

Orion Extender™

DIGITAL CATx / Fiber KVM EXTENDER for Orion and Orion LC Transmitter / Receiver

INSTALLATION AND OPERATIONS MANUAL



10707 Stancliff Road
Houston, Texas 77099

Phone: (281) 933-7673
WWW.ROSE.COM

LIMITED WARRANTY

Rose Electronics warrants the Orion 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.

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.

IBM, AT, and PS/2 are trademarks of International Business Machines Corp. Microsoft and Microsoft Windows are registered trademarks of Microsoft Corp. Any other trademarks mentioned in this manual are acknowledged to be the property of the trademark owner.

Copyright © Rose Electronics 2011. All rights reserved.
No part of this manual may be reproduced, stored in a retrieval system, or transcribed in any form or any means, electronic or mechanical, including photocopying and recording, without the prior written permission of Rose Electronics.

Rose Electronics Part # MAN-OrEx

Printed In the United States of America – Revision 1.0

FCC/IC STATEMENTS, EU DECLARATION OF CONFORMITY

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 B 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.

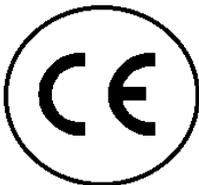
This digital apparatus does not exceed the Class B limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

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.

CE DECLARATION OF CONFORMITY

This equipment is in conformity with the
Council Directives 89/336/EEC

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



EN55022	1999 class B
EN55024	1999
IEC61000-4-2:	2001
IEC61000-4-3:	2001
IEC61000-4.4:	2001
IEC61000-4-5:	2001
EN61000-3-2	2001
EN61000-3-3	2002

TABLE of CONTENTS

Contents

Disclaimer	1
System introduction	1
Features.....	2
Compatibility	2
Package contents	2
Models (Single Video).....	3
Models (Dual Video)	4
Cables.....	5
Installation.....	6
Applying power	7
Operating instructions – Local KVM access	9
DDC Information	9
Reset DDC table to default values	11
Color Depth Selection.....	11
Selecting moment of switching to next frame	11

Figures

Figure 1. Typical cabling configurations	6
--	---

Tables

Table 1.transmitter to receiver cabling	7
---	---

Appendices

Appendix A. General specifications.....	16
Appendix B. Parts and cables	17

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, 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 Rose Electronics® Orion DVI™ CATx / Fiber KVM station extender. The Orion Extender is a very versatile KVM extender. It supports the latest digital DVI video. All combinations of DVI monitors and video cards are supported.

The system consists of two Units, a transmitter and a receiver. The transmitter connects to your CPU's keyboard, DVI monitor, and mouse connectors, or to a Rose KVM switch. The receiver connects to a keyboard, DVI video monitor and mouse or KVM station. The transmitter and receiver are connected together with Singlemode/Multimode fiber or CATx industry standard cable.

All models are available with transmitter and receiver KVM access. With transmitter KVM access an additional KVM station to be connected to the transmitter unit. Serial and full stereo audio support is optional on all models.

Using the Orion Extender to remotely access your computer has several advantages over conventional extenders. The Orion Extender transmits data digitally which provides a clear, sharp picture. Computers used in hazardous industrial environments can be accessed remotely, keeping the users safe and unexposed to any hazards.

Features

- Perfect image quality at resolutions up to 1920 x 1200 @ 60Hz using CAT5, 5e, 6, or 7 cable
- Extend a KVM station from a CPU using fiber or CATx cables
- Supports USB keyboards and mouse
- Supports all DVI-D graphic cards
- Single and dual video models available
- Serial and full stereo audio option
- All models provide local KVM access to the computer
- The Orion DVI uses a microprocessor to emulate the keyboard and mouse. The keyboard and mouse on the receiver do not have to be connected for the PC to boot; only the transmitter Unit must be connected to the PC
- Compatible with Rose Electronics family of KVM switches such as ServeView, UltraView and UltraMatrix (DVI to VGA converter required)
- Compatible with all operating systems
- Fully automatic KVM sharing on a first-come first-serve basis using the dual access model
- The computer's video is displayed on both KVM stations monitors.
- Rack mount kits available

Compatibility

Computers	PCs (all operating systems)
Monitors	Digital DVI-D
Keyboards	USB type keyboards
Mouse	USB
Serial	Compatible devices up to 19.2KBaud
Audio	Bi-directional CD quality stereo audio

Package contents

The package contents consist of the following:

- The transmitter and receiver Units
- Power adapter for transmitter and receiver units.
- Transmitter to computer cable
- Installation and operations manual.

