CrystalView EX DVI

CATx Extender · DVI · USB 2.0 · 330' (100m)

Installation and Operation Manual

ROSE ELECTRONICS

LIMITED WARRANTY

Rose Electronics® warrants the CrystalView EX DVI to be in good working order for one year from the date of purchase from Rose Electronics or an authorized dealer. Should this product fail to be in good working order at any time during this one-year warranty period, Rose Electronics will, at its option, repair or replace the Unit as set forth below. Repair parts and replacement units will be either reconditioned or new. All replaced parts become the property of Rose Electronics. This limited warranty does not include service to repair damage to the Unit resulting from accident, disaster, abuse, or unauthorized modification of the Unit, including static discharge and power surges.

Limited Warranty service may be obtained by delivering this unit during the one-year warranty period to Rose Electronics or an authorized repair center providing a proof of purchase date. If this Unit is delivered by mail, you agree to insure the Unit or assume the risk of loss or damage in transit, to prepay shipping charges to the warranty service location, and to use the original shipping container or its equivalent. You must call for a return authorization number first. Under no circumstances will a unit be accepted without a return authorization number. Contact an authorized repair center or Rose Electronics for further information.

ALL EXPRESS AND IMPLIED WARRANTIES FOR THIS PRODUCT INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO A PERIOD OF ONE YEAR FROM THE DATE OF PURCHASE, AND NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THIS PERIOD. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

IF THIS PRODUCT IS NOT IN GOOD WORKING ORDER AS WARRANTIED ABOVE, YOUR SOLE REMEDY SHALL BE REPLACEMENT OR REPAIR AS PROVIDED ABOVE. IN NO EVENT WILL ROSE ELECTRONICS BE LIABLE TO YOU FOR ANY DAMAGES INCLUDING ANY LOST PROFITS, LOST SAVINGS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF OR THE INABILITY TO USE SUCH PRODUCT, EVEN IF ROSE ELECTRONICS OR AN AUTHORIZED DEALER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, OR FOR ANY CLAIM BY ANY OTHER PARTY.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CONSUMER PRODUCTS, SO THE ABOVE MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

DECLARATIONS OF CONFORMITY

This equipment has been tested and found to comply with the limits for a Class B 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. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE Statement

This product is in conformity with European Standards EN 55022, EN 61000, and EN 55024.

IC Statement

This Class A digital apparatus complies with Canadian ICES-003.

WEEE Statement

The European Union has established regulations for the collection and recycling of all waste electrical and electronic equipment (WEEE). Implementation of WEEE regulations may vary slightly by individual EU member states. Please check with your local and state government guidelines for safe disposal and recycling or contact your national WEEE recycling agency for more information.

TABLE OF CONTENTS

Contents

Figures

Tables

Appendices

INTRODUCTION

Disclaimer

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, circuitry of the product, and manual content at any time 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. (See limited warranty.)

System Introduction

Thank you for choosing the CrystalView EX DVI extender from Rose Electronics for your KVM console extension needs. The CrystalView EX DVI system consists of a Transmitter unit and a Receiver unit. The Transmitter unit connects to your computer's DVI-D and USB Type A connectors using the provided DVI and USB cables. The Receiver unit connects to your workstation. The Transmitter and Receiver units are connected by industry standard CAT5e or better cable. This provides access to your computer from up to 330 feet away (100m).

The CrystalView EX DVI extender supports both USB 1.1 and low to moderate bandwidth USB 2.0 devices. It is ideal for use with industrial controls, digital signage, connecting cameras for security systems, and USB device printing, scanning and storage. If support for additional USB devices is needed, up to 4 USB hubs in a single chain can be connect to the Receiver ports, to a maximum of 30 USB devices.

The CrystalView EX DVI supports all major operating systems including Windows®, MAC®, and Linux®. USB printers, scanners, web cameras, USB hard drives, flash drives, MP3 players and more can easily be connected to the Receiver unit. Since there are a number of factors that affect the operation of the CrystalView EX6, there may be some devices that are not compatible with this product.

