

Xcion Extender

DVI / VGA / HDMI / USB 2.0 KVM Extender over CATx / Fiber

ROSE.COM

Installation and Operation Manual



LIMITED WARRANTY

Rose Electronics warrants the Xcion Extender 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.

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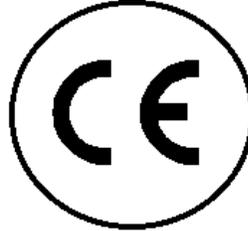
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DECLARATIONS OF CONFORMITY

This is to certify that, when installed and used according to the instructions in this manual, together with the specified cables, the Units listed in Appendix B are shielded against the generation of radio interferences in accordance with the application of Council Directives 2006/95/EC and 2004/108/EC, as well as these standards:

- EN 55022: 2010 (Class A)
- EN 55024: 2010
- EN 61000-3-2: 2014
- EN 61000-3-3: 2013



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:

- EN 60950-1: 2006+A2:2013
- IEC 60950: 2005
- LASER CLASS 1: EN 60825-1:2007 compatible with IEEE 803.3z

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.

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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 Xcion family of extenders. They are the result of Rose Electronics commitment to providing state-of-the-art solutions for today's demanding workplace. The Xcion Digital Extender is the ideal device for extending HDMI, DVI or VGA video and USB with no loss of video quality.

The Xcion Extender is available in three models offering a choice of DVI or VGA extension over CATx or Fiber, or HDMI extension over CATx. Signals can be extended up to 492 ft (150m) over CATx or 1640 ft (500m) over multi-mode fiber cables. Video signals up to full HD 1080p and 1920 x 1200 @ 60Hz are supported.

The Receiver unit supports up to 4 directly connected USB1.1 and USB2.0 devices at speeds up to 12Mbps. Devices such as keyboards, mice, touch screens, tablets, scanners, integrated hub-type keyboards, or printer can be connected. Optional external storage device support can be added by entering an "unlock code" in the OSD menu. The remote USB hub is a built-in 4-port USB high speed Hub.

Every Xcion extender is packaged in a compact steel chassis, ideal for use in industrial applications and at installation sites requiring a robust and durable product. The Transmitter and Receiver chassis can be rack mounted in a rack cabinet, with up to 4 units side-by-side on a 1U shelf, as well as wall, table or DIN rail mounted.

Features

- Extends full HD 1080p and 1920 x 1200 @ 60 Hz digital or analog video with no loss of quality
- Transparently extends USB 2.0 devices at speeds up to 12Mbps
- Distances up to 492 ft (150 m) over CATx or 1640 ft (500 m) over multi-mode fiber
- Optional Serial RS232 and analog audio support in the DVI/VGA models
- Local video/monitor connection at the transmitter
- Choice between 5 internal EDID sets, plus the ability to select either remote or local monitor EDID via the OSD menu
- 4 units can be mounted in a 1U 19" rack

Package Contents

The package contents consist of the following:

- 1 x Transmitter
- 1x Receiver
- 1 x DVI cable or 1 x HDMI cable, depending on the model
- 1x USB Cable
- 2 x 12V 1 Amp Power Supply Units
- 4 x Mounting Pads
- 4 x Rubber Feet
- Manual

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

Xcion Models

The Xcion is available in three distinct models as described below.

