

# User Manual

020-101777-01

# Boxer 4K30



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- j. For LCD projectors, the warranty period specified in the warranty applies only where the LCD projector is in "normal use" which means the LCD projector is not used more than 8 hours a day, 5 days a week.
- k. 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.
- l. Image retention on LCD flat panels.
- m. Defects caused by normal wear and tear or otherwise due to normal aging of a product.

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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. Please see the Maintenance section for specific maintenance items as they relate to 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)

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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!

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# Introduction

This manual is intended for operators of Boxer 4K30 projection systems.

For complete Boxer 4K30 product documentation and technical support, go to [www.christiedigital.com](http://www.christiedigital.com).

## Safety and warning guidelines

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!** Failure to comply with the following could result in death or serious injury.

- Never look directly into the projector lens or at the lamp. The extremely high brightness can cause permanent eye damage. For protection from ultraviolet radiation, keep all projector housings intact during operation.
- FIRE HAZARD! Keep hands, clothes, and all combustible material away from the concentrated light beam of the lamps.
- Do not use the tools in the service toolbox to open projector covers and panels. These tools are reserved only for Christie qualified technicians.
- FIRE HAZARD! Do not exceed 30 A for the breaker to power Input 1 on the projector.
- Position the projector where the appliance coupler or main supply plug on the power cord can be easily accessible.



**Caution!** Failure to comply with the following could result in minor or moderate injury.

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

**NOTE:** During maintenance and cleaning operations, the instructions define that the unit must not be operational, thus the lamps are not active and there are no emissions. Optical adjustments are not considered maintenance. The lamps are turned on during optical adjustments and emissions are present.

## Product safety labels



Indicates the presence of a dangerous condition or situation.



Indicates the presence of a pinch hazard. To avoid personal injury, keep hands clear and loose clothing tied back.



Indicates the presence of a hot surface. To avoid personal injury, always allow the projector to cool down for a minimum of 10 minutes before performing maintenance or service procedures.



Indicates the presence of a hot surface. To avoid personal injury, always allow the projector to cool down for a minimum of 10 minutes before performing maintenance or service procedures.



Indicates the presence of an electrical shock hazard. To avoid personal injury, always disconnect all power sources before performing maintenance or service procedures.



Indicates the presence of an electrocution hazard. To avoid personal injury, always disconnect all power sources before performing maintenance or service procedures.



Indicates the presence of moving fan blades. To avoid personal injury, keep hands clear and loose clothing tied back. Always disconnect all power sources before performing maintenance or service procedures.



Indicates exposure to bright light. To avoid personal injury, never look directly at the light source.



Indicates the presence of an explosion hazard. To avoid personal injury, always disconnect all power sources and wear Christie approved protective clothing.



Always disconnect all power sources before performing maintenance or service procedures.



See the product service manual for specific information and directions.



Risk Group 3 warning: Possibly hazardous optical radiation emitted from this product. Thermal radiation emitted from this product may cause burns.

## Projector overview

The Boxer 4K30 is a professional quality, easy-to-use projector using Digital Light Processing (DLP™) technology from Texas Instruments. Integrating smoothly into traditional projection environments, the Boxer 4K30 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

If you encounter a problem with your Christie projector, contact your dealer. To assist with the servicing of your projector, enter the information in the tables below and keep this information with your records.

### Purchase Record

Dealer:

Dealer or Christie Sales/Service contact phone number:

Projector serial number:

Purchase date:

Installation date:

*\*The serial number can be found on the license label located on the side panel*

### Ethernet Settings

Default gateway

Projector IP address

Subnet mask

## Key features

- 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
- New LCD display to provide information at-a-glance

## How the projector works

The Boxer 4K30 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 six 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 the following 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

## 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)
- Humidity (non-condensing) 10 to 80%
- Operating altitude: to be confirmed

