MultiVideo DP

1×4 Multi-head KVM Switch • DisplayPort • USB2.0 • Audio

ROSE.COM

Installation and Operation Manual

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LIMITED WARRANTY

Rose Electronics® warrants the MultiVideo DP KVM Switch 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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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 MultiVideo DP. It is the result of Rose Electronics commitment to providing state-of-the-art solutions for today's demanding workplace. It is capable of switching up to four dual-head or quad-head DisplayPort computers through a single user console.

The MultiVideo HDMI is DisplayPort 1.1 and HDMI compliant, and supports screen resolutions up to 4K Ultra-HD (3840x2160 @ 30Hz). Up to four USB 2.0 devices can be connected to the unit, which can be switched in tandem with the video or separately. The switch can be controlled through the front panel buttons. Keyboard, hot-key commands, or from a computer through an RS-232 interface. A separate analog audio interface can also be switched in tandem or independently. The DisplayPort signal also passes the embedded audio with no restriction.

EDID pass-through and full USB and mouse emulation of all connected monitors, keyboards and mice allow for smooth switching.
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Features

- Quad-head or dual-head video input
- Output video can be DisplayPort or HDMI according to model
- Resolutions up to 3840×2160 @ 30 Hz
- DisplayPort 1.1a compliant
- Full USB keyboard and mouse emulation to all computers provides switching without interruption
- Independent switching of KVM, peripheral USB devices, and audio
- Unit can be controlled using front panel push buttons, keyboard hot key commands, or RS-232 commands from an external controller
- Front panel LEDs indicate the active computer connection
- Can be used with any major operating system: Windows, Linux, MAC OS
- EDID pass-through enables smooth and efficient switching
- Mounts in a standard 19 inch rack

Package Contents

The package contents consist of the following items:

- MultiVideo DP Switch
- External power supply
- Power cable
- User Manual

Additional Items that may be required

- USB Type A to USB Type B M/M cable
- DisplayPort to DisplayPort M/M cable
- HDMI to HDMI M/M cable
- Stereo 3,5mm audio M/M cable
- Serial DB9 M/F cable

These cables can be ordered separately from Rose Electronics.

MultiVideo DP Models

The MultiVideo DP comes as a dual-head or quad-head KVM switch. Each is offered in two models – one with a DisplayPort output, and the other with a HDMI output.

