Installation and Setup Guide

Boxer 4K

Boxer 4K20 (Bb.4) and Boxer 4K30 (Bb.1)

CHRISTIE®

NOTICES

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GENERAL

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Warranty

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

PREVENTATIVE MAINTENANCE

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

REGULATORY

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

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

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ENVIRONMENTAL

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

Content

Introduction

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

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

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

For complete Boxer 4K 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 is intended for use in a non-cinema environment.

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

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

- This product must be operated in an environment that meets the operating range as specified in this document.
- Do not look directly into the lens when the light source is on. The extremely high brightness can cause permanent eye damage.
- EXTREME BRIGHTNESS! When accessing a restricted access location for product service or maintenance, avoid exposure to the product beam path by turning the product power off and disconnecting the product from AC power, or by shuttering the light source to avoid emissions from the front aperture.
- ELECTRICAL and BURN HAZARD! Use caution when accessing internal components.
- FIRE HAZARD! Keep hands, clothes, and all combustible material away from the concentrated light beam of the projector.
- Keep fingers and other body parts away from the moving parts in the product. Tie back long hair, and remove jewelry and loose clothing before manually adjusting the product.
- FIRE AND SHOCK HAZARD! Use only the attachments, accessories, tools, and replacement parts specified by Christie.
- SHOCK HAZARD! Power supply uses double pole/neutral fusing. Disconnect all power sources before opening the product.
- FIRE HAZARD! Do not exceed 30 A for the breaker to power Input 1 on the projector.
- Install the product near an easily accessible AC receptacle.
- FIRE AND SHOCK HAZARD! Use only the attachments, accessories, tools, and replacement parts specified by Christie.

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

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

- The American Conference of Governmental Industrial Hygienists (ACGIH) recommends occupational UV exposure for an 8-hour day to be less than 0.1 microwatts per square centimeters of effective UV radiation. A workplace evaluation is advised to assure employees are not exposed to cumulative radiation levels exceeding the government guidelines for your area. Be aware that some medications are known to increase sensitivity to UV radiation.

Installation safety and warning guidelines

Read all safety and warning guidelines before installing the projector.

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

- Possible hazardous optical radiation emitted from this product. (Risk group 3)

- High leakage current present when connected to IT power systems.

- Christie products must be installed and serviced by Christie qualified technicians.

- Do not operate the product without all of its covers in place.

- A minimum of four people or appropriately rated lift equipment is required to safely lift, install, or move the product.

- Always install safety straps when the frame and projector are installed overhead.

- Observe load ratings and applicable local safety codes.

- When installing the projector in portrait mode, the rigging device must have a sufficient load rating, as identified in this manual.

- This product must be installed within a restricted access location not accessible by the general public.

- Install the product so users and the audience cannot enter the restricted area at eye level.

- Only personnel who are trained on the precautions for the restricted access location can be granted entry to the area.

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

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

- ELECTRICAL and BURN HAZARD! Use caution when accessing internal components.

- Only Christie qualified technicians are authorized to use the tools provided in the toolbox.

Light intensity hazard distance

This projector has been classified as Risk Group 3 as per the IEC62471 standard due to possible hazardous optical and thermal radiation being emitted.

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

- PERMANENT/TEMPORARY BLINDNESS HAZARD! No direct exposure to the beam must be permitted.

- PERMANENT/TEMPORARY BLINDNESS HAZARD! Operators must control access to the beam within the hazard distance or install the product at the height that prevents exposure of spectators' eyes within the hazard distance. The hazard zone must be no lower than 3.0 meters above the floor and the horizontal clearance to the hazard zone must be a minimum 2.5 meters.

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

The following show the zones for ocular and skin hazard distances.
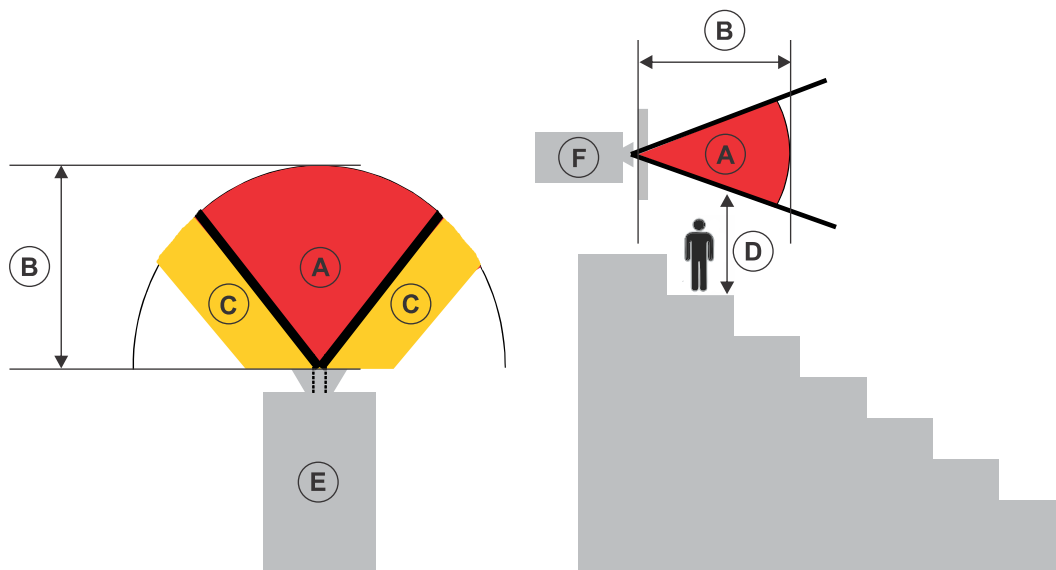
- A—Hazard zone. The region of space where the projection light from the projector is above emission limits for Risk Group 2. The light intensity may cause eye damage after a momentary or brief exposure (before a person can avert his or her eyes away from the light source). The light may cause skin burns to occur.

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

- C—No access zone. Horizontal clearance of the no access zone must be a minimum of 2.5 meters.

- D—Vertical distance to hazard zone. The hazard zone must be no lower than 3.0 meters above the floor.

- E—Represents the top view of the projector.

- F—Represents the side view of the projector.

The following table lists the hazard distance for the Christie projector lens with the zoom adjusted to its most hazardous position.

Projection lens	Part number	Hazard distance (m)
0.38:1	144-136101-XX	0.6
0.72:1 HB fixed lens	144-110103-XX	0.6
0.9:1 fixed lens	144-111014-XX	0.7
1.13-1.31:1 HB zoom lens	144-103105-XX	1.1
1.31-1.63:1 HB zoom lens	144-104106-XX	1.3
1.63-2.17:1 HB zoom lens	144-105107-XX	1.7
1.99-2.71:1 HB zoom lens	144-106108-XX	2.2
2.71-3.89:1 HB zoom lens	144-107109-XX	3.1
3.89-5.43:1 HB zoom lens	144-108100-XX	4.2
4.96-7.69:1 HB zoom lens	144-109101-XX	6.0

Product labels

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

General hazards

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

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

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

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

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

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

Explosive material hazard. To avoid personal injury, disconnect all power sources before performing maintenance or service, and wear Christie-approved protective clothing.

Bright light hazard. To avoid personal injury, never look directly at the light source.

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

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

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

Pinch hazard. To avoid personal injury, keep hands clear and loose clothing tied back.

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

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

General hazard.

Not for household use.

Mandatory action

Disconnect all power sources before performing maintenance or service procedures.

Consult the service manual.

Electrical labels

Indicates the presence of a protective earth ground.

Indicates the presence of an earth ground.

Additional hazard labels

Risk Group 3 warning: Indicates a potential optical radiation hazard emitted from this product. Thermal radiation emitted from this product may cause burns.

Projector overview

Learn about the Boxer 4K projector.

The Boxer 4K is a professional quality, easy-to-use projector using Digital Light Processing (DLP^{TM}) technology from Texas Instruments. Integrating smoothly into traditional projection environments, the Boxer 4K interfaces with local networks throughout the world, for multimedia presentations from a variety of formats, to offer stunning wide screen, high resolution 4K images at 60 frames per second.

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	

Ethernet settings	
Subnet mask	

Key features

Understand the important features of the projector.

- Built in warp and blend of projected images
- Near field communication
- Multi-lamp module with no lamp alignment required
- Improved lens mount with bayonet style insertion
- Single phase 200-240 V
- Side access to optical adjustments
- 4K resolution for flexibility and future proofing
- Omnidirectional operation
- TruLife electronics
- LCD display to provide information at-a-glance

How the projector works

The Boxer 4K accepts a variety of input signals for projection on front or rear projection screens, typical in commercial or other large screen applications.

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

List of components

Verify all components were received with the projector.

- Power cord for full brightness, six lamp operation
- Power cord for limited power, single lamp operation
- IR remote keypad

Product documentation

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

Boxer 4K, Boxer 2K, Boxer 30

1. Access the documentation from the Christie website:
   - Go to *http://bit.ly/2mpf6QK* or
     https://www.christiedigital.com/en-us/business/products/projectors/3-chip-dlp/boxer-series
   - Scan the QR code using a QR code reader app on a smartphone or tablet.
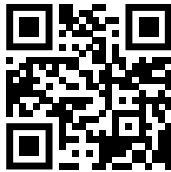
2. On the product page, select the model and switch to the **Downloads** tab.

Related documentation

Additional information on the projector is available in the following documents.
   - *Boxer 4K User Guide (P/N: 020-101777-XX)*
   - *Boxer Product Safety Guide (P/N: 020-101780-XX)*
   - *Boxer 4K Service Guide (P/N: 020-101699-XX)*
   - *Boxer 4K Serial Commands Guide (P/N: 020-101697-XX)*
   - *Boxer 4K Status System Guide (P/N: 020-101695-XX)*

Installation and setup

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

Site requirements

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

Physical operating environment

Provides specifications for the operating environment.

- Ambient temperature (operating) 5 to 40°C (41 to 104°F) up to 457.2 m (1500 ft)
- Humidity (non-condensing) 10 to 80%
- Operating altitude: 3,000 m (10,000 ft) maximum at 5 to 25°C (41 to 77°F) ambient

Power connection

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

To operate at full brightness (six lamps), power the projector using AC Input 1 if the appropriate high power source is available. To operate in limited power mode (single lamp), power the projector using standard lower power sources using AC Input 2. A different power cord is provided for each power source. A 30A rated wall breaker is required at the installation when using Input 1. A 15A rated wall breaker is required at the installation when using Input 2.