Features

- Supports CAT5e/6/7 cable distances up to 330 feet (100m)
- Supports uncompressed HD DVI video with resolutions up to 1920 x 1200 with no loss of signal quality
- USB Host support – xHCI (USB3.0), EHCI (USB 2.0) and OHCI/UHCI (USB 1.1)
- Supports high-speed USB devices (USB 2.0, up to 40Mbps), full-speed devices (USB 2.0 and 1.1, up to 12 Mbps), and low-speed devices (USB 2.0 and 1.1, at 1.5 Mbps)
- 3 USB ports available on the Receiver unit
- Standard USB hubs can be used (up to 4 per chain), to increase the number of USB devices connected to a maximum 30
- Genesys Hub supported
- HDCP pass-through
- A full 500 mA of current is available at each USB port on the Receiver
- Plug-and-Play installation, no configuration or set-up needed.

Package Contents

The package contents consist of the following:

- 1 x Transmitter unit and 1 x Receiver unit
- 2 x 5V power adapters for Transmitter (1) and Receiver (1)
- USB Type A to Type B cable (6 ft)
- DVI cable (male to male- 5 ft)
- Product Manual

Additional installation items that are required, but are not included in the package:

- USB compatible computer with DVI-D / DVI-I video output
- 1 x CATx cable (Transmitter to Receiver – Point-To-Point)
- USB 1.1 or 2.0 compatible peripheral devices

Additional cables are usually ordered separately. If the package contents are not correct, contact Rose Electronics or your reseller so the problem can be quickly resolved.

MODELS

CrystalView EX DVI Models

The CrystalView EX DVI comes in a single model as shown below.

Figure 1.Transmitter Front Panel	**Indicators** - Power - Link - USB - Video
Figure 2. Transmitter Rear Panel	**Connectors** - DVI-D In - USB Type B - Link - Power (+5V) - Config
Figure 3. Receiver Front Panel	**Indicators** - Power - Link - USB - Video
Figure 4. Receiver Rear Panel	**Connectors** - DVI-D Out - 3 x USB Type A - Link - Power (+5V) - Config
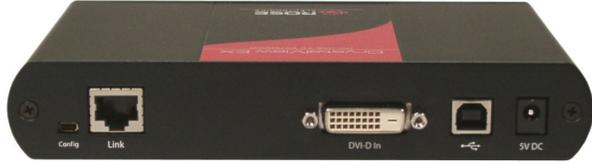
Table 1. CrystalView EX DVI Models

Transmitter and Receiver Front Panel Indicators

Indicator	Color	Description
Power	Green	*On:* Ready *Off:* No Power
Link	Green	*On:* Valid link between Transmitter and Receiver *Off:* No Link
USB	Green	*On:* Transmitter enumerated on host computer *Off:* Computer and Transmitter not communicating *Blinking:* Host computer is in USB Suspend Mode
Video	Green	*On:* HDCP content is being transmitted *Blinking:* Non-HDCP content is being transmitted *Off:* No video transmission

Table 2. CrystalView EX DVI Transmitter and Receiver Indicators

Transmitter Rear Panel Connectors

Connector	Description
HDMI In	DVI-D video input from host computer
USB Type B	USB connection to host computer
Link (RJ45)	Connection to Receiver unit using CAT5e or better cable
Config	Reserved for Rose Electronics' use only
Power	+5V power adapter with locking connector

Table 3. Transmitter Rear Panel Connectors

Receiver Rear Panel Connectors

Connector	Description
HDMI Out	DVI-D video output to the monitor
USB Type A x 3	Connection to up to 3 remote USB devices
Link (RJ45)	Connection to Transmitter unit using CAT5e or better cable
Config	Reserved for Rose Electronics' use only
Power	+5V power adapter with locking connector

Table 4. Receiver Rear Panel Connectors

Figure 5. Two CrystalView EX DVI Transmitters in a 1U rack shelf

INSTALLATION AND OPERATION

System Installation

Prior to installing the CrystalView EX DVI, prepare the layout of the computer, the Transmitter, the Receiver, and the equipment that will be connected to the Receiver. The Transmitter and Receiver units should be in locations that are easily accessible. The CAT5e cable should be routed away from equipment or environments that can cause interference with the data transmission between the Transmitter and Receiver.

