

RPMX/RPMSP-D132U RPMSP-D180U

SETUP GUIDE

020-100246-02

RPMX/RPMSP-D132U

RPMSP-D180U

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NOTICE


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.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

이 기기는 업무용 (A 급) 으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로 합니다.

The equipment is designed and manufactured with high-quality materials and components that can be recycled and reused.

This symbol  means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from regular waste. Please dispose of this equipment appropriately and according to local regulations. In the European Union, there are separate collection systems for used electrical and electronic products. Please help us to conserve the environment we live in!

Copyright © 2008-2010 Christie Digital Systems USA, Inc. All rights reserved. All brand names and product names are trademarks, registered trademarks or trade names of their respective holders. Canadian manufacturing facility is ISO 9001 and 14001 certified. Performance specifications are typical, but may vary depending on conditions beyond Christie's control such as maintenance of the product in proper working conditions. Performance specifications are based on information available at the time of printing. Every effort has been made to ensure accuracy, however in some cases changes in the products or availability could occur which may not be reflected in this document. Christie reserves the right to make changes without notice or obligation.

WARRANTY

For complete information about Christie's limited warranty, please contact your Christie Dealer. In addition to the other limitations that may be specified in Christie's limited warranty, the warranty does not cover:

- (a) Damage occurring during shipment, in either direction.
- (b) Projector lamps (See Christie's separate lamp program policy).
- (c) Damage caused by use of a projector lamp beyond the recommended lamp life, or use of a lamp supplied by a supplier other than Christie.
- (d) Problems caused by combination of the equipment with non-Christie equipment, such as distribution systems, cameras, video tape recorders, etc., or use of the equipment with any non-Christie interface device.
- (e) Damage caused by misuse, improper power source, accident, fire, flood, lightening, earthquake or other natural disaster.
- (f) Damage caused by improper installation/alignment, or by equipment modification, if by other than Christie service personnel.
- (g) For LCD projectors, the warranty period specified applies only where the LCD projector is in 'normal use.' "Normal use" means the LCD projector is not used more than 8 hours a day, 5 days a week. For any LCD projector where 'normal use' is exceeded, warranty coverage under this warranty terminates after 6000 hours of operation.
- (h) Failure due to normal wear and tear.

PREVENTATIVE MAINTENANCE

Preventative maintenance is an important part of the continued and proper operation of your projector. Please see the Maintenance section for specified maintenance items as they relate to your projector and/or model. Failure to perform maintenance as required, and in accordance with the maintenance schedule specified by Christie, will void the warranty.

Applies to the Following Projectors
China RoHS Compliance Information

RPMSP-D132U
RPMX-D132U
RPMSP-D180U

关于中国《电子信息产品污染控制管理办法》的说明

- Environmentally Friendly Use Period
 环保使用期限



The year number in the centre of the label indicates the Environmentally Friendly Use Period, which is required to mark on the electronic information product sold in China according to the China RoHS regulations. 本标志中表示的年数是根据《电子信息产品污染控制管理办法》(2006年2月28日)以及《电子信息产品污染控制标识要求》(2006年11月6日)制定的、适用于在中华人民共和国境内销售的电子信息产品的环保使用期限。

- Material Concentration Values Table
 有毒有害物质含量表

Part Name	部件名称	Material Concentration (有毒有害物质或元素)					
		铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr 6+)	多溴联苯 (PBB)	多溴二联苯醚 (PBDE)
Low voltage power supply	低压电源	X	O	O	O	O	X
Power & Ballast	电源及镇流器	X	O	O	O	O	X
Ten-bit image processor module	十位图像处理模块	X	O	O	O	O	O
TDOM PCB	专用显示输出板	X	O	O	O	O	O
Backplane module	底板模块	X	O	O	O	O	O
Blower/Fan	吹风机 / 风扇	O	O	O	O	O	O
Sensor	传感器	O	O	O	O	O	O
Illumination optics system	照明光学系统	X	O	X	O	O	O
Projection Lens	投影镜头	X	O	X	O	O	O
Auxiliary optics	辅助光学器件	X	O	X	O	O	O
Mechanical enclosure*	机械附件	X	O	O	O	O	O
Software CD	软件光盘	O	O	O	O	O	O
Lamp	灯泡	X	O	X	O	O	O
Battery	电池	O	O	O	O	O	O
Remote Keypad	遥控器	X	O	O	O	O	O

NOTE:

O : indicates that the concentration value of the particular hazardous substance contained in all the homogeneous materials for this part, according to EIP-A, EIP-B, EIP-C, is below the stipulated levels in China SJ/T11363-2006.

表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 规定的限量要求以下。

X: indicates that the concentration value of the particular hazardous substance contained in all the homogeneous materials for this part, according to EIP-A, EIP-B, EIP-C, may be above the stipulated levels in China SJ/T11363-2006.

表示该有毒有害物质至少在该部件的某一均质材料中的含量可能超出 SJ/T11363-2006 规定的限量要求。

* This part uses metallic alloys, which may contain Lead.

因该部件使用金属合金材料, 故可能含有铅。

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1 Introduction

Every effort has been made to ensure the information in this document is accurate and reliable; however, due to constant research the information in this document is subject to change without notice.

1.1 Purchase Record and Service Contacts

Christie’s factory and dealer service network is available to diagnose and correct projector malfunctions. Service manuals and updates are available to service technicians for all projectors.

If you encounter any problems with the projector and require assistance, contact your dealer or Christie Digital Systems. Fill out the information in the table below and keep with your records for future reference.

1.1.1 Purchase Record

Dealer:
Dealer Phone Number:
Projector Serial Number:
Purchase Date:
Installation Date:

NOTE: *The serial number can be found on the license label.*

1.2 Key Features

- RPMSP – Native SXGA+, 1400 x 1050 resolution
- RPMX – Native XGA, 1024 x 768 resolution
- 24-bit RGB display
- 10-bit image processing module
- Display of RGB, NTSC, PAL, and SECAM video inputs and HDTV formats
- User adjustable lamp power
- Mechanical lamp changer for easy lamp change during operation
- Picture-in-picture display
- Edge Blending ability via software for seamless displays (only available on SXGA+ models)
- Dual frequency IR sensor for use with standard IR remote and optional long-range dual frequency remote
- 6-axis image geometry adjustment mechanism
- Memory for up to 50 custom “channels” (source setups)
- Intuitive on-screen menu system
- Built-in GPIO port to enable active control of external devices
- LED display for projector status monitoring

- Multiple control options including RS-232, RS-422 and ethernet
- On-board ChristieNET™ software
- Universal AC input 100-240 VAC, 50/60Hz

See [Section 6 Specifications](#) for a complete list of product specifications.

1.3 Components

Make sure you have received these components before using the projector.

- Line Cord (rated, North American)
- Configuration bracket (shipped loose, for horizontal configuration)
- 6xM6 screws (for installation of configuration bracket)
- Setup and Adjustment Tools (includes 2mm and 5mm ball drivers, 8mm hex ball driver, nylon spacers, lint free gloves)

NOTE: A User's Kit is provided with each projection system. Additional User's Kits can be purchased separately (part number 102-144100-XX).

1.4 Additional Tools Required

Keep these tools on hand during installation and setup:

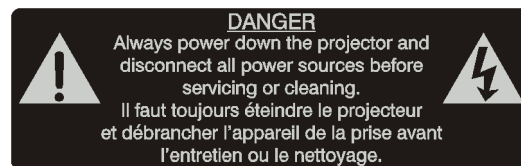
- #1 Phillips screw driver
- Level

1.5 General Precautions

The projector is an international regulatory agency approved product designed for safe and reliable operation. It is important to acknowledge the following precautions while operating the projector to assure complete safety at all times.



Do **NOT** look into the lens



⚠ DANGER FIRE HAZARD. Keep hands, clothes and all combustible material away from the concentrated light beam of the projector. Position all cables where they cannot contact hot surfaces or be pulled or tripped over.

⚠ WARNING All installation and maintenance procedures must be performed by a Christie accredited service technician.

⚠ WARNING Projector must be operated in an environment that meets operating specifications, as listed in *6 Specifications*.

1.5.1 AC /Power Precautions


⚠ WARNING Use only the AC power cord supplied. Do not attempt operation if the AC supply and cord are not within the specified voltage and power range. Refer to the license label on the back of the projector or *6 Specifications* for rated voltage and power.

⚠ WARNING The projector is equipped with a 3-wire plug with a grounding pin. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to have the outlet replaced. NEVER defeat the safety purpose of the grounding-type plug.

⚠ WARNING Do not allow anything to rest on the power cord. Locate the power cord where persons walking on it or objects rolling over it cannot damage the cord.

1.5.2 Lamp Precautions

Follow all safety and warning precautions regarding lamp replacement and handling.




DANGER: LAMPS MAY EXPLODE-POSSIBLE BODILY HARM OR DEATH


The lamps are under pressure and may explode causing physical injury and/or property damage. Allow the lamps to cool before handling or unplugging the projector. Lamp replacement to be done by qualified service personnel; consult *User Manual* or lamp kit for instructions.

⚠ WARNING Never attempt to access the lamp while the lamp is ON. After turning the lamp OFF, it is crucial that you wait at least 10 minutes before handling the lamp. This provides sufficient time for the lamp cooling fans to properly cool the lamp.

1.5.3 Labels and Markings

Observe and follow all warnings and instructions marked on the projector.

 The exclamation point within the equilateral triangle alerts the user to important operating and maintenance (servicing) instructions in the literature accompanying the projector.

 The lightning flash and arrowhead symbol within the equilateral triangle alerts the user to uninsulated “dangerous voltage” within the projector’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

2 Installation and Setup

The following instructions are for those preferring a quick setup. Refer to the remaining subsections for detailed set instructions.

2.1 Projector Quick Setup and Installation

This section outlines the installation sequence of an RPMX/RPMSP-D132U or RPMSP-D180U projector as a stand alone or multiple projector installation.

If you are installing your projector in a TotalVIEW™ 50” or 67” cube enclosure, refer to the separate installation guide provided (020-100248-XX)

Step 1 Unpacking the projector

The projector is shipped fully assembled in the lens-vertical (90 degree) configuration. After receiving your projector it is important that you prepare it for installation by:

Removing the projector from the box and discarding any packing material surrounding the modules.

NOTE: An L-shaped bracket, used to change the projector’s configuration, is shipped loosely in the box with the projector. Set this aside for future use.

Verifying all cable connections are secure. See [Figure 2-1](#).

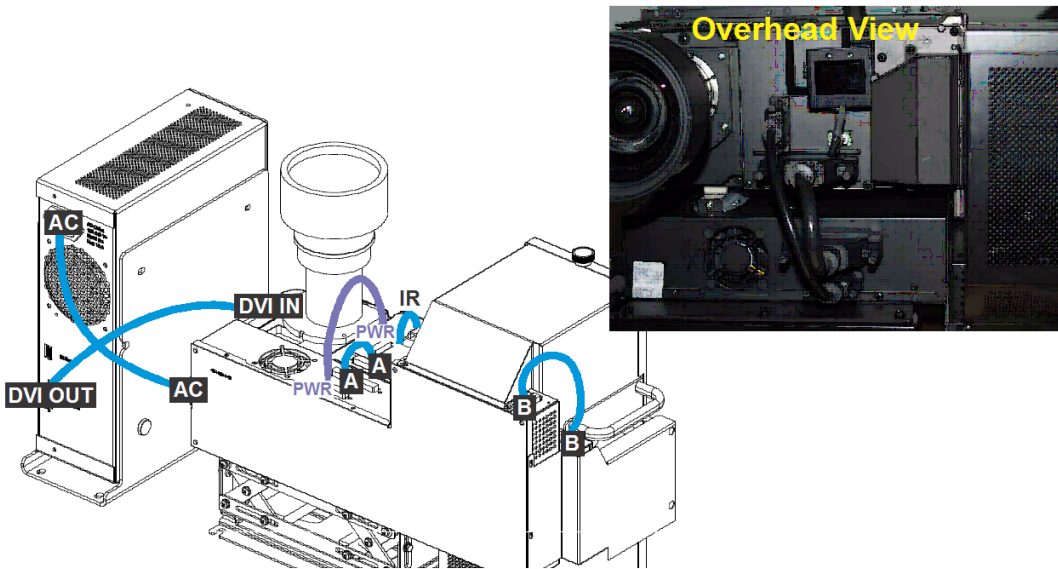


FIGURE 2-1 INTERNAL CABLE CONNECTIONS

⚠ Check lamp handles. These handles must lay flat against the lamp surface otherwise they will interfere with lamp operation.

