KVM Extenders

KVME 1080 Series

KVM Extenders - extends keyboard, VGA/RGB video, DVI, mouse, serial and audio ports; Multi- Mode & Single-Mode models

USER'S MANUAL

VER. 1.2C• Mar-10

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Revision History		
Revision #	**Description**	**Date of Issue**
1.0B	Initial Release	July 2009
1.0C	Revision	February 23, 2010
1.1C	Revision	February 28, 2010
1.2C	Add KVME 1080CS-SCA & KVME 1080CSF-SCA models	March 3, 2010

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PREFACE

Conventions Used in this Manual

As you read this manual you will notice certain conventions that bring your attention to important information. These are **Notes** and **Warnings**. Examples are shown below.

Note: Important Notes appear in blue text preceded by a yellow exclamation point symbol, like this.

A note is meant to call the reader's attention to helpful information at a point in the text that is relevant to the subject being discussed.

Warning! All Warnings appear in red text, followed by blue text, and preceded by a red stop sign, like this.

A warning is meant to call the reader's attention to critical information at a point in the text that is relevant to the subject being discussed.

Before starting any procedure, it is recommended that you read the instructions thoroughly before proceeding.

INTRODUCTION

CyberResearch® KVM Extension Systems are designed for high performance visual applications that require video as well as peripheral support. (*CyberResearch®* KVM Extension System-5 supports DVI or RGB.) The system allows users, via optical fiber, to station and operate a digital monitor(s) and peripherals from just a few meters away to up to 40 kilometers away from the controlling computer securely and without loss of resolution. The *CyberResearch®* KVM system is designed to support PS2, full duplex stereo audio, serial (RS-232), USB 1.0 (HID), USB 1.1. Available options include USB 2.0 (up to 480 Mbps) device ports.

CyberResearch® KVM products are ideally suited for a wide range of applications in the broadcast and post-production field, as well as command and control centers, universities, large scale digital signage and other commercial KVM applications.

Models Covered in this Publication

Model Number	Description
KVME 1080A-LC	KVM Extender (extends keyboard, VGA/RGB video, DVI, mouse, serial & audio ports up to 3300 ft), Multi Mode, Duplex LC Fiber Connectors
KVME 1080A-SC	KVM Extender (extends keyboard, VGA/RGB video, DVI, mouse, serial & audio ports up to 3300 ft), Multi Mode, Duplex SC Fiber Connectors
KVME 1080A-ST	KVM Extender (extends keyboard, VGA/RGB video, DVI, mouse, serial & audio ports up to 3300 ft), Multi Mode, Duplex ST Fiber Connectors
KVME 1080CS-SCA	KVM Extender (extends keyboard, VGA/RGB video, DVI, mouse, serial & audio ports up to 6 miles), Duplex Single Mode, Dual SC/APC Fiber Connectors; USB 2.0
KVME 1080CSF-SCA	KVM Extender (extends keyboard, VGA/RGB video, DVI, mouse, serial & audio ports up to 6 miles), Single Mode, Single/Simplex SC/APC Fiber Connector; USB 2.0

Theory of Operation

MRTS Technology 6.25 Gbps. Allows for Full Frame Rate Transmission of Uncompressed DVI

Powered by cutting edge, patent-pending MRTS (Multi Rate Transmission System) technology, this KVM extension system transports every frame of a DVI video stream seamlessly, with no compression or dropped frames. In addition, all high speed peripherals function with no latency. Leveraging standard SFP+ transceivers, the system allows for the use of either multi-mode or single-mode fiber optic cable.

The System

The *CyberResearch®* KVM Extension System has a simple transmitter/receiver design which allows for ease of installation and straight-forward deployment. Depending on the user's infrastructure, the transmitter and the receiver can be connected by a multi-mode or single-mode fiber optic cable. The transmitter unit connects to the CPU with the supplied peripheral cables. In addition, a local video, keyboard and mouse port is available on the transmitter. The receiver unit provides connections to the user interface devices.

Why Fiber…and Why Multi-Mode Fiber?

The limit on how much bandwidth or data that can be carried across a copper line can become a bottleneck for enterprise access and ultimately, for revenue. This bottleneck often appears in heavy-volume, metropolitan area networks. Multi-Mode Optical Fiber alleviates this problem by offering substantially greater bandwidth.

KVM Distance (up to 350m)

Multi-mode fiber is designed for transmission distances such as those found within a single building or facility and thus, is ideal for multi-channel television broadcast systems. Multi-mode fiber may be used to send video signals from room to room or floor to floor. The *CyberResearch®* KVM allows for video and peripheral transmission distances up to 350 meters, making it an ideal solution for in-house applications.

Advanced Top Quality Video Transmission

Multi-mode fiber has emerged as a solution for next-generation signal routing. The *CyberResearch®* KVM product harnesses this capability and ensures long distance, error-free transmission with no frame or bit dropping and complete immunity to interference. The end result is ***no degradation of the video or peripheral signal whatsoever.***