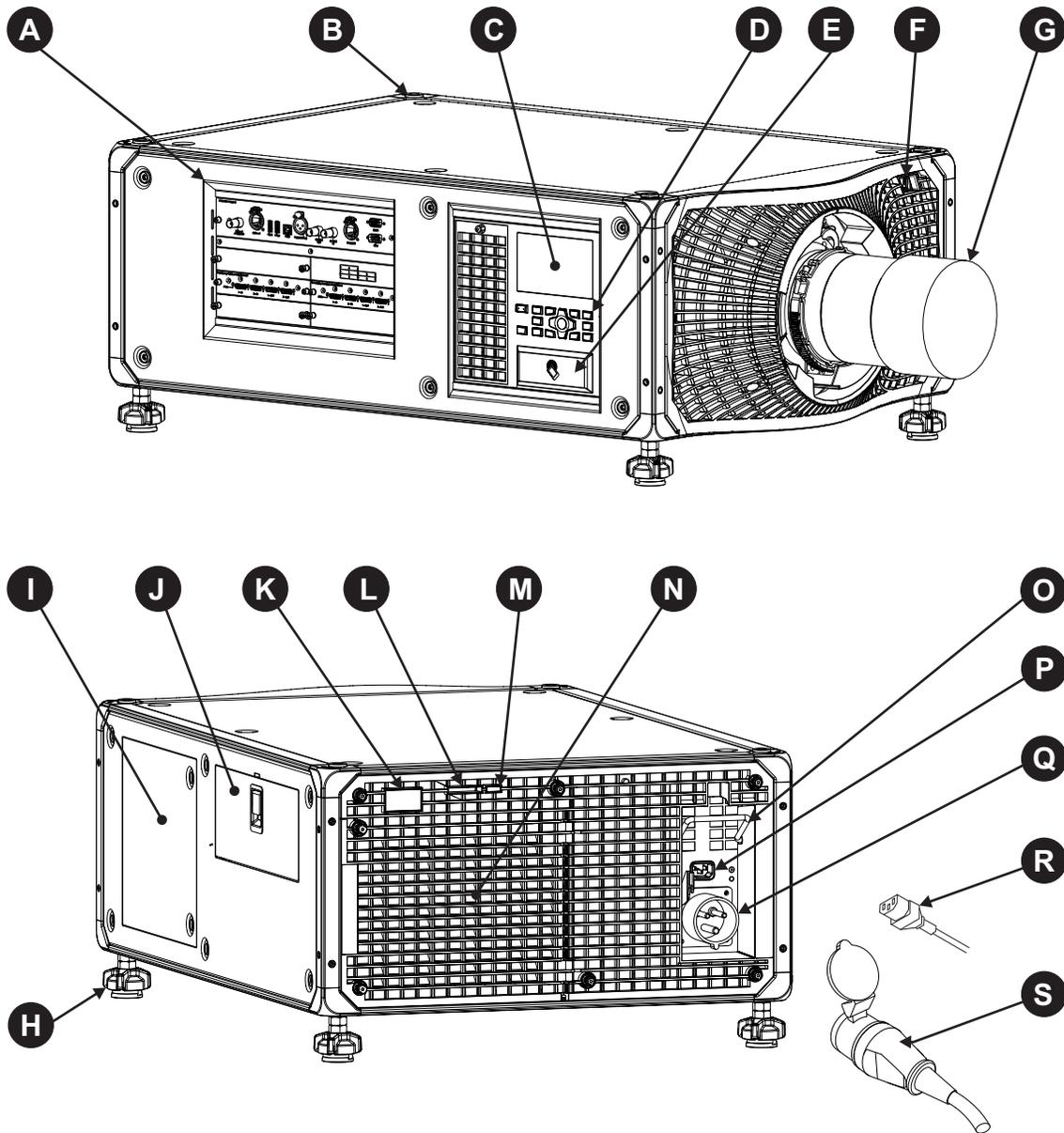
## Power connection

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.

For more details, see [Power requirements](#) on page 37.

# Projector components

The table identifies the main components of the projector.



