VOPEX® Series

VOPEX-USBV-2/4

USB Keyboard, Video, and Mouse Splitter/Hub

Installation and Operation Manual

Front and Rear View of VOPEX-USBV-4

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INTRODUCTION

The VOPEX-USBV-2/4 (VOPEX) is a USB KVM Splitter and 3-Port Hub. It enables the control of one USB enabled CPU through two (or four) separate USB keyboards, USB mice, and VGA monitors and it enables the connection of 3 additional USB devices (other than keyboards or mice). Each user is able to have complete control of a CPU, provided they don't try to access it at the same time.   While the user access is controlled by separate modes of operation, each user monitor will show the same image at all times. The 3 hub ports (for printer, scanner, camera, touchscreen monitor etc.) will be connected to the CPU at all times.

OPTION: Audio support to enable each user to connect stereo speakers to receive audio signals from the connected CPU- add "-A" to the part number (i.e. VOPEX-USBV**A**-2/4)

Types of User Input Devices Supported:
- USB keyboard with Windows layout
- USB keyboard with SUN layout
- USB keyboard with MAC layout
- USB Mouse - (up to 3 buttons)
- USB IntelliMouse (scroll wheel)
- Mouse-Trak trackball
- Logitech, Kensington and Microsoft Wheelmouse or Trackball on Mac CPUs with special drivers
- Logitech Cordless Elite Duo keyboard and mouse
- Crystal Vision keyboard with touchpad
- Gyration keyboard/mouse
- NTI USB-PS/2 Adapter
- NTI USB-SUN Adapter

Types of Shared Devices Supported:

- USB 2.0 compliant (low/full speed).
- Plug-n-Play specification supported

Types of CPUs Supported:
Any USB CPU supporting USB version 1.0 or above including:

- USB WINxx
- USB MAC
- USB SUN

LIMITATIONS

- The USB ports on the VOPEX are USB 2.0 (low/full speed) compatible. Any USB 2.0 device connected to the VOPEX will be regulated to USB 2.0 low/full speeds.

MATERIALS

Materials included with this kit:
- VOPEX-USBV-2/4 2/4-Port USB KVM Splitter
- USB-AB-1M-ST 1 Meter Transparent USB A-B Device Cable
- VEXT-3   3 Foot M-F VGA Video Cable
- 120 or 240VAC @ 50 or 60Hz-5VDC/**3.0A** AC Adapter (2-Port models)
                -Or –
  120 or 240VAC @ 50 or 60Hz-5VDC/**6.0A** AC Adapter (4-Port models)
- SA-3-MM 3 Foot M-M 3.5mm Stereo Audio Cable (Models with audio support only)
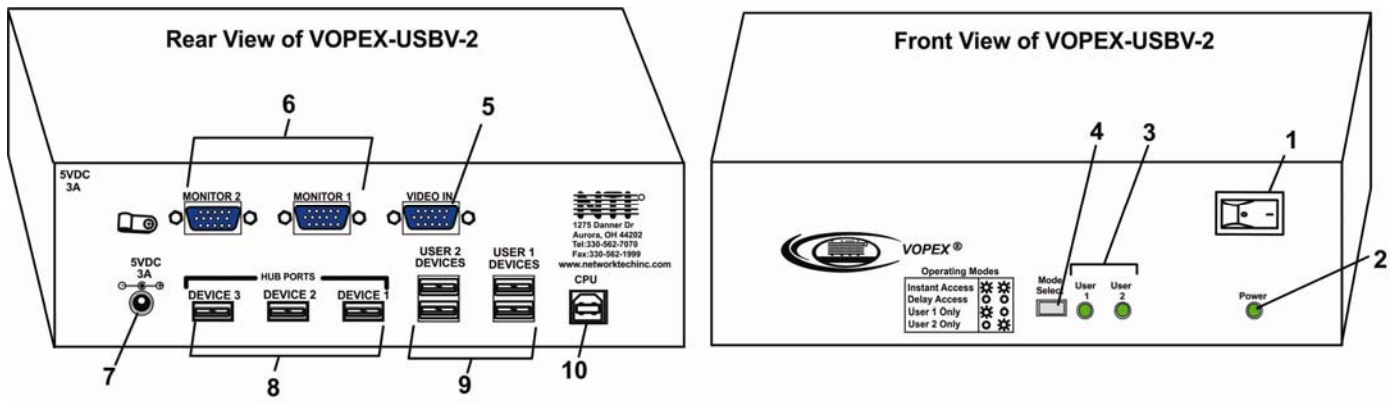
FEATURES AND FUNCTIONS