Connection Diagram

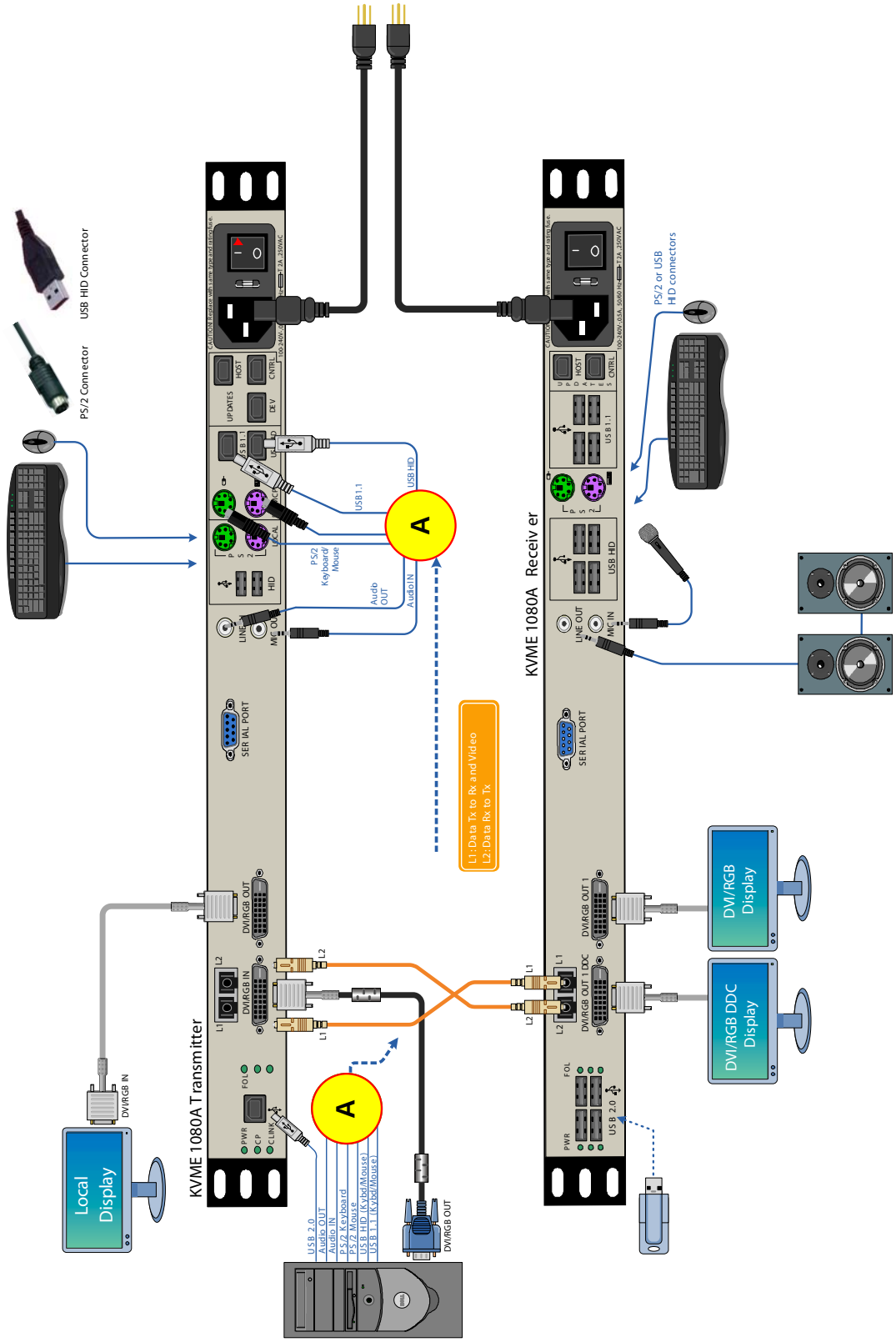
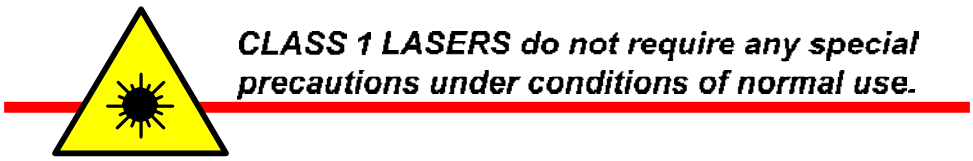


Figure 1: The KVME 1080A Multi-Mode Fiber Extension System

System Features

Each KVM Multi-mode Fiber system includes the following features:

- Supports all single-link DVI video resolutions (KVM Extension. System-5 supports one single-link DVI or RGB and all single-link DVI resolutions).
- 6.25 Gbps signal transmission via fiber optic cable; No RF interference.
- Requires one, two, three or four fiber optic cables depending on application.
- Flawless image quality, with no frame dropping.
- Local KVM connections on transmitter.
- Additional video output(s) on the receiver.
- Extends KVM audio and serial signals up to 350 meters using standard multi-mode fiber; 1000 meters using eSX+ multi-mode fiber; 40 kilometers using single-mode fiber.
- USB HID compliant, 4-port hub.
- Full USB 1.1 compliant, 4-port hub.
- USB 2.0 compliant (high speed 480 Mbps, 4 port hub).
- DDC2B/EDID complaint.
- Full keyboard and mouse emulation through the transmitter.
- Full duplex stereo audio.
- Simple plug and play.
- KVM Extenders are designed and identified as Class 1 Laser products.



Technical Specifications

KVME 1080A-SC, KVME 1080A-LC, KVME 1080A-ST

Product Information			
Mounting Configuration			Rack-mount (EIA RS-310C Standard 19") Desktop / benchtop
Construction Material			Steel
Display Input			Standard analog VGA (15-pin) DVI (Digital Visual Interface)
Max. Transmission Distance			3280.84ft (1000m)
Video	Max. Video Resolution Supported		1920 x 1200 pixels
	Video Signals Supported	Analog	Analog VGA (standard for CRT or flat-panel)
		Digital	DVI/PaneLink (flat-panel)
	Video Details		• Supports RGB & DVI resolutions up to 1920x1200 • Full-frame rate transmission of uncompressed DVI video stream with no frame dropping • Universal conversion between digital DVI and analog VGA (provide signal to either video input on the transmitter, and use either type of monitor at the receiver)
Audio			Full duplex stereo audio support
Indicators	Display / Indicators		Backlit LCD display on front panel displays menu choices, membrane buttons provide menu navigation
Product Details			• All signals are digitized by the transmitter and sent over 2 fibers, then reconstituted by the receiver • Only requires 2 multimode fibers for transmission, with standard connectors • Connectors for a local keyboard, monitor, and mouse at transmitter (PC) end, making it easy to have user interfaces at the transmitter AND at the receiver

			• Full support for PS/2 and USB keyboards and mice • RS-232 serial port can be used to connect to an external sensor • Versions available for SC fiber connectors(KVME 1080A-SC), ST connectors(KVME 1080A -ST), and for LC (KVME 1080A -LC)
Transmitter			
Video Connectors	Video Connectors #1	Connector	2 x DVI-I Single Link (23-pin) connector
		Connector Gender	Female (socket)
Keyboard Connector	Connectors		1xPS/2 (6-pin mini-DIN female) USB (Type A / rectangular female)
Pointing Device Connector	Connectors		PS/2 (6-pin mini-DIN female) USB (Type A / rectangular female)
Serial Ports	Number of RS-232 Serial Ports		1
	Connector		DB-9 (9-pin)
	Connector Gender		Female (socket)
USB Ports	Connector		2 USB male plugs (Type B / square)
Audio Connectors	Speaker Connectors		Mini jack 1/8 inch stereo (3 conductor)
	Mic Connectors		2 x mini jacks 1/8 inch mono (2 conductor, L/R)
Transmission Connector	Number of Connectors		2
	Connector		LC/LC-Duplex fiber optic
	Connector Gender		Female (socket)
Power Connector	Number of Connectors		1
	Connector		NEMA standard PC power connector (3-pin)
	Connector Gender		Male (pin)
Additional Connectors for Local Use			3 additional USB Type B male plugs for host, device, and control download updates
Receiver			
Video Connectors	Video Connectors #2	Number of Connector Sets	1
		Video Output Connectors	DVI-I Single Link (23-pin) connector
		Connector Gender	Female (socket)
Keyboard Connector	Connectors		1xPS/2 (6-pin mini-DIN female) USB (Type A / rectangular female)
Pointing Device Connector	Connectors		PS/2 (6-pin mini-DIN female) USB (Type A / rectangular female)
Serial Ports	Number of RS-232 Serial Ports		1

