Solaria One+

User Manual

020-101038-02

CHRISTIE®

Solaria One+

USER MANUAL

020-101038-02

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

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j. For LCD projectors, the warranty period specified applies only where the LCD projector is in "normal use." "Normal use" means the LCD projector is not used more than 8 hours a day, 5 days a week. For any LCD projector where "normal use" is exceeded, warranty coverage under this warranty terminates after 6000 hours of operation.
k. Image retention on LCD flat panels.
l. Failure due to normal wear and tear.

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Addendum

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Il CD fornito con il manuale stampato contiene una copia elettronica in lingua italiano. Si prega di leggere tutte le istruzioni prima di utilizzare o riparare questo prodotto.

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1 Installation and Setup

This manual is intended for professionally trained operators of Christie high-brightness projection systems. These operators are qualified to replace the lamp and air filter, but should not attempt to install or service the projector.

Only accredited Christie technicians who are knowledgeable about the hazards associated with high-voltage, ultraviolet exposure, and the high temperatures generated by the projector lamp are authorized to assemble, install, and service the projector. In addition, only Christie accredited personnel are authorized to perform security procedures such as marriage.

This section provides information and procedures for positioning and installing the projector.

1.1 Safety Precautions

When installing the projector, observe these important safety rules to avoid personal injury or damage to the projector:

⚠ WARNING Never look directly into the projector lens or at the lamp. The extremely high brightness can cause permanent eye damage. For protection from ultraviolet radiation, keep all projector housings intact during operation. Protective safety clothing and safety goggles are recommended when servicing.

⚠ WARNING FIRE HAZARD! Keep hands, clothes, and all combustible material away from the concentrated light beam of the lamp.

⚠ CAUTION Position all cables where they cannot contact hot surfaces or be pulled or tripped over.

This projector must be operated in an environment that meets the operating range specification, as listed in *A.8.1 Operating Environment on page A-5*.

1.1.1 AC/Power Precautions

⚠ WARNING

- **Use only the AC power cord that is provided with the projector. DO NOT attempt operation if the AC supply is not within the specified voltage and power range.**
- **As a safety feature the projector is equipped with a three-wire plug with a third (grounding) pin. If you are unable to insert the plug into the outlet, contact an electrician to have the outlet replaced. DO NOT defeat the safety purpose of the grounding-type plug.**
- **DO NOT attempt operation if the AC supply is not within the rated voltage range, as specified on the license label.**
- **Disconnect projector from AC before opening any enclosure.**
- **The dedicated earth wire can only be installed by a Christie accredited service technician or an electrician. The protected earth wire must be green/yellow 12 AWG minimum. See** *Projector Specifications on page A-1* **for power requirements**

⚠ CAUTION

- **DO NOT allow anything to rest on the power cord. Locate the projector where the cord cannot be damaged by persons walking on it or objects rolling over it. Never operate the projector if the power cable appears damaged in any way.**

- **DO NOT overload power outlets and extension cords as this can result in fire or shock hazards.**
- **Only qualified service technicians are permitted to open projector enclosures and only if the projector is disconnected from AC power.**

1.1.2 Power Cords and Attachments

⚠ WARNING A power cord rated for your region is provided with each projector. Make sure that you are using a power cord, socket, and power plug that meets the appropriate local rating standards. Use only an AC power cord recommended by Christie. DO NOT attempt operation if the AC supply and cord are not within the specified voltage and power range.

NOTICE: *Use only the attachments and/or accessories recommended by Christie. Use of others may result in the risk of fire, shock and personal injury.*

1.1.3 Lamp Precautions

⚠ DANGER EXPLOSION HAZARD! Wear authorized protective safety gear whenever the lamp door is open! Never attempt to remove the lamp directly after use. The lamp is under significant pressure when hot and cold, and may explode, causing personal injury and/or property damage.

Any lamp used in the Solaria One + is under high pressure and must be handled with great care at all times. Lamps may explode if dropped or mishandled.

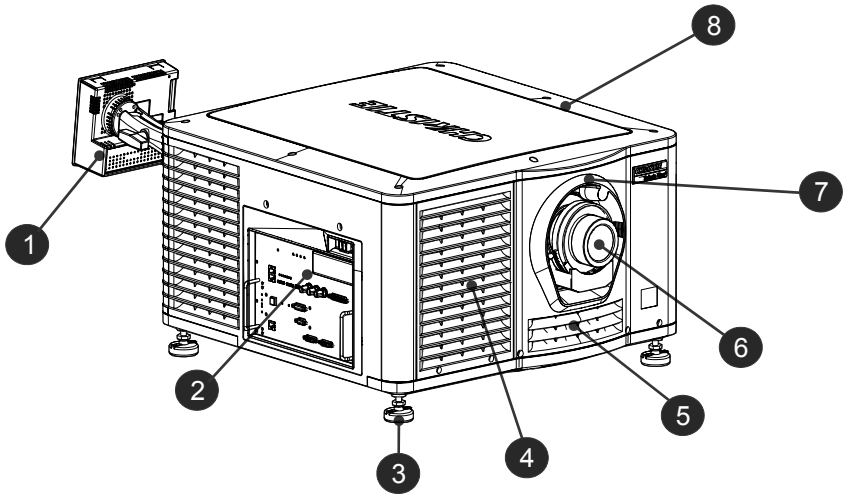
Protective Clothing

Never open the lamp door unless you are wearing protective clothing such as that included in a Christie Protective Clothing Safety Kit (P/N: 598900-095). Recommended protective clothing includes, but may not be limited to a polycarbonate face shield, protective gloves, and a quilted ballistic nylon jacket or a welder's jacket. **NOTE:** *Christie's protective clothing recommendations are subject to change. Any local or federal specifications take precedence over Christie recommendations.*

Cool the Lamp Completely

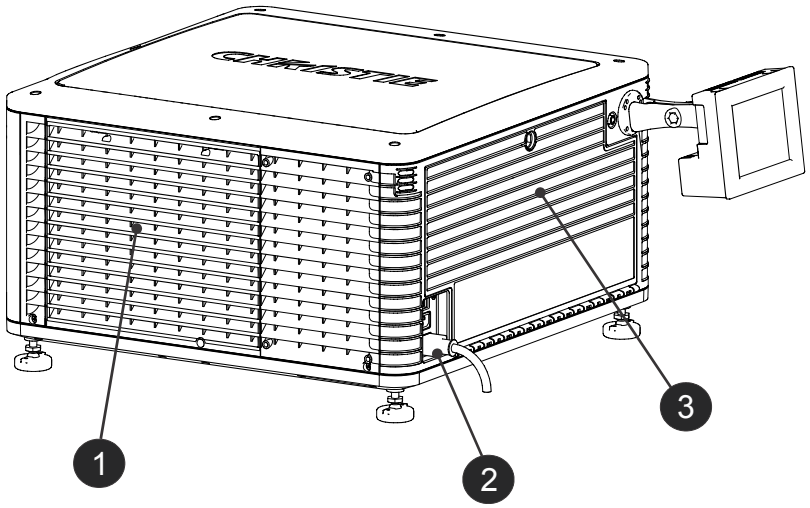
⚠ DANGER Lamp may explode causing bodily harm or death. Always wear protective clothing whenever lamp door is open or while handling lamp. Make sure those within the vicinity of the projector are also suited with protective clothing. Never attempt to access the lamp while the lamp is on. Wait at least 15 minutes after the lamp turns off before powering down, disconnecting from AC and opening the lamp door.

1.2 Projector Components - Front



Component	Description
1	Touch Panel Controller (TPC) A touch-sensitive screen used to control the projector. The TPC can remain mounted on the projector or it can be wall mounted.
2	Communications Panel External devices are connected here. The electronic serial number (eSN) label for the Christie IMB is also located here. See *Projector Connections on page 1-12*.
3	Adjustable Feet Turn the adjustable feet to increase or decrease the projector height. See *Adjust Tilt and Level the Projector on page 1-7*.
4	Air Filter Cover and Air Filter Located behind the air filter cover is a replaceable air filter. The air filter filters the intake air before it begins circulating in the front compartment to cool the main electronics.
5	Air Filter
6	Projector Lens See *Projector Specifications on page A-1* for a list of available lenses.
7	Lens Surround
8	Top Lid

1.3 Projector Components - Rear



Component	Description
1	Service Access Door
2	Power Cord and AC Receptacle
3	Lamp Access Door

1.4 Position the Projector

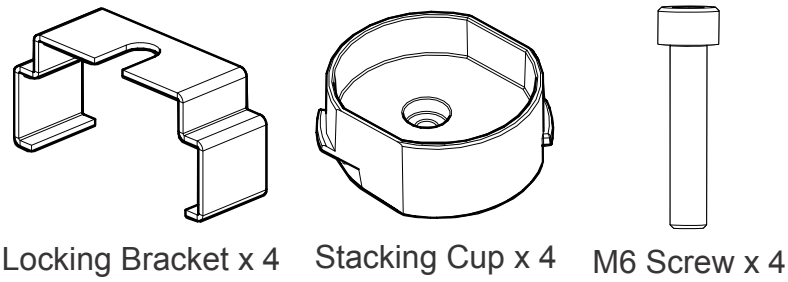
⚠ WARNING Two people are required to safely lift and install the projector.

⚠ CAUTION Complete a lamp adjust whenever you move or level the projector or replace the lamp.

1. If you are installing the projector in the optional rack stand (P/N 108-416102-XX) follow the instructions provided with the rack stand to install it.
2. Position the projector so it is centered and parallel with the theatre screen. If space is limited, aim the projector slightly off-center and use lens offset to center the image on the screen.

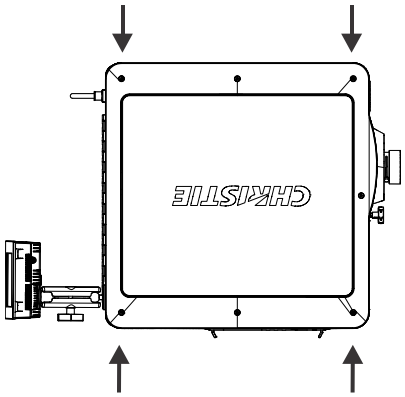
1.5 Stack Projectors

To stack Solaria One + projectors, use the stacking kit provided with the projector. The Solaria One + stacking kit includes these parts:

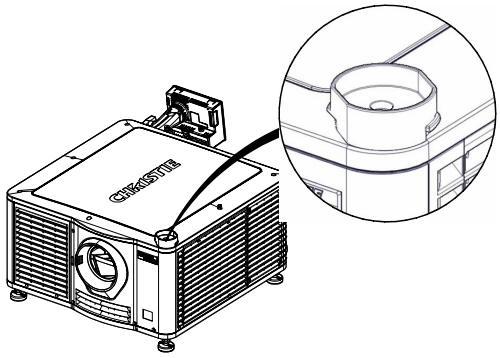


NOTE: When stacking projectors, the optical axis of the projectors must be parallel to one another. The maximum tilt for stacked projectors is 13 degrees. When you install the stacked projectors in a rack stand or on a pedestal, the rack stand or the pedestal must remain horizontal. If you require tilt to align your images, you must tilt the projectors and not the rack stand or pedestal.

1. On the bottom projector, remove the four corner screws securing the top lid.

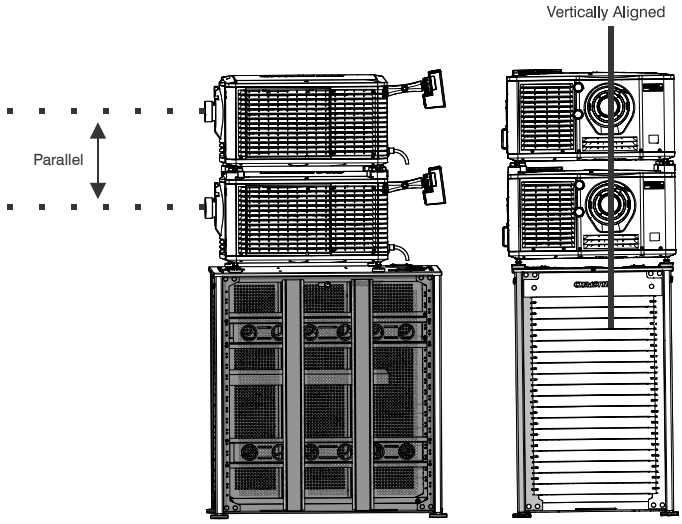


2. Position a single stacking cup (011-104349-XX) over one of the empty screw holes so the higher side of the cup faces outward and aligns with the projector skin.

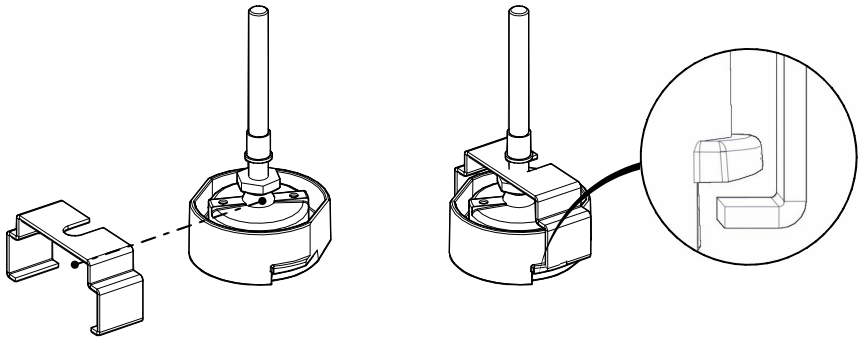


3. Insert an M6 screw (012-101132-XX) through the stacking cup mounting hole and into the projector.
4. With a torque wrench, tighten the M6 screw to 15 in-lb.
5. Repeat steps 3 to 5 to install the three remaining stacking cups.

6. With the assistance of another person, lift the second projector and position it on top of the bottom projector so each of its feet fit into a stacking cup. The lenses of both projectors must face the same direction and the optical axis of both projector lenses must align vertically and be parallel.



7. Complete the installation for both projectors, including:
   a. Install the touch panel controller. See *Install the Touch Panel Controller on page 1-7.*
   b. Install the lens. See *Install the Lens on page 1-8.*
   c. Install the lamp. See *Install the Lamp on page 1-9.*
   d. Connect devices to the projector. See *Connect Devices to the Projector on page 1-12.*
   e. Connect power. See *Connect Power on page 1-15.*
   f. Adjust the bottom projector image to fit the screen. See *Adjust the Image to Fit Your Screen on page 1-20.*
   g. Align the top projector image to the bottom projector image. See *Align Dual Projector Images on page 1-21.*
8. When both projectors are installed and aligned correctly, install the locking brackets on the feet of the top projector:
   a. Slide the locking bracket (011-104470-XX) over the flat sides of the stacking cup, so the notch in the locking bracket fits around the projector leg and above projector foot nut.
   b. Turn the locking bracket so the flanges of the locking bracket fit tightly below the stacking cup tabs.
   c. Repeat steps a and b to install the 3 remaining locking brackets.



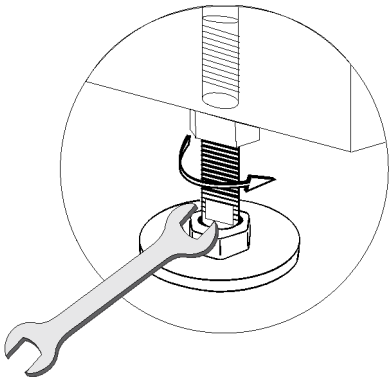
1.6 Adjust Tilt and Level the Projector

The front-to-back and side-to-side tilt of the projector must not exceed 15 degrees.

1. Loosen the lock nut using a 3/4 in. or 19mm wrench.
2. Adjust the vertical position of the projector.

   Turn the adjustable feet on the bottom of the projector clockwise or counter-clockwise 1/8th of a turn at a time to extend or retract them.

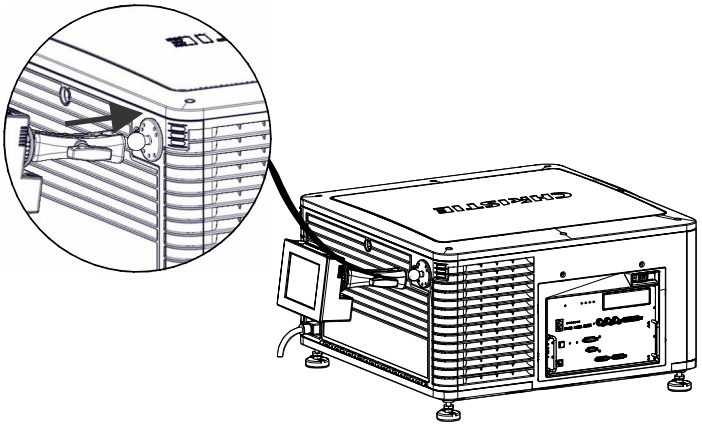
   When two or more feet are adjusted at once, always adjust them the same amount. This keeps equal weight distribution on all feet for stability.



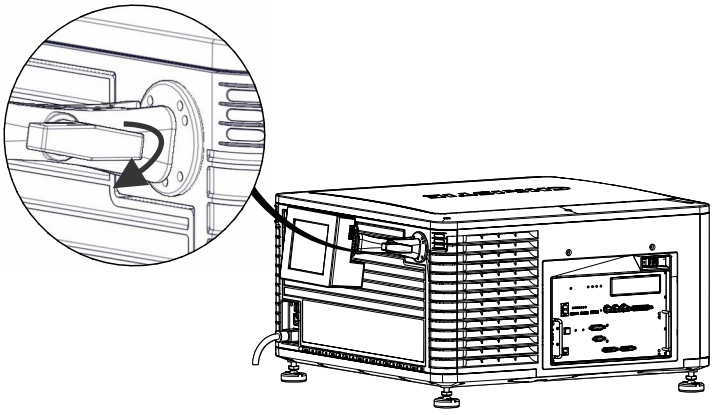
3. Adjust the horizontal position of the projector as in step 2.
4. Verify that the image is centered and parallel with the top of the screen. If additional adjustments are required, repeat steps 1 and 2.
5. Adjust lens offset, rather than extra projector tilt, if vignetting is not observed.

1.7 Install the Touch Panel Controller

1. Loosen the mounting arm so that the end fits over the ball joint located on the rear panel of the projector.



2. Tighten the mounting arm until it fits tightly on the joint.

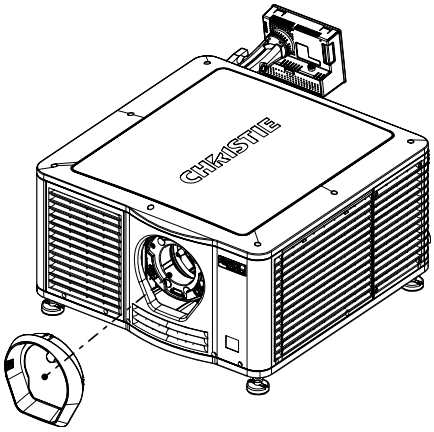


3. Connect the cable from the TPC to the connector located on the projector rear panel.
4. Tilt the TPC to adjust the viewing angle.

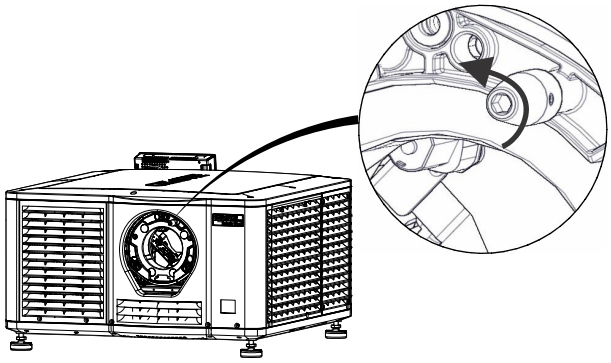
1.8 Install the Lens

The lens seals the projection head, preventing contaminants from entering the main electronics area. Do not operate the projector without a lens installed. Install a lens plug when you install or transport the projector.

1. Remove the lens surround.

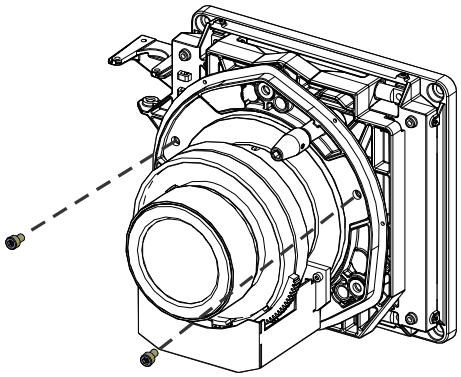


2. Turn the lens clamp to the open position with a hex key. A hex key is attached to the lamp door.

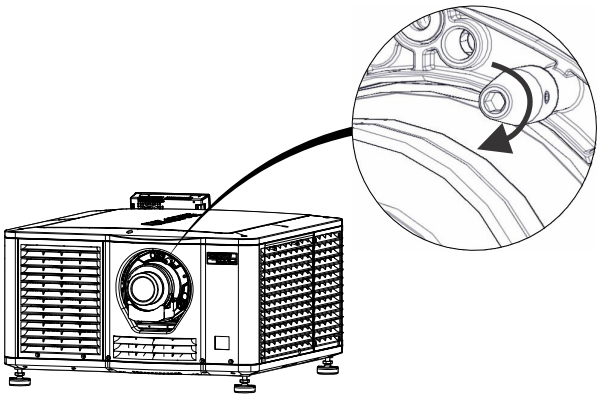


3. Position the lens so the lens retaining ring mounts align with the lens mount.
4. Remove the lens caps from the front and rear of the lens.

   NOTE: Lens caps must be removed or they can melt and damage the lens.
5. Insert the lens straight into the lens mount opening without turning. Magnets inside the lens mount help position the lens.
6. Insert and tighten the two lens mount hex screws shipped separately with the projector.



7. Lock the lens assembly in place with a hex key.

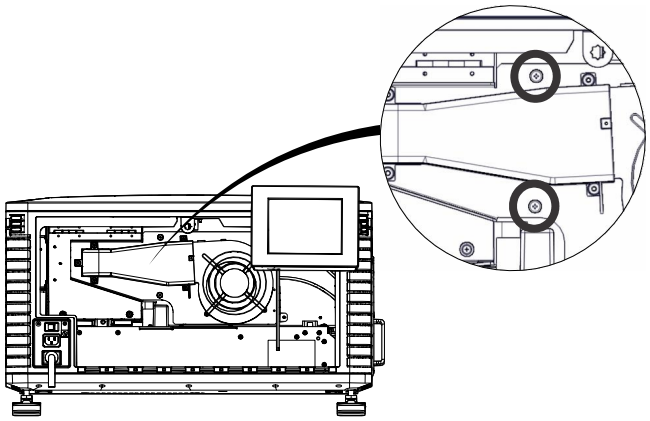


8. Replace the lens surround.

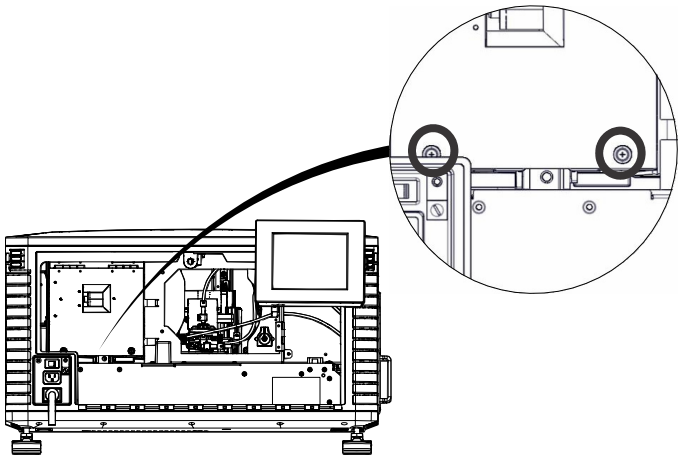
1.9 Install the Lamp

⚠ DANGER This procedure should only be performed by a Christie accredited technician. High-pressure lamp may explode if improperly handled. Always wear approved protective safety clothing whenever the lamp door is open or when handling the lamp

1. If the projector is operating, turn it off and allow it to cool a minimum of 15 minutes.
2. Turn the breaker switch for the projector off.
3. Disconnect the projector from AC power.
4. Put on your protective clothing, face shield, and gloves.
5. Insert the key in the lamp door lock, turn the key, and then open the lamp door.
6. Loosen the 2 thumbscrews and open the fire wall door.

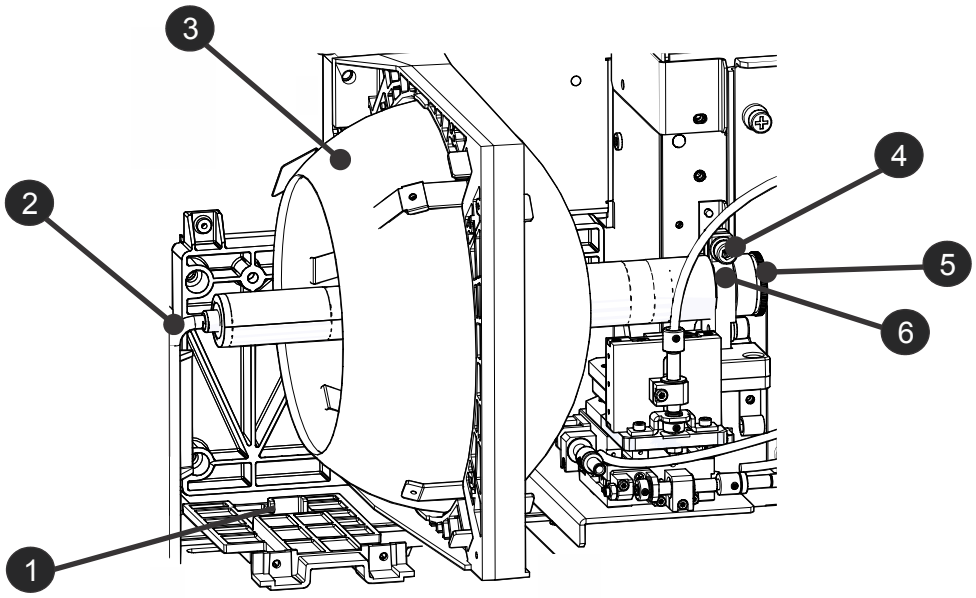


7. Loosen the 2 thumbscrews and open the lamp access door.



8. Remove the tape from the ends of the protective lamp shipping case.
9. Remove the plastic packing material from the lamp.
10. Remove the cathode nut from the lamp before removing it from the protective case.
11. **For CDXL-14 or CDXL-16 lamps**:
    a. Install the lamp extension nut on the cathode clamp. To provide access to the locking screw on the extension nut, rotate the extension nut until the locking screw faces upward toward the projector lid.
    b. Tighten the cathode screw (**4**) with a hex key.
    c. Thread on and hand-tighten the cathode nut. Ensure the smooth portion of the nut is against the cathode clamp.
    d. Hold the anode end of the new lamp in your left hand and angle it up through the hole in the back of the reflector assembly. Insert your right index and middle finger through the back of the reflector and thread the cathode end of the lamp into the extension nut. When threading the lamp into the extension nut, make sure the anode wire does not hit the reflector or the UV filter.
    e. Tighten the extension nut screw.
    f. Move to step 13.
12. **For the CDXL-21S1 lamp**:
    a. Hold the anode end of the new lamp in your left hand and angle it up through the hole in the back of the reflector assembly. Insert your right index and middle finger through the back of the reflector and guide the lamp onto the cathode clamp. Be careful not to hit the lamp against the reflector
    b. Thread on and hand-tighten the cathode nut. Ensure the smooth portion of the nut is against the cathode clamp.

c. Tighten the cathode screw (**4**) with a hex key.