⚠ Remove the lock screw located on the mechanical lamp changer, see [Figure 2-2](#). This screw is used for shipping purposes only and must be removed prior to turning the projector on. **Failure to do so can result in projector damage.**

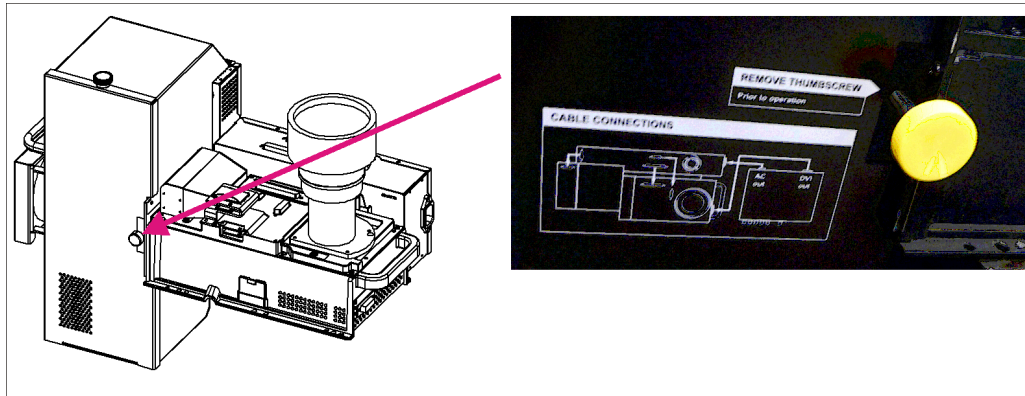


FIGURE 2-2 REMOVE LAMP CHANGER LOCK SCREW

Step 2 Modifying projector configuration (if required)

To use your projector for lens-horizontal projection then you must change its configuration. The L-shaped bracket and M6 screws shipped with the projector are needed to complete this configuration change.

1. Unplug projector from AC.
2. Disconnect all cables between the light engine and electronics module. All disconnects must be made on the light engine side.
3. Remove the (6) M4 screws securing the light engine module to the 6-axis adjuster, see [Figure 2-3](#).

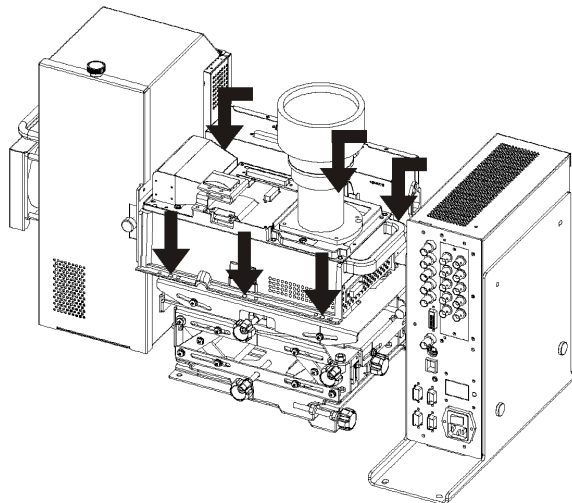


FIGURE 2-3 LOOSEN LIGHT ENGINE

4. Lift the light engine off the adjuster and set aside.
5. Align the shorter end of the L-shaped bracket with the mounting holes in the adjuster base, as shown in [Figure 2-4](#).

- Secure the bracket to the adjuster base with the (6) M4 screws used to secure the light engine.

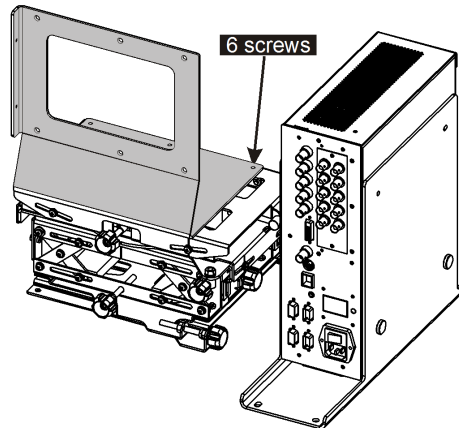


FIGURE 2-4 INSTALL CONFIGURATION BRACKET TO ADJUSTER BASE

- Place the light engine in the lens-horizontal position on the L-shaped bracket and adjuster base. Align the mounting holes between the configuration bracket and light engine and secure using the (6) additional M6 screws provided with the projector.

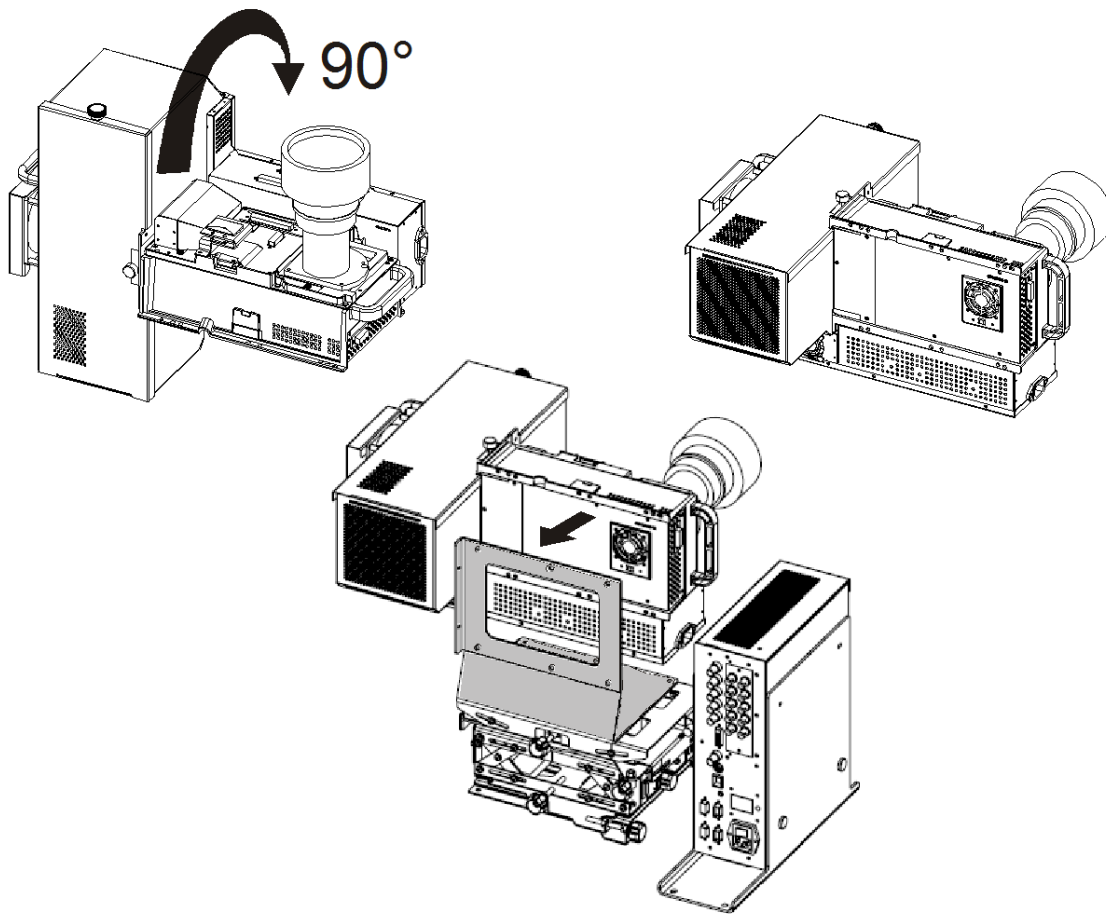


FIGURE 2-5 RE-POSITION LIGHT ENGINE

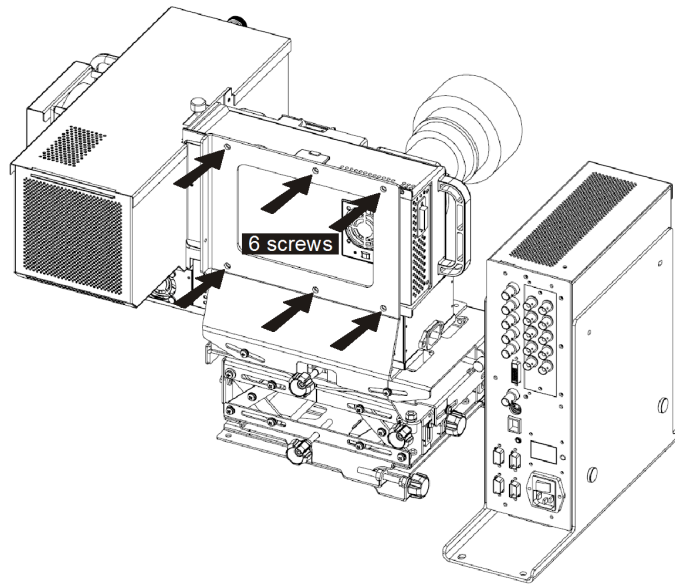


FIGURE 2-6 SECURE LIGHT ENGINE TO CONFIGURATION BRACKET

8. Reconnect all cables disconnected previously in step 2. Refer to [Figure 2-1](#).

Step 3 Calculating throw distance, position and mount projector Throw Distance

Throw Distance

For lens-horizontal configurations, throw distance is measured from the center of the auxiliary mounting holes in the tray to the screen. Use the appropriate formula for your projector model when calculating.

In both vertical and horizontal configurations:

TD = Throw Distance

W = screen width in millimeters

RPMX-D132U	For XGA (0.69:1 lens). TD = 0.69 x W +54 mm
RPMSP-D132U	For SXGA+ (0.69:1 lens). TD = 0.69 x w +54 mm For SXGA+ (1.20:1 lens). TD = 1.2 x W + 29 mm
RPMSP-D180U	For SXGA+ (0.69:1 lens). TD = 0.69 x W + 33 mm For SXGA+ (1.20:1 lens). TD = 1.2 x W + 29 mm

See [Figure 2-7](#) for an illustration of the formula

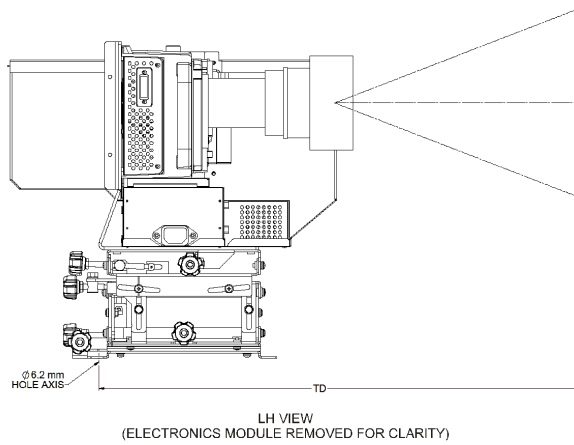


FIGURE 2-7 THROW DISTANCE FORMULA FOR LENS-HORIZONTAL CONFIGURATION

For lens-vertical configurations, where a first surface mirror is used to shorten the distance between the projector and screen by folding the optical path, throw distance is a little more difficult to calculate, as there are many variables to consider.

