

User Guide
020-102649-02

Crimson

Mirage HD25, Mirage WU25, Crimson HD25, Crimson
WU25

CHRISTIE®

NOTICES

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GENERAL

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WARRANTY

Products are warranted under Christie's standard limited warranty, the complete details of which are available by contacting your Christie dealer or Christie. In addition to the other limitations that may be specified in Christie's standard limited warranty and, to the extent relevant or applicable to your product, the warranty does not cover:

- a. Problems or damage occurring during shipment, in either direction.
- b. Problems or damage caused by combination of a product with non-Christie equipment, such as distribution systems, cameras, DVD players, etc., or use of a product with any non-Christie interface device.
- c. Problems or damage caused by misuse, improper power source, accident, fire, flood, lightning, earthquake, or other natural disaster.
- d. Problems or damage caused by improper installation/alignment, or by equipment modification, if by other than Christie service personnel or a Christie authorized repair service provider.
- e. Use of third party product enclosures for environmental protection during outside use must be approved by Christie.
- f. Problems or damage caused by use of a product on a motion platform or other movable device where such product has not been designed, modified or approved by Christie for such use.
- g. Except where the product is designed for outdoor use, problems or damage caused by use of the product outdoors unless such product is protected from precipitation or other adverse weather or environmental conditions and the ambient temperature is within the recommended ambient temperature set forth in the specifications for such product.
- h. Defects caused by normal wear and tear or otherwise due to normal aging of a product.

The warranty does not apply to any product where the serial number has been removed or obliterated. The warranty also does not apply to any product sold by a reseller to an end user outside of the country where the reseller is located unless (i) Christie has an office in the country where the end user is located or (ii) the required international warranty fee has been paid.

The warranty does not obligate Christie to provide any on site warranty service at the product site location.

PREVENTATIVE MAINTENANCE

Preventative maintenance is an important part of the continued and proper operation of your product. Failure to perform maintenance as required, and in accordance with the maintenance schedule specified by Christie, will void the warranty.


REGULATORY

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.

CAN ICES-3 (A) / NMB-3 (A)

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

ENVIRONMENTAL

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!

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Introduction

This manual is intended for professionally trained operators of Christie high-brightness projection systems.

Only Christie qualified technicians who are knowledgeable about the hazards associated with high-voltage, ultraviolet exposure, and the high temperatures generated by the projector are authorized to assemble, install, and service the projector.

For complete Crimson product documentation and technical support, go to www.christiedigital.com.

Safety and warning guidelines

Read all safety and warning guidelines before installing or operating the projector.

This projector must be operated in an environment that meets the operating range specification. Use only the attachments and/or accessories recommended by Christie. Use of others may result in the risk of fire, shock, or personal injury.



Warning! If not avoided, the following could result in death or serious injury.

- This product must be operated in an environment that meets the operating range as specified in this document.
- FIRE HAZARD! Keep hands, clothes, and all combustible material away from the concentrated light beam of the projector.
- Keep fingers and other body parts away from the moving parts in the product. Tie back long hair, and remove jewelry and loose clothing before manually adjusting the product.
- FIRE AND SHOCK HAZARD! Use only the attachments, accessories, tools, and replacement parts specified by Christie.
- Do not operate the product without a lens installed.
- Always use a lens plug when installing or moving the product. This prevents contaminants from entering the product.
- FIRE AND SHOCK HAZARD! Use only the attachments, accessories, tools, and replacement parts specified by Christie.



Caution! If not avoided, the following could result in minor or moderate injury.

- TRIP OR FIRE HAZARD! Position all cables where they cannot contact hot surfaces, be pulled, be tripped over, or damaged by persons walking on or objects rolling over the cables.

Installation safety and warning guidelines

Read all safety and warning guidelines before installing the projector.



Warning! If not avoided, the following could result in death or serious injury.

- Possible hazardous optical radiation emitted from this product. (Risk group 3)
- High leakage current present when connected to IT power systems.
- Christie products must be installed and serviced by Christie qualified technicians.
- Do not operate the product without all of its covers in place.
- A minimum of four people or appropriately rated lift equipment is required to safely lift, install, or move the product.
- Always install safety straps when the frame and projector are installed overhead.
- Observe load ratings and applicable local safety codes.
- When installing the projector in portrait mode, the rigging device must have a sufficient load rating, as identified in this manual.
- This product must be installed within a restricted access location not accessible by the general public.
- Install the product so users and the audience cannot enter the restricted area at eye level.
- Only personnel who are trained on the precautions for the restricted access location can be granted entry to the area.
- Only Christie qualified technicians are permitted to open product enclosures.



Caution! If not avoided, the following could result in minor or moderate injury.

- ELECTRICAL and BURN HAZARD! Use caution when accessing internal components.
- Only Christie qualified technicians are authorized to use the tools provided in the toolbox.

AC/power precautions

Read all safety and warning guidelines before connecting to AC power.



Warning! If not avoided, the following could result in death or serious injury.

- SHOCK HAZARD! Only use the AC power cord provided with the product or recommended by Christie.
- FIRE AND SHOCK HAZARD! Do not attempt operation unless the power cord, power socket, and power plug meet the appropriate local rating standards.
- SHOCK HAZARD! Do not attempt operation if the AC supply is not within the specified voltage and current, as specified on the license label.
- SHOCK HAZARD! The AC power cord must be inserted into an outlet with grounding.
- SHOCK HAZARD! Disconnect the product from AC before installing, moving, servicing, cleaning, removing components, or opening any enclosure.
- Install the product near an easily accessible AC receptacle.
- The appliance coupler and main power supply plug must be easily accessible for disconnecting the product from the power source.



Caution! If not avoided, the following could result in minor or moderate injury.

- FIRE HAZARD! Do not use a power cord, harness, or cable that appears damaged.
- FIRE OR SHOCK HAZARD! Do not overload power outlets and extension cords.
- SHOCK HAZARD! Power supply uses double pole/neutral fusing.

Laser safety precautions

Read all safety and warning guidelines before operating the projector laser.



Warning! If not avoided, the following could result in death or serious injury.

- LASER RADIATION HAZARD! This projector has a built-in Class 4 laser module. Never attempt to disassemble or modify the laser module.
- Possible hazardous optical radiation emitted from this product. (Risk group 3)
- Only Christie qualified technicians who are knowledgeable about the hazards associated with laser use, high-voltage, and high temperatures generated by the product are authorized to assemble, install, and service the Christie Laser Projection System.
- Do not look directly into the lens when the light source is on. The extremely high brightness can cause permanent eye damage.
- Do not operate the product without all of its covers in place.

Light intensity hazard distance

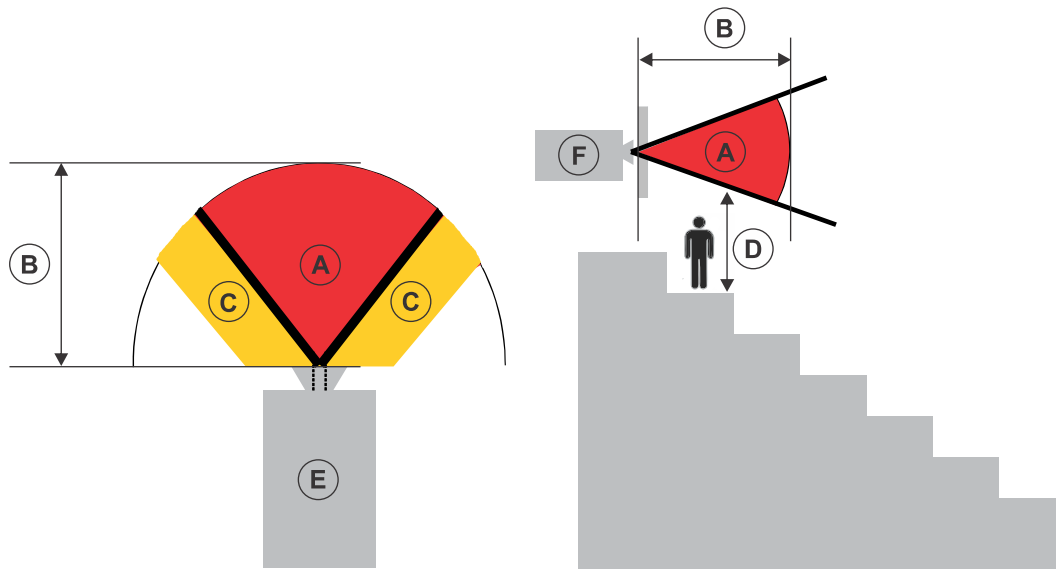
This projector has been classified as Risk Group 3 as per the IEC 62471:2006 standard due to possible hazardous optical and thermal radiation being emitted.



Warning! If not avoided, the following could result in serious injury.

- PERMANENT/TEMPORARY BLINDNESS HAZARD! No direct exposure to the beam must be permitted. Class 1 Laser Product - Risk Group 3 according to IEC 60825-1:2014 and IEC 62471:2006.
- PERMANENT/TEMPORARY BLINDNESS HAZARD! Operators must control access to the beam within the hazard distance or install the product at the height that prevents exposure of spectators' eyes within the hazard distance. The hazard zone must be no lower than 3.0 meters above the floor and the horizontal clearance to the hazard zone must be a minimum 2.5 meters.
- EXTREME BRIGHTNESS! Do not place reflective objects in the product light path.

The following diagram and table show the zones for ocular and skin hazard distances:



- A—Hazard zone. The region of space where the projection light from the laser-illuminated projector is above emission limits for Risk Group 2. The light intensity may cause eye damage after a momentary or brief exposure (before a person can avert his or her eyes away from the light source). The light may cause skin burns to occur.
- B—Hazard distance. Operators must control access to the beam within the hazard distance or install the product preventing potential exposure of the spectators' eyes from being in the hazard distance.
- C—No access zone. Horizontal clearance of the no access zone must be a minimum of 2.5 meters.
- D—Vertical distance to hazard zone. The hazard zone must be no lower than 3.0 meters above the floor.
- E—Represents the top view of the projector.
- F—Represents the side view of the projector.

