User Guide
020-103073-04

CineLife+
CP4415-RGB, CP4420-RGB, CP4440-RGB, CP4450-RGB

CHRISTIE®

NOTICES

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GENERAL

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

Content

Safety precautions

Learn about the safety precautions related to the Christie CineLife+ projector. This projector is intended for use in a cinema environment.

General safety precautions

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

Warning! If not avoided, the following could result in death or serious 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.
- This product must be installed within a restricted access location not accessible by the general public.
- Only personnel who are trained on the precautions for the restricted access location can be granted entry to the area.
- Install the product so users and the audience cannot enter the restricted area at eye level.
- ELECTRICAL and BURN HAZARD! Use caution when accessing internal components.
- High leakage current present when connected to IT power systems.
- FIRE AND SHOCK HAZARD! Use only the attachments, accessories, tools, and replacement parts specified by Christie.
- FIRE HAZARD! Do not use a power cord, harness, or cable that appears damaged.
- A minimum of four people or appropriately rated lift equipment is required to safely lift, install, or move the product.
- Lift equipment must be used to position the product.
- Do not install or operate the projector in any position that does not meet the stated product specifications for alignment and orientation.

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

- Only Christie qualified technicians are permitted to open product enclosures.

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.

- Do not operate the cinema projector without all of its covers in place.
- LASER RADIATION HAZARD! This projector has a built-in Class 4 laser module. Never attempt to disassemble or modify the laser module.
- Do not look directly into the lens when the light source is on. The extremely high brightness can cause permanent eye damage.
- Possible hazardous optical radiation emitted from this product. (Risk group 3)

AC power precautions

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

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

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

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

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

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 2.5 meters (US installations) or 2.0 meters (global installations) above any surface upon which any persons are permitted to stand and the horizontal clearance to the hazard zone must be a minimum 1.0 meters.

- EXTREME BRIGHTNESS! Do not place reflective objects in the product light path.

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

For information detailing the hazard distance for each lens, refer to the *CineLife+ RGB PLF Installation and Setup Guide (P/N: 020-103072-XX)*.
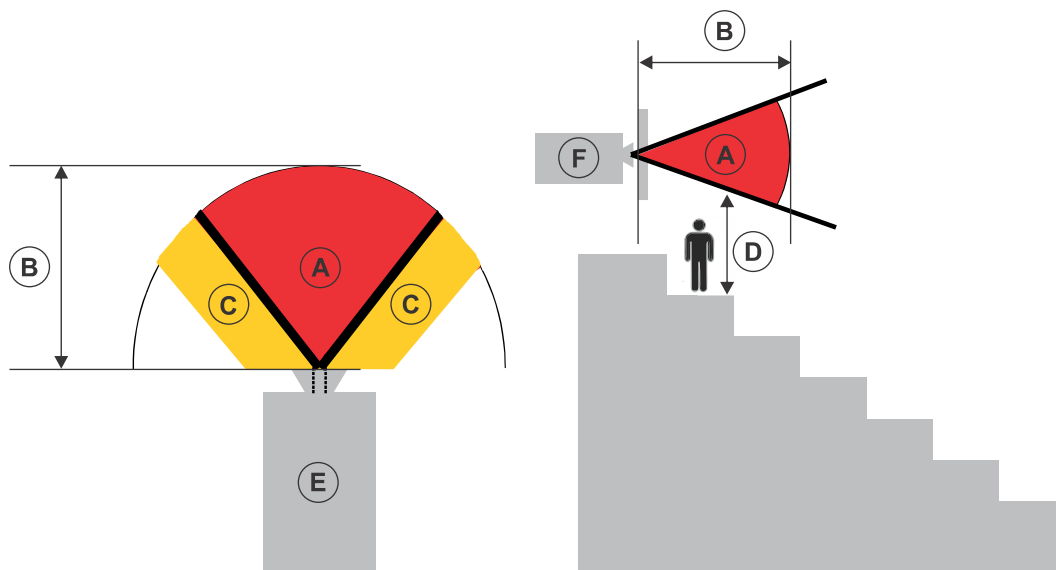
- A—Hazard zone. The region of space where the projection light from the laser-illuminated projector is above emission limits for Risk Group 2. The light intensity may cause eye damage after a momentary or brief exposure (before a person can avert his or her eyes away from the light source). The light may cause skin burns to occur.

- B—Hazard distance. Operators must control access to the beam within the hazard distance or install the product preventing potential exposure of the spectators' eyes from being in the hazard distance.

- C—No access zone. Horizontal clearance of the no access zone must be a minimum of 1.0 meters.

- D—Vertical distance to hazard zone. The hazard zone must be no lower than 2.5 meters (US installations) or 2.0 meters (global installations) above any surface upon which any persons are permitted to stand.

- 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:

- The projection room shall be clearly identified by the posting of laser warning and restricted access signs, and by restricting entry through physical means. The projection room sign must display the warning "No direct exposure to beam shall be permitted".

- 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.

Product labels

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

General hazards

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

Fire and Shock Hazard
To prevent fire or shock hazards, do not expose this product to rain or moisture. Do not alter the power plug, overload the power outlet, or use it with extension cords. Do not remove the product enclosure. Only Christie qualified technicians are authorized to service the product.

Electrical Hazard
Risk of electric shock. Do not remove the product enclosure. Only Christie qualified technicians are authorized to service the product.

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

> Electric shock hazard. To avoid personal injury, disconnect all power sources before performing maintenance or service.

> Electrocution hazard. To avoid personal injury, always disconnect all power sources before performing maintenance or service procedures.

> Laser hazard. To avoid personal injury, avoid eye or skin exposure to direct or scattered radiations.

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

> Hot surface hazard. To avoid personal injury, allow the product to cool for the recommended cool down time before touching or handling for maintenance or service.

> Moving fan blade. To avoid personal injury, keep hands clear and loose clothing tied back. Always disconnect all power sources before performing maintenance or service procedures.

Notice. If not avoided, the following could result in property damage.

Mandatory action

Consult the service manual.

Disconnect all power sources before performing maintenance or service procedures.

Electrical labels

Indicates the presence of a protective earth ground.

Indicates the presence of an earth ground.

Additional hazard labels

Indicates Class 4 laser radiation when open. Avoid eye or skin exposure to direct or scattered radiation.

CLASS 1 LASER PRODUCT IEC 60825-1:2014

Wavelengths:

CP4440-RGB: 450nm - 661nm

CP4450-RGB: 450nm - 645nm
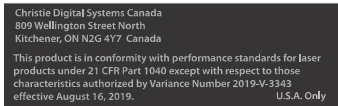
FDA laser variance (US projectors only). This product is in conformity with performance standards for laser products under 21 CFR 1040, except with respect to those characteristics authorized by Variance Number 2019-V-3343 effective on August 16, 2019.
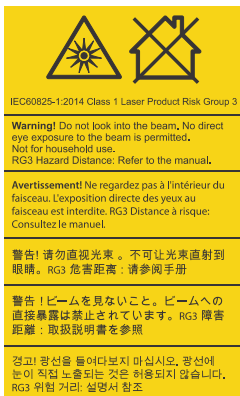
Indicates a light hazard. Do not look directly into the lens. The extreme high brightness can cause permanent eye damage. Class 1 Laser Product - Risk Group 3 according to IEC 60825-1:2014 and IEC 62471-5:2015.

Indicates high leakage current. Earth or ground connection essential before connecting the power supply.

Indicates a light hazard. Do not look directly into the lens. The extreme high brightness can cause permanent eye damage.

Indicates moving parts hazard for the motorized lens mount. To avoid personal injury, keep hands clear and clothing tied back.

Introduction

This manual is intended for operators of Christie CineLife+ projection systems.

For complete production documentation and technical support, go to *www.christiedigital.com*.

Product documentation

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

CP4415-RGB

1. Go to the Christie website:

   - *https://bit.ly/3iAQoZj* or
     https://www.christiedigital.com/products/cinema/projection/cp4415-rgb

   - Scan the QR code using a QR code reader app on a smartphone or tablet.
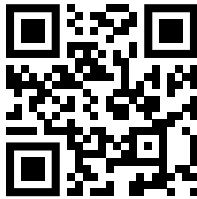
2. Switch to the **Downloads** tab.

CP4420-RGB

1. Go to the Christie website:

   - *https://bit.ly/3iBrYPu* or
     https://www.christiedigital.com/products/cinema/projection/cp4420-rgb

   - Scan the QR code using a QR code reader app on a smartphone or tablet.
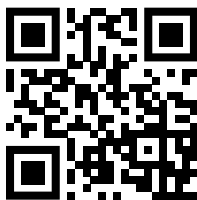
2. Switch to the **Downloads** tab.

CP4440-RGB

1. Go to the Christie website:

- *http://bit.ly/2NwVsRy* or
    https://www.christiedigital.com/en-us/cinema/cinema-products/digital-cinema-projectors/christie-cp4440-rgb
- Scan the QR code using a QR code reader app on a smartphone or tablet.

2. Switch to the **Downloads** tab.

CP4450-RGB

1. Go to the Christie website:

    - *http://bit.ly/2UYil0V* or
        https://www.christiedigital.com/en-us/cinema/cinema-products/digital-cinema-projectors/christie-cp4450-rgb
    - Scan the QR code using a QR code reader app on a smartphone or tablet.

2. Switch to the **Downloads** tab.

Related documentation

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

4K-RGB (CP4415-RGB and CP4420-RGB)

- *CineLife+ 4K-RGB Installation and Setup Guide (P/N: 020-103244-XX)*
- *CineLife+ 4K-RGB Product Safety Guide (P/N: 020-103243-XX)*
- *CineLife+ 4K-RGB Service Guide (P/N: 020-103257-XX)*
- *CineLife+ Serial Commands Guide (P/N: 020-103075-XX)*

RGB PLF (CP4440-RGB and CP4450-RGB)

- *CineLife+ RGB PLF Installation and Setup Guide (P/N: 020-103072-XX)*
- *CineLife+ RGB PLF Product Safety Guide (P/N: 020-103071-XX)*
- *CineLife+ RGB PLF Service Guide (P/N: 020-103076-XX)*
- *CineLife+ Serial Commands Guide (P/N: 020-103075-XX)*

Key features

Understand the important features of the projector.

- Solid-state Christie RealLaser™ RGB laser illumination

- Three-chip 1.38 inch 4K DLP™ light engine

- Christie CineLife+™ electronics platform for ultra-fast processing

- High frame rate playback of 4K at 120 Hz, for premium, large format cinema venues

- Dual, direct-coupled laser modules integrated in the projector chassis

- Ability to work with Mystique software

- 4K 3D playback capability

- LiteLOC™ color lock feature for constant image brightness and color

- Compatible with ultra high contrast (UHC) lens suite

- External chiller unit with exhaust adapter (CP4440-RGB and CP4450-RGB projectors only)

Contact your dealer

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

Purchase record
Dealer:
Dealer or Christie Sales/Service contact phone number:
Serial number: The serial number can be found on the license label located on the display panel.
Purchase date:
Installation date:

Understanding the Christie touch panel interface and remote user interface

Use the touch panel to control the projector and perform functions such as turning the light on or off, selecting channels, and viewing status information.

The touch panel is an optional feature on CP4415 and CP4420 projectors. If there is no touch panel installed, use the Remote UI feature. See *Using the Remote UI* (on page 17).
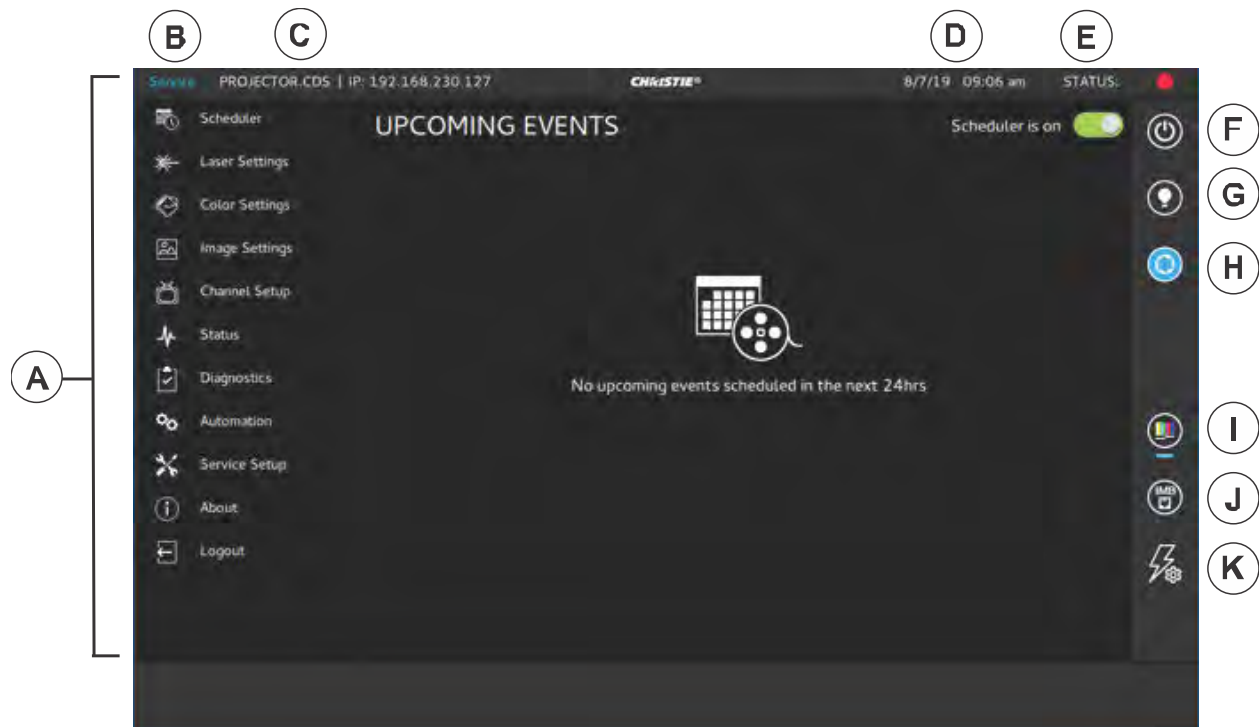
A	Left navigation menu. Your access permissions determine the available options.	G	Turns the light on or off.
B	Current access permissions.	H	Opens and closes the shutter.
C	Projector name and IP address.	I	Turns test patterns on or off.
D	Current date and time.	J	Displays channels.
E	System status. To display all alarms, select the colored icon.	K	Displays macros.
F	Turns the projector on or off.		

Using the Remote UI

Use the remote UI to access projector functionality.

1. Log into the Remote UI.
2. From the Remote UI default page, access the main projector user interface by clicking the **Projector Control** tab.
3. To upload and download files from the Projector, use the File Menu.
   Examples of items that can be uploaded include:
   - Projector Upgrade packages
   - Backup packages to restore from

- Rental files to license the projector for Rental mode

- Test Patterns (PNG files only)

- Gamma files

Examples of items that can be downloaded include:

- Projector Backup files

- Projector Certificates (required for content decryption)

- Interrogator files (for support and troubleshooting)

4. If the projector has a GDC IMB SR-1000 installed and configured, you can access the GDC IMB Web UI by using the **Media Block** tab.

Technical support

Technical support for Christie Cinema products is available at:

- *Support.cinema@christiedigital.com*

- +1-877-334-4267

- Christie Professional Services: +1-800-550-3061 or *NOC@christiedigital.com*

![Christie logo]

Operating the projector

Learn how to operate the projector and adjust projector settings.

Projector power modes

The CineLife+ projectors track laser operation hours for the laser optical sub-systems (LOS).

The projector operates with the following power modes:

Mode	Description
Standby	- CineLife+ electronics remain on standby with the light engine off - Fans, laser optical sub-systems (LOS), and thermo-electric cooler (TEC) devices are off - IMB is off (IMB automation does not function)
Projector on	- CineLife+ electronics and light engine are on - LOS and TEC devices are off - Chiller is on (CP4440-RGB and CP4450-RGB projectors only) - IMB is on
Light source on	- CineLife+ electronics and light engine are on - LOS and TEC devices are on - Fans run at full speed - Chiller is on (CP4440-RGB and CP4450-RGB projectors only) - IMB is on

System operation for CP4440-RGB and CP4450-RGB projectors

Understand the correct sequence for powering up and operating CP4440-RGB and CP4450-RGB systems.

The connected chiller must always be turned on first and turned off only *after* the projector is turned off. Once the chiller is connected to AC and the chiller communication cable is connected to the projector, the projector controls the chiller automatically to maintain the required coolant temperature.

The system is ready to operate when the following steps are completed:

1. The connected chiller unit is powered on.
2. The projector's main power switches are ON.

3. Communication between the projector and the connected chiller is confirmed, and coolant temperatures are correctly maintained.