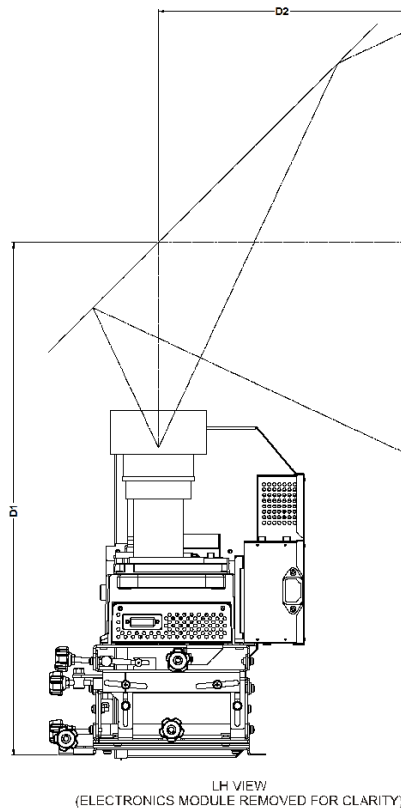


FIGURE 2-8 THROW DISTANCE FORMULA FOR LENS-VERTICAL CONFIGURATION

RPMX-D132U	For XGA (0.69:1 lens). TD = 0.69 x W + 336 mm
RPMSP-D132U	For SXGA+ (0.69:1 lens). TD = 0.69 x W + 336 mm For SXGA+ (1.20:1 lens). TD = 1.2 x W + 311 mm
RPMSP-D180U	For SXGA+ (0.69:1 lens). TD = 0.69 x W + 336 mm For SXGA+ (1.20:1 lens). TD = 1.2 x W + 311 mm

Lifting and transporting the projector

It is recommended that you ask for someone's help to lift the projector and use a stable cart to transport the projector.

Mounting

Refer to the drawings provided for your specific projector model in *Appendix B Dimensions & Mounting Information* of the *user manual* for mounting hole locations and other technical information.

⚠ WARNING Mount the projector to a sturdy, flat surface that fits the entire projector.

Use all four mounting points to secure the projector to the surface. Refer to *Appendix B Dimensions & Mounting Information* of the *user manual*.

Maintain an area of empty space around the projector, called a "stay out zone", to allow for air circulation and clearance for cable connections to the input panel. An insufficient stay out zone area can cause the projector to overheat during operation and/or place undue stress on source connections.

Step 4 Connecting sources

All source connections are made to the input panel of the Electronics Module. Each input is labeled for easy identification. Using the appropriate cables, connect your source. Refer to [2.2 Connecting Sources](#) for more details on connecting a specific source.

NOTE: An optional input module can be installed at Input 5 if additional connections are required. Refer to *Appendix D Optional Input Modules* of the *user manual*.


Step 5 Turning the projector ON and selecting a source

⚠ WARNING A North American rated line cord is provided with this projector. For all other regions, make sure that you are using a line cord, power plug and socket that meet the applicable rating standards

1. Plug an approved line cord into the projector's AC receptacle, located on the electronics module. Plug the 3-pronged end of the line cord into a grounded AC outlet.

NOTE: The outlet must be near the equipment and easily accessible. Use only the line cord provided with the projector or a power cord of appropriate ratings that comply with regional standards.

NOTE: Do not use a line cord or AC supply not in the specified voltage and power range. Refer to [Section 6 Specifications](#) for projector power requirements of the *user manual*.

2. Press  for two seconds to turn the projector ON. As the projector begins initialization, an active pattern of segments appears in the LED status display window. Commands will be ignored until "On" appears.
3. Press one of the input keys on the remote to select and display the image for the source connected in Step 4.

NOTE: For more information on the keys available on the remote and their function, refer to [Section 3 Operation](#).

NOTE: The projector enforces a 60 second wait period from the time the projector is powered down and back up again.

Step 6 Adjusting the projection lens



FIGURE 2-9 LENS ADJUSTMENT HANDLE

1. Loosen the adjustment handle (turn thumbwheel) on the lens barrel.
2. When the image is focused, lock adjustments in place by tightening the adjustment handle until just tight.

⚠ CAUTION Lock lens adjustments to prevent unnecessary tampering.

Step 7 Adjusting image geometry using the 6-axis adjuster

The light engine is mounted to the 6-axis adjustment mechanism, which can fine-tune the geometry of a displayed image by moving the light engine about the X, Y and Z-axes in varying degrees.

For single projectors, adjust the 6-axis adjuster until the displayed image fills the screen and appears without any geometric distortion.

For a multi-projector display wall, use the 6-axis adjuster to closely match the image across multiple screens. You should begin adjustment on an end unit on the bottom row of wall and work your way across and up until all units are adjusted.

To adjust the 6-axis adjuster:

1. Center the image on screen, by adjusting vertical and/or horizontal position.
2. Zoom the image out (make smaller) until it fits within the borders of the screen.
3. Adjust keystone and tilt.
4. Zoom the image in (make larger) to fill the screen.

- Repeat any adjustments until the image appears correctly.



FIGURE 2-10 6-AXIS ADJUSTMENTS

Step 8 Adjusting image

Adjust the image settings, such as Brightness, Contrast, Gamma, Focus, Zoom etc. using the direct keys on the remote or built in keypad. See [Section 3 Operation](#) for more details.

2.2 Connecting Sources

Sources connect to the Input Panel located at the back of Electronics Module.

INPUT 1 typically accepts an RGB signal from an external analog RGB source, or it can be used for YPbPr signals or additional video sources. **INPUT 2** accepts digital or analog display signals from a computer. Connect analog composite video at **INPUT 3** or S-video at **INPUT 4** from devices such as VCRs, laser disk players or DVD players.

Christie offers optional input modules that can be installed into the projector at **INPUT 5** to connect other sources.

NOTES:

- 1) See [Section 6 Specifications](#) for details regarding compatible inputs.
- 2) Use only high quality shielded cables only for all connections.

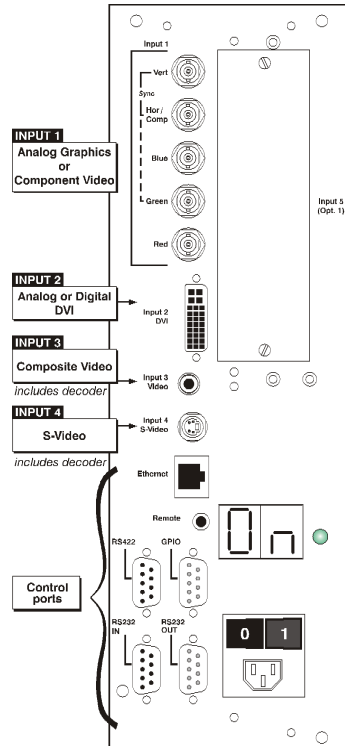


FIGURE 2-11 INPUT PANEL

RGB signals (5 BNCs)

INPUT 1 has 5 BNCs for connecting a variety of sources. A typical connection would be to an RGB source such as a PC, Mac, Sun, SGI and others. This projector supports multiple sync types: sync-on-green, composite sync, and separate H & V syncs.

Connect the **SYNC** BNC input(s). H & V syncs may be connected in any order, the projector will auto detect them. Then connect the red, green and blue source outputs to the **RED**, **GREEN**, and **BLUE** BNCs. If the source uses sync-on-green, only the red, green, and blue connections are required. If the source provides a composite sync output, connect it to the **SYNC** input labeled **HOR/COMP**. If the source provides separate horizontal and vertical sync outputs, connect horizontal sync to the **SYNC** input labeled **HOR/COMP** and connect vertical sync to **SYNC** input labeled **VERT**. See [Figure 2-12](#).

NOTES: 1) Depending on the source, you may need a custom adapter cable with BNC connectors at the projector end and a different type of connector at the other (such as a 15-pin "D" connector for some computer sources). Contact your dealer for details.

2) If the projector fails to recognize a signal as an RGB signal, specify the Color Space option within the Image Settings menu. Refer to user manual.

3) To connect YPbPr signals—such as from DVDs or analog HDTV sources—to **INPUT 1**, use the red, green and blue BNCs as described in YPbPr Signals (below).

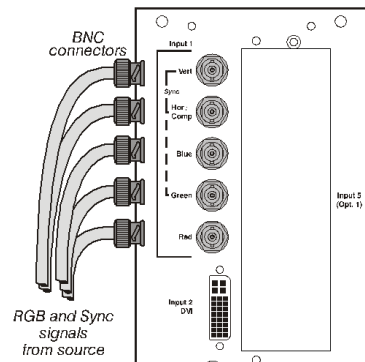


FIGURE 2-12 CONNECTING RGB

YPbPr signals

Connect a YPbPr signal (*component video*) to **INPUT 1** or **INPUT 2** as shown in figure 2.14.

NOTES: 1) If the projector fails to recognize a YPbPr signal, specify the *Color Space* option within the *Image Settings* menu. Refer to user manual.

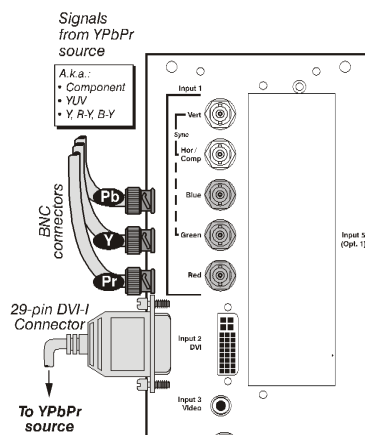


FIGURE 2-13 CONNECTING YPBPR

DVI Digital Video

Use the DVI-I connector at **INPUT 2** to connect either analog or digital video devices to the projector. Use a cable with DVI-I connectors at both ends to connect devices that transmit digital and analog video signals such as high-quality DVD players, satellite receiver and digital cable TVs.

NOTES: 1) To ensure true digital output from devices that transmit digital signals, connect to the *DVI-I* connector.

2) *DVI loop through* is not available unless you have the optional *DVI Input Module* installed at **Input 5**.

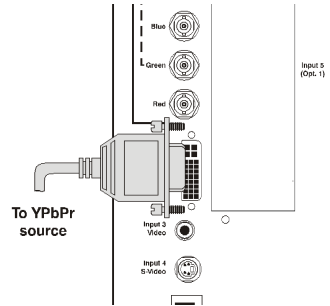


FIGURE 2-14 CONNECTING ANALOG OR DIGITAL VIDEO DEVICES

Composite and S-Video

INPUT 3 and INPUT 4 provide simultaneous connection of both a composite video source (INPUT 3) and an S-Video source (INPUT 4).

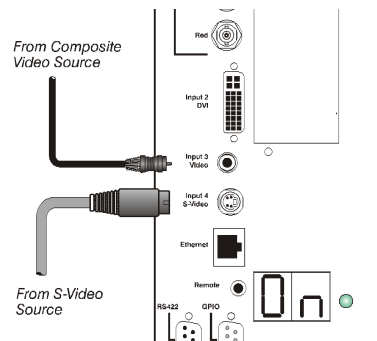


FIGURE 2-15 FIGURE 2.15. CONNECTING COMPOSITE / S-VIDEO

Extra Video

To use an extra video source in addition to the video source(s) connected at input 3 or input 4, connect either a Composite or S-video source to input 1 as shown.

NOTES: 1) Do not simultaneously connect composite and s-video to input 1.

2) You can switch between video sources connected at input 1 and input 3 or input 4.

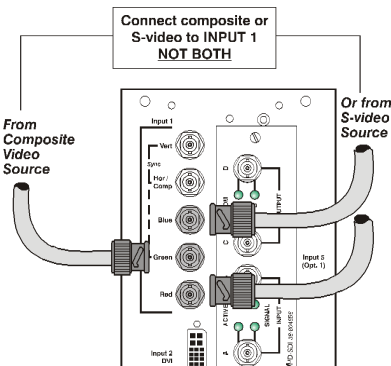


FIGURE 2-16 CONNECTING EXTRA VIDEO

Optional Inputs

Optional input modules allow you to increase your total number of inputs to accommodate different signal types, whether analog or digital. Install in the area labeled **INPUT 5**. Options include:

- RGB 500 Input Module
- RGB 400 Active Loop Thru Input Module
- RGB 400 Buffered Amplifier Input Module
- PC250 Analog Input Module
- Serial Digital Input Module
- DVI Input Module
- Dual SD/HD-SDI Module

NOTE: Refer to the user manual for a brief description of each interface.

2.3 Connecting Communications

As an alternative to the projector's keypad or remote, communicate with the projector using a PC or other controller. Commands and feedback are sent via serial links (RS-232 and RS-422) and Ethernet or GPIO communications to the projector.

2.3.1 Remote Keypad

Direct the projector's IR remote keypad towards the display screen or the projector's IR sensor. Alternatively, connect a wired (tethered) version of the remote to the RCA jack labeled **REMOTE** on the projector's input panel. Response to a wired keypad must be enabled in the *Communications* menu—see 3.6, *Adjusting System Parameters and Advanced Controls* for more information.

2.3.2 Serial Port Connections

RS-232 and RS-422 are the serial ports available on the projector. Connect a device with a serial interface, such as a computer to either of these connectors (not both) and control the projector remotely by entering specific serial communication commands.

