



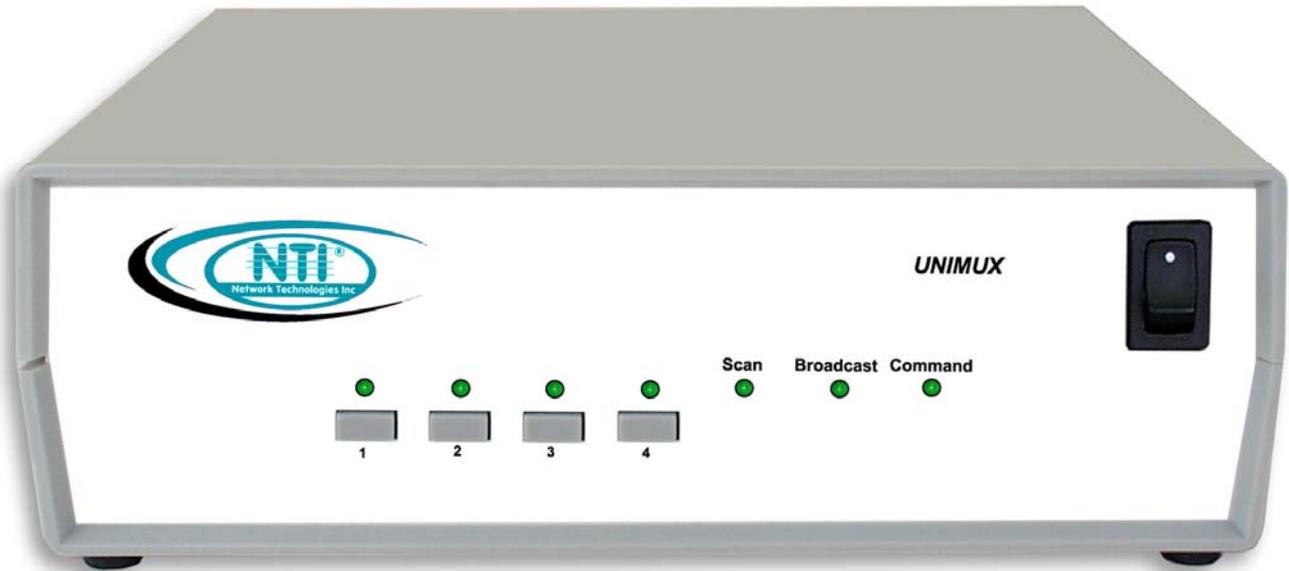
NETWORK
TECHNOLOGIES
INCORPORATED

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UNIMUX™ Series

UNIMUX-USBV-4/2 (4/2-Port USB KVM Switch)

INSTALLATION / USER GUIDE



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) in the US and Canada or **(330) 562-7070** (worldwide) for information regarding repairs and/or returns. A return authorization number is required for all repairs/returns.

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CHANGES

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INTRODUCTION

The UNIMUX-USBV-4 (formerly referred to as KEEMUX-USBV-4U) USB KVM switch allows one user to access four USB CPUs with only one USB keyboard, USB mouse, and 15HD VGA monitor. Internal microprocessors allow all CPUs to boot simultaneously and error-free. Port selection is accomplished by a front panel push button or commands typed on the keyboard.

Available Options:

- UNIMUX-USBV-2 USB KVM switch with connections to access two USB CPUs rather than four.
- UNIMUX-USBV-4O USB KVM switch with OSD (On Screen Display) feature (not available on 2 port switch)
- Configuration is expandable by cascading switches (UNIMUX-USBV-4O only)
- UNIMUX-USBV-4D USB KVM switch with DDC support (not available on 2 port switch)

Types of User Input Devices and Monitors Supported:

- USB keyboard with Windows® layout
- USB keyboard with SUN layout
- USB keyboard with MAC layout with mouse
- USB Mouse - (up to 3 buttons)
- USB IntelliMouse® (scrollwheel)
- NTI USB-SUN Adapter
- USB Hub
- Mouse-trak track-ball
- Logitech, Kensington and Microsoft Wheelmouse or Trackball on Mac CPUs with special drivers(OSD Version only)
- Logitech Cordless Elite Duo keyboard and mouse
- Crystal Vision keyboard with touchpad
- Gyration keyboard/mouse
- NTI PS2/USB Adapter
- VGA, XGA, SVGA, and most DVI monitors (when used with NTI DVIF-15HDM adapter)
- ADC monitors (when the DDC support option is installed and when using an appropriate VGA-ADC converter)

Types of CPUs Supported:

Any USB CPU supporting USB version 1.0 or above including:

- USB WINxx
- USB MAC
- USB SUN

MATERIALS

Materials Supplied with this kit:

- 1- NTI UNIMUX-USBV-4 / UNIMUX-USBV-2 USB KVM Switch
- 1- 5VDC 2A AC Adapter

Materials Not Supplied, BUT REQUIRED:

A USBVEXT-xx-MM cable for each USB CPU being connected to the switch must be used for monitor and device (keyboard and mouse) interface.

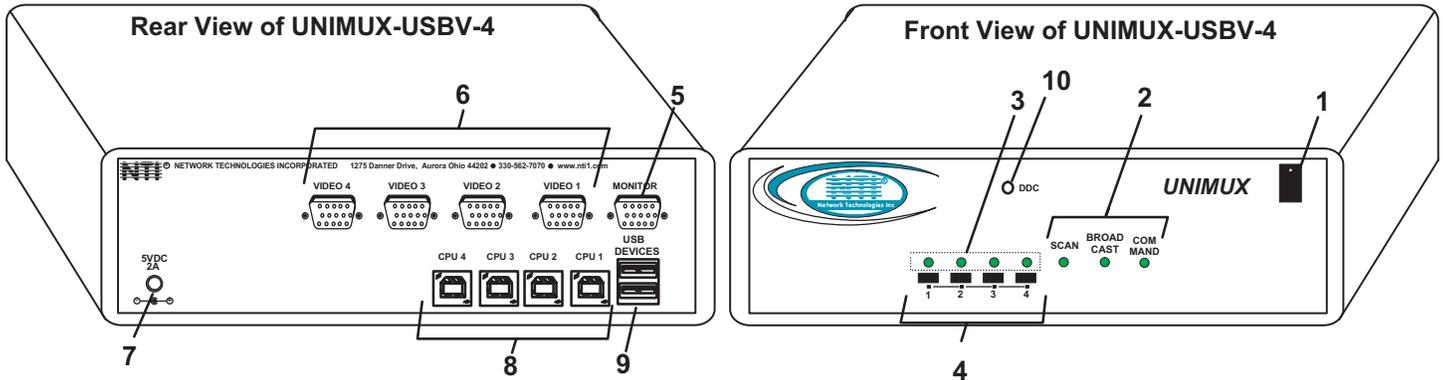
Legend:

xx is the length of the cable in feet

MM indicates male-to-male connector

Cables can be purchased from Network Technologies Inc by calling (800) 742-8324 (800-RGB-TECH) in the US and Canada or (330) 562-7070 (worldwide).

FEATURES AND FUNCTIONS



FEATURES AND FUNCTIONS

1. Power Switch- to power up or power down the UNIMUX-USBV-4 USB KVM switch.
2. Mode Status LEDs- for visual indication of switch operating mode
3. CPU Status LEDs- for visual indication of switch connection between the user and a specific CPU
4. CPU Select Switch- press to manually switch to a specific CPU or to change the switch operating mode
5. MONITOR- 15HD female connector- for connection of the user video monitor
6. VIDEO x- 15HD female connectors- for connecting video cables from CPUs
7. 5VDC- connection jack for the AC adapter
8. CPU x- USB type B female connectors- for connection of USB device cables from CPUs
9. USB DEVICES- USB type A female connectors- for connection of user USB device(s)
10. DDC button- for manual update of DDC information between the monitor and the CPU(s) attached (optional)

INSTALLATION

1. It is not necessary to turn OFF power to any of the CPUs that will be connected to the UNIMUX-USBV-4 USB KVM switch before connecting or disconnecting any cables.

NOTE: If a CPU needs to identify a keyboard, it will be necessary to power ON the CPU after it is connected to the UNIMUX-USBV-4 USB KVM switch and only after the keyboard is connected and the UNIMUX-USBV-4 USB KVM switch is powered ON.

2. Connect a USB keyboard to a female USB type A port labeled "USB DEVICES" on the UNIMUX-USBV-4 USB KVM switch. See Fig. 1.
3. Connect a USB mouse to the other female USB type A port labeled "USB DEVICES" on the UNIMUX-USBV-4 USB KVM switch.
4. Connect a VGA multi-scan monitor to the female 15HD VGA port labeled "MONITOR" on the UNIMUX-USBV-4 USB KVM switch. Be sure to tighten the two screws on the monitor cable connector to the UNIMUX-USBV-4 USB KVM switch securely.

Note: If the DDC Support option is installed, a monitor with the DDC feature must be connected to the "MONITOR" port. (DDC Support option not available on 2 port switches.)

