

Roadster, Matrix WU, Mirage S+/HD/WU

SETUP GUIDE

020-100342-02

CHRISTIE®

Roadster, Matrix WU, Mirage S+/HD/WU

SETUP GUIDE

020-100342-02

NOTICES

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The product 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 product is operated in a commercial environment. The product 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 the product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's 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.

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The product 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 the product 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!

Canadian manufacturing facility is ISO 9001 and 14001 registered.

GENERAL WARRANTY STATEMENTS

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 product with non-Christie equipment, such as distribution systems, cameras, video tape recorders, etc., or use of the product with any non-Christie interface device.
- e. Damage caused by misuse, improper power source, accident, fire, flood, lightning, earthquake or other natural disaster.
- f. Damage caused by improper installation/alignment, or by product modification, if by other than a Christie authorized repair service provider.
- 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 product. Please see the Maintenance section for specific maintenance items as they relate to your product. Failure to perform maintenance as required, and in accordance with the maintenance schedule specified by Christie, will void the warranty.

Table of Contents

1	Introduction	1.1	The Projectors.....	1-1
		1.2	Components.....	1-2
		1.3	Purchase Record and Warranty Registration.....	1-3
2	Installation & Setup	2.1	Quick Setup.....	2-1
		2.2	Installation Considerations.....	2-4
		2.3	Projector Position and Mounting.....	2-6
		2.4	Power Connection.....	2-8
3	Basic Operation	3.1	Overview.....	3-1
		3.2	Projector Basics.....	3-1
		3.3	Using the Keypads.....	3-3
		3.4	Navigating the Menus.....	3-13
		3.5	Using Inputs and Channels.....	3-17
		3.6	Adjusting the Image.....	3-22
4	Maintenance	4.1	Warnings and Guidelines.....	4-1
		4.2	Replacing Keypad Batteries.....	4-4
		4.3	Lamp and Filter Replacement.....	4-4
		4.4	Replacing the Projection Lens.....	4-9
5	Troubleshooting	5.1	Displays.....	5-1
		5.2	Lamp.....	5-3
		5.3	Ethernet.....	5-4
		5.4	3D Sync Input.....	5-4
6	Specifications	6.1	Specifications.....	6-1
	Appendices	A	Keypad Reference.....	A-1
		B	Serial Communication Cables.....	B-1
		C	System Integration.....	C-1
		D	Optional Input Modules.....	D-1
		E	Menu Tree.....	E-1

NOTE: Due to continuing research, all information in this manual is subject to change without notice.

Introduction

1.1 The Projectors

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.

This guide applies to the following projector models:

Roadster S+12K	Mirage S+12K	Mirage HD18
Roadster S+16K	Mirage S+14K	Mirage WU12
Roadster S+20K	Mirage S+16K	Mirage WU18
Roadster HD12K	Mirage S+20K	Matrix WU12
Roadster HD18K	Mirage HD12	

Main Features

► General

- *DLPTM* three-chip electronics with true 1400 x 1050 (SXGA+) or 1920 x 1200 (WUXGA) resolution, and 1920 x 1080 (HD) native resolution
- Ten-bit digital video processing
- Single-lens design with field-interchangeable, fast-change lens – no tools needed
- Modular design for easy servicing
- Intelligent Lens System (ILSTM) to save and restore lens settings
- Built-in handles and multiple rigging points
- lenses motorized

Inputs

- There are two different types of Input face plate configurations (model dependant). Refer to **Figure 1.1 & 1.2**. These configurations may include the following inputs:

- One analog RGBHV/YPbPr input with five BNCs
- One DVI-I input for either digital RGB/YCrCb or analog RGB/YPbPr signals
- One analog composite-video input
- One analog S-video input
- Built-in multi-standard video decoder (*NTSC, NTSC 4.43, PAL, PAL-M, PAL-N, PAL-60 AND SECAM*)
- One Dual SD/HD-SDI module (standard on *Roadster* models only)
- Compatible with all currently used HDTV formats

For simplicity, this manual refers to the configuration in **Figure 1.1** only.

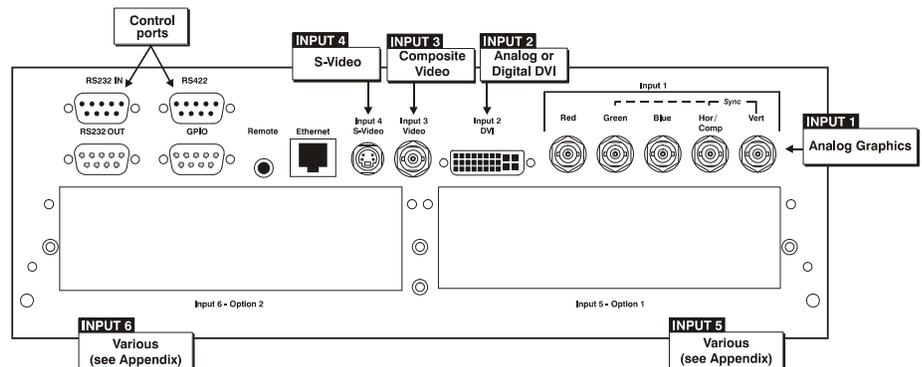


Figure 1.1

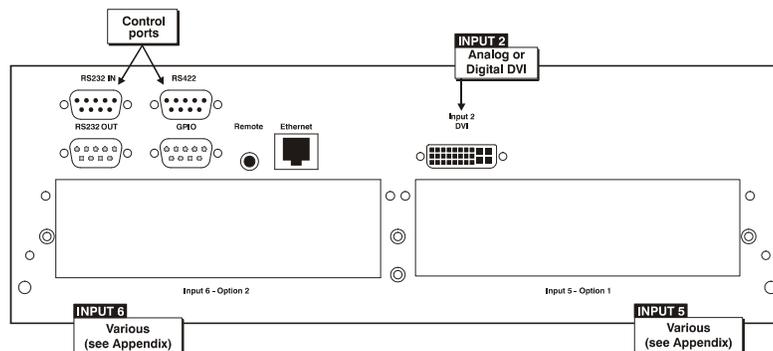


Figure 1.2

1.2 Components

Ensure the following standard components have been received:

- Projector
- Infrared (IR) remote keypad and conversion cable
- Power cord (**NOTE: non-detachable on Roadster S+ 20K/HD18K/Mirage HD18/Mirage S+20K**)
- *Using 3D in Mirage Manual* (**NOTE: for Mirage Series only**)
- 3D Stereo Sync Cable (**NOTE: for Mirage Series only**)

Differences Between Models

Model Name	Lamp Type	Dual SD/HD-SDI Module	3D	Adjustable Iris	Stacking Mounts	4 Top Eyebolts	Integral Rigging Hardware
Roadster S+12K	2.0 kW	✓	Not Available	✓	✓	✓	✓
Roadster HD12K	2.0 kW	✓	Not Available	✓	✓	✓	✓
Roadster S+16K	2.4 kW	✓	Not Available	✓	✓	✓	✓
Roadster HD18K	3.0 kW	✓	Not Available	✓	✓	✓	✓
Roadster S+20K	3.0 kW	✓	Not Available	✓	✓	✓	✓
Matrix WU12	2.0 kW	Optional	Not Available	✓	Optional	Optional	✓
Mirage HD12	2.0 kW	Optional	✓	✓	Optional	Optional	✓
Mirage WU12	2.0 kW	Optional	✓	✓	Optional	Optional	✓
Mirage S+12K	2.0 kW	Optional	✓	✓	Optional	Optional	✓
Mirage S+14K	2.4 kW	Optional	✓	✓	Optional	Optional	✓
Mirage S+16K	2.4 kW	Optional	✓	✓	Optional	Optional	✓
Mirage HD18	3.0 kW	Optional	✓	✓	Optional	Optional	✓
Mirage WU18	3.0 kW	Optional	✓	✓	Optional	Optional	✓
Mirage S+20K	3.0 kW	Optional	✓	✓	Optional	Optional	✓

1.3 Purchase Record and Warranty Registration

Whether the projector is under warranty or the warranty has expired, Christie’s highly trained and extensive factory and dealer service network is always available to quickly 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.

Purchase Record

Dealer:
Dealer Phone Number:
Projector Serial Number:
Purchase Date:
Installation Date, if applicable:

NOTE: The serial number can be found on the license label, which is located at the back of the projector.

You can also register your product on-line by visiting www.christiedigital.com ⇒ **Service and Support ⇒ Product Registration**. This will keep you in touch with all the latest product information, such as updates, technical bulletins, downloads and Christie newsletters.

For complete details on the warranty of your Christie product, please contact your Christie dealer.

Installation & Setup

2.1 Quick Setup

The instructions provided here are for those that are familiar with the projector and wish to quickly set it up and use it temporarily. Refer to the remaining subsections of this manual for a more complete setup.

STEP 1 ► **Install a Projection Lens**

The projection lens is shipped separately from the projector and must be installed prior to setting up the projector. Install the projection lens as described in **4.5 Replacing the Projection Lens**.

 **Remove the lens plug** from the lens opening in the projector before installing the lens.

 **Remove the lens when shipping** the projector and **reuse the lens plug** to prevent dust and debris from entering and settling on the projector's optical components.

STEP 2 ► **Position the Projector**

Place the projector on a sturdy, level surface and position it so that it is perpendicular to the screen at a suitable distance. In general, the further back the projector is positioned from the screen, the larger the image will be.

If required, you can level the projector by adjusting its three feet. With the projector positioned perpendicular to the screen the image will appear rectangular instead of keystoneed.

For more detailed instructions on positioning the projector refer to **Projector Position and Mounting** later in this section.

STEP 3 ► **Connect a Source**

Located at the back of the projector is the input panel where all source connections are made. Each input is clearly labeled for easy identification.

Using the appropriate cable(s), connect your source. Connect RGB and YPbPr sources to **INPUT 1** located in the upper right corner of the input panel. Use the DVI-I connector at **INPUT 2** to connect analog or digital display signals. Connect composite video to **INPUT 3** and S-video to **INPUT 4**.

NOTE: One of the available optional input modules can be installed at **INPUT 5** or **INPUT 6** for additional connections.

Refer to **2.4 Connecting Sources** for more details on connecting a specific source.

STEP 4 ▶ Connect the Line Cord

⚠ The North American-rated line cord is provided with each projector. Ensure that you are using a line cord, socket and power plug that meets the appropriate local rating standards.

Connect the projector’s line cord to the AC receptacle (Roadster S+20K/HD18K/Mirage HD18/Mirage S+20K have non-detachable line cords) at the lower corner on the rear of the projector, and to proper AC—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. (See below and refer to **Section 6 – Specifications** for complete details on all power requirements).



WARNING
Line cord replacement must be performed by qualified service personnel in accordance with specific national electrical safety regulations. For details, refer to the Service Manual and contact your dealer.

- The Roadster S+12K/HD12K, Matrix WU12, and the Mirage HD12/WU12/S+12K require 200-240 VAC, 50-60 Hz, 12 amps @ 200 VAC.
- The Roadster S+16K and the Mirage S+14K/S+16K require 200-240 VAC, 50-60 Hz, 16 amps @ 200 VAC.
- The Roadster S+20K/HD18K/Mirage HD18/WU18/S+20K require 200-240 VAC, 50-60 Hz, 20 amps @ 200 VAC.



WARNING
Do not attempt operation if the AC supply and cord are not within the specified voltage and power range. Refer to Section 6.

STEP 5 ▶ Turn On the Projector and Lamp

1. On the projector, turn the power breaker/switch on. The LCD Status Display Window displays the initializing window for 15 seconds, and then indicates **POWER OFF** (Figure 2.1).
2. Using the keypad, do one of the following:
 - Press and hold  briefly to toggle the lamp on.
 - Press and release  followed immediately by .
 - Press   to toggle from the off state.

The LCD Status Display Window will display **Powering Up** and then, **Power On** (Figure 2.1) while the two-digit Status/Error Code Window will display **ON**.

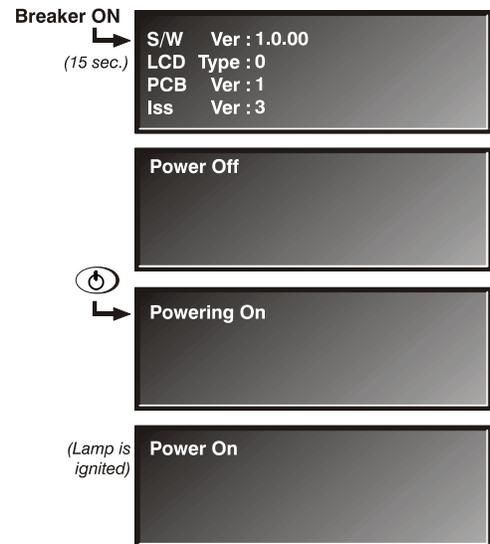


Figure 2.1. Turning on the projector

STEP 6 ▶ Select a Source

Using either keypad, press , , , , , or  to select and display the image for the source you connected in Step 3. The display will resize as needed and produce largest possible image for the type of source present. **NOTE:** Refer to *Menu Tree, Appendix E*, this allows you to quickly navigate to a specific menu, and associated options/secondary menus.

STEP 7 ▶ Optimize the Display

Press  on the built-in keypad (or  on the remote keypad) to initiate an automated process in which the projector optimizes critical display parameters such as size, position, pixel tracking, etc., for the current source. *Auto Setup* can save time in perfecting a display and you can modify the adjustments later as desired. Refer to *Section 3*.

STEP 8 ▶ Lens Adjustments

- **ZOOM:** With the input image displayed:

- If remote keypad: Press Zoom  or .
- If built-in keypad: Press Zoom  or .



Figure 2.2

Hold the key down to see the effect – arrows in the display indicate the direction of the zoom (Figure 2.2).

- **FOCUS:** With the input image displayed:

- If remote keypad: Press Focus  or .
- If built-in keypad: Press Focus  or .



Figure 2.3

Hold the key down to see the effect – arrows in the display indicate the direction of the focus (Figure 2.3).

- **LENS OFFSET:** To move the image:

- If remote keypad: Press either Lens H   or Lens V   (Figure 2.4).
- If built-in keypad: Press  and use the arrow keys.

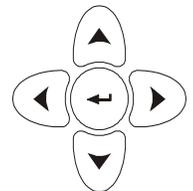
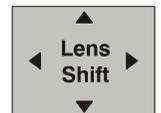


Figure 2.4

Step 9 ▶ Image Adjustments

Press  or  (remote) to access display parameters described in *Section 3*.

2.2 Installation Considerations

Although this projector delivers a high-brightness, high-quality output, the final display quality could be compromised if the projector is not properly installed. This subsection discusses issues you should consider before proceeding with a final installation. Even if you do not intend to use the projectors in a fixed and permanent installation, the following information will help you to better understand what you can do to enhance display performance.

Lifting, Hoisting, and Stacking

▶ For any new installation, you will likely have to safely lift or hoist the projector into place. Keep in mind the following guidelines for safety.

Lifting

All models include handles for convenient hand transport only, such as when a projector is lifted from a shipping container to a table. Note the following:

- The handles are intended to support the weight of one projector only.
- The handles are intended to support a projector for a brief time only.
- The handles are not safety points, nor points from which to hoist or suspend the projector.



WARNINGS



The handles cannot support more than ONE projector.
 Do not use handles for extended time periods.
 Do not use the handles as safety points, or as points from which to suspend or hoist the projector.

Hoisting

Four integral rigging points on the top of the projector (**Figure 2.5**) and eight on the bottom (**Figure 2.6**) enable either upright or inverted hoisting. For either orientation, hoist an individual projector, or up to three projectors in a stack.

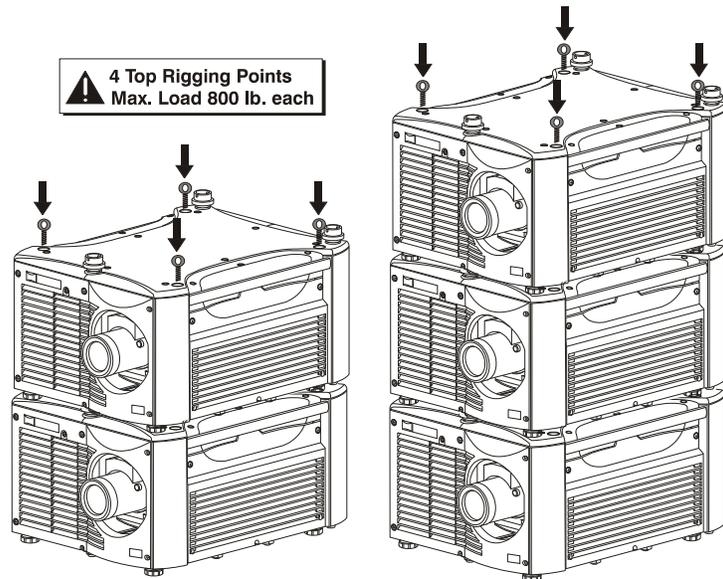


Figure 2.5. Top Rigging Points

RULES FOR ALL HOISTING:

- Use at least **four** rigging points for hoisting up to **three** projectors.
- Connect safety cables, and rigging equipment to the designated locations on the projector.
- Use hoisting and rigging equipment suitable to your application such as clamps, cables, eyebolts, or straps, and which accommodate the load rating. All integral, metric hardware on the projector accepts an M12 thread only.
- Never hoist a projector by its feet, handles, or any other component (Figure 2.7).

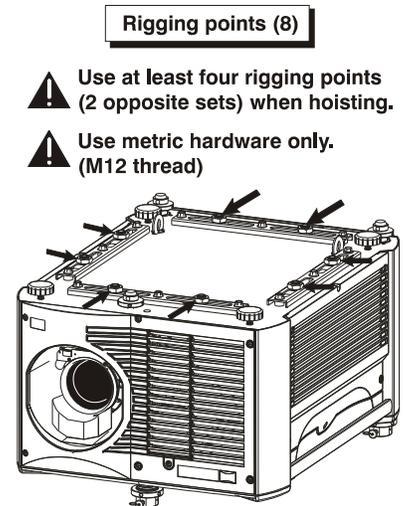


Figure 2.6. Bottom Rigging Points

⚠ WARNING ⚠
 Use metric hardware only.
 Never force incompatible threads.

⚠ IMPORTANT ⚠
 Remove the lens before hoisting a projector.

⚠ WARNING ⚠
 Never hoist a projector by its feet,
 handles, or any other component.

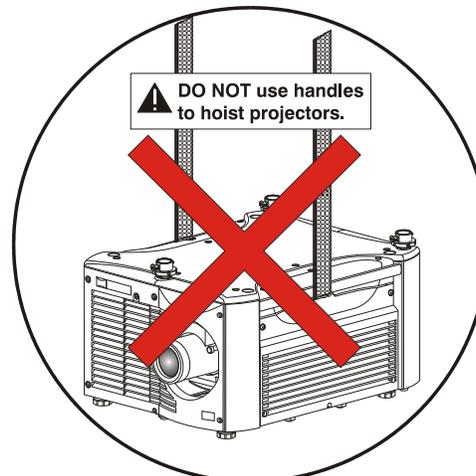


Figure 2.7. NEVER Use Handles for Hoisting or as Safety Points

Installation Type ► Choose the installation type that suits your needs: front or rear screen, floor mount or inverted mount.

