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TECHNOLOGIES
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XTENDEX™ Series

ST-C5KVM-600-CE

PS/2 KVM EXTENDER

Installation and Operation Manual



Manual 073-C Rev. 4/29/03



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.

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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.



WARNING: Never connect the ST-C5KVM-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.

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CE remark

This equipment has been tested and found to comply with the limits for Information Technology Equipment of the European Community.

Introduction

The XTENDEX Series ST-C5KVM-600 PS/2 KVM Extender is designed to enable one PS/2 CPU to be controlled by two users, one local and one remote. The remote user can be located as much as 600 feet away from a PS/2 CPU via Category 5 shielded twisted-pair cable. The local user will be located near the PS/2 CPU.

The XTENDEX Series ST-C5KVM-600 PS/2 KVM Extender is extremely simple to install and has been thoroughly tested to insure reliable performance. Through the use of Category 5 shielded 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 monitor, keyboard, and mouse in a location where only these parts are needed without having the CPU there too, taking up valuable space
- Allows a PS/2 CPU to be accessed by both a local and remote user (up to 600 feet away)
- Compatible with XGA, VGA, and SVGA systems
- Provides crisp and clear resolution up to 1280 x 1024 @ 600 feet
- Compatible with all NTI PS/2 switches and splitters, enabling the joining of products to create a system that satisfies all networking needs
- Video quality adjustment, for varying lengths of cable, is automatic providing optimum image quality

Materials

Materials Included with this kit:

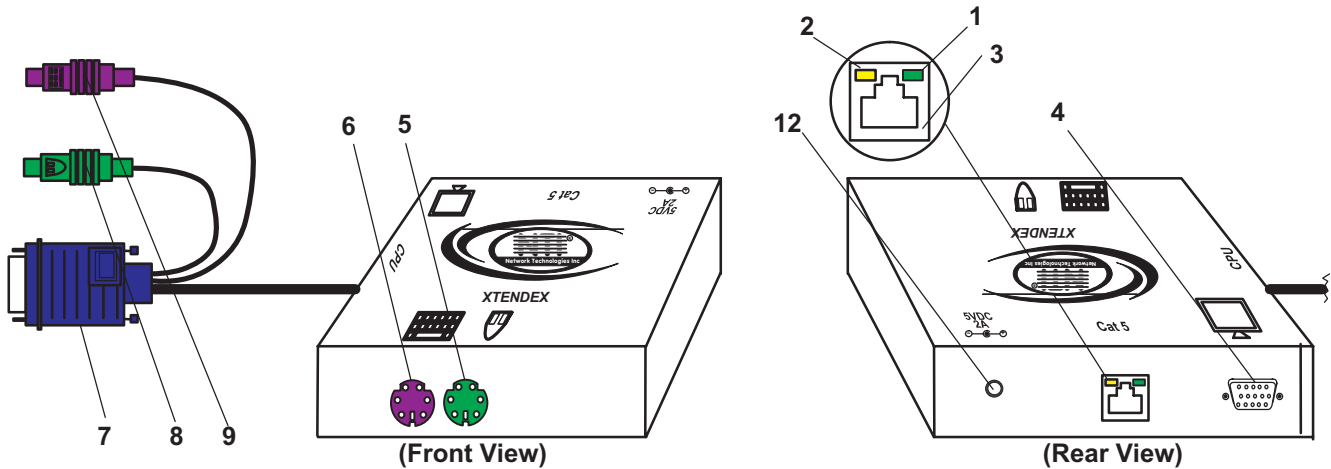
- ✓ NTI ST-C5KVM-600 PS/2 KVM Extender Local Unit
- ✓ NTI ST-C5KVM-600 PS/2 KVM Extender Remote Unit
- ✓ 2- 120VAC or 240VAC at 50 or 60Hz-5VDC/2.0A AC Adapters
- ✓ 2- Line cords, country specific
- ✓ This owner's manual

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

- VKMEXT-xx if the Local Unit will be located further than 15" from the CPU
- CAT5 shielded 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.

