Installation and Setup Guide

020-001449-04

HS Series

4K7-HS/4K10-HS

CHRISTIE®

NOTICES

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GENERAL

Every effort has been made to ensure accuracy, however in some cases changes in the products or availability could occur which may not be reflected in this document. Christie reserves the right to make changes to specifications at any time without notice. Performance specifications are typical, but may vary depending on conditions beyond Christie's control such as maintenance of the product in proper working conditions. Performance specifications are based on information available at the time of printing. Christie makes no warranty of any kind with regard to this material, including, but not limited to, implied warranties of fitness for a particular purpose. Christie will not be liable for errors contained herein or for incidental or consequential damages in connection with the performance or use of this material. Canadian manufacturing facility is ISO 9001 and 14001 certified.

WARRANTY

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

a. Problems or damage occurring during shipment, in either direction.

b. Problems or damage caused by combination of a product with non-Christie equipment, such as distribution systems, cameras, DVD players, etc., or use of a product with any non-Christie interface device.

c. Problems or damage caused by misuse, improper power source, accident, fire, flood, lightning, earthquake, or other natural disaster.

d. Problems or damage caused by improper installation/alignment, or by equipment modification, if by other than Christie service personnel or a Christie authorized repair service provider.

e. Problems or damage caused by use of a product on a motion platform or other movable device where such product has not been designed, modified or approved by Christie for such use.

f. Except where the product is designed for outdoor use, problems or damage caused by use of the product outdoors unless such product is protected from precipitation or other adverse weather or environmental conditions and the ambient temperature is within the recommended ambient temperature set forth in the specifications for such product.

g. Defects caused by normal wear and tear or otherwise due to normal aging of a product.

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

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

PREVENTATIVE MAINTENANCE

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

REGULATORY

The product has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the product is operated in a commercial environment. The product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of the product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense.

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

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

ENVIRONMENTAL

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

Content

Introduction

This manual is intended for Christie qualified installers and trained operators of 4K7-HS/4K10-HS projection systems.

For complete 4K7-HS/4K10-HS product documentation and technical support, go to *www.christiedigital.com*.

Safety and warning guidelines

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

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

- Do not expose the product to moisture.
- Do not operate the product without all of its covers in place.
- This product must be installed within a restricted access location not accessible by the general public.
- Only personnel who are trained on the precautions for the restricted access location can be granted entry to the area.
- FIRE HAZARD! Keep hands, clothes, and all combustible material away from the concentrated light beam of the projector.
- TRIP OR FIRE HAZARD! Position all cables where they cannot contact hot surfaces, be pulled, be tripped over, or damaged by persons walking on or objects rolling over the cables.
- SHOCK HAZARD! Disconnect the product from AC before installing, moving, servicing, cleaning, removing components, or opening any enclosure.
- OPTICAL RADIATION HAZARD! Disconnect the power plug from the AC outlet if the product is not being used for an extended period of time.
- Do not allow anything to rest on the power cord.
- Always provide proper ventilation for the product to prevent overheating.

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

- Only Christie qualified technicians are permitted to open product enclosures.
- All procedures must be performed by Christie qualified technicians.

Notice. If not avoided, the following may result in equipment or property damage.

- Always use a lens plug when installing or moving the product. This prevents contaminants from entering the product.
- Only use cleaning solutions recommended by Christie. All other cleaning solutions may cause product damage and will void the warranty.

AC/power precautions

Read all AC/power precautions before installing or operating the projector.

Warning! If not avoided, the following could result in death or serious injury.
- FIRE HAZARD! Do not use a power cord, harness, or cable that appears damaged.
- FIRE OR SHOCK HAZARD! Do not overload power outlets and extension cords.
- SHOCK HAZARD! Only use the AC power cord provided with the product or recommended by Christie.
- FIRE AND SHOCK HAZARD! Do not attempt operation unless the power cord, power socket, and power plug meet the appropriate local rating standards.
- SHOCK HAZARD! Do not attempt operation if the AC supply is not within the specified voltage and current, as specified on the license label.
- SHOCK HAZARD! The AC power cord must be inserted into an outlet with grounding.
- SHOCK HAZARD! Disconnect the product from AC before installing, moving, servicing, cleaning, removing components, or opening any enclosure.
- Install the product near an easily accessible AC receptacle.

Installation safety and warning guidelines

Read all installation safety and warning guidelines before installing the projector.

Warning! If not avoided, the following could result in death or serious injury.
- High leakage current present when connected to IT power systems.

Caution! If not avoided, the following could result in minor or moderate injury.
- ELECTRICAL and BURN HAZARD! Use caution when accessing internal components.
- Only Christie qualified technicians are authorized to use the tools provided in the toolbox.

Laser safety precautions

This product is classified as Class 1 Laser Product-Risk Group 2 according to IEC 60825-1:2014 complies with FDA regulations 21 CFR 1040.10 and 1040.11 as a Risk Group 2, LIP (Laser Illuminated Projector) as defined in IEC 62471:2006 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.

Warning! If not avoided, the following could result in death or serious injury.
- This projector has a built-in Class 4 laser module. Never attempt to disassemble or modify the projector.
- Any operation or adjustment not specifically instructed in the User manual creates the risk of hazardous laser radiation exposure.
- Do not open or disassemble the projector as this may cause damage or exposure to laser radiation.
- Do not stare into beam when the projector is on. The bright light may result in permanent eye damage.
- When turning on the projector, make sure no one within projection range is looking into the lens.
- Follow the control, adjustment, or operation procedures to avoid damage or injury from exposure of laser radiation.
- The instructions for the assembly, operation, and maintenance include clear warnings concerning precautions to avoid possible exposure to hazardous laser radiation.

Product labels

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

General hazards

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

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

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

⚠️	General hazard.
⚠️⚡	Electric shock hazard. To avoid personal injury, disconnect all power sources before performing maintenance or service.
⚠️	Electrocution hazard. To avoid personal injury, always disconnect all power sources before performing maintenance or service procedures.
⚠️🔥	Fire hazard. To avoid personal injury and property damage, follow the instructions provided in this document.
⚠️	Hot surface hazard. To avoid personal injury, allow the product to cool for the recommended cool down time before performing maintenance or service.
⚠️	Burn hazard. To avoid personal injury, allow the product to cool for the recommended cool down time before performing maintenance or service.
⚠️	Moving parts hazard. To avoid personal injury, keep hands clear and loose clothing tied back.
⚠️	Fan hazard. To avoid personal injury, keep hands clear and loose clothing tied back. Always disconnect all power sources before performing maintenance or service procedures.
⚠️	Voltage hazard. To avoid personal injury, always disconnect all power sources before performing maintenance or service procedures.
🏠	Not for household use.

Mandatory action

Consult the service manual.

Disconnect all power sources before performing maintenance or service procedures.

Electrical labels

Indicates the presence of an earth ground.

Laser labels

Do not look into the projector lens when the laser is on. The bright light may result in permanent eye damage.

This projector has been classified as Class 1 Laser Product-Risk Group 2 according to IEC 60825-1:2014, IEC 62471:2006, and IEC 62471-5:2015.

Complies with 21 CFR 1040.10 and1040.11 as a Risk Group 2, LIP (Laser Illuminated Projector) as defined in IEC 62471:2006 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

IEC 60825-1:2014 CLASS 1 LASER PRODUCT RISK GROUP 2 IEC 62471:2006/ IEC 62471-5:2015 CAUTION Possibly hazardous optical radiation emitted from this product. Do not stare at beam. May be harmful to the eye.	IEC 60825-1:2014 PRODUIT LASER DE CLASSE 1 GROUPE DE RISQUE 2 AVERTISSEMENT Radiation optique à danger potentiel émise parceproduit. Ne regardez pasdirectement le faisceau laser. Ceci pourrait être nocif pour votre oeil.	IEC 60825-1:2014 1等级激光触品 危险等级2 注意 此产品可软会害生有 高幅光·请勿直视 光束·盆免到眼精造 成解害。	IEC 60825-1:2014 1类激光产品 危险组2 注意 此产品可能会产生危 险光辐射, 请勿直视 激光束, 以免对眼 睛损害。	IEC 60825-1:2014 1급 레이저 제품 위험 그룹 2 주의 이 제품으로부터 인체에 위해한 광선이 방사될 수 있음, 광선을 정면으로 바라보지 마시오. 눈에 심각한 손상를 입을 수 있음.	IEC 60825-1:2014 クラス1レーザー製品 リスクグループ 2 注意 本製品より危険となり うる光放射あり。ビー ムをのぞき込まないこ と、 眼に有害となる可 能性あり。

Projector overview

The 4K7-HS/4K10-HS projector is a professional, 4K UHD resolution projector system using Digital Light Processing (DLP™) technology from Texas Instruments. It provides high standard of image quality along with high degree of flexibility, providing great alternatives for fixed installation environments to enhance users visual experience.