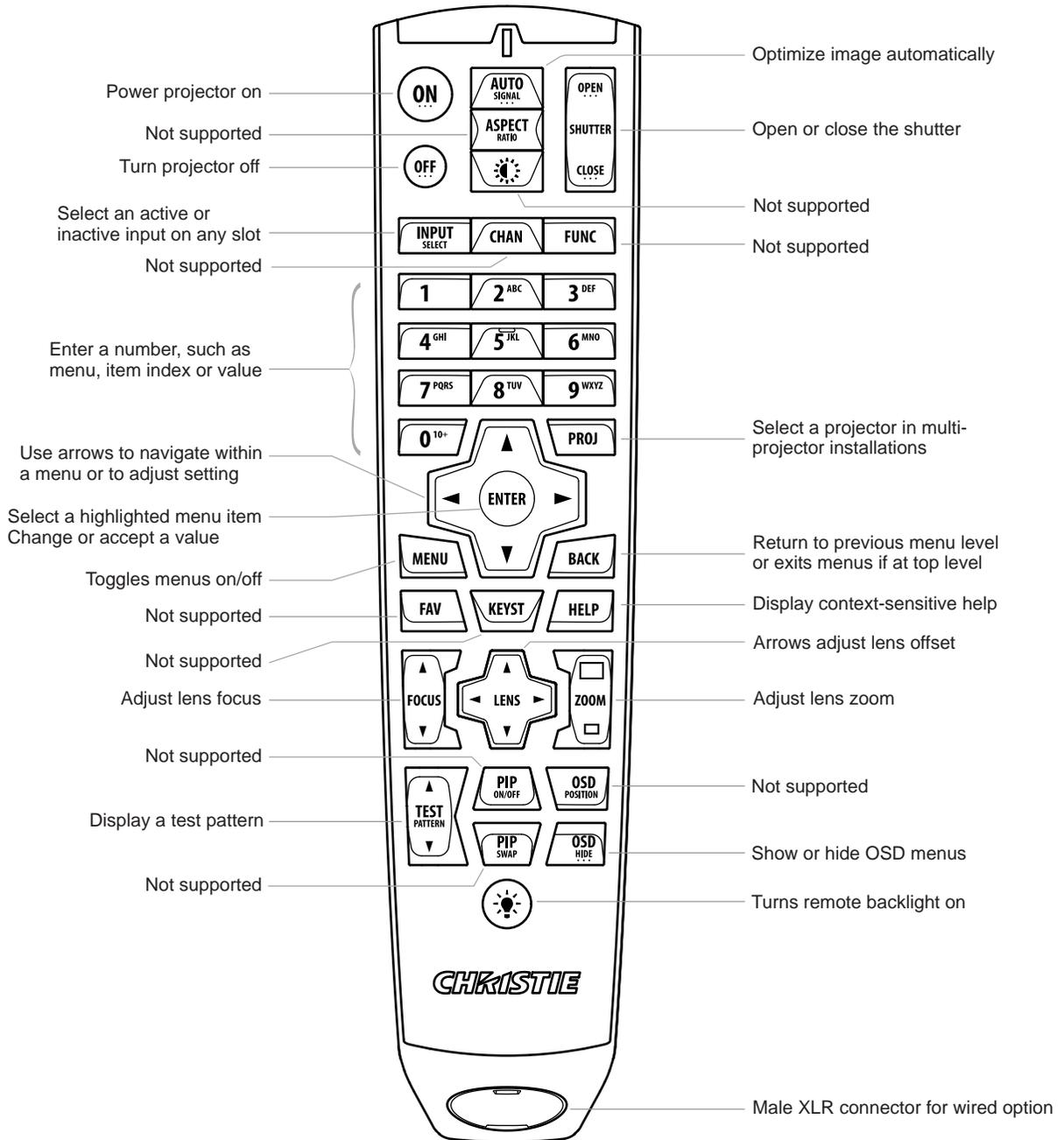
ID	Component	Description
A	Communication and input panel	Connects media sources to either the ports on the option cards or the IMXB.
B	Mounting and rigging holes	M12 x 1.75 holes for projector feet installation and offer mounting and rigging points.
C	LCD Side display panel	Displays the projector menus and status.

ID	Component	Description
D	Keypad interface	Controls the projector.
E	Christie TAP	Enables Android devices to communicate with the projector using near field communication.
F	Front IR	Receives transmissions from the IR remote.
G	Projection lens	A variety of lenses can be used with the projector. Available lenses are listed in accessories.
H	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.
I	Service compartment	Access to fold mirror, optical zoom/focus, and DMD convergence adjustments.
J	Tool box	Provides tools for Christie qualified technicians.
K	Rear IR	Receives transmissions from the IR remote.
L	LED status indicator	Indicates lamp, and power status.
M	Shutter LED status indicator	Indicates shutter status.
N	Lamp door	Access to lamp compartment.
O	AC lock	Locks Input 1 power cord.
P	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.
Q	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.
R	Power cord: limited power	Connects the provided power cord appropriately rated for your region to AC Input 2 for limited power mode.
S	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