For US market only, hazard distances based upon FDA guidance document 1400056, *Classification and Requirements for Laser Illuminated Projectors (LIPs)*, dated February 18, 2015:

Projection lens	Part number	Hazard distance (m)
0.37:1 HD ILS lens	118-131106-XX	1.0
0.67:1 HD ILS lens	118-100110-XX	1.0
0.8-1.16 HD ILS lens	118-130105-XX	1.2
1.1:1 HD ILS lens	118-100117-XX	1.0
1.16-1.49:1 HD ILS lens	118-100111-XX	2.0
1.4-1.8:1 HD ILS lens	118-100112-XX	2.9
1.8-2.6:1 HD ILS lens	118-100113-XX	3.1
2.6-4.1:1 HD ILS lens	118-100114-XX	5.4
4.1-6.9:1 HD ILS lens	118-100115-XX	10.7

Projection lens	Part number	Hazard distance (m)
6.9-10.4:1 HD ILS lens	118-100116-XX	18.6

For all other markets, hazard distances based upon IEC 62471-5:2015, *Photobiological safety of lamps and lamp systems – Part 5: Image projectors*:

Projection lens	Part number	Hazard distance (m)
0.37:1 HD ILS lens	118-131106-XX	1.0
0.67:1 HD ILS lens	118-100110-XX	1.0
0.8-1.16 HD ILS lens	118-130105-XX	1.0
1.1:1 HD ILS lens	118-100117-XX	1.0
1.16-1.49:1 HD ILS lens	118-100111-XX	1.0
1.4-1.8:1 HD ILS lens	118-100112-XX	1.1
1.8-2.6:1 HD ILS lens	118-100113-XX	1.8
2.6-4.1:1 HD ILS lens	118-100114-XX	2.3
4.1-6.9:1 HD ILS lens	118-100115-XX	6.3
6.9-10.4:1 HD ILS lens	118-100116-XX	12.6

For Installations in the United States

The following must be in place for laser-illuminated projector installations in the United States:











- Any human access to the hazard zone, if applicable, must be restricted by barriers to enforce the no access zone.
- Permanent show installations containing Risk Group 3 laser-illuminated projectors must meet the following conditions:
 - Installed by Christie or by Christie-authorized and trained installers.
Refer to the Laser Illuminated Projector - Class 1 Risk Group 3 Installation training (Course code: CF-LIPI-01) on the <http://www.christieuniversity.com> site.
 - Performed according to instructions provided by Christie.
 - Ensure the projection system is securely mounted or immobilized to prevent unintended movement or misalignment of the projections.
- Temporary show installations containing Risk Group 3 laser-illuminated projectors may be installed by Christie or sold or leased only to valid laser light show variance holders (laser light show manufacturers) for image projection applications. Such manufacturers may currently hold a valid variance for production of Class IIIb and IV laser light shows and/or for incorporation of the Risk Group 3 laser-illuminated projectors into their shows. This requirement applies also to dealers and distributors of these laser-illuminated projectors.
- The Christie Laser Projection System Installation Checklist must be fully completed after the installation and sent to lasercompliance@christiedigital.com. A copy can remain on-site. This checklist can be found as a separate document in the accessory box with the manual.
- If installing in the US states of Arizona, Florida, Georgia, Illinois and Massachusetts, go to www.christiedigital.com for additional regulatory requirements.

Product labels

Learn about the labels that may be used on the product. Labels on your product may be yellow or black and white.

General hazards

Hazard warnings also apply to accessories once they are installed in a Christie product that is connected to power.

Fire and Shock Hazard	
	<p>To prevent fire or shock hazards, do not expose this product to rain or moisture.</p> <p>Do not alter the power plug, overload the power outlet, or use it with extension cords.</p> <p>Do not remove the product enclosure.</p> <p>Only Christie qualified technicians are authorized to service the product.</p>
Electrical Hazard	
	<p>Risk of electric shock.</p> <p>Do not remove the product enclosure.</p> <p>Only Christie qualified technicians are authorized to service the product.</p>
	<p>General hazard.</p>
	<p>Electric shock hazard. To avoid personal injury, disconnect all power sources before performing maintenance or service.</p>
	<p>Electrocution hazard. To avoid personal injury, always disconnect all power sources before performing maintenance or service procedures.</p>
	<p>Hot surface hazard. To avoid personal injury, allow the product to cool for the recommended cool down time before performing maintenance or service.</p>
	<p>Burn hazard. To avoid personal injury, allow the product to cool for the recommended cool down time before performing maintenance or service.</p>
	<p>Moving parts hazard. To avoid personal injury, keep hands clear and loose clothing tied back.</p>
	<p>Fan hazard. To avoid personal injury, keep hands clear and loose clothing tied back. Always disconnect all power sources before performing maintenance or service procedures.</p>
	<p>Voltage hazard. To avoid personal injury, always disconnect all power sources before performing maintenance or service procedures.</p>



Not for household use.

Mandatory action



Consult the service manual.



Disconnect all power sources before performing maintenance or service procedures.

Electrical labels



Indicates the presence of a protective earth ground.

Laser labels

Christie Digital Systems Canada Inc.
809 Wellington Street North
Kitchener, ON N2G 4Y7
Canada

This product complies with 21 CFR 1040.10 and 1040.11 as a Risk Group 3 LIP as defined in IEC 62471:2006 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007 and with respect to those characteristics authorized by Variance Number 2016-V-1838 effective June 20, 2017.

U.S.A Only

FDA laser variance (US projectors only)

IEC60825-1:2014 Class 1 Laser Product Risk Group 3

Warning! Do not look into the beam. No direct eye exposure to the beam is permitted. Not for household use. RG3 Hazard Distance. Refer to the manual.

Avertissement! Ne regardez pas à l'intérieur du faisceau. L'exposition directe des yeux au faisceau est interdite. RG3 Distance à risque: Consultez le manuel.

警告! 请勿直视光束。不可让光束直射到眼睛。RG3 危害距离: 请参阅手册

警告! ビームを見ないこと。ビームへの直接暴露は禁止されています。RG3 障害距離: 取扱説明書を参照

경고! 광선을 들여다보지 마십시오. 광선에 눈이 직접 노출되는 것은 허용되지 않습니다. RG3 위험 거리: 설명서 참조

Indicates a light hazard. Do not look directly into the lens. The extreme high brightness can cause permanent eye damage. Class 1 Laser Product - Risk Group 3 according to IEC 60825-1: 2014 and IEC 62471:2006

Projector overview

Learn about the Crimson projector.

Crimson is a professional quality, easy-to-use 3DLP® laser phosphor projector. The high-brightness Crimson is designed to meet the special demands found in large venues, live events, and high-usage environments. Featuring an IP5X-sealed, solid-state laser light source in a rugged and compact chassis, Crimson provides years of reliable and virtually maintenance-free operation. Add to this the enhanced color performance of Christie BoldColor Technology and the ultra-fast processing of Christie TruLife™ electronics making Crimson the go-to solution for demanding, large venue events and applications.

Contact your dealer

Record the information about your projector and keep this information with your records to assist with the servicing of your projector. If you encounter a problem with your Christie projector, contact your dealer.

Purchase record	
Dealer:	
Dealer or Christie Sales/Service contact phone number:	
Projector serial number:	
The serial number can be found on the license label located on the display panel	
Purchase date:	
Installation date:	
Ethernet settings	
Default gateway	
Projector IP address	
Subnet mask	

Key features

Understand the important features of the projector.

- Long-life laser source of up to 20,000 hours of virtually maintenance-free operation
- Features enhanced color performance and saturation over standard laser phosphor projection with Christie BoldColor technology
- Compatible with existing suite of M and J Series fixed and zoom lenses
- Compatible with Christie Mystique for simplified design, installation, and maintenance of complex setups
- Omnidirectional operation for unrestricted design and installation flexibility
- Side access to optical adjustments
- TruLife electronics provide for ultra-fast processing up to 60 Hz

- Built-in warp and blend capabilities
- Full-color LCD display to provide information at-a-glance
- Integrated keypad control interface
- Electromechanical shutter

How the projector works

Crimson accepts a variety of input signals for projection on front or rear projection screens, typical in commercial or other large screen applications.

High-brightness light is generated by a laser phosphor system, then modulated by three Digital Micromirror Device (DMD) panels responding to incoming data streams of digitized red, green and blue color information. As these digital streams flow from the source, light from the corresponding “on” pixels of each panel is reflected, converged and then projected to the screen through one or more projection lenses, where all pixel reflections are superimposed in sharp full-color images.

List of components

Verify all components were received with the projector.

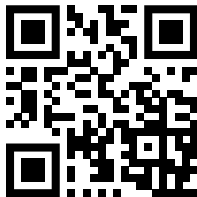
- Power cord for full brightness
- Power cord for limited power
- IR remote keypad

Product documentation

For installation, setup, and user information, see the product documentation available on the Christie Digital Systems USA Inc. website. Read all instructions before using or servicing this product.

Crimson HD25 and Crimson WU25

1. Access the documentation from the Christie website:
 - Go to this URL: bit.ly/2nOplCa.
 - Scan the QR code using a QR code reader app on a smartphone or tablet.



2. On the product page, select the model and switch to the **Downloads** tab.

Mirage HD25 and Mirage WU25

1. Access the documentation from the Christie website:

- Go to this URL: bit.ly/2C6H4HZ.
- Scan the QR code using a QR code reader app on a smartphone or tablet.



2. On the product page, select the model and switch to the **Downloads** tab.

Related documentation

Additional information on the projector is available in the following documents.

- *Crimson and Mirage Installation and Setup Guide (P/N: 020-102647-XX)*
- *Crimson and Mirage Product Safety Guide (P/N: 020-102648-XX)*
- *Crimson and Mirage Specifications Guide (P/N: 020-102724-XX)*
- *Crimson and Mirage Service Guide (P/N: 020-102733-XX)*
- *Crimson and Mirage Serial Commands Guide (P/N: 020-102660-XX)*
- *Crimson and Mirage Status System Guide (P/N: 020-102661-XX)*

Site requirements

To safely install and operate the projector, the installation location must have restricted access for authorized personnel only and meet these minimum requirements.

Physical operating environment

Provides specifications for the operating environment.

- Ambient temperature (operating) 5 to 40°C (41 to 104°F) up to 1500 ft
- Humidity (non-condensing) 10 to 80%
- Operating altitude: 10,000 ft maximum at 5 to 25 degrees Celsius ambient

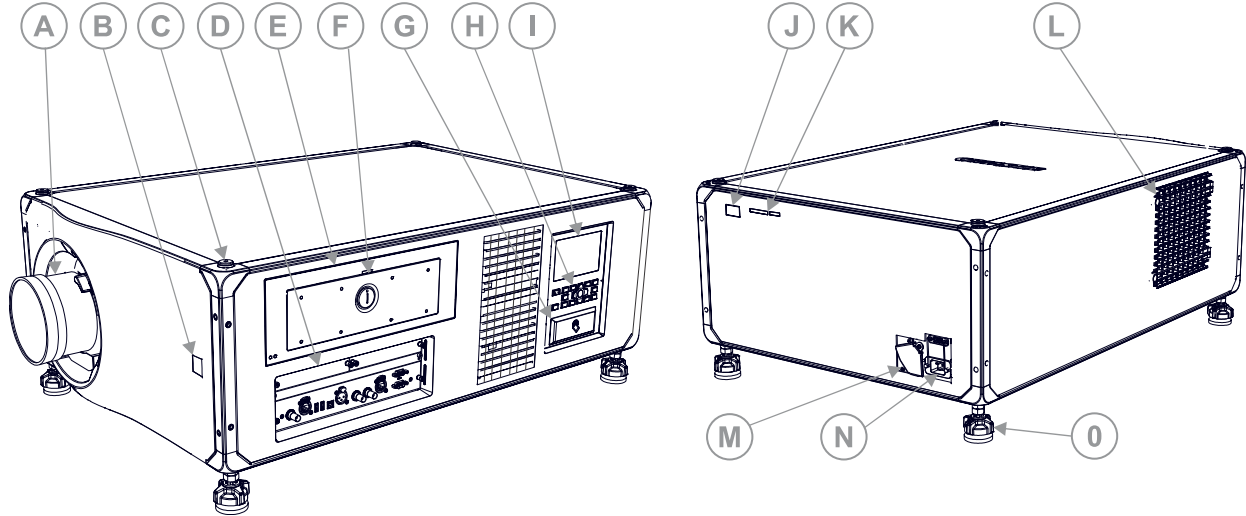
Power connection

The projector uses an innovative dual AC inlet power system that offers two power modes.