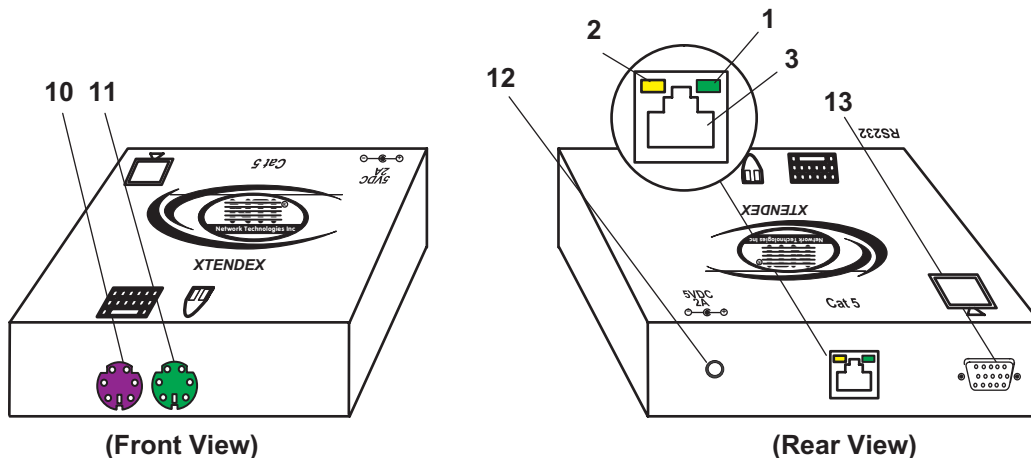
FEATURES AND FUNCTIONS



ST-C5KVM-600 Local Unit

Features and Functions

1. Green LED- traffic indicator- illuminates when there is communication between the local and remote units.
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. Mouse Connector- green female 6 miniDIN- for connecting the local user's mouse
6. Keyboard Connector- purple female 6 miniDIN- for connecting the local user's keyboard
7. Video Connector- blue 15HD male- for connecting to the video port on the CPU or KVM switch
8. Mouse Connector- green male 6 miniDIN- for connecting to the mouse port on the CPU or KVM switch
9. Keyboard Connector- purple male 6 miniDIN- for connecting to the keyboard port on the CPU or KVM switch
10. Keyboard Connector- purple female 6 miniDIN- for connecting the remote user's keyboard
11. Mouse Connector- green female 6 miniDIN- for connecting the remote user's mouse
12. 5VDC- 2.0A- connection jack for the TUV/CE approved AC adapter
13. Video Connector- 15HD female- for connecting the remote user's monitor



ST-C5KVM-600 Remote Unit

Limitations

- Hot-plugging of devices is supported provided devices were originally connected at power-up.
- Devices connected to the Local and Remote Units must be identical. Same mice, same keyboards, etc.
- In order for two users to share a PS/2 CPU, the user in control must pause for at least 3 seconds before another user can take control. After the 3 second pause, either user can take control of the CPU.

Preparation for Installation

- Locations should be chosen for the monitors, mice, and keyboards 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.
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, monitors, and CPU 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 and monitors 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 purple 6 pin miniDIN cable end with the keyboard symbol on it to the keyboard port on the back of the CPU.
 - b) Connect the green 6 pin miniDIN cable end with the mouse symbol on it to the mouse port on the back of the CPU.
 - c) Connect the blue 15HD cable end to the VGA port on the back of the CPU.

