MultiStation CATx ™

DUAL KVM PC SHARING

INSTALLATION
AND
OPERATIONS MANUAL

🌹 **ROSE** ELECTRONICS

LIMITED WARRANTY

Rose Electronics[®] warrants the MultiStation CATx™ 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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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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TABLE of CONTENTS

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, 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® MultiStation™ CATx Dual KVM to one computer. The MultiStation CATx is the result of Rose Electronics commitment to providing state-of-the-art solutions for today's demanding workplace. The MultiStation CATx has proven to be a valuable investment for any business, big or small, that needs dual access to a computer, servers, or KVM switches from remote locations. Using the MultiStation CATx to remotely access your computer has several applications that make it convenient for the users. You can locate your computer in a secure area and access it from two other unsecured areas. A computer used in hazardous industrial environments can be accessed from two remotely located KVM stations, keeping the users safe and unexposed to any hazards.

The MultiStation CATx system consists of three units, a dual transmitter Unit and two receiver Units. The transmitter connects easily to your computer or KVM switch. The receiver Units connect to a remote keyboard, video monitor and a mouse. The transmitter and receiver units are connected together with industry standard CATx, solid core twisted-pair cable terminated with RJ45M connectors. All models can extend the distance from the CPU up to 1,000 feet. Applications can be executed; computer maintenance performed, and any function normally done can be performed with virtually no degradation in video quality and performance.

Installation only takes a few minutes since the MultiStation CATx automatically sets up various parameters and functions based on the MultiStation CATx model and your system topology. There are no jumpers to set or adjustment knobs to turn. Parameters like video gain, equalization, and color skew are automatically compensated for and properly adjusted based on the length and type of Catx cable used. Some fine tuning can easily be done using keyboard commands, but are rarely needed.

The only cable needed is a CATx cable to connect the transmitter to the receivers. CATx cable can be ordered from Rose Electronics in 25-1,000 foot lengths.

Features

- Available in automatic skew and non-skew models that connect to computers with PS/2 keyboard and mouse ports, computers with USB keyboard and mouse ports, or KVM switches.
- USB models access the computer simultaneously, PS/2 models have a 2 second lockout before the not in use KVM can have access.
- Extend two KVM station from a CPU using CATx cable
  (For CATx cable distances greater than 100', it is recommended that the skew model be used)
- Resolution up to 1920 x 1440
- MultiStation CATx uses a microprocessor to emulate the keyboard and mouse for plug and play operation. The keyboard and mouse on the receiver Unit 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 Pro, UltraView Pro and UltraMatrix
- Operating system independent
- Status indicator LEDs on each RJ45 connector
- All settings and video tuning are performed automatically. No user adjustments are needed to achieve a crystal clear display on the receiver KVM monitor. (Manual adjustments are available using special keyboard commands)

Package contents

The package contents consist of the following:

- The MultiStation CATx transmitter and receiver units as ordered
- Two (2) power adapters for receiver Units
- Installation and operations manual CD

CATx and other 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

Visit out web site at www.rose.com for additional information on the MultiStation CATx and other products that are designed for data center applications, classroom environments and other applications.

About this manual

This manual covers the installation and operation of the MultiStation CATx models.

Models

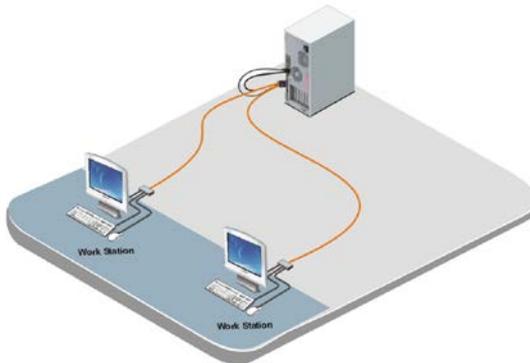| Transmitters	Receivers

USB

PS/2

The only cable needed to install the basic configuration of the MultiStation CATx is the CATx cable that connects the transmitter to the receivers. Care should be used when routing the CATx cable. Avoid routing the cable close to machinery or electronic equipment. The electro-mechanical emissions may cause interference and undesirable video performance.

TYPICAL APPLICATION

Installation

Installing the MultiStation CATx is a very easy plug-and-play process. Once installed, MultiStation CATx will determine the CATx cable length between the transmitter and the receivers and automatically adjust the gain and equalization to compensate for the installed cable type and length. Gain, equalization and video fine tuning can be manually performed but is rarely needed. The Skew models also have a manual skew adjustment to fine tune the RGB video components. All manual adjustments are performed by simple keyboard commands issued from the KVM stations connected to the receivers.

