

XTENDEX™ Series

ST-C5VRS-600

VIDEO AND RS232 EXTENDER

Installation and Operation Manual



WARRANTY INFORMATION

The warranty period on this product (parts and labor) is one (1) year 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.nti1.com> for information regarding repairs and/or returns. A return authorization number is required for all repairs/returns.

COPYRIGHT

Copyright © 2003 by Network Technologies Inc, all rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written consent of Network Technologies Inc, 1275 Danner Drive, Aurora, Ohio 44202. For more information please contact Network Technologies Inc at (800) 742-8324 (800-RGB-TECH) or (330) 562-7070.

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.

Table of Contents

Introduction.....	1
Materials.....	1
Features and Functions.....	2
Limitations.....	3
Preparation for Installation.....	3
Installation.....	4
The Local Unit.....	4
The Remote Unit.....	6
Plug-in and Boot Up.....	7
Video Quality.....	7
Technical Specifications.....	8
Interconnection Cable Wiring Method.....	8
Troubleshooting.....	9

Table of Figures

Figure 1- Connect the Local Unit to the CPU.....	4
Figure 2- Connect Local User's Monitor to Local Unit.....	5
Figure 3- Connect the Extended Components to the Remote Unit.....	6
Figure 4- Connect the AC adapters to the Remote and Local Units.....	7
Figure 5- View looking into RJ45 female.....	8

Introduction

The XTENDEX Series ST-C5VRS-600 Video and RS232 Extender is designed to enable one CPU to be viewed or accessed by two touchscreen monitors, one local and one remote. The remote monitor can be located as much as 600 feet away from a CPU via Category 5 unshielded twisted-pair cable. The local monitor will be located near the CPU.

The XTENDEX Series ST-C5VRS-600 Video and RS232 Extender is extremely simple to install and has been thoroughly tested to insure reliable performance. Through the use of Category 5 unshielded twisted-pair cable it is possible to economically increase the flexibility of a computer system. Here are some of the features and ways this can benefit any workplace:

- Allows the placement of a touchscreen monitor in a location where only this is needed without having the CPU there too, taking up valuable space
- Allows a CPU to be accessed by both a local and remote user (up to 600 feet away)
- Compatible with XGA, VGA, and SVGA systems
- RS232 support enables the extension of a serial device (i.e. touch-screen monitor or mouse)
- Provides crisp and clear resolution up to 1280 x 1024 @ 600 feet
- Compatible with all NTI video switches and splitters, enabling the joining of products to create a system that satisfies all networking needs
- Video quality is automatic providing optimum image quality

Materials

Materials Included with this kit:

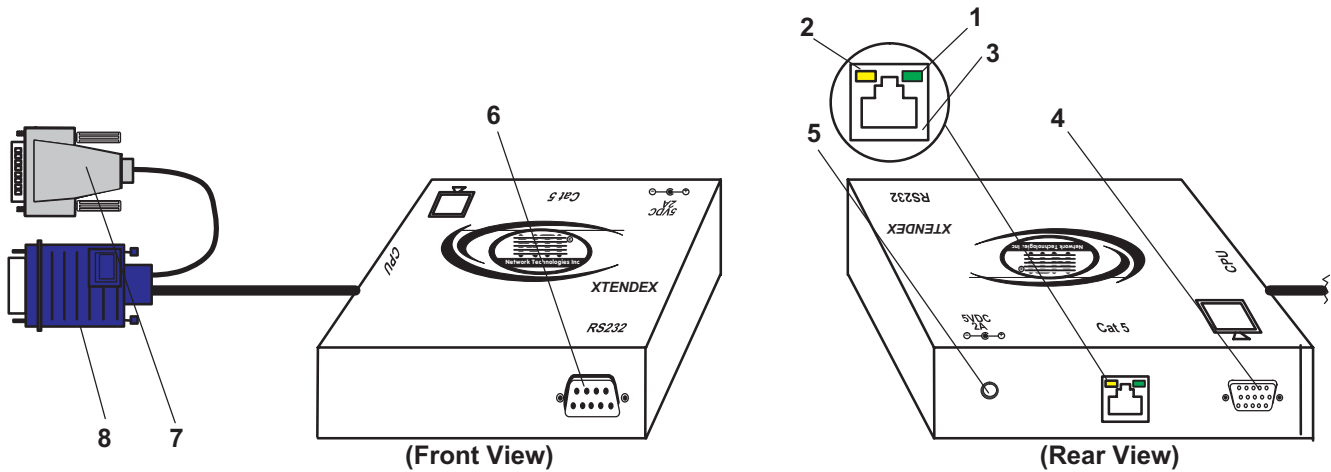
- ✓ NTI ST-C5VRS-600 Video and RS232 Extender Local Unit
- ✓ NTI ST-C5VRS-600 Video and RS232 Extender Remote Unit
- ✓ 2- 120VAC or 240VAC at 50 or 60Hz-5VDC/2.0A AC Adapters
- ✓ This owner's manual