Connecting RS-232

The two 9-pin DIN connectors labeled RS-232 IN and RS-232 OUT on the input panel are dedicated to serial communication. Using the appropriate serial communication cables connect the controlling source, such as a personal computer to the RS-232 IN connector. Set the baud rate to match that of the computer. Refer to *user manual* for details on changing the projector's baud rate.

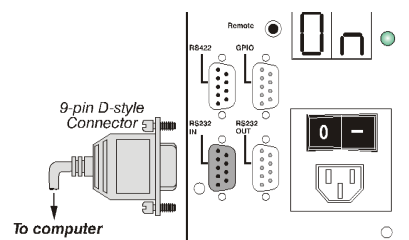


FIGURE 2-17 CONNECTING RS-232

Connecting RS-422

To control the projector with a computer or other devices with RS-422 capability, connect an RS-422 serial communication cable between the computer and the RS-422 port on the projector. RS-422 is better suited for serial communication over long distances than RS-232 communication.

Use the RS-422 port only if your device has RS-422 capability. Consult the literature provided with your equipment before connecting. Connecting to the RS-422 port with incompatible equipment could damage your projector.

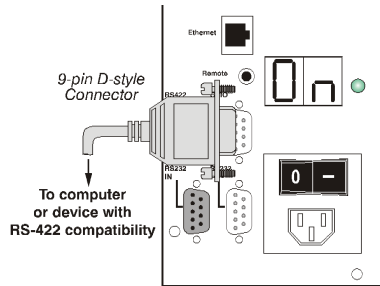


FIGURE 2-18 CONNECTING RS-422

2.3.3 Ethernet Communications

To add the projector to an existing Ethernet network, connect standard CAT5 Ethernet cable between your Ethernet hardware and the Ethernet port on the side of the projector.

The project factory default is DHCP enabled, an IP address will be obtained automatically. If there is no DHCP server available on the network or if a static IP address for the projector is required, set the address in the *Ethernet Settings* menu or via serial command.

Regardless of how it is assigned, once a projector has a valid and unique address it will respond to commands sent to this address. To determine the projector’s current IP address, consult the *Status* or *Communications*. Refer to the *user manual* for further information about setting up and using a projector connected via Ethernet.

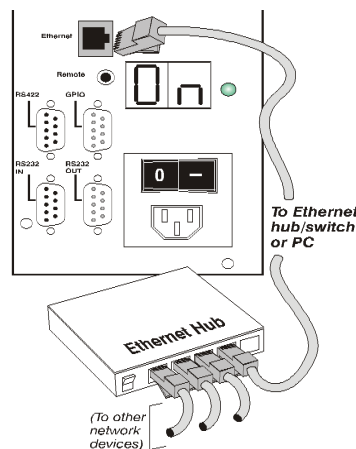


FIGURE 2-19 ETHERNET COMMUNICATION

2.3.4 Connecting Multiple Projectors

RS-232 Network

To connect multiple projectors in a network with serial communication, connect the controlling source to the RS-232 IN connector of the first projector in the network. Then take another serial communication cable and connect one end to the RS-232 OUT connector and the other end to the RS-232 IN connector of the next projector. Continue this pattern of connection with all projectors in the network. The last projector in the network will only have a connection to the RS-232 IN connector. See [Figure 2-20](#).

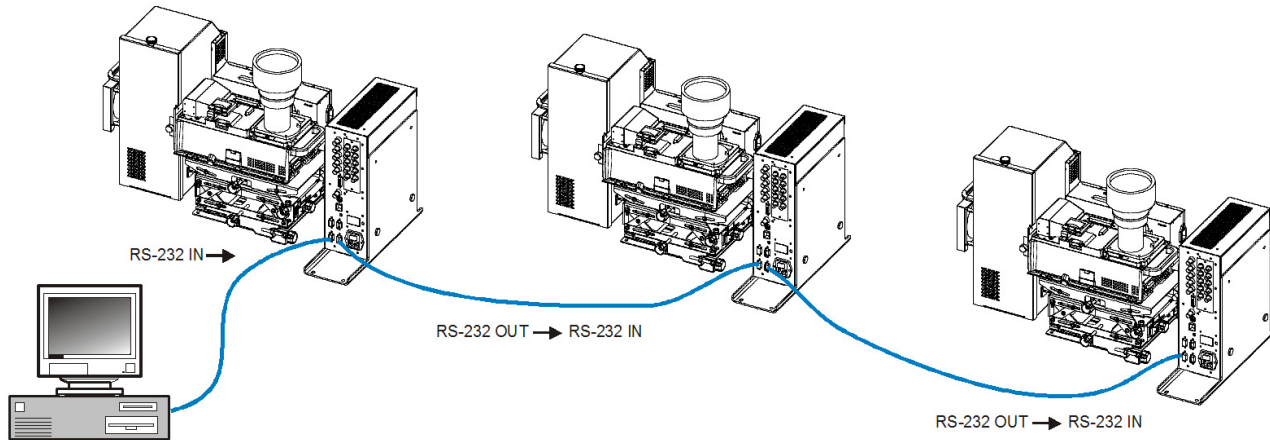


FIGURE 2-20 COMMUNICATING THROUGH RS-232

Mixed Network

To control multiple projectors with a computer/controller having an RS-422 interface, first set them all to the same baud rate as your RS-422 controller.

NOTE: You must enable this combination of RS-422 and RS-232 in the Communications menu. Set the “Network Routing” option to “RS-232 and RS-422 Joined”. Refer to the user manual for details.

Then chain the projectors together by connecting an **RS-232** port of the first projector (already connected to the computer/controller through the **RS-422** port) to an **RS-232** port on the next projector in the chain. Continue connecting projectors in this manner until you’ve reached the last projector in the chain, so that only the last projector has one unused **RS-232** port. See [Figure 2-21](#).

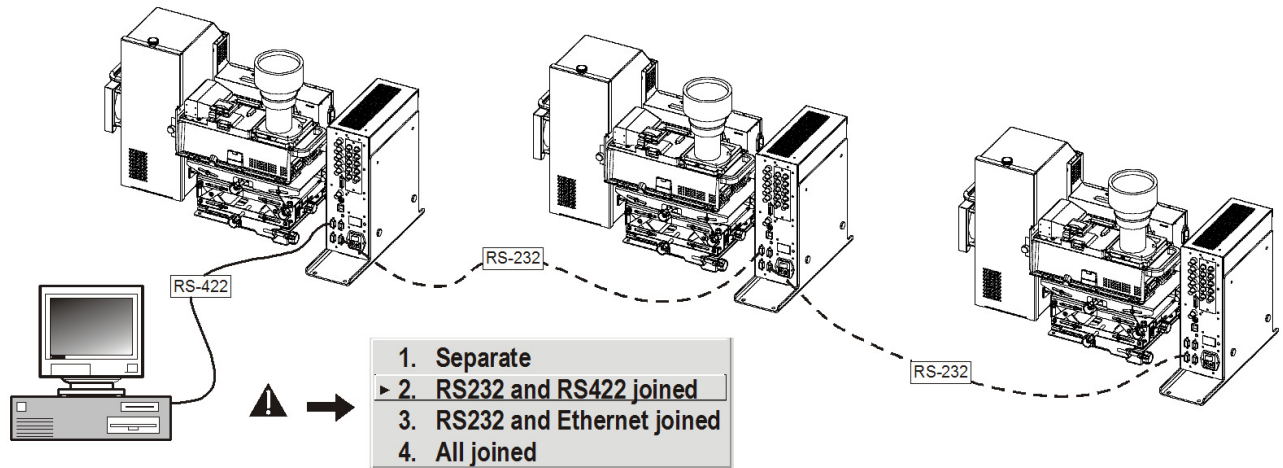


FIGURE 2-21 COMMUNICATING THROUGH A MIXED NETWORK

Communication parameters such as baud rate must be set to match the particular controlling device *before* connecting as a network—refer to the documentation that came with your controlling device in order to determine the proper baud rate. Refer to the *user manual* if you need help changing the projector baud rate. Set the Network Routing to “RS-232 and RS-422 Joined” to reach all projectors.

NOTES: 1) To avoid damage, connect only properly wired serial communication cables. 2) Each RS-232 communication cable must be no more than 25 feet in length. Use high quality cables

2.3.5 Ethernet Network Setup

To add one or more projectors to an Ethernet network, use standard CAT5 cable to connect each projector’s Ethernet port to a hub belonging to the network. A controller or PC must also be connected to the hub. See [Figure 2-22](#).

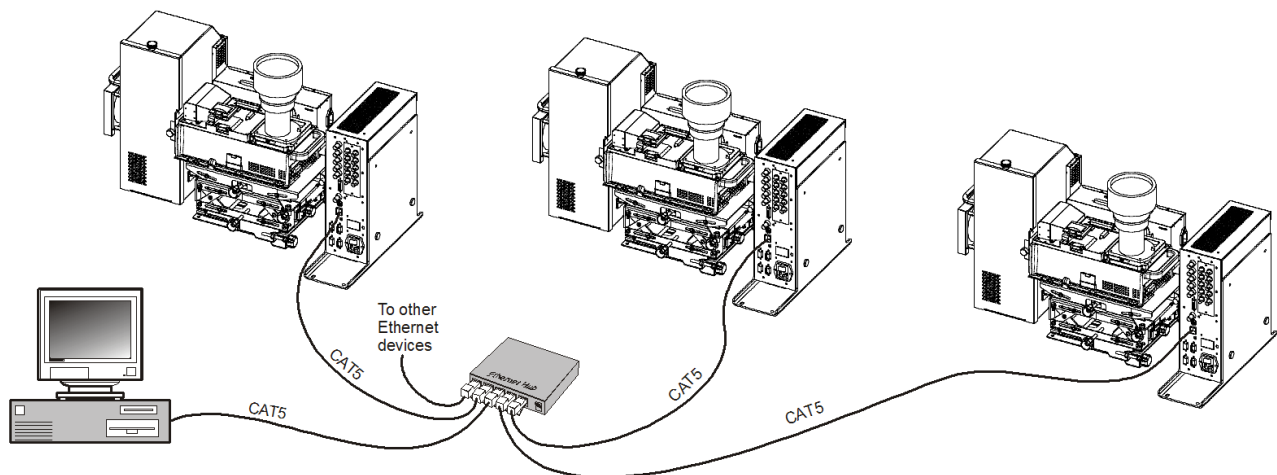


FIGURE 2-22 ETHERNET NETWORK

Setting the Projector's IP Address

Upon connecting to most Ethernet networks each projector's factory default IP address of 0.0.0.0 triggers the network's DHCP (Dynamic Host Configuration Protocol) server function to automatically assign an IP address that is valid and unique for use on that network. Depending on the network, this DHCP-assigned IP address usually remains stable for a single session, but may change with subsequent power-ups and logins. On some networks, the address will remain stable from session to session. In all cases, the projector's IP address and port appear in the *Status* menu as well as the *Ethernet Settings* submenu.

Note that if a projector's IP address is anything *other* than 0.0.0.0 (shown as 000.000.000.000 in the *Ethernet Settings* menu) upon connection to an Ethernet network, or if DHCP is not available on the network, the automatic DHCP server function for supplying a valid and unique IP address to the projector is disabled. Instead, a specific and static IP address must be defined in projector memory—enter the new address in the *Ethernet Settings* submenu, or send to the projector via a serial command. The IP address will be in effect until it is changed again, or until the DHCP checkbox is re-enabled for use with a DHCP server on the network.

Changing the Port Number

On some Ethernet networks, you may be required to change the firewall restrictions from the default value (3002). If so, enter a new port number in the *Ethernet Settings* menu or include the new port# in an XIP serial command sent to the projector. It is highly recommended not to use a port# below 1024, as these ports are typically reserved for and used by common network applications.

Subnet Mask and Default Gateway

The Subnet Mask and Default Gateway are automatically assigned when DHCP is enabled. If a static IP is being used, it must be assigned before the subnet mask. The Default Gateway is an optional router device used to send and receive data outside the subnet.

ArtNet INTERFACE SETTINGS: Refer to *Section 3.6 – Adjusting System Parameters and Advanced Control, System Configuration – Communication* for additional information about ArtNet settings.