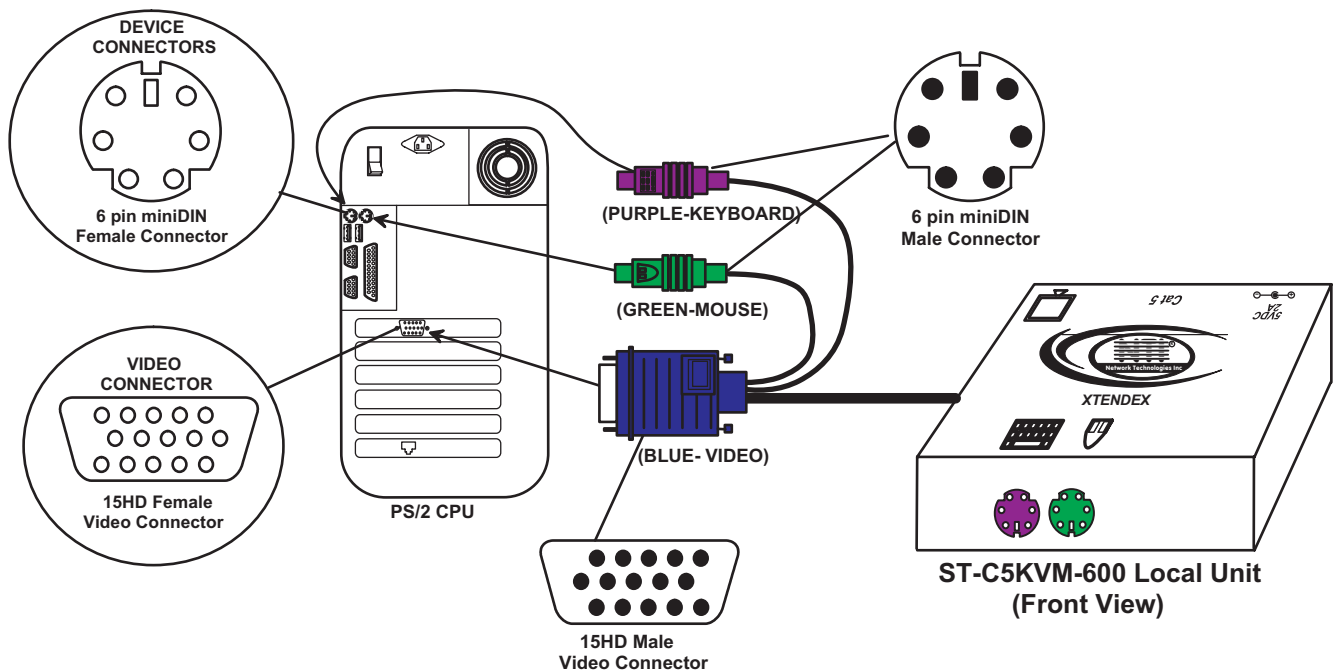
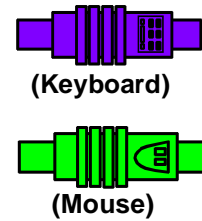


Figure 1- Connect the Local Unit to the CPU

2. Make connections for a Local User (see Fig. 2)
 - a) Connect the cable from the local user's VGA monitor to the female 15HD port on the Local Unit.
 - b) Connect the local user's keyboard to the purple 6 pin miniDIN female port on the Local Unit.
 - c) Connect the local user's mouse to the green 6 pin miniDIN female port on the Local Unit.

