

User Guide
020-103315-14

Christie TruLife+

CHRISTIE[®]

NOTICES

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For the most current technical documentation and office contact information, visit <https://www.christiedigital.com/>.

Warranty

Products are warranted under Christie's standard limited warranty, the details of which are available at <https://www.christiedigital.com/help-center/warranties/> or by contacting your Christie dealer or Christie.

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, voids the warranty. For preventative maintenance schedules, refer to www.christiedigital.com.

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. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

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

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ENVIRONMENTAL



The product is designed and manufactured with high-quality materials and components some of which can be recycled and reused. This symbol  means 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, separate collection systems are for used electrical and electronic products.

If printing this document, consider printing only the pages you need and select the double-sided option.

Please help us to conserve the environment we live in!

Notation

Learn the hazard and information symbols used in the product documentation.



Danger messages indicate a hazardous situation which, if not avoided, results in death or serious injury.



Warning messages indicate a hazardous situation which, if not avoided, could result in death or serious injury.



Caution messages indicate a hazardous situation which, if not avoided, could result in minor or moderate injury.



Notice messages indicate a hazardous situation which, if not avoided, may result in equipment or property damage.



Information messages provide additional information, emphasize or provide a useful tip.

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Introduction

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



The illustrations in this document are for representation only and may not depict your model exactly.

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

For complete Christie TruLife+ product documentation and technical support, go to www.christiedigital.com.

Intended product operation

The Christie M RGB Series and Griffyn® Series products are intended to be operated with LiteLOC™ enabled, calibrated to the product performance specifications, with brightness set using the associated user control slider.

Model names

This guide applies to the following models.

- Christie Eclipse Series
- Christie M RGB Series
- Griffyn® Series
- Sapphire® 4K40-RGBH

What's new in the guide?

The following updates have been made to the guide.

- Added the *Web user interface* (on page 13) topic to provide information on how to use the web user interface (Web UI).
- Added the *Disabling phase locking* (on page 32) topic to provide information on how to enable or disable locking the phosphor wheel speed to the frame rate of the video signal. This topic only applies to Sapphire 4K40-RGBH.
- Added *Managing the light source for Sapphire 4K40-RGBH* (on page 44) topics to provide information on performing sensor-to-screen calibration to measure screen color and brightness and set color accuracy and brightness for your setup. These topics only apply to Sapphire 4K40-RGBH.
- Moved the supported video formats tables to the *TruLife+ Supported Video Formats technical reference* (P/N: 020-104081-XX).

Product documentation

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

1. Access the documentation from the Christie website:
 - Go to this URL: <http://bit.ly/3powZic> or <https://www.christiedigital.com/products/projectors/all-projectors/>.
 - Scan the QR code using a QR code reader app on a smartphone or tablet.



2. Select the projector series.
3. On the product page, select the model and switch to the **Downloads** tab.

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.
- RADIATION HAZARD! Use of controls or adjustments, or performing procedures other than those specified may result in hazardous radiation exposure.
- EXPLOSION HAZARD! Replacement battery must be of the correct type.
- EXPLOSION HAZARD! Dispose of the battery according to local area regulations.



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.

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.

- 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 62471-5:2015.
- 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

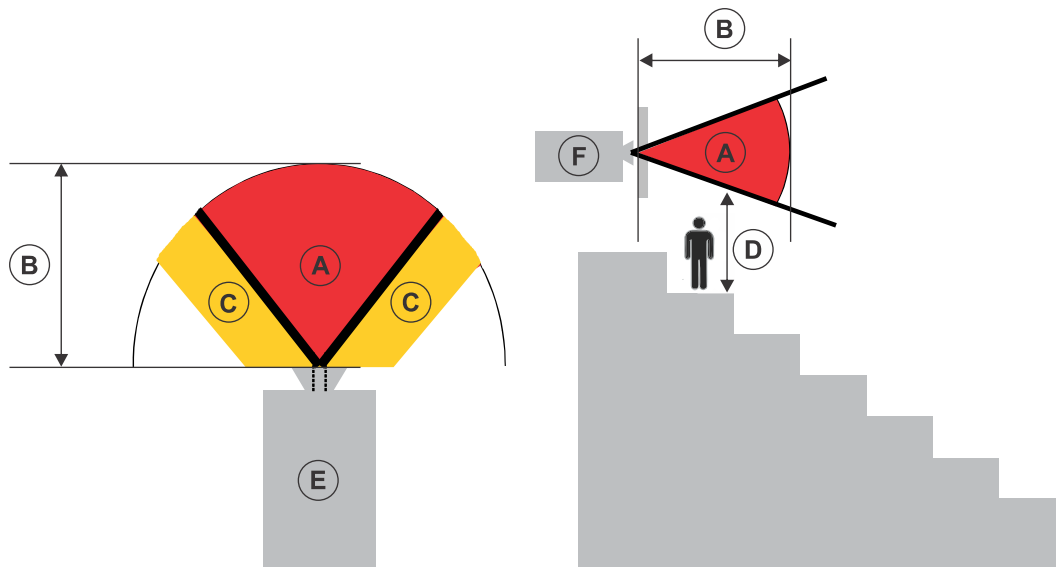
This projector has been classified as Risk Group 3 as per the IEC 62471-5:2015 standard due to possible hazardous optical and thermal radiation being emitted.



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 62471-5:2015.
- 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 (9.8 feet) above the floor and the horizontal clearance to the hazard zone must be a minimum 2.5 meters (8.2 feet).
- EXTREME BRIGHTNESS! Do not place reflective objects in the product light path.

The following show the zones for ocular and skin hazard distances.



- A—Hazard zone. The region of space where the projection light from the 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 their 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 (8.2 feet).
- D—Vertical distance to hazard zone. The hazard zone must be no lower than 3.0 meters (9.8 feet) above the floor.
If the vertical distance to hazard zone requirement (Zone D) is satisfied, the horizontal clearance distance (Zone C) is not needed.
- E—Represents the top view of the projector.
- F—Represents the side view of the projector.

For information detailing the hazard distance for each lens, refer to the product's *Installation and Setup guide*.

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 EXTERNAL - Laser safety awareness training (Course code: CS-ELSA-01) on the <http://www.christieuniversity.com> site.
 - Performed according to instructions provided by Christie.
 - Make sure the projection system is securely mounted or immobilized to prevent unintended movement or misalignment of the projections.
- A copy of the FDA variance approval letter must be with the operator or other responsible individual.
- 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.
- For temporary installations, the FDA variance holder must maintain complete records of all show itineraries with dates, locations, operator name, and contact information clearly and completely identified.
- 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.
- Certain US states have additional laser regulatory requirements. Contact lasercompliance@christiedigital.com for additional regulatory requirements.

Technical support

Technical support for Christie Enterprise products is available at:

- North and South America: +1-800-221-8025 or *Support.Americas@christiedigital.com*
- Europe, Middle East, and Africa: +44 (0) 1189 778111 or *Support.EMEA@christiedigital.com*
- Asia Pacific (*support.apac@christiedigital.com*):
 - Australia: +61 (0)7 3624 4888 or *tech-Australia@christiedigital.com*
 - China: +86 10 6561 0240 or *tech-supportChina@christiedigital.com*
 - India: +91 (80) 6708 9999 or *tech-India@christiedigital.com*
 - Japan: 81-3-3599-7481
 - Singapore: +65 6877-8737 or *tech-Singapore@christiedigital.com*
 - South Korea: +82 2 702 1601 or *tech-Korea@christiedigital.com*

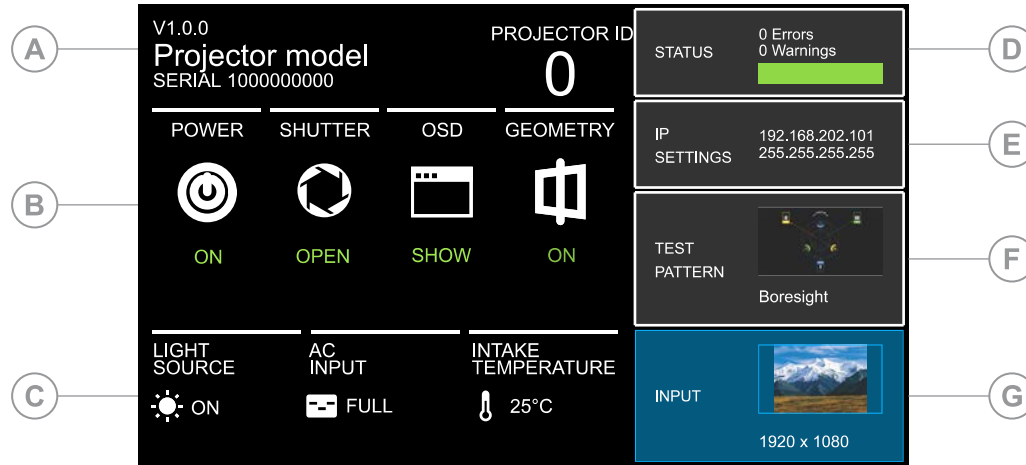
Contact your dealer

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:	

Display panel components

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

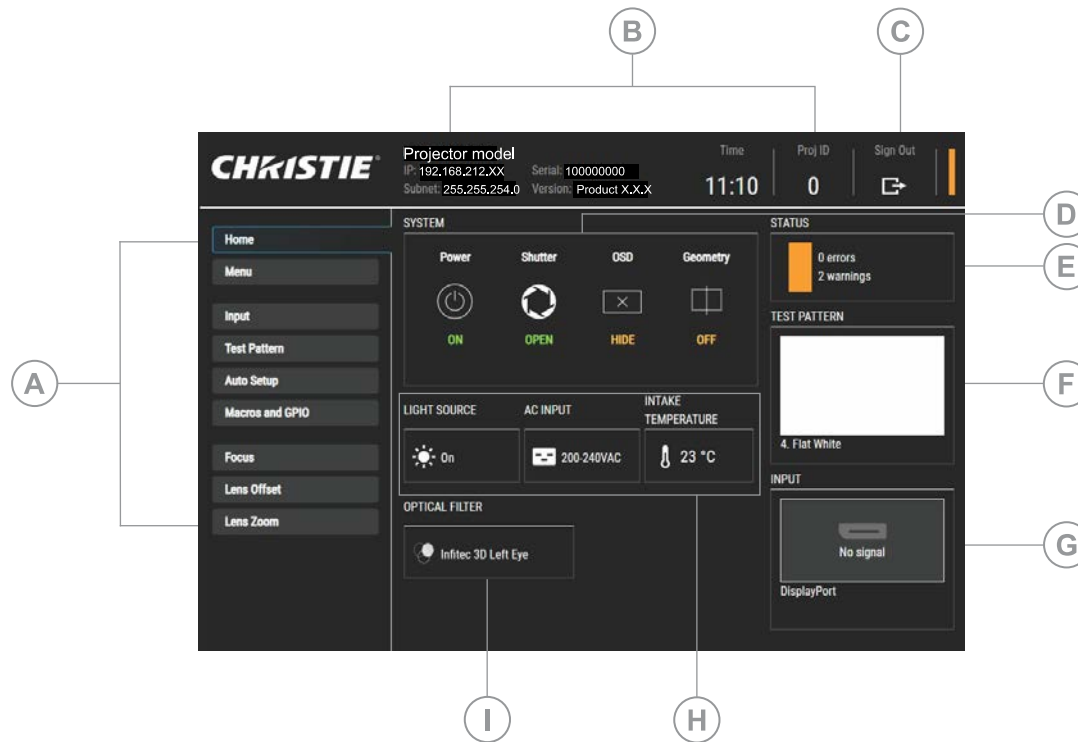


ID	Component	Description
A	Projector Information	Provides information about the projector such as the projector name, serial number, software version, and projector ID.
B	Projector and Component Controls	Indicates the states of the projector and its components.
C	Power and Temperature	Indicates the light 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.

Web user interface

Use a web browser to use the web user interface (Web UI) to access projector functionality.

The web user interface provides access to the menu functionality, the same overview information as the display panel on the projector with the addition of the optical filter information for Sapphire 4K40-RGBH and Griffyn Series.



ID	Component	Description
A	Menu	Provides access to the projector menu functionality.
B	Projector information	Provides information about the projector such as the projector name, serial number, software version, projector ID, IP address, and subnet values.
C	Sign Out	Logs out of the web user interface.
D	Projector and component controls	Indicates the states of the projector and its components.
E	Status	Contains information about the health of the projector including the number of warnings and errors. Provides access to the status system.
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.
H	Power and temperature	Indicates the light source mode, power mode, and intake temperature.
I	Optical filter	Lists the type of optical filter installed for Sapphire® 4K40-RGBH and Griffyn® Series. It displays Not Detected if no filter is installed.

ID	Component	Description
		For Griffyn® Series, this user interface component is only displayed when a filter is installed and configured using the Service level Light & Output Settings menu.

Logging into the web user interface

1. In a web browser, enter the IP address of the projector.
2. Log into the web user interface with a valid user name and password.

