INSTALLATION AND OPERATIONS MANUAL

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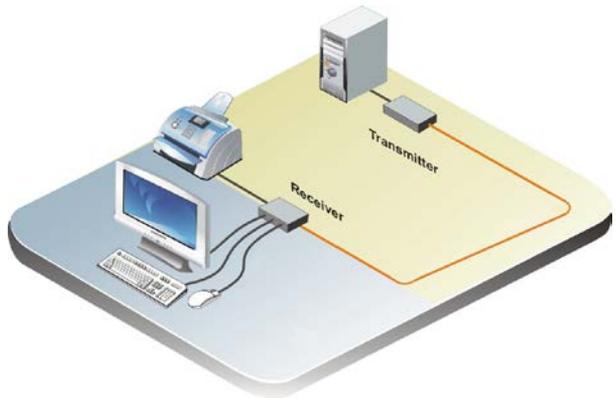WWW.ROSE.COM

Limited Warranty

Rose Electronics warrants the CrystalView EX5 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 WARRANTED 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.

NOTE: 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.

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Rose Electronics Part # MAN-CRVEXT5
Printed In the United States of America – Revision

FCC/IC STATEMENTS, EU DECLARATION OF CONFORMITY

FCC Radio Frequency Interference

This device complies with FCC Part 15 Subpart B. of the FCC rules; operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

CE Statement
This product meets European Standard EMC EN-55022 Class A, EN 61000, and EN 55024

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

Table of Contents

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, 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

Thank you for choosing the CrystalView EX5 extender from Rose Electronics for your remote accessing needs. The CrystalView EX5 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 together with industry standard CAT5e or better cable. This provides access to your computer from up to 330 feet (100m) away.

The CrystalView EX5 extender complies with USB 1.1 and USB 2.0 specifications and supports USB 1.1 and low bandwidth USB 2.0 devices. It is ideal for use in industrial control areas, digital signage, connecting cameras for security systems, USB device printing, scanning and storage.

If additional USB devices are needed, you can add up to 4 USB hubs to the three port Receiver model and connect up to 13 USB devices.

The CrystalView EX5 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 effect the operation of the CrystalView EX5, not all devices are compatible with this product.

Features

- Supports CAT5e cable distances up to 330 feet (100m)
- Supports uncompressed HD DVI video with resolutions up to 1920 x 1200
  (Resolution does not degrade over CAT5e distance)
- USB Host support – EHCI (USB 2.0) and OHCI/UHCI (USB 1.1)
- Supports USB 2.0 (high-speed at reduced bandwidth),
  USB 2.0 and 1.1 (Full-speed), and
  USB 2.0 and 1.1 (Low-speed)
- 3-USB ports available on the Receiver unit
- Standard USB hubs can be used to increase the maximum number of connected USB devices to 13 and 4 USB hubs.
- Up to 500 mA of power is available at each USB port on the Receiver for powering high-power USB devices
- Plug-and-Play installation, no configuration or set-up needed.
- Installation consists of:
    1. Connecting the Receiver to your DVI monitor, USB keyboard and mouse, headphone, microphone and USB device(s)
    2. Connect the Transmitter to your computer's DVI video port and USB port.
    3. Connect the Transmitter to the Receiver using standard CAT5e* cable
    4. Apply power and the installation is complete.

The Transmitter unit requires a +5VDC power adapter (included).
The Receiver unit requires a +5VDC power adapter (included).

* CAT5e or better cable, Solid core CAT6 STP cable is recommended

Package Contents

- Transmitter unit
- Receiver unit
- 5V, 3A power adapter (Transmitter)
- 5V, 3A power adapter (Receiver)
- USB Type A to Type B cable (6 ft)
- DVI cable (male to male- 5 ft)
- Product Manual

Additional Installation Items

- Computer with DVI-D/DVI-I output
- USB 1.1 or 2.0 host computer
- 1 - CAT5e cable (Transmitter to Receiver – Point-To-Point)
- USB 1.1 or 2.0 compatible devices

Rose Electronics web site

Visit our web site at www.rose.com for additional information on the CrystalView EX5 and other products offered by Rose Electronics that are designed for data center applications, classroom environments, digital wall/signage displays, industrial / military systems, and many other access and switching applications.

Product Registration

Take advantage of the following when you register your Rose Electronics products online at www.rose.com/htm/online-registrationform.htm.