To operate at full brightness, power the projector using AC Input 1 if the appropriate high power source is available. To operate in limited power mode, power the projector using standard lower power sources using AC Input 2. A different power cord is provided for each power source. A 20 A rated wall breaker is required at the installation when using Input 1. A 15 A rated wall breaker is required at the installation when using Input 2.

Projector components

Identify the main components of the projector.

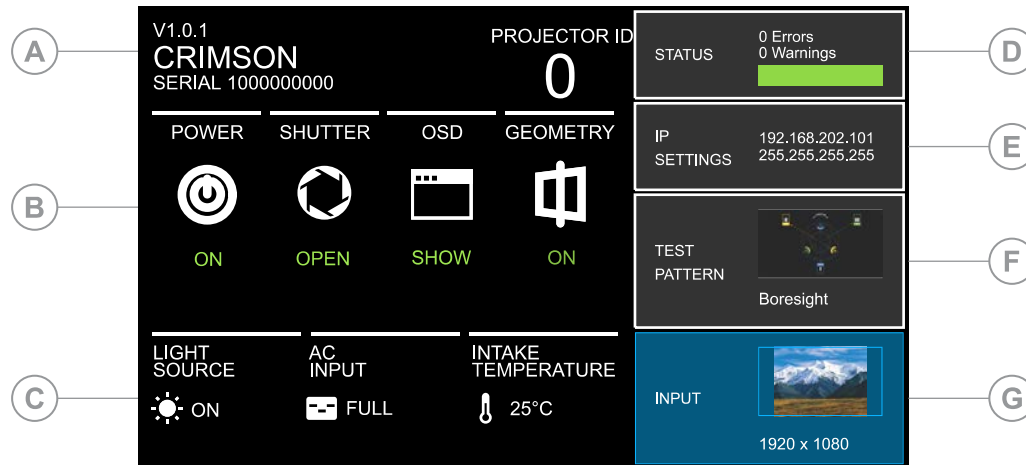


ID	Component	Description
A	Projection lens	A variety of lenses can be used with the projector. Available lenses are listed in the <i>Crimson and Mirage Specifications Guide (P/N: 020-102724-XX)</i> .
B	Front IR	Receives transmissions from the IR remote.
C	Mounting and rigging holes.	M12 x 1.75 holes for projector feet installation and offer mounting and rigging points. Four holes located on the top, and four located on the bottom.
D	Communication and input panel	Connects media sources to either the ports on the option cards or the IMXB.
E	Service compartment	Access to fold mirror, optical zoom/focus, and DMD convergence adjustments.
F	Tool box	Provides tools for Christie qualified technicians.
G	Christie TAP	Enables Android devices to communicate with the projector using near field communication.
H	Keypad interface	Controls the projector.
I	Display panel	Displays the projector menus and status.
J	Rear IR	Receives transmissions from the IR remote.
K	LED and shutter LED status indicator	Indicates power status and shutter status.
L	Air Filter door	Provides access to the air filter.
M	AC Input 2: limited power	For use in limited power mode.
N	AC Input 1: full power	For use in full power mode.

ID	Component	Description
O	Adjustable feet	Raise or lower these feet when positioning the projector to make sure it is level on all sides so the displayed image appears rectangular without any keystone.

Display panel components

Identify the main components of the display panel (also known as the home page).

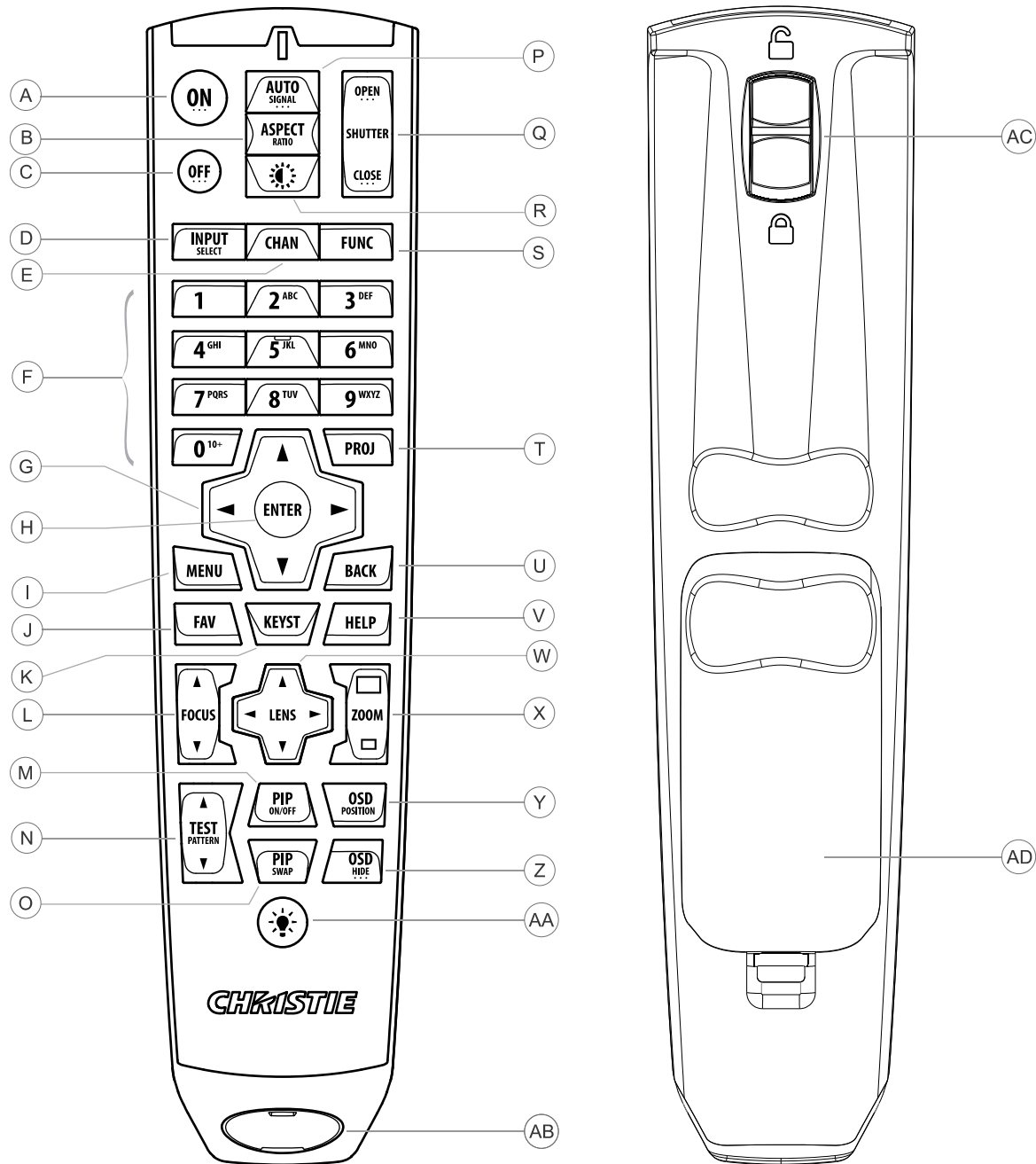


ID	Component	Description
A	Projector Information	Provides information about the projector such as the projector name, serial number, software version, and projector ID.
B	Projector and Component Controls	Indicates the states of the projector and its components.
C	Power and Temperature	Indicates the light source mode, power mode, and intake temperature.
D	Status	Contains information about the health of the projector including the number of warnings and errors. Provides access to the status system.
E	IP Settings	Displays the IP address and subnet values. Provides access to changing the IP settings.
F	Test Pattern	Displays the currently selected test pattern. If no test pattern is selected, Off is displayed. Provides access to the list of test patterns.
G	Input	Displays the signal for the currently selected input. Provides access to the list of input signals.

IR remote keypad

The IR remote keypad controls the projector by way of wireless communications from a battery-powered infrared (IR) transmitter.

To use the IR remote, direct the keypad toward the projector's front or rear IR sensor and press a function key. One of the two IR sensors on the projector detect the signal and relay the commands for internal processing. The remote also offers a connector for wired connections to the projector.



Button	Description
A	Powers on the projector light source.
B	Opens the aspect ratio dialog.
C	Turns off the light source and puts the projector in standby.
D	Selects an active or inactive input on any slot.
E	Not supported.
F	Enter a number, such as menu, item index or value.
G	Use the arrows to navigate within a menu or to adjust settings.
H	Selects a highlighted menu item and changes or accepts a value.
I	Toggles the menus on/off.
J	Not supported.
K	Opens the keystone dialog.
L	Adjusts the lens focus.
M	Not supported.
N	Displays a test pattern.
O	Not supported.
P	Optimizes the image automatically.
Q	Opens or closes the shutter.
R	Not supported.
S	Initiates a custom action when a number is selected.
T	Selects a projector in multi-projector installations.
U	Returns to the previous menu level or exits menus if at the top level.
V	Displays context-sensitive help.
W	Arrows adjust the lens offset.
X	Adjust the lens zoom.
Y	Opens the on-screen display position menu.
Z	Shows or hides the on-screen display menus.
AA	Turns the remote backlight on.
AB	Male 3-pin XLR connector for wired option.
AC	Lock/unlock the keypad.
AD	Battery door.

Turning the projector on

When the projector AC power supply is plugged in, the power is on.




Warning! If not avoided, the following could result in death or serious injury.

- **SHOCK HAZARD!** Do not attempt operation if the AC supply is not within the specified voltage and current, as specified on the license label.

1. Plug the projector in to AC power.

The projector automatically powers on to standby mode when plugged in. The display panel functionality becomes available.

2. To turn the light source on using the projector keypad, press and hold the power  button until you hear a beep.

To turn on the light source using the remote, press and hold the **ON** button until you hear a beep.

Projector LED status indicators

Identify the LED state colors and meaning.

LED	State		Description
Blue	Solid	Standby	Light source is off. Video electronics are off. Projector status is OK.
	Flashing	Cool down	Projector is moving to one of the two standby states: <ul style="list-style-type: none"> • Light source is off and video electronics are booting up. • Light source is off. Video electronics and light source is cooling down.
Green	Solid	Light source on	Light source is on. Projector status is OK.
	Flashing	Startup	Projector is moving to light source on state. Light source is warming up. Video electronics are initializing.
Yellow	Solid	Warning in standby	Projector is in standby state. A problem exists with the projector that does not prevent it from operating.
	Flashing yellow/green	Warning during startup	Projector is in a startup state. A problem exists with the projector that does not prevent it from operating.
	Flashing	Warning with light source on	Light source is on. A problem exists with the projector that will not cause it to shut down.
	Flashing yellow/blue	Warning during cool down	Projector is in a cool down state. Light source is off. Video electronics and light source are cooling down. A problem exists with the projector that does not prevent it from operating.
Red	Solid	Error in standby	Projector is in standby. An error exists that prevents the projector from starting up.

LED	State	Description	
	Flashing	Error	An error with the projector exists during startup, cool down, or when the light source is off. Projector will proceed to shut down.
Off		AC off	The AC power is off.


Projector LED shutter indicators

Identify the shutter LED state colors and meaning.

LED	State	Description
Solid magenta	Shutter closed	The shutter is closed. In standby, the shutter is always automatically closed and the magenta light is muted.
Off	Shutter open	The shutter is open.

