

# CrystalView™ DVI Fiber

DIGITAL FIBER KVM EXTENDER

## INSTALLATION AND OPERATIONS MANUAL



Single or Dual video / USB or PS/2  
Catx, Singlemode or Multimode fiber models



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# FCC/IC STATEMENTS, EU DECLARATION OF CONFORMITY

## FEDERAL COMMUNICATIONS COMMISSION AND INDUSTRY CANADA RADIO-FREQUENCY INTERFERENCE STATEMENTS

### Models:

CRK-2DFMPD1D	CRK-2DFMPD2D	CRK-2DFMUD1D	CRK-2DFMUD2D
CRK-2DFSPD1D	CRK-2DFSUD1D	CRK-2DFSPD2D	CRK-2DFSUD2D

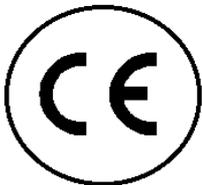
This equipment generates, uses and can radiate radio frequency energy and if not installed and used properly, that is in strict accordance with the manufacturer's instructions may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A digital device in accordance with the specifications of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

## CE DECLARATION OF CONFORMITY

This equipment is in conformity with the Council Directives 89/336/EEC  
The Declaration of Conformity is based upon compliance of the product with the following standards:



EN55022	1999 Class A
EN55024	1999
IEC61000-4-2:	2001
IEC61000-4-3:	2001
IEC61000-4.4:	2001
IEC61000-4-5:	2001
EN61000-3-2	2001
EN61000-3-3	2002

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# INTRODUCTION

## Disclaimer

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While every precaution has been taken in the preparation of this manual, the manufacturer assumes no responsibility for errors or omissions. Neither does the manufacturer assume any liability for damages resulting from the use of the information contained herein. The manufacturer reserves the right to change the specifications, functions, or circuitry of the product without notice.

The manufacturer cannot accept liability for damages due to misuse of the product or other circumstances outside the manufacturer's control. The manufacturer will not be responsible for any loss, damage, or injury arising directly or indirectly from the use of this product.

## System introduction

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Thank you for choosing the Rose Electronics® CrystalView DVI™ Fiber KVM station extender. The CrystalView DVI Fiber is the KVM extender of choice for businesses that need to extend and operate a computer, server, or KVM switch from a great distance. The CrystalView DVI Fiber makes this possible by the use of singlemode or multimode fiber cable. You can fully operate and control a computer or server from as far away as 6 miles using 9µm singlemode fiber. The CrystalView DVI Fiber supports all combinations of DVI-D monitors and video cards. Models are available with PS/2 or USB keyboard and mouse connectors, single video, dual video, singlemode, or multimode fiber.

The system consists of two Units, a transmitter and a receiver. The transmitter connects to your CPUs keyboard, DVI monitor, and mouse connectors, or to a Rose KVM switch\*. The receiver connects to a keyboard, DVI video monitor and mouse or KVM station. The transmitter and receiver are connected together with fiber optic cable. The serial/audio models connect to the corresponding ports on a PC. The receiver can be up to 33,000 feet from the transmitter using 9.0µm Singlemode-Fiber.

All models are available with transmitter and receiver KVM access. With transmitter KVM access, an additional KVM station to be connected to the transmitter unit.

Using the CrystalView DVI Fiber to remotely access your computer has several advantages over conventional extenders. The CrystalView DVI Fiber transmits data digitally which provides a clear, sharp picture. Computers used in hazardous industrial environments can be accessed remotely, keeping the users safe and unexposed to any hazards. Unlike extenders using CAT5 cable, fiber optic cable protects the data integrity from EMI interference.