1. Power Switch- to power up or power down the VOPEX.

2. Power LED- for visual indication of splitter's power status

3. Mode Status LED's- for visual indication of splitter's operating mode

4. Mode Switch- press to manually switch between operating modes

5. VIDEO- 15HD male connector- for connecting the video cable from the CPU

6. MONITOR x- 15HD female connectors- for connection of the user video monitors

7. 5VDC- connection jack for the AC adapter

8. DEVICES x- USB type A female connectors- for connection of the cables from USB devices

9. USER x DEVICES- USB type A female connectors- for connection of user USB device(s)

10. CPU- USB type B female connector- for connection of the devices cable from the CPU

INSTALLATION

FYI: It is not necessary to disconnect power to the CPU and monitor(s) before installation.

Monitor Connection

1. Disconnect the monitor cable at the CPU and reconnect it to the "MONITOR 1" port on the VOPEX. (See Fig. 1)

2. Plug a second monitor (or optional VEXT-xx extension cable) into the "MONITOR 2" port on the VOPEX.

If a touchscreen monitor is used, plug the serial cable into one of the "HUB" ports.

Note: "xx" in VEXT-xx indicates the length of the cable in feet. Many lengths are available. Contact your VPI salesperson or visit our web site at http://www.vpi.us for details.

Note: The monitor connected to "MONITOR 1" will send DDC data to the connected CPU. Be sure to connect a monitor to "MONITOR1" to ensure the CPU has the required video configuration information to work properly.

Mouse Connection

1. Disconnect the mouse at the CPU and reconnect it to one of the female USB type A 'USER 1 DEVICES" ports on the VOPEX.

2. Connect a second mouse (or optional USB extension cable NTI USB2-AA-5M) to the female USB type A "USER 2 DEVICES" ports on the VOPEX.

Keyboard Connection

1. Disconnect the keyboard at the CPU and reconnect the keyboard to the remaining female USB type A "USER 1 DEVICES" port on the VOPEX.