	Connector	DB-9 (9-pin)
	Connector Gender	Male (pin)
USB Connectors	Connector	2 standard female USB sockets (Type A / rectangular)
Audio Connectors	Speaker Connectors	Mini jack 1/8 inch stereo (3 conductor)
	Mic Connectors	2 x mini jacks 1/8 inch mono (2 conductor, L/R)
Transmission Connector	Number of Connectors	2
	Connector	LC/LC-Duplex fiber optic
	Connector Gender	Female (socket)
Power Connector	Number of Connectors	1
	Connector	NEMA standard PC power connector (3-pin)
	Connector Gender	Male (pin)
Cable		
Max. Length of Fiber Optic Cable Supported		3280.84ft (1000m)
Cabling Details		• Keyboard, video, mouse, and audio cables included • 50 or 62.5 micron fiber-optic cable sold separately • On multi-mode models, extends signal up to 750m using SC+ multi-mode fiber, up to 1000m using eSX+ multi-mode fiber • On single-mode models, extends signal up to 10km, SC/APC cables recommended
Power Supply		
Power Supply Form Factor		Built-in (integral)
Nominal Input Voltage		110/220VAC
Input Voltage Range(s)		100...240VAC
Input Frequency		47...63Hz
Power Input Connector(s)		NEMA standard male PC cord socket
Power Consumption		
Power Consumption Details		40W per unit typical
Environmental Specifications		
Operating Temperature		32°F....122°F (0°C....50°C)
Storage Temperature		-4°F....158°F (-20°C....70°C)
Relative Humidity, noncondensing		5%....95%
Safety & Standards Compliance		
Video Standards Compliance		DDC2B EDID

KVME 1080CS-SCA and KVME 1080CSF-SCA

Product Information			
Mounting Configuration			Rack-mount (EIA RS-310C Standard 19") Desktop / benchtop
Construction Material			Steel
Display Input			Standard analog VGA (15-pin) DVI (Digital Visual Interface)
Max. Transmission Distance			3280.84ft (1000m)
Video	Max. Video Resolution Supported		1920 x 1200 pixels
	Video Signals Supported	Analog	Analog VGA (standard for CRT or flat-panel)
		Digital	DVI/PaneLink (flat-panel)
	Video Details		• Supports RGB & DVI resolutions up to 1920x1200 • Full-frame rate transmission of uncompressed DVI video stream with no frame dropping • Universal conversion between digital DVI and analog VGA (provide signal to either video input on the transmitter, and use either type of monitor at the receiver)
Audio			Full duplex stereo audio support
Indicators	Display / Indicators		Backlit LCD display on front panel displays menu choices, membrane buttons provide menu navigation
Product Details			• All signals are digitized by the transmitter and sent over 2 fibers, then reconstituted by the receiver • Only requires 2 multimode fibers for transmission, with standard connectors • Connectors for a local keyboard, monitor, and mouse at transmitter (PC) end, making it easy to have user interfaces at the transmitter AND at the receiver • Full support for PS/2 and USB keyboards and mice

			• RS-232 serial port can be used to connect to an external sensor • Versions available for SC fiber connectors, ST connectors, and for LC connectors - order the model that matches your existing fiber infrastructure
Transmitter			
Video Connectors	Video Connectors #1	Connector	2 x DVI-I Single Link (23-pin) connector
		Connector Gender	Female (socket)
Keyboard Connector	Connectors		1xPS/2 (6-pin mini-DIN female) USB (Type A / rectangular female)
Pointing Device Connector	Connectors		PS/2 (6-pin mini-DIN female) USB (Type A / rectangular female)
Serial Ports	Number of RS-232 Serial Ports		1
	Connector		DB-9 (9-pin)
	Connector Gender		Female (socket)
USB Ports	Connector		2 USB male plugs (Type B / square)
Audio Connectors	Speaker Connectors		Mini jack 1/8 inch stereo (3 conductor)
	Mic Connectors		2 x mini jacks 1/8 inch mono (2 conductor, L/R)
Transmission Connector	Number of Connectors		2
	Connector		SC/APC fiber optic
	Connector Gender		Female (socket)
Power Connector	Number of Connectors		1
	Connector		NEMA standard PC power connector (3-pin)
	Connector Gender		Male (pin)
Additional Connectors for Local Use			3 additional USB Type B male plugs for host, device, and control download updates
Receiver			
Video Connectors	Video Connectors #2	Number of Connector Sets	1
		Video Output Connectors	DVI-I Single Link (23-pin) connector
		Connector Gender	Female (socket)
Keyboard Connector	Connectors		1xPS/2 (6-pin mini-DIN female) USB (Type A / rectangular female)
Pointing Device Connector	Connectors		PS/2 (6-pin mini-DIN female) USB (Type A / rectangular female)
Serial Ports	Number of RS-232 Serial Ports		1
	Connector		DB-9 (9-pin)
	Connector Gender		Male (pin)

USB Connectors	Connector	2 standard female USB sockets (Type A / rectangular)
Audio Connectors	Speaker Connectors	Mini jack 1/8 inch stereo (3 conductor)
	Mic Connectors	2 x mini jacks 1/8 inch mono (2 conductor, L/R)
Transmission Connector	Number of Connectors	2
	Connector	SC/APC fiber optic
	Connector Gender	Female (socket)
Power Connector	Number of Connectors	1
	Connector	NEMA standard PC power connector (3-pin)
	Connector Gender	Male (pin)
Cable		
Signal extension		Max: 6 miles
Cabling Details		• Keyboard, video, mouse, and audio cables included • 50 or 62.5 micron fiber-optic cable sold separately • KVME 1080CSF-SCA Single Mode, Single/Simplex SC/APC Fiber Connectors • KVME 1080CS-SCA: Duplex Single Mode, Single/Simplex SC/APC Fiber Connectors
Power Supply		
Power Supply Form Factor		Built-in (integral)
Nominal Input Voltage		110/220VAC
Input Voltage Range(s)		100...240VAC
Input Frequency		47...63Hz
Power Input Connector(s)		NEMA standard male PC cord socket
Power Consumption		
Power Consumption Details		40W per unit typical
Environmental Specifications		
Operating Temperature		32°F....122°F (0°C....50°C)
Storage Temperature		-4°F....158°F (-20°C....70°C)
Relative Humidity, noncondensing		5%....95%
Safety & Standards Compliance		
Video Standards Compliance		DDC2B EDID

HARDWARE

Contents

When you receive your *CyberResearch®* KVM Extender, you should find the following items:

- **KVM Extender Transmitter**
- **KVM Extender Receiver**
- **AC power cord, (International connections may differ) – Qty 2**
- **KVM Extender Cables**
  - **Video Cable, 2 Meters**
  - **Audio Cable Kit (8 pcs.), 6 Feet,**
- **CyberResearch® KVM Extender Product Manual CD**
- **Product Quick Start Guide**

All physical connections to the product use industry-standard connectors.