\* DVI to VGA converter required

## Features

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- Perfect image quality at resolutions up to 1920 x 1200 @ 60Hz using fiber optic cable over all allowed distances, all lower resolutions with refresh rates of at least 75Hz
- Extend a KVM station from a CPU up to 33,000 feet (10,000m)
- Supports PS/2 or USB keyboard and mouse (Depending on model)
- Supports all DVI graphic cards and monitors
- Ideal for use with today's digital flat panel monitors
- Supports 18/24 Bit Color (auto-switching) or fixed 24Bit
- Single / dual video – Serial/Audio models available
- The CrystalView DVI Fiber uses a microprocessor to emulate the keyboard and mouse. The keyboard and mouse on the receiver do not have to be connected for the PC to boot; only the transmitter Unit must be connected to the PC
- Compatible with all operating systems
- Fully automatic KVM sharing on a first-come first-serve basis using the dual access model
- The computer's video is displayed on both KVM stations' monitors.
- Rack mount kits available

## Compatibility

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Computers	PCs (all operating systems)
Monitors	Digital DVI-D
Keyboards	PS/2 or USB type keyboards
Mouse	PS/2 or USB

NOTE: Devices with PS/2 connectors are not compatible with devices with USB connectors.

## DDC Information

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The CrystalView DVI Fiber uses its own internal DC table and in most cases it is not necessary to make any adjustments to the units. If your system equipment requires the DDC information to be redefined, please refer to page 12 for detailed instructions on how to change the DDC information.

## Package contents

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The package contents consist of the following:

- The transmitter and receiver Units
- 2-Power adapters for transmitter/receiver units & 2 power cords
- PS/2 model - "Y" cable, CPU adapter cable (DVI to DVI + PS/2)
- USB model – DVI cable + USB cable
- Dual Video model – DVI to DVI cable
- Installation and operations manual

CPU adapter cables and fiber cables are usually ordered separately.

## MODELS

### Models / Connectors (Single Video)



**PS/2 Transmitter**  
(2-DVI-I / 1-MiniDin6 –  
“Y” cable needed)

**PS/2 Receiver**  
(1-DVI-I / 2-MiniDin6)



**USB Transmitter**  
(2-DVI-I / 1-USB type B)

**USB Receiver**  
(1-DVI-I / 2-USB type A)



**Transmitter / Receiver**  
(1-Power / 1-Fiber type LC)

## Models / Connectors (Single Video – Serial / Audio)

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**PS/2 Transmitter**  
(2-DVI-I / 1-MiniDin6 –  
“Y” cable needed)

**PS/2 Receiver**  
(1-DVI-I / 2-MiniDin6)



**USB Transmitter**  
(2-DVI-I / 1-USB type B)

**USB Receiver**  
(1-DVI-I / 2-USB type A)



**Transmitter / Receiver**  
(1-Power / 1-Fiber type LC)

## Models (Dual Video)

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### REAR



PS/2 Transmitter  
(4-DVI-I / 1-MiniDin6)  
"Y" cable needed

PS/2 Receiver  
(2-DVI-I / 2-MiniDin6)



USB Transmitter  
(4-DVI-I / 1-USB Type B)

USB Receiver  
(2-DVI-I / 2-USB Type A)

### FRONT



Transmitter (Front-All)  
(1-Power / 2-Fiber type LC)  
Bottom connector carries video  
1 and keyboard/mouse data,  
top connector carries video 2.

## Models (Dual Video – Serial / Audio)

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### REAR



PS/2 Transmitter  
(4-DVI-I / 1-MiniDin6)  
"Y" cable needed

PS/2 Receiver  
(2-DVI-I / 2-MiniDin6)



USB Transmitter  
(4-DVI-I / 1-USB Type B)

USB Receiver  
(2-DVI-I / 2-USB Type A)

### FRONT



Transmitter (Front-All)  
(1-Power / 2-Fiber type LC)  
Bottom connector carries video  
1 and keyboard/mouse data,  
top connector carries video 2.

## Cables

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(See Attachment B for cable part numbers)

### Transmitter unit to CPU cable

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CPU cables connect from the transmitter to a CPU's keyboard, video monitor and mouse ports. A "Y" PS/2 cable for the keyboard and mouse are needed.