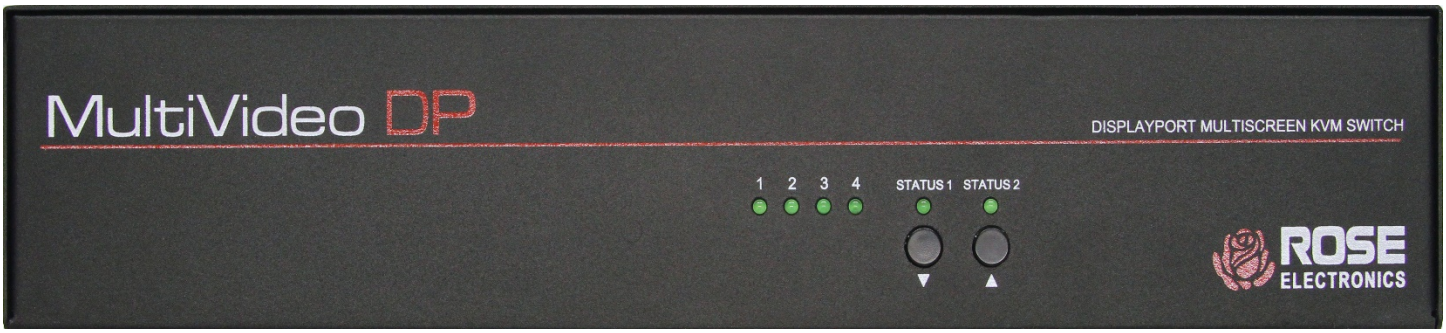

Figure 1. MultiVideo DP Dual Front Panel

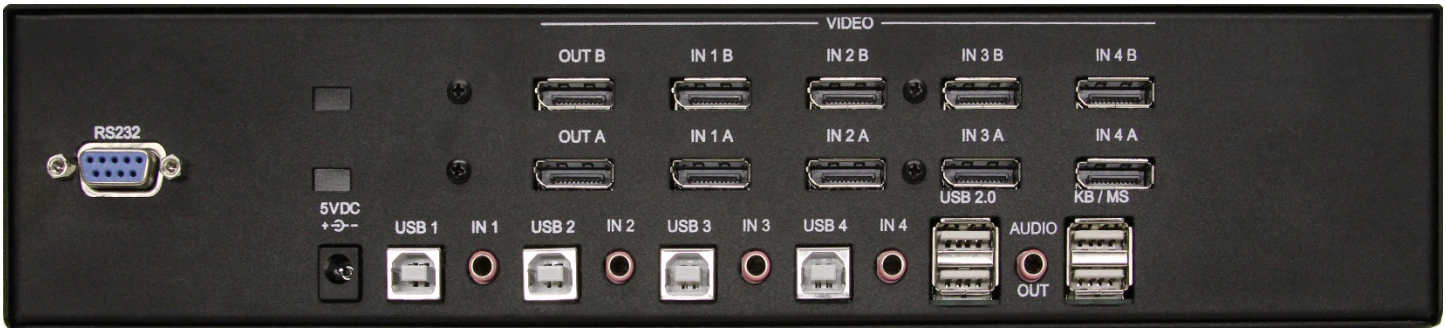

Figure 2. MultiVideo DP Dual with DisplayPort Output Rear Panel

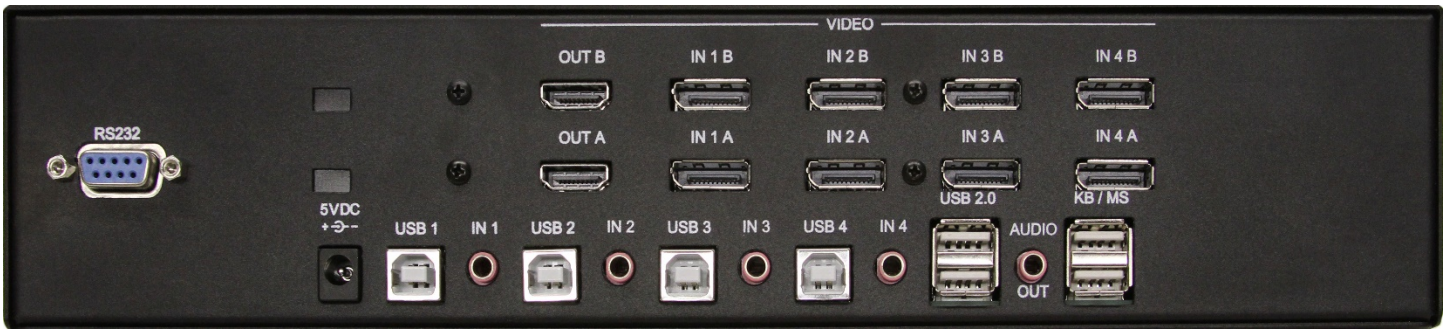

Figure 3. MultiVideo DP Dual with HDMI Output Rear Panel

Figure 4. MultiVideo DP Quad Front Panel

Figure 5. MultiVideo DP Quad with DisplayPort Output Rear Panel

Figure 6. MultiVideo DP Quad with HDMI Output Rear Panel

Installing the MultiVideo DP Switch

Installation of the MultiVideo DP is very simple.

Figure 7. MultiVideo DP Dual typical application

Ensure that power is disconnected from MultiVideo DP.

1. Connect DisplayPort cables and USB type A to type B cables between each computer and its respective ports on the MultiVideo DP.
2. If desired, use 3.5mm stereo jack audio cables (male to male) to connect the computers' analog audio line out ports to their respective audio input ports on the switch.
3. Optionally connect a serial control cable from an external controller to the DB9 connector.
4. Connect the console displays to the video output connectors.
5. Connect the USB keyboard and mouse to the unit's console keyboard and mouse connectors located at the lower right hand side of the rear panel.
6. Optionally connect analog audio output equipment to the 3.5mm analog output stereo jack.
7. Optionally connect up to two USB 2.0 devices (flash drive, printer, etc.) to the USB 2.0 connectors.
8. Apply power to the MultiVideo DP.

Operation

Controlling the Multivideo DP

The computers on the Multivideo DP can be switched using the buttons on the Front Panel, through keyboard hot-key commands, or RS-232 commands. The video, keyboard, and mouse can all be switched simultaneously or independently of each other. Each of these is described below.

Front Panel Control

To switch ports using the front panel, press the ▲ button to navigate up and ▼ button for down.