2. Connect a second keyboard (or optional USB extension cable NTI USB2-AA-5M) to the remaining female USB type A "USER 2 DEVICES" ports on the VOPEX.
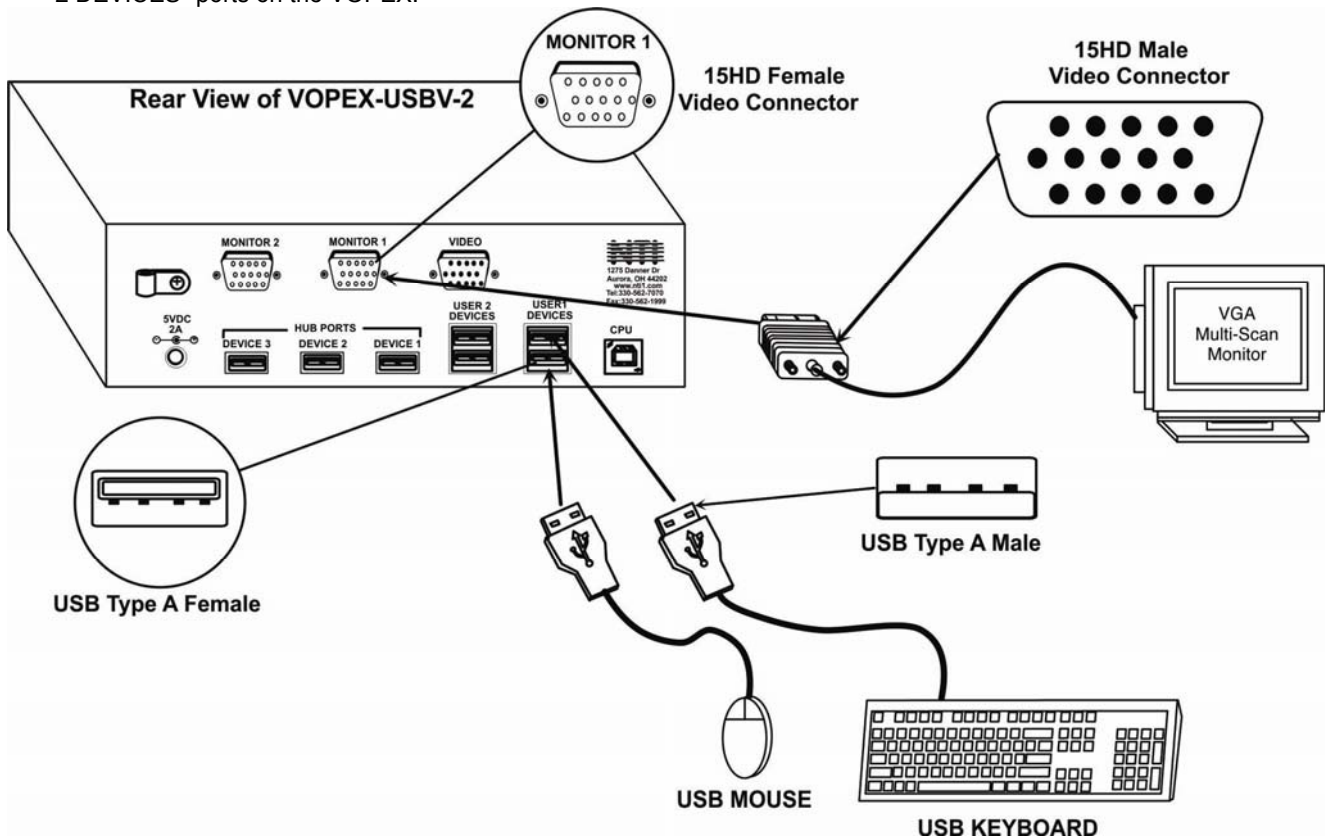