### Receiver to KVM station cable

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The keyboard, video monitor, and mouse cables on a KVM station can connect directly to the receiver or a transmitter with local KVM access.

### CrystalView DVI Fiber to Rose switch cable

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To connect a transmitter to a Rose switch such as a ServeView, UltraMatrix or UltraView, use a CPU adapter cable.

### Transmitter unit to Receiver unit cable

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the transmitter is connected to the receiver with up to 33,000 feet of fiber cable



**CrystalView DVI Fiber to PC cable  
(PS/2 or USB connectors)**

## Installation

Please refer to the safety section first before proceeding with any installation or configuration of the CrystalView DVI Fiber.

When installing the CrystalView DVI Fiber, locate the transmitter as close as possible to the CPU or switch. Keep the cables as short as possible but still give some freedom of movement. You can mount the CrystalView DVI Fiber in a CPU rack with the optional rack mount kit. When mounting the units in a rack provide adequate air circulation to assure that the maximum operating temperature is not exceeded. (See Appendix C)

For dual video models, connect a second DVI monitor and additional fiber cable from the transmitter to the receiver. The bottom Fiber connector on the Dual video models carries Video 1 and data, top fiber connector carries only Video 2.

Wherever the transmitter and receiver units are located, they should be on a secure surface and free from obstructions and objects that may cause damage to the units.

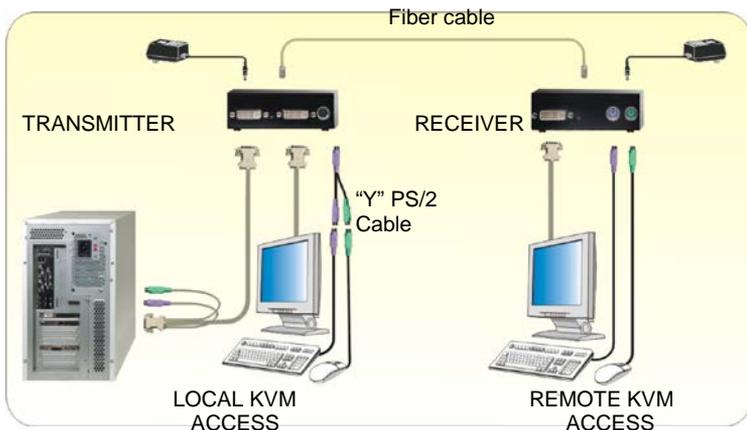


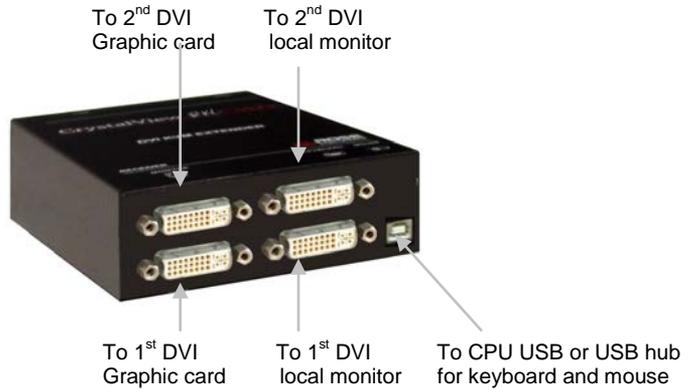
Figure 1. Typical cabling configurations

(See Figure 1 for the connector locations for your model)

**NOTE:** Using the local access model, a second KVM station can be connected to the transmitter.

Refer to Figure 1 for the set-up for your system application.

Connect the local USB model transmitter as shown below (single or dual video). A USB hub is used for local keyboard and mouse connections to the computer.



