



**NETWORK
TECHNOLOGIES
INCORPORATED**

1275 Danner Dr Tel:330-562-7070
Aurora, OH 44202 Fax:330-562-1999
www.networktechinc.com

XTENDEX® Series

ST-C5USBV-300 ST-C5USBVA-300 300 FOOT USB KVM EXTENDER Installation and Operation Manual



ST-C5USBV-300

TRADEMARK

XTENDEX and the NTI logo are registered trademarks of Network Technologies Inc in the U.S. and other countries. All other brand names and trademarks or registered trademarks are the property of their respective owners.

COPYRIGHT

Copyright © 2007-2022 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.

Note: CAT5 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 CAT5 cable could be dangerous and will void the warranty.

Table of Contents

Introduction	1
Features.....	1
Types of User Input Devices Supported:.....	1
Operating Systems Supported	1
Limitations.....	2
Materials	3
Features and Functions	4
Preparation for Installation	5
Installation	6
The Local Unit.....	6
Connect to the CPU.....	6
Connect the Local Devices	7
Connect the CAT5 Cable.....	8
The Remote Unit.....	9
Connect the Remote Devices	9
Connect the CAT5 cable.....	10
Command Mode	11
MAC Mode.....	12
DDC Support	13
Common Applications	14
Technical Specifications	15
Interconnection Cable Wiring Method	16
Keyboard Translation	17
Key Equivalents	17
SUN's 16 Extra Keys	17
Troubleshooting	19
Index	20
Warranty Information	20

Table of Figures

Figure 1- Connect the Local Unit to a CPU.....	6
Figure 2- Connect local user devices to the Local Unit	7
Figure 3- Connect stereo speakers to XTENDEX Local Unit with audio support.....	7
Figure 4- Connect the CAT5 cable to the Local Unit.....	8
Figure 5- Connect the Monitor and Devices to the Remote Unit.....	9
Figure 6- Connect remote self-powered speakers to Remote Unit	10
Figure 7- Connect CAT5 cable to the Remote Unit.....	10
Figure 15- MAC LED.....	12
Figure 16- DDC Update Button.....	13
Figure 17- Examples of common applications for the ST-C5USBV-300 USB KVM Extender.....	14
Figure 18- Pin positions in female RJ45 connector.....	16
Figure 19- Keyboard Layouts.....	18

INTRODUCTION

The ST-C5USBV-300 USB Extender (XTENDEX) is designed to enable the relocation of a monitor, USB keyboard, and USB mouse from a USB CPU or NTI USB KVM switch by as much as 300 feet via CAT5 cable in addition to having a monitor, USB keyboard, and USB mouse connected locally. It is extremely simple to install and has been thoroughly tested to insure reliable performance. Through the use of Category 5 shielded or unshielded twisted-pair cable (STP/UTP) or Category 6 unshielded twisted-pair cable (UTP), it is possible to economically increase the flexibility of a computer system.

Options:

Audio Support- The ST-C5USBV-300 can be ordered to include support for extending self-powered stereo speakers by adding "A" to the model number (i.e. ST-C5USBVA-300)

Features

- Allows the placement of a monitor, USB keyboard, and USB mouse in a location where only these parts are needed without having the CPU there too, taking up valuable space and adding to room noise.
- Provides crisp and clear resolution when used in accordance with the chart below:

CAT5/5eSTP		CAT5/5E/6 UTP cable	
Resolution	Cable length	Resolution	Cable length
1024 x 768 /60Hz	300 feet	1024 x 768 /60Hz	300 feet
1280 x 1024 /60Hz	150 feet	1600 x 1200 /60Hz	150 feet
1600 x 1200 /60Hz	100 feet	1920 x 1440 /60Hz	100 feet

- Video quality is easily adjusted using keyboard controls
- Installation can be between a CPU and devices (keyboard, mouse, and monitor), between a CPU and NTI USB switch, or between a NTI USB switch and devices.
- Allows hot-plugging of keyboards and mice
- DDC Support (see page 13 for details)

Types of User Input Devices Supported:

- Compatible with all video resolutions up to WUXGA (dependant upon CAT5/5e/6 extension distance)
- All NTI USB switches
- Microsoft, Logitech or Kensington Wheelmouse or Trackball on MAC CPUs with manufacturer's drivers
- USB keyboard with Windows® layout
- USB keyboard with SUN layout
- USB keyboard with MAC layout
- USB Mouse - (up to 3 buttons)
- USB IntelliMouse® (scrollwheel)
- Logitech Cordless Elite Duo keyboard and mouse
- Crystal Vision keyboard with touchpad
- Gyration keyboard and mouse
- NTI USB-PS/2 Adapter
- NTI USB-SUN Adapter
- Logitech wireless (S510, EX110, diNovo, LX10)
- Kensington wireless (64379)
- MS Wireless Optical Desktop (3000 and 4000)
- HP P2360AA
- Fellowes wireless keyboard (KBR0108) with mouse (MSR0238T)
- Creative Desktop Wireless 8000

Operating Systems Supported

- Windows 98SE
- Windows 2000
- Windows ME
- Window XP
- Window Vista
- Window 7
- Windows 8 or greater
- Linux 7.1 2.2 Kernel or greater
- Sun-Solaris 8 or greater
- MAC OS 9.1 or greater
- HP UNIX J5000
- Free BSD

Limitations

- The XTENDEX will only work with USB keyboards and mice, other USB devices are not supported.
- PS/2 devices can be connected to the XTENDEX through an NTI USB-PS/2 adapter, however the translation keys described on page 15 will not function in this application.
- The XTENDEX can be used between two cascaded NTI switches, but the master switch in the configuration will not be able to list the CPUs connected to the extended slave. The OSD menu in the extended slave would have to be used to monitor CPUs connected to it. (This can be done by configuring command mode for the slave switch with an Alternate OSD Command Sequence).
- The XTENDEX Local with audio support must be used with a Remote with audio support, and a Local without audio support must be used with a Remote without audio support. Locals and remotes with and without audio support cannot be mixed.
- A ST-C5USBV(A)-300 XTENDEX Local must be used with a ST-C5USBV(A)-300 Remote. The ST-C5USBV(A)-1000S XTENDEX Local and Remote are not compatible with the ST-C5USBV(A)-300 Local and Remote.