ADVANTAGES	CONSIDERATIONS
<ul style="list-style-type: none"> • Easy to set up • Can be moved or changed quickly • Easy to access 	<ul style="list-style-type: none"> • Shares floor space with audience

Front Screen, Inverted Mount (ceiling) Installation

ADVANTAGES	CONSIDERATIONS
<ul style="list-style-type: none"> • Does not take up audience space • Projector is unobtrusive • Projector cannot be accidentally moved 	<ul style="list-style-type: none"> • Installation is more permanent • It is more difficult to access the projector

Rear Screen, Floor Mount Installation

ADVANTAGES	CONSIDERATIONS
<ul style="list-style-type: none"> • Projector is completely hidden • Projector is easily accessed • Usually good ambient light rejection 	<ul style="list-style-type: none"> • Requires separate room • Installation cost is usually higher

Rear Screen, Inverted Mount (ceiling) Installation

ADVANTAGES	CONSIDERATIONS
<ul style="list-style-type: none"> • Projector is completely hidden • Usually good ambient light rejection 	<ul style="list-style-type: none"> • Requires separate room • Installation cost is usually higher

Rear Screen, Floor Mount with Mirror

ADVANTAGES	CONSIDERATIONS
<ul style="list-style-type: none"> • Projector is completely hidden • Usually good ambient light rejection • Requires less space behind screen than other rear screen installations 	<ul style="list-style-type: none"> • Requires separate room • Installation cost is usually higher

2.3 Projector Position and Mounting

Throw distance

Throw distance is the distance measured from your projector’s front feet to the screen. This is an important calculation in any projector installation as it determines whether or not you have enough room to install your projector with a desired screen size and if your image will be of the right size for your screen.

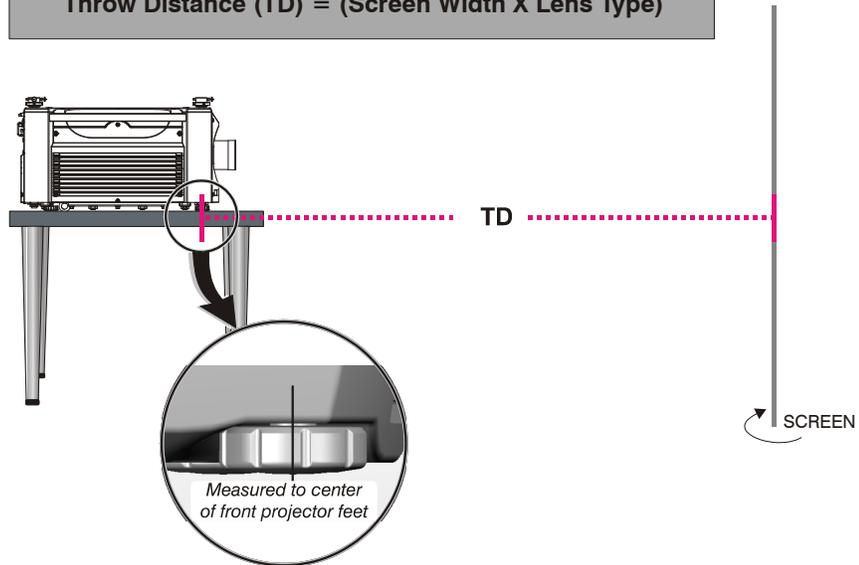
You can quickly estimate the throw distance by taking the horizontal width of the screen and multiplying it by the lens throw ratio. The result of this calculation tells you roughly how far back the projector should be positioned from the screen in order to project a focused image large enough to fill the screen.

For example: Screen Width = **10** feet
 Lens Type is **0.7:1**
 Throw Distance (TD) = **10** feet x **0.7** = **7** feet

IMPORTANT! Once you determine the type of lens and screen size you’re going to use, calculate the precise throw distance. Due to lens manufacturing tolerances for lens focal length, actual throw distance can vary ±5% between lenses described as having the same throw ratio.

Estimating Throw Distance

Throw Distance (TD) = (Screen Width X Lens Type)



Vertical & Horizontal Position

► **THE VERTICAL POSITION** of the projector in relation to the screen also depends on the size of the screen and the lens type. Correct vertical position helps ensure that the image will be rectangular in shape rather than keystone (having non-parallel sides) and that image focus and brightness both remain optimized.

If necessary, vertical position of the image can be offset—that is, moved up or down in relation to lens center—by using the motorized offset function. Starting with no offset, the image from this projector can be moved up or down by a maximum distance of 525 pixels for SXGA+ resolution and 643 pixels for HD and WUXGA resolution, resulting in the entire image (more for HD/WUXGA) being displayed above or below lens center. See **Table 2.1** or refer to the *Roadster, Matrix WU, Mirage S+/HD/WU User Manual* for more details.

NOTE: Not applicable for the fixed lens.

THE HORIZONTAL POSITION of the image can be offset—that is, shifted left or right of lens center—by using the motorized offset function. Starting with no offset, the image from this projector can be moved left or right by a maximum distance of 350 pixels for SXGA+ resolution and 403 pixels for HD and WUXGA resolution, resulting in approximately 75% of the image displayed to one side of lens center. See **Table 2.1** or refer to the *Roadster, Matrix WU, Mirage S+/HD/WU User Manual* for more details.

IMPORTANT! Use the lens and screen size to calculate the precise throw distance using the tables provided in the **Dealer Section of the Christie Website, PN 020-100298-xx**. Due to lens manufacturing tolerances for lens focal length, actual throw distance and vary ±5% between lenses with the same nominal throw ratio.

Table 2.1. Lens Offsets

Lens Type (All motorized lenses)	Offset Movement		Max. Amount of Display Above or Below Lens Center		Max. Amount of Display Right or Left of Lens Center	
	↑ or ↓	← or →				
SXGA+ Lenses	100%	50%	1050 pixels ↑ or ↓	100%	1050 pixels ← or →	75%
HD Lenses	119%	42%	1183 pixels ↑ or ↓	100%	1363 pixels ← or →	71%
WU Lenses	112%	54%	1243 pixels ↑ or ↓	100%	1478 pixels ← or →	77%

NOTES: 1) Offsets are subject to ±7% centering tolerance 2) % Offset = # pixels of offset / half panel resolution x 100. 3) 0.73:Fixed and 1.16-1.49 Zoom Lenses have less offset. Refer to Specification section, Lenses for more details.

Mounting ▶ There are several methods for mounting the projector. Depending on your chosen installation, one method may be more suitable than another. In typical front and rear screen installations the projector can be mounted to a secure and level surface, such as a table or cart. Carts are useful when the projector has to be moved during a presentation or from site to site. It is recommended you lock the wheels on a cart, when it’s in position, to prevent someone from accidentally moving it during a presentation.

CEILING MOUNT - The projector can also be inverted and suspended from the ceiling using a specially designed ceiling mount fixture. This type of mounting is recommended for fixed installations and for those that want the projector out of plain view or have a limited amount of space for projector and audience. For more information, contact your dealer.

 **Use only the CHRISTIE approved ceiling mount kit designed for your projector. Refer to the installation instructions and safety guidelines provided in the kit.**

Folded Optics ▶ In rear screen applications (**Figure 2.8**) where space behind the projector is limited, a mirror may be used to fold the optical path. The position of the projector and mirror must be accurately set. Consult your dealer or Christie for details.

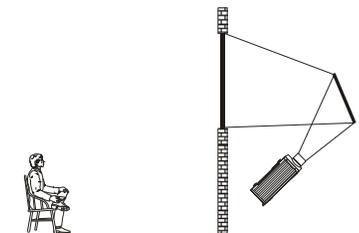


Figure 2.8. Rear Screen

2.4 Power Connection

 **The North American rated line cord is provided with each projector. Ensure that you are using a line cord that meets the appropriate rating standards.**

Plug the projector’s high-current line cord into the line input socket located in the lower right corner of the rear panel of the projector, then plug the 3-pronged end of the line cord into a grounded AC outlet. Ensure the socket outlet is installed near the equipment and is easily accessible. Input voltage to *all Roadster and Mirage* models must be capable of **200 –240 VAC**. **Use the proper power source and the high-current rated line cord provided.** Refer to **Section 6, Specifications** for all power requirements.

**WARNING**

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



Caution for Shutdowns: *Once the projector is turned off (⏻), the lamp cooling fans will continue to run for approximately five minutes to ensure that the projector and lamp have sufficiently cooled, at which point the fans will automatically shut off. To avoid thermal stress that can lead to premature lamp failure, **never** unplug the line cord while the lamp cooling fans are running, and **never** unplug to power down.*

Operation

3.1 Overview

This section explains how to use the projector once it has been installed. Please read through these pages before using the projector for the first time. An understanding of projector features and how to access them will help you to take full advantage of the capabilities of the projector within minutes.

NOTE: Installation involves locating the projector and adjusting it for use at that location. If you have not yet installed the projector, refer to **Section 2, Installation and Setup**.

3.2 Projector Basics

This section explains how to effectively operate the projector once it has been installed. It is recommended that you read this section and familiarize yourself with the components and the available menu options before you begin using your projector for the first time.

Projector components and functions are illustrated below (**Figure 3.1**).

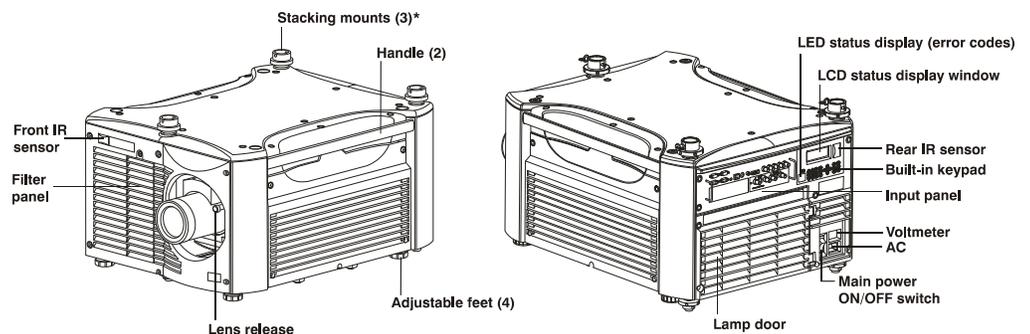


Figure 3.1. Basic Projector Components (* on Roadster series only)

- Lens Release** ► Push lens release to enable the lens to be rotated for removal.
- Handle** ► Handles are for brief hand transport only. Not used for hoisting, rigging, or as safety points.

Stacking Mounts & Stacking Legs ▶ *NOTE: Optional on Mirage models.*

Used for stacking up to three projectors. Refer to **Section 2** for details.



WARNING
Use Christie stacking mounts only.

Adjustable Feet ▶ Turn the four adjustable feet to increase or decrease height and/or tilt as needed. For most installations the projector will likely be slightly inclined to match the screen tilt – this reduces the amount of vertical offset required. Refer to **2.3, Projector Position and Mounting or the Roadster, Matrix WU, Mirage S+/HD/WU User Manual** for more details.

Filter Panel ▶ The filter door is a louvered grille for air intake. Remove to access and replace air filter.

Lamp Door ▶ The lamp door is a louvered grille for accessing and replacing the lamp module.

NOTE: Lamp replacement requires a qualified service technician.

Input Panel

The input panel wires the projector to inputs (sources) and controllers such as PCs.

- **COMPOSITE/S-VIDEO INPUT** - Accepts a composite video, DVI and S-Video signal from devices such as VCRs.
- **RGB INPUT** - Accepts RGB and sync signals from devices such as computers, as well as composite video, S-Video or YPbPr component signals.
- **RS-232 SERIAL INTERFACE (WITH LOOP THROUGH)** - Allows one or more projectors to be remotely controlled by a computer or controller,
- **RS-422 INTERFACE** - Allows one or more projectors to be remotely controlled by an RS-422 compatible computer or controller (such as the *Two-Way Controller* accessory).

AC Power Input & Monitoring

▶ **AC LINE CORD INPUT** - Use the AC supply specified, and *always use the line cord recommended by Christie. See Section 6.* Before unplugging, wait until the main blower turns off or the LCD status reads *Power Off*.

Model	AC Power Specifications
Roadster S+12K/HD12K	200-240 VAC, 50-60 Hz, max. 12 amps @ 200VAC
Matrix WU12	200-240 VAC, 50-60 Hz, max. 12 amps @ 200VAC
Mirage HD12	200-240 VAC, 50-60 Hz, max. 12 amps @ 200VAC
Mirage WU12	200-240 VAC, 50-60 Hz, max. 12 amps @ 200VAC
Mirage S+12K	200-240 VAC, 50-60 Hz, max. 12 amps @ 200VAC
Roadster S+16K	200-240 VAC, 50-60 Hz, max. 16 amps @ 200VAC
Mirage S+14K	200-240 VAC, 50-60 Hz, max. 16 amps @ 200VAC
Mirage S+16K	200-240 VAC, 50-60 Hz, max. 16 amps @ 200VAC
Mirage HD18	200-240 VAC, 50-60 Hz, max. 20 amps @ 200VAC
Mirage WU18	200-240 VAC, 50-60 Hz, max. 20 amps @ 200VAC
Roadster S+20K/HD18K	200-240 VAC, 50-60 Hz, max. 20 amps @ 200VAC
Mirage S+20K	200-240 VAC, 50-60 Hz, max. 20 amps @ 200VAC



WARNING
Do not attempt operation if the AC supply is not within the specified voltage and power range. Use the specified line cord.

- **VOLTMETER** - Displays incoming voltage level reaching the projector.
- **SWITCH/BREAKER** - The breaker on the rear panel serves two purposes:
 - It is a power switch for the projector
 - It protects against excessive AC conditions (15A or more for *Roadster S+12K/HD12K and Mirage HD12/WU12/S+12K*, 20A or more for *Roadster S+16K/Mirage S+14K/S+16K*, and 25A or more for *Roadster S+ 20K/HD18K/Mirage WU18/HD18/S+20K*). If the projector is faulty or excessive AC is detected, the breaker will “trip” to OFF in order to prevent damage. Try moving the breaker ON again - if the breaker continues to trip OFF, this indicates a major fault and the AC problem must be resolved. Possible causes might include shorts, damage to lamp cables, or excessive AC.

NOTE: This switch turns on the ballast only—it does not power up the projector or start the lamp. You must press  on the keypad.

Status Display (error codes) & Status Display Window ▶

TWO-DIGIT STATUS/ERROR CODE WINDOW - This LED (light emitting diode) display is adjacent to the built-in keypad. During normal operation, the “Power” light is steady yellow and indicates “on”. When the status of the projector changes, the LED displays a two-digit code number representing the projector’s new status. In addition to the numeric readout, there are two decimal points in the display: the right decimal point flashes when the projector *receives* a command and the left point flashes when the projector *sends* a command.

LCD STATUS DISPLAY WINDOW - Displays a text message describing the current system status (such as an error). During normal operation, this display indicates Power On and includes the frequencies of the vertical and horizontal syncs. The display also shows if the On Screen Display (OSD, or menu system) is on or off. The LCD displays the message Power Off when the breaker is on but the lamp is off.

Keypads & Sensors ▶

WIRED REMOTE KEYPAD CONNECTOR - For optional tethered remote control of the projector.

BUILT-IN KEYPAD - Alternative location for working with the projector.

INFRARED SENSORS - The infrared (IR) sensors on the front and rear of the projector receive infrared signals from the IR keypad for remote control of projector functions. For proper operation, ensure these sensors are not blocked.

3.3 Using the Keypads

 **Laser radiation is emitted from the laser diode in the remote. Do not look directly into the beam of the remote.**

The projector is typically controlled using one of the following keypads:

- **Built-in Keypad** at the rear of the projection head
- **Remote Keypad** for tethered or tether-less control (includes cable for connecting as a wired remote)

While each of the keypads provides complete control of the projector, they differ slightly in their arrangement of keys and in which functions can be accessed directly with a key press rather than requiring use of the menu system. You may find one keypad more convenient than another for your specific installation and application.

NOTE: The remote keypad has a single IR protocol and can be converted to a wired remote by connecting the cable provided with the projector to the RCA jack labeled as **REMOTE** on the input panel.

- Built-in** ▶ To control the projector when signals from a remote keypad cannot reach the projector, use the projector’s built-in keypad (**Figure 3.2**). Two nearby status windows provide feedback indicating current status and activities of the projector, (See **Table 3.1**). Because the built-in keypad has fewer keys than the remote keypad, certain projector functions are accessible only through the menu system rather than via a direct key. **NOTE:** The built-in keypad cannot be disabled.