Projector components

Identify the main components of the projector.
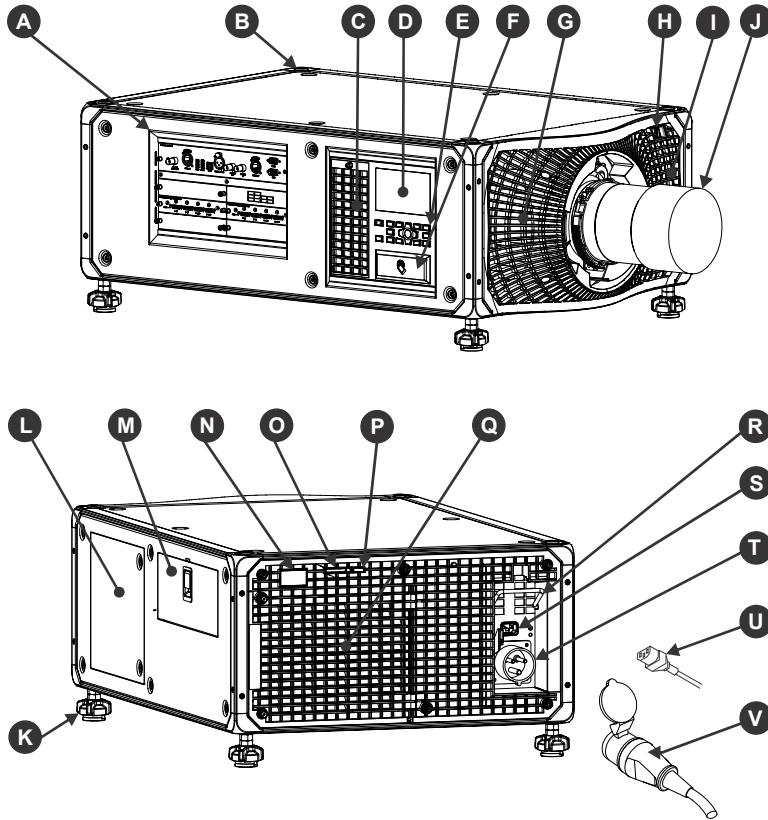
ID	Component	Description
A	Communication and input panel	Connects media sources to either the ports on the option cards or the IMXB.
B	Mounting and rigging holes	M12 x 1.75 holes for projector feet installation and offer mounting and rigging points.
C	User interface air filter door	Provides to the user interface air filter.
D	Display panel	Displays the projector menus and status.
E	Keypad interface	Controls the projector.
F	Christie TAP Enables	Android devices to communicate with the projector using near field communication.
G	Electronics-side filter door	Provides access to the electronics-side air filter.
H	Front IR	Receives transmissions from the IR remote.
I	Lamp-side filter door	Provides access to the lamp-side air filter.
J	Projection lens	A variety of lenses can be used with the projector. Available lenses are listed in accessories.

ID	Component	Description
K	Adjustable feet	Raise or lower these feet when positioning the projector to make sure it is level on all sides so the displayed image appears rectangular without any keystone.
L	Service compartment	Access to fold mirror, optical zoom/focus, and DMD convergence adjustments.
M	Tool box	Provides tools for Christie qualified technicians.
N	Rear IR	Receives transmissions from the IR remote.
O	LED status indicator	Indicates lamp and power status.
P	Shutter LED status indicator	Indicates shutter status.
Q	Lamp door	Access to lamp compartment.
R	AC lock	Locks Input 1 power cord.
S	AC Input 2: limited power	Use this IEC 320-C14 inlet to connect to an appropriately rated power cord (component R) provided for your region. For use in limited power mode.
T	AC Input 1: full power	Use this IEC 309 inlet to connect to an appropriately rated power cord (component S) provided for your region. For use in full power mode.
U	Power cord: limited power	Connects the provided power cord appropriately rated for your region to AC Input 2 for limited power mode.
V	Power cord: full power	Connects the provided power cord appropriately rated for your region to AC Input 1 for full power mode.

IR remote keypad

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

To use the IR remote, direct the keypad toward the projector's front or rear IR sensor and press a function key. One of the two IR sensors on the projector detect the signal and relay the commands for internal processing. The remote also offers a connector for wired connections to the projector.
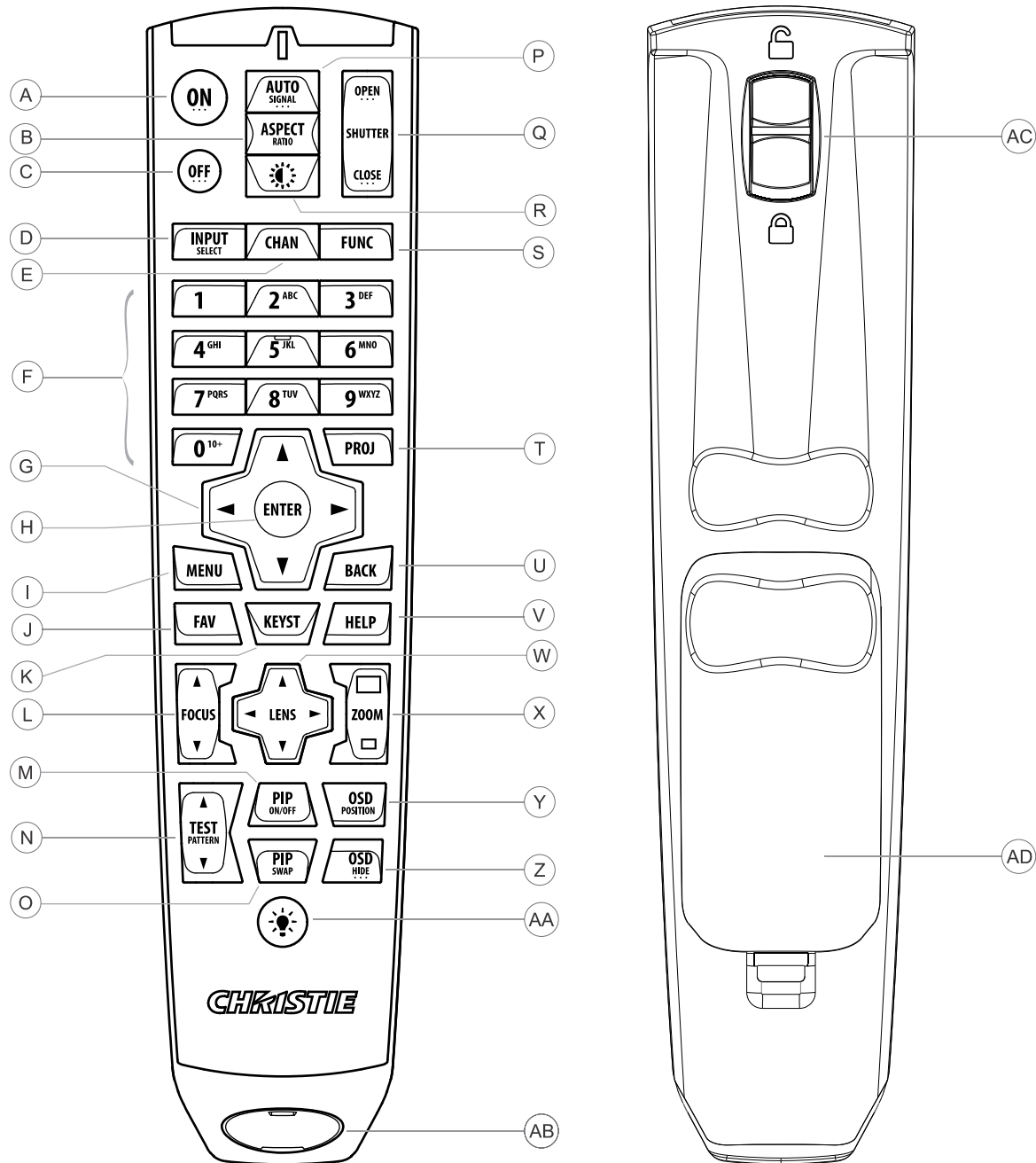
Button	Description
A	Powers on the projector light source.
B	Opens the aspect ratio dialog.
C	Turns off the light source and puts the projector in standby.
D	Selects an active or inactive input on any slot.
E	Not supported.

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

Display panel components

Identify the main components of the display panel (also known as the home page).
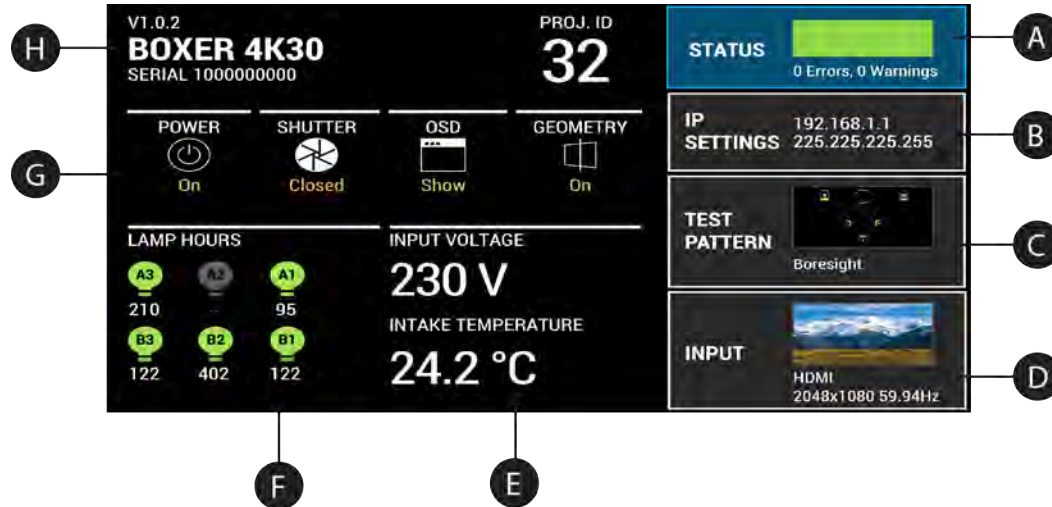
ID	Component	Description
A	Status	Contains information about the health of the projector including the number of warnings and errors. Provides access to the status system.
B	IP Settings	Displays the IP address and subnet values. Provides access to changing the IP settings.
C	Test Pattern	Displays the currently selected test pattern. If no test pattern is selected, Off is displayed. Provides access to the list of test patterns.
D	Input	Displays the signal for the currently selected input. Provides access to the list of input signals.
E	Power and Temperature	Indicates the incoming voltage, measured in Volts, and intake temperature, measured in Celsius.
F	Lamp Hours	Displays the state of the lamps and the number of hours used.
G	Projector and Component Controls	Indicates the states of the projector and its components.
H	Projector Information	Provides information about the projector such as the projector name, serial number, software version, and projector ID.

Positioning the projector

Position the projector in relation to the screen.

For information on positioning the projector in a rigging frame, refer to the *Assembling the Precision 1 Rigging Frame (P/N: 020-102719-XX)* or *Assembling the Boxer Rigging Frame (P/N: 020-102018-XX)* instruction sheet.

1. Position the projector with the lens perpendicular to the screen.

   Keep the projector lens as perpendicular to the screen as possible, even if significantly above the screen center. When a particularly short throw distance combines with a wide screen, you may have to forfeit some aim and stay more perpendicular to the screen. In such cases, some lens offset can reduce the keystone distortion.

2. Center the projector with the screen.

Leveling the projector

Use the projector feet to level the projector.

1. To adjust the vertical position of the projector, extend or retract the adjustable feet on the bottom of the projector using the adjustable knobs on the feet.
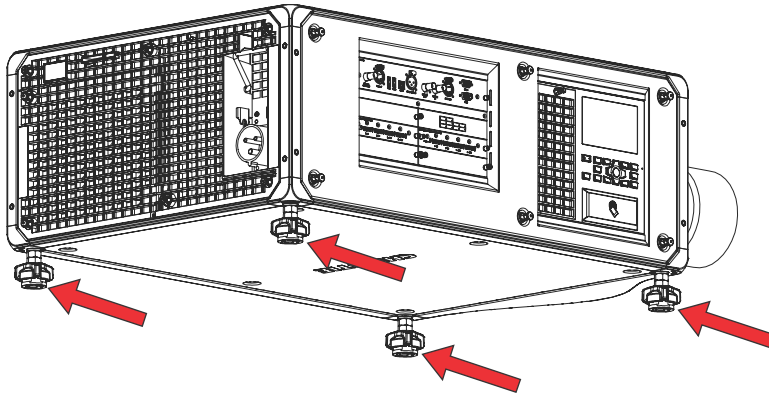
   The projector feet are removable and can be moved to the top of the projector to run in an inverted orientation.