- Rose Electronics standard warranty *Plus* . . . .
- Free Lifetime Firmware Updates
- Free Lifetime Technical Support
- 30 day Money Back Guarantee
- Priority "First-In-Line" Status for Technical Support

System Overview

The CrystalView EX5 is a very versatile and flexible system that can be easily and quickly installed.   You can position your computer anywhere within 330 feet of the Receiver unit and access and control it as if you were directly connected to the computer. You can control and use a USB keyboard, USB mouse, webcam, flash drive, USB speakers, microphone and other compatible USB devices.

The versatility of the CrystalView EX5 makes it ideal for security, medical, signage, and industrial applications where remote access is required.

The Receiver unit has 3 USB Type A connectors. These are usually connected to a USB mouse, USB keyboard, and a USB HUB. The CrystalView EX5 supports up to 13 USB devices and 4 HUB levels.

Models

Transmitter – Front View	Indicators
	Power Link USB Video
Transmitter – Rear View	Connectors
	DVI-D In Config USB Type B Link Power (+5V / 3A)
Receiver – Front View	Indicators
	Power Link USB Video
Receiver – Rear View	Connectors
	DVI-D Out Headphone Out Microphone In Config Link Power (+5V / 3A)

Figure 1. Models

Transmitter - Front Panel

Indicator	Description
Power (Green LED)	On = Ready / Off = No power /
Link (Green LED)	On = Valid Link between Transmitter and Receiver Off = No Link
USB (Green LED)	On = Properly enumerated on host computer Off = No Link Blinking = host is in suspend mode
Video (Green LED)	On = Valid HDCP activity between the Transmitter and host computer Off = No Video activity Blinking = Normal video is being transmitted between the Transmitter and Receiver

Transmitter - Rear panel Connectors

Connector	Description
DVI-D In	DVI-D Video Input from Host computer (Supplied)
Config	Reserved for company use only
USB Type B	USB input from Host computer (Supplied)
Link (RJ45)	Connection for a CAT5e or better cable to the Receiver unit
Power	+5V, 3A power adapter (Supplied)

Table 1. Transmitter Indicators/Connectors

Receiver - Front Panel

Indicator	Description
Power (Green LED)	On = Ready / Off = No Link
Link (Green LED)	On = Valid Link between Transmitter and Receiver Off = No Link
USB (Green LED)	On = Properly enumerated on host computer Off = No Link Blinking = host is in suspend mode
Video (Green LED)	On = Valid HDCP activity between the Transmitter and host computer Off = No Video activity Blinking = Normal video is being transmitted between the Transmitter and Receiver

Receiver - Rear Panel
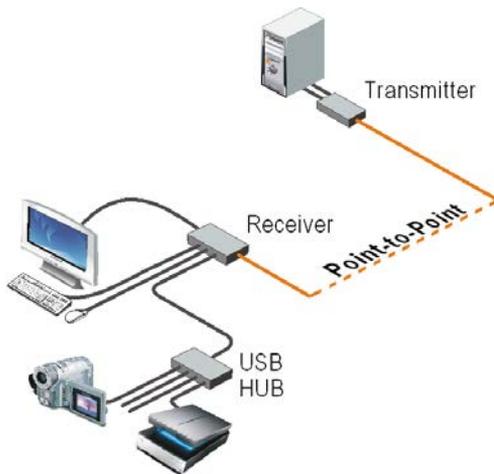
Connector	Description
DVI-D Out	DVI-D Video connector to the monitor
Config	Reserved for company use only
USB Type A	Connection (3) for remote USB devices
Link (RJ45)	Connection for a CAT5e or better cable to the Transmitter unit
Power	+5V, 3A power adapter (Supplied)

Table 2. Receiver Indicators / Connectors

System Installation

Before installing the CrystalView EX5, pre-plan 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 a location that is 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 EX5 is installed in a "Point-To-Point" configuration. This is easily done by connecting a CAT5e* cable (330 ft / 100m) directly from the Transmitter's RJ45 port to the Receiver's RJ45 port.

Figure 2. Typical Installation

Transmitter installation

(Refer to Figure 2)
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 (1.1 or 2.0) Type A port 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 CAT5e* cable (not supplied) from the Transmitter's RJ45 port to the Receiver's (RJ45) connector.
5. Connect the supplied 5V, 3A power adapter to an AC outlet and to the Transmitter's power port.