Front View All Models



Figure 1. Xcion Extenders Transmitter and Receiver Front View

Rear View DVI CATx and Fiber Models



Figure 2. Xcion DVI CATx Receiver and Transmitter Rear View



Figure 3. Xcion DVI Fiber Transmitter and Receiver Rear View

Connector Description DVI Models

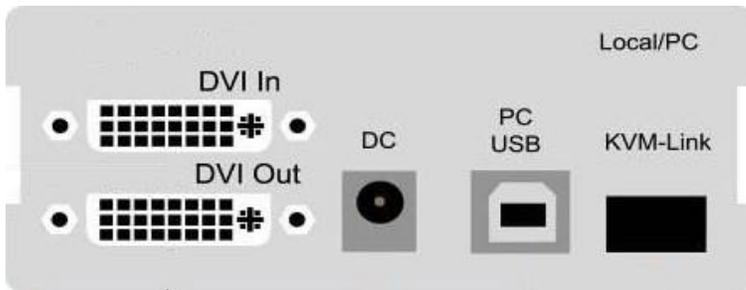


Figure 4. Connectors on DVI Transmitter

1. *DVI In*: Use the supplied DVI cable to connect this port to the DVI port on the source PC.
2. *DVI Out*: Connect a DVI monitor to this port for a local display.
3. *PC USB*: Use the supplied USB cable to connect to the USB port on the source PC.
4. *KVM-Link*: Connect the CATx or Fiber interconnect cable, based on the model, to this port to establish a connection to the Receiver.
5. *DC*: Connect one of the supplied Power Supply Units here, and connect it to an AC power supply.

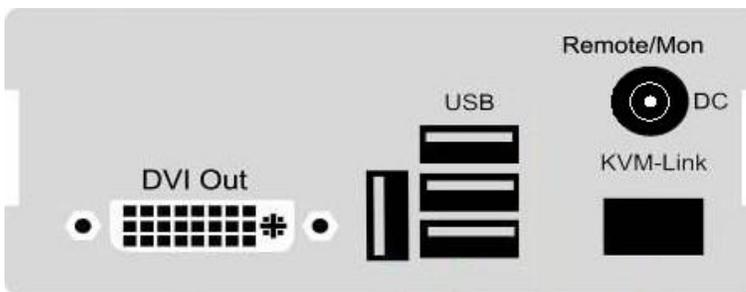


Figure 5. Connectors on DVI Receiver

1. *DVI Out*: Connect the output DVI monitor to this port.
2. *USB*: Connect to USB 2.0 devices including keyboard and mouse. With optional USB memory option, hard disks and flash drives can also be connected here.
3. *KVM-Link*: Connect the CATx or Fiber interconnect cable, based on the model, to this port to establish a connection to the Transmitter.
4. *DC*: Connect one of the supplied Power Supply Units here, and connect it to an AC power supply.

Table 1. Connectors on the Xcion DVI Models

HDMI CATx Model



Figure 6. Xcion HDMI Rear View

Connector Description HDMI Model

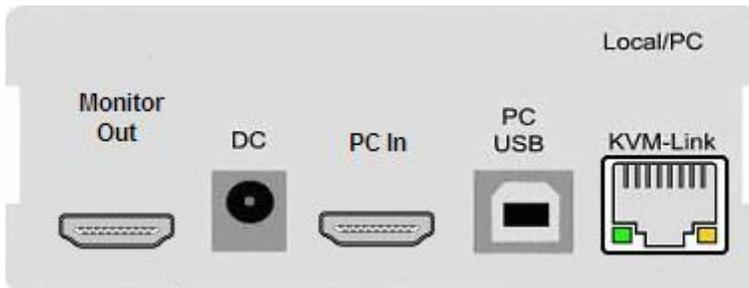


Figure 7. Connectors on HDMI Transmitter

1. *PC In*: Use the supplied HDMI cable to connect this port to the HDMI port on the source PC.
2. *Monitor Out*: Connect a HDMI monitor to this port for a local display.
3. *PC USB*: Use the supplied USB cable to connect to the USB port on the source PC.
4. *KVM-Link*: Connect a CATx cable to this port to establish a connection to the Receiver.
5. *DC*: Connect one of the supplied Power Supply Units here, and connect it to an AC power supply.