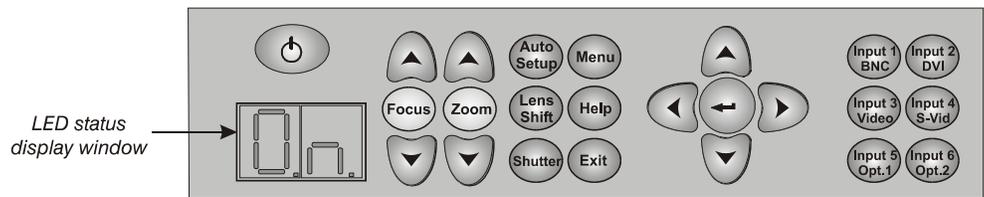


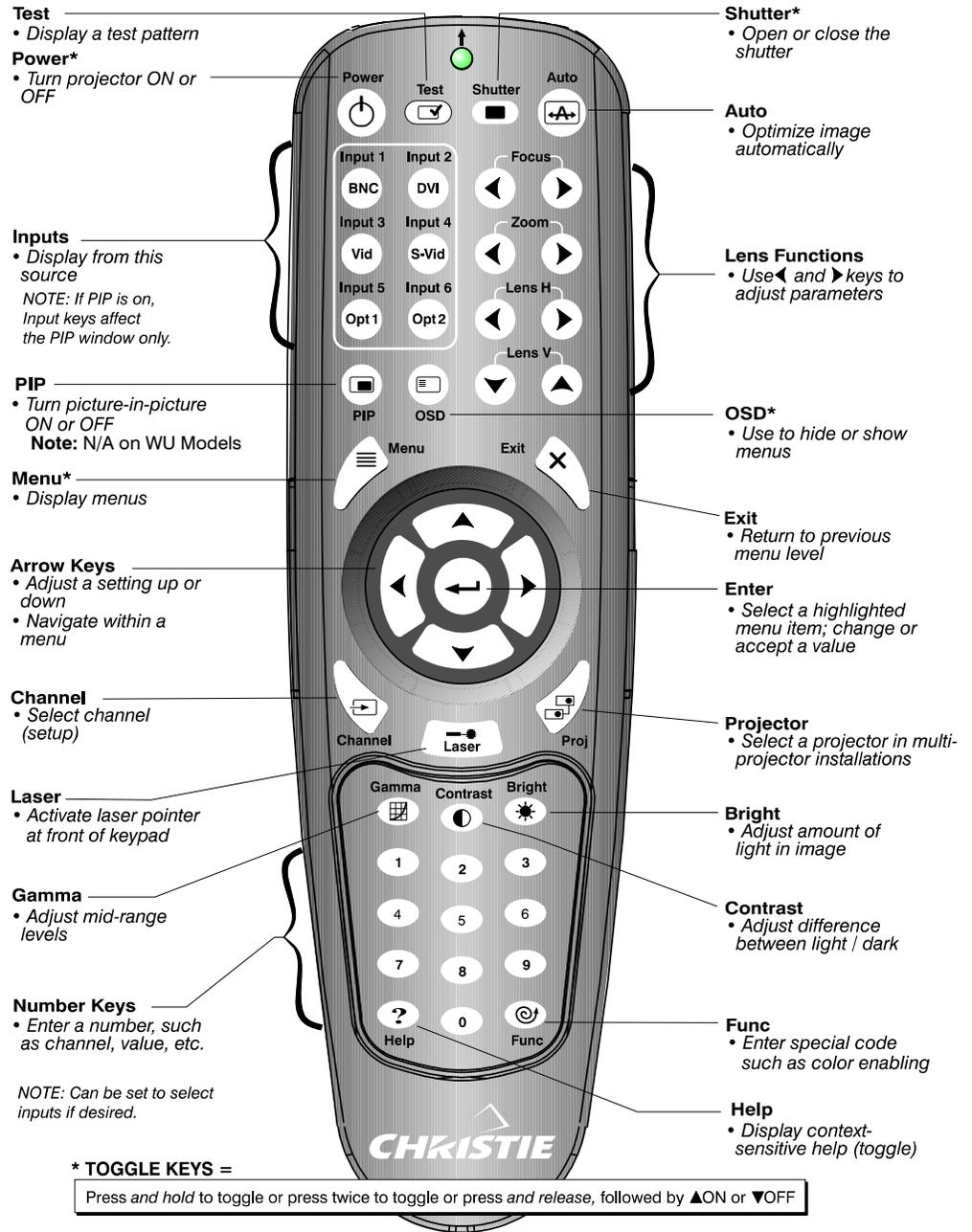
Figure 3.2. Built-in Keypad at Projector Rear

Table 3.1 LED Status Display ▶

LED STATUS DISPLAY:	DESCRIPTION
--	AC power supplied, projector Off
On	Projector On
LC	Lens calibration in progress
LP	Lamp has reached defined "Lamp Limit" refer to 3.9 Working with the Lamp
SH	Closed shutter
# #	System warning or error has occurred
— —	Cooling down (Rotating Horizontal Bars)
— —	Power to Off state or Powering up (segments spinning clockwise)

- IR Remote** ▶ 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 keypad supplied with a TV or VCR. When making key presses, direct the keypad either toward the screen or toward the front or rear of the projector. One of the two IR sensors on the projector will detect the signals and relay the commands for internal processing.

NOTE: For improved reception, use an optional remote IR sensor to route the signal via a phone cable plugged into the wired keypad port.



***These are toggle keys, which require you to press and hold or press twice or press and use the up/down arrow keys.**

NOTE: To turn the OSD off you must press  and .

Figure 3.3. Remote Keypad

Wired Remote ▶ You can convert the IR remote into a wired remote keypad using the cable provided with the projector. Connect one end into the remote and the other to the mini stereo connector on the input panel labeled as **REMOTE**. The wired remote is recommended when:

- The built-in keypad is inaccessible
- The lighting conditions are unsuitable for proper IR transmission

NOTE: Leave the batteries in the wired remote for the laser key (☞) to work.

The “Brick” style rental staging – Standard IR remote, typically used with *Roadster* models, is shown in **Figure 3.4**. It has no laser pointer, but includes three additional keys: the *Swap* key for use with PIP functions, *Backlight* key for lighting keys, and direct *Input* key used with the numbered keypad to switch from one input to another.

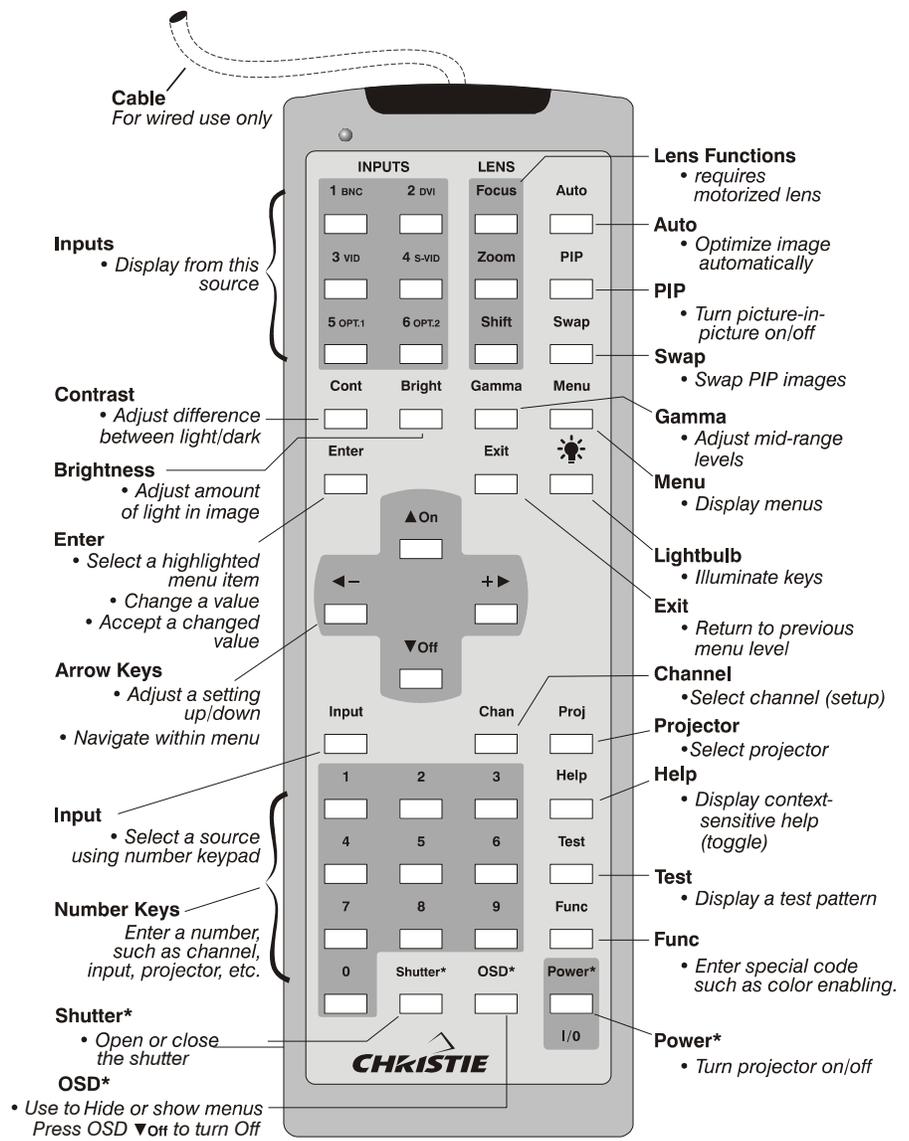


Figure 3.4. “Brick” Rental Staging – Standard IR Remote

- Guide to Keypads** ▶
- 1) Press keys one-at-a-time; there are no simultaneous key combinations required.
 - 2) Note that three keys—Power, Shutter and OSD—press key once, *See Figure 3.3.*
 - 3) 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.
 - 4) 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.

Keypad Commands ▶ Specific keypad commands are explained below:

 **Power ON/OFF**

Press and hold  briefly to toggle the projector on or off with a single keystroke or press twice. Or press and release  followed immediately by  (on) or  (off) to guarantee the correct toggle (useful if you are unsure of the present state).

NOTES: 1) After powering down, the lamp cooling fan remains on for approximately 5 minutes to cool the lamp. 2) It is a good idea to avoid turning a projector back on until it has been off for several minutes. Hot re-strikes of the lamp may reduce lamp life.

 **Test**

Press  to scroll through the projector’s internal test patterns. When a test pattern is up, use   to scroll through the patterns without going back to the input.

 **Auto**

Press  to initiate an automated process in which the projector optimizes critical display parameters such as size, position, pixel tracking, etc., for the current unlocked channel. These parameters are listed in **Table 3.1**. An *Auto Setup* can save time in perfecting a display, and you can further modify the settings as desired. **NOTE:** For *WUXGA* models a window will display, “Do Auto Setup, all except UXGA” and “Do Auto Setup, all except WUXGA”. If your signal is *UXGA*, choose “Do Auto Setup, all except WUXGA”. If your signal is *WUXGA*, choose, “Do Auto Setup, all except UXGA”. The default is “all except WUXGA”. This is only used and relevant for analog *UXGA* or *WUXGA*.

Table 3.1. Auto Setup

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

Channel

Press **Channel** to select a specific source setup (*channel*) defined and stored in projector memory. Once you enter a two-digit channel number (or, if there is a list displayed, highlight it and press **Left Arrow**), the display will automatically change and update according to the numerous setup parameters defined for that channel. Note that a new channel is automatically created if you adjust an image from a new source.

NOTE: Channel (**Channel**) key behavior *during a presentation depends on whether or not the **Display Channel List** option is enabled in the **Menu Preferences** menu. You can choose to use a scrollable list of channels when you press **Channel**, or you may prefer to enter the desired channel number “blind”, i.e., without on-screen feedback. Refer to **Menu Preferences** later in this section.*

Input 1

Press **Input 1** to display from the data input source connected to BNCs labeled **INPUT 1**. If PIP is enabled, pressing this key will change the PIP source.

Input 2

Press **Input 2** to display from the DVI source connected to **INPUT 2**. If PIP is enabled, pressing this key will change the PIP source.

Input 3

Press **Input 3** to display from the composite video source connected to **INPUT 3**. If PIP is enabled, pressing this key will change the PIP source.

Input 4

Press **Input 4** to display from the S-video source connected to **INPUT 4**. If PIP is enabled, pressing this key will change the PIP source.

Input 5

Press **Input 5** to display from the **INPUT 5** interface module installed in the Option 1. If PIP is enabled, pressing this key changes the PIP source. If there are two inputs connected here, such as if the Dual SD/HD-SDI module is installed, the second input (B) is considered **INPUT 7**. Press **INPUT 5** to access **INPUT 7** as follows:

- While displaying from **INPUT 5**, press **Input 5** again. This switches to **INPUT 7**.
- While displaying from any input *other* than the *Dual SD/HD-SDI Module*, press **Input 5**. This switches to either **INPUT 5** or **INPUT 7**, depending on which of the *Dual SD/HD-SDI Module* inputs (A or B) was last used. Press **Input 5** again to display from the other *Dual SD/HD-SDI Module* input.

Input 6

Press **Input 6** to display from the **INPUT 6** interface module installed in the Option 2. If PIP is enabled, pressing this key changes the PIP source. If there are two inputs connected here, such as if the Dual SD/HD-SDI module is installed, the second input (B) is considered **INPUT 8**. If you are using the built-in keypad or the remote keypad, press **INPUT 6** to access **INPUT 8** as follows:

- While displaying from **INPUT 6**, press **Input 6** again. This switches to **INPUT 8**.
- While displaying from any input *other* than the *Dual SD/HD-SDI Module*, press **Input 6**. This switch to either **INPUT 6** or **INPUT 8**, depending on which of the *Dual SD/HD-SDI Module* inputs (A or B) was last used. Press **Input 6** again to display from the other *Dual SD/HD-SDI Module* input.

Input

NOTE: Available on “Brick” rental staging – Standard IR remote.

Enter **Input n** (where $n = 1, 2, 3, 4, 5, 6, 7$ or 8) as an alternative method for selecting which source to display. Six source locations are identified with input numbers on the projector’s input panel. The last two, 7 and 8, require the *Dual SD/HD-SDI Module* installed in either of the option slots.

If PIP is enabled, **Input n** changes the PIP (secondary) image source, and **Input PIP n** changes the main (primary) image source.

NOTE: **Input** key behavior depends on whether or not the **Display Channel List** option is selected in the **Menu Preferences** menu. You can choose to have on-screen feedback when you press **Input**, or you may prefer to enter the desired source location “blind”, i.e. without on-screen feedback. Refer to **Menu Preferences**.

Brightness

Press **Bright** to increase or decrease the amount of black in the image. Use **Left** **Right** keys until you reach the desired level of contrast—for best results, start high and decrease so that dark areas do not become black (i.e., “crushed”). Conversely, overly high brightness changes black to dark gray, causing washed-out images. Refer to **3.6, Adjusting the Image** (*Image Settings* subsection).

NOTE: Always adjust brightness before contrast.

Contrast

Press **Contrast** to change the amount of white in your images. Use **Left** **Right** 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 (i.e., “crushed”). Conversely, low contrast causes dim images. See **3.6** for more details.

Gamma

NOTE: This is the same as “Gamma” in the *Image Settings Menu*.

“Gamma” determines how gray shades are displayed between minimum input (black) and maximum input (white) for a given amount of signal. The proper setting helps maintain optimized blacks and whites while ensuring a smooth transition for the “in-between” values utilized in grays. Unlike brightness and contrast controls, 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 when using the Gamma control.

The normal gamma setting of 2.2 is correct for most signals and conditions. If excess ambient light washes out the image and it becomes difficult or impossible to see details in dark areas, lower the gamma setting to compensate. This will improve contrast ratio while maintaining good details for blacks and whites.

Menu

Press to enter or exit the projector’s menu system. **NOTE:** Refer to *Menu Tree, Appendix E*, this allows you to quickly locate and navigate to a specific menu, and associated options/secondary menus.

OSD (On-screen display)

Press to hide the projector’s menu system during use. To see the menus again, do one of the following:

- Press *and hold* briefly
- Press and release followed immediately by
- Press

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.

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

PIP

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 sidebar is present, press to toggle the current function to affect the other image.

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

Swap

Press to swap the current picture-in-picture relationship so that the primary image becomes secondary, and the secondary image becomes primary.

NOTES: 1) This key is available on the “Brick” rental staging – Standard IR remote only. Alternatively, a swap can be accessed in the menu system. 2) Requires PIP.

Shutter

Press *and hold* **Shutter** briefly to toggle the internal mechanical shutter blade closed or open with a single keystroke. Or press and release **Shutter** followed immediately by **▲** (shutter on; closed) or **▼** (shutter off; open) to guarantee the correct toggle (useful if you are unsure of the present state). Alternatively, press **Shutter Shutter** to toggle from the present on/off state. A closed shutter blanks the display (turns it to black). Close the shutter to mute all display while maintaining access to projector functions. Opening the shutter restores the image.

NOTES: 1) The status of the shutter is shown in the LCD display window at the rear of the projector. 2) The shutter is open upon power-up.

Function Key

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

IF WITHIN A PRESENTATION: Press **Func** followed by a two-digit number to enable a specific color or colors in the display (see right). For example, **Func 6 4** will display only red and green data, **Func 6 7** 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 when stacking projectors.

- Func 6 1** = Red
- Func 6 2** = Green
- Func 6 3** = Blue
- Func 6 4** = Red & Green
- Func 6 5** = Green & Blue
- Func 6 6** = Red & Blue
- Func 6 7** = All Colors

DEFINING OTHER USES: Through ASCII messaging on a PC, you can also create special user functions for keys 1 – 5 and 7 – 9 and others. For example, **Func** can be programmed to trigger RTEs (Real Time Events) or to display custom menus. Refer to the separate *Christie Serial Communications* publication.

Projector

Press **Proj** 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 has been defined in the *Menu Preferences* menu.

The “Projector” checkbox (read-only) shows whether or not the projector physically connected to a keypad are listening to commands from that keypad. A checkmark means that connected projector is listening; if there is no checkmark, you are communicating with a different projector.

To control a specific projector with the keypad, enter the three-digit number assigned to the projector you want to use. If you switch to a projector other than the one you are currently using, the checkmark will disappear.

To broadcast to multiple linked projectors, press **Proj** and then **Proj** again *without* entering a projector number. Keypad commands will then affect all projectors in the chain.

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. Refer to the **Roadster, Matrix WU, Mirage S+/HD/WU User Manual** for more details.

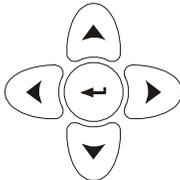
 **Enter**

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. These keys also jump to the next page in long menus. Refer to **Editing Text** later in **Section 3**.

Use the   keys to navigate within a menu, pull-down list or text box. Use in combination with power, shutter and OSD keys to force the corresponding state. See details provided on the back of the remote keypad.



Lens Focus, Zoom and Lens H, Lens V

When adjusting the image for focus, zoom, horizontal and vertical positioning, use the specific arrow keys (/ or /) related to each function. A small window will appear to indicate the type of adjustment taking place. For example,

- Use the “Focus”  or  keys to improve image clarity as desired.
- Use the “Zoom”  or  keys to achieve a desired image size.
- Use the “Lens H”  or  keys to position the image horizontally while still keeping it rectangular.
- Use the “Lens V”  or  keys to position the image vertically while still keeping it rectangular.

Press  to return to presentation level.

NOTES: 1) Use the  key (built-in keypad) with the general   keys to get the same effect as if using the arrow keys related to “Lens V” or “Lens H” on the IR remote. 2) On the “Brick” rental staging – Standard IR remote, use the three lens keys with the arrow keys.

 **Laser**

NOTE: Not available on the “Brick” rental staging – Standard IR remote.

Press  to activate the laser pointer, and direct the remote at the screen to highlight an area with a light beam (dot). The closer you are to the screen the brighter the laser beam appears. The laser pointer works best with reduced ambient lighting.

 **Backlighting**

NOTE: “Brick” rental staging – Standard IR remote only.

Press the “light bulb” key to illuminate the keys on the remote without sending a command to the projector.

3.4 Navigating the Menus

Most of the controls for the projector are accessed from within the projector’s menu system. There are several groups of related *functions*, with each group selectable from the *Main* menu as shown at right. Press  at any time to display this *Main* menu. **Figure 3.5.**

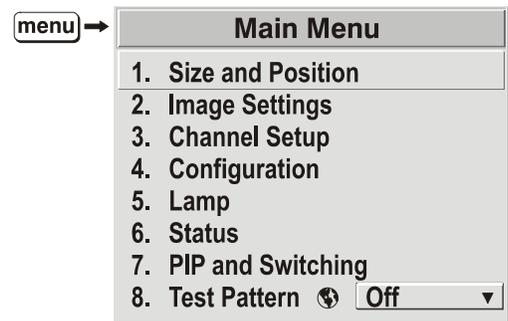


Figure 3.5. Entering the Menu System

On the remote keypad, either enter the number corresponding to the function menu you wish to access, such as  for the *Image Settings* menu. Or use the   keys on any keypad to highlight the desired option, then press . The corresponding function menu or pull-down list of further options will then appear.