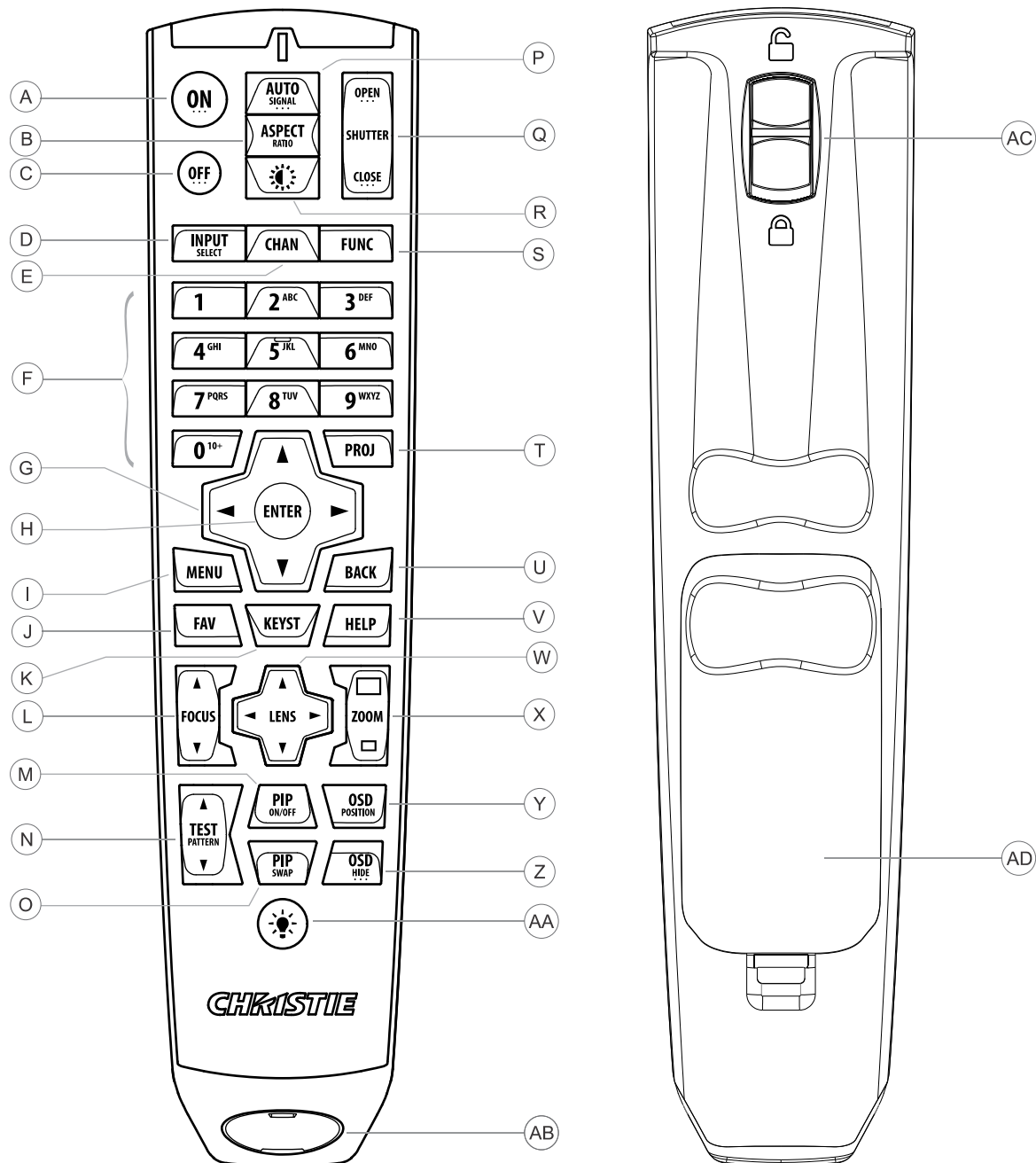
IR/wired remote keypad

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



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

- EXPLOSION HAZARD! Replacement battery must be of the correct type.
- EXPLOSION HAZARD! Dispose of the battery according to local area regulations.



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.

Button	Description
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	Use the arrows to adjust the lens offset.
X	Adjusts 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 used for wired option.
AC	Locks/unlocks the keypad.
AD	Battery door—When replacing a battery, dispose of the used battery or batteries according to local area regulations.

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, select **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**.
You can also select **MENU > Configuration > Lens Settings > 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 **Reset**.
3. To confirm the reset, select **Reset Lens Position**.

Aligning the image with lens zoom and focus

Make sure 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 **Lens 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 on the display panel, 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**.

Calibrating the zoom motor

Calibrate the zoom motor to make sure all zoom controls for the lens are enabled.

1. Select **MENU > Configuration > Lens Settings > Zoom Lens Calibration**.

Issuing the (LCB+ZOOM 1) serial command also manually calibrates the lens.

2. To start the calibration, select **Calibrate Zoom Lens**.
3. At the confirmation prompt, select **Calibrate Zoom Lens**.
The Zoom menu item is greyed out until the calibration is complete, which can take up to a minute.

Determining what lens warnings are displayed

Controls the level of lens warnings displayed.

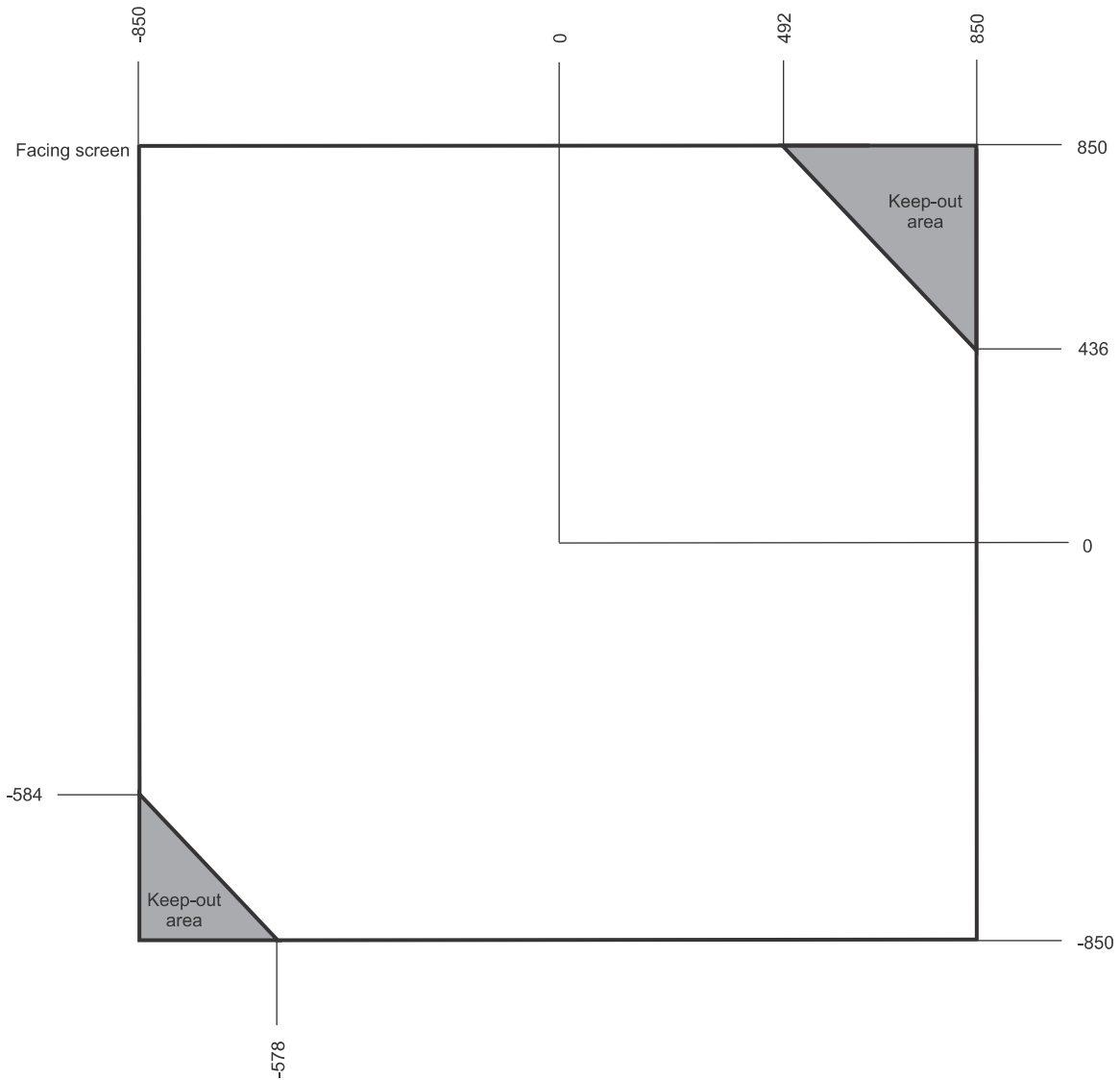
1. Select **MENU > Configuration > Lens Settings > Lens Warnings**.
2. Select the appropriate lens warning level:
 - **Show All Warnings**—Shows all lens warnings.
 - **Hide Zoom Motor Warnings**—Hides zoom motor warnings. Christie recommends selecting this option when using a fixed lens as all zoom operations are disabled.
 - **Hide Detection Warnings**—Hides lens detection warnings. Christie recommends selecting this option when using a third-party lens.
3. Select **Enter**.

Lens control limitations

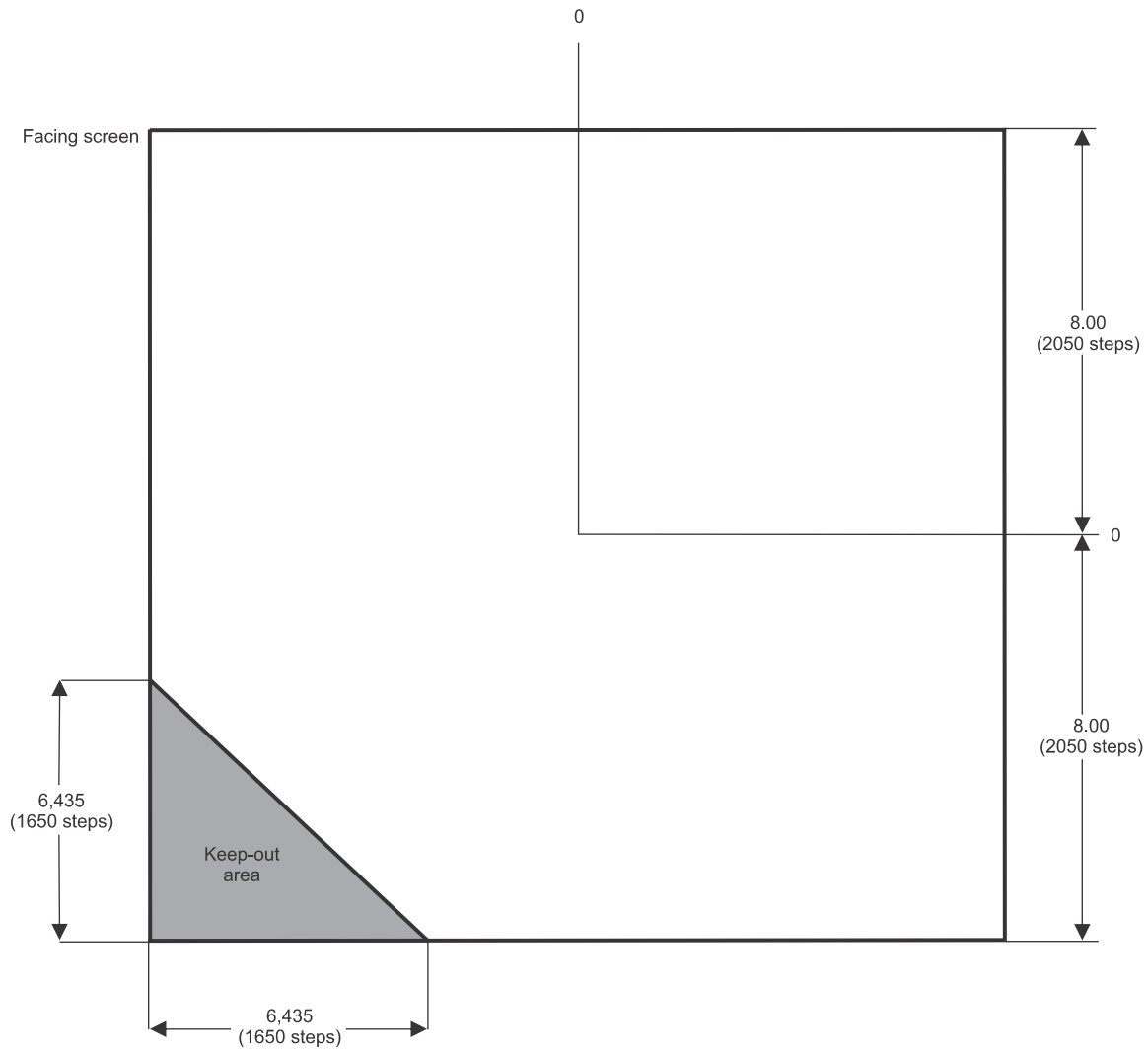
The projector has keep-out areas for the lens position, illustrated below. When adjusting the lens offset, these regions are unavailable to prevent interference and potentially damage of internal components.