MATERIALS

Materials supplied with the **ST-C5USBV-300**:

- ✓ NTI ST-C5USBV-300 USB KVM Extender Local Unit
- ✓ NTI ST-C5USBV-300 USB KVM Extender Remote Unit
- ✓ 2-120VAC or 240VAC 50 or 60Hz-9VDC/1A AC Adapters

Materials supplied with the **ST-C5USBVA-300**:

- ✓ NTI ST-C5USBVA-300 USB KVM and Audio Extender Local Unit
- ✓ NTI ST-C5USBVA-300 USB KVM and Audio Extender Remote Unit
- ✓ 2-120VAC or 240VAC 50 or 60Hz-9VDC/1A AC Adapters

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

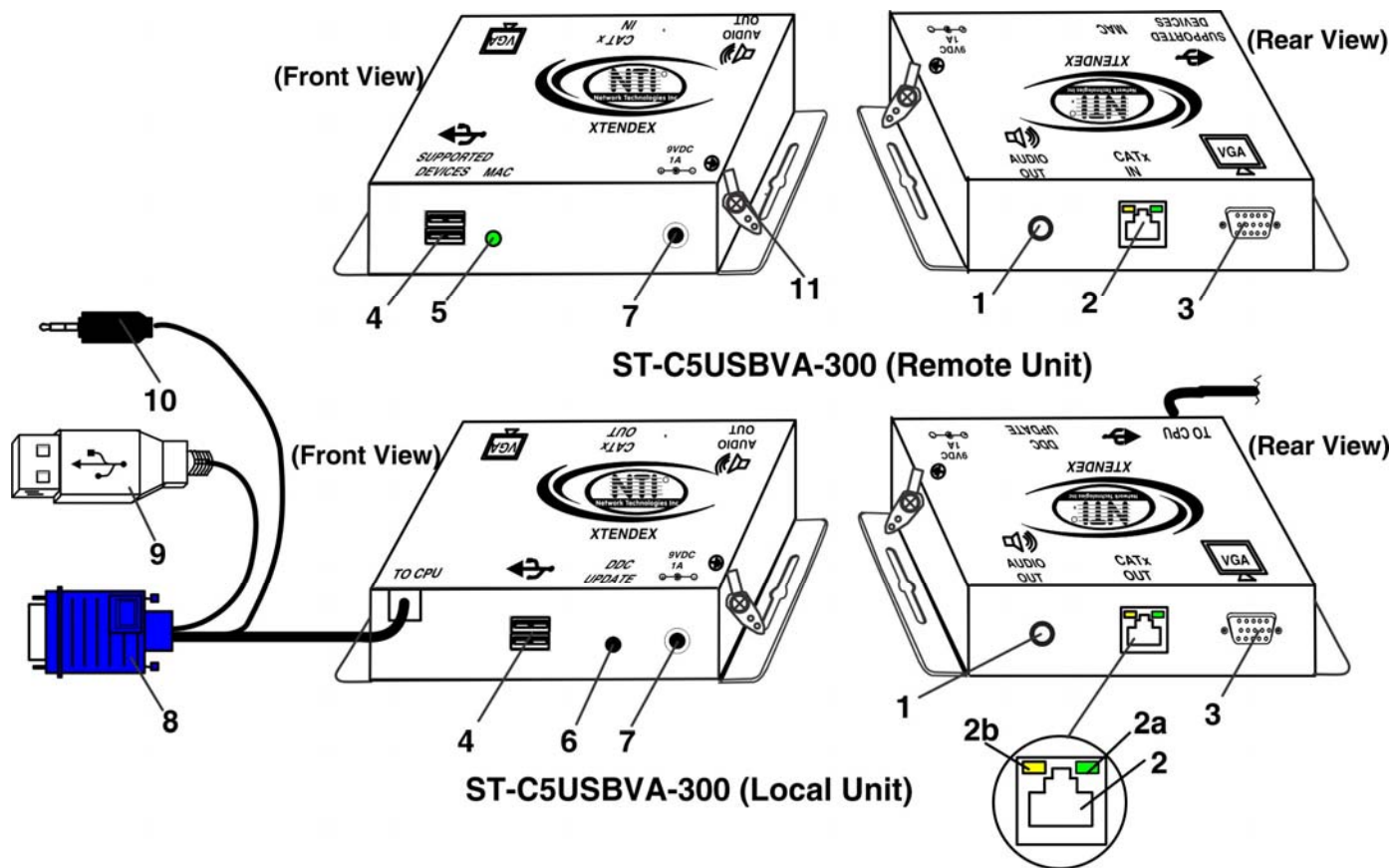
- Video adapter for connection between the Local and a non-VGA SUN CPU (13W3M-15HDF)
- USBEXT-3, 6, 10 (15HD Male-to-Female and USB Type A Male-to-Female Extension cable) if the Local Unit will be located further than 15" from the CPU or KVM switch
- CAT5/5e shielded/unshielded twisted-pair cable(s) terminated with RJ45 connectors wired straight thru- pin 1 to pin 1, etc. (see pg. 16 for proper EIA/TIA 568B wiring method)

-OR-

CAT6 unshielded twisted-pair cable(s) terminated with RJ45 connectors wired straight thru- pin 1 to pin 1, etc. (see pg. 16 for proper EIA/TIA 568B wiring method)

Contact your nearest NTI distributor or NTI directly for all of your KVM needs at 800-742-8324 (800-RGB-TECH) 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.

FEATURES AND FUNCTIONS



#	LABEL	CONNECTOR/LED	DESCRIPTION
1	AUDIO OUT	Audio Jack	for connecting to remote speakers (models with audio support only)
2	CAT5	RJ45 Connector	for connection of CAT5 cable between Local Unit and Remote Unit
2a	none	Green LED	illuminates when power has been supplied to the unit
2b	none	Yellow LED	blinks when there is valid communication between the Local and Remote Units.
3	VGA Monitor (symbol)	HD15 Female	for connection of video cable from remote monitor
4	USB DEVICES	USB Type A dual	for connection of remote user USB device(s)
5	MAC	Green LED	for visual indication of connection to a MAC CPU
6	DDC UPDATE	pushbutton	press to update the PC with DDC info from local monitor
7	9VDC	2.1x5.5mm Power Jack	for connection of power supply
8	Monitor Symbol	Video Cable	15HD male for connection to video connector of CPU
9	USB Symbol	Devices Cable	USB Type A male connector for connection to CPU
10	none	Audio Plug	for connecting to CPU speaker line out (models with audio support only)
11	none	Terminals	For connecting external ground wire to prevent interference from electrical noise

PREPARATION FOR INSTALLATION

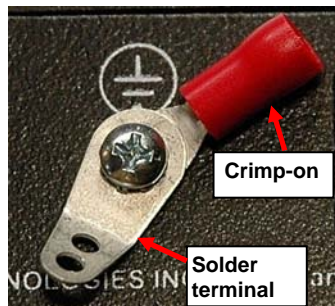
- A location should be chosen for the monitor, mouse, and keyboard that also has space to mount the Remote Unit within the distance provided by the cables from the monitor, mouse, and keyboard. If extension cables are needed, contact NTI for the cables required. If a local user will be connected, a proper location must be chosen for these devices too.
- The CAT5 cable(s) must be run to the locations where the Remote and Local Units will be placed. 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 mounting 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 mounting location of the Remote Unit and monitor to plug them into.
- All cables should be installed in a fashion that will avoid 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 prevent this.
- Properly shut down and disconnect the power of the CPU and monitor. Disconnect the monitor, keyboard, and mouse. 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.

Note: CAT5 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 CAT5 cable could be dangerous and will void the warranty.

This product is equipped with grounding hardware to prevent interference from sources of electrical noise that could interfere with the normal operation of the XTENDEX or damage it. **Use either the crimp-on lug or solder terminal** to secure a properly grounded wire to the XTENDEX.