## Transmitter to Receiver cabling

Cable type (w/ LC connectors)	Maximum distance
62,5µm Multimode-Fiber	650 ft / 200 m
50.0µm Multimode-Fiber	1300ft / 400m
9.0µm Singlemode-Fiber	33,000ft / 10,000m

Table 1. Transmitter to receiver cabling

### Applying power

With all cable connections made, plug in the provided power adapters to a 110/220-volt source and to the power connector on the transmitter and receiver Unit. Only use the power adapter provided. The red LED next to the power connector indicates power is applied to the unit.

## Diagnostic LED Indicators

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### Power (Red)

- Off – No power applied, device not ready
- On- Power applied, device ready

### Data Error (Green)

- Off - No errors, device ready
- Blinking / On – Transmitter / Receiver communication not established

### Link Status (Green)

- Blinking – No Fiber cable connection detected
- On – Transmitter / Receiver communication established, device ready

### Video OK (Green)

- Off – No video signal detected
- On – Video signal detected, device ready

### Operating instructions

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Operation of your computer is no different than having your keyboard, monitor, and mouse connected directly to the computer. All functions, applications, upgrades and other items can be done normally. The only difference is the computer can be up to 33,000 feet away.

Local access on the CrystalView DVI Fiber allows an additional KVM station to be connected to the transmitter. The CPU can easily be operated from the remote KVM station or the local KVM station but not simultaneously.

The transmitter or local unit is active during boot-up and the connected CPUs video is displayed on both the local and remote KVM stations monitor. To activate the remote KVM station, simply press any key on the remote KVM stations keyboard. Control is passed to the remote KVM station. To activate the local KVM station, press any key on the KVM station's keyboard.

The dual video models have the capability of connecting the transmitter to two video sources. The two video sources are sent to the receiver and displayed on its two video monitors. Video source one should be connected to the computer's primary DVI video port that is associated with the keyboard and mouse.

#### NOTE:

**The USB models only support USB keyboards and mice. Other USB devices such as Touch Screen, graphic tablets, Barcode readers or similar devices are supported but not guaranteed. Scanners, web cams, USB drives, etc are not supported. The CrystalView DVI Fiber (USB models) will only support two USB devices at the same time.**

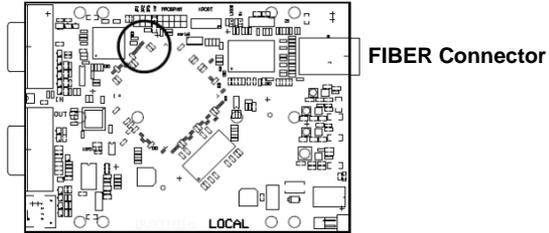
### DDC Information

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By default, the CrystalView DVI Fiber uses its own internal DDC table. In some configurations it may be necessary to redefine the source of the DDC information. The CrystalView DVI Fiber can use the internal DDC table, the DDC information from the local video, or download the DDC information from the remote video monitor. To modify the source of the DDC information, perform the following internal adjustments to the local unit. Adjustments are made on the local unit to use the default DDC information, the LOCAL monitor's DDC information, or the REMOTE monitor's DDC information.

Carefully remove the four (4) Phillips screws from the bottom of the unit. If your model is a dual version, also remove the UNC screws that secure the video connectors.

- A- Remove the top cover exposing the internal PC board as shown below
- B- Locate jumpers JP1 and JP2.
- C- Place a jumper block on the appropriate jumpers as shown in the table below:



DDC Source	JP1 setting	JP2 setting
From internal table (default)	■	□
From local monitor	□	■
From remote monitor (see procedure)	■	■
Reset to default values	□	□

### Load DDC information from the Remote monitor and save to the internal DDC table

To load the DDC information from the remote monitor, perform the following steps to properly load the DDC information from the remote monitor to the local unit.

