTV using existing source remote control.
- IR transport can be forward or backward per installation.

## MATERIALS

### Materials Included with ST-C6HD-HDBT-LC kit:

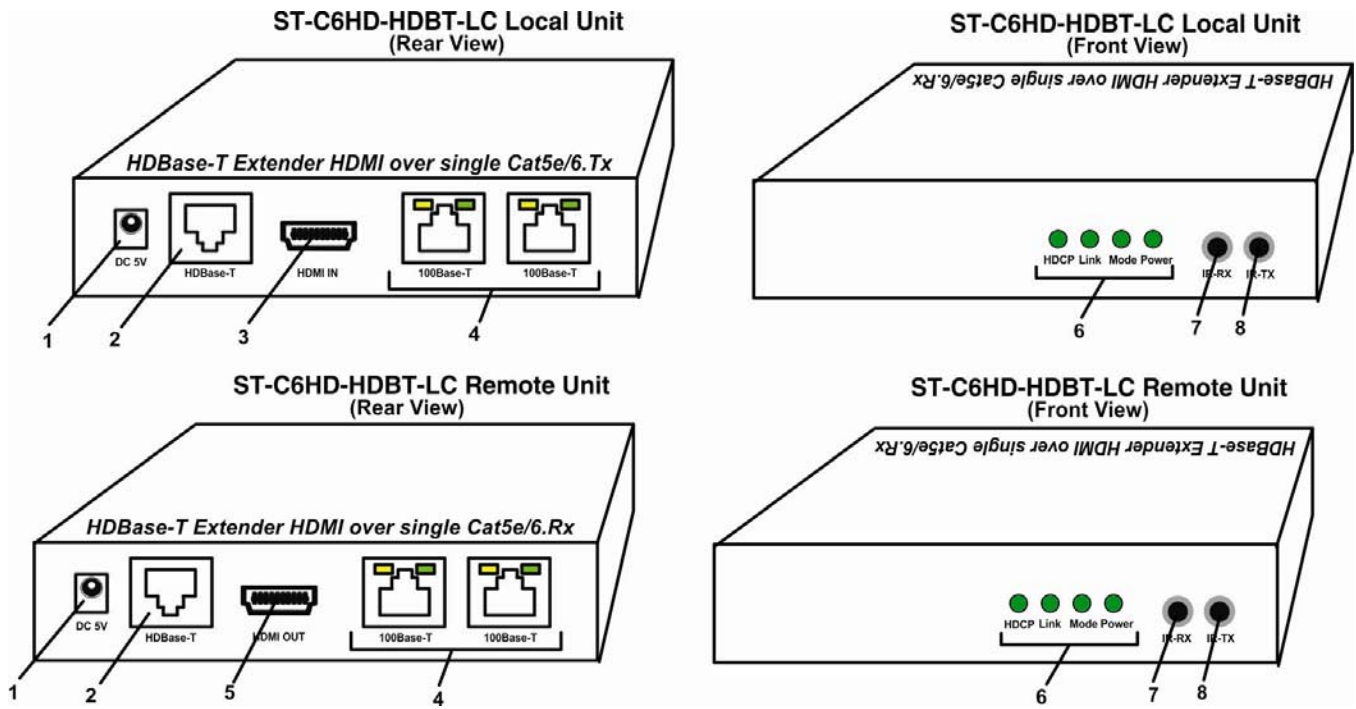
- ✓ NTI XTENDEX Local Unit
- ✓ NTI XTENDEX Remote Unit
- ✓ 2-100VAC to 240VAC at 50 or 60Hz-5VDC/0.5A AC Adapter
- ✓ 3 Foot IR-EMITTER
- ✓ 3 Foot IR-RECEIVER
- ✓ This manual

### Additional materials are required but are not supplied:

- CAT5e solid UTP ; CAT6 solid UTP twisted-pair cables terminated with RJ45 connectors wired straight thru- pin 1 to pin 1, etc. (see page 8 for proper EIA/TIA 568 B wiring method)
- HDMI male-male cable to connect a HDMI source or display (Order NTI # HD-xx-MM where xx=3, 6, 9,14 foot cable). (Maximum length supported is 15 feet)

Always use the shortest possible cable for best performance.

Contact your nearest NTI distributor or NTI directly for all of your KVM needs at 800-RGB-TECH (800-742-8324) in US & Canada or 330-562-7070 (Worldwide) or at our website at <http://www.networktechinc.com> and we will be happy to be of assistance.