2. Once the required adjustment is made, using a wrench, tighten the lock nut against the bottom of the projector.

Installing the projector lens

Only use lenses designed for Boxer 4K projectors. Installing a lens not designed for Boxer 4K, results in a warning that the lens is not present.

1. Remove the lens caps from the lens.

   The packaging tape is required to ensure safe shipment of the projection lens to restrain the zoom ring from rotating during shipping.

2. Align the guides on the front cover and the lens marked by a red line.
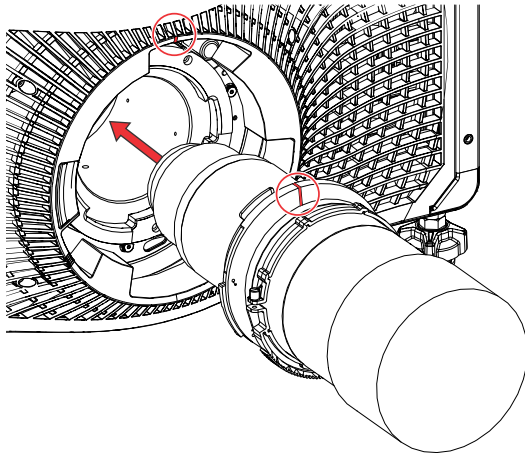
3. Insert the lens into the projector and turn it clockwise until you hear two clicks.

   The first click indicates the safety lock mechanism has been engaged.

4. Continue to turn the lens clockwise until you hear a second click.

   The second click indicates the lens is fully locked in position. The top center label should face up and be aligned to the lens guide on the front cover.
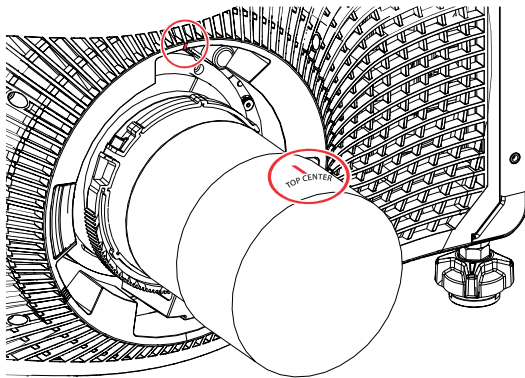
Connecting to AC power

The Boxer 4K projectors can operate in full or limited power modes, depending on the available or required AC power source.

Power mode	Functionality
Input 1: Full power	• Six lamp mode • 30 amp rated connector • 200 - 240 VAC • Full brightness
Input 2: Limited power	• Single lamp mode • 15 amp rated connector • 100 - 130 VAC; 200 - 240 VAC

Power mode	Functionality
	• Less brightness

To connect AC power to the projector:

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

2. If using full power mode, to ensure AC power cord does not fall out, pull down the safety latch and lock in place.

   To unplug, press tab and pull up the latch to release.
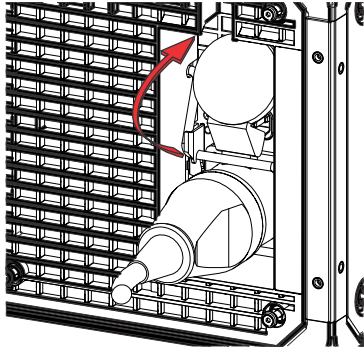
Turning on the projector

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

> ⚠ **Warning!** If not avoided, the following could result in death or serious injury.
> • SHOCK HAZARD! Do not attempt operation if the AC supply is not within the specified voltage and current, as specified on the license label.

1. Plug the projector into AC power.

   When plugged in, the projector automatically powers on to standby mode within 60 seconds. The display panel functionality becomes available.

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

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

Related information

Projector LED status indicators

Identify the LED state colors and meaning.

LED	State		Description
Blue	Solid	Standby	Light source is off. Video electronics are off. Projector status is OK.

LED	State		Description
	Flashing	Cool down	Projector is moving to one of the two standby states: • Light source is off and video electronics are booting up. • Light source is off. Video electronics and light source is cooling down.
Green	Solid	Light source on	Light source is on. Projector status is OK.
	Flashing	Startup	Projector is moving to light source on state. Light source is warming up. Video electronics are initializing.
Yellow	Solid	Warning in standby	Projector is in standby state. A problem exists with the projector that does not prevent it from operating.
	Flashing yellow/green	Warning during startup	Projector is in a startup state. A problem exists with the projector that does not prevent it from operating.
	Flashing	Warning with light source on	Light source is on. A problem exists with the projector that will not cause it to shut down.
	Flashing yellow/blue	Warning during cool down	Projector is in a cool down state. Light source is off. Video electronics and light source are cooling down. A problem exists with the projector that does not prevent it from operating.
Red	Solid	Error in standby	Projector is in standby. An error exists that prevents the projector from starting up.
	Flashing	Error	An error with the projector exists during startup, cool down, or when the light source is off. Projector will proceed to shut down.
Off		AC off	The AC power is off.

Projector LED shutter indicators

Identify the shutter LED state colors and meaning.

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

Lamp states

Learn the LED states of the lamp.

LED	State	Description
	Off	Lamp is off.
	On	Lamp is on.
	Warming up	Lamp is warming up.
	Cooling down	Lamp is cooling down.
	Hours exceed user limit	Displayed if the user set a warning level and the hours exceed it.
	Failed to strike	Lamp failed to strike.
	Lamp off - Unknown	Lamp is off but the state is unknown because the lamp driver could not be communicated with.
	Lamp off - Interlock	Lamp is off due to an interlock being triggered.
	Missing	Lamp is not installed.

Turning off the projector

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

1. To turn the light source off using the projector keypad, press and hold the ⏻ button until you hear a beep.

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

   When powering off the projector, allow the projector to complete its cool down cycle. Do not immediately unplug the projector if this can be avoided.

2. To turn off power to the projector, disconnect from AC power.

Calibrating the lens motor

Ensure the lens motor is calibrated before using the projector.

If the lens motors are not calibrated properly, implications may include:

- Incorrect reporting of the lens motor position.
- Inability to use the full range of the lens motors.
- Lens motors traveling outside of the pre-defined keep-out area.
- 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 and/or jostled.
- After any manual adjustment is made to the zoom or focus.

To calibrate the lens:

1. Select **MENU** > **Configuration** > **Lens Settings** > **Lens Calibration**.
2. Select **Enter**.

Removing the projection lens

Use the correct method of removing the lens.

1. Push in and hold the lens release button.
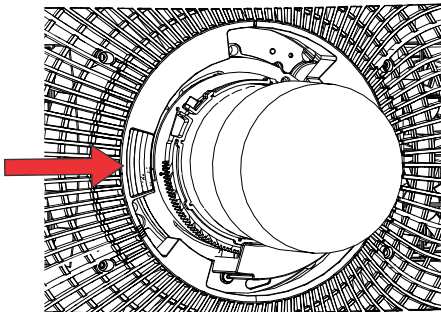
2. Turn the lens counterclockwise until the lens guides are aligned.
3. Slide the lens straight out of the projector.
   If the lens does not slide out easily, reset the lens offset before removing the lens.
4. Attach the lens cap to avoid damage.

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

   - Once the lens removal has begun the safety retention features of the lens are defeated. To re-engage the safety lock mechanism, the lens must be removed and re-inserted, or fully rotated clockwise until a click is heard.
   - Packaging tape is required to ensure safe shipment of the projection lens to restrain the zoom ring from rotating during shipping.

Aligning the image

Only perform image alignment after the projector is fully assembled and powered up in its final location.

Basic image alignment ensures the image reflected from the DMDs is parallel and well-centered with the lens and screen. This initial optical alignment is the foundation for optimizing images on the screen and must be completed before final boresight adjustments. Before beginning, make sure the projector is properly positioned in relation to the screen.

1. Ensure the projector is positioned in the throw distance range for the particular lens.

2. Display a test pattern.

3. Do a quick preliminary focus and (if available) zoom adjustment with the primary lens.

   Do not worry about consistency across the image at this point, just center focus. It is good practice to have zoom adjustment color and focus adjustment color in the center of its range.

4. Holding a piece of paper at the lens surface, adjust offsets as necessary until the image is centered within the lens perimeter. A full black field works best for this.

5. If the projector is mounted off center to the screen axis, offset the lens as much as required. Aim the projector over slightly towards the center of the screen, but use caution when doing so, as too much tilt will cause excessive keystone distortion.

6. With a framing pattern on screen, double-check projector leveling so the top edge of the image is parallel to the top edge of the screen.

Selecting a test pattern

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

1. From the display panel, use the arrows to select **Test Pattern**.

   You can also select the test patterns from **MENU** > **Test Pattern** or pressing **N** on the IR remote.

2. Scroll through the list of test patterns.

3. Select the required test pattern.

4. To confirm your selection, select **Enter**.

Adjusting offset

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

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

1. Project an image with the primary lens.

2. Select a framing test pattern.

3. Select **LENS OFFSET**.

   You can also select **MENU** > **Configuration** > **Lens Settings** > **Lens Offset**.

4. Use the arrows to adjust the offset to display a square image on the screen, with minimal projector aiming error.

5. To exit to the home page, select **Back**.

Resetting the lens to home position

Realign the lens to the home position after the lens has been offset and out of alignment.

1. Select **LENS OFFSET**.
   You can also select **MENU** > **Configuration** > **Lens Settings** > **Lens Offset**.

2. To reset the lens to the default home position, select **Enter**.

3. To confirm the reset, select **OK**.

Adjusting boresight

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

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

   • Do not look directly into the lens when the light source is on. The extremely high brightness can cause permanent eye damage.

1. Close the shutter on the projector.

2. Unlock the three lens mount stabilization screws.
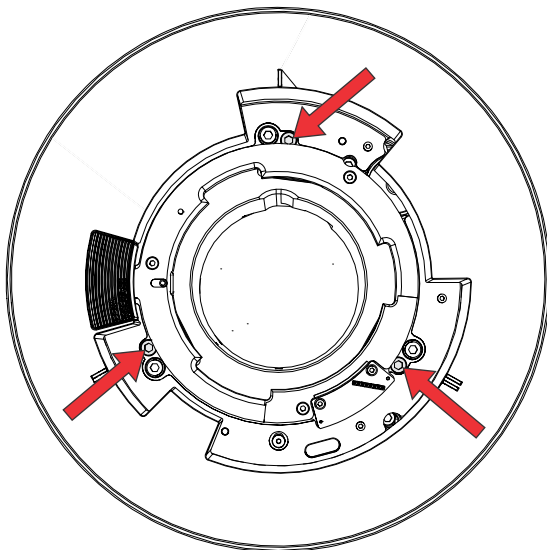
3. Open the shutter.

4. From the Test Pattern menu, select the **Boresight** test pattern.
   The Boresight test pattern assists with adjusting the boresight for the three focus points.
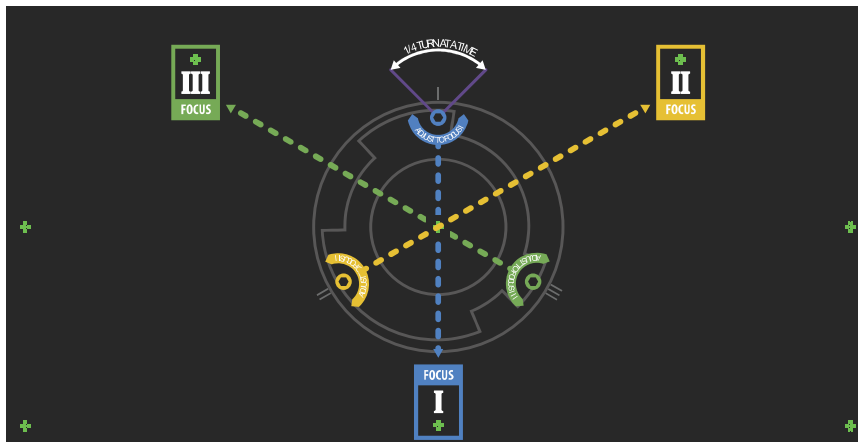
5. To focus the bottom boresight guide, adjust the blue boresight screw.