Contact your dealer

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

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

Ethernet settings	
Default gateway	
Projector IP address	
Subnet mask	

Key features

Understand the important features of the projector.

- 4K UHD (3840x2160) resolution with high brightness performance

- Lens suite options for installation flexibility

- Projection lens compatibility:

  - Horizontal offset ranges with half image size: +/-60%

  - Vertical offset ranges with half image size: +/-140%

    Measurements comply with industry standards where offset is calculated as a ratio of the number of pixels shifted up or down to half image size.

- Christie Twist™ and Mystique™ allow for easy and quick blending and warping

  Support for Mystique™ camera based alignment system (sold separately)

- Full HD 3D technology with frame sequential up to 120Hz

- A wide range of connectivity including 3G-SDI, HDBaseT, and 3D inputs

- HDBaseT 4K extension card supports HD video streaming through RJ45 (standard on 4K10-HS, sold separately for 4K7-HS)

- Optional SDVoE and 3G-SDI card for more efficient AV integration and connectivity

- 360 degrees projection enabled by laser light source

- Compatible with HDR content

- Motion Enhancement and Motion Compensation (MEMC) technology for smooth picture quality when projecting fast motion video

- Wireless desktop display using wireless dongle (optional)

- SNMP traps and email notifications

- All video formats can be resized to full screen either horizontally or vertically while maintaining aspect ratio

- The projector can be operated using any of the following:

  - The built-in keypad, the infrared (IR) remote keypad, a wired remote keypad, a PC/device using serial communications (Ethernet or RS232)

  - A web page using Ethernet or from a PC or device using a wireless USB dongle (optional)

How the projector works

The 4K7-HS/4K10-HS projector accepts a variety of input signals for a wide range of commercial projection applications.

Designed with solid-state illumination light sources and phosphor technology, the red, green and blue color elements are segmented through a phosphor wheel and then modulated by one Digital Micromirror Device (DMD) panel responding to incoming data streams of digitized red, green and blue color information. As these digital streams flow from the source, light from the responding on pixels of the DMD panel is reflected, converged, and then projected to the screen through projection lenses, where all pixel reflections are superimposed in sharp full-color images.

List of components

This projector comes with all the items listed below. Check to make sure your package is complete. If anything is missing, contact your dealer.

- AC power cord

- IR remote keypad

- Product Safety Guide

Product documentation

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

1. Access the documentation from the Christie website:

- Go to this URL: *http://bit.ly/2JtghsE* or

  https://www.christiedigital.com/en-us/business/products/projectors/1-chip-dlp/hs-series

- Scan the QR code using a QR code reader app on a smartphone or tablet.
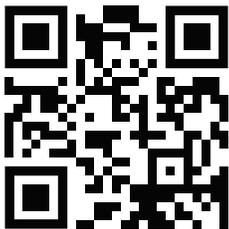
2. On the product page, select the model and switch to the **Downloads** tab.

Related documentation

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

- *4K7-HS/4K10-HS Installation and Setup Guide (P/N: 020-001449-XX)*

- *4K7-HS/4K10-HS Product Safety Guide (P/N: 020-001450-XX)*

- *4K7-HS/4K10-HS User Manual (P/N: 020-001451-XX)*

- *4K7-HS/4K10-HS Specification Guide (P/N: 020-001452-XX)*

- *4K7-HS/4K10-HS Service Manual (P/N: 020-001453-XX)*

- *4K7-HS/4K10-HS Lens Throw Ratios Technical Reference Information (P/N: 020-102940-XX)*

- *4K7-HS and 4K10-HS Serial API Commands Technical Reference (P/N: 020-102782-XX)*

- *Twist User Guide (P/N: 020-101380-XX)*

- *Mystique Operate Instruction Sheet (P/N: 020-102382-XX)*

Installation and setup

Learn how to install, connect, and optimize the projector display.

Site requirements

To safely install and operate the projector, the instalation location must meet these minimum requirements.

Physical operating environment

Provides specifications for the operating environment.

- Ambient temperature (operating): 0°C to 40°C (32°F to 104°F) up to 2500 ft

- Humidity (non-condensing): 10% to 85% RH

- Operating altitude: 10,000 ft maximum at 0 to 30°C ambient temperature

Power connection

The projector uses an universal AC power system that allows the projector to operate at full brightness with a power supply of 100-240 VAC or 200-240 VAC, depending on the regions. Operating the device outside of this voltage range may cause unsatisfactory operation or damage to the projector. To ensure safe operation, only use the AC power cord provided with the product or recommended by Christie. See *Connecting to AC power* on page 25 for further information on the power requirements.

Physical specifications

Learn the dimensions and weight of the projector before installation.

- Projection size, excluding lens, feet (L x W x H): 23.6 x 20.5 x 8.4" (600 x 520 x 214 mm)

- Shipping size, without lens (L x W x H): 35.6 x 29.9 x 14.8" (905 x 760 x 365 mm)

- Weight, without lens: 34.0 kg (74.86 lbs)

- Shipping weight, without lens: 44.5 kg (97.98 lbs)

Projector components

Identify the main components of the projector.

Front view

Identify the main components on the front of the projector.
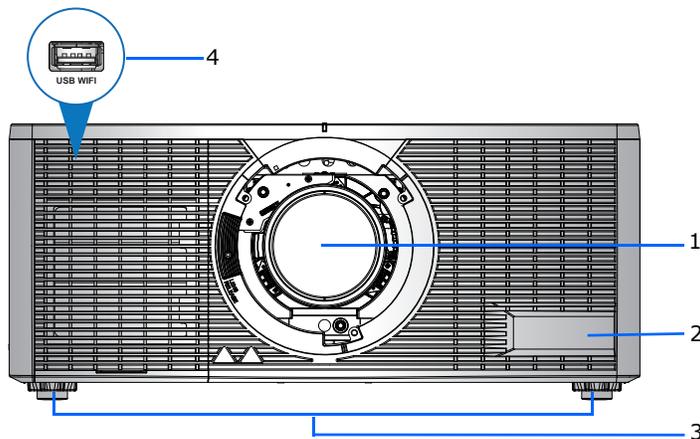
| ID	Part name	Description
1	Projection lens	Allows powered and automatic lens shifting and adjustment: vertical and horizontal offsets, zoom, and focus.
2	Front IR sensors	Receives signals from the IR remote keypad. Keep the signal path to the sensors unobstructed for uninterrupted communication with the projector.
3	Adjustable feet	Raises or lowers the feet to level the projector.
4	USB WIFI	Connects to a wireless dongle. Slide the left front cover downwards to access the USB WIFI port.

Rear view

Identify the main components on the rear of the projector.
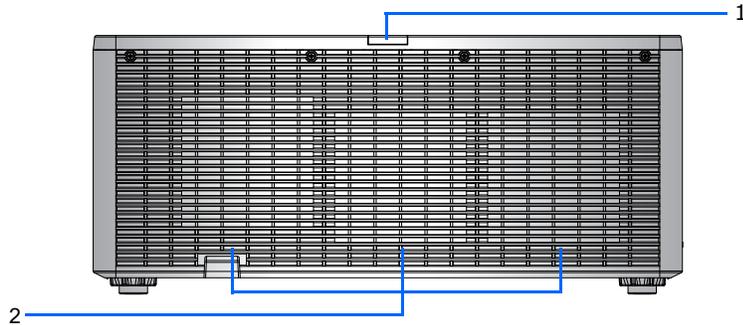
ID	Part name	Description
1	Rear IR sensor	Receives signals from the IR remote keypad. Keep the signal path unobstructed for uninterrupted communication with the projector.
2	Cooling air vents (exhaust)	Provides cooling to the projector. Keep these vents unobstructed to prevent the projector from overheating.