Desktop or Rack Mount Device

You may choose to place your unit on a shelf or desktop (rubber feet included), or rack mount it using the supplied mounting brackets (EIA 19" rack mountable). The front panel should be visible and unobstructed so that the front panel buttons and LCD display are accessible. All connections are made to the rear of the chassis. The *CyberResearch®* KVM Extender chassis does not need to be opened or accessed. The sturdy metal case allows units to be stacked as needed.

Note

Maximum of four units per stack with a minimum of two inches of clearance between stacks for adequate ventilation.

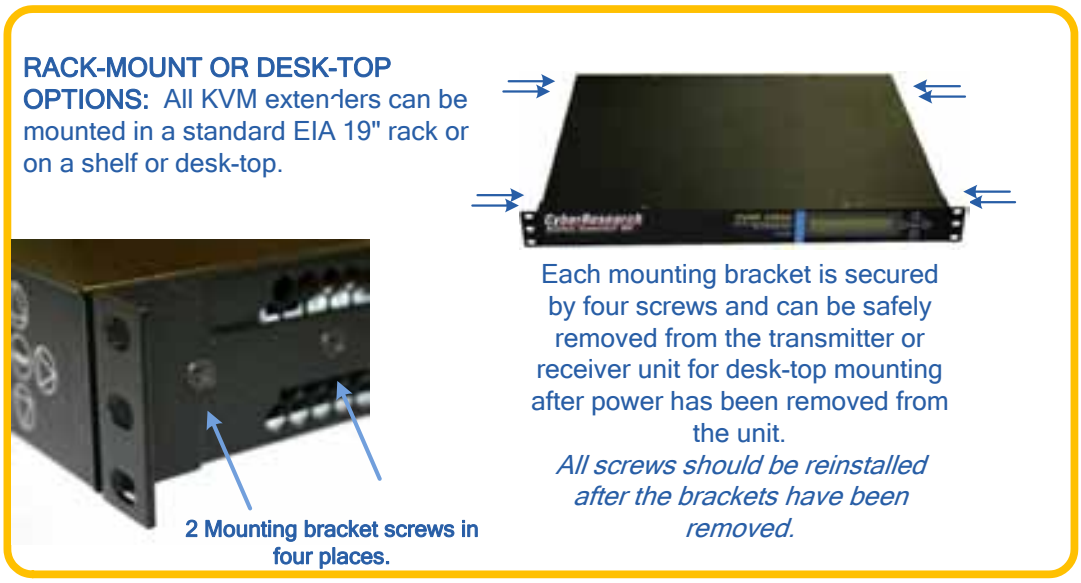


Figure 2: Mounting Bracket Removal

Cooling

The *CyberResearch*® Extender System uses two DC fans to move air horizontally through the enclosure.

Note: Be sure to leave adequate ventilation space on both sides of the units (2" minimum), especially if the units are being stacked

Front Panel Display and Buttons

The front-panel LCD display should be visible and accessible for system setup. The front panel buttons are used to configure special video settings and to review existing KVM Extender configurations. More detailed information on the Front Panel can be found in the **Front Panel Usage** section.

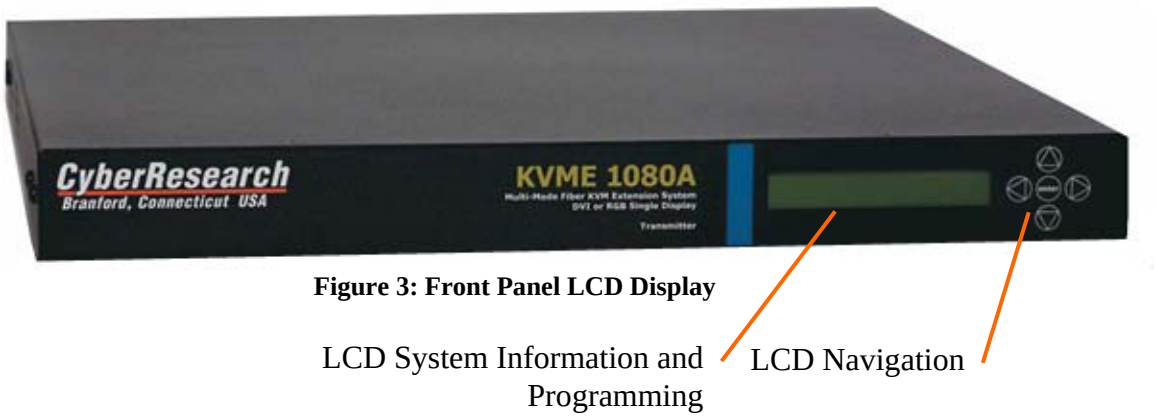


Figure 3: Front Panel LCD Display

Connecting the CyberResearch® KVM Extender

Types of Connections

All physical connections to the product use industry-standard connectors. Non-supplied cables that may be needed are commercially available. All connections are found on the rear of the unit.

Fiber Cable

Fiber optic cables run between the Transmitter unit (near your CPU) and the Receiver unit (near your desktop devices). The standard multi-mode fiber optic cables must be 50 or 62.5 micron, terminated with LC, ST or SC- type fiber optic connectors. Be careful not to kink or pinch the fiber optic cable as it is being installed and keep all bend radii to no less than 3 inches (76.2mm).

Transmitter

The transmitter unit connects to the computer at the DVI In port using a DVI-D male-to-male cable which is supplied with the system. The connections to the KVM Extender Transmitters can be viewed in detail in the Rear Panel View section of this manual.

Receiver

The receiver unit connects to a video monitor using a DVI-D male-to-male cable. Peripherals connect with their own standard cables. The connections to the KVM Extender Receivers can be viewed in detail in the Rear Panel View section of this manual.

Serial Port

The serial port is a DB9 male connector. This DB9 interface connects to your external sensor, external lighting, etc., if needed; using a DB9 Male to DB9 Female Cable is supplied, which is provided with the system).