   Adjust the screw 1/4 inch. If you get to the end, further unlock the corresponding stabilization screw.
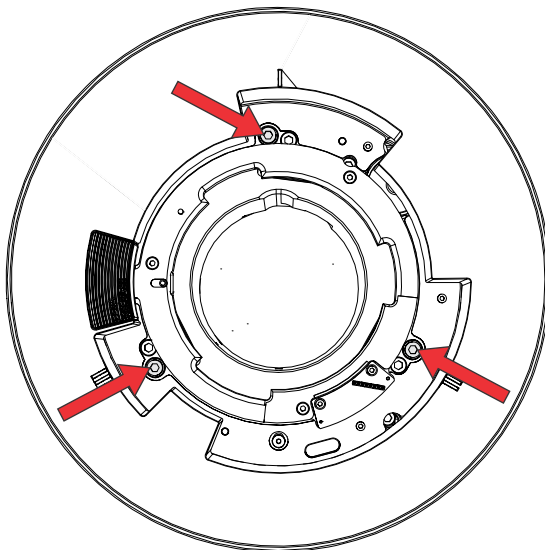
6. To focus the right boresight guide, adjust the green boresight screw.

7. To focus the left boresight guide, adjust the yellow boresight screw.

8. To continue to refine the focus, repeat steps 5 to 7.

9. Before adjusting the stabilization screws, close the shutter.

10. To maintain the adjustments, lock the stabilization screws.

    When locking the screws, start with the top stabilization screw and turn it so it just touches the base. Repeat for the other two stabilization screws. Continue to adjust the locking screws until they are tight.

11. Open the shutter.

Adjusting the fold mirror

Fold mirror adjustment must be completed by trained personnel and with the projector in single lamp mode.

> ⓘ **Notice.** If not avoided, the following could result in property damage.
>
> • Misalignment of the fold mirror may cause permanent damage to the product.

1. Set the projector to minimum power.

2. From the Test Pattern menu, select the **Integrator Rod** test pattern.
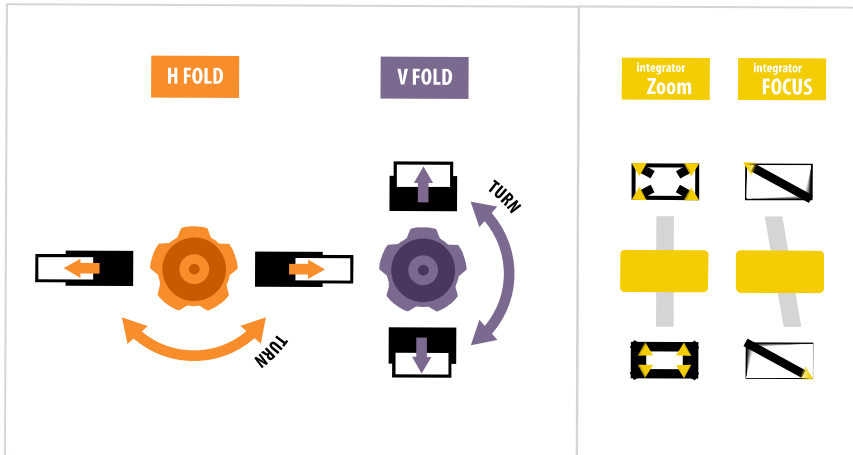
3. Open the Service door on the side of the projector.

4. Unlock the fold mirror screws to unlock the adjustment knobs.
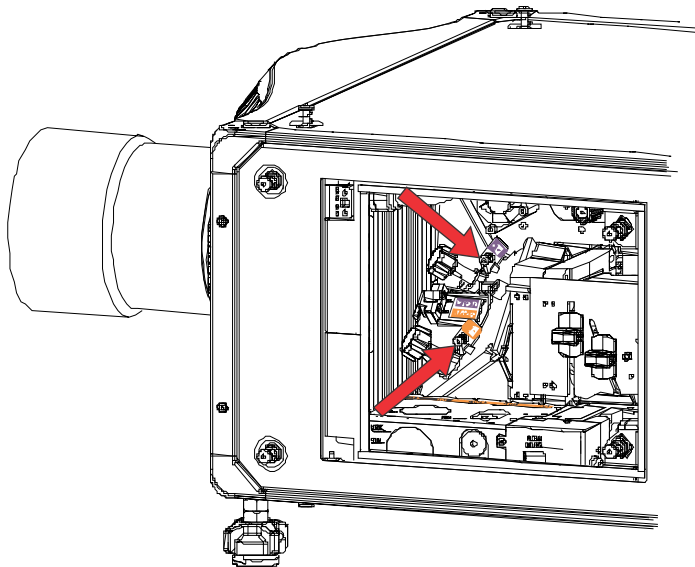
5. To make horizontal adjustments, use the orange knob labeled Horizontal.

6. To make vertical adjustments, use the purple knob labeled Vertical.

7. To continue to refine the fold mirror adjustment, repeat the horizontal and vertical adjustments.

8. Lock the fold mirror screw to lock the adjustment knobs.

9. Once satisfied with the alignment, increase the projector power.

Optimizing the integrator zoom and focus

1. From the Test Pattern menu, select the **Integrator Rod** test pattern.
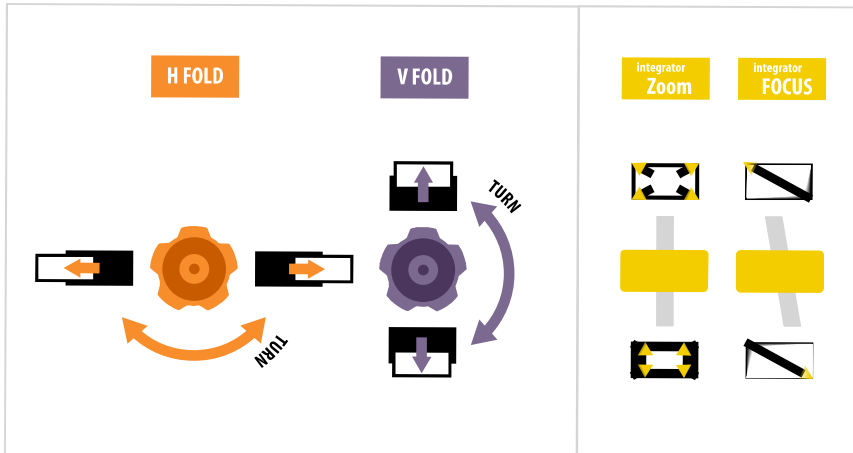
2. Open the Service door on the side of the projector.

3. Unlock the Zoom and Focus paddles.
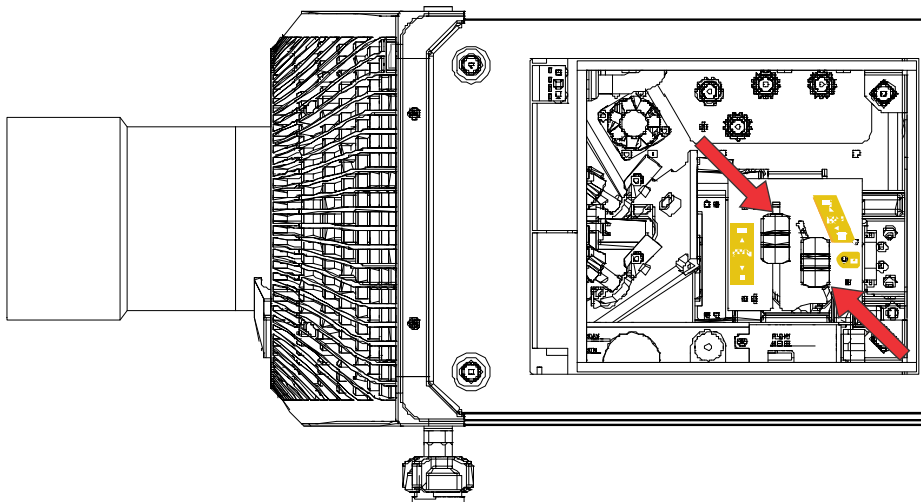
4. Adjust the magnification using the Zoom paddle.
   Make sure you do not see any corners.
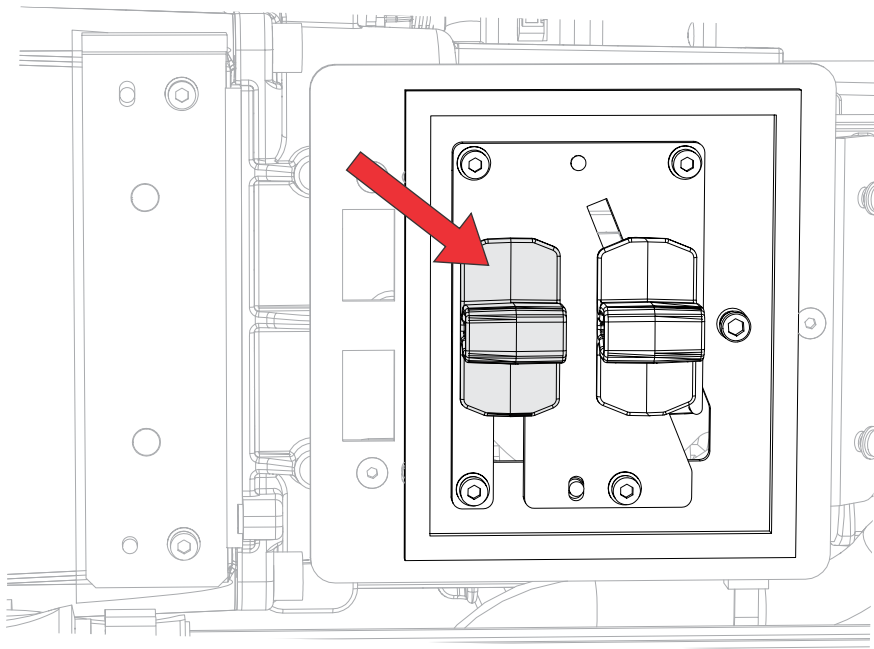
5. Adjust the focus using the Focus paddle.
   Always focus the center of the image first and then make sure no blurry edges exist.
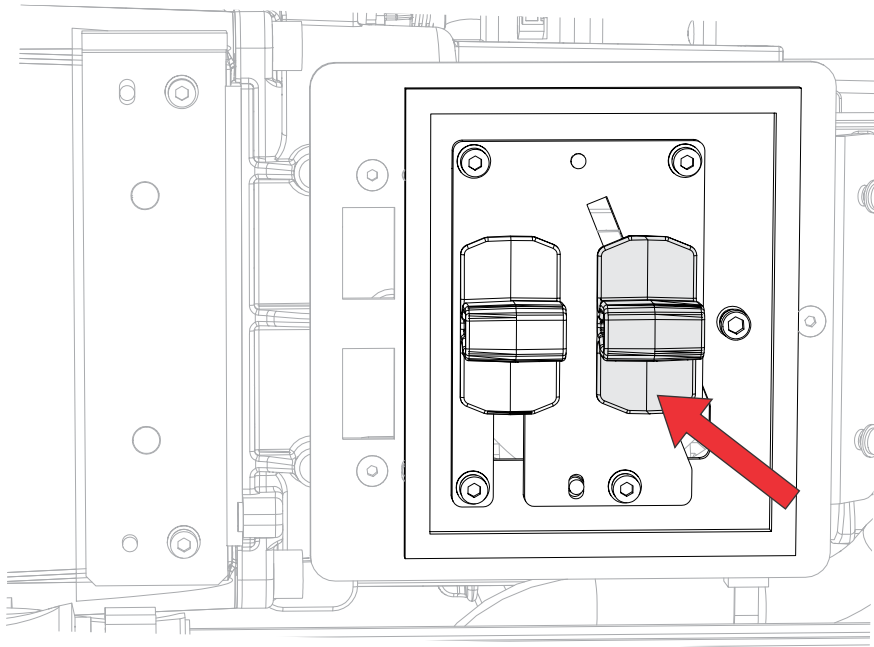
6. To continue to refine the zoom and focus, repeat steps 4 and 5.
7. When complete, lock the Zoom and Focus paddles.