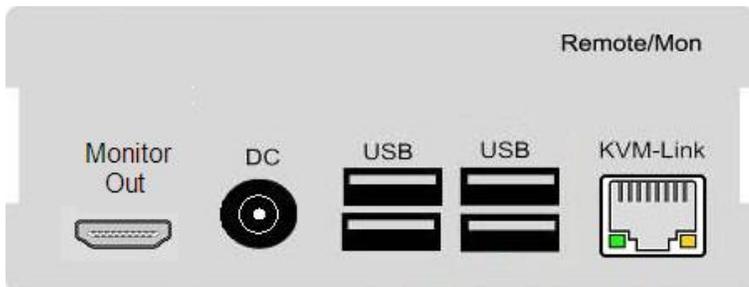


Figure 8. Connectors on HDMI Receiver

1. *Monitor Out*: Connect the output HDMI monitor to this port.
2. *USB*: Connect to USB 2.0 devices including keyboard and mouse. With optional USB memory option, hard disks and flash drives can also be connected here.
3. *KVM-Link*: Connect a CATx to this port to establish a connection to the Transmitter.
4. *DC*: Connect one of the supplied Power Supply Units here, and connect it to an AC power supply.

Table 2. Connectors on the Xcion HDMI Model

INSTALLATION AND OPERATION

Installation

Easy installation and minimal setup allows the extension system to be available for use quickly. Connect the Transmitter to the host computer using the supplied video cable (DVI or HDMI), and to a local display, if desired. Connect the Receiver to the DVI or HDMI output monitor and to USB keyboard and mouse. Depending on the model purchased, the Transmitter is connected to the Receiver with either CATx or multi-mode fiber cable. Apply power to the units. Further configuration can be made in the Extender OSD.

On the CATx model, plug the CATx cable with the appropriate RJ45 plug into the RJ45 socket. See Appendix C for cable specifications. Check that the plug is properly latched in place to prevent faults. To remove the CATx cable press, the latch down and slowly pull the cable out.

The standard DVI Fiber model is equipped with a multimode SFP module. If a different SFP module is used, remove the black dust protector from the SFP module and pull the metal latch of the module forward until it is at a right angle, then remove the SFP module. Follow the same steps in reverse to plug in a new SFP module. When connecting the fiber cable, check that dust protector has been removed and insert the fiber cable in until latch has clicked into place. To remove the fiber cable, press on the latch and slowly remove the cable.

The completed installation for the DVI models is shown the figure below.