Left view

Identify the main components on the left side of the projector.
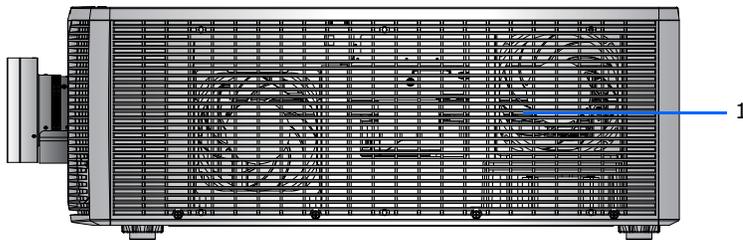
ID	Part name	Description
1	Cooling air vents (intake)	Provides cooling to the projector. Keep these vents unobstructed to prevent the projector from overheating.

Right view

Identify the main component on the right side of the projector.
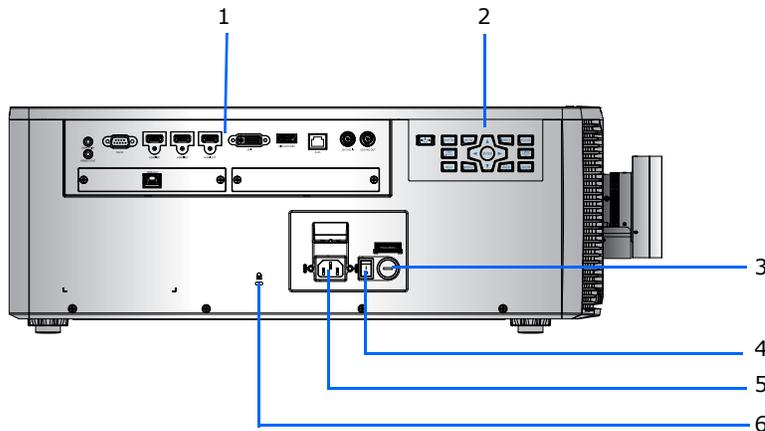
ID	Part name	Description
1	Input/Output (I/O) panel	Connects the projector to external devices.
2	Built-in keypad	Controls the projector.
3	Fuse	Fuse T16 A/250 VAC
4	Power button	Powers the projector on or off.
5	AC input	Connects to the supplied power adapter (100-240 VAC).
6	Kensington lock	Secures the projector to counter tops, tables, and so on.

# Built-in keypad

The built-in keypad controls the projector.
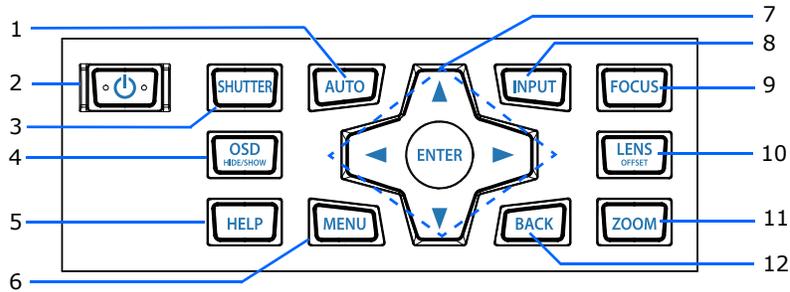
ID	Button	Description
1	AUTO	Automatically optimizes an image.
2	POWER	Turns the projector on or off.
3	SHUTTER	Displays or blanks the video image.
4	OSD	Hides or shows the on-screen display (OSD) menus.
5	HELP	Displays the instructions for source connection.
6	MENU	Displays the menus.
7	Arrow keys	Adjusts a setting up or down, or navigate within a menu.
8	INPUT	Selects an input for the main or picture in picture/picture by picture (PIP/PBP) image.
9	FOCUS	Adjusts the focus.
10	LENS	Adjusts the lens vertical or horizontal offset setting.
11	ZOOM	Adjusts the zoom.
12	BACK	Returns to the previous level or exits the menus if at top level.

Input/Output (I/O) panel

Identify the components of the Input/Output (I/O) panel.

Right view

Front view
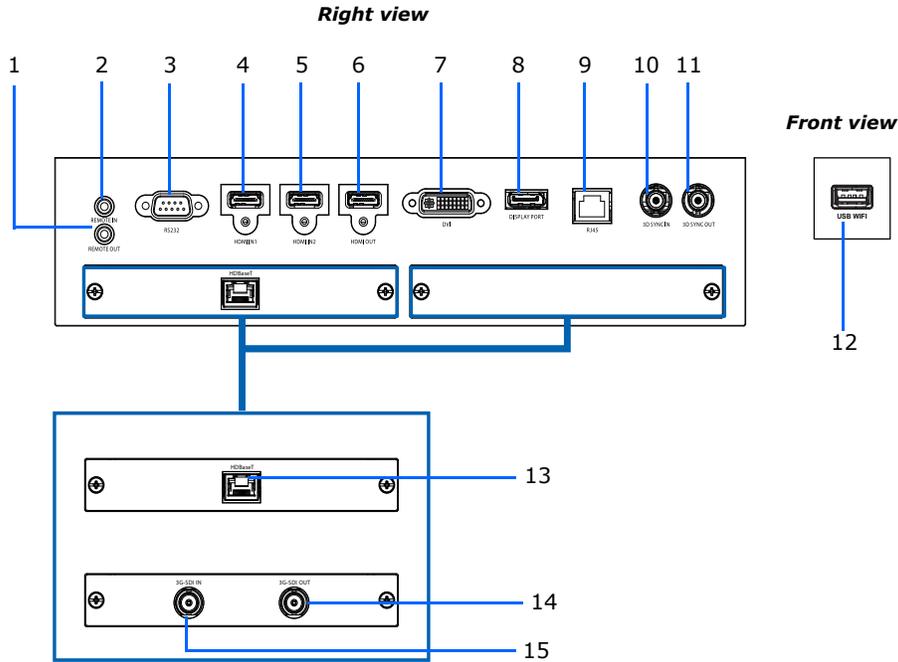
| ID	Connector name	ID	Connector name
1	REMOTE OUT	9	RJ45 (10/100 Mbps)
2	REMOTE IN	10	3D SYNC IN
3	RS232	11	3D SYNC OUT
4	HDMI IN1	12	USB WIFI (5 V/500 mA)
5	HDMI IN2	13	HDBaseT
6	HDMI OUT	14	3G-SDI OUT
7	DVI	15	3G-SDI IN
8	DISPLAYPORT		

• The two optional card slots can accommodate extension cards such as the HDBaseT input card, the 3G-SDI In/3G-SDI Out card, and the SDVoE input card.

• The HDBaseT input card is installed as standard on the 4K10-HS.

IR remote keypad

The IR remote keypad communicates with the projector by way of wireless communications.