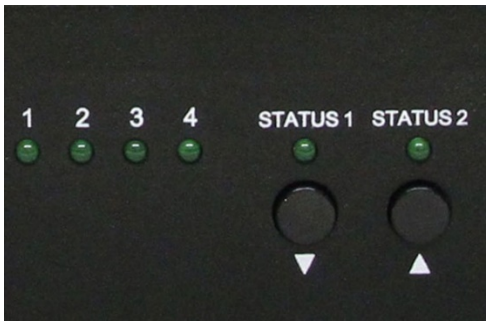

Figure 8. Front Panel Buttons

Hotkey Commands

A Hotkey command is a keyboard sequence used to trigger an action on the Multivideo DP through the use of the keyboard connected on the USB port of the Multivideo DP. To activate the hotkey sequence, press the CTRL key twice and then enter the desired hotkey commands.

Commands	Hotkeys	RS-232 Control
Switch all devices (KVM, USB 2.0, and Audio)	[CTRL] [CTRL] m [port#] [ENTER]	//m[port #][cr]
Switch KVM only	[CTRL] [CTRL] c [port#] [ENTER]	//c[port #][cr]
Switch audio only	[CTRL] [CTRL] a [port#] [ENTER]	//a[port #][cr]
Switch USB2.0 only	[CTRL] [CTRL] u [port#] [ENTER]	//u[port #][cr]
Switch analog audio only	[CTRL] [CTRL] a [port#] [ENTER]	//a[port #][cr]
EDID learning (Model with HDMI only)	[CTRL] [CTRL] e [ENTER]	//e[cr]
Same as front panel ▲ button	[CTRL] [CTRL] ↑ (up arrow key)	n/a
Same as front panel ▼ button	[CTRL] [CTRL] ↓ (down arrow key)	n/a
Reset	[CTRL] [CTRL] r	//r
Reset to factory defaults	[CTRL] [CTRL] f	//f

Table 1. Keyboard hotkey and RS-232 serial port commands

Control using the RS-232 port

Controlling the Multivideo DP via RS-232 requires an RS-232 card installed on your computer or a USB to RS-232 adapter. Below are instructions on how to create an RS-232 connection between a PC and the Multivideo DP switch
Use a terminal client software to connect the host PC or notebook to the switch. Make sure to use communication settings 9600 bps, N, 8, 1 No flow control.

Check the device and your PC to determine if you need a male to male or a male to female cable and how long it needs to be. The Multivideo DP requires a straight through cable. You can use a Null Modem Adapter to convert a crossed cable to a straight through cable. Examples of crossed and straight thorough cable pin-outs are shown below. The standard maximum length for an RS-232 cable is 50 feet (15 meters).

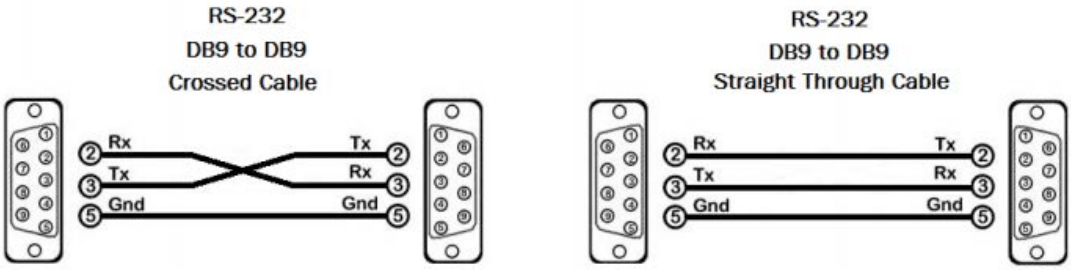

Figure 9. Examples of 9 pin RS-232 Straight Through and Crossed Cables

Establish a connection to the Multivideo DP switch

1. Connect an RS-232 cable to the RS-232 connector on the PC.
2. Connect the other end of the cable to the RS-232 port of the Multivideo DP.
3. On Windows, use the Windows Control Panel / Device Manager to identify the COM port number. See instructions and Figure 10. below.
4. Power on the device.