Figure 1- Connect User 1 Keyboard, Mouse, and Monitor

CPU Connection

1. Connect the male USB type A connector end of the USB-AB-1M-ST cable into the device port on the CPU.

2. Connect the male USB type B connector of the same cable to the "CPU" port on the VOPEX.

3. Connect the male 15HD connector end of the VEXT-3 into the CPU's video port. (See Fig. 2)

4. Connect the female 15HD connector end of the VEXT-3 into the "VIDEO" port on the VOPEX.
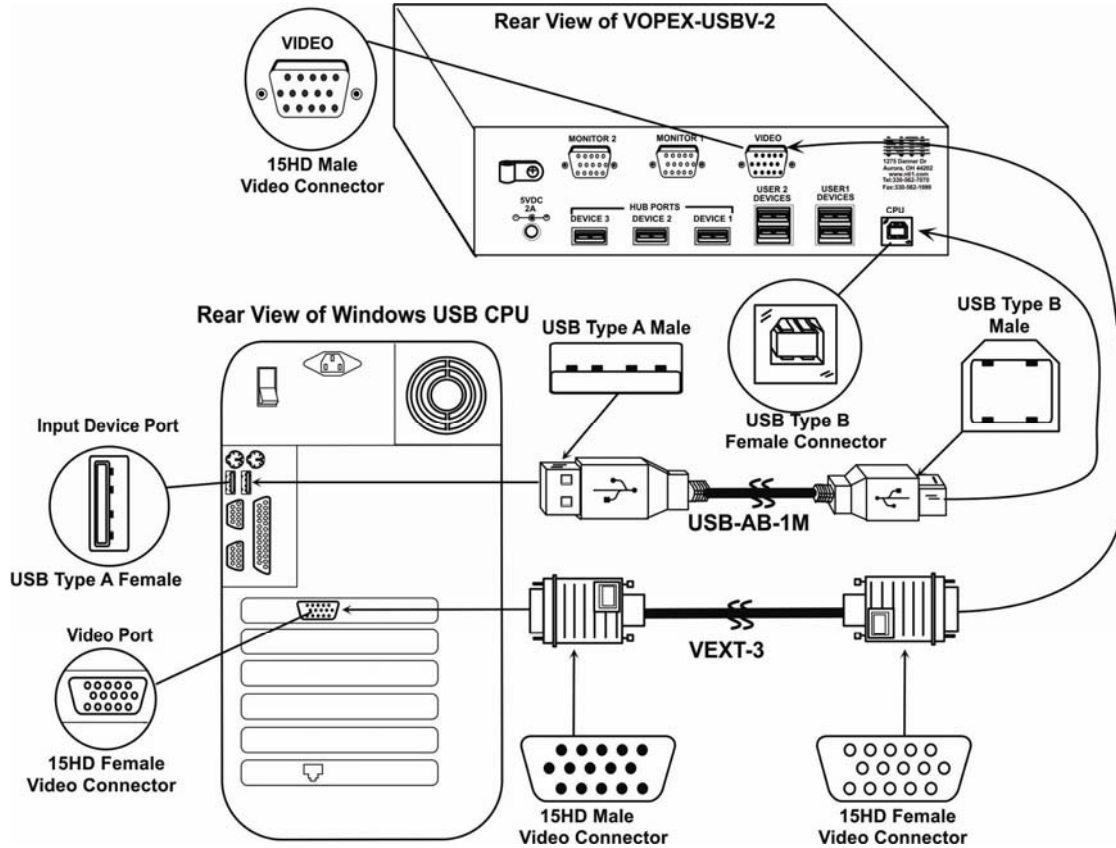
Figure 2- Connect the VOPEX to the CPU

Hub Ports

If desired, connect additional USB devices to each of the three "Hub Ports". These ports will be powered and operational anytime the VOPEX and CPU are powered ON. See Fig. 3.

Power-Up

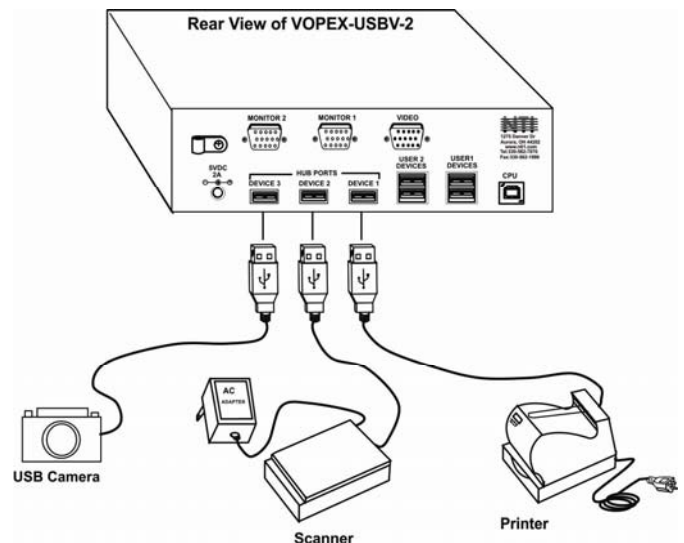If not already ON, turn ON power to the CPU, monitors, and VOPEX.