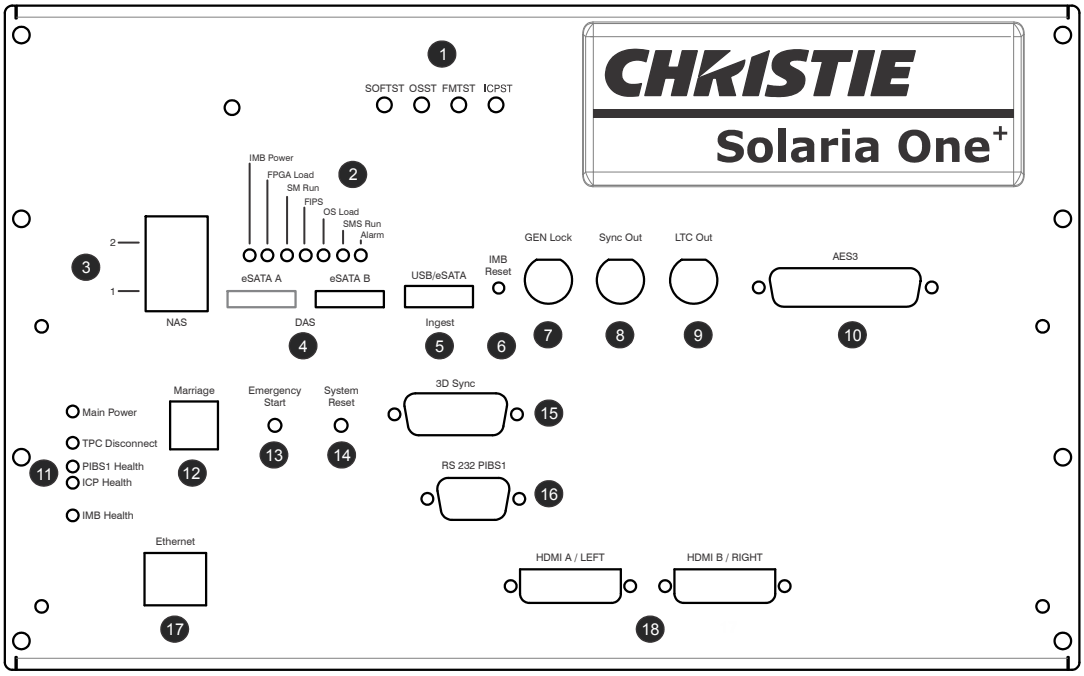
1	Anode Terminal
2	Anode Wire
3	Reflector
4	Cathode Screw
5	Cathode Nut
6	Cathode Clamp

13. Align the ring terminal on the anode wire (**2**) with the mounting position ensuring the crimped side of the wire is facing out. Tighten the anode screw (**1**). **NOTE:** *Route anode lead away from nearby metal surfaces.*
14. Close the lamp access door and tighten the 2 thumbscrews.
15. Close the firewall door and tighten the 2 thumbscrews.
16. Close and lock the rear access door. **NOTE:** *Ensure the hex key is placed back into its holder before closing the rear access door.*

1.10 Connect Devices to the Projector

To display content, you must connect a device that is capable of storing or playing content to the projector.

1.10.1 Projector Connections



Feature	Description
1	LEDs indicating the status of projector components: **SOFTST -** (Software State) Indicates the state of the software application running on the ICP. During normal operation, this LED blinks. During start up, the LED changes from off to blinking. **OSST -** (Operating System State) Indicates the state of the ICP operating system. During normal operation, the LED is green. During start up, the LED changes from off to green. **FMTST -** (FMT FPGA State) Indicates the state of the FMT FPGA. During normal operation, the LED is green. When the power is turned on, the LED turns green immediately. **ICPST -** (ICP FPGA State) Indicates the configured state of the ICP FPGA. During normal operation, the LED is green. When the power is turned on, the LED turns green immediately.

Feature	Description
2	LEDs indicating the status of the Christie IMB: **IMB Power** - Indicates if the Christie IMB is on or off. **FPGA Load** - The LED is green when all FPGAS are successfully loaded. **SM Run** - A heartbeat indicator that flashes green when the security manager (SM) is running. **FIPS** - Indicates the FIPS (Federal Information Processing Standards Publications) security status. If the LED is red, an error has occurred. Restart the IMB. If the LED remains red, return the IMB to Christie Digital. **OS Load** - Indicates that the Christie IMB has successfully loaded the screen management system (SMS) operating system. **SMS Run** - A heartbeat indicator for the screen management system (SMS). **Alarm** - Indicates the alarm state of the screen management system (SMS).
3	Connect network-attached storage (NAS) devices to these terminals.
4	Connect direct attached storage (DAS) devices to these terminals.
5	Connect devices containing content you want to ingest to this terminal.
6	Resets the Christie IMB.
7	Input for multi-projector playback (Christie IMB to Christie IMB only).
8	Output for multi-projector playback.
9	Linear Time Code (LTC) output.
10	Connect digital audio devices to this terminal.
11	LEDs indicating the state of projector components: **Main Power** - Indicates the projector is connected to AC power. **TPC Disconnect** - The LED blinks yellow when the TPC is disconnected from the projector. Not illuminated at any other time. **PIBS1 Health** - The LED blinks green when PIBS1 initialization is complete. **ICP Health** - The LED is green when ICP communication is operating correctly. **IMB Health** - The LED is green when the Christie IMB is operating correctly.
12	Indicates the marriage state. In full power mode, a green LED indicates that the projector is properly married. A red LED indicates marriage is broken and you cannot use the Christie IMB to display encrypted content.
13	Turns the projector and the lamp on and opens the douser. Press and hold the button to close the douser, turn the lamp off, and keep the power on. It is recommended that you use this button only when the TPC (Touch Panel Controller) is unavailable.
14	Resets the projector electronics. After restarting, the projector returns to its previous power mode. You must strike the lamp manually.
15	Connect 3D devices such as MasterImage or RealD to this terminal.
16	Connect Christie or third-party automation equipment to this terminal. Utilizes the Christie-proprietary protocol.
17	Connect a 10Base-T/100Base-TX Ethernet connection to this terminal.
18	Connect an HDMI or DVI source to these terminals.

1.10.2 Connect the Projector to a Computer

Connect one end of an Ethernet or a RS232 cable to the Ethernet or the RS232 PIBS1 ports on the projector communications panel and the other end to your computer. To communicate with the projector, the projector must be added to the same network as the computer. See *Add the Projector to a Network on page 1-17.*

1.10.3 Connect the Projector to Network-attached Storage

Your network-attached storage (NAS) device must be configured to use the Network File System (NFS) protocol. See *Network Attached Storage Network File Settings on page 13-2*.

Your direct attached storage (DAS) device must be connected to the projector and turned on before the projector is turned on. Christie recommends that you select a static IP address, see *Configure NAS Ethernet Port IP Addresses on page 13-22*.

1. Follow the instructions provided by the manufacturer of your NAS to make sure it is set up and operating correctly. For instructions on installing specific NAS devices, see the Christie Integrated Media Block User Manual on the Christie web site.
2. Connect one end of an Ethernet cable to the NAS-1 or NAS-2 ports on the projector communications panel and the other end to your NAS device or network.
3. Turn the NAS device on.
4. Connect the projector to AC power. See *Connect Power on page 1-15*.
5. Turn the projector on. See *Turn the Projector On on page 1-16.*
6. Tap **Menu** > **Christie IMB** > **System**.
7. Tap **Storage**.
8. Tap **Add NAS**.
9. Tap **Primary** if this is your primary NAS device.
10. Tap **Yes**.
11. Complete the information fields for the NAS device. See *IP Address and Subnet Considerations, on page 13-2*.
12. Tap **Refresh Share Names**.
13. Select a share in the **Share** list.
14. Tap **OK**.
15. Tap **Save**.
16. Tap **OK**.

1.10.4 Connect the Projector to Direct-attached Storage

The direct attached storage (DAS) device must be connected to the projector and turned on before the projector is turned on.

1. Verify the direct attached storage (DAS) device is connected to one of the external serial ATA (eSATA) ports on the projector communications panel.
2. Turn the DAS device on.
3. Connect the projector to AC power. See *Connect Power on page 1-15*.
4. Turn the projector on. See *Turn the Projector On on page 1-16.*

5. Tap **Menu** > **Christie IMB** > **System**.
6. Tap **Storage**.
7. Tap **Add DAS**.
8. Select a DAS in the list.

1.10.5 Connect the Projector to a Digital Cinema Audio Processor

1. Connect one end of the audio cable to the AES3 port on the projector communications panel and the other end to a digital cinema audio processor.
2. Turn the digital cinema audio processor device on.
3. Connect the projector to AC power. See *Connect Power on page 1-15*.
4. Turn the projector on. See *Turn the Projector On on page 1-16.*
5. Click **Menu** > **Christie IMB** > **System** > **Audio.**
6. Select a surround sound type in the **Mapping** list.
7. Select a channel in the **Channel** list for each of the speakers in your set up.
8. Tap **Speaker Mapping**.
9. Select a delay in milliseconds in the **Delay (ms)** list. A positive value delays the audio after the content and a negative value advances the audio ahead of the content.
10. Select **Auto** in the **Audio Rate** list to automatically match the audio rate to the content encoding.

    - or -

    Select **48 kHz** to force all audio output to 48 kHz.

    - or -

    Select **96 kHz** to force all audio output to 96 kHz.
11. Enter the name of the speaker that corresponds to the AES output number in the **Speaker Name** field.
12. Select a speaker in the **Speaker Test** list and then tap **Test** to test the speaker mapping. A tone is sent to the selected speaker.
13. Tap **Save**.

1.10.6 Connect Devices to the 3D Sync Terminal

See *View 3D Content on page 14-1.*

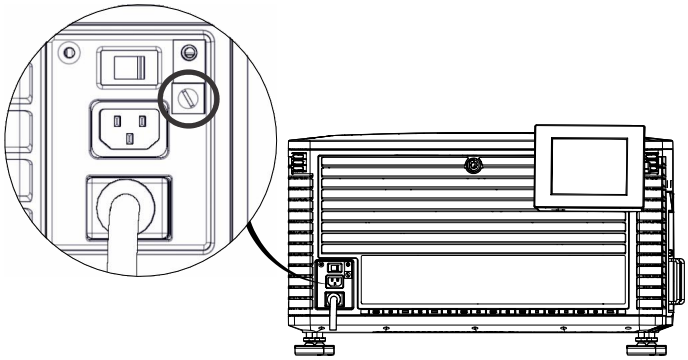
1.11 Connect Power

Do not operate the projector if the AC power supply and cord are not within the specified voltage and power range. Only use the power cord supplied with the projector.

A dedicated, protected earth wire must be installed on the projector before it can be connected to power. You must use a 20A branch circuit breaker for Input A. Install the projector near an AC receptacle that is easily accessible.

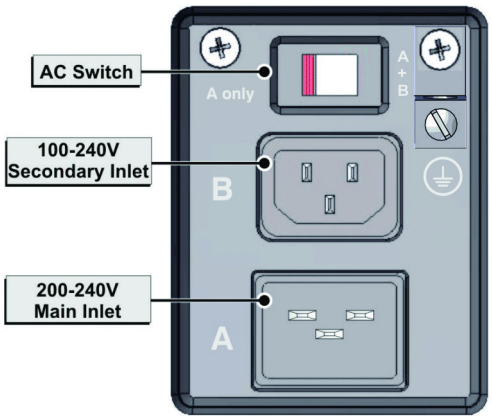
⚠ WARNING The dedicated earth wire can only be installed by a Christie accredited service technician or an electrician. The protected earth wire must be green/yellow 12 AWG minimum. See *Projector Specifications on page A-1* **for power requirements.**

1. If the projector is operating, turn it off and disconnect it from AC power.
2. Loosen the threaded bolt on the ground lug on the AC receptacle on the rear corner of the projector.



3. Remove 15 mm of insulated covering from both ends of the protected earth wire.
4. Insert a bare end of the protected earth wire into the hole on the top of the ground lug so it is beneath the threaded bolt.
5. Tighten the threaded bolt to 50 in-lb.
6. Connect the other bare end of the protected earth wire to the building ground.
7. Connect one end of the projector power cord to the AC receptacle on the lower-left rear corner of the projector and then connect the other end of the power cord to an AC receptacle.

   If you are using an Uninterrupted Power Supply (UPS) to power the main electronics, move the AC switch to A + B and connect the power cord provided with the UPS to the B outlet.



1.12 Turn the Projector On

⚠ WARNING DO NOT attempt to turn the projector on if the AC supply is not within the specified voltage range. See *Power Requirements on page A-3* for power requirements.

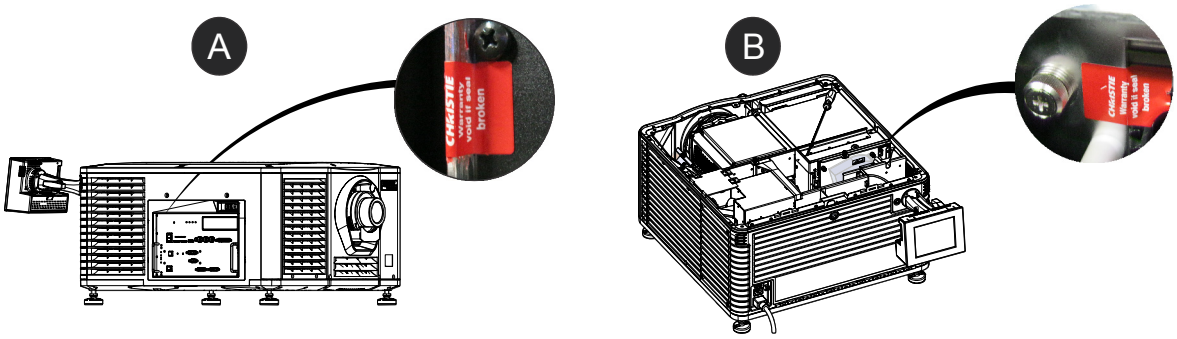
1. Make sure the circuit breaker for the projector is ON.
2. On the touch panel controller (TPC), tap and hold the green power icon.

1.13 Log On to the Projector

1. On the touch panel controller (TPC), tap **Menu** > **Login**.
2. Select a user name in the **Username** list. To view the permissions associated with each account see *User Access Permissions on page 10-1*.
3. Enter your password.
4. Tap **Login**.

1.14 Activate Marriage

You must complete marriage to display encrypted content and to comply with the Digital Cinema System Specification (the DCI specification). You cannot complete marriage remotely. In addition, an authorized employee must be physically present to verify that the anti-tamper seals on the card cage faceplate (**A**) and firewall (**B**) are unbroken, the projector is unaltered, and to press the marriage button on the card cage faceplate.



1. Log on to the projector with marriage permissions. See *Log On to the Projector on page 1-17*.
1. Tap **Menu** > **Service Setup** > **IMB Marriage**.
2. Complete the **Marriage** wizard.
3. Click **Finish**.

1.15 Add the Projector to a Network

1. On the touch panel controller (TPC), tap **Menu** > **Login**.
2. Select an administrator account in the **Username** list.
3. Enter a password in the **Password** field and then tap **Login**.
4. Tap **Menu** > **Administrator Setup** > **Communications Configuration**.
5. Complete these fields:

Field	Description
Device Name	The name of the projector.
IP Address	The IP address of the projector.
Subnet Mask	The subnet mask to which the address belongs.
Gateway	The IP address for the network gateway.

Field	Description
Apply	Applies Ethernet settings.
Serial Speed (Baud)	The baud rate of the serial port. The default is 115200.
Enable SNMP	Enables SNMP.
SNMP V2 / SNMP V3	The SNMP protocol type. Contact Christie for the SNMP V3 user ID and password.
Management IP	The IP address where SNMP information and notifications are sent.
Download MIB to USB	Sends the SNMP Management Information Base (MIB) file to a USB flash drive.
Apply	Applies SNMP settings.
Serial Access	Grants access to serial connections.
Ethernet Access	Grants access to Ethernet connections.

1.16 Add the Lamp Information to the Lamp History

1. If the lamp is on, tap the lamp off ( ) icon to turn it off.
2. Tap **Menu** > **Advanced Setup** > **Lamp Change Wizard**.
3. Tap **Next**.
4. Complete these fields:

Field	Description
Type	The lamp type.
Serial Number	The lamp serial number.
Reason for Change	The reason the lamp was changed.
Lamp Expiry (Hours)	The number of hours the lamp can operate before replacement. This field is auto-populated.
Hours Used	The number of hours the lamp has operated before installation.

5. Tap **Save**.
6. Tap **Next**.

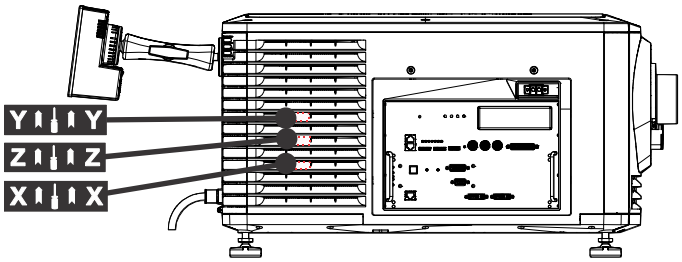
1.17 Turn the Lamp On

On the projector touch panel controller (TPC) tap the lamp on( ) icon.

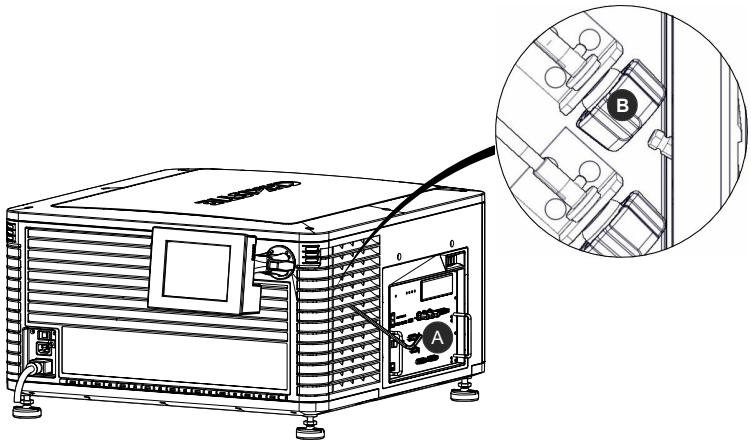
1.18 Align the Lamp

1. Tap **Menu** > **Advanced Setup** > **Lamp Power**.
2. Verify the value in the **Power%** field is at a level suitable for your requirements.
3. Tap **Menu** > **Advanced Setup** > **Light Adjust**.
4. Record the number in the **Intensity** field.
5. Tap D**isplay Full Screen White Test Pattern**.

6. Complete a coarse lamp adjustment:
   a. Locate the Y axis adjustment label on the operator side of the projector.



   b. Insert a 5 mm hex driver (**A**) through the louvers at an angle below the Y axis adjustment label until it is firmly seated on the Y axis adjustment screw (**B**).

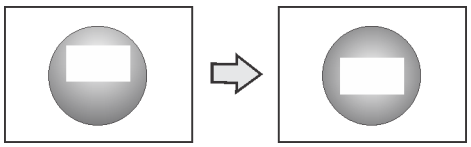


   c. Turn the screw clockwise or counterclockwise until the value in the **Intensity** field peaks and then reduces.
   d. Remove the hex driver and repeat steps a to c to adjust the Z and X axis.
7. Complete a fine lamp adjustment:
   a. Locate the Y axis adjustment label on the operator side of the projector.
   b. Insert a 5 mm hex driver through the louvers until it is firmly seated on the Y axis adjustment screw.
   c. Turn the screw slowly clockwise or counterclockwise until you determine the highest value.
   d. Remove the hex driver and repeat steps a to c to adjust the Z and X axis.
8. Verify the value in the **Intensity** field is greater or equal to the number you recorded in step 4. If value is lower, repeat steps 6 and Step 7.

1.19 Adjust the Image to Fit Your Screen

This procedure must be completed before you complete a boresight adjustment.

1. Verify the projector is properly positioned relative to the screen. See *Position the Projector on page 1-4*.
2. Display a RGB-12bit-Full Screen White test pattern and center the image:
   a. Tap the **Test Pattern** icon ( ) in the task bar.
   b. Tap **All Test Patterns**.
   c. Tap **RGB-12bit-Full Screen White**.
   d. On the projector touch panel controller (TPC), tap the **Lens Adjust** ( ) icon on the main screen and then tap the left ( ), right ( ), up ( ), or down ( ) arrow icons in the **Offset** area until the light created by the projector is centered on the screen.

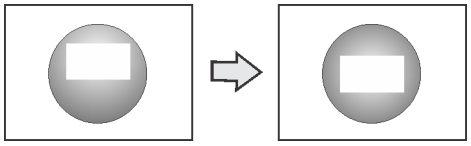


3. Display the DC2K Framing2 test pattern:
   a. On the projector TPC, tap the **Test Pattern** ( ) icon in the task bar.
   b. Tap **All Test Patterns**.
   c. Tap **DC2K Framing2**.
4. On the projector TPC, tap the **Lens Adjust** ( ) icon on the main screen and then tap the left ( ), right ( ), up ( ), or down ( ) arrow icons in the **Offset** area to refine the position of the test pattern on the screen.
5. In the **Zoom** area, tap the positive ( ) and minus ( ) icons until the image fits your screen.
6. In the **Focus** area, tap the left ( ) and right ( ) focus icons until the test pattern details are in focus. When your adjustment is complete, the words and lines in the test pattern should be distinguishable uniformly across the screen and there should not be any sections that are out of focus.
7. With the framing test pattern displayed, re-check projector leveling so the top edge of the image is parallel to the top edge of the screen.
8. Display a full white test pattern:
   a. On the TPC, tap the **Test Pattern** icon ( ) in the task bar.
   b. Tap **All Test Patterns**.
   c. Tap **RGB-12bit-Full Screen White**.

9. If the test pattern is focused and centered on the screen you do not need to complete further image adjustment. If the image is not focused and centered on the screen, complete one of these procedures:
   a. See *Correct Keystone Effect on page 2-1* if the image appears distorted and resembles a trapezoid.
   b. See *Correct Vignetting on page 2-3* or *Align the Lamp on page 1-18* if the image is brighter at the center than it is at the sides.
   c. See *Fold Mirror Adjustment on page 2-6* if a corner or edge of an image is missing.
   d. See *Adjust Vertical Boresight Angle on page 2-3* if the image cannot be focused uniformly on the screen with a focus adjustment.
   e. See *Adjust Horizontal Boresight on page 2-5* if a large horizontal angular offset to the screen is required.

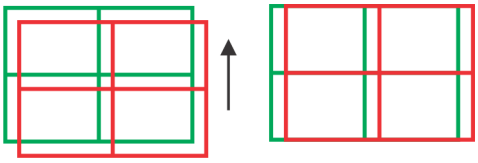
1.20 Align Dual Projector Images

1. Stack the projectors. See *Stack Projectors on page 1-5.*
2. On the bottom projector, adjust the image to fit the screen. See *Adjust the Image to Fit Your Screen on page 1-20.*
3. On both projectors, turn the lamp on and open the douser. See *Turn the Lamp On on page 1-18.*
4. On the top projector, display a RGB-12bit-Full Screen White test pattern and center the image:
   a. Tap the **Test Pattern** icon ( ) in the task bar.
   b. Tap **All Test Patterns**.
   c. Tap **RGB-12bit-Full Screen White**.
   d. On the projector touch panel controller (TPC), tap the **Lens Adjust** ( ) icon on the main screen and then tap the left ( ), right ( ), up ( ), or down ( ) arrow icons in the **Offset** area until the light created by the projector is centered on the screen.



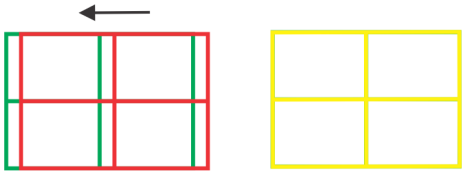
5. On the top projector, display the **DC2K Framing Green** test pattern. See *Turn a Test Pattern On or Off on page 12-1.*
6. On the bottom projector, display the **DC2K Framing Red** test pattern. See *Turn a Test Pattern On or Off on page 12-1.*
7. Align the top projector image horizontally to the bottom projector:
   a. On the top projector, remove the locking brackets from the projector feet.

b. Move the front or the rear of the top projector to the right or left so the projected image is aligned horizontally with the image of the bottom projector.



8. Align the top and bottom projector images vertically:

a. Raise or lower the rear feet of the top projector so the projected images of both projectors are vertically aligned. The lines appear yellow when the images are aligned correctly.



b. Reinstall the locking brackets removed in step 7.

9. If the test pattern is focused and centered on the screen you do not need to complete further image adjustment. If the image is not focused and centered on the screen, complete one of these procedures:

a. See *Correct Keystone Effect on page 2-1* if the image appears distorted and resembles a trapezoid.

b. See *Correct Vignetting on page 2-3* or *Align the Lamp on page 1-18* if the image is brighter at the center than it is at the sides.

c. See *Fold Mirror Adjustment on page 2-6* if a corner or edge of an image is missing.

d. See *Adjust Vertical Boresight Angle on page 2-3* if the image cannot be focused uniformly on the screen with a focus adjustment.

e. See *Adjust Horizontal Boresight on page 2-5* if a large horizontal angular offset to the screen is required.

1.21 Load a RealD 3D EQ Configuration File

You need to install the RealD 3D EQ Configuration File if you are using RealD technology to display 3D content. If you are not using a RealD technology to display 3D content, do not complete this procedure.

1. Insert a USB flash drive with the RealD 3D EQ configuration file into the USB port on the side of the touch panel controller (TPC).
2. Tap **Menu** > **Christie IMB** > **System**.
3. Tap **General** > **Config Files**.
4. Tap **Load Config File** in the **RealD 3D EQ** area.
5. Select the configuration file.
6. Tap **Accept**.

