CrystalLink USB3.0 Extender Cable

USB3.0 Active Extender Cable

Installation
and
Operation Manual

ROSE ELECTRONICS

LIMITED WARRANTY

Rose Electronics® warrants the CrystalLink USB3.0 Extender Cable 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.
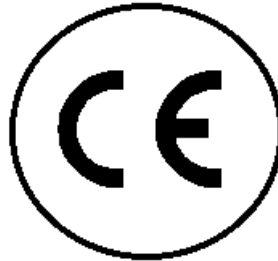
SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CONSUMER PRODUCTS, SO THE ABOVE MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

DECLARATIONS OF CONFORMITY

This is to certify that, when installed and used according to the instructions in this manual, the units listed and described here are shielded against the generation of radio interferences in accordance with the application of Council Directives 2014/30/EU and 2014/30/EU, as well as these standards:

- EN 55022: 2010/AC:2011 (Class B)
- EN 55024:2010 + A1:2015
- EN 61000-3-2
- EN 61000-3-3

This equipment has been 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 their own expense.

The product safety of the devices is proven by their compliance with the following standards:

- CAN/CSA-ICES-003

These devices comply with Directive 2011/65/EU of the European Parliament and of the council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS 2, RoHS II). The device labels carry a respective marking.

TABLE OF CONTENTS

Contents

Figures

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).

Product Introduction

Thank you for choosing the Rose Electronics CrystalLink USB3.0 extender cable. The USB3.0 extender cable delivers the advantages of super high-speed, 5Gbps USB3.0 throughput over copper cable. Simply plug the cable into the host transmitter device and connect the remote end to a USB3.0 camera or other USB3.0 high-speed device.
The USB3.0 extender cable provides transparent USB extension in a true plug-and-play format, with no software or drivers required. The cable works with all major operating systems, including Windows®, Mac OSX® and Linux®. The cable works with AIA USB3.0 Vision™ compliant devices such as machine vision cameras.

The instructions in this manual assume a general knowledge of computer installation procedures, familiarity with cabling requirements, and some understanding of USB device operation. No external power is required to operate this device.

Features

- Extend USB3.0 high speed devices up to 50ft (15m)
- Supports transparent USB3.0 throughput up to 5Gbps
- Active cable, powered from the USB interface
- USB3.0 output port provides 5V, 900mA power
- USB locking connector included
- Status LED at the device port with power, enumeration and over-current indication
- Plug-and-play, requires no software or drivers
- Rugged grade active copper cable
- Works with AIA USB3.0 Vision™ compliant devices

CAUTION: this product is not backward compatible with USB1.1 and USB2.0 devices

Package Contents

The package contents consist of the following:

- CrystalLink USB3.0 active extender cable
- Cable Tie
- User Manual

Additional Items required

- USB Powered Hub (for remote port expansion)

Application Examples

The CrystalLink USB3.0 extender cable enables users to extend beyond an approximate 10ft (3m) cable limit for USB 3.0 peripheral devices by extending up to 50ft (15m) from the host computer.
The CrystalLink USB3.0 extender cable features:

- Transparent USB extension
- True plug and play; no software drivers required
- Works with all major operating systems: Windows®, Mac OS X®, and Linux®
-

The CrystalLink USB3.0 extender cable is a single-port USB 3.0 SuperSpeed active copper extension cable that is designed to work with AIA USB3 Vision™ compliant devices such as machine vision cameras.

MODELS

CrystalLink USB3.0 Extender Cable

CrystalLink USB3.0 Active Extender Cable

Figure 1. CrystalLink USB3.0 extender cable

ITEM	REFERENCE	DESCRIPTION
1	LED light is GREEN	Active cable is powered on
	LED light is RED	Active cable is not powered properly, or not detected by host
2	USB3.0 Type A Locking Connector	Connects to USB 3.0 device. Port can accept USB 3.0 standard connector and locking-type connector as per AIA USB3 Vision standards.
3	USB3.0 Host Connector	Connects to the USB3.0 port on the host computer
4	USB Power Connector	An additional power supply that can be connected to the host computer. It is recommended to plug this power connector into the host computer, especially for USB devices that draw more than 2.5W of power.

