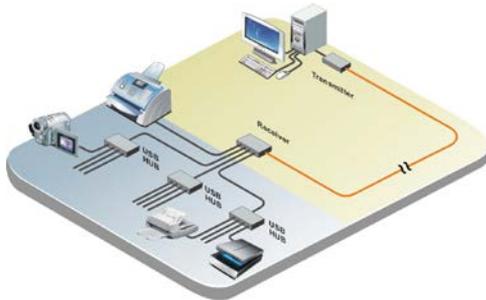


ROSE.COM

# INSTALLATION AND OPERATIONS MANUAL



Part Number CLK-4U2TP-100M



# LIMITED WARRANTY

Rose Electronics<sup>®</sup> warrants the Crystallink™ USB 2.0 CAT5 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.

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. 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-CRLUSB2p4  
Printed In the United States of America - Revision

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

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.

**EUROPEAN UNION DECLARATION OF CONFORMITY**



The Declaration of Conformity is based upon compliance of the product with the following harmonized standards:

EN55022 + A1	2007- Class B
EN61000-3-2	2006
EN61000-3-3	2003
EN55024	1998 : +A2:2003

**IC Statement**

This Class B digital apparatus complies with Canadian ICES-003

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## 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® CrystalLink™ USB 2.0 CAT5 extender. The CrystalLink USB 2.0 CAT5 extender is the result of Rose Electronics commitment to providing state-of-the-art solutions for today's demanding workplace. The CrystalLink USB 2.0 CAT5 has proven to be a valuable investment for any business, big or small, that has a need to access and extend their USB 1.1 or 2.0 peripherals from a remote location. This location can be up to 330 feet (100m).

The receiver unit's USB ports connect to your USB peripherals. The number of peripherals can be increased by using a standard USB hub.

The USB peripherals can be USB 1.1 devices (low-speed or full-speed) or USB 2.0 high-speed devices operating up to 480 Mb/s. The receiver unit can supply up to 500 ma per USB port for driving high-power USB devices.

Plug-and-play installation makes installing the transmitter and receiver simple and easy. Connect the transmitter to the computers USB port, connect the USB ports on the receiver to your USB devices, connect the transmitter to the receiver with up to 330 feet of industry standard CAT5 or better cable, connect the 5VDC power adapter to the Transmitter and receiver and power on the system.

The USB devices will function normally as if they are directly connected to your computer's USB port even though they are up to 330 feet away.

## Features

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- Supports USB 1.1 (low and full speed) and USB 2.0 (high-speed)
- Extends USB devices up to 330 feet (100m) over CAT5 or better cable
- Four USB ports on the receiver unit
- +5VDC Power adapter for the Transmitter and Receiver
- Standard USB hubs can be used to increase the number of connected USB devices up to 14.
- Up to 500 ma of power is available at each USB port for powering high-power USB devices
- Plug-and-Play installation , no configuration or set-up needed
- Operating system independent, supports all major operating systems

## Package contents

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The package contents consist of the following:

- The CrystalLink USB 2.0 transmitter and receiver units
- 5 VDC power adapter (Receiver unit)
- Installation and operations manual CD.

CAT5 and USB 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.

## Rose Electronics web site

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Visit our web site at [www.rose.com](http://www.rose.com) for additional information on the CrystalLink USB 2.0 CAT5 extenders and other products that are designed for data center applications, classroom environments and other applications.

## About this manual

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This manual covers the installation and operation of the CrystalLink USB 2.0 CAT5 extender.

**CrystalLink USB 2.0 CAT5 model**

## Transmitter

**Indicator LEDs**

- Power ●
- Link ●
- Host ●
- Activity ●

**Connectors**

- Power - 24V DC
- USB - Type B
- Link - RJ45F

Power LED (Blue)	On when power is supplied from the computer's USB port, Off when no power is supplied
Host LED (Green)	On when installed properly
Link LED (Green)	On when a link between the transmitter and receiver is established, Off when no link is detected
Activity LED (Amber)	Blinks when data is transmitted

## Receiver

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### Indicator LEDs

Power	
Link	
Host	
Activity	

### Connectors

Power - 5V DC  
USB – (4) Type A  
Link - RJ45F

Power LED (Blue)	On when power is supplied from the computer's USB port, Off when no power is supplied
Host LED (Green)	On when installed properly
Link LED (Green)	On when a link between the transmitter and receiver is established, Off when no link is detected
Activity LED (Amber)	Blinks when data is transmitted

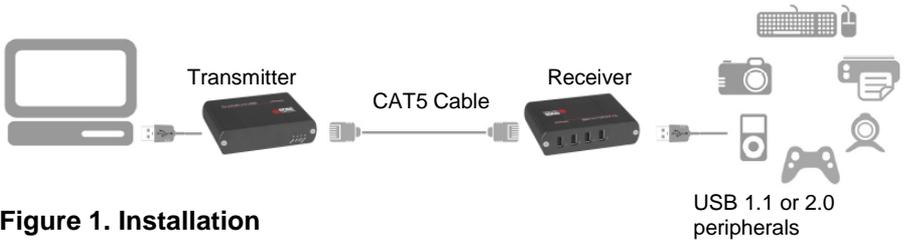
## Cables

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The only cable(s) needed are industry standard CAT5 or better cable(s). For surface cabling, do not exceed the maximum cable length of 330 feet (100m).

For Premise cabling, the maximum CAT5 cable length including patch cables should not exceed 330 feet (100m). The combined length of any patch cable using stranded conductors must not exceed 33 feet (10m).