1.22 Play Content

To play content, you must connect a network-attached storage (NAS) or direct attached storage (DAS) device to the Christie IMB. The NAS device must be connected to one of the gigabit Ethernet ports on the Christie IMB labeled NAS-A or NAS-B. The DAS device must be connected to the external serial ATA (eSATA) ports on the Christie IMB labeled DAS-A or DAS-B. The Christie IMB does not support simultaneous switching between NAS and DAS devices. Content cannot be stored on the Christie IMB; all content must be stored on a NAS or DAS device.

To use the Christie IMB, the projector must be in full power mode. If the projector is not in full power mode, you cannot access the Christie IMB web interface and the Christie IMB touch panel controller (TPC) menus.

After installing and configuring the projector and connecting the NAS or DAS device to the Christie IMB, these are the tasks that you typically complete to play content:

a. Ingest the content. Content is typically provided on a hard drive sent by your movie distributor. To ingest content, see *Ingest Content on page 13-8*.

b. Ingest the Key Delivery Message (KDM) key. A KDM key is not required for trailers and other unencrypted content. The KDM key is typically sent separately from the encrypted content on a USB flash drive. See *Ingest Content on page 13-8*.

c. Verify the content plays correctly and the KDM is correct. See *Content Window Icons on page 13-5*.

d. Create a play list. A play list is a list of content files including trailers, features, and automated events that play in an order that you define. See *Play Lists on page 13-9*.

e. Verify the play list plays correctly. See *Content Management on page 13-4*.

f. Optionally schedule playback or add automation to a play list:

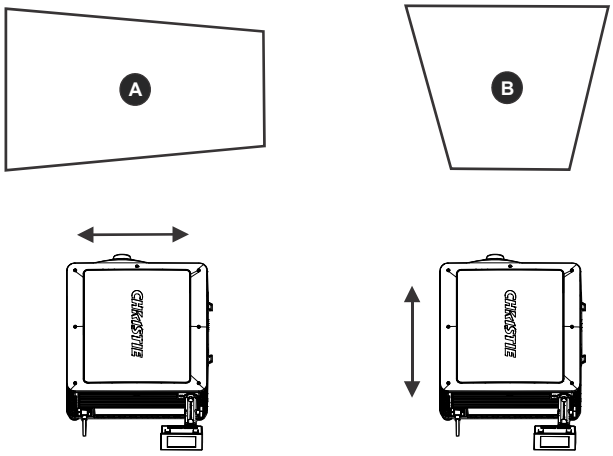
   •To learn more about scheduled playback, see *Schedule Views on page 13-13*.
   •To add automation, see *Manage Automation on page 13-23*.

2 Adjust the Image

This section provides information and procedures for adjusting the projector image.

2.1 Correct Keystone Effect

Keystone effect occurs when you project an image onto the screen at an angle and the projector is not centered on the screen. The image will appear distorted and resemble a trapezoid. This image identifies horizontal (**A**) and vertical (**B**) keystone effect.



Horizontal keystone effect occurs when the projector is titled horizontally (left or right) to the screen. Vertical keystone effect occurs when the projector is tilted vertically (forward or backward) to the screen.

If the image suffers from slight keystone effect, you can correct it with electronic cropping.

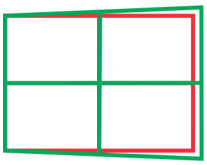
If the keystone effect is severe, you can unevenly adjust the feet to compensate for projector tilt. It is recommended that you use lens offset to align the center of the image to the center of the screen before you correct the keystone effect.

If one side of the image is longer than another, see *Adjust Tilt and Level the Projector on page 1-7*.

2.1.1 Correct Dual Projector Horizontal Keystone

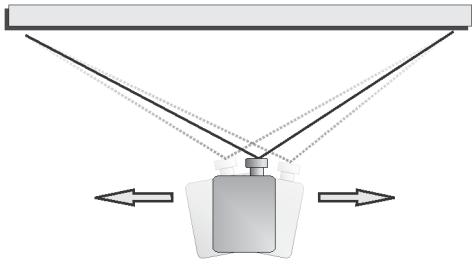
1. On both projectors, turn the lamp on and open the douser. See *Turn the Lamp On on page 1-18*.
2. Align the dual projector images. See *Align Dual Projector Images on page 1-21*.
3. On the top projector, display the **DC2K Framing Green** test pattern. See *Turn a Test Pattern On or Off on page 12-1*.
4. On the bottom projector, display the **DC2K Framing Red** test pattern. See *Turn a Test Pattern On or Off on page 12-1*.
5. Verify that both projectors are level. See *Adjust Tilt and Level the Projector on page 1-7*.

6. Identify which projector has the horizontal keystone issue. In this example, the top projector has the horizontal keystone issue:



Note: If both projectors have the horizontal keystone issue, correcting the image on the bottom projector should resolve the issue on both projectors.

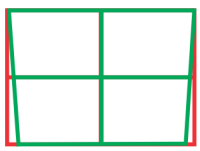
7. On the top projector, remove the locking brackets from the projector feet.
8. Move the rear of the top projector to the right or left until the vertical lines are as equally offset as possible.



9. Reinstall the locking brackets removed in step 7.
10. On the projector touch panel controller (TPC), tap the **Lens Adjust** ( ) icon on the main screen and then tap the left ( ) or right ( ) arrow icons in the **Offset** area to bring the vertical lines closer together.
11. If required, on each projector, tap the **Lens Adjust** ( ) icon and then tap the left ( ) and right ( ) focus icons in the **Focus** area until both images are the same size and focused.

2.1.2 Correct Dual Projector Vertical Keystone

1. On both projectors, turn the lamp on and open the douser. See *Turn the Lamp On on page 1-18.*
2. Align the dual projector images. See *Align Dual Projector Images on page 1-21.*
3. On the top projector, display the **DC2K Framing Green** test pattern. See *Turn a Test Pattern On or Off on page 12-1.*
4. On the bottom projector, display the **DC2K Framing Red** test pattern. See *Turn a Test Pattern On or Off on page 12-1.*
5. Identify which projector has the vertical keystone issue. In this example, the top projector has the vertical keystone issue:



Note: If both projectors have the vertical keystone issue, correcting the image on the bottom projector should resolve the issue on both projectors.

6. On the top projector, remove the locking brackets from the projector feet.
7. Raise or lower the rear feet of the top projector until the projected images of both projectors are vertically aligned. The feet should be raised or lowered an equal amount.
8. Reinstall the locking brackets removed in step 6.
9. On the projector touch panel controller (TPC), tap the **Lens Adjust** ( ) icon on the main screen and then tap the forward ( ) or backward ( ) arrow icons in the **Offset** area to bring the horizontal lines closer together.
10. If required, on each projector, tap the **Lens Adjust** ( ) icon and then tap the left ( ) and right ( ) focus icons in the **Focus** area until both images are the same size and focused.

2.2 Correct Vignetting

The term vignetting applies to an image that is brighter at the center than it is at the sides. 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.

2.3 Adjust Vertical Boresight Angle

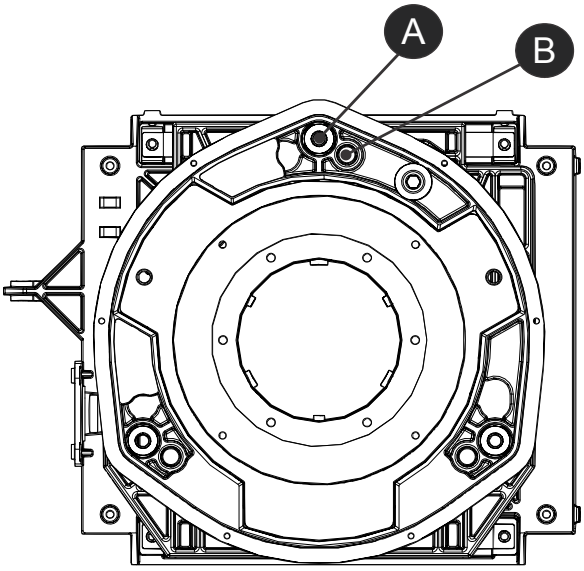
⚠ WARNING A boresight adjustment should only be made when the image cannot be focused uniformly on the screen by aligning the projector to the screen and focusing the lens. When adjusting boresight, you must maintain the boresight distance from the lens to the prism plane set by Christie. For example, when you move the top screw outward, turn the bottom two boresight screws to maintain the overall distance.

⚠ CAUTION Only adjust vertical boresight 1/8 of a turn or less at one time to maintain optimal lens performance (factory setup of absolute lens distance to the prism). It is critical that each turn of the cap screws is counted to make sure the adjustments are accurate.

It is recommended that you complete a top and bottom boresight adjustment before adjusting the horizontal boresight.

1. Remove the lens surround.
2. Display the DC2K Framing2 test pattern:
   a. On the Touch Panel Controller, tap the **Test Pattern** icon in the task bar.
   b. Tap **DC2K Framing 2**.

3. Loosen the set screw (B).



A	Cap Screw - Adjusts top and bottom boresight
B	Set Screw - Locks or unlocks the cap screw

4. Turn the vertical cap screw (A) 1/8 of a turn counter-clockwise.
5. Adjust both left and right horizontal adjusters by half the number of turns, in the opposite direction of the vertical adjust. For example, if the vertical adjust cap screw was turned 1/8 of a turn, the left and right horizontal cap screws should be turned 1/16 of a turn in the opposite direction.
6. Check the screen each time an adjustment is made. If the quality of the projected image has degraded, turn the vertical adjust cap screw 1/8 of turn clockwise. Make sure the left and right horizontal adjusters are adjusted equally in the opposite direction to correct axial focus. **NOTE:** *The 1/8 of a turn is a suggestion only and can be less if needed; however, it should never be exceeded. Always compensate both left and right horizontal adjustments according to the vertical adjustment.*
7. Check the image after each adjustment. Continue to make adjustments until both top and bottom are equally sharp. To make sure the lens is in the same relative position, adjust the left and right horizontal adjusters in the opposite direction at the same time.
8. When the top and bottom of the image are equally in focus lock the set screw to hold it in position. Recheck the image.
9. If additional adjustment is required, see *Adjust Horizontal Boresight on page 2-5*.
10. Replace the lens surround.

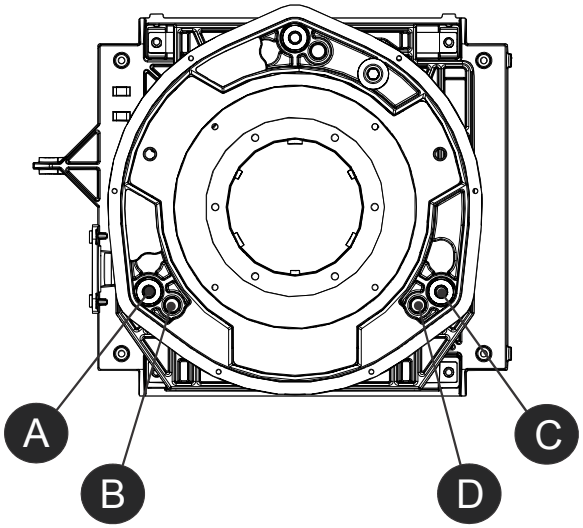
2.4 Adjust Horizontal Boresight

⚠ WARNING A boresight adjustment should only be made when the image cannot be focused uniformly on the screen by aligning the projector to the screen and focusing the lens. When adjusting boresight, you must maintain the boresight distance from the lens to the prism plane set by Christie. For example, when you move the top screw outward, turn the bottom two boresight screws to maintain the overall distance.

⚠ CAUTION Only adjust horizontal boresight 1/8 of a turn or less at one time to maintain optimal lens performance (factory setup of absolute lens distance to the prism). It is critical that you count each turn of the cap screws to make sure the adjustment is accurate.

Typically, horizontal boresight does not require adjustment. It should only be adjusted if a large horizontal angular offset to the screen is required.

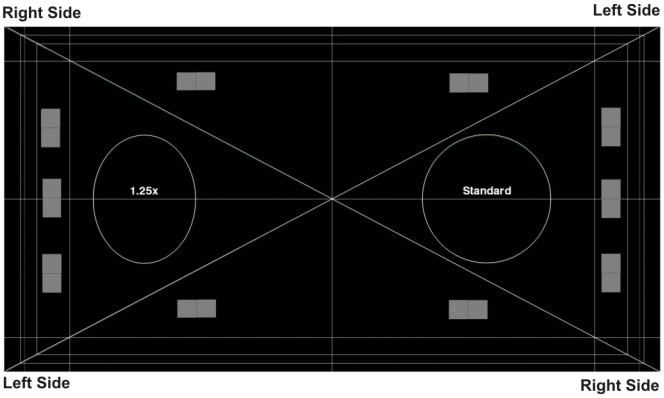
1. Remove the lens surround.
2. Tap the **Test Patterns** button on the Main Panel.
3. Tap **All Test Patterns**.
4. Tap **DC2K Framing**.
5. Loosen the right boresight set screw (B).



A	Right Boresight Cap Screw
B	Right Boresight Set Screw
C	Left Boresight Cap Screw
D	Left Boresight Set Screw

6. Turn the right boresight cap screw (A) 1/16 of a turn clockwise.
7. Adjust the left boresight cap screw (C) equally in the opposite direction.
8. If the quality of the projected image has not improved, turn the right boresight cap screw 1/16 of turn counter-clockwise. Make sure the left adjuster is adjusted equally in the opposite direction.

9. Check the screen each time an adjustment is made. The right-side adjustments affect the top right and bottom left points on the screen. Once both cross hairs are in focus lock the set screw for right boresight.



10. Repeat Steps 5 to 7 for the left side.
11. Each corner of the screen should be equally in focus when horizontal boresight is completed correctly. If necessary, repeat vertical boresight. Only adjust vertical boresight 1/8 of a turn or less at one time to maintain optimal lens performance (factory setup of absolute lens distance to the prism). It is critical that each turn of the cap screws is counted to make sure the adjustments are accurate.

2.5 Adjust DMD Convergence

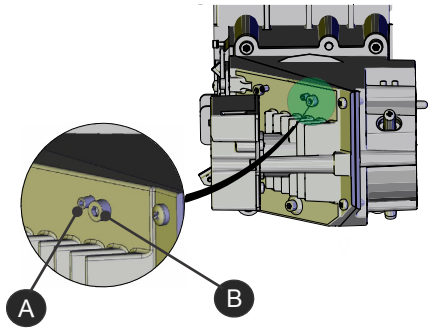
A convergence problem occurs when one or more projected colors (red, green, blue) appears misaligned when examined with a convergence test pattern. Normally, the three colors should overlap precisely to form pure white lines throughout the image and one or more poorly converged individual colors may appear adjacent to some or all of the lines. Contact your Christie accredited service technician to correct DMD convergence issues.

2.6 Fold Mirror Adjustment

If a corner or edge of an image is missing, the fold mirror might be misaligned with the optical system. To correct this issue:

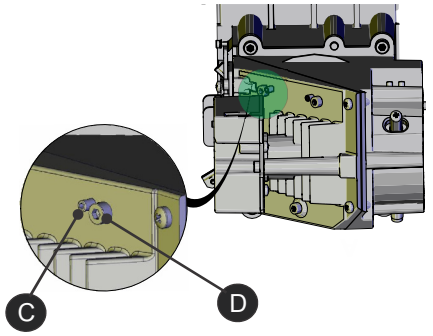
1. Remove the top lid and set it aside.
2. Display a full white test pattern:
   a. On the TPC, tap the **Test Pattern** icon ( ) in the task bar.
   b. Tap **All Test Patterns**.
   c. Tap **RGB-12bit-Full Screen White**.

3. Insert a hex driver in the first set screw (A) and a hex driver in the first cap screw (B).



A	Set Screw (x2)
B	Cap Screw (x2)

4. Equally turn the set screw (A) and cap screw (B) in opposite directions until the black corner is removed.
5. If the black corner remains, insert a hex driver in the second set screw (C) and a hex driver in the second cap screw (D).



C	Set Screw (x2)
D	Cap Screw (x2)

6. Equally turn the set screw (A) and cap screw (B) in opposite directions until the black corner is removed.
7. Replace the top lid.

2.7 Color Calibration

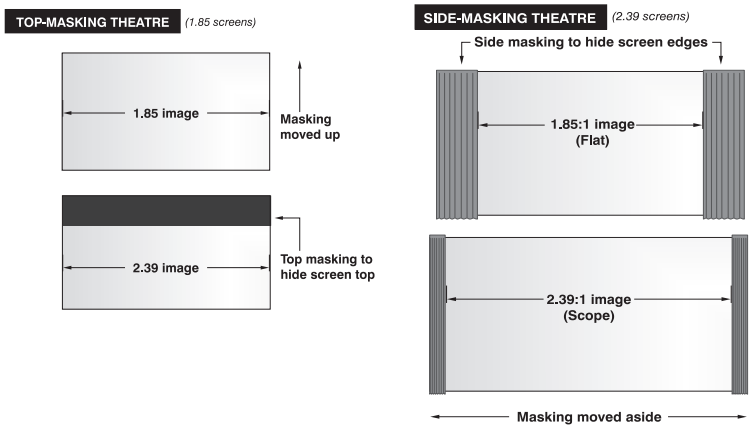
Create Measured Color Gamut Data (MCGD) files to correct on-screen colors. A colorimeter is required to complete this procedure. Measure the colors displayed on the screen from the center of the audience viewing location. See *Create a MCGD File on page 7-2.*

2.8 Screen Masking

You use masking to conceal the unused edges of a screen. These are the two most common types of screen masking:

- Top Masking – Movable flat black panels or curtains are installed along the top edge of the screen. You raise the curtain for flat images, and you lower the curtain for scope images.
- Side Masking – Movable flat black panels or curtains are installed on each side of the screen. You close the curtain for flat images, and open the curtain and zoom for scope images.

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



2.9 Calibrate Screen Brightness (fL)

1. Turn the lamp on and allow it to operate for 20 minutes.
2. On the touch pad controller, tap **Menu** > **Administrator Setup** > **Foot Lamberts Calibration**.
3. Complete the **Foot Lamberts Calibration** wizard.

3 Access the Projector and Run Diagnostics

This section describes how to access the projector and run projector diagnostic utilities.

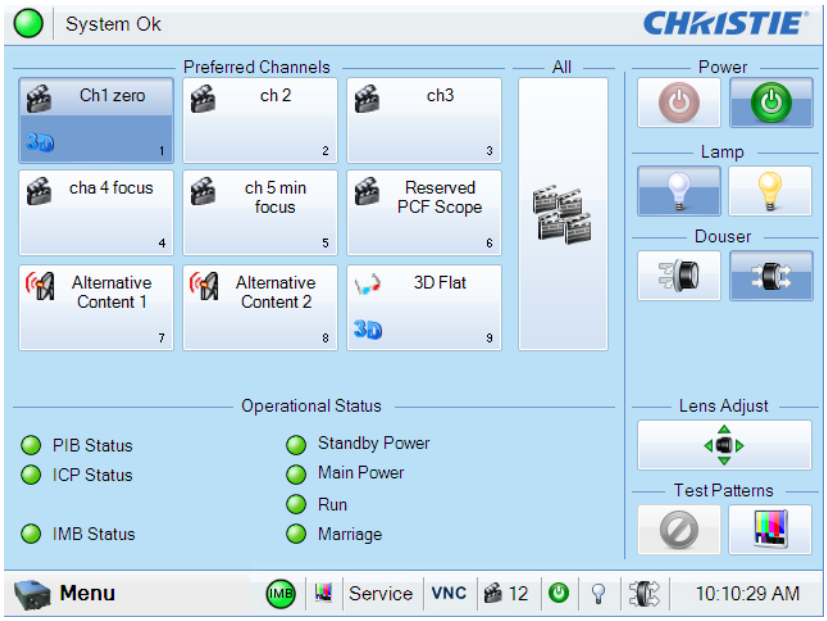
3.1 The Touch Panel Controller

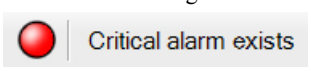
The TPC is a touch-sensitive screen that you use to control the projector. You can use the TPC to turn the projector and lamp on or off, select channels, and view status information. The TPC is mounted on the rear of the projector. You can tilt and turn the TPC to improve the viewing angle. Use the USB port on the side of the TPC to download log files and install software upgrades. You can disconnect the TPC from the projector and an optional cable allows you to control the projector from a maximum distance of 100 feet.

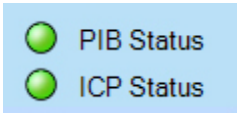
If the TPC fails or is disconnected, press the emergency start button on the communications panel. This starts the projector, turns the lamp on, and opens the douser. When using the emergency start button, you cannot change channels.

3.2 The Main Screen

Use the Main screen of the Touch Panel Controller (TPC) to access power, lamp, douser, channel, and test pattern settings.



Control	Description
Status LED Status Error Message 	Displays a green, yellow, or red LED. A green LED indicates that the projector is operating properly. If a monitored system falls below a normal reading, the LED is yellow or red. A yellow LED indicates a warning, and a red LED indicates a critical error that you must correct. Click the status LED to open the Status window and resolve issues.

Control	Description
Channel Buttons	Displays custom projector settings.
All Channels Button	Displays 64 saved channels.
Power Off Power On	Turns the projector on or off. Press off to place the projector in stand-by mode. To prevent accidental activation, you must press and hold the on or off buttons. A message displays in the title bar when the projector turns on or off.
Lamp Off Lamp On	Turns the lamp on or off. To prevent accidental activation, you must press and hold the on or off buttons. A boot delay occurs if you select lamp on before pressing power on.
Douser Closed Douser Opened	Opens or closes the douser.
Lens Adjust	Controls the Intelligent Lens System (ILS) lens motors. Tap to open the ILS File Setup window.
Disable Test Pattern Select Test Pattern	Selects or disables test patterns. Tap the test pattern icon to open the Preferred Test Patterns window.
Operational Status 	Displays the status of projector functions including the Projector Intelligence Board (PIB), the Integrated Cinema Processor Board (ICP), Integrated Media Block (IMB), Standby Power, Main Power, Run, and Marriage. A green LED indicates the system is functioning correctly. A red LED indicates a critical error that you must correct. Click the status LED to open the Status window and resolve issues.
Menu Button Status	Tap the **Menu** button to access projector menus. These icons change as these elements update from changes on the projector. The current time also displays.

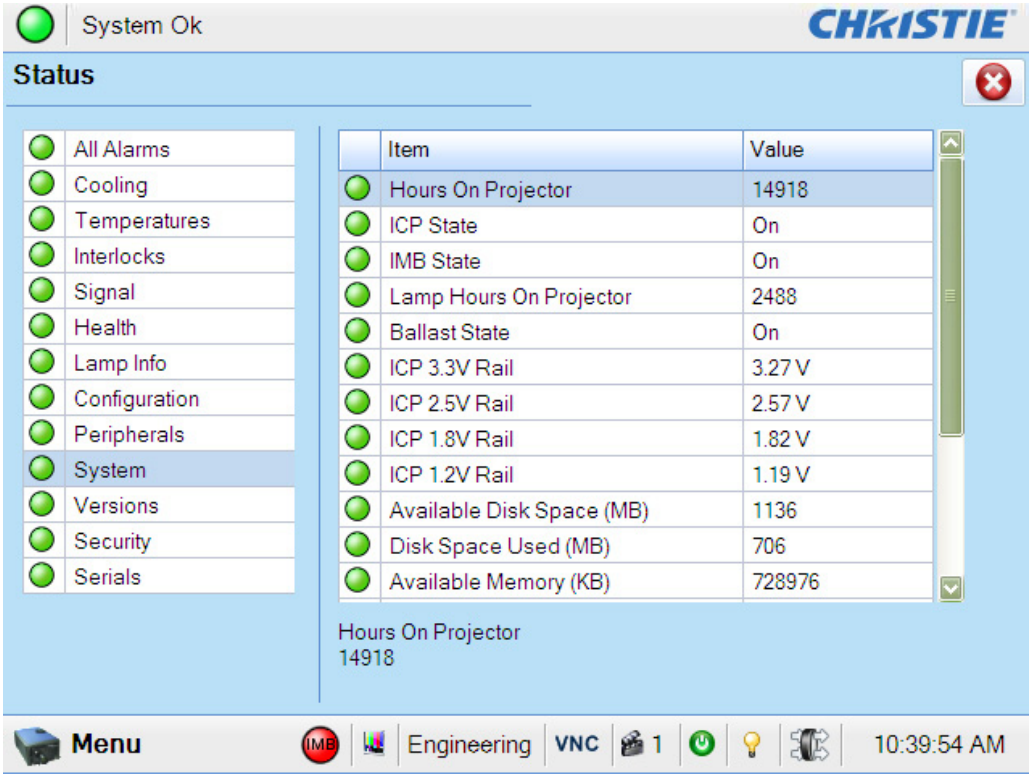
3.3 Log On to the Projector

1. Tap **Menu** > **Login**.
2. Select a user name in the **Username** list.
3. Enter the password in the **Password** field and then tap **Login**.

3.4 View the Status of Projector Components

Tap **Menu** > **Status**.

The Status window displays information about the status of projector components. The right pane lists projector components and their status. The left pane displays detailed information about individual projector items.



A green circle indicates the item is functioning correctly. A yellow circle is a warning that a projector item requires attention. A red LED indicates a projector item requires immediate attention.

If the **Item** or **Value** descriptions are too long for the cell, click the description to view the full description at the bottom of the window. To adjust the width of a column in the left pane, tap and drag the column border. When you close the Status window, the column widths return to their default size.

3.5 Run the Projector Interrogator

The interrogator captures diagnostic information that you can use to assist Christie service personnel diagnose and correct projector issues. To access the Interrogator menu, you need Operator, Administrator, or Service permissions. When you run the interrogator, you cannot modify projector settings.

Image disruption can occur if you run the interrogator when content is playing. To run the Christie IMB interrogator, see *Run a Christie IMB System Interrogation on page 13-17*.

Log files are compressed into a 7z or 7-zip file format. A tool for opening these archives can be downloaded from http://www.7-zip.org.

1. Tap **Menu** > **Diagnostics** > **Interrogator**.
2. Tap **Basic Mode**. A basic projector interrogation returns only projector log files.

   - or -

   Tap **Enhanced Mode**. An enhanced interrogation returns projector log files and registered batch files.
3. Tap **Yes**.
4. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).
5. Tap **Download to USB**.

3.6 Retrieve System Logs

System logs can help you identify and correct projector issues. To retrieve system logs you need Operator, Administrator, or Service permissions.

1. Tap **Menu** > **Diagnostics** > **System Logs**.
2. Select a start date for the logs in the **From** list.
3. Select an end date for the logs in the **To** list.
4. Select a log type in the **Type** list.
5. Select the severity type in the **Severity** list.
6. Tap **Retrieve Logs**.
7. To download the log files to a USB:
   a. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).
   b. Tap **Download to USB**.

3.7 Run a Server Test

You can run a server test to search the subtitle and metadata .xml files for errors in content or in transmission from the server. You cannot use a server test to turn metadata or subtitling off or on.