For the PS/2 and USB models:

■ Connect the HD15M connector on the transmitter to the HD15F video out connector on the PC.

■ Connect the PS/2 or USB keyboard and mouse cables to the corresponding connector ports on the PC (PS/2 or USB).

■ Connect the receiver units directly to the keyboard, monitor, and mouse cables used for the KVM stations.

■ Connect the transmitter's RJ45 connectors (2) to each receiver's RJ45 connector using up to 1,000 feet of CATx solid core cable.

■ Connect the power adapters to the receiver unit's power port.

■ Plug the power adapter into a 110V/240V power source

■ Boot the connected computer, the boot-up sequence should be displayed on both KVM station's monitors.

Operation

Operating your system is no different than having your keyboard, monitor, and mouse connected directly to a PC or KVM switch. The only difference is they can be up to 1,000 feet away and are shared with a second user. You can operate your system normally, programs can be executed, maintenance can be performed, and any operation normally performed can be done with no derogation in video quality or performance.

The PS/2 models feature a lockout function where a user has complete independent keyboard and mouse control of the computer. The second user can gain control of the computer only after there is a 2 second time frame of non-activity from the controlling user. After 2 seconds of non-activity, the control of the computer is routed to the first user station that initiates a keyboard or mouse command.

The USB models keyboard and mouse commands from both user stations are sent a windows computer simultaneously with no lockout feature. This could produce erroneous data, text, or commands if the KVM station usage is not coordinated.

Sun operating systems only recognize a single USB keyboard or USB mouse. The second USB keyboard or USB mouse is inoperative

Keyboard Commands (All models)

Command	Description
Left Ctrl, Left Shift, e:	Perform a cable length measurement
Left Ctrl, Left Shift, keyboard +:	Increase the video gain by 1
Left Ctrl, Left Shift, keyboard -:	Decrease the video gain by 1.
Left Ctrl, Left Shift, keypad +:	increase the video equalization by 1
Left Ctrl, Left Shift, keypad -:	Decrease the video equalization by 1
Left Ctrl, Left Shift, k	Saves any changes made (See **usage note** for important information)
Left Ctrl, Left Shift, i* **(See * Below)**	Sends Transmitter, CPLD, and receiver firmware version to a text editor. Firmware is reported as follows: Transmitter = hxxy, CPLD = yx, Receiver = dxxy: Where x is a decimal digit, and y is an alphabetic character
Left Ctrl, Left Shift, g* **(See * Below)**	Send the most recent gain, equalization, cable length, autotdr status, red, green, and blue skew values to a text editor.

* CAUTION: DO NOT EXECUTE THESE COMMANDS WITHOUT A TEXT EDITOR ACTIVE. A text editor such as notepad must be started and selected prior to executing these keyboard commands. The results will be displayed in the text editor.

Skew Adjustment Keyboard Commands (Skew Model Only)

Command	Description
Left Ctrl, Left Shift, 1: Left Ctrl, Left Shift, 2	Increase RED delay Decrease RED delay
Left Ctrl, Left Shift, 3: Left Ctrl, Left Shift, 4	Increase Green delay Decrease Green delay
Left Ctrl, Left Shift, 5: Left Ctrl, Left Shift, 6	Increase BLUE delay Decrease BLUE delay

Perform a save command (Left Ctrl + Left Shift + k) after video adjustments have been made and prior to any non-video adjustment command.

Left Ctrl + Left Shift + k (Save Command) usage

Issuing the save command should be performed after all video commands have been issued and before any other command is performed. Saving the video settings turns off the TDR function. To turn the TDR function back on issue the cable length command (left Ctrl + Left Shift + e), then the save command.

Keyboard Commands - Country Codes

The following country code table allows you to enter the country code for type of keyboard and operating system used. This function is only required if your operating system is country specific and requires that a keyboard map specific for your operating system be entered. Sun Japanese keyboards and others that require this should enter their country code.

To enter the country code, enter the following key sequence:
Lctrl, Lshift, l, x, Enter,   (non-cap L, x)
　　　　　or
 Lctrl, Lshift, l, x, y, Enter,
 where X and Y are keyboard numeric keys.

If the country code number is a single digit (0-9), enter one digit (or two digits, ie.06), followed by enter. If the country code is a double digit (10-35), enter both numbers, followed by enter. Each key is pressed and released, and no more than 2 seconds can elapse between any two keys of the sequence, or the command will abort. The command only has to be entered once. MultiStation CATx saves the value in flash. The entered value does not change if the unit is flashed with new code.