Use a cable length of 20 m or less. If the length of cable exceeds 20 m, the IR remote keypad may not work correctly.
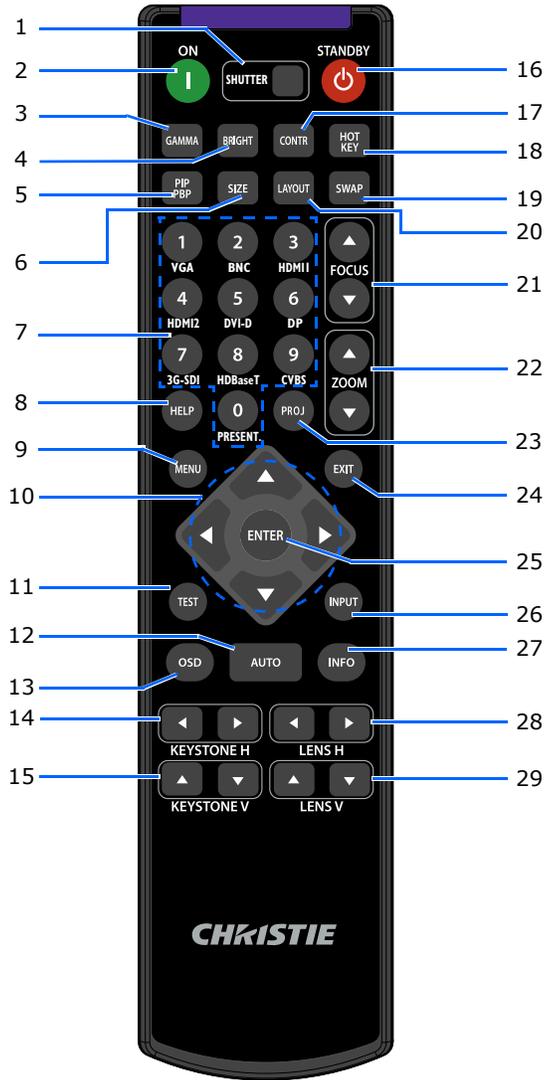
| ID	Button	Description
1	SHUTTER	Displays or blanks the video image.
2	ON	Turns the projector on.
3	GAMMA	Adjusts the mid-range levels.
4	BRIGHT	Adjusts the amount of light in the image.
5	PIP PBP	Turns picture-in-picture/picture-by-picture (PIP/PBP) on or off.

ID	Button	Description
6	SIZE	Adjusts the PIP/PBP size.
7	Number keys	Enter a number, such as a channel, value, and so on. The on-screen display (OSD) indicates if a function is not supported.
8	HELP	Displays the instructions for source connection.
9	MENU	Displays the menus.
10	Arrow keys	Adjusts a setting up or down to navigate within a menu.
11	TEST	Displays a test pattern.
12	AUTO	Automatically synchronizes the projector to an input source.
13	OSD	Hides or shows OSD menus.
14	KEYSTONE H	Adjusts the horizontal keystone.
15	KEYSTONE V	Adjusts the vertical keystone.
16	STANDBY	Turns the projector off.
17	CONTR	Adjusts the difference between dark and light.
18	HOT KEY	Selects your preset key quickly.
19	SWAP	Swaps the main and PIP/PBP images.
20	LAYOUT	Adjusts the PIP/PBP layout.
21	FOCUS	Adjusts the focus to improve image clarity as required.
22	ZOOM	Adjusts the zoom to achieve a required image size.
23	PROJ	Changes the IR remote keypad ID. • To assign an ID, press **PROJ** + <**1** to **9**>. • To return to the universal IR remote ID, press **PROJ** + **0**.
24	EXIT	Returns to previous level or exit menus if at top level.
25	ENTER	Selects a highlighted menu item, or changes or accepts a value.
26	INPUT	Selects an input for the main or PIP/PBP image.
27	INFO	Displays the projector information.
28	LENS H	Adjusts the position of the image horizontally.
29	LENS V	Adjusts the position of the image vertically.

Positioning the display

When you select a position for the projector, consider the size and shape of your screen, the location of your power outlets, and the distance between the projector and the rest of your equipment. Follow these general guidelines:

- Position the projector on a flat surface at a right angle to the screen. The projector (with the standard lens) must be at least 4.7 ft (1.42 m) from the projection screen.

- Position the projector to the required distance from the screen. The distance from the lens of the projector to the screen, the zoom setting, and the video format determine the size of the projected image.

- Determine the lens throw ratio.
  For more information detailing the throw ratio for each lens, refer to the *4K7-HS/4K10-HS Lens Throw Ratios Technical Reference Information (020-102940-XX)*.

- 360 degree free orientation operation
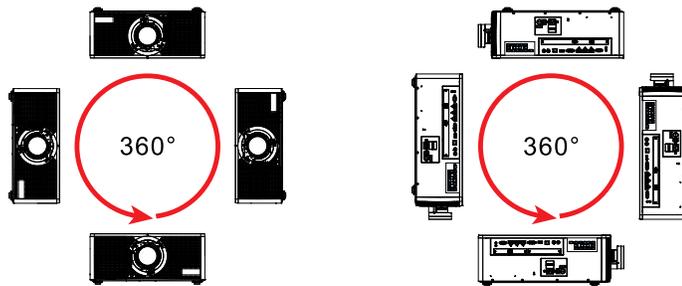
When installing the projector in portrait orientation, Christie recommends that the built in keypad and power inputs face upwards. This allows access to the built in keypad and power connections during operation.

Installing the ceiling mount

Mount the projector with a Christie-approved mount or rigging frame (such as the Christie One Mount Plus, P/N: 140-117100-XX, and Christie One Aluminum Rigging Frame, P/N: 140-137102-XX), using the four mounting points on the underside of the projector.

> ⚠️ **Warning!** If not avoided, the following could result in death or serious injury.
> - When not mounted properly, the projector may fall.
> - The warranty on this projector does not cover damage caused by the use of a non-recommended ceiling mount kit or installation of the ceiling mount kit in an improper location.
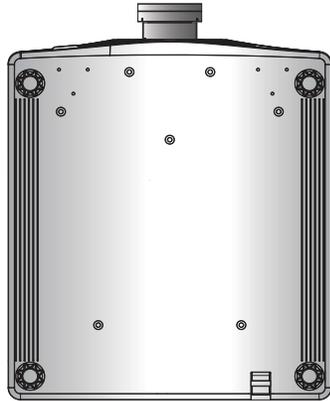

> 📝 Refer to the installation instructions and safety guidelines provided in the kit (such as the Christie One Mount Plus, P/N: 140-117100-XX, and Christie One Aluminum Rigging Frame, P/N: 140-137102-XX).

Leveling the projector

To adjust the vertical position of the projector, turn in or out of the adjustable feet on the bottom of the projector.
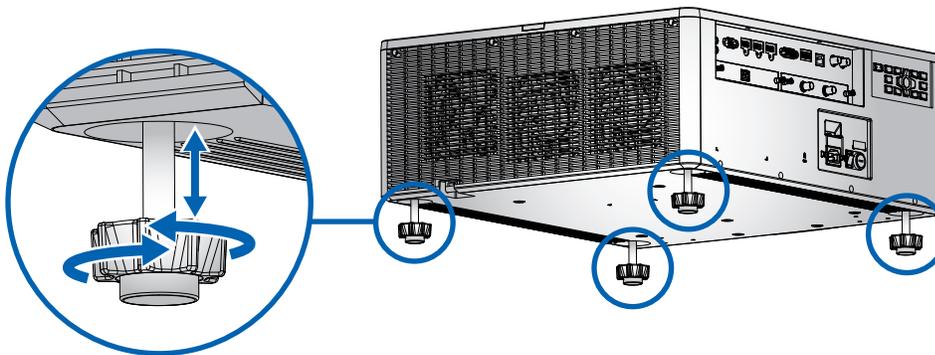
Installing the projector lens

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

• Turn off the projector and remove the power cord, before installing or replacing a lens.

Only use the lens compatible with Christie 4K7-HS/4K10-HS projectors.