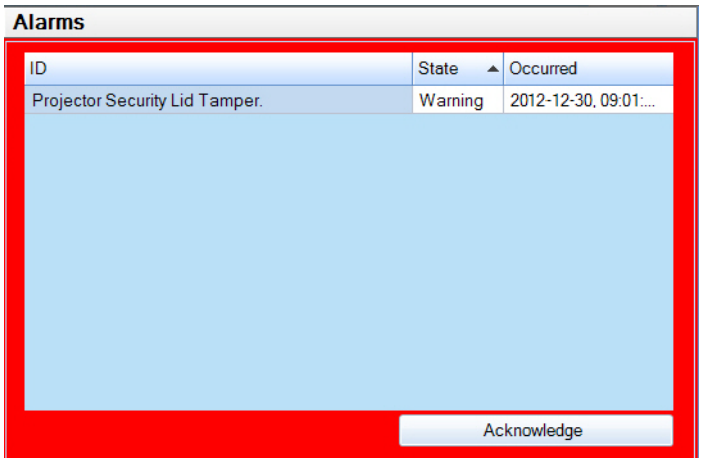
1. Tap **Menu** > **Diagnostics** > **Server Test**.
2. Enter the location of the metafile in the **Meta File URI** field.

   - or -

   Enter the location of the subtitle file in the **Subtitling URI** field.

3.8 Respond to Alarms

When an alarm occurs, an Alarms window with a red border appears with a description of the alarm condition, state, and time and date of the alarm. The window only displays alarms you have not previously acknowledged. To acknowledge an alarm and remove it from the Alarms window, click **Acknowledge**. To view all alarms, tap **Menu** > **Status** > **All Alarms** in the left pane.



3.9 Turn the Projector Off

1. On the Touch Panel Controller (TPC), tap and hold the light bulb icon to turn the lamp off.
2. On the TPC, tap and hold the red power icon. The projector enters a cool down mode and the fans and electronics stay on for 10 minutes. After this cool down period, the projector enters standby mode.
3. If you are servicing the projector, or removing the protective cover, disconnect the projector from AC power and turn the breaker off.

4 Manage the DLP

This section provides procedures for managing the Integrated Cinema Processor (ICP) electronics. To access the DLP menus, you need Administrator or Service permissions.

4.1 Reset the DLP

To remove image artifacts from the screen, try resetting the DLP before restarting the projector. Do not reset the DLP if content is playing.

1. Tap **Menu** > **Diagnostics** > **DLP Management**.
2. Tap **Reset DLP**.
3. Tap **Yes**.
4. Tap **Acknowledge** if an alarm appears.

4.2 Run a DLP Self Test

Run a DLP self test to test the functionality of the Integrated Cinema Processor (ICP) and DLP.

1. Tap **Menu** > **Diagnostics** > **DLP Management**.
2. Tap **DLP Self Test**.
3. Tap **Yes**.
4. Tap **Clear Results** to close the **Results** pane.

4.3 Download an ICP Certificate

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC). If you do not insert a USB flash drive, the ICP certificate is saved to the FTP root directory.
2. Tap **Menu** > **Diagnostics** > **DLP Management**.
3. Tap **Download ICP Certificate**.
4. Tap **Close**.

4.4 Disable the ICP Signature Test

Error messages that appear when the ICP is turned on and the ICP signature test is run can disrupt projector network monitoring. Use this procedure to disable the Signature Test.

1. Tap **Menu** > **Diagnostics** > **DLP Management**.
2. Tap **Bypass Signature Test**.
3. Tap **Yes**.

   To re-enable the ICP signature test, clear the **Bypass Signature Test** check box.

5 Work with Channels

Create channels to store customized projector settings for different inputs. You can create a maximum of 64 channels.

5.1 Create a New Channel

You need Advanced, Administrator, or Service permissions to create or modify channel settings. You can create a maximum of 64 channels.

1. Tap **Menu** > **Channel Setup**.
2. Select a channel in the **Channel Name** list.
3. Tap the **Launch Dialog** icon.
4. Enter a name for the channel and tap **Enter**.
5. Complete these fields on the Config 1 screen:

Field	Description
Icon	The icon associated with the channel.
Input	The location or connection for the current input.
Data Format	The source color depth (8-10-12 bit) for the channel.
Source File	The resolution and aspect ratio for the channel.
Screen File	The screen type, masking, cropping, and lens settings for the channel.
Use PCF	Associates the channel with a Projector Configuration File (PCF) and prevents Channel adjustments.
PCF	The PCF file associated with the channel.
Lamp File	The lamp file associated with the channel. Tap the **Launch Dialog** icon to edit the lamp file settings. Any changes made to the Lamp File settings are applied to all channels that use this lamp file.
ILS File	The Intelligent Lens System (ILS) file associated with the channel. The ILS file automatically adjusts the lens position so the content displays correctly. Tap the **Launch Dialog** icon to edit the ILS file settings. Any changes made to the ILS File settings are applied to all channels that use this ILS file.

6. Tap **Config 2** in the left pane and then complete these fields:

Field	Description
Measured Color	The Measured Color Gamut Data (MCGD) file used to calculate target color processing.
Target Color	The Target Color Gamut Data (TCGD) value. This option is not available when **Use PCF** is selected in the Config 1 screen.
Color Space	The method of color decoding for the current source. The default is YCbCr for all DVI sources. The default for all cinema sources is Unity RGB. This option is not available when **Use PCF** is selected.
Gamma	The gamma correction required for the proper tonal range of the source material.This option is not available when **Use PCF** is selected.

Field	Description
LUT_CLUT	Applies a 3D color cube for increased color accuracy. This option is not available when **Use PCF** is selected.
Scan Type	The video scan type. The default is **Progressive**.
Automatic Scan Type Detection	Automatically performs scan type detection. This feature is supported for PIBS1 inputs only.
Use PCT	Applies Christie Pureformity Color Technology (PCT) to the channel.
PCT File	Identifies the Christie Pureformity Color Technology (PCT) file associated with the channel.
HDMI EDID Type	Identifies the extended display identification data (EDID) type used by the channel when playing content from a device connected to the HDMI A/LEFT or HDMI B/RIGHT ports.
Enable 3D Dual Measured Color	Enables 3D Dual Measured Color on the channel. Select the color files for the left and right eyes.

7. Tap **3D Control** in the left pane if the channel will be used to display 3D content. Complete these fields:

Field	Description
Enable 3D	Enables 3D.
3D Test Patterns	Displays 3D test patterns.
3D Sync Input Mode	Specifies whether a specific frame of input data has left eye or right eye data. Select **Use White Line Code (true and inverted)** if you are using a single 3D input signal in which an embedded white line at the bottom of each frame identifies left and right, and an additional separate 3D stereo sync input at the GPIO port is not present. The bottom row of the left-eye sub-field should be pure white for the left-most 25% of the pixel row and pure black for the remainder of the row. The bottom row of the right-eye sub-field should be pure white for the left-most 75% of the pixel row and pure black for the remainder of the row. Select **Use Line Interleave for 3D** source data only. When specified, the ICP will de-interleave each line into the left image or right image in memory as specified. Line interleave can be used with PsF 3D data (left and right data for one field, then left and right data for second field).
L/R Display Reference	Specifies which frame of eye data to display during a specific display frame. This signal is referenced to the display frame rate which is specified by the Frame Rate N:M.
Frame Rate N:M	Sets how many frames to display per number of frames that form one complete image. Increase the display frame rate to reduce flicker from your source(s).
L/R Display Sequence	Defines the frame order (L-R or R-L) required for 3D perspective. This option only has meaning when the Frame Rate factor M is equal to 2. For this case, 2 input frames of data are required to constitute a complete frame of image data. This parameter tells the system which frames go together to make a complete image. **NOTE**: *When using **Line Interleave** as the **3D Sync Input Mode**, ensure that **Left (L1R1 L2R2)** is selected.*
3D Sync Polarity	Keeps 3D stereo sync output the same as input (true) or reversed (inverted). **True**: 3D L/R sync output from GPO will match L/R sync input. **Inverted**: 3D L/R sync output from GPO will be the opposite of sync input (left = right, right = left).
Dark Time	Creates a blank time interval between left and right frames to allow for LCD shutter glasses, Z screen, or rotating 3D wheel to synchronize the output. See Dark Time and Output Delay Notes below. Values between 0 and 65535 are accepted. Tap the **Launch Dialog** button to enter the dark time value.

Field	Description
Output Delay	The non-image time in Microseconds (µ). Offset 3D stereo sync output in relation to dark time interval. Acceptable values are between -32768 and 32767 are accepted where a positive offset = delay and negative offset = start early. Tap **Launch Dialog** to enter the output delay value.
Phase Delay	The degree of reference between the left and right sync output. Values between -180 and 180 are accepted. Tap **Launch Dialog** to enter the phase delay value.

8. Tap **Activate** to activate the channel.

5.2 Activate a Channel

1. Tap **Menu** > **Channel Setup**.
2. Select a channel in the **Channel Name** list.
3. Tap **Activate**.

5.3 Restore Default Channel Settings

1. Tap **Menu** > **Channel Setup**.
2. Select a channel in the **Channel Name** list.
3. Tap **Defaults**.
4. Tap **Default Current Channel** to restore the default settings to the selected channel.

   - or -

   Tap **Default All Channels** to restore the default settings to all channels.
5. Tap **OK**.

5.4 Change the Channel Icon

1. Tap **Menu** > **Channel Setup**.
2. Select a channel in the **Channel Name** list.
3. Tap **Icon**.
4. Tap an **Icon**.
5. Tap **OK**.

5.5 Add or Remove Preferred Channels from the Preferred Channels Pane

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** >**Administrator Setup** > **Preferred Channel Setup**.
2. To add a channel to the Preferred Channels pane, tap and drag a channel from the **All Channels** list to the **Selected Channel Buttons (Drag and Drop)** pane.
3. To remove a channel from the Preferred Channels pane, tap and drag a channel from the **Selected Channel Buttons (Drag and Drop)** pane to the recycle bin in the bottom right corner.

6 Manage Lamp Information

6.1 Create a New Lamp File

1. Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC Setup**.
2. Complete these fields:

Field	Description
Power%	The percentage of power to supply to the lamp.
Enable LiteLOC™	Enables or disables LiteLOC™. LiteLOC™ is a power control algorithm that increases the power level to maintain lamp brightness as the lamp ages.
Light Meter - Set Target	Enables LiteLOC™ and maintains the current brightness level for as long as possible. The Light Meter value is an arbitrary unit of measure, not lumens or fL.
Amps	Lamp current in amperes.
Volts	Lamp voltage in volts.
Watts	Lamp power in watts.
~fL or ~cd/m^2	Approximate Foot Lamberts reading on the light sensor. This assumes a calibration was performed.
Hours	Number of hours the current lamp has operated.
Intensity	The current light sensor reading in arbitrary units-of -measure and does not represent actual lumens or fL.

3. Tap **Save As**.
4. Enter a name for the lamp file in the **Filename** field.
5. Tap **OK**.

6.2 Modify an Existing Lamp File

1. Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC Setup**.
2. Select a lamp file in the **Current Lamp File** list.
3. Modify the lamp file settings.
4. Tap **Save**. If you want to revert your changes, tap **Revert** before you tap **Save**.

6.3 Enable or Disable LiteLOC on a Lamp File

LiteLOC™ is a power control algorithm that increases the power level to maintain lamp brightness as the lamp ages.

1. Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC Setup**.
2. Select a lamp file in the **Current Lamp File** list.

3. Tap **Enable LiteLOC** to enable LiteLOC.

   - or -

   Clear the **Enable LiteLOC** check box to disable LiteLOC.

4. Tap **Save**.

6.4 Adjust Lamp Power

1. Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC Setup.**
2. Increase or decrease the **Power %** value.
3. Tap **Set Target**.
4. Select **Enable LiteLOC™.**

6.5 Change the Lamp Power Percentage

Entering a new Lamp Power percentage temporarily disables LiteLOC settings.

1. Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC Setup**.
2. Increase or decrease the **Power %** value.

6.6 View Lamp Information

To view information about the lamps previously installed in the projector:

Tap **Menu** > **Advanced Setup** > **Lamp History**.

6.7 Receive an Alarm when a Lamp Reaches Its Expiry Date

To receive an alarm when the lamp reaches its operational limit:

1. Tap **Menu** > **Administrator Setup** > **Preferences**.
2. Tap **Lamp Expiry** in the **Alarm Triggers** area.

6.8 Add a Lamp to the Lamp History

You cannot remove or modify a lamp after you add it.

1. Tap **Menu** > **Advanced Setup** > **Lamp History**.
2. Tap **Add Lamp**.

3. Complete these fields:

Field	Description
Type	The lamp type.
Serial Number	The lamp serial number.
Reason for Change	The reason the lamp was changed.
Lamp Expiry (Hours)	The number of hours the lamp can operate before replacement.
Hours Used	The number of hours the lamp has operated before installation.

4. Tap **Save**.

6.9 Verify Current Lamp Intensity

Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC Setup**.

The current light intensity value appears in the **Intensity** field.

7 Manage Projector Setting Files

7.1 Create a Source File

Create source files to store resolution, offset, and aspect ratio settings for input devices**.**

1. Tap **Menu** > **Advanced Setup** > **Source File Setup**.
2. Tap **Save As**.
3. Enter a name for the source file in the **Filename** field.
4. Tap **OK**.
5. Enter values in these areas:

Area	Description
Resolution	The X and Y resolution of the incoming signal. For example, 2048 (X) and 858 (Y) or 1920 (X) and 1080 (Y). The resolution must match the incoming signal format.
Offset	The amount of incoming data to discard. Set the values to zero to process all incoming data. The allowable X range is -4096 to 4096 pixels and Y range of -2160 to 2160 pixels.
Aspect Ratio	The aspect ratio for the incoming signal. The allowable range is 0 to 7.99.

6. Tap **Save**.

7.2 Modify a Source File

1. Tap **Menu** > **Advanced Setup** > **Source File Setup**.
2. Select a source file in the **Current Source File** list.
3. Modify the **Resolution**, **Offset**, or **Aspect Ratio** values.
4. Tap **Save**.

7.3 Create 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. Tap **Menu** > **Advanced Setup** > **Screen File Setup**.
2. Tap **Save As**.
3. Enter a name for the source file in the **Filename** field.
4. Tap **OK**.
5. Complete these fields:

Field	Description
Letter Box	All image data is displayed and the aspect ratio is maintained.

Field	Description
Lens Factor	The amount to stretch an image horizontally. Allowable values can range from 0.00 to 7.99. Enter 1 if you are not using an anamorphic lens.
Presentation	The size and location of the image. By default, the projector uses a 2048 x 1080 panel.
Cropping	Hides unwanted image data.

6. Tap **Save**.

7.4 Modify a Screen File

1. Tap **Menu** > **Advanced Setup** > **Screen File Setup**.
2. Select a screen file in the **Current Screen File** list.
3. Modify the screen file settings.
4. Tap **Save**.

7.5 Create a MCGD File

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

1. Turn the lamp on and allow it to operate for 20 minutes.
2. Tap **Menu** > **Advanced Setup** > **MCGD File Setup**.
3. Tap **Save As**.
4. Enter a name for the MCGD file in the **Filename** field and then tap **OK**.
5. Tap the option button in the red area of the chromaticity image to display the red test pattern.
6. Measure the red chromaticity with the colorimeter.
7. Record the red chromaticity value.
8. Repeat steps 5 to 7 for the green, blue, white, and black chromaticity measurements. Select the test pattern that matches the color you are measuring.
9. Enter the chromaticity measurements you recorded in step 7 in the red, green, blue, white, and black **x** and **y** fields.
10. If the MCGD file will be associated with a 3D channel, tap **Enable 3D** and select a frame rate in the **Frame Rate N:M** list.
11. Tap **Save**.

7.6 Modify a MCGD File

1. Tap **Menu** > **Advanced Setup** > **MCGD File Setup**.
2. Select a MCGD file in the **Current Measured (MCGD) File** list.
3. Modify the MCGD file settings.
4. Tap **Save**.

7.7 Create a TCGD File

Typically, Target Color Gamut Data (TCGD) file settings are defined by your content provider.

1. Turn the lamp on and allow it to operate for 20 minutes.
2. Tap **Menu** > **Advanced Setup** > **TCGD File Setup**.
3. Tap **Save As**.
4. Enter a name for the TCGD file in the **Filename** field.
5. Tap **OK**.
6. Tap **Display Test Pattern**.
7. Tap 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. Enter the red chromaticity values in the **x**, **y**, and **Gain** fields.
10. Repeat steps 6 to 8 for the magenta, blue, white, yellow, and green chromaticity measurements. Select the test pattern that matches the color you are measuring.
11. Tap **Save**.

7.8 Modify a TCGD File

1. Tap **Menu** > **Advanced Setup** > **TCGD File Setup**.
2. Select a TCGD file in the **Current Target (TCGD) File** list.
3. Modify the TCGD file settings.
4. Tap **Save**.

7.9 Create a New ILS File

1. Tap **Menu** > **Advanced Setup** > **ILS File Setup**
2. Tap **Save As**.
3. Enter a name for the ILS file in the **Filename** field.
4. Tap **OK**.
5. Tap the left or right icons in the **Focus** area to adjust the focus of the image on the screen.
6. Tap the positive or negative icons in the **Zoom** area to adjust the image focus.
7. Tap the forward, backward, left, or right arrow icons in the **Offset** area to move the position of the image on the screen.
8. Tap **Save**.

7.10 Edit an Existing ILS File

1. Tap **Menu** > **Advanced Setup** > **ILS File Setup**.
2. Select an ILS file in the **Current ILS File** list.

3. Tap the left or right icons in the **Focus** area to adjust the focus of the image on the screen.
4. Tap the positive or negative icons in the **Zoom** area to adjust the image focus.
5. Tap the forward, backward, left, or right arrow icons in the **Offset** area to move the position of the image on the screen.
6. Tap **Save**.

7.11 Enable Automatic ILS Adjustment on a Channel

1. On the main screen of the TPC, tap a channel in the **Preferred Channels** pane.
2. Tap the **Lens Adjust** icon.
3. Select **Enable Automatic ILS**.
4. Tap **OK**.

7.12 Reset ILS File Settings

You must reset the Intelligent Lens System (ILS) when you move the lens, you have manually adjusted horizontal or vertical offset, focus, or zoom or when a power outage occurs during a channel change.

1. Tap **Menu** > **Advanced Setup** > **ILS File Setup**.
2. Select an ILS file in the **Current ILS File** list.
3. Tap **Quick Reset**.
4. Tap **Yes**.

7.13 Add a Lens Serial Number

1. Tap **Menu** > **Advanced Setup** > **Lens Setup**.
2. Select a lens in the **Primary Lens** list.
3. Tap the **Launch Dialog** icon in the **Serial Number** field.
4. Enter the serial number for the lens and then tap **Enter**.
5. Tap **Save**.

7.14 Enable Automatic ILS on a Lens

Use this procedure to move the lens to a position specified by the channel settings.

1. Tap **Menu** > **Advanced Setup** > **Lens Setup**.
2. Select a lens in the **Primary Lens** list.
3. Select **Enable Automatic ILS** in the **Intelligent Lens System** area.

7.15 Reset the Lens Position on Projector Startup

1. Tap **Menu** > **Advanced Setup** > **Lens Setup**.
2. Select a lens in the **Primary Lens** list.
3. Select **Reset on Startup** in the **Intelligent Lens System** area.

7.16 Complete a Full Lens Calibration

1. Tap **Menu** > **Advanced Setup** > **Lens Setup**.
2. Select a lens in the **Primary Lens** list.
3. Tap **Full Calibration** in the **Intelligent Lens System** area.
4. Tap **Yes**.

7.17 Reset the ILS and the Lens Position

1. Tap **Menu** > **Advanced Setup** > **Lens Setup**.
2. Select a lens in the **Primary Lens** list.
3. Tap **Quick Reset** in the **Intelligent Lens System** area.
4. Tap **Yes**.

8 Work with the Scheduler

Use the scheduler to schedule when the projector turns on or off.

8.1 Schedule the Projector to Turn On or Off

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Scheduler**.
2. Tap **Enable Scheduler**.
3. Tap and drag the scroll bar to view the available dates.
4. Tap a square below the date and next to the time that you want the projector to turn on or off.
5. Tap **New**.
6. Tap **Power Off** to turn the projector off at a specific date and time.

   - or -

   Tap **Power On** to turn the projector on at a specific date and time.
7. Tap **Start** to enable or disable the scheduled event. New scheduled events are enabled by default.
8. Select a date and a time for the scheduled event.
9. Tap **Weekly** to have the scheduled event occur weekly and then select the days that you want the event to occur.

   - or -

   Tap **Once** to have the scheduled event occur once at a specific date and time.
10. Tap **Expire** and select the date you want a weekly event to expire.
11. Tap **Save**.
12. Tap **OK** to return to the calendar view.

8.2 Edit a Scheduled Event

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Scheduler**.
2. Tap and drag the scroll bar to view the available dates.
3. Tap the event you want to edit.
4. Tap **Edit**.
5. Adjust the settings for the event.
6. Tap **Save**.
7. Tap **OK** to return to the calendar view.

8.3 Delete a Scheduled Event

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Scheduler**.
2. Tap and drag the scroll bar to view the available dates.
3. Tap the event you want to delete.
4. Tap **Delete**.
5. Tap **OK** to return to the calendar view.

8.4 Delete All Scheduled Events

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Scheduler**.
2. Tap **Delete All**.
3. Tap **Yes**.

8.5 Turn the Scheduler Off

You need Administrator or Service permissions to complete this procedure.

1. Tap **Administrator Setup** > **Scheduler**.
2. Tap to clear the **Enable Scheduler** checkbox.

9 View and Modify Projector Settings

Use the procedures in this section to modify projector settings including the touch panel controller (TPC) language, TPC screen brightness, and time settings.

9.1 Set Projector and TPC Preferences

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Preferences**.
2. Adjust these settings:

Field	Description
Temperature Units	Display temperature information in Celsius or Fahrenheit.
Image Orientation	The direction of the on screen image.
Luminance Units	Display luminance information in Foot Lamberts or Candela.
Language	The language for the TPC and online help.
Beep on Screen Press	When selected, a sound plays when you tap the TPC screen.
Enable Screen Saver / Screen Saver Delay	Enables a screen saver and determines the frequency that the screen saver appears.
Over Temperature, Fan Failure, Lamp Rotation, Lamp Expiry,	Opens an alarm window when a pre-defined event occurs.
Brightness	Adjusts the brightness of the touch screen display.
Calibrate Screen	Opens the Calibrate window and starts the TPC calibration.
IMB Powered in Standby Mode	When selected the Christie IMB remains on when the projector enters standby mode.

9.2 Adjust Projector Time Settings

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Time Setup**.
2. Adjust these settings:

Field	Description
Time Zone	The time zone where the projector is installed.
24 Hour Time	Displays time in a 24-hour format.
Adjust for Daylight Savings Time	Automatically adjusts the time for daylight savings.
Time Offset	Increases or decreases the projector time.
Apply Time Adjustment	Applies time adjustment settings.

9.3 Modify Projector Communication Settings

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Communications Configuration**.
2. Complete these fields:

Field	Description
Device Name	The name of the projector.
IP Address	The IP address of the projector.
Subnet Mask	The subnet mask to which the address belongs.
Gateway	The IP address for the network gateway.
Apply	Applies Ethernet settings.
Serial Speed (Baud)	The baud rate of the serial port. The default is 115200.
Enable SNMP	Enables SNMP.
SNMP V2 / SNMP V3	The SNMP protocol type. Contact Christie for the SNMP V3 user ID and password.
Management IP	The IP address where SNMP information and notifications are sent.
Download MIB to USB	Sends the SNMP Management Information Base (MIB) file to a USB flash drive.
Apply	Applies SNMP settings.
Serial Access	Grants access to serial connections.
Ethernet Access	Grants access to Ethernet connections.

9.4 Add a Network Device

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Network Devices Setup**.
2. Tap the check box. If the check box is not selected, the device does not appear in the **Network Devices** menu.
3. Tap the **Launch Dialog** icon in the **Device Name** field and enter a name for the network device.
4. Tap **Enter**.
5. Tap the **Launch Dialog** icon in the **URL** field and enter the URL for the network device.
6. Tap **Enter**.

9.5 Access a Network Device

Tap **Menu** > **Network Devices** > **Christie ACT**

To interact with the device tap in the top right corner of the window.

9.6 Calibrate the Internal Light Meter

To calibrate the internal light meter to Foot Lamberts you use the Foot Lamberts Calibration wizard. If content is playing when you run the Foot Lamberts Calibration wizard, playback stops. To run the Foot Lamberts Calibration wizard you need Administrator or Service permissions.

1. Tap **Menu** > **Administrator Setup** > **Foot lamberts Calibration**.
2. Tap **Next** and complete the Foot Lamberts Calibration wizard.

9.7 View the Microsoft Windows Task Manager

You use the Microsoft Task Manager to view information about programs or processes running on your projector. The Task Manager also provides performance measures for processes.

1. Tap **Menu** > **Service Setup** > **System Access**.
2. Tap **Task Manager**.
3. Tap **OK**.

9.8 View the Microsoft Windows Computer Management Console

You use the Microsoft Windows Computer Management console to manage local or remote computer settings.

1. Tap **Menu** > **Service Setup** > **System Access**.
2. Tap **Computer Management**.
3. Tap **OK**.

9.9 View Microsoft Windows Explorer

Microsoft Windows Explorer displays the hierarchical structure of files, folders, and drives on your projector.

1. Tap **Menu** > **Service Setup** > **System Access**.
2. Tap **Windows Explorer**.
3. Tap **OK**.

9.10 View the Microsoft Network Connections Window

Use the Microsoft Network Connections to view and modify network connections.

1. Tap **Menu** > **Service Setup** > **System Access**.
2. Tap **Network Connections**.
3. Tap **OK**.

9.11 View Projector Information

The About window provides projector information including the serial number, the current software version, the Digital Light Processing (DLP) version, the lens and lamp type.

Tap **Menu** > **About**.

9.12 Record the Lens Serial Number

1. Tap **Menu** > **Advanced Setup** > **Lens Setup**.
2. Select a lens type in the **Primary Lens** list.
3. Tap the **Launch Dialog** icon and enter the lens serial number.
4. Tap **Enter**.
5. Tap **Save**.