Turning the projector off

When powering off in preparation for inspection or maintenance, always disconnect from AC.

1. To turn the light source off using the projector keypad, press and hold the  button until you hear a beep.
To turn off the light source using the remote, press and hold the **OFF** button until you hear a beep.
When powering off the projector, allow the projector to complete its cool down cycle. Do not immediately unplug the projector if this can be avoided.
2. To turn off power to the projector, disconnect from AC power.

Adjusting the image

Adjust the projector image. Christie recommends warming the lens before completing these procedures as focus may change as the lens warms.

Selecting screen image orientation

Specify the orientation to use for the image. The projector supports front projection, rear projection, front projection inverted, or rear projection inverted.

1. Select **MENU > Image Settings > Image Orientation**.
2. Select the required orientation from the list.
3. To confirm your selection, press **Enter**.

Setting the image resize preset

Set the image resize preset to determine if an image will display in its native resolution or will resize by maximizing the height, width, both height and width, or to the maximum size while keeping the original aspect ratio.

1. Select **MENU > Image Settings > Size & Position > Resize Presets**.
2. Select the appropriate resize preset:
 - **Auto**—Maximize for current source.
 - **No Resizing**—Display in native resolution.
 - **Full Size**—Fill the screen, regardless of source.
 - **Full Width**—Fill display width and keep aspect ratio.
 - **Full Height**—Fill display height and keep aspect ratio.
3. Select **Enter**.

Adjusting lens settings

Adjust various lens settings including the offset, zoom, focus, and locking the lens motor.

Adjusting offset

Adjust the offset to align the image on the screen. Always adjust offset before adjusting boresight.



For the best optical performance and minimal keystone, use offsets instead of aiming at the center of the image, in off-axis installations. Avoid extreme tilts or offsets. Corner vignettes on a white test pattern indicate extreme offset that should be avoided using mechanical alignment.

1. Project an image with the primary lens.

2. Select a framing test pattern.
3. Select **LENS OFFSET**.
4. Use the arrows to adjust the offset to display a square image on the screen, with minimal projector aiming error.
5. To exit to the home page, select **Back**.

Resetting the lens to home position

Set the lens offset back to the home position.

1. Select **LENS OFFSET**.
You can also select **MENU > Configuration > Lens Settings > Lens Offset**.
2. To reset the lens to the default home position, select **Enter**.
3. To confirm the reset, select **OK**.

Aligning the image with lens zoom and focus

Ensure that the image reflected from the digital micromirror device (DMD) is parallel and centered with the lens and screen.

1. Display an image or test pattern that can be used to analyze image focus and geometry.
2. Select **ZOOM**.
You can also select the zoom function from **MENU > Configuration > Lens Settings > Zoom**.
3. Use the up and down arrows to zoom in or out of the image.
4. To exit, select **Back**.
5. Select **FOCUS**.
You can also select the focus function from **MENU > Configuration > Lens Settings > Focus**.
6. Use the up and down arrows to adjust the focus of the image.
7. To exit, select **Back**.
8. To refine your adjusts, repeat steps 2 to 7.

Locking the lens motor

Prevents all lens motors from moving. It disables the zoom, focus, and offset settings, locking out any changes and overriding all other lens features. This feature prevents accidental lens position changes in multi-projector installations.

1. Select **MENU > Configuration > Lens Settings > Lock all Lens Motors**.
2. To enable locking of all lens motors, select **Enter**.

Determining what lens warnings are displayed

Controls the level of lens warnings displayed.

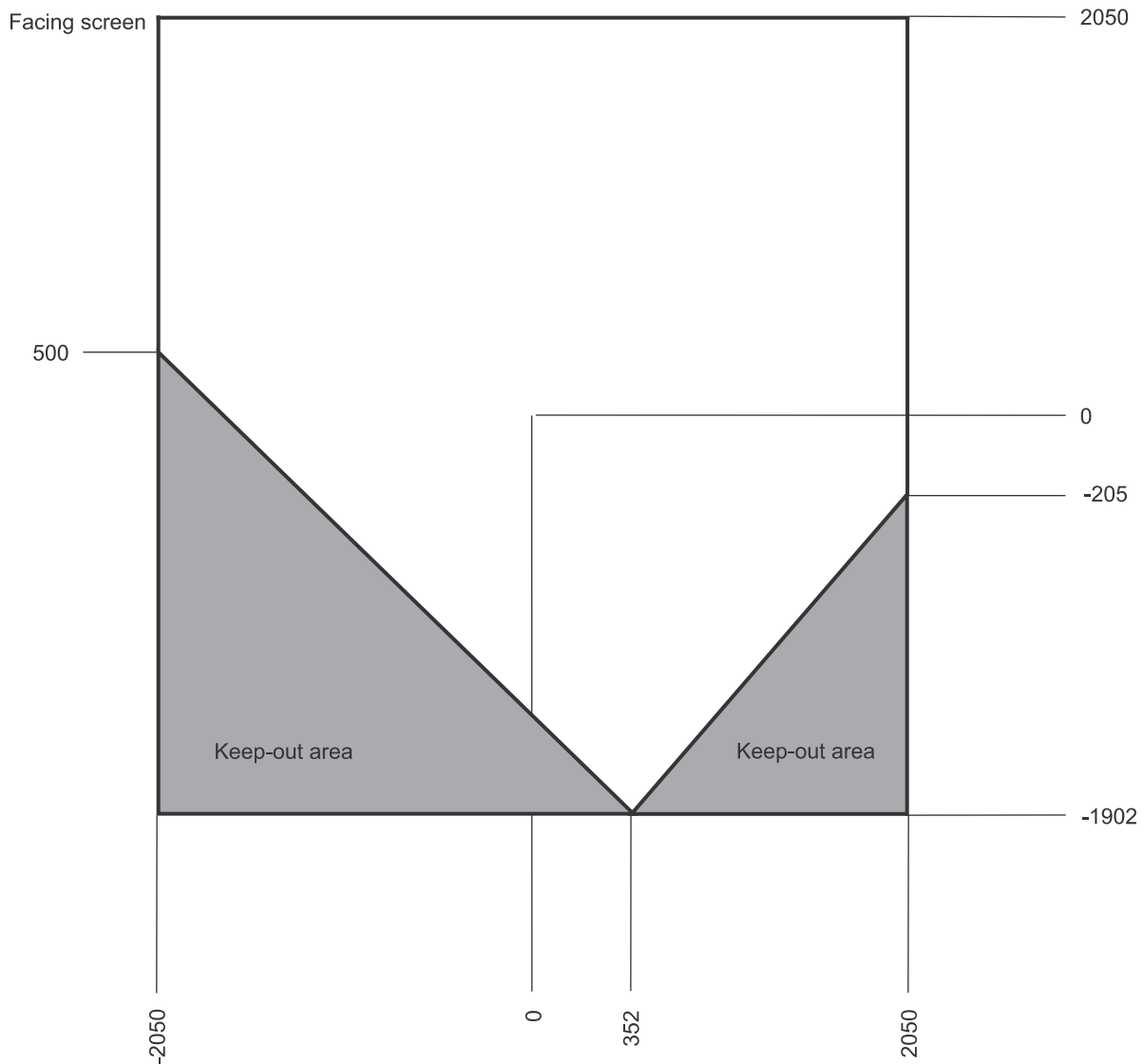
1. Select **MENU > Configuration > Lens Settings > Lens Warnings**.
2. Select the appropriate lens warning level:

- **Show All Warnings**—Shows all lens warnings.
- **Hide Zoom Motor Warnings**—Hides zoom motor warnings.
- **Hide Detection Warnings**—Hides lens detection warnings. Christie recommends selecting this option when using a third-party lens.

3. Select **Enter**.

Lens control limitations

The projector has keep-out areas for the lens position, illustrated below. When adjusting the lens offset, these regions are unavailable to prevent interference and potentially damage of internal components.



Adjusting light output settings

Optimize the projector's native color balance.

1. Select **MENU > Admin > Service > Light Combiner Adjustment**.
2. Enter the service password.
3. To adjust the projector brightness, select **Light Output Power**.
4. Set the **Color Correction Mode** to **Max Drives** before modifying any of the R/G/B adjustment controls.
5. Use the slider to increase and decrease the projector brightness and select **Enter**.
6. To adjust the red color balance, select **Red Adjustment**.
7. Use the slider to increase and decrease the red color balance and select **Enter**.
8. To adjust the green color balance, select **Green+Red Adjustment**.
The red color balance is also affected because the spectrum of the green phosphor includes some red light.
9. Use the slider to increase and decrease the green and red phosphor and select **Enter**.
10. To adjust the blue color balance, select **Blue Adjustment**.
11. Use the slider to increase and decrease the blue color balance and select **Enter**.
12. Refer to *Adjusting primary colors* (on page 26) and *DMD color correction* (on page 27) after adjusting the light output settings.
R/G/B drive adjustments will affect the Color Primary Settings.
13. To configure different color balance settings depending on the **Light Output Power** setting, use the *Setting up projector profiles* (on page 47) feature.

Setting fade time

Configure projector shuttering options.

1. Select **MENU > Configuration > Light & Output Settings > Fade Time (S)**.
2. Use the slider to increase and decrease the timer and select **Enter**.
To shutter immediately, set the **Fade Time** to 0.00s.

Adjusting primary colors

Calibrate the accuracy of primary colors, which can change because of lighting and environmental factors.

All primary colors in the projector are precisely set to pre-established values to ensure overall color performance is optimized and is as accurate as possible. Lighting and other environmental factors may slightly change how these colors appear on your screen. While the change is negligible in most cases, you may prefer to recover the originally intended color performance before trying to match colors from several projectors.

To achieve consistency use a color meter to measure the native primary colors—red, green, blue, and white—as they appear on the screen. On the basis of these new values, which are stored in memory, each projector automatically calculates any necessary corrections to reproduce the original factory colors under the current environmental conditions. This essentially calibrates a projector to its

surroundings, compensating for factors such as screen type, light source and/or ambient lighting, and improves color accuracy and consistency in a group of projectors. It ensures a good starting point for further customizing and matching; however, is not critical for all installations.

1. From the display panel, select **MENU > Admin > Service**.
2. Enter the service password.
3. Select **Color Primary Settings**.
4. To edit the primary colors, select **Edit Primary Colors**.
5. Adjust the slider or enter the measured color values of the primary color component you selected.
6. To confirm your selection, select **Enter**.
7. Repeat steps 5 and 6 for each primary color component.
8. To view a specific color while adjusting, select **Show Color Pattern**.
9. Select the appropriate color and select **Enter**.
10. To reset the primary colors to their defaults, select **Reset Color Primaries**.
11. At the confirmation prompt, select **OK**.

DMD color correction

Adjust the DMD color values as required.

Adjusting color by precise chromaticity values

Change the values of the primary color components.

1. Select **MENU > Configuration > Color Correction by x,y**.
2. Adjust the slider or enter the measured color values of the primary color component you selected.
3. To confirm your selection, select **Enter**.
4. Repeat steps 2 and 3 for each primary color component.
5. To view a specific color while adjusting, select **Show Color Pattern**.
6. Select the appropriate color and select **Enter**.

Adjusting color by saturation

Change the strength of the primary color in relation to the other primary colors.