Only applies to: Christie M RGB Series and Griffyn® Series

Griffyn Series lens keep-out zones



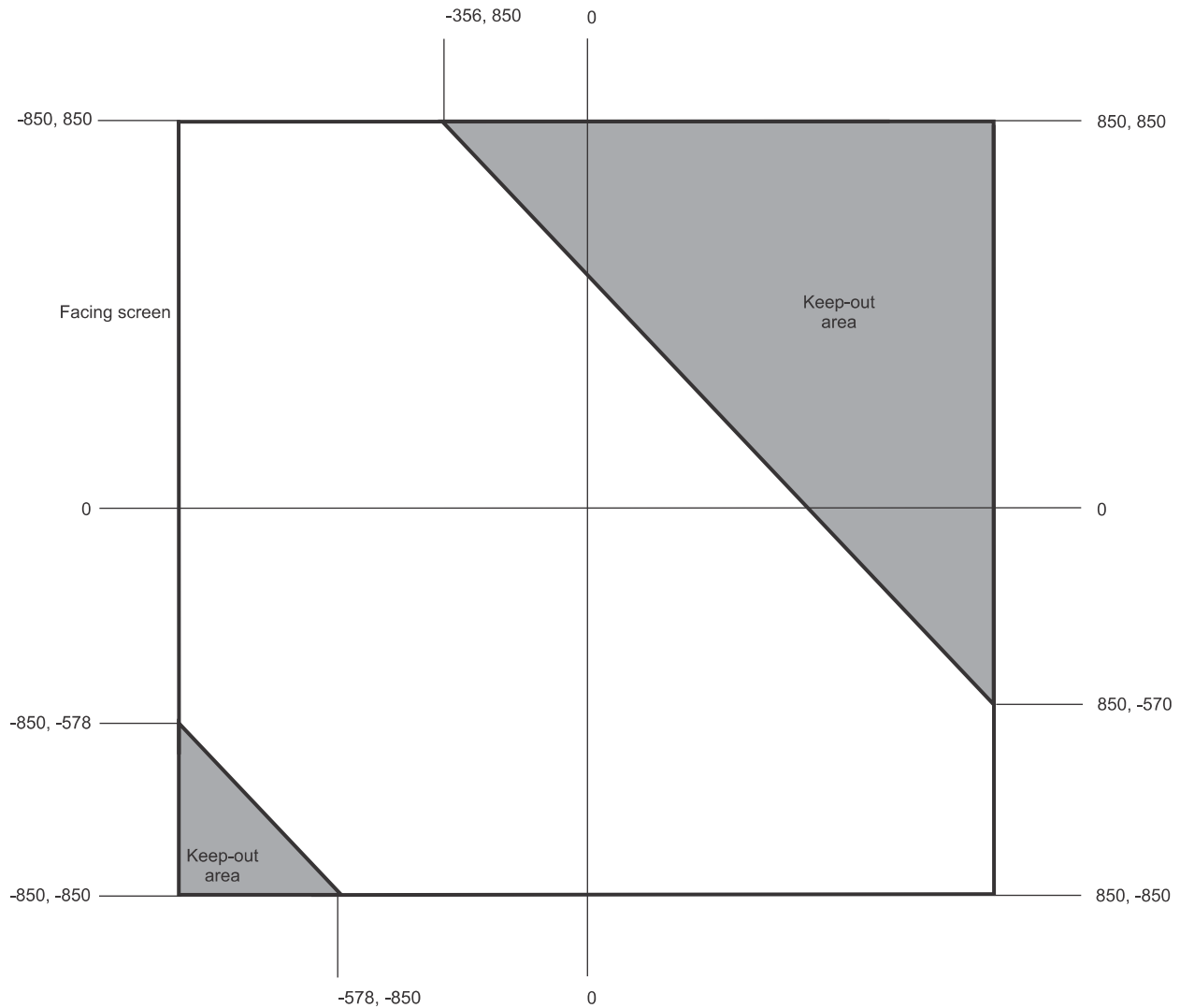
Christie M RGB Series lens keep-out zones



Ultra short throw lens control limitations

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

Only applies to: Griffyn® Series



Enabling the ultra short throw lens keep-out area

Not switching to the ultra short throw lens keep-out area risks damaging the projector when an ultra short throw lens is installed.

Only applies to: Griffyn® Series

1. Select **MENU > Configuration > Lens Settings.**
2. Select **Enable UST Lens 0.38:1.**
3. To enable the ultra short throw lens keep-out area, select **Enter.**
The reduced keep-out area is implemented and the lens offset is set to zero.
4. To use a non-ultra short throw lens, clear the checkbox to disable this option.

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 make sure 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 > Configuration**.
2. Select **Color Primary Settings**.
3. To edit the primary colors settings, select **Edit**.
4. Adjust the slider or enter the measured color values of the primary color component you selected.
5. To confirm your selection, select **Enter**.
6. Repeat steps 4 and 5 for each primary color component.
7. To view a specific color while adjusting, select **Show Color Pattern**.
8. Select the appropriate color and select **Enter**.
9. To reset the primary colors to their defaults, select **Reset Color Primaries**.
10. At the confirmation prompt, select **Reset**.

DMD color correction

Adjust the digital micromirror device (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. To edit the custom color correction settings, select **Edit**.
3. Adjust the slider or enter the measured color values of the primary color component you selected.
4. To confirm your selection, select **Enter**.
5. Repeat steps 3 and 4 for each primary color component.
6. To view a specific color while adjusting, select **Show Color Pattern**.
7. 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. To edit the custom color correction settings, select **Edit**.
3. Adjust the value of the primary color you selected by using more or less of it in relation to the other primary colors.
4. To confirm your selection, select **Enter**.
5. Repeat steps 3 and 4 for each primary color.
6. To view a specific color while adjusting, select **Show Color Pattern**.
7. 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)
 - Y'C_BC_R HDTV (ITU-R BT.709)
 - Y'C_BC_R HDTV (Expanded Range)
 - Y'C_BC_R JPEG (Full Range)
 - Y'C_BC_R UHDTV (ITU-R BT.2020) (Full Range)
3. Select **Enter**.

Adjusting color by temperature

Adjust the color temperature as expressed in degrees Kelvin.

1. **MENU > Image Settings > Color & Gamma > Color Correction Mode**.
2. From the list, select **Color Temperature**.
3. Select the **Color Temperature** option.
4. 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
 - HDR/PQ (No Compression)
 - 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.
 - **ITU-R BT.2020**—Set the Rec.2020 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 occurring 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 total video frame delay, select **Set Delay**.
3. Adjust the value and to confirm your selection, select **Enter**.

The Actual Delay field reports what the system has delivered for the frame delay. The value is reported in frames and milliseconds.

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 Christie TruLife+.

1. Create an edge blend file using the Christie Twist or Mystique application.
To connect Christie TruLife+ 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 Christie TruLife+.

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**.

Exercising the DMDs

If you enable edge blending, Christie recommends exercising the DMDs with the laser modules for 45 minutes daily.

1. Update the automated script to do one of the following:
 - Turn the lasers on for 45 minutes before the normal start time.
 - Leave the lasers on for 45 minutes after the normal shut down time.
2. During the 45 minute period, display the 50% Gray test pattern.
If displaying the 50% Gray test pattern through a media server, make sure to display the entire resolution of the DMDs so all the micromirrors are being exercised.
3. If the image is geometrically corrected using tools such as Mystique™ or Twist™, disable the geometry correction during the 45 minute period.
Make sure to re-enable the geometry corrections at the end of the 45 minutes.

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 user interface, 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 user interface, you can enter the number directly in the field using the remote or keyboard.
7. If using the web user interface, 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 Christie Twist or Mystique application.
To connect Christie TruLife+ 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 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 keystone 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 keystone 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 keystone 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 keystone 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.

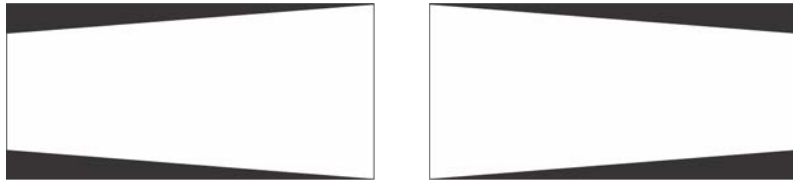


1. Select **MENU > Configuration > Geometry Correction > Geometry Correction Mode**.
2. Select **Vertical Keystone Correction**.
3. From the correction dialog, adjust the vertical keystone by using the arrow keys.
4. Select **Apply Changes**.

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.**

Cropping pixels from the display edges

Use the Blanking feature to crop certain pixels from any edge of the display.

1. Select **MENU > Configuration > Blanking.**
2. To crop the pixels on one display edge, use the arrow keys to adjust the values between 0 and 25%.
3. To accept the selection, select **Enter.**
4. Repeat steps 2 and 3 to crop pixels for the remaining sides, if required.
5. To remove all cropping from the display edges, select **Reset Blanking.**
6. At the confirmation prompt, select **Reset.**
The blanking values are returned to 0.

Disabling phase locking

The Phase Locking option is used in laser phosphor projectors to lock the phosphor wheel speed to the frame rate of the video signal. This is used to reduce screen artifacts that may be observed due to phosphor variation across the wheel.

Only applies to: Sapphire® 4K40-RGBH

1. Select **MENU > Image Settings > Advanced Image Settings.**
2. To disable locking of the RPMs of the phosphor wheel, select **Disable Phase Locking.**
3. To enable locking of the RPMs of the phosphor wheel, clear the **Disable Phase Locking** option.

Configuring system settings

Learn how to configure the system settings.

Setting the date

Configure the date on Christie TruLife+.

1. Select **Menu > System Settings > Date & Time**.
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 Christie TruLife+.

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

Synchronizing the date and time

Set the projector date and time to match what is set on the computer.



This feature is only available on the web interface.

1. Select **MENU > System Settings > Date & Time**.
You can also access the date and time configurations by clicking on the time displayed on the header of the web interface.
2. To synchronize the date and time, select **Sync to System**.

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**.

Changing the user account password

The user account password limits access to the functionality on the web interface to authorized users.

Christie recommends changing the default user account password.



This feature is only available on the web interface.

1. From the home page of the web interface, select **MENU > Admin > Remote Password**.
2. Select **Current Password** and enter your current password.
3. Select **New Password** and enter your new password.

Create your password using 4 to 32 characters. The password can be any combination of letters, numbers, and symbols (ASCII-standard characters only). Accents and accented characters are not supported.

4. Select **Confirm** and re-enter your new password.
5. Select **Apply**.

Accessing the generated user account password

If the user account password is not available, the generated password can be used to access the functionality on the web interface.

Note the following about the generated user account password:

- The generated password can be used to change the user account password.
- Every time the user account password is updated, the generated password is changed.
- If the projector defaults are reset using either the **Reset Projector Defaults** or **Reset Factory Defaults** features, the user account password is reset.



This feature is accessed from the display panel on the projector and the on-screen display.

1. From the display panel, select **MENU > Admin > Service**.
2. Enter the service password.
3. Select **Generated password**.

The generated password is displayed in this field.

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 and required fans 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**.

Setting a fan speed profile

Use the fan speed profile to balance noise compared to brightness depending on projection needs.

Only applies to: Christie M RGB Series and Griffyn® Series

1. Select **MENU > System Settings > Power Settings > Fan Speed Profile.**
 2. Select the appropriate fan speed profile:
 - **Standard**—The projector attempts to achieve a balance between low noise and brightness performance by adjusting fan speed with regards to ambient temperature and requested brightness. (Default)
 - **Quiet**—The projector achieves the lowest noise at the possible expense of brightness performance.
 - **Performance**—The projector brightness is not restricted by fan speed.
- Only applies to:** Christie M RGB Series, Griffyn 4K35-RGB, and Griffyn 4K50-RGB

Implementing Stealth mode

When Stealth mode is enabled, the status and shutter LEDs are turned off and the heartbeat feature on the display panel Enter key is disabled.

1. Select **MENU > System Settings > Power Settings > Stealth Mode.**
2. To disable the LEDs and heartbeat feature, select **Enter.**
3. To enable the LEDs and heartbeat feature, select **Stealth Mode** again.

Informing the source of signal preferences

Configure Christie TruLife+ 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.

Enabling video thumbnails

Provides a preview of the currently active input.

1. Select **MENU > Admin > Service.**
2. Select **Enable Video Thumbnails.**
3. To enable a preview of the currently active input, select **Enter.**
4. To disable the currently active input, clear the **Enable Video Thumbnails** checkbox.

Managing the light source for Griffyn 4K32-RGB

Learn how to configure brightness and color using the projector's LiteLOC™ feature.

Only applies to: Griffyn® 4K32-RGB

Using LiteLOC, you can easily control the brightness and color of the projector. In addition, LiteLOC can maintain these settings over time under changing environmental conditions.

LiteLOC works with a sensor-to-screen calibration that ultimately allows you to input your required x, y chromaticity coordinate in the user interface and control the brightness of the projector with a single slider.

LiteLOC's ability to hold required color and brightness depends on your environmental conditions. For the Griffyn Series, conditions resulting in a low dew point such as low ambient temperature and low humidity result in higher maximum brightness. On the other hand, conditions resulting in a high dew point such as high ambient temperature and high ambient humidity result in lower maximum brightness. When the environmental conditions exceed the projector's ability to maintain the required brightness, it automatically dims as necessary to maintain your required color point on the screen. In this case, the projector also issues a warning. If the environmental conditions become better, the projector recovers your original required brightness.