Figure 1 outlines the basic installation of the CrystalLink USB 2.0 CAT5 extender. The installation steps below are a guide to properly install the units and cabling.



**Figure 1. Installation**

Before you install the CrystalView USB 2.0 CAT5 extender, it is recommended that you pre-plan your system layout, consisting of the placement of the computer, the routing of the CAT5 cabling, the location of the transmitter and receiver, and the location of the USB device(s).

1. Connect the transmitters USB Type A/B cable to an unused USB Type A port on the computer and the USB Type B port on the unit.
2. Connect the provided power adapter to the power jack on the transmitter and receiver units. Use only the furnished power adapter. Other power adapters may cause permanent damage to the receiver unit and void the warranty.
3. Connect up to 330 feet (100M) of industry standard UTP CAT5 or better cable terminated with RJ45M connectors to the transmitter's and receiver's RJ45F port.
4. Connect the provided power adapters to a 100/240 V AC 50 – 60 Hz power source.
5. Install any required software to operate the USB device(s).
6. Connect the USB peripheral to the USB Type A connector on the receiver unit.

## Verifying the installation

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1. Check that the USB device is detected and installed properly in the operating system.
2. Verify that the CrystalView USB 2.0 extender has installed correctly. Open the Device manager and expand the USB controller section (click on the + sign). You should see the unit listed as a Generic USB Hub.
3. Verify the Power, Host, and Link LEDs are on and the Activity LED is blinking. If any LED is off, check the CAT5 cabling.

## Operating Instructions

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Operating your Crystallink USB 2.0 extender is no different than having your USB peripherals directly connected to your computer's USB port.

Any compatible USB 1.1 or 2.0 device can be totally controlled and operated normally with no special configuration or commands. USB printers, digital cameras, scanners, or any compatible USB 1.1 or 2.0 device will function properly. If more than 4 USB device need to be remotely accessed, you can add a standard USB hub to increase the number of USB devices up to 14 devices, including hubs.

When using a USB hub, keep in mind that the USB port on the receiver can supply up to 500ma of current per USB port. Connecting a 4-port USB hub to the receiver port receives a max current of 500ma to the USB hub or 125ma per hub port. UP to 14 USB devices, including additional USB hubs can be connected to the receiver unit. Powered USB hubs may be need if several high powered USB devices are connected.

## Troubleshooting Guide

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The troubleshooting section is used as a guide to understanding the capabilities of the CrystalLink USB 2.0 CAT5 extender and for general troubleshooting. If you have any problems or questions concerning the installation, operation or usage of the CrystalLink USB 2.0 CAT5 extender that is not covered in this manual, please contact Rose Electronics for technical support.

### **All LEDs on the transmitter or receiver are off**

- Verify that the power adapter is connected to the unit and to a live power source

### **Link LEDs on the transmitter and receiver are both off**

- Verify the CAT5 cable is securely connected to the transmitter and receiver RJ45 connectors

### **Host LED on the transmitter is off**

- Verify the USB cable from the transmitter to the computer's USB port
- Verify that the computer supports USB hubs
- Verify that the CrystalLink USB 2.0 CAT5 is recognized in the device manager as a Generic USB Hub, if not, contact tech support

### **All LEDs are on but the USB device does not operate correctly**

- Connect the USB device directly to the computer's USB port. If the device functions properly, connect a different type of USB device to the receiver port the non-operating USB device was connected to. If this device does not function, the unit may be malfunctioning, contact tech support. If the device operates properly, the first USB device may not be compatible with the CrystalLink USB Fiber extender. Contact tech support for assistance.

## Safety

---

The CrystalLink USB 2.0 CAT5 extender has been tested for conformance to safety regulations and requirements, and has been certified for international use. Like all electronic equipment, the CrystalLink USB 2.0 CAT5 extender 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 provided power adapter.
- 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.

## Safety and EMC Regulatory Statements

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### 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

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.

## 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 CrystalLink USB 2.0 CAT5 extender 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.

## Appendix A. General Specifications

Max distance	330 feet (100 meters) over CAT 5 (or better) stranded or solid conductor cable
USB device support	High-speed devices (480 Mb/s) (USB 2.0) Full speed devices (12 Mb/s) (USB 2.0 & 1.1) Low speed devices (1.5 Mb/s) (USB 2.0 & 1.1)
USB hub support	Any single chain can include up to 4 USB hubs plus one Receiver
USB host support	EHCI (USB 2.0) and OHCI/UHCI (USB 1.1)
Maximum USB devices Supported (Incl. USB Hubs)	14 USB Devices including any additional USB hubs connected to the receiver.
AC adapter <b>Use only the AC adapter provided</b>	Input: 100/240 V AC, 50 – 60 Hz Output: 5 V DC, 1.0 A (Transmitter and receiver)
Power available to USB device at receiver unit	500 mA per USB port
USB connectors	1 x USB Type B connector (Transmitter) 4 x USB Type A connectors (Receiver)
Link connectors	RJ45
Dimensions (Transmitter / Receiver)	W-3.94 D-2.99 H-1.02 100 mm x 76 mm x 26 mm
Shipping weight	2.0 lbs (0.9 kg)
Operating temperature	32°F – 122°F ( 0°C – 50°C)
Humidity	20% - 80% RH non-condensing
Regulatory testing	FCC Class B, IC (Class B) , CE (Class B)
ESD rating	EMC EN-61000-4-2 4kV Contact, 8kV Air

## Appendix B. Part Numbers and Cables

Part Number	Description
CLK-4U2TP-100M	USB 2.0 CAT5 Transmitter & Receiver Kit



**Server Management**



**Solutions**

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