CPU adapter cables, CATX or Fiber cables, and DVI to VGA converters 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

Models (Single Video)



Models (Dual Video)



USB Transmitter



USB Receiver



USB Transmitter w/Serial/Audio



USB Receiver w/Serial/Audio



CATx model



Fiber Model

Receiver / Transmitter – All Dual Video models

Cables

(See Attachment B for cable part numbers)

Transmitter unit to CPU cable

CPU cables connect from the transmitter to a CPUs keyboard, video monitor and mouse ports.

Transmitter / Receiver to KVM station cable

The keyboard, video monitor, and mouse cables on a KVM station can connect directly to the receiver or transmitter KVM ports.

Orion Extender to Rose switch cable

To connect a transmitter to a Rose switch such as a ServeView, UltraMatrix or UltraView, use a CPU adapter cable and a DVI to VGA converter.

Transmitter unit to Receiver unit cable

The transmitter is connected to the receiver with up to 450 feet of CATx cable (CAT5, 5e, 6, or 7) or 33,000 feet (Singlemode cable)

Serial Cables

The transmitter's serial feature is incorporated in the DVI connector and is connected to the computer's serial connector (DB9M) using a DVI to DVI/DB9F cable.

A serial device connects directly to the receiver's DB9M connector

Audio Cables

The transmitter audio in/out features are incorporated in the DVI connector and connects to a computers speaker and microphone ports using a DVI to 3.5mm stereo cable. Stereo speakers and a microphone connect directly to the receivers audio input/output ports.

Installation

Please refer to the safety section first before proceeding with any installation or configuration of the Orion Extender.

When installing the Orion Extender, locate the transmitter as close as possible to the CPU or switch. Keep the cables as short as possible but still give some freedom of movement. Using shorter cables keeps the video noise to a minimum and reduces installation costs. You can mount the Orion Extender in a CPU rack with the optional rack mount kit. When mounting the units in a rack provide adequate air circulation to assure that the maximum operating temperature is not exceeded.

Wherever the transmitter and receiver units are located, they should be on a secure surface and free from obstructions and objects that may cause damage to the units.

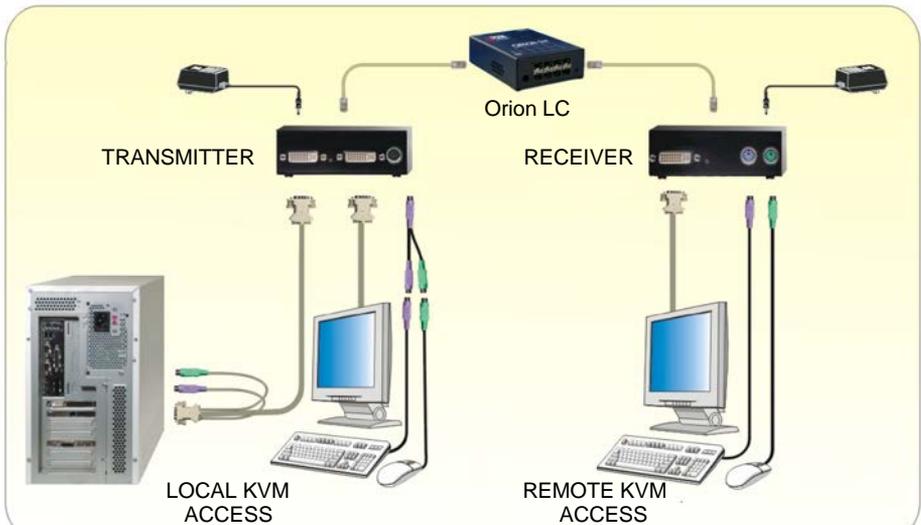
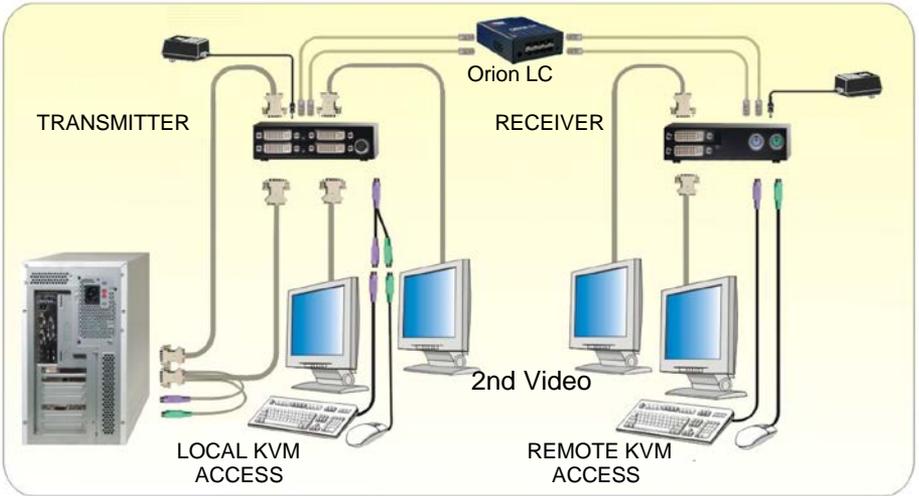