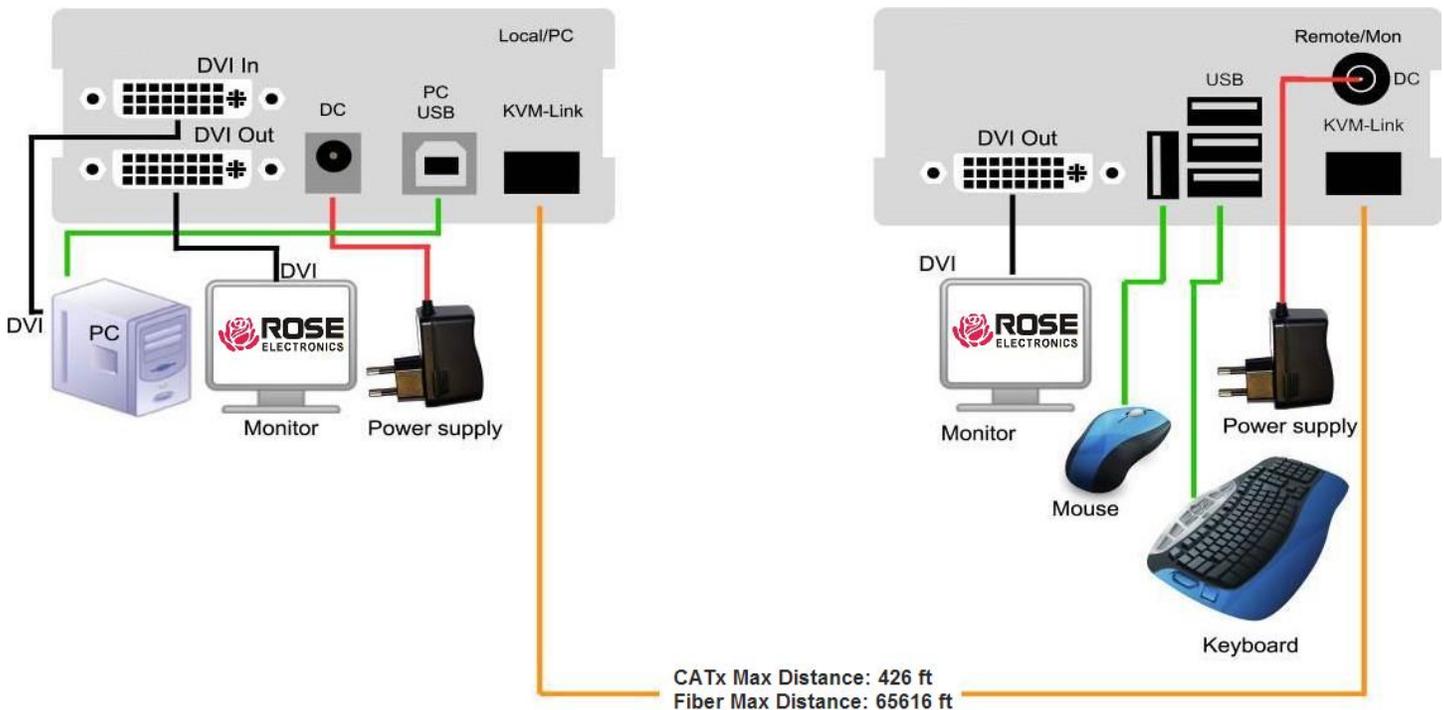


Figure 9. Xcion DVI Extender Installation

The Installation of the Xcion HDMI model will be identical.

Xcion Menu System

This section deals with the menu system of the Xcion Extenders, and the functionality it provides. Various operations to set up the audio, video and serial port can be accessed from these menus. In addition, operations such as enabling the USB memory option and updating the flash firmware are performed here.

The menu system on the Xcion DVI Extender is accessed from a keyboard connected to the Receiver. Press the *Scroll Lock* key five times in quick succession to bring up the menu as shown below.

```
Menu USB High Speed Mem
U = Update Flash FW
M = USB Memory Option
L = Lock Menu disabled
S = Show last image disabled
O = DDC Opt remote monitor
V = VGA parameter
N = Audio Input Gain
P = Power save mode = 0
R = RS232 Baurate up to 9600
I = Monitor sync
Q = Exit
FW Version Rem = 1276 Loc = 1276
```

Figure 10. Xcion Main Menu

Submenus are accessed by pressing the indicated key to the left of the desired menu. The bottom of the main menu displays the current revision of the firmware on the Transmitter and Receiver units.

The following subsections detail how the menu operations are performed in the Xcion Extender.

Update Flash Firmware

Press the *U* key on the keyboard to initiate the upgrade of the flash firmware on the Transmitter and Receiver. The latest version of the flash firmware can be obtained from Rose Electronics. All update files are accompanied by a detailed description of the update process to assist in performing this operation.

USB Memory Option

Press the *M* key on the keyboard to enable or disable the USB Memory option. When enabled, USB memory devices like flash storage and hard drives can be connected to the Receiver and accessed by the PC connected on the Transmitter. This is handled in the *USB High Speed Memory Option* submenu.

```
USB High Speed Memory Option
Enable: send ID to distributor
ID   = 3fe687d5
Enter matching code
code = -----
```

Figure 11. USB High Speed Memory Option Submenu

The USB Memory Option is optional feature of the Xcion Extender, and can be purchased from Rose Electronics. If it is available on the extender, it can be turned on or off in the submenu at any time. Conversely, if the units did not come with this feature enabled, contact Rose Electronics for an enable code. In this case, the submenu will display an ID for the Xcion system. Contact Rose Electronics with this ID, and an unlock code will be provided. When a correct unlock code has been entered, the units will restart, and will display *memory* in the main menu screen's title. Press the *Esc* key to return to the main menu.

Lock Menu

Press the *L* key on the keyboard to lock or unlock the Xcion menu system. When enabled, the menu will be locked five minutes after powering up, removing the ability to enter the menu system. This prevents unauthorized access to the Xcion menu system. The units should be turned off and on again to resume menu operation. The *Lock Menu* submenu is shown below.