Adjusting DMD convergence

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

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

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

1. From the Test Pattern menu, select the **Convergence** test pattern.
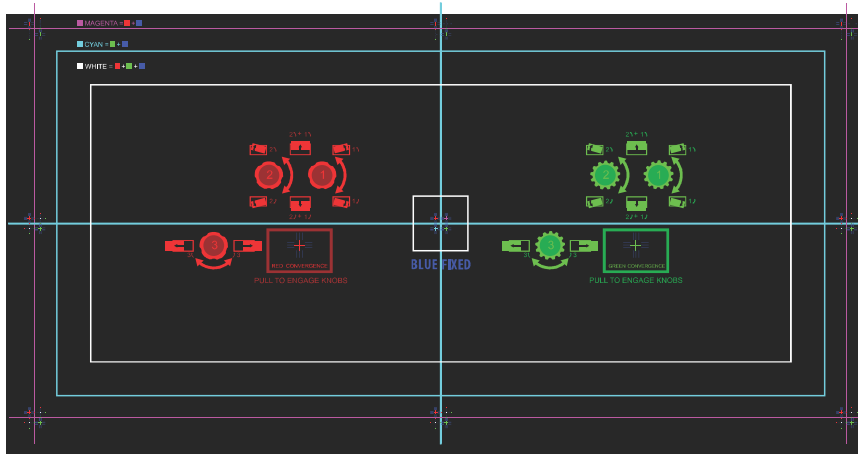
2. Open the Service door on the side of the projector.

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

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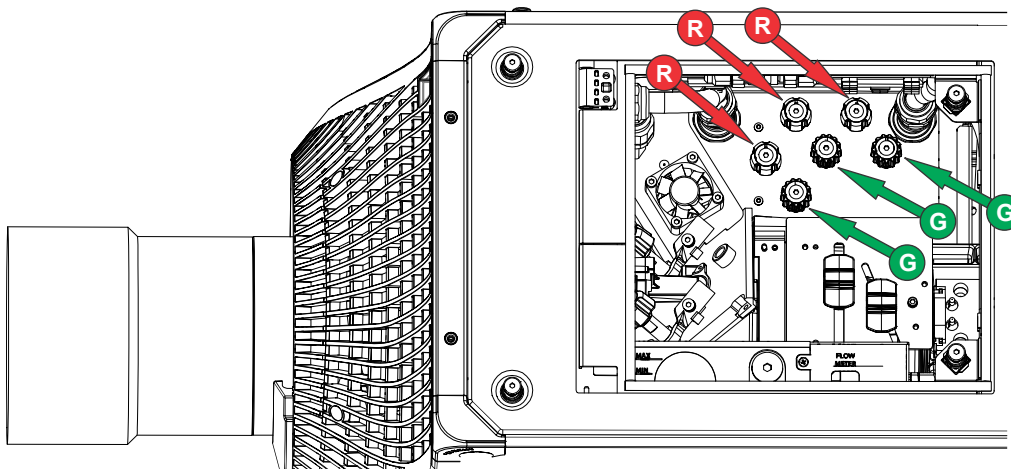
4. Use the Convergence test pattern to assist with adjusting the horizontal and vertical lines.

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

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

Aligning the image with lens zoom and focus

The lens zoom and focus adjustment allows the projected image to be focused and shifted to align with the screen.

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

Running Auto Setup to optimize display settings

Auto Setup initiates an automated process in which the projector optimizes video settings for the active signal. Auto Setup helps to save time in perfecting a display and you can modify the adjustments as required.

1. Make sure of the following before running Auto Setup:
   - *Test patterns are turned off* (on page 26).
   - The active signal is valid.
2. From the remote, select **Auto Signal** or from the web UI, select **Auto Setup**.
3. Select **Run Auto Setup**.
   The system optimizes the active signal and displays a progress message on screen.

Configuring Boxer 4K to work with Christie Link

Configure Boxer 4K to work with Christie Link, which provides a fully integrated fiber solution for long range video transport.

1. Turn on Boxer 4K.
2. From the side panel home page, verify the Boxer firmware is v1.3.0 or later.
3. Verify the HBMIC has been installed in slot 0.
4. To enable the Christie Link option, select **MENU** > **Configuration** > **Input Settings** > **Enable Christie Link (Slot 0)**.
   This option is disabled if an HBMIC is not installed.
5. Select **Enter**.
6. Select the QSFP+ option as the input setting.
   a) From the side panel home page, select **Input**.
   b) On the Input selection page, select the appropriate input marked **Christie Link**.

More than one input source may be listed as **Christie Link**, depending on how many signals are being sent from Christie Link. For example, 0-1, 0-2, and so on, where 0 is the slot number.

Related information

Connecting devices and establishing communication

Learn how to connect external devices to the projector.

Communication and input ports are located on the projector side input panel (operator side). The image below shows an example of the video option card slot numbers and the IMXB panel; your panel may look different.

Video sources can be connected to either the ports on the video option cards or the HDBaseT port on the IMXB.
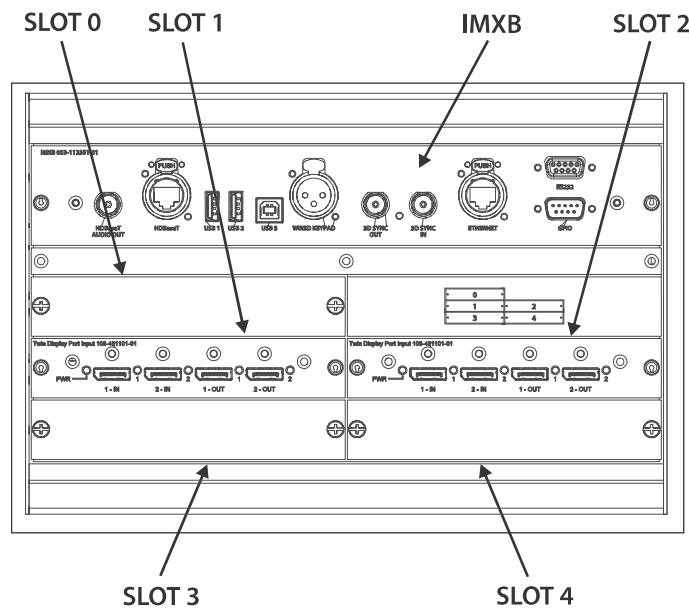
IMXB ports

The IMXB has a variety of ports that can be used for control, 3D sync, upgrading, retrieving interrogators, and connecting audio.
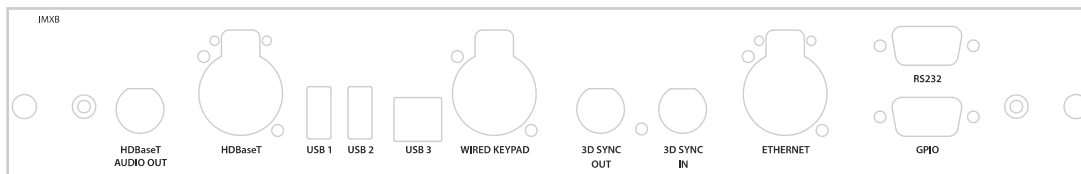
Port	Description
Audio Out	Not supported.
HDBaseT	Accepts video signals, Ethernet, and IR.
USB 1/USB 2	Connects a USB flash drive that has been formatted with a FAT32 file system. Can be used for upgrades, backups, restores,a nd interrogators.
USB 3	For manufacturing use only.
Wired Keypad	Physically connects a remote control to the projector.
3D Sync In/3D Sync Out	Supported for 3D-enabled projectors.
Ethernet	Connects to the web user interface and can send Christie serial commands.
RS232	Sends Christie serial commands using a standard RS232 serial cable.
GPIO	Provides a method for controlling the projector using electrical signals.

Connecting a video source using 3G input card

The 3G input card (3GIC) accepts digital video data from HD and 3G-SDI (Serial Digital Interface) sources.

Part number: 108-313101-02+

The port configurations listed below are supported.

Input configuration	Description	Requirements
Four-Port	Enables connection of four SDI cables to two 3GIC cards. Each SDI input supplies one quadrant or column of a 4K input image. This configuration supports high resolution and high frame rate input video streams.	Two 3GIC cards
One-Port	Enables connection of one SDI cable to the 1-IN input of a 3GIC card (in any slot). In this configuration the SDI input supplies the entire video raster.	One 3GIC card
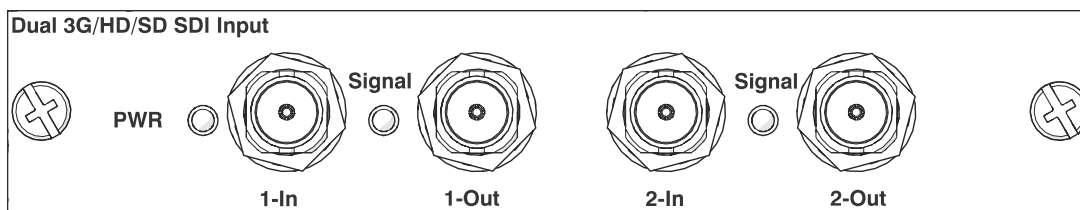
This card may or may not be included with your model. Standard inputs are subject to change.

Related information

Optional input cards (on page 44)

Connecting a video source using DVI

The Dual Link DVI input card (DDIC) accepts digital video source from DVI sources. It does not support incoming analog signals.