Figure 1. Typical cabling configurations

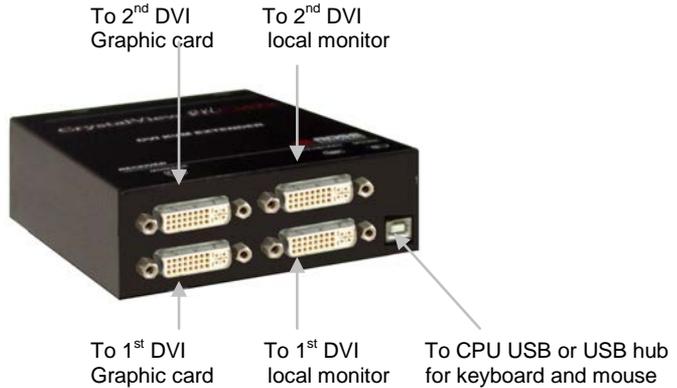
(See Figure 1 for the connector locations for your model)

NOTE: Local access provides for a second KVM station connected to the transmitter. Damage to the unit can occur if the DVI connectors are connected incorrectly. Make sure the DVI connector to the computer is NOT connected to a DVI monitor.

The serial and audio transmitter connects to the computers serial and audio ports (Line in / Microphone).



Connect the local USB model transmitter as shown below (single or dual video). A USB hub is used for local keyboard and mouse connections to the computer.



Transmitter to Receiver cabling

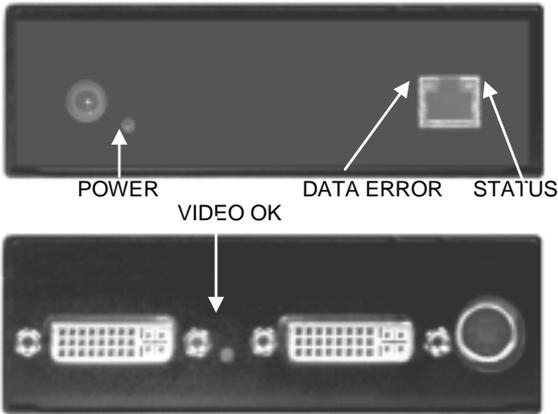
Cable type	Maximum distance
CATx	450 ft / 140 m
Fiber	Singlemode 33,00ft/10Km – Multimode 1,300ft (400m)

Table 1. Transmitter to receiver cabling

Applying power

With all cable connections made, plug in the provided power adapters to a 110/220-volt source and to the power connector on the transmitter and receiver Unit. Only use the power adapter provided. The red LED next to the power connector indicates power is applied to the unit.

LED Indicators



Power (Red)

- Off – No power applied, device not ready
- On- Power applied, device ready

Data Error (Green)

- Off - No errors, device ready
- Blinking / On – Transmitter / Receiver communication not established, cable too long, attenuation too high or excess EMI interference

Link Status (Green)

- Blinking – No CATx cable connection detected
- On – Transmitter / Receiver communication established, device ready

Video OK (Green)

- Off – No video signal detected
- On – Video signal detected, device ready

Operating instructions – Local KVM access

Operation of your computer is no different than having your keyboard, monitor, and mouse connected directly to the computer. All functions, applications, upgrades and other items can be done normally. The only difference is the computer can be up to 450 feet away (33,000ft over fiber).