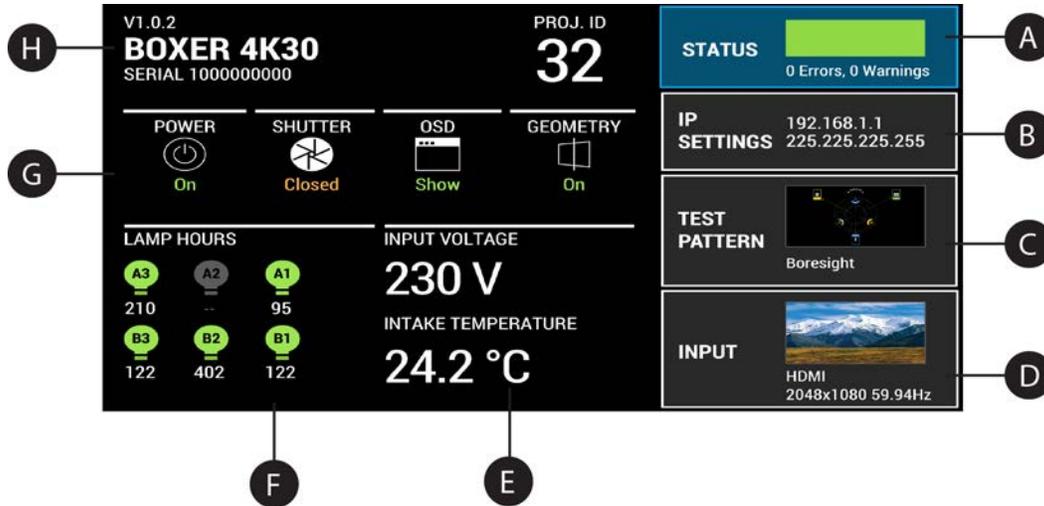
The IR remote keypad controls the projector by way of wireless communications from a battery-powered infrared (IR) transmitter. To use the IR remote, direct the keypad toward the projector's front or rear IR sensor and press a function key. One of the two IR sensors on the projector will

detect the signal and relay the commands for internal processing. The remote also offers a connector for wired connections to the projector.



## Side panel display components

The table identifies the main components of the side panel display (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.

## Turning the projector on



**Warning!** Failure to comply with the following could result in death or serious injury.

- Do not attempt to turn the projector on if the AC supply is not within the specified voltage range.

1. Plug the projector in to AC power.

The projector automatically powers on when plugged in. The side panel display functionality becomes available.

2. To turn the lamps on, press and hold the **Power** button until you hear a beep.

For more details on the specified voltage range, see [Power requirements](#) on page 37.

## Projector LED status indicators

The table identifies the LED state colors and meaning.

LED	State	Description
Blue	Solid	Standby Lamps are off. Video electronics are off. Projector status is OK.
	Flashing	Cool down Projector is moving to one of the two standby states: <ul style="list-style-type: none"> <li>• Lamps are off and video electronics are booting up.</li> <li>• Lamps are off. Video electronics and lamps are cooling down.</li> </ul>
Green	Solid	Lamps on Lamps are on. Projector status is OK.
	Flashing	Startup Projector is moving to lamp on state. Lamps are striking and 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 lamps on Lamps are 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. Lamps are off. Video electronics and lamps 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 lamps are off. Projector will proceed to shut down.
Off	AC off	The AC power is off.

## Projector LED shutter indicators

The table identifies the 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

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 the projector off

1. To turn the lamps off, press and hold the **Power** button until you hear a beep.

It takes approximately one minute to power down the lamps. 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.

# Adjusting the image

This section provides information and procedures for adjusting the projector image. Christie recommends warming the lens before completing these procedures as focus may change as the lens warms.

## Selecting screen image orientation

The projector supports front projection, rear projection, front projection inverted, and rear projection inverted.

1. Select **MENU** > **Image Settings** > **Image Orientation**.
2. Select the required orientation from the list.
3. To confirm your selection, press **Enter**.

## Setting the image resize preset

Setting the image resize preset determines if an image will display in its native resolution or will resize by maximizing the height, width, both height and width, or to the maximum size while keeping the original aspect ratio.