With a function menu displayed, navigate in a similar manner—enter a menu option number for any numbered option, or use the   keys to highlight the desired option, and then press  (Enter). Extra long menus have a scroll bar on the right—use the arrow keys to access the remainder of the menu. Locked items or items that do not pertain to the current action or condition 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 projector leaves the menu system and returns to the presentation. 3) The **Status** menu is read-only.*

When finished with a function menu, do one of the following:

- Press  to return to the previous screen
- Press  to leave the menu system and return to the presentation

On-line Help ► If at any time you are uncertain what to do next, press  to display summary information about the current menu or highlighted option. Press  again to exit. In addition, a line of “hint” text is included at the bottom of some menus. (**Figure 3.6**).

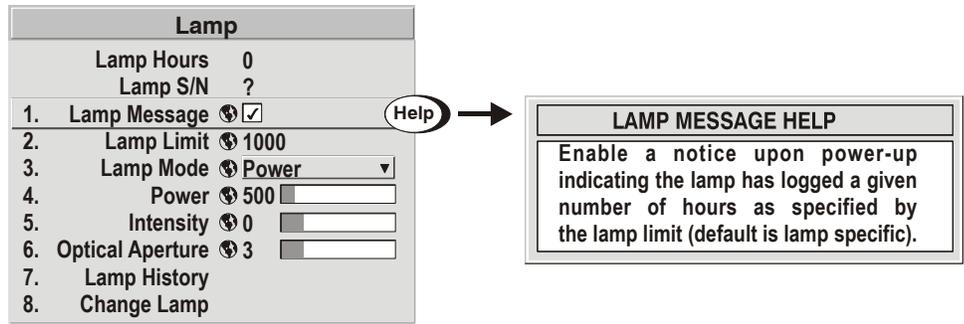


Figure 3.6. Context-sensitive Help

From presentation level, press **Help** to access general *Help Topics* (Figure 3.7). Scroll as necessary within a topic. Press **Help** or **Exit** to return to your presentation.

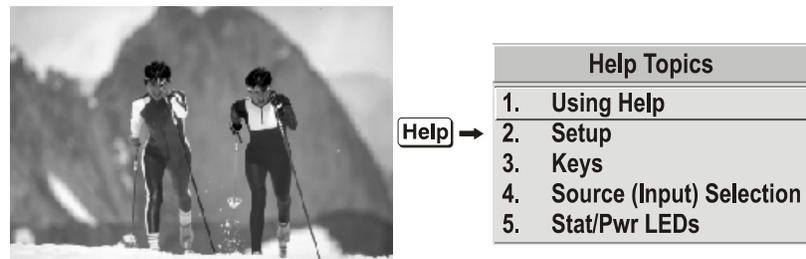


Figure 3.7. Accessing General Help Topics

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

The Global Icon ► Menu options that include this icon apply universally to any incoming signal.



The PIP Icon ► Menu options that include this icon apply to PIP (secondary) images only.



Using Slidebars and Other Controls ► Most of the function menus allow you to change settings by using slidebars, checkboxes, and pull-down lists. To select a sidebar, toggle a checkbox status, or view a pull-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 **1** **3** from the main menu to select Vertical Stretch in the *Size & Position* menu).
- Or move the highlight to the option desired and press **Enter**.
- Or move the highlight to the option desired and press **Left** **Right** to adjust immediately.
- Or 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 (Refer to 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.

- When using PIP images, use  key to adjust the image.

Once selected, change the settings as desired (see below). Changes take effect immediately and are saved upon exit from all menus, or after 15 minutes.

Slidebars in menus – The current value for a given parameter, such as size or vertical stretch, appears to the left of its slider icon (adjustment window). This number often expresses a percentage, or it may have units associated with it (such as pixels, degrees Kelvin, etc.), depending on the specific option. Press   to gradually 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 slider text box for specific number entry via the keypad and then press  to save (or press  to cancel).



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

Use the arrow keys to adjust a direct slider, or press  and enter a specific number from the keypad, then  or  or  to save (or  to cancel). When you are done, press  to return to your presentation.

NOTES: *1) You can still adjust a direct slider as usual if the display is turned off (Refer to  or **Menu Preferences** menu) — the slider just won't be visible. 2) A direct slider disappears if it is not used within 5 seconds.*

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

Pull-down lists – To see a pull-down list of options available for a given parameter labeled with a , you can:

- Highlight it and press  (Enter)
- Or enter the menu option number.

Use  or  keys to navigate up and down within the list (the current choice is noted with a small arrow below). Press  to choose an option from the list, if desired (**Figure 3.8**).

If you prefer to quickly scroll through a list without first pulling it down, highlight the option and use  or . Press  when the desired choice appears.

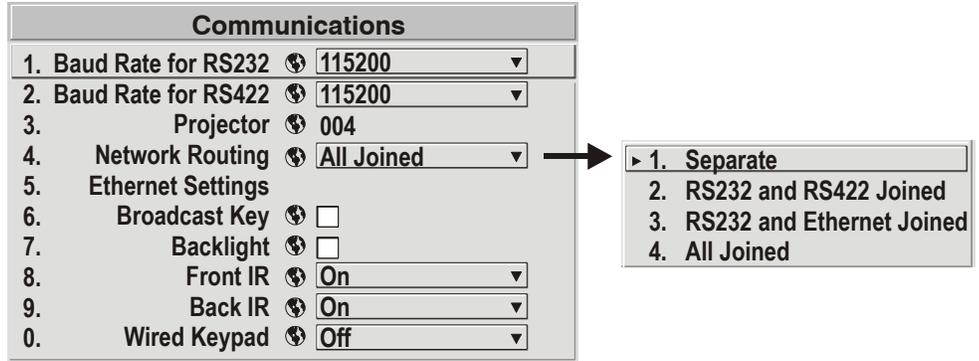


Figure 3.8. Example of Pull-Down List

NOTES: 1) Press or to jump between pages in an extra long pull down list.
 2) Press while in a pull-down list to **cancel** any change.

Editing Text ► **ACTIVATE THE EDIT WINDOW:** To enter or edit text, highlight the desired parameter (such as a channel name) and press to activate its adjacent edit window. Any previously entered text is displayed with its first character highlighted in a square cursor, signifying that this character is ready for editing. See **Figure 3.9**.

NAVIGATE WITHIN THE EDIT WINDOW: Press to move the cursor forward or to move the cursor backwards as desired.

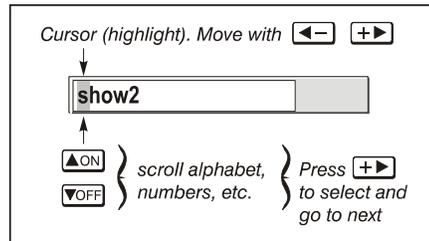
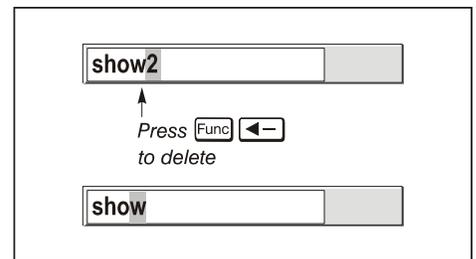
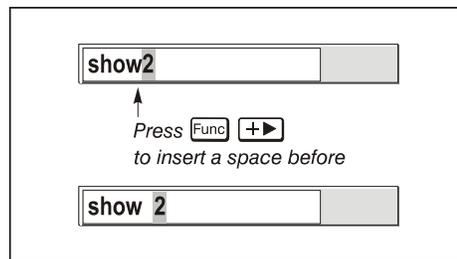


Figure 3.9. Entering Text

EDIT A CHARACTER: To edit a highlighted character, use 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. Note that you can also enter a number directly from the keypad—it will be accepted and the cursor will move on.

ADD OR DELETE A CHARACTER OR SPACE: To insert a space at the cursor location, press . To delete a highlighted character (or space), press .



PRESS (ENTER) WHEN FINISHED: To accept edits and leave the edit window, press (Enter).

NOTE: Press at any time to cancel changes and return to the previously defined text.

Editing Numerical Values ▶ Enter numbers directly from the keypad in order to specify numbers representing projectors, channels (source setups), or slots. As each digit is entered, it is displayed and the cursor moves on. Note that channel numbers are defined with two digits—for example, if you enter only a single digit (such as “7”) for a channel number, the channel will automatically be defined as “07”. Enter “07” to utilize this channel.

NOTES: 1) Once you enter the first digit, this digit replaces all old digits. 2) If you press any non-numbered key, the number entered up to that point is accepted and updated as the new value. 3) Press  to cancel editing of numerical values.

3.5 Using Inputs and Channels

NOTE: Refer to Section 2, *Installation and Setup* or the *Roadster, Matrix WU, Mirage S+/HD/WU User Manual* for a full explanation of how to connect sources to the projector.

The projector stores and automatically recalls up to 50 different channels (source setups) for a variety of inputs. This memory feature allows you to define and conveniently use a wide variety of customized setups rather than having to repeatedly re-configure the projector for different presentations. Depending on what you have defined, each physical source connection (i.e., input at the projector) can have several different channels associated with it.

Do I Select an Input Or a Channel? ▶ **INPUT** – An input is a source physically connected at the projector.  describes the source signal according to which *input slot* it is connected.

SWITCHING INPUTS – Press the appropriate direct key — , , , ,  or  to quickly display from one of the six inputs connected to the projector. The image will be displayed according to the following:

If it is the first time you have used the source/input (or if you used the input but did not define a channel by adjusting anything), the projector will recognize the new input signal based on its frequencies and polarities, and will automatically display an image according to default settings for such a signal. In general, the default fills the screen as fully as possible. This and other default image settings depend on the incoming source.

If you used the source once before and changed a display parameter such as contrast, V-Position, etc., then a channel was automatically created and still exists in projector memory (see below). Using one of the  keys will automatically recall this channel—and all its setup parameters—and update the display accordingly.

If more than one channel exists for the input, the image will be displayed according to the setup parameters for the first channel with matching characteristics.

If PIP is enabled, an input key changes the PIP (secondary) image only. To switch the main input, use the keypad number keys with “Numbers Select Main Image” activated.

NOTES: 1) Inputs 7 and 8 require the **Dual SD/HD-SDI** module in either of the projector’s option slots. For their selection, refer to 3.3, *Using the Keypads*. 2) For more information on “Numbers Select Main Image”, refer to the *Roadster, Matrix WU, Mirage S+/HD/WU User Manual, Working with PIP or Seamless Switching* for more details.

CHANNEL - A channel is a collection of measurements, locations and settings that tailor the display of a signal to your specific needs. Since source types and applications can vary greatly, you will likely want to adjust and define a wide variety of parameters, such as brightness, contrast, size, etc., in order to customize and optimize the display from or for a particular source. For example, the display settings you choose for a VCR source may be very different from those you choose for a high-resolution computer source, or one signal may simply vary from another signal used previously through the same input location. Once you have adjusted a display parameter, such as pixel tracking or contrast, all current settings are collectively stored in the projector's memory as a unique two-digit channel, such as 09. You can have numerous distinct channels available for the same input, any of which can be selected by using the **Chan** key on the keypad followed by the two-digit channel number.

Shown at right is a sample channel list as would be available from **Chan**. This is typically called the *channel list*.

NOTE: The **Chan** key may display a channel list or not, depending on what you have defined for "Display Channel List" (Refer to the **Roadster, Matrix WU, Mirage S+/HD/WU User Manual** for more details).

Channel: 02				
01	0,2	pDig	64.09k+	60.12+
02	0,1	i3LG	33.72-	59.94-
03	0,4	iSVid	15.73k-	59.94-
04	0,3	pCVid	15.73+	59.94+
05	0,1	p4WH	Fred's computer	

Labels below the table:
 - **chan** (above the table)
 - **current channel#** (arrow pointing to 02)
 - **channel#** (arrow pointing to 01-05)
 - **input** (arrow pointing to 0,2-0,1)
 - **signal type** (arrow pointing to pDig, i3LG, iSVid, pCVid, p4WH)
 - **H and V frequencies, or channel name** (arrow pointing to 64.09k+, 60.12+, 33.72-, 59.94-, 15.73k-, 59.94-, 15.73+, 59.94+, Fred's computer)
Channel List

In order to access channels by using **Chan** on the keypad, you must first create the channels. See below.

Creating a New Channel
 - AUTOMATIC -

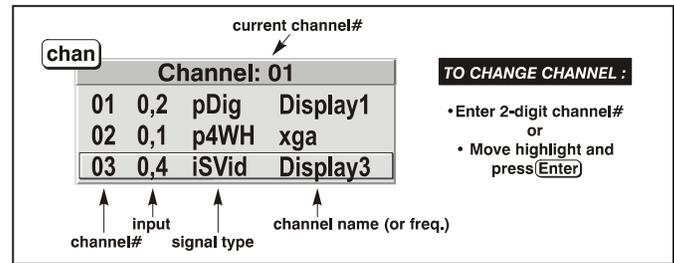
- ▶ To use a new source with the projector, a new channel must be added to projector memory so that the projector will respond properly to an input signal from that source in the future. A new channel can be created automatically, as described here, or it can be copied from an existing channel and then edited as necessary (Refer to **Copying or Deleting Channels** later in this section).

When you select a direct input (**Input 1**, **Input 2**, **Input 3**, **Input 4**, **Input 5** or **Input 6**), the projector's existing channels are searched for matching input and signal parameters. If no match to the incoming input signal is found, a new channel is temporarily created based on factory-defined defaults for this type of signal. The *channel number* assigned is the lowest available number from 1-50.

NOTES: 1) An automatic channel will be discarded unless one or more of its parameters are changed, and will not appear in the channel list (see below). 2) If two channels have the same distinguishing source characteristics except for the reversal of sync connectors (i.e., H-sync and V-sync, are switched), they are still defined as distinct channels. 3) You cannot define a new channel without an incoming signal.

If the incoming signal *does* match an existing channel, the image will be set up and displayed as usual according to the parameters currently defined for that channel.

USING A CHANNEL: You can normally select a channel at any time by pressing **Chan** (see right). If you want to prevent a channel from appearing in this list, you must edit the channel as described in *Channel Edit* later in this section. Such a channel can still be selected by entering its number as shown at right.



NOTES: 1) The current channel is highlighted upon entering the channel list, or, if this channel is not displayed here, the first channel in the list is highlighted. 2) Channels created automatically do not appear in the channel list unless a parameter for the channel has been changed.

What Channels Are Defined So Far?

► All available channels are listed in the *Channel Setup* menu (Figure 3.10), which describes how each channel can be accessed and which serves as the gateway for editing, copying and deleting channels.

From the presentation level press **Menu** to display the *Main* menu. To display the *Channel Setup* menu, press **3**, or move the highlight to the *Channel Setup* option and press **Enter**. The *Channel Setup* menu will appear (see sample at right), with the active channel highlighted.

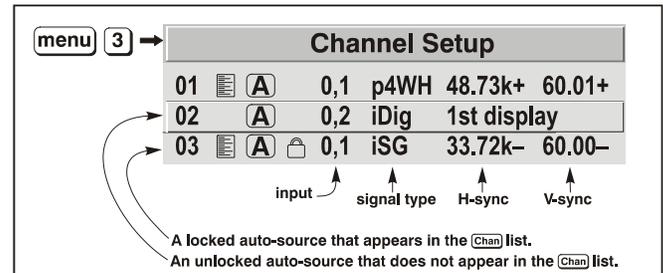


Figure 3.10. All Channels Appear in the Channel Setup Menu

WHAT APPEARS IN CHANNEL SETUP MENU? This menu lists all channels defined so far and indicates where they connect on the projector’s rear input panel. The far left column lists channel numbers currently defined. The values in the far right columns indicate horizontal and vertical frequencies—if a user has defined a name for this channel, it appears here instead. Remaining columns contain details pertaining to each channel setup, such as its switcher number (always 0 = projector), slot location (01-08), a variety of icons indicating access to each channel, and an abbreviated description of each signal type. Refer to *Editing a Channel Setup* for details.

	Appears in [Chan] list
	Auto-source
	Locked

NOTE: If you have more than a handful of channels, use **←** and **→** to see the remaining channels not visible in the initial display of channels.

SIGNAL TYPE — Either channel list, whether the **Chan** key list or the *Channel Setup* menu, identifies signal types in a shortened form as defined below. These descriptors indicate what signal information the projector uses to identify a match for a given channel, and are preceded by either an “i” (interlaced signals) or “p” (progressive signal“). See **Table 3.2**.

Table 3.2. Abbreviations for Signal Type

Abbrev.	Signal Type
4WH	Composite (4 wire) on HC input
4WV	Composite (4 wire) on V input
SG	Sync-on-green
5W	Separate H,V
5WR	Separate H,V swapped
SVid	S-Video
CVid	Composite Video
Dig	Digital

FUNCTIONS WITHIN THE CHANNEL SETUP MENU —To copy, delete or edit a channel, highlight the desired channel in the *Channel Setup* menu and do one of two things:

- Press **[Func]** if you want to copy the selected channel or delete this or other channels. See *Copying or Deleting a Channel* below.
- Press **[Enter]** if you want to edit channel setups (i.e., non-image related parameters) for the selected channel. See *Editing a Channel Setup*, below.

Copying or Deleting Channels

► **TO COPY A CHANNEL**, highlight the desired channel in the *Channel Setup* menu, and then press **[Func]** to go to the *Channel Copy/Delete* submenu. Select “Copy” and press **[Enter]**—a new channel will be created. It is identical to original, which still remains, but it is identified with the next available number from 01-50 (**Figure 3.11**). If you change your mind and do *not* want to copy the current channel, press **[Exit]** to cancel and return to the previous menu. Copying channels is a quick method for creating numerous channels, each of which can then be edited and adjusted for a variety of presentations in the future.

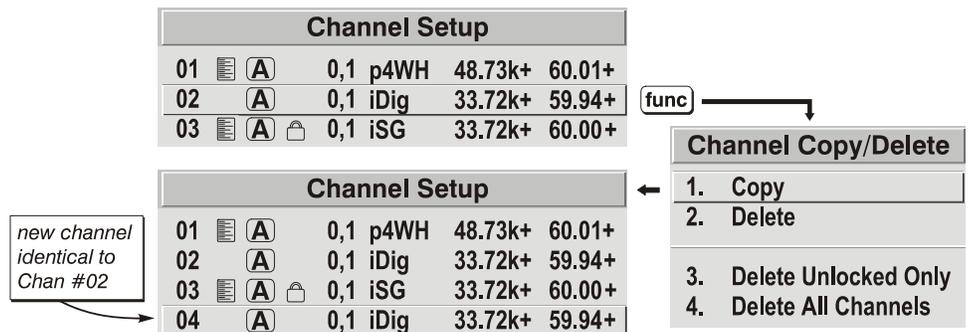


Figure 3.11. Copying a Channel

TO DELETE A CHANNEL, highlight the desired channel in the *Channel Setup* menu, and then press **[Func]** to activate the *Channel Copy/Delete* submenu. Select “Delete” and press **[Enter]**—a confirmation window will appear to confirm that you want to delete this channel. See **Figure 3.12**.