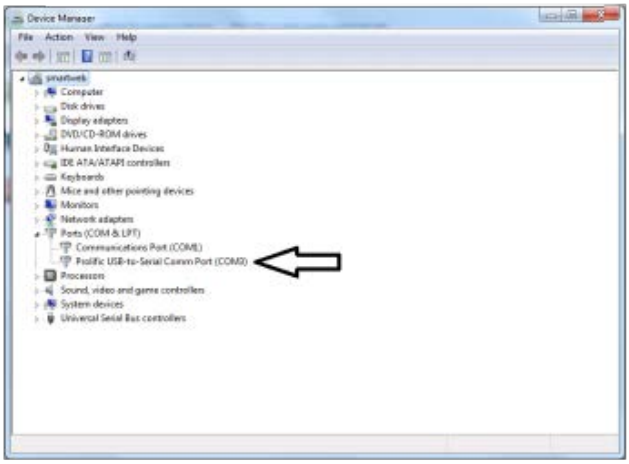

Figure 10. Identifying Serial Ports on Window Device Manager

If you are using a USB to COM port adapter on a Windows PC and need to identify the COM port used, do the following:

5. Click on the Windows Start button.
6. Click on Control Panel.
7. Click on Device Manager.
8. Click on the arrow next to Ports (COM & LPT).

You should see the name of your adapter and the COM port number in use.

EDID Learning and Programming (HDMI Model Only)

The Multivideo DP features plug-and-play EDID, making the switch easy to implement in virtually any application. As soon as a user plugs in a monitor, the switch automatically learns and copies the EDID to all ports. The plug-and-play EDID helps make switching hassle free and simple.

Safety

The MultiVideo DP KVM Switch, 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 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.

Appendix A — Specifications

Chassis Dimensions (W x D x H) and Weight		
Dimensions	Dual-Head	12.8" x 6.0" x 3.0" (325mm x 152mm x 76mm)
	Quad-Head	12.8" x 6.0" x 4.5" (325mm x 152mm x 114mm)
Weight	Dual-Head	4.4 lbs. (2.0 Kg)
	Quad Head	5.7 lbs. (2.6 Kg)
Power Requirements		
Power Source	100-240 VAC +5VDC 4A	
Video		
Computer Interface Connectors	DisplayPort female; 8 for Dual-Head Models, 16 for Quad-Head Models	
User Interface Connectors	DisplayPort or HDMI female, depending on model 2 for Dual-Head Models, 4 for Quad-Head Models	
Maximum Resolution	3840 x 2160 @ 30Hz (4K2K @ 30Hz)	
Input Cable Length	Up to 16 ft (5 m)	
Output Cable Length	Up to 16 ft (5 m)	
HDCP Compliant (HDMI Output Models)	Yes	
Audio		
Analog Audio Input	4 x 3.5mm stereo jack inputs	
Analog Audio Output	1 x 3.5mm stereo jack output	
Frequency Response	20Hz ~ 20KHz	
USB		
Signal Type	USB 2.0, 1.1, and 1.0 w/ internal hub	
Input Interface	4 x USB Type B female	
Output Interface	2 x USB 1.1 Type A female for keyboard and mouse 2 x USB 2.0 Type A Transparent	
Controls		
PC Selection	Front, panel pushbutton, RS-232 DB9(F) serial port, and keyboard hotkey control	
Status LED's	4 LED's on the front panel for PC selection/operation Status 1 / Status 2 = Green	
Serial	RS-232, DB9(F), 9600bps, N,8,1 no flow control	
Environmental		
Operating Temp	23°F to 95°F (-5°C to 35°C)	
Storage Temp	-4°F to 185°F (-20°C to 85°C)	
Operating Humidity	5-90% relative, non-condensing	
Approvals	UL, CE, RoHS compliant	

Appendix B — Part Numbers

Part Numbers	Description
MDM-4T2DP-A1	1X4 KVM Switch, Dual-head, DP output
MDM-4T4DP-A1	1X4 KVM Switch, Quad-head, DP output
MDM-4T2DPH-A1	1X4 KVM Switch, Dual-head, HDMI out
MDM-4T4DPH-A1	1X4 KVM Switch, Quad-head, HDMI out
CAB-DPMM006	DisplayPort cable, M/M, 6ft (20m)
CAB-HDMIMM006	HDMI cable, M/M, 6ft (2.0m)
CAB-USBMM006	USB-AB cable, M/M, 6ft (2.0m)
CAB-SPMM006	Audio cable, 3.5mm M/M, 6ft (2.0m)
CAB-D9MF006	Serial cable, DB9 M/F, 6ft (2.0 m)

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