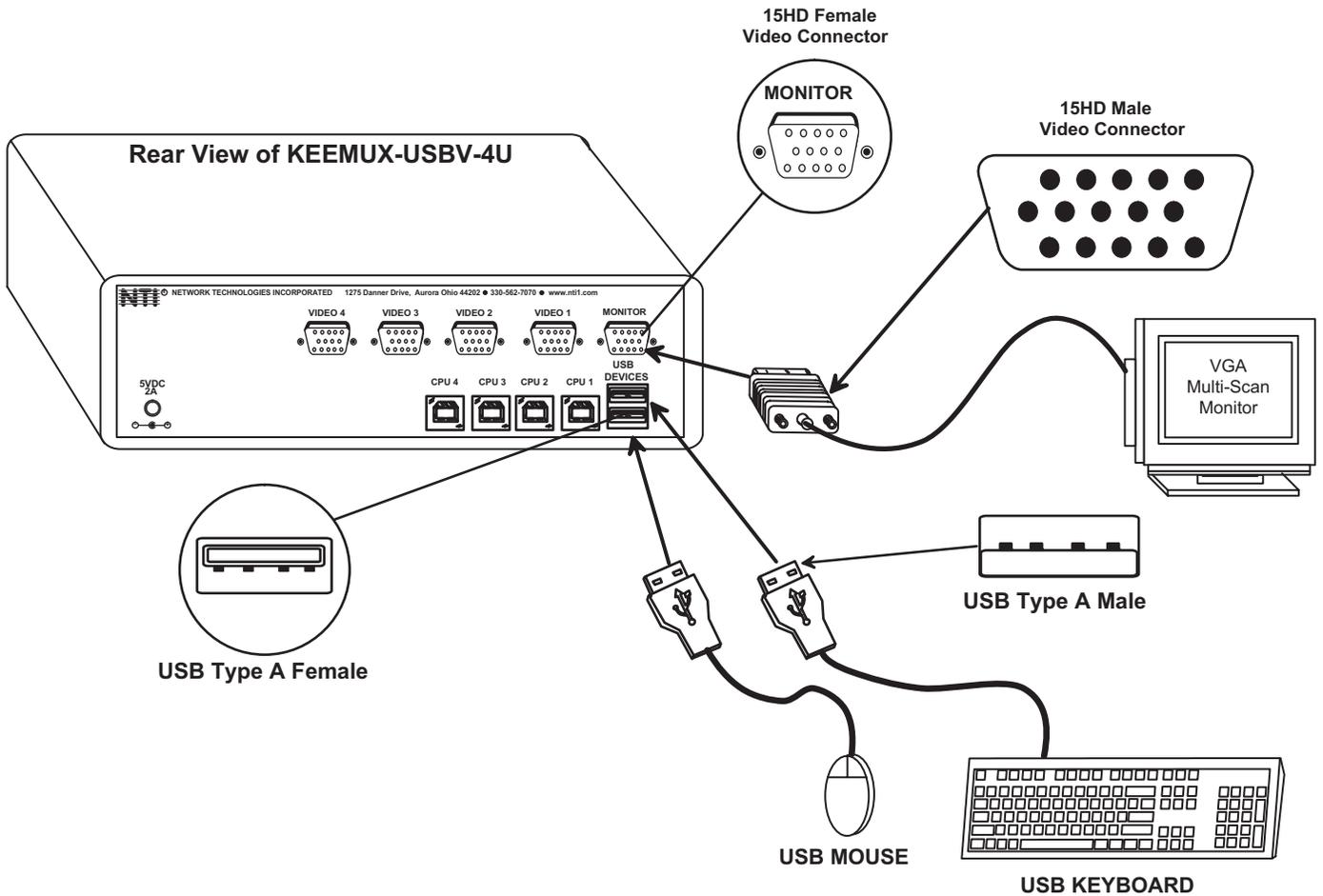


Figure 1- Connect the devices and Monitor

5. Using the USB cable ends of a USB-VEXT-xx-MM cable connect the USB type A device port of a USB CPU to the USB type B port labeled "CPU 1" on the UNIMUX-USBV-4 USB KVM switch.
6. Using the 15HD male video connector ends of the same USB-VEXT-xx-MM, connect the video port of the same USB CPU connected in step 5 to the female 15HD port labeled "VIDEO 1" on the UNIMUX-USBV-4 USB KVM switch. Be sure to tighten the two screws on the cable connector to the UNIMUX-USBV-4 USB KVM switch securely. See Fig. 2.
7. Repeat steps 5 and 6 for connecting each additional USB CPU to the ports labeled "CPU 2" and "VIDEO 2", "CPU 3" and "VIDEO 3", etc.

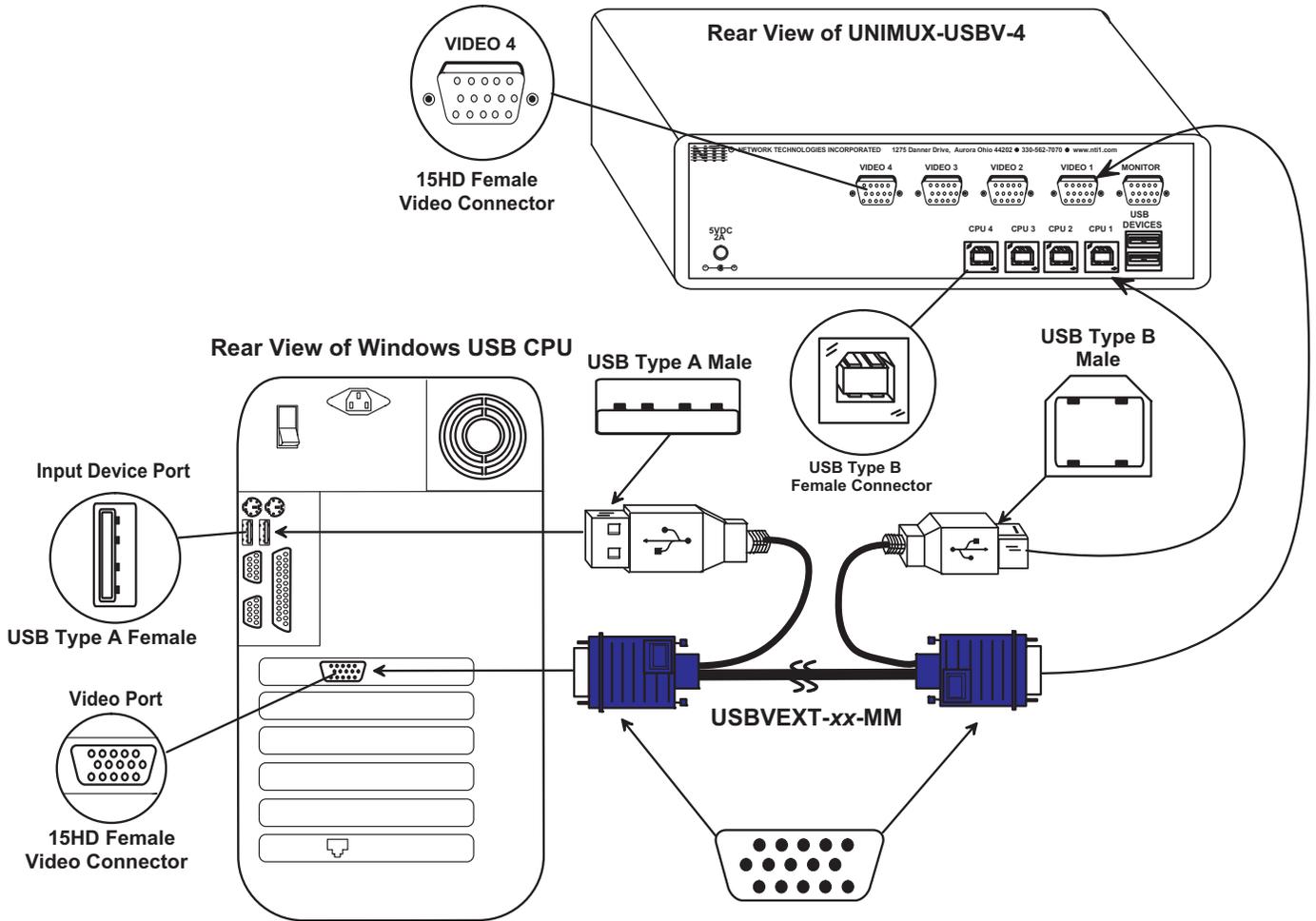


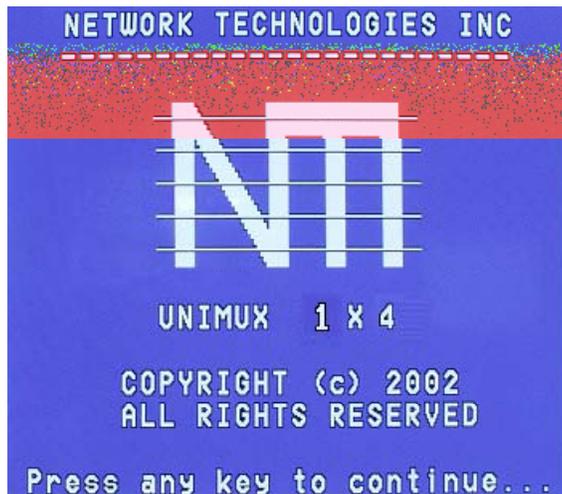
Figure 2- Connect a CPU

Power-Up Sequence

The UNIMUX-USBV-4 USB KVM switch can be powered at any time. The CPUs can be powered at any time although if a CPU needs a keyboard and/or mouse at power-ON it should be powered after connecting to and powering-ON the UNIMUX-USBV-4 USB KVM switch. USB devices (keyboard and mouse) can be hot plugged to and from the UNIMUX-USBV-4 USB KVM switch at any time.