   If a thermal shutdown occurs in a dual projector installation, verify that the chiller communication cables are connected correctly between each projector-chiller pair. This ensures that there is no cross-connection relative to the coolant lines.

Turning the projector on or off

Turn on the projector to display content, or turn off the projector to conserve energy or service the projector.

> To operate the projector, the circuit breakers must be in the ON position. If you are servicing the projector or removing the protective covers, ensure that the MAIN and UPS circuit breakers are in the off position.

In the right toolbar, select and hold **Power**. ⏻

If the light source is on when turning off the projector, the light source enters a ten-minute cool-down period automatically.

Logging on to the projector

Log on to the projector to access projector menus.

1. Select **Login**.
2. In the User list, select a user name.
3. Enter your password.
4. Select **Login**.

Logging out of the projector

Log out of the projector to restrict access to projector menus or to change access permissions.

- Select **Logout**.

Turning the touch panel on or off

Turn the touch panel on to view projector menus, or turn the touch panel off to conserve energy.

- To turn the touch panel on or off, press the power button ⏻ (A) on the top of the touch panel.
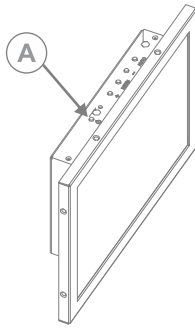
Turning the light source on or off

Turn the light source on to display content or view test patterns, turn the light off to extend the life of the lasers.

- To turn the light source on or off, in the right toolbar, select and hold **Light**. 💡

  If you turn on the light source when the projector power is off, power is turned on automatically.

  Allow the projector to cool down for 10 minutes after turning it off.

  > 📝 If you turn on the laser source while the projector is cooling down, the lasers turn on.

Opening or closing the shutter

Open the shutter (douser) to display light on the screen, or close the shutter to remove light from the screen.

- In the right toolbar, select and hold **Shutter**. ⊛

  If the shutter was closed, the shutter opens. ◉

  If the shutter was open, the shutter closes. ⊛

  The shutter sensor prevents light source activation when the shutter is closed.

  > 📝 In a situation where the shutter is not functioning, you can use the option for **Permit light source activation when shutter is nonfunctional** to permit activation of the light source. To enable this option, select **Service Setup** > **Preferences** > **Lens/ILS** and enable **Permit light source activation when shutter is nonfunctional**.
  >
  > To avoid damage to the projector, only enable this option when the shutter can be verified as open.

Adding a network time protocol server

Add a network time protocol (NTP) server to synchronize the time on all installed projectors in the same region.

1. In the left navigation menu, select **Service Setup** > **Time Setup**.

2. Switch to the **NTP Server** tab.

3. Select the **Time Sync using NTP Server** slider.
The color of the slider changes to green to indicate it is active.

4. Select **+ New NTP Server**.

5. Select a local or a public NTP server:

   • To use a local NTP server, select **Local Server** and type the IP address in the IP Address field.

   • To use a public NTP server, select **Public Server** and complete the Country and Server fields.

6. To test the connection, select **Test**.

7. Select **Add**.

Deleting a network time protocol server

Remove a network time protocol (NTP) server if you do not need to synchronize the time on all installed projectors in the same region.

1. In the left navigation menu, select **Service Setup** > **Time Setup**.

2. Switch to the **NTP Server** tab.

3. If network time protocol (NTP) time synchronization is not active, select **Time Sync using NTP Server**.
The color of the slider changes to green to indicate it is active.

4. In the NTP Server Address list, select an NTP server.

5. Select **Delete**. 🗑

6. At the confirmation dialog, select **Delete**.

Changing the time zone

Change the time zone settings to make the projector time match the local time zone.

1. In the left navigation menu, select **Service Setup** > **Time Setup**.

2. Select the **Time Zone** tab.

3. In the Region list, select a region.

4. In the Time Zone list, select the time zone.

5. Select **Save**.

Changing the time format

You can use the 12-hour or 24-hour format to display projector time. The 24-hour format reduces ambiguity.

1. In the left navigation menu, select **Service Setup** > **Preferences**.

2. Select **General**.

3. In the System area, select a time format option:

   - To use the 12-hour format, select **12 Hours**.

   - To use the 24-hour format, select **24 Hours**.

Automatically adjusting the time for Daylight Saving Time

With automatically adjusted time settings, there is no need to update the projector time when Daylight Saving Time occurs.

1. In the left navigation menu, select **Service Setup** > **Time Setup**.

2. Select the **Time Zone** tab.

3. To automatically adjust the projector time to follow Daylight Saving Time, select **Automatically adjust for Daylight Saving Time**.
   The color of the slider changes to green to indicate it is active.

4. Select **Save**.

Changing the orientation of the projected image

Change the orientation of the projected image from normal to inverted to support multi-projector installations where deflection mirrors are used.

1. In the left navigation menu, select **Service Setup** > **Preferences**.

2. Select **General**.

3. From the Projected Image Orientation list, select the required orientation for the projected image.

Orientation	Description
Normal Front	Projection from behind the audience with the projector in the normal, upright position.
Inverted Front	Projection from behind the audience with the projector in an inverted position (upside down). 📝 Inverted positioning is not supported for CineLife+ projectors. For more information, see the *CineLife+ 4K-RGB Installation and Setup Guide (P/N: 020-103244-XX)*.
Normal Rear	Projection from behind the screen with the projector in the normal, upright position.
Inverted Rear	Projection from behind the screen with the projector in an inverted position (upside down). 📝 Inverted positioning is not supported for CineLife+ projectors. For more information, see the *CineLife+ 4K-RGB Installation and Setup Guide (P/N: 020-103244-XX)*.

Changing the projector host name

Change the projector host name to make it easier to identify.

1. In the left navigation menu, select **Service Setup** > **Preferences**.
2. Select **General**.
3. Select **Update**.

Changing the temperature display

Set the touch panel to display temperatures in Celsius or Fahrenheit degrees.

1. In the left navigation menu, select **Service Setup** > **Preferences**.
2. Select **General**.
3. In the Temperature Units list, select **Celsius** or **Fahrenheit**.

Video Input panel

The Video Input panel, located on the projector side input panel (operator side), has a variety of ports that can supply alternative video content to the projector.
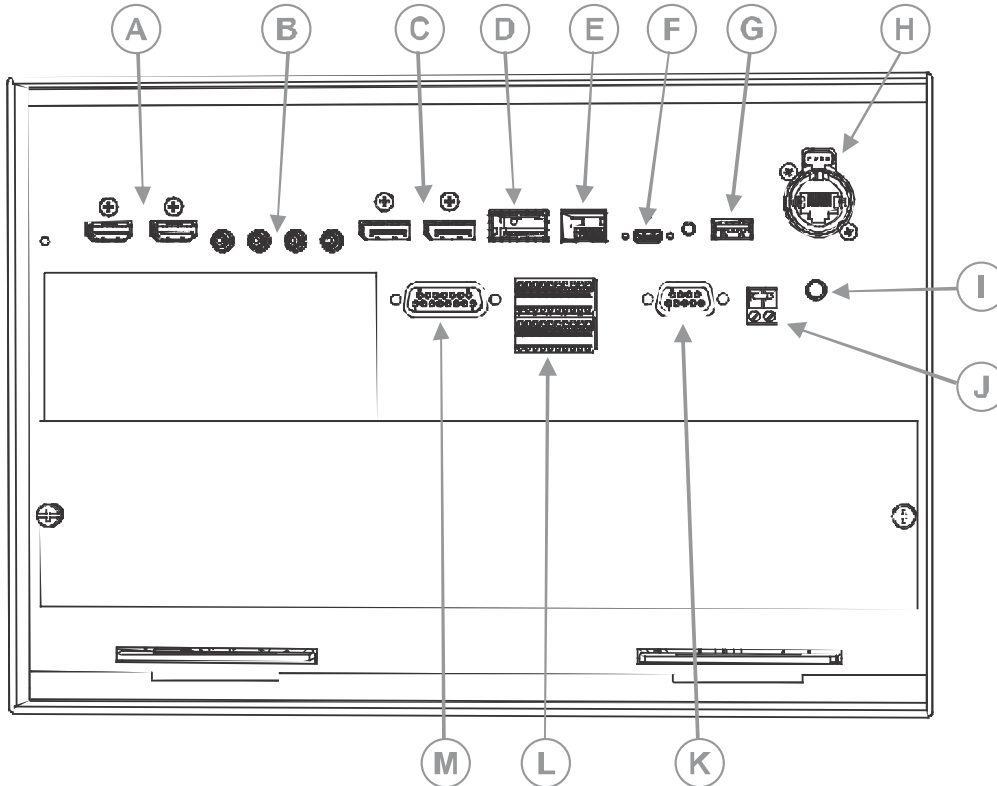
Connector ID	Port	Description
A	HDMI Input 1 and HDMI Input 2	Type A connector HDMI v2.0 protocol supporting EDID 1.3 with HDCP v1.4 and 2.2 support
B	SDI Input 1, SDI Input 2, SDI Input 3, and SDI Input 4	75 ohm Micro-BNC Connector Multi-Rate SDI in accordance with SMPTE ST 259 (270Mb/s), ST 292-1 (1.5Gb/s), ST 424 (3.0Gb/s), ST 2081-1 (6Gb/s) and ST 2082-1 (12Gb/s)
C	Display Port (DP1 and DP2)	
D	Christie Link port	
E	Software-Defined Video over Ethernet (SDVoE) port	
F	USB-C port	Connects the projector touch panel.

Connector ID	Port	Description
G	USB port	
H	Ethernet port	Connects to the local network and can send CineLife+ serial commands.
I	Marriage status LED indicator	In full power mode, a green LED indicates that the projector is properly married and encrypted content can be displayed. A red LED indicates marriage is broken and encrypted content cannot be displayed.
J	Fire alarm connection	
K	RS232 communication port	
L	GPIO port	Connects the projector to external automation or automation devices.
M	Connects the projector to 3D devices	

HDMI video source

Plug the HDMI source directly into the Video Input panel.

Table 1: Supported HDMI input configurations

Input configuration	Description
Single-Input	Accepts connection of one HDMI cable. Supports both 2D and 3D frame-packed, top and bottom. In this configuration, the HDMI input supplies the entire video raster.

HDMI video formats

The two HDMI inputs support the following image formats.

- 1920 x 1080 (HD)
- 3840 x 2160 (UHD)
- Fractional 1/1.001 frame rates.

Single-Link 2D

Each HDMI input supports the following Single-Input (one cable) 2D 2K and 4K HDMI 2.0 image formats.

Table 2: Single-Input 2D 2K and 4K HDMI 2.0 image formats

Type	Format (Hres x Vres)	Frame rate (Hz)	Sampling	Bit-depth
2K	2048x1080	24, 25, 30, 50, 60, 120	Y'C'$_B$C'$_R$/RGB/4:4:4 Y'C$_B$C$_R$/4:2:2	8/10/12bpc

Type	Format (Hres x Vres)	Frame rate (Hz)	Sampling	Bit-depth
4K	4096x2160	24, 25, 30	Y'C'$_B$C'$_R$/RGB/4:4:4 Y'C$_B$C$_R$/4:2:2	8/10/12bpc
		50, 60	Y'C'$_B$C'$_R$/RGB/4:4:4	8bpc
		50, 60	Y'C'$_B$C'$_R$/4:2:2	8/10/12bpc

Single-Link 2D: HD 720p and 1080i

Each HDMI input supports the following Single-Input (one cable) 2D HD HDMI 2.0 image formats.

Table 3: Single-Input 2D HD HDMI 2.0 image formats

Type	Format (Hres x Vres)	Frame rate	Sampling	Bit-depth	Notes
HD	1280x720	24, 25, 30, 50, 60	Y'C'$_B$C'$_R$/RGB/4:4:4 Y'C$_B$C$_R$/4:2:2	8/10/12bpc	-
	1920x1080i	25, 30	Y'C'$_B$C'$_R$/RGB/4:4:4 Y'C$_B$C$_R$/4:2:2	8/10/12bpc	2048x1080 interlaced (50/60 Hz field rate)

Single-Input 2D: PC

Each HDMI input supports the following Single-Input (one cable) 2D HDMI 2.0 PC image formats.

Table 4: Single-Input 2D HDMI 2.0 PC image formats

Type	Format (Hres x Vres)	Frame rate (Hz)	Sampling	Bit-depth
PC	1280x800	60	RGB	8bpc
	1280x960	60	RGB	8bpc
	1280x1024	60	RGB	8bpc
	1440x900	60	RGB	8bpc
	1680x1050	60	RGB	8bpc
	1600x1200	60	RGB	8bpc
	2048x1200	60	RGB	8bpc

Single-Input 3D: 2K / HD

Each HDMI input supports the following Single-Input (one cable) 3D 2K / HD HDMI 2.0 image formats.

Table 5: Single-Input 3D 2K / HD HDMI 2.0 image formats

Type	Format (Hres x Vres)	Frame rate (Hz)	Sampling	Bit-depth	Notes
3D	1280x720	50, 60	Y'C'$_B$C'$_R$/RGB/4:4:4 Y'C$_B$C$_R$/4:2:2	8/10/12bpc	Frame-packing / top-and-bottom
	2048x1080	24, 25, 30, 50, 60	Y'C'$_B$C'$_R$/RGB/4:4:4 Y'C$_B$C$_R$/4:2:2	8/10/12bpc	Frame-packing

SDI video source

Plug the 12G, 6G, 3G, HD, or SDI source directly into the Video Input panel.

Table 6: Supported SDI input configurations

Input configuration	Description
Single-Link	Accepts connection of 12G, 6G, 3G, HD, and SD SDI input standards.
Dual-Link	Accepts connection of dual-link 6G, 3G, and HD SDI input standards.
Quad-Link	Accepts connection of quad-link 6G or 3G SDI input standards.

SDI video formats

Each of the SDI inputs supports the following Single-Link 2D SD and HD image formats, Single-Link 2D HD and UHD/4K image formats, Dual-link 2D SDI image formats, and Quad-link 2D image formats.

- 1920 x 1080 (HD)
- 3840 x 2160 (UHD)
- Fractional 1/1.001 frame rates.

Single-Link 2D: SD, 720p and 1080i

Each of the SDI inputs supports the following Single-Link (one cable) 2D SD, 720p, and 1080i image formats.

Table 7: Single-Link 2D SD, 720p and 1080i image formats

Type	Format (Hres x Vres)	Frame rate (Hz)	Sampling	Bit-depth	Notes
SD	720x480	30	Y'C'$_B$C'$_R$/4:2:2	10bpc	SD interlaced component at 270Mb/s (ST 259 level C)

Type	Format (Hres x Vres)	Frame rate (Hz)	Sampling	Bit-depth	Notes
					Interlaced (60 Hz field rate)
	720x576	25	Y'C'$_B$C'$_R$/4:2:2	10bpc	SD interlaced component at 270Mb/s (ST 259 level C) Interlaced (50 Hz field rate)
HD	1280x720	24, 25, 30, 50, 60	Y'C'$_B$C'$_R$/4:2:2	10bpc	HD 720p Y'C'$_B$C'$_R$ component at 1.5Gb/s (ST 292-1)
	1280x720	24, 25, 30, 50, 60	Y'C'$_B$C'$_R$/4:4:4(4)	10bpc	HD 720p Y'C'$_B$C'$_R$/RGB component at 3.0Gb/s (ST 425-1) level A
2K	2048x1080	25, 30	Y'C'$_B$C'$_R$/4:2:2	10bpc	HD 1080i component at 1.5Gb/s (ST 292-1) Interlaced (50/60 Hz field rate)

Single-Link 2D: 2K and 4K (HD / UHD)

Each of the SDI inputs supports the following Single-Link (one cable) 2D HD and UHD/4K image formats.