INSTALLATION

The Local Unit

Connect to the CPU

1. Plug the cables of the Local Unit into the back of the CPU. (See Figure 1.)
 - a) Connect the blue 15HD cable from the Local Unit to the female VGA port on the back of the CPU.
 - b) Connect the USB Type A cable from the Local Unit to a female USB Type A port on the back of the CPU.

Note: If a SUN CPU is being connected, depending upon the video connector of the SUN CPU, it may be necessary to attach an NTI #13W3M-15HDF (SUN video port-to-VGA adapter) to the video port on the CPU first, and then connect the video cable to the adapter.

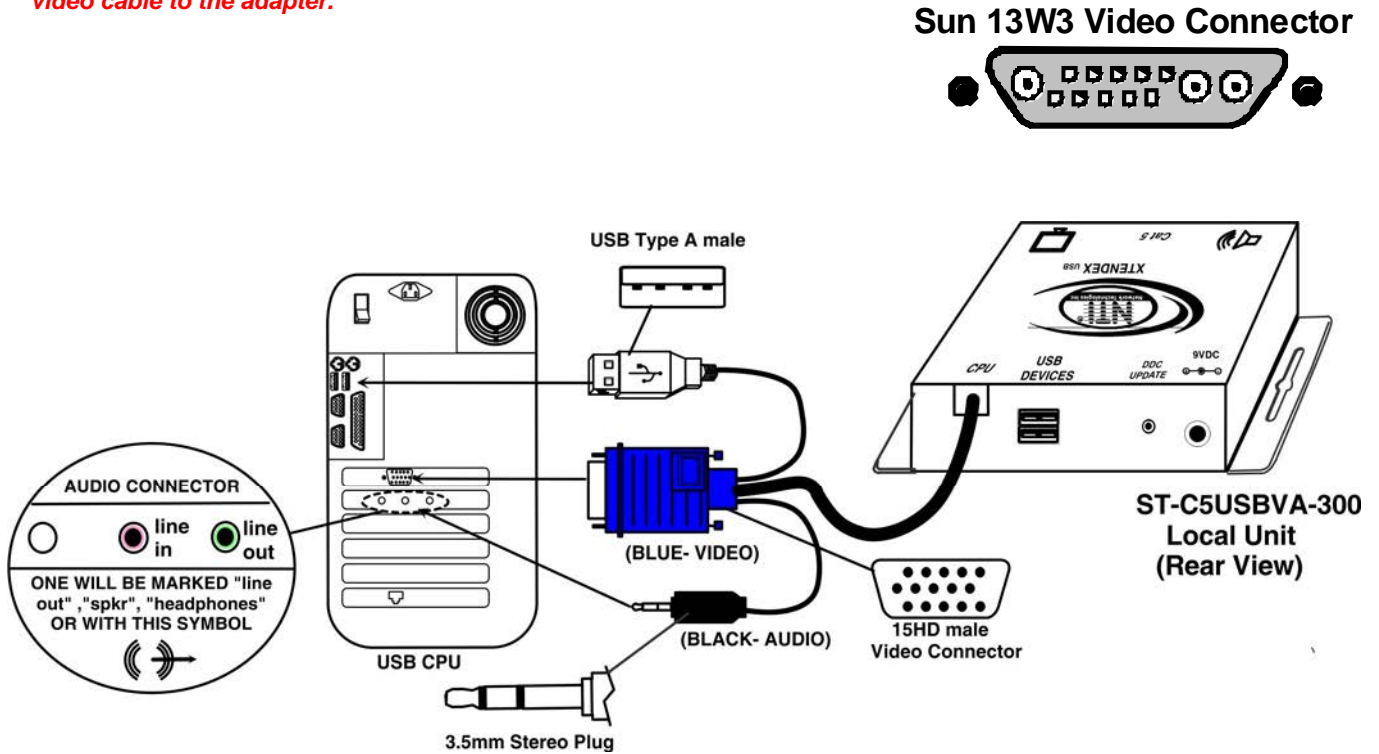


Figure 1- Connect the Local Unit to a CPU

- c) If the Local Unit has Audio support (ST-C5USBVA-300 only), connect the black 3.5mm stereo plug into the "line out", "speaker", or "headphones" jack on the back of the CPU.

Notes:

If all 3 jacks are available, use the jack marked "line out".

The "line out" jack is typically lime green and may be marked with this symbol 

The "speaker" jack is typically orange, and may be marked with this symbol 

The "headphones" jack may be marked with this symbol 

Connect the Local Devices

If desired, connect the local user devices to the Local Unit as shown in Figure 2.

1. Connect a USB keyboard and mouse to the USB type A female connectors on the Local Unit.
2. Connect a monitor to the 15HD female connector on the Local Unit.