Note: If the DDC support option is installed, the UNIMUX-USBV-4 and the monitor must be powered up before any CPUs are powered up.

Immediately after powering ON the UNIMUX-USBV-4 USB KVM switch, the following splash screen will appear on the monitor if the OSD option is built into the switch:



If the security option is enabled (see page 8 for details on the "Security Option"), when the user presses any key the user will be prompted for a username and password to continue. If the security option is not enabled, when the user presses any key the splash screen will disappear, the monitor will display the desktop image for the connected CPU, and the user can resume normal operation of the connected CPU.

USING THE NTI SWITCH

Front Panel Control

There is a touch-switch and LED on the front panel of the UNIMUX-USBV-4 USB KVM switch for each CPU the switch will connect the monitor and input devices to. Pressing any touch-switch on the front panel of the KEEMUX-USBV-xU USB KVM switch will connect the corresponding CPU to the monitor and input devices.

Holding down any front panel touch-switch for more than 2 seconds will cause the UNIMUX-USBV-4 USB KVM switch to cycle through all modes of operation including COMMAND, BROADCAST, SCAN, and NORMAL (described on pages 5-7). The two MODE LEDs on the front panel indicate which mode is selected. Release the touch-switch when the LEDs indicate the desired mode. When no mode LEDs are illuminated the user is in Normal Mode controlling directly the CPU to which the user is connected through the UNIMUX-USBV-4 USB KVM switch.

Keyboard Control

Keyboard control of the UNIMUX-USBV-4 USB KVM switch can be achieved through either

- Basic Command Mode- Basic Command Mode is operated strictly by using keyboard commands as instructed below. Basic Command Mode is only applicable if the OSD option is not built into the switch.

-OR-

- OSD Command Mode (optional- only available on 4 port switch)- OSD Command Mode is operated using the input devices in conjunction with OSD menus superimposed onto the monitor. If OSD is built in, use the menus as instructed on page 8.

By pressing <Ctrl> + ` (accent key), the user can enter Command Mode (either Basic, or OSD). Once in Command Mode, typing a series of commands will cause the UNIMUX-USBV-4 USB KVM switch to connect the user to any one CPU connected to the switch. Pressing the <Esc> key will exit Command Mode.

MODES OF OPERATION

Basic Command Mode

In order to control the UNIMUX-USBV-4 USB KVM switch with the keyboard connected, Command Mode must be enabled. To enter Command Mode from the keyboard:



NOTE: IF THE OSD FEATURE HAS BEEN INSTALLED (ONLY AVAILABLE ON 4 PORT SWITCH), PROCEED DIRECTLY TO "OPTIONAL OSD CONTROL" ON PAGE 8. If not, continue on the next page.

When the COMMAND LED is illuminated, all 3 status lights on the keyboard will illuminate (if they aren't already due to caps lock, scroll lock, and/or num lock) to indicate that Command Mode is enabled and the following functions are available:

Command Functions

KEY SYMBOLS LEGEND:	
OR	PRESS EITHER KEY
+	CHORDED SEQUENCE- PRESS CONSECUTIVELY AND KEEP KEYS PRESSED UNTIL ALL ARE PRESSED.
-	PRESS CONSECUTIVELY

Function:	Keystroke:
Increment Port	 or  or  (select the next higher port ex. 03→04)
Decrement Port	 or  or  (select the next lower port ex. 02→01)
Toggle Broadcast Mode ON and OFF	 (The Broadcast Mode LED will toggle ON and OFF.)
Toggle Scan Mode ON and OFF	 (The SCAN Mode LED will also toggle ON and OFF)
Sets scan time-out period for each port.	 -  -  -  (xxx from 002 to 255. ie. t002 would set the time-out period for 2 seconds)
Selects a specific port	 -  -  (Pxx would be P01, P02, etc.)
Select a specific Country code	 -  -  (xx= any number from 00 to 34. See Country Codes table on page 7.)
Configure port to connect To a MAC CPU	 +  (x= 1 or 2 <M> + <1> will enable function on Port 1 <M> + <2> will enable function on Port 2. Keyboard LED's will flash once to confirm command.)
Configure port to connect To a WINDOWS or SUN CPU	 +  (x= 1 or 2 <W> + <1> will disable function on Port 1 <W> + <2> will disable function on Port 2. Keyboard LED's will flash once to confirm command.)
Exit Command Mode	

Note: The user must exit Command Mode to type to a CPU.

To exit Command Mode, either hold down any touch-switch on the front panel for more than 2 seconds, OR press <ESC> on the keyboard.

Broadcast Mode

Broadcast Mode enables the user to type characters to all CPUs simultaneously. A port doesn't receive broadcast data if Security Mode is enabled and the user does not have access rights to the port.

NOTE: The user must type somewhat slowly when in Broadcast Mode (less than 20 wpm) and cannot use the <Backspace> key.

Scan Mode

When in Scan Mode the switch scans to each port with a CPU powered-ON. (The SCAN LED on the front panel will illuminate and remain ON while in Scan Mode.) The port with the CPU powered-ON remains active while in use until it becomes idle for the configured dwell time (default time-out period is 5 seconds) before switching to the next powered-ON CPU port. See Command Mode section above for configuring the scan dwell time.

NOTE: The keyboard and mouse must remain idle for the full scan dwell time before the switch selects the next active port.

Normal Mode

When all of the UNIMUX-USBV-4 USB KVM switch mode LEDs are OFF the user is in Normal Mode, controlling the CPU to which the user is connected through the UNIMUX-USBV-4 USB KVM switch.

Select Country Code

It is possible to configure the UNIMUX-USBV-4 USB KVM switch to emulate a specific international Sun keyboard regardless of what actual keyboard is connected. This is recommended when the CPU needs the layout code (i.e. a SUN CPU) and the keyboard doesn't have an explicit layout code (i.e. some Windows keyboards). To do this, manually set the UNIMUX-USBV-4 USB KVM switch to indicate the international keyboard identification number to the CPU using the following procedure;

1. Connect the keyboard to be used to the UNIMUX-USBV-4 USB KVM switch
2. Enter Command Mode
3. Type Lxx, where xx is the number from the list below that corresponds to the desired country code
4. Exit Command Mode
5. Reboot the CPU connected to the UNIMUX-USBV-4 USB KVM switch.

Country Codes

00	Auto Detect	13	International (ISO)	26	Swedish
01	Arabic	14	Italian	27	Swiss/French
02	Belgian	15	Japan (Katakana)	28	Swiss/German
03	Canadian-Bilingual	16	Korean	29	Switzerland
04	Canadian-French	17	Latin American	30	Taiwan
05	Czech Republic	18	Netherlands/Dutch	31	Turkish
06	Danish	19	Norwegian	32	UK
07	Finnish	20	Persian (Farsi)	33	US
08	French	21	Poland	34	Yugoslavia
09	German	22	Portuguese		
10	Greek	23	Russia		
11	Hebrew	24	Slovakia		
12	Hungary	25	Spanish		

Figure 3- Country Codes for international SUN keyboards

For more on international SUN keyboards, see page 21.

No Sun Sleep Mode

PLEASE NOTE: It may be necessary to configure a Sun CPU (most versions) such that the Sleep Mode is not enabled. If the Sun CPU goes into sleep mode either automatically or manually, the user must reboot the Sun CPU in order to resume use of the Sun CPU.

To disable the Sleep Mode, perform the following steps:

1. Select "Power Manager"
2. Look for "Device Idle Time Before Power Saving Starts"
3. Select "Always ON"
4. Look for "Override Device Idle Time For:"
5. Make sure neither "Monitors " nor "Disks" are selected.

Mice and Trackballs with MACs

The UNIMUX-USBV-4 USB KVM switch can be configured to enable full functionality between mice and trackballs having two or more buttons and USB MAC CPUs. By default, the ports on the UNIMUX-USBV-4 USB KVM switch are configured for use with WINDOWS and SUN CPUs and have no special translation for using multi-function mice and trackballs when a MAC CPU is connected. Using the commands <M> + <x> (x = port number), or <W> + <x> in Command Mode (page 6), either enable or disable this feature as needed for each port.

NOTE: Be sure to re-configure port for connection to a WINDOWS or SUN CPU if a MAC CPU is removed and a WINDOWS or SUN CPU is then connected.

OPTIONAL OSD CONTROL

OSD superimposes a menu system on the user's video screen with a list of all connected CPUs. OSD allows CPUs to be named (with up to 12 character names). OSD then allows selection of CPUs by that name. Connected CPUs can be listed by name or by port number. OSD Search Mode enables the user to type in the first few characters of the CPU's name and the OSD will locate it. HELP screens assist with all OSD functions.