1. Remove the dust cover from the lens opening.

2. Release the screw on the lens release button with an M2.5 Allen key.
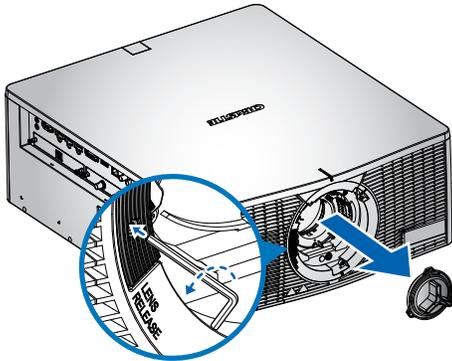
3. Align the top of the lens with the red marker on front cover.
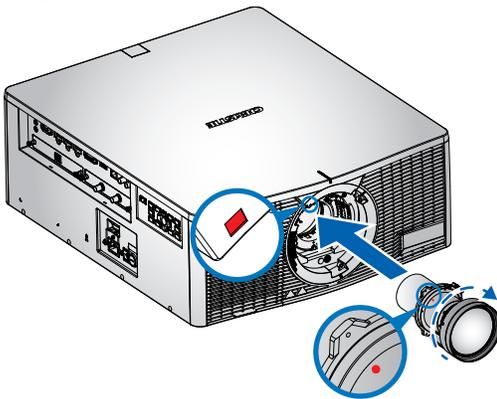
4. Insert the lens into the projector and turn it clockwise until you hear a clicking sound.

• When handling the projector after lens installation, make sure the front lens cap is placed on the lens to protect the lens surface from potential damage.

• When carrying or moving the projector, do not handle by the lens. This may damage the lens, the chassis, or other mechanical parts within the projector.

Calibrating the lens motor

Ensure the lens motor is calibrated before using the projector. Failure to calibrate the lens motor properly may cause following implications.

• Inability to use the full range of the lens motor.

• Lens motor traveling beyond the lens shifting range.

• Damage to the projector.

Calibrate the lens motors when any of the following conditions are met:

- After a lens change.

- After the projector is moved.

- After any manual adjustment made to the zoom or focus.

To calibrate the lens motor:

1. Press **MENU** on the remote control or built-in keypad.

2. Select **Configuration** > **Lens Settings** > **Lens Calibration**.

3. Press **ENTER**.

4. To start the lens calibration, select **OK**.

Removing the projector lens

To safely remove the projection lens, complete the following steps.

1. Center the lens while the projector is switched on by pressing the **LENS H** or **LENS V** button and then pressing **ENTER**.

   Ensure the lens is at or near its center position. Attempting to remove the lens with a large offset may cause damage to the lens assembly.

2. Turn off the projector.

3. Allow the projector to cool down into standby mode before replacing the lens.

4. After the projector has cooled down and prior to replacing the lens, remove the power cord.

5. Push in and hold the lens release button.

6. Turn the lens counterclockwise by a quarter to release the lens.

7. Gently pull the lens out of the lens holder.
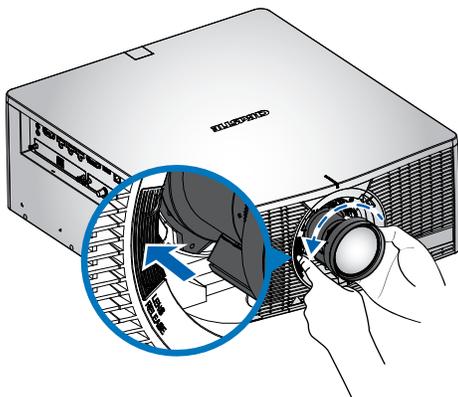
Christie recommends covering the lens opening with the dust cover to prevent damage to the projector.

Removing and installing the fuse

To remove and install the fuse, complete the following steps.

1. Turn the projector off.

2. Remove the screw on the fuse with a flat-head screwdriver.

3. Remove the fuse and replace it with the new one.
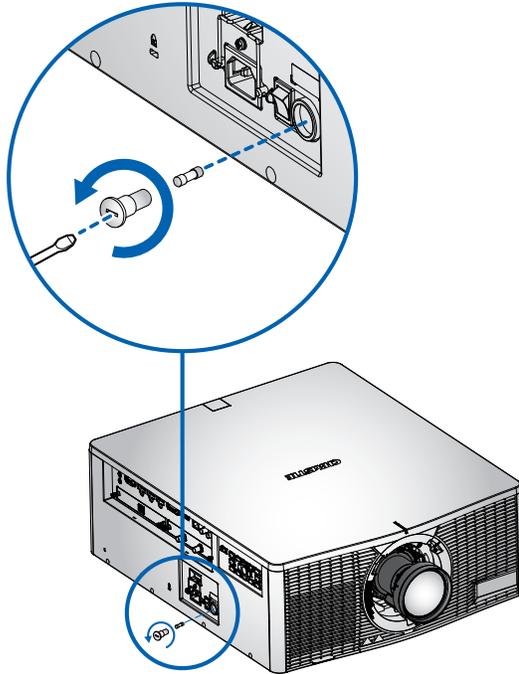
Connecting to AC power

To operate the projector at full brightness, make sure the power supply meets the power requirements for 4K7-HS/4K10-HS projectors. See *Power connection* on page 12 for more information.

Model name	Power requirements
4K7-HS/4K10-HS	100-240 VAC, 50/60 Hz, 12 A
	200-240 VAC, 50/60 Hz, 6 A (rated for China, India, and Korea)
	100 VAC, 50/60 Hz, 12 A, 1050 W (rated for Japan)
	110-240 VAC, 50/60 Hz, 10 A (rated for Taiwan)

> For more information detailing the power requirements, refer to the *4K7-HS/4K10-HS Specification Guide (P/N: 020-001452-XX).*

To safely connect the AC power:

1. Connect the AC power cord to the AC inlet on the projector.

2. To keep the AC power cord from falling out, lock it with the safety latch.
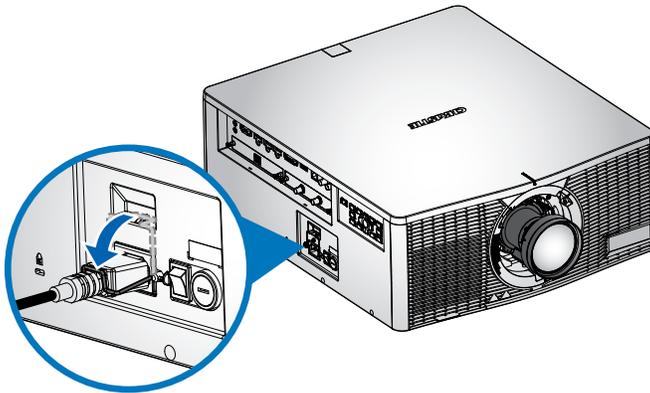
3. To unplug the AC power cord, pull up the safety latch.

Turning on the projector

The projector cables must be securely connected before turning the power on.

⚠️ **Warning!** If not avoided, the following could result in death or serious injury.
- Do not look into the projector lens when the laser is on. The bright light may result in permanent eye damage.

1. Plug the projector in to AC power.

   The Power button on the built in keypad is illuminated when the power cables are connected.

2. Ensure the lens has been installed in the projector.

3. Ensure that no one or no objects are in the beam path before turning on the projector.

4. To turn on the projector, on the IR remote keypad or on the built-in keypad press ⏻.

   The status LED is green with a long blink.

5. To select an input source and turn it on, on the IR remote keypad select **INPUT**.

   Available input sources are HDMI1, HDMI2, DVI, DisplayPort, HDBaseT (standard on 4K10-HS), and 3G-SDI (optional). The projector detects the source you selected and displays the image.

6. If using the projector for the first time, select a preferred language from the main menu after the startup screen is displayed.

Turning off the projector

Power off the projector in preparation for inspection or maintenance.

1. To turn the projector off, on the IR remote keypad or built-in keypad press ⏻.

   A warning message appears on the displayed image.

2. To confirm your selection, press ⏻ again.

   If you do not press ⏻ again, the warning message disappears after three seconds and the projector remains on.

LED status indicator

LED status indicator helps identify the projector state. LEDs are defined below.

Status LED

Identify the LED state colors and meaning.

LED status	Projector state
Off	AC power is off (without AC plugged in).
Green (flashing)	Projector is in startup mode.
Green (solid)	System is operating normally.
Blue (flashing)	Projector is cooling down.
Blue (solid)	Projector is in standby mode.
Yellow (flashing)	A problem exists with the projector that will not cause it to shut down. Examples of warnings include: filter needs changing, one of the pumps is damaged, or a fan is operating at full speed due to over temperature of laser diode (LD) driver.
Yellow (solid)	The end user is turning off the projector while it is in a warning state.
Red (flashing)	An error with the projector exists causing it to shut down. Examples of errors include: fan failure, over temperature, wrongly installed filter, or color wheel (CW) failure.
Red (solid)	The user is turning off the projector while it is in an error state.
White (flashing)	Projector is in a flash (LAN) update state.