## CONNECTORS AND LEDS

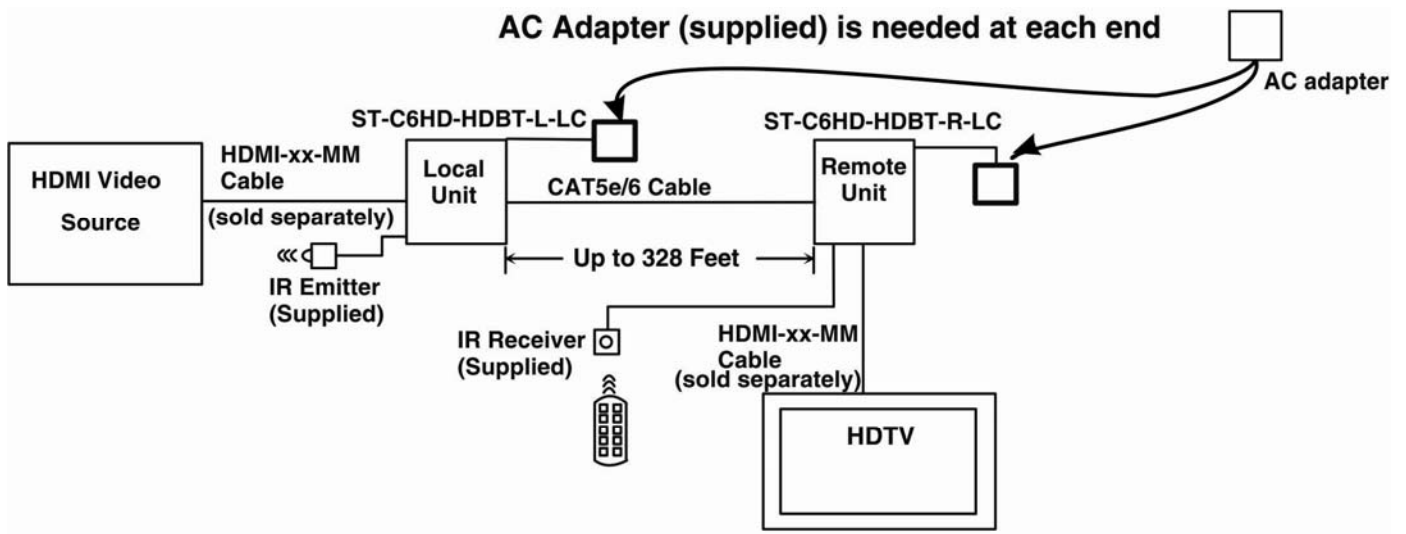
#	LABEL	CONNECTOR	DESCRIPTION
1	DC 5V	Power Jack	connection jack for the AC adapter
2	HDBase-T	RJ45 Connector	Connector for CAT5e/6 cable between Local and Remote Units
3	HDMI In	HDMI female video connector	for connecting an HDMI cable between the Local Unit and the video source
4	100Base-T	RJ45 Connectors	For connecting devices or connection to LAN/Internet
5	HDMI Out	HDMI female video connector	for connecting the remote display device
6	HDCP Link Mode Power	Green LEDs	Indicates HDCP data passing between video source and display Indicates connection between Local and Remote Unit Indicates normal operation when flashing Indicates power has been supplied
7	IR-RX	3.5mm Stereo Jack	for connecting the IR Receiver
8	IR-TX	3.5mm Stereo Jack	for connecting the IR Transmitter

## LIMITATIONS

- The use of CAT5 or of any stranded cabling will reduce the maximum distance and resolution.

## PREPARATION FOR INSTALLATION

- Locations should be chosen for the monitor that also has space to connect the Remote unit within the distance provided by the cables. If extension cables are needed, contact NTI for the cables required.
- The CATx cables must be run to the locations where the Remote and Local units will be connected. Be careful to route the cables away from any sources of magnetic fields or electrical interference that might reduce the quality of the video signal (i.e. AC motors, welding equipment, fluorescent lighting, etc.).
- All cables should be installed in such a way that they do not cause stress on their connections to the equipment. Extended lengths of cable hanging from a connection may interfere with the quality of that connection. Secure cables as needed to minimize this.
- Properly shut down and disconnect the power from the video source and monitor to be separated. If other equipment is involved whose connections are being interrupted, be sure to refer to the instruction manuals for that equipment for proper disconnection and reconnection procedures before proceeding.
- Be very careful not to obstruct the air vents on each unit in its installed location.