1. Select **MENU** > **Image Settings** > **Size and Position** > **Resize Presets**.
2. Select the appropriate resize preset:
  - **Auto**—Maximize for current source.
  - **No Resizing**—Display in native resolution.
  - **Full Size**—Fill the screen, regardless of source.
  - **Full Width**—Fill display width and keep aspect ratio.
  - **Full Height**—Fill display height and keep aspect ratio.
3. Select **Enter**.

## Adjusting 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**.
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

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**.

## Aligning the image with lens zoom and focus

This procedure ensures that the image reflected from the digital micromirror device (DMD) is parallel and centered with the lens and screen.

4. The framing test pattern works well for this. Hold a piece of paper at the lens surface and adjust the offsets until the image is centered with the lens perimeter.
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.

## Adjusting primary colors

All primary colors in the projector are precisely set to pre-established values to ensure overall color performance is optimized and is as accurate as possible. Lighting and other environmental factors may slightly change how these colors appear on your screen. While the change is negligible in most cases, you may prefer to recover the originally intended color performance before trying to match colors from several projectors.

To achieve consistency use a color meter to measure the native primary colors—red, green, blue, and white—as they appear on the screen. On the basis of these new values, which are stored in memory, each projector automatically calculates any necessary corrections to reproduce the original factory colors under the current environmental conditions. This essentially calibrates a projector to its surroundings, compensating for factors such as screen type, lamp and/or ambient lighting, and improves color accuracy and consistency in a group of projectors. It ensures a good starting point for further customizing and matching; however, is not critical for all installations.

1. From the home page, select **MENU > Admin > Service**.
2. Enter the service password.
3. Select **Color Primary Settings**.
4. To edit the primary colors, select **Edit Primary Colors**.
5. Adjust the slider or enter the measured color values of the primary color component you selected.
6. To confirm your selection, select **Enter**.
7. Repeat steps 5 and 6 for each primary color component.
8. To view a specific color while adjusting, select **Color Enable**.
9. Select the appropriate color and select **Enter**.
10. To reset the primary colors to their defaults, select **Reset Color Primaries**.

## DMD color correction

Adjust the DMD color values as required.

### Adjusting color by precise chromaticity values

1. Select **MENU > Configuration > Color Adjustments by x,y**.
2. Adjust the slider or enter the measured color values of the primary color component you selected.
3. To confirm your selection, select **Enter**.
4. Repeat steps 2 and 3 for each primary color component.

### Adjusting color by saturation

1. Select **MENU > Configuration > Color Saturation**.

2. Adjust the value of the primary color you selected by using more or less of it in relation to the other primary colors.
3. To confirm your selection, select **Enter**.
4. Repeat steps 2 and 3 for each primary color.

## Signal color correction

Adjust the video signal color as required.

### Adjusting color by temperature

Adjust the color temperature as expressed in degrees Kelvin.

1. Select **MENU > Image Settings > Color & Gamma**.
2. Select **Color Temperature**.
3. Adjust the slider to change the light to warmer or cooler and select **Enter**.

### Adjusting color values based on gamma function

Use the gamma function options to adjust the color values of the inputted signal to give you a more detailed picture.

1. Select **MENU > Image Settings > Color & Gamma > Gamma Function**.
2. Select the appropriate option:
  - sRGB
  - ITU-R BT-1886
  - Power Law Function
  - M-Series (Standard)
3. Select **Enter**.

### Selecting the output color adjustment

Select the output color adjustment most suited to the input signal.

1. Select **MENU > Image Settings > Color & Gamma > Select Color Adjustment**.
2. Select the adjustment most suited to the input signal:
  - **Max Drives**—Turn off all color adjustments, allowing the projector to run at maximum brightness.
  - **Color Temperature**—Specify a color temperature between 3200 and 9300, expressed in degrees of Kelvin.

- **HD Video**—Set the output color to a specific standard value. Adjusts the colors red, green, blue, and white.
  - **Custom**—Select a user defined set of color adjustments.
3. Select **Enter**.

## Correcting for ambient light

Ambient light is the natural light that occurs in the environment where the projector is located.

1. Select **MENU > Image Settings > Color & Gamma > Ambient Light Correction**.
2. Select **Enter**.
3. Use the right and left arrows to adjust how the image displays in conditions with ambient light.
4. To confirm your selection, select **Enter**.