1. Select **MENU > Configuration > Color Saturation**.
2. Adjust the value of the primary color you selected by using more or less of it in relation to the other primary colors.
3. To confirm your selection, select **Enter**.
4. Repeat steps 2 and 3 for each primary color.
5. To view a specific color while adjusting, select **Show Color Pattern**.
6. Select the appropriate color and select **Enter**.

Signal color correction

Adjust the video signal color as required.



For best results, Christie recommends setting all color and gamma settings to **Auto Detect**.

Adjusting the color space

Determine how the color components are decoded for accurate color in the display.

1. Select **MENU > Image Settings > Color & Gamma > Color Space**.
2. Select the adjustment most suited to the input signal:
 - Auto Detect
 - RGB (Full Range)
 - RGB (Limited Range)
 - YCbCr HDTV (Expanded Range)
 - YCbCr JPEG (Full Range)
 - YCbCr UHD TV (ITU-R BT.2020)
 - YCbCr UHD TV (ITU-R BT.2020) (Full Range)
 - YCbCr HDTV (ITU-R BT.709)
3. Select **Enter**.

Adjusting color by temperature

Adjust the color temperature as expressed in degrees Kelvin.

1. Select **MENU > Image Settings > Color & Gamma**.
2. Select **Color Temperature**.
3. Adjust the slider to change the light to warmer or cooler and select **Enter**.

Adjusting color values based on gamma function

The gamma function options adjust the color values of the inputted signal to give you a more detailed picture.

1. Select **MENU > Image Settings > Color & Gamma > Gamma Function**.
2. Select the appropriate option:
 - Auto Detect
 - sRGB
 - ITU-R BT-1886
 - HDR/PQ (SMPTE ST 2084)
 - Power Law Function
 - Classic
3. Select **Enter**.

Selecting the color correction mode

Select the color correction mode most suited to the input signal.

1. Select **MENU > Image Settings > Color & Gamma > Color Correction Mode**.
2. Select the adjustment most suited to the input signal:
 - **Auto Detect**—Automatically detect the appropriate color correction mode, where possible.
 - **Max Drives**—All color adjustments are turned off, allowing the projector to run at maximum brightness.
 - **Color Temperature**—Specify a color temperature between 3200 and 9300, expressed in degrees Kelvin.
 - **HD Video**—Set the output color to a specific standard value. Adjusts the colors red, green, blue, and white.
 - **DCI P3**—Set the DCI P3 (cinema) colorimetry with DCI white point.
 - **DCI P3 (D65)**—Set the DCI P3 colorimetry with D65 white point.
 - **Custom**—Select a user defined set of color adjustments.
3. Select **Enter**.

Correcting for ambient light

Ambient light is the natural light that occurs in the environment where the projector is located.

1. Select **MENU > Image Settings > Color & Gamma > Ambient Light Correction**.
2. Select **Enter**.
3. Use the right and left arrows to adjust how the image displays in conditions with ambient light.
4. To confirm your selection, select **Enter**.

Setting the frame delay

Delay the output signal timing relative to the input signal timing by a fraction of a frame, and up to several frames.

The minimum latency can vary based on the amount of scaling applied to the image. When using keystone or warping, an additional latency is required, depending on the amount of warp.

1. Select **MENU > Image Settings > Advanced Image Settings > Frame Delay**.
2. To set the frame delay, select **Set Delay**.
3. Adjust the value and to confirm your selection, select **Enter**.
4. To set the achievable frame delay, select **Actual Delay**.
5. Adjust the value and to confirm your selection, select **Enter**.

Enabling film mode detect

Enables or disables the detection of film motion.

1. Select **MENU > Image Settings > Advanced Image Settings > Film Mode Detect**.

2. To enable the detection of film motion, select **Auto Detect**.
3. To disable the detection of film motion, select **Disabled**.
4. Select **Enter**.

Adjusting the image sharpness

Change the sharpness of the image.

Lower settings can improve a noisy signal. Setting the sharpness above the halfway point can introduce noise in the image.

1. Select **MENU > Image Settings > Advanced Image Settings > Sharpness**.
2. Select **Enter**.
3. Use the right and left arrows to adjust the sharpness of the image.
4. To confirm your selection, select **Enter**.

Creating a seamless image with edge blending

Combine several projected images into one single, seamless image with edge blending.

Adding edge blends to the projector

Use Christie Twist or Mystique to create edge blends and upload them to Crimson.

1. Create an edge blend file using the Christie Twist or Mystique application.
To connect Crimson with Christie Twist or Mystique, use port 3003.
Christie Twist Premium, Twist Pro, and Mystique offer advanced warping options. Refer to the Christie website (www.christiedigital.com) for product information and documentation.
2. Upload the edge blend file to the projector.
3. On one projector, select **MENU > Configuration > Edge Blending**.
4. Select the appropriate edge blend setting and select **Enter**.
5. Repeat steps 2 to 4 for the remaining projectors.
6. To turn off edge blending, from **MENU > Configuration > Edge Blending**, select **Off**.

Enabling basic edge blending

Create basic edge blends directly on Crimson.

1. Start with two projectors and display the full white field test pattern from both.
2. On one projector, select **MENU > Configuration > Edge Blending**.
3. To enable basic edge blending, select **Basic**.
4. To edit blending adjustments, select **Edge Blend Widths**.
5. From the Basic Blending dialog, select a side to blend.
6. To make the blending adjustments, use the arrow keys to change either the vertical and horizontal values as appropriate.

7. To accept the selection, select **Enter**.
8. Repeat steps 4 to 6 to blend the remaining sides.
9. When all adjustments are made, use the arrow keys to highlight **Apply** and select **Enter**.
10. Repeat steps 2 to 9 for the remaining projectors.
11. To turn off basic edge blending, from **MENU > Configuration > Edge Blending**, select **Off**.

Resetting edge blending

Reset the edge blending to revert any edge blends.

1. Select **MENU > Configuration > Edge Blending**.
2. Select **Reset Edge Blends**.
3. At the confirmation prompt, select **Reset**.

Blending black levels for multiple projectors

Use black level blending to modify the brightness of non-blended regions to match the elevated brightness levels of the blended regions.

You can adjust the black level intensity of multiple adjacent projected images to create one large seamless display.

Enabling black level blending

Enable black level blending to eliminate the differences between black levels when edge blending multiple projectors.

1. Select **MENU > Configuration > Black Level Blending > Black Level Blending Mode**.
2. Select **Basic**.
To disable black level blending, select **MENU > Configuration > Black Level Blending > Black Level Blending Mode > Off**.

Adjusting the black level blends

Control how the edges of adjacent images are overlapped to create a seamless image.

1. Start with a minimum of two projectors and display the full black field test pattern from each projector.
2. On one projector, select **MENU > Configuration > Black Level Blending > Black Level Blend Widths**.
3. Set the black level blend widths of the top, bottom, left, or right edges (depending on which edge of the projector you are working with to black level blend).
 - To use the widths set by the edge blend, select **Use Edge Blend Width Values**. This option is selected by default.
 - To manually set the widths, use the arrow keys to enter the pixel values.

On the on-screen display or web UI, you can enter the number directly in the field using the remote or keyboard.

4. Select **Apply**.
5. Select **MENU > Configuration > Black Level Blending > Black Level Blend Offset**.
6. To adjust the brightness and black hues of the blended region, use the arrow keys to enter the pixel values.
On the on-screen display or web UI, you can enter the number directly in the field using the remote or keyboard.
7. If using the web UI, you can adjust the brightness and black hues in more detail by modifying the values in the Fine Adjustment and Course Adjustment fields.
8. Select **Apply**.
9. Repeat steps 2 to 8 for the remaining projectors.

Resetting black level blending

Reset the black level blending to revert any black level blends.

Pressing **Func+Help** on the IR remote keypad disables all geometry corrections (warping, keystone, and black level blending) without changing the settings associated with them.

1. Select **MENU > Configuration > Black Level Blending**.
2. Select **Reset Black Level Blends**.
3. At the confirmation prompt, select **Reset**.
After the reset, the black level blend offsets are set to 0, **Use Edge Blend Width Values** checkbox is selected, and the edge blend values are used; however, the black level blend widths are not set to zero.

Geometry correction

Modify the geometry for all sources.

Enabling warping

Use warping to project images on any surface shape.

1. Create a warp file using the Crimson Twist or Mystique application.
To connect Crimson with Twist or Mystique, use port 3003.
Christie Twist Premium, Twist Pro, and Mystique offer advanced warping options. Refer to the Christie website (www.christiedigital.com) for product information and documentation.
2. Upload the warp file to the projector.
3. Select **MENU > Configuration > Geometry Correction > Geometry Correction Mode**.
4. Select the appropriate warp setting and select **Enter**.
5. To turn off warping, from **MENU > Configuration > Geometry Correction > Geometry Correction Mode**, select **Off**.
Pressing **Func+Help** on the IR remote keypad disables all geometry corrections (warping, keystone, and black level blending) without changing the settings associated with them.

Correcting the shape of a keystoneed image

Keystone effect occurs when you project an image onto the screen at an angle and the projector is not centered on the screen. The image appears distorted and resembles a trapezoid.

To correct the shape of a keystoneed image, use the keystone options available in the geometry correction menu. Perform coarse keystone adjustments by using the horizontal or vertical settings. It may not be possible to match the screen dimensions with the horizontal and vertical keystone controls but you can refine these settings by adjusting the 2D keystone settings.

Enabling keystone adjustments

Enable keystone corrections to correct the shape of a keystoneed image.

1. Select **MENU > Configuration > Geometry Correction > Geometry Correction Mode.**

2. Select **Keystone.**

Any keystone adjustments previously set are enabled.

To disable keystone adjustments, select **MENU > Configuration > Geometry Correction > Geometry Correction Mode > Off.**

Adjusting the image with 2D keystone

2D keystone distorts the projected image both vertically and horizontally simultaneously and resembles a trapezoid.

Adjusting horizontal or vertical keystone correction after 2D keystone erases the 2D keystone settings; however, performing 2D keystone after horizontal or vertical correction retains the previous keystone setting.



1. Select **MENU > Configuration > Geometry Correction > Geometry correction Mode.**
2. Select **2D Keystone Correction.**
3. From the correction dialog, select the corner to adjust.
4. To make the keystone adjustments, use the arrow keys to change both the vertical and horizontal values.
5. Select **Apply Changes.**

Adjusting vertical keystone

Use vertical keystone to correct a keystoneed image shape in which the top and bottom borders of the image are unequal in length, and both sides of the image are inclined toward the top or bottom edge.

If vertical keystone adjustments have been made, starting horizontal keystone adjustments erases the vertical settings.

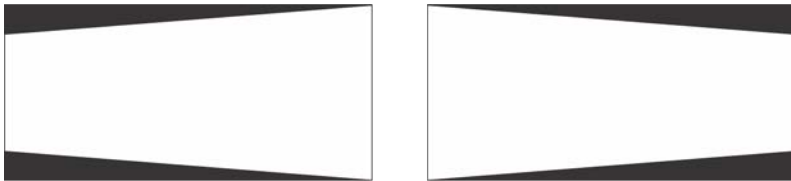


1. Select **MENU > Configuration > Geometry Correction > Geometry Correction Mode.**
2. Select **Vertical Keystone Correction.**
3. From the correction dialog, adjust the vertical keystone by using the arrow keys.
4. Select **Apply Changes.**

Adjusting horizontal keystone

Use horizontal keystone to correct a keystone image shape in which the left and right borders of the image are unequal in length, and the top and bottom are slanted to one of the sides.