**TYPICAL APPLICATION**

# INSTALLATION

## Installing The Local Unit

1. Connect an HD-x-MM (sold separately) or DVI-HD-xx-MM cable (page 2) between the HDMI signal source and the "HDMI In" connector on the Local Unit.
2. Connect PC(s) or Ethernet connection from LAN to "100Base-T" ports as desired.

**Note:** Ethernet connection can be made either at the Local Unit or at the Remote Unit ports. Each PC connected to the ST-C6HD-HDBT-LC will connect to the LAN through this Ethernet connection.

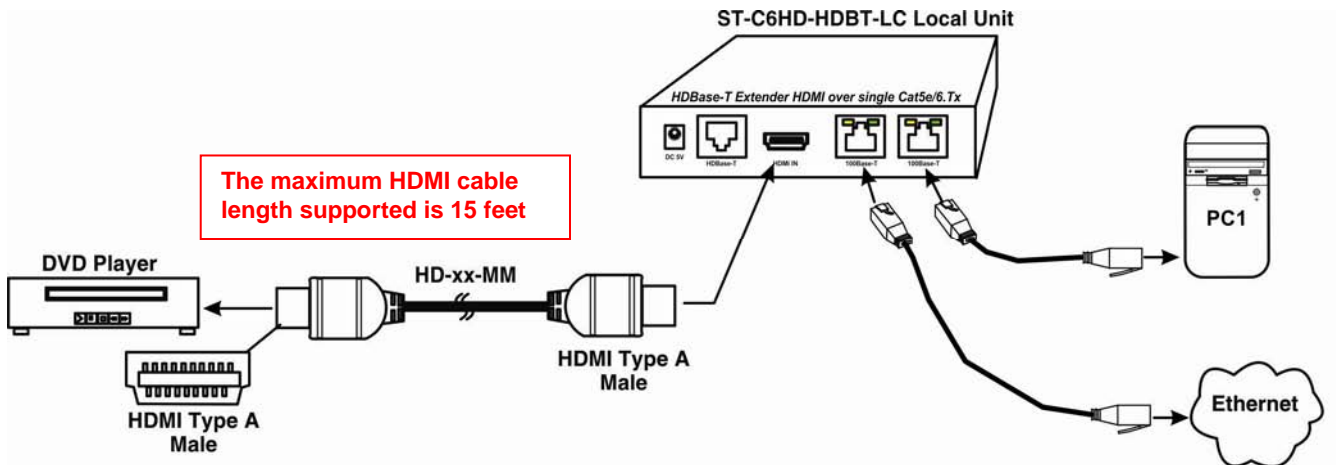


Figure 1- Install the Local Unit to the source

## Installing The Remote Unit

1. Connect a HD-xx-MM to the female HDMI video connector labeled "HDMI Out" on the Remote Unit.
2. Connect PC(s) or Ethernet connection from LAN to "100Base-T" ports as desired.

**Note:** Ethernet connection can be made either at the Local Unit or at the Remote Unit ports. Each PC connected to the ST-C6HD-HDBT-LC will connect to the LAN through this Ethernet connection.