LiteLOC™ sensor-to-screen calibration

The LiteLOC sensor-to-screen calibration is performed in the factory under specific setup conditions which include the type of lens, screen, and the spectroradiometer used for measuring screen color and brightness.

Only applies to: Griffyn® 4K32-RGB

Your projector's setup conditions may not match the factory setup which may result in an error in color accuracy. Upon first installation, check the accuracy of the color point and if unsatisfactory, perform this calibration. Doing this calibration captures all the variables of your setup and achieves the best results. By doing this calibration, you will not overwrite the factory calibration. Once satisfied, some scenarios may exist in which you may need to re-do the calibration in the future.

Re-doing this calibration is required if the following is replaced:

- Color sensor board

Re-doing this calibration is optional if any of the following are replaced:

- Light engine
- Lens
- Laser optical subsystem (LOS)
- Screen
- Any other optical components in the optical path between the LOS and the screen

After replacing these components, check the accuracy of the color point and if unsatisfactory, re-do this calibration.

Refer to the LiteLOC sensor-to-screen calibration instruction sheet (P/N: 020-103435-XX) available on the Christie website. Navigate to <https://www.christiedigital.com/products/projectors/all-projectors/>, select **projector series** > **projector model** > **Downloads** > **Instruction sheets**.

Calibrating the LiteLOC™ feature

Follow this procedure to generate the calibrated data.

Only applies to: Griffyn® 4K32-RGB

1. Download the LiteLOC Sensor-to-screen Calibration workbook from the Christie website.
 - a) Go to URL: <https://www.christiedigital.com/products/projectors/all-projectors/>
 - b) On the product page, select the model and switch to the **Downloads > Technical Reference** tab.
2. Make sure the projector is set up in representative ambient light and ambient temperature.
3. Power on the projector.
4. Establish a connection to the photon controller using Kore Librarian on port 5103.
5. From the display panel, select **MENU > Configuration > Light & Output Settings**.
6. Set the brightness at 70 to 80%.
The exact color and brightness are not important as this step is to help align the spectroradiometer only.
7. Enable the white test pattern by selecting **White Test Pattern > Enabled**.
8. Disable the color correction by selecting **Color Correction Mode > Max Drives**.
9. Set fan profile to standard by selecting **Fan Speed Profile > Standard**.
10. Setup a spectroradiometer, such as the CR-250, on a tripod.
Place the meter perpendicular to the screen to achieve accurate measurements. Christie recommends using a CR-250 or better.
11. Disable LiteLOC by selecting **LiteLOC disabled**.
12. Set the **Max Ambient Temperature**.
Choose the maximum value you expect your room temperature to be at. For example, if you expect your maximum ambient temperature to not exceed 25°C, then set the slider to 25°C. This value should be at least greater than the current ambient temperature.
13. Use the **Red Laser Setpoint**, **Green Laser Setpoint**, and **Blue Laser Setpoint** sliders to achieve maximum brightness at the required color point without exceeding 8A on any of the TEC currents.
Observe TEC currents by sending (`SST+TEC1?`) in Kore Librarian. An example response is shown below. It is repeated for each TEC in the system.


```
(01001 00020 SST+TEC1! 000 000 " 27.46" "Bank Temp[TEC1]")
(01001 00020 SST+TEC1! 001 000 " 7.40" "Current[TEC1]")
(01001 00020 SST+TEC1! 002 000 " 6.85" "Voltage[TEC1]")
```
14. Allow 20 minutes for the laser devices to stabilize at the new values.
15. Use the spectroradiometer to make sure the required color point has not drifted or the TECs have not exceeded 8A.
You may need to make minor adjustments to the red, green and blue laser setpoints. If necessary, make the adjustments using the three laser setpoint sliders. A wait period is not required after making minor adjustments.
16. In row 9 of the LiteLOC Sensor-to-screen Calibration workbook, enter the current settings from the previous step for red, blue, and green.
The drive percentages in columns A, B, C of rows 15 to 23 are calculated based on these settings. The example values in the workbook are red=73.86%, green=84.55%, and blue=60.41%.
17. To set the laser drive levels for row 15 of the workbook, in Kore Librarian run the command from column K (`RGB+MODE 1 IR IG IB`).
The example command in the workbook is (`RGB+MODE 1 6386 7455 5041`).

18. Perform the measurement using the spectroradiometer and record the returned values for x, y, and fL in columns G, H, and I of row 15 of the workbook.
The example values in the workbook are $x=0.3334$, $y=0.2885$, and $fL=510$.
19. To obtain the color sensor values for the first set of drive percentage values in row 15, run the command from column N, row 24 (RGB+MEAS?) in Kore Librarian.
20. Record the returned values for SX, SY, and SZ in columns D, E, and F of row 15 of the workbook.
The example values in the workbook are $SX=3073532$, $SY=2564292$, and $SZ=1265818$.
21. Repeat steps 17 to 20 for rows 16 to 23.
22. From row 28 of the workbook, copy the highlighted command and run it in Kore Librarian.
The example command in the workbook is (RGB+CAL2 "5137" "610" "345" "0" "534" "4490" "34" "0" "-167" "57" "1640" "0" "-125503" "-133936" "-57954" "1" "637" 1 0).
LiteLOC calibration is now complete.
23. Power off and restart the projector.
24. From the display panel, select **MENU > Configuration > Light & Output Settings > LiteLOC > Enabled**.
Controls to set the required brightness and x, y controls are now available.

Configuring LiteLOC™

To make sure color and brightness are held at the required levels for your installation, Christie recommends enabling LiteLOC with your required settings for each laser configuration you create.

Only applies to: Griffyn® 4K32-RGB

1. To configure LiteLOC, navigate to **MENU > Configuration > Light & Output Settings**.
2. To enable LiteLOC, select **LiteLOC > Enabled**.
3. For Griffyn 4K32-RGB only, to enter your own values for Max Ambient Temperature and Max Ambient Humidity, select **User Defined Environmental Conditions**.
If this box is left unselected, the Max Ambient Temperature and Max Ambient Humidity controls are disabled. Note the following:
 - The maximum ambient temperature is calculated by the system and displayed in the **Ambient Temperature Limit** field. If the actual ambient temperature exceeds this value, the system may dim as necessary but still maintains color.
 - The maximum ambient humidity is assumed to be 80%.
 - a) Use the **Max Ambient Temperature** slider to increase and decrease the maximum ambient temperature you expect the room to reach and select **Enter**.
A lower room temperature generally results in increased brightness and better efficiency. A higher room temperature reduces the maximum power setting available for the lasers. The maximum expected room temperature setting must reflect the anticipated operating conditions.
 - b) Use the **Max Ambient Humidity** slider to increase and decrease the maximum ambient humidity you expect the room to reach and select **Enter**.
A lower room humidity generally results in increased brightness and better efficiency. A higher humidity reduces the maximum power setting available for the lasers. The maximum expected humidity setting must reflect the anticipated operating conditions.

The **Ambient Temperature Limit** field displays the measured ambient temperature. If **User Defined Environmental Conditions** is not selected, the **Ambient Temperature Limit** field also shows the calculated maximum ambient temperature under which the system can maintain the required brightness and color point. If the actual ambient temperature exceeds the limit value displayed in this field, the system may dim as necessary but still maintains color.

4. Use the **Brightness** slider to increase and decrease the brightness and select **Enter**. If the required brightness cannot be achieved, the slider indicates the actual brightness.
5. To set the white point you want to achieve from the laser, entered the required **White x** and **White y** values.

Disabling LiteLOC™

Disable LiteLOC if you want to manually control the red, green and blue lasers independently. When LiteLOC is disabled, the set color and brightness may drift over time as the ambient conditions change.

Only applies to: Griffyn® 4K32-RGB

1. Navigate to **MENU > Configuration > Light & Output Settings**.
2. To disable LiteLOC, select **LiteLOC > Disabled**.
3. Use the **Max Ambient Temperature** slider to increase and decrease the maximum ambient temperature you expect the room to reach and select **Enter**.
A lower room temperature generally results in increased brightness and better efficiency. A higher room temperature reduces the maximum power setting available for the lasers. The maximum expected room temperature setting must reflect the anticipated operating conditions.
4. To set the approximate red power level, select **Red Laser Setpoint** and use the slider to increase and decrease the value required for the projector brightness.
System stability may be affected if you set a power level below the minimum power level recommended.
A value below the maximum limit ensures the required red power level can be achieved until the maximum ambient temperature is reached.
5. To set the green (**Green Laser Setpoint**) and blue (**Blue Laser Setpoint**) power levels, repeat step 4.

Managing the light source for Christie M RGB Series, Griffyn 4K35-RGB, and Griffyn 4K50-RGB

Learn how to configure brightness and color using the projector's LiteLOC™ feature.

Only applies to: Christie M RGB Series, Griffyn® 4K35-RGB, and Griffyn® 4K50-RGB

Using LiteLOC, you can easily control the brightness and color of the projector. In addition, LiteLOC can maintain these settings over time under changing environmental conditions.

LiteLOC works with a sensor-to-screen calibration that ultimately allows you to input your required x, y chromaticity coordinate in the user interface and control the brightness of the projector with a single slider.

LiteLOC's ability to hold required color and brightness depends on your environmental conditions. When the environmental conditions exceed the projector's ability to maintain the required brightness,

it automatically dims as necessary to maintain your required color point on the screen. In this case, the projector also issues a warning. If the environmental conditions become better, the projector recovers your original required brightness.

LiteLOC™ sensor-to-screen calibration

The LiteLOC sensor-to-screen calibration is performed in the factory under specific setup conditions which include the type of lens, screen, and the spectroradiometer used for measuring screen color and brightness.

Only applies to: Christie M RGB Series, Griffyn® 4K35-RGB, and Griffyn® 4K50-RGB

Your projector's setup conditions may not match the factory setup which may result in an error in color accuracy. Upon first installation, check the accuracy of the color point and if unsatisfactory, perform this calibration. Doing this calibration captures all the variables of your setup and achieves the best results. By doing this calibration, you will not overwrite the factory calibration. Once satisfied, some scenarios may exist in which you may need to re-do the calibration in the future.

Re-doing this calibration is required if the following is replaced:

- Color sensor board

Re-doing this calibration is optional if any of the following are replaced:

- Light engine
- Lens
- Laser optical subsystem (LOS)
- Screen
- Any other optical components in the optical path between the LOS and the screen

After replacing these components, check the accuracy of the color point and if unsatisfactory, re-do this calibration.

Refer to the *LiteLOC sensor-to-screen calibration instruction sheet (P/N: 020-103658-XX)* available on the Christie website. Navigate to <https://www.christiedigital.com/products/projectors/all-projectors/>, select **projector series** > **projector model** > **Downloads** > **Instruction sheets**.

Calibrating the LiteLOC™ feature

Follow this procedure to generate the calibrated data.

Only applies to: Christie M RGB Series, Griffyn® 4K35-RGB, and Griffyn® 4K50-RGB

1. Download the LiteLOC Sensor-to-screen Calibration workbook from the Christie website.
 - a) Go to URL: <https://www.christiedigital.com/products/projectors/all-projectors/>
 - b) On the product page, select the model and switch to the **Downloads** > **Technical Reference** tab.
2. Make sure the projector is set up in representative ambient light and ambient temperature conditions for LiteLOC calibration (20 to 30°C/68 to 86°F).
3. Connect the projector to an applicable power source for the intended operation (220V or 110V).

Before establishing the connection to the Photon controller, the projector must be powered up and illuminating.
4. Establish a connection to the Photon controller using Kore Librarian on port 5103.
5. From the display panel, select **MENU** > **Admin** > **Service**.

6. Enter the service password.
7. Select **Light & Output Settings**.
8. Set the brightness at 70 to 80%.
The exact color and brightness are not important as this step is to help align the spectroradiometer only.
9. Enable the white test pattern by selecting **White Test Pattern > Enabled**.
10. Disable the color correction by selecting **Color Correction Mode > Max Drives**.
11. Set fan profile to standard by selecting **Fan Speed Profile > Standard**.
12. Setup a spectroradiometer, such as the CR-250, on a tripod.
Place the meter perpendicular to the screen to achieve accurate measurements. Christie recommends using a CR-250 or better.
13. Disable LiteLOC by selecting **LiteLOC disabled**.
14. The RGB setpoints should be set to the maximum accessible levels by the system and reduce two of the three the **Red Laser Setpoint**, **Green Laser Setpoint**, and **Blue Laser Setpoint** sliders as necessary to achieve the target white point
The limits on the manual sliders are not influenced by temperature or humidity factors as they are fixed limits.
15. Allow 20 minutes for the laser devices to stabilize at the new values.
16. Use the spectroradiometer to make sure the required color point has not drifted.
You may need to make minor adjustments to the red, green and blue laser setpoints. If necessary, make the adjustments using the three laser setpoint sliders. A wait period is not required after making minor adjustments.
17. In row 9 of the LiteLOC Sensor-to-screen Calibration workbook, enter the current settings from the previous step for red, green, and blue.
The drive percentages in columns A, B, C of rows 15 to 23 are calculated based on these settings. The example values in the workbook are red=73.86%, green=84.55%, and blue=60.41%.
18. To set the laser drive levels for row 15 of the workbook, in Kore Librarian run the command from column K (RGB+MODE 1 IR IG IB).
The example command in the workbook is (RGB+MODE 1 6386 7455 5041).
19. Perform the measurement using the spectroradiometer and record the returned values for x, y, and fL in columns G, H, and I of row 15 of the workbook.
The example values in the workbook are x=0.3334, y=0.2885, and fL=510.
20. To obtain the color sensor values for the first set of drive percentage values in row 15, run the command from column N, row 24 (RGB+MEAS?) in Kore Librarian.
21. Record the returned values for SX, SY, and SZ in columns D, E, and F of row 15 of the workbook.
The example values in the workbook are SX=3073532, SY=2564292, and SZ=1265818.
22. Repeat steps 16 to 19 for rows 16 to 23.
23. From row 28 of the workbook, copy the highlighted command and run it in Kore Librarian.
The example command in the workbook is (RGB+CAL2 "5137" "610" "345" "0" "534" "4490" "34" "0" "-167" "57" "1640" "0" "-125503" "-133936" "-57954" "1" "637" 1 0).
LiteLOC calibration is now complete.