Orion Extender DVI with local KVM access allows an additional KVM station to be connected to the transmitter. The CPU can easily be operated from the remote KVM station or the local KVM station but not simultaneously.

The transmitter or local unit is active during boot-up and the connected CPUs video is displayed on both the local and remote KVM stations monitor. To activate the remote KVM station, simply press any key on the remote KVM stations keyboard. Control is passed to the remote KVM station. To activate the local KVM station, press any key on the KVM station's keyboard.

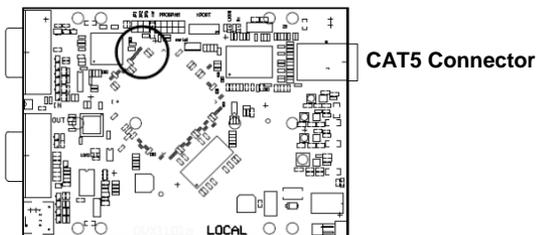
The dual video models have the capability of connecting the transmitter to two video sources. The two video sources are sent to the receiver and displayed on its two video monitors. Video source one should be connected to the computer's primary DVI video port that is associated with the keyboard and mouse.

REFER TO THE ORION LC USERS MANUAL FOR COMPLETE INSTALLATION AND OPERATION PROCEDURES.

DDC Information

By default, the Orion Extender uses its own internal DDC table. In some configurations it may be necessary to redefine the source of the DDC information. The Orion Extender can use the internal DDC table, the DDC information from the local video, or download the DDC information from the remote video monitor. To modify the source of the DDC information, perform the following internal adjustments to the local unit. Adjustments are made on the local unit to use the default DDC information, the LOCAL monitor's DDC information, or the REMOTE monitor's DDC information.

- A- Carefully remove the four (4) Phillips screws from the bottom of the unit. If your model is a dual version, also remove the UNC screws that secure the video connectors.
- B- Remove the top cover exposing the internal PC board as shown below



- C- Locate jumpers JP1 and JP2.
- D- Place a jumper block on the appropriate jumpers as shown in the table below:

DDC Source	JP1 setting	JP2 setting
From internal table (default)		
From local monitor		
From remote monitor (see procedure)		
Reset to default values		

Load DDC information from the Remote monitor and save to the internal DDC table

To load the DDC information from the remote monitor, perform the following steps to properly load the DDC information from the remote monitor to the local unit.

1. Switch off the power on the local and remote units and disconnect the video cable to the remote monitor(s).
2. Open the **LOCAL** unit exposing the internal PC board
3. Locate the jumper block on terminal JP3. Remove the jumper block from JP3 and place it on jumper JP2. Note the position of the jumper block on JP3. It will be replaced when the DDC load procedure completes. JP1 and JP2 should now have a jumper on them. (NOTE: Perform this procedure on both PC boards on the dual models)
4. Make sure the interconnect cable is connected and turn on the local and remote units.
5. Wait until the LINK LED illuminates
6. Connect the remote monitor's video cable to the remote unit. (Turn on the remote monitor power if power is off)
7. The remote monitor's DDC information will be read automatically, transferred to the local unit and stored into the DDC EPROM table.
8. The video OK LED on the local unit will blink rapidly for approximately 1 second upon successful programming of the remote DDC information.
9. Switch off the power on the local and remote units.
10. Remove jumper JP2 and replace it back on JP3 in the same position as it was removed.
11. Replace the cover on the LOCAL unit.
12. Turn on the local and remote units. The remote monitor's DDC information is now used.

Reset DDC table to default values

To reset the DDC information to the factory default values, perform the following steps:

1. Remove power from the Local unit and remove the cover
2. Remove jumper JP1 (see internal PC board figure)
(JP1 and JP2 open)
3. Switch on the power to the Local unit
4. The Local Unit's Video OK LED will blink rapidly for approximately 1 second upon successful re-programming of the default DDC values
5. Remove power from the Local unit
6. Replace jumper JP1, replace the cover, and power on the Local unit.

The DDC table now contains the default factory settings.

(NOTE: On the dual model, both upper and lower PC board's jumper JP1 must be removed)

Color Depth Selection

The Orion Extender allows you to select the color depth desired. You can select 18 Bit (256K) or 21 Bit (2M) color. To change the default setting of 18 Bit to 21 Bit, perform the following procedure on the LOCAL unit.