Table 8: Single-Link 2D HD and UHD/4K image formats

Type	Format (Hres x Vres)	Frame rate (Hz)	Sampling	Bit-depth	Notes
2K	2048x1080	24, 25, 30	Y'C'$_B$C'$_R$/4:2:2	10bpc	HD 1080p component at 1.5Gb/s (ST 292-1)
		48, 50, 60	Y'C'$_B$C'$_R$/4:2:2	10bpc	HD 1080p component at 3.0Gb/s (ST 425-1) level A
		24, 25, 30	Y'C'$_B$C'$_R$/RGB/4:4:4(4)	12bpc	HD 1080p Y'C'$_B$C'$_R$/RGB component at 3.0Gb/s (ST 425-1) level A

Type	Format (Hres x Vres)	Frame rate (Hz)	Sampling	Bit-depth	Notes
		24, 25, 30	Y'C'$_B$C'$_R$/4:2:2(4)	12bpc	HD 1080p Y'C'$_B$C'$_R$ component at 3.0Gb/s (ST 425-1) level A
		48, 50, 60	Y'C'$_B$C'$_R$/RGB/4:4:4(4)	10bpc	HD 1080p Y'C'$_B$C'$_R$/RGB component at 6.0Gb/s (ST 2081-10) mode 2 structure II
		48, 50, 60	Y'C'$_B$C'$_R$/RGB/4:4:4	12bpc	HD 1080p Y'C'$_B$C'$_R$/RGB component at 6.0Gb/s (ST 2081-10) mode 2 structure III
4K	4096x2160	48, 50, 60	Y'C'$_B$C'$_R$/4:2:2	10bpc	2160p Y'C'$_B$C'$_R$ component at 6.0Gb/s (ST 2081-10) mode 1 structure 1
		24, 25, 30	Y'C'$_B$C'$_R$/RGB/4:4:4(4)	10bpc	2160p Y'C'$_B$C'$_R$/RGB component at 12.0Gb/s (ST 2082-10) mode 1 structure 2
		24, 25, 30	Y'C'$_B$C'$_R$/RGB/4:4:4	12bpc	2160p Y'C'$_B$C'$_R$/RGB component at 12.0Gb/s (ST 2082-10) mode 1 structure 3
		24, 25, 30	Y'C'$_B$C'$_R$/4:2:2(4)	12bpc	2160p Y'C'$_B$C'$_R$ component at 12.0Gb/s (ST 2082-10) mode 1 structure 4

Dual-link 2D: 2K and 4K (HD / UHD)

Dual-link SDI is a fixed configuration where:

- SDI 1 = link 1 of input 1
- SDI 2 = link 2 of input 1
- SDI 3 = link 1 of input 2

- SDI 4 = link 2 of input 2

The following Dual-link (two cable) 2D SDI input formats are supported.

Table 9: Dual-link 2D: 2K and 4K (HD / UHD) image formats

Type	Format (Hres x Vres)	Frame rate (Hz)	Sampling	Bit-depth	Notes
2K	2048x1080	48, 50, 60	Y'C'$_B$C'$_R$/RGB/ 4:4:4(4)	10bpc	Y'C'$_B$C'$_R$/RGB component at dual-link 3Gb/s (ST 425-3) level A structure II
			Y'C'$_B$C'$_R$/RGB/ 4:4:4	12bpc	Y'C'$_B$C'$_R$/RGB component at dual-link 3Gb/s (ST 425-3) level A structure III
			Y'C'$_B$C'$_R$/4:2:2	12bpc	Y'C'$_B$C'$_R$ component at dual-link 3Gb/s (ST 425-3) level A structure IV
			Y'C'$_B$C'$_R$/4:2:2:4	12bpc	Y'C'$_B$C'$_R$ component at dual-link 3Gb/s (ST 425-3) level A structure IV
4K	4096x2160	48, 50, 60	Y'C'$_B$C'$_R$/4:2:2	10bpc	Y'C'$_B$C'$_R$ component at dual-link 6Gb/s (ST 2081-11) mode 1
		24, 25, 30	Y'C'$_B$C'$_R$/RGB/ 4:4:4(4)	10bpc	Y'C'$_B$C'$_R$ /RGB component at dual-link 6Gb/s (ST 2081-11) mode 1
			Y'C'$_B$C'$_R$/RGB/ 4:4:4	12bpc	Y'C'$_B$C'$_R$/RGB component at dual-link 6Gb/s (ST 2081-11) mode 1
			Y'C'$_B$C'$_R$/4:2:2	12bpc	Y'C'$_B$C'$_R$ component at dual-link 6Gb/s (ST 2081-11) mode 1

Type	Format (Hres x Vres)	Frame rate (Hz)	Sampling	Bit-depth	Notes
			$Y'C'_BC'_R$/4:2:2:4	12bpc	$Y'C'_BC'_R$ component at dual-link 6Gb/s (ST 2081-11) mode 1

Quad-link 2D: 4K (UHD)

Quad-link 2D is a fixed configuration where the quad-link input is as follows.

- SDI 1 = link 1
- SDI 2 = link 2
- SDI 3 = link 3
- SDI 4 = link 4

The following Quad-link (four cable) 2D image formats are supported.

Table 10: Quad-link 2D: 4K (UHD) image formats

Type	Format	Frame rate (Hz)	Sampling	Bit-depth	Notes
4K	4096x2160	24, 25, 30	$Y'C'_BC'_R$/RGB/ 4:4:4(4)	10bpc	$Y'C'_BC'_R$/RGB component at quad-link 3Gb/s (ST 425-5) level A structure 2
			$Y'C'_BC'_R$/RGB/ 4:4:4	12bpc	$Y'C'_BC'_R$/RGB component at quad-link 3Gb/s (ST 425-5) level A structure 3
			$Y'C'_BC'_R$/4:2:2(4)	12bpc	$Y'C'_BC'_R$ component at quad-link 3Gb/s (ST 425-5) level A structure 4
			$Y'C'_BC'_R$/4:2:2	12bpc	$Y'C'_BC'_R$ component at quad-link 3Gb/s (ST 425-5) level A structure 4
		48, 50, 60	$Y'C'_BC'_R$/RGB/ 4:4:4(4)	10bpc	$Y'C'_BC'_R$/RGB component at quad-link 6Gb/s

Type	Format	Frame rate (Hz)	Sampling	Bit-depth	Notes
					(ST 2081-12) mode 2 structure III
			Y'C'$_B$C'$_R$/RGB/ 4:4:4	12bpc	Y'C'$_B$C'$_R$/RGB component at quad-link 6Gb/s (ST 2081-12) mode 2 structure III
			Y'C'$_B$C'$_R$/4:2:2:4	12bpc	Y'C'$_B$C'$_R$ component at quad-link 6Gb/s (ST 2081-12) mode 2 structure IV

Integrated Media Block (IMB) video source

Connect a compatible device to either the S2 or S4 interface of the projector to send digital video data from an IMB to the projector.

Table 11: Supported IMB input configurations

Input configuration	Description
IMB – S2 or S4	Enables connection of MPEG-2 video formats.
	Enables connection of MPEG-2 MXF interop video formats.
	Enables connection of SMPTE-compatible 2D and 3D video formats

Contact Christie Technical Support to learn which S2 and S4 IMB devices are compatible with Christie projectors.

Series 2 IMB video formats

S2 IMB video format support is determined by the IMB make and model. Refer to the associated IMB documentation to understand which of the following video signals are supported.

All MPEG-2 content is converted in the media block to RGB 4:4:4 8-bit before play out.

MPEG

Table 12: MPEG image formats

Format	Resolution	Max Frame Rate 2D	Max Frame Rate 3D	Min Frame Rate	Bit Depth
VGA	640x480	120.0	120.0	23.0	8-bits
525 4SIF	704x480	120.0	120.0	23.0	8-bits
525 SD	720x480	120.0	120.0	23.0	8-bits
4CIF	704x576	120.0	120.0	23.0	8-bits
625 SD	800x600	120.0	120.0	23.0	8-bits
SVGA	1024x768	79.6	79.6	23.0	8-bits
XGA	1024x768	79.6	79.6	23.0	8-bits
720p HD	1280x720	68.0	68.0	23.0	8-bits
4VGA	1280x960	51.0	51.0	23.0	8-bits
SXGA	1280x1024	47.8	N/A	23.0	8-bits
525 16SIF	1408x960	46.3	N/A	23.0	8-bits
16CIF	1408x1152	38.6	N/A	23.0	8-bits
4SVGA	1600x1200	32.6	N/A	23.0	8-bits
1080 HD	2048x1080	30.0	N/A	23.0	8-bits

MPEG-2 MXF interop – 2D

Table 13: MPEG-2 MXF interop – 2D image formats

Format	Resolution	Max Frame Rate 2D	Max Frame Rate 3D	Min Frame Rate	Bit Depth
VGA	640x480	120.0	120.0	23.0	8-bits
525 4SIF	704x480	120.0	120.0	23.0	8-bits
525 SD	720x480	120.0	120.0	23.0	8-bits
4CIF	704x576	120.0	120.0	23.0	8-bits
625 SD	800x600	120.0	120.0	23.0	8-bits
SVGA	1024x768	79.6	79.6	23.0	8-bits
XGA	1024x768	79.6	79.6	23.0	8-bits
720p HD	1280x720	68.0	68.0	23.0	8-bits
4VGA	1280x960	51.0	51.0	23.0	8-bits
SXGA	1280x1024	47.8	N/A	23.0	8-bits
525 16SIF	1408x960	46.3	N/A	23.0	8-bits

Format	Resolution	Max Frame Rate 2D	Max Frame Rate 3D	Min Frame Rate	Bit Depth
16CIF	1408x1152	38.6	N/A	23.0	8-bits
4SVGA	1600x1200	32.6	N/A	23.0	8-bits
1080 HD	2048x1080	30.0	N/A	23.0	8-bits

SMPTE-compatible cinema formats - 2D (JPEG 2000)

Table 14: SMPTE-compatible cinema formats - 2D (JPEG 2000) image formats

Specification	Resolution	Frame Rate	Color Format	Bit Depth
SMPTE 428-1-2006	2048x1080	24.0	X'Y'Z' (4:4:4)	12-bits
SMPTE 428-11-2009	2048x1080	25.0	X'Y'Z' (4:4:4)	12-bits
SMPTE 428-11-2009	2048x1080	30.0	X'Y'Z' (4:4:4)	12-bits
SMPTE 428-1-2006	2048x1080	48.0	X'Y'Z' (4:4:4)	12-bits
SMPTE 428-11-2009	2048x1080	50.0	X'Y'Z' (4:4:4)	12-bits
SMPTE 428-11-2009	2048x1080	60.0	X'Y'Z' (4:4:4)	12-bits
--	2048x1080	100.0	X'Y'Z' (4:4:4)	12-bits
--	2048x1080	120.00	X'Y'Z' (4:4:4)	12-bits
SMPTE 428-1-2006	4096x2160	24.0	X'Y'Z' (4:4:4)	12-bits
SMPTE 428-11-2009	4096x2160	25.0	X'Y'Z' (4:4:4)	12-bits
SMPTE 428-11-2009	4096x2160	30.0	X'Y'Z' (4:4:4)	12-bits
--	4096x2160	48	X'Y'Z' (4:4:4)	12-bits
--	4096x2160	50	X'Y'Z' (4:4:4)	12-bits
--	4096x2160	60	X'Y'Z' (4:4:4)	12-bits
--	4096x2160	100	X'Y'Z' (4:4:4)	12-bits
--	4096x2160	120	X'Y'Z' (4:4:4)	12-bits

SMPTE-compatible cinema formats - 3D (JPEG 2000)

Table 15: SMPTE-compatible cinema formats - 3D (JPEG 2000) image formats

Specification	Resolution	Frame Rate (per eye)	Color Format	Bit Depth
SMPTE 428-1-2006	2048 x 1080	24.0 x 2	X'Y'Z' (4:4:4)	12-bits
SMPTE 428-1-2006		48.0 x 2		
		50.0 x 2		
SMPTE 428-11-2009		60.0 x 2		

Specification	Resolution	Frame Rate (per eye)	Color Format	Bit Depth
	4096 x 2160	24.0 x 2	X'Y'Z' (4:4:4)	12-bits
		48.0 x 2		
		50.0 x 2		
		60.0 x 2		

HDMI video source connection from an IMB

The projector can accept digital video data from HDMI sources connected to applicable IMB devices. The input configurations supported are determined by the IMB device directly.

IMB devices supporting HDMI selection from the projector UI

Contact Christie Technical Support to learn which IMB devices provide HDMI source selection from the projector UI.

HDMI input selection directly from the IMB may also be possible via the IMB UI. The input configurations supported are determined by the IMB make and model.

SDI video source connection from an IMB

The projector can accept digital video data from SDI sources connected to applicable IMB devices.

The input configurations supported are determined by the IMB device directly.

IMB devices supporting SDI selection from the projector UI

Contact Christie Technical Support to learn which IMB devices provide SDI source selection from the projector UI.

SDI input selection directly from the IMB may also be possible via the IMB UI. The input configurations supported are determined by the IMB make and model.

Using channels to set input signal parameters

Channels store customized projector settings for different video input signal parameters.

> The following describes only those parameters associated with input signal selection that should be configured by the user.
>
> Additional parameter settings are required to fully describe a channel setup. Refer to *CineLife+ User Guide (P/N: 020-103073-XX)* for further information.

To create a new channel or edit the input video signal parameters for an existing channel, follow these steps.

1. In the left navigation menu, select Channel Setup.

2. Select + Add Channel to create a new channel or, in the left panel, select a channel name to select it for editing.

3. To define the input video signal parameters for the channel, complete the following fields.

Field name	Description
Name	The channel name

Input Type	Select the input signal sources from one of the following.
	
	• HDMI Input 1
	
	• HDMI Input 2
	
	• IMB
	
	• IMB HDMI
	
	  (Available only if the selected IMB device supports HDMI selection from projector UI.)
	
	• IMB SDI
	
	  (Available only if the selected IMB device supports SDI selection from projector UI.)
	
	• SDI - 1
	
	• SDI - 2
	
	• SDI - 3
	
	• SDI - 4
	
	• SDI - Dual-Input (1,2)
	
	• SDI - Dual-Input (3,4)
	
	• SDI - Quad

Data Format	The default is AUTO.

Field name	Description
	The bit-depth, sampling format, and color space of the input signal is automatically determined from metadata carried in the source.
Scan Type	Determines the input scanning format. Select one of the following.
	• Auto (default setting)
	The scanning format of the input signal (interlaced or progressive) is automatically determined from metadata carried in the source or by measuring scanning parameters of the source.
	• Progressive
	Forces the input signal scanning format to progressive, overriding any metadata in the input signal.
3D Sync Input Mode	Specifies whether a specific frame of input data has left eye or right eye data. Select one of the following.
	• Auto (default setting)
	The left-eye / right eye 3D-sync information is automatically determined from metadata carried in the source or from the specific input type selection.
	• 2D mode
	Forces the input signal to be interpreted as a 2D signal, overriding any metadata in the input signal.
Color Space	Specifies the method of internal color decoding that will be applied to the currently selected input source. Select from the following.
	• Auto (default setting)
	Appropriate color decoding will be automatically selected in accordance with the input signal color format.
	• RGB (Full Range)
	Appropriate color decoding will be selected in accordance with the input signal being a full-range, 12-bit per component, RGB color format.
	• RGB (Limited Range)
	Appropriate color decoding will be selected in accordance with the input signal being a limited-range, 10-bit per component, RGB color format.
	• XYZ
	Appropriate color decoding will be selected in accordance with the input signal being a full-range, 12-bit per component, XYZ color format.

4. Select Save.

Managing the light source

Learn how to configure a laser file and use the projector's LiteLOC™ feature.

The laser file allows you to control the power settings of the red, green, and blue (RGB) lasers. The LiteLOC™ feature ensures that color and brightness are held at the level you set.

You can create multiple laser files to manage varying screen sizes, brightness requirements, room temperatures in the projection booth, and types of content (such as 2D, 3D, and alternative content).

For CP4440-RGB and CP4450-RGB projectors, you can create multiple laser files to manage varying screen sizes, brightness requirements, chiller setpoint temperatures, and types of content (such as 2D, 3D, and alternative content).

Creating a new laser file for CP4415-RGB and CP4420-RGB

Create a laser file to store the power settings for the RGB laser light source and the maximum expected room temperature for the projection booth.

The maximum (MAX) power limit for Red and Green changes according to the value set for the maximum expected room temperature. For Red, Green, and Blue power levels, system stability may be affected if levels are set below the minimum (MIN) power limit shown.

To ensure color and brightness are held at the required levels for your installation, Christie recommends enabling LiteLOC for each laser file you create.

When refining the laser power settings, the amount of time required to re-stabilize the projector depends on the size of the adjustment. For very small adjustments to the expected room temperature or power settings, the projector requires only 1 or 2 minutes to re-stabilize. For larger adjustments, the projector may require up to 15 minutes to re-stabilize.