Additional materials may need to be ordered, depending upon the configuration:

- VEXT-xx and DINT-xx if the Local Unit will be located further than 15" from the CPU or NTI switch
- CAT5 unshielded twisted-pair cable(s) terminated with RJ45 connectors wired straight thru- pin 1 to pin 1, etc. (see pg. 8 for proper EIA/TIA 568 B wiring method)

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.nti1.com> and we will be happy to be of assistance.

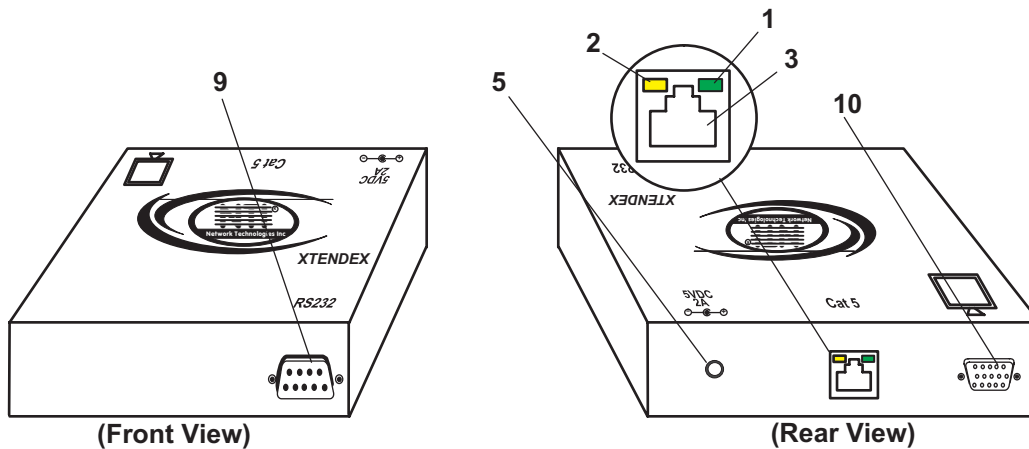
FEATURES AND FUNCTIONS



ST-C5VRS-600 Local Unit

Features and Functions

1. Green LED- traffic indicator- illuminates when RS232 data is passing through the CAT5 cable
2. Yellow LED- power indicator- illuminates when power has been supplied to the unit
3. Cat 5- RJ45 female- for connecting the CAT 5 cable
4. Video Connector- 15HD female- for connecting the local user's monitor
5. 5VDC- 2.0A- connection jack for the AC adapter
6. RS232 Connector- 9D male- for connecting the local user's touchscreen monitor RS232 cable
7. RS232 Connector- light gray 9D female- for connecting to the RS232 port on the CPU or NTI switch
8. Video Connector- blue 15HD male- for connecting to the video port on the CPU or NTI switch
9. RS232 Connector- 9D male- for connecting the remote touchscreen monitor RS232 cable
10. Video Connector- 15HD female- for connecting the remote user's monitor



ST-C5VRS-600 Remote Unit

Limitations

- RS232 devices connected to the Local and Remote Units must be identical.
- The RS232 ports on the Local and Remote Units will support serial devices other than touchscreen monitors as follows:
 - 2 simple devices (i.e. mice) connected to each unit, or
 - 1 complex device (i.e. serial modem, RS232 command port on an NTI switch) connected to either the Remote or Local Unit.
- Even though two users will have full access to the single CPU, if both users attempt to access the CPU at the same time, there will be a conflict. For example, if both the local and remote users are attempting to move the mouse pointer, it may jump around the screen and move in unintended directions.
- The maximum baud rate supported by the RS232 port is 56K bits per second and the attached CPU must be configured accordingly.