The CrystalView EX DVI is installed in a "Point-To-Point" configuration. This is done by connecting a CATx cable (up to 330 ft / 100m) directly from the Transmitter's RJ45 port to the Receiver's RJ45 port.

The completed installation will appear as in the figure below.
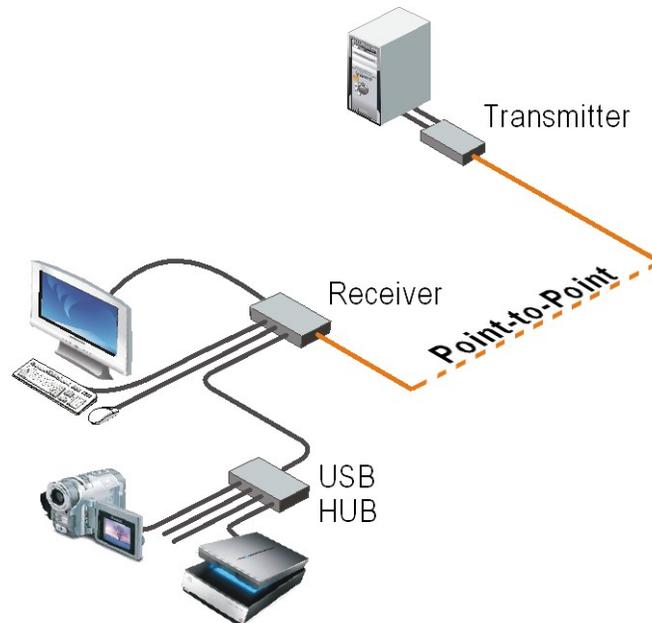

Figure 6. CrystalView EX DVI Installation

Transmitter Installation

1. Locate the Transmitter unit near the computer.
2. Connect the supplied USB Type A/B cable to the Transmitter unit's USB Type B port and to an available USB Type A port (1.1 or 2.0) on the computer.
3. Connect the supplied DVI cable to the Transmitter unit's DVI-D port and to the DVI video port on the computer
4. Connect a CATx cable (not supplied) from the Transmitter's RJ45 port to the Receiver's (RJ45) connector.
5. Connect the supplied 5V power adapter to an AC outlet and to the Transmitter's power port.

Receiver Installation

1. Locate the Receiver unit near the monitor and USB devices.

2. Using a DVI cable, connect a DVI monitor to the DVI-D out connector on the Receiver's rear panel.

3. Connect USB devices to the 3 USB Type A ports on the rear panel of the Receiver. Normally these USB ports are connected to a USB keyboard, USB mouse, and a USB Hub.

4. Connect the CATx cable (not supplied) from the Transmitter's RJ45 port to the Receiver's RJ45 connector.

5. Connect the supplied 5V power adapter to an AC outlet and to the Receiver's power port.

Note: CATx cable – It is recommended that only solid-core CAT5e or better, UTP/STP cabling be used to connect the Transmitter and Receiver units together. The CAT5e cabling must have straight-through conductors with no crossovers and terminated with 8 conductor RJ45 connectors at each end. The maximum CATx cable length is 330 feet (100 meters).

Installation Verification

The Power, Link, Video, and USB LEDs on the Transmitter and Receiver units will provide information regarding the installation, cabling, video, and other items. Verify that the LEDs are registering properly as shown in
Table 2.

If the Link LED is off, the CATx cable between the Transmitter and Receiver is not properly connected.

The Power LED should be solid green. If it is off, the system is not powered properly.

Windows users can confirm that the USB functionality of CrystalView EX DVI by opening Device Manager. Expand the entry for Universal Serial Bus controllers by clicking the " + " sign. If the EX6 has been installed correctly, you should find it listed as a "generic hub".