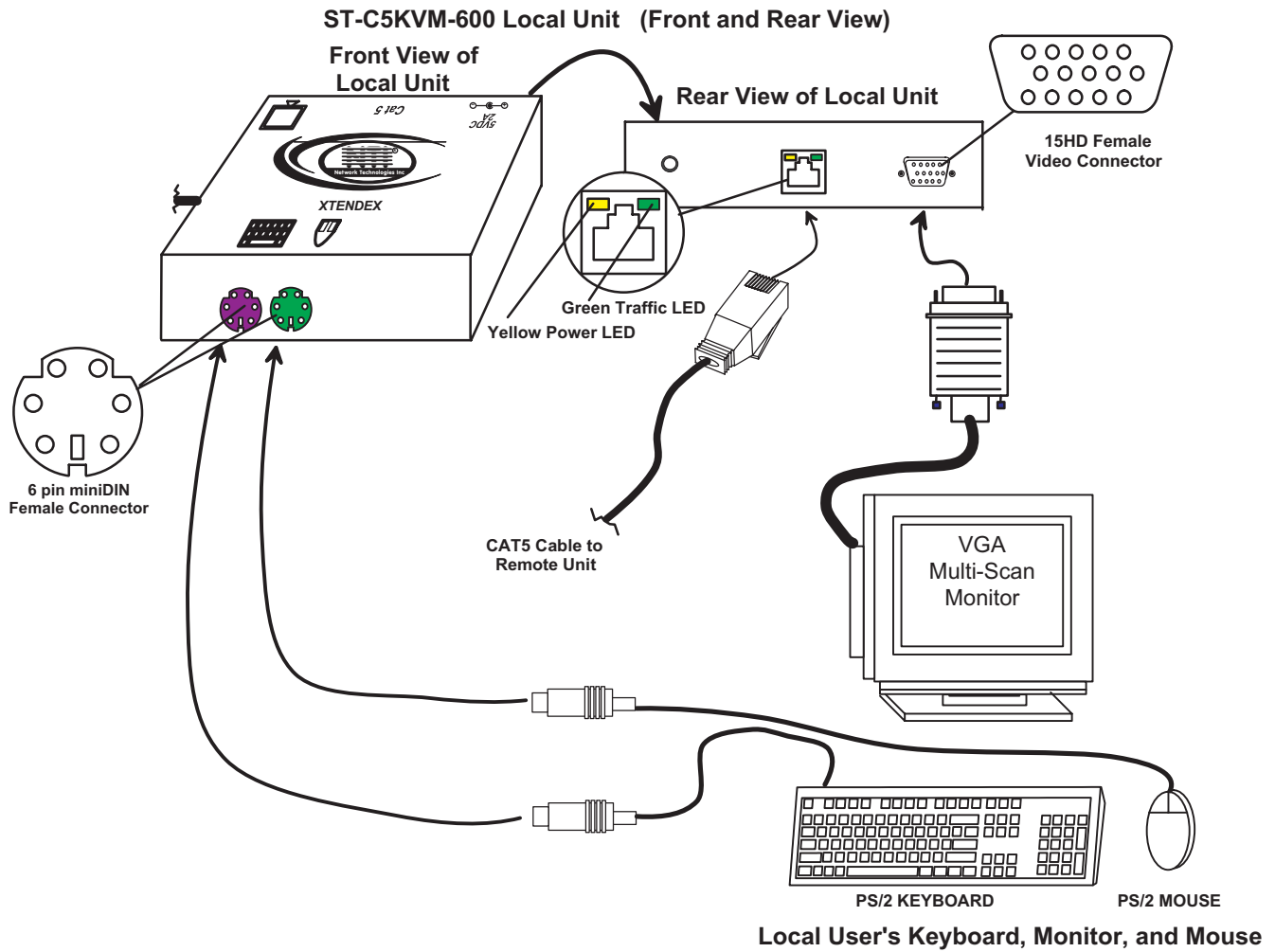


Figure 2- Connect Local User Components to Local Unit

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.



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The Remote Unit

1. Position the Remote Unit such that the CAT5 cable, the monitor cable, device cables, 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 device(s) to the Remote Unit (see Fig. 3).
 - a. Connect the keyboard to the purple female 6 pin miniDIN connector on the Remote Unit.
 - b. Connect the mouse to the green female 6 pin miniDIN connector on the Remote Unit.