10 Manage User Accounts

10.1 User Access Permissions

This table lists the Touch Panel Controller (TPC) permissions:

Permission	Description
Status	Can view basic projector status, diagnostic information and software version information. This is the default level for Serial Communication sessions.
Operator	Can activate channels and test patterns, view detailed diagnostic logs for in-depth troubleshooting and view server errors. This is the default level at the TPC.
Advanced	Can define all display setups such as source resolution, aspect ratio, image cropping, and color gamut information, optimize light output, record lamp changes, and define setup files as selectable choices for processing a variety of incoming signals.
Administrator	Can perform screen Foot Lambert calibration, define Ethernet settings (IP network address), restore backup files, and upgrade the system software. **NOTE***: Administrators can add users and set user access rights from its own level and below only.*
Service	Can access all windows on the TPC, except marriage.
Marriage	Can access all windows on the TPC, including marriage.

10.2 Add a User Account

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **User Accounts**.
2. Tap **Add**.
3. Tap the **Launch Dialog** icon in the **Username** field and enter the user name.
4. Tap **Enter**.
5. Repeat steps 3 and 4 for the **Password** and **Confirm Password** fields.
6. Select access permissions for the user in the **Permissions** list.
7. Tap **Accept**.

10.3 Change a User Account Password or Permissions

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **User Accounts**.
2. Tap a user name in the **Username** list.
3. Tap **Edit**.
4. Change the password or the access permissions.
5. Tap **Accept**.

10.4 Delete a User Account

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **User Accounts**.
2. Tap a user name in the **Username** list.
3. Tap **Delete**.
4. Tap **Yes**.

11 Backup, Restore, and Upgrade Projector Files

11.1 Add an Upgrade File

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Upgrade**.
2. Tap **Upload**.
3. Select the location of the upgrade file in the **Drive Letter** list.
4. Browse to the location of the upgrade file in the **Folder** list.
5. Tap the upgrade file and then tap **Open**.

11.2 Remove an Upgrade File

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Upgrade**.
2. Tap an upgrade file in the **Available Upgrade Files** list.
3. Tap **Remove**.

11.3 Install an Upgrade

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Upgrade**.
2. Tap an upgrade file in the **Available Upgrade Files** list.
3. Tap **Next**.
4. Tap a component in the **Component** list.
5. Select one of these options:

Option	Description
Upgrade Different Components Only	Upgrades system components that are newer or older than the currently installed version.
ICP Only Force Install	Forces an ICP install regardless of what current version is installed.
Force Upgrade All	Upgrades all components in the upgrade package.
Factory Install	Removes all configurations and upgrades all components.

6. Tap **Next**.

11.4 Back up Projector Settings and Information

You need Service permissions to complete this procedure.

1. Tap **Menu** > **Service Setup** > **File Management**.
2. Tap **Backup**.

11.5 Restore a File

You need Service permissions to complete this procedure. You can restore configuration, preference, channel, user, and ICP files.

1. Tap **Menu** > **Service Setup** > **File Management**.
2. Tap **Browse** to the right of the **File to restore** field.
3. Select the location of the upgrade file in the **Drive Letter** list.
4. Browse to the location of the upgrade file in the **Folder** list.
5. Tap the upgrade file and then tap **Open**.
6. Select the type of file to restore in the **Select type** list.
7. Tap **Restore**.
8. Tap **Yes**.

11.6 Restore Factory Default Settings

You need Service permissions to complete this procedure. You can restore configuration, reference, channel, and user files.

1. Tap **Menu** > **Service Setup** > **File Management**.
2. Select a file type to restore in the **Select type** list.
3. Tap **Reset Defaults**.
4. Tap **Yes**.

11.7 Move Files to the Projector

1. To move files from a USB Flash drive, insert the USB flash drive into the USB port on the side of the touch panel controller (TPC).
2. Tap **Menu** > **Service Setup** > **File Maintenance**.
3. Select a file type in the **File Type** list.
4. Tap and drag a file from the **TPC Files** pane to the **Projector Files** pane.

11.8 Delete Projector Files

1. Tap **Menu** > **Service Setup** > **File Maintenance**.
2. Select a file type in the **File Type** list.
3. Tap and drag a file from the **Projector Files** pane to the trash can icon.
4. Tap **Yes**.

12 Test Patterns

12.1 Add or Remove Test Patterns from the Preferred Test Patterns Pane

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Preferred Test Pattern Setup**.
2. To add a test pattern to the Preferred Test Pattern pane, tap and drag a test pattern from the **Unselected Patterns** list to **User Selected (Drag and Drop)** pane.
3. To remove a test pattern from the Preferred Test Pattern pane, tap and drag a test pattern from the **User Selected (Drag and Drop)** pane to the recycle bin in the bottom right corner.

12.2 Turn a Test Pattern On or Off

1. Tap the **Test Pattern** ( ) icon in the task bar.
2. Tap **All Test Patterns**.
3. Tap a test pattern in the Preferred Test Patterns pane to turn it on.
4. Tap **Test Pattern Off** to turn the test pattern off.

12.3 Display a Full Screen Test Pattern

1. Tap the **Test Pattern** ( ) icon in the task bar.
2. Tap **All Test Patterns**.
3. Double-tap a test pattern in the Preferred Test Patterns pane to turn it on.
4. Tap **Full Screen (Ignore screen file settings)**.

13 Manage the Christie IMB

You can use the touch panel controller (TPC) on the projector or a web based user interface to manage the Christie Integrated Media Block (IMB). Although this section provides information and procedures for the TPC, the functionality of the web based user interface is similar.

To access the Christie IMB web interface, use a computer with a Microsoft Windows operating system. To access the Christie IMB web interface, enter the IP address of the projector in the URL field of your web browser. For example, http://192.168.123.12/.

The acronym CMB (Christie Media Block) can appear in logs and in the TPC interface. The acronym is interchangeable with Christie IMB.

13.1 Selecting a NAS or DAS Device

As this table indicates, DAS devices offer higher transfer rates:

Feature	NAS	DAS
Interface	Gigabit Ethernet	eSATA (eSATA2)
Theoretical Maximum Transfer Rate	1 Gbit/sec	3 Gbit/sec
Setup Ease	Medium	Difficult
Integration Ease	Medium	Simple
Availability	Plentiful	Few

eSATA ports on a mass storage device do not indicate DAS functionality; they are often used to expand storage capacity.

13.1.1 Supported NAS and DAS Devices

These are the NAS and DAS devices that have been tested with the Christie IMB:

Type	Manufacturer	Manufacturer Part Number
NAS	QNAP	TS-559 Pro+
NAS	Cisco	NSS 324
NAS	Iomega	StorCenter px4-300r
NAS	Netgear	READYNAS Duo 2000
DAS	Areca	ARC-5040
NAS	QNAP	TS-559 Pro+

13.1.2 Testing NAS and DAS Performance

To verify the performance of your NAS or DAS device, complete these tests:

- Ingest content. See *Ingest Content, on page 13-8*.
- Verify content plays without interruption. See *Control Content Playback, on page 13-5*.
- Remove a hard drive from the NAS or DAS device and verify that playback is not interrupted.

- Test NAS performance. See *Test NAS Performance, on page 13-22*. The minimum data transfer rate for the NAS device should be 500 Mbps. However, data transfer rates of 700 to 800 Mbps are preferred. A KDM key is not required to test NAS performance.
- Measure NAS performance with a third-party application such as the *Intel NAS Performance Toolkit* (http://software.intel.com/en-us/articles/intel-nas-performance-toolkit/).

13.2 IP Address and Subnet Considerations

You must configure your network settings correctly for the Christie IMB to operate. Incorrect subnet settings can cause communication issues between the Christie IMB, the NAS device, and external automation devices. To reduce the risk of communication issues:

- Assign the projector intelligence board (PIB) and the Christie IMB NAS1 and NAS2 ports to nonconflicting subnets. For example:

Netmask	255.255.255.0
PIB	192.168.1.100
NAS1	192.168.2.1
NAS2	192.168.3.1

- Configure the NAS1 and NAS2 ports on the Christie IMB faceplate to use DHCP when they are not in use. When you set DHCP on a NAS port and nothing is connected to the port, the Christie IMB does not mount the port and there is no risk of an IP address conflict.
- Use static IP addresses on the NAS1 and NAS2 ports. If you need to use DHCP:
  - Verify the NAS device can be configured as a DHCP server. See the documentation provided by the manufacturer of your NAS device.
  - Verify that the DHCP service is enabled on the NAS device. See the documentation provided by the manufacturer of your NAS device.
  - Verify the address range provided by the NAS device does not conflict with the other NAS port or the PIB port. See the documentation provided by the manufacturer of your NAS device.

13.3 Network Attached Storage Network File Settings

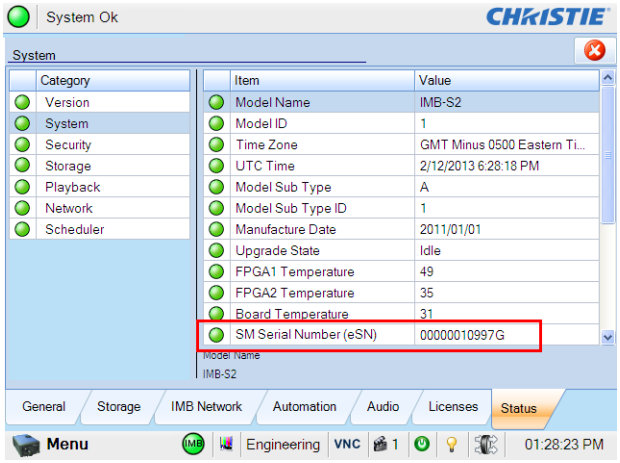
If the NFS settings of the NAS device are incorrect, the device cannot share files with the Christie IMB. To reduce the risk of NAS file sharing issues:

- Configure the NAS to use a static IP address. The static IP address must be compatible with the IMB NAS Ethernet port netmask to which the NAS is connected. Using DHCP is not recommended.
- Enable the NFS service on the NAS device. On most NAS devices, this option is disabled by default.
- Enable NFS on the share that the Christie IMB accesses. NFS must be enabled on every shared NAS share.
- Set the NFS access rights for the Christie IMB share to **read/write** or **full rights** for everyone.

13.4 Identifying the Christie IMB Electronic Serial Number

To play encrypted content, a Key Delivery Message (KDM) key is required. The Christie IMB electronic serial number (eSN) allows a distributor to identify the IMB certificate and generate the KDM. The Christie eSN is also required to generate license keys that enable specific IMB features.

To retrieve the 12-digit hexadecimal eSN on the projector touch panel controller (TPC), tap **Menu** > **Christie IMB** > **System > Status**. Tap **System** in the **Category** list. The serial number appears in the **SM Serial Number (eSN)** field:



The 12-digit serial number also appears on the front of the Solaria One and Solaria One$^+$ communications panel faceplate and the shipping carton.

13.5 Licensing

A license file is required to enable these features:

- High Frame Rate (HFR) (108445104-01)
- RealD 3D EQ

Only a single license file can be active at a time. If you have multiple licensed features, the license keys are combined in a single license file. If you require multiple licenses, it is recommended that you request them all at once.

Each license file is unique to a specific Christie IMB, and it is associated with the electronic serial number (eSN) of the Christie IMB installed in the projector. After you receive the license file, you must add it to the Christie IMB to enable functionality. See *Upload a License Key, on page 13-4*.

13.5.1 RealD 3D EQ Licensing

If you have RealD equipment installed, there is no charge for a RealD 3D EQ license. The RealD 3D EQ license is also referred to as ghostbusting.

To request a RealD 3D EQ license, send an email to *customer-support@reald.com*. In the body of the email, ask for the 3D EQ functionality to be enabled and include this information:

- the name of the theater
- the screen number
- the electronic serial number (eSN) of the Christie IMB
- the serial number of the RealD cinema system you have installed
- whether the projector on which the license will be installed is currently licensed or will be licensed for high frame rate (HFR) or 4K

RealD will authorize Christie to generate a license key for the RealD 3D EQ feature for the specified Christie IMB. Christie will send you the license by e-mail.

13.5.2 Upload a License Key

1. Tap **Menu** > **Christie IMB** > **System** > **Licenses**.
2. Tap **Add**.
3. Insert a USB flash drive with the Christie IMB license key into the USB port on the side of the touch panel controller (TPC).
4. Select a license file and then tap **Accept**.

13.6 Content Management

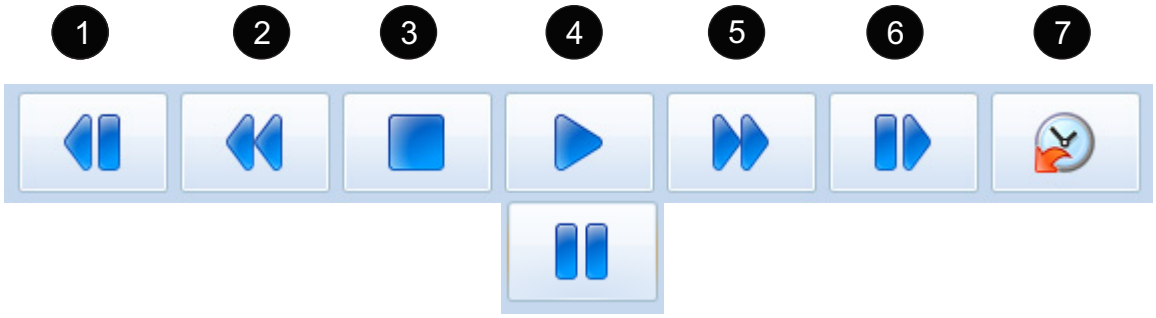
When playing content, you must select the correct channel for the content. For example, you select a 3D channel to play 3D content. In addition, different content standards require unique channel settings to play correctly:

- Data Format
  - To play standard cinema content (JPEG2000 content), select 4:4:4 (RGB) in the Data Format list on the Config 1 Channel Setup screen.
  - To play MPEG-2 content, select 4:2:2 (YCbCr) in the Data Format list on the Config 1 Channel Setup screen.
- Scan Type
  - To play interlaced MPEG-2 content, select Interlaced in the Scan Type list on the Config 2 Channel Setup screen.
  - To play all other content, select Progressive in the Scan Type list on the Config 2 Channel Setup screen.
- 3D Sync Input Mode
  - To play high frame rate (HFR) 3D content you must create 3D channels with settings that meet the requirements of your 3D equipment. Select Line Interleave in the 3D Sync Input Mode list on the 3D Control Channel Setup screen.

You can create 3D files to support seamless switching between standard and high frame rate (HFR) content. For additional information about channels and channel set up, see *Work with Channels on page 5-1*.

13.6.1 Control Content Playback

To control the playback of content you use these controls:



Control	Description
1	Move to a previous play list item
2	Move the playback content backward in 30 second increments
3	Stop playback
4	Start playback. When playback is started, the pause button is available
5	Move the playback content forward in 30 second increments
6	Move to the next play list item
7	Move to a specific time in the playback content

13.6.2 Content Window Icons

These icons appear in the Local Content list in the Content window:

Icon	Description
	The content format is 3D. To see content details, select the content and tap Details.
	The encrypted content is not valid for playback. To see content details, select the content and tap Details.
	The encrypted content is valid for playback and the encryption key was successfully ingested. To see content details or view the encryption key, select the content and tap Details.
	A warning indicating one of these issues: The encryption key is expiring soon. The encryption key has expired. The encryption key is invalid. The encryption key is missing. To see warning detail, select the content and tap Details.

13.6.3 Load Content

Before you can select content or a play list for playback, you must load it.

1. Tap **Menu** > **Christie IMB** > **Control**.
2. Tap the **Unlock** icon.
3. Tap **Load Content**.
4. Tap the **Play Lists** tab to load a play list.

   - or -

   Tap the **Content** tab to load an individual file.
5. Tap a play list or an individual file.
6. Tap **Accept**.
7. Use the playback controls to start and stop playback. See *Control Content Playback on page 13-5.*

13.6.4 Loop Content

1. Tap **Menu** > **Christie IMB** > **Control**.
2. Tap **Loop Content**.

13.6.5 Unload Content

1. Tap **Menu** > **Christie IMB** > **Control**.
2. Tap the **Unlock** icon.
3. Tap **Unload Content**.

13.6.6 View Content Stored Locally

For information about Content window icons, see *Content Window Icons, on page 13-5.*

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Local Content**.

13.6.7 View Details about Content Stored Locally

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Local Content**.
3. Tap a content item in the content list.
4. Tap **Details**.
5. Tap **Close** to return to the **Content** window.

13.6.8 Refresh the Locally Stored Content List

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Local Content**.
3. Tap **Refresh**.

13.6.9 Delete Locally Stored Content

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Local Content**.
3. Tap a content item in the content list.
4. Tap **Delete**.
5. Tap **Yes**.

13.6.10 View All Keys

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Keys**.

13.6.11 View Expired Keys

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Keys**.
3. Select **Expired Keys** in the **Show Me** list.

13.6.12 View Keys Expiring Today

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Keys**.
3. Select **Keys Expiring Today** in the **Show Me** list.

13.6.13 View Keys Not Yet Valid

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Keys**.
3. Select **Keys Not Yet Valid** in the **Show Me** list.

13.6.14 Refresh the Keys List

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Keys**.
3. Select the type of keys to display in the **Show Me** list.
4. Tap **Refresh**.

13.6.15 Delete a Key

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Keys**.
3. Select the type of keys to display in the **Show Me** list.
4. Select a key in the key list.

5. Tap **Delete**.
6. Tap **Yes**.

13.6.16 Delete All Displayed Keys

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Keys**.
3. Select the type of keys to display in the **Show Me** list.
4. Tap **Delete All Displayed Keys**.
5. Tap **Yes**.

13.6.17 View Ingestible Content

1. Connect the device containing the content you want to ingest to the **Ingest** port on the IMB.
2. Tap **Menu** > **Christie IMB** > **Content**.
3. Tap **Ingestible Content**.

13.6.18 Ingest Content

When ingesting a movie, you must ingest both the movie and its encryption key (Key Delivery Message). An encryption key is not required for trailers and other unencrypted content. The encryption key is typically provided on a USB flash drive.

1. Connect the device containing the content you want to ingest to the **Ingest** port on the IMB.
2. Tap **Menu** > **Christie IMB** > **Content**.
3. Tap **Ingestible Content**.
4. Select content to ingest in the **Ingestible Content** list.
5. Tap **Ingest**.

13.6.19 Ingest Remote Content from a Network IMB

Use this procedure to ingest content from a Christie or Doremi IMB that is on the same network as the projector. If you are ingesting content from a Christie IMB, the default user name is **ftpuser** and the password is **ftptms**.

A remote ingest of content must be completed using the Ethernet ports on the Christie IMB and not the projector Ethernet ports. The projector Ethernet ports do not support the remote ingest of content.

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Remote Content**.
3. Enter the IP address of the Christie or Doremi IMB in the **IP Address** field.
4. Select a device in the **Device Type** list.
5. Enter the user name for the device in the **Username** field.
6. Enter the password for the device in the **Password** field.
7. Tap **List Content**.

8. Tap content in the content list.
9. Tap **Ingest**.

13.6.20 Refresh the Ingestible Content List

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Ingestible Content**.
3. Tap **Refresh**.

13.6.21 View the Progress of Ingestible Content

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Ingest Status**.

13.6.22 Refresh the Ingest Status List

1. Tap **Menu** > **Christie IMB** > **Content**.
2. Tap **Ingest Status**.
3. Tap **Refresh**.

13.7 Play Lists

A play list is a list of content files and automated events that play in an order that you define.

13.7.1 View an Existing Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Select a play list in the **Selected Play List** list.

13.7.2 Import a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Tap **Import/Export** in the **Play List Tasks** list.
3. Tap the **Import** tab.
4. Tap **Browse**.
5. Select a drive in the **Drive** list and browse to the location of the play list.
6. Tap **Accept**.
7. Select a play list.
8. Tap **Import**.

13.7.3 Create a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Tap **Create** in the **Play List Tasks** list.

3. Tap **Clear Text**.
4. Enter a name for the play list.
5. Tap **Enter**.
6. Tap **Save Changes** in the **Play List Tasks** list.

13.7.4 Export a Play List

You can export a play list and use it on other projectors.

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).
2. Tap **Menu** > **Christie IMB** > **Play Lists**.
3. Tap **Import/Export** in the **Play List Tasks** list.
4. Tap the **Export** tab.
5. Select a play list.
6. Tap **Export**.
7. Enter a name for the play list. Tap **Enter**.
8. Tap **OK**.

13.7.5 Copy a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Select a play list in the **Selected Play List** list.
3. Tap **Copy this Play List** in the **Play List Tasks** list.
4. Tap **Clear Text**.
5. Enter a name for the play list.
6. Tap **Enter**.
7. Tap **Save Changes**.

13.7.6 Rename a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Select a play list in the **Selected Play List** list.
3. Tap **Rename this Play List** in the **Play List Tasks** list.
4. Tap **Clear Text**.
5. Enter a name for the play list.
6. Tap **Enter**.

13.7.7 Add Content to a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Select a play list in the **Selected Play List** list.
3. Tap the **Content** tab.

4. Select items to display in the **Show me** list.
5. Tap an item in the content list.
6. Tap content in the time line. The time line appears at the bottom of the Play List window.
7. Tap **Insert Before** to insert content before the selected item in the time line.

   - or -

   Tap **Insert After** to insert content after the selected item in the time line.
8. Tap **Save Changes** to save your changes.

   - or -

   Tap **Cancel Changes** to undo your change.

13.7.8 Change the Order of Content in a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Select a play list in the **Selected Play List** list.
3. Tap the **Content** tab.
4. Tap and drag content in the time line to the left or right. The time line appears at the bottom of the Play List window.
5. Tap **Save Changes** to save your changes.

   - or -

   Tap **Cancel Changes** to undo your change.

13.7.9 View the Status of Play List Content

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Select a play list in the **Selected Play List** list.
3. Tap content in the time line. The time line appears at the bottom of the Play List window.
4. Tap .
5. Tap **Save**.

13.7.10 Remove Content from a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Select a play list in the **Selected Play List** list.
3. Tap content in the time line. The time line appears at the bottom of the Play List window.
4. Tap .
5. Tap **Yes**.

13.7.11 Add Automation to a Play List

To create macros, see *Add a Macro on page 13-24*.

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Select a play list in the **Selected Play List** list.
3. Tap the **Automation** tab.
4. Tap content in the time line. The time line appears at the bottom of the Play List window.
5. Select **Macros** or **Input** in the **Show me** list.
6. Tap a macro or an input in the list.
7. Tap **Insert**.
8. Select an event in the **Automation Macro** list.
9. Select one of these options in the **Time Offset** area:
   - Select **Before Clip Start** to pause playback. Playback does not resume until all of the input cues or macros with a time offset value of **Before Clip Start** run. Playback is not paused if **Before Clip Start** is not selected.
   - Select **From Clip Start** to run a macro at a time you define that is offset from the beginning of the content you selected in step 4.
   - Select **From Clip End** to run a macro at a time you define that is offset from the end of the content you selected in step 4.
10. Tap **Save**.
11. Tap **Save Changes** in the **Play List Tasks** list.

    A black triangle appears in the time line to indicate that automation is defined for the content. The time line appears at the bottom of the Play List window.

13.7.12 Modify When Automation Occurs

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Select a play list in the **Selected Play List** list.
3. Tap content in the time line. The time line appears at the bottom of the Play List window.
4. Tap a black arrowhead.
5. Select one of these options in the **Time Offset** area:
   - Select **Before Clip Start** to pause playback. Playback does not resume until all of the input cues or macros with a time offset value of **Before Clip Start** run. Playback is not paused if **Before Clip Start** is not selected.
   - Select **From Clip Start** to run a macro at a time you define that is offset from the beginning of the content you selected in step 3.
   - Select **From Clip End** to run a macro at a time you define that is offset from the end of the content you selected in step 3.
6. Adjust the time the automation occurs.
7. Tap **Save.**
8. Tap **Save Changes** in the **Play List Tasks** list.

13.7.13 Remove Automation from a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Select a play list in the **Selected Play List** list.
3. Tap content in the time line. The time line appears at the bottom of the Play List window.
4. Tap a black arrowhead.
5. Tap **Remove**.
6. Tap **Save**.
7. Tap **Save Changes** in the **Play List Tasks** list.

13.7.14 Delete a Play List

1. Tap **Menu** > **Christie IMB** > **Play Lists**.
2. Select a play list in the **Selected Play List** list.
3. Tap **Delete this Play List** in the **Play List Tasks** list.
4. Tap **Yes**.

13.8 Schedule Views

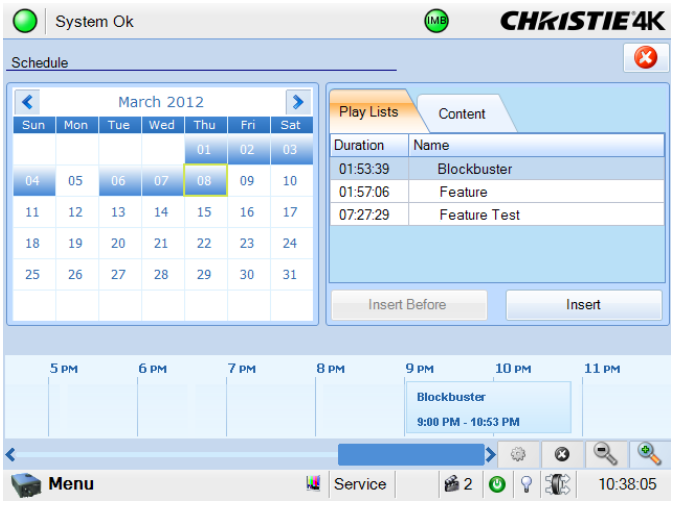
You use the Schedule Calendar view to view the date and time content is scheduled to play in a month.

You use the Schedule Calendar Day View to view and modify the time and duration content is scheduled to play in a day. You can also use the Schedule Calendar View to add content or a play list to a schedule.

When content is scheduled to play, the projector automatically enters full power mode approximately 45 minutes before the content is scheduled to appear. The projector is on, but the lamp is off. It is recommend that you add a lamp on command to your play lists.

13.8.1 View the Schedule Calendar View

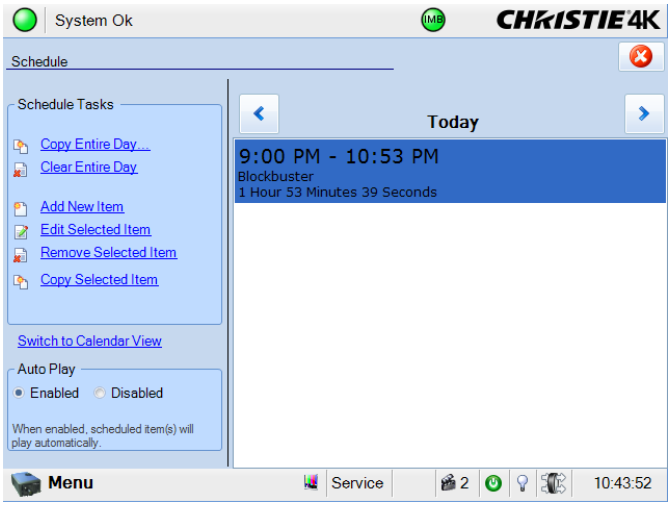
Tap **Menu** > **Christie IMB** > **Schedule Calendar View**.