Figure 3- Connect other devices to Hub Ports

OPERATION

Mode Selection

The VOPEX comes equipped with four (VOPEX-USBV-2) or six (VOPEX-USBV-4) modes of operation. To manually toggle between modes, depress the MODE button once each time a mode change is desired. The VOPEX will cycle through the modes of operation, then return to the first mode (1 to 2, 2 to 3, 3 to 4, etc). The following table details the modes of operation.

MODE	DESCRIPTION	INDICATOR LEDS
1- INSTANTANEOUS	Both users have control of the CPU simultaneously.	U1 U2 U3 U4 ● ● ● ●
2- DELAY	The first user with an active device gets control of CPU. The second user is locked out until after 5 seconds of inactivity from the first user.	U1 U2 U3 U4 ● ● ● ●
3- USER 1	"USER 1" has sole access. Other users are locked out.	U1 U2 U3 U4 ● ● ● ●
4- USER 2	"USER 2" has sole access. Other users are locked out.	U1 U2 U3 U4 ● ● ● ●
5- USER 3	"USER 3" has sole access. Other users are locked out.	U1 U2 U3 U4 ● ● ● ●
6- USER 4	"USER 4" has sole access. Other users are locked out.	U1 U2 U3 U4 ● ● ● ●

Application Note:
If two touchscreen monitors are connected to the VOPEX, the serial cable from each monitor would be connected to the HUB ports.   These ports remain actively connected to the CPU at all times.   The MODE button only affects devices connected to the USER DEVICES ports (keyboard and mouse).   As a result, the touch feature of the two monitors would be active at the same time, regardless of the mode selection.   Under these circumstances, only one cursor on a touchscreen monitor should be used at a time.   Trying to use both, simultaneously, may have unpredictable effects on the CPU.

Keyboard Command Mode

In order to control the other features of the VOPEX with the keyboard, Command Mode must be enabled. To enter Command Mode from the keyboard:

Press   [**Ctrl**]   **+**   [**~**]   **(ACCENT KEY)**
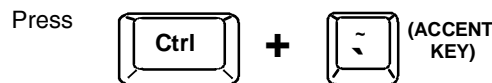
When the Command Mode is enabled, all 3 status lights on the keyboard will illuminate and both LED's on the VOPEX will blink continuously to indicate Command Mode is enabled. See the table below for functions that are available while in Command Mode.

NOTE: The user must exit Command Mode in order for the CPU to switch to the selected mode. To exit Command Mode, press ESC on the keyboard. The mouse will not operate while in Command Mode.

NOTE: While in Command Mode, when a proper programming command is entered and is recognized by the switch, the LED's on the keyboard will flash once to indicate acceptance. The user must exit Command Mode (by pressing ESC) to see a change take effect in the switch operation.

NOTE: The VOPEX will automatically exit Command Mode after 5 seconds of inactivity by the user if the user does not manually exit Command Mode.

The following functions exist while in Command Mode:

Key Combination	Description of Function
<X>-<key>-<Y>	Select a new key sequence to use to enter Command Mode – Replace <key> with the desired key to follow <Ctrl> with.
<L> - <x> - <x>	Select the country code of the keyboard being used with a USB SUN CPU (see **Country Codes** chart on page 6)
<V> - <Enter>	This will print the version of the code in the VOPEX to a text editor window (i.e. Windows Notepad) for use when troubleshooting the VOPEX. **Note**: The text editor should be open prior to entering Command Mode.
<M>	Configure the CPU port to connect to a MAC CPU (see "Mice and Trackballs with MACs" on pg. 6.
<W>	Configure the CPU port to connect to a Windows or SUN CPU
<D> - <x>	Select the operating mode, x=1 for Instantaneous Mode, x=2 for Delay Mode, x=3 User 1 Mode, x=4 for User 2 mode, x=5 for User 3 mode, x=6 for User 4 mode. (Modes are described in the table on page 5.)
<P> - <x>	Select the default mode to have the VOPEX enter upon power-up.
<Esc>	Exit Command Mode

Mice and Trackballs with MACs

The VOPEX can be configured to enable full functionality between mice and trackballs having two or more buttons and a USB MAC CPU. By default, the CPU port on the VOPEX is configured for use with a WINDOWS or SUN CPU and has no special translation for using multi-function mice and trackballs when a MAC CPU is connected. Using the commands in Command Mode above, either enable or disable this feature as needed.