Rear Panel View

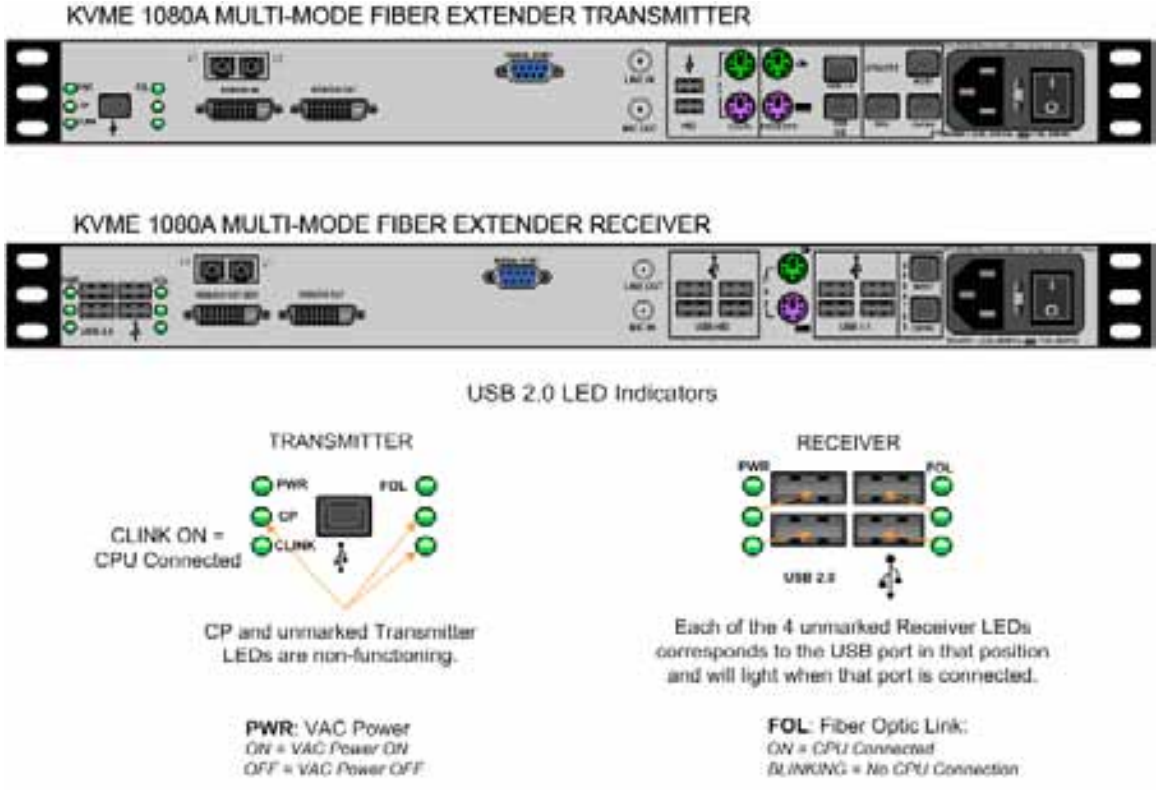
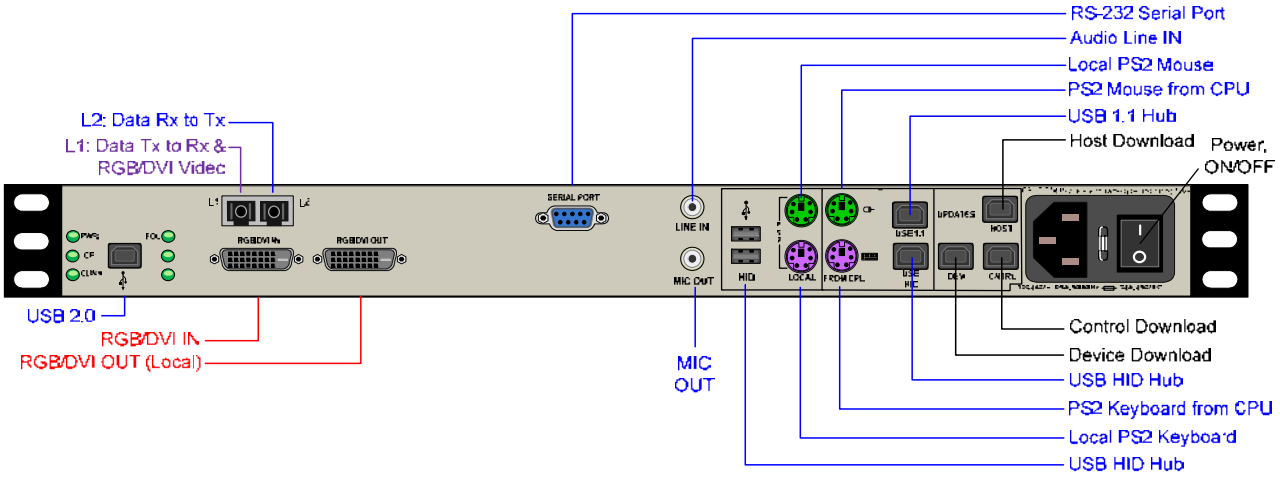


Figure 4: KVME 1080A Rear Panels and LEDs

Hardware Connections

In the following hardware connection diagrams DATA is in blue, VIDEO is in red and Optical Fiber L1, which carries both DATA from Tx to Rx and VIDEO, is in purple. Other features are shown in black.

KVME 1080A MULTI-MODE FIBER EXTENDER TRANSMITTER (with RGB)



KVME 1080A MULTI-MODE FIBER EXTENDER Receiver (with RGB)

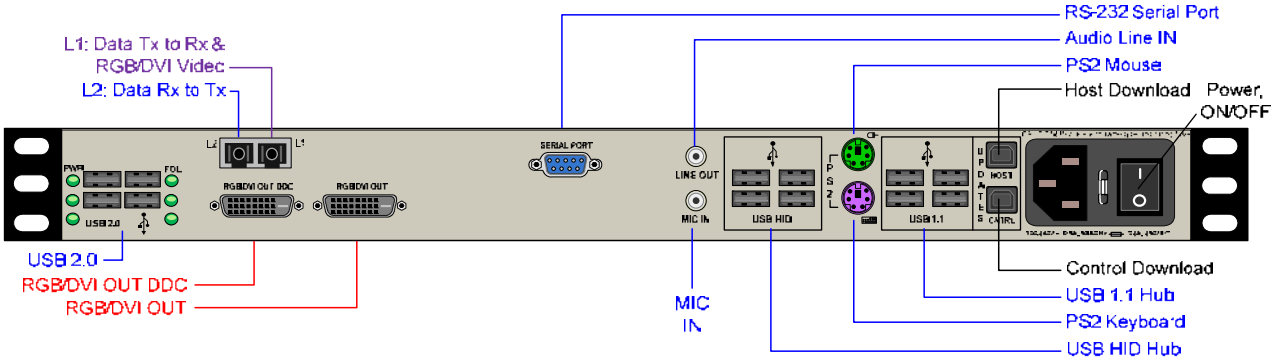


Figure 5: RGB/DVI 1 Display

Cables

Single-link: DVI-D Male Cable, 2 Meters, Qty 1

Dual-link: DVI-D Male Cable, 2 Meters, Qty 1

HD15 to DVI-D Male Cable, 2 Meters, Qty 1

Audio Cable Kit (8 pcs.)– Qty 1, all models

2 each – 6 pin mini din (6')
2 each – USB A-B (6')
2 each – 3.5mm to 3.5mm plug (6')
1 each – DB9M to DB9F (6')
1 each – BNC male to male, 50 ohm (6')

Figure 6: Included Cables

Installation

All physical connections to the product use industry-standard connectors. Non-supplied cables that may be needed are commercially available. All connections are found on the rear of the unit.