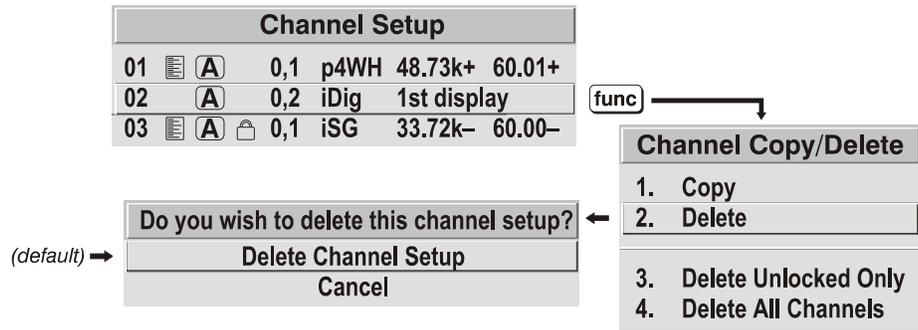


Figure 3.12. Deleting a Channel

TO DELETE MULTIPLE CHANNELS, highlight any channel in the *Channel Setup* menu and press **[Func]** to go to the *Channel Copy/Delete* submenu. Select “Delete Unlocked Only” and press **[Enter]** to delete all unlocked channels. Or select “Delete All Channels” to delete all channels, even those that are locked. In either case, the current channel will remain but will be redefined from projector defaults.

NOTE: For any deletion, a confirmation box appears to confirm that you want to delete. Select “Cancel” if you don’t want to delete after all.

Editing a Channel Setup ▶ The basic setups that describe how and where a channel can be accessed are listed in the *Channel Setup* menu. These channel setups can be edited at any time in the *Channel Edit* submenu.

CHANNEL EDIT — STEP 1 From the presentation level press **[Menu]** to display the main menu. To display the *Channel Setup* menu, press **[3]**, or move the highlight to the *Channel Setup* option and press **[Enter]**. The *Channel Setup* menu will appear.

CHANNEL EDIT — STEP 2 To edit parameters shown in the *Channel Setup* menu, select the relevant channel and press **[Enter]**. The *Channel Edit* menu will appear similar to the sample shown in **Figure 3.13**.

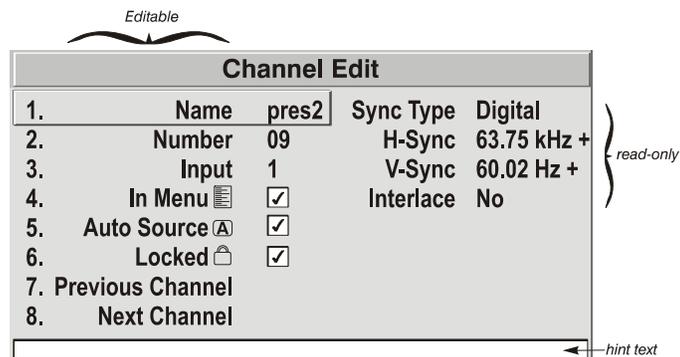


Figure 3.13. Channel Edit Menu (SAMPLE)

CHANNEL EDIT — STEP 3 If desired, review and/or edit the following channel setups in the *Channel Edit* menu:

- **CHANNEL NAME:** An alpha-numeric label can be defined and/or changed here. Channel names can be up to 12 characters in length.
- **CHANNEL NUMBER:** A two-digit channel number can be changed here.

NOTES: 1) If you enter a channel number that already exists, a dialog message appears indicating that this number is already in use—assign a different channel number. 2) You can define 50 channels.

- **INPUT:** 1-8, corresponding to where on the projector's input panel the source is connected.
- **IN MENU:** If checked (default, except for automatically defined channels with unchanged parameters), this defined channel will then appear in the list available when **Chan** key is pressed. If unchecked, the channel must be accessed via the channel setup menu **Menu** **3** on the keypad or via the Auto Source function.

NOTE: On-screen display of the channel list is an option that must be set in the **Menu Preferences** menu.

- **AUTO SOURCE:** If checked, (default), the projector can automatically locate this channel when an incoming input signal matches. If not checked, the projector can locate the selected channel only when it is directly selected via **Chan** on the keypad—and a change in input signal will *not* result in a channel change.
- **LOCKED:** If checked, all of the image settings for this channel are disabled. If unchecked (default), all available image settings can be adjusted as desired. You cannot use Auto Setup with a locked channel.
- **PREVIOUS CHANNEL:** Select this option to see or change *Channel Edit* settings for the previous channel in the *Channel Setup* list.
- **NEXT CHANNEL:** Select this option to see or change *Channel Edit* settings for the next channel in the *Channel Setup* list.

3.6 Adjusting the Image

The most commonly used options for image adjustments are accessed through two menus: *Size and Position* (**Menu** **1**) and *Image Settings* (**Menu** **2**), both of which appear in the *Main* menu. From either of these two menus, you can change settings affecting the image from the current channel by working with the appropriate slidebars, checkboxes and pull-down lists. **Exit** will return to the previous menu (or to the presentation, if from the *Main* menu) and accept any changes you may have entered. Settings are saved with the current channel.

From your presentation, you can access any of the individual options in these menus by pressing **Menu** followed by the appropriate two-digit number representing their location in the menu system. For example, press **Menu** **2** **3** to quickly access the “Gamma” option in the *Image Settings* menu.

Note that for certain options, you may prefer to use a “direct key” from presentation level to go directly to a particular option without traveling through the menu system (*available for certain display parameters only*). For example, press **Cont** to access the “contrast” slider immediately. Press **Exit** to return to your presentation.

NOTES: **1)** To hide these “direct” slidebars, disable the “Display Slidebars” checkbox in the **Menu Preferences** menu. **2)** To hide the entire menu system from view, turn off the on-screen display by pressing **OSD**

Maintenance

4.1 Warnings and Guidelines

This projector is safety agency approved and is designed for safe and reliable operation. However, safe operation cannot be assured by design alone; installers, maintainers, and users must maintain a safe operating environment for the system. Please read through and understand the following warnings and guidelines promoting safe usage of the projector.



WARNING
Always power down the projector using appropriate procedure and disconnect all power sources before cleaning or servicing.



WARNING
Always remove the lens when shipping the projector.



WARNING
NEVER look directly into the projector lens.
The high brightness of this projector could cause permanent eye damage.



WARNING
For protection from ultraviolet radiation, keep all projector shielding intact during operation.



CAUTION
Installation should be performed by qualified personnel ONLY.



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 non-insulated “dangerous voltage” within the projector’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

Projector Location ▶ Operate the projector in an environment that meets the operating range specifications 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.
- Only use Christie-approved ceiling mount fixture, if the projector is to be ceiling mounted.

Lamp and Filter Replacement



▶ **LAMP:** Do not operate the Bubble lamp for more than the lamp's warranty limit; risk of the lamp shattering increases as a result of changes in the quartz glass that occur with use. Operation beyond the lamp's warranty limit also significantly reduces brightness output.

⚠ WARNING ⚠

Wait approximately five minutes after powering down the projector to allow internal cooling fans to stop and for the lamp to cool sufficiently before removing.

Never attempt to remove the lamp housing directly after use. The lamp is under great pressure when hot and may explode, causing personal injury and/or property damage. Allow cooling completely.

The Bubble lamp operates at a very high temperature and pressure. Failure to allow the lamp to sufficiently cool prior to handling could result in an explosion causing personal injury and/or property damage. After turning the projector off it is important that you wait at least five minutes before unplugging it. This provides enough time for the internal lamp cooling fans to cool the lamp and to automatically shut off. Cool completely before handling.

⚠ WARNING ⚠

Use only lamps supplied by Christie. Use lamps of the correct wattage for your projector model when replacing.

⚠ WARNING ⚠

Use Christie approved filters ONLY.

FILTER: Replace the filter when you replace the lamp or sooner if required. It is important the filter be replaced regularly to ensure sufficient airflow through the projector, otherwise it could cause the projector to overheat.

Refer to *4.4, Replacing the Lamp and Filter* for the complete replacement procedure.

Power Cord and Attachments

▶ **⚠ The North American rated line cord is provided with each projector. Ensure that you are using a line cord that meets the appropriate rating standards.**

Only use attachments or accessories recommended by Christie, such as the specific power cord supplied. Use of other attachments or accessories with this projector may result in the risk of fire, shock or personal injury.



Use only an AC power cord recommended by Christie. Do not attempt operation if the AC supply and cord are not within the specified voltage and power range.

- Do not set or rest items on the power cord. Place the projector in an area where the projector cord cannot be abused or damaged by persons walking on it or by objects rolling over it.
- Operate the projector at the specified voltage only. Do not overload power outlets and extension cords as this can result in fire or shock hazards.
- The projector is equipped with a three-wire plug having a third grounding pin. This is a safety feature – if you are unable to insert the plug into an outlet contact an electrician to have the outlet replaced. Do not defeat the safety purpose of this grounding-type plug.

- Ventilation** ► Slots and vents in the projector provide ventilation. Never block or cover these openings. This ensures reliable operation of the projector and prevents overheating.
- Do not place the projector over a radiator or heat register. The projector should not be placed in an enclosure unless proper ventilation is provided.
 - Do not insert 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 of any kind into the projector. Should an accidental spill occur, immediately unplug the projector and have it serviced by a qualified service technician.

- Servicing** ► If any of the following conditions exist, immediately unplug the projector from the power outlet and contact your Christie dealer.
- The power cord has been damaged.
 - The internal cooling fans do not turn on within two minutes when the projector is first powered up.
 - Liquid has been spilled into the projector.
 - The projector has been 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) has been badly damaged.



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.

4.2 Replacing Keypad Batteries

The IR Remote Keypad uses two AA size, 1.5V batteries (preferably alkaline). To install new batteries:

- 1) Open the battery compartment at the backside of the keypad by placing your thumb in the oval depression and sliding the cover out about ½ inch. See **Figure 4.1**. Remove the old batteries and properly discard. Wait a minute or two.

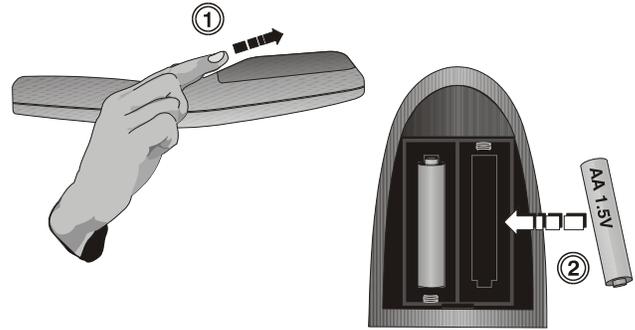


Figure 4.1. Replacing Batteries

- 2) Place the new batteries in the compartment, orienting the positive/negative of each battery according to the labels in the compartment. When the batteries are in place, replace the cover by placing the cover ½ inch from its closed position and slide it into place. Do not force the cover.

NOTE: Always wait a minute or two when replacing batteries so that the internal electronics discharge and can recognize the change.

4.3 Lamp and Filter Replacement

For this procedure you will need the appropriate Roadster S+12K, Roadster HD12K/Matrix WU12/Mirage WU12/Mirage HD12/Mirage S+12K, Roadster S+16K/Mirage S+14K/Mirage S+16K or Roadster S+20K/HD18K/Mirage HD18/Mirage WU18/Mirage S+20K Lamp and Filter Replacement Kit manufactured by Christie Digital Systems. See **Table 4.2**.

Table 4.2. Lamp and Filter Kits

Projector Model	Lamp Type (Watts)	Lamp/Filter Kit Required
Roadster S+12K (38-DSP210-xx)	2.0 kW	03-900519-51P
Roadster HD12K (104-010101-xx)		003-120135-xx
Matrix WU12 (104-064101-xx)		003-120135-xx
Mirage HD12 (104-027101-xx)		003-120135-xx
Mirage S+12K (104-066103-xx)		003-120135-xx
Mirage WU12 (104-063100-xx)		003-120135-xx
Roadster S+16K (38-DSP214-xx)		2.4 kW
Mirage S+16K (104-067104-xx)	03-900518-51P	
Mirage S+14K (38-DSP214-xx)	03-900518-51P	
Mirage HD18 (104-022101-xx)	3.0 kW	003-000306-xx
Mirage HD18 (104-022138-xx)		003-000306-xx
Mirage HD18 (104-022127-xx)		003-000306-xx
Mirage HD18 (104-022116-xx)		003-000306-xx
Mirage WU18 (104-065102-xx)		003-000306-xx
Mirage WU18 (104-065135-xx)		003-000306-xx
Mirage WU18 (104-065124-xx)		003-000306-xx
Mirage WU18 (104-065113-xx)		003-000306-xx
Mirage S+20K (104-068105-xx)		003-000306-xx
Roadster HD18K (104-021101-xx)		003-000306-xx
Roadster HD18K (104-021137-xx)		003-000306-xx
Roadster HD18K (104-021126-xx)		003-000306-xx
Roadster HD18K (104-021115-xx)		003-000306-xx
Roadster S+20K (104-001101-xx)		003-000306-xx
Roadster S+20K (104-001135-xx)		003-000306-xx
Roadster S+20K (104-001124-xx)		003-000306-xx
Roadster S+20K (104-001113-xx)	003-000306-xx	

A bubble lamp permanently mounted inside its own protective assembly provides the high brightness of your projector. Using this module beyond its warranted life is not recommended—changes in the quartz of the bulb can lead to reliability problems, poor performance or sudden lamp expiry. The filter should always be changed when the lamp is replaced, or sooner in dusty environments.

The lamp module is calibrated for maximum performance and brightness in this projector. Do not attempt to re-align or adjust the lamp module.

How old is the lamp?

The number of hours logged on the current lamp appears both in the *Lamp* menu and the *Status* menu. In the *Status* menu, do not confuse “Lamp Hours” with “Lamp Counter” which indicates the number of hours logged during the current rental period only and is normally used for rental projectors only.

NOTE: *As the lamp nears its limit (as set in **Lamp Limit**), a message can appear on screen to warn that the lamp needs to be replaced. The LED’s next to the built-in keypad will flash “LP” when lamp time has expired. To ensure this warning appears, enter a checkmark in the **Lamp Message** checkbox located in the **Lamp** submenu.*

Lamp Replacement Procedure

► **TOOLS:** A Phillips #2 screwdriver is required. All access panels’ screws are ¼-turn to lock/unlock.

Warnings

-  A qualified service technician must perform lamp replacement.
-  Cool the lamp completely and handle by the housing only.
-  Install the correct wattage lamp supplied by Christie (see above) and read the Lamp Replacement procedure in its entirety before proceeding.
-  Do not touch the glass surface of the lamp. Fingerprints left on the surface can lead to an intense accumulation of heat called a “hotspot”, which could potentially result in the lamp shattering. It is recommended you wear clean, lint-free gloves and a face shield when working with the lamp.

1. TURN THE LAMP OFF

Press  (power) to turn the lamp off. Allow the cooling fans to stop automatically (within approximately five minutes) before proceeding with Step 2. This wait period is also required to allow the lamp to sufficiently cool before handling.

2. UNPLUG THE PROJECTOR

When the cooling fans have stopped, turn the projector’s main switch off, and unplug.



**Always power down and unplug the projector prior to servicing.
Allow the lamps to cool before handling**

3. OPEN THE LAMP DOOR



WARNING

Protective gear required. Wear a face shield.

Using a #2 Phillips screwdriver, loosen the ¼-turn lock screws (2) securing the lamp door, which is located at the rear of the projector below the input panel. See **Figure 4.2**.

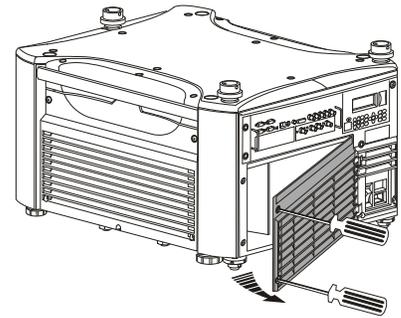


Figure 4.2. Open Lamp Door

4. REMOVE LAMP RETAINING BAR

Remove the two (2) screws that secure the retaining bar along the bottom edge of the lamp module using a #2 Phillips screwdriver. See **Figure 4.3**. Swing the bar aside—it is hinged on the left.

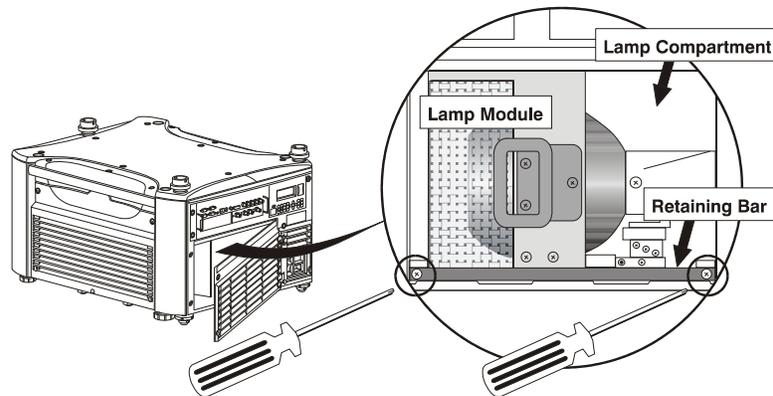


Figure 4.3. Remove Retaining Bar

5. REMOVE THE LAMP MODULE

Firmly grasp the handle and pull the lamp module straight out of the projector. See **Figure 4.4**. Discard the lamp using safe disposal/recycling practices.

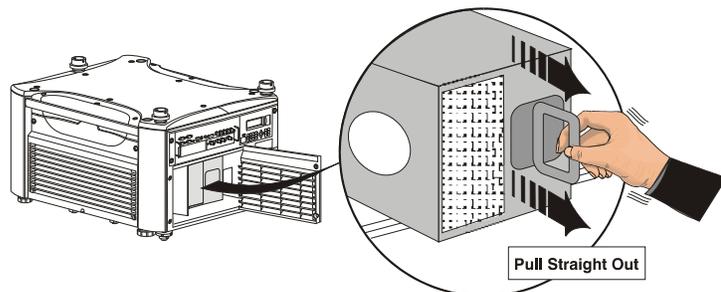
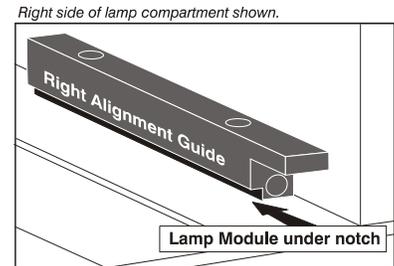


Figure 4.4. Remove Lamp Module

6. INSERT THE NEW LAMP MODULE

Align the base plate of the new lamp module under both side alignment guides (see right). Slide the module fully into the projector in the same orientation you removed the old lamp module. Push with normal force until the resistance increases, then firmly push module another ½ inch.