Part number: 108-312101-XX

The port configurations listed below are supported.

Input configuration	Description	Requirements
Four-Port	Enables connection of four DVI cables to four DDIC cards. Each DVI input supplies one quadrant or column of a 4K input image. This configuration supports high resolution and high frame rate input video streams.	Four DDIC cards
Two Port	Enables connection of two DVI cables to two DDIC cards. Each DVI input supplies one of two columns of a 4K image.	Two DDIC cards
One-Port	Enables connection of one DVI cable to the DVI input of a DDIC card (in any slot). In this configuration, the DVI input supplies the entire video raster.	One DDIC card

This card may or may not be included with your model. Standard inputs are subject to change.

Related information

Optional input cards (on page 44)

Connecting a video source using DisplayPort

The Twin DisplayPort input card (TDPIC) or QDPIC card accepts digital video data from the DisplayPort sources.

Part number: 108-451101-XX (TDPIC) and 144-114107-XX (QDPIC)

The port configurations listed below are supported.

Input configuration	Description	Requirements
Four-Port	Enables connection of four DisplayPort cables to two or four TDPIC cards or one QDPIC card. Each DisplayPort input supplies one quadrant or column of a 4K input image. This configuration supports high resolution and high frame rate input video streams.	Two or four TDPIC cards or one QDPIC card
Two-Port	Enables connection of two DisplayPort cables to two TDPIC cards or one QDPIC card. Each DisplayPort input supplies one of two columns of a 4K input image.	Two TDPIC cards or one QDPIC card

Input configuration	Description	Requirements
One-Port	Enables connection of one DisplayPort cable to a TDPIC card or one QDPIC card. In this configuration the DisplayPort input supplies the entire video raster.	One TDPIC card or one QDPIC card

This card may or may not be included with your model. Standard inputs are subject to change.

Related information

Optional input cards (on page 44)

Connecting a video source using HDMI

The Twin HDMI input card (THIC) accepts digital video data from HDMI sources.

Part number: 108-311101-XX

The port configurations listed below are supported.

Input configuration	Description	Requirements
Four-Port	Enables connection of four HDMI cables to two THIC cards. Each HDMI input supplies one quadrant or column of a 4K input image. This configuration supports high resolution and high frame rate input video streams.	Two THIC cards
One-Port	Enables connection of one HDMI cable to the 1-IN input of a THIC card (in any slot). In this configuration, the HDMI input supplies the entire video raster.	One THIC card
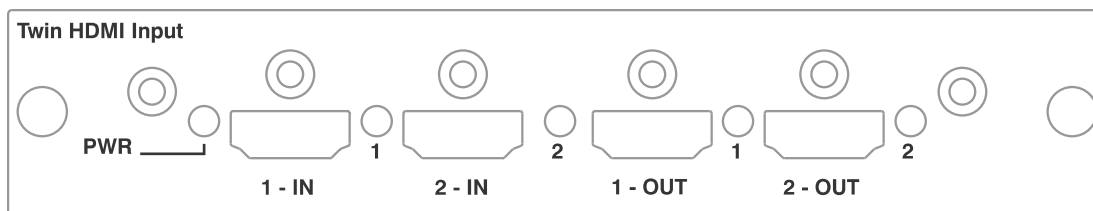
This card may or may not be included with your model. Standard inputs are subject to change.

Related information

Optional input cards (on page 44)

Connecting a video source using HBMIC

The high bandwidth multi-input card (HBMIC) accepts digital video data from QSFP+, DisplayPort, HDMI, and 12G, 6G, 3G, and HD SDI sources.

Part number: 144-116109-XX

Input configuration	Description	Requirements
One-Port	Enables connection of any one of the input standards, processes it, and routes it to the backplane interface. The module allows for concurrent processing of HDMI 2.0, DisplayPort 1.2, and SDI inputs to enable preview capability and fast syncing/switching between inputs. It can also be switched to Christie Link mode allowing interfacing with the Christie Link transmitter.	1 HBMIC card
One-Port, Dual-Input 3D	May be used for SDI inputs.	1 HBMIC card
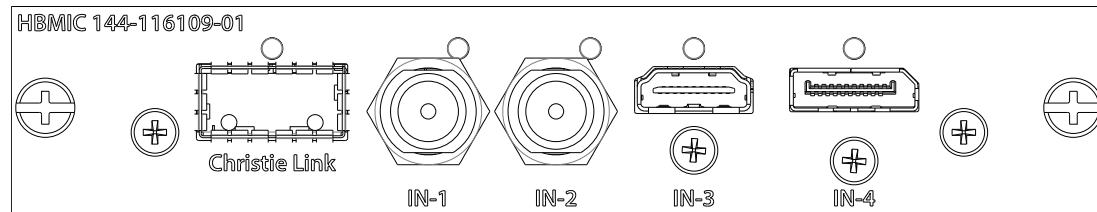
Related information

Optional input cards (on page 44)

Connecting a video source using TSIC

The Terra SDVoE (TSIC) input card accepts digital video data from a Christie Terra Transmitter.

Part number: 144-132107-XX

The port configuration listed below is supported.

Input configuration	Description	Requirements
One-Port	Enables a connection from an SDVOE source (such as the Christie Terra Transmitter) and routes it to the backplane interface. Refer to the signal chart for more information about what resolution, frame rates, and formats are supported based on the projector the card is installed in.	1 TSIC card

```
TSIC 144-132107-01


                                      TX    RX
                                    LINK
         SDVOE 10GbE
            SFP+                              AUDIO OUT
```
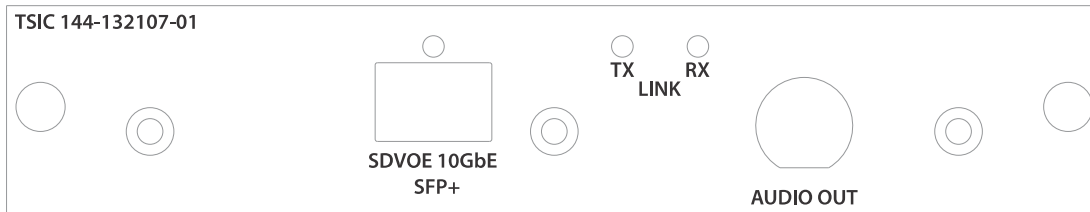
This card may or may not be included with your model. Standard inputs are subject to change.

Connecting a video source using HDBaseT

The HDBaseT port on the IMXB accepts digital video data from HDBaseT sources.

The port configurations listed below are supported.

Input configuration	Description	Requirements
One-Port	Enables connection of one Ethernet cable to the HDBaseT port on the IMXB. The HDBaseT input supplies the entire video raster.	N/A

This card may or may not be included with your model. Standard inputs are subject to change.

Related information
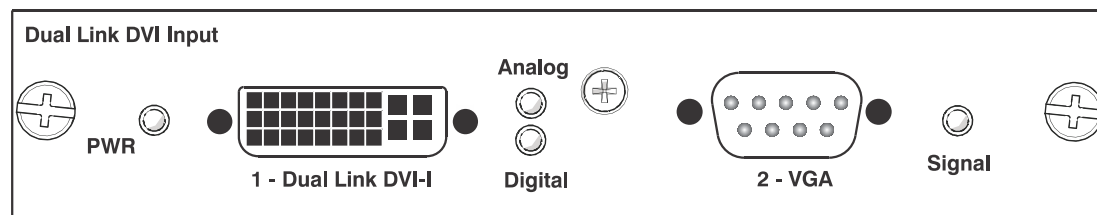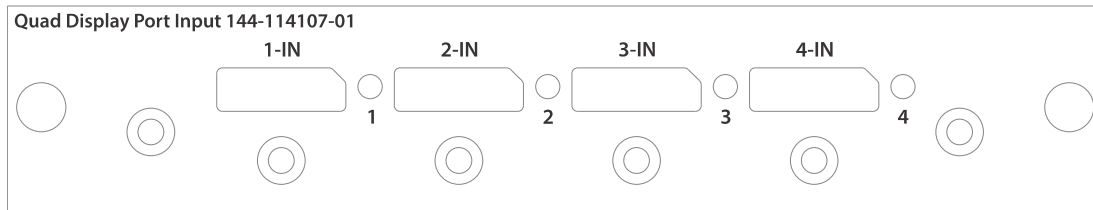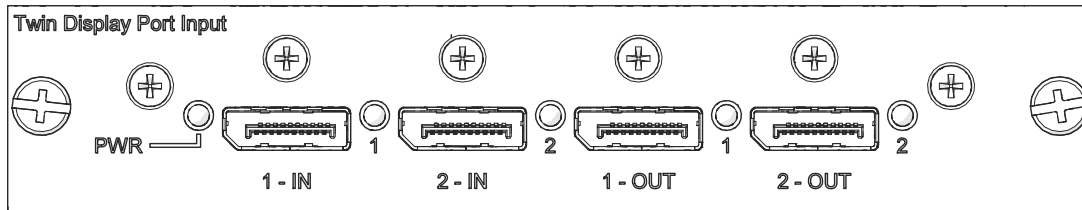
Optional input cards (on page 44)

Selecting a port configuration

Select a port configuration before you select a video source.

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

2. To access the port configuration dialog from the input screen, select the right arrow.

   You can also access the Port Configuration screen from **MENU** > **Configuration** > **Input Settings** > **Input Port Configuration**.

3. From the Port Configuration screen, navigate the list of port configurations until you find the selection that best matches your configuration.

   The range of available configuration depends on the projector model and/or input/output combinations. When the Default configuration is selected (**Main Menu** > **Configuration** > **Input Settings** > **Video Input configuration** > **Default**), the following configurations are supported:

   * One-port
   * Two-port
   * Four-port quadrants
   * One-port dual-input 3D (3D license-specific)

   When SDVoE is selected (**Main Menu** > **Configuration** > **Input Settings** > **Video Input configuration** > **SDVoE**), the one-port configuration is selected.

4. To return to the Input screen, select the left arrow.

Selecting a video source

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

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

2. Navigate the list of input selections until you find a selection that best matches your configuration.

   The range of available input selections depends on the projector model and/or input/output combinations. When the Default configuration is selected, the following inputs are supported for each configuration:

   • One-port—HDMI, SDI, DisplayPort, Christie Link, HDBaseT

   • Two-port—DisplayPort, Christie Link

   • Four-port quadrants—SDI

   • One-port dual-input 3D (3D license-specific)—SDI, DisplayPort, Christie Link

   When SDVoE is selected, the HDMI, SDVoE, Christie Link, and HDBaseT inputs are supported for the one-port configuration.

3. To select the input, select **Enter**.

Connecting to a computer or server

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

The RS232 port located on the IMXB faceplate uses Christie-proprietary protocol and is intended for Christie accessories or automation controllers only.

For more information, on the serial commands, see the *Boxer 4K Serial Commands Guide (P/N: 020-101697-XX)* .

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

2. When using the Christie serial protocol over Ethernet, connect to port 3002.

3. For applications or equipment using serial communications, use the Christie-proprietary serial protocol to communicate with the RS232 port on the IMXB faceplate.

Configuring the RS232 port

Configure the RS232 port to send Christie serial commands using a standard RS232 serial cable.

For more information, on the serial commands, see the *Boxer 4K Serial Commands Guide (P/N: 020-101697-XX)* .