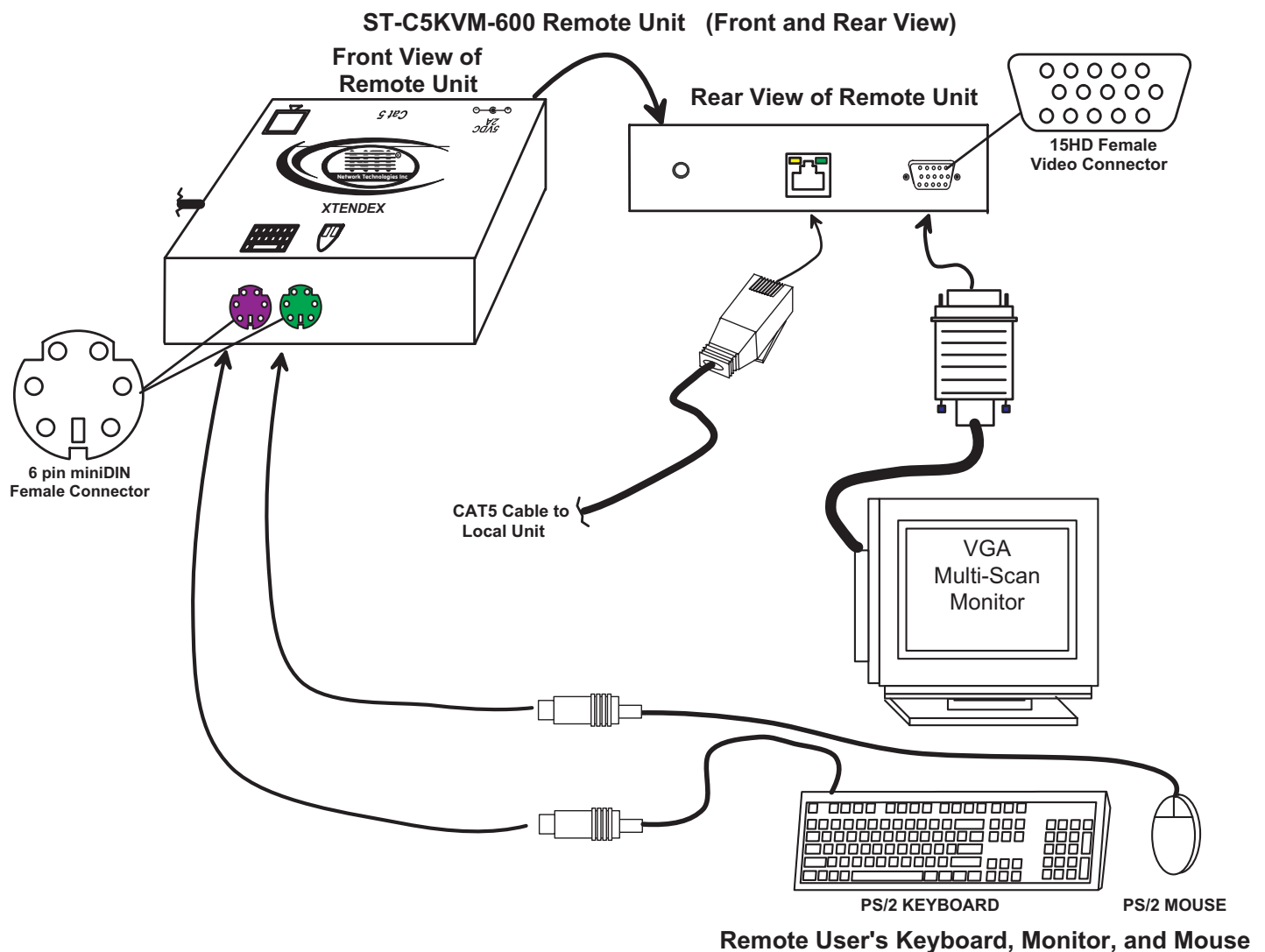


Figure 3- Connect the Extended Components to the Remote Unit

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.