NOTE: The lamp module must make **full contact** with the lamp connectors. Increased resistance when sliding the module in indicates initial contact with these connectors—push firmly at this point.



WARNING

Improper installation could cause a serious meltdown inside the projector.

7. RE-INSTALL LAMP RETAINING BAR

Position the retaining bar along the bottom edge of the lamp module, with its ends under the alignment guides. If the bar does not fit, push the lamp module further in. See Figure 4.5.



IMPORTANT

The tightening order of the screws is critical for proper lamp **contact** and **alignment**.

- Secure screw **B** until just engaged.
- Secure screw **A** until just engaged.
- Go back and forth between **A** and **B** to lock the bar in place with even pressure and correctly position the lamp module.

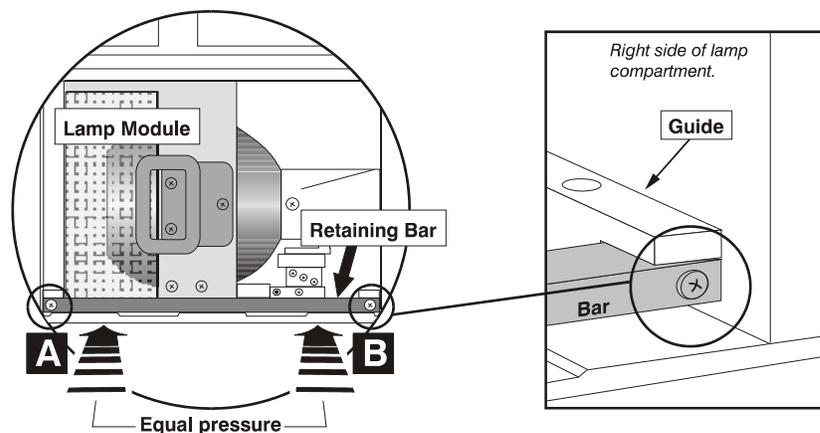


Figure 4.5. Install Retaining Bar

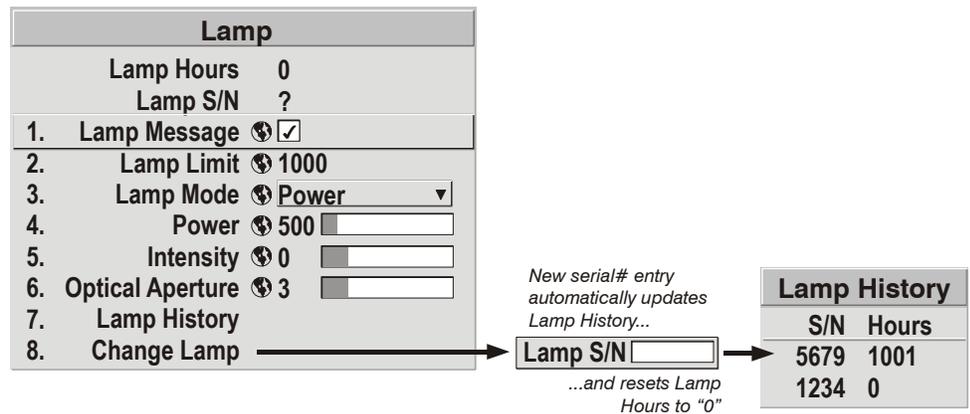
8. CLOSE LAMP DOOR

Close the lamp door and lock its two (2) ¼-turn lock screws.

IMPORTANT: The lamp module is calibrated for maximum performance and brightness in this projector. Do not attempt to re-align or adjust the lamp module.

9. RECORD THE SERIAL NUMBER OF THE NEW LAMP

- Plug in the projector and power it up.
- In the Lamp menu, select “Change Lamp”.
- In the Lamp S/N text box, enter the serial number.
- Press to record the number and to reset the lamp timer. The timer will now begin to log time for the new lamp.



IMPORTANT: If you neglect to enter a serial number, the lamp timer will not reset to “0” and will therefore be inaccurate. The lamp life limit may then expire prematurely.

Filter Replacement Procedure



WARNING

Use Christie approved filters ONLY.

The filter located at the front side of the projector should be replaced whenever the lamp is replaced. If you are working in an extremely dusty environment you may want to replace the filter sooner. Use the filter provided in the Christie approved Lamp and Filter Kit for your specific projector model (see **Table 4.2**).

1. TURN OFF THE PROJECTOR, COOL and UNPLUG

Before removing or installing a filter, turn off the projector and allow it to cool for 5 minutes before unplugging.

2. REMOVE FILTER DOOR

Loosen the ¼-turn screw at the top of the filter grille/door. Lift the door away from the projector. See **Figure 4.6**.

NOTE: In the Roadster S+20K/HD18K/Mirage HD18/WU18/S+20K, also remove the triangular metal filter brace.

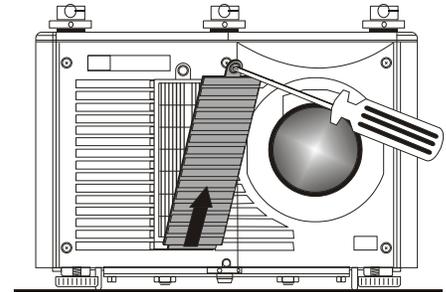


Figure 4.6. Remove Filter Door

3. REPLACE FILTER

Remove the old filter and insert the new one. Follow the airflow arrows for correct orientation. See **Figure 4.7**. In the Roadster S+20K/HD18K/Mirage HD18/WU18/S+20K, which has a rhomboid-shaped filter, insert the sharply angled corner first – place fully back on the left. Ensure the triangular metal filter brace is installed after the filter has been positioned. See **Figure 4.8**.

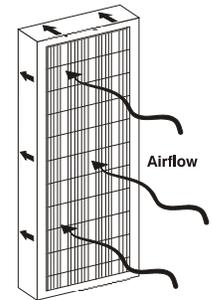


Figure 4.7. Airflow

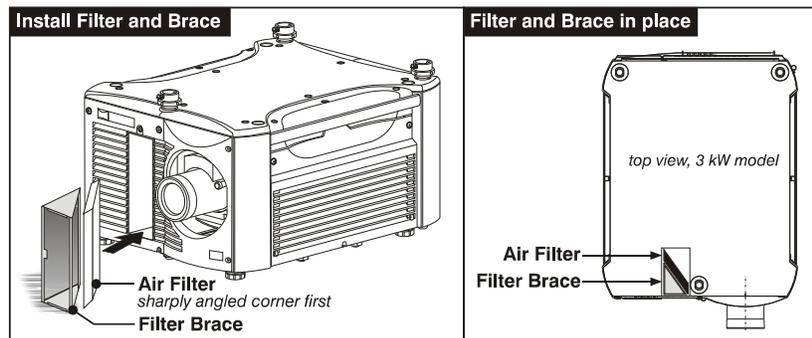


Figure 4.8. Installing the Angled Air Filter (3.0kW models only)

4. RE-INSTALL THE FILTER GRILLE/DOOR

Secure with the single top screw.

4.4 Replacing the Projection Lens

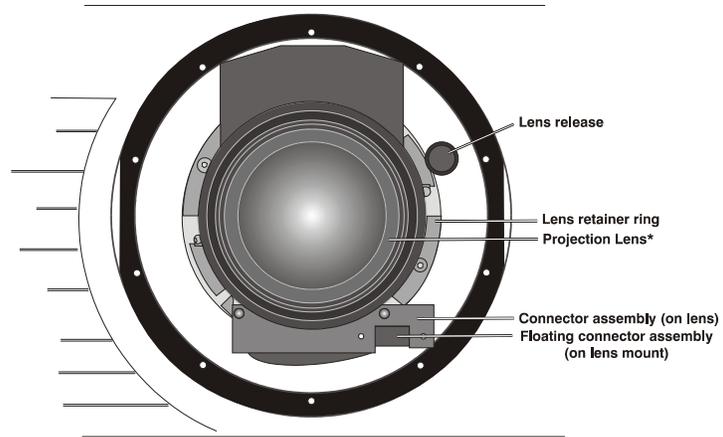
A variety of lenses can accommodate different throw distances and specific types of installations. Refer to *Section 6, Specifications* for more details. To change a lens, follow the steps below.

STEP 1 ▶ Turn off the projector, cool and unplug

NOTE: If necessary, a lens can be swapped out while the projector is running, but this can result in dust being drawn into the projector. Avoid if possible.

Before removing or installing any lens, turn off the projector and allow the fans to cool the lamp before unplugging the projector. Ensure that the lens cap is on.

⚡ WARNING ⚡
Unplug the projector.



STEP 2 ▶ **Install the lens cap and press the lens release button**
See Figure 4.9.

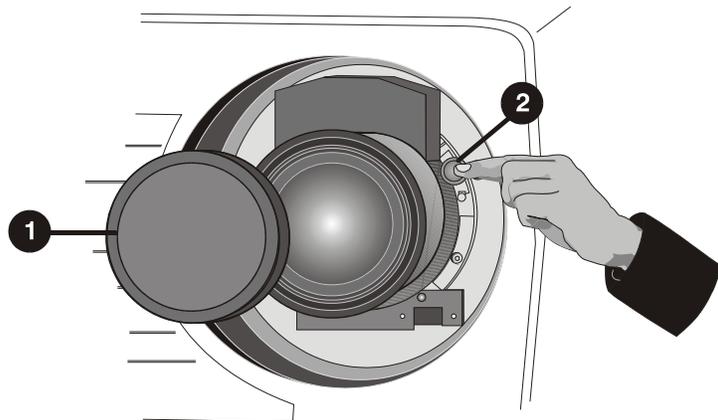


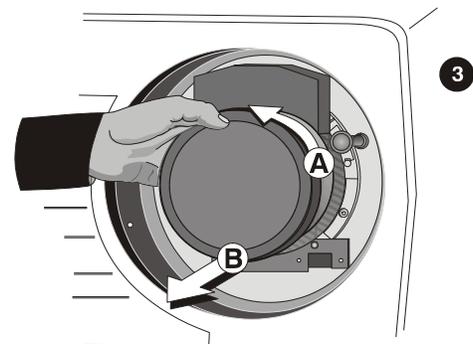
Figure 4.9. Depressing Lens Release

STEP 3 ▶ **Rotate the lens**
Rotate the lens counter-clockwise until the tabs are free from the lens retainer ring, see A in Figure 4.10.

NOTE: The connector slide assembly allows the connector to move as the lens is rotated.

STEP 4 ▶ **Pull lens out**

Lens connectors will disconnect when you pull the lens straight out from the projector, see B in Figure 4.10.



NOTE: Connector assembly will move as you turn the lens.

Figure 4.10. Rotating the Lens

STEP 5 ▶ Insert new lens.

NOTE: Remove small rear cap! Keep front cap on.

- **Electrical connector:** Line up male connector on the lens with the female connector on the connector slide assembly.
- **Insert lens:** Align the tabs on the lens plate lock with the slots in the lens retainer ring. Push the lens in until the tabs touch the back of the retainer ring.
- **Rotate the lens:** To ensure the lens is secured in the lens mount, turn it clockwise until you feel the tabs on the lens butting against the end stops on the lens mount retaining ring. To ensure the locking pin is properly engaged, turn the lens counter-clockwise. If the lens does not turn counter-clockwise, the locking pin is properly engaged. If the lens turns counter-clockwise, the locking pin is not properly engaged; in this case, turn it clockwise and pull the lens plunger assembly out until the plunger assembly stops. Recheck by turning the lens counter-clockwise. The lens should not rotate.

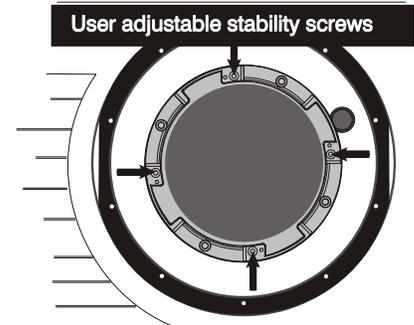


Figure 4.11. Adjustable Screws on Retaining Ring

- **Secure stability screws (optional):** For added stability, secure the adjustment screws provided on the lens retaining ring (see **Figure 4.11**). If you have installed a large zoom lens, one or more of the screws may be inaccessible—simply tighten those that are accessible. *NOTE: Recommended for heaviest lenses such as 0.73:1 and 1.2:1.*

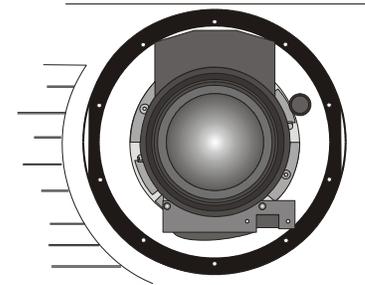


Figure 4.12. View With Zoom Lens Installed

STEP 6 ▶ Power Up

Remove the lens cap and power up the projector.

STEP 7 ▶ Reposition the Projector for New Lens

Reposition the projector closer or further from the screen as necessary for the screen and the new lens type – refer to lens descriptions in **Section 2** and **Section 6**. In a permanent installation, always use the appropriate throw distance formula to calculate the best position for the projector (**Figure 4.12**).

Troubleshooting

If the projector does not appear to be operating properly, note the symptoms present and use the following guide to assist you. If you cannot resolve the problems yourself, contact your dealer for assistance.

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

5.1 Displays

Symptom ▶ **Blank screen, no display of image...**

CAUSE/REMEDY:

1. Confirm all power connections are still OK.
2. Ensure the lens cap has been removed.
3. Ensure the shutter is OPEN.
4. Ensure a full black test pattern has not been selected for display—press   to access test patterns, then cycle patterns with   keys.
5. Is the input selected? Check connections.

Symptom ▶ **Blacklevels seem too high**

Reduce Brightness setting.

Symptom ▶ **Image appears “squeezed” or vertically stretched into center of screen**

CAUSE / REMEDY:

1. Check your Resizing selection.
2. The anamorphic lens (optional) may be needed for this source.

Symptom ▶ **The projector is on but there’s no display...**

CAUSE / REMEDY:

1. Was a lens cover accidentally left on? Remove lens cover.
2. Ensure the shutter is OPEN.
3. Is the lamp ignited? Check for interlock problems such as an open lamp door.
4. Is the correct input selected?
5. Is the source connected properly? Check the cable connections and ensure the correct source is selected.
6. Is AC power connected?
7. Can you access test patterns? If so, check your source connections again.

- Symptom** ▶ **The display is jittery or unstable...**
CAUSE / REMEDY:
1. If the display is jittery or blinking erratically, 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.
- Symptom** ▶ **The display is faint...**
CAUSE / REMEDY:
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.
- Symptom** ▶ **The upper portion of the display is waving, tearing or jittering...**
CAUSE / REMEDY:
1. This can sometimes occur with video or VCR sources. Check your source.
- Symptom** ▶ **Portions of the display are cut off or wrap to the opposite edge...**
CAUSE / REMEDY:
1. Resizing and/or blanking may need adjustment.
- Symptom** ▶ **The display appears compressed (vertically stretched)...**
CAUSE / REMEDY:
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.
 3. You may need an anamorphic lens for sources that have been supplied in a re-sized and vertically stretched format.
- Symptom** ▶ **Data is cropped from edges**
CAUSE / REMEDY:
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.
- Symptom** ▶ **Display quality appears to drift from good to bad, bad to good...**
CAUSE / REMEDY:
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.
- Symptom** ▶ **The display has suddenly frozen...**
CAUSE / REMEDY:
1. 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.
- Symptom** ▶ **Colors in the display are inaccurate...**
CAUSE / REMEDY:
1. The color, tint, color space, color temperature and/or other settings may require adjustment.
 2. Ensure the proper channel for this source is being used.

- Symptom** ▶ **Values in Color Saturation slidebars vary over time**
CAUSE / REMEDY:
1. Once defined, *Color Saturation* slidebar values fluctuate over time and will likely be different upon subsequent visits to this menu. This is normal and should be ignored, as these changes do not redefine the x/y coordinates or color gamut.

- Symptom** ▶ **The display is not rectangular...**
CAUSE / REMEDY:
1. Check leveling of the projector. Ensure the lens surface and the screen is parallel to each other as possible.
 2. Is the vertical offset correct? Adjust as necessary using the vertical offset knob.

- Symptom** ▶ **The display is “noisy”...**
CAUSE / REMEDY:
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 (75Ω). 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.

5.2 Lamp

- Lamp Does Not Ignite** ▶
1. If the lamp won't ignite, there may be an interlock failure such as an open lamp door, or failed lamp fan. An error code will display on the status LED display located on the built in keypad.
 2. If a temperature is too high (“DMD over critical temp limit”, e.g.), the lamp will not ignite until the temperature is low enough. Cool the projector and try again.
 3. For suspected communication failures, power-down the projector and try again.
 4. If the lamp does not ignite after a second and third try, replace the lamp.

- Lamp Suddenly Turns Off** ▶
1. Try increasing the lamp power.
 2. The DMDs may be overheated.
 3. Replace the lamp.

- Flicker, Shadows Or Dimness** ▶
1. Increase lamp power, if possible.

- LiteLOC™ Does Not Seem To Work** ▶
1. Ensure “Intensity” is selected in the *Lamp* menu. Other lamp modes disable LiteLOC™.
 2. If the lamp power has increased to its maximum in order to maintain a LiteLOC™ setting, LiteLOC™ is automatically terminated. If the values shown in the *Lamp* menu indicate that the lamp power has reached this “over-drive” state, either reduce your LiteLOC™ setting or install a new lamp.

5.3 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. Ensure the projector is connected to a network before you attempt to change its IP address, and always cycle power (off-on) to implement the new IP address.
3. Ensure address changes have been saved, and re-boot to implement.
4. 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.

5.4 3D Sync Input

Symptom ▶ System Error Code 1E...

CAUSE / REMEDY:

1. Cable not connected to specify Sync Input.
2. Connect cable.

Symptom ▶ System Error Code 1F...

CAUSE / REMEDY:

1. Sync is present, but out of range.
2. Previous hook up to projector was sending Sync to Emitter. Change 3D Sync Output to Next.

Specifications

6.1 Specifications

NOTES: 1) Due to continuing research, specifications are subject to change without notice. 2) Specifications apply to all models unless otherwise noted. 3) 3D available in Mirage series only.