If horizontal keystone adjustments have been made, starting vertical keystone adjustments erases the horizontal settings.



1. Select **MENU > Configuration > Geometry Correction > Geometry Correction Mode.**
2. Select **Horizontal Keystone Correction.**
3. From the correction dialog, adjust the horizontal keystone by using the arrow keys.
4. Select **Apply Changes.**

Resetting keystone correction

Reset keystone to revert the distorted image shape back to default values.

Pressing **Func+Help** on the IR remote keypad disables all geometry corrections (warping, keystone, and black level blending) without changing the settings associated with them.

1. Select **MENU > Configuration > Geometry Correction.**
2. Select **Reset Keystone Correction.**
3. At the confirmation prompt, select **Reset.**

Configuring system settings

Learn how to configure the system settings.

Setting the date

Configure the date on Crimson.

1. Select **Menu > System Settings**.
2. Select **Date**.
3. Use the up and down keys to adjust the year (YYYY), month (MM), and day (DD).

Setting the time

Configure the time on Crimson.

1. Select **Menu > System Settings**.
2. Select **Time**.
3. Use the up and down keys to adjust the hour (HH), minutes (MM), and seconds (SS).

Changing the splash screen

Select the color displayed on the screen.

1. Select **MENU > System Settings > Splash Screen Settings > Background Color**.
2. Select a splash screen background color:
 - Black
 - Red
 - Green
 - Blue
3. Select **Enter**.

Determining the on-screen display position

Choose one of the pre-defined locations for the display of the on-screen menus.

1. Select **MENU > System Settings > Menu Preferences > OSD Position**.

2. Select the location on the screen where you want the on-screen display menus to appear.
3. Select **Enter**.

Changing the language

Choose the language you want displayed on projector display panel and on-screen display.

1. Select **MENU > Languages**.
You can also select the language from **MENU > System Settings > Menu Preferences > Languages**.
2. Select **Enter**.
3. Select the appropriate language and select **Enter**.
The change takes effect immediately.

Changing the temperature units

Set if the temperature is measured in Celsius or Fahrenheit.

1. Select **MENU > System Settings > Menu Preferences > Temperature Units**.
2. Select the temperature unit: **Celsius** or **Fahrenheit**.
3. Select **Enter**.

Resuming projector operation after an AC power interruption

If an AC power interruption occurs while Auto Power Up is enabled, the projector will resume operation in the same state it was prior to the loss of power.

1. Select **MENU > System Settings > Power Settings**.
2. Select **Auto Power Up**.
3. To enable automatically powering up the projector after an AC interruption, select **Enter**.

Keeping electronics on in standby mode

When the projector is placed in standby mode, the light source will be turned off but the electronics will remain on.

1. Select **MENU > System Settings > Power Settings**.
2. Select **Keep Electronics On In Standby**.
3. To enable electronics remaining on in standby mode, select **Enter**.

Enabling direct pass-through of HDMI, 3G, and DisplayPort input signals

Allow the signals from HDMI, 3G, and DisplayPort inputs to pass through another projector.

1. Select **MENU > Configuration > Input Settings > Enable Video Loop Out.**
2. To enable passing HDMI, 3G, and DisplayPort input signals through to another projector, select **Enter.**

Informing the source of signal preferences

Configure Crimson to automatically inform the video source of the preferred signal formats.

1. If you need a specific frame rate, from the display panel, select **MENU > Configuration > Input Settings > EDID Timing.**
2. Select the required EDID timing and select **Enter.**
60 Hz is the default EDID timing.

Adjusting laser power

Change the power of the laser.

1. Select **MENU > Configuration > Light Combiner > Maser Laser Power.**
2. Press **Enter.**
3. To adjust the laser power, use the slider.
4. To confirm your selection, select **Enter.**

Adjusting the mix of red, blue, and green laser

Adjust the mix of the red, blue, and green lasers.

1. Select **MENU > Configuration > Light Combiner.**
2. Adjust the value of the laser color you selected by using more or less of it in relation to the other two colors.
3. To confirm your selection, select **Enter.**
4. Repeat steps 2 and 3 for each laser color.

Configuring communications

Defines and controls how single or multiple projectors are linked with each other and with a controlling device.

Enabling projector communication

Enable the receivers and the wired keypad to communicate with the projector from the remote.

The front and rear IR sensors receive transmissions from the IR remote. Keep the transmission path to these sensors unobstructed for uninterrupted communications with the projector.

Alternatively, you can connect a wired version of the remote to the connector on the IMXB labeled Wired Keypad.

1. Select **MENU > Communications > Projector Communications**.
2. To assign the projector an ID, select **Projector ID**.
3. Use the up and down keys to enter the projector ID.
4. Select **Enter**.
5. To enable the front IR sensor, select **Front IR Enabled** and select **Enter**.
6. To enable the rear IR sensor, select **Rear IR Enabled** and select **Enter**.
7. To enable a wired version of the remote, select **Wired Keypad Enabled** and select **Enter**.
By default this feature is enabled.
8. To enable HD control for video signals, Ethernet, or IR, select **HDBaseT IR Extender Enabled** and select **Enter**.

Setting the remote access level

Determine if and how the projector can be accessed remotely for the RS232 port or the Ethernet.

1. From the display panel, select **MENU > Admin > Service**.
2. Enter the service password.
3. To determine the remote access for the Ethernet port, select **Remote Access Level (Ethernet)**.
4. Select the appropriate remote access level:
 - No Access
 - Login Required
 - Free Access
5. Select **Enter**.

6. To determine the remote access for the RS232 IN port, select **Remote Access Level (RS232 IN)**.
7. Select the appropriate remote access level:
 - No Access
 - Login Required
 - Free Access
8. Select **Enter**.

Communicating with Crimson through Art-Net

Crimson supports communications through the Art-NET using the Ethernet connector.

1. Select **MENU > Communications > Art-Net Settings**.
2. Verify the **Enable Art-Net** option is disabled.
Disabling Art-Net before configuring it ensures Crimson does not accidentally respond to DMX messages destined for other devices on the network.
3. To specify which subnet the projector belongs to, in the Art-Net Subnet field adjust the value between 0 and 15.
The subnet provides expandability beyond the universe level.
4. To confirm your selection, select **Enter**.
5. To specify which universe the projector belongs to, so it can filter out all other data packets, in the Art-Net Universe field, adjust the value between 0 and 15.
For Art-Net, data is broadcast over an Ethernet network, so every device receives every packet of data, whether the device belongs to that universe or not.
6. To confirm your selection, select **Enter**.
7. To determine the starting channel for this projector, in the Base Channel field, adjust the value between 1 and 488.
If multiple projectors are used on the same universe and are to be controlled independently, this value must be changed. For example, if both projectors are using the Shutter (20 channels), projector 1 should start at base channel 1 and projector 2 should start at base channel 21.
8. To confirm your selection, select **Enter**.
9. Select **Enable Art-Net**.
10. To enable the Art-Net functionality, select **Enter**.

Art-Net channel listing

There are 512 channels per universe. Crimson specifies 24 channels.



Crimson has multiple methods of being controlled in addition to Art-Net. If a setting is changed through another interface, the DMX controller can re-assert control by changing the value on the appropriate DMX channel.

Channel	Name	Description	Suggested starting position	Notes
1	Slider Lock	0 to 171 = Locked 172 to 255 = Unlocked	0	—
2	Power	0 to 85 = Powers off the projector (goes into Standby mode) 86 to 171 = Cancel timer 172 to 255 = Powers on the projector (switches light source on, warm up mode)	128	Must be valid for five seconds before it is applied.
3	Shutter	0 to 85 = Closes the shutter (black screen) 172 to 255 = Opens the shutter (live video)	255	Christie recommends setting this channel to 255 prior to powering up the projector so it is consistent with the shutter state after the projector is fully on.
4	Lens Shift Enable	0 to 171 = Disables lens shift 172 to 255 = Enables lens shift	—	Locks all lens motors.
5	Zoom (Coarse)	0 = Smallest image possible (0%) 255 = Largest image possible (100%)	128	<ul style="list-style-type: none"> • Locked by the Lens Shift Enable channel. • Scaled as a percentage of the total control range. • A 250 ms delay exists before sending this channel to the projector.
6	Zoom (Fine)			
7	Focus (Coarse)	0 = 0% 255 = 100%	128	<ul style="list-style-type: none"> • Locked by the Lens Shift Enable channel. • Scaled as a percentage of the total control range. • A 250 ms delay exists before sending this channel to the projector.
8	Focus (Fine)			
9	Lens Horizontal Position (Coarse)	0 = Full left position (0%) 255 = Full right position (100%)	128	<ul style="list-style-type: none"> • Locked by the Lens Shift Enable channel. • A 250 ms delay exists before sending this channel to the projector.
10	Lens Horizontal Position (Fine)			
11	Lens Vertical Position (Coarse)	0 = Full lower position (0%)	128	<ul style="list-style-type: none"> • Locked by the Lens Shift Enable channel.

Channel	Name	Description	Suggested starting position	Notes
12	Lens Vertical Position (Fine)	255 = Full upper position (100%)		<ul style="list-style-type: none"> A 250 ms delay exists before sending this channel to the projector.
13	Input	1 to 80 = Input index 86 = Load 91 to 170 = Additional input indices 171 = Execute	0	To change inputs, send the following sequence: Load > Input index > Execute For a list of input indices, see <i>Index list for the input channel</i> (on page 41). Channel 1 slider lock can be used if a keypad is not available for the input selection.
14	Fade Time	0 = 0 seconds 250 = 2.5 seconds	—	Determines the length of time it takes for the shutter to open and close with a fading effect.
15 to 24	Reserved	Reserved for future use.	—	—

Index list for the input channel

the following table provides the index information for the input channel.



Not all options listed in the table are available on all products. Available options depend on the projector model and the cards installed on the projector. The QSFP+ options require the **Enable Christie Link** option to be set.