## Setting the frame delay

Delays the output signal timing relative to the input signal timing by a fraction of a frame, and up to several frames. The minimum latency can vary based on the amount of scaling applied to the image. When using keystone or warping, an additional latency is required, depending on the amount of warp.

1. Select **MENU > Image Settings > Advanced Image Settings > Frame Delay**.
2. To set the frame delay, select **Set Delay**.
3. Adjust the value and to confirm your selection, select **Enter**.
4. To set the achievable frame delay, select **Actual Delay**.
5. Adjust the value and to confirm your selection, select **Enter**.

## Adjusting the image sharpness

Lower settings can improve a noisy signal. Setting the sharpness above the halfway point can introduce noise in the image.

1. Select **MENU > Image Settings > Advanced Image Settings > Sharpness**.
2. Select **Enter**.
3. Use the right and left arrows to adjust the sharpness of the image.
4. To confirm your selection, select **Enter**.

## Enabling warping and blending

Use edge blending to combine several projected images into one single, seamless image. Use warping to project images on any surface shape.

1. Select **MENU > Configuration > Geometry Correction**.
2. Select the appropriate warp setting and select **Enter**.
3. Select **Back**.
4. Select **Edge Blending**.
5. Select the appropriate blend and select **Enter**.
6. To turn off warping or blending, from Geometry Correction and Edge Blending, select **Off**.

# Configuring System Settings

This section provides information and procedures for configuring system settings.

## Setting the date on the projector

1. Select **MENU** > **System Settings** > **Date & Time**.
2. Select **Date**.
3. Use the up and down keys to adjust the year (YYYY), month (MM), and day (DD).

## Setting the time on the projector

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

## Changing the splash screen

1. Select **MENU** > **System Settings** > **Splash Screen**.
2. Select a splash screen color:
  - Black
  - Red
  - Green
  - Blue
3. Select **Enter**.

## Keeping electronics on in standby mode

1. Select **MENU** > **System Settings** > **Power & Thermal**.
2. Select **Keep Electronics on In Standby**.
3. To enable keeping electronics on in standby mode, select **Enter**.

## Enabling projector communication

The front and rear IR sensors receive transmissions from the IR remote. Keep the transmission path to these sensors unobstructed for uninterrupted communications with the projector.

Alternatively, you can connect a wired version of the remote to the connector on the IMXB labeled Wired Keypad.

1. Select **MENU** > **Communications** > **Projector Communications**.
2. To enable the front IR sensor, select **Front IR Enabled** and select **Enter**.
3. To enable the rear IR sensor, select **Rear IR Enabled** and select **Enter**.
4. To enable a wired version of the remote, select **Wired Keypad Enabled** and select **Enter**.  
By default this feature is enabled.
5. To enable HD control for video signals, Ethernet, or IR, select **HDBaseT Keypad Enabled** and select **Enter**.

## Setting the remote access level

Determine if and how the projector can be accessed remotely.

1. From the home page, select **MENU** > **Admin** > **Service**.
2. Enter the service password.
3. Select **Remote Access Level**.
4. Select the appropriate remote access level:
  - No Access
  - Login Required
  - Free Access
5. Select **Enter**.

## Enabling direct pass-through of HDMI, 3G, and DisplayPort input signals

1. Select **MENU** > **Configuration** > **Input Settings** > **Video Loop Out**.
2. To enable passing HDMI, 3G, and DisplayPort input signals through to another projector, select **Enter**.

## Adjusting lamp power

1. Select **MENU** > **Configuration** > **Lamp** > **Lamp Power**.
2. Press **Enter**.
3. To adjust the lamp power, use the slider.
4. To confirm your selection, press **Enter**.

# Backup, Restore, and Upgrade Projector Files

This section provides information and procedures for backing up, restoring, and upgrading projector files.

## Upgrading the projector software

1. Turn off the lamps before proceeding with the upgrade.
2. Insert a USB key that contains the software upgrade file.  
If two USB flash drives are inserted, the first flash drive inserted is the one recognized for the upgrade. The USB flash drive must be formatted using the FAT 32 file system.  
The upgrade file must be located at the root of the USB key.
3. From the home page, select **MENU > Admin**.
4. Select **Software > Upgrade**.
5. Select an upgrade file and select **Enter**.
6. To automatically restart the projector, select **Restart Now**.  
If you decide restart the projector at a later date (**Restart Later**), you cannot perform another upgrade until the projector is restarted.