Preparation for Installation

- Locations should be chosen for the touchscreen monitors that also have space to connect the Remote and Local Units within the distance provided by the cables. If extension cables are needed, contact NTI for the cables required.
- The CAT5 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, etc.). **NOTE:** If CAT5 cable is already installed in the wall and there are RJ45 wall outlets, it will be necessary to obtain male-to-male straight through connection cables long enough to reach from the wall outlets to the connection locations of the Remote and Local Units.
- A properly grounded, polarized, and preferably surge-protected 120V or 240V electrical outlet (depending on the AC adapter being used) must be installed close enough to the connection location of the Remote and Local Units and monitors to plug them into.
- 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 CPU, monitor, and RS232 device 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 re-connection procedures before proceeding.

Installation

The Local Unit

1. Plug the cables of the Local Unit into the back of the CPU. (See Fig. 1.)
 - a. Connect the blue 15HD cable end to the VGA port on the back of the CPU.
 - b. Connect the light gray 9D cable end to the RS232 port on the back of the CPU.

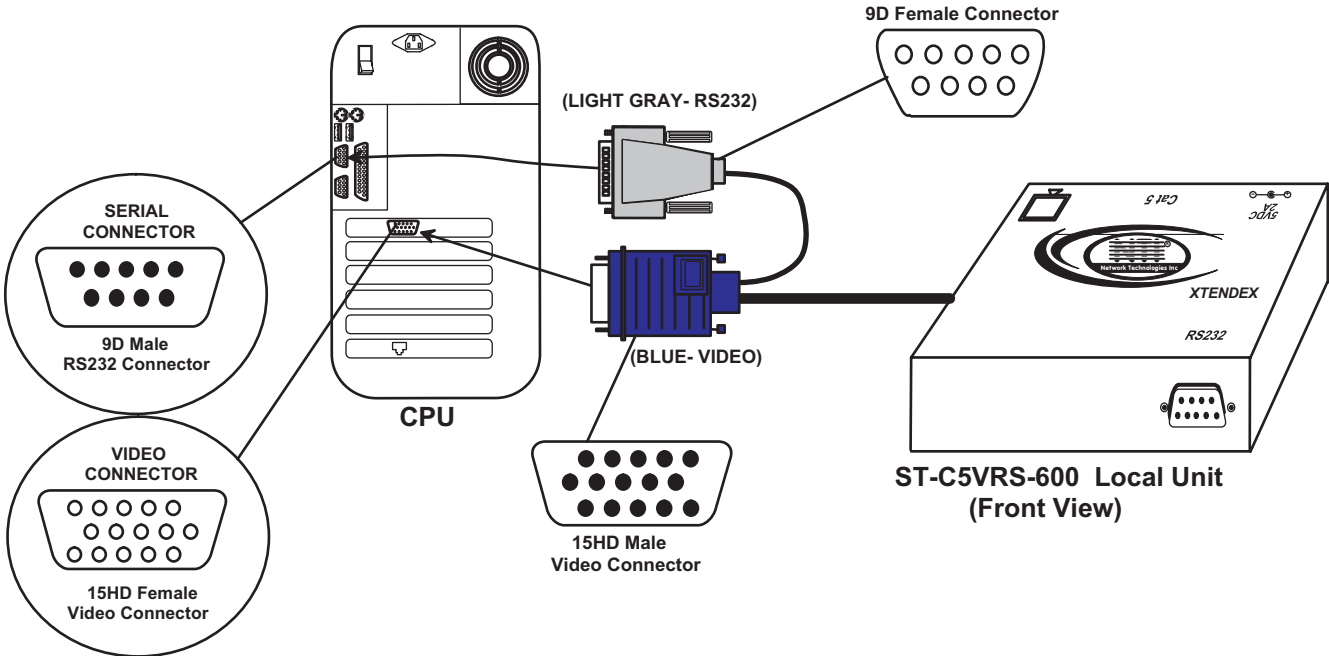


Figure 1- Connect the Local Unit to the CPU

2. Make connections for a Local User
 - a. Connect the video cable from the local user's VGA monitor to the female 15HD port on the Local Unit.
 - b. Connect the local user's RS232 cable from a touchscreen monitor (see Fig. 2) to the 9D male port on the Local Unit.