1. In the left navigation pane, select **Laser Settings** > **Laser Power/LiteLOC Setup**.
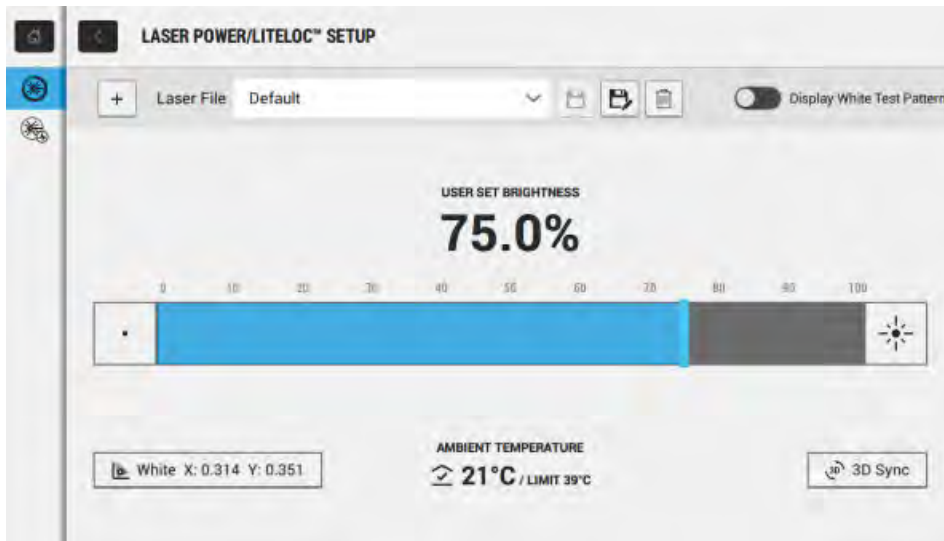
2. (Optional) Select **Display White Test Pattern**.

3. To create a new laser file, select **Create**. [+]

4. In the Create dialog, type a name for the new laser file and select **Create**.

5. If the laser file will be associated with a 3D channel, select **3D Sync**.

6. To set the value for White, select the current values and adjust them up or down as needed.

7. Set the brightness levels as required for your projection environment and allow the projector to stabilize for 15 minutes.

   System stability may be affected if you set a power level below the minimum power level recommended.

8. If white or brightness is not at the target level, adjust the settings to achieve the target, and then allow the projector to re-stabilize for an additional 3 to 5 minutes.

   The projector is considered stable when there are no further adjustments and you obtain the same screen state results after two sets of measurements, 5 minutes apart.

9. To save the new laser file, select **Save**. 💾

   Color sensor (CSense) data are displayed on the interface to provide feedback on the current color sensor information.

Creating a new laser file for CP4440-RGB and CP4450-RGB

Create a laser file to store the power settings for the RGB laser light source and the chiller setpoint.

The maximum (MAX) power limit for Red and Green changes according to the value set for the chiller setpoint temperature. For Red, Green, and Blue power levels, system stability may be affected if levels are set below the minimum (MIN) power limit shown.

To ensure color and brightness are held at the required levels for your installation, Christie recommends that you enable LiteLOC for each laser file you create.

When refining the laser power settings, the amount of time required to re-stabilize the projector depends on the size of the adjustment. For very small adjustments to the chiller setpoint or power settings, the projector requires only 1 or 2 minutes to re-stabilize. For larger adjustments, the projector may require up to 15 minutes to re-stabilize.

1. In the left navigation pane, select **Laser Settings** > **Laser Power/LiteLOC Setup**.

2. To activate the controls, select the **Display White Test Pattern** slider.

3. To create a new laser file, select **Create**. ⊞

4. In the Create dialog, type a name for the new laser file and select **Create**.

5. If the laser file will be associated with a 3D channel, select the **3D Sync** slider.

6. Under Chiller Setpoint, select the plus and minus signs (or drag the temperature slider) to indicate the maximum setpoint temperature.

   The system uses the maximum setpoint temperature to calculate the light output. The default chiller setpoint value is 24°C. A lower setpoint generally results in increased brightness and better efficiency. A higher setpoint will reduce the maximum power setting available for the lasers. The chiller setpoint temperature must reflect actual operating conditions.

   📝 For detailed information on calculating and setting the chiller setpoint value, see the *CineLife+ 4K-RGB Installation and Setup Guide (P/N: 020-103244-XX)*.

7. Set the approximate Red, Green, and Blue power levels as required for your projection environment and allow the projector to stabilize for 15 minutes.

   System stability may be affected if you set a power level below the minimum power level recommended.

When setting the Red or Green power level, Christie recommends setting a level below the maximum (MAX) limit shown. A value below the maximum limit ensures an optimal brightness that can be maintained over time.

8. If color or brightness is not at the target level, refine the Red, Green, and Blue power settings to achieve the target, and then allow the projector to re-stabilize for an additional 3 to 5 minutes.

> The projector is considered stable when there are no further adjustments and you obtain the same screen state results after two sets of measurements, 5 minutes apart.

9. Once the correct color and brightness are achieved and the projector has stabilized, select the **LiteLOC** slider to lock the settings.
   The color of the slider turns to green to indicate the settings are locked. The projector's LiteLOC system maintains the brightness and color levels.

10. To save the new laser file, select **Save** .

   Color sensor (CSense) data are displayed on the interface to provide feedback on the current color sensor information.

Modifying an existing laser file

Modify the settings in the laser file to change the laser power settings or the chiller setpoint.

When refining the laser power settings, the amount of time required to re-stabilize the projector depends on the size of the adjustment. For very small adjustments, including changes to the chiller setpoint temperature or power settings, the projector requires only 1 or 2 minutes to re-stabilize. For larger adjustments, the projector may require up to 15 minutes to re-stabilize.

1. In the left navigation pane, select **Laser Settings** > **Laser Power/LiteLOC Setup**.

2. To begin modifying the settings, select **Display White Test Pattern**.

3. From the Laser File list, select the laser file to edit.

4. To unlock the file, select the **LiteLOC** slider.
   The color of the slider turns to gray to indicate the settings are unlocked.

5. (CP4440-RGB and CP4450-RGB only) Adjust the Chiller Setpoint and the power levels for Red, Green, and Blue as required to achieve the correct color and brightness on screen.

6. Once the correct color and brightness are achieved and the projector has stabilized, select the **LiteLOC** slider to lock the settings.
   The color of the slider turns to green to indicate the settings are locked.

7. To save the new settings, select **Save**.

Copying existing laser settings to a new file

Copy an existing laser file when you want to create a new file with similar settings.

1. In the left navigation pane, select **Laser Settings** > **Laser Power/LiteLOC Setup**.

2. Select the **Display White Test Pattern** slider.

3. From the Laser File list, select the file you want to copy.

4. To save the new laser file, select **Save As**.

5. Type a new name for the laser file and then select **Save**.

6. Adjust the maximum expected temperature and power settings as required for the new configuration.

Deleting a laser file

Delete a laser file when the configuration is no longer required.

1. In the left navigation menu, select **Laser Settings** > **Laser Power/LiteLOC Setup**.

2. Select the **Display White Test Pattern** slider.

3. In the Laser File list, select the file to delete.

4. Select **Delete**. 🗑

5. To confirm the deletion, select **Delete**.

Calibrating LiteLOC™

Follow this procedure to generate the calibrated data.

1. Download the LiteLOC Sensor-to-screen Calibration workbook from the Christie website.

   a) Go to URL: *https://www.christiedigital.com/products/cinema/projection/*

   b) On the product page, select the model and switch to the **Downloads** > **Technical Reference** tab.

2. Ensure the projector is set up in representative ambient light and ambient temperature.

3. Power on the projector.

4. 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.

5. Display the **DC4K ANSI-17-Point** test patter or a similar test pattern that can be used to locate the center of the image.

6. Set up 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.

7. Connect to Kore Librarian on port 5000.

8. Log in as the service user.

9. Open port 5103 using the command `(CAL + PASS 1)`.

10. Connect to port 5103.

11. To disable LiteLOC, select **Laser Settings** > **Manual Laser Control**.

12. Select **Display White Test Pattern**.

13. Set the **Maximum Expected Room Temperature** or **Chiller Setpoint** feature.

    - *For non-chiller systems*—Set the **Maximum Expected Room Temperature** feature by choosing the maximum value you expect your room temperature to reach. For example, set the dial to 25°C (77°F) if you expect your maximum room temperature to not exceed

25°C (77°). This value should be greater than or equal to the current ambient temperature.

- *For chiller-based systems*—Set the **Chiller Setpoint** feature. For details, refer to the Setting the chiller setpoint topic.

14. Use the RGB sliders to set the maximum brightness at the required color point.

15. Allow 20 minutes for the laser devices to stabilize at the new values.

16. To ensure the required color point has not drifted, measure the color points with the spectroradiometer.

    It may be necessary to make minor adjustments to RGB drives to get back to the required color point. If necessary, make the adjustments using the RGB 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 for red, green, and blue.

    The drive percentages in columns A, B, C of rows 15 to 23 are calculated based on the current settings.

18. Use the RGB sliders to set the laser drive levels from row 15 of the workbook.

    For example, `R = 63.8%`, `G = 74.5% and B = 50.4%`

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.

    For example, `x=0.3334`, `y=.2885`, and `fL=510`.

20. In columns D, E, and F of row 15 of the workbook, record the color sensor values CSense X, CSense Y, and CSense Z from the Manual Laser Control page for SX, SY, and SZ respectively.

    For example, `SX=3073532`, `SY=2564292`, and `SZ=1265818`

    Alternatively, you can also retrieve the CSense values using the `(RGB+MEAS?)` command in Kore Librarian. The example response is shown below:

    `(RGB+MEAS!"3073532" 007 "2564292" 007 "1265818" 007 09497 07874 00000 10000 "1, 02863,03597,00000,02799, 02863,03597,00000,02799")`

    where SX=3073532, SY=2564292, and SZ=1265818

21. Repeat steps 17 to 19 for rows 16 to 23.

22. From row 28 of the workbook, copy the highlighted command and run it in Kore Librarian.

    For example, copy `(RGB+CAL2 "5137" "610" "345" "0" "534" "4490" "34" "0" "-167" "57" "1640" "0" "-125503" "-133936" "-57954" "1" "637" 1 0)` to Kore Librarian and run the command.

    LiteLOC calibration is complete.

23. Power off and restart the projector.

    The LiteLOC calibration takes effect.

24. Log into the projector with the Service account.

25. From the display panel, select **Laser Settings** > **Laser Power/LiteLOC Setup**.

    Controls to set the required brightness and x,y controls are now available.

Managing user accounts

Learn how to create new user accounts, how to modify the properties of those accounts, and how to remove the accounts. A user account is a set of credentials consisting of both a user name and password that allows access to projector settings.

Default user access permissions

This table lists the Christie touch panel access permissions.

Permission	Description
installer	Can define Ethernet settings (IP network address), restore backup files, and upgrade the system software.
manager	Can activate channels and test patterns, view detailed diagnostic logs for in-depth troubleshooting and view server errors. This is the default level.
marriage	Can access all touch panel windows. Can authorize projector marriage.
operator	Can view basic projector status, diagnostic information and software version information. This is the default level for Serial Communication sessions.
service	Can access all touch panel windows. Cannot authorize projector marriage.

Adding a user account

Adding a user account allows users to access projector menus.

1. In the left navigation menu, select **Service Setup** > **User Accounts**.
2. Select **+ Add User**.
3. Complete the Name, Permissions, New Password, and Confirm Password fields.
4. Select **Add**.

Changing user account permissions

Change user account permissions to limit or increase access to projector menus and functionality.

1. In the left navigation menu, select **Service Setup** > **User Accounts**.
2. In the left pane, select a user account.
3. In the Permissions list, select a new permissions setting.
4. Select **Save**.

Changing a user account password

Periodically change a user account password to limit access to projector menus and functionality to authorized users.

1. In the left navigation menu, select **Service Setup** > **User Accounts**.

2. In the left pane, select a user account.

3. Select **Change password**.

4. Complete the New Password and Confirm Password fields.

5. Select **Save**.

Deleting a user account

Delete a user account to prevent access to projector menus and functionality.

1. In the left navigation menu, select **Service Setup** > **User Accounts**.

2. In the left pane, select a user account.

3. Select **Delete**.

4. To confirm the deletion, select **Delete**.

Network settings

Learn how to connect the projector to media devices and wired networks.

📝 The system provides the MAC address of the projector automatically.

Connecting the projector to the theater network

Connect the projector to the theater network to control it remotely and allow it to communicate with other network devices.

1. Connect the Ethernet cable from the theater network to the **Management** port on the input panel.
2. In the left navigation menu, select **Service Setup** > **Network Settings**.
3. In the Port list, select **Management**.
4. Enter the network settings:
   - To obtain the network settings automatically, select **Automatic**.
   - To enter the settings manually, select **Manual** and complete these fields:

Field	Description
IP Address	The IP address of the projector.
Subnet Mask	The subnet mask to which the IP address belongs.
Gateway	The IP address for the network gateway.
Primary DNS	The IP address of the primary DNS server.
Secondary DNS	The IP address of the secondary DNS server.

5. Select **Save**.

Activating SNMP

Activate the Simple Network Management Protocol (SNMP) to monitor the theater network for conditions that indicate communication or hardware failures.

On CineLife+ projectors, SNMP is enabled by default.

1. In the left navigation menu, select **Service Setup** > **Network Settings**.
2. Select the **SNMP** tab.
3. Select the **SNMP** slider.
   The color of the slider changes to green to indicate it is active.
4. In the SNMP Settings area, select the SNMP version.

5. Complete the Trap Receiver IP fields.

   A trap receiver captures, displays, and logs SNMP traps. Traps are event notices that are sent immediately to the trap receiver from a network device. The SNMP device does not need to use resources to poll for these event notices.

6. In the Blocked SNMP Traps area, select the SNMP traps you want to block.

7. Select **Save**.

Downloading MIB information

A Management Information Base (MIB) file contains the definitions for the device being managed by the SNMP protocol.

1. In the left navigation menu, select **Service Setup** > **Network Settings**.

2. Select the **SNMP** tab.

3. Select **Download MIB**.

4. Browse to the location where you want to save the MIB file.

5. In the Name field, type a name for the MIB file.

6. Select **Accept**.

7. Select **OK**.

Setting up an integrated media block

Configure the CineLife+ projector to work with a third-party integrated media block (IMB).

Selecting IMB preferences

Choose from the available options to set the type of integrated media block (IMB).

1. To set the type of IMB, select **Service Setup** > **Preferences**.
2. Select **IMB**.
3. In the Type list, select from the available IMB models.
4. When the system prompts you to reboot the projector, select **Reboot**.
5. After the projector has restarted, log in with your user account.

Activating IMB marriage

After selecting the IMB type, you must install the IMB and complete marriage to display secure content. You cannot complete marriage remotely.

The marriage wizard requires you to confirm that the IMB has not been tampered with.

1. Install the IMB in the available slot on the projector.

   For more information, see the documentation provided by the IMB manufacturer.
2. In the left navigation menu, select **Service Setup** > **Marriage Setup**.
3. Select **Start** and confirm that the security manager (SM), service door, and marriage ring are secure.
4. Select **Next** and complete the marriage checklist.
5. Select **Next** and enter the Marriage user and password credentials.
6. Select **Login**.
7. To start the marriage process, press the Marriage button on the projector within 30 seconds. The system starts the marriage process and indicates when the process is completed successfully.
8. Select **Finish**.

Managing content, playlists, and storage

Content, playlists, storage, and audio settings are managed through the integrated media block (IMB).

For detailed information on installing and operating the IMB, refer to the documentation provided with your IMB device. Tasks include:

- installing the IMB in the projector
- connecting portable or enterprise storage
- managing content, including KDM and security keys
- managing and scheduling playback
- setting up audio
- setting up playback automation

For information about the GDC IMB, browse to *https://www.gdc-tech.com/english/manual_list.php?c=d_cinema*.

Working with channels

Create channels to store customized projector settings for different inputs.

Adding a channel for HDMI input

Create a channel to store customized projector settings for input devices connected to the HDMI port.

1. In the left navigation menu, select **Channel Setup**.
2. Select **+ Add Channel**.
3. Complete these fields:

Field Name	Description
Name	The channel name.
Input Type	Select one of: • HDMI Input 1 • HDMI Input 2 • HDMI 3D LR • Addon Card • IMB
Data Format	The source color depth (8-10-12 bit) for the channel. If the HDMI source is 2K or greater, select one of: • 4K 4:4:4 (RGB) 8 bits • 4K 4:2:2 (YCbCr) 12 bits • 4K 4:2:2 (YCbCr) 10 bits • 4K 4:2:2 (YCbCr) 8 bits
Scan Type	The video scan type. The default is Auto.
3D Sync Input Mode	Specifies whether a specific frame of input data has left eye or right eye data. The default is Auto.
Color Space	The method of color decoding for the current source. The default is Unity RGB for all HDMI sources.
ILS File	The ILS file associated with the channel.
2D Laser File	The 2D laser file associated with the channel. Any changes made to the laser file settings are applied to all channels that use this laser file.
3D Laser File	The 3D laser file associated with the channel. Any changes made to the laser file settings are applied to all channels that use this laser file.
2D MCGD File	The Measured Color Gamut Data file associated with the 2D image.