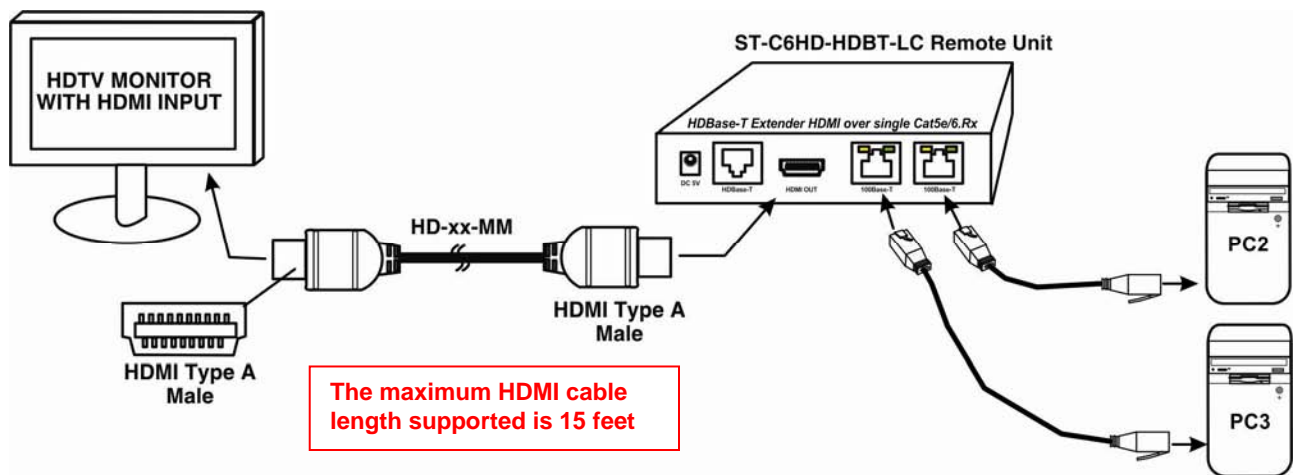


Figure 2- Connect the extended components to the Remote Unit



## Connect the CATx Cables

Connect the CATx cable between the “HDBase-T” ports on the Local and Remote Unit. (See Figure 3) When properly inserted the cable ends should snap into place.



**WARNING:** Never connect the “HDBase-T” port of this XTENDEX to an Ethernet card, Ethernet router, hub or switch or other Ethernet RJ45 connector of an Ethernet device. Damage to devices connected to the Ethernet may result.

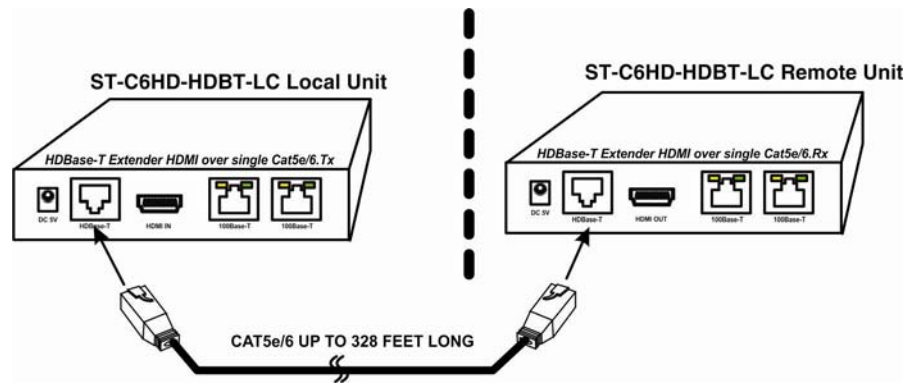


Figure 3- Connect CATx cable

## Plug-in and Boot Up

1. Plug the power cord from the display into the power outlet.
2. Connect an AC adapter power connectors to the “DC 5V” ports on the Remote Unit and Local Units. Plug the AC adapters into power outlets. The green “Power” LED on each unit should illuminate, indicating that a proper power connection has been made to them. (See Figure 4)
3. Turn ON the video source and display. The “Link” LED on both the Local and Remote Units should illuminate. The video source and monitor should each react as if directly connected to each other. If both are HDCP compliant, then the ‘HDCP’ LED on each unit should illuminate.

**Note:** If the video source is HDCP compliant and the display is not HDCP compliant, no image will be seen on the display.



Figure 4- Connect the AC adapters to the Remote Unit and the Local Unit

## INFRARED CONTROL

The XTENDEX includes ports for connecting an infrared emitter and receiver (included) to work in conjunction with the IR remote control used to operate the signal source. Connect the receiver to the "IR RX" port on one end of the installation (Remote Unit or Local Unit) and the emitter to the "IR TX" port on the other end. The IR transport channel can be forward or backward. Position the end of the receiver such that the signal from the remote control can easily reach the IR sensor. Position the end of the emitter such that the extended signal can be sent to the signal source.