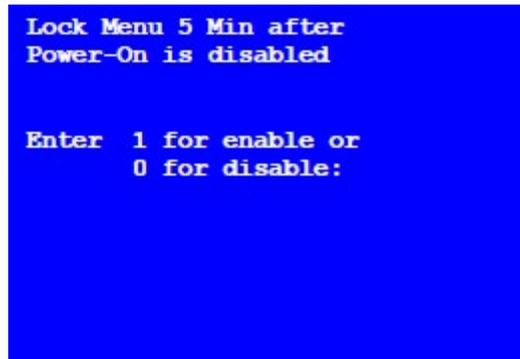


Figure 12. Lock Menu Submenu

Enable this option by pressing *1* on the keyboard, or *0* to disable it. Press the *Esc* key to return to the main menu.

Show Last Image

Press the *S* key on the keyboard to access this option. When enabled, the display on the Receiver will not show a black screen when the connection to the Transmitter has been lost. Rather, the last displayed image will be retained. This image will have flashing red borders to indicate that it is no longer displaying real-time video. Press the *Esc* key to return to the main menu.

DDC Option

Press the *O* key on the keyboard to select which EDID information is to be used for the Xcion system. This can be selected from the *DDC Options* submenu.

```
DDC Options (0)
0 = remote monitor
1 = local monitor
2 = fix actual DDC
4 = KVM-TEC fixed 1024x768
5 = KVM-TEC fixed 1280x1024
6 = KVM-TEC fixed 1680x1050
7 = KVM-TEC fixed 1920x1080
8 = KVM-TEC fixed 1920x1200
```

Figure 13. DDC Option Submenu

The available options are as follows.

- Press *0* to use the DCC information of the monitor connected to the Receiver unit.
- Press *1* to use the DDC information of the monitor connected to the Transmitter unit.
- Press *2* to save the currently used DDC so that the units can continue using it even after being restarted.
- Pressing keys *4* through *8* will use the corresponding preset resolutions.

Press the *Esc* key to return to the main menu.

VGA Parameters

Press the *V* key on the keyboard to modify VGA settings.

```
Shift      up F1  F4 down  0
Shift      <- F2  F3 ->   0
Zoom       out F5  F6 in    2200
Pixelfine  -  F7  F8 +     0

Space = 1/10 steps
M = Video Mode Auto
K = Automatic seek
I = Init VGA Table
S = Save - exit
Q = Quit - no save
```

Figure 14. VGA Parameters Submenu

The available settings are as follows.

- Press *F1* to move the video up or *F4* to move the video down.
- Press *F2* to move the video left or *F3* to move the video right.
- Press *F5* to scale up the video size or *F6* to scale down the video size to get the best fit within the monitor's display area.
- Press the Space Bar on the keyboard to change the increment by which the above settings are modified. Repeatedly pressing the Space Bar cycles this increment value back to 1.
- Press *M* to select the desired video mode, which are
 - *Auto*, where the video mode is automatically detected and set by the Xcion system,
 - *DVI*, where only DVI input is detected, and
 - *VGA*, where only VGA input is detected.
- Press *K* to initiate automatic positioning and adjustment of the video.
- Press *I* to reset these parameters to default values.
- Press *S* to save the settings and exit to the main menu, or *Q* to discard all changes and exit to the main menu.

Audio Input Gain

Press the *N* key on the keyboard to set the volume of the audio input for a microphone connected to the Receiver.

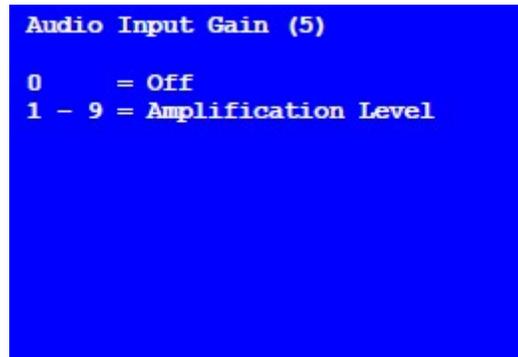


Figure 15. Audio Input Gain Submenu

The default audio level is 5. It ranges from 1 to 9. If the audio level is set to 0, audio input from the Receiver is disabled.