24. From the display panel, select **MENU > Admin > Service > Light & Output Settings > LiteLOC > Enabled.**
25. Power off and restart the projector.
26. From the display panel, select **MENU > Configuration > Light & Output Settings > LiteLOC** and confirm LiteLOC is enabled.
The brightness slider and x, y controls are now available.

Configuring LiteLOC™

To make sure color and brightness are held at the required levels for your installation, Christie recommends enabling LiteLOC with your required settings for each laser configuration you create.

Only applies to: Christie M RGB Series, Griffyn® 4K35-RGB, and Griffyn® 4K50-RGB

1. To configure LiteLOC, select **MENU > Admin > Service.**
2. Enter the service password.
3. Select **Light & Output Settings.**
4. Verify LiteLOC is enabled.
5. Use the **Brightness** slider to increase and decrease the brightness and select **Enter.**
If the required brightness cannot be achieved, the slider indicates the actual brightness.
6. To set the white point you want to achieve from the laser, enter the required **White x** and **White y** values.

Disabling LiteLOC™

Disable LiteLOC if you want to manually control the red, green and blue lasers independently. When LiteLOC is disabled, the set color and brightness may drift over time as the ambient conditions change.

Only applies to: Christie M RGB Series, Griffyn® 4K35-RGB, and Griffyn® 4K50-RGB



Christie recommends only disabling LiteLOC during the calibration process.

1. From the display panel, select **MENU > Admin > Service.**
2. Enter the service password.
3. Select **Light & Output Settings.**
4. To disable LiteLOC, select **LiteLOC > Disabled.**
5. Check the room temperature.
A lower room temperature generally results in increased brightness and better efficiency. A higher room temperature reduces the maximum power setting available for the lasers. The maximum expected room temperature setting must reflect the anticipated operating conditions.
6. To set the approximate red power level, select **Red Laser Setpoint** and use the slider to increase and decrease the value required for the projector brightness.
System stability may be affected if you set a power level below the minimum power level recommended.
7. To set the green (**Green Laser Setpoint**) and blue (**Blue Laser Setpoint**) power levels, repeat step 4.

Managing the light source for Sapphire® 4K40-RGBH

Learn how to configure brightness and color using the projector's Hawkeye and LiteLOC™ features.

Only applies to: Sapphire® 4K40-RGB

Using Hawkeye and LiteLOC to perform sensor-to-screen calibration to measure screen color and brightness and set color accuracy and brightness for your setup.

During the calibration, the system takes nine sets of on-screen measurements and Csense X, Y, and Z and then automatically sets the red, green, and blue laser drive currents to achieve the required setting. These measurements are used by the software to calculate the sensor-to-screen calibration parameters.

LiteLOC's ability to hold required color and brightness depends on your environmental conditions. When the environmental conditions exceed the projector's ability to maintain the required brightness, it automatically dims as necessary to maintain your required color point on the screen. In this case, the projector also issues a warning. If the environmental conditions become better, the projector recovers your original required brightness.

Calibrating the LiteLOC™ feature

Follow this procedure to generate the calibrated data.

Only applies to: Sapphire® 4K40-RGBH

Use Hawkeye to calibrate LiteLOC® for Sapphire® 4K40-RGBH.

Configuring LiteLOC™

To make sure color and brightness are held at the required levels for your installation, Christie recommends enabling LiteLOC with your required settings for each laser configuration you create.

Only applies to: Sapphire® 4K40-RGBH

1. To configure LiteLOC, select **MENU > Admin > Service**.
2. Enter the service password.
3. Select **Light & Output Settings**.
4. Verify LiteLOC is enabled.
5. Use the **Brightness** slider to increase and decrease the brightness and select **Enter**.
If the required brightness cannot be achieved, the slider indicates the actual brightness.
6. To set the white point you want to achieve from the laser, enter the required **White x** and **White y** values.

Disabling LiteLOC™

Disable LiteLOC if you want to manually control the red, green and blue lasers independently. When LiteLOC is disabled, the set color and brightness may drift over time as the ambient conditions change.

Only applies to: Sapphire® 4K40-RGBH



Christie recommends only disabling LiteLOC during the calibration process.

1. From the display panel, select **MENU > Admin > Service**.
2. Enter the service password.
3. Select **Light & Output Settings**.
4. To disable LiteLOC, select **LiteLOC > Disabled**.
5. Check the room temperature.
A lower room temperature generally results in increased brightness and better efficiency. A higher room temperature reduces the maximum power setting available for the lasers. The maximum expected room temperature setting must reflect the anticipated operating conditions.
6. To set the approximate red power level, select **Red Laser Setpoint** and use the slider to increase and decrease the value required for the projector brightness.
System stability may be affected if you set a power level below the minimum power level recommended.
7. To set the green (**Green Laser Setpoint**) and blue (**Blue Laser Setpoint**) power levels, repeat step 4.

Setting up 1D color uniformity

Learn how to set up 1D color uniformity on the projector after taking measurement of each of the color primaries at points (1, 2, 5, 8, and 16).

1. Make sure the projector is running in representative ambient light.
2. Setup a spectroradiometer, such as the CR-250, on a tripod.
If not using the CR-250 or better, Christie recommends placing the meter perpendicular to the screen to achieve accurate measurements.
Do not use the PR-655 spectroradiometer to perform color uniformity on a multi-projector installation.
3. Power on the projector.
4. Allow the light source to stabilize.
5. From the side panel home page, use the arrows to select **Test Pattern**.
6. Select the **17 Point test pattern** and to confirm your selection, select **Enter**.



7. Select **MENU > Configuration > Horizontal 1D Color Uniformity > Color Uniformity Mode**.
8. To disable color uniformity, select **Color Uniformity Off**.

9. Select **Enter**.
10. Select **Color Correction Mode > Max Drives** and to confirm your selection, select **Enter**.
11. Select **Show Color Pattern > Auto** and to confirm your selection, select **Enter**.
12. Record the x, y, and RGB luminance values for the center point.
 - a) Point the spectroradiometer at point 5 (middle square).
 - b) Select the Red luminance setting.
The display changes to the appropriate color.
 - c) Record the luminance value from the spectroradiometer.
 - d) Select the X value.
 - e) Record the x value from the spectroradiometer in the projector user interface.
 - f) Select the Y value.
 - g) Record the y value from the spectroradiometer.
 - h) Repeat steps b to g for green and blue.
13. Record the luminance values for the remaining four points (2—inside left, middle square; 15—far left, middle square; 8—inside right, middle square; and 16—far right, middle square)
 - a) Point the spectroradiometer at a point.
 - b) Select the Red luminance setting.
The display changes to the appropriate color.
 - c) Record the luminance value from the spectroradiometer in the projector user interface.
 - d) Select the Green luminance setting.
The display changes to the appropriate color.
 - e) Record the luminance value from the spectroradiometer.
 - f) Select the Blue luminance setting.
The display changes to the appropriate color.
 - g) Record the luminance value from the spectroradiometer.
 - h) For the remaining three points, repeat steps a to g.
14. To enable color uniformity, select **Color Uniformity Mode > Horizontal 1D Color Uniformity** and to confirm your selection, select **Enter**.
15. To verify 1D color uniformity is working, enable a flat white test pattern.

Changing the resolution of the projector using shifted superposition

When the Shifted Superposition features is enabled for projectors using actuator based resolution enhancement, the projector resolution is two times in each direction.

Only applies to: Christie M RGB Series



This feature may cause video artifacts when enabled or disabled and it impacts many aspects of the video pipe. Service menu access is required to change this command.

1. From the display panel, select **MENU > Admin > Service**.

2. Enter the service password.
3. Select **Shifted Superposition Enable**.
4. To enable actuation, select **Enter**.
When actuation is enabled, the projector resolution is two times in each direction. When disabled, the projector runs at the native resolution of the digital micromirror device (DMD).
5. To set the actuator multiplication mode, select **Shifted Superposition Motion Enhance Options**.
6. Select the appropriate option:
 - **Turn On for Input**—Enables the actuator multiplication mode.
 - **Always Off**—Disables the actuator multiplication mode.When enabled, the actuator is run two or four times the input frame rate and is used to improve display artifacts occurring on fine detail content.
7. Select **Enter**.

Operating the projector without a shutter installed

The Shutter Service option allows the projector to operate without a shutter installed.

If this option is disabled, the shutter is faulty and has been removed from the projector, a system error occurs and the projector is prevented from powering on. Enabling this option does not block projector use until a new shutter arrives on site and is installed.

1. From the display panel, select **MENU > Admin > Service**.
2. Enter the service password.
3. Select **Shutter Service**.
4. To enable operating the projector without a shutter installed, select **Enter**.

Enabling Camera Friendly Color mode

Some digital camera equipment presents the images generated by Christie laser products with a noticeable red shift. These images do not represent how human vision perceives the projected image and are an effect of the camera charge couple device (CCD) but do not reflect the images generated by Christie laser products.

Only applies to: Christie Eclipse, Christie M RGB Series, Griffyn® Series

To mitigate this, enable the Camera Friendly Color mode so the target white-point is set to a cooler color temperature. This significantly reduces the observed effect and Christie recommends using this mode for sites wanting to take photographs of the projected images. The target Camera Friendly White x and White y settings default to an appropriate value but can be modified in **MENU > Admin > Service > Light & Output Settings**.

If Camera Friendly Color Mode is enabled and a laser phosphor or lamp-based lamp source is also projecting, the image appears pink with the camera. Christie recommends shuttering laser phosphor or lamp-based light source to take the photographs of the projected RGB images.

1. From the display panel, select **MENU > Admin > Service**.

2. Enter the service password.
3. Select **Light & Output Settings**.
4. To enable the Camera Friendly Color mode, select **Camera Friendly Color Mode > On**.
If you only want to enable or disable Camera Friendly Color mode without changing the White x and y values, navigate to **Configuration > Light & Output Settings**.
5. To set the white color targets, enter the required **Camera Friendly White x** and **Camera Friendly White y** values.
The default value is determined to improve the red-hue issue.

Enabling Low Brightness mode

When enabled the Low Brightness mode feature disables a number of laser devices to allow for lower brightness operation.

Only applies to: Christie M 4K25 RGB, Christie M 4K+25 RGB

1. Make sure the projector is in Standby mode.
The Low Brightness mode feature cannot be enabled when the lasers are on.
2. From the display panel, select **MENU > Admin > Service**.
3. Enter the service password.
4. Select **Light & Output Settings**.
5. To enable the Camera Friendly Color mode, select **Enable Low Brightness**.
6. *Recalibrate LiteLOC™* (on page 41).
Christie recommends using Hawkeye to perform the calibration.

Connecting devices and establishing communication

Learn how to connect external devices to the projector.

Video Input panel

The Video Input panel has a variety of ports that can be used for control, 3D sync, upgrading, retrieving interrogators, and connecting audio.

Video Input panel components

The following table lists the video components available depending if the card cage has VOM-IF, VOM-HBI, and CAVE LP connections. The images below illustrate the connections available for the three options.