Lenses

Lenses	Offsets (Movement)		Max. Amount of Display Above or Below Lens Center	Max. Amount of Display Left or Right of Lens Center
	↑ or ↓	← or →		
SX+ Offsets				
0.73:1 Fixed	40%	25%	735 pixels ↑ or ↓	70% 875 pixels ← or → 62.5%
1.25-1.6:1 Zoom	73%	45%	908 pixels ↑ or ↓	86% 1015 pixels ← or → 73%
All other SX+ lenses	100%	50%	1050 pixels ↑ or ↓	100% 1050 pixels ← or → 75%
HD Offsets				
.67:1 Fixed HD	47%	19%	794 pixels ↑ or ↓	73% 1142 pixels ← or → 59%
1.16-1.49:1 Zoom HD	102%	40%	1091 pixels ↑ or ↓	100% 1344 pixels ← or → 70%
All other HD lenses	119%	42%	1183 pixels ↑ or ↓	100% 1363 pixels ← or → 71%
WU Offsets				
.67:1 Fixed HD	22%	6%	732 pixels ↑ or ↓	61% 1018 pixels ← or → 53%
1.16-1.49:1 Zoom HD	82%	38%	1092 pixels ↑ or ↓	91% 1325 pixels ← or → 69%
All other HD lenses	112%	54%	1272 pixels ↑ or ↓	100% 1478 pixels ← or → 77%

NOTES: 1) 0% offset is equal to half the image above and below lens center OR half the image to the left or right of lens center. 2) Offsets are subject to a $\pm 7\%$ centering tolerance.

Power Requirements ▶ Voltage range

Voltage rating	200 – 240VAC $\pm 10\%$
Line Frequency rating	50 – 60 Hz
Inrush current rating	60 – A max.
Current rating (@ 200VAC)	
Roadster S+12K	12A
Roadster HD12K	12A
Matrix WU12	12A
Mirage HD12	12A
Mirage WU12	12A
Mirage S+12	12A
Roadster S+16K	16A
Mirage S+14K	16A
Mirage S+16K	16A
Mirage HD18	20A
Mirage WU18	20A

<i>Mirage S+20K</i>	20A
<i>Roadster HD18K</i>	20A
<i>Roadster S+20K</i>	20A

Max. power consumption

<i>Roadster S+12K</i>	2400W
<i>Roadster HD12K</i>	2400W
<i>Matrix WU12</i>	2400W
<i>Mirage HD12</i>	2400W
<i>Mirage WU12</i>	2400W
<i>Mirage S+12</i>	2400W
<i>Roadster S+16K</i>	3200W
<i>Mirage S+14K</i>	3200W
<i>Mirage S+16K</i>	2400W
<i>Mirage HD18</i>	4800W
<i>Mirage WU18</i>	4800W
<i>Mirage S+20K</i>	4800W
<i>Roadster HD18K</i>	4800W
<i>Roadster S+20K</i>	4800W

Current rating of AC input coupler

<i>Roadster S+12K</i>	20A
<i>Roadster HD12K</i>	20A
<i>Matrix WU12</i>	20A
<i>Mirage HD12</i>	20A
<i>Mirage WU12</i>	20A
<i>Mirage S+12K</i>	20A
<i>Roadster S+16K</i>	20A
<i>Mirage S+14K</i>	20A
<i>Mirage S+16K</i>	20A
<i>Mirage HD18</i>	30A
<i>Mirage WU18</i>	30A
<i>Mirage S+20K</i>	30A
<i>Roadster HD18K</i>	30A
<i>Roadster S+20K</i>	30A

Type of connector @ projector

<i>Roadster S+12K</i>	IEC320-C19
<i>Roadster HD12K</i>	IEC320-C19
<i>Matrix WU12</i>	IEC320-C19
<i>Mirage HD12</i>	IEC320-C19
<i>Mirage S+12K</i>	IEC320-C19
<i>Mirage WU12</i>	IEC320-C19
<i>Roadster S+16K</i>	IEC320-C19
<i>Mirage S+14K</i>	IEC320-C19
<i>Mirage S+16K</i>	IEC320-C19
<i>Mirage HD18</i>	n/a—not detachable from projector
<i>Mirage WU18</i>	n/a—not detachable from projector

Mirage S+20K
Roadster HD18K
Roadster S+20K

n/a—not detachable from projector
 n/a—not detachable from projector
 n/a—not detachable from projector

Line Cords (3 conductors)

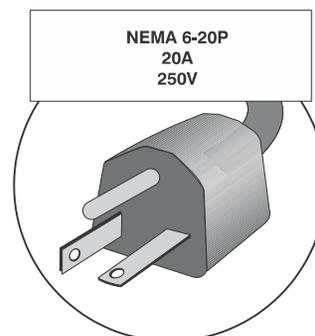
Roadster S+12K
Roadster HD12K
Matrix WU12
Mirage HD12
Mirage S+12K
Mirage WU12
Roadster S+16K
Mirage S+14K
Mirage S+16K
Mirage HD18
Mirage WU18
Mirage S+20K
Roadster HD18K
Roadster S+20K

Heavy duty, 12 AWG
 Heavy duty, 12 AWG

Plugs

Roadster S+12K
Roadster HD12K
Matrix WU12
Mirage HD12
Mirage WU12
Mirage S+12K
Roadster S+16K
Mirage S+14K
Mirage S+16K
Mirage HD18
Mirage WU18
Mirage S+12K
Roadster HD18K
Roadster S+20K

NEMA 6-20P, 20A, 250 VAC
 NEMA L6-30P, 30A, 250 VAC



2kW & 2.4kW Plug (3kW Model plug not shown)

Lamp - (DC)

Type - Power

Bubble Xenon Lamp

<i>Roadster S+12K</i>	2.0 kW
<i>Roadster HD12K</i>	2.0 kW
<i>Matrix WU12</i>	2.0 kW
<i>Mirage HD12</i>	2.0 kW
<i>Mirage WU12</i>	2.0 kW
<i>Mirage S+12K</i>	2.0 kW
<i>Roadster S+16K</i>	2.4 kW
<i>Mirage S+14K</i>	2.4 Kw
<i>Mirage S+16K</i>	2.4 kW
<i>Mirage HD18</i>	3.0 kW
<i>Mirage WU18</i>	3.0 Kw
<i>Mirage S+20K</i>	3.0 kW
<i>Roadster HD18K</i>	3.0 kW
<i>Roadster S+20K</i>	3.0 kW

Adjustment Ranges

<i>Roadster S+12K</i>	1200 – 1900 W
<i>Roadster HD12K</i>	1200 – 1900 W
<i>Matrix WU12</i>	1200 – 1900 W
<i>Mirage HD12</i>	1200 – 1900 W
<i>Mirage WU12</i>	1200 – 1900 W
<i>Mirage S+12K</i>	1200 – 1900 W
<i>Roadster S+16K</i>	1500 – 2400 W
<i>Mirage S+14K</i>	1500 – 2400 W
<i>Mirage S+16K</i>	1500 – 2400 W
<i>Mirage HD18</i>	2000 – 3000 W
<i>Mirage WU18</i>	2000 – 3000 W
<i>Mirage S+20K</i>	2000 – 3000 W
<i>Roadster HD18K</i>	2000 – 3000 W
<i>Roadster S+20K</i>	2000 – 3000 W

Lamp Life (warranty hrs.)

<i>Roadster S+12K</i>	1000 hours
<i>Roadster HD12K</i>	1000 hours
<i>Matrix WU12</i>	1000 hours
<i>Mirage HD12</i>	1000 hours
<i>Mirage WU12</i>	1000 hours
<i>Mirage S+12K</i>	1000 hours
<i>Roadster S+16K</i>	750 hours
<i>Mirage S+14K</i>	750 hours
<i>Mirage S+16K</i>	750 hours
<i>Mirage HD18</i>	750 hours
<i>Mirage WU18</i>	750 hours
<i>Mirage S+20K</i>	750 hours

<i>Roadster HD18K</i>	750 hours
<i>Roadster S+20K</i>	750 hours
Warm-up time to full brightness	10 minutes max. (20 min for 3kW models)
Operating position	Any vertical angle, refer to <i>Operating Environment, Tilt</i>

Audible Noise ▶ 58 dBA max. sound power (average at 1 meter, all four sides)

Safety ▶ UL 60950-1 1st edition and CAN/CSA C22.2 No. 60950-1-03 1st edition
IEC 60950-1:2001
IEC 60825 for laser in IR remote controller

EMC Emissions ▶ FCC CFR47, Part 15, Subpart B, Class A — Unintentional Radiation
CISPR 22/ EN55022— Radio disturbance characteristics for ITE

EMC Immunity ▶ CISPR 24 / EN55024 (all parts of immunity characteristics for ITE)

Operating Environment ▶ Temperature 5°C to 35°C (41°F to 95°F)
Humidity (non-condensing) 20% to 80%
Altitude 0 – 3000 meters
Tilt, Vertical Unlimited
Tilt, Horizontal 15° max.

Non-Operating Environment ▶ Temperature -40C to 70°C (-40F to 149°F)
Humidity (non-condensing) 0% to 95%

Standard Components Roadster Series ▶ Standard IR remote (*includes two, 1.5V AA batteries*)
Line Cord
Dual SD/HD-SDI Module
Stacking mounts
Integral rigging hardware

Standard Components Matrix Series ▶ Standard IR remote (*includes two, 1.5V AA batteries*)
Line Cord
DVI Module
TWIST Module
TWIST User Manual

Standard Components Mirage Series ▶ Standard IR remote (*includes two, 1.5V AA batteries*)
Line Cord
3D Stereo Sync Cable
Using 3D in Mirage User Manual/Mirage CD

Optional Accessories ▶

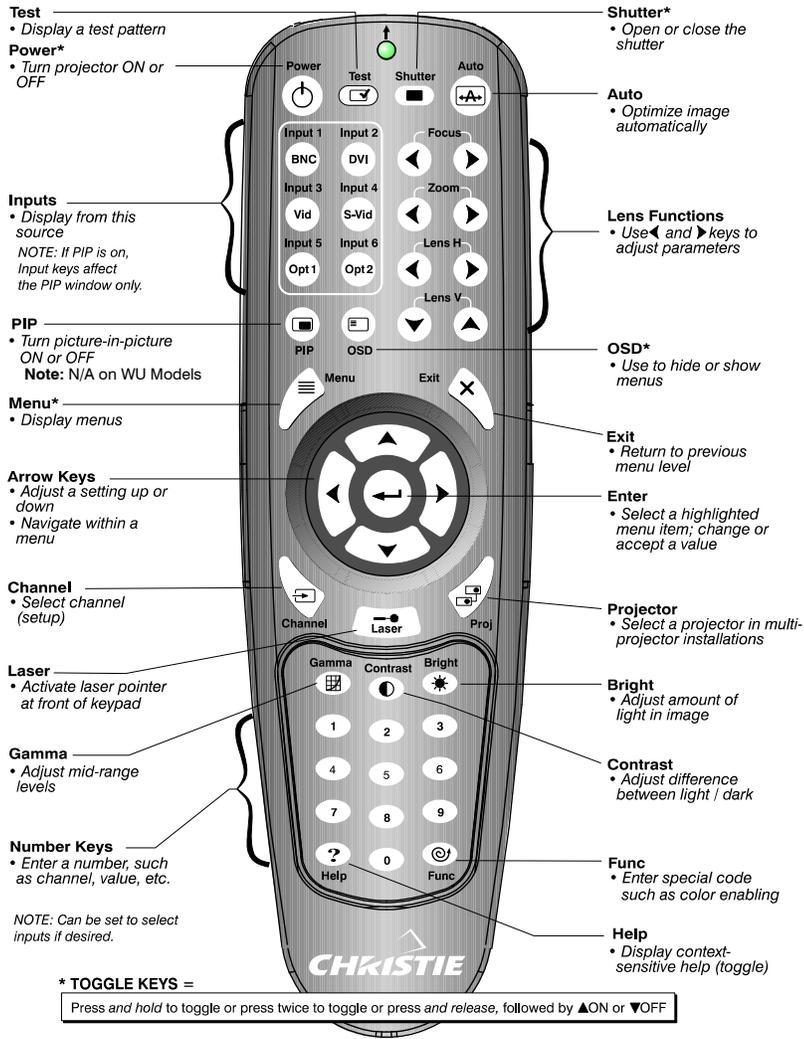
- Wired remote keypad
- Remote IR sensor
- Ceiling Mount Extension
- Ethernet, RS-232 and RS-422 communication cables
- “Brick” style rental staging – Standard IR remote
- KoRE Librarian for downloading new software
- Ceiling Mount
- Stacking Frame

- Lenses HD** ▶
- 0.67:1 fixed (104-110101-01)
 - 1.1:1 fixed FP (104-111101-01)
 - 1.1:1 fixed RP (104-116101-01)
 - 1.16-1.49:1 zoom (104-137101-01)
 - 1.38-1.84:1 zoom (104-112101-01)
 - 1.84-2.58:1 zoom (104-113101-01)
 - 2.58-4.15:1 zoom (104-114101-01)
 - 4.15-6.74:1 zoom (104-115101-01)
 - 6.9-10.4:1 zoom (104-130101-01)

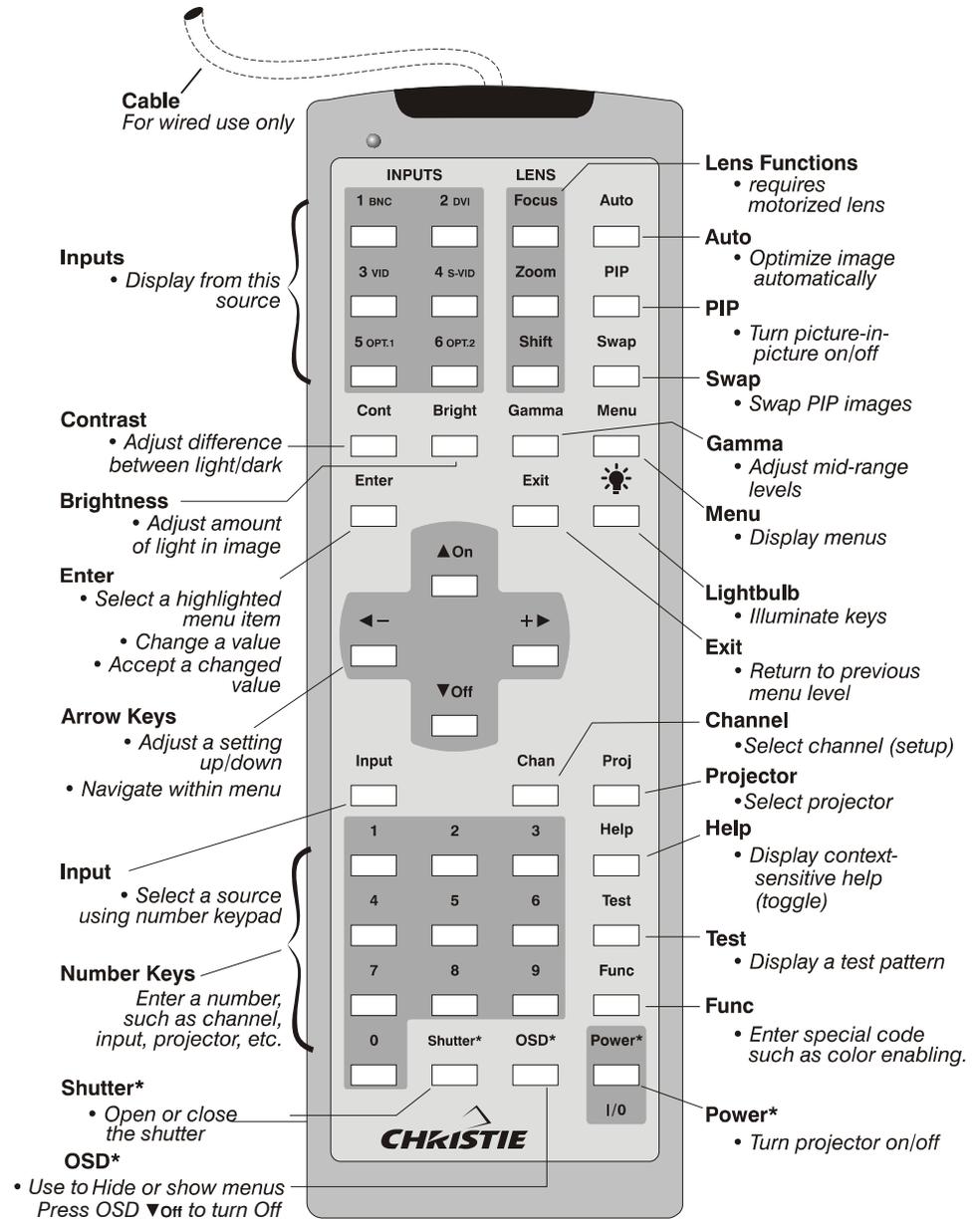
- Accessories** ▶
- Wired remote keypad
 - Service Manual
 - KoRE Librarian for downloading new software
 - Stacking Hardware for Mirage Models
 - Projector Blinders, PN 104-102011

- 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 Input Module
 - Dual SD/HD-SDI Module (*Standard with the Roadster HD Series, optional for Mirage and Matrix models*)

Keypad Reference



*Toggle keys, which require you to either, press and hold, or press twice or press and use the up/down arrow key.



*** TOGGLE KEYS =**

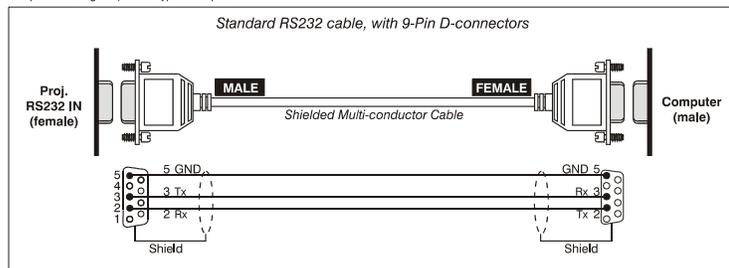
Press and hold to toggle or press twice to toggle or press and release, followed by ▲ON or ▼OFF

Serial Communication Cables

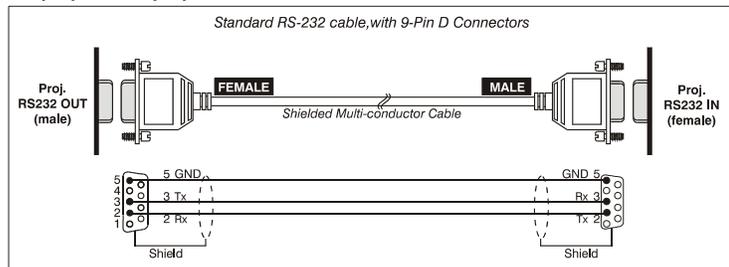
A serial link of RS-232 or RS-422 enables ASCII communication with the projector so that it can be controlled remotely from a PC or other controller. From a PC, connect a standard nine-wire RS-232 serial cable to the **RS-232 IN** port located on the side of the projection head. Or, for long-distance (>100 ft.) links with an RS-422-compatible PC or controller, connect RS-422 cable to the **RS-422** port.