Receiver installation

(Refer to Figure 2)
1. Locate the Receiver unit near the monitor and USB devices.
2. Connect a DVI monitor cable to the DVI-D out connector on the Receiver's rear panel.
3. Connect your 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 CAT5e* cable (not supplied) from the Transmitter's RJ45 port to the Receiver's RJ45 connector.
5. Connect the supplied 5V, 1A power adapter to an AC outlet and to the Receiver's power port.

* CAT5 cable – It is recommended that only CAT5e or better, UTP 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 CAT5e cable length for a point-to-point configuration 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.
(Refer to Table 2 and Table 3)

If the Link LED is off, the CAT5e cable from the Transmitter and Receiver are not connected.

The Power LED should be solid green. If it is off the system is not ready.

Connecting USB Devices

Up to 13 USB 1.1 or 2.0 devices can be connected to the Receiver unit using USB Hubs. 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 when connected directly to a computers USB port.

1. Install the USB device according to the manufactures procedure and any required software to operate the USB device
2. Connect the USB device to the Receiver's USB ports or a HUB port
3. Verify that the operating system has recognized the USB device and, if needed, installed the proper drivers 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 all of the USB devices. If the total power is greater than 500ma, use a powered Hub to supplement the power to the devices.

The CrystalView EX5 is compatible with a wide variety or graphic cards, monitors, USB devices, and operating systems.

System Operation

The operation of the CrystalView EX5 is no different than operating your computer with your keyboard, monitor, mouse, and USB devices directly connected to it. The only difference is the computer can be located anywhere within 330 feet from the Receiver unit. Applications can be executed, files opened, edited, and saved, upgrades can be performed and normal system operations can be performed as if you were directly connected to your computer.

System Troubleshooting

All LEDs on the Transmitter or Receiver are off

- Check the DC power adapter connection to the Unit
- Verify there is power at the power source

Link LED on the Transmitter and Receiver are off

- Check the CAT5e Link connections on the Transmitter and Receiver

Video and/or USB performance is not satisfactory

- High amount of network traffic, reduce the number of CrystalView EX5 units on the network or reduce the network traffic.

Graphic/video settings do not list the specific resolution

- Up to date video drivers are not installed
- Resolution is not supported (See Appendix B)

The CrystalView EX5 Transmitter and Receiver indicators will provide information about the operation, connectivity and data transmission. Observe these indicators and refer Table 1 and Table 2 for a description of the indicator states.

Product Safety

The CrystalView EX5 extender has been tested for conformance to safety regulations and requirements, and has been certified for international use. Like all electronic equipment, the CrystalView EX5 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 EX5.
- 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.

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.

Appendix A – General Specifications

Part numbers

CrystalView EX5	CRK-1DTXT-EX5
USB Cable	CAB-USBAB005
DVI Cable	CAB-DVIDMM005
+5V,3A power adapter	TRF-05D300FSUB
Rack Mount Kit	RM-CRV-EX/19

Distance 330 feet (100m) Point-to-point

Resolution 1920 x 1200

USB Device Support USB 2.0 High-Speed (at reduced bandwidth)
Full Speed (USB 2.0 & 1.1)
Low Speed (USB 2.0 & 1.1)

USB Hub Support Up to 4 USB hubs plus one CrystalView
Extreme -5 in any single chain

USB Devices Supported A maximum of 13 USB devices

Receiver USB port power 500 mA at each port (3)

Transmitter Data
Video connector DVI-D (24 pin female)
USB connector 1 x USB Type B
Link connector 1 x RJ45F
Dimensions 4.4 in x 6.9 in x 1.18 in
(112 mm x 175 mm x 30 mm)

Receiver Data
Video connector DVI-D (24 pin female)
USB connector 3 x USB Type A
Link connector 1 x RJ45F
Dimensions 4.4 in x 6.9 in x 1.18 in
(112 mm x 175 mm x 30 mm)

Operating Temp 32°F to 104°F (0°C to 40°C)
Storage Temp -4°F to 158°F (-20°C to 70°C)

Operating Humidity 20% to 80% non-condensing
Storage Humidity 10% to 90% non-condensing

Regulatory Testing FCC Part 15 Class A, CE, ICE20030 Class A

Server Management

Solutions