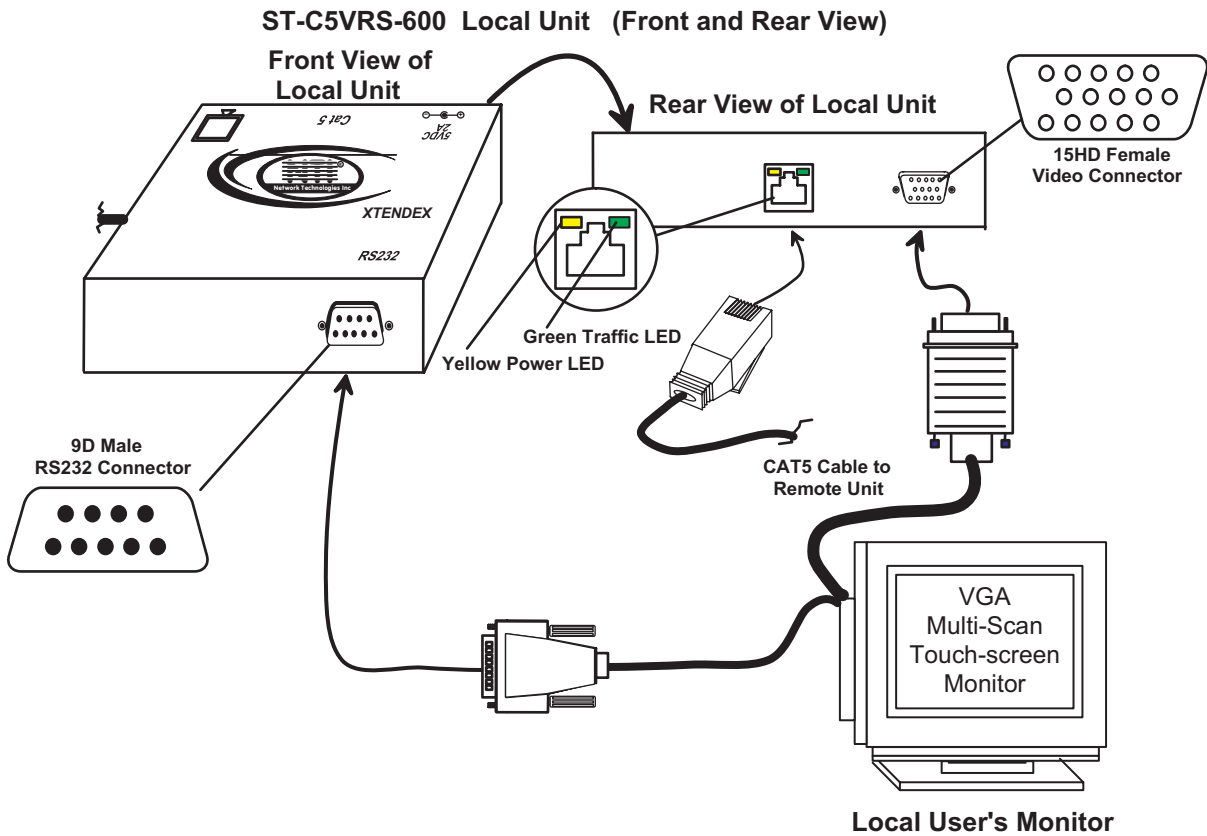


Figure 2- Connect Local User's Monitor to Local Unit

3. Connect the CAT5 cable to the "Cat 5" port on the Local Unit. (See Fig. 2.) When properly inserted the cable end should snap into place.