Power Save

Press the *P* key on the keyboard to enable or disable the Power Save setting on the Xcion. When enabled, the Receiver will turn off its video output signal when no video has been received by it for over a minute. This allows a monitor to enter sleep mode, if the monitor supports it. The Receiver can be woken up from Power Save mode by pressing any key on the keyboard.

Monitor Synchronization

Press the *I* key on the keyboard to enable or disable monitor synchronization. When enabled, the refresh rate of the graphics card on the source computer and the remote monitor are adjusted to match one another. This ensures smooth video transmission when the screen content changes rapidly, as when playing a video.

Not all monitors can support this function, so this option is disabled by default. Enable this option by pressing *1* on the keyboard. If the monitor starts to flicker when this option is enabled, press the *0* key on the keyboard to disable it. Press the *Esc* key to return to the main menu.

TROUBLESHOOTING

Troubleshooting

The Power / Status LED on the Front Panel of the Transmitter and Receiver indicate trouble-free working of the system, or various error conditions. The table below describes the error conditions the LED indicates, root causes of these conditions, and provides solutions to resolve them.

LED Indication	Cause(s)	Solution(s)
LED does not light up	The extender has no power	Ensure that the unit is connected to a power source.
LED lights up red	No connection detected between Transmitter and Receiver	Ensure that the interconnect cable (CATx or Fiber) is connected securely on both ends. A clicking noise should be heard when plugging in the cable. Contact Rose Electronics if the problem still occurs.
LED lights up orange	No picture on the monitor	<ul style="list-style-type: none">■ Ensure that the local (PC) cable is connected securely.■ Ensure that the remote (monitor) cable is connected securely.■ If both are connected securely, but no picture appears yet, cycle power to the units.■ If the menu system is visible, press the O key to invoke the DDC Options menu and select an appropriate screen resolution.
LED lights up green	Picture appears on monitor, but keyboard does not work	<ul style="list-style-type: none">■ Unplug the keyboard and then plug it back in. Wait a few seconds for the USB keyboard to be recognized, and try to use it again.■ Check all USB connections on the Transmitter and Receiver■ If the keyboard is still not working, unplug and plug back in the keyboard once more, and cycle power to the units.
	Video disturbances like flickering, artifacts, incorrect display occur, or screen goes blank	Units have incorrect firmware. Contact Rose Electronics for the latest firmware release.
	No audio (Xcion DVI models only)	<ul style="list-style-type: none">■ Connect the microphone to the audio input of the PC (pink).■ Connect the audio output of the PC (green) to the IN port of the Transmitter.■ Connect the OUT port on the Receiver to the headset or speaker.
LED is blinking green	<ul style="list-style-type: none">■ Different firmware revisions on Transmitter and Receiver■ USB device is not compatible	Contact Rose Electronics for Technical Support