Shutter LED

Identify the shutter LED state colors and meaning.

LED status	Projector state
Off	Projector is on and an image is displayed. Shutter is open.
Magenta (solid)	Projector is on and the image is blank. Shutter is closed.

Calculating the lens offset

Adjust the offset to align the image on the screen with half image size.

- The vertical image offset (shift) range for 4K7-HS/4K10-HS projectors is +/-140%.

- The horizontal image offset (shift) range for the projector is +/-60%.

- The method for calculating lens offset complies with industry standards, with which the image offset is calculated by half image size. For example for vertical lens offset:

  - At 0% offset (or on axis), the center of the image is on the lens center, so half of the image appears above and half appears below the lens center.

  - At +100% offset, all of the image appears above the lens center.

The following show the vertical and horizontal image offsets for the 4K7-HS/4K10-HS projectors:

- Vertical image offset: 0%
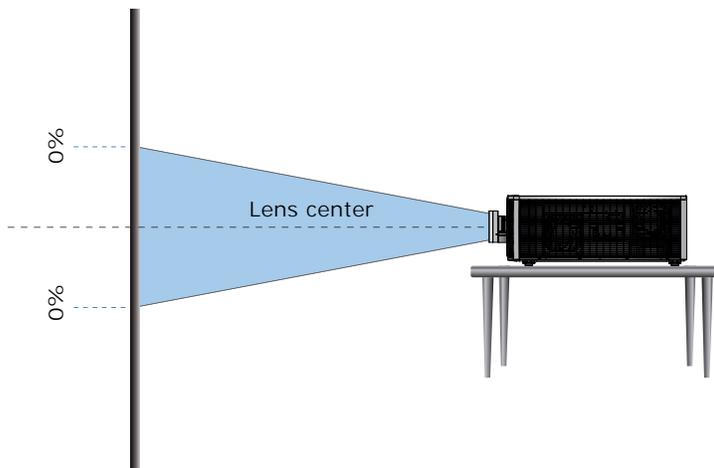
- Vertical image offset: +/-140%
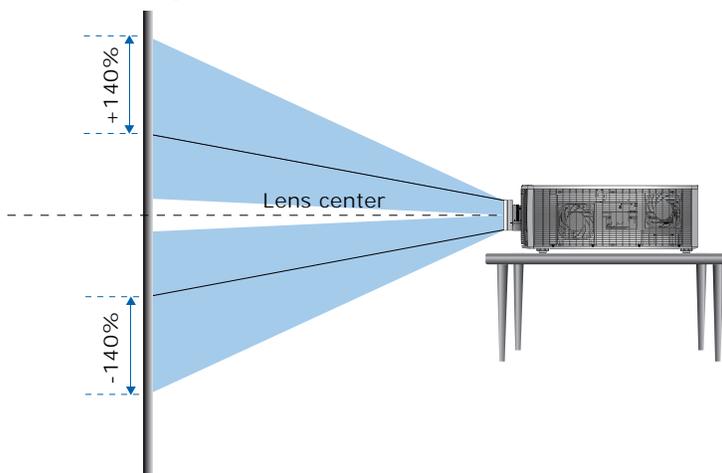
- Horizontal image offset: +/-60%
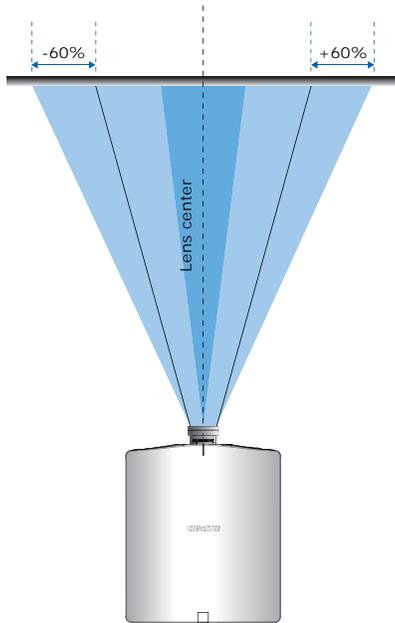
Adjusting boresight

The boresight adjustment turns the lens holder to remove the tilt between the lens and DMD to make the image clear, crisp, and sharp. To perform boresight adjustment, use an M4 Allen key to adjust the three boresight set screws on the lens holder.
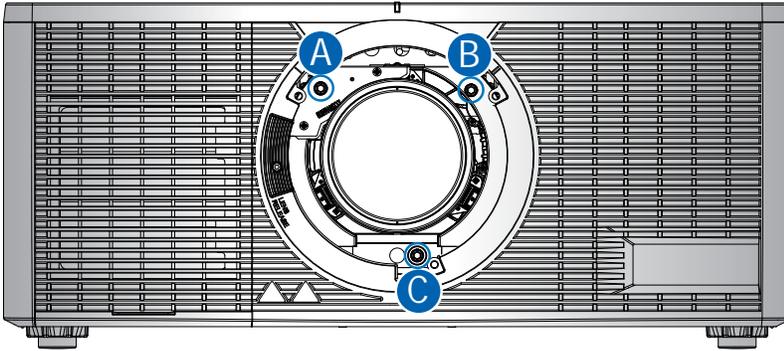
Items	Description
A, B, C	Boresight set screws • To tighten the set screws, turn counterclockwise. • To loosen the set screws, turn clockwise.

Christie recommends adjusting the set screws 1/4 turns each time. The balance between the set screws is subtle and a small adjustment can make an obvious change on the screen.

To perform boresight adjustment, complete the following steps:

1. Project a focus test pattern.
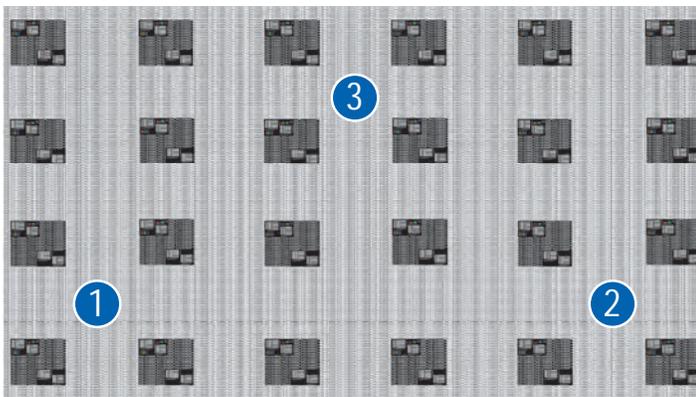
2. To optimize the focus of position 1 on the screen, press the **FOCUS** ▲ or ▼ key.

3. Once position 1 is in focus, check position 2. If position 2 is not in focus, use the **FOCUS** ▲ or ▼ key to bring position 2 into focus on the screen.

   • If pressing the **FOCUS** ▲ key results in position 2 coming into focus, turn the set screw A clockwise.

- If pressing the **FOCUS ▼** key results in position 2 coming into focus, turn the set screw A counterclockwise.

4. Refocus position 1 and check if position 2 is also in focus. If not, repeat step 3 and 4 until both position 1 and 2 are in focus.

5. To optimize the focus of position 3 on the screen, turn the set screw C clockwise or counterclockwise.

   - If pressing the **FOCUS ▲** key results in position 3 coming into focus, turn the set screw C clockwise.

   - If pressing the **FOCUS ▼** key results in position 3 coming into focus, turn the set screw C counterclockwise.

6. Repeat from step 2 until the projected focus pattern is as sharp as possible in the center, left, right, top, and bottom of the screen.

7. If the projector is still not in focus, reset the set screw position:

   a. Turn the set screws counterclockwise until tight.

   b. Turn the set screws 1.5 turns in the clockwise direction back to their factory default setting.

   c. Check that the alignment of the set screws matches what is shown in the image above.