Note: The optional OSD control feature is only available on the 4 port switch.

Security Option

The security option in the OSD Control of the UNIMUX-USBV-40 USB KVM switch enables an administrator to control access to CPU ports for each user. Up to 63 users can be created. These users have controlled access to any CPU. Only the administrator can activate or deactivate the security features on each user port. Finally, the administrator can set a maximum idle time value after which the current user will be logged out and the login screen displayed again. This time out does not function while the OSD is active. The current security status, idle time out, and scan dwell time are all saved and will be restored whenever power to the switch is cycled OFF, then ON. In the event the administrator password is lost or forgotten, to reset the administrator's password call NTI and have the device serial number of the UNIMUX-USBV-40 USB KVM switch available.

Enabling The Security Feature

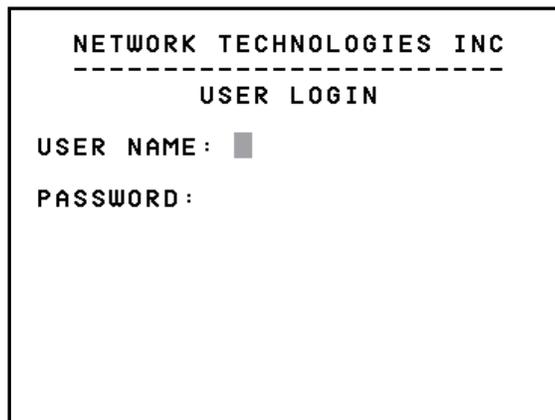
To enable the security feature the administrator must first enter Command Mode from the keyboard using the <Ctrl> + <`> (accent key). The OSD menu will automatically appear on the monitor. This provides a visual way to control the UNIMUX-USBV-40 USB KVM switch using the keyboard and mouse.

The administrator will activate security when logging in by typing <Ctrl> + <M> , then <A>, and then <Y>. The administrator will then be prompted for a valid administrator username and password (see Fig. 4).

The factory administrator login settings are:

- default user name = ADMINISTRATOR
- default password = ADMINISTRATOR

Note: The username for the administrator cannot be changed from "ADMINISTRATOR".



```
NETWORK TECHNOLOGIES INC
-----
USER LOGIN

USER NAME : █
PASSWORD :
```

Figure 4- User Login screen

Once logged-in, follow the instructions on page 10 for setting up users and changing the password. Once the password is setup, if it is lost or forgotten the administrator will have to contact NTI for assistance on clearing the password and set it up again. The administrator can setup each of the users and the limitations of their use of the individual CPUs within the Administration Mode.

When a standard user powers up the system a security screen may appear as setup by the administrator. The user will need to login to the system by following the instructions below for the USER LOGIN. If the user does not know the appropriate user name and password (setup by the administrator), contact the system administrator for this information. Once logged-in a user can follow the Command Mode functions described on page 12 to control the system of CPUs within the limitations as determined by the administrator.

User Login Mode

User Login Mode requires a user to login with a user name and password from the list created by the administrator. With security enabled, the user will be locked to the current CPU and the login screen will remain on the monitor until the user logs in.

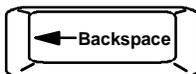
Function:

Add a character to the user name/password

Keystroke:



Remove previous character from the user name/password



Submit user name/password



Exit USER LOGIN and return to previous mode. This function is only available if security is not currently enabled.



If the password submitted is incorrect, the user will not be able to proceed.

If the password submitted is correct, the user will proceed to Normal Mode.

ADDITIONAL MODES AVAILABLE WITH SECURITY

Administration Mode

To enter the Administration Mode: press <A> from the Maintenance Mode menu. (See page 17 for Maintenance Mode menu.)

The Administration Mode (see Fig. 5) can be accessed only when security features are activated and the administrator is logged-in. Users other than the administrator are not allowed to enter the Administration Mode.

If a different user is logged-in, log-out by pressing <Q> from the Maintenance Mode menu, then log-in as Administrator. (See page 8, "Enabling The Security Feature".)

Administration Mode allows the administrator to use the following functions:

Function:

Change the administrator's password

Keystroke:



Disable security



Enter User Name List Mode



Selects the idle time in minutes



Change Alternate Command Hot Key



Exit Administration Mode and return to previous mode

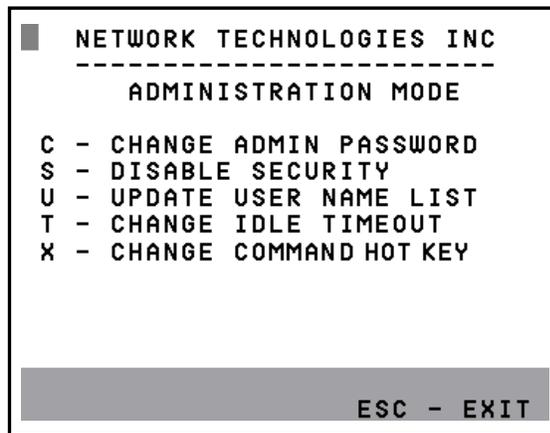


Figure 5- Administration Mode menu

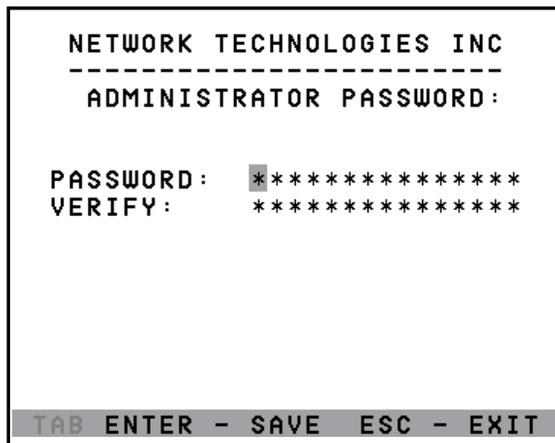
(xxx from 002 to 255. ie. t002 would set the time out period for 2 minutes. 000 will disable it.)

Administrator Password

To enter the Administrator Password menu press <C> from the Administration Mode menu.

The Administrator Password menu (see Fig. 6) enables the administrator to change his password. Two edit fields are available, one for password, the other for verify password. The password can be up to 13 characters in length.

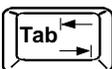
NOTE: The default password for the administrator is ADMINISTRATOR.



Function:

Keystroke:

Switch between Password and Verify Password fields



Add character to password string or verify password string



OR



+



(Type any upper or lower case alphabetical or numeric character)

Delete previous character in edited string



Save new password. (The administrator will be prompted for a Yes or No confirmation)



(If Password string and Verify Password string are different, this command will have no effect, enabling the administrator to correct the password)

Return to Administration Mode



Figure 6- Administrator Password screen

User Name List

To enter the User Name List press <U> from the Administration Mode menu.

The User Name List (see Fig. 7) enables the administrator to see a list of users. The administrator can select either an existing user to modify user settings, or an empty record to add a new user.

Function:

Keystroke:

Select previous user in the list



Select next user in the list



Scroll the list with one page up



Scroll the list with one page down



Edit selected user settings-
Enter Edit User Mode



Return to Administration Mode

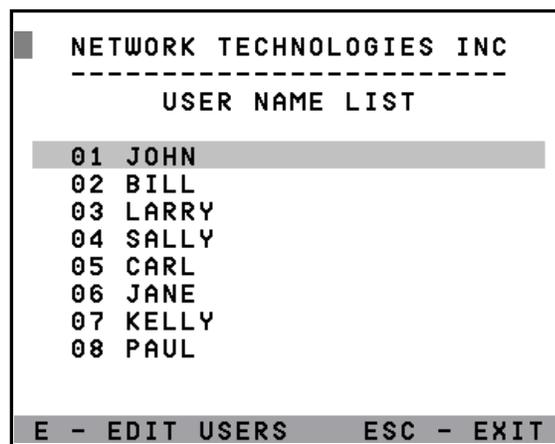


Figure 7- User Name List

Edit User

To enter the Edit User mode press <E> from the User Name List after selecting a user or an empty record.

The Edit User mode (see Fig. 7) enables the administrator to:

- add a new user
- remove an existing user
- edit the settings for an existing user

The Edit User mode contains three edit boxes and a check box list of up to 4 check boxes representing the User Access List (list of the CPU port(s) the user has access rights to).

The first edit box is used to edit the user name. The next two edit boxes are used to input the password twice (in order to verify it was typed correctly). The password can be up to 13 characters in length.

```

USER ACCOUNT: 01

USER NAME: JOHN
PASSWORD: *****
VERIFY: *****
 P01    P02    P03    P04
 P05   P06   P07   P08

TAB ENTER - SAVE ESC - EXIT
```

Alternate Command Hot Key

To enable the administrator to assign a key in addition to the <`> (accent key) to use with <Ctrl> to enter into OSD Command Mode, an Alternate Command Hot Key option is provided. The default factory setting for this option is <`> (disabling the option).

To select an Alternate Command Hot Key, press <X> from Administration Mode menu (page 9). A window will open and the administrator will be prompted to press a key. After pressing the key, a confirmation message will appear. The administrator should press <Y> (Yes) to validate the key as the Alternate Command Hot Key, or <N> (No) to select another key. Pressing <Esc> will return to the Administration Mode menu.