OS X users can open the System Profiler to confirm that CrystalView EX DVI USB has been installed correctly. In the left hand column under Hardware, select "USB" and inspect the right hand panel. If the EX6 has been installed correctly, you should find it listed as a "Hub" under the USB High-Speed Bus/USB Bus.

Connecting USB Devices

USB hubs connected to the Receiver unit allow more USB 1.1 and 2.0 equipment to be connected, up to a maximum of 30 USB devices. Normally the three USB Type A connectors on the Receiver are connected to a USB Keyboard, USB mouse, and a USB hub. Installing your USB devices is no different than installing them directly to a computer's USB port.

1. Install any software required to operate the USB device according to the manufacturer's instructions

2. Connect the USB device to the Receiver's USB ports or to a hub connected to the Receiver

3. Verify that the operating system has recognized the USB device and installed any drivers needed to operate the USB device

4. Test the USB device

Each USB Type A port on the Receiver unit can supply up to 500ma to a USB device or USB hub. When connecting additional USB devices through a USB hub, consider the total current needed to operate the hub and all the devices connected to it. If the total power requirement is greater than 500ma, use a self-powered hub.

The CrystalView EX DVI is compatible with a wide variety or graphic cards, monitors, USB devices, and operating systems.

System Operation

The operation of the CrystalView EX DVI is no different than operating your computer with your keyboard, monitor, mouse, and USB devices directly connected to it, except that the computer can be located up to 330 feet away. All computer activities can be performed as though you were directly connected to the computer.

TROUBLESHOOTING

Troubleshooting

The following table provides troubleshooting tips. The topics are arranged in the order in which they should be executed, in most situations. If you are unable to resolve the problem after following these instructions, please contact Technical Support for further assistance.

PROBLEM	CAUSE	SOLUTION
All LEDs on the Transmitter are off.	The Transmitter is not receiving power from the power adapter	■ Ensure that the power adapter is properly connected to the Transmitter. ■ Check that the power adapter is connected to a live source of electrical power
All LEDs on Receiver are off.	The Receiver is not receiving power from the power adapter.	■ Ensure that the power adapter is properly connected to the Receiver. ■ Check that the power adapter is connected to a live electrical source.
Link LEDs on Transmitter and Receiver are off.	There is no connection between the Transmitter and Receiver.	■ Ensure a CAT5e/6/7 cable is connected between the Transmitter and Receiver. Ensure CAT5e UTP or preferably STP cabling with conductor RJ45 connectors is used. ■ Connect a short CAT5e/6/7 patch cord between the Transmitter and Receiver to determine if the original CATx cable is defective. ■ Ensure the CAT5e/6/7 cable is as straight as possible (i.e. not coiled).
Link LED on Transmitter is on, USB LED on Transmitter is off.	■ The ho7st computer is not powered on. ■ The Transmitter is not connected to the computer. ■ The computer does not support USB hubs. ■ The unit is malfunctioning. ■ The USB cable is defective.	■ Disconnect all USB devices from the Receiver. ■ Disconnect the Transmitter from the computer. ■ Disconnect the Transmitter and Receiver from the power adapters. ■ Reconnect the USB device(s) to the Receiver. ■ Reconnect the Transmitter to the computer. ■ Reconnect the Transmitter to the power adapter. ■ Reconnect the Receiver to the power adapter. ■ If the USB LED continues to stay off, contact Technical Support.