Input index	Description	Input index	Description
1	One-port [0-1]	44	Four-Port [1-2][2-2][3-2][4-2]
2	One-port [0-2]	45	One-Port, Dual-Input 3D L:[0-1],R:[0-2]
3	One-port [0-3]	46	One-Port, Dual-Input 3D L:[0-3],R:[0-4]
4	One-port [0-4]	47	One-Port, Dual-Input 3D L:[1-1],R:[1-2]
5	One-Port [1-1]	48	One-Port, Dual-Input 3D L:[1-3],R:[1-4]
6	One-Port [1-2]	49	One-Port, Dual-Input 3D L:[2-1],R:[2-2]
7	One-Port [1-3]	50	One-Port, Dual-Input 3D L:[2-3],R:[2-4]
8	One-Port [1-4]	51	One-Port, Dual-Input 3D L:[3-1],R:[3-2]
9	One-Port [2-1]	52	One-Port, Dual-Input 3D L:[3-3],R:[3-4]
10	One-Port [2-2]	53	One-Port, Dual-Input 3D L:[4-1],R:[4-2]
11	One-Port [2-3]	54	One-Port, Dual-Input 3D L:[4-3],R:[4-4]
12	One-Port [2-4]	55	One-Port, Dual-Input 3D L:[1-1],R:[2-1]

Input index	Description	Input index	Description
13	One-Port [3-1]	56	One-Port, Dual-Input 3D L:[1-2],R:[2-2]
14	One-Port [3-2]	57	One-Port, Dual-Input 3D L:[1-3],R:[2-3]
15	One-Port [3-3]	58	One-Port, Dual-Input 3D L:[1-4],R:[2-4]
16	One-Port [3-4]	59	One-Port, Dual-Input 3D L:[3-1],R:[4-1]
17	One-Port [4-1]	60	Two-Port, Dual-Input 3D L:[0-1][0-2],R:[0-3][0-4]
18	One-Port [4-2]	61	Two-Port, Dual-Input 3D L:[1-1][1-2],R:[1-3][1-4]
19	One-Port [4-3]	62	Two-Port, Dual-Input 3D L:[2-1][2-2],R:[2-3][2-4]
20	One-Port [4-4]	63	Two-Port, Dual-Input 3D L:[3-1][3-2],R:[3-3][3-4]
21	One-Port [HDBaseT]	64	Two-Port, Dual-Input 3D L:[4-1][4-2],R:[4-3][4-4]
22	Two-Port [0-1][0-2]	65	Two-Port, Dual-Input 3D L:[1-1][1-2],R:[2-1][2-2]
23	Two-Port [0-3][0-4]	66	Two-Port, Dual-Input 3D L:[3-1][3-2],R:[4-1][4-2]
24	Two-Port [1-1][1-2]	67	Two-Port, Dual-Input 3D L:[1-1][2-1],R:[3-1][4-1]
25	Two-Port [1-3][1-4]	68	Four-Port, Dual-Input 3D L:[1-1][1-2][2-1][2-2],R:[3-1][3-2][4-1][4-2]
26	Two-Port [2-1][2-2]	69	Four-Port, Dual-Input 3D L:[1-1][1-2][1-3][1-4],R:[2-1][2-2][2-3][2-4]
27	Two-Port [2-3][2-4]	70	Four-Port (columns) [0-1][0-2][0-3][0-4]
28	Two-Port [3-1][3-2]	71	Four-Port (columns) [1-1][1-2][1-3][1-4]
29	Two-Port [3-3][3-4]	72	Four-Port (columns) [2-1][2-2][2-3][2-4]
30	Two-Port [4-1][4-2]	73	Four-Port (columns) [3-1][3-2][3-3][3-4]
31	Two-Port [4-3][4-4]	74	Four-Port (columns) [4-1][4-2][4-3][4-4]
32	Two-Port [1-1][2-1]	75	Four-Port (columns) [1-1][1-2][2-1][2-2]
33	Two-Port [3-1][4-1]	76	Four-Port (columns) [3-1][3-2][4-1][4-2]
34	Two-Port [1-2][2-2]	77	Four-Port (columns) [1-1][2-1][3-1][4-1]
35	Two-Port [3-2][4-2]	78	Four-Port (columns) [1-2][2-2][3-2][4-2]
36	Four-Port [0-1][0-2][0-3][0-4]	79	Four-Port (columns), Dual-Input 3D L:[1-1][1-2][2-1][2-2],R:[3-1][3-2][4-1][4-2]
37	Four-Port [1-1][1-2][1-3][1-4]	80	Four-Port (columns), Dual-Input 3D L:[1-1][1-2][1-3][1-4],R:[2-1][2-2][2-3][2-4]
38	Four-Port [2-1][2-2][2-3][2-4]	91	QSFP+ [0-1]
39	Four-Port [3-1][3-2][3-3][3-4]	92	QSFP+ [0-2]
40	Four-Port [4-1][4-2][4-3][4-4]	93	QSFP+ [1-1]
41	Four-Port [1-1][1-2][2-1][2-2]	94	QSFP+ [1-2]
42	Four-Port [3-1][3-2][4-1][4-2]	95	QSFP+ [2-1]

Input index	Description	Input index	Description
43	Four-Port [1-1][2-1][3-1][4-1]	96	QSFP+ [2-2]

Working with macros

Automate tasks in Crimson with macros so the same tasks can be done on a regular basis.



If the date and/or time is changed on the projector, a macro may be unexpectedly executed.

Adding a macro

Create a macro to automate a repetitive task.

Up to 10 macros can be created.



This feature is only available on the web interface.

1. From the home page of the web interface, select **MENU > Macros and GPIO**.
2. Click the **Add Macro**.
If the limit of 10 macros is reached, the **Add Macro** button is disabled and displays a Limit Reached message.
3. In the Name field, enter a meaningful name for the macro.
4. Verify that **Scheduled Event** is listed in the Type list.
5. In the Start Date field, select a date from the calendar.
6. In the Start Time field, use the up and down keys to adjust the hour (HH), minutes (MM), and seconds (SS).
You can also manually enter the hour, minutes, and seconds.
7. To make this a reoccurring event, click **Recurring**.
When enabled, the button appears green. When disabled, the button appears gray.
 - a) To determine the recurrence pattern, under Every, select the day or days of the week you want run the macro.
 - b) Determine the life of the macro.
 - To have the macro run indefinitely, select **No end date**.
 - To run the macro for a defined period of time, in the Recur for field, use the up and down keys to adjust the number of weeks.
You can also manually enter the number of weeks. The limit is 99 weeks.
8. In the Serial Command field, enter the serial command(s) you want to run.
For available serial commands and their syntax, refer to the .
9. To test the functionality, click **Test**.
An `Action succeeded` message is displayed upon a successful test.
10. To save the macro, click **Save**.

Copying a macro

Duplicate a macro to create another macro of similar functionality.

Up to 10 macros can be created.



This feature is only available on the web interface.

1. From the home page of the web interface, select **MENU > Macros and GPIO**.
2. From the list of macros, click **Duplicate** next to the macro you want to copy.



If the limit of 10 macros is reached, the **Duplicate** button is disabled and the **Add Macros** button displays a Limit Reached message.

3. In the Name field, enter a meaningful name for the macro.
4. Modify the appropriate fields.
5. To save the macro, click **Save**.

Editing a macro

Edit the macro if the functionality of the macro has changed.



This feature is only available on the web interface.

1. From the home page of the web interface, select **MENU > Macros and GPIO**.
2. From the list of macros, click **Edit** next to the macro you want to edit.



3. Modify the appropriate fields.
4. To save the macro, click **Save**.

Deleting a macro

Delete one or more macros if they are no longer relevant.



This feature is only available on the web interface.

1. From the home page of the web interface, select **MENU > Macros and GPIO**.
2. From the list of macros, select one or more macros to delete.
To delete all the macros in the list, click **Select All**. the number of macros you want to delete is displayed next to the trash can.

3. Click **Delete**.



4. At the confirmation prompt, click **Delete**.

Configuring the GPIO

The Generic Purpose Input Output (GPIO) provides a flexible method of interfacing with external devices to the projector.

The GPIO is configured to automate real time events. Each of the seven pins is defined as either an input or output depending on the required outcome. The remaining two pins are reserved for ground and power.

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.

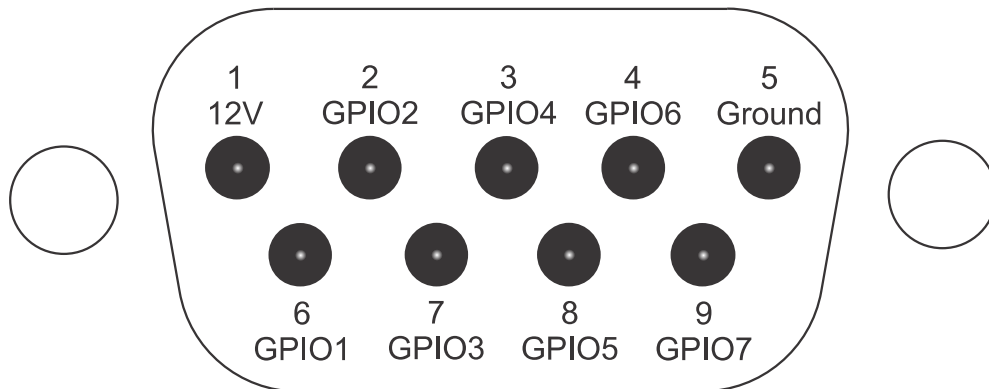


This feature is only available on the web interface.

1. From the home page of the web interface, select **MENU > Macros and GPIO**.
2. Select **GPIO Configuration**.
3. In the GPIO Configuration dialog under Update the New Configuration, toggle the pins you want active for the input and output.
A blue pin indicates input and a green pin indicates output.
4. Select **Apply**.

GPIO connector

The GPIO connector located on the input panel provides a flexible method of interfacing with the projector. Seven GPIO pins are available on the nine pin D-Sub GPIO connector. Two other pins are reserved for ground and power.



D-SUB pin number	Signal	Output high (Voh)	Notes
Pin 1	+12V	—	1A max
Pin 2	GPIO 2	5V	75mA max (e)fused to prevent damage
Pin 3	GPIO 4		
Pin 4	GPIO 6		
Pin 5	Ground	—	—

D-SUB pin number	Signal	Output high (Voh)	Notes
Pin 6	GPIO 1	5V	75mA max (e)fused to prevent damage
Pin 7	GPIO 3		
Pin 8	GPIO 5		
Pin 9	GPIO 7		



All GPIO pins are weakly pulled up to 3.3V.

Setting up projector profiles

Use the projector profiles to store configured settings so you can switch between the profiles as required.

Creating a new projector profile

Save the projector configuration to a profile so you can revert to those saved settings any time. You can save up to 10 projector profiles.

1. Configure the projector settings you want to save to the profile.
2. Select **MENU > Admin > Projector Profiles**.
3. Select an empty profile.
4. Select **New Profile**.
5. Select **Save**.

Importing a projector profile

Import projector profiles set on different projectors using a USB flash drive.

1. Insert the USB flash drive containing the projector profile file into the USB port on the projector.
2. Select **MENU > Admin > Projector Profiles**.
3. Select an empty profile.
4. Select **Import From File**.
5. From the File Selection dialog, select a projector profile file.
The projector profile file is imported to the projector.

Restoring settings from a profile

Return the projector to the configuration specified in a specific projector profile.

1. Select **MENU > Admin > Projector Profiles**.
2. Select an existing profile.
3. Select **Restore Profile**.
4. From the Restore dialog, select the settings you want to restore.
5. Select **Restore**.

Renaming a projector profile

A newly created projector profile is given the name of the projector with the date the profile was saved, for example, . You can change the name of the saved profile to a more meaningful name.

1. Select **MENU > Admin > Projector Profiles**.
2. Select an existing profile.
3. Select **Rename Profile**.
4. Use the up and down keys to enter the new name of the profile.
5. Select **Save**.

Exporting a projector profile to an external device

Save the projector settings to a USB flash drive.

1. Insert a USB flash drive (properly formatted as FAT) into the USB port on the projector.
2. Select **MENU > Admin > Projector Profiles**.
3. Selecting an existing profile.
4. Select **Export to File**.
A default name is assigned.
5. Select **Download USB**.
The profile file is exported to the USB flash drive.

Deleting a projector profile

If the settings in the projector profile are no longer relevant, delete the profile.