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

International SUN Keyboards

The VOPEX can recognize international layouts for Sun keyboards. To use an international Sun keyboard, follow this procedure:

1. Disconnect the CPU from the VOPEX
2. Connect the international keyboard to be used to the VOPEX
3. Power down the VOPEX for at least 3 seconds
4. Power up the VOPEX
5. Reconnect the CPU to the VOPEX

It is also possible to configure the VOPEX 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 VOPEX to indicate the international keyboard identification number to the CPU using the following procedure:

1. Connect the keyboard to be used to the VOPEX
2. Power down the VOPEX for at least 3 seconds
3. Power up the VOPEX
4. Enter Command Mode (<Ctrl> - <`>)
5. Type Lxx, where xx is the number from the list below that corresponds to the desired country code
6. Exit Command Mode
7. Power down the VOPEX for at least 3 seconds
8. Power up the VOPEX
9. Reboot the CPU connected to the VOPEX

Country Codes

00	Not Supported	10	Greek	20	Persian (Farsi)	30	Taiwan
01	Arabic	11	Hebrew	21	Poland	31	Turkish
02	Belgian	12	Hungary	22	Portuguese	32	UK
03	Canadian-Bilingual	13	International (ISO)	23	Russia	33	US
04	Canadian-French	14	Italian	24	Slovakia	34	Yugoslavia
05	Czech Republic	15	Japan (Katakana)	25	Spanish	35-99	Reserved
06	Danish	16	Korean	26	Swedish		
07	Finnish	17	Latin American	27	Swiss/French		
08	French	18	Netherlands/Dutch	28	Swiss/German		
09	German	19	Norwegian	29	Switzerland		

Hub Ports

The three connections labeled "Hub Ports" can be used to connect any USB device, such as a printer, scanner, camera, touchscreen, etc. for continuous operation at USB 2.0 compliant (low or full) speeds. These ports are not controlled by the VOPEX.

AUDIO SUPPORT OPTION

If your VOPEX has the audio support option built-in (VOPEX-USBVA-2/4), there are 3.5mm stereo audio jacks for the connection of the audio from the CPU and to self-powered stereo speakers for each user.   Each user will receive audio signals at all times.

Audio support provides the following additional features:
- Audio signals from the same CPU that keyboard, mouse, and video signals are from can be received by each user.
- Audio inputs accept any standard line level audio (4Vp-p).
- Audio outputs are capable of driving self-powered speakers or headphones.

A SA-3-MM 3-foot 3.5mm stereo audio cable has been provided to connect the audio from the CPU to the VOPEX (Additional 3,6,10,15,25,35,50 and 100 foot lengths are available from NTI).

User audio ports

Audio In port for connection from CPU

SPECIFICATIONS

Size: Each unit is 8.5"W x 6"D x 2.6"H

Power: Powered by 120 or 240VAC @ 50 or 60Hz-5VDC/2.0A AC Adapter (2-Port VOPEX) or 6.0A AC Adapter (4-Port VOPEX)

Connections: 15HD VGA & SGA compatible
USB Type A female device connectors
USB Type B female CPU connector

TROUBLESHOOTING

<u>**PROBLEM**</u>
- Keyboard error
- Mouse not working
- No Video

<u>**SOLUTION**</u>
- Check cable connections on CPU and VOPEX
- Check cable connections on CPU and VOPEX
- Make sure a monitor is connected to "MONITOR 1"
- Check cable connections on CPU and VOPEX

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