1. Select **Menu** > **Communications** > **Projector Communication**.

2. Use the down arrow to select **Baud Rate**.

3. Select the appropriate baud rate and select **Enter**.

4. Use the down arrow to select **Network Routing**.

5. Select the type network routing appropriate for your projector and select **Enter**.

Setting up the Ethernet

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

Christie recommends using the Ethernet port on the IMXB as the HDBaseT port is limited to 100 Mb/s.

> You cannot change the IP settings using the web interface.

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

Boxer 4K Specifications

Learn about the product specifications. Due to continuing research, specifications are subject to change without notice.

Display

Learn about the display specifications.

Panel resolution and refresh rate	
Pixel format (H x V square pixels)	4096 x 2160
Processing path	23.97 - 60 Hz

Achievable contrast ratio
450:1 ANSI, up to 1800:1 Full Frame ON/OFF

Color and grayscale resolution	
Displayable colors	35.2 trillion
Grayscale resolution	45 bits total linear, 15 bits per RGB component

White point	
Nominal white (full white, after calibration)	x = 0.300 +/- 0.050
	y = 0.300 +/- 0.050

Gamma	
Nominal	2.2 ± 5%

Control signal compatibility

Ethernet port	
Interface	10Base-T/100Base-TX
Connector	Female RJ-45

3D sync	
Connector	BNC Male
Interface	TTL inputs and outputs

RS232 in	
Connector	9-pin subminiature D, female
Bit rate	115,200 bps
Data format	1 start bit, 8 data bits, 1 stop bit, no parity

GPIO	
Connector	DE-9 Male
Interface	CDS GPIO/3D Trigger Support - 7bit configurable

Wired remote	
Connector	3-pin XLR female
Interface	Custom

Shipped input cards

The following table details which input cards are shipped with the Boxer models.

Model	Part number	Shipped option cards
Boxer 4K30	144-001012-01 144-001012-02	2 x TDPIC 2 x 3GIC
	144-001012-03	1 x HBMIC 4 blank faceplates
Boxer 4K20	144-011103-01	1 x HBMIC
Boxer 2K30	144-009100-01	1 x HBMIC
Boxer 2K25	144-008109-01	1 x HBMIC
Boxer 2K20	144-007108-01	1 x HBMIC
Boxer 30	144-006107-01 144-006107-02	1 x TDPIC 1 x 3GIC
	144-006107-03	1 x HBMIC 4 blank faceplates
Mirage 304K	144-001023-01 144-001023-02	4 x TDPIC

Optional input cards

Learn about the input cards that may be used with the projector.

Input card	Part number	Additional information
Dual 3G SD/HD-SDI	108-313101-02+	—

Input card	Part number	Additional information
Dual Link DVI (DDIC)	108-312101-02+	Analog signals are not supported for this input card; therefore VGA port and VGA to DVI converters are not supported.
Twin HDMI (THIC)	108-311101-XX	—
Twin DisplayPort (TDPIC)	108-451101-XX	—
Terra SDVoE (TSIC)	144-132107-XX	—
Quad DisplayPort (QDPIC)	144-114107-XX	—
High Bandwidth Multi-Input Card (HBMIC)	144-116109-XX	—

Related information

Control signal compatibility (on page 43)

Temperature sensor thresholds

The projector shutdowns within one minute of an error threshold being reached.

Location	Warning (°C)	Error (°C)	Remarks
Air intake	47	—	
Main control board	82	95	
Main control board FPGA	82	—	
Backpane	82	95	
Image processor scaler	82	95	
Image processor warp-red	82	95	
Image processor warp-green	82	95	
Image processor warp-blue	82	95	
Formatter-Red	82	95	
Red DMD	60	65	
Formatter-Green	82	95	
Formatter-Blue	82	95	
Option card 0	82	95	
Option card 1	82	95	
Option card 2	82	95	
Option card 3	82	95	
Option card 4	82	95	

Location	Warning (°C)	Error (°C)	Remarks
Housekeeping board	82	95	
Lamp driver A1	95	—	
Lamp driver A2	95	—	
Lamp driver A3	95	—	Driver not present in Boxer 2K20.
Lamp driver B1	95	—	
Lamp driver B2	95	—	
Lamp driver B3	95	—	Driver not present in Boxer 2K20 and Boxer 2K25.
Power supply heatsink 2	85	—	
Power supply heatsink 3	70	—	
Power supply heatsink 5	85	—	

Warning thresholds for fans

Learn the warning thresholds (in RPMs) for each fan. All fan warnings are set to ~75% of their normal operating speeds.

Location	Warning
Bulb blower B3	100
Bulb blower B2	100
Bulb blower B1	100
Bulb blower A3	100
Bulb blower A2	100
Bulb blower A1	100
Lamp fan B3	100
Lamp fan A3	100
Lamp fan B2	100
Lamp fan A2	100
Lamp fan B1	100
Lamp fan A1	100
Radiator fan A	800
Radiator fan B	800
Radiator fan C	800
Radiator fan D	800
HIP blower A	800

Location	Warning
HIP blower B	800
Intake A	800
Intake B	800
Lamp driver intake	800
Lamp driver exhaust	800
Formatter-green	800
Formatter-red	800
Formatter-blue	800
LAD blower A	800
LAD blower B	800
Card cage exhaust 1	1600
Card cage exhaust 2	1600
Card cage intake 1	1600
Card cage intake 2	1600

Warning threshold for liquid cooling module

Learn the warning thresholds (in RPMs) for the liquid cooling components.

Location	Warning
Liquid cooling pump	180 RPM

Power requirements

Learn the power requirements for Boxer 4K projector.

Parameter	Requirement
Rated voltage	
Input 1	200 - 240 VAC
Input 2	100 - 130 VAC; 200- 240 VAC
Rated current	
Input 1	19A maximum
Input 2	13.8 - 10.6 A; 9.3 - 7.7 A
Line frequency	50/60 Hz
AC input coupler	
Input 1	IEC 309, 32 A/250 VAC

Parameter	Requirement
Input 2	IEC 320 - C14, 15 A/125 VAC, 10 A/250 VAC
Inrush current	40 A maximum
Maximum power consumption	
Input 1	3800 W
Input 2	1380 W

Physical specifications

Learn the dimensions and weight of the projector.

Description	Dimensions
Projector size	
Overall size, case only (L x W x H) (excluding lens, stack, and feet)	939.8 x 596.9 x 304.8 (mm) 37 x 23.5 x 12 (inches)
Overall size (L x W x H) (includes skid)	1207 x 838 x 654 (mm) 47.5 x 33 x 25.75 (inches)
Projector weight	
Without lens	73 kg (160 lbs)
Shipping without lens (includes packaging)	95 kg (210 lbs)
Operating position	Omni-directional

Accessories

Learn about the accessories available for the projector.

Projection lenses (sold separately)

Description	Part number
0.38:1 HB fixed	144-136101-XX
0.72:1 HB fixed	144-110103-XX
0.9:1 fixed	144-111014-XX
1.13-1.31:1 HB zoom	144-103105-XX
1.31-1.63:1 HB zoom	144-104106-XX
1.13-1.66:1 HB zoom	144-129103-XX
1.45-2.17:1 HB zoom	144-130105-XX
1.63-2.17:1 HB zoom	144-105107-XX

Description	Part number
1.95-3.26:1 HB zoom	144-131106-XX
1.99-2.71:1 HB zoom	144-106108-XX
2.71-3.89:1 HB zoom	144-107109-XX
3.89-5.43:1 HB zoom	144-108100-XX
4.98-7.69:1 HB zoom	144-109101-XX

Miscellaneous

Other accessories (sold separately)	
Description	**Part number**
IR remote	003-120918-XX
Mystique	900-100285-XX 900-100286-XX 900-100274-XX 900-100275-XX
Christie Guardian	156-134109-XX 156-135100-XX
Rigging frames	144-112015-XX
Rigging handles	144-134109-XX

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

- Use appropriate packaging when shipping the product installed in the frame.

Regulatory

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

Safety

- ANSI/UL 60950-1 – Information Technology Equipment – Safety – Part 1: General Requirements
- CAN/CSA C22.2 No. 60950-1
- EN 60950-1
- IEC 60950-1 IEC/EN 60950-1 – Information Technology Equipment – Safety – Part 1: General Requirements
- IEC 62471-1 – Photobiological Safety of Lamps and Lamp Systems

Near field communication reader

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

- Changes or modifications not expressly approved by Christie Digital Systems USA Inc. could void the user's authority to operate the equipment.
- Contains: FCC ID: XU6-NFCR, IC : 8691A-NFCR

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033387-15-2919

Electro-magnetic compatibility

Emissions

- CAN ICES-003 (A)/NMB-003 (A) – Information Technology Equipment (Including Digital Apparatus) – Limits and Methods of Measurement
- CISPR 22/EN 55022, Class A
- FCC CFR47, Part 15, Subpart B, Class A – Unintentional Radiators
- IEC 61000-3-2/EN61000-3-2: Limits for Harmonic Current Emissions

Immunity

- IEC 61000-3-3/EN61000-3-3
- IEC/EN61000
- IEC 61000-4-2/EN61000-4-2
- IEC 61000-4-3/EN61000-4-3
- IEC 61000-4-4/EN61000-4-4
- IEC 61000-4-5/EN61000-4-5
- IEC 61000-4-6/EN61000-4-6
- IEC 61000-4-8/EN61000-4-8
- IEC 61000-4-11/EN61000-4-11

Environmental

- China Ministry of Information Industry (along with 7 other Government Agencies) Order No.32 (01/2016) on the control of pollution caused by electronic information products, hazardous substances concentration limits (GB/T 26572 - 2011), and the applicable product marking requirement (SJ/T 11364 - 2014).
- EU Directive (2011/65/EU) on the restriction of the uses of certain hazardous substances (RoHS) in electrical and electronic equipment and the applicable official amendment(s).
- EU Directive (2012/19/EU) on waste and electrical and electronic equipment (WEEE) and the applicable official amendment(s).

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

Environment

Learn about the environment requirements for projector while operating and not operating.

Operating environment	
Temperature	5 to 40°C (41 to 104°F)
Humidity (non-condensing)	10 to 80%
Altitude	3000 meters (10,000 feet) maximum at 10 to 25°C (50 to 77°F) ambient

Non-operating environment	
Temperature	-40 to 70°C (-40 to 158°F)

Signal connectivity specifications

Identify the signal connectivity specifications for Boxer 4K.

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

For a list of supported Christie Link video formats, see the *Christie Link User Manual (P/N: 020-102234-XX)*.

HBMIC video formats

Identify the video formats for the HBMIC card.

DisplayPort 1.2

This interface supports HDCP 1.x.

	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-depth
HD	1280x720	1280	720	24, 25, 30, 50, 60	RGB/4:4:4	8/10/12bpc
	1920x1080	1920	1080	24, 25, 30, 50, 60	RGB/4:4:4	8/10/12bpc
	2048x1080	2048	1080	24, 25, 30, 50, 60	RGB/4:4:4	8/10/12bpc
4K	3840x2160	3840	2160	24, 25, 30, 50, 60	RGB/4:4:4	8/10bpc
	4096x2160	4096	2160	24, 25, 30, 50, 60	RGB/4:4:4	8/10bpc

HDMI 2.0

This interface supports HDCP 1.x and 2.2.