Only the administrator is allowed to set or change the Alternate Command Hot Key. This function must be set individually for each of the USB User Device ports on the UNIMUX USBV-4 USB KVM switch.

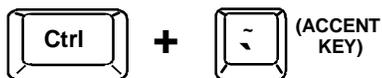
Note: The Alternate Command Hot Key does not replace the <`> (accent) key, it just works as another way to enter into Command Mode. After setting it, the user can enter into Command Mode either with <Ctrl> + <`> or with <Ctrl> + <Alternative Command Hot Key> combination. To disable it, the administrator should set <`> as the Alternate Command Hot Key.

USER ACCESS FUNCTIONS

Command Mode

In order to control the switch with the keyboard, Command Mode must be enabled. To enable Command Mode from the keyboard:

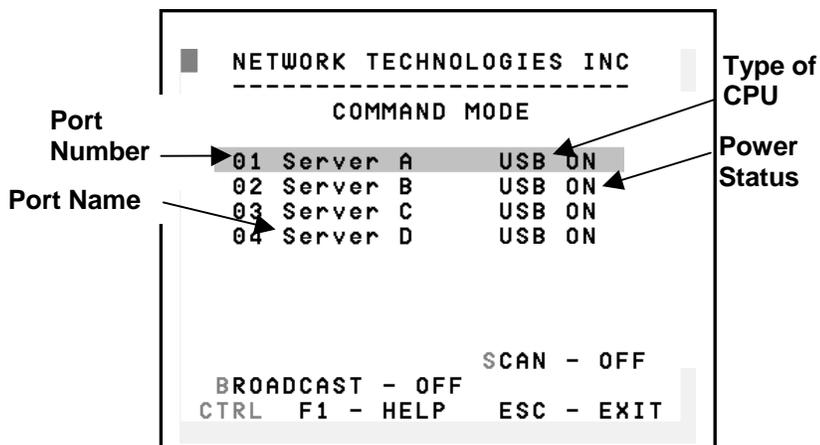
Press



All the status lights on the keyboard will illuminate to indicate that Command Mode is enabled. At this point, the Command Mode menu will be displayed.

The Command Mode menu (see Fig. 8) lists all CPUs by name and port number. When the Command Mode main menu is displayed, the first displayed port in the list will be the port the current user is connected to, followed by the next three consecutively numbered ports. (Alternatively the list may be alphabetically sequential- see Maintenance Mode on page 17 to toggle sort method.) The names of accessible ports are displayed with white characters. If Security is activated, the access rights for the user logged-in may not include all ports. Names of restricted access ports are displayed in blue.

An arrow to the left of a port number in the list indicates the port the user is currently connected to. From left to right, the columns display the following:

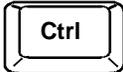
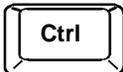
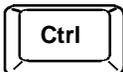
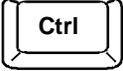


- Port Number
- Port Name
- Type of CPU connected (USB)
- Power Status of the CPU (ON/OFF)

Figure 9- User level Command Mode

NOTE: While in Command Mode, the numbers on the NUM PAD on the keyboard are not active. If numbers are required while in Command Mode, use the numbers on the main key bank.

The list below describes the command functions available from the keyboard within the OSD mode of control after entering into Command Mode:

Function:	Keystroke:
Select the previous port	
Select the next port	
Enable/disable Scan Mode	 + 
Enable/disable Broadcast Mode	 + 
Enter Edit Mode (Only available if administrator is logged in)	 + 
Enter Change Settings Menu	 + 
Enter Maintenance Mode	 + 
Display Help Menu	
Select the first port on the switch	
Select the last port on the switch	
Select a specific port	 +  -  -  (Pxx would be P01, P02, etc.)
Enter Search Mode, add a character to search string and select the CPU's name that matches best.	 (Type any alphabetical or numeric character) Note: use is case sensitive
Switch to a selected port	
Update Configuration	 +  (Use this command to update the information describing the structure of the cascaded switches. Used if a slave is powered-ON or OFF at any time after initial startup.)
Display port information	 (Display information about the selected port. When pressed, a window displays the port name and its position in the configuration structure by level and port number.)
Exit Command Mode	

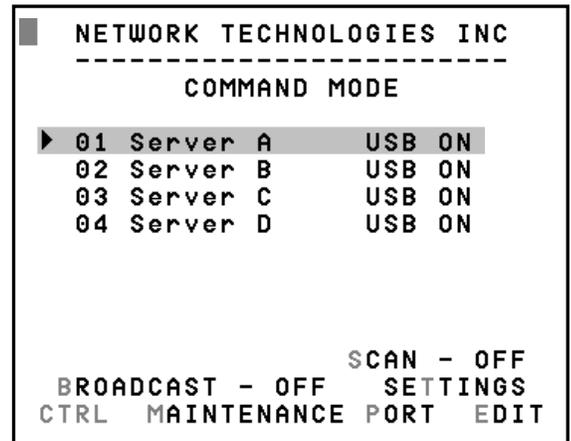


Figure 10- Additional Command Mode options

Note: When the user presses and holds the <Ctrl> key from the first Command Mode image, the additional options of Maintenance, Port, and Edit will appear. (See Fig. 10)

The mouse can also be used to control the UNIMUX-USBV-4O USB KVM switch Command Mode within the menu.

- The scroll wheel can be used to scroll through the ports list.
- The mouse cursor can be moved to the Sharing, Scan and Broadcast fields where the user can click on the left mouse button to toggle that indicator.
- Ports listed on the screen can be selected by moving the cursor onto a port and clicking.

NOTE: Exit Command Mode to type to a CPU. To exit Command Mode, press <Esc> or click the “ESC” command on the screen with the mouse.

Scan Mode

To activate Scan Mode press <Ctrl> + <S> from the Command Mode menu.

Scan Mode enables the user to scan through selected ports and to have full device control of the connected port. From the Change Settings menu (see page 15) the user can edit the list of ports that can be scanned. A port is skipped from the scan cycle if one of the following conditions is true:

- the port is not in the scan list
- security mode is enabled and the user does not have access rights to the port
- the CPU connected to the port is OFF

When switching to a new port the port name is displayed by OSD in the left upper corner of the monitor for 5 seconds or until a key is pressed or the mouse is moved, whichever comes first. The scan dwell time is programmable from 2 to 255 seconds (default time-out period is 5 seconds). When the user uses the mouse or keyboard the scanned port becomes active and scanning is stopped. The switch will resume scanning after a period of user inactivity determined by the scan dwell time. See Change Settings Menu on page 15 for configuring the scan dwell time.

NOTE: The scan dwell time set by the user only effects that user and has no effect on other switch users.

NOTE: The keyboard and mouse must remain idle for the full scan dwell time before the switch selects the next active port.

Broadcast Mode

To activate Broadcast Mode press <Ctrl> + from the Command Mode menu.

Broadcast Mode enables the user to type characters to more computers simultaneously. From the Change Settings menu (see page 15) the user can edit the list of ports that receive data in Broadcast Mode. A port doesn't receive broadcast data if one of the following conditions is true:

- the port is not in the Broadcast Mode list
- Security Mode is enabled and the user does not have access rights to the port

NOTE: The user must type somewhat slowly when in Broadcast Mode (less than 20 wpm) and cannot use the <Backspace> key.

Normal Mode

When the UNIMUX-USBV-4 USB KVM switch is not in Command, Scan, or Broadcast mode and the OSD control is not active on the monitor, the user is in Normal Mode, controlling the CPU to which the user is connected through the UNIMUX-USBV-4 USB KVM switch.

Edit Mode

To activate Edit Mode press <Ctrl> + <E> from the Command Mode menu.

Edit Mode allows only the administrator to modify the names of the CPUs connected to the switch. Names of CPUs can be up to 12 characters in length. Characters typed can be upper or lower case. After changes have been made the administrator will be prompted by the menu to save the changes. Answer "Y" to save changes and answer "N" to continue using previously entered port names.

Function:

Move cursor one position to the right

Keystroke:



Move cursor one position to the left



Edit Mode (Cont'd)

Function:

Move cursor to the previous port



Move cursor to the next port



NOTE: If a change has been made, using the up or down arrow will also prompt the user to save any changes.

When finished making changes in Edit Mode, press <Esc> and a prompt will appear to press either <Y> to save the changes or <N> to continue making changes without saving the changes just made.

Change Settings

To enter the Change Settings menu (see Fig. 11) press <Ctrl>+<T> from the Command Mode menu.