Schedule Calendar View

13.8.2 View the Schedule Day View

Tap **Menu** > **Christie IMB** > **Schedule Day View**.



Schedule Day View

13.8.3 Add a New Item to the Schedule

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.
2. Tap **Add New Item** in the **Schedule Tasks** list.
3. Tap **Browse**.

4. Select a play list.

   - or -

   Tap the **Content** tab and select content.
5. Tap **Accept**.
6. Select a date to start playing the content in the **Start Time** list.
7. Modify the time that the content plays.
8. Tap **Accept**.

13.8.4 Edit a Schedule Item

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.
2. Tap the forward and backward buttons in the right pane to select a day.
3. Tap the content.
4. Tap **Edit Selected Item** in the **Schedule Tasks** list.
5. Tap **Browse** to replace the content.

   - or -

   Modify the date and time the item plays.
6. Tap **Accept**.

13.8.5 Copy a Scheduled Item

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.
2. Tap the forward and backward buttons in the right pane to select a day.
3. Tap the content.
4. Tap **Copy Selected Item** in the **Schedule Tasks** list.
5. Select the day that you want to copy the item to.
6. Select an end date for the item to play in the **Repeat Until** list.
7. Tap **Accept**.
8. Tap **OK**.

13.8.6 Copy a Day Schedule

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.
2. Tap the forward and backward buttons in the right pane to select a day.
3. Tap **Copy Entire Day** in the **Schedule Tasks** list.
4. Select the day that you want to copy the item to.
5. Select an end date for the item to play in the **Repeat Until** list.
6. Tap **Accept**.
7. Tap **OK**.

13.8.7 Delete a Schedule Item

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.
2. Tap the forward and backward buttons in the right pane to select a day.
3. Tap the content.
4. Tap **Remove Selected Item** in the **Schedule Tasks** list.
5. Tap **Yes**.

13.8.8 Delete a Day Schedule

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.
2. Tap the forward and backward buttons in the right pane to select a day.
3. Tap **Clear Entire Day**.
4. Tap **Yes**.

13.8.9 Enable or Disable Auto Play

When auto play is enabled, scheduled items play automatically.

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.
2. Tap the forward and backward buttons in the right pane to select a day.
3. Tap **Enabled** in the **Auto Play** pane to enable auto play.

   - or -

   Tap **Disabled** in the **Auto Play** pane to disable auto play.

13.8.10 View the Calendar

1. Tap **Menu** > **Christie IMB** > **Schedule Day View**.
2. Tap **Switch to Calendar View**.

13.9 Manage Christie IMB Settings

This section provides procedures for managing Christie Integrated Media Block (IMB) settings.

13.9.1 Restart the Server

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **General** > **Settings**.
3. Tap **Reboot Server**.
4. Tap **Yes**.
5. Tap **OK**.

13.9.2 Download a Certificate

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).
2. Tap **Menu** > **Christie IMB** > **System**.
3. Tap **General** > **Settings**.
4. Tap **Certificate**.
5. Select a certificate to download.
6. Tap **Download**.

   The certificate is saved as SM.perm or Log.perm.

13.9.3 Run a Christie IMB System Interrogation

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).
2. Tap **Menu** > **Christie IMB** > **System**.
3. Tap **General** > **Settings**.
4. Tap **Run Interrogator**.
5. Tap **Yes**.

   The interrogator file is saved as a compressed file named Interrogator.zip.

13.9.4 Remove Orphaned Assets

Use this procedure to remove orphaned assets on the primary content drive.

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **General** > **Settings**.
3. Tap **Clean up**.
4. Tap **Yes**.
5. Tap **OK**.

13.9.5 Restore Factory Default Settings

When restoring factory settings, all content drive settings, automation definitions, scheduled events, audio settings, and speaker mappings return to their factory default settings. Restoring the factory default settings does not affect ingested content, keys, or play lists. After restoring the Christie IMB to its default settings, you must reconfigure the settings of your NAS or DAS device.

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **General** > **Settings**.
3. Tap **Load Factory Defaults**.
4. Tap **Yes**.
5. Tap **OK**.

13.9.6 View Status Information

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Status**.
3. Tap an item in the **Category** list.

13.9.7 Add a License

A license is required to activate Christie IMB features.

1. Insert a USB flash drive with the Christie IMB license into the USB port on the side of the touch panel controller (TPC).
2. Tap **Menu** > **Christie IMB** > **System**.
3. Tap **Licenses**.
4. Tap **Add**.
5. Browse to the location of the license file.
6. Select a license file and then tap **Open**.

13.10 Backup and Restore

You can backup and restore content drive settings, automation definitions, scheduling, and audio and speaker mappings. When you run a backup, a backup file is created on the Christie IMB. You can copy the backup file from the Christie IMB to a USB flash drive.

13.10.1 Restore Files from an External Device

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **General** > **Backup/Restore**.
3. Tap **Browse** and browse to the location of the file.
4. Select the file.
5. Tap **Accept**.
6. Select the backup file in the **Restore Files on Server** list.
7. Tap **Restore**.
8. Tap **Yes**.

13.10.2 Create a Backup File

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **General** > **Backup/Restore**.
3. Tap **Backup**.
4. Enter a name for the backup file.
5. Tap **Enter**.
6. Tap **OK**.

13.10.3 Download a Backup File

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).
2. Tap **Menu** > **Christie IMB** > **System**.
3. Tap **General** > **Backup/Restore**.
4. Select a file in the **Restore Files on Server** list.
5. Tap **Download**.

13.10.4 Delete a Christie IMB Backup File

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **General** > **Backup/Restore**.
3. Select a file in the **Restore Files on Server** list.
4. Tap **Delete**.
5. Tap **Yes**.
6. Tap **OK**.

13.11 Work with Configuration Files

You use configuration files to modify the behavior of third-party software instructions supported by the Christie IMB. Use the procedures in this section to load a modified or default configuration file.

13.11.1 Load a RealD 3D EQ Configuration File

1. Insert a USB flash drive with the RealD 3D EQ configuration file into the USB port on the side of the touch panel controller (TPC).
2. Tap **Menu** > **Christie IMB** > **System**.
3. Tap **General** > **Config Files**.
4. Tap **Load Config File** in the **RealD 3D EQ** area.
5. Select a drive and browse to the location of the correction file.
6. Select the correction file.
7. Tap **Accept**.

13.11.2 Load a Default RealD 3D EQ Configuration File

This procedure overwrites modified RealD 3D EQ configuration files.

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **General** > **Config Files**.
3. Tap **Load Default Config** in the **RealD 3D EQ** area.
4. Tap **Yes**.

13.12 Manage Storage Devices

To play content, you must connect a network-attached storage (NAS) or direct attached storage (DAS) device to the Christie IMB to store ingested content. The NAS device must be connected to one of the gigabit Ethernet ports on the Christie IMB labeled **NAS-1** or **NAS-2**. The DAS device must be connected to the external serial ATA (eSATA) ports on the Christie IMB labeled **DAS-A** or **DAS-B**. The Christie IMB does not support simultaneous switching between NAS and DAS devices. Content cannot be stored on the Christie IMB; all content must be stored on a NAS or DAS device.

13.12.1 Add a DAS

1. Verify the direct attached storage (DAS) device is connected to one of the external serial ATA (eSATA) ports on the Christie IMB labeled **DAS-A** or **DAS-B**.
2. Tap **Menu** > **Christie IMB** > **System**.
3. Tap **Storage**.
4. Tap **Add DAS**.
5. Select a DAS in the list.
6. Tap **OK**.
7. Complete the information fields for the DAS device.
8. Tap **Primary** if this is your primary DAS device.
9. Tap **OK**.
10. Tap **Save**.

13.12.2 Edit DAS Settings

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Storage**.
3. Tap a DAS device in the **DAS** list.
4. Edit the DAS settings.
5. Tap **OK**.
6. Tap **Save**.
7. Tap **OK**.

13.12.3 Delete a DAS

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Storage**.
3. Tap a DAS device in the **DAS** list.
4. Tap **Delete**.
5. Tap **Yes**.
6. Tap **Save**.
7. Tap **OK**.

13.12.4 Add a NAS

Your network-attached storage (NAS) device must be configured to use the Network File System (NFS) protocol. Christie recommends that you select the Dynamic Host Configuration Protocol (DHCP) for the NAS device. However, if the NAS device uses a static IP address, see *Configure NAS Ethernet Port IP Addresses on page 13-22*.

1. Verify the NAS device is connected to one of the gigabit Ethernet ports on the Christie IMB labeled **NAS-1** or **NAS-2**.
2. Tap **Menu** > **Christie IMB** > **System**.
3. Tap **Storage**.
4. Tap **Add NAS**.
5. Tap **Primary** if this is your primary NAS device.
6. Tap **Yes**.
7. Complete the information fields for the NAS device.
8. Tap **Refresh Share Names**.
9. Select a share in the **Share** list.
10. Tap **OK**.
11. Tap **Save**.
12. Tap **OK**.

13.12.5 Edit NAS Settings

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Storage**.
3. Tap a NAS device in the **NAS** list.
4. Edit the NAS settings.
5. Tap **OK**.
6. Tap **Save**.

13.12.6 Test NAS Connectivity

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Storage**.
3. Tap a NAS device in the **NAS** list.
4. Tap **Test Connectivity**.
5. Tap **OK**.
6. Tap **Cancel**.

13.12.7 Test NAS Performance

When testing NAS performance, use test content that is large enough to allow the test to run for 2 minutes or longer.

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Storage**.
3. Tap a NAS device in the **NAS** list.
4. Tap **Test Performance**.
5. Tap **Change** and select the test content.
6. Tap **Start Test**.
7. Tap **Close**.
8. Tap **Cancel**.

13.12.8 Refresh NAS Share Names

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Storage**.
3. Tap a NAS device in the **NAS** list.
4. Tap **Refresh Share Names**.
5. Tap **OK**.
6. Tap **Save**.
7. Tap **OK**.

13.12.9 Configure NAS Ethernet Port IP Addresses

You can configure the NAS1 and NAS2 ports on the Christie IMB to have static IP addresses. However, the NAS device typically operates on a private Ethernet connection that is not part of the theatre network.

When setting the static IP value, you are setting the IP address for the NAS port on the Christie IMB. The static IP address must be in the same subnet as the NAS device; it cannot be the same IP address as the NAS device.

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **IMB Network**.
3. Tap **Static IP**.
4. Edit the settings.
5. Tap **Save**.

13.12.10 Delete a NAS

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Storage**.
3. Tap a NAS device in the **NAS** list.
4. Tap **Delete**.

5. Tap **Yes**.
6. Tap **Save**.
7. Tap **OK**.

13.13 Manage Automation

You use automation to send and receive signals from 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 play list.
- **Input Cues** - Input cues wait for events or an Ethernet message received on TPC port 5111. An input cue in a play list waits for an event before a trailer starts. In a global trigger, a macro runs when an input cue 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 play list definitions.

To add a macro or an input cue to a playlist, see *Add Automation to a Play List on page 13-12.*

13.13.1 Add Automation Devices

To add macros or input cues to a play list, see *Add Automation to a Play List on page 13-12.*

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Devices**.
3. Tap **Add**.
4. Select a device type.
5. Tap **Accept**.
6. Enter a name for the device and then tap **Enter**.
7. Complete the **Name**, **IP Address**, **Username**, **Password**, and **Serial Command Port** fields.
8. Tap **Save**.

13.13.2 Test Connectivity to an Automation Device

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Devices**.
3. Select an automation device in the left pane.
4. Tap **Test**.
5. Tap **OK**.

13.13.3 Remove Automation Devices

1. Tap **Menu** > **Christie IMB** > **System**.

2. Tap **Automation > Devices**.
3. Select an automation device in the left pane.
4. Tap **Remove**.
5. Tap **Yes**.
6. Tap **Save**.

13.13.4 Add a Macro

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Macros**.
3. Tap **Add**.
4. Enter a name for the macro and then tap **Enter**.
5. Tap **Save**.

13.13.5 Add an Activity to a Macro

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Macros**.
3. Tap a macro in the left pane.
4. Tap **Add** in the **Macro Activities** list.
5. Select a device in the **Automation Device** list.
6. Select an activity in the **Activity Type** list.
7. Adjust the activity settings in the right pane.
8. Tap **Accept**.
9. Tap **Save**.

13.13.6 Edit Macro Activity Settings

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Macros**.
3. Tap a macro in the left pane.
4. Tap an activity in the **Macro Activities** list.
5. Tap **Edit**.
6. Edit the activity settings.
7. Tap **Accept**.
8. Tap **Save**.

13.13.7 Change the Order of Activities

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Macros**.

3. Tap a macro in the left pane.
4. Tap an activity in the **Macro Activities** list.
5. Tap the **Up** arrow to move the activity up.

   - or -

   Tap **Down** arrow to move the activity down.
6. Tap **Save**.

13.13.8 Remove an Activity

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Macros**.
3. Tap a macro in the left pane.
4. Tap an activity in the **Macro Activities** list.
5. Tap **Remove**.
6. Tap **Yes**.
7. Tap **Save.**

13.13.9 Test a Macro

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Macros**.
3. Tap a macro in the left pane.
4. Tap **Run Macro**.
5. Tap **OK**.

13.13.10 Copy a Macro

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Macros**.
3. Tap a macro in the left pane.
4. Tap **Copy**.
5. Enter a name for the macro and then tap **Enter**.
6. Tap **Save**.

13.13.11 Remove a Macro

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Macros**.
3. Tap a macro in the left pane.
4. Tap **Remove**.
5. Tap **Yes**.
6. Tap **Save**.

13.13.12 Add an Input Cue

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Input Cues**.
3. Tap **Add**.
4. Enter a name for the activity and then tap **Enter**.
5. Select an automation device in the **Automation Device** list.
6. Select an activity in the **Activity Type** list.
7. Select options from the lists in the right pane.
8. Tap **Accept**.
9. Tap **Save**.

13.13.13 Change Input Cue Settings

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Input Cues**.
3. Tap an input cue in the list.
4. Tap **Edit**.
5. Edit the input cue settings.
6. Tap **Accept**.
7. Tap **Save**.

13.13.14 Remove an Input Cue

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Input Cues**.
3. Tap an input cue in the list.
4. Tap **Remove**.
5. Tap **Yes**.
6. Tap **Save**.

13.13.15 Add a Global Trigger

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Global Triggers**.
3. Tap **Add**.
4. Select an automation device in the **Automation Device** list.
5. Select an activity in the **Activity Type** list.
6. Select a trigger action in the **Execute Macro** list.
7. Tap **Accept**.
8. Tap **Save**.

13.13.16 Change Global Trigger Settings

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Global Triggers**.
3. Tap a global trigger in the list.
4. Tap **Edit**.
5. Edit the global trigger settings.
6. Tap **Accept**.
7. Tap **Save**.

13.13.17 Remove a Global Trigger

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **Automation > Global Triggers**.
3. Tap a global trigger in the list.
4. Tap **Remove**.
5. Tap **Yes**.
6. Tap **Save**.

13.14 Manage Audio Settings

To set your audio settings, complete these tasks:

- Enter a name for each speaker, and then associate it with a specific AES output. See *Map Speakers on page 13-27*.
- Map the channel output to a specific speaker. See *Map Channels on page 13-27*.

13.14.1 Map Channels

1. Verify the digital cinema audio processor is connected to the AES3 port on the Christie IMB.
2. Tap **Menu** > **Christie IMB** > **System**.
3. Tap **Audio > Channel Mapping**.
4. Select a surround sound type in the **Mapping** list.
5. Select a channel in the **Channel** list for each of the speakers in your set up.
6. Tap **Save**.

13.14.2 Map Speakers

1. Verify the digital cinema audio processor is connected to the AES3 port on the Christie IMB.
2. Tap **Menu** > **Christie IMB** > **System**.
3. Tap **Audio > Speaker Mapping**.
4. Select a delay in milliseconds in the **Delay (ms)** list.
5. Select an audio rate from the **Audio Rate** list.

6. Enter the name of the speaker that corresponds to the AES output number in the **Speaker Name** field.
7. Select a speaker in the **Speaker Test** list and then tap **Test** to test the speaker mapping. A tone emits from each speaker that you mapped.
8. Tap **OK** to stop speaker testing.
9. Tap **Save**.

13.15 Upgrade Software

You upgrade the Christie IMB and the projector software separately. The Christie IMB upgrade file includes the .pkg extension. To upgrade the Christie IMB software, you upload the new software to the Christie IMB and then run the upgrade. Software upgrades are available on the Christie web site.

13.15.1 Upload the Christie IMB Software Upgrade Package

1. Insert a USB flash drive with the upgrade package into the USB port on the side of the touch panel controller (TPC).
2. Tap **Menu** > **Christie IMB** > **System**.
3. Tap **General** > **IMB Upgrade**.
4. Tap **Browse** and browse to the location of the file.
5. Select the file.
6. Tap **Accept**.

13.15.2 Install the Christie IMB Software Upgrade package

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **General** > **IMB Upgrade**.
3. Select an upgrade file in the **Upgrade Files on Server** list.
4. Select **Full Install** to upgrade all files.

   - or -

   Select **Differences** to upgrade the files that are different from the upgrade file.

   - or -

   Select **Factory Install** to upgrade all files to the factory settings.
5. Tap **Upgrade**.
6. Tap **Yes**.

13.15.3 Delete an Upgrade File

1. Tap **Menu** > **Christie IMB** > **System**.
2. Tap **General** > **IMB Upgrade**.
3. Select an upgrade file in the **Upgrade Files on Server** list.
4. Tap **Delete**.

5. Tap **Yes**.
6. Tap **OK**.

13.16 Logs

You can use logs to identify issues with Christie IMB performance. These are the available logs:

- **Screen Management System (SMS)** - shows the date and time of important events and errors that occurred during SMS operation.
- **Security Manager (SM)** - shows the date and time of events during the security manager operation
- **SM report** - a XML-style report that meets the SMPTE 430-4 and SMPTE 430-5 reporting requirements.

You can download the SMS and SM logs to a USB flash device. You cannot view SM reports on the touch panel controller (TPC) or your internet browser; they must be downloaded to a USB flash device.

13.16.1 Retrieve SMS Logs

1. Tap **Menu** > **Christie IMB** > **Logs**.
2. Select a start date for the log in the **From** list.
3. Select an end date for the log in the **To** list.
4. Select **SMS** in the **Type** list.
5. Tap **Retrieve Logs**.

13.16.2 Retrieve SM Logs

1. Tap **Menu** > **Christie IMB** > **Logs**.
2. Select a start date for the log in the **From** list.
3. Select an end date for the log in the **To** list.
4. Select **SM** in the **Type** list.
5. Tap **Retrieve Logs**.

13.16.3 View Log Detail

1. Tap **Menu** > **Christie IMB** > **Logs**.
2. Select a start date for the log in the **From** list.
3. Select an end date for the log in the **To** list.
4. Select **SMS** or **SM** in the **Type** list.
5. Tap **Retrieve Logs**.
6. Tap a log in the list.
7. Tap **View Details**.

13.16.4 Download an SMS or SM Log

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).

2. Tap **Menu** > **Christie IMB** > **Logs**.
3. Select a start date for the log in the **From** list.
4. Select an end date for the log in the **To** list.
5. Select **SMS** or **SM** in the **Type** list.
6. Tap **Retrieve Logs**.
7. Tap **Download**.

   The logs are saved as a compressed file named Cinema Logs.zip. All times displayed in the log are Coordinated Universal Time (UTC).

13.16.5 Download an SM Report

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).
2. Tap **Menu** > **Christie IMB** > **Logs**.
3. Select a start date for the log in the **From** list.
4. Select an end date for the log in the **To** list.
5. Select **SM Report** in the **Type** list.
6. Tap **Download**.

13.16.6 Clear the Log List

Clearing the log list refreshes the screen and does not remove log files from memory.

1. Tap **Menu** > **Christie IMB** > **Logs**.
2. Tap **Clear Logs**.

14 View 3D Content

This section provides information and procedures for setting up and managing 3D presentations.

14.1 Display Requirements

To display 3D images with the Solaria One projector, you require these items:

- A 3D hardware system:
  - Pi-Cell polarizer for display on a screen that has a silver polarization-preserving surface for use with passive glasses (RealD).
  - Rotating polarizing wheel (external) with passive circular polarizing glasses (MasterImage). Requires a silver screen.
  - IR emitter for controlling the left eye/right eye gating (switching) of active glasses (Xpand).
  - Dual projector 3D - passive glasses (circular or linear). Requires a silver screen.
- A 3D connection cable.
- Power supply for your synchronization output device. The 3D sync port can power output devices.

14.2 3D Sync Terminal PIN Map

The 3D Sync terminal is a 15-pin D-sub connector (female) located on the projector communications panel. This table lists the control functions available through the 3D connector.

PIN	SIGNAL NAME	DIRECTION	DESCRIPTION
1	+12V	Out	Power to 3D device. Maximum 1A (total between both +12V pins).
2	GND	/	Ground
3	GND	/	Ground
4	RS232_RX	In	Data to projector from 3D device. 1200 Baud, 8 bits, no parity. Currently unsupported.
5	RS232_TX	Out	Data to projector from 3D device. 1200 Baud, 8 bits, no parity. Currently unsupported.
6	CONN_3D_MODE+	Out	SYNC from projector. To projector GPO collector. Compatible with current projector GPIO requirements and restrictions. (24VDC max, 50mA max) 3D ON = Hi logic level = O/P transistor ON 3D OFF = Low logic level = O/P transistor OFF
7	CONN_SYNC+	Out	SYNC from projector. To projector GPO collector. Compatible with current projector GPIO requirements and restrictions. (24VDC max, 50mA max)
8	3D_INPUT_REFRERENCE+	In	3D L/R Input Reference (P) (Voltage Limit: 2 VDC to 12VDC)
9	+12V	Out	Power to 3D system. Maximum 1A (Total between both +12V pins)
10	3D_INPUT_REFRERENCE-	In	3D L/R Input Reference (N) (Voltage limit: 1.4VDC to 12VDC)
11	3D_DISPLAY_REFERENCE+	In	3D L/R Input Reference (P) (Voltage limit: 1.4VDC to 12VDC)
12	3D_DISPLAY_REFERENCE-	In	3D L/R Input Reference (P) (Voltage limit: 1.4VDC to 12VDC)
13	CONN_3D_MODE-	Out	3D mode state from projector. From projector GPO emitter. Compatible with current projector GPIO requirements and restrictions. (24VDC max, 50mA max)

14	CONN_SYNC-	Out	SYNC from projector. From projector GPO emitter. Compatible with current projector GPIO requirements and restrictions. (24DC max, 50mA max)
15	Not connected		

14.3 Hardware Setup

Use an infrared emitter to control gating in active glasses, a polarizing Z-screen (Pi-cell) with passive glasses or filter wheel with passive glasses.

	RealD Z-screen	RealD XL Box	Xpand	Master Image	Dual Projector
Installed/ Mounted Components	Z-screen mounted in front of the projection lens	XL box mounted in front of the projection lens	None	Wheel installed in front of the projector	Polarizing plates in front of lenses
Silver Screen	Yes	Yes	No	Yes	Yes
3D Glasses	Polarizing circular glasses	Polarizing circular glasses	Active glasses	Circular polarized glasses	Polarizing circular or linear glasses

14.4 Configure Dual Projectors for 3D

When you install dual projectors, audio is only available from the master projector. To play content correctly, you must ingest content into both projectors and each projector must have a valid Key Delivery Message (KDM) key.

When using dual projectors, you create playlists on the master projector only. If you are using an automation device such as a Christie ACT, connect it to the master projector.

For optimal image quality, it is recommended that you assign each projector a left or right eye role. In addition, make sure the projectors are correctly aligned to each other every time you display content.

You can select **Active Dual Enabled** if you are using an active 3D system and want to send left and right images to both projectors. However, this methodology is not recommended for dual projector 3D presentations. When you select **Active Dual Enabled**, you cannot change the **Master 3D Eye Selection** or **3D Eye Selection** fields.

1. Install and align your dual projectors following the instructions provided with each projector. See *Installation and Setup on page 1-1*.
2. Connect each projector to a NAS or DAS device. A single NAS or DAS device cannot be shared by multiple Christie IMBs. See *Connect the Projector to Network-attached Storage on page 1-14* or *Connect the Projector to Direct-attached Storage on page 1-14*.
3. Connect an Ethernet cable to each projector and then connect the cables to the same switch. Assign each projector an IP address that is on the same subnet. See *Add the Projector to a Network on page 1-17*.
4. Connect one end of a 50 ohm BNC cable to the **Sync Out** connector on the master projector and then connect the other end to the **Gen Lock** connector on the slave projector.
5. On the master projector touch panel controller (TPC), tap **Menu** > **Christie IMB** > **System** > **Multi Projector.**

6. Tap **Master SMS Enable**.
7. Tap **Enabled** in the **Slave SMS Settings** area.
8. Select right or left eye for the master projector in the **Master 3D Eye Selection** list.
9. Enter a description for the slave projector in the **Description** field.
10. Enter the IP address of the slave projector in the **IP Address** field.
11. Select right or left eye for the slave projector in the **3D Eye Selection** field.
12. Tap **Save**. If the circle below **Slave SMS Connected** is not green, see *My hard drive is not detected when I ingest content on page 15-4*.

14.5 Create a High Frame Rate 3D File

Use this procedure to create 24Hz, 48Hz, and 60Hz high frame rate 3D files. These files allow you to display content with different frame rates consecutively.

1. Tap **Menu** > **Advanced Setup** > **High Frame Rate 3D File Setup**.
2. Select a 3D frame rate file in the **Current 3D File** list.
3. Complete these fields:

Field	Description
3D Sync Input Mode	Specifies whether a specific frame of input data has left eye or right eye data. Select Use White Line Code (true and inverted) if you are using a single 3D input signal in which an embedded white line at the bottom of each frame identifies left and right, and an additional separate 3D stereo sync input at the GPIO port is not present. The bottom row of the left-eye sub-field should be pure white for the left-most 25% of the pixel row and pure black for the remainder of the row. The bottom row of the right-eye sub-field should be pure white for the left-most 75% of the pixel row and pure black for the remainder of the row. Select Use Line Interleave for 3D source data only. When specified, the ICP will de-interleave each line into the left image or right image in memory as specified. Line interleave can be used with PsF 3D data (left and right data for one field, then left and right data for second field).
L/R Display Reference	Specifies which frame of eye data to display during a specific display frame. This signal is referenced to the display frame rate which is specified by the Frame Rate N:M.
Frame Rate N:M	Sets how many frames to display per number of frames that form one complete image. Increase the display frame rate to reduce flicker from your source(s).
L/R Display Sequence	Defines the frame order (L-R or R-L) required for 3D perspective. This option only has meaning when the Frame Rate factor M is equal to 2. For this case, 2 input frames of data are required to constitute a complete frame of image data. This parameter tells the system which frames go together to make a complete image. **NOTE**: *When using **Line Interleave** as the **3D Sync Input Mode**, ensure that **Left (L1R1 L2R2)** is selected.*
3D Sync Polarity	Keeps 3D stereo sync output the same as input (true) or reversed (inverted). **True**: 3D L/R sync output from GPO will match L/R sync input. **Inverted**: 3D L/R sync output from GPO will be the opposite of sync input (left = right, right = left).