**Note: The IR Emitter and Receiver work within a frequency range of 30-40kHz. Check the specifications for the device you are extending to make sure the XTENDEX will work with it.**

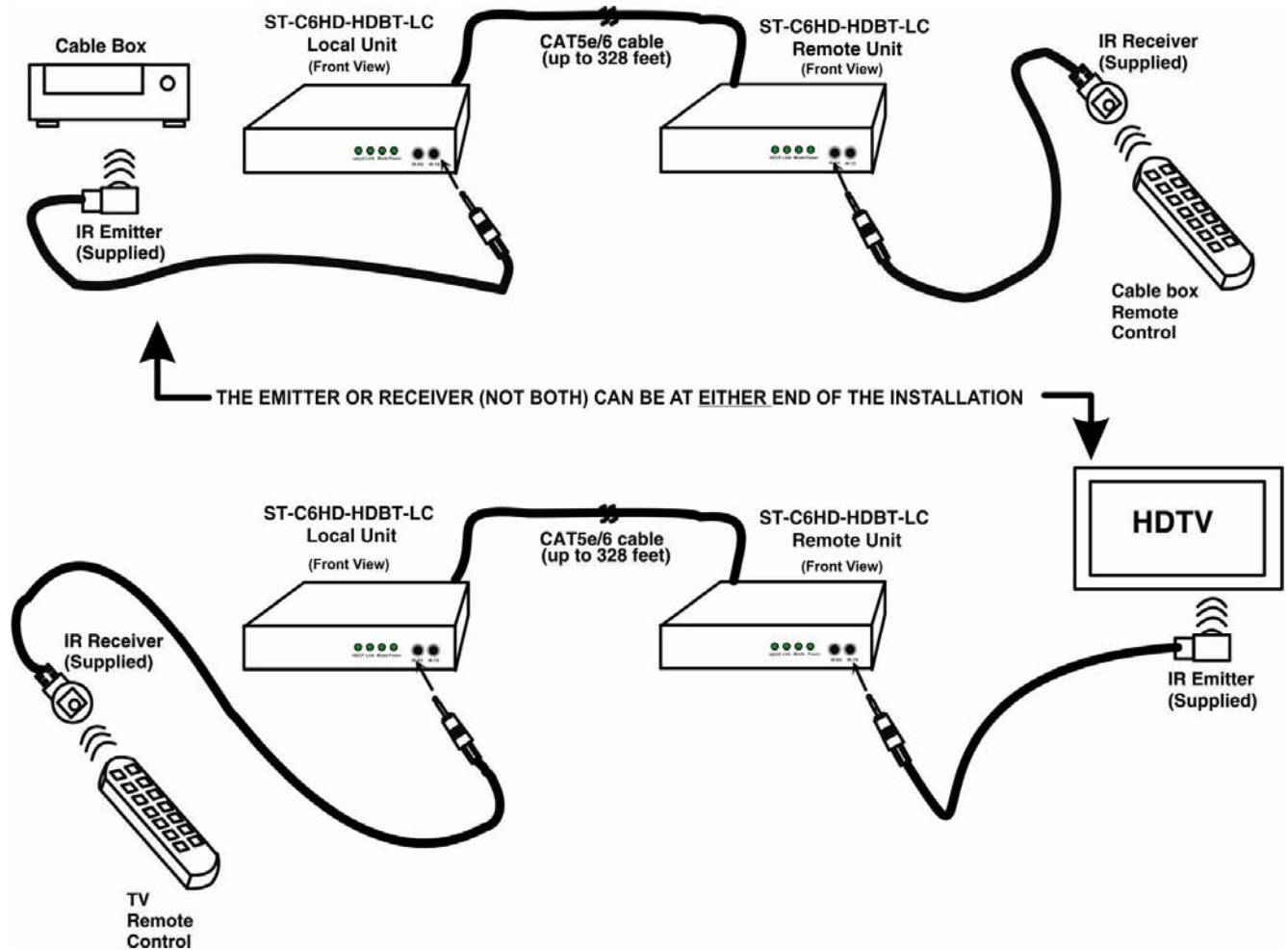


Figure 5- Connect IR Emitter and Receiver

**Note: The IR emitter or IR receiver (not both) can be connected at either end.**

## TECHNICAL SPECIFICATIONS

<b>Video</b>	
Video Compatibility	1920x1200 resolutions/ HDTV resolution up to 1080p @60Hz
Video Connectors	HDMI Type A Female
Input Video Signal	5.0 Volts P-P
Video Color Format	36bit Deep color
HDMI Version	HDMI 1.4a
DDC Support	DDC2b
HDCP Version	HDCP 1.2
<b>Audio</b>	
Audio Format	LPCM,Dolby Digital (AC3)(Plus),DTS 7.1,DSD, Dolby TrueHD,DTS-HD Master Audio
<b>IR</b>	
Input/Output	3.5mm Stereo Jack
Signal Type	TTL, 0-5VDC
Input Impedance	1.5 kohm
Output Impedance	33 ohm
Maximum Input/Output Level	5.2 Vp-p
Center Carrier Frequency	36kHz
Frequency Range	30-40kHz
<b>General</b>	
Interconnect Cable	CAT5e solid UTP; CAT6 Solid UTP; EIA/TIA 568 B wiring with male RJ45 connectors
CATx Cable Range	328 ft maximum
Operating Temperature	5-131° F (-15-55° C)
Operating Humidity Range	5 to 90% non-condensing RH
Remote and Local Unit Power	100V to 240VAC at 50 or 60Hz-5VDC/0.5A via AC Adapter
Enclosure type	Electro-galvanized steel black powder coated
Size (In.) WxDxH	4.37x2.95x.93
Compliance Certifications	CE, RoHS

## INTERCONNECTION CABLE WIRING METHOD

The CATx connection cables between the Remote and Local are terminated with RJ45 connectors and must be wired according to the EIA/TIA 568 B industry standard. Wiring is per the table and drawing below.

Pin	Wire Color	Pair	Function
1	White/Orange	2	T
2	Orange	2	R
3	White/Green	3	T
4	Blue	1	R
5	White/Blue	1	T
6	Green	3	R
7	White/Brown	4	T
8	Brown	4	R

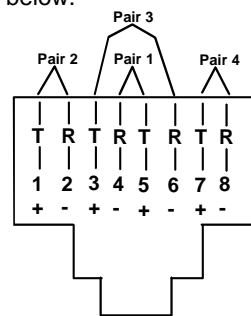


Figure 6- View looking into RJ45 female

## TROUBLESHOOTING

Each and every piece of every product produced by Network Technologies Inc is 100% tested to exacting specifications. We make every effort to insure trouble-free installation and operation of our products. If problems are experienced while installing this product, please look over the troubleshooting chart below to see if perhaps we can answer any questions that arise. If the answer is not found in the chart, a solution may be found in the knowledgebase on our website at <http://information.networktechinc.com/jive/kbindex.jspa> or please call us directly at **(800) 742-8324 (800-RGB-TECH)** or **(330) 562-7070** and we will be happy to assist in any way we can.