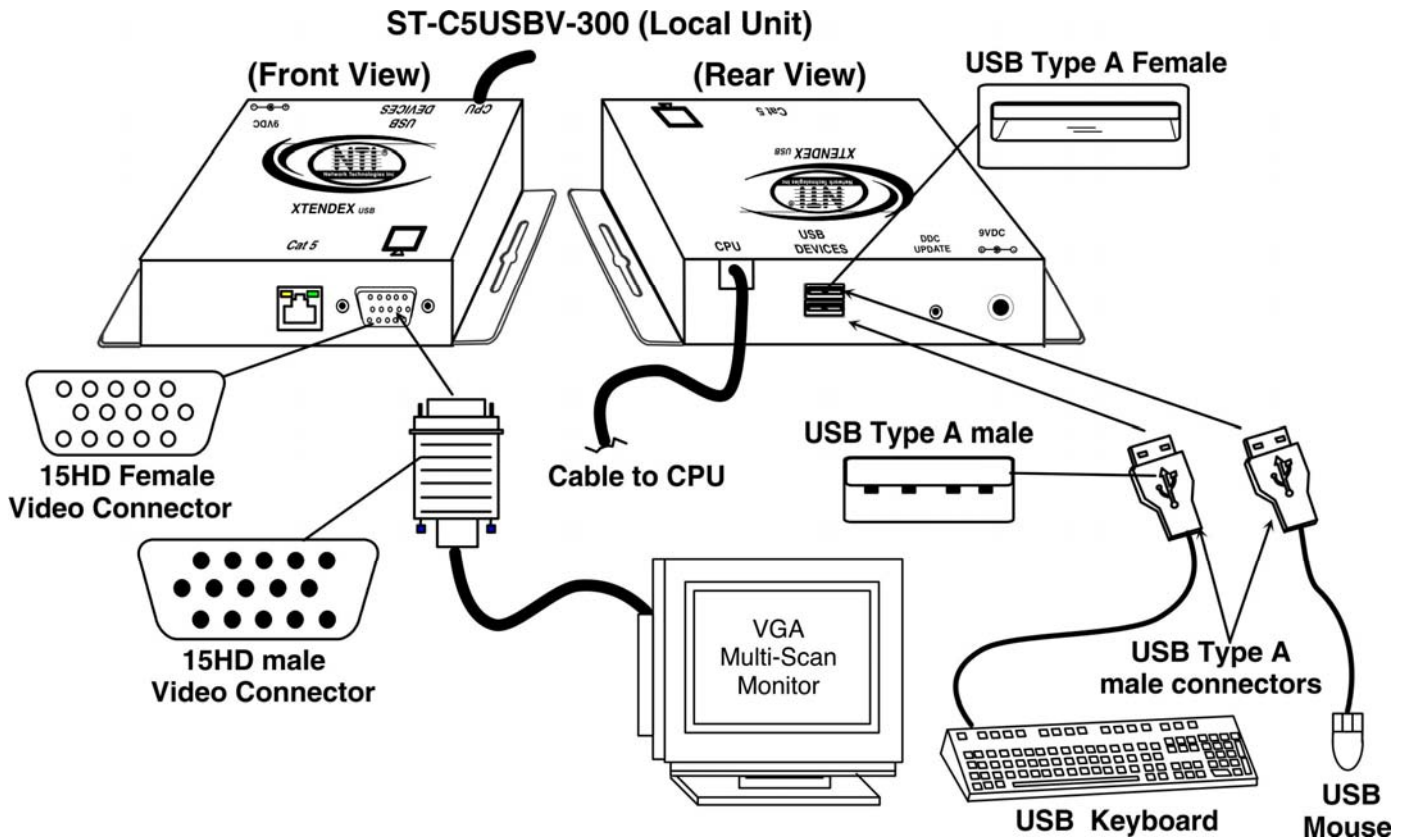
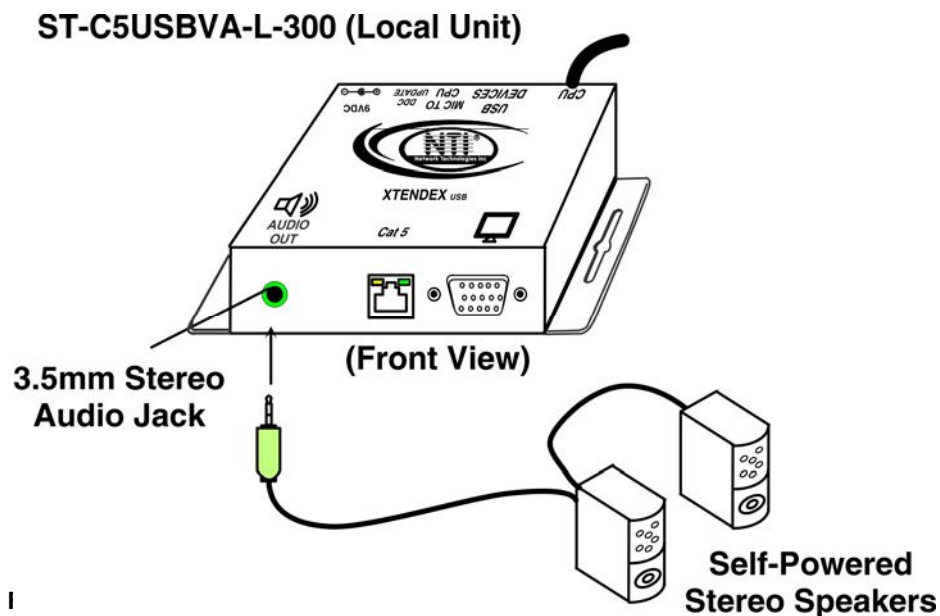


Figure 2- Connect local user devices to the Local Unit

3. If the Local Unit has audio support (ST-C5USBVA-300), connect the cable from the local self-powered stereo speakers to the 3.5mm stereo audio "AUDIO OUT" jack on the Local Unit. (See Figure 3)



Connect the CAT5 Cable

Connect the CAT5 cable to the “CATx OUT” port on the rear of the Local Unit (see Figure 4). (If an RJ45 wall outlet is being used, connect the other end of the extension cable to it. When properly inserted the cable end should snap into place.

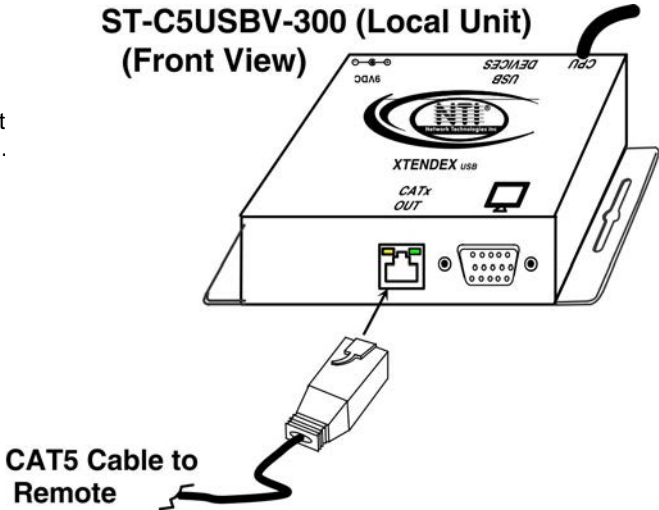


Figure 4- Connect the CAT5 cable to the Local Unit

The Remote Unit

Connect the Remote Devices

Position the Remote Unit such that the CAT5 cable, the monitor cable, the keyboard and mouse, and the AC adapter power connector can each reach the Remote Unit comfortably.

1. Connect the monitor cable to the 15HD female VIDEO port on the front of the Remote Unit. (See Figure 5)
2. Connect the devices to the Remote Unit.
 - a. Connect the USB keyboard cable (or wireless adapter) to one of the USB Type A female ports labeled "USB DEVICES" on the back of the Remote Unit. (Either one will work.)
 - b. Connect the USB mouse cable (or wireless adapter) to the remaining USB Type A female port on the back of the Remote Unit.