Field Name	Description
3D MCGD Left Eye File	The Measured Color Gamut Data file associated with the left 3D image.
3D MCGD Right Eye File	The Measured Color Gamut Data file associated with the right 3D image.
TCGD File	The Target Color Gamut Data file associated with the channel.
Screen File	The screen type, masking, cropping, and lens settings for the channel.
Gamma File	The gamma correction required for the proper tonal range of the source material.
Clut File	Applies a 3D color cube for increased color accuracy.
3D File	The 3D settings files associated with the channel.
Source File	The resolution and aspect ratio for the channel.
HDMI EDID	The HDMI standard associated with associated with the channel.
Christie Pureformity Color™ Correction File	The color correction file associated with the channel. The default value is Bypass.
Warp File	The warp file associated with the channel. The default value is Bypass.

4. Select **Save**.

Adding a channel for IMB input

Create a channel to store customized projector settings for input devices connected to the IMB.

1. In the left navigation menu, select **Channel Setup**.
2. Select **+ Add Channel**.
3. Complete these fields:

Field Name	Description
Name	The channel name.
Input Type	Select IMB.
3D Sync Input Mode	For third party IMBs, specifies how 3D input data is encoded. The default setting is 2D. • 2D Mode: No 3D synchronization is applied. • 3D Frame Interleaved: For input that contains left eye data followed by right eye data. • 3D Frame Interleaved Inverted: For input that contains right eye data followed by left eye data. • 3D White Line/Blue Line: For input that includes metadata describing the 3D encoding. • 3D White Line/Blue Line Inverted: For inverted input that includes metadata describing the 3D encoding. • 3D Line Interleaved: The left eye and right eye data are sent on alternating lines. 3D Sync Input Mode is not required when using the Christie IMB.

Field Name	Description
	For GDC IMB devices, the recommended setting is 3D Line Interleaved.
ILS File	The ILS file associated with the channel.
2D Laser File	The 2D laser file associated with the channel. Any changes made to the laser file settings are applied to all channels that use this laser file.
3D Laser File	The 3D laser file associated with the channel. Any changes made to the laser file settings are applied to all channels that use this laser file.
2D MCGD File	The Measured Color Gamut Data file associated with the 2D image.
3D MCGD Left Eye File	The Measured Color Gamut Data file associated with the left 3D image.
3D MCGD Right Eye File	The Measured Color Gamut Data file associated with the right 3D image.
TCGD File	The Target Color Gamut Data file associated with the channel.
Screen File	The screen type, masking, cropping, and lens settings for the channel.
Gamma File	The gamma correction required for the proper tonal range of the source material.
Clut File	Applies a 3D color cube for increased color accuracy.
3D File	The 3D settings file associated with the channel.
Source File	The resolution and aspect ratio for the channel.
Christie Pureformity Color™ Correction File	The color correction file associated with the channel. The default value is Bypass.
Warp File	The warp file associated with the channel. The default value is Bypass.

4. Select **Save**.

Selecting the active channel

Select a channel to use customized projector settings for different inputs.

1. In the right toolbar, select **Channels**.

   The Channels window displays the available channels.

2. Select a channel.
   In the Channel Setup panel, a green checkmark ✔ indicates the active channel.

Editing an existing channel

Edit an existing channel when the parameters of the input device change.

1. In the left navigation menu, select **Channel Setup**.

2. In the left pane, select a channel.

3. Edit the channel settings.

4. Select **Save**.

Copying existing channel settings to a new channel

Copy a channel to create a new channel with similar settings.

1. In the left navigation menu, select **Channel Setup**.

2. In the left pane, select a channel.

3. Select **Save As**.

4. Type a name for the new channel and select **Save**.

Viewing the channel list

The channel list displays all of the available channels.

- In the left navigation menu, select **Channel Setup**.

  Under Channel Setup, the available channels are displayed in the left pane. A green checkmark ✅ indicates the active channel.

  Alternatively in the right toolbar, select **Channels**.

  The All Channels window displays the available channels and the active channel is highlighted.

Moving a channel up or down the channel list

If a channel is selected frequently, move it to the top of channel list to make it easier to access. If the channel is not selected frequently, move it to the bottom of the channel list.

1. In the left navigation menu, select **Channel Setup**.

2. In the left pane, select a channel.

3. To move the channel up or down the list, select ⌃ or ⌄ .

Deleting a channel

Delete a channel when the settings for the input device are no longer required.

1. In the left navigation menu, select **Channel Setup**.

2. In the left pane, select a channel.

3. Select **Delete**. 🗑

4. To confirm the deletion, select **Delete**.

Managing color setting files

Use the procedures in this section to manage color setting files. When associated with a channel, a color setting file defines the color output for the content.

Creating a MCGD file

Create Measured Color Gamut Data (MCGD) files to correct on-screen colors. A colorimeter is required to complete this procedure.

1. Activate the channel that uses the laser file the MCGD file is being created for.
2. Turn on the light source and allow it to operate for 20 minutes.
3. In the left navigation menu, select **Color Settings** > **MCGD File Setup**.
4. Select **Create MCGD File**.
5. Type a name for the MCGD file and select **Create**.
6. If the MCGD file will be associated with a 3D channel, select the **3D Sync** slider.
7. In the red area of the chromaticity image, select the empty circle.
   The test pattern is automatically displayed.
8. Measure the red chromaticity with the colorimeter.
9. Type the red chromaticity value in the **X** field.
10. Select **Next** and type the red chromaticity value in the **Y** field.
11. Repeat steps 8 to 10 for the green, blue, white (center circle), and black chromaticity measurements.
12. Select **Save**.

Editing an existing MCGD file

Edit an existing Measured Color Gamut Data (MCGD) file when on-screen color readings change.

1. In the left navigation menu, select **Color Settings** > **MCGD File Setup**.
2. In the MCGD File list, select a MCGD file.
3. Edit the measured color values.
4. Select **Save** .

Copying existing MCGD file settings to a new file

Copy an existing Measured Color Gamut Data (MCGD) file when you want to create a new MCGD file with similar settings.

1. In the left navigation menu, select **Color Settings** > **MCGD File Setup**.

2. In the MCGD File list, select a MCGD file.

3. Select **Save As**.

4. Type a name for the MCGD file and select **Save**.

Deleting a MCGD file

Delete a Measured Color Gamut Data (MCGD) file when it is no longer required.

1. In the left navigation menu, select **Color Settings** > **MCGD File Setup**.

2. In the **MCGD File** list, select a MCGD file.

3. Select **Delete**.

4. To confirm the deletion, select **Delete**.

Creating a TCGD file

Typically, Target Color Gamut Data (TCGD) file settings are defined by the content provider and are not modified. A colorimeter is required to complete this procedure.

1. Turn on the light source and allow it to operate for 20 minutes.

2. In the left navigation menu, select **Color Settings** > **TCGD File Setup**.

3. Select the **Create TCGD File**.

4. Type a name for the TCGD file and select **Create**.

5. To display test clips automatically when you select a color in the chromaticity image, select **Automatically Display Test Clip**.

6. To modify the white clipping values and improve image detail in very bright areas of the image, select **Use White Clip**.

7. select the option button in the red area of the chromaticity image to display the red test pattern.

8. Measure the red chromaticity with the colorimeter.

9. Type the red chromaticity values in the **Red X** and **Red Y** fields.

10. Adjust the **Gain** value to modify the color brightness.

11. Repeat steps 8 to 10 for the magenta, blue, cyan, white, yellow, and green chromaticity measurements.

12. To adjust the color of the white light in a specific area of the screen, select **White Tolerance** and a screen area.

13. Select **Save**.

Editing an existing TCGD file

Edit an existing Target Color Gamut Data (TCGD) file when color readings change.

1. In the left navigation menu, select **Color Settings** > **TCGD File Setup**.

2. In the **TCGD File** list, select a TCGD file.

3. Edit the TCGD file settings.

4. Select **Save**.

Copying existing TCGD file settings to a new file

Copy an existing Target Color Gamut Data (TCGD) file when you want to create a new TCGD file with similar settings.

1. In the left navigation menu, select **Color Settings** > **TCGD File Setup**.

2. In the TCGD File list, select a TCGD file.

3. Select **Save As**.

4. Type a name for the TCGD file and select **Save**.

Deleting a TCGD file

Delete a Target Color Gamut Data (TCGD) file when it is no longer required.

1. In the left navigation menu, select **Color Settings** > **TCGD File Setup**.

2. In the TCGD File list, select a TCGD file.

3. Select **Delete**.

4. To confirm the deletion, select **Delete**.

Adjusting the image size and position

Learn how to enable and modify projector image settings.

Activating the Intelligent Lens System

Activate the Intelligent Lens System (ILS) to automatically adjust the position of the lens.

On CineLife+ projectors, the ILS is enabled by default.

1. In the left navigation menu, select **Service Setup** > **Preferences**.
2. Select **Lens/ILS**.
3. In the right pane, select the **ILS Installed** slider.
   The color of the slider changes to green to indicate the ILS is active.

Creating a new ILS file

Create an Intelligent Lens System (ILS) file to set the X, Y, zoom, and focus positions of the lens.

1. In the left navigation menu, select **Image Settings** > **ILS File Setup**.
2. Select **Create ILS File**.
3. Type a name for the ILS file and select **Create**.
4. In the Lens position area, select the forward, backward, left, or right arrow icons to move the position of the image on the screen.
5. In the **Focus** area, select **Up** (⌃) or **Down** (⌄) to increase or decrease image focus.
6. In the **Zoom** area, select **Up** (⌃) or **Down** (⌄) to increase or decrease image zoom.
7. Select **Save**.

Automatically calibrating the ILS

Use the Auto Calibrate feature of the Intelligent Lens System (ILS) to find and compensate for motor backlash, and to determine the movement range for the currently installed lens.

1. In the left navigation menu, select **Image Settings** > **ILS File Setup**.
2. Select **Auto Calibrate**.
3. In the confirmation dialog, select **Continue**.

Editing ILS file settings

Edit Intelligent Lens System (ILS) file settings when content requirements change.

1. In the left navigation menu, select **Image Settings** > **ILS File Setup**.

2. In the ILS File list, select an ILS file.

3. Modify the ILS file settings.

4. Select **Save**. 💾

Copying existing ILS file settings

To duplicate Intelligent Lens System (ILS) file settings quickly, copy the settings of an existing file to a new ILS file.

1. In the left navigation menu, select **Image Settings** > **ILS File Setup**.

2. In the ILS File list, select the ILS file you want to copy.

3. Select **Save As**. 💾

4. Type a name for the ILS file and select **Save**.

Deleting an ILS file

Delete an Intelligent Lens System (ILS) file when it is no longer required.

1. In the left navigation menu, select **Image Settings** > **ILS File Setup**.

2. In the ILS File list, select the ILS file you want to delete.

3. Select **Delete**. 🗑

4. To confirm the deletion, select **Delete**.

Resetting the lens

Use the Reset Lens feature to have the Intelligent Lens System (ILS) find the home position flags that allow the ILS to compensate for drift over time, or move to its proper position after it has been manually adjusted.

1. In the left navigation menu, select **Image Settings** > **ILS File Setup**.

2. Select **Reset Lens**.

3. In the confirmation dialog, select **Continue**.

Creating a source file

Create source files to store resolution, offset, and aspect ratio settings for input devices. When the Auto Square Pixels file is selected, the incoming video format is automatically detected.

1. In the left navigation menu, select **Image Settings** > **Source File Setup**.

2. Select **Create Source File**.

3. Type a name for the source file and select **Create**.

4. In the Source Media Resolution area, adjust the width and height of the source media.

5. Select an aspect ratio or type a custom aspect ratio for the source media.

6. In the Position area, adjust the horizontal and vertical position of the source media.

7. Select **Save**.

Editing source file settings

Edit source file settings when the settings of the input device change.

1. In the left navigation menu, select **Image Settings** > **Source File Setup**.

2. In the Source File list, select a source file.

3. Modify the source file settings.

4. Select **Save**.

Copying existing source file settings to a new source file

To duplicate existing source file settings quickly, copy the settings of an existing file to a new source file.

1. In the left navigation menu, select **Image Settings** > **Source File Setup**.

2. In the Source File list, select the source file you want to copy.

3. Select **Save As**.

4. Type a name for the source file and select **Save**.

Deleting a source file

Delete a source file when it is no longer required.

1. In the left navigation menu, select **Images Settings** > **Source File Setup**.

2. In the Source File list, select the source file you want to delete.

3. Select **Delete**.

4. To confirm the deletion, select **Delete**.

Creating a screen file

Use screen files to define the size of the display panel and image cropping. You can assign the same screen file to multiple input devices.

1. In the left navigation menu, select **Image Settings** > **Screen File Setup**.

2. Select **Create Screen File**. ⊞

3. Type a name for the screen file and select **Create**.

4. To crop the image in a specific location, select one of the screen icons.

5. To adjust the amount of cropping on the X or Y axis, move the slider up or down.

6. To display all image data and maintain the aspect ratio, select the **Letterbox** slider. The color of the slider changes to green to indicate it is active.

7. If required, adjust the **Anamorphic Lens Factor** value to match the lens installed.

8. Select **Save**. 💾

Editing screen file settings

Edit screen file settings when the image parameters change.

1. In the left navigation menu, select **Image Settings** > **Screen File Setup**.

2. In the Screen File list, select a screen file.

3. Modify the screen file settings.

4. Select **Save** 💾.

Copying existing screen file settings to a new screen

To duplicate screen file settings quickly, copy the settings of an existing file to a new screen file.

1. Select **Image Settings** > **Screen File Setup**.

2. In the Screen File list, select the screen file you want to copy.

3. Select **Save As** ![icon].

4. Type a name for the source file and select **Save**.

Deleting a screen file

Delete a screen file when it is no longer required.

1. In the left navigation menu, select **Image Settings** > **Screen File Setup**.

2. In the Screen File list, select the screen file you want to delete.

3. Select **Delete**. ![icon]

4. To confirm the deletion, select **Delete**.

Activating a warp file

Activate a warp file to use with a selected channel.

Warp files provide image configuration information to support projection in environments with multiple projectors and complex screen shapes. Warp files are created using an automated process through Christie Mystique.

For more information on using Christie Mystique in a cinema environment, see the *Mystique User Guide—Cinema Edition (P/N: 020-001240-XX)*.

1. Using Christie Mystique, create the required warp file.

2. Using Mystique, upload the warp file to the projector.

3. On the projector touch panel, navigate to **Image Settings** > **Warp File Setup**.

4. To activate the warp file, find the file name in the Warp File list and select **Activate**.

> ![note icon] If you no longer require a warp file, remove it by selecting **Image Settings** > **Warp File Setup**. Find the warp file in the list and select **Delete**. ![icon]

Adjusting the image

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

Correcting vignetting

An image that is brighter at the center than it is at the sides needs vignetting correction.

If your image suffers from vignetting, the lens has reached the end of its offset travel range.

> If your installation does not allow the image to be centered with the center of the screen, move the entire projector in the direction of lens travel.
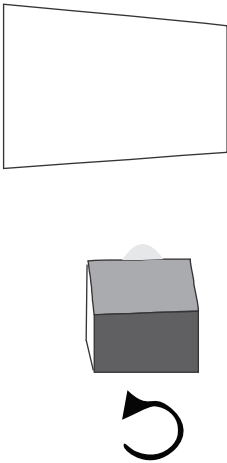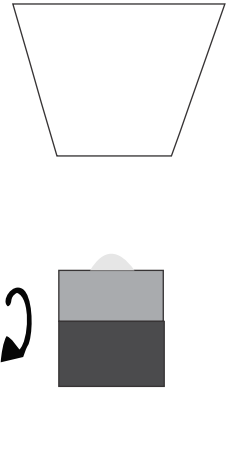
Correcting keystone effect

Learn how to adjust the image to correct keystone effect.

Keystone effect occurs when you project an image onto the screen at an angle. As a result, the image appears distorted and resembles a trapezoid.

📝 When making the adjustments, set the light source to minimum power.

Horizontal keystone	Vertical keystone
Projector skewed horizontally to the screen	Projector tilted vertically to the screen

1. If the image suffers from slight keystone effect, it can be corrected with electronic cropping.
2. If the keystone effect is severe, you can unevenly adjust the feet to compensate for projector tilt.

It is recommended that you use lens offset to align the center of the image to the center of the screen before you correct the keystone effect.

3. If one side of the image is longer than another, adjust the tilt and level of the projector.

Adjusting the integrator rod and fold mirror

Understand how to adjust the integrator rod and fold mirror to control the illumination spot on the DMD.