1. Select **MENU > Admin > Projector Profiles**.
2. Select the profile you want to delete.
3. Select **Delete Profile**.
4. At the confirmation prompt, select **Delete**.

Backup, restore, and upgrade files

Learn how to back up, restore, and upgrade files.

Upgrading the Crimson software

When a new version of the software is released, the must be upgraded.

1. Insert a USB key that contains the software upgrade file.
The USB flash drive must be formatted using the FAT 32 file system.
The upgrade file must be located at the root of the USB key.
2. From the display panel, select **MENU > Admin**.
3. Select **Software > Upgrade**.
4. Select an upgrade file and select **Enter**.
5. To automatically restart Crimson, select **Restart Now**.
If you decide restart Crimson at a later date (**Restart Later**), you cannot perform another upgrade until the Crimson is restarted.

Exporting backup settings to an external device

Save the settings to a USB flash drive.

1. Insert a USB flash drive (properly formatted as FAT) into the USB port on .
2. Select **MENU > Admin > Backup & Restore**.
3. Select **Backup to USB**.
A default name is assigned.
4. To edit the backup file name, select the up arrow and select **Enter**.
5. To save the name, navigate down and select **SAVE**.
The backup file is exported to the USB flash drive.

Importing a file from an external device to restore settings

Restore backed up files, stored on a USB flash drive, onto the projector.

1. Insert the USB flash drive containing the backup file into the USB port on the projector.

2. Select **MENU > Admin > Backup & Restore**.
3. Select **Restore from USB**.
4. From the File Selection dialog, select a file to restore.
The backup settings file is imported to the projector.

Restoring projector default settings

Restore the Crimson settings back to the default values. Network configurations and calibration values are not reset.

1. From the display panel, select **MENU > Admin > Backup & Restore**.
2. Select **Reset Projector Defaults**.
All customized settings are set to the default Crimson settings.

Diagnostic tools

Follow these procedures to help with diagnosing issues with Crimson.

Viewing Crimson information

View the licenses for the software added to Crimson and the licenses of the software used to operate Crimson. The information is read-only.

1. To view the additional software added to Crimson, select **MENU > Admin > Licenses**.
2. To view the software licenses used to run Crimson, select **MENU > Admin > About**.

Freezing an image

Use the Freeze Image diagnostic tool to examine in detail a still version of an incoming image.

For example, in moving images sometimes it is difficult to observe artifacts such as external de-interlacing/resizing and signal noise.

1. Select **MENU > Admin > Diagnostics**.
2. To enable freezing of an image, select **Freeze Image** and select **Enter**.
3. To return to normal operation, select **Enter** again to clear the checkbox.

Test patterns

Use the projector to assist with configuration of the projector and to diagnose any issues that may occur.

Selecting a test pattern

21 test patterns are available to assist with the configuration of the projector and to diagnose any issues that may occur.

1. From the side panel home page, use the arrows to select **Test Pattern**.
You can also select the test patterns from **MENU > Test Pattern** or **MENU > Diagnostics > Test Pattern**.
2. Scroll through the list of test patterns.
3. Select the required test pattern.
4. To confirm your selection, select **Enter**.

Modifying grey level test pattern characteristics

Set the level of grey displayed in the full grey test patterns.

1. Select **MENU > Admin > Diagnostics**.
2. Select **Test Pattern**.
3. Select one of the grey test patterns: GREY SCALE 16 or FLAT GREY.
4. Select **Enter**.
5. To change the grey scale of the test pattern, select **Test Pattern Grey Level** and adjust the slider to the value you want.
6. To confirm your selection, select **Enter**.

Modifying ramp test pattern characteristics

Modify the characteristics for the associated ramp video signal test patterns.

1. Select **MENU > Admin > Diagnostics**.
2. Select **Test Pattern**.
3. Select one of the ramp test patterns: RGBW RAMP, HORIZONTAL RAMP, VERTICAL RAMP, or DIAGONAL RAMP.
4. Select **Enter**.
5. To enable movement of the test pattern, select **Test Pattern Ramp Motion** and select **Enter**.
6. To change the slope of the ramp test pattern, select **Test Pattern Ramp Slope** and adjust the slider to the value you want.
7. To confirm your selection, select **Enter**.
8. To change the level of the ramp test pattern, select **Test Pattern Ramp Level** and adjust the slider to the value you want.
9. To confirm your selection, select **Enter**.

Modifying grid test pattern characteristics

Modify the characteristics for the associated grid test patterns.

1. Select **MENU > Admin > Diagnostics**.
2. Select **Test Pattern**.
3. Select one of the grid test patterns: SQUARE GRID or DIAGONAL GRID.
4. Select **Enter**.
5. To change the pitch of the grid test pattern, select **Test Pattern Grid Pitch** and adjust the slider to the value you want.
6. To confirm your selection, select **Enter**.
7. To change the color of the grid, select **Test Pattern Grid Color** and select **Enter**.
8. To enable movement of the test pattern, select **Test Pattern Grid Motion** and select **Enter**.

Enabling a specific test pattern color

You can enable a specific test pattern color to eliminate one or more colors to help with certain diagnostics and setups, such as overlaying one image on top of another from stacked projectors.

1. From the side panel home page, use the arrows to select **Test Pattern**.
You can also select the test patterns from **MENU > Test Pattern**.
2. Select the **Flat White** test pattern.
3. To confirm your selection, select **Enter**.
4. On the IR remote keypad, press **Func+6+<0 to 7>**.
Where <0 to 7> represents a specific color.

Managing custom test patterns

Custom test patterns provide flexibility and greater control when adjusting images and diagnosing issues with the projector.

Importing custom test patterns

Import custom test patterns using a USB flash drive. Custom test patterns must have the .png file extension and be the same resolution as the projector.



This feature is only available on the display panel and on-screen interfaces.

1. Insert the USB flash drive containing the projector custom test pattern file into the USB port on the projector.
2. **MENU > Diagnostics > Manage Custom Test Pattern**.
3. Select an empty test pattern slot.
4. Select **Enter**.
5. Scroll through the list and select a custom test pattern.
The custom test pattern is imported to the projector.

Renaming a custom test pattern

A newly imported custom test pattern profile is given the name of the file you imported. You can change the name of the saved profile to a more meaningful name.



This feature is only available on the display panel and on-screen interfaces.

1. **MENU > Diagnostics > Manage Custom Test Pattern**.
2. Select an existing custom test pattern.
3. Make sure the **Edit** icon is highlighted.
To toggle between the **Edit** and **Delete** functions, use the Left and Right arrows.
4. Use the up and down keys to enter the new name of the custom test pattern.
5. Select **Save**.

Deleting a custom test pattern

If the custom test pattern is no longer relevant, delete the test pattern.



This feature is only available on the display panel and on-screen interfaces.

1. **MENU > Diagnostics > Manage Custom Test Pattern.**
2. Select an existing custom test pattern.
3. Make sure the **Delete** icon is highlighted.
To toggle between the **Edit** and **Delete** functions, use the Left and Right arrows.
4. Select **Enter**.

Viewing Crimson status

Alarms contain information about the values of the items operating in normal range, warnings, and errors that can be reported by the status system of Crimson.

1. From the display panel, select **Status**.
You can also view the statuses from **MENU > STATUS**.
2. Scroll to the status category you want to view and select it.

Running the Crimson interrogator

The interrogator captures diagnostic information Christie personnel uses to help diagnose and correct any issues.

1. Insert a USB flash drive in the USB port on Crimson.
The USB flash drive must be formatted using the FAT 32 file system.
2. From the display panel, select **MENU > Admin > Interrogator**.
3. Select **Run**.
The interrogator file is stored at the root directory on the USB flash drive.
4. At the completion prompt, select **OK**.

Identifying where alarm and trap messages are sent

Configure the email address and SNMP trap destination where alarms are recorded.

Creating a distribution mailing list for SNMP alerts means that changes to the people receiving the emails does not require a change to the MIB browser configuration.

Setting the SNMP read community string

The SNMP read community string is similar to a userid or password that allows access to the device.

1. Select **MENU > Communications > SNMP > SNMP Read Community**.

2. Use the up and down arrows to enter the read community string.
3. To confirm your selection, select **Enter**.

Configuring traps

A trap is a condition that SNMP monitors on Crimson.

1. Select **MENU > Communications > SNMP > Trap Configuration**.
2. Select the trap you want to enable and select **Enter**.

The available traps are:

- Fan Stall
- Thermal Sensors
- Power

3. To enable additional traps, repeat step 2.

Defining a trap IP address

When a trap condition is met, a notification is sent using an SNMP notification to one or more specified IP addresses.

1. Select **MENU > Communications > SNMP**.
2. Select **Address 1**.
3. Use the up and down arrows to enter an IP address.
4. To confirm the address, select **Enter**.
5. To add a second and third IP address, repeat steps 2 to 4 for **Address 2** and **Address 3**.

Restoring factory default settings

Restoring factory settings removes all custom device settings.

Only Christie qualified technicians can reset factory defaults.

1. From the display panel, select **MENU > Admin > Service**.
2. Enter the service password.
3. Select **Reset Factory Defaults**.
All customized settings are set to the default factory settings.
4. At the confirmation prompt, select **Reset**.

Regulatory

This product conforms to the latest regulations and standards related to product safety, environmental, and electromagnetic compatibility (EMC) requirements.

Safety

- CAN/CSA C22.2 No. 60950-1-07 - Information Technology Equipment – Safety – Part 1: General Requirements
- ANSI/UL 60950-1 - Information Technology Equipment – Safety – Part 1: General Requirements
- IEC 60950-1 IEC/EN 60950-1 - Information Technology Equipment – Safety – Part 1: General Requirements
- IEC 62471-1 - Photobiological safety of lamps and lamp systems
- IEC/EN 60825-1 – Safety of Laser Products – Part 1: Equipment Classification and Requirements
- IEC/EN 62471-5 - Photobiological safety of lamps and lamp systems – Part 5: Image projectors

Electro-magnetic compatibility

Emissions

- FCC CFR47, Part 15, Subpart B, Class A - Unintentional Radiators
- CAN ICES-003 (A)/NMB-003 (A) - Information Technology Equipment (Including Digital Apparatus) - Limits and Methods of Measurement
- CISPR 32/EN 55032, Class A - Electromagnetic Compatibility of Multimedia Equipment – Emission Requirements
- IEC 61000-3-2/EN61000-3-2: Limits for Harmonic Current Emissions
- IEC 61000-3-3/EN61000-3-3: Limitations of Voltage Changes, Voltage Fluctuations, and Flicker

Immunity

- CISPR 24/EN55024 EMC Requirements – - Information Technology Equipment - Immunity Characteristics – Limits and Methods of Measurements

Environmental

EU Directive (2011/65/EU) on the restriction of the uses of certain hazardous substances (RoHS) in electrical and electronic equipment and the applicable official amendment(s).

EU Regulation (EC) No. 1907/2006 on the registration, evaluation, authorization and restriction of chemicals (REACH) and the applicable official amendment(s).

EU Directive (2012/19/EU) on waste and electrical and electronic equipment (WEEE) and the applicable official amendment(s).

China Ministry of Information Industry (along with 7 other Government Agencies) Order No.32 (01/2016) on the control of pollution caused by electronic information products, hazardous substances concentration limits (GB/T 26572 - 2011), and the applicable product marking requirement (SJ/T 11364 - 2014).

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