Connecting to devices

This section covers the information on connecting the 4K7-HS/4K10-HS projector to a computer and video equipment.

Connecting to a computer

Learn what cables/connectors can be used to connect to various devices.
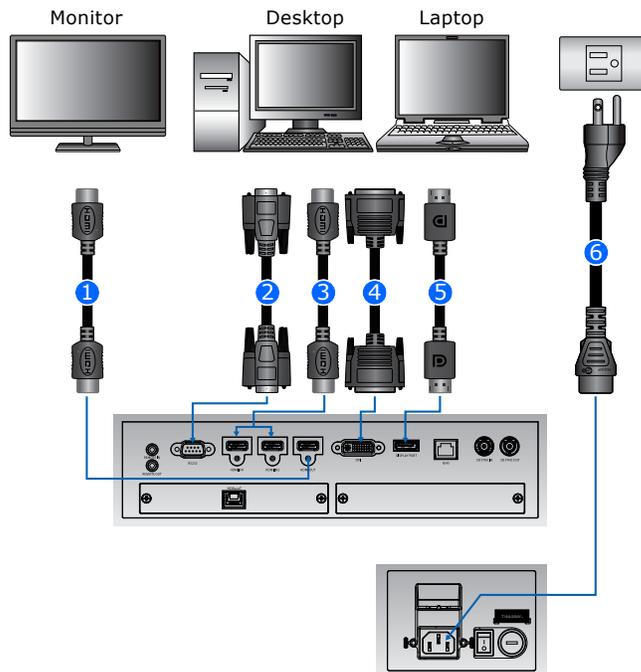
ID	Connector name	ID	Connector name
1	HDMI cable	4	DVI In cable
2	RS232 cable	5	DisplayPort cable
3	HDMI cable	6	Power cord

Connecting to video equipment

Learn what cable/connectors may be used to connect to various video sources.

Component video output equipment   DVD player   Video cassette recorder
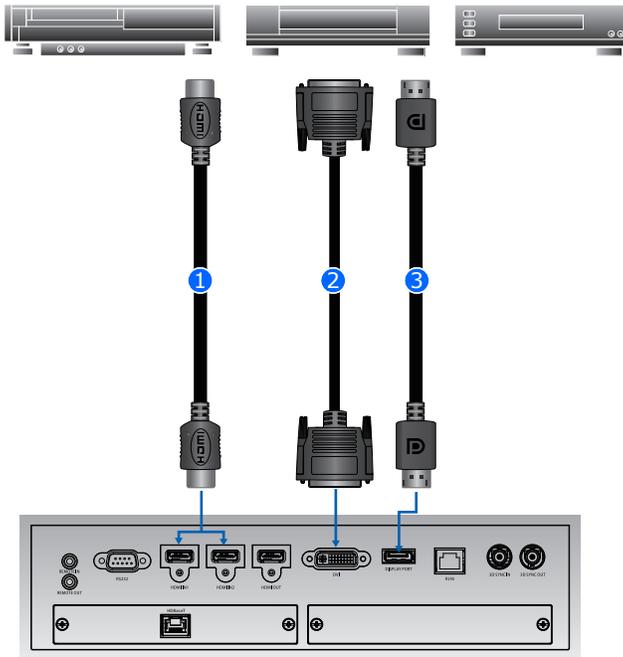
ID	Connector name	ID	Connector name
1	HDMI cable	3	DisplayPort cable
2	DVI In cable		

- After connecting the projector to an input device, the projector automatically detects the input source. You can also select an input source by pressing **INPUT**.
- Due to the difference in applications for each country, the accessories required in some regions may differ from those shown.
- This diagram is for illustrative purposes only and does not indicate that these accessories are supplied with the projector.

Signal connectivity specifications

Identify the signal connectivity specifications for 4K7-HS/4K10-HS projector.

The list of formats listed below are not exhaustive and other formats may be supported. For more information, contact Christie Technical Support.

HDMI video formats

Identify the video formats for the HDMI input.

Signal Type	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-Depth
PC	640x480	640	480	60,72,75,85,66.6	RGB/4:4:4/4:2:2	8/10/12bpc
	800x600	800	600	60,72,75,85,120	RGB/4:4:4/4:2:2	8/10/12bpc
	832x624	832	624	75	RGB/4:4:4/4:2:2	8/10/12bpc
	848x480	848	480	50,60,75,85	RGB/4:4:4/4:2:2	8/10/12bpc
	1024x768	1024	768	60,75,85,120	RGB/4:4:4/4:2:2	8/10/12bpc
	1152x864	1152	864	60,70,75,85	RGB/4:4:4/4:2:2	8/10/12bpc
	1152x870	1152	870	75	RGB/4:4:4/4:2:2	8/10/12bpc
	1280x720	1280	720	50,60,75,85,120	RGB/4:4:4/4:2:2	8/10/12bpc
	1280x768	1280	768	60,75,85	RGB/4:4:4/4:2:2	8/10/12bpc
	1280x800	1280	800	50,60,75,85	RGB/4:4:4/4:2:2	8/10/12bpc
	1280x960	1280	960	50,60,75,85	RGB/4:4:4/4:2:2	8/10/12bpc
	1280x1024	1280	1024	50,60,75,85	RGB/4:4:4/4:2:2	8/10/12bpc
	1360x768	1360	768	50,60,75,85	RGB/4:4:4/4:2:2	8/10/12bpc
	1368x768	1368	768	60	RGB/4:4:4/4:2:2	8/10/12bpc
	1400x1050	1400	1050	50,60,75	RGB/4:4:4/4:2:2	8/10/12bpc
	1440x900	1440	900	60,75	RGB/4:4:4/4:2:2	8/10/12bpc
	1600x900	1600	900	60	RGB/4:4:4/4:2:2	8/10/12bpc
	1600x1200	1600	1200	60	RGB/4:4:4/4:2:2	8/10/12bpc

Signal Type	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-Depth
PC	1920x1080	1920	1080	50,60	RGB/4:4:4/4:2:2	8/10/12bpc
	1920x1200RB	1920	1920	50,60	RGB/4:4:4/4:2:2	8/10/12bpc
SDTV	480i			60	RGB/4:4:4/4:2:2	8/10/12bpc
	576i			50	RGB/4:4:4/4:2:2	8/10/12bpc
EDTV	480p			60	RGB/4:4:4/4:2:2	8/10/12bpc
	576p			50	RGB/4:4:4/4:2:2	8/10/12bpc
HDTV	1080i			25,29,30	RGB/4:4:4/4:2:2	8/10/12bpc
	720p			50,59,60	RGB/4:4:4/4:2:2	8/10/12bpc
	1080p			23,24,25,29,30,50,59,60	RGB/4:4:4/4:2:2	8/10/12bpc
Mandatory 3D	Frame Packing 1080p			24	RGB/4:4:4/4:2:2	8/10/12bpc
	Frame Packing 720p			50,60	RGB/4:4:4/4:2:2	8/10/12bpc
	Top and Bottom 720p			50,60	RGB/4:4:4/4:2:2	8/10/12bpc
	Top and Bottom 1080p			24	RGB/4:4:4/4:2:2	8/10/12bpc
Frame sequential 3D	1920x1080			120	RGB/4:4:4	8bpc
4K	3840x2160	3840	2160	24,50,60	RGB/4:2:2	8/10/12bpc
	3840x2160	3840	2160	24,50,60	RGB/4:4:4	8bpc

DVI video formats

Identify the video formats for the DVI input.