Problem	Cause	Solution
<b>Power LED does not illuminate</b>	<ul style="list-style-type: none"> <li>Power supply is not connected or plugged-in.</li> </ul>	<ul style="list-style-type: none"> <li>Make sure outlet is live and AC adapter is plugged-in.</li> <li>Make sure 5VDC jack is fully connected</li> </ul>
<b>No Video on display</b>	<ul style="list-style-type: none"> <li>One or more video cables is loose or disconnected.</li> <li>No power to Remote Unit.</li> <li>CATx cable is not connected.</li> <li>CATx cable is too long</li> <li>HDMI cable is too long</li> <li>Display is not HDCP compliant but HDMI source is</li> </ul>	<ul style="list-style-type: none"> <li>Check all video cable connections</li> <li>Make sure "Power" LED is illuminated on local and remote. If not, see solutions for first problem above.</li> <li>With all the cables properly connected, power cycle the video/audio source. Make sure "LINK" LED on local and remote is illuminated.</li> <li>Make sure they are snapped-in properly and completely and reboot.</li> <li>Switch to shorter cable or lower resolution (maximum length is 328 feet)</li> <li>Use shorter HDMI cable</li> <li>Change to HDCP compliant display</li> </ul>
<b>Video Picture is noisy</b>	<ul style="list-style-type: none"> <li>All Video Cables are not firmly seated.</li> <li>CATx cable is too long</li> <li>HDMI cable is too long</li> <li>The CATx cable is not properly connected.</li> <li>CATx cable is poor quality for the length of cable used</li> <li>CATx cable is installed near noisy equipment</li> </ul>	<ul style="list-style-type: none"> <li>Check all connections. Make sure all cables are fully seated.</li> <li>Switch to shorter cable or lower resolution (maximum length is 328 feet)</li> <li>Use shorter HDMI cable</li> <li>Check cable connections. Make sure they are snapped-in properly and completely.</li> <li>Install a higher quality CATx cable.</li> <li>Relocate run of CATx cable away from other electrical equipment</li> </ul>

## 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/return-policy.html> for information regarding repairs and/or returns. A return authorization number is required for all repairs/returns.