Note: *If an RJ45 wall outlet is being used, connect the other end of the extension cable to the RJ45 wall outlet.*



WARNING: *Never connect the ST-C5VRS-600 Extender 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.*

The Remote Unit

1. Position the Remote Unit such that the CAT5 cable, the monitor cable, RS232 cable, and the AC adapter power connector can each reach the Remote Unit comfortably.
2. Connect the monitor cable to the female 15HD video connector on the Remote Unit.
3. Connect the RS232 cable from a touchscreen monitor (see Fig. 3) to the male 9D connector on the Remote Unit.

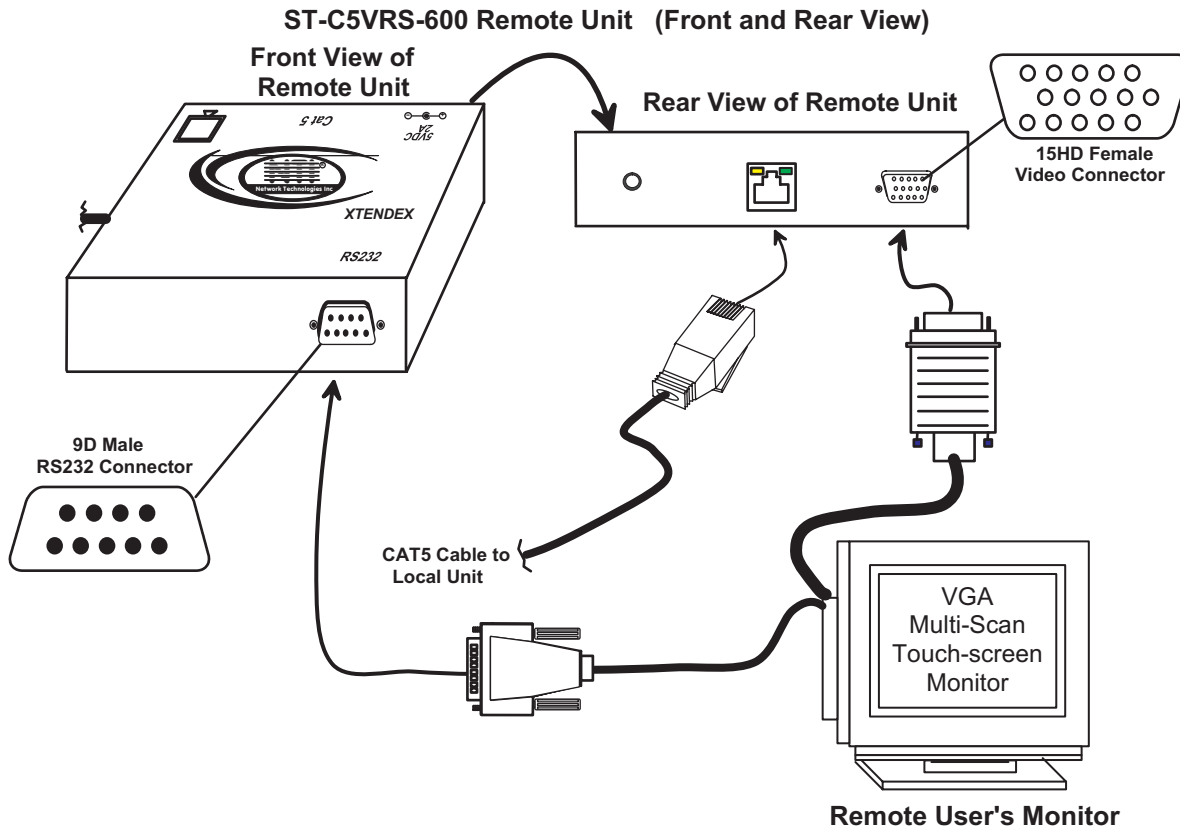


Figure 3- Connect the Extended Components to the Remote Unit

4. Make sure the CAT5 cable has been installed in accordance with the "Preparation for Installation" instructions on page 3. Connect the CAT5 cable to the "Cat 5" port on the Remote Unit. (See Fig. 3.) When properly inserted the CAT5 cable end should snap into place.