1. Switch off the power on the local and remote units and disconnect the video cable to the remote monitor(s).
2. Open the **LOCAL** unit exposing the internal PC board
3. Locate the jumper block on terminal JP3. Remove the jumper block from JP3 and place it on jumper JP2. Note the position of the jumper block on JP3. It will be replaced when the DDC load procedure completes. JP1 and JP2 should now have a jumper on them. (NOTE: Perform this procedure on both PC boards on the dual models)
4. Make sure the interconnect CAT5 cable is connected and turn on the local and remote units.

5. Wait until the STATUS LINK LED illuminates
6. Connect the remote monitor's video cable to the remote unit.  
(Turn on the remote monitor power if power is off)
7. The remote monitor's DDC information will be read automatically, transferred to the local unit and stored into the DDC EPROM table.
8. The video OK LED on the local unit will blink rapidly for approximately 1 second upon successful programming of the remote DDC information.
9. Switch off the power on the local and remote units.
10. Remove jumper JP2 and replace it back on JP3 in the same position as it was removed.
11. Replace the cover on the LOCAL unit.
12. Turn on the local and remote units. The remote monitor's DDC information is now used.

## Reset DDC table to default values

---

To reset the DDC information to the factory default values, perform the following steps:

1. Remove power from the Local unit and remove the cover
2. Remove jumper JP1 (see internal PC board figure)  
(JP1 and JP2 open)
3. Switch on the power to the Local unit
4. The Local Unit's Video OK LED will blink rapidly for approximately 1 second upon successful re-programming of the default DDC values
5. Remove power from the Local unit
6. Replace jumper JP1, replace the cover, and power on the Local unit.

The DDC table now contains the default factory settings.

(NOTE: On the dual model, both upper and lower PC board's jumper JP1 must be removed)

## Color Depth Selection

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The CrystalView DVI Fiber allows you to select the color depth desired. You can select 18 Bit (256K) or 24 Bit (2M) color. To change the default setting of 18 Bit to 24 Bit, perform the following procedure on the LOCAL unit.

1. Remove power from the Local unit
2. Remove the cover
3. Remove jumper JP3 (see below table)
4. Replace the cover and power on the Local unit.

Color Depth	JP3 setting
18 Bit (default)	
24 Bit	

## Selecting moment of switching to next frame

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Normally the transmission of screen data is terminated when a frame is displayed on the screen. If the video source switches to a new frame during this display period, horizontal screen breaks may be seen.

Jumper JP3 on the Remote unit's PC board can be set to change the moment of switching. Remove the cover on the Remote unit and set JP3 accordingly.

Moment to switch	JP3	Description
Switch during HSYNC (default)		Higher frame rate but may produce detectable horizontal breaks
Switch during VSYNC		Lower frame rate but may produce stepping pictures (no horizontal breaks)

## Troubleshooting

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The troubleshooting section is used as a guide to understanding the capabilities of the CrystalView DVI Fiber and for general troubleshooting. If you have any problems or questions concerning the installation, operation or usage of the CrystalView DVI Fiber that is not covered in this manual, please contact Rose Electronics for technical support.

There isn't a picture.

- Check the power supply connection at the Local unit. Is the Power (Red LED) at the Local unit illuminated? If not, the internal power-supply may be damaged or there may be an internal error.
- Check the power supply connection at the remote unit. Is the Power (Red LED) at the Remote unit illuminated? If not, the internal power-supply may be damaged or there may be an internal error.
- Check that the Interconnection cable is connected at the Local Unit and the Remote Unit. Is the Link Status LED illuminated? If not, there may be a problem with the Interconnection cable:
- Are there Errors through data transmission over fiber Cable? Is the Data Error LED illuminated or blinking? If yes, check cable length and environment.
- Video Okay LED is dark: CPU does not provide a video signal – Check settings of the graphic card. Try connecting a monitor to the local output, to see, whether there is a signal or not.

### Keyboard

The PC boots fine with no error messages but the keyboard does not work

- Wrong cable plugged in, keyboard and mouse cables reversed.
- Try a different model of keyboard. If the new keyboard works then original one may be incompatible
- Check that the Interconnection cable is connected at the Local Unit and the Remote Unit. Is the Link Status LED illuminated (see page 23)?