1. Remove power from the Local unit
2. Remove the cover
3. Remove jumper JP3 (see below table)
4. Replace the cover and power on the Local unit.

Color Depth	JP3 setting
18 Bit (default)	
21 Bit	

Selecting moment of switching to next frame

Normally the transmission of screen data is terminated when a frame is displayed on the screen. If the video source switches to a new frame during this display period, horizontal screen breaks may be seen.

Jumper JP3 on the Remote unit's PC board can be set to change the moment of switching. Remove the cover on the Remote unit and set JP3 accordingly.

Moment to switch	JP3	Description
Switch during HSYNC (default)		Higher frame rate but may produce detectable horizontal breaks
Switch during VSYNC		Lower frame rate but may produce stepping pictures (no horizontal breaks)

Troubleshooting

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

There isn't a picture.

- Check the power supply connection at the Local unit. Is the Power (Red LED) at the Local unit illuminated (see page 8)? If not, the internal power-supply may be damaged or there may be an internal error.
- Check the power supply connection at the remote unit. Is the Power (Red LED) at the Remote unit illuminated (see page 8)? If not, the internal power-supply may be damaged or there may be an internal error.
- Check that the Interconnection cable is connected at the Local Unit and the Remote Unit. Is the Link Status LED illuminated (see page 8)? If not, there may be a problem with the Interconnection cable:
- Are there Errors through data transmission over CATX Cable (Cable too long, too high attenuation or too much EMI interferences)? Is the Data Error LED illuminated or blinking (see page 8)? If yes, check cable length and environment.
- Video Okay LED is dark: CPU does not provide a video signal – Check settings of the graphic card. Try out, connecting a monitor to the local output, to see, whether there is a signal or not.

Keyboard

The PC boots fine with no error messages but the keyboard does not work

- Wrong cable plugged in, keyboard and mouse cables reversed.
- Try a different model of keyboard. If the new keyboard works then original one may be incompatible
- Check that the Interconnection cable is connected at the Local Unit and the Remote Unit. Is the Link Status LED illuminated (see page 8)?

Service Information

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 unit, 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.

Safety

The Orion Extender KVM extender has been tested for conformance to safety regulations and requirements, and has been certified for international use. Like all electronic equipment, the Orion 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 power adapter provided with the Orion Extender.
- 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 is 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

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

These are Safety Class I products and have protective earthing terminals. 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.

Appendix A. General specifications

Maximum resolution	DVI – 1920 x 1200 @ 60Hz
Video compatibility	DVI-D
Keyboard	USB
Mouse	USB
Transmitter power	90-240 VAC adapter to 5VDC / app. 10W
Receiver power	90-240 VAC adapter to 5VDC / app. 10w
Connectors	Video to PC – DVI-I Video to KVM – DVI-I Keyboard: USB Mouse: USB Interconnect: RJ45
Temp/Humidity	41° F-113° F / 5° C-45° C / 80% RH max
Weight	0.65 lbs / 0.3 kg (each unit)
Dimensions	H: 1.375 in / 3.0 cm W: 4.125 in / 10.0 cm D: 5.625in / 14.4 cm

Appendix B. Parts and cables

Part Number	Description
ORT-DLDTXUD1D	DVI-D / USB Single video (Transmitter)
ORR-SRDTXUD1D	DVI-D / USB Single video (Receiver)
ORT-DLDTXUD2D	DVI-D / USB Dual video (Transmitter)
ORR-SRDTXUD2D	DVI-D / USB Dual video (Receiver)
ORT-DLDFMUD1D	DVI-D / USB Single video (Transmitter / Multimode)
ORR-SRDFMUD1D	DVI-D / USB Single video (Receiver / Multimode)
ORT-DLDFMUD2D	DVI-D / USB Dual video (Transmitter / Multimode)
ORR-SRDFMUD2D	DVI-D / USB Dual video (Receiver / Multimode)
CAB-DVImm	DVI to DVI male cable
CAB-08C5UTPnnn	CAT5 Twisted pair UTP cable (RJ45)s
CAB-USBAB	USB Type A to USB Type B cable
TFR-05D240FSUB	Power adapter
CNV-DVIVGA	DVI to VGA converter

/AUD suffix = audio addition



Server Management



Solutions

10707 Stancliff Road
Houston, Texas 77099

Phone: (281) 933-7673
WWW.ROSE.COM