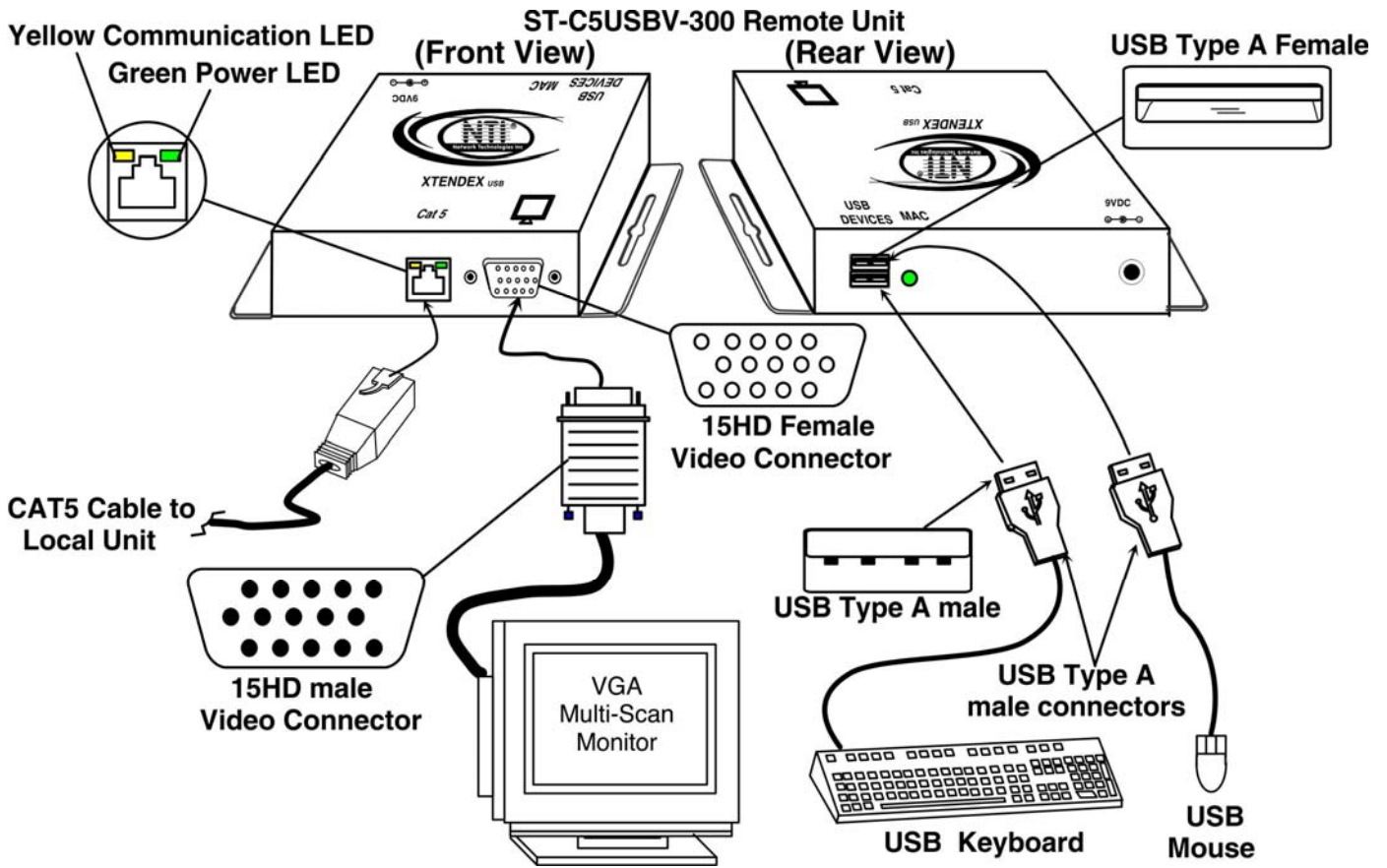


Figure 5- Connect the Monitor and Devices to the Remote Unit

- If the Remote Unit has audio support (ST-C5USBVA-300), connect the cable from the remote self-powered stereo speakers to the 3.5mm stereo audio "AUDIO OUT" jack on the Remote Unit. (See Figure 6)

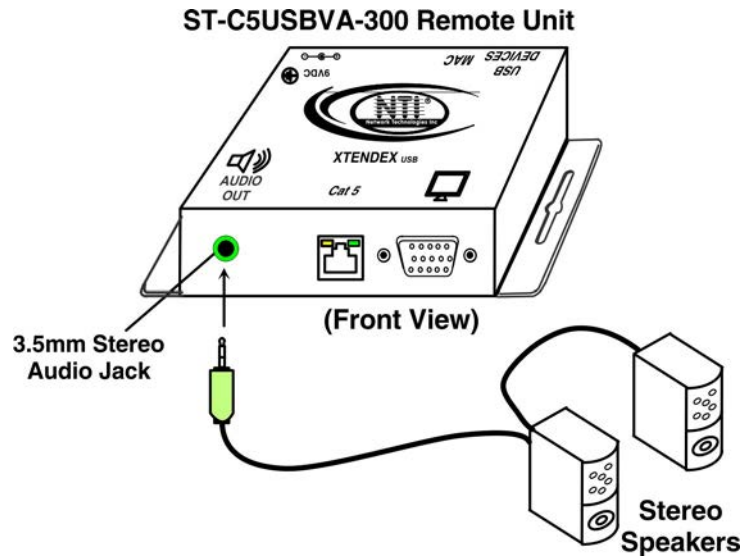


Figure 6- Connect remote self-powered speakers to Remote Unit

Connect the CAT5 cable

Connect the CAT5 cable to the "CAT5" port on the rear of the Remote Unit (see Figure 7). (If an RJ45 wall outlet is being used, connect the other end of the extension cable to it.) When properly inserted the cable end should snap into place.



WARNING: Never connect the ST-C5USBV-300 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.

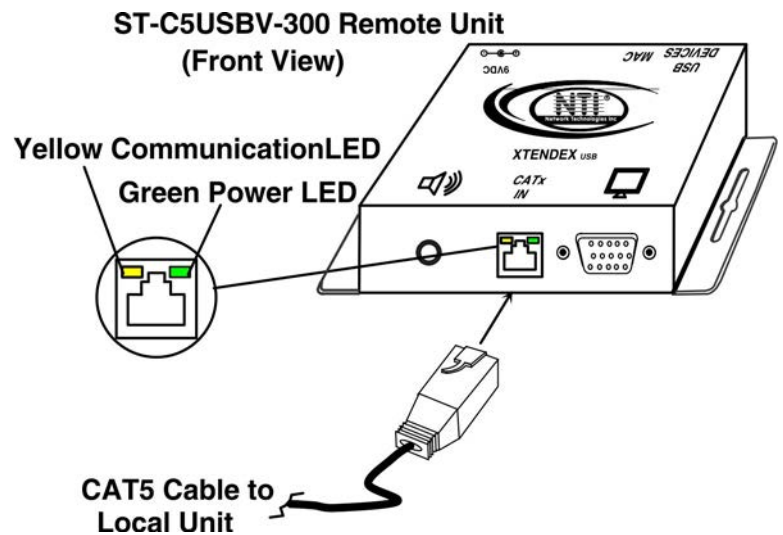


Figure 7- Connect CAT5 cable to the Remote Unit

COMMAND MODE

The XTENDEX has two areas of user control that can be used as needed. The user can adjust video quality (described below), or enable/disable MAC mode (see page 12). These controls are accessed by entering Command Mode.

To enter Command Mode, simultaneously press the left and right <Shift> keys on the keyboard connected to the Remote Unit. The keyboard LEDs will illuminate.

To exit Command Mode, press <Esc>.

Automatic Video Quality Adjustment (ST-C5USBVA-300 only)

Video quality adjustment is done automatically to assure the image is as clear as possible.

Note: If a different type of cable is used (i.e. shielded cable) and the image is not crisp and clear, there may be a need for fine adjustment. For fine adjustment, follow the same procedure as described under "Manual Video Quality Adjustment" below.

Manual Video Quality Adjustment

It is possible that on initial startup the image on the monitor will not be as crisp as the image normally is. This is due to the frequency characteristics of the CAT5 cable. It may be necessary to enter Command Mode (described above) and press the corresponding keys on the Remote Unit keyboard from the chart below for the level of adjustment desired until the image is crisp and clear. A momentary press of the indicated key will have the desired effect.