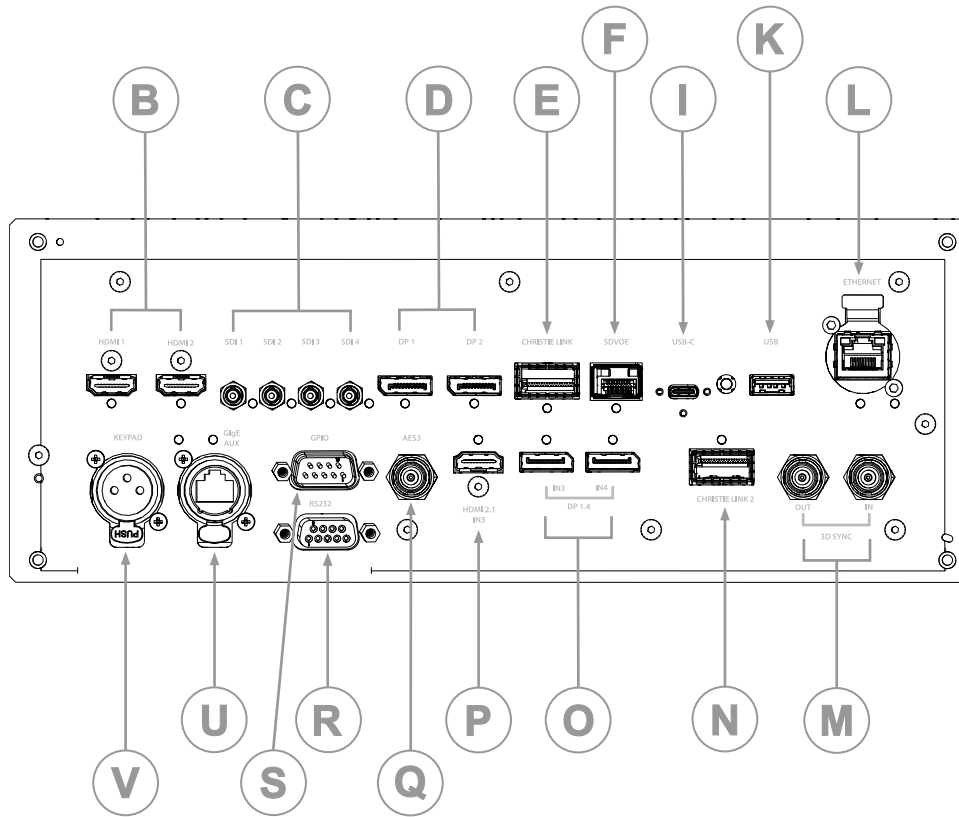
ID	Port	Description	Applies to	Default enabled	SDVoE enabled
A	12G SDI	Accept digital video data from 12G SDI sources.	CAVE LP		
B	HDMI	Accept digital video data from HDMI 2.0 input with HDCP 2.2 and 1.4 support.	All	X	X
C	SDI	Accepts digital video data from 12G, 6G, 3G, and HD SDI sources.	VOM-IF VOM-HBI	X	
D	DisplayPort	Accepts digital video data from DisplayPort 1.2 input with HDCP 1.3 support.	All	X	
E	Christie Link	Accepts digital video data from QSFP+ 40 GB optical Christie Link input.	All	X	X
F	SDVoE	Accepts digital video data from SDVoE input. Not all projectors support for the SDVoE feature. To determine if your projector supports the SDVoE function, see <i>Determining if SDVoE is supported</i> (on page 57) or contact Christie Technical Support.	VOM-IF VOM-HBI		X

ID	Port	Description	Applies to	Default enabled	SDVoE enabled
G	Hibernate	Reserved for future use.	CAVE LP		
H	ENG SW	Reserved for Christie use.	CAVE LP		
I	USB -C	Connects a USB-C flash drive that has been formatted with a FAT32 file system. Can be used for upgrades, backups, restores, and interrogators.	All		
J	GigE PRY	Provides network control of the projector including connectivity to Art-Net 4 Ethernet communication protocol for the transfer of DMX512 data and commands.	CAVE LP		
K	USB 3.0-A	Connects a USB flash drive that has been formatted with a FAT32 file system. Can be used for upgrades, backups, restores, and interrogators.	All		
L	Ethernet	Provides Ethernet and network connection for remote control. 10/100/1000 Base-T Ethernet x 1 ruggedized connector.	VOM-IF VOM-HBI		
M	3D Sync In/3D Sync Out	Supported for 3D-enabled projectors (mini BNC for VOM-IF and standard BNC on VOM-HBI).	All		
N	Christie Link	Supports QSFP+ 40 GB optical Christie Link through connection for looping HDMI, DisplayPort, SDI, and/or Christie Link inputs to multiple projectors.	All		
O	DP 1.4	Accepts digital video data from DisplayPort 1.4 supporting EDID 1.3 with HDCP 1.3 support (for VOM-HBI only).	VOM-HBI CAVE LP	X	
P	HDMI 2.1	Accept digital video data from HDMI 2.1 supporting EDID 1.3 with HDCP 2.2 and 1.4 support (for VOM-HBI only).	VOM-HBI CAVE LP		
Q	AES3 Out	Supports stereo digital audio output according to AES-3 ID.	VOM-HBI CAVE LP		
S	GPIO	Provides a method for controlling the projector using electrical signals.	All		
R	RS232	Sends/receives Christie serial commands using a standard RS232 serial cable.	All		
T	Audio Out	Connect amplified speakers or headphones to the stereo headphone jack (3.5 mm) and receive the system's audio output signal.	VOM-IF		
U	GigE AUX	Used for communication with the IPG laser rack for Christie Eclipse.	All	X	X

ID	Port	Description	Applies to	Default enabled	SDVoE enabled
		A secondary Ethernet port for Christie M RGB Series and Griffyn Series.			
V	Wired keypad	Physically connects a remote control to the projector.	All		

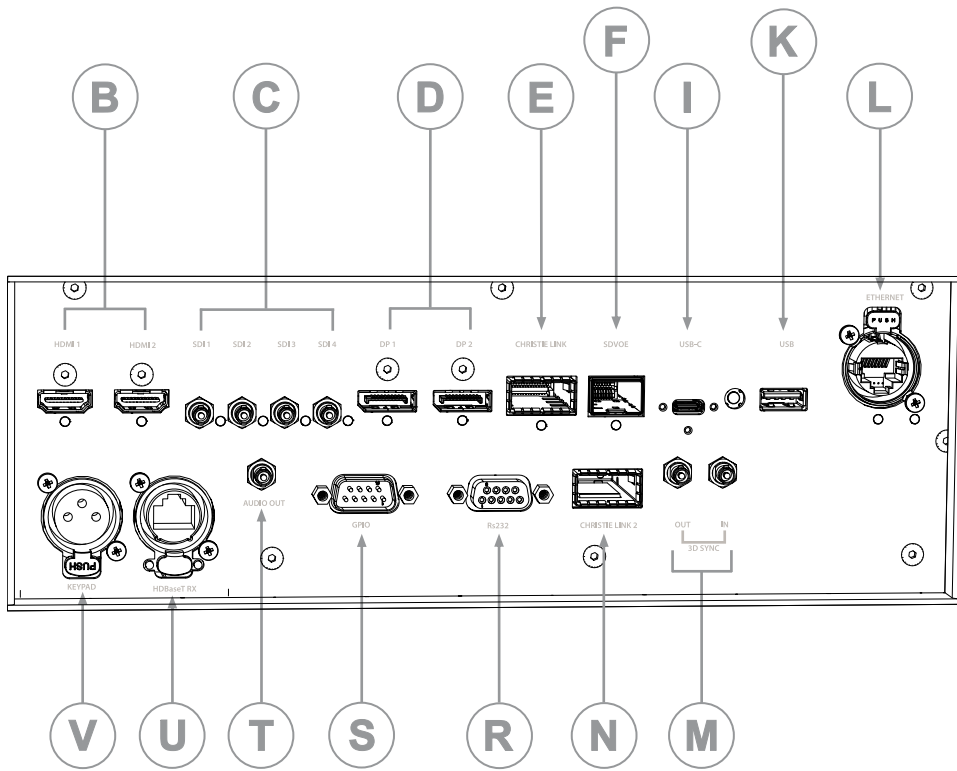
VOM-HBI Video Input panel

Only applies to: Christie Eclipse, Christie M RGB Series, Griffyn Series



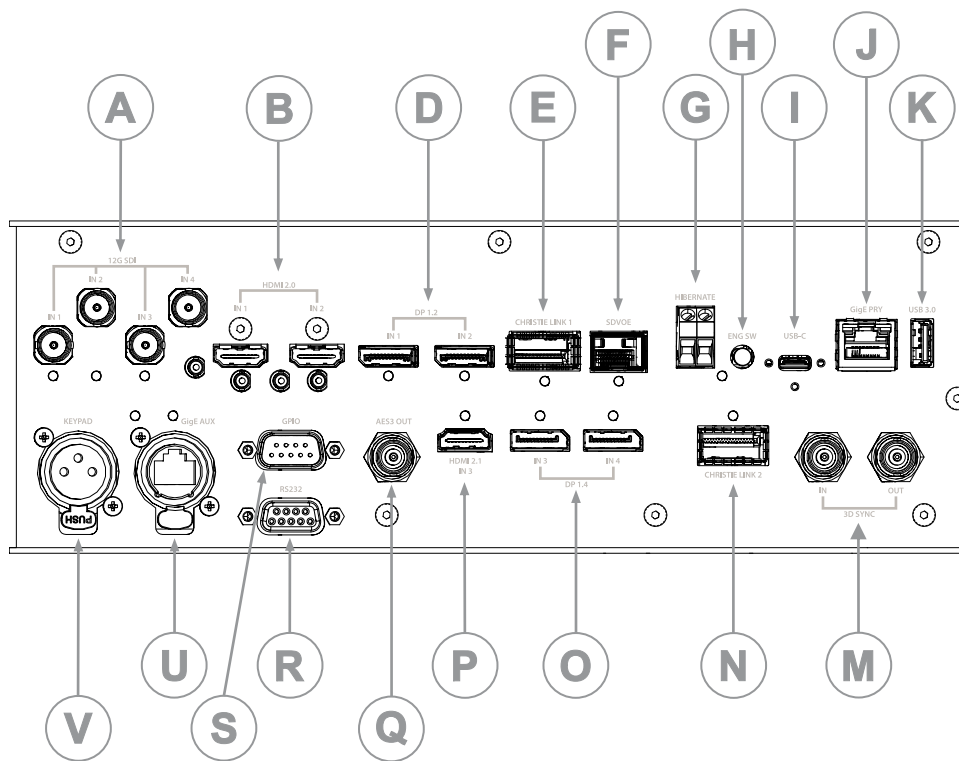
VOM-IF Video Input panel

Only applies to: Christie Eclipse, Christie M RGB Series, Griffyn Series



CAVE LP Video Input panel

Only applies to: Christie Sapphire 4K40-RGBH



Configuration options

The Video Input panel has two configuration options: Default and SDVoE. The selected option determines what video input configurations are enabled on the Video Input panel.

To enable the SDVoE option, plug in the SDVoE source into the Video Input panel and from the Input Configuration menu select **Main Menu > Configuration > Input Settings > Video Input configuration > SDVoE**.

To return to the default configuration, select **Default**.

Configuring video input

Defines which video inputs are available. This setting is persistent so when the projector powers up, it loads the video input defined below.



When changing the selection, the system takes up to 15 seconds to re-configure. During this time the user interface is not responsive.

1. Select **MENU > Configuration > Input Settings > Video Input Configuration**.
2. Select the appropriate video input configuration:
 - **Default**—Supports HDMI, DP, SDI, and ChristieLink. (Default)
 - **SDVoE**—Supports HDMI, SDVoE, and ChristieLink.
3. Select **Enter**.

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.

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**.

Selecting a port configuration

Select a port configuration before you select a video source.

1. From the display panel, select **INPUT**.

- To access the port configuration dialog from the input screen, select the right arrow.
You can also access the Port Configuration screen from **MENU > Configuration > Input Settings > Input Port Configuration**.
- From the Port Configuration screen, navigate the list of port configurations until you find the selection that best matches your configuration.
The range of available configuration depends on the projector model and/or input/output combinations. When the Default configuration is selected (**Main Menu > Configuration > Input Settings > Video Input configuration > Default**), the following configurations are supported:
 - One-port
 - Two-port
 - Four-port quadrants
 - One-port dual-input 3D (3D license-specific)When SDVoE is selected (**Main Menu > Configuration > Input Settings > Video Input configuration > SDVoE**), the one-port configuration is selected.
- To return to the Input screen, select the left arrow.

Selecting a video source

After connecting a video source to the projector and making sure your port configuration is correct, you must select it.

- From the display panel, select **INPUT**.
- Navigate the list of input selections until you find a selection that best matches your configuration.
The range of available input selections depends on the projector model and/or input/output combinations. When the Default configuration is selected, the following inputs are supported for each configuration:
 - One-port—HDMI, SDI, DisplayPort, Christie Link
 - Two-port—DisplayPort, Christie Link
 - Four-port quadrants—SDI
 - One-port dual-input 3D (3D license-specific)—HDMI, SDI, DisplayPort, Christie LinkWhen SDVoE is selected, the HDMI, SDVoE, and Christie Link inputs are supported for the one-port configuration.
- To select the input, select **Enter**.

Connecting an HDMI video source

For the projector to accept digital video data from HDMI sources, plug the HDMI source directly into the Video Input panel (the B callout shows the HMID 2.0 port and the P callout shows the 2.1 port in the Video Input panel images).

For more details (including images and callouts) on the Video Input panels, see *Video Input panel* (on page 49).

The input configurations listed below are supported.

For supported video formats for your projector model, see *TruLife+ Supported Video Formats technical reference (P/N: 020-104081-XX)*.

Connecting 12G, 6G, 3G, or HD SDI video source

For the projector to accept digital video data from 12G, 6G, 3G, or HD SDI video source, plug the source directly into the Video Input panel (the A and C callouts in the Video Input panel images).

For more details (including images and callouts) on the Video Input panels, see *Video Input panel* (on page 49).



Some video sources may not be fully compliant with the relevant SDI SMPTE standards and do not include the SMPTE 352M Payload ID information. If the picture from a 1.5G or 3G SDI source does not display as expected, contact Christie Technical Support for an `SDI-Payload Override` command for the specific signal type. This allows for the display of signals missing Payload IDs from non-compliant sources.