The list below describes the Change Settings menu functions available from the keyboard:

Function:

Keystroke:

Go to Broadcast Mode Configuration



Go to Scan Mode Configuration



Go to Language Selection Menu
(Option only available if the administrator is logged in)



Change the scan dwell time period



Configure ports for MAC or non-MAC CPUs (Administrator only)



Exit from Change Settings
Return to Command Mode

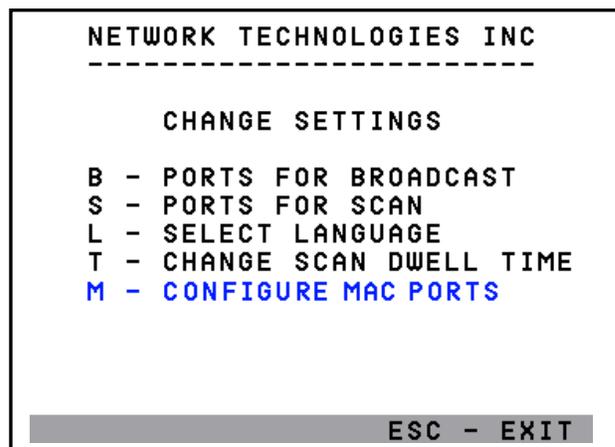


Figure 11- Change Setting menu

When the <T> is pressed, an edit field showing the actual value of the scan dwell time is displayed at the bottom of the Change Settings menu. The user can introduce a new value for scan dwell time and press <Enter> to save it or <Esc> to exit. Any value between 002 and 255 (seconds) is acceptable.

Broadcast Mode Configuration

To enter the Broadcast Mode Configuration menu press from the Change Settings menu (see Fig. 10).

The Broadcast Mode Configuration menu (see Fig. 12) enables the user to select specific ports to be active in Broadcast Mode. Only the selected ports will receive keyboard messages in Broadcast Mode.

A check list with all the port numbers will be displayed in the window.

- unchecked box = the corresponding port is **not** in the broadcast list
- checked box = the corresponding port **is** in the broadcast list

The user can toggle the state of the selected check box by pressing <Spacebar> or clicking the left mouse button.

- press <S> to check all of the ports
- press <C> to uncheck all of the ports

The selected port is highlighted with a green bar. To select another port, the user can use the arrow keys or mouse movement. The name of the selected port is displayed at the bottom left of the menu.

When <Esc> is pressed the display will return to the Change Settings menu. The broadcast selection list is automatically saved.

Scan Mode Configuration

To enter the Scan Mode Conf

```
NETWORK TECHNOLOGIES INC
-----
SELECT PORTS FOR BROADCAST

 P01    P02    P03    P04
 P05    P06    P07    P08
 P09    P10    P11    P12
 P13    P14    P15    P16
 P17    P18    P19    P20
 P21    P22    P23    P24
 P25    P26    P27    P28
 P29    P30    P31    P32

Server A
S-SELECT ALL  C-CLEAR ALL
```

Figure 12- Select ports for broadcasting

MAC Ports Configuration

NOTE: The CONFIGURE MAC PORTS option will be in blue text in the Change Settings menu and will only be accessible if the administrator is logged in.

MAC Ports Configuration menu enables the administrator to select specific ports to be connected to MAC CPUs for passing mouse information to the MAC CPUs. 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 button. Ports should be configured at installation time or whenever necessary. After setting, the configuration is stored in non-volatile memory and will be retrieved whenever the switch is power ON. When the port is connected to a Windows or SUN CPU, this configuration SHOULD BE DISABLED. By default, all ports are configured as non-MAC CPUs (Windows and SUN).

NOTE: If a port is configured as connected to a non-MAC CPU, but is in fact connected to a MAC CPU, the mouse will still work as a generic mouse. No special functions provided by software drivers will be available.

To enter the MAC Ports Configuration menu, the administrator must press <M> from the Change Settings menu, described on page 15.

A check list with all the ports numbers preceded by a check-box will be displayed in the window.

- unchecked box = the corresponding port is set as connected to a non-MAC CPU
- checked box = the corresponding port is set as connected to a MAC CPU

In order to change the status of a port, the administrator has to first select the port. The selected port is highlighted with a green bar.

To select another port, the administrator can use the arrow keys or mouse movement. The name of the selected port is displayed at the bottom left of the menu, right above the yellow bar.

The administrator can toggle the state of the selected check box by pressing the <Spacebar> or clicking the left mouse button.

- Press <S> to check all the ports
- Press <C> to uncheck all the ports

When <Esc> is pressed, the display will return to the Change Settings menu. The list is automatically saved.

The settings apply to all users of the switch.

Maintenance Mode

To enter Maintenance Mode (see Fig. 13) press <Ctrl>+<M> from the Command Mode menu.

Maintenance Mode enables a user to customize the On Screen Display to their requirements. Also, the Security Mode can be activated/deactivated from this menu.

Function:

Keystroke:

Reset all of the port names



Toggle between numeric and alphabetic listing of ports



Move On Screen Display (OSD) menu up on monitor



Move OSD menu down on monitor



Move OSD menu to the right

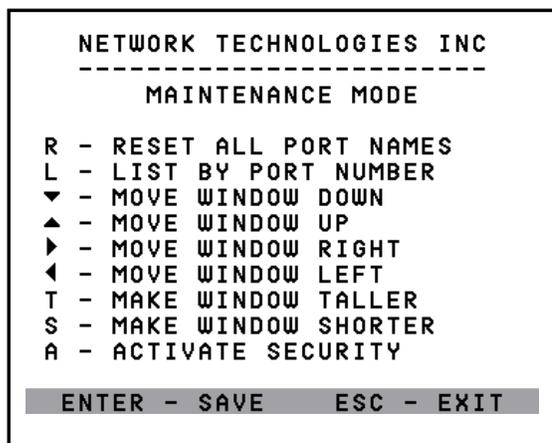


Figure 13- Maintenance Mode menu

Maintenance Mode (Cont'd)

Function:

Keystroke:

Move OSD menu to the left



Make OSD menu taller



Make OSD menu shorter



Activate security features.

Present only when security is available but not active.

Enter Administration Mode.

Option present only when administrator is logged in.



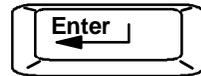
NOTE: If activating security features, the user will be prompted for a "Y" (yes) or "N" (no) to confirm the menu choice, at which point the user will be asked for a username and password before continuing. Only the administrator can activate the security features.

Log current user out and return to User Login Mode.



(Only displayed when security is active)

Save OSD window parameters for the port



Return to Command Mode



NOTE: Based on different scan rates, the OSD window may appear in different areas of the monitor as different CPU ports are selected. The Maintenance Mode functions allow placement of the window in a particular area of the monitor and the window will return there when the UNIMUX-USBV-40 USB KVM switch is reconnected to that particular CPU (provided the parameters are saved before exiting Maintenance Mode).

Search Mode

Search Mode is enabled by typing any alphabetical or numeric characters while in the Command Mode menu (see page 13).

Search Mode allows the user to enter and maneuver through a list of CPU names. The CPU name best matching the characters typed is selected. The list of CPUs may also be searched for a specific (or similar) name. The following commands are valid when the search option has been invoked from Command Mode.

Function:

Keystroke:

Erase previous character in search name



Add a character to the search string and select the best matching CPU name

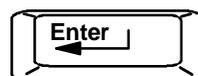


(Type any alphabetical or numeric character)

Exit Search Mode, return to Command Mode



or



Help Mode

To enter Help Mode press the <F1> key from the Command Mode menu (see page 13).

Help Mode displays a list of commands with a short explanation of their function. The following options allow the user to quickly obtain information on any command.

Function:	Keystroke:
View the previous page of help if available	
View the next page of help if available	
Exit HELP and return to previous mode	

F3- Display Information

To display information about a selected port, pressing the <F3> key from within the Command Mode main menu will cause a window to open. The window will show the name of the port and its position in the system structure, level by level. This is most useful when cascading switches (for Cascading see page 22). An example of this structure might be

LEVEL 1 : PORT 5
LEVEL 2 : PORT 3

This means that the CPU connected through this port is actually connect through Port 5 of the master switch (Level 1), and through port 3 of the slave connected to port 4 (Level 2). See Fig. 14 below.

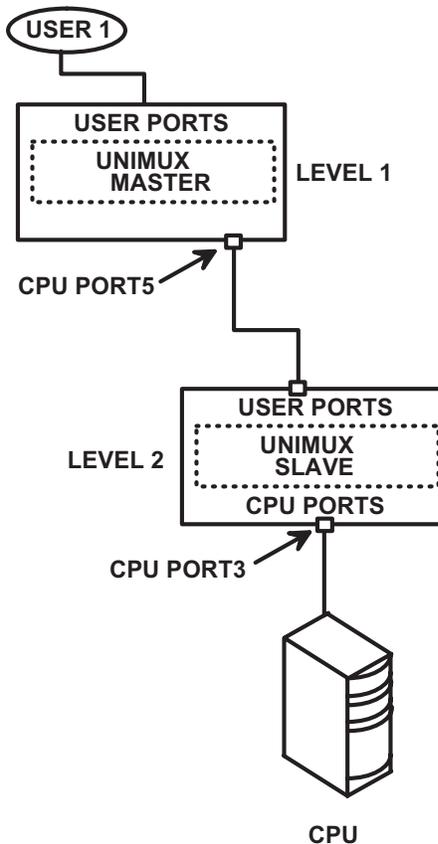


Figure 14- Information provided by the F3 command

KEYBOARD FEATURES

The keyboard configuration of each CPU is saved in the NTI UNIMUX-USBV-4 USB KVM switch. For example, if the CPU attached to Port 2 had CAPS LOCK and NUM LOCK selected the last time that CPU was accessed, then they will automatically be set when that CPU is accessed again.