Level of Change	Key to Press	Level of Change	Key to Press
Minimum advance (+1)	<Right Arrow>	Minimum reduction (-1)	<Left Arrow>
Normal advance (+10)*	<K>	Normal reduction (-10)*	<L>
Maximum advance (+50)*	<Page Up>	Maximum reduction (-50)*	<Page Down>

***These functions are only present in units made on or after 11/17/22.**

The range of Quality adjustment is measured in units, from 1-1024 units. The number of units of change can be large or small depending on how much adjustment it takes to achieve a crisp and clear image.

- Press a level of advancement key if the image is not crisp and clear enough.
- Press a level of reduction key if the image has been over-corrected (such that horizontal lines appear to trail or shadow at the edge of an open window).

Ultimately, the image quality should improve to a satisfactory level. Once the adjustment is made, it should not be necessary to change it again, as the new settings are stored in memory and become the default settings with each startup. To exit Command Mode, press <Esc>.

Note: For additional quality adjustment, it may be necessary to adjust the brightness and contrast settings of the monitor.

Note: The video quality adjustment procedure can only be performed from the keyboard connected to the Remote Unit.

MAC Mode

MAC Mode enables the user to connect the Local Unit to a MAC CPU. MAC Mode configures the Local Unit for passing mouse information to the MAC CPU. This is useful when the user wants to use mouse drivers provided by the mouse vendor, which allows the use of programmable functions for each mouse button. The Local Unit can be configured whenever necessary.

NOTE: When the port is connected to a PC or SUN CPU, MAC Mode should be OFF (the default setting).

To do this;

1. Enter Command Mode. (Simultaneously press the left and right <shift> keys on the keyboard connected to the Remote Unit. The keyboard LEDs will illuminate.)
2. If a MAC CPU is connected, press the <M> key. The keyboard LEDs will momentarily flash and the "MAC" LED on the Remote Unit will illuminate to indicate MAC Mode is ON. (See Figure 8)
3. To reconnect the XTENDEX to a SUN or Windows CPU (the default setting) , press the <M> key once again and the "MAC" LED will go OFF.

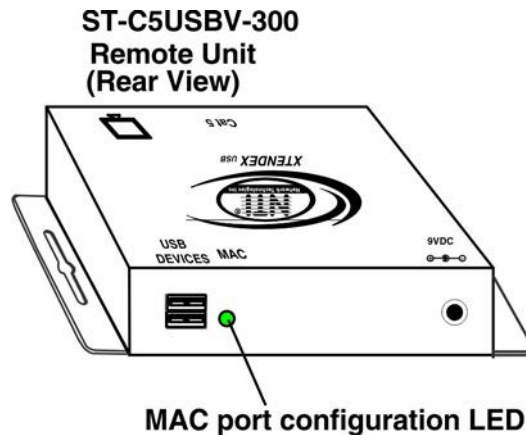


Figure 8- MAC LED

After setting, the configuration is stored in memory and will be retrieved whenever the XTENDEX is powered ON.

Note: MAC Mode can only be enabled from the keyboard connected to the Remote Unit.

DDC SUPPORT

DDC support allows the CPU to detect the video capability of your monitor by transferring EDID data from your monitor to the CPU.

If the same make and model monitor is used at the Local and Remote unit, then DDC information can be updated either using Command Mode from the Remote Unit keyboard or from the “DDC Update” button on the Local Unit.

If different monitors are used at the Local and Remote units, then DDC must be updated at both units. It doesn't matter which is done first.

The procedure to update DDC information (below) must be performed only once at initial setup (provided the monitor is not changed).

When performed at the Local Unit, only the EDID data from the Local monitor is collected.

When performed at the Remote Unit, only the EDID data from the Remote monitor is collected.

As long as both units are powered and connected, which ever unit is updated last will cause the resolutions that are common to both the Remote and Local monitors to be sent to the connected PC.

1. Update DDC using the DDC Update Button

First make sure the Local and Remote units and monitors connected to the each are powered ON. Then, press the DDC Update button on the Local Unit.

Within 1 second, the DDC information for the Local monitor will be provided to the connected PC.

2. Update DDC information from Command Mode;

1. Command Mode can be enabled by pressing two keys on the Remote Unit keyboard at the same time; **<LEFT SHIFT> + <RIGHT SHIFT>**. This will only work from the Remote Unit keyboard. Press **<Esc>** at any time to exit Command Mode.

The three keyboard LEDs (NumLock, CapsLock, and ScrollLock) on the Remote Unit keyboard will blink at the same time to indicate entrance into Command Mode. (See chart below for LED indications.)

2. press **<D>** to enter DDC Update mode.
3. press the **<Left Arrow> + <Right Arrow>** keys simultaneously to cause DDC information to be updated
4. press **<Esc>** to exit Command Mode
5. Restart the CPU.

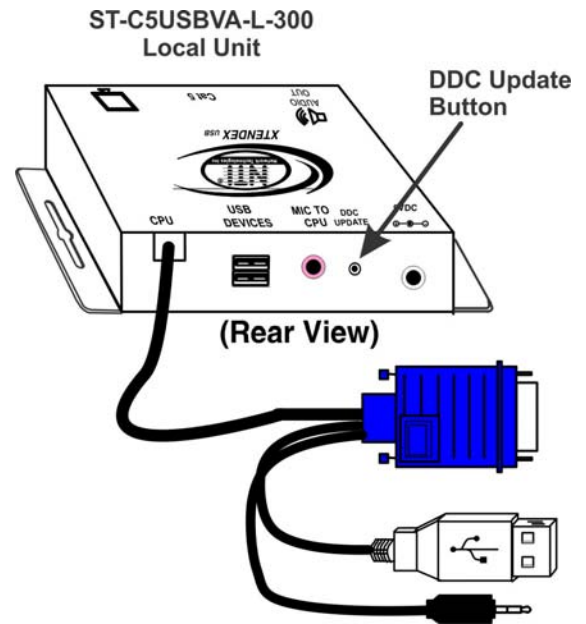


Figure 9- DDC Update Button

Keyboard LED Indications:

Adjustment Mode	NumLock	CapsLock	ScrollLock
Command Mode ON	Blink	Blink	Blink
DDC Update	Off	Solid	Off
Command Mode OFF	Normal state	Normal state	Normal state

Note: It is recommended that the monitors connected to the Remote and Local units be of the same make and model.

Attention: Some graphics cards will not send a video signal to the monitor until it has received the DDC information from the monitor. In this case, the monitor may not display anything until the DDC information is read. This may occur if this is the first time the monitor is being connected to the XTENDEX. The DDC information must be updated in the XTENDEX to achieve video using the procedure outlined above.

If the monitor is changed to a different model than was initially installed, the update procedure must be repeated.

COMMON APPLICATIONS

Figure 11 (below) illustrates three common applications for the **ST-C5USBV-300** USB KVM Extender.