For supported video formats for your projector model, see *TruLife+ Supported Video Formats technical reference (P/N: 020-104081-XX)*.

Connecting a DisplayPort video source

For the projector to accept digital video data, plug the DisplayPort source directly into the Video Input panel (the D callout shows the DisplayPort 1.2 port and the O callout shows the DisplayPort 1.4 port in the Video Input panel images).

For more details (including images and callouts) on the Video Input panels, see *Video Input panel* (on page 49).

The input configurations listed below are supported.

For supported video formats for your projector model, see *TruLife+ Supported Video Formats technical reference (P/N: 020-104081-XX)*.

Connecting Christie Link video source

For the projector to accept digital video data from Christie Link, plug the source directly into the Video Input panel (the E callout in the Video Input panel images).

For more details (including images and callouts) on the Video Input panels, see *Video Input panel* (on page 49).



These input configurations are set up on the Christie Link transmitter. Refer to the .

Christie Link video loop-out enables signals received on the Christie Link input (labeled Christie Link 1 on the *Video Input panel* (on page 49)) to be passed through to the Christie Link output (labeled Christie Link 2 on the *Video Input panel* (on page 49)). The loop through connection is automatically established whenever active Christie Link QSFP modules are plugged into the respective connectors on the projector's Video Input panel.

For supported video formats for your projector model, see *TruLife+ Supported Video Formats technical reference (P/N: 020-104081-XX)*.

Connecting an SDVoE video source

For the projector to accept digital video data from a Christie Terra Transmitter, plug the SDVoE source directly into the SFP+ connector on the Video Input panel (the F callout in the Video Input panel images).

For more details (including images and callouts) on the Video Input panels, see *Video Input panel* (on page 49).

After plugging the SDVoE source into the Video Input panel, the video source must be selected from the Input Configuration menu by selecting **Main Menu > Configuration > Input Settings > Video Input configuration > SDVoE**.



- Not all projectors support for the SDVoE feature. To determine if your projector supports the SDVoE function, see *Determining if SDVoE is supported* (on page 57) or contact Christie Technical Support.
- When SDVoE is selected, the DisplayPort and SDI inputs are no longer supported.

The input configuration listed below is supported.

For supported video formats for your projector model, see *TruLife+ Supported Video Formats technical reference* (P/N: 020-104081-XX).

Determining if SDVoE is supported

Follow these steps to determine if the card cage supports SDVoE:

1. Select **Menu > Configuration > Input Settings**.
2. View the options in the Video Input Configuration list.
 - If SDVoE is listed, the projector supports SDVoE.
 - If SDVoE (Unsupported) is listed, the projector does not support SDVoE.

Connecting to a computer with USB

The two USB ports can be used for upgrades, backups, restores, profile management, and interrogator retrieval.

- USB-C 3.0 Interface (the I callout in the Video Input panel images)—USB-C Connector with locking mechanism supporting USB 3.0 protocol (5 Gb/s), power over USB (2 A @ 5 VDC). This port can be used as a high speed data interface.
- USB Type 3.0-A Interface (the K callout in the Video Input panel images)—USB Type A connector with locking mechanism supporting USB 3.0 protocol (5 Gb/s) and power over USB (2 A @ 5 VDC). Intended for data ingest using USB flash drives for the purposes of upgrading, profile management, and interrogator retrieval.
This port can be connected to a Christie-recommended WiFi USB device to provide wireless Ethernet control.

For more details (including images and callouts) on the Video Input panels, see *Video Input panel* (on page 49).

Connecting to a computer or server with 10/100/1000 base-T Ethernet

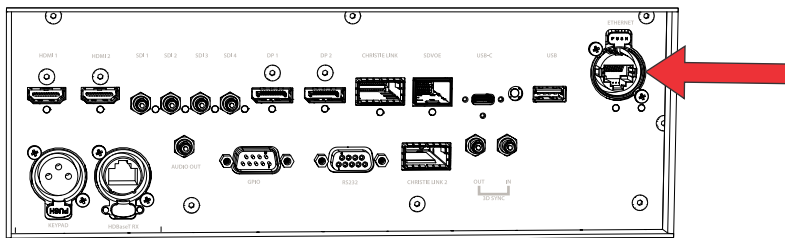
Communicate with a remote computer, server, or an existing network using a RJ-45 cable.

The port located on the Video Input panel (the L callout in the Video Input panel images) uses the Christie proprietary protocol or Art-Net control protocol and is intended for Christie accessories or automation controllers only.

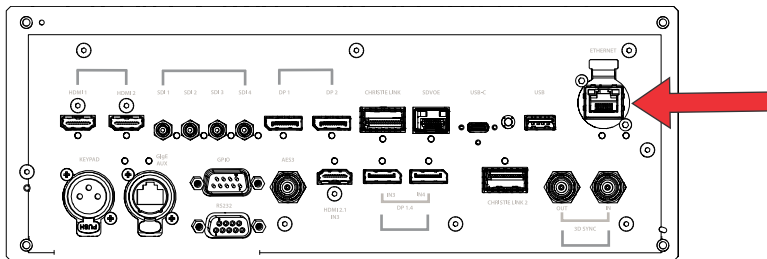
For more details (including images and callouts) on the Video Input panels, see *Video Input panel* (on page 49).

1. Use an RJ-45 cable to connect the Ethernet hub or switch to the Ethernet port, located on the projector Video Input panel.

VOM-IF:



VOM-HBI:



2. When using the Christie serial protocol over Ethernet, connect to port 3002.
3. For applications or equipment using serial communications, use the Christie proprietary serial protocol or Art-Net protocol to communicate with the Ethernet port on the Video Input panel.

Setting up the Ethernet

Ethernet is set up to obtain an IP address automatically if a DHCP server is on the network, modify IP settings, or manually enter an address.



You cannot change the IP settings using the web interface.

1. From the display panel, use the arrow keys to select **IP Settings**.
2. To set the type of network, select **DHCP** or **Static**.
3. If you selected Static, manually enter the network information for the **IP Address**, **Subnet**, and **Gateway**.
4. Select **Apply** and select **Enter**.
5. Select **MENU** > **Communications** > **Network Settings**.

6. Select **Device name**.
7. Use the up and down keys to enter the name of the projector.
8. Select **Enter**.

Communicating with Christie TruLife+ through Art-Net

Christie TruLife+ 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 Christie TruLife+ 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. Christie TruLife+ specifies 24 channels.



Christie TruLife+ 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	128	Must be valid for five seconds before it is applied.

Channel	Name	Description	Suggested starting position	Notes
		172 to 255 = Powers on the projector (switches light source on, warm up mode)		
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%) 255 = Full upper 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.
12	Lens Vertical Position (Fine)			
13	Input	1 to 80 = Input index 86 = Load 91 to 170 = Additional input indices	0	To change inputs, send the following sequence: Load > Input index > Execute

Channel	Name	Description	Suggested starting position	Notes
		171 = Execute		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. Available options depend on the Video Input configuration option selected: **Default** or **SDVoE**.

Input index	Description
0	One-port HDMI0
1	One-port HDMI1
2	Reserved for future use
3	One-port DisplayPort0
4	One-port DisplayPort1
5	Reserved for future use
6	One-port SDI0
7	One-port SDI1
8	One-port SDI2
9	One-port SDI3
11	One-port SDVoE
12	Christie Link A
14	One-port VOM-HDMI (2.1)
15	One-port VOM-DP0 (1.4)
16	One-port VOM-DP1 (1.4)
20	Two-port HDMI
21	Two-port DisplayPort
22	Four-port SDI
23	Two-port VOM-DisplayPort
30	One-port, dual-input 3D L:HDMI0, R:HDMI1

Input index	Description
31	One-port, dual-input 3D L:DP0, R:DP1
32	One-port, dual-input 3D L:SDI0, R:SDI1
33	One-port, dual-input 3D L:SDI2, R:SDI3
35	One-port, dual-input 3D L:VOM-DP0, R:VOM-DP1

Configuring the 3D Sync in/3D Sync out interface

The 3D sync interface is supported for 3D-enabled projectors (the M callout in the Video Input panel images). A Mirage license is required.

Only applies: Christie M RGB Series, Griffyn® Series, and Sapphire 4K40-RGBH

For more details (including images and callouts) on the Video Input panels, see *Video Input panel* (on page 49).

The projector can configure the 3D output sync port to supply an output synchronized right eye/left eye signal for:

- Another projector
- 3D glasses emitter

The 3D sync input and output interface connector (mini BNC for VOM-IF and standard BNC on VOM-HBI) is a micro 75 ohm BNC connector.

Configuring the RS232 port

For more details (including images and callouts) on the Video Input panels, see *Video Input panel* (on page 49).

For more information, on the serial commands, see the *Christie TruLife+ Serial Commands Guide (P/N: 020-103316-XX)*.

1. Select **Menu > Communications > Projector Communication**.
2. Use the down arrow to select **Baud Rate**.
3. Select the appropriate baud rate and select **Enter**.
4. Use the down arrow to select **Network Routing**.
5. Select the type network routing appropriate for your projector and select **Enter**.

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.



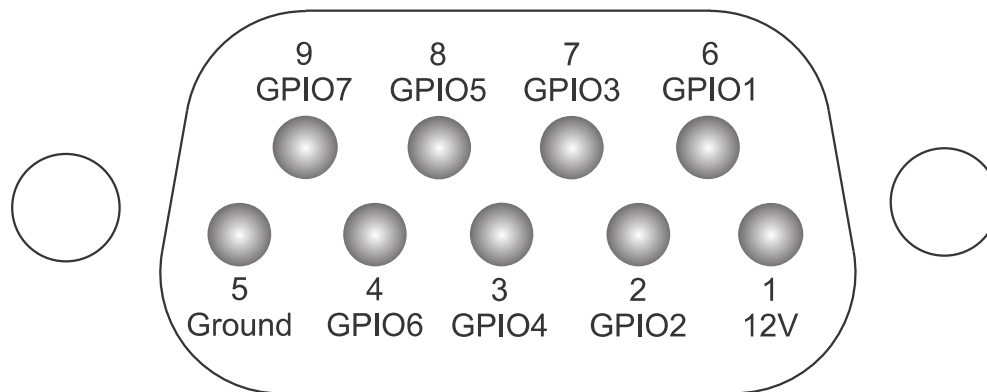
This feature is only available on the web interface.

1. From the home page of the web interface, select **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 (the S callout in the Video Input panel images) 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.

For more details (including images and callouts) on the Video Input panels, see *Video Input panel* (on page 49).



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	—	—
Pin 6	GPIO 1	5V	75mA max (e)fused to prevent damage
Pin 7	GPIO 3		
Pin 8	GPIO 5		
Pin 9	GPIO 7		



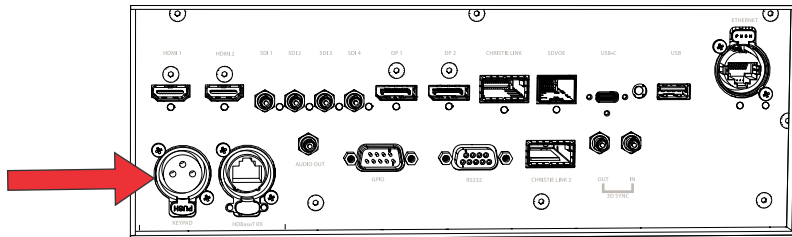
All GPIO pins are weakly pulled up to 3.3V.

Enabling the wired remote keypad

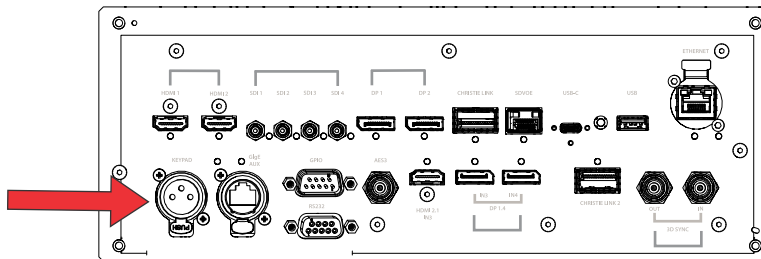
The wired remote keypad interface supports the NEC IR communication protocol.

1. Connect the remote cable in the Wired keypad port on the Video Input panel.

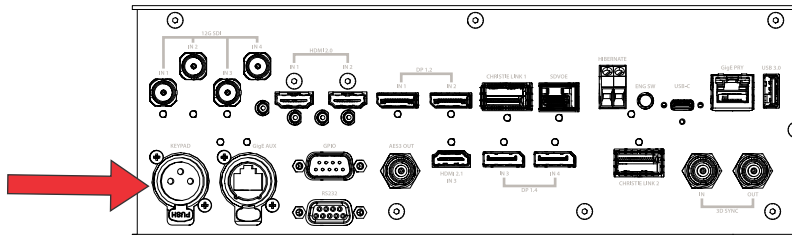
VOM-IF:



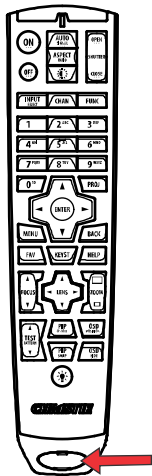
VOM-HBI:



CAVE LP:



2. Connect the remote cable in the bottom of the remote.



3. On the projector, select **MENU > Communications > Projector Communications**.
4. To enable a wired version of the remote, select **Wired Keypad Enabled** and select **Enter**.
By default this feature is enabled.