2.3.6 Separating Networks

By default, communications originating from one type of serial controller—RS-232 vs. RS-422 vs. Ethernet—stay on the corresponding network path. A “Separate” setting indicates this separation for “Network Routing” in the *Communications* menu. If you are using an RS-422 controller, for example, it will communicate only with the projector to which it is connected unless you change this setting to either “RS-232 and RS-422 Joined” or “All Joined”.

2.3.7 Communicating to All Ports

To relay all messages to all ports—RS-232, RS-422, and Ethernet—set the “Network Routing” option in the *Communications* menu for each projector to “All Joined”. This configuration is useful if you are using a non-RS-232 controller with the RS-232 linking available between these projectors. For example, you may want to use both an RS-422-compatible controller and an Ethernet-connected PC for working with a network of projectors linked via their RS-232 in/out ports.

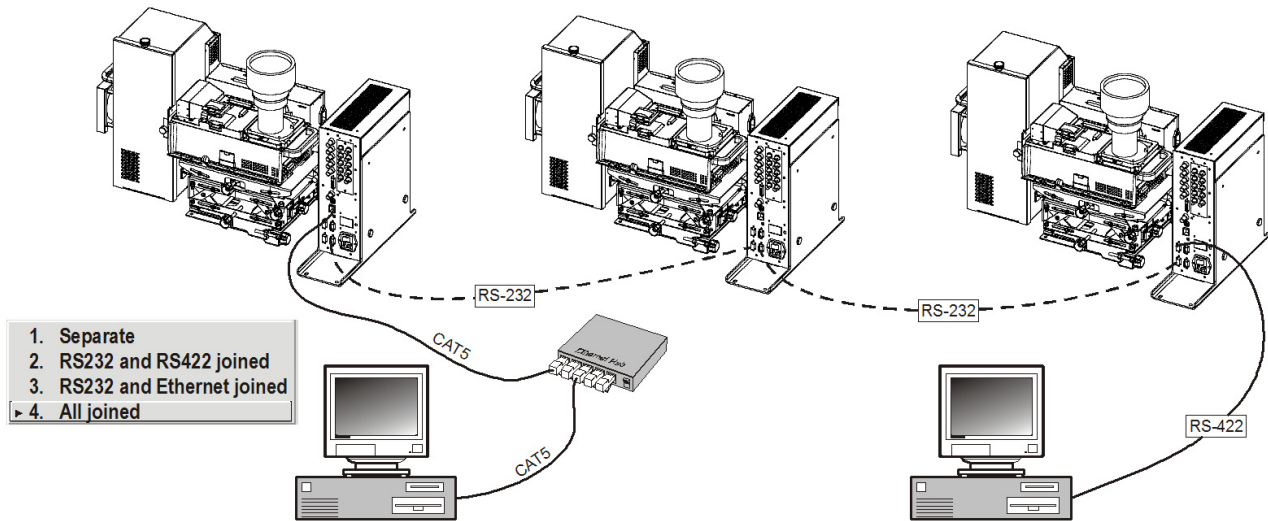


FIGURE 2-23 ALL JOINED

To isolate just RS-422 communications, select “RS-232 and Ethernet Joined”. In *Figure 2-23*, only projector #3 will respond to the RS422 controller. To isolate just Ethernet communications, select “RS-232 and RS-422 Joined”—only projector #1 will respond via Ethernet.

2.3.8 System Integration GPIO Connector

The GPIO connector on the input panel can be used to provide a method of interfacing a wide range of external I/O devices to the projector.

Refer to *user manual* for complete details on pin configuration and how to program the various pins on the connector.

2.4 Power Connection

⚠ WARNINGS ⚠

Do not attempt operation if the AC supply and cord are not within the specified voltage and power range.

The North American rated line cord is provided with this projector. For all other regions, ensure that you are using a line cord, power plug and socket that meet the appropriate rating standards.

Do not use a line cord that has been damaged.

2.4.1 Connecting the projector to AC

Plug an appropriately rate line cord to the AC receptacle located on the electronics module and the 3-pronged end into a grounded AC outlet.

NOTE: *The outlet must be near the equipment and easily accessible. Use only the line cord provided with the projector or a power cord of appropriate ratings that comply with regional standards.*

The input voltage to the projector must be capable of 100-240 VAC.

2.4.2 Disconnecting the projector from AC

Power down the projector and wait for the internal cooling fans to stop before turning the main power switch on the electronics module OFF. This gives the lamps enough time to cool. At that time, unplug the line cord from the wall outlet.

Refer to [Section 6 Specifications](#) for complete details on all power requirements for the projector.

 **WARNINGS** 

Wait for the cooling fans to stop before turning the main power switch OFF and unplugging the projector.

3 Operation

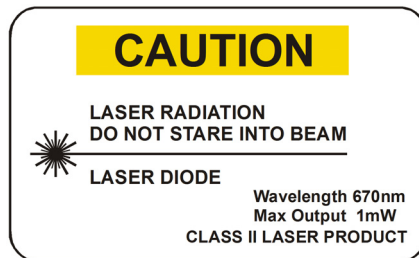
This section explains how to operate the projector once it has been setup and installed. Read this section and familiarize yourself with the components and menu options before using your projector.

3.1 Using Remote IR Keypad

The IR remote keypad controls the projector by way of wireless communications from a battery-powered infrared (IR) transmitter. Use the IR remote keypad the same way you would use a remote TV or VCR remote. When making key presses, direct the keypad toward the screen or toward the front of the projector. The IR sensor on the projector will detect the signals and relay the commands for internal processing.

See [Figure 3-1](#).

⚠ WARNING Laser radiation is emitted from the laser diode on the remote. Do not look directly into the beam of the remote.



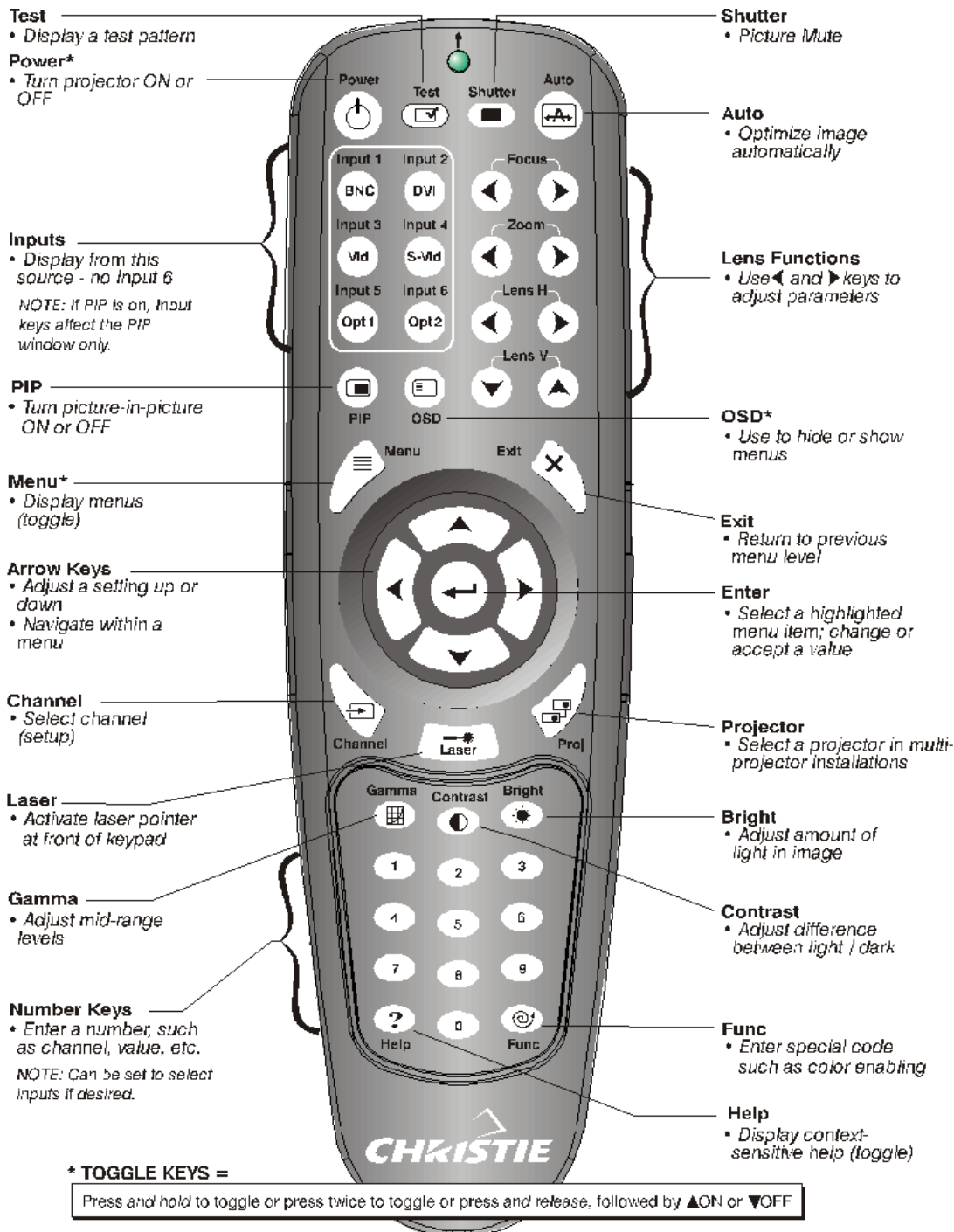




FIGURE 3-1 REMOTE KEYPAD

3.1.1 Keypad Commands

When using the keypad, keep these guidelines in mind:







- Press keys one-at-a-time; there are no simultaneous key combinations required.

- Power  and OSD  keys —are “press-and-hold” keys that do not function with a typical quick press-and-release key press.
- Hold arrow keys down for continuous adjustment/movement in one direction. In serial networks, pause briefly between adjustments to ensure that more distant projectors can “keep up” with the commands.
- If you press a key while the projector is still responding to the previous action, such as during power-up, the second key press may not take effect.

Specific keypad commands are:

Power ON/OFF 

There are 3 options to power the projector ON or OFF:




- Press  for two seconds to toggle the projector ON/OFF state.
- Press  followed immediately by  (ON) or  (OFF) to switch the projector ON or OFF.
- Press   to toggle the present ON/OFF state.

NOTES:

- 1) After powering down, the lamp cooling fan remains on for approximately 1-2 minutes to cool the lamp.
- 2) Keep the projector OFF for a few minutes. Hot re-strikes of the lamp may reduce lamp life.
- 3) The projector enforces a 60 second wait between powering OFF and ON to allow the lamp to cool down. You will see vertical scrolling bars across the status display during this wait period

Test 

Steps through the internal test patterns and the current input.

Press  and then the  and  arrow keys to cycle in either direction through the test patterns.

Auto 

Initiates an automated process that optimizes critical display parameters for the current source, see [Table 3.1](#). An *Auto Setup* can save time in perfecting a display, and you can modify the adjustments as desired.

Table 3.1 What an Auto Setup Does

OPTIMIZES	SETS TO DEFAULT
Pixel Tracking	Contrast
Pixel Phase	Brightness
Size and Blanking	Auto Input Level (off)
Vertical Stretch	Detail (if video source)
Position	Filter
Input Levels	Luma Delay

NOTE: *You must have an unlocked channel present to use Auto Setup.*

Channel 

Select a source setup (*channel*) defined and stored in projector memory. Enter a 2-digit channel number, the display will automatically update according to the setup parameters defined for that channel. A new channel is automatically created if you adjust an image from a new source

NOTE: *To display a list of available channels for selection make sure the Display Channel List option is enabled in the Menu Preferences menu. See Menu Preferences later in this section.*

Input 1 

Displays from the data or video input source connected to BNCs labeled **INPUT 1**.

Input 2 

Displays from the DVI source connected to **INPUT 2**.

Input 3 



Displays from the composite video source connected to **INPUT 3**.

Input 4 

Displays from the S-video source connected to **INPUT 4**.

Input 5 



Displays from the **INPUT 5** interface module installed in the Option 1 slot.

NOTE: *If you have the new optional Dual SD/HD-SDI Module installed at input 5 you can connect two inputs – A and B. Whether you are displaying from input 5 or from another input, press  to display the input last used. Press  again to toggle to the other input.*



Input 6 

Not applicable.