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Plug-in and Boot Up

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

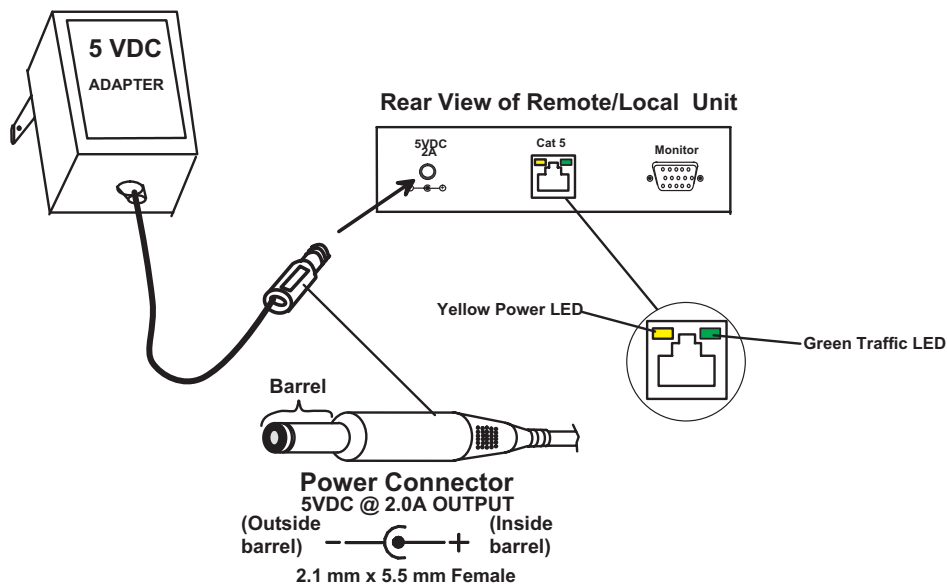


Figure 4- Connect the AC adapter to the Remote Unit

3. Turn ON the CPU and Monitor. 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.

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 CPU HD15 female to monitor
Keyboard/Mouse Connectors	Female 6 pin miniDIN to Keyboard and Mouse Male 6 pin miniDIN to CPU device ports
Mouse and Keyboard Compatibility	All PS/2 mice and keyboards
Local Keyboard and Mouse Current Rating	500mA maximum
Remote Keyboard and Mouse Current Rating	500mA maximum
Sync Types Supported	Separate and composite TTL Level and sync on green
Interconnect Cable	CAT 5/5e Solid STP EIA/TIA 568 B wiring w/ shielded male RJ45 connectors
Remote and Local Unit Power	120V or 240V at 50 or 60Hz-5VDC/2.0A via AC Adapters (2)
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
SH	Drain wire	-	Shield

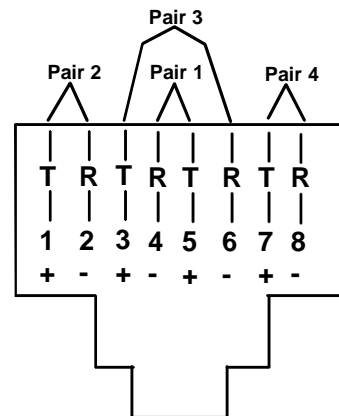


Figure 5- View looking into RJ45 female

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
Remote or Local 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. (one for the Remote and one for the Local) Make sure 5VDC jack is fully connected
Local power LED does not illuminate when the CPU is powered	<ul style="list-style-type: none"> The keyboard connector is not properly plugged in 	<ul style="list-style-type: none"> Check keyboard connection
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 solutions for first two problems 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.
Monitor sometimes loses sync, causing it to go blank for a second or two	<ul style="list-style-type: none"> The CAT5 cable is not properly connected. 	<ul style="list-style-type: none"> Check cable connections. Make sure they are snapped-in properly and completely.
Wrong or missing characters from those typed	The keyboard may be in the wrong mode.	<ul style="list-style-type: none"> Disconnect keyboard at Remote Unit end and reconnect. Reboot the system.
CPU doesn't detect the keyboard and the mouse	<ul style="list-style-type: none"> Keyboard cable or mouse cable are loose or reversed Cat 5 cable is too long 	<ul style="list-style-type: none"> Check cable connections Cat 5 cable can be no more than 600 feet in length

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 Numbers of the Monitor, Mouse, and Keyboard.

Monitor _____

Mouse _____

Keyboard _____

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 monitor and the CPU.

ST-C5KVM-600

REMOTE UNIT

SERIAL NO: _____

DATE: _____

INSPECTED BY: _____

ST-C5KVM-600

LOCAL UNIT

SERIAL NO: _____

DATE: _____

INSPECTED BY: _____

CE remark

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