Field	Description
Dark Time	Creates a blank time interval between left and right frames to allow for LCD shutter glasses, Z screen, or rotating 3D wheel to synchronize the output. See Dark Time and Output Delay Notes below. Values between 0 and 65535 are accepted. Tap the **Launch Dialog** button ... to enter the dark time value.
Output Delay	The non-image time in Microseconds (µ). Offset 3D stereo sync output in relation to dark time interval. Acceptable values are between -32768 and 32767 are accepted where a positive offset = delay and negative offset = start early. Tap **Launch Dialog** to enter the output delay value.
Phase Delay	The degree of reference between the left and right sync output. Values between -180 and 180 are accepted. Tap **Launch Dialog** to enter the phase delay value.

4. Tap **Save**.

14.6 Edit the Default 3D Lamp File

For 3D images to display correctly, you must edit the default 3D lamp file to match the specifications of your 3D hardware.

1. Tap **Menu** > **Advanced Setup** > **Lamp Power / LiteLOC™ Setup**.
2. Select **Default 3D** in the **Current Lamp File** list.
3. Set the brightness percentage for the lamp in the **Power %** field**.**
4. Tap **Save**.

14.7 Define a Measured Color Gamut Data File

For 3D images to display correctly, you must define an MCGD file to match the specifications of your 3D hardware.

1. Turn the lamp on and allow it to operate for 20 minutes.
2. Tap **Menu** > **Advanced Setup > MCGD File Setup**.
3. Hold a pair of 3D glasses in front of the light meter to determine the new x and y color coordinates for Red, Green, Blue, and White. Use the same light path that you use to display a show.
4. Enter the x and y values in the **Red**, **Green**, **Blue** and **White** fields.
5. Tap **Save As**.
6. Enter **3D Onsite** in the **File Name** field.
7. Tap **Save**.

14.8 Edit the 3D Flat 1998 x 1080 Channel

1. Tap **Menu** > **Channel Setup**.
2. Select **3D Flat 1998x1080** in the **Channel Name** list.
3. Tap **Config 1** in the left pane and edit these settings:
   a. Select **292-Dual** in the **Input** list.

b. Select **YCrCb 4:2:2 10 bits x2** in the **Data Format** list.

c. Select **1998x1080 1.85 Flat** in the **Source File** list.

d. Select **Flat** in the **Screen File** list.

4. Tap **Config 2** in the left pane and edit these settings:

a. Select **3D Onsite** in the **Measured Color** list. If this option is not available, see Define a Measured Color Gamut Data File on page 14-4.

b. Select **DC28_DCIXYZE_314_351** in the **Target Color** list.

c. Select **YCxCz Inverse ICT** in the **Color Space** list.

d. Select **Gamma 2.6** in the **Gamma** list.

e. Select **Linear_9x9x9** in the **LUT-CLUT** list.

5. Tap **3D Control** in the left pane and edit these settings:

a. Select **Line Interleave** in the **3D Sync Input Mode** list.

b. Select a frame rate suitable to your 3D system in the **Frame Rate N:M** list. For example, for 24Hz 3D, select 2:2, 4:2, or 6:2 for single, double, and triple flash.

c. Select **Left (L1R1 L2R2)** in the **L/R Display Sequence** list.

d. Select **True** in the **3D Sync Polarity** list.

e. Enter **430** in the **Dark Time** field or enter a value appropriate for your 3D hardware.

f. Enter **-120** in the **Output Delay** field or enter a value appropriate for your 3D hardware.

g. Enter **0** in the **Phase Delay** field or enter a value appropriate for your 3D hardware.

14.9 Edit the 3D Scope 2048 x 858 Channel

1. Tap **Menu** > **Channel Setup**.
2. Select **3D Scope 2048x858** in the **Channel Name** list.
3. Tap **Config 1** in the left pane and edit these settings:

a. Select **292-Dual** in the **Input** list.

b. Select **YCrCb 4:2:2 10 bits x2** in the **Data Format** list.

c. Select **2048x858 2.39 Scope** in the **Source File** list.

d. Select **Scope** in the **Screen File** list.

4. Tap **Config 2** in the left pane and edit these settings:

a. Select **3D Onsite** in the **Measured Color** list. If this option is not available, see Define a Measured Color Gamut Data File on page 14-4.

b. Select **DC28_DCIXYZE_314_351** in the **Target Color** list.

c. Select **YCxCz Inverse ICT** in the **Color Space** list.

d. Select **Gamma 2.6** in the **Gamma** list.

e. Select **Linear_9x9x9** in the **LUT-CLUT** list.

5. Tap **3D Control** in the left pane and edit these settings:
   a. Select **Line Interleave** in the **3D Sync Input Mode** list.
   b. Select **6:2** in the **Frame Rate N:M** list.
   c. Select **Left (L1R1 L2R2)** in the **L/R Display Sequence** list.
   d. Select **True** in the **3D Sync Polarity** list.
   e. Enter **430** in the **Dark Time** field or enter a value appropriate for your 3D hardware.
   f. Enter **-120** in the **Output Delay** field or enter a value appropriate for your 3D hardware.
   g. Enter **0** in the **Phase Delay** field or enter a value appropriate for your 3D hardware.

14.10Display 3D Diagnostic Test Patterns

You can use 3D test patterns to verify your 3D hardware is functioning correctly.

1. Tap **Menu** > **Channel Setup**.
2. Select a 3D channel in the **Channel Name** list.
3. Tap **3D Test Patterns**.
4. Tap a test pattern.
5. Put on a pair of 3D glasses.
6. Look at the on-screen image, and then close your left eye and look at the image through your right eye. Switch when the image alternates.

3D Test Pattern	Action
RGB-12bit -3D Dynamic Range	Alternates between 2 images.
RGB-12bit-3D Four Quadrant	Alternates between 2 images.
RGB-12bit-3D Full White	Alternates between 2 100% white images.
RGB-12bit-3D Half Descending	Alternates between 4 images.
RGB-12bit-3D Horizontal Ramp	Alternates between 2 horizontal ramp images.
RGB-12bit-3D L-Pattern	Alternates between 2 images.

14.11 Verify 3D Cinema Content

1. Put on a pair of 3D glasses.
2. Play the 3D content.
3. Verify the left and right eye display correctly.
4. If the image is reversed:
   a. Tap **Menu** > **Channel Setup** on the projector touch pad controller (TPC).
   b. Select a 3D channel in the **Channel Name** list.
   c. Select **Inverted** in the **3D Sync Polarity** list.

15 Troubleshooting

This section provides information and procedures for resolving common projector issues.

If you are unable to resolve your issue, contact Christie support. In order that a support representative can better assist you, have the model and serial number of your projector ready. For contact information for your region, see the back cover of this document.

15.1 Projector Functionality

Projector Does Not Turn On

- Verify the power cord is connected to the projector and the AC power supply correctly and the input selector switch is in the correct position.
- Verify the wall circuit breaker is on. If there is a problem with the wall circuit breaker turning off, contact a certified electrician.
- Verify the touch panel controller (TPC) is on and the LEDs on the input panel are illuminated. If the TPC is off and there are no LEDS illuminated, verify the AC outlet to which the projector is connected is working and the TPC is connected to the projector. If the AC outlet is working and the TPC is connected to the projector, contact Christie support.
- If the TPC is connected to the projector and the LEDs on the input panel are illuminated, on the TPC, verify in the **Operational Status** region of the **Main** panel does not indicate a PIBS1 failure.

Touch Panel Controller

- If the TPC fails to initialize, restart the projector.
- If the TPC fails to initialize, make sure the compact flash on the left side is installed correctly.
- Make sure the TPC is connected to the projector.
- If the location of button presses on the screen are not interpreted correctly, the TPC screen may need recalibrating. Tap **Menu** > **Administrator Setup > Preferences**. Tap **Calibrate Screen** and follow the onscreen instructions.

Cannot Establish Communication with Projector

Verify all input devices have the same subnet mask and gateway and unique IP addresses.

15.2 Lamp Functionality

Lamp Does Not Ignite

- Tap **Menu** > **Advanced Setup** > **Lamp History** and verify the number of hours the lamp has operated. Replace a lamp nearing the end of its operational life.
- Tap **Menu** > **Status** and then **Interlocks** in the left pane. Check and correct all interlock failures.
- Tap **Menu** > **Status** and then **All Alarms** in the left pane. If a ballast communication error has occurred, restart the projector and turn the lamp on.
- Tap **Menu** > **Status** and then **Temperatures** in the left pane. Verify if the DMD temperatures are too high. If the temperatures are too high, cool the projector. Make sure the projector is properly ventilated and the air filters are not blocked.

- Listen for a clicking noise that indicates the ballast is attempting to strike the lamp. If you do not hear a clicking noise, there might be a problem with the ballast. Contact a Christie accredited service technician to resolve the issue.
- If you hear a brief clicking noise, but the lamp does not ignite, replace the lamp.

Lamp Suddenly Turns Off

- Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC Setup**. Increase the lamp power.
- Tap **Menu** > **Status** and then **Interlocks** in the left pane. Review and correct all interlock failures.
- Tap **Menu** > **Status** and then **Temperatures** in the left pane. Verify if the DMD temperatures are too high. If the temperatures are too high, cool the projector. Make sure the projector is properly ventilated and the air filters are not blocked.
- Replace the lamp.

LiteLOC™ Not Working

- Tap **Menu** > **Advanced Setup** > **LampPower/LiteLOC™ Setup.** Tap **Enable LiteLOC™**.
- If the lamp power is at the maximum setting to maintain a LiteLOC™ setting, LiteLOC™ is automatically disabled. Reduce the LiteLOC™ setting, or install a new lamp.

15.3 Display Issues

Flicker, Shadows, or Dimness

- Make sure the douser is open.
- Align the lamp. See *Align the Lamp on page 1-18.*
- Tap **Menu** > **Advanced Setup** > **LampPower/LiteLOC™ Setup**. Monitor the **Power %** field to determine if the power is consistent or if it varies. Increase the lamp power. Lamps which are near end of service may not operate reliably at a lower power setting.
- Fold mirror misalignment. Contact your Christie accredited service technician to resolve the issue.
- Integrator rod misalignment. Contact your Christie accredited service technician to resolve the issue.

Blank Screen, No Display of Cinema Image

- Make sure the lens cap is not on either end of the lens.
- Make sure the lamp is on.
- Confirm all power connections are connected correctly.
- Make sure the douser is open on **Main** screen.
- Make sure any test pattern other than the full black test pattern displays properly.
- Verify the correct display file is selected.
- For cinema connections, verify the correct port is selected.

Severe Motion Artifacts

Verify if there is a synchronization problem with reversed 3-2 pull-down in the 60Hz-to-24Hz film-to digital conversion and correct it at the source.

Image Appears Vertically Stretched or Squeezed into Center of Screen

Open the Source File Setup window and verify the resolution and aspect ratio settings. Open the Screen File Setup window and verify the lens factor settings

Inaccurate Display Colors

Adjust the color, tint, color space, and color temperature settings of your input source. Tap **Menu** > **Channel Setup**. Tap **Config 1** in the left pane and verify the correct value is selected in the **PCF** list. Tap **Config 2** in the left pane and verify the correct value is selected in the **Color Space** field.

Display is Not Rectangular

- Verify the projector is level and the lens surface and screen are parallel to one another.
- Adjust the vertical offset of the lens mount with the vertical offset knob.
- Tap **Menu** > **Advanced Setup** > **Screen File Setup** and verify the settings for the screen file are correct.

Display is Noisy

- Adjust the input source pixel tracking, phase, and filter.
- Verify the cables connecting the input device to the projector meet the minimum requirements.
- Add signal amplification or conditioning if the distance between the input device and the projector exceeds 25 feet.

Display has Suddenly Frozen

Turn off the projector and unplug the power cord from the power source. Plug the projector power cord into a power source and turn the projector on.

The Projector is On, but Alternate Content Does Not Display

- Make sure the lens cover is removed from the lens.
- Make sure the lamp is on.
- Make sure the douser is open.
- Tap on the main TPC screen. If the lamp does not strike, see *Lamp Functionality on page 15-1*.
- Tap **Menu** > **Channel Setup**. Verify the correct channel is selected and the settings are correct.
- Make sure an active source is connected properly. Check the cable connections and make sure the alternative source is selected.
- Verify you can select test patterns. If you can, check your source connections again.

The Display is Jittery or Unstable

- Verify that the input device is connected properly. If the input device is not connected properly, the projector repeatedly attempts to display an image.
- The horizontal or vertical scan frequency of the input signal may be out of range for the projector.
- The sync signal may be inadequate. Correct the source problem.

Portions of the Display are Cut Off or Warped to the Opposite Edge

If you have resized the image, adjust the resizing settings until the entire image is visible and centered.

Inconsistent Picture Quality

- Verify the quality of the signal from the input source.

During playback, flashes of light appear on the screen

There might be insufficient bandwidth to stream content from the NAS or DAS device to the Christie IMB. To correct this issue:

- Test your NAS device to determine if it can maintain the required bandwidth to stream content to the Christie IMB. See *Test NAS Performance on page 13-22.*
- Change the file system protocol on the NAS device to Network File System (NFS).
- Verify that the NAS device is connected directly to the Christie IMB NAS port.
- Verify that no other devices are connected to the Christie IMB NAS port.

15.4 Christie IMB

Play 3D Content at Frame Rates Higher than 30 frames per second (FPS)

A license is required to play high frame rate 3D content. To determine if you have a 3D license, tap Christie IMB > System > Licenses. If you have a 3D license, it appears in the licenses list.

My hard drive is not detected when I ingest content

The file system might be corrupted. To resolve a corruption issue, connect the device containing the content you want to ingest to a personal computer (PC) and run a file system check.

Ingest drives can contain Microsoft Windows (FAT, NTFS) or Linux (ext3, ext4) file systems.

What is my Christie IMB serial number?

Tap **Menu** > **Christie IMB** > **System > Status**. Tap **System** in the **Category** list. The serial number appears in the **SM Serial Number** field.

You can also find the serial number on the communications panel. The 12-digit serial number begins with the prefix **eSN**.

I cannot complete IMB marriage

Verify:

- All card cage faceplate screws are properly secured.
- The security door is on and it is locked.

Unload all content:

- Tap **Menu** > **Christie IMB** > **Control**.
- Tap the **Unlock** icon.
- Tap **Unload Content**.

15.5 3D Troubleshooting

In addition to the information provided in this topic, it is also recommend that you consult the documentation provided with your 3D hardware to help resolve issues.

Reversed 3D Effect (Pseudo 3D)

- Put your 3D glasses on upside down so the left lens is over your right eye and the right lens is over your right eye.
- If the image appears correct:
  - Tap **Menu** > **Channel Setup** on the projector touch pad controller (TPC).
  - Select a 3D channel in the **Channel Name** list.
  - Select **Inverted** or **True** in the **3D Sync Polarity** list.

Image Breakup

- Tap **Menu** > **Channel Setup**.
- Select a 3D channel in the **Channel Name** list.
- Tap **3D Control** in the left pane.
- Lower the **Dark Time** field value to match the values of your 3D system.

Image is Too Dark

The lamp power for 3D content is typically twice as high as for 2D content except when you are using a RealD XL device.

- Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC™ Setup.**
- Increase the value in the **Power %** field.

No 3D Effect

- Tap **Menu** > **Channel Setup**.
- Select a 3D channel in the **Channel Name** list.
- Tap **3D Control** in the left pane.
- Verify **Enable 3D** is selected.

Ghosting / Cross-talk

- Tap **Menu** > **Channel Setup**.
- Select a 3D channel in the **Channel Name** list.
- Tap **3D Control** in the left pane.
- Raise or lower the **Dark Time** field value.
- Raise or lower the **Output Delay** field value to match the values of your 3D system.

Motion Artifacts

- Tap **Menu** > **Channel Setup**.
- Select a 3D channel in the **Channel Name** list.
- Tap **3D Control** in the left pane.
- Select **Left (L1R1 L2R2)** in the **L/R Display Sequence** list.

Disturbing Flashing in One Eye

- Tap **Menu** > **Channel Setup**.
- Select a 3D channel in the **Channel Name** list.
- Tap **3D Control** in the left pane.
- Select **Left (L1R1 L2R2)** in the **L/R Display Sequence** list

16 Maintenance

This section provides information and procedures for performing projector maintenance. You should read through this section in its entirety before performing maintenance activities. When you perform projector maintenance, obey all warnings and precautions.

16.1 Inspect Ventilation

Vents and louvers in the projector covers provide ventilation, both for intake and exhaust. Never block or cover these openings. Do not install the projector near a radiator, heat register, or within an enclosure. To make sure there is adequate airflow around the projector, keep a minimum clearance of 50cm (19.69”) on the left and right sides of the projector.

It is recommended that you periodically check that the LVPS fan is operating. It is not monitored and a failure can cause damage to the projector.

16.2 Inspect the Lamp

⚠ DANGER Always disconnect from AC and wear authorized protective safety gear.

- Check the contact surfaces of the anode (positive) and the cathode (negative) connections for cleanliness.
- Clean electrical contact surfaces every 5000 hours or after two lamp changes to prevent contact resistance from scorching connectors. Use an approved contact cleaner.
- Verify that all electrical and lamp connections are secure.

16.3 Inspect and Clean Optics

Unnecessary cleaning of optics can increase the risk of degrading delicate coatings and surfaces. If you are not a qualified service technician, you can only inspect and clean the lens. Do not perform maintenance on other optical components. Check these components periodically in a clean, dust-free environment using a high-intensity light source or flashlight. Clean them only when dust, dirt, oil, fingerprints or other marks are obvious on the projected image. Never touch an optical surface with your bare hands. Always wear latex lab gloves.

These are the recommend tools for removing dust or grease:

- Soft camel-hair brush
- Dust-free blower - filtered dry nitrogen blown through an anti-static nozzle.
- Dust-free lens tissue, such as Melles Griot Kodak tissues (18LAB020), Opto-Wipes (18LAB022), Kim Wipes or equivalent.
- For the lens only - lens cleaning solution such as Melles Griot Optics Cleaning Fluid 18LAB011 or equivalent
- Cotton swabs with wooden stems.
- Lens cleaning cloth or microfiber such as Melles Griot 18LAB024 or equivalent.

16.3.1 Clean the Lens

A small amount of dust or dirt on the lens has minimal effect on image quality-to avoid the risk of scratching the lens, clean the lens only if absolutely required.

Remove Dust

1. Brush most of the dust off with a camelhair brush or use a dust-free blower.
2. Fold a microfiber cloth and wipe the remaining dust particles off the lens with the smooth portion of the cloth that has no folds or creases. Do not apply pressure with your fingers. Instead, use the tension in the folded cloth to remove the dust.
3. If significant dust remains on the lens surface, dampen a clean microfiber cloth with lens cleaning solution and wipe gently until clean.

Remove Fingerprints, Smudges, or Oil

1. Brush most of the dust off with a camelhair brush or use a dust-free blower.
2. Wrap a lens tissue around a swab and soak it in lens cleaning solution. The tissue should be damp but not dripping.
3. Gently wipe the surface using a figure eight motion. Repeat until the blemish is removed.

16.4 Replace the Lamp

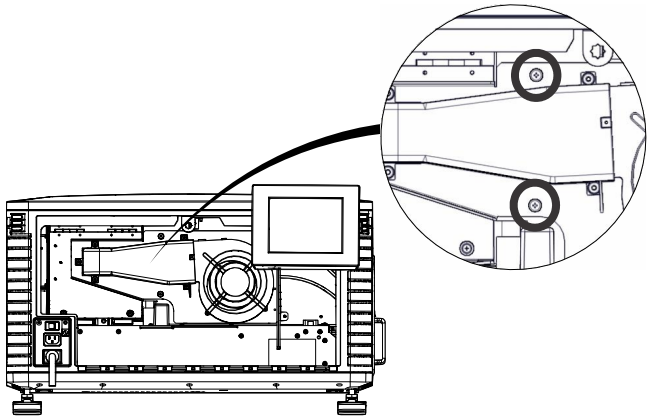
⚠ DANGER 1)Lamp replacement must be performed by a qualified service technician. 2) EXPLOSION HAZARD. Wear authorized protective clothing whenever the lamp door is open and when handling the lamp. Never twist or bend the quartz lamp body. Use the correct wattage lamp supplied by Christie. 3) Make sure those within the vicinity of the projector are also wearing protective safety clothing. 4) Never attempt to remove the lamp when it is hot. The lamp is under pressure when hot and may explode, causing personal injury, death, or property damage. Allow the lamp to cool completely before replacing it.

⚠ WARNING Improper installation of the lamp can damage the projector.

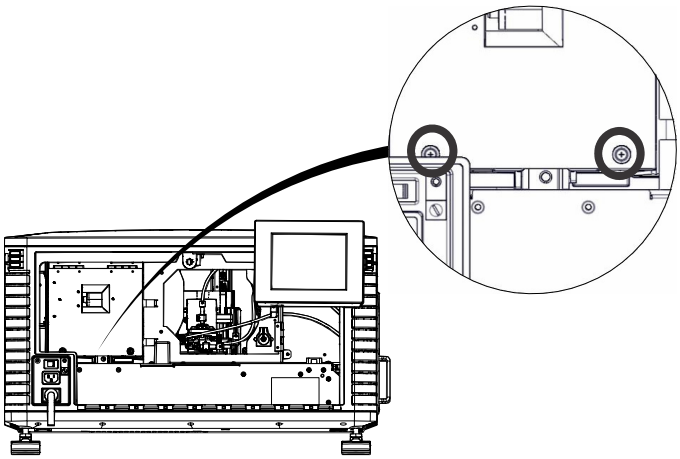
16.4.1 Remove the Existing Lamp

1. Tap and hold the red power button on the TPC **Main** panel to turn the lamp and projector off.
2. Allow the lamp to cool for a minimum of 15 minutes.
3. Unplug the projector.
4. Put on your protective clothing and face shield.
5. Insert the key in the lock on the lamp door, turn the key, and then open the lamp door. Do not place heavy objects on the open lamp door.

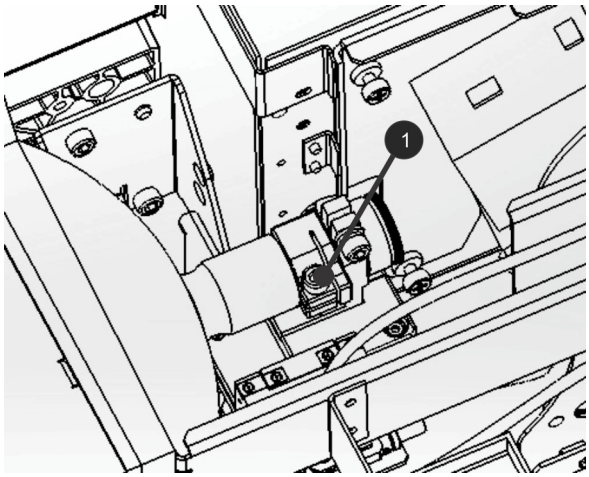
6. Loosen the 2 thumbscrews and open the firewall door.



7. Loosen the two thumbscrews and open the lamp access door.



8. Remove the screw securing the anode wire. It is recommended that you use a 5 mm magnetized ball driver.
9. **For CDXL-14 or CDXL-16 lamps**:
   a. Loosen the extension nut screw (**1**).

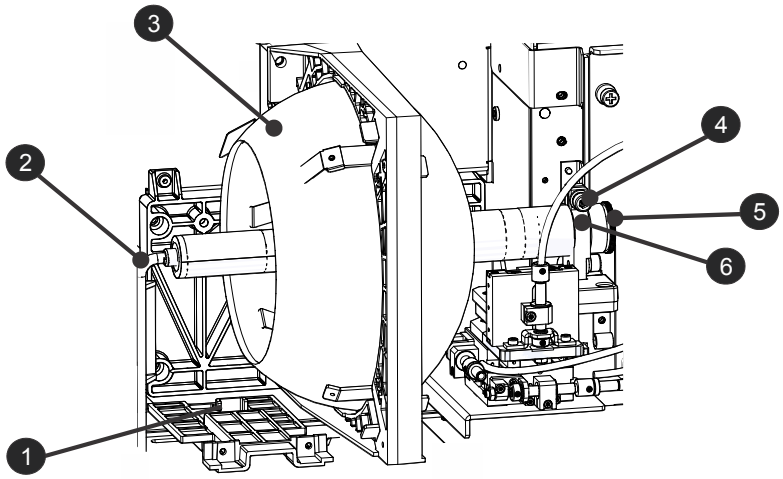


b. Hold the cathode end of the lamp with your right hand and the anode end with your left hand and carefully turn the lamp with your right hand so that it unthreads from the extension nut. Make sure the lamp does not contact the reflector or the UV filter.

c. With your left hand guide the cathode end of the lamp out of the reflector, on an angle through the lamp access door.

10. **For the CDXL-21S1 lamp**:

a. Loosen the cathode screw (**4**) on the cathode clamp (**6**).



1	Anode Terminal
2	Anode Wire
3	Reflector
4	Cathode Screw
5	Cathode Nut
6	Cathode Clamp

b. Hold the anode end of the lamp with your left hand and then carefully unscrew and remove the cathode nut with your right hand (**5**).

c. As you hold the anode end of the lamp, carefully guide the lamp through the reflector ensuring not to make contact with the reflector.

d. With your right hand guide the cathode end out of the reflector, on an angle through the lamp access door.

11. Open a protective lamp case and then place the old lamp into the case. Thread the cathode nut onto the lamp, close the protective case, and then place the lamp within the case, on the floor where it cannot fall or be bumped. **WARNING! Handle the protective case with extreme caution - the lamp is hazardous even when packaged. Dispose of lamp box according to local area safety regulations.**

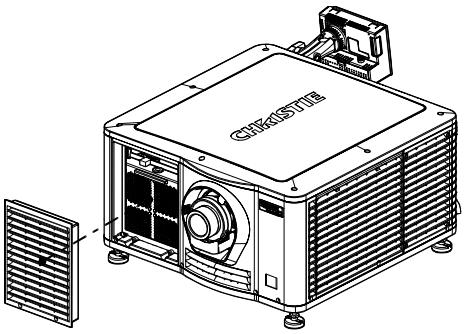
16.4.2 Install the New Lamp

⚠ CAUTION Handle the lamp by the cathode/anode end shafts only, never the glass. DO NOT over-tighten. DO NOT stress the glass in any way. Check leads. Make sure the anode (+) lead between the lamp and igniter is well away from any projector metal, such as the reflector or fire wall.