Set-Up

Firmware Upgrades

Firmware upgrades are available through CyberResearch, Inc. Please call for technical assistance at: (203) 643-5000.

Front Panel Usage

Figure 7: KVM-Extender LCD Display & Controls

LCD System Information and Programming

LCD Navigation

General Front Panel Usage

Once the system is powered up, the initial Transmitter display is shown as follows:

Figure 8: Transmitter Display on Power-up

The company name is listed on the first line of the display. The model and software version (VXX.XX) of the unit is displayed on the second line.

By pressing the down arrow  the Extender allows you to enter into the main menu. **The main root menu items are displayed with an *.** They are as follows:

Figure 9: System Root Menu Item

Figure 10: DCC Root Menu Item

Once a * root menu item is displayed, you can then use the left arrow or right arrow to review settings or make changes, if allowed. The KVM Extender menu functionality is as follows:

Some menu options may not be available on some models.

TRANSMITTER:

Display	Modifiable	Description
***System**		
LS Connected	NO	An indication of the fiber status from the TX to RX.
Tx Ctrl Name	TX	Only Name entered on TX unit is displayed on RX unit.
Load Defaults	YES	Loads factory default video configurations
Store Values	YES	Store video configurations.
KM Device CPU.		NO Revision of the portion that plugs into
KM Remote Host	NO	Revision of the KM Host on the RX unit.
KM Local Host	NO	Revision of the KM Host on the TX unit.
TX Control control.	NO	Revision of the TX unit laser and front panel
RX Control control.	NO	Revision of the RX unit laser and front panel
FPGA Version	NO	Revision of the FPGA used for video generation.
Serial Number digits	NO	2 digits each for DDMMYY and 2 or 3 unique
Debug Values	YES	Factory Use.
Aud/USB Reset En	YES	Enable/disable USB 1.1 reset, lost Tx/Rx link
SFP Loss of Signal	NO	Indicates loss of SFP signal

Temp in Celsius	NO	IN=PCB temp (max=70) EX=FPGA temp (max=85)
KMASS Card ID	NO	0E = original
Video Card ID	NO	08=single 09=dual head 0A=dual link 0B=RGB
USB 2.0 Card ID	NO	08=original 09=SoDimm

Display	Modifiable	Description
***DCC**		
*DDC PROM Emula. Mode	YES	Options are Dynamic, Static and Passthru. In **Dynamic mode**, the DDC of the monitor connected to the RX is read and stored on the TX. The CPU is informed of a change in DDC and the monitor is read. This is useful when the CPU can be turned on without a connection to the RX. **Static mode** is used to maintain the current DDC regardless of monitor changes at the RX. **Passthru mode** makes the DDC pins look like direct connections between the TX and RX, allowing the computer to talk directly to the monitor.
Load Default DDC	YES	Loads the default DDC stored in the application which allows1024x768. This puts the TX into static mode.
Acquire DDC	YES	Gets the DDC table of the unit attached, stores the information and puts the TX in static mode.
Force DDC Mode	YES	Used to force the DDC of a monitor to appear as either digital or analog. Since the KVM products can convert between analog and digital, sometimes the DDC has to be modified to match the method of connecting the TX to CPU.

RECEIVER:

Display	Modifiable	Description
***System**		
LS Connected	NO	An indication of the fiber status from the TX to RX.
Tx Ctrl Name	TX Only	Name entered on TX unit is displayed on RX unit.
KM Device	NO	Revision of the portion that plugs into CPU.
KM Remote Host	NO	Revision of the KM Host on the RX unit.

Display	Modifiable	Description
KM Local Host	NO	Revision of the KM Host on the TX unit.
TX Control	NO	Revision of the TX unit laser and front panel control.
RX Control	NO	Revision of the RX unit laser and front panel control.
FPGA Version	NO	Revision of the FPGA used for video generation.
Serial Number	NO	2 digits each for DDMMYY and 2 or 3 unique digits
Debug Values	YES	Factory Use.
Aud/USB Reset En	YES	Enable/disable USB 1.1. Reset for lost Tx/Rx link.
SFP Loss of Signal	NO	Indicates loss of SFP signal
Temp in Celsius	NO	IN=PCB temp (max=70) EX=FPGA temp (max=85)
KMASS Card ID	NO	0E=original
Video Card ID	NO	08=single, 09=dual head, 0A=dual link, 0B=RGB
USB 2.0 Card ID	NO	08=original, 09=SoDimm

Display	Modifiable	Description
***PS2 Devices**		
PS2 KB Scan	NO	Value of 1, 2 or 3 for the scan code. 0= not properly connected to the CPU.
PS2 Mouse Mode	NO	Value of 0, 3 or 4 for the mode. 255= mouse not properly connected to the CPU.

Display	Modifiable	Description
***USB Country Code**		
USB Country	NO	The country code of the USB KB that the unit reports itself as

Display	Modifiable	Description
		being. This is the last USB KB country applied to the remote host. Most hardware is not localized and thus this value would be zero (0), which is displayed as “Not Supported”
USB Device Enum	NO	A bit pattern that indicates which ports have been enumerated at the device side. The bits are laid out as Bit0=KB, Bit1=MS, Bit2=TBLT, Bit3=DWNLD, Bit4=Daughter Card_KB, Bit5=Daughter_MS, Bit6=Daughter_TBLT.

Display	Modifiable	Description
***DCC**		
*DDC PROM Emula. Mode	YES	Options are Dynamic, Static and Passthru. In **Dynamic mode**, the DDC of the monitor connected to the RX is read and stored on the TX. The CPU is informed of a change in DDC and the monitor is read. This is useful when the CPU can be turned on without a connection to the RX. **Static mode** is used to maintain the current DDC regardless of monitor changes at the RX. **Passthru mode** makes the DDC pins look like direct connections between the TX and RX, allowing the computer to talk directly to the monitor.
Load Default DDC	YES	Loads the default DDC stored in the application which allows1024x768. This puts the TX into static mode.
Acquire DDC	YES	Gets the DDC table of the unit attached, stores the information and puts the TX in static mode.
Force DDC Mode	YES	Used to force the DDC of a monitor to appear as either digital or analog. Since the KVM products can convert between analog and digital, sometimes the DDC has to be modified to match the method of connecting the TX to CPU.

Display	Modifiable	Description
***Video**		
Video Tx 1 cnt.	NO	Video IN 1 pixel sample clock (TX)
Video Rx 1 cnt.	NO	Video IN 1 pixel sample clock (RX)
Video Tx 2 cnt.	NO	Video IN 2 pixel sample clock (TX)
Video Rx 2 cnt.	NO	Video IN 2 pixel sample clock (RX)
TX 1 Stream Info	NO	Video Channel 1 ID
TX 2 Stream Info	NO	Video Channel 2 ID
PropConst	YES	Factory default setting for debug
IntegConst	YES	Factory default setting for debug

Saving Changes

Save video configurations so that after powering up, the device can recall customer video settings.