Working with macros

Automate tasks in Christie TruLife+ 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 Scheduled Event macro

Create a Scheduled Event macro to automate a repetitive task.

Up to 24 macros can be created.



This feature is only available on the web interface.

1. From the home page of the web interface, select **Macros and GPIO**.
2. Select **Add Macro**.
If the limit of 24 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. From the Type list, select **Scheduled Event**.
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, select **Recurring**.
When enabled, the button appears green. When disabled, the button appears grey.
 - 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 *Christie TruLife+ Serial Commands Guide (P/N: 020-103316-XX)*.
9. To test the functionality, select **Test**.
An `Action succeeded` message is displayed upon a successful test.
10. To save the macro, select **Save**.

If the time specified in a macro has expired, a warning icon depicting an expired macro is displayed in the title bar.

Adding a GPIO Event macro

Create a macro which can be triggered through a GPIO input pin to automate projector actions by external signals.

Up to 14 GPIO Event macros can be created.



This feature is only available on the web interface.

1. From the home page of the web interface, select **Macros and GPIO**.
2. Select the **Add Macro**.
If the limit of 24 total 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. From the Type list, select **GPIO Event**.
5. From the display of pins, select the input pin.
Only pins configured as input pins can have triggers. Output pins are disabled.
6. Select the type of transition: **High to Low** or **Low to High**.
An input pin can only have a maximum of two events, one for each transition type.
7. In the Serial Command field, enter the serial command(s) you want to run.
For available serial commands and their syntax, refer to the *Christie TruLife+ Serial Commands Guide (P/N: 020-103316-XX)*.
8. To test the functionality, select **Test**.
An `Action succeeded` message is displayed upon a successful test.
9. To save the macro, select **Save**.

If the input pin used in a GPIO Event macro has changed from input to output, a warning icon depicting an invalid macro is displayed in the title bar.

Copying a macro

Duplicate a Scheduled Event macro to create another macro of similar functionality.

Up to 24 macros can be created. GPIO Event macros cannot be duplicated.



This feature is only available on the web interface.

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



If the limit of 24 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, select **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 **Macros and GPIO**.
2. From the list of macros, select **Edit** next to the macro you want to edit.



3. Modify the appropriate fields.
4. To save the macro, select **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 **Macros and GPIO**.
2. From the list of macros, select one or more macros to delete.
To delete all the macros in the list, select **Select All**.
The number of macros you want to delete is displayed next to the trash can.
3. Select **Delete**.



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

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. Next to New Profile, select **Create**.
5. In the dialog, enter a new profile name.
6. Select **Save**.

Importing a projector profile

Import projector profiles set on different projectors using a USB flash drive (projector) or file (web interface).

1. If using the display panel, 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. Next to Import From File, select **Import**.
5. Select a projector profile file.
 - On the projector, from the File Selection dialog, select a projector profile file.
 - From the web interface, in the Open dialog, navigate to the file and select **Open**.

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, *<productname>_2022-06-15*. 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 (projector) or file (web interface).

1. If using the display panel to export a projector profile, 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**.
A default name is assigned.
5. Select **Download File**.
The profile file is exported to the USB flash drive or to the default location on the computer.

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

Backing up, restoring, and upgrading projector files

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

Upgrading the Christie TruLife+ software

When a new version of the software is released, the Christie TruLife+ projector must be upgraded.

Christie recommends backing up your files before installing an upgrade package.

1. Turn off the lasers before proceeding with the upgrade.
2. Download the latest software version from the Christie website:
 - a) Navigate to <https://www.christiedigital.com/products/projectors/all-projectors/>.
 - b) Select the projector series.
 - c) On the product page, select the model and switch to the **Downloads** tab.
 - d) Expand the **Software downloads** section.
 - e) Download the software upgrade file.
3. If using the display panel to upgrade the software, 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.
4. Select **MENU > Admin > Software > Upgrade**.
5. Select an upgrade file.
 - On the projector, select the upgrade file from the root of the USB and select **Enter**.
 - From the web interface, in the Open dialog, navigate to the file and select **Open**.
6. To automatically restart Christie TruLife+, select **Restart Now**.

If you decide to restart Christie TruLife+ at a later date (**Restart Later**), you cannot perform another upgrade until the Christie TruLife+ is restarted.

Adding a software license to a projector

Add the software license to the projector using Christie Twist™ 2.8 or higher.

The projector does not display 4K content if the HFR license is installed and enabled. To change to 4K mode, use the OTR serial command. For more information, refer to *Christie TruLife+ Serial Commands Guide (P/N: 020-103316-XX)*.

1. Record the serial number of the projector(s) and send it to Christie Technical Support.
The serial number is available on the projector label, from the **Menu > Status > Configuration** menu, or you can send the (SST+CONF?1) serial API command.
Christie Technical Support will send a zipped license file to you. If you sent more than one serial number, you will receive multiple license files as the .key file is based on the serial number of the projector.
2. Unzip the license file to a known location on your computer.
3. Make sure the projector you want to upgrade is running and is on the same subnet as your computer.
4. From the Start menu, select **Christie > Twist 2.x > Projector License Utility**.
5. In the Christie Projector License Utility dialog, select **Browse**.
6. Navigate to the location of the unzipped license file (.key) and select it.
7. From the Projectors list, select the projector you want to apply the upgrade to.
8. Select **Apply**.
9. Reboot the projector.
10. Repeat steps 3 to 9 for each additional projector.

Exporting backup settings to an external device

Save the Christie TruLife+ settings to a USB flash drive (projector) or file (web interface).

1. If using the display panel to export settings, insert a USB flash drive (properly formatted as FAT) into the USB port on Christie TruLife+.
2. Select **MENU > Admin > Backup & Restore**.
3. Select the backup option.
 - On the projector, select **Backup to USB**.
 - On the web interface, select **Backup to File**.

A default name is assigned.

4. From the projector:
 - a) To edit the backup file name, select the up arrow and select **Enter**.
 - b) To save the name, navigate down and select **SAVE**.
The backup file is exported.
5. From the web interface:
 - a) To edit the backup file name, enter the new name and select **Backup**.
The backup file is created.
 - b) To download the backup file, select **Download**.

The backup file is downloaded to the default location on the computer.

Importing a file from an external device to restore settings

Restore backed up files, stored on a USB flash drive (projector) or file (web interface), onto the projector.

1. If using the display panel to import the file, insert the USB flash drive containing the backup file into the USB port on the projector.
2. Select **MENU > Admin > Backup & Restore**.
3. Select the restore option.
 - On the projector, select **Restore from USB**.
 - On the web interface, select **Restore from File**.
4. Select the file.
 - On the projector, from the File Selection dialog, select a file to restore.
 - From the web interface, in the Open dialog, navigate to the file and select **Open**.

The backup settings file is imported to the projector.

Copying the current EDID to Terra

Send the current projector EDID to the connected Terra Transmitter.

1. Select **MENU > Configuration > Input Settings**.
2. Next to Copy EDID to Terra, select **Copy**.
3. To send the current EDID to Terra, select **Enter**.

Restoring SDVoE settings to factory default

Restore the settings of the SDVoE receiver on the projector to their factory defaults

1. Select **MENU > Configuration > Input Settings**.
2. Next to Restore SDVoE Settings, select **Restore**.
3. To restore the settings, select **Enter**.

Restoring projector default settings

Restore the Christie TruLife+ 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. Next to Reset Projector Defaults, select **Reset**.
All customized settings are set to the default Christie TruLife+ settings.

Diagnostic tools

Follow these procedures to help with diagnosing issues with Christie TruLife+.

Viewing Christie TruLife+ information

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

1. To view the additional software added to Christie TruLife+, next to **MENU > Admin** and next to Licenses, select **View**.
2. To view the software licenses used to run Christie TruLife+, select **MENU > Admin** and next to About, select **View**.

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

Selecting a test pattern

Many 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 > Admin > 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 greyscale 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, select **Func+6+<0 to 7>**.
Where <0 to 7> represents a specific color.

Selecting an engine test pattern

Several engine test patterns are available to assist with the calibration and internal optical alignments of the projector and to diagnose any issues that may occur.



- For Christie M RGB Series, Griffyn® 4K35-RGB, and 4K50-RGB, engine test patterns do not have electronic convergence applied.
 - For Christie Eclipse, these test patterns are the prime engine test patterns.
1. Select **MENU > Admin > Service**.
 2. Select **Engine Test Patterns**.
 3. Scroll through the list of test patterns.
 4. Select the required test pattern.
 5. To confirm your selection, select **Enter**.
 6. To disable the engine test patterns, select **MENU > Admin > Service > Engine Test Patterns > Off**.

Selecting premod engine test patterns

The premod engine test patterns are available to assist with the calibration and internal optical alignments of the projector and to diagnose any issues that may occur.

Only applies to: Christie Eclipse

1. Select **MENU > Admin > Diagnostics > Test Pattern > Engine Test Patterns Premod Red**.
2. Scroll through the list of test patterns.
3. Select the required test pattern.
4. To confirm your selection, select **Enter**.
5. Repeat steps 1 to 4 for blue and green.
6. To disable a premod engine test pattern, select **MENU > Admin > Diagnostics > Test Pattern > Engine Test Patterns Premod <color> > Off**.

Viewing Christie TruLife+ 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 Christie TruLife+.

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 Christie TruLife+ interrogator

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

1. If saving the interrogator file to a USB flash drive on the projector, insert a USB flash drive in the USB port on the projector.
The USB flash drive must be formatted using the FAT 32 (restricted to key sizes of 32 GB or less) and exFAT file systems.
2. Select **MENU > Admin > Interrogator**.
3. Select **Run**.
 - If on the projector, the interrogator file is stored at the root directory on the USB flash drive.
 - If running Christie TruLife+ interrogator from the web interface, a message appears indicating the interrogator file was successfully created.
4. From the web interface to download the interrogator file to the computer, select **Download File**.
The interrogator file is downloaded to the default location on the computer.
5. If on the projector, 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 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. Enter the read community string.
On the display panel use the up and down arrows to enter the read community string.
3. To confirm the name of the string, select **Enter**.

Configuring traps

A trap is a condition that SNMP monitors on Christie TruLife+.

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
 - Video Signal
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. From the projector:
 - a) Select **Address 1.**
 - b) Use the up and down arrows to enter an IP address.
 - c) To confirm the address, select **Enter.**
 - d) To add a second and third IP address, repeat steps a to c for **Address 2** and **Address 3.**
3. From the web interface:
 - a) For Address 1, select **Edit.**
 - b) Enter the IP address.
 - c) Select **Apply.**
 - d) To add a second and third IP address, repeat steps a to c for **Address 2** and **Address 3.**

Downloading the SNMP MIB files

The SNMP management information base (MIB) files describe the data format used by SNMP.

1. Select **MENU > Communications > SNMP.**
2. To download the SNMP MIB files, select **Download File.**

The files are downloaded to the default location on the computer.

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**.
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 + Am 1:2011+ Am 2:2014 Information Technology Equipment Safety Part 1: General Requirements
- ANSI/UL 60950-1-2014 – Information Technology Equipment – Safety – Part 1: General Requirements
- IEC 60950-1:2005 + Amendment 1:2009 + Amendment 2:2013 – Information Technology Equipment - Safety - Part 1: General Requirements
- EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 – Information Technology Equipment – Safety – Part 1: General Requirements
- CAN/CSA-C22.2 No. 62368-1: 2014 – Audio/video, information and communication technology equipment - Part 1: Safety requirements.
- UL 62368-1: 2014 – Audio/video, information and communication technology equipment - Part 1: Safety requirements.
- IEC 62368-1:2014 - Audio/Video, Information And Communication Technology Equipment - Part 1: Safety Requirements
- EN 62368-1: 2014 – Audio Video, IT & Communication Technology Equipment (AV/ICT) – Part 1: Safety Requirements
- IEC 62471-5:2015 – Photobiological Safety of Lamps and Lamp Systems – Part 5: Image projectors
- IEC 60825-1:2014 - Safety of Laser Products - Part 1: Equipment Classification and Requirements
- ANSI Z136.1:2014 – Safety of Lasers

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/EN 61000-3-3: Limitations of Voltage Changes, Voltage Fluctuations, and Flicker input current ≤ 16 A per phase and not subject to conditional connection

Immunity

- CISPR 35/EN 55035 Electromagnetic compatibility of multimedia equipment - Immunity requirements

California law on security

- California Law Requiring Internet Connected Devices To Include Reasonable Security Features (California Civil Code Section 1798.91.04)

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 Directive (2012/19/EU) on waste and electrical and electronic equipment (WEEE) and the applicable official amendment(s).
- Regulation (EC) No. 1907/2006 on the registration, evaluation, authorization and restriction of chemicals (REACH) 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).

International packaging recycling mark requirements.

- EU Directive (2012/19/EU) on waste and electrical and electronic equipment (WEEE) and the applicable official amendment(s).
- EU Directive (94/62/EC) on packaging and packaging waste
- China packaging recycling mark standard (GB18455-2001)