Contrast 

Changes the amount of white in your images. Use   keys until you reach the desired level of contrast—for best results, start low and increase so that whites remain bright but are not distorted or tinted, and that light areas do not become white (“crushed”). Conversely, low contrast causes dim images.

Brightness 

Increases or decreases the amount of black in the image. Use   keys until you reach the desired level of contrast. For best results, start high and decrease so that dark areas do not become black (“crushed”). Conversely, overly high brightness changes black to dark gray, causing washed-out images.

Gamma 



“Gamma” determines how gray shades are displayed between minimum input (black) and maximum input (white) for a given amount of signal. The proper setting (normal gamma setting is 2.22) helps maintain optimized blacks and whites while ensuring a smooth transition for the “in-between” values utilized in grays. The overall tone of an image can be lightened or darkened without changing the two extremes, and your images will be more vibrant yet with good detail in dark areas.

If excess ambient light washes out the image and it becomes difficult to see details in dark areas, lower the gamma setting to compensate.






Menu 

Press to enter or exit the projector’s menu system.

OSD (On-screen display) 


Press  followed by  to hide the projector’s menu system during use. Invisible menus are fully functional, enabling “hidden” access to numbered features and image adjustments by entering the corresponding sequence of key presses on the keypad.

To see the menus again, do one of the following:

- Press *and hold*  for a second
- Press and release  followed immediately by 
- Press  



NOTE: With OSD “on”, you can still hide error messages and slidebars by disabling these options in the Menu Preferences menu.






















PIP (Picture in Picture) 








Press to enable and disable Picture-in-Picture. PIP enables you to display two different images simultaneously – typically a smaller “secondary” image within a large “primary” background. When a menu control or slidebar is present, press  to toggle the current function to affect the other image.

NOTE: Disable PIP and Best Switching for Interlaced sources > 35 kHz.

Function Key 

IF WITHIN A MENU: Using the  for special tasks within the menu system is noted with the appropriate topic elsewhere in Section 3. For example, press  in the Channel Setup menu to enable deletion or copying of a channel.

-    = Red
-    = Green
-    = Blue
-    = Red & Green
-    = Green & Blue
-    = Red & Blue
-    = All Colors

IF WITHIN A PRESENTATION: Press  followed by a 2-digit number to enable a specific color or colors in the display (see right). For example,    will display only red and green data,    will display all color data. Eliminating one or more colors can

help with certain diagnostics and setups, such as when accurately overlaying one image on top of another from stacked projectors.

NOTE: *Color enabling can also be implemented from numerous locations within the menu system.*

Shutter

Picture mute toggle. Picture mute replaces video with a black screen.

Projector

Used to access a specific projector within a group of projectors or to confirm if the local projector is listening. The number in the “Enter Number” window indicates which projector is currently listening to commands, and will match the projector number that is defined in the *Menu Preferences* menu.


A checkmark indicates that the projector is connected to a keypad and is listening to commands from that keypad. If there is no checkmark, you are communicating with a different projector.

To control a specific projector with the keypad, enter the projector’s 3-digit number. If you switch to another projector, the checkmark will disappear.


When broadcasting to multiple projectors, press the button twice *without* entering a projector number. Keypad commands will then affect all projectors present. There is no method of controlling a *group* of projectors within the same wired configuration using the wired keypad exclusively


NOTE: *The “Broadcast Keys” option in the Communications menu must be selected for only one (any) projector in a serial network. The keypad in use must be OFF (disabled) for the remaining projectors. See also 3.6, Adjusting System Parameters and Advanced Controls.*

Enter

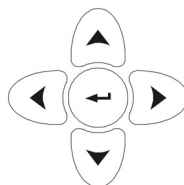
Press  to select a highlighted item, to toggle a checkbox, or to accept a parameter adjustment and return to the previous menu or image.



Exit



Press  to return to the previous level, such as the previous menu.

NOTE:  *does not save changes within text editing boxes (including number editing of a slider value) or within pull-down lists. It acts as a “cancel” in these cases.*

Arrow Keys



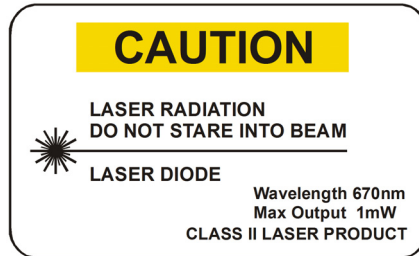
Use the   keys to change a slider value or to select a different option within a pull-down list without having to first scroll through options. See also *Editing Text* later in *Section 3*.

Use the   keys to navigate within a menu, pull-down list or text box.


Lens Focus, Zoom and Lens H, Lens V    

NOTE: *Not applicable.*

Laser 



Activates the laser pointer on the remote. Keep the key depressed and point the remote at the screen to highlight an area of the presentation. Release it to turn it off. The closer you are to the screen the brighter the laser beam appears. The laser pointer works best in an environment where ambient lighting can be controlled.

NOTE: *The batteries must be in the remote keypad for the  key to work.*

3.2 Navigating the Menu

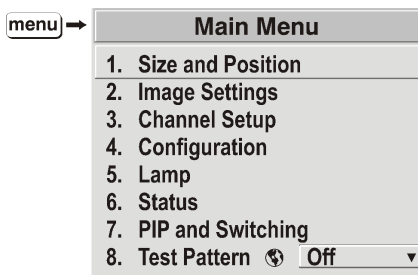







FIGURE 3-2 ENTERING THE MENU SYSTEM


Press  at any time to display the *Main* menu (see figure 3.3). Most of the projector controls are accessed from within the projector’s menu system. There are several groups of related *functions*.

Press the number corresponding to the function menu, such as  for the *Image Settings* menu, or use the   keys on any keypad to highlight the option, then press . The corresponding function menu or drop-down list of further options will appear.

Longer menus have a scroll bar on the right. Use the arrow keys to scroll the menu. Locked or disabled items appear dimmed and cannot be selected.

NOTES: 1) *If there is no signal present; all source-dependent adjustments are disabled.*

2) *After 15 minutes of inactivity, the menu system closes.*

- Press  to return to the previous screen

Press  to leave the menu system and return to the presentation

On-line Help

Displays summary information about the current menu or highlighted option. Press again to exit.

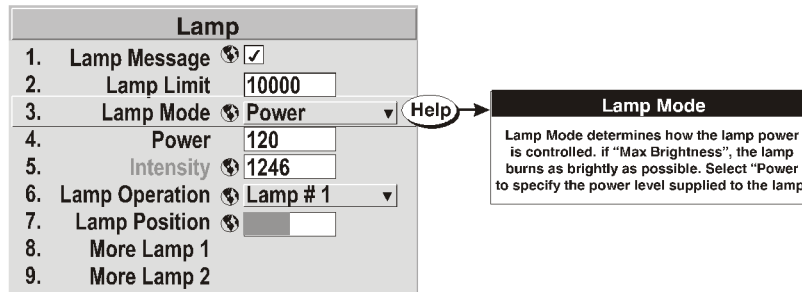


FIGURE 3-3 CONTEXT-SENSITIVE HELP

From presentation level, press to access general *Help Topics*. Press or to return to your presentation.

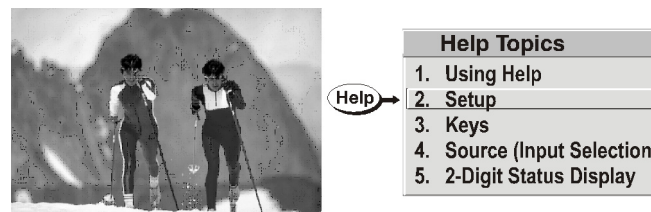


FIGURE 3-4 ACCESSING GENERAL HELP TOPICS

Time-outs

If a sidebar, menu or message is displayed you have limited time to make a keypad entry before the projector returns to presentation level and the graphic disappears. These time-outs may vary depending on what is displayed.

The Global Icon



Menu options with this icon apply universally to any incoming signal.

Using Slidebars and Other Controls

Most function menus allow you to change settings by using slidebars, checkboxes, and drop-down lists. To select a sidebar, toggle a checkbox status or view a drop-down list, do one of the following within the function menu:

- Enter the menu option number corresponding to the setting you wish to change (for example, press to select Vertical Stretch in the *Size & Position* menu).
- Move the highlight to the option and press (Enter).
- Move the highlight to the option and press to adjust immediately.
- Bypass the menus entirely and use a single key to immediately access an adjustment during your presentation

NOTE: *Applies only to options having their own key, such as Contrast, Brightness, Gamma, etc.*

- For “blind” access, hide the entire menu system (see OSD key, above) and/or direct slidebars activated by their own key (such as Contrast, Brightness, etc.). Control by using the proper key press or numerical sequence of key presses.

Once selected, change the setting and press to save and return to the current function menu.



FIGURE 3-5 EXAMPLE OF SLIDEBAR

Slidebars in menus – The current value for a given parameter appears to the left of its sliderbar (adjustment window). This number expresses a percentage or units (such as pixels, degrees Kelvin), depending on the option. Press to adjust the setting up or down. Both the number and the length of the bar change accordingly. Hold for continuous adjustment or press to activate a sliderbar text box for number entry via the keypad. Press to save or press to cancel.

“Direct” slidebars - For quick access to Gamma, Brightness, and Contrast slidebars without traveling the menu system. For example, press to immediately display the same contrast sliderbar accessed with the Contrast option in the *Image Settings* menu.

NOTES: 1) A direct sliderbar can still be adjusted if the display is turned off (see or Menu Preferences menu) — the sliderbar will not be visible.

2) A direct sliderbar disappears if it is not used within 5 seconds.

5. Broadcast Keys

FIGURE 3-6 EXAMPLE OF CHECKBOX

Checkboxes - Conditions are enabled when the adjacent checkbox contains a checkmark. To toggle the checkbox, highlight and press , or highlight and use to check and to uncheck. If a checkbox is numbered, enter its number to immediately toggle the checkbox.

Drop-down lists –Parameters labeled with a ▼ have a drop-down list. To see the drop-down list, highlight it and press (Enter) or enter the menu option number.

Use or keys to navigate up and down the list (the current choice is noted with a small ►). Press to choose the highlighted option from the list.

Example of Drop-Down List

To scroll through a list without first pulling it down, highlight the option and use . Press when the choice appears.

NOTES: 1) Press or to jump between pages in an extra long drop-down list.

2) Press while in a drop-down list to cancel any change.

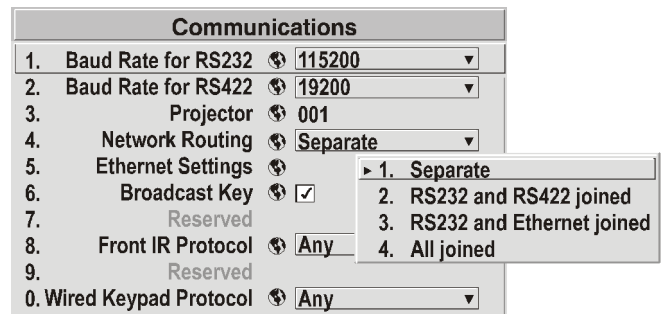




FIGURE 3-7 EXAMPLE OF DROP-DOWN LIST

Editing Alphanumeric Text

To enter or edit text, highlight the parameter and press  to activate its adjacent edit window. All text entered before is displayed with its first character highlighted in a square cursor, signifying that this character is ready for editing.

To navigate the edit window press  to move the cursor forward or  to move the cursor backwards.

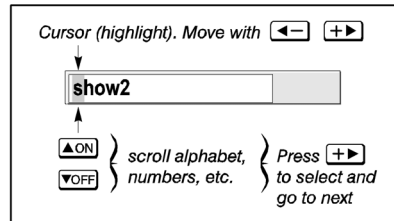







FIGURE 3-8 ENTERING AND EDITING TEXT

To edit a character press  and  to scroll through the alphabet, numbers, spaces and punctuation available. When the character you need appears, press  to select it. The cursor will move to the next character of current text, if present. You can enter a number directly from the keypad—it will be accepted and the cursor will move on.

NOTE: Channel numbers are defined with 2 digits—for example, if you enter a single digit (such as “7”) for a channel number, the channel will automatically be defined as “07”. Enter “07” to utilize this channel.