1. Remove the existing lamp. See *Remove the Existing Lamp on page 16-2.*
2. Open the box containing the new lamp and then remove the tape from the ends of the protective lamp case.
3. Remove the plastic packing material from the lamp.
4. Remove the cathode nut from the lamp before removing it from the case.
5. **For CDXL-14 or CDXL-16 lamps**:
   a. Install the lamp extension nut on the cathode clamp. To provide access to the locking screw on the extension nut, rotate the extension nut until the locking screw faces upward toward the projector lid.
   b. Tighten the cathode screw (**4**) with a hex key. See diagram page 16-4.
   c. Thread on and hand-tighten the cathode nut. Ensure the smooth portion of the nut is against the cathode clamp.
   d. Hold the anode end of the new lamp in your left hand and angle it up through the hole in the back of the reflector assembly. Insert your right index and middle finger through the back of the reflector and thread the cathode end of the lamp into the extension nut. When threading the lamp into the extension nut, make sure the anode wire does not hit the reflector or the UV filter.
   e. Tighten the extension nut screw.
   f. Move to step 7.
6. **For the CDXL-21S1 lamp**:
   a. Hold the anode end of the new lamp in your left hand and angle it up through the hole in the back of the reflector assembly. Insert your right index and middle finger through the back of the reflector and guide the lamp onto the cathode clamp. Be careful not to hit the lamp against the reflector
   b. Thread on and hand-tighten the cathode nut. Ensure the smooth portion of the nut is against the cathode clamp.
   c. Tighten the cathode screw (**4**) with a hex key. See diagram page 16-4.
7. Align the ring terminal on the anode wire (**2**) with the mounting position ensuring the crimped side of the wire is facing out. Tighten the anode screw (**1**). See diagram page 16-4. **NOTE:** *Route anode lead away from nearby metal surfaces.*
8. Close the lamp access door and tighten the 2 thumbscrews.
9. Close the firewall door and tighten the 2 thumbscrews.
10. Close and lock the rear access door. **NOTE:** *Ensure the hex key is placed back into its holder before closing the rear access door.*
11. Add the lamp to the lamp history and then align the lamp. See *Add the Lamp Information to the Lamp History on page 1-18* and *Align the Lamp on page 1-18*.

16.5 Inspect the Card Cage Filter

⚠ CAUTION Use only high efficiency Christie approved filters. Never operate the projector without the filter installed.



You should check the condition of the card cage air filter monthly. Clean or replace the card cage air filter sooner if you are operating the projector in a dusty or dirty environment. The filter is located on the left side of the projector behind the air filter cover.

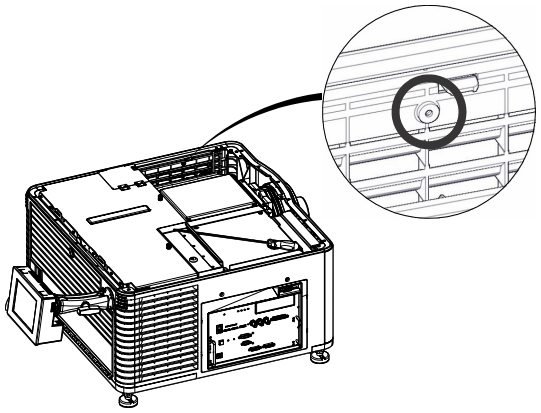
1. Loosen the 2 captive screws on the bottom of the filter cover.
2. Pull the cover out and down.
3. Slide the air filter out and inspect it.

   If the filter appears dirty and you cannot see through it, replace it with a new paper filter, or clean it if it is a washable filter. See *Cleaning a Washable Filter on page 16-7* for cleaning instructions.

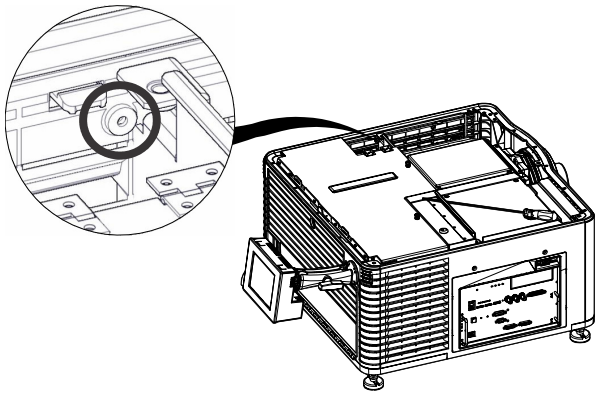
   If the filter appears clean, continue to step 4.
4. Replace the air filter with the airflow indicator facing toward the projector.
5. Install the air filter cover by inserting the 2 bottom tabs and then pushing the cover closed.
6. Tighten the 2 captive screws.

16.6 Inspect the Light Engine Compartment Filter

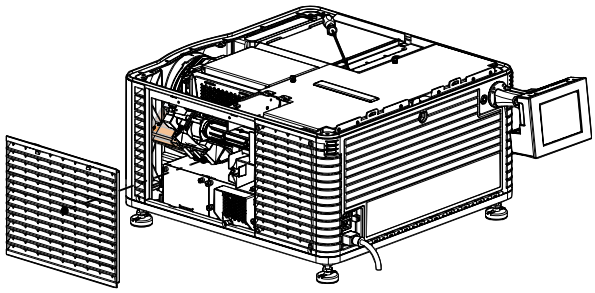
1. Remove the top lid.
2. Reach into the projector and then loosen the first service panel screw.



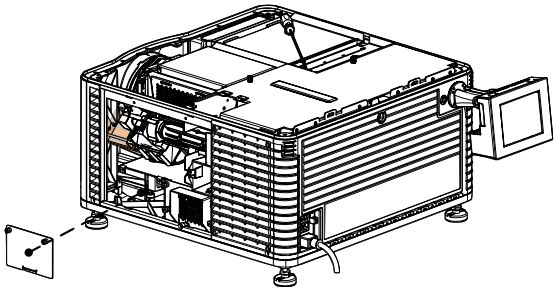
3. Open the integrator rod access door and loosen the second service panel screw.



4. Push the clips on the top of the service panel down and out to remove the service panel.



5. Loosen the 2 captive screws on the cap plate and then remove it.



6. Slide the air filter out and inspect it.

   If the filter appears dirty and you cannot see through it, replace it with a new paper filter, or clean it if it is a washable filter. See *Cleaning a Washable Filter on page 16-7* for cleaning instructions.

   If the filter appears clean, continue to step 7.

7. Insert the air filter with the airflow indicator facing toward the projector.
8. Install the cap plate and tighten the 2 captive screws.
9. Install the service panel and then tighten the 2 screws.
10. Install the top lid.

16.7 Cleaning a Washable Filter

If the amount of dirt on the filter is minimal, use a vacuum or compressed air to remove it. If you use compressed air, the air must move through the filter in the opposite direction of the air flow indicator on the side of the filter.

⚠ WARNING The installation of a filter that has not been allowed to dry completely can cause an electrical short and damage the projector.

1. Hold the filter on an angle under warm running water so the water flows through the filter in the opposite direction of the air flow indicator on the side of the filter.
2. Rinse the filter thoroughly.
3. Submerge the filter for a minimum of 30 minutes in a container of warm water and two tablespoons of mild detergent or liquid dish soap.

   If the filter is extremely dirty, move the filter from side to side occasionally, or remove the excess dirt by brushing both sides of the filter with a soft brush.
4. Rinse the filter thoroughly by holding it on an angle under cool running water. The air flow arrow on the side of the filter should face down.
5. Repeat steps 3 and 4 if the filter still appears dirty.
6. Shake the filter over a container until most of the water is removed.
7. Place the filter on its edge on a flat, stable surface and allow it to dry thoroughly.
8. To confirm that the filter is dry, place it over a dry paper towel and shake it. If the paper towel remains dry, the filter can be installed in the projector.
9. Record the date the filter was cleaned.
10. Replace the filter following the instructions for the specific filter. See *Inspect the Card Cage Filter on page 16-6* or *Inspect the Light Engine Compartment Filter on page 16-6*.

16.8 Replace the Lens

The lens seals the projection head, preventing contaminants from entering the main electronics area. Do not operate the projector without a lens installed. Install a lens plug when you install or transport the projector.

1. Tap and hold the red power button on the TPC **Main** panel to turn the lamp and projector off.
2. Allow the lamp to cool for a minimum of 15 minutes.
3. Disconnect the projector from AC power or turn the circuit breaker off.
4. Remove the lens surround.
5. Install the lens cap and turn the lens clamp to the open position with a hex key.
6. If necessary, remove the 2 cap screws securing the lens to the lens mount using a hex key.
7. Pull the lens out of the lens mount and then install a small lens cap on the rear of the lens.
8. Remove the small rear cap from the new lens. Keep the front cap on.
9. Align the tabs on the lens plate with the lens mount. Insert the lens until it connects with the magnets on the mount. When the lens contacts the magnetic plates it is seated correctly.
10. Secure the lens clamp by rotating it clockwise with a hex key.
11. Tighten the lens mount cap screws for added stability.
12. Replace the lens surround.
13. Remove the lens cap from the front of the lens.

Appendix A: Projector Specifications

This section provides detailed Solaria One specifications. Due to continuing research, specifications are subject to change without notice.

A.1 Display

A.1.1 Panel Resolution and Refresh Rate

Pixel format (H x V square pixels)	2048 x 1080
Processing path	23.97 - 240Hz

A.1.2 Achievable Brightness (Measured at Screen Center)

	Nominal	Maximum
1.4kW (CDXL-14M)	3,950 lumens	4,345 lumens
1.6kW (CDXL-16M)	5,350 lumens	5,850 lumens
2.1kW (CDXL-21S1)	9,000 lumens	9,900 lumens

A.1.3 Achievable Contrast Ratio

≥ 450:1 ANSI

≥ 1900:1 Full Frame On/Off

A.1.4 Color and Gray Scale

Displayable colors	35.2 trillion
Gray Scale resolution	45 bits total linear, 15 bits per RGB component

A.1.5 White Point

Nominal White *(full white, after calibration to Telecine mode, Theatres)*

$x = 0.314 \pm 0.006$

$y = 0.351 \pm 0.006$

A.1.6 Gamma

Theater (nominal)	2.6 ± 5%

A.2 Control Signal Compatibility

A.2.1 Ethernet Port

Interface	10Base-T/100-Base-TX
Connector	Female RJ-45
Bit Rate	10 Mbps or 100 Mbps half and full duplex

A.2.2 RS232-PIB

Interface	TIA-232
Connector	9-pin subminiature D, female
Bit Rate	115,200 (default) bps
Flow Control	Hardware (RTS/CTS)
Data Format	1 start bit, 8 data bits, 1 stop bit, no parity
Communication Protocol	Christie Serial Protocol

A.2.3 3D Terminal

See also *3D Sync Terminal PIN Map on page 14-1.*

Interface	Proprietary 3D connector
Connector	15-pin subminiature D, female
Bit Rate	1,200 bps
Data Format	1 start bit, 8 data bits, 1 stop bit, no parity
Communication Protocol	RS232 and GPIO

A.3 Touch Panel Controller

Type of Display	Color VGA TFT LCD, backlit
Display Size	144.8 mm (5.7 inches) diagonal
Display Resolution (H x V pixels)	640 x 480
Maximum Dimensions (W x H x D)	195 mm x 148 mm x 58 mm
Integrated Operating System	Microsoft Windows® XPe
Communication Interface with Projector	10/1000Base-T Ethernet
Power Requirement	0.71A (typical)
Interface Connector	12-pin Circular connector (push-pull)

A.4 Power Requirements

A.4.1 AC Input (A)

Circuit Breaker	20A
Voltage Range	200 - 240 VAC
Line Frequency	50 Hz - 60 Hz nominal
Inrush Current	<110 A maximum
Current Consumption	16 A maximum (at 200 VAC)
Power Consumption	3200 W maximum
Current Rating of AC Input	20A (Outlet is IEC 320-C19)
Line Cord Plug Type	NEMA 6-20P

NOTE: *Below 200VAC, when the lamp is ignited, a 25 A input surge current might occur for three seconds.*

A.4.2 UPS AC Input (B)

Activation	Discrete switch above the power inlet cord(s)
Current Rating of AC Input	3A (Outlet is IEC-320-C13)
UPS Type	Universal 100-240VAC
Power Consumption	270 W typical (@ 100 VAC with a power factor of 0.9)

A.5 Lamp

Type:	Xenon Short Arc Lamp
Power (software adjustable):	
CDXL-14M (1.4kW)	700W min.(50%), 1430W nom., 1575W max. (110%)
CDXL-16M (1.6kW)	1000W min.(50%), 1600W nom., 1760W max. (110%)
CDXL-21S1 (2.1kW)	1260W min.(50%), 2100W nom., 2300W max. (110%)

NOTE: *The ballast is power regulated and has a maximum current of 97A. Therefore the maximum power specification for a given lamp may not be achievable until the lamp has aged, since lamp voltage increases with hours of use.*

Average Life:	
CDXL-14M	3500 hours
CDXL-16M	3500 hours
CDXL-21S1	1500 hours
Wait time between lamp strikes	2 minutes minimum
Warm up time to full brightness	20 minutes maximum

NOTE: *Projectors typically force a 10 minute cool down period. Make sure you do not re-strike the lamp any sooner than 2 minutes into this cool down period since hot re-strikes reduce lamp life.*

A.6 Physical Specifications

Size (L x W x H): *(without lens, with feet at minimum length)*	697 mm (27.44 inches) x 688 mm (27.08 inches) x 395 mm (15.55 inches)
Weight:	
As installed with lens	53.75 kg (119 lbs)
Shipping (includes packaging)	77.2 kg (170 lbs)
Operating Position:	
Rotation about projection axis	± 5 degrees maximum
Tilt of projection axis from horizontal	+ 15 degrees maximum, - 3 degrees maximum

A.7 Regulatory

This product conforms to the following regulations related to product safety, environmental requirements and electromagnetic compatibility (EMC):

A.7.1 Safety

- CAN/CSA C22.2 No. 60950-1-07, 2007
- ANSI/UL 60950-1-2007
- IEC 60950-1:2005, 2nd Edition
- EN60950:2006+A11:2009

A.7.2 Electro-Magnetic Compatibility

Emissions

- FCC CFR47, Part 15, Subpart B, Class A - Unintentional Radiators
- CISPR 22:EN 55022, Class A - Information Technology Equipment

Immunity

CISPR 24: EN55024 EMC Requirements - Information Technology Equipment

A.7.3 Environmental

- EU Directive (2002/95/EC) on the restriction of the uses of certain hazardous substances (RoHS) in electrical and electronic equipment and the applicable official amendments)
- EU Directive (2002/96/EC) on waste and electrical and electronic equipment (WEEE) and the applicable official amendment(s)
- EU Directive (2006/121/EC) concerning the Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) and the applicable official amendment(s).
- Japanese industrial standard (JIS C 0950:2005) on marking for the presence of specific chemical substances for electrical and electronic equipment.
- China Ministry of Information Industry Order No.39 (02/2006) on the control of pollution caused by electronic information products, hazardous substances concentration limits (SJ/T11363-2006), and the applicable product marking requirements (SJ/T11364-2006)

A.7.4 Marking

This product shall conform to all relevant Canadian, US, and European directives, standards, safety, health and environmental concerns and bear the following markings at product launch:

- cULus
- CE
- RoHS
- WEEE

Future markings: KC (South Korea), GOST (Russia), UkrSEPRO (Ukraine), IRAM/S-mark (Argentina), and C-tick (Australia). Future international certifications (no marking requirements): South Africa, Saudi Arabia, and Kuwait.

A.7.5 RoHS, WEEE, Packaging

- EU Directive (2002/95/EC) on the restriction of the uses of certain hazardous substances (RoHS) in electrical and electronic equipment and the applicable official amendment(s)
- EU Directive (2002/96/EC) on waste and electrical and electronic equipment (WEEE) and the applicable official amendment(s)
- Regulation (EC) No. 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) and its amendments.

A.8 Environment

A.8.1 Operating Environment

Temperature	10°C to 35°C (50°F to 95°F)
Humidity (non-condensing)	20% to 80%
Altitude	0 - 3000 meters
Maximum ambient temperature	35°C

A.8.2 Non-Operating Environment

Temperature	-20°C to 60°C (-13°F to 149°F)
Humidity (non-condensing)	0% to 95%

A.9 Accessories

A.9.1 Standard (sold with product)

- Touch Panel Controller (TPC) with interface cable
- User Manual (with CD containing additional technical documentation)
- Interconnect Diagram
- Power Cord
- Lamp
- Lens
- Christie IMB
- Air Filters
- Stacking Kit

A.9.2 Accessories

- Lenses

  Zoom Lenses

  - 1.2-1.7 .69” DLPCine Zoom (108-464105-XX)
  - 1.34-1.9 .69”DLPCine Zoom (108-465106-XX)
  - 1.5-2.15 .69”DLPCine Zoom (108-466107-XX)
  - 1.7-2.55 .69”DLPCine Zoom (108-467108-XX)
  - 2.0-3.9 .69”DLPCine Zoom (108-468109-XX)
- Rack Stand (108-416102-XX)
- Replacement Lamps
  - CDXL-14M (003-003066-XX)
  - CDXL-16M (003-003900-XX)
  - CDXL-21S1 (003-004258-XX)
- Replacement Light Engine Paper Air Filter (003-004460-XX)
- Replacement Light Engine Washable Air Filter (003-004654-XX)
- Replacement Card Cage Paper Air Filter (003-002311-XX)
- Replacement Card Cage Washable Air Filter (003-004655-XX)
- Extractor Adaptor Kit (119-103105-XX)
- Dual Polarizer Frame Kit (108-462103-XX)

A.10 Christie IMB Specifications

A.10.1 SMPTE Compatible Cinema Formats - 2D Video (JPEG2000)

The Christie IMB supports a maximum bandwidth of 500 Mbps for 2D Cinema content.

Only the Christie IMB with the 4K upgrade supports the 4096 x 2160 resolution.

Specification	Resolution	Frame Rate	Bit Depth	Color Format
SMPTE 428-1-2006	2048 x 1080	24.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	25.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	30.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-1-2006	2048 x 1080	48.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	50.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	60.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	96.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	100.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	2048 x 1080	120.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-1-2006	4096 x 2160	24.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	4096 x 2160	25.0	12-bits	X'Y'Z' (4:4:4)
SMPTE 428-11-2009	4096 x 2160	30.0	12-bits	X'Y'Z' (4:4:4)

A.10.2 SMPTE Compatible Cinema Formats - 3D Video

The hardware configuration of the projector in which the Christie IMB is installed can affect frame rate performance.

To support 3D playback the projector must be in line interleave mode. To display 3D content at frame rates above 30.0, you must use a Christie IMB with the high frame rate upgrade.

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

A.10.3 MPEG-2 Supported Video Formats

To play MPEG-2 content you must have Christie IMB-S2 Main Software v1.2 or later installed. You can ingest MPEG-2 formatted Digital Cinema Packages (DCPs) and regular MPEG-2 files. The supported file extensions are mpeg, mpg, and ts. To play encrypted MPEG-2 DCPS, a Key Delivery Message (KDM) key is required.

Playback of MPEG-2 content is restricted to these resolutions:

- 720p
- 1080p
- 1080i

The data format and color space of MPEG-2 and JPEG-2000 content are different. Two separate channels are required to play MPEG-2 content and JPEG-2000 content. These settings are used for MPEG-2 playback on the Christie IMB:

- Data format: 4:2:2
- Target Color: Rec 709
- Color Space: YCrCb 709

If the MPEG-2 content requires a different color space value than REC 709, you must define the new values. If you are playing interlaced content, set the scan type as **Interlaced** on the Config 2 screen of the Channel Setup screen. In addition, to play MPEG-2 content, make these selections on the Config 1 screen:

Screen	Field	Description
Config 1	Input	Select **IMB-Internal**.
	Data Format	Select **4:2:2 (YCbCr)**.

You can add MPEG-2 and JPEG-2000 content to the same play list. Automatic frame doubling allows MPEG-2 content to be output to the same 3D video path as the 3D JPEG-2000 content. When you switch from playing MPEG-2 to JPEG-2000 content, you must select a different channel. You do not need to manually enable or disable 3D systems when moving from one format to another in a play list.

Video content is restricted to the formats that fall within the definition of the Main Profile at High Level as defined in specification ISO/IEC 13818-2.

This table lists the supported MPEG-2 video transport stream (TS) and elementary stream (9ES) formats:

Resolution	Frame Rate	Format	Bit Depth	Chroma Format
1280 x 720	25.0	Progressive	8-bits	4:2:0
1280 x 720	29.97	Progressive	8-bits	4:2:0
1280 x 720	30.0	Progressive	8-bits	4:2:0
1280 x 720	50.0	Progressive	8-bits	4:2:0
1280 x 720	59.94	Progressive	8-bits	4:2:0
1280 x 720	60.0	Progressive	8-bits	4:2:0
1920 x 1080	50.0	Interlaced	8-bits	4:2:0
1920 x 1080	59.94	Interlaced	8-bits	4:2:0
1920 x 1080	60.0	Interlaced	8-bits	4:2:0
1920 x 1080	23.98	Progressive	8-bits	4:2:0
1920 x 1080	24.0	Progressive	8-bits	4:2:0
1920 x 1080	25.0	Progressive	8-bits	4:2:0
1920 x 1080	29.97	Progressive	8-bits	4:2:0
1920 x 1080	30.0	Progressive	8-bits	4:2:0

The Christie IMB converts all MPEG-2 content to YCrCb 4:2:2 10-bit before it is displayed.

A.10.4 MPEG-2 MXF Interop Supported Formats

MPEG-2 MXF Interop is not watermarked prior to play out. The Christie IMB converts all MPEG-2 content to YCrCb 4:2:2 10-bit before it is displayed.

Resolution	Frame Rate	Format	Bit Depth	Chroma Format
1280 x 720	25.0	Progressive	8-bits	4:2:0
1280 x 720	29.97	Progressive	8-bits	4:2:0
1280 x 720	30.0	Progressive	8-bits	4:2:0
1280 x 720	50.0	Progressive	8-bits	4:2:0
1280 x 720	59.94	Progressive	8-bits	4:2:0
1280 x 720	60.0	Progressive	8-bits	4:2:0
1920 x 1080	50.0	Interlaced	8-bits	4:2:0
1920 x 1080	59.94	Interlaced	8-bits	4:2:0
1920 x 1080	60.0	Interlaced	8-bits	4:2:0
1920 x 1080	23.98	Progressive	8-bits	4:2:0
1920 x 1080	24.0	Progressive	8-bits	4:2:0
1920 x 1080	25.0	Progressive	8-bits	4:2:0
1920 x 1080	29.97	Progressive	8-bits	4:2:0
1920 x 1080	30.0	Progressive	8-bits	4:2:0

A.10.5 Supported Audio Formats

The Christie IMB supports 8 channel pairs of AES/3 digital audio output on a standard D-SUB 25-pin connector.

Specification	Sample Rate	Bit Depth
SMPTE 428-2-2006	48.000 kHz	24-bits
SMPTE 428-2-2006	96.000 kHz	24-bits

A.10.6 AES3 Port PIN Map

This table provides pin mapping for the AES3 port:

PIN	Signal Name	DIR	Description
1	Ch 15 & 16 plus	O	
2	GND		Ground
3	Ch 13 & 14 minus	O	
4	Ch 11 & 12 plus	O	
5	GND		Ground
6	Ch 9 & 10 minus	O	
7	Ch 7 & 8 plus	O	
8	GND		Ground
9	Ch 5 & 6 minus	O	
10	Ch 3 & 4 plus	O	
11	GND		Ground
12	Ch 1 & 2 minus	O	
13	nc		No Connect
14	Ch 15 & 16 minus	O	
15	Ch 13 & 14 plus	O	
16	GND		Ground
17	Ch 11 & 12 minus	O	
18	Ch 9 & 10 plus	O	
19	GND		Ground
20	Ch 7 & 8 minus	O	
21	Ch 5 & 6 plus	O	
22	GND		Ground
23	Ch 3 & 4 minus	O	
24	Ch 1 & 2 plus	O	
25	GND		Ground

A.10.7 NAS Requirements

The network-attached storage (NAS) device must meet these minimum requirements:

- 1 TB storage space or greater
- Capable of running RAID 5
- Gigabit Ethernet connectivity
- Network File System (NFS)

A.10.8 Ethernet Port

Interface: 10-Base-T/100-Base-T/1000-Base-T

Connector: Female RJ-45

Bit Rate: 1000 Mbps

A.10.9 eSATA

Interface: SATA revision 2.0

Connector: eSATA

Bit Rate: 3.0 Gbps

A.10.10USB 1 Port

Interface: Universal Serial Bus 2.0

Connector: USB Device Standard Sizes (Series “A”)

Maximum Bit Rate: 480 Mbps

A.10.11AES3 Audio Output

Interface: AES3 Digital Audio

Connector: 25-pin subminiature D, female

Pin-Out: Conforms to SMPTE / TASCAM pinout. For AES3 PIN mapping, see *AES3 Port PIN Map on page A-9*.

A.10.12 Security Policy

In accordance with the requirements of Federal Information Processing Standard (FIPS) 140-2, a security policy has been defined and published for the Christie IMB. This security policy identifies the ports and interfaces available on the device, the roles and services provided, and the critical security parameters protected by the Christie IMB. All users of the Christie IMB must abide by the requirements defined by the Christie IMB security policy. The Christie IMB security policy is available on the National Institute of Standards and Technology (NIST) web site (http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/1401val2012.htm).

A.10.13 Anti-Tampering Circuitry

The Christie IMB includes a security module that meets the Federal Information Processing Standard (FIPS) 140-2 Level 3 security requirements as defined by the DCI Digital Cinema System Specification v1.2. An important component of the security module is active anti-tamper monitoring. Any attempt to access the area under the security enclosure on the Christie IMB activates the anti-tamper circuitry and causes the FIPS LED to turn red. In addition, you cannot decrypt or play digital cinema content. If the anti-tamper circuitry is activated, you must return the Christie IMB to Christie Digital.

If you mishandle or drop the Christie IMB, you can activate the anti-tamper circuitry.

A rechargeable battery keeps anti-tamper monitoring active when the Christie IMB is removed from the projector. If the Christie IMB is not installed within a year, the battery can fail and you must return the Christie IMB to Christie Digital. To allow the Christie IMB to remain out of a projector beyond a year, a charging connector allows the battery to be recharged.

If the Christie IMB is exposed to constant temperature fluctuations, the lifetime of the rechargeable battery can be shortened. The recommended temperature range for storing the Christie IMB is -20C to +25C.

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For the most current technical documentation, please visit www.christiedigital.com

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