### PS2-Mouse

A mouse cursor appears on the screen, but the mouse does not work

- Wrong cable plugged in, keyboard and mouse cables reversed.
- Try a different model of mouse
- The system does not detect a PS/2 mouse, or the application cannot find the mouse.
- Ensure that the Local Unit is connected to the PC keyboard port to provide power

## Service Information

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### Maintenance and Repair

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This Unit does not contain any internal user-serviceable parts. In the event a Unit needs repair or maintenance, you must first obtain a Return Authorization (RA) number from Rose Electronics or an authorized repair center. This Return Authorization number must appear on the outside of the shipping container. See Limited Warranty for more information.

When returning a Unit, it should be double-packed in the original container or equivalent, insured and shipped to:

Rose Electronics  
Attn: RA \_\_\_\_\_  
10707 Stancliff Road  
Houston, Texas 77099 USA

### Technical Support

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If you are experiencing problems, or need assistance in setting up, configuring or operating your unit, consult the appropriate sections of this manual. If, however, you require additional information or assistance, please contact the Rose Electronics Technical Support Department at:

Phone: (281) 933-7673  
E-Mail: [TechSupport@rose.com](mailto:TechSupport@rose.com)  
Web: [www.rose.com](http://www.rose.com)

Technical Support hours are from: 8:00 am to 6:00 pm CST (USA), Monday through Friday.

Please report any malfunctions in the operation of this Unit or any discrepancies in this manual to the Rose Electronics Technical Support Department.

## Safety

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The CrystalView DVI Fiber KVM extender has been tested for conformance to safety regulations and requirements, and has been certified for international use. Like all electronic equipment, the CrystalView DVI Fiber should be used with care. To protect yourself from possible injury and to minimize the risk of damage to the Unit, read and follow these safety instructions.

- Follow all instructions and warnings marked on this Unit.
- Except where explained in this manual, do not attempt to service this Unit yourself.
- Do not use this Unit near water.
- Assure that the placement of this Unit is on a stable surface or rack mounted.
- Provide proper ventilation and air circulation.
- Keep power cord and connection cables clear of obstructions that might cause damage to them.
- Use only power cords, power adapter and connection cables designed for this Unit.
- Use only a grounded (three-wire) electrical outlet.
- Use only the power adapter provided with the units.
- Keep objects that might damage this Unit and liquids that may spill, clear from this Unit. Liquids and foreign objects might come in contact with voltage points that could create a risk of fire or electrical shock.
- Operate this Unit only when the cover is in place.
- Do not use liquid or aerosol cleaners to clean this Unit. Always unplug this Unit from its electrical outlet before cleaning.
- Unplug this Unit from the electrical outlet and refer servicing to a qualified service center if any of the following conditions occur:
  - The power cord or connection cables is damaged or frayed.
  - The Unit has been exposed to any liquids.
  - The Unit does not operate normally when all operating instructions have been followed.
  - The Unit has been dropped or the case has been damaged.
  - The Unit exhibits a distinct change in performance, indicating a need for service.

### Safety information



Documentation reference symbol. If the product is marked with this symbol, refer to the product documentation to get more information about the product.

**WARNING** A WARNING in the manual denotes a hazard that can cause injury or death.

**CAUTION** A CAUTION in the manual denotes a hazard that can damage equipment.

Do not proceed beyond a WARNING or CAUTION notice until you have understood the hazardous conditions and have taken appropriate steps.

### Grounding

These are Safety Class I products and have protective earthing terminals. There must be an un-interruptible safety earth ground from the main power source to the product's input wiring terminals, power cord, or supplied power cord set. Whenever it is likely that the protection has been impaired, disconnect the power cord until the ground has been restored.