To insert a space at the cursor location, press . To delete a highlighted character (or space), press .

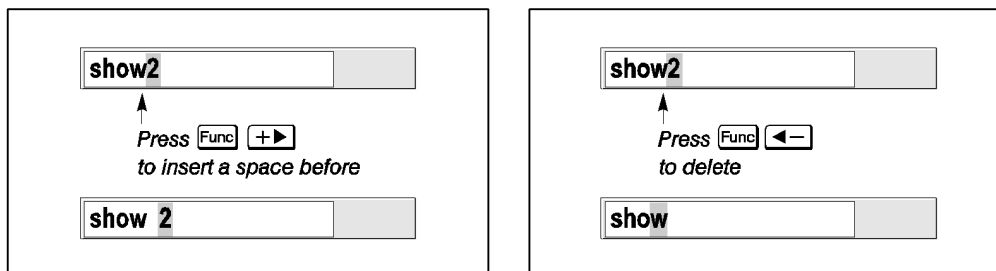





FIGURE 3-9 ADDING OR DELETING CHARACTERS

To accept edits and leave the edit window, press  (Enter).

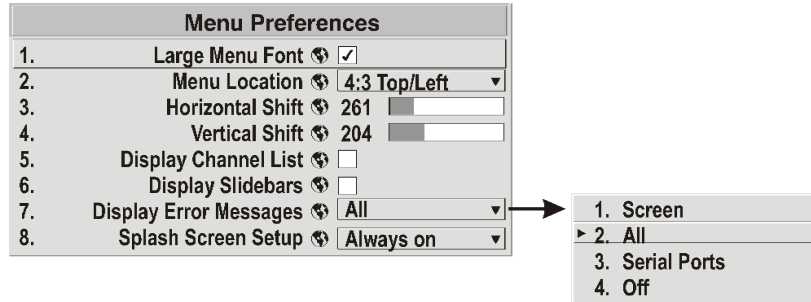
NOTES:

- 1) Press  at any time to cancel changes and return to the previously-defined text.
- 2) Once you enter the first digit, this digit replaces all old digits.
- 3) Pressing any non-numbered key will accept the number entered up to that point as the new value.
- 4) Press  to cancel editing of numerical values

3.3 ERROR CONDITIONS

Occasionally the projector will encounter an error condition that can interrupt normal operation. This can be caused by a simple invalid keypad entry, an input signal error (most common) or a system error. How users are notified of error conditions is set in the *Menu Preferences* menu:

- To see error messages displayed on-screen, select the “**Screen**” option
- To be notified via a serial communication only, select the “**RS232**” option.
- To receive both types of notifications, select “**All**”.
- To disable error messages (except for “invalid user key entry”, which can’t be hidden), select “**Off**”.



The 2-digit error code that corresponds to the message appears in the status display window on the electronics module. During normal operation the status code “0n” is displayed.

3.3.1 USER ERRORS

INVALID USER ENTRY

A keypad entry not recognized by the projector triggers a short on-screen error message identifying the problem. For example, if you specify a channel number that is not available, the message “*Invalid Channel*” will appear. Press or to clear the message.

NOTE: *On-screen display of “Invalid User Entry” messages cannot be disabled, even if Display Error Messages has been set to “Off”.*

3.3.2 INPUT SIGNAL ERRORS

These messages occurs if you are in presentation level (i.e., there are no menus present) and have selected an input on which the projector detects a problem. While menus remain operational and any key press will temporarily remove the error message, you must resolve the signal problem to permanently eliminate the message.

NO SIGNAL

Occurs when there is no source signal detected at the selected input—both HSYNC and VSYNC are inactive and the splash screen is displayed. Connect or correct the signal, or try another input.




BAD SYNC

Occurs when HSYNC or VSYNC are active but the signal cannot be displayed. This condition occurs when only one of the two sync signals is present, or when either sync signal is unstable or the wrong frequency. Correct the signal or select another input.

OTHER SIGNAL ERROR MESSAGES

You may encounter a signal error message indicating that HSYNC and/or VSYNC are either too fast or too slow. When this message appears, check the frequencies shown in the *Status* menu. If they are correct, then the signal is not recognized by the projector. On some PCs you may be able to change the settings to generate a compatible signal. If the frequencies shown in the *Status* menu are incorrect, check the cabling to see where the problem might originate. Encrypted signal message error indicates that it does not have HDCP but that an HDCP signal is plugged in.

3.3.3 SYSTEM WARNINGS / ERRORS

When the projector encounters a system malfunction, a *System Warning* or a *System Error* message will appear. These messages are accompanied by a numerical error code shown in the status display window. A system malfunction can be cleared with   from presentation level, but may indicate the need for service by a qualified service technician. For best results reset the projector—power the projector down and up with the  (power) key. Wait at least 90 seconds and allow for proper cooling.

NOTE: *System messages appear on-screen only if Display Error Messages has been set to “Screen” or “All”.*

SYSTEM WARNINGS

Indicates that a system malfunction exists. A system warning message replaces any input signal message and disappears when the input signal status changes. While the projector will remain operational, the message indicates a potentially serious problem that should be reported to the manufacturer. Reset the projector.

SYSTEM ERRORS

Indicates that a serious malfunction exists and must be reported to the manufacturer as soon as possible. The projector will no longer operate. Reset the projector.

3.3.4 STATUS DISPLAY

Located just above the main power switch is a two-digit status display window that displays the current status of the projector. If the projector encounters an error during operation, an error code number will display. During normal operation “On” appears in the window.

3.3.5 ERROR CODES

CODE	DESCRIPTION
GENERAL	
12	Software bug. Contact dealer/factory.
13	Flash memory corrupted. Download new software.
14	Engineering-only programming is complete. Call Christie, replace TIPM.
15	Attempting to download code without being in boot mode
16	Invalid interrupt. Power off/on. If it persists, contact dealer/factory.

CODE	DESCRIPTION
18	Attempting to program boot mode without jumper
8D	Engine internal failure (all other failures)
LAMP FAILURES	
27	Lamp 1 Failed to Strike
28	Lamp 1 Turned Off Unexpectedly
32	Lamp 2 Failed to Strike
33	Lamp 2 Turned Off Unexpectedly
38	Lamp Position Failure
39	Lamp 1 Card Not Installed
3A	Lamp 2 Card Not Installed
POWER AND COOLING	
51	TIPM (EM) Fan Failure
53	Lamp Fan Failure
54	DMD Fan failure
55	Ballast A Fan Failure
56	Ballast B Fan Failure
57	Color Wheel Fan Failure
58	Power Fan Failure
TIPM (image processor)	
60	Boot code CRC failed
61	Unable to program the DigMux PLD
62	Unable to program the Control PLD
63	Unable to program the BUBKS PLD
64	Unrecognized ROM type
65	Write to flash ROM failed
66	General image processor failure
67	Downloaded code will not fit in the ROMs
68	Communication problem with scaler on image processor
COLOR WHEEL	
42	Color Wheel Stopped Spinning

CODE	DESCRIPTION
BACKPLANE or OPTIONAL INTERFACE MODULE	
A0	Unable to program the Option Card
A1	Unable to power the Option Card
A2	Unable to program the Backplane module
A3	Unable to program the Warp Module

LED STATUS








Located next to the 2-digit status display is a LED that conveys the current status of the system. Refer to Table 3.2 for a description of Status lights. Press  to acknowledge and clear the error.

Table 3.2 Error LED Status

LED STATUS	DESCRIPTION
 <i>Solid yellow</i>	Projector powering down/powering up
 <i>Solid green</i>	Projector powering on/cooling down
 <i>Solid Red</i>	System error – see corresponding error code on status display
 <i>Flashing yellow</i>	Lamp expired
 <i>Flashing green</i>	Keypad command sent - Command received
 <i>Flashing red</i>	Keypad error - Wrong protocol sent

4 Maintenance

4.1 Projector Location

Operate the projector in an environment, which meets the operating range as specified in *Section 6 – Specifications*.

- Do not operate the projector close to water, such as near a swimming pool. Do not operate in extremely humid environments.
- Do not place the projector on an unstable cart, stand or table. A projector and cart combination should be used with care. Sudden stops, excessive force and uneven surfaces may cause the projector and cart combination to overturn.
- Do not ceiling mount this projector.

4.2 Ventilation

Slots and vents in the projector provide ventilation to ensure reliable operation and prevent overheating. Do not block or cover these openings.

- Do not place the projector over a radiator or heat register.
- Do not place the projector in an enclosure without proper ventilation.
- Do not “poke” objects into the ventilation openings of the projector. They may touch dangerous voltages or short-out components resulting in a fire or shock hazard.
- Do not spill liquids into the projector. If a spill occurs, immediately unplug the projector and have it serviced by a qualified service technician.

4.3 Servicing

⚠ WARNING Do not attempt to service the projector yourself. All servicing must be performed by CHRISTIE accredited service technicians.

Use replacement parts that are manufacturer-approved only. Use of any other part other than the ones specified by the manufacturer can result in fire, electric shock or risk of personal injury and irreparable equipment damage.

⚠ WARNING Never service the projector while it is still plugged in. There are exposed voltages that could cause severe physical injuries and possibly death. Always unplug the projector and wait 2 minutes to allow the capacitors on the power supply to discharge before removing the projector’s covers.

If any of these conditions exist, immediately unplug the projector from the power outlet and ask a qualified service technician to look at it.

- The power cord is damaged.
- The internal cooling fans do not turn on when the projector is first powered up.
- Liquid is spilled into the projector.
- The projector is exposed to excessive moisture.

- The projector is not operating normally or its performance has significantly deteriorated in a short period of time.
- The projector has been dropped or the shipping case (if applicable) is badly damaged.

4.4 Cleaning

Part Description	Frequency	How to clean
Projection Lens	As required	<p>CLEAN: A small amount of dust on the lens has very little effect on picture quality. Clean only if absolutely necessary.</p> <p>To clean: Moisten a clean (not-reused), lint-free cloth with a high-quality optical cleaning fluid. Wipe the cloth in a single continuous motion across the lens surface. Discard the cloth after cleaning. Use compressed air to remove any particles remaining on the lens.</p> <p>NEVER use a cleaning solvent that contains ammonia. Avoid lens contact with Xylene and Ether.</p>
Lamp Module (glass exit window only)	As required	<p>CLEAN (glass only): It is important to never touch the glass surface of the lamp. Any oil left by fingerprints will seriously degrade a lamp's performance or cause "hotspots", which can lead to an accumulation of intense heat in the touched area and cause the lamp to shatter. Clean the glass exit surface of the lamp module only when absolutely necessary.</p> <p>To clean: Wait until the lamp is completely cool. Moisten a clean, lint-free cotton cloth with isopropyl alcohol and gently wipe the surface of the glass in a circular motion until clean.</p>
External Projector Covers	As required	<p>CLEAN: Clean dust from external covers using a clean, lint-free cotton cloth as required. NOTE: <i>Before cleaning the modules, it is recommended that you install the lens cap. This will keep dust particles from settling on the glass surface of the lens.</i></p>





5 Troubleshooting

If the projector is not operating properly, note the symptoms and use this guide to assist you. If you cannot resolve the problems yourself, contact your dealer for assistance.

NOTE: *A qualified service technician is required when opening the projector to diagnose any “probable cause”.*

5.1 Displays

5.1.1 The projector is on but there is no display

1. Was a lens cover accidentally left on? Remove lens cover.
2. Is the lamp ignited? It could take up to 5 attempts to strike a lamp. With a 30 second wait period in between each attempt it could take a total of 2 minutes to turn the lamp on. Check **LAMP STATUS**.
3. **NOTE:** *After striking the lamp, it can take up to 5 minutes to achieve full brightness.*
4. Is the correct input selected?
5. Is the source connected properly? Check the cable connections and ensure the correct source is selected.
6. Can you access test patterns? Ensure there is not a full black test pattern selected for display—press   to access test patterns, then cycle patterns with   keys.
7. Check EM and PHM connection.

5.1.2 Severe motion artifacts

There is a synchronization problem with reversed 3/2 pull-down in 60Hz-to-24Hz film-to-digital conversion in your source. Correct at the source.