Extreme misalignment of projection optics can cause permanent damage to critical optical components. Only Christie qualified technicians can perform internal optical adjustments.

The integrator rod and fold mirror adjustments are set by Christie. Make adjustments only if screen shadows are visible.

When adjusting the fold mirror, set the light source to minimum power.

1. In the right toolbar, select **Test Patterns**.

2. Select the **RGB-4K-Integrator Rod** test pattern and display it full screen.
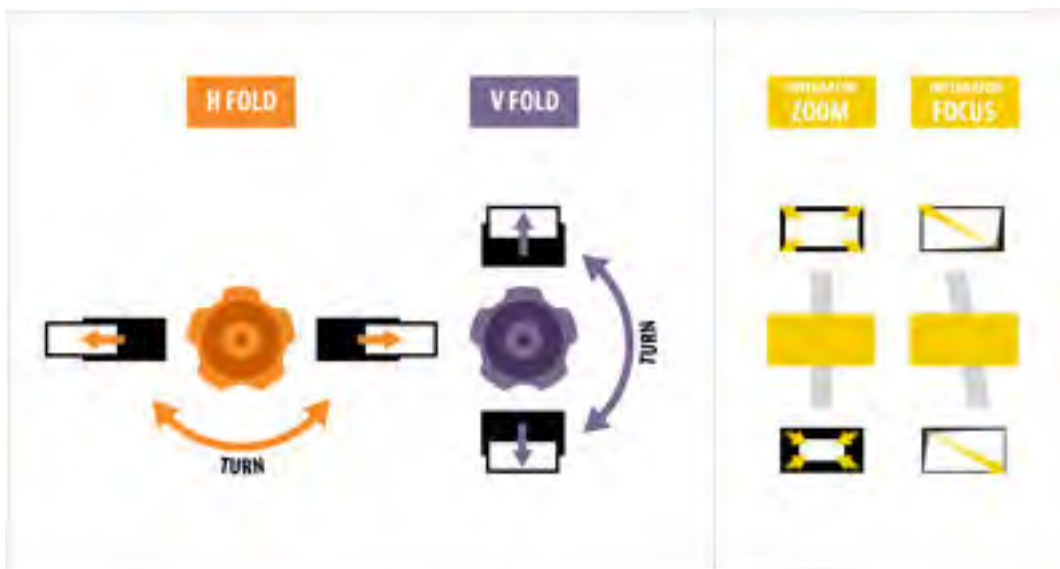
Refer to the test pattern for guidance on making the adjustments. The right panel of the test pattern provides information about the integrator zoom and focus adjustments. The left panel provides information about the fold mirror adjustments.
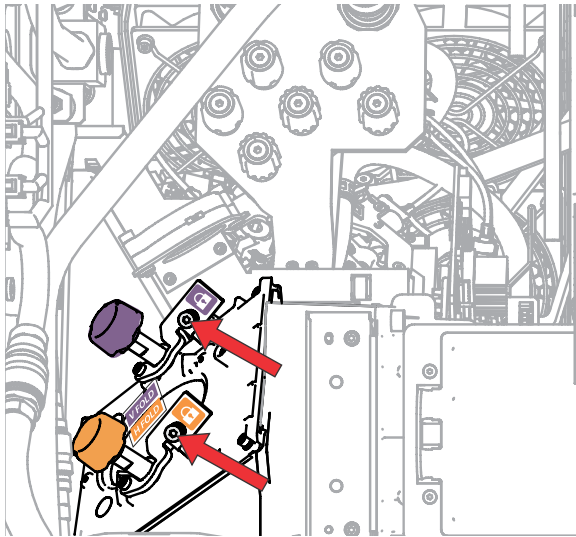
3. Open the Service door on the side of the projector.

4. To use the integrator rod optical controls, open the access door for the Zoom and Focus paddles.
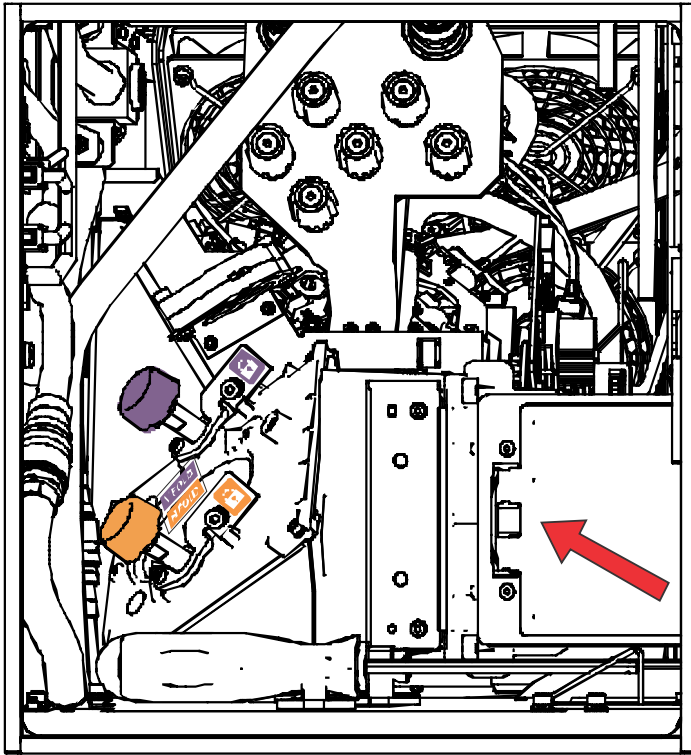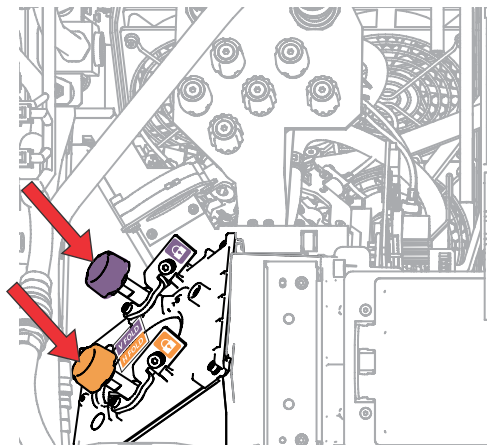
5. Loosen the lock screw for the Zoom and Focus paddles.
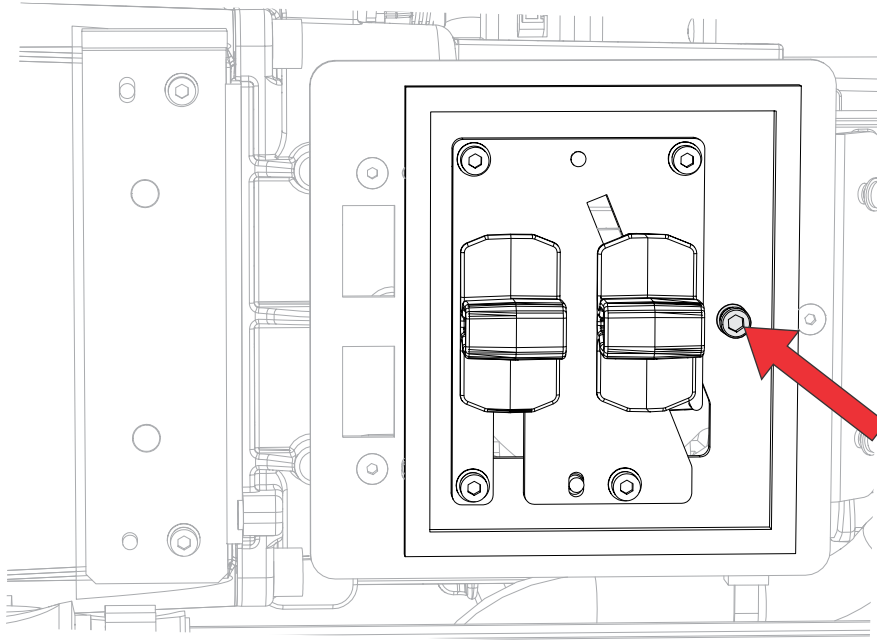
6. Set the integrator rod Zoom paddle to the minimum.
7. Loosen the fold mirror screws to unlock the fold mirror adjustment knobs.

8. To make horizontal adjustments on the fold mirror, use the orange adjustment knob.

   To make vertical adjustments on the fold mirror, use the purple adjustment knob.

9. Adjust the fold mirror until either the top left edge or the bottom right edge of the illumination spot becomes visible on the DMD.

10. Adjust the integrator rod Focus paddle to optimize focus for one of the following:

    • Along the top edge of the image, approximately one-third across the image from the left.

    • Along the bottom edge of the image, approximately one-third across the image from the right.

11. Adjust the fold mirror to center the image on the DMD array.

12. Use the integrator rod Zoom paddle to increase the zoom until the entire active area is filled, with no dark areas at the edges or corners.

    Ensure that overfill is minimized to improve DMD life and system optical efficiency for brightness.

13. Once the adjustments are complete, tighten the lock screw for the Zoom and Focus paddles, and the two fold mirror screws.

14. Close the access door for the Zoom and Focus paddles.

Adjusting the boresight

A boresight adjustment balances the tilt of the lens mount to compensate for screen-to-projector tilt.

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

- Do not look directly into the lens when the light source is on. The extremely high brightness can cause permanent eye damage.
- FIRE HAZARD! Keep hands, clothes, and all combustible material away from the concentrated light beam of the projector.

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

- This procedure must be performed by Christie qualified technicians.

📝 When making the adjustments, set the light source to minimum power.

To following steps are intended to achieve the highest quality image distributed across the full screen.

1. Close the shutter on the projector to avoid accidental exposure to the projection beam when working in close proximity to the projection lens.
2. Using a 3 mm driver, unlock the horizontal and vertical lock screws (Lock A, B, and C).
   To unlock the vertical lock screw (Lock C), flip open the cover flap (G) using the screwdriver.
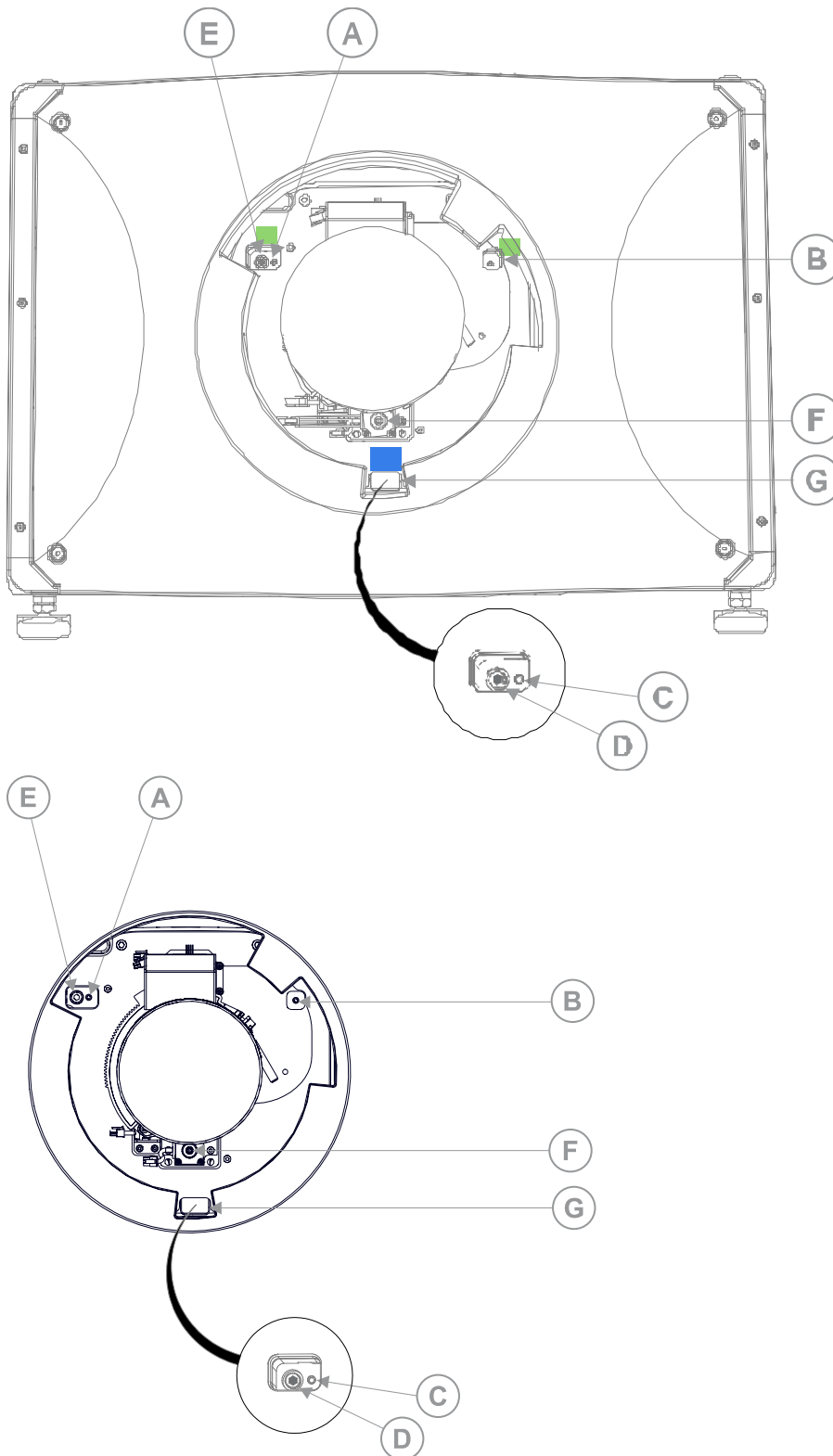
A	Horizontal lock screw (Lock A)

B	Horizontal lock screw (Lock B)
C	Vertical lock screw (Lock C)
D	Vertical boresight screw
E	Horizontal boresight screw
F	Manual focus knob
G	Cover flap

3. Open the shutter on the projector.

4. In the right toolbar, select **Test Patterns** .

5. Select the **RGB-4K-Boresight** pattern and display it full screen.

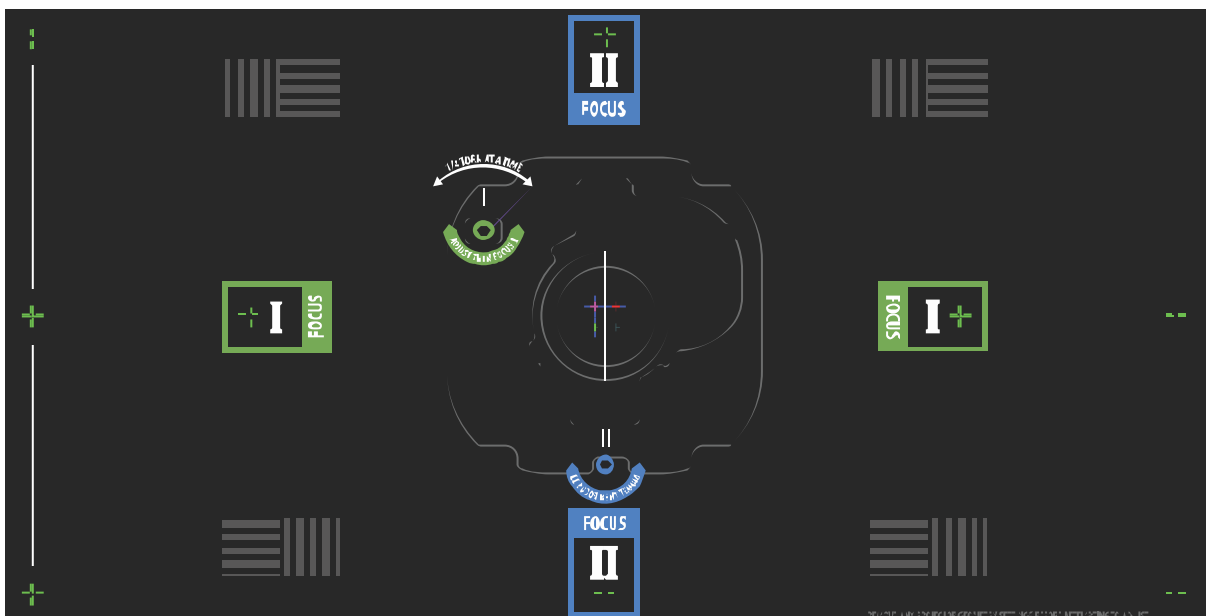> When adjusting the boresight screws, ensure that the shutter is closed to avoid accidental exposure to the projection beam when operating in close proximity to the projection lens. Open the shutter only to view the test pattern.