□ **From projector to computer (RS232)**

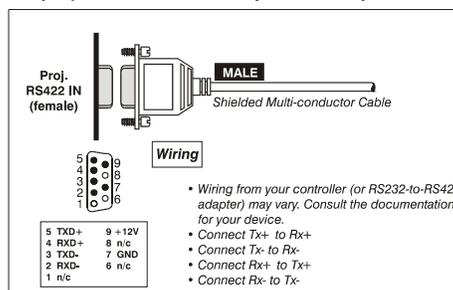
For computers having a 9-pin "AT" type serial port



□ **From projector to projector**

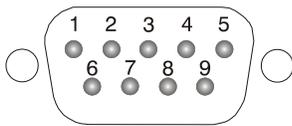


□ **From projector to RS422 compatible computer**



System Integration

The GPIO (General Purpose Input/Output) connector located on the input panel provides a flexible method of interfacing a wide range of external I/O devices to the projector. There are seven GIO pins available on the nine-pin D-Sub GPIO connector, which are configurable via RS-232 commands. The other two pins are reserved for ground and power – see table below for pin identification.

GPIO Pins	
	
Pin #	Signal
1	+ 12V (200mA)
2	GPIO 1
3	GPIO 2
4	GPIO 3
5	Ground
6	GPIO 4
7	GPIO 5
8	GPIO 6
9	GPIO 7

The serial cable required for connecting the external device to the projector's GPIO connector, whether it's a standard serial cable or a custom one, must be compatible with the external device.

- Configuring the GPIO** ► The GPIO connector can be configured to automate any number of events using the serial command code **GIO**. Each pin is defined as either an *input* or *output* depending on the desired outcome. In general, configure the pin as an input if you want the projector to respond to something the device does and as an output if you want the external device to respond to an action taken by the projector. For example, configure the pin as an output if you want the lighting in a room to automatically dim when the projector is turned on.

By using the GIO command, you can also set the state of each pin as *high* or *low*. By default, the state of each pin is *high*. The voltage applied to pins in the *high* state is + 3.3V.

Example 1. Turn room lighting on when the projector is turned off. (Assumes a control/automation unit is configured to turn the lights on when pin 2 of its input goes high.)

(GIO C2 O) Set pin #2 configuration to output

(GIO 2 H) Set pin #2 to high (state)

Query Command ▶ *(GIO?) Request the state and configuration of all pins*

(GIO! "HLLLHLH" "OOIOOOI") Reply of pin state and configuration

(GIO? C2) Request configuration for pin #2

(GIO! C2 O) Reply with pin #2 configuration as output

(GIO? 2) Request the state of pin #2

(GIO! H) Reply with pin #2 state as high

Real Time Event ▶ Use the serial command **RTE** to specify an action that is initiated at a particular time or based on an external stimulus.

For General Purpose IO "G"

Parameter	Name	Value
P1	RTE type	G (Real Time I/O Event)
P2	I/O bit	1-7
P3	Pin state (1 Character) (String)	H = High L = Low "LHXXXHL" Combine multiple inputs and trigger occurs when all conditions are met
P4	Commands	Any valid serial protocol command for the device

Example 2. Projector powers up when a switch on the external device is turned on.

(GIO C2 I) Set pin #2 configuration as input

(RTE G 2 H "(PWR 1)") Power on when pin #2 set to high

(RTE G 2 L "(PWR 0)") Power off when pin #2 set to low

Optional Input Modules

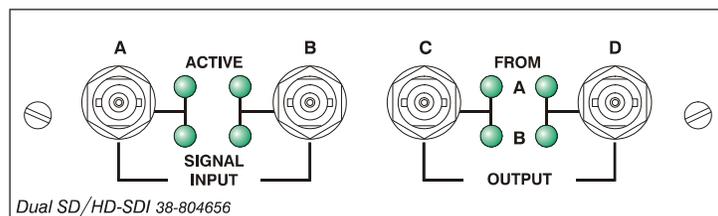
The following optional input modules can be installed in either option slot in the projector (**INPUT 5** or **INPUT 6**). Contact your dealer for a complete an up-to-date listing.

NOTES: 1) *Optional interface modules can be hot-swapped into a running projector.* 2) *Any audio connectors shown are non-functional in this projector.*

Dual SD/HD-SDI 38-804656-xx

- ▶ **NOTE:** *Standard with Roadster models. Refer to Section 2.*

The *Dual SD/HD-SDI Module* enables incoming SD or HD serial digital data to be tiled across multiple screen displays, overlapped for extra-bright displays, or distributed to additional projectors for multiple, same-image screens.

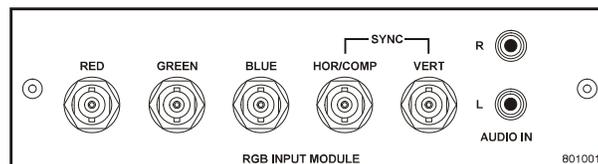


Dual SD/HD-SDI Features

- Accepts and decodes up to two serial digital inputs
- SMPTE 292, 259M and 372 compatible
- Outputs up to two 10-bit video signals
- Provides input(s) to output(s) loop-through capability
- Supplies interchangeable inputs as part of the Picture-in-Picture display

RGB500 Input Module 38-804606-xx

- ▶ The *RGB500 Input Module* receives analog RGB input signals from computers or other RGB source devices.

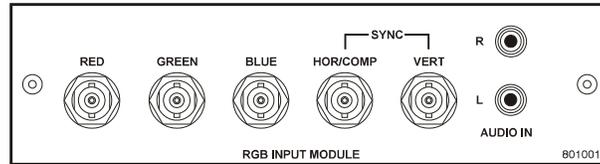


RGB500 Features

- Accepts 3, 4, or 5 wire RGB video (sync-on-green, composite sync, or separate horizontal and vertical sync), up to 500 MHz bandwidth
- Accepts YPbPr, composite (on green) and Y/C (on red/blue)
- BNC connectors for RGB signal inputs

RGB400BA Input Module 38-804610-xx

▶ Connect three-, four-, or five-wire RGB video signals of up to 400 MHz bandwidth—these are signals typically produced by high-resolution computer or workstations. The buffering capability of the module enables the incoming signal to be sent to a remote destination. Inputs are 75Ω terminated.

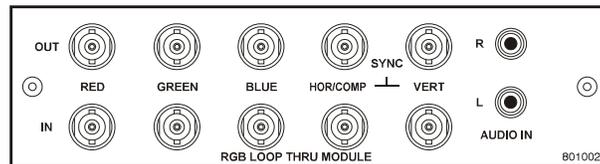


RGB400BA Features

- Accepts 3, 4, or 5 wire RGB video (sync-on-green, composite sync, or separate horizontal and vertical sync)
- Accepts YPbPr, composite (on green) and Y/C (on red/blue)
- BNC connectors for RGB signal inputs
- Buffered signals to a remote destination

RGB400 Active Loop-Thru Input Module 38-804607-xx

▶ The RGB400 ALT Input Module receives analog RGB input signals from computers or other RGB source devices. Video inputs are 75Ω terminated. Video outputs provide buffered loop-through to another display device.

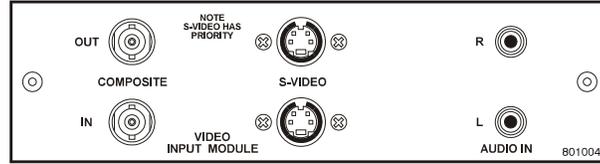


RGB400 ALT Features

- Accepts 3, 4, or 5 wire RGB video (sync-on-green, composite sync, or separate horizontal and vertical sync)
- Accepts YPbPr, composite (on green) and Y/C (on red/blue)
- BNC connectors for RGB signal inputs
- Buffered loop-through video outputs

Composite -Video Input Module 38-804608-xx

▶ The *Composite Video Input Module* receives either composite video input signals from tape or disk players. Video inputs are 75Ω terminated. Video outputs are provided for buffered loop-through to another display device.



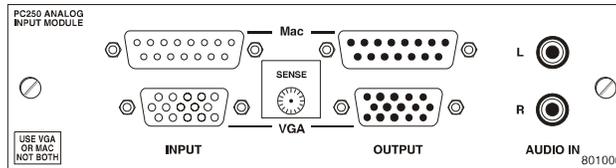
NOTES: 1) The S-video portion of this module is non-functional with this projector. Connect composite video signals only. 2) This module is not a decoder.

Composite Video Features

- BNC connectors for composite RGB signals
- 4-pin mini-DIN connectors for S-Video signals (*NOTE: non-functional*)
- Buffered loop-through video outputs

PC250 Analog Input Module 38-804609-xx

▶ The *PC250 Analog Input Module* receives analog RGB input signals from IBM PC compatibles or Macintosh computers. Video inputs are 75Ω terminated. Video outputs are provided for buffered loop-through to another display device.



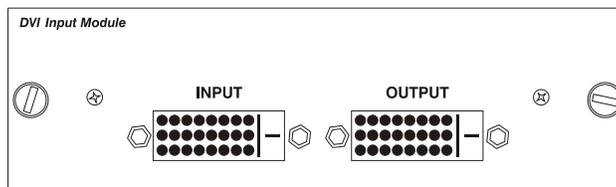
PC250 Analog Features

- Accepts VGA or MAC RGB video
- 15 pin D connectors for video
- Active loop-through video outputs

NOTES: This interface does not accept VGA and MAC signals simultaneously.

DVI Input Module 38-804635-xx

▶ The *DVI Input Module* can be installed to display digital video input signals conforming to the DVI (Digital Visual Interface) single-channel standard.

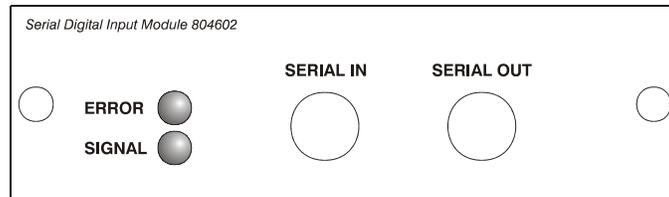


Features

- Supports Digital Visual Interface (DVI) single-channel
- Supports VESA® Extended Display Identification Data (EDID™)
- Provides an active-loop-through using a DVI connector (conforming to the DVI Specification)

Serial Digital Input Module 38-804602-xx

The Serial Digital Input Module (SDI) accepts a serial digital 4:2:2 component video signal (YCbCr) via a single **SERIAL IN** BNC connector. The signal can loop through the **SERIAL OUT** BNC out to another device (such as another projector). Inputs are 75Ω terminated.

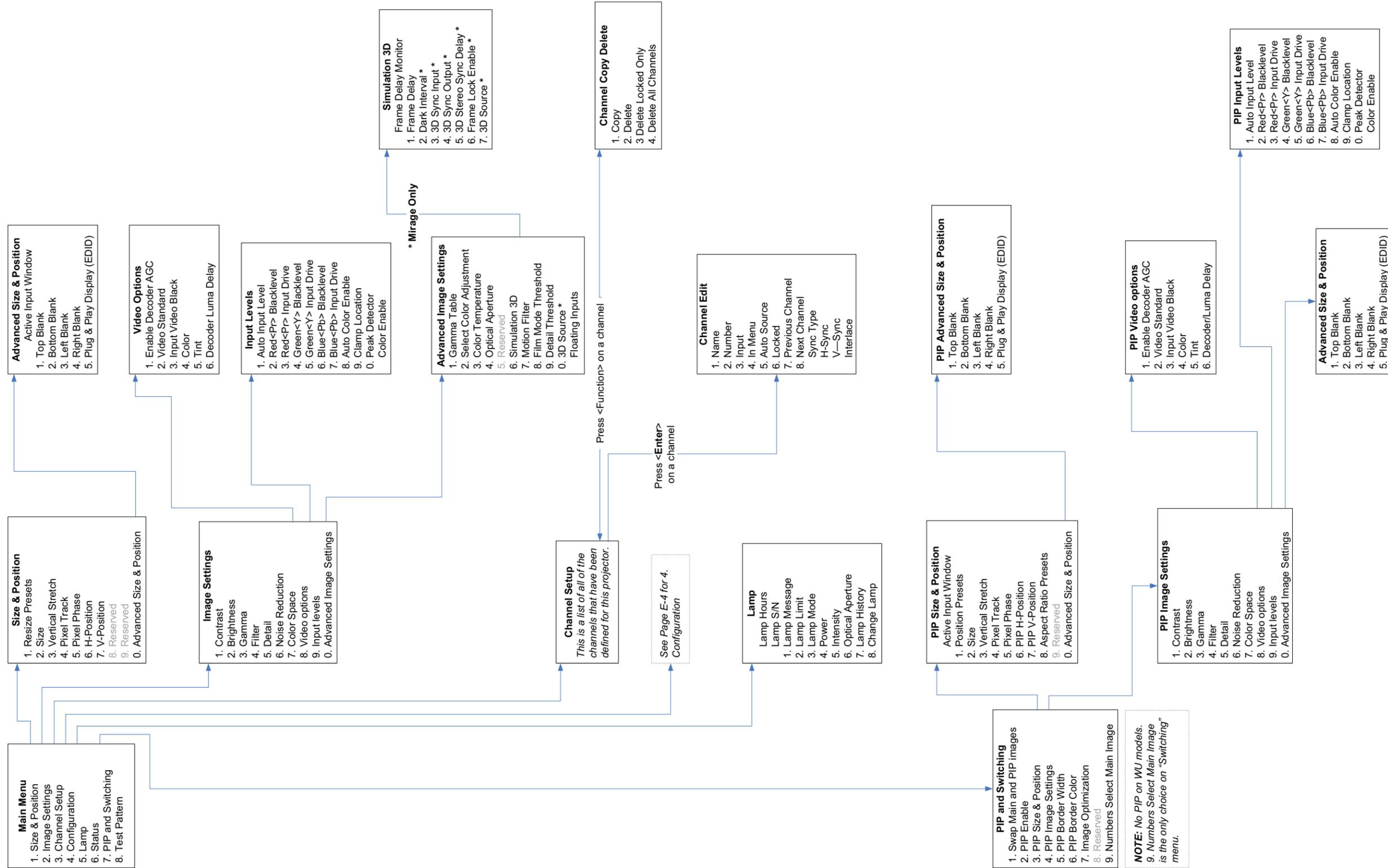


SDI Features

- Accepts serial digital 4:2:2 component video (YCbCr)
- Provides both a **SERIAL IN** and a **SERIAL OUT** BNC connector
- Includes status LEDs for signal and error
- SMPTE 259M compatible

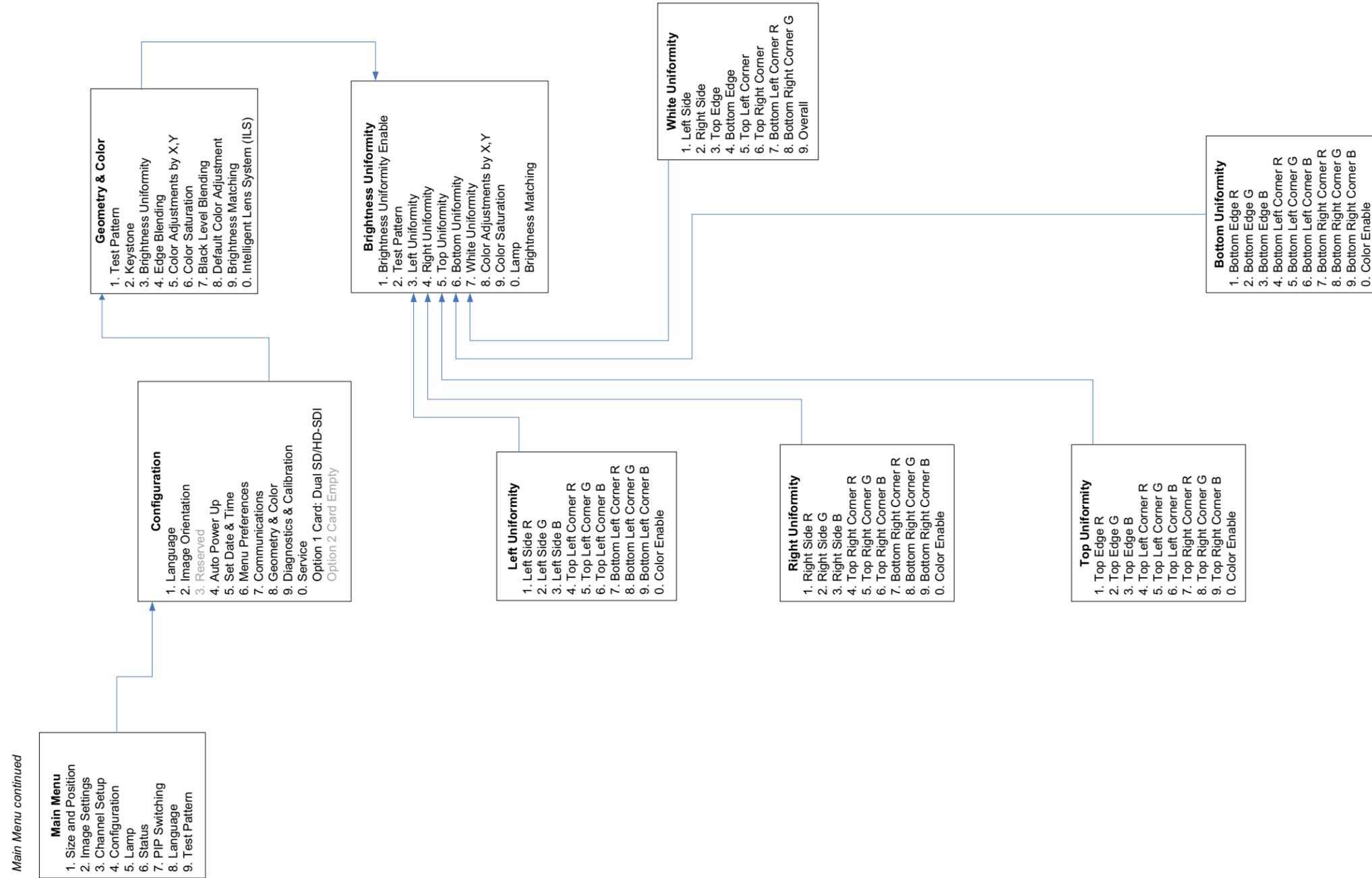
Menu Tree

The following menu tree provides a graphical representation of the software menu structure for the Roadster, Matrix, and Mirage S+/HD/WU models. This allows you to quickly locate and navigate to a specific menu, and associated options/secondary menus.









Corporate offices

USA – Cypress
ph: 714-236-8610
Canada – Kitchener
ph: 519-744-8005

Worldwide offices

United Kingdom
ph: +44 118 977 8000
Germany
ph: +49 2161 664540
France
ph: +33 (0) 1 41 21 44 04

Hungary/Eastern Europe
ph: +36 (0) 1 47 48 100
Singapore
ph: +65 6877 8737
Shanghai
ph: +86 21 6278 7708

Beijing
ph: +86 10 6561 0240
Korea
ph: +82 2 702 1601
Japan
ph: +81 3 3599 7481