5.1.3 The display is jittery or unstable

1. Ensure that the source is properly connected and of adequate quality for detection. With a poor quality or improperly connected source, the projector will repeatedly attempt to display an image, however briefly.
2. The horizontal or vertical scan frequency of the input signal may be out of range for the projector. Refer to *Section 6, Specifications* for scan frequency ranges.
3. The sync signal may be inadequate. Correct the source problem.

5.1.4 The display is faint

1. Brightness and/or contrast may be set very low.
2. The source may be double terminated. Ensure the source is terminated only once.
3. The source (if non-video) may need a different sync tip clamp location.
4. Adjust **LAMP POSITION** to optimize the position of the lamp for maximum brightness.

5.1.5 The upper portion of the display is waving, tearing or jittering

This can sometimes occur with video or VCR sources. Check your source.

5.1.6 Portions of the display are cut off or wrap to the opposite edge

Resizing and/or blanking may need adjustment.

5.1.7 The display appears compressed (vertically stretched)

1. The frequency of the pixel sampling clock is incorrect for the current source.
2. Resizing, vertical stretch and positioning options may be improperly adjusted for the incoming source signal.

5.1.8 Data is cropped from edges

1. Check settings for Blanking.
2. If incoming data is still missing from the image, reduce the image size to within the display area available in the projector.

5.1.9 Display quality appears to drift from good to bad, bad to good

1. The source input signal may be of low quality.
2. The H or V frequency of the input may have changed at the source end.

5.1.10 The display has suddenly frozen

If the screen blacks out inexplicably, it is possible that excessive voltage noise on the AC or ground input has interrupted the projector's ability to lock on to a signal. Power down the projector and disconnect from AC. Then plug in again and power up as usual.

5.1.11 Colors in the display are inaccurate

1. The color, tint, color space, color temperature and/or other settings may require adjustment.
2. Ensure you are using the proper channel for this source.
3. Check *Color Wheel Calibration*.

5.1.12 The display is not rectangular

1. Check leveling of the projector. Ensure that the lens surface and screen are as parallel to each other as possible.
2. Is the vertical offset correct? Adjust as necessary using the vertical offset knob.
3. Check if Keystone is incorrectly set.

5.1.13 The display is “noisy”

1. Display adjustment at your input source may be required. Adjust pixel tracking, phase and filter. Noise is particularly common on YPbPr signals from a DVD player. (If using a PC source, adjust using a high-frequency test pattern with one pixel on/off throughout.)
2. The video input may not be terminated. Ensure the video input is terminated (75 Ω). If it is the last connection in a loop-through chain, the video input should be terminated at the *last* source input only.
3. The input signal and/or signal cables carrying the input signal may be of poor quality.
4. If the distance between the input source device and the projector is greater than 25 feet, signal amplification/conditioning may be required.
5. If the source is a VCR or off-air broadcast, detail may be set too high.

5.1.14 Projector Delayed on Power Up

The projector enforces a 60 second delay between powering down and up again, because a hot lamp is more difficult to ignite.

NOTE: *It can take 2 minutes to cool a lamp sufficiently enough before re-striking it.*

5.1.15 Powered Up, But No Light on the Wall

It takes approximately 60 seconds for the projector to power up and strike a lamp. A UHP lamp may not strike on the first attempt. In this case, the projector will wait 30 seconds before striking the lamp again. It will try a total of five times before it declares the lamp as “Failed to Strike”. Therefore it could take up to 2 minutes before light is seen on the wall. You can check the status of either lamp in the projector by checking **LAMP STATUS** in the *Lamp* Menu.

5.1.16 Projector is not powered

Verify that the DVI (Digital Video) and Power are connected to the Power Head Module (PHM). When there is no power to the PHM the lights will not function.

5.1.17 Incorrect Lamp Serial Number on Status Page

When replacing a lamp in a projector with a new lamp, remember to replace the lamp card (PCB). This card contains key information about your lamp, such as serial number, and factory default color primaries. If not installed, this can lead to incorrect lamp histories and difficulty with projector color matching.

5.2 Ethernet

1. Ensure the Ethernet settings are valid for your site—all network devices should have the *same* subnet mask and *unique* IP addresses.
2. Save any address change, and re-boot to implement.
3. If you still have trouble establishing communications with a projector added to an existing Ethernet network, the projector’s IP address is likely in conflict with another address already in use. Contact your network administrator.

6 Specifications

Due to continuing research, specifications are subject to change without notice.
 Specifications apply to all models unless otherwise noted.

6.1 Display

	RPMSP-D132U	RPMX-D132U	RPMSP-D180U
RESOLUTION	SXGA+ (1400x1050)	XGA (1024 x 768)	SXGA+ (1400x1050)
BRIGHTNESS			
132W White Boost ON	2320 lumens	790 lumens	
132W White Boost OFF	1390 lumens	465 lumens	
120W White Boost ON	2100 lumens	660 lumens	
120W White Boost OFF	1225 lumens	365 lumens	
160W			1259 lumens
180W			1422 lumens
CONTRAST RATIO			
	2365:1	1180:1	2009:1
BRIGHTNESS UNIFORMITY			
	90%	90%	90%
COLORS AND GRAY SCALE			
Resolution	8 bits	8 bits	8 bits
Displayable Colors	16.8 million	16.8 million	16.8 million
COLOR WHEEL			
Type	RGWB	RGWB	RGBRGB
COLOR TEMPERATURE			
Range of Adjustment	3200K – 9600K	3200K – 9600K	3200K – 9600K
Color Temp. Variation	500K	500K	500K

6.2 Inputs

Applies to RPMX/RPMSP-D132U and RPMSP-D180U

ANALOG RGB OR YPRPB		(Interlaced or Progressive Scan Format)
Pixel Clock Rate	13 – 210 MHz max	
Color Space	RGB or YPbPr	
Input Levels:	R, G, B, - with sync:	1.0V _{p-p} ±2dB
	R, G, B, - without sync:	0.7V _{p-p} ±2dB
	Pb, Pr	0.7V _{p-p} ±2dB
	DC Offset	±2V
	Nominal Impedance	75 ohms

SYNC		(Interlaced or Progressive Scan Format)
Horizontal Frequency Range	15 – 120 kHz	
Vertical Frequency Range ^{1,3}	23.97 – 150 Hz	
Sync Type	Separate H and V	
	Composite (bi-level, tri-level, XOR)	
	Sync-On-Green/luma (bi-level, tri-level)	
	Serrations and/or Equalization pulses	
	MarcoVision™ compatible	
Polarity ²	Positive or Negative	
Input Levels ²	0.5V _{pp} – 4.0V _{pp}	
DC Operating Range ²	±3V	
Nominal Impedance ²	75 ohms	
Horizontal Sync Duty Cycle ³	3% min, 20% max	

NOTES: 1) Value specifies frame rate of non-interlaced sources and field rate for interlaced sources. Frame/field rates higher than the maximum refresh rate of the panels will be displayed at a lower rate.

2) Does not apply to sync-on-green/luma.

3) As the horizontal frequency increases and/or as the vertical scaling ratio of input lines to output lines increases many sources will run into the internal 180Mpix/s processing which limits the number of pixels that can be processed.

COMPOSITE VIDEO AND S-VIDEO

Signal Formats	Composite-video (CVBS)	S-video (Y/C)
Video Standards	NTSC, NTSC 4.43, PAL, PAL M, PAL N, PAL60, SECAM	
Input Levels	Composite-video	1.0Vp-p ±3db <i>(including sync tip)</i>
	S-video luma (Y):	1.0Vp-p ±3dB <i>(including sync tip)</i>
	S-video chroma (C)	630mV nominal (burst)
	DC Offset	±2V
	Nominal Impedance	75 ohms

DVI-I – ANALOG

Input Characteristics	Same as Analog RGB except as noted below.
Formats	RGB or YPbPr – video signal cannot be routed to the decoder
Sync Types	Separate H and V (direct or swapped) Bi-level – TTL levels only Composite (XOR, OR) Sync-on-green Serrations and/or Equalization pulses MacroVision™ (standard & progressive)
Analog Sync Logic Low	0V – 0.8v
Analog Sync Logic High	2.4V – 5V
Analog Sync Input Impedance	1kΩ

DVI-I – DIGITAL

Input Characteristics	meets DVI spec
DVI Cable Length	5m
Max Pixel Rate	165 MPix/s
EDID	Supported
HDCP (High Speed Digital Content Protection)	Supported

RS-232/RS-422 SERIAL INPUT

Connector Type	2 male DB9 (RS-232 OUT, GPIO) 2 female DB9 (RS-232 IN, RS-422 IN)
----------------	--

NETWORK CONTROL

Ethernet meets DVI spec
 Maximum Baud Rate 1 RJ45 connector


REMOTE CONTROL

Type Low Frequency IR with wired ability
 Range 30 Meters
 Laser Pointer Included
 Battery Type (2 Required) AA, 1.5V Alkaline

WIRED CONTROL

Connector Type 3.5mm plug
 Input Levels High: 2.2V min.
 Low: 0.9V max.
 Power: 500mA @ 5V

6.3 Power Requirements

 GENERAL	RPMX-D132U	RPMS-P-D132U	RPMS-P-D180U
Voltage Range	100 – 240 VAC nominal	100 – 240 VAC nominal	100 – 240 VAC nominal
Line Frequency	50 – 60 Hz nominal	50 – 60 Hz nominal	50 – 60 Hz nominal
Maximum Inrush Current	30A max.	30A max.	75A max.
Current Rating (typical)	2.13A @ 100VAC	2.26A @ 100VAC	2.95A@100 VAC
	0.89A @ 240VAC	0.94A @ 240VAC	1.21A@240 VAC
Power Consumption	213W	226W	276W

6.4 Lamps

NOTE: *The projector uses two identical lamps; however only one lamp operates at any given time.*

	RPMX/RPMSP-D132U	RPMSP-D180U
Type	132W Philips UHP	180W Philips UHP
Power	120 – 132 Watts	160-180 Watts
Operating Position	± 20 deg. tilt from horizontal plane	± 20 deg. tilt from horizontal plane
Warm up to full brightness	5 minutes	5 minutes
Lamp Life (typical)	10000@100W	7000@160W

6.5 Size and Weight

Dimensions with adjuster in nominal position (*Depth x Length x Height*)

90-degree configuration 15.5”DP x 33.5” LG x 15.6” HT

0-degree configuration 14.9” DP x 33.5” x x17.7” HT

Weight<50 lbs

For projector dimensions and mounting information see refer to the *user manual*.

6.6 Safety and EMI

CSA C22.2 No. 60950-1-03 First Edition

UL 60950-1 1st Edition

IEC 60950-1:2001 European Norm, Safety of Information Technology Equipment

Emissions

FCC Code of Federal Regulations, Title 47, Part 15, Conducted and Radiated Emissions, Class A

EN55022 (CISPR 22) for Information Technology Equipment, Conducted and Radiated, Class A

EN61000-3-2 Induced Harmonic Distortion

EN61000-3-3 Induced Voltage Fluctuations (Flicker)

Immunity

EN55024, specific to Information Technology Equipment (all parts), under which are:

EN61000-4-2 ESD,

EN61000-4-3 Radiated Immunity,

EN61000-4-4 Fast Transient/Burst Immunity

EN61000-4-5 Surge Immunity,

EN61000-4-6 Immunity to Conducted Disturbances,

EN61000-4-8 Magnetic Field Immunity,

EN61000-4-11 Voltage Dips, Short Interruptions and Voltage Variations Immunity

6.7 Environmental

Operating Environment

Temperature	5°C to 30°C (40°F to 86°F)
Humidity	20% - 80% non-condensing
Altitude	0 - 10,000ft, -5°C to 50°C

Non-Operating Environment

Temperature	-25°C to 70°C with relative humidity varying between 0% to 95%
Altitude	30,000ft, -25°C to 70°C

6.8 Standard Components

- Line Cord (rated, North American)
- Configuration bracket (shipped loose, for vertical configuration)
- 6, M6 screws (for installation of configuration bracket)
- EM mounting bracket

6.9 Optional Accessories

User's Kit (*includes User Manual, IR Remote Keypad, Setup and Adjustment Tools*)

Service manual

Dual frequency IR remote keypad

Optional Input Modules

RGB500 Input Module

RGB400 Active Loop-Through Input Module

RGB400 Buffered Amplifier Input Module

PC250 Analog Input Module

Serial Digital Input Module

DVI/DFP Input Module

Dual SD/HD-SDI Module

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