Figure 2. Description of connector parts

INSTALLATION

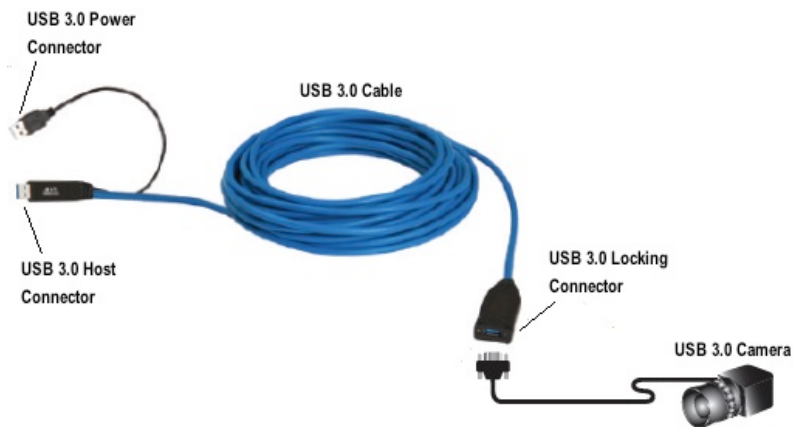## Installation Guidelines

Figure 3. USB3.0 extender cable – standard installation

Requirements

To complete installation, you will also require the following items:

- USB 3.0 compatible computer (host computer) with a USB 3.0 compliant operating system
- USB 3.0 compatible device (e.g. camera or storage drive)
- Optional: cable to connect the USB 3.0 device to the CrystalLink Cable Extender (if required, e.g. USB 3.0 camera)

NOTE: The CrystalLink USB3.0 extender cable will not operate on a USB 2.0 port; please ensure you connect it to a USB 3.0 port.

Cable Connection

Before you get started, ensure that all the drivers required for your USB 3.0 device(s) are installed.

- Plug the USB 3.0 host connector into a USB 3.0 port on your computer.
- As required, plug the USB power connector into any USB port on your computer. This step is essential if your USB 3.0 device is not self-powered or draws more than 2.5W of power.
- Attach your USB 3.0 device into the USB 3.0 Type A receptacle at the remote end. AIA USB3 Vision locking USB connectors are supported if needed.
- Conveniently secure your configuration by wrapping the included cable tie around the USB 3.0 receptacle's two mounting slots.
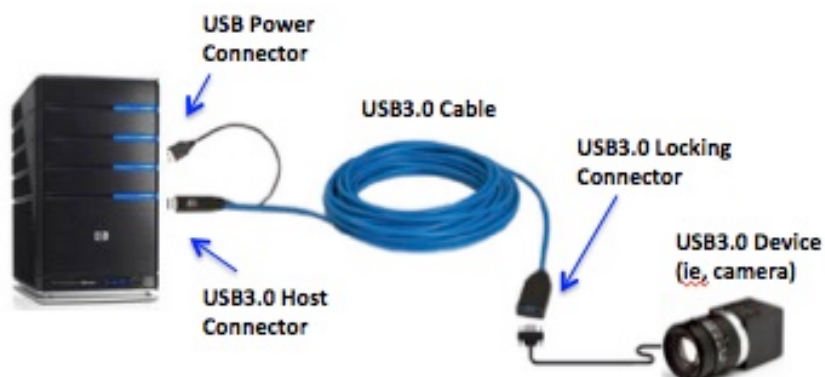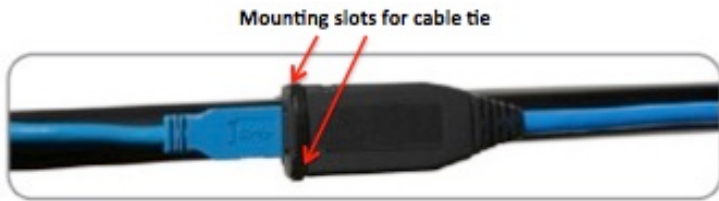

Figure 4. Completed installation diagram

Figure 5. Cable-tie slots

Most USB 3.0 self-powered devices and flash drives require less than 2.5W of power, while many of the USB 3.0 cameras need more than 2.5W of power. When more than 2.5W of power is required, both connectors of the CrystalLink USB3.0 Extender should be plugged into the host computer.
NOTE: The CrystalLink USB3.0 is a rugged and robust cable. However, it can be subject to damage if it is bent beyond the bend radius of 28mm (1.10"). For optimal performance, use the cable according to the product specifications.