## Exporting backup settings to an external device

1. Insert a USB flash drive (properly formatted as FAT) into the USB port on the projector.
2. Select **MENU > Admin > Backup & Restore**.
3. Select **Backup to USB**.  
A default name is assigned.
4. To edit the backup file name, select the up arrow and select **Enter**.
5. To save the name, navigate down and select **SAVE**.

The backup settings are exported to the root directory of the USB flash drive.

## Importing a file from an external device to restore settings

1. Insert the USB flash drive containing the backup file into the USB port on the projector.
2. Select **MENU > Admin > Backup & Restore**.
3. Select **Restore from USB**.
4. From the File Selection dialog, select a file to restore.

The backup settings file is imported to the projector.

## Restoring projector default settings

1. From the home page, select **MENU > Admin > Service**.
2. Enter the service password.
3. Select **Reset Projector Defaults**.

All customized settings are set to the default projector settings.

# Diagnostic Tools

Follow these procedures to help with diagnosing issues with the projector.

## Viewing lamp information

1. Select **MENU** > **Status** > **Lamp Info**.
2. Use the right arrow to select the lamp list.
3. For a detailed view of a specific lamp, select **Enter**.

## Adding lamp end-of-life indicator

Specify the number of hours remaining before issuing an end-of-life indicator for the lamp.

1. Select **MENU** > **Configuration** > **Lamp** > **Lamp life warning at (hours)**.
2. Select **Enter**.
3. Use the right and left arrows to specify the number of hours remaining before issuing a lamp end-of-life warning.
4. To save the adjustment, select **Enter**.

## Freezing an image

Use the Freeze Image diagnostic tool to examine in detail a still version of an incoming image. For example, in moving images sometimes it is difficult to observe artifacts such as external de-interlacing/resizing and signal noise.

1. Select **MENU** > **System Settings** > **Diagnostics**.
2. To enable freezing of an image, select **Freeze Image** and select **Enter**.
3. To return to normal operation, select **Enter** again to clear the checkbox.

## Test patterns

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

### Selecting a test pattern

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

1. From the side panel home page, use the arrows to select **Test Pattern**.  
You can also select the test patterns from **MENU > Test Pattern**.
2. Scroll through the list of test patterns.
3. Select the required test pattern.
4. To confirm your selection, select **Enter**.

### Modifying grey level test pattern characteristics

1. Select **MENU > System Settings > Diagnostics**.
2. Select **Test Pattern**.
3. Select one of the grey test patterns: GREY SCALE 16 or FLAT GREY.
4. Select **Enter**.
5. To change the grey scale of the test pattern, select **Test Pattern Grey Level** and adjust the slider to the value you want.
6. To confirm your selection, select **Enter**.

### Modifying ramp test pattern characteristics

1. Select **MENU > System Settings > Diagnostics**.
2. Select **Test Pattern**.
3. Select one of the ramp test patterns: RGBW RAMP, HORIZONTAL RAMP, VERTICAL RAMP, or DIAGONAL RAMP.
4. Select **Enter**.
5. To turn on motion for the ramp test pattern and adjust the speed, select **Test Pattern Ramp Motion** and adjust the slider to the value you want.
6. To confirm your selection, select **Enter**.
7. To change the slope of the ramp test pattern, select **Test Pattern Ramp Slope** and adjust the slider to the value you want.
8. To confirm your selection, select **Enter**.

9. To change the level of the ramp test pattern, select **Test Pattern Ramp Level** and adjust the slider to the value you want.
10. To confirm your selection, select **Enter**.

## Modifying grid test pattern characteristics

1. Select **MENU > System Settings > Diagnostics**.
2. Select **Test Pattern**.
3. Select one of the grid test patterns: SQUARE GRID or DIAGONAL GRID.
4. Select **Enter**.
5. To change the pitch of the grid test pattern, select **Test Pattern Grid Pitch** and adjust the slider to the value you want.
6. To confirm your selection, select **Enter**.
7. To change the color of the grid, select **Test Pattern Grid Color** and select **Enter**.
8. To enable movement of the test pattern, select **Test Pattern Grid Motion** and select **Enter**.