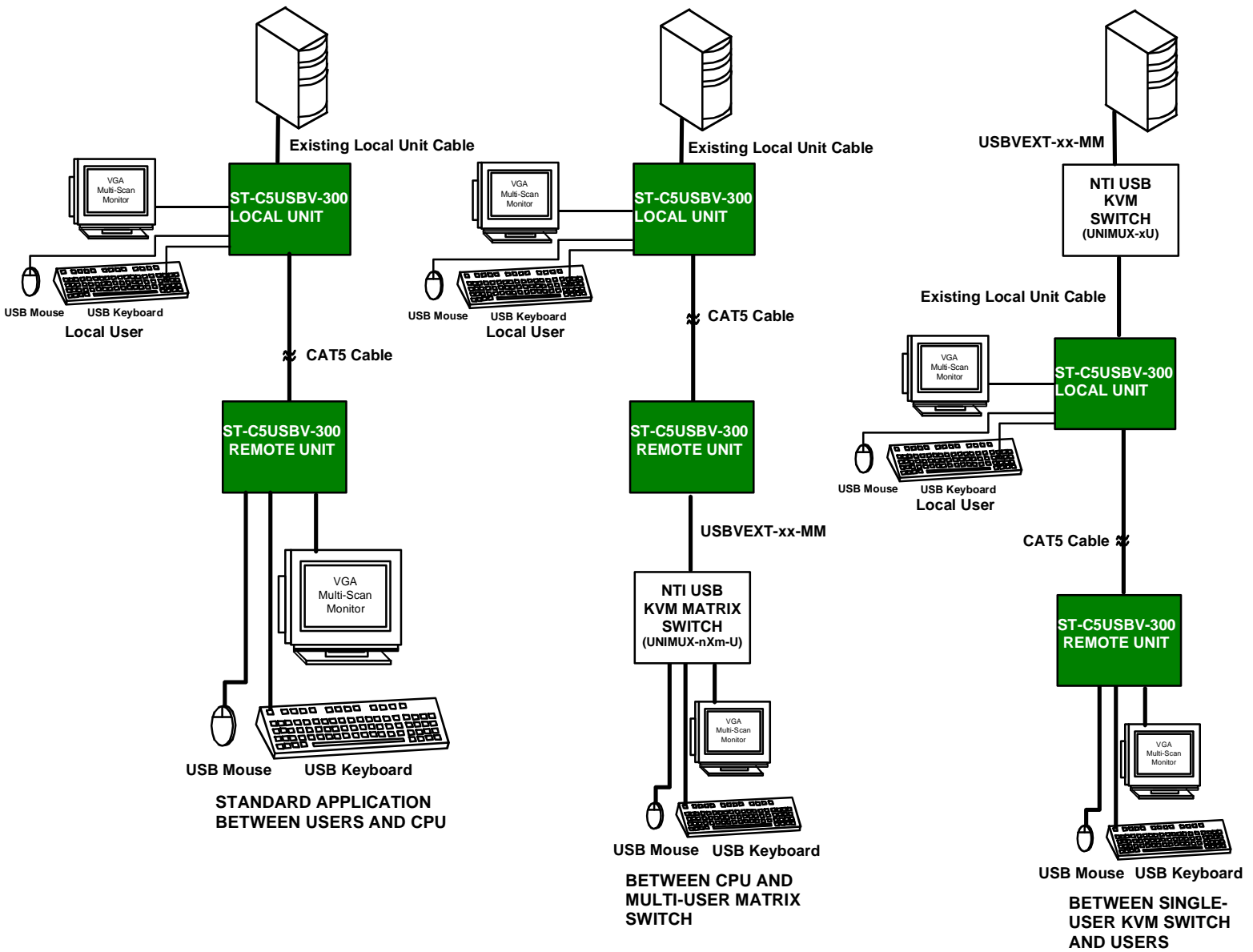


Figure 10- Examples of common applications for the **ST-C5USBV-300** USB KVM Extender

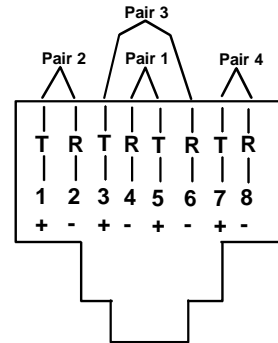
TECHNICAL SPECIFICATIONS

Maximum Resolution w/ CAT5/5e/6 UTP (refresh frequency 60Hz)	1024 x 768 @ 60Hz- up to 300 feet 1600 x 1200 @ 60Hz- up to 150 feet 1920 x 1440 @ 60 Hz- up to 100 feet
Maximum Resolution w/ CAT5/5e STP (refresh frequency 60Hz)	1024 x 768 @ 60Hz- up to 300 feet 1280 x 1024 @ 60Hz- up to 150 feet 1600 x 1200 @ 60Hz- up to 100 feet
Video Compatibility	WUXGA,UXGA,SXGA, XGA, SVGA, VGA
Video Quality Adjustment	Variable for up to 300 feet of CAT5 cable
Video Coupling	DC
Video Connectors	HD15 male to CPU HD15 female to local and remote monitors
Sync Types Supported	Separate and composite TTL Level
Video Signal Type	Analog RGBHV,RGBS
Maximum Input/Output Levels	1.45Vp-p (no offset)
Input / Output Impedance	75 Ohms
Input Horizontal Frequency Range	15kHz to 130 kHz
Input Vertical Frequency Range	30 Hz to 150 Hz
Keyboard/Mouse Connectors	USB Type A female- to local and remote keyboard/mouse USB Type A male- to CPU
Interconnect Cable	CAT5/5e Solid UTP/STP EIA/TIA 568B wiring w/ male RJ45 connectors - OR - CAT6 Solid UTP EIA/TIA 568B wiring w/ male RJ45 connectors
Remote and Local Unit Power	120V or 240V (50 or 60Hz) 9VDC/1.0A AC Adapters
Operating Temperature Range	+10°C to +40°C
ESD protection	Complies with EN61000-4-2 Specification
CE Mark	Complies with EN55022
RoHS	Compliant
Dimensions WxDxH (In.) (Local or Remote)	3.5x3.1x1.2 (Desktop models)
AUDIO	
Signal Type	Line Level, stereo, unbalanced
Connectors	Local Unit: 3.5mm Stereo Plug, Pigtail, 3.5mm Stereo Jack-Green, PCB Remote Unit: 3.5mm Stereo Jack-Green, PCB
Maximum Input Level	2.82 Vp-p (unbalanced)
Input Impedance	10 kohms
Maximum Output Level	3.1 Vp-p
Frequency Response	20 Hz to 20 kHz, \pm 1dB
THD+N	<0.1%
S/N	>76dB
Stereo Crosstalk	-70dB @ 1 kHz

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 568B 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



(View looking into RJ45 female)

Figure 11- Pin positions in female RJ45 connector

Note: CAT5 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 CAT5 cable could be dangerous and will void the warranty.

KEYBOARD TRANSLATION

Key Equivalents

Using the chart below, find the character needed to be typed on the CPU being accessed, then follow the row across for the equivalent on the keyboard being used. (See Figure 12 on page 18 for reference.)