6. Start with the horizontal boresight adjustment. Use the ILS controls to move the projection lens into the projector, or turn the manual focus knob (F) counterclockwise to slightly defocus the green cross-hair patterns (+) at the right and left edges of the test pattern.

7. Use the ILS controls or turn the focus knob (F) clockwise to begin focusing the image. Watch for either the left or right cross-hair patterns (+) to come into focus.

8. If the left side comes into focus first, use a 5 mm driver to turn the horizontal boresight adjustment screw (E) clockwise until the left and right are equally out of focus.

    If the right side comes into focus first, turn the horizontal boresight screw counterclockwise.

9. Repeat steps 6 to 8 as required to obtain an even focus at the right and left edges of the screen.

10. Next perform the vertical boresight adjustment. Use the ILS controls to move the projection lens into the projector, or turn the focus knob (F) counterclockwise to slightly defocus the green cross-hair patterns (+) at the top and bottom of the screen.

11. Use the ILS controls or turn the focus knob (F) clockwise to begin focusing the image. Watch for either the top or bottom cross-hair patterns (+) to come into focus.

12. If the bottom comes into focus first, use a 5 mm driver to turn the vertical boresight adjustment screw (D) counterclockwise until the top and bottom are equally out of focus.

    If the top comes into focus first, turn the vertical boresight screw clockwise.

13. Repeat steps 10 to 12 as required to obtain an even focus at the top and bottom of the screen.

14. Once the correct focus has been achieved, lock the three lock screws.

    When locking the lock screws, start with the horizontal lock screws (Lock A and Lock B) and turn them until they just touch the base. Repeat for the vertical lock screw (Lock C). Continue the gradual tightening of each screw, until all lock screws are tight.

    > When stabilizing image vibration, Lock B may be left locked or unlocked at the discretion of the installer.

15. If you used the focus knob (F) to make the adjustments manually, run an ILS auto calibration.

16. Fine tune the focus on cross-hair patterns **I** (horizontal) and **II** (vertical) using the ILS controls only.

    The goal is to obtain good focus at the center and on all sides of the screen, including the square patterns across the screen.

Adjusting DMD convergence

A convergence problem can be identified when one or more projected colors (red, green, and blue) appears misaligned when examined with a convergence test pattern.

The three colors should overlap to form pure white lines throughout the image and one or more poorly converged individual colors may appear adjacent to some or all of the lines.

When adjusting the convergence, you are adjusting red and green to blue.

> If you wear glasses with corrective lenses when performing this adjustment, ensure that you are viewing the test pattern on a straight angle through the optical axis of your glasses, and not from a tilted or angled perspective. This avoids a prismatic effect that can appear to shift convergence when viewing at an angle.

1. Before adjusting DMD convergence, ensure the projector has reached a steady operational state. If switching from a white or bright test pattern to a dark convergence test pattern, or if warming up the projector after a shutdown, allow 15 minutes for stabilization so that the optics can reach a steady state.

2. In the right toolbar, select **Test Patterns**.

3. Select the **RGB-4K-Convergence** test pattern and display it full screen.
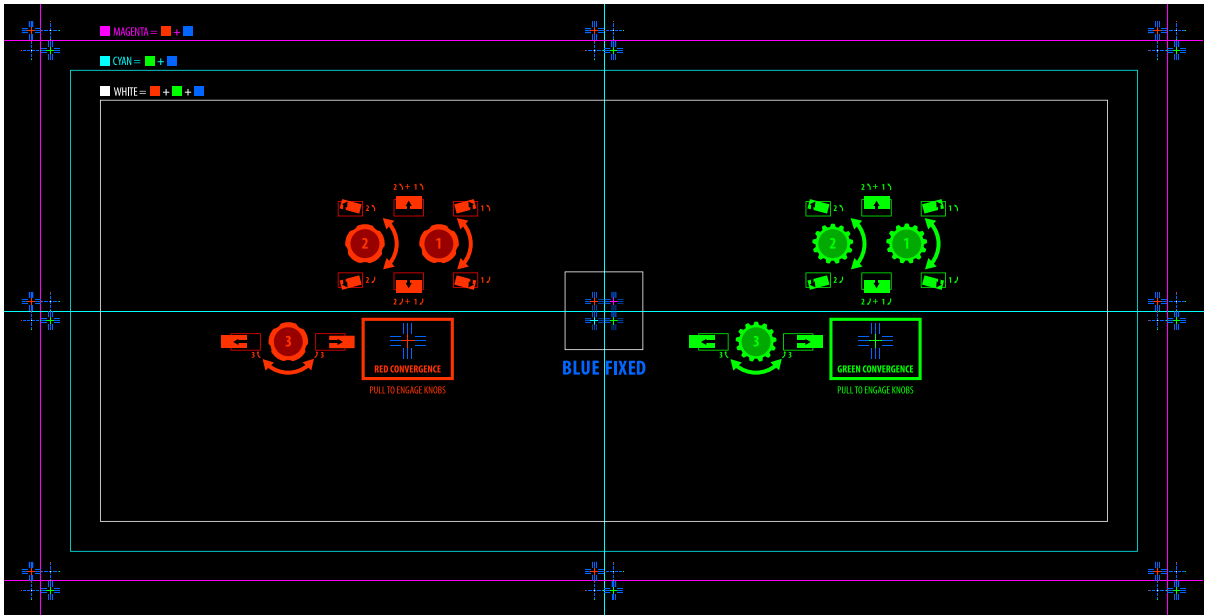
4. Open the Service door on the side of the projector.

5. To adjust the convergence knobs, use the 3 mm driver included with the projector.

   If adjusting by hand without using the tool, pull out the convergence adjustment knobs to engage them.
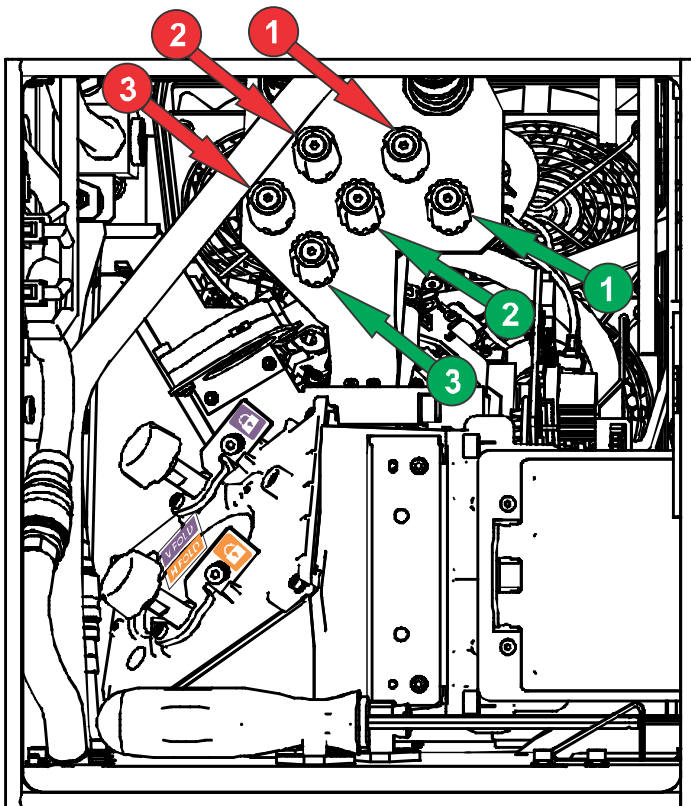
6. Use the Convergence test pattern to assist with adjusting the horizontal and vertical lines.

Horizontal adjustments are controlled by adjusting knob 3.

Vertical convergence and rotation are controlled by adjusting knobs 1 and 2. Christie recommends rotating a single knob a maximum of a quarter rotation before adjusting the second knob a quarter rotation. For example, if using one hand, turn the left knob a quarter rotation and then the right knob a quarter rotation, and so on. Adjusting a single knob for vertical or rotational adjustment to an extreme before adjusting the second knob may result in the convergence mechanism binding.

> For the best stability, Christie recommends setting convergence while rotating the knobs in a clockwise direction. This may require first adjusting convergence by turning the knobs counter-clockwise, and finalizing the convergence with a clockwise approach. This applies to all knobs.

7. When complete, push in all the convergence adjustment knobs to disengage them.

Masking the screen edges

Conceal the unused edges of a screen with top or side masking.

Typically, you install top and side masking to allow a greater range of adjustment.

1. To create top masking:
   a) Install movable flat black panels or curtains along the top edge of the screen.
   b) Raise the curtain for flat images or lower the curtain for scope images.

Top masking theater (1.85 screens)	
A	1.85 image
B	2.39 image
C	Masking moved up
D	Top masking to hide screen top

2. To create side masking:
   a) Install movable flat black panels or curtains along each side of the screen.
   b) Close the curtain for flat images or open the curtain and zoom for scope images.

Side masking theater (2.39 screens)

A	Side masking to hide screen edges
B	1.85:1 image (flat)
C	2.39:1 image (scope)
D	Masking moved aside
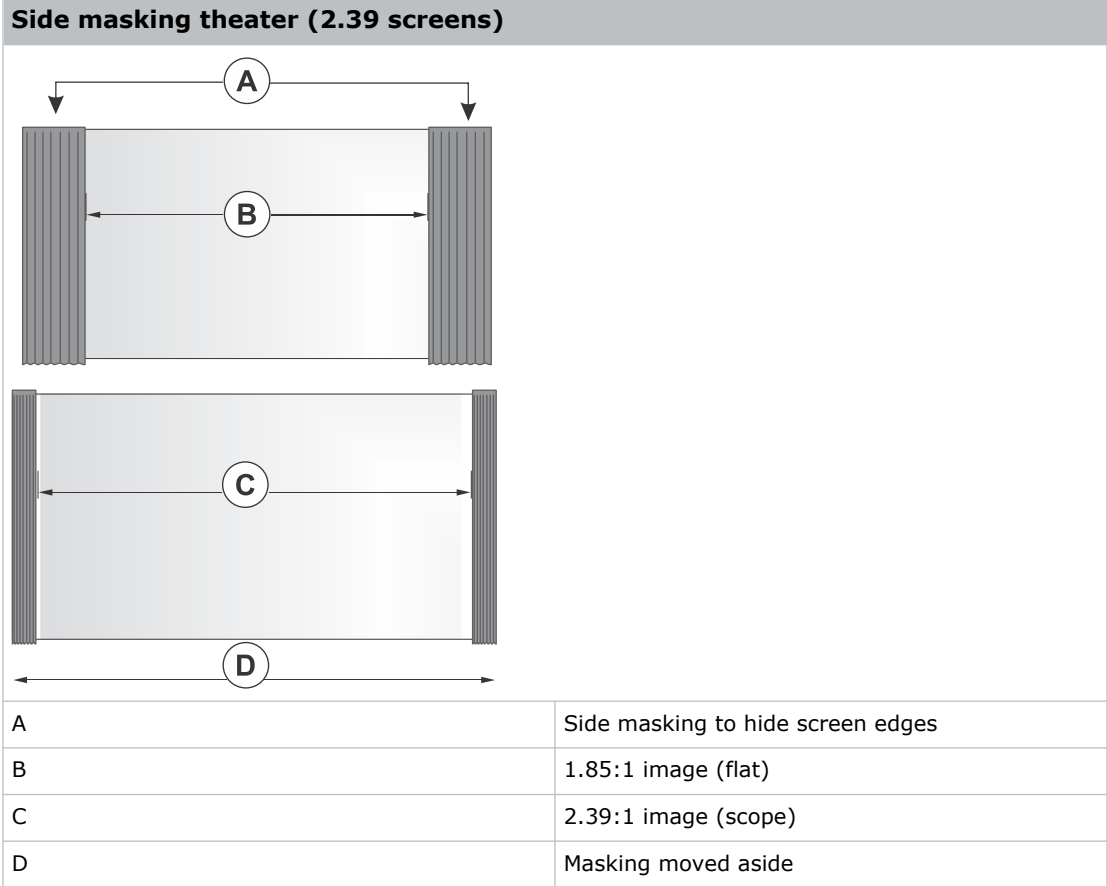
Test patterns

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

Displaying a test pattern

Display a test pattern to refine and adjust the projected image, or to diagnose and correct image issues.

1. In the right toolbar, select **Test Patterns**.

2. Select **Full Screen** or **Uncorrected Colors**.

3. Select a test pattern.
   When a test pattern is active, a blue bar appears below the test pattern icon in the right pane.

4. To display a 2D test pattern in 3D mode, select the **3D Sync** option.
   The **3D Sync** option is selected automatically for 3D test patterns. 3D test patterns cannot be displayed in 2D mode.

5. To change the frame rate of the test pattern display, select from the available Frame Rate options:

   - For 2D test patterns, the available frame rates are 24, 30, 48, and 60 Frames Per Second (FPS). The default value is 24 FPS.

   - For 3D test patterns, the available frame rates are 48 and 60 FPS. The default value is 48 FPS.

   Changing the frame rate of the display can assist with color measurement when working with corrected colors.

   When you change the frame rate option, that option is applied to the next test pattern you select unless it is not available for that pattern. If a selected frame rate is not available, the default frame rate is applied for the test pattern display.

Turning off a test pattern

Turn off a test pattern when adjustment of the projected image is complete.

1. In the right toolbar, select **Test Patterns**.

2. Select **Test Pattern Off**.

Importing a test pattern

Import custom test patterns to meet the specific requirements of your viewing environment.

1. In the right toolbar, select **Test Patterns**.

2. In the upper right corner, select **Edit**.

3. Select **Import**.

4. Browse to the location of the test pattern file.

5. Select the test pattern file.

6. Select **Accept**.

7. In the upper right corner, select **Done**.

Deleting a test pattern

Delete a test pattern that is no longer required. A test pattern with **RGB** in the name cannot be deleted.

1. In the right toolbar, select **Test Patterns**.

2. In the upper right corner, select **Edit**.

3. Select a test pattern.

4. Select **Delete**.

5. To confirm the deletion, select **Delete**.

6. In the upper right corner, select **Done**.

Working with the scheduler

Use the scheduler to schedule automated events that play automatically on a specific date at a specific time.

Scheduling automation

Schedule automation to run automatically on a specific date and time.

On CineLife+ projectors, the scheduler is enabled by default.

1. In the left navigation menu, select **Scheduler**.
2. To enable scheduled events, select the **Scheduler is off** slider.
   The color of the slider changes to green to indicate it is active.
3. To select a date for the scheduled event, select **Calendar**. ▦
4. Select the week.
5. Select a square below the date and next to the time that you want the event to run.
6. Select **+ New Event**.
7. Select **Automation**.
8. Select an automation item.
9. Select the start time.
10. Select the start date.
11. To repeat the event daily, weekly, or monthly:
    a) Select the **Recurrence** slider.
    b) Select the frequency of the recurrence. The options are daily, weekly, or monthly.
    c) Select the days or months that you want the playlist, content, or automation event to play.
    d) To select an end date for the schedule, select **Calendar**. ▦
12. To prevent the scheduled event from being overwritten, select the **Lock Event** slider.
    Locked events cannot be overwritten by pasted events.
13. Select **Create Event**.

Editing a scheduled event

Edit a scheduled event to modify the run time and date.

1. In the left navigation menu, select **Scheduler**.

2.   In the calendar view, select the scheduled event.

3.   Select **Edit**.

4.   Edit the scheduled event settings.

5.   Select **Update Event**.

Copying and pasting an existing scheduled event

To run a scheduled event at a different date and time, copy and paste it.

1.   In the left navigation menu, select **Scheduler**.

2.   In the calendar view, select the scheduled event.

3.   Select **Copy**.

4.   Select a square below the date and next to the time that you want the event to run.

5.   Select **Paste**.

6.   Adjust the any settings for the scheduled event.

7.   Select **Paste Event**.

Copying and pasting scheduled events for an entire day

To run an existing full day of scheduled events on a different date, copy and paste the entire day of scheduled events.

1.   In the left navigation menu, select **Scheduler**.

2.   At the top of the calendar, select the day with the events you want to copy.

3.   Select **Copy**.

4.   At the top of the calendar, select the new target day.

5.   Select **Paste**.
     Only unlocked events are copied to the new day.

Cutting and pasting a scheduled event

To move an existing scheduled event to a different date and time, cut and paste it.

1.   In the left navigation menu, select **Scheduler**.

2.   In the calendar view, select the scheduled event.

3.   Select **Cut**.

4.   Select the new date in the calendar.

5.   Select **Paste**.

6.   Adjust the settings for the scheduled event.

7. Select **Paste Event**.
   Only unlocked events are copied.

Deleting a scheduled event

Delete an individual schedule event when it is no longer required.