Compatibility

The CrystalLink USB3.0 extender cable complies with USB 3.0 specifications governing the design of USB devices. However, this does not guarantee that all USB 3.0 devices are compatible with the extender cable, as there are a number of different configurations that may impact the operation of USB 3.0 devices over extended distances.

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
The LED light on the cable is RED	• The USB 3.0 device draws more than 2.5W of power and the USB power connector is not plugged in. • The USB3.0 extender cable is not recognized by the host computer. • The host computer is not providing enough power. • The USB3.0 extender cable is malfunctioning.	• Disconnect the USB3.0 extender cable from your host computer. • Plug in the USB power connector first, and then plug into the host connector. • If this problem persists, move the USB power connector to another USB port on the host computer. • Contact Technical Support for assistance.
The LED light on the cable is green but the USB 3.0 device does not operate correctly or is detected as an "Unknown Device" in the operating system.	• The USB 3.0 device enumerates on USB 2.0 prior to USB 3.0. • The USB 3.0 device is malfunctioning. • The computer does not recognize the USB 3.0 device. • The application software for the device is not operating. • The USB3.0 extender cable is malfunctioning.	• Disconnect the USB3.0 extender cable from the computer. • Connect the USB device directly into the USB 3.0 port on your computer. • If your USB device does not operate properly, consult the user documentation for this device. • Update your system BIOS, chipset, or USB Host controller drivers from your System/Mother board manufacturer's website. • If your USB device operates properly when directly connected to the computer, connect another USB 3.0 device (of a different type) to the USB3.0 extender cable. Connect the USB3.0 extender cable to your computer. • If your second USB 3.0 device does not operate, the USB3.0 extender cable may be malfunctioning. • Contact Technical Support for assistance. • If your second USB 3.0 device does operate properly, your first device may not be compatible with the USB3.0 extender cable.

PRODUCT SAFETY

Safety

The CrystalLink USB3.0 extender cable, like all electronic equipment, 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.
- Keep connection cables clear of obstructions that might cause damage to them.
- Use only power cords, power adapter and connection cables designed for this Unit.
- 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.
- Do not use liquid or aerosol cleaners to clean this Unit. Always unplug this Unit from the power source before cleaning.

Remove power from the unit and refer servicing to a qualified service center if any of the following conditions occur:

- The 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 installing your product, consult the appropriate section 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

Part Numbers	Description
CLK-CAB1U3TP-15M	CrystalLink USB3.0 extender cable, 1 port active copper cable, 50ft (15m), 5Gbps
Cable Characteristics	
Cable Diameter	.27" (6.9mm) with PVC jacket material
Minimum Bend Radius	1.10" (28mm)
Cable Distance	50ft (15m)
Cable Speed	Up to 5Gbps, (not backward compatible with USB1.1/2.0)
Power Requirements	
Power source	Bus power or +5V,900mA through the USB connector at the CPU end when both USB connectors are plugged into the host computer
Connectors	
Host Side (Computer)	1 x USB3.0 host connector and 1 x USB3.0 power connector (recommended for devices drawing more than 2.5W)
Device Side (USB3.0 device)	1 x USB3.0 Type A locking connector per AIA USB3.0 Vision™ specification
Mounting Slots	Slots for cable-ties on either side of the USB3.0 locking connector
Environmental	
Operating Temp	32°F to 113°F (0°C to 45°C)
Storage Temp	-4°F to 158°F (-20°C to 70°C)
Operating Humidity	20% to 80% relative, non-condensing
Storage Humidity	10% to 90% relative, non-condensing
Approvals	FCC Part 15 Class B, CE Class B, ICES-003 Class B, EMC EN55022, EN55024, EN61000, VW-1 (UL1581) Flammability, RoHS2 (CE)

ROSE.COM

WWW.ROSE.COM ▪ **sales@rose.com** ▪ **(800) 333-9343**

Rose Electronics ▪ 10707 Stancliff Road ▪ Houston, Texas 77099
Rose USA (281) 933-7673 ▪ Rose Europe +49 (0) 2454 969442
Rose Asia +65 6324 2322 ▪ Rose Australia +61 (0) 421 247083

ROSE
ELECTRONICS

WWW.ROSE.COM