Keyboard-To-Computer Translation (See Fig. 15 on page 21 for reference.)

The NTI UNIMUX-USBV-4 USB KVM switch enables a mixture of otherwise incompatible peripheral computer components to be connected together. This is accomplished by performing keyboard-to-computer translations automatically (i.e. translate a MAC keyboard and mouse to a Windows type CPU). The chart below shows the capabilities of devices controlling certain CPU types.

Translation Capabilities

<i>Device</i>	CPU		
	<i>Sun</i>	<i>Mac</i>	<i>Windows</i>
Sun Keyboard	Full functionality	Full functionality	Full functionality
AT101 Keyboard	Extra keys emulation	Power key emulation	Full functionality
Mac keyboard	Extra keys emulation	Full functionality	Full functionality-except Application Key
Apple Pro Keyboard	Extra keys emulation	Extra Keys not supported (Eject, Mute, Volume+, Volume-)	Full functionality
Sun Mouse	Full functionality	Full functionality	Full functionality
Wheel Mouse	Full functionality	Full functionality	Full functionality
Apple Mouse	Right button emulation	Full functionality	Right button emulation

Translation Tables

Use the charts below to type SUN's additional keys with Win95 and Apple keyboards:

SUN Extra Keys

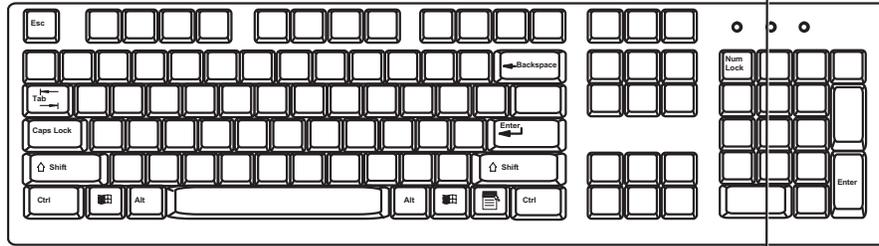
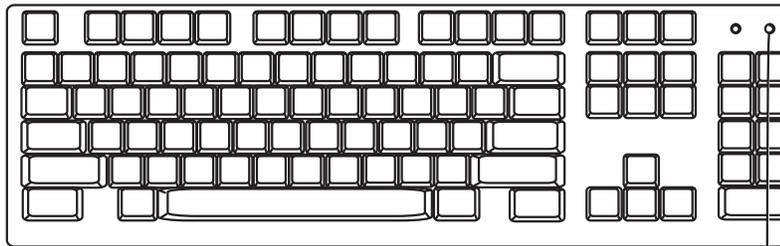
WINxx or Mac Keyboards	Sun Extra Keys
Space Bar + F1	Stop
Space Bar + F2	Again
Space Bar + F3	Props
Space Bar + F4	Undo
Space Bar + F5	Front
Space Bar + F6	Copy
Space Bar + F7	Open
Space Bar + F8	Paste
Space Bar + F9	Find
Space Bar + F10	Cut
Space Bar + F11	Help
Space Bar + F12	Compose
Space Bar + Up Arrow	Volume +
Space Bar + Down Arrow	Volume -
Space Bar + Left Arrow	Mute

Power Key Emulation

Win95 Keyboards	Mac CPU	Sun CPU
SB+RT Arrow	Power	Power

Mouse Click Equivalents

To emulate right-button click using an Apple 1-button mouse, hold down the CMND key (key with open apple insignia) while pressing the mouse button.



Windows USB Keyboard

CD Eject
Key

Command Key

Figure 15- Keybo

boards

USB KVM switch can recognize interna
procedure:

the CPU from the UNIMUX-USBV-4 USB
the international keyboard to be used to the
ON the CPU the UNIMUX-USBV-4 USB KV

able to configure the UNIMUX-USBV-4 USB KVM sw
ual keyboard connected. This is recommended when
4 doesn't have an explicit layout code (i.e. some Windows ke
KVM switch indicate the international keyboard identification n
ches with OSD feature) or on page 16 (for switches with OSD fe

boards. In order to use an international

switch

ernational Sun keyboard regardless
code (i.e. a SUN CPU) and the
anually set the UNIMUX-USBV-4
llowing the instruction on page 7 (for

CASCADING

The UNIMUX-USBV-40 USB KVM switch can be expanded to access up to 128 CPUs by cascading multiple units together. As many switches as there are CPU ports may be connected to a UNIMUX-USBV-40 USB KVM switch. Single user and multi-user UNIMUX switches may be connected downstream (see Figs.16 and 17). The first switch in a cascaded system is referred to as the "master", while all downstream switches are referred to as "slaves". The only additional hardware required to cascade switches is a set of device and monitor cables for each "SLAVE UNIT" (see MATERIALS on page 1). All CPUs and switches can then be controlled by users using OSD commands with Command Mode.

Note: The UNIMUX 4 port USB KVM switch must have OSD installed to use cascading.

Note: Cascading is not an option in the UNIMUX-USBV-2 2 port USB KVM switch.

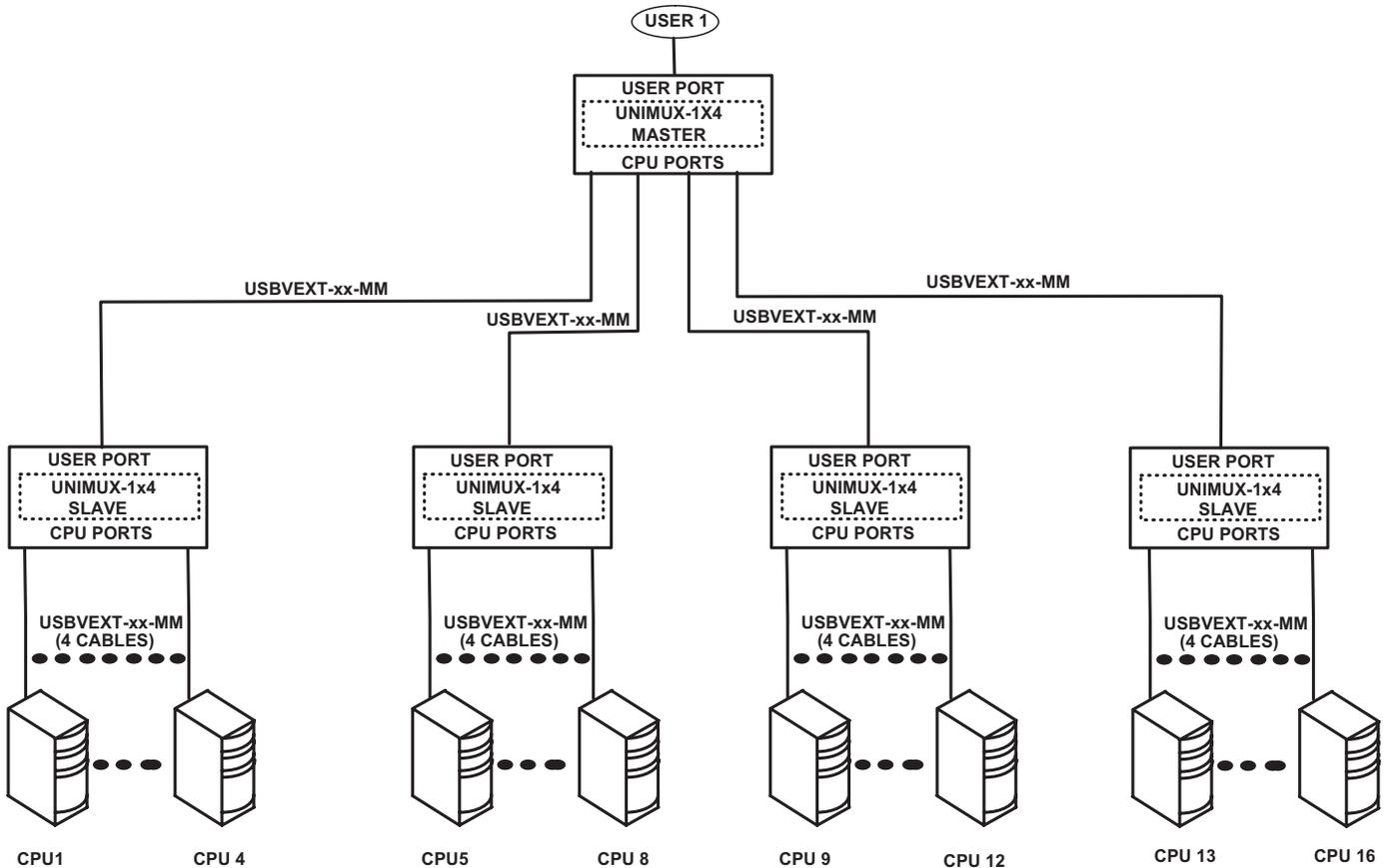


Figure 16- Cascaded UNIMUX-USBV-40 USB KVM switches

Limitations

The front panel buttons are only used to operate standalone switches. To control a cascaded network of switches, only the OSD commands within Command Mode will be recognized.