### Servicing

There are no user-serviceable parts inside these products. Only service-trained personnel must perform any servicing, maintenance, or repair.

The user may adjust only items mentioned in this manual.

**Appendix A. General specifications**

Maximum resolution	1920 x 1200 @ 60Hz over all allowed distances all lower resolutions with refresh rates of at least 75Hz
Video compatibility	DVI-D
Keyboard	PS/2 or USB
Mouse	PS/2 or USB
Power adapter	90-240 VAC adapter to 5VDC / app. 10W
Transmitter power	750 mA
Receiver power	750 mA
Connectors	Video to PC – DVI-D Video to KVM – DVI-D Keyboard: PS/2 or USB Mouse: PS/2 or USB Interconnect: Fiber type LC
Fiber cable length	62,5µm Multimode-Fiber 650 ft / 200m 50.0µm Multimode-Fiber 1300ft / 400m 9.0µm Singlemode-Fiber 33,000ft / 10,000m
Temp/Humidity	5°C – 45°C / 41°F – 113°F 80% non-condensing max
Indicators (LEDs)	Front panel – power Video check - LED Data error / status - LEDs
Weight	App. 1.3lbs each (0.6kg each)
Dimensions	H: 1.70 in / 42 mm W: 4.125 in / 103 mm D: 5.625in / 143 mm

## Appendix B. Parts and cables

Part Number (Multimode)	Description
CRV-DLDFMPD1D	DVI-D / PS/2 Single video (Transmitter)
CRV-SRDFMPD1D	DVI-D / PS/2 Single video (Receiver)
CRV-DLDFMPD2D	DVI-D / PS/2 Dual video (Transmitter)
CRV-SRDFMPD2D	DVI-D / PS/2 Dual video (Receiver)
CRV-DLDFMUD1D	DVI-D / USB Single video (Transmitter)
CRV-SRDFMUD1D	DVI-D / USB Single video (Receiver)
CRV-DLDFMUD2D	DVI-D / USB Dual video (Transmitter)
CRV-SRDFMUD2D	DVI-D / USB Dual video (Receiver)

Part Number (Singlemode)	Description
CRV-DLDFSPD1D	DVI-D / PS/2 Single video (Transmitter)
CRV-SRDFSPD1D	DVI-D / PS/2 Single video (Receiver)
CRV-DLDFSPD2D	DVI-D / PS/2 Dual video (Transmitter)
CRV-SRDFSPD2D	DVI-D / PS/2 Dual video (Receiver)
CRV-DLDFSUD1D	DVI-D / USB Single video (Transmitter)
CRV-SRDFSUD1D	DVI-D / USB Single video (Receiver)
CRV-DLDFSUD2D	DVI-D / USB Dual video (Transmitter)
CRV-SRDFSUD2D	DVI-D / USB Dual video (Receiver)

RM-BR3 Rackmount kit

/AUD part number suffix = serial and audio option

Part Number (ACC / Cables)	Description
TFR-05D240FSUB	Power Adapter
CAB-MD6M2MD6Mnnn	"Y" adapter cable
CAB-DDPMDD66M006	DVI-D w/PS2 to DVI-D & 2 MD6M, 6'
CAB-DVImm	DVI to DVI male cable
CAB-08C5UTPnnn	CAT5 Twisted pair UTP cable (RJ45)
CAB-USBAB	USB Type A to USB Type B cable
CNV-DVIVGA	DVI to VGA converter

nnn = length in feet

## Appendix C. Rackmount Kit

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Rack mounting the CrystalView DVI Fiber uses the rackmount kit part number RM-BR3. You can mount 1 to 4 units on a single shelf and mount the shelf in a standard 19" rack.

The units can be orientated on the rack with either the front or rear panel facing to the front or rear of the shelf. Mounting holes in the bottom of the shelf will lineup with the holes in the bottom of the unit.



Provide adequate strain relief for all connected cables to avoid excess tension on the connectors.





**Server Management**



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