Note: If an RJ45 wall outlet is being used, connect the other end of the extension cable to the RJ45 wall outlet.



WARNING: Never connect the ST-C5VRS-600 Extender 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.

Plug-in and Boot Up

1. Plug the power cord from each monitor into a power outlet.
2. Connect the power connector from each AC adapter to the 5VDC port on the Remote and Local Units. Make sure each power connector goes into the port all the way. Plug each AC adapter into a power outlet. The yellow LED on the RJ45 connector on the Remote and Local Units should illuminate, indicating that a proper power connection has been made to both. (See Fig. 4.)

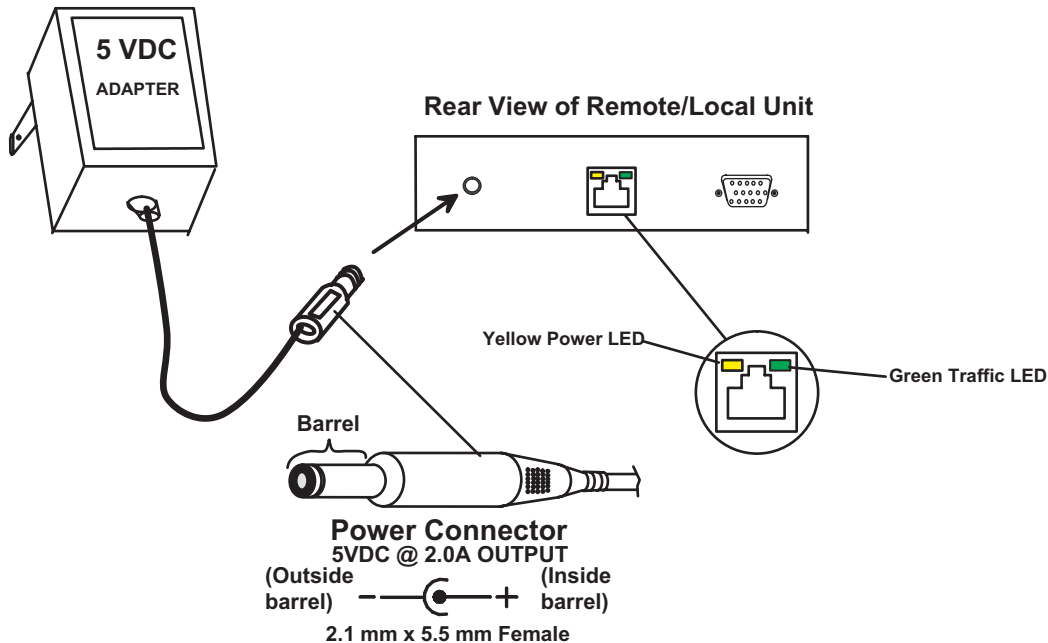


Figure 4- Connect the AC adapters to the Remote and Local Units

3. Turn ON the CPU and Monitors. They should each react as if they were directly connected to each other.

NOTE: The green LED on each RJ45 connector will illuminate anytime data traffic is passing between the Local and Remote Units, indicating proper CAT5 cable connection and communication. (See Fig. 4)

Video Quality

Video quality adjustment is done automatically to assure the image is as clear as possible for varying lengths of CAT5 cable.

Note: When the cable is longer than 300 feet some colored lines can be seen at the black-to-white transitions. This is a normal behavior and is caused by the different twisting rates of each pair of wires in the CAT5 cable.

Technical Specifications

Maximum Resolution (refresh frequency 60Hz)	1280 x 1024 - up to 600 feet
Video Compatibility	SVGA, XGA, VGA
Video Quality Adjustment	Automatic, for up to 600 feet of CAT5 cable
Video Coupling	DC
Video Connectors	HD15 male to PC HD15 female to monitor
RS232 Connectors	9D male to device 9D female to CPU
RS232 Baud Rate	56K bps maximum (no baud rate adjustment is necessary)
RS232 Compatibility	RXD, TXD, RTS, DTR, CTS, DSR
Sync Types Supported	Separate and composite TTL Level and sync on green
Interconnect Cable	CAT 5/5e Solid UTP EIA/TIA 568 B wiring w/ male RJ45 connectors
Remote and Local Unit Power	120V or 240V at 50 or 60Hz-5VDC/2.0A via AC Adapters
Dimensions	3.1" W x 3.4" D x 1" H