Table 3. Troubleshooting the Xcion Extenders

PRODUCT SAFETY

Safety

The Xcion extender system, 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.
- Assure that the placement of this Unit is on a stable surface.
- Provide proper ventilation and air circulation.
- 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 in setting up, configuring or operating your Xcion extenders, 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 (All Models)	
Dimension (W x D x H)	3.88 in x 4.17 in x 1.6 in / 98 mm x 106 mm x 41 mm
Rackmount	Up to 4 channels in a 19" 1U rack
Weight	1.19 lb (540 g)
Video	
Maximum Resolution (All Models)	1080p, 1920 x 1200 @ 60Hz
Input and Output Formats (DVI Models)	DVI
Input and Output Formats (HDMI Model)	HDMI, DVI with adapter
EDID Support (All Models)	Internal EDID; user updatable
Cables	
CATx	Solid-Core, CATx5e/6/7. EIA/TIA568-A, 24AWG or greater. Use shielding, or use STP. Maximum Distance: 492 ft (150 m)
Fiber	<ul style="list-style-type: none"> ▪ Duplex Multimode, 50/125µ, LC-type ▪ Maximum Distance : 1640 ft (500 m) ▪ Optional Single mode LC, Gigabyte LWL ▪ Maximum Distance : 65617 ft (20km)
Configuration	
	From OSD accessed from Receiver unit
LEDs	1 x Power / Status LED on Front Panel : Red = No Video, Green = Video Signal
Audio	
DVI CATx and Fiber Models	<ul style="list-style-type: none"> ▪ Optional Analog Audio ▪ Stereo transmission in CD quality ▪ Resolution: 16 bit, 44.1 kHz ▪ Line in / Line out ▪ Microphone input on remote client with +20 dB boost function
HDMI Model	Audio over USB; requires external USB adapters
Serial	
DVI CATx and Fiber Models	<ul style="list-style-type: none"> ▪ Optional RS-232 Serial ▪ V24 Serial Interface ▪ Unlimited parity and number of bits ▪ 57600 baud maximum transfer rate ▪ 9-pin connector ▪ Transmits all modem signals (DCD, DTR, DSR, RTS, CTS and RI)
HDMI Model	RS-232 Serial over USB, requires external USB adapters
Environmental	
Operating Temperature	32°F to 113°F (0°C to 45°C)
Storage Temperature	-4°F to 158°F (-20°C to 70°C)
Relative Humidity	0% to 80% relative, non-condensing
Power	
	100-250VAC, 12VDC, 1A
Approvals	FCC Class A, UL, CE, RoHS 2

Table 4. Xcion Extender Specifications

Appendix B – Part Numbers

Product	Part Number
Xcion DVI / VGA over CATx	XCK-2DTXUD1D
- USB 2.0 High Speed Option (64 Mbps)	/T
- Analog Audio/RS232 Serial Option	/AS
- VGA Option	/V
- Switch Mode Option for distributed KVM switching	/SM
Xcion DVI / VGA over Fiber	
- Xcion Multimode	XCK-2DFMUD1D
- Xcion Singlemode	XCK-2DFSUD1D
- USB 2.0 High Speed Option (64 Mbps)	/T
- Analog Audio/RS232 Serial Option	/AS
- VGA Option	/V
- Switch Mode Option for distributed KVM switching	/SM
Xcion HDMI over CATx	XCK-2DTXUH1H
- USB 2.0 High Speed Option (64 Mbps)	/T
- Switch Mode Option for distributed KVM switching	/SM

Table 5. Xcion Extender Part Numbers

Appendix C – Cable Specification

CAT5/6/7 Cables

The pins are connected 1:1.

EIA/TIA-568 B Schema

Pin	Color
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown

Table 6. CATx Cable Pins

Notes:

- The pins are connected to EIA/TIA-568A (rare) or EIA/TIA-568 B (common) pairs. Erroneous assignments can not be found with a simple cable tester.
- The pins for the green pair of wires are not placed adjacent to one other. The cable must at the very least meet the CAT5 specifications and be suitable for Gigabit transmission.

Shielded installation cable with min. cross section of 24AWG throughout the length, shield is contiguous and connected to both ends. Shielded patch cable is allowed for connection to the device.

Applicable standards: Class D ISO/IEC 11801:2002 or EN 50173-1:2002

Fiber Cables

Multi-Mode (Standard):

The Xcion Fiber Model comes with a LWL Multimode SFP Module, which allows transmissions up to a distance of 1640 ft (500m). It requires a dedicated fiber connection with cable type Duplex Multimode 50/125 μ (OM2), LC connector.

Single-Model (Optional):

Optionally, the Xcion can come with a LWL Single mode SFP Module, which is bidirectional and allows transmissions up to 65617 ft (20 km). It requires a dedicated fiber connection, cable type Single mode, LC connector.

Wavelength (λ) 850nm in multimode
1310nm TX – 1550nm RX in single mode

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