Signal Type	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-Depth
PC	640x480	640	480	60,72,75,85,66.6	RGB	8bpc
	800x600	800	600	60,72,75,85,120	RGB	8bpc
	832x624	832	624	75	RGB	8bpc
	848x480	848	480	50,60,75,85	RGB	8bpc
	1024x768	1024	768	60,75,85,120	RGB	8bpc
	1152x864	1152	864	60,70,75,85	RGB	8bpc
	1152x870	1152	870	75	RGB	8bpc
	1280x720	1280	720	50,60,75,85,120	RGB	8bpc
	1280x768	1280	768	60,75,85	RGB	8bpc
	1280x800	1280	800	50,60,75,85	RGB	8bpc

Signal Type	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-Depth
PC	1280x960	1280	960	50,60,75,85	RGB	8bpc
	1280x1024	1280	1024	50,60,75,85	RGB	8bpc
	1360x768	1360	768	50,60,75,85	RGB	8bpc
	1368x768	1368	768	60	RGB	8bpc
	1400x1050	1400	1050	50,60,75	RGB	8bpc
	1440x900	1440	900	60,75	RGB	8bpc
	1600x900	1600	900	60	RGB	8bpc
	1600x1200	1600	1200	60	RGB	8bpc
	1920x1080	1920	1080	50,60	RGB	8bpc
	1920x1200RB	1920	1920	50,60	RGB	8bpc
SDTV	480i			60	RGB	8bpc
	576i			50	RGB	8bpc
EDTV	480p			60	RGB	8bpc
	576p			50	RGB	8bpc
HDTV	1080i			25,29,30	RGB	8bpc
	720p			50,59,60	RGB	8bpc
	1080p			23,24,25,29,30,50,59,60	RGB	8bpc
Frame sequential 3D	1920x1080			120* (dual link)	RGB	8bpc

DisplayPort video formats

Identify the video formats for the DisplayPort input.

Signal Type	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-Depth
PC	640x480	640	480	60,72,75,85,66.6	RGB/4:4:4/4:2:2	8/10/12bpc
	800x600	800	600	60,72,75,85,120	RGB/4:4:4/4:2:2	8/10/12bpc
	848x480	848	480	50,60,75,85	RGB/4:4:4/4:2:2	8/10/12bpc
	1024x768	1024	768	60,75,85,120	RGB/4:4:4/4:2:2	8/10/12bpc
	1152x720	1150	720	50,60,75,85	RGB/4:4:4/4:2:2	8/10/12bpc
	1152x864	1152	864	60,70,75,85	RGB/4:4:4/4:2:2	8/10/12bpc
	1280x720	1280	720	50,60,75,85,120	RGB/4:4:4/4:2:2	8/10/12bpc
	1280x768	1280	768	60,75,85	RGB/4:4:4/4:2:2	8/10/12bpc
	1280x800	1280	800	50,60,75,85	RGB/4:4:4/4:2:2	8/10/12bpc
	1280x960	1280	960	50,60,75,85	RGB/4:4:4/4:2:2	8/10/12bpc
	1280x1024	1280	1024	50,60,75,85	RGB/4:4:4/4:2:2	8/10/12bpc

Signal Type	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-Depth
PC	1360x768	1360	768	50,60,75,85	RGB/4:4:4/4:2:2	8/10/12bpc
	1368x768	1368	768	60	RGB/4:4:4/4:2:2	8/10/12bpc
	1400x1050	1400	1050	50,60,75	RGB/4:4:4/4:2:2	8/10/12bpc
	1440x900	1440	900	60,75	RGB/4:4:4/4:2:2	8/10/12bpc
	1600x900	1600	900	60	RGB/4:4:4/4:2:2	8/10/12bpc
	1600x1200	1600	1200	60	RGB/4:4:4/4:2:2	8/10/12bpc
	1920x1080	1920	1080	50,60	RGB/4:4:4/4:2:2	8/10/12bpc
	1920x1200RB	1920	1920	50,60	RGB/4:4:4/4:2:2	8/10/12bpc
SDTV	480i			60	RGB/4:4:4	6/8/10/12bpc
	576i			50	RGB/4:4:4	6/8/10/12bpc
EDTV	480p			60	RGB/4:4:4	6/8/10/12bpc
	576p			50	RGB/4:4:4	6/8/10/12bpc
HDTV	1080i			25,29,30	RGB/4:4:4	6/8/10/12bpc
	720p			50,59,60	RGB/4:4:4	6/8/10/12bpc
	1080p			23,24,25,29,30,50,59,60	RGB/4:4:4	8bpc
Frame sequential 3D	1920x1080			120	RGB/4:2:2	8/10/12bpc
4K	3840x2160	3840	2160	20,50,60	RGB/4:4:4	8bpc

HDBaseT video formats

Identify the video formats for the HDBaseT input. The HDBaseT extension card is installed on the 4K10-HS as a standard accessory. For 4K7-HS, purchase the card separately.

Signal Type	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-Depth
4K	3840x2160	3840	2160	50,60	RGB	8bpc
	3840x2160	3840	2160	50,60	4:4:4	8bpc
	3840x2160	3840	2160	50,60	4:2:0[*1]	10bpc[*2]
	3840x2160	3840	2160	50,60	4:2:0[*1]	10bdq HDR[*2]
	3840x2160	3840	2160	50,60	4:2:0[*1]	12bpc
	3840x2160	3840	2160	50,60	4:2:0[*1]	12bpc HDR
	3840x2160	3840	2160	50,60	4:2:2	8bpc[*2]
	3840x2160	3840	2160	50,60	4:2:2	10bpc[*2]
	3840x2160	3840	2160	50,60	4:2:2	10bdq HDR[*2]
	3840x2160	3840	2160	50,60	4:2:2	12bpc

Signal Type	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-Depth
4K	3840x2160	3840	2160	50,60	4:2:2	12bpc HDR
	3840x2160	3840	2160	25,30	RGB	10bpc
	3840x2160	3840	2160	25,30	RGB	12bpc
	3840x2160	3840	2160	25,30	4:4:4	10bpc
	3840x2160	3840	2160	25,30	4:4:4	10bdq HDR
	3840x2160	3840	2160	25,30	4:4:4	12bpc

1. The signal with sampling rate of 4:2:0 is output as 4:2:2 if utilized by DSC compression.
2. The 4:2:2 signals are always output as 12bits.

Picture-in-picture/picture-by-picture (PIP/PBP) compatibility

The following table details the picture-in-picture/picture-by-picture (PIP/PBP) compatibility.

PIP/PBP Matrix	DisplayPort	DVI	HDMI1	HDMI2	Extension Card -1	Extension Card -2
DisplayPort			●	●	●	●
DVI			●	●	●	●
HDMI1	●	●				
HDMI2	●	●				
Extension Card -1	●	●				
Extension Card -2	●	●				

- Dot (●): PIP/PBP combinations are enabled.

Regulatory

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

Safety

- IEC/EN 62368-1 – Audio/video, information and communication technology equipment –Part 1: Safety requirements
- ANSI/UL 62368-1 – Audio/video, information and communication technology equipment –Part 1: Safety requirements
- CAN/CSA C22.2 No. 62368-1-14 – Audio/video, information and communication technology equipment –Part 1: Safety requirements
- IEC 60950-1 – Information Technology Equipment – Safety – Part 1: General Requirements

Laser safety

- IEC 60825-1:2014 – Safety of Laser Products – Part 1: Equipment Classification and Requirements
- IEC 62471:2006 – Photobiological safety of lamps and lamp systems
- IEC 62471-5:2015 – Photobiological safety of lamps and lamp systems – Part 5: Image projectors
- FDA 2015-02 – Immediately in Effect Guidance Document: Classification and Requirements for Laser Illuminated Projectors (LIPs)

Electro-magnetic compatibility

Emissions

- FCC CFR47, Part 15, Subpart B/ANSI C63.4, Class A - Unintentional Radiators
- CAN ICES-3 (A/B) / NMB-3 (A)
- CISPR 32:2015+A1:2019 / EN55032:2015+A11:2020, Class A Information Technology Equipment

- IEC 61000-3-2/EN61000-3-2 - Limits for Harmonic Current Emissions
- IEC 61000-3-3/EN61000-3-3 - Limitations of Voltage Changes, Voltage Fluctuations, and Flicker

Immunity

- CISPR 35:2016 / EN55035:2017 – EMC Requirements - Information Technology Equipment

Environmental

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

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

- Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and the applicable official amendment(s)

- 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 requirement (SJ/T11364-2006)