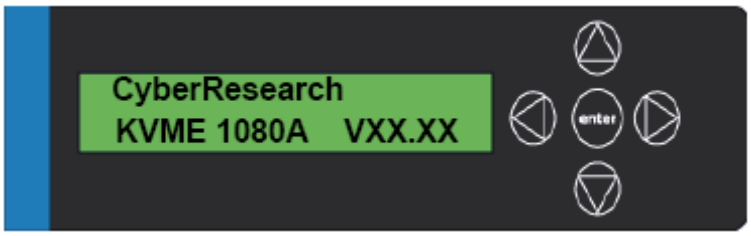


Figure 11: Save Video Configuration

Using the down arrow, scroll down to ***System** as shown below.

Figure 12: *System

Using the right arrow, scroll right until **Store Values** is displayed as shown below, then press **enter**.

Figure 13: Store Values

Using the up arrow or down arrow scroll until **Yes** appears as shown below. Then press **enter**.

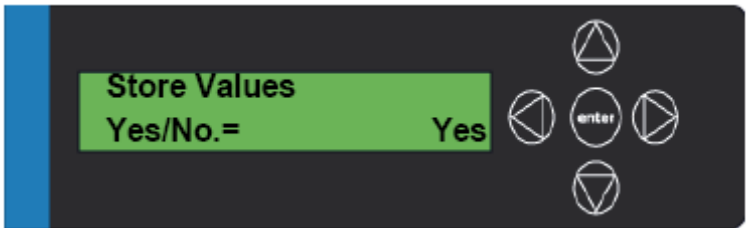


Figure 14: Select Yes

Using the right arrow or left arrow scroll until you return to the ***System** menu option. Using up arrow or down arrow, scroll until you get to the **CyberResearch** screen as shown below.

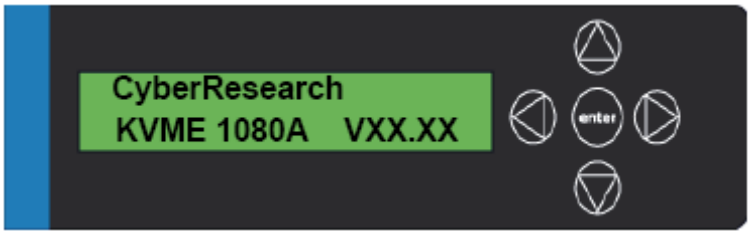


Figure 15: Return to CyberResearch Screen

Restoring Factory Defaults

Load factory default video configurations.

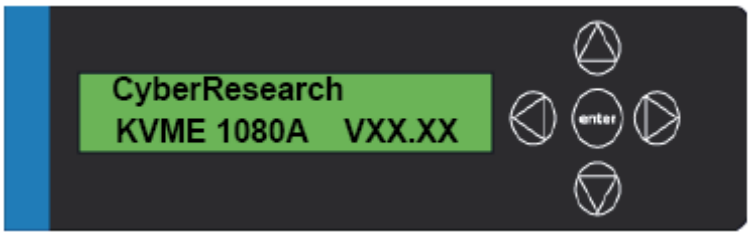


Figure 16: CyberResearch Home Screen

Using the down arrow, scroll down to ***System** as shown below.

Figure 17:*System

Using the right arrow button, scroll right until **Load Defaults** is displayed as shown below. Then press **enter**.

Figure 18: Load Defaults

Using the up arrow or down arrow, scroll until **Yes** appears as shown below. Then press **enter**.

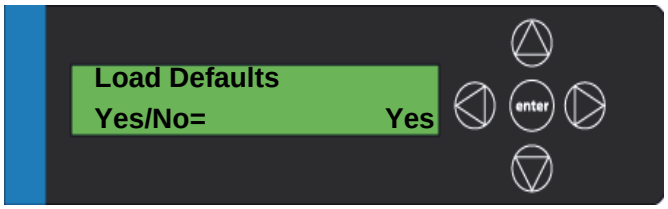


Figure 19: Choose "Yes"

Follow the steps below to save your changes:

Using the down arrow, scroll down to ***System**.
Using the right arrow, scroll right until **Store Values** is displayed. Then press **enter**.
Using the up or down arrow, scroll until **Yes** appears. Then press **enter**.
Using the right or left arrow, scroll to return to the ***System** menu option.
Using up or down arrow, scroll until you get to the **CyberResearch** screen.

Naming the Transmitter Unit

Modify the name of the unit through the Transmitter. The name entered on the Transmitter will display on the Receiver unit.

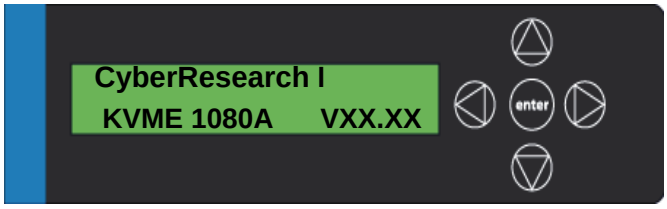


Figure 20: CyberResearch Home Screen

Using the arrow down button, scroll down to ***System** as shown below.

Figure 21: *System

Using the right arrow, scroll right until **Tx Ctrl** is displayed as shown below. Then press **enter**.

Figure 22: Tx Ctrl

Using the right or left arrow, scroll until the blinking cursor is under the letter/number you want to change.

Figure 23: Change Character

Using the up or down arrow, scroll (holding down the up or down arrow will scroll faster) until you find the appropriate letter/number. Then press **enter.**

Figure 24: Edit

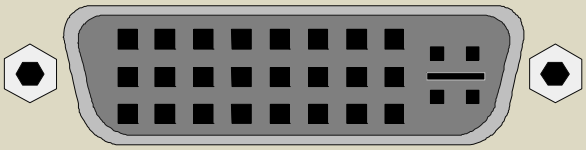
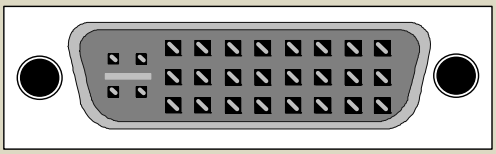
Using the right or left arrow, scroll to return to the ***System** menu option.

Figure 25: Return to *System

Follow the steps below to save your changes:

1. Using the down arrow, scroll down to ***System**.
2. Using the right arrow, scroll right until **Store Values** is displayed. Then press **enter**.
3. Using the up or down arrow, scroll until **Yes** appears. Then press **enter**.
4. Using the right or left arrow, scroll to return to the ***System** menu option.
5. Using up or down arrow, scroll until you get to the **CyberResearch** screen.

For order of installation events, see the Quick Start Guide that accompanies your product.