	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-depth	Notes
HD	1280x720	1280	720	24, 25, 30, 50, 60	RGB/4:4:4/4:2:2	8/10/12bpc	—
	1920x1080i	1920	1080	50, 60	RGB/4:4:4/4:2:2	8/10/12bpc	—
	1920x1080	1920	1080	24, 25, 30, 50, 60	RGB/4:4:4/4:2:2	8/10/12bpc	—
	2048x1080	2048	1080	24, 25, 30, 50, 60	RGB/4:4:4/4:2:2	8/10/12bpc	—
4K	3840x2160	3840	2160	24, 25, 30	RGB/4:4:4/4:2:2	8/10/12bpc	4:2:2 12-bit only

	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-depth	Notes
	3840x2160	3840	2160	50, 60	RGB/4:4:4	8bpc	—
	3840x2160	3840	2160	50, 60	4:2:2/4:2:0	8/10/12bpc	4:2:2 12-bit only
	4096x2160	4096	2160	24, 25, 30	RGB/4:4:4/4:2:2	8/10/12bpc	4:2:2 12-bit only
	4096x2160	4096	2160	50, 60	RGB/4:4:4	8bpc	—
	4096x2160	4096	2160	50, 60	4:2:2/4:2:0	8/10/12bpc	4:2:2 12-bit only

SDI (HD, 3G, 6G, and 12G-SDI)

A valid SMPTE-352 payload is required for this interface.

	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-depth	Notes
HD	1280x720	1280	720	24, 25, 30, 50, 60	4:2:2	10bpc	—
	1920x1080i	1920	1080	50, 60	4:2:2	10bpc	—
	1920x1080	1920	1080	24, 25, 30	4:2:2	10bpc	—
	2048x1080	2048	1080	24, 25, 30	4:2:2	10bpc	—
3G	1280x720	1280	720	24, 25, 30, 50, 60	RGB/4:4:4	10/12bpc	Level-A only
	1920x1080i	1920	1080	50, 60	RGB/4:4:4	10/12bpc	Level-A only
	1920x1080	1920	1080	24, 25, 30	RGB/4:4:4	10/12bpc	Level-A only
	1920x1080	1920	1080	50, 60	4:2:2	10bpc	Level-A only
	2048x1080	2048	1080	24, 25, 30	RGB/4:4:4	10/12bpc	Level-A only
	2048x1080	2048	1080	50, 60	4:2:2	10bpc	Level-A only
6G	1920x1080	1920	1080	50, 60	RGB/4:4:4	10/12bpc	—
	2048x1080	2048	1080	50, 60	RGB/4:4:4	10/12bpc	—
	3840x2160	3840	2160	24, 25, 30	4:2:2	10bpc	—
	4096x2160	4096	2160	24, 25, 30	4:2:2	10bpc	—
12G	3840x2160	3840	2160	24, 25, 30	RGB/4:4:4	10/12bpc	—
	3840x2160	3840	2160	50, 60	4:2:2	10bpc	—
	4096x2160	4096	2160	24, 25, 30	RGB/4:4:4	10/12bpc	—
	4096x2160	4096	2160	50, 60	4:2:2	10bpc	—

TSIC video formats

Identify the video formats for the Terra SDVoE (TSIC) input card.

The TSIC (HDMI 2.0) interface supports HDCP 1.x and 2.2.

	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-depth	Notes
HD	1280x720	1280	720	24, 25, 30, 50, 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	—
	1920x1080	1920	1080	24, 25, 30, 50, 60	RGB/4:4:4/4:2:2	8/10/12bpc	—
	2048x1080	2048	1080	24, 25, 30, 50, 60	RGB/4:4:4/4:2:2	8/10/12bpc	—
4K	3840x2160	3840	2160	24, 25, 30	RGB/4:4:4/4:2:2	8/10/12bpc	4:2:2 12-bit only
	3840x2160	3840	2160	50, 60	RGB/4:4:4	8bpc	—
	3840x2160	3840	2160	50, 60	4:2:2/4:2:0	8/10/12bpc	4:2:2 12-bit only
	4096x2160	4096	2160	24, 25, 30	RGB/4:4:4/4:2:2	8/10/12bpc	4:2:2 12-bit only
	4096x2160	4096	2160	50, 60	RGB/4:4:4	8bpc	—
	4096x2160	4096	2160	50, 60	4:2:2/4:2:0	8/10/12bpc	4:2:2 12-bit only

QDPIC video formats

Identify the video formats for the QDPIC card.

The DisplayPort 1.2 interface supports HDCP 1.x.

	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-depth
HD	1280x720	1280	720	24, 25, 30, 50, 60	RGB/4:4:4	8/10/12bpc
	1920x1080	1920	1080	24, 25, 30, 50, 60	RGB/4:4:4	8/10/12bpc
	2048x1080	2048	1080	24, 25, 30, 50, 60	RGB/4:4:4	8/10/12bpc
4K	3840x2160	3840	2160	24, 25, 30, 50, 60	RGB/4:4:4	8/10bpc
	4096x2160	4096	2160	24, 25, 30, 50, 60	RGB/4:4:4	8/10bpc

TDPIC video formats

Identify the video formats for the TDPIC card.

The DisplayPort 1.1a interface supports HDCP 1.x.

	Format	Cables	Hres	Vres	Frame rate (Hz)	Sampling	Bit-depth	Notes
HD	1280x720	—	1280	720	24, 25, 30, 50, 60	RGB/4:4:4	8/10bpc	—
	1920x1080	—	1920	1080	24, 25, 30, 50, 60	RGB/4:4:4	8/10bpc	—

	Format	Cables	Hres	Vres	Frame rate (Hz)	Sampling	Bit-depth	Notes
	2048x1080	—	2048	1080	24, 25, 30, 50, 60	RGB/4:4:4	8/10bpc	—
4K	3840x2160	—	3840	2160	24, 25, 30	RGB/4:4:4	8/10bpc	—
	4096x2160	—	4096	2160	24, 25, 30	RGB/4:4:4	8/10bpc	—
	3840x2160	2x	1920	2160	50, 60	RGB/4:4:4	8/10bpc	Cannot use both TDPIC inputs at once; requires two separate TDPICs
	4096x2160	2x	2048	2160	50, 60	RGB/4:4:4	8/10bpc	Cannot use both TDPIC inputs at once; requires two separate TDPICs
	3840x2160	4x	1920	1080	50, 60	RGB/4:4:4	8/10bpc	—
	4096x2160	4x	2048	1080	50, 60	RGB/4:4:4	8/10bpc	—

DDIC video formats

Identify the video formats for the DDIC card. The DVI-D interface supports HDCP 1.x.

	Format	Cables	Hres	Vres	Frame rate (Hz)	Sampling	Bit-depth	Notes
HD	1280x720	—	1280	720	60	RGB/4:4:4	8bpc	—
	1920x1080	—	1920	1080	24, 25, 30, 50, 60	RGB/4:4:4	8bpc	—
	2048x1080	—	2048	1080	24, 25, 30, 50, 60	RGB/4:4:4	8bpc	—
4K	3840x2160	—	3840	2160	24, 25, 30	RGB/4:4:4	8bpc	Dual-link
	4096x2160	—	4096	2160	24, 25, 30	RGB/4:4:4	8bpc	Dual-link
	3840x2160	2x	1920	2160	50, 60	RGB/4:4:4	8bpc	Dual-link
	4096x2160	2x	2048	2160	50, 60	RGB/4:4:4	8bpc	Dual-link
	3840x2160	4x	1920	1080	50, 60	RGB/4:4:4	8bpc	—
	4096x2160	4x	2048	1080	50, 60	RGB/4:4:4	8bpc	—

THIC video formats

Identify the video formats for the THIC card. The HDMI 1.3 interface supports HDCP 1.x.

	Format	Cables	Hres	Vres	Frame rate (Hz)	Sampling	Bit-depth
HD	1280x720	—	1280	720	24, 25, 30, 50, 60	RGB/4:4:4/4:2:2	8/10/12bpc
	1920x1080i	—	1920	1080	50, 60	RGB/4:4:4/4:2:2	8/10/12bpc

	Format	Cables	Hres	Vres	Frame rate (Hz)	Sampling	Bit-depth
	1920x1080	—	1920	1080	24, 25, 30, 50, 60	RGB/4:4:4/4:2:2	8/10/12bpc
	2048x1080	—	2048	1080	24, 25, 30, 50, 60	RGB/4:4:4/4:2:2	8/10/12bpc
4K	3840x2160	4x	1920	1080	24, 25, 30, 50, 60	RGB/4:4:4/4:2:2	8/10/12bpc
	4096x2160	4x	2048	1080	24, 25, 30, 50, 60	RGB/4:4:4/4:2:2	8/10/12bpc

HDBase-T video formats

Identify the video formats for the HDBase-T card. The HDMI 1.4 interface supports HDCP 1.x.

	Format	Hres	Vres	Frame rate (Hz)	Sampling	Bit-depth
HD	1280x720	1280	720	24, 25, 30, 50, 60	RGB/4:4:4/4:2:2	8/10/12bpc
	1920x1080i	1920	1080	50, 60	RGB/4:4:4/4:2:2	8/10/12bpc
	1920x1080	1920	1080	24, 25, 30, 50, 60	RGB/4:4:4/4:2:2	8/10/12bpc
	2048x1080	2048	1080	24, 25, 30, 50, 60	RGB/4:4:4/4:2:2	8/10/12bpc
4K	3840x2160	3840	2160	24, 25, 30	RGB/4:4:4/4:2:2	8bpc
	4096x2160	4096	2160	24, 25, 30	RGB/4:4:4/4:2:2	8bpc

3GIC video formats

Identify the video formats for the 3GIC card for HD and 3G-SDI.

	Format	Cables	Hres	Vres	Frame rate (Hz)	Sampling	Bit-depth	Notes
HD	1280x720	—	1280	720	24, 25, 30, 50, 60	4:2:2	10bpc	—
	1920x1080i	—	1920	1080	50, 60	4:2:2	10bpc	—
	1920x1080	—	1920	1080	24, 25, 30	4:2:2	10bpc	—
	2048x1080	—	2048	1080	24, 25, 30	4:2:2	10bpc	—
3G	1280x720	—	1280	720	24, 25, 30, 50, 60	RGB/4:4:4	10/12bpc	Level-A recommended
	1920x1080i	—	1920	1080	50, 60	RGB/4:4:4	10/12bpc	Level-A recommended
	1920x1080	—	1920	1080	24, 25, 30	RGB/4:4:4	10/12bpc	Level-A recommended
	1920x1080	—	1920	1080	50, 60	4:2:2	10bpc	Level-A recommended
	2048x1080	—	2048	1080	24, 25, 30	RGB/4:4:4	10/12bpc	Level-A recommended

	Format	Cables	Hres	Vres	Frame rate (Hz)	Sampling	Bit-depth	Notes
	2048x1080	—	2048	1080	50, 60	4:2:2	10bpc	Level-A recommended
3G-4K	3840x2160	4x	1920	1080	24, 25, 30	RGB/4:4:4	10/12bpc	Level-A recommended
	3840x2160	4x	2048	1080	50, 60	4:2:2	10bpc	Level-A recommended
	4096x2160	4x	1920	1080	24, 25, 30	RGB/4:4:4	10/12bpc	Level-A recommended
	4096x2160	4x	2048	1080	50, 60	4:2:2	10bpc	Level-A recommended

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