1. In the left navigation menu, select **Scheduler**.

2. In the calendar view, select the scheduled event.

3. Select **Delete**.

4. To confirm the deletion, select **Delete**.

Deleting scheduled events for an entire day

Delete the scheduled events for an entire day when they are no longer required.

1. In the left navigation menu, select **Scheduler**.

2. At the top of the calendar, select the target day.

3. Select **Clear Day** .

4. To confirm the change, select **Clear Day**.

Changing the day of the week the scheduler starts

Change the start day of the scheduler to match the schedule of the theater.

1. In the left navigation menu, select **Service Setup** > **Preferences**.

2. Select **General**.

3. In the Scheduler area, select the day of the week to start the scheduler.

Turning the scheduler off

Turn the scheduler off when you do not want scheduled events to run automatically on a specific date and time.

1. In the left navigation menu, select **Scheduler**.

2. To disable scheduled events, select the **Scheduler is on** slider.
   The color of the slider changes to gray to indicate it is inactive.

Automation

You use automation to control playback, the projector, and external devices. This section provides instructions for managing and defining:

- **Macros** - A macro is a list of actions that you define. For example, opening the curtains or turning on the house lights at the end of playback. A macro can be activated by a global trigger, or it can be added to a playlist.
- **Device Input Triggers** - Input cues wait for events such as a general purpose input (GPI) state change or an Ethernet message received on the projector management IP address port 5111. An input cue in a playlist delays playback until an event occurs.
- **Global Triggers** - A global trigger combines an input cue with a macro. When the predefined event for the input cue occurs, the output macro is triggered. For example, a fire alarm input signal could cause playback to stop and the house lights to come on. A global trigger is always active and is not dependent on specific playlist definitions.

On CP4450-RGB projectors, playback automation is controlled through the GDC IMB. For more information, refer to the documentation provided with your IMB device.

On CP44xx-RGB projectors, the GDC IMB automation cue 'ON_Projector' does not function in Standby mode. To automate your show, first use the Scheduler to power on the IMB.

Available macro actions

These are the macro actions that are available to control automated events:

Action Item	Available Actions	Description
Automation	Set Global	Allows you to set a global variable that can be used in automation scripting (intended for advanced scripting by Christie)
	Print	Generates a projector log entry when an automation macro runs
	Get Global	Allows the automation script to read the value of a global variable (intended for advanced scripting by Christie)
	Set GPO	Sets the specified GPO pin to high or low
	Pulse GPO	Pulses the specified GPO pin
	Get GPI	Allows an automation script to read the GPI state (intended for advanced scripting by Christie)
	Delay	Delays macro execution
	Wait On GPI	Pauses the automation script and waits for the specified GPI event to enter the specified state
Projector	Douser Open	Opens the douser (shutter)
	Douser Close	Closes the douser (shutter)

Action Item	Available Actions	Description
	Light On	Turns the light on
	Light Off	Turns the light off
	Standby	Puts the projector in standby mode
	Channel	Selects a specific projector channel
	Revert Warp File	Reverts the active warp file to its previous settings
	Full Power	Places the projector in full power mode
	Wait	Delays the execution of a macro

Fire alarm macro

By default, the projector is configured with a macro that uses a building fire alarm as the trigger.

If the projector is connected the building's fire alarm system (recommended installation), the default `FIRE_ALARM` macro puts the projector into Standby mode if a fire alarm occurs.

You can also create a custom macro that uses the fire alarm trigger or edit the default fire alarm macro to perform other actions as needed.

Christie ACT actions

These are the available built-in commands for the Christie ACT:

Command	Description
Buzzer	Activates the buzzer for the specified time (in milliseconds)
Button	Simulates pressing or holding the ACT button
Pulse Relay	Sends a pulse to a specific relay
Open Relay	Opens a specific relay
Close Relay	Closes a specific relay
Pulse GPO	Sends a pulse to a specific GPO pin
Set All GPOs	Sets the values for all GPO pins
Run Script	Runs a script on the Christie ACT
Flash LED	Causes a specific LED to flash
Set All LEDs	Sets values for all of the LEDs

JNIOR actions

These are the available built-in commands for JNIOR devices:

Command	Description
Open Relay	Opens a specific JNIOR relay
Close Relay	Closes a specific JNIOR relay
Pulse Relay	Sends a pulse to a specific JNIOR relay for the specified time (in milliseconds)
Execute Macro	Executes a JNIOR macro

You can create macros on the JNIOR device and call them using the `Execute Macro` command. Make sure you use \\0D for a carriage return and \\0A for a line feed.

To create and run macros on the JNIOR, use the JNIOR Support Tool to enable and configure the Cinema.JNIOR application. It is recommended that you install Cinema.JNIOR version 2.22.1115.1501 or later. For additional information, see INTEG Process Group (www.integpg.com). Port 9200 is the default Ethernet port for sending automation commands to the JNIOR.

Dolby Cinema processor actions

These are the available built-in commands for Dolby CP650, CP750, and CP850 devices:

Command	Description
Mute On/Mute Off	Enables or disables muting
Set Format (CP650 only)	Selects the format
Set Fader Level	Sets the fader level
Send Message	Sends the specified message

If you need to control additional functions and a built-in command is not available, send a command string in a macro. For example, send this command to enable surround boost on the Dolby CP750: `cp750.sys.surround_boost 1\\0D`

Make sure that you include a carriage return (`\\0D`) at the end of each command. For more information about controlling other features with serial commands, see the Dolby CP750 documentation.

The default Ethernet port for sending automation commands to the Dolby CP650 is port 61412. For Dolby CP750 and CP850, the default Ethernet port is port 61408.

SKA-3D actions

These are the available built-in commands for SKA-3D devices:

Command	Description
Set Audio Input Channel	Sets the audio input channel
Mute On/Mute Off	Enables or disables muting
Set Master Volume	Sets the overall volume for the system

Command	Description
Set Video Input Channel	Sets the video input channel
Active Trigger Input	Controls eight SKA-3D presets To use this command, a trigger input must be associated with each of the SKA-3D presets

Creating a macro

Create a macro to make the projector perform a specific list of actions.

1. In the left navigation menu, select **Automation** > **Macro Editor**.
2. In the right pane, select **Create New Macro**.
3. Type a name for the macro.
    The Name field cannot contain spaces.
4. Select the macro type.
5. Select **Create**.
6. Add an action item to the macro:
    a) In the left pane, expand the My Auditorium list.
    b) Under Automation or Projector, select the action item.
7. To save the macro, select **Save**.
8. To test the macro, select **Test**.

Running a macro

Run a macro to have the projector perform a specific list of actions.

1. In the right toolbar of the touch panel, select **Run Macro**.
2. Select a macro.

Adding an action item to an existing macro

Add an action item to a macro to have the projector perform an additional action when the macro runs.

1. In the left navigation menu, select **Automation** > **Macro Editor**.
2. In the top right pane, select a macro from the list.
3. Add an action item to the macro:
    a) In the left pane, expand the **My Auditorium** list.
    b) Under Automation, Playback, or Projector, select the action item.
4. To save the macro, select **Save**.

5. To test the macro, select **Test**.

Adding a macro to an existing macro

Combine macros to have the projector complete a complex set of actions.

1. In the left navigation menu, select **Automation** > **Macro Editor**.
2. From the list in the top right pane, select a macro.
3. In the left pane, expand the macro list.
4. Select a macro.
5. Sap **Save** 💾.

Deleting a macro

Delete macros when they are no longer required.

1. In the left navigation menu, select **Automation** > **Macro Editor**.
2. From the list in the top right pane, select a macro.
3. Select **Delete**. 🗑
4. To confirm the deletion, select **Delete**.

Adding an automation device to your auditorium

Add an automation device so it can be controlled remotely and can communicate with other theater hardware.

1. In the left navigation menu, select **Automation** > **My Auditorium Devices**.
2. Select **+ New Device**.
3. In the Name field, type a name for the device.
4. In the Device Type list, select the device type.
5. In the Select Device list, select the device.
6. Select **Add**.
7. Complete these fields:
    *   IP Address—The IP address of the automation device.
    *   Port—The port used by the automation device to communicate with the projector.
    *   Username—The username used to access the automation device.
    *   Password—The password used to access the automation device.
    *   Keep Alive Message—The message value that is sent to the automation device to ensure the projector is not disconnected when inactive.
    *   Keep Alive Interval (ms)—The time interval (in milliseconds) for sending the Keep Alive Message to the automation device.
8. Select **Save**.

The added device is displayed in the list of auditorium devices in the Macro Editor.

Modifying automation device settings

Modify the settings of automation devices when parameters such as the user name or password change. If the settings are not updated, the automation device might be unable to communicate with other theater hardware or be controlled remotely.

1. In the left navigation menu, select **Automation** > **My Auditorium Devices**.
2. In the left pane, select an automation device.
3. Modify these fields:
   - IP Address—The IP address of the automation device.
   - Port—The port used by the automation device to communicate with the projector.
   - Username—The username used to access the automation device.
   - Password—The password used to access the automation device.
   - Keep Alive Message—The message value that is sent to the automation device to ensure the projector is not disconnected when inactive.
   - Keep Alive Interval (ms)—The time interval (in milliseconds) for sending the Keep Alive Message to the automation device.
4. Select **Save**.

Removing an automation device from your auditorium

Remove an automation device when it is no longer required, or it has been physically removed from the theater.

1. In the left navigation menu, select **Automation** > **My Auditorium Devices**.
2. In the left pane, select an automation device.
3. Select **Delete**. 🗑
4. To confirm the deletion, select **Delete**.

Creating, editing, and deleting playlist triggers

Playlist triggers are configured and managed through the GDC IMB.

For more information, refer to the documentation provided with your IMB device.

Creating a new global trigger

Create a global trigger to trigger an output macro. For example, a fire alarm input signal could cause playback to stop and the house lights to come on. A global trigger is always active and is not dependent on specific playlist definitions.

1. In the left navigation menu, select **Automation** > **Device Input Triggers**.
2. Select **+ New Global Trigger**.
3. Complete the Name, Source, and Trigger Event fields.
    The Name field cannot contain spaces.
4. In the Macro Name list, select the macro that will run on trigger detection.
5. Select **Add**.

Editing existing global trigger settings

Edit the settings of an existing global trigger to change its behavior.

1. In the left navigation menu, select **Automation** > **Device Input Triggers**.
2. To the right of the global trigger you want to edit, select **Edit** .
3. Edit the global trigger settings.
4. Select **Save**.

Deleting a global trigger

Delete a global trigger when it is no longer required.

1. In the left navigation menu, select **Automation** > **Device Input Triggers**.
2. To the right of the global trigger, select **Delete** .
3. To confirm the deletion, select **Delete**.

Importing a device library

A device library contains commands that are used to control a specific device.

1. In the left navigation menu, select **Automation** > **Device Libraries**.
2. select **Import Device Library**.
3. Browse to the location of the device library file.
4. Select the file and select **Accept**.

Viewing a device library

View device libraries to determine if a library exists for the network device.

1. Import the device library.

2. In the left navigation menu, select **Automation** > **Device Libraries**.

3. To the right of the device in the View Library column, select **View Library**.

   Review the list of actions available for the device.

Deleting a device library

Delete a device library when it is no longer required.

1. In the left navigation menu, select **Automation** > **Device Libraries**.

2. To the right of the device library, select **Delete**.

3. To confirm the deletion, select **Delete**.

Backing up, restoring, and upgrading files

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

Creating a new backup file

Create a new backup file to restore projector settings if a failure occurs.

1. In the left navigation menu, select **Service Setup** > **Backup and Restore**.
2. Select **New Backup**.
3. Type a name for the backup file and select **Backup**.

Exporting a backup file

A disaster recovery plan can include exporting backup files to another location.

1. In the left navigation menu, select **Service Setup** > **Backup and Restore**.
2. Insert a USB flash drive into the **Management USB** port on the projector communication board.
3. Select a backup file and select **Export**. ⬆
4. Select to move up through the file directory.
5. Select to create a new folder.
6. In the Name field, type a name for the backup file.
7. Select **Accept**.

Importing a backup file

Import a backup file to restore projector settings.

1. In the left navigation menu, select **Service Setup** > **Backup and Restore**.
2. Insert a USB flash drive into the **Management USB** port on the projector communication board.
3. Select **Import Backup**.
4. Browse to the location of the file or enter a name for the backup file in the Name field.
5. Select the file and select **Accept**.
6. If the file already exists, in the confirmation dialog select **Overwrite**.

Sorting backup files by name and date created

Locate a backup file with a specific name or creation date.

1. In the left navigation menu, select **Service Setup** > **Backup and Restore**.
2. Sort the backup files:
   - To sort the backup files by name, select the **Backup File Name** heading.
   - To sort the files by the date they were created, select the **Date Created** heading.

Deleting a backup file

Delete a backup file if it is no longer required or is uploaded in error.

1. In the left navigation menu, select **Service Setup** > **Backup and Restore**.
2. Select a backup file and select **Delete** 🗑.
3. To confirm, select **Delete**.

Restoring settings from a backup file

Restore projector settings from a backup file.

1. In the left navigation menu, select **Service Setup** > **Backup and Restore**.
2. Select a backup file and select **Restore** ↺.
3. Select the settings you want to restore and select **Restore**.
4. Select **OK**.

Restoring factory default settings

Restoring factory settings removes all custom projector settings.

1. In the left navigation menu, select **Service Setup** > **Backup and Restore**.
2. Select **Factory Restore**.
3. Select the settings you want to restore and select **Restore**.
4. Select **OK**.

Upgrading the projector software

An upgrade package is used to upgrade the projector software to the latest version. The upgrade package is installed from a USB key or from the projector's `ftpuser` directory.

To obtain the upgrade package, contact Christie Technical support.

1. Power on the projector and place it in Standby mode.

2. Upload the required upgrade package to a USB key or to the `home/ftpuser` directory on the projector.

   NTFS-formatted USB drives are not supported for this release.

3. If using the USB method, insert the USB key into the projector.

4. In the left navigation menu, select **Service Setup** > **System Upgrade**.

   The available upgrade packages are displayed on screen.

5. Select to select the upgrade package from the list.

6. Select **Upgrade**.

7. To begin the upgrade, select **Upgrade** in the confirmation dialog.

   The projector restarts automatically when the upgrade is complete.

Accessing projector diagnostics

Learn how to access projector system logs and run diagnostic utilities.

Retrieving and downloading system logs

System logs can aid with the identification and correction of projector faults.

1. In the left navigation menu, select **Diagnostics** > **System Logs/Interrogator**.
2. In the From list, select a start date for the logs.
3. In the To list, select an end date for the logs.
4. In the Log Source list, select a log type. For example, **Projector**.
5. Select **Search**.
6. To sort log files by type, message, or date, select a column heading.

Running the projector interrogator

Run the interrogator to identify and correct projector faults.

1. Insert a USB flash drive into the **Management USB** port on the projector communication board.
2. In the left navigation menu, select **Diagnostics** > **System Logs/Interrogator**.
3. Select **Run Interrogator**.
4. In the confirmation dialog, select **Interrogate**.
   By default, the interrogator excludes warp files to limit the size of the log file output. To include warp files in the interrogator log, select the option for **Include Warp Files**. Including warp files significantly increases the size of the interrogator log file (ZIP).
5. Browse to the location where you want the interrogator file to be saved.
6. In the Name field, type a name for the interrogator file.
7. Select **Accept**.

Viewing laser diagnostic information

Find diagnostic information on the laser optical sub-systems.

1. In the left navigation menu, select **Laser Settings** > **Laser Diagnostics**.
2. Review the detailed information for the following:

- model
- version
- serial numbers
- power health
- drivers
- temperature

Downloading a certificate

Follow these steps to download a required certificate.

1. In the left navigation menu, select **About**.
2. To download a projector certificate, select **Download**.
3. In the Name field, type a name for the certificate file.
4. Select **Accept**.

Regulatory

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

Safety

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

Electro-magnetic compatibility

Emissions

- 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
- FCC CFR47, Part 15, Subpart B, Class A – Unintentional Radiators
- IEC 61000-3-2/EN61000-3-2: Limits for harmonic current emissions for equipment with input current ≤ 16 A
- IEC 61000-3-3/EN61000-3-3: Limitations of Voltage Changes, Voltage Fluctuations, and Flicker input current ≤ 16 A
- IEC 61000-3-11/EN61000-3-11: Limitations of Voltage Changes, Voltage Fluctuations, and Flicker for equipment with rated current ≤ 75 A
- IEC 61000-3-12/EN61000-3-12: Limits for harmonic current emissions for equipment for systems with input current > 16 A and ≤ 75 A per phase

Immunity

- CISPR 24/EN55024 EMC Requirements – Information Technology Equipment

Environmental

- 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).

- 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).

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