Interconnection Cable Wiring Method

The connection cable between the remote and local is terminated with RJ45 connectors and must be wired according to the EIA/TIA 568 B industry standard. Wiring is as 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

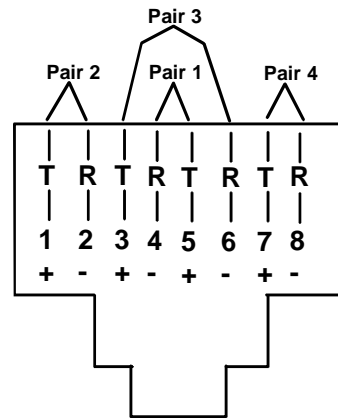


Figure 5- View looking into RJ45 female

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, please check the FAQs (Frequently Asked Questions) at our website at <http://www.nti1.com> or contact us directly for help at 1-800-742-8324 (800-RGB-TECH) in US & Canada or 1-330-562-7070 worldwide. We will be happy to assist in any way we can.

Problem	Cause	Solution
Local or Remote Unit yellow power LED does not illuminate	<ul style="list-style-type: none"> Power supply is not connected or plugged-in. 	<ul style="list-style-type: none"> Make sure outlet is live and AC adapter is plugged-in. Make sure 5VDC jack is fully connected.
No Video on monitor	<ul style="list-style-type: none"> One or more video cables is loose or disconnected. No power to Remote or Local Units. Video Cable was not attached when CPU was booted. CAT5 cable is not connected. 	<ul style="list-style-type: none"> Check all video cable connections Make sure yellow LEDs are illuminated for local and remote. If not, see Solution for "Local or Remote Unit yellow power LED does not illuminate" above. With all the cables properly connected, reboot the CPU. Check cable connections. Make sure they are snapped-in properly and completely and reboot.
Video Picture is not sharp or is smeared	<ul style="list-style-type: none"> All Video Cables are not firmly seated. CAT5 cable is too long. The CAT5 cable is not properly connected. 	<ul style="list-style-type: none"> Check all connections. Make sure all cables are fully seated. Verify length is within specified limits-600'. Check cable connections. Make sure they are snapped-in properly and completely.
The picture on the monitor is black and white, rather than color	The video cable was not attached to the CPU when it was booted.	With the cables all properly connected, reboot the CPU.
A constant vertical wobble appears down the screen	CAT5 cable is too close to a strong power source.	Reroute CAT5 cable if possible.
Monitor sometimes loses sync, causing it to go blank for a second or two	<ul style="list-style-type: none"> Electrical power system is very noisy, particularly the ground. The CAT5 cable is not properly connected. 	<ul style="list-style-type: none"> Make sure the interconnection cable is not near any power lines. Check cable connections. Make sure they are snapped-in properly and completely.
No RS232 Communication	<ul style="list-style-type: none"> One or more RS232 cables is loose or disconnected 	<ul style="list-style-type: none"> Check all RS232 cable connections

If the answer to a question is not in our troubleshooting chart or on our website and a call to us is required, please have the following information available at the time of the call:

1. NTI Model Number and Serial Number (from the bottom) of the Local Unit and the Remote Unit.

Local M/N _____ S/N _____

Remote M/N _____ S/N _____

2. The total length of the CAT5 extension cable in use. _____
3. Make and Model Number of the touchscreen monitor. _____

4. Computer Information:

- Manufacturer _____
- Model _____
- RAM _____
- BIOS Mfr. _____
- BIOS Revision _____
- Operating System _____
- Graphics Card Name and Model _____
- Operating Video Resolution _____

5. Make and Model Number of any other equipment connected between the touchscreen monitor and the CPU.

ST-C5VRS-600

REMOTE UNIT

SERIAL NO: _____

DATE: _____

INSPECTED BY: _____

ST-C5VRS-600

LOCAL UNIT

SERIAL NO: _____

DATE: _____

INSPECTED BY: _____