If CPU has any of the following connectors:	Use corresponding cables:
 **DVI-I CONNECTOR PANEL**	 **DVI-I CONNECTOR CABLE** **OR** **DVI-A CONNECTOR CABLE**
DVI-D CONNECTOR PANEL	**DVI-D CONNECTOR CABLE**

Note

The following Safety and Compliance Declarations are pending approval.

Regulatory & Safety Compliance

Safety Requirements

Symbols found on the product

Markings and labels on the product follow industry-standard conventions. Regulatory markings found on the products comply with domestic and many international requirements.

Regulatory Compliance

The KVM Extender products are designed and made in the U.S.A. The KVM Extender products have been tested by a certified testing laboratory and found to be compliant with the following standards (both domestic USA and many international locations).

North America

These products comply with the following standards:

Safety

ANSI/UL60950-1: 1st Edition (2003)

CAN/CSA C22.2 No. 60950-1-03

LASER Safety

CDRH 21CFR 1040.10

Class 1 LASER Product

Electromagnetic Interference

FCC CFR47, Part 15, Class A

Industry Canada ICES-003 Issue 2, Revision 1

Australia & New Zealand

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

European Union

Declaration of Conformity

These products comply with the requirements of the Low Voltage Directive 72/23/EEC and the EMC Directive 89/336/EEC.

Standards with Which These Products Comply

Safety

CENELEC EN 60950-1, 1st Edition (2001)

LASER Safety

IEC60825:2001 Parts 1 and 2

Class 1 LASER Product

Electromagnetic Emissions

EN55022: 1994 (IEC/CSPIR22: 1993)

EN61000-3-2/A14: 2000

EN61000-3-3: 1994

Electromagnetic Immunity

EN55024: 1998 Information Technology Equipment-Immunity Characteristics

EN61000-4-2: 1995 Electro-Static Discharge Test

EN61000-4-3: 1996 Radiated Immunity Field Test

EN61000-4-4: 1995 Electrical Fast Transient Test

EN61000-4-5: 1995 Power Supply Surge Test

EN61000-4-6: 1996 Conducted Immunity Test

EN61000-4-8: 1993 Magnetic Field Test

EN61000-4-11: 1994 Voltage Dips & Interrupts Test

Supplementary Information

The following statements may be appropriate for certain geographical regions and might not apply to your location.

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigencies du Règlement sur le matérial brouilleur du Canada.

Warning! This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take corrective measures.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications in which case the user may be required to take adequate corrective measures at their own expense.

Note: This Class A digital apparatus complies with Canadian ICES-003 and has been verified as being compliant within the Class A limits of the FCC Radio Frequency Device Rules (FCC Title 47, Part 15, Subpart B CLASS A), measured to CISPR 22: 1993 limits and methods of measurement of Radio Disturbance Characteristics of Information Technology Equipment.

Note: The user may notice degraded audio performance in the presence of electromagnetic fields.

Note: If using a keyboard that is noise susceptible, a ferrite ring on the keyboard cable may be needed to comply with Immunity Requirements

Product Serial Number

The *CyberResearch®* KVM products have a unique serial number, imprinted on an adhesive label that is fixed to the bottom of the chassis. The serial number includes a date-code. The format for the date-code is 2 digits for the month, 2 digits for the day and 2 digits for the year, plus two or three digits for a unique unit number. This serial number is also found on the original shipping carton.

Connection to the Product

Connections and installation hardware for our products use industry-standard devices and methods. All wiring connections to the customer equipment are designed to minimize proprietary or customized connectors and cabling. Power connections are made with regionally appropriate power cords and approved methods.

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Product Service

Diagnosis and Debug

CyberResearch, Inc. maintains technical support lines staffed by experienced Applications Engineers and Technicians. There is no charge to call and we will return your call promptly if it is received while our lines are busy. Most problems encountered with data acquisition products can be solved over the phone. Signal connections and programming are the two most common sources of difficulty. CyberResearch support personnel can help you solve these problems, especially if you are prepared for the call.

To ensure your call's overall success and expediency:

1) Have the phone close to the PC so you can conveniently and quickly take action that the Applications Engineer might suggest.
2) Be prepared to open your PC, remove boards, report back-switch or jumper settings, and possibly change settings before reinstalling the modules.
3) Have a volt meter handy to take measurements of the signals you are trying to measure as well as the signals on the board, module, or power supply.
4) Isolate problem areas that are not working as you expected.
5) Have the source code to the program you are having trouble with available so that preceding and prerequisite modes can be referenced and discussed.
6) Have the manual at hand. Also have the product's utility disks and any other relevant disks nearby so programs and version numbers can be checked.

Preparation will facilitate the diagnosis procedure, save you time, and avoid repeated calls. Here are a few preliminary actions you can take before you call which may solve some of the more common problems:

1) Check the PC-bus power and any power supply signals.
2) Check the voltage level of the signal between SIGNAL HIGH and SIGNAL LOW, or SIGNAL+ and SIGNAL– . It CANNOT exceed the full scale range of the board.
3) Check the other boards in your PC or modules on the network for address and interrupt conflicts.
4) Refer to the example programs as a baseline for comparing code.

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Warranty Notice

CyberResearch, Inc. warrants that this equipment as furnished will be free from defects in material and workmanship for a period of one year from the confirmed date of purchase by the original buyer and that upon written notice of any such defect, CyberResearch, Inc. will, at its option, repair or replace the defective item under the terms of this warranty, subject to the provisions and specific exclusions listed herein.

This warranty shall not apply to equipment that has been previously repaired or altered outside our plant in any way which may, in the judgment of the manufacturer, affect its reliability. Nor will it apply if the equipment has been used in a manner exceeding or inconsistent with its specifications or if the serial number has been removed.

CyberResearch, Inc. does not assume any liability for consequential damages as a result from our products uses, and in any event our liability shall not exceed the original selling price of the equipment.

The equipment warranty shall constitute the sole and exclusive remedy of any Buyer of Seller equipment and the sole and exclusive liability of the Seller, its successors or assigns, in connection with equipment purchased and in lieu of all other warranties expressed implied or statutory, including, but not limited to, any implied warranty of merchant ability or fitness and all other obligations or liabilities of seller, its successors or assigns.

The equipment must be returned postage prepaid. Package it securely and insure it. You will be charged for parts and labor if the warranty period has expired.

Returns and RMAs

If a CyberResearch product has been diagnosed as being non-functional, is visibly damaged, or must be returned for any other reason, please call for an assigned RMA number. The RMA number is a key piece of information that lets us track and process returned merchandise with the fastest possible turnaround time.

PLEASE CALL FOR AN RMA NUMBER!

Packages returned without an RMA number will be refused!

In most cases, a returned package will be refused at the receiving dock if its contents are not known. The RMA number allows us to reference the history of returned products and determine if they are meeting your application's requirements. When you call customer service for your RMA number, you will be asked to provide information about the product you are returning, your address, and a contact person at your organization.

Please make sure that the RMA number is prominently displayed on the outside of the box.

• Thank You •

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