Users connected to accessible ports on downstream slaves (i.e. ports not connected to the master, as in the case of multi-user slaves) will not be able to control switches or CPUs connected upstream. Only control over CPUs and slaves downstream from a user's connection point will be enabled. (See Fig. 17)

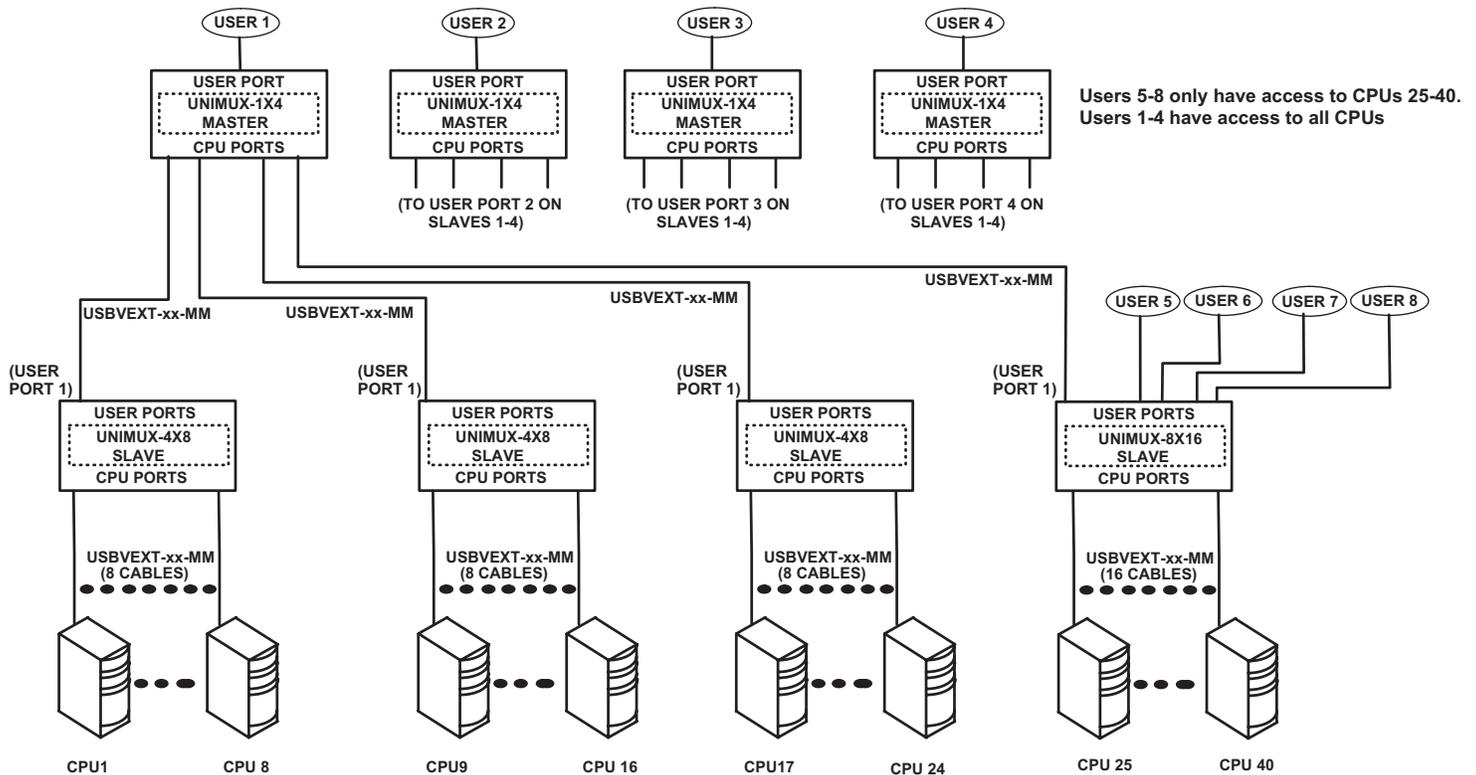


Figure 17- Cascaded configuration with multi-user slaves

Cable Connections

The same cable used to connect a CPU to the UNIMUX is used to connect two UNIMUX switches together- USBVEXT-xx-MM. No other cables will be necessary. To connect a slave to a master

1. Connect the USB-A-male end of the USBVEXT-xx-MM to the USER 1 port on the slave.
2. Connect the 15HD male at the same end of the USBVEXT-xx-MM cable to the MONITOR 1 port on the slave.
3. Connect the USB-B-male end of the USBVEXT-xx-MM to the CPU 1 port on the master.
4. Connect the 15HD male at the same end of the USBVEXT-xx-MM to the VIDEO 1 port on the master.

Repeat this procedure for each USER and MONITOR port on the slave that is desired to be controlled through the master. Any USER and MONITOR ports that do not get connected to the master can be connected to by users. Users connected to a slave downstream from the master will control only the CPUs directly connected to that slave switch (i.e. users 5 and 6 in fig. 17 above can only control CPUs 25-40).

UNIMON

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any key to continue...

All the downstream switches should be powered ON before pressing any keyboard key. If there are USB extenders connected, they should also be powered ON. An extra time of about 5 seconds after powering-ON the last unit may be needed to complete the USB enumeration process. If the switch is a standalone unit (no downstream switches connected), the keyboard key could be pressed immediately.

When a keyboard key is pressed, the master switch will start the process of detecting the configuration. This could take several seconds, depending on how many switches are connected together. When configuration update is ready, the splash screen disappears and the system is ready to operate. (If security mode is activated, the login window will be displayed on the screen). The update-configuration function can be recalled at any time by entering into Command Mode and pressing the <Ctrl> + <Tab> keys

Note: The front panel buttons are used to operate only standalone switches. To operate a cascaded network of switches use only OSD commands from Command Mode (see page 12).

After completing the configuration detection, the splash screen is turned OFF and the switches can be operated. All configuration can be controlled from the keyboard, mouse and monitor through OSD menus (page 8).

DDC Support (Optional)

Option not available on 2 port switches.

DDC information allows the CPU to automatically select the optimal resolution for the monitor by receiving, at power up, information from the monitor concerning its resolution specifications.

When DDC Support is installed, the DDC information is acquired from the monitor by the UNIMUX switch when the UNIMUX is powered-up. **A monitor with DDC support must be connected to MONITOR for this to occur.** The DDC information will be made available at every CPU port.

The DDC information can also be acquired by pressing the DDC button located on the front of the switch (see page 2, item 10). This button allows the monitor configuration to be changed without powering down the switch.

Note: In order for the CPU to correctly receive the DDC information from the switch at boot-up, the switch must be powered up before all attached CPUs.

TECHNICAL SPECIFICATIONS

USB Type B

Pin #	Signal
1	+VCC
2	- DATA
3	+DATA
4	GND

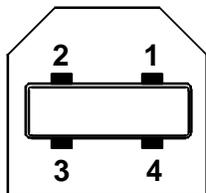
USB Type A

Pin #	Signal
1	+VCC
2	- DATA
3	+DATA
4	GND

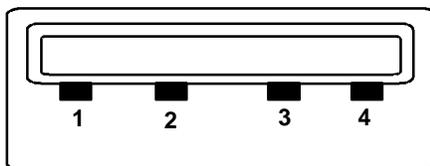
VGA Video

Pin #	Signal	Pin #	Signal
1	RED	9	NC
2	GREEN	10	GND
3	BLUE	11	ID0
4	ID2	12	ID1
5	TST	13	HS
6	RED GND	14	VS
7	GREEN GND	15	ID3
8	BLUE GND		

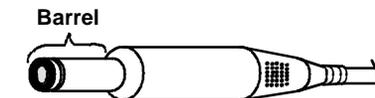
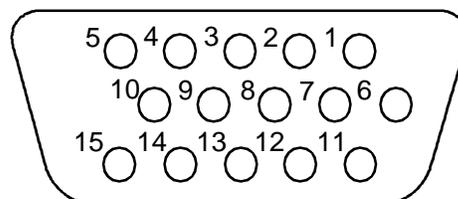
Mating face of a USB Type B Female



Mating face of a USB Type A Female



Mating face of a 15HD female VGA VIDEO



Power Connector
5VDC @ 2.0A OUTPUT
 (Outside barrel) --- (Inside barrel)
 2.1 mm x 5.5 mm Female

TROUBLESHOOTING

1. Verify all cables are securely connected and that the installation procedure was carefully followed.
2. If a CPU seems to be locked up,
 - cycle the power to the UNIMUX-USBV-4 USB KVM switch OFF, then ON
 - disconnect the "USB DEVICES" keyboard and mouse cables (not the "CPU x" keyboard and mouse) from the UNIMUX-USBV-4 USB KVM switch and reconnect them
 - reboot the CPU

If the NTI UNIMUX-USBV-4 USB KVM switch still seems work improperly, help may be found in the Frequently Ask Questions (FAQ's) section of our website at <http://www.nti1.com> or 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.

SERIAL NO.: _____

UNIMUX-USBV-4

DATE: _____

UNIMUX-USBV-2

INSPECTED BY: _____

UNIMUX-USBV-4O

UNIMUX-USBV-4D