Table 5.CrystalView EX DVI Troubleshooting Part 1

PROBLEM	CAUSE	SOLUTION
All LEDs on both the Receiver and Receiver are on, but the USB device does not operate correctly or is detected as an "Unknown Device" in the operating system.	■ The USB device is malfunctioning. ■ The computer does not recognize the USB device. ■ The application software for the device is not operating. ■ The CrystalView EX DVI is malfunctioning.	■ Disconnect the CrystalView EX DVI from the computer. ■ Connect the USB device directly to the USB port on the computer. ■ If the device does not operate properly, consult the user documentation for the USB device. ■ Update your system BIOS, chipset or USB Host controller drivers from your System/Motherboard manufacturer's website. ■ Make sure the operating system has all the latest updates installed. ■ If the USB device operates properly when directly connected to the computer, connect another device (of a different type) to CrystalView EX DVI. Connect the CrystalView EX DVI to the computer. ■ If the second USB device does not operate, the CrystalView EX DVI may be malfunctioning. Contact Technical Support for assistance. ■ If the second device does operate properly, the first device may not be compatible with the CrystalView EX DVI. Contact technical support for issues.
Blinking Video on the Sink (Monitor)	■ A poor quality or damaged CAT5e/6/7 cable is being used. ■ The cabling is twisted.	■ Remove all loops in the CAT5e/6/7 cable. ■ Confirm extender operation with a CAT5e/6/7 patch cable.
Video frames are being dropped	The CrystalView EX DVI is not compatible with the HDCP source and/or display device.	Contact Technical Support.
Video LED is off.	■ One or both of the DVI cables are not connected, are of poor quality or are malfunctioning. ■ The display or source is not supported. ■ The CrystalView EX DVI is malfunctioning.	■ Confirm extender operation with DVI cables that are less than 78" (2m) in length and have connection between each connectors' shield. ■ Confirm extender operation with a CAT5e/6/7 patch cable. ■ Contact Technical Support.

Table 6. CrystalView EX DVI Troubleshooting Part 2

PRODUCT SAFETY

Safety

The CrystalView EX DVI extender has been tested for conformance to safety regulations and requirements, and has been certified for international use. Like all electronic equipment, the CrystalView EX DVI 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 CrystalView EX DVI .
- 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 are 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.

SERVICE AND MAINTENANCE

Maintenance and Repair

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

If you are experiencing problems, or need assistance in setting up, configuring or operating your product, 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

Web: 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.

APPENDICES

Appendix A - Specifications

Physical Specifications	
Dimensions (W x D x H)	4.4 in x 6.9 in x 1.8 in (112 mm x 175 mm x 30 mm)
Cable Distance	330 feet (100 meters) over Cat5e/6/7 UTP or STP solid-core cable. Solid core CAT6a/7 STP recommended for best performance
Video	
Resolution	High definition 1920x1200, 24-bit color depth, uncompressed Video
Latency	Less than 1 ms
USB	
USB device support	High-speed devices (up to 40Mbps - USB 2.0) Full-speed devices (up to 12 Mbps - USB 2.0/1.1) Low-speed devices (up to 1.5 Mbps - USB 2.0/1.1)
USB hub support	Up to 4 USB hubs per single chain
USB host support	xHCI (USB3.0) EHCI (USB 2.0) and OHCI/UHCI (USB 1.1)
Max USB devices supported	30 USB devices
Power	
DC power adapters Transmitter and Receiver	Input: Grounded 100/240 V AC, 50-60 Hz Output: Grounded 5V DC, 3A (15 W)
Power available to USB devices at Receiver unit	500 mA each port
Connectors		
Transmitter	Video	1 x DVI-D In (24-pin connector)
	USB	1 x USB Type B female
	Link	1 x RJ45
Receiver	Video	1 x DVI-D Out (24-pin connector)
	USB	3 x USB Type A female
	Link	1 x RJ45
Environmental Conditions	
Operating Temperature	32°F to 104°F (0°C to 40°C)
Storage Temperature	-4°F to 158°F (-20°C to 70°C)
Relative Humidity	20% to 80% no condensation
Compliance	FCC Part 15 Class A, CE Class A, ICES-003 Class A CE EN 55024, RoHS2 (CE)

Appendix B - Part Numbers

Part Number	Description
CRK-1DTXT-EX6	CrystalView EX DVI
CAB-USBAB005	USB Cable
CAB-DVIDMM005	DVI Cable
TFR-05D300FSUB-1.7F	+5V,3A power adapter
RM-CRV-EX/19	Rack Mount Kit (holds 2 units, side-by-side)
RM-CRVEX/CP	Blanking Plate for Rack Mount Kit
RM-UD/CRV-EX	Under Desk Bracket