USB 101	WINxx	MAC (Apple USB)	SUN
L-Ctrl	L-Ctrl	L-Ctrl	L-Ctrl
L-Alt	L-Alt	L-Option	L-Alt
SB+F12	Application	SB+F12	Compose
R-Alt	R-Alt	R-Option	Alt-Graph
SB+Alt	Windows Logo	Command	Meta
SB+R Arrow	SB+R Arrow	Power	Suspend

SB = Space Bar

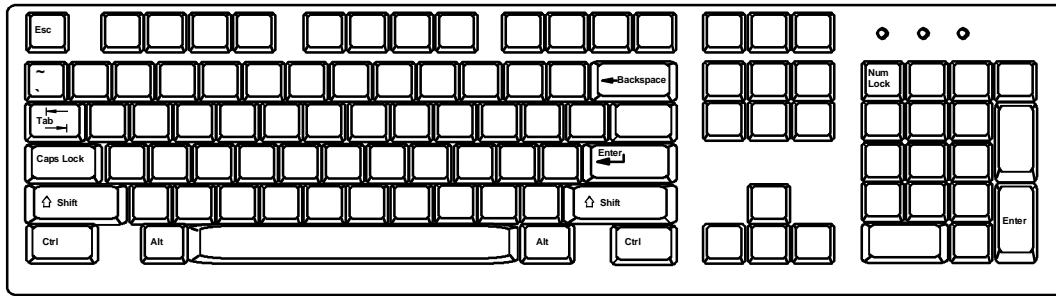
L and R = Left and Right keys when two keys are marked the same on a keyboard.

SUN's 16 Extra Keys

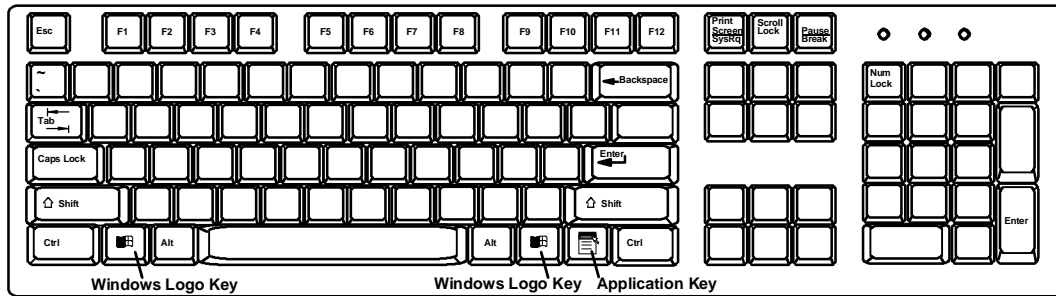
Use the chart below to type SUN's additional 16 keys using a 101, WINxx, or MAC (Apple) USB keyboard).

101, WINxx, MAC Keyboards	SUN Extras	101, WINxx, MAC Keyboards	SUN Extras
SB+F1	Stop (L1)	SB+F9	Find (L9)
SB+F2	Again (L2)	SB+F10	Cut (L10)
SB+F3	Props (L3)	SB+F11	Help
SB+F4	Undo (L4)	SB+F12	Compose
SB+F5	Front (L5)	SB + Up Arrow	Vol +
SB+F6	Copy (L6)	SB + Down Arrow	Vol -
SB+F7	Open (L7)	SB + L Arrow	Mute
SB+F8	Paste (L8)	SB + R Arrow	Suspend

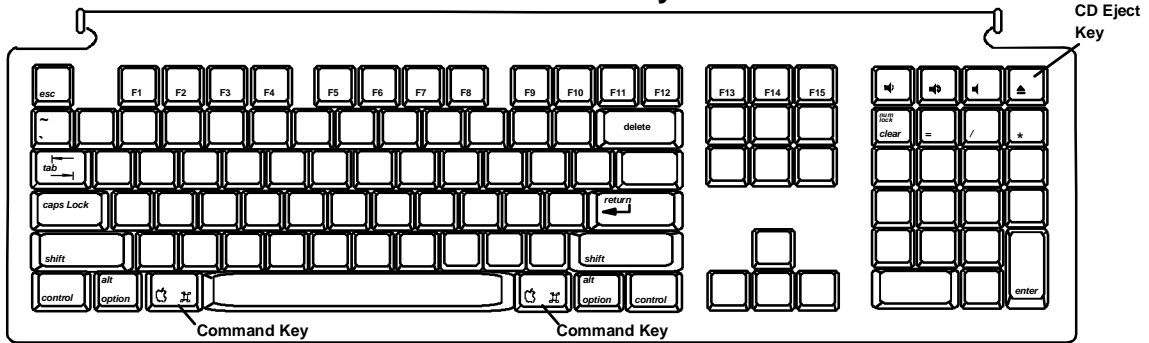
SB = Spacebar



Typical 101 Keyboard



Windows USB Keyboard



Apple Pro USB Keyboard



SUN USB Keyboard

Figure 12- Keyboard Layouts

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.jsps> 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
Remote Unit 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 transformer is plugged-in. Make sure 9VDC jack is fully connected to the Remote Unit.
Local Unit 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 transformer is plugged-in. Make sure 9VDC jack is fully connected to the Local Unit.
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 power LED is illuminated for local and remote. If not, see both solutions above. With all the cables properly connected, reboot the CPU. Check cable connections. Make sure they are snapped-in properly and completely. Check cable connections. Make sure they are snapped-in properly and completely.
Video picture is not sharp or is smeared	<ul style="list-style-type: none"> CAT5 cable is too long. Video quality is not set properly. 	<ul style="list-style-type: none"> Verify length is within specified limits-300'. See page. 11 for instruction on "Video Quality Adjustment".
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.
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.
PC boots with no error messages, but the keyboard does not work	<ul style="list-style-type: none"> Keyboard cable is loose. Keyboard in use is not compatible. 	<ul style="list-style-type: none"> Reseat Keyboard cable and check again. Make sure Keyboard is directly connected, not through a PS/2 to USB adapter.
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.
Connecting the keyboard effects the video	Older keyboards may require higher current than our unit supplies.	Change to a newer keyboard.
Mouse cursor appears on the screen, but the mouse does not work	<ul style="list-style-type: none"> Mouse cable is loose or disconnected. Mouse is not compatible. Remote connections didn't initialize. 	<ul style="list-style-type: none"> Check for quality cable connections to mouse at Remote Unit end. Make sure mouse is USB type. Power down the Remote Unit and then power up again.
Cannot enter Command Mode	User is trying to access Command Mode from the devices connected to the Local Unit	Command Mode is not accessible at the Local Unit. Try again from devices connected to the Remote Unit. (See page 11.)
Mouse is not working as configured when connected to a MAC	ST-C5USBV-300 is not operating in MAC mode	Check to see if MAC mode LED is illuminated. If not, enable MAC mode (see page 12)

INDEX

CAT5 Cable Spec, 16
CAT5 LEDs, 10
Command Mode, 11
DDC support, 13
Devices Supported, 1
Key Equivalents, 17

limitations, 2
MAC Mode, 12
Specifications, 15
SUN extra keys, 17
Troubleshooting, 19
Video quality adjustment, 11

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.

Note: CAT5 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 CAT5 cable could be dangerous and will void the warranty.