Code	Country	Code	Country
00	Not Supported	18	Netherlands/Dutch
01	Arabic	19	Norwegian
02	Belgian	20	Persian (Farsi)
03	Canadian-Bilingual	21	Poland
04	Canadian-French	22	Portuguese
05	Czech Republic	23	Russia
06	Danish	24	Slovakia
07	Finnish	25	Spanish
08	French	26	Swedish
09	German	27	Swiss/French
10	Greek	28	Swiss/German
11	Hebrew	29	Switzerland
12	Hungary	30	Taiwan
13	International (ISO)	31	Turkish-Q
14	Italian	32	UK
15	Japan (Katakana)	33	US
16	Korean	34	Yugoslavia
17	Latin American	35	Turkish-F
		36-255	Reserved

TroubleShooting

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

- **No video on the receiver monitor**
  - Check CATx connection at the receiver, transmitter, patch panels (if applicable)
  - Check HD15 video connection at the receiver and transmitter
  - Verify video is present at the video card output

- **Keyboard has no effect**
  - Keyboard and mouse cables reversed at the PC
  - Check keyboard cable connection at the Receiver

- **Mouse erratic or not functioning**
  - Mouse and keyboard cables reversed at the PC
  - Check mouse cable connection at the Receiver

- **No video, keyboard or mouse functions**
  - Check all cable connection at the Receiver
  - Check all cable connections at the Transmitter
  - Check RJ45 connector LEDs. If the green and yellow LEDs are alternately flashing, the firmware has become corrupt and the unit must be flashed. This can occur if a power loss occurs during the flash procedure.

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 MultiStation CATx, 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 MultiStation CATx KVM extender has been tested for conformance to safety regulations and requirements, and has been certified for international use. Like all electronic equipment, the MultiStation CATx 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.
- 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 and connection cables designed for this Unit.
- Use only a grounded (three-wire) electrical outlet.
- Use only the power adapter provided with the MultiStation CATx.
- 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.

Appendix A – Part Numbers

Kit P/N	Description
MLK-TMDVPRAVP	Dual access PS/2
MLK-TMDVURAVU	Dual access USB
Transmitter P/N	**Description**
MLT-MDVP	Dual Transmitter, PS/2
MLT-MDVU	Dual Transmitter, USB
Receiver P/N	**Description**
MLR-AVP	Receiver, PS/2
MLR-AVU	Receiver, USB

-W option = Auto Skew compensation

Cables	Description
CAB-08C5UTPnnn	CAT5 unshieded twisted pair
CAB-08C6UTPnnn	CAT6 unshieded twisted pair
CAB-08C5STPnnn	CAT5 shieded twisted pair
CAB-08C6STPnnn	CAT6 shieded twisted pair
Power Adapter	**Description**
TFR-05D250FSUB-1.3	Power Adapter for Receiver units

Proper product grounding and use with a Laptop

This unit is designed to operate properly when connected to a desktop computer with a common earth ground to all equipment. When using this product on a laptop computer there may be video problems due to the laptop not being tied to earth ground. To clear up the video, the product must be physically connected to an earth ground connector.

Appendix B – Specifications

Dimensions	Width	Depth	Height
Transmitter (in / cm)	1.3 /3.3	1.75 / 4.4	1.3/3.3
Receiver (in / cm)	2.68 /6.8	2.625 / 6.67	1.0 / 2.54

Transmitter (oz / gr)	2.4 / 68
Receiver (oz / gr)	2.0 / 56

Video:

Resolution	1920 x 1440
Compatibility	SVGA, VGA, XGA, RGB
Levels	0.7V p-p
Sync type	Separate/composite TTL level

Support: Keyboards – USB, PS/2
Video – VGA, SVGA, XGA, RGB
Mouse – USB, PS/2 two button
　　　　Microsoft Compatible
　　　　Logitech Compatible

Connectors:

PC model　　Video – HD15M (Transmitter)
　　　　　　　　HD15F (Receiver)
　　　　　　Keyboard/Mouse – PS/2
USB model　Video – HD15M (Transmitter)
　　　　　　　　HD15F (Receiver)
　　　　　　Keyboard/Mouse – USB type A

Interconnect　RJ45 - CATx UTP/STP, EIA/TIA 568
　　　　　　　　(CAT5, 5e, 6, or 7)

Power: Local – From PC
Remote – +5V 1.0 A external (Included)

Environmental: Temp. 0°C – 45°C
Humidity 0% – 80% non-condensing