## Changing the test pattern frequency

Test patterns are displayed with a 60 Hz frequency (60 frames/second). For diagnostic purposes, you can change the frame rate.

1. Select **MENU > System Settings > Diagnostics > Test Pattern Frequency**.
2. Select the appropriate frequency:
  - Bit Sequence
  - 3D
  - Other Image Artifacts
3. Select **Enter**.

## Enabling a light engine test pattern

Enable a light engine test pattern to assist with diagnosing any issues that may occur with the light engine.

1. Select **MENU > System Settings > Diagnostics > Engine Test Pattern**.
2. Scroll through the list of light engine test patterns.
3. Select the appropriate test pattern and select **Enter**.

## Viewing projector status

Alarms contain information about the values of the items operating in normal range, warnings, and errors that can be reported by the status system of the projector.

1. From the home page, select **Status**.  
You can also view the statuses from **MENU > STATUS**.
2. Scroll to the status category you want to view and select it.

## Monitoring projector and lamps with Christie TAP

The near field communication (NFC) mobile app, called Christie TAP, enables Android devices to communicate with the projector, regardless if the projector is powered on or not.

1. From the Google Play Store, download the Christie TAP mobile app to your compatible Android device.
2. Hold the NFC tag of your Android device to the NFC panel next to the side panel display on the projector until you connect.  
  
The projector does not need to be powered on to retrieve projector and lamp information.  
  
Successful connection includes a visual cue on the screen, haptic feedback on the device, and an auditory cue as well.
3. Review the projector IP address and lamp hour information provided.

## Running the projector interrogator

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

1. Insert a USB flash drive in the USB port on the projector.  
  
If two USB flash drives are inserted, the first flash drive inserted is the one recognized. The USB flash drive must be formatted using the FAT 32 file system.
2. From the home page, select **MENU > Admin > Interrogator**.
3. Select **Run**.  
  
The interrogator file is stored at the root directory on the USB flash drive.
4. At the completion prompt, select **OK**.

# Specifications

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

## Display

<b>Panel Resolution and refresh rate</b>	
Pixel format (H x V square pixels)	4096 x 2160
Processing path	23.97 - 60Hz
<b>Achievable contrast ratio</b>	
450:1 ANSI, up to 2000:1 Full Frame ON/OFF	
<b>Color and grayscale resolution</b>	
Displayable colors	35.2 trillion
Grayscale resolution	45 bits total linear, 25 bits per RGB component
<b>White point</b>	
Nominal white (full white, after calibration)	$y = 0.300 \pm 0.050$
	$x = 0.300 \pm 0.050$
<b>Gamma</b>	
Nominal	$2.2 \pm 5\%$

# Boxer 4K30 signal connectivity

Port configuration	Input format	Frame rate (Hz)	Interface	Cards	Cables	RGB/4:4:4				4:2:2	
						8-bit	10-bit	12-bit	2 bit	8-bit	12-bit
Four-Port	4K, QHD	24, 25, 30, 48, 50, 60	DisplayPort 1.1a	2x TDPIC	4	X	X		X	X	X
Two-Port	4K, QHD	24, 25, 30, 48, 50, 60	DisplayPort 1.1a	2x TDPIC	2	X	X				
Four-Port	4K, QHD	24, 25, 30, 48, 50, 60	HDMI 1.4a	2x THIC	4	X	X	X	X	X	X
Four-Port	4K, QHD	24, 25, 30, 48, 50, 60	3G-SDI	2x3GIC	4					X	
Two-Port	4K, QHD	24, 25, 30, 48, 50, 60	DVI (Dual)	2xDDIC	2	X					
Four-Port	4K, QHD	24, 25, 30, 48, 50, 60	DVI (Single)	4x DDIC	4	X					
Two-Port	4K, QHD	24, 25, 30	DVI (Single)	2xDDIC	2	X					
One-Port	2K, HD	24, 25, 30, 48, 50, 60	DisplayPort 1.1a	1x TDPIC	1	X	X		X	X	X
One-Port	2K, HD	24, 25, 30, 48, 50, 60	HDMI 1.4a	1x THIC	1	X	X	X	X	X	X
One-Port	2K, HD	24, 25, 30	3G-SDI	1x 3GIC	1	X	X	X	X	X	X
One-Port	2K, HD	48, 50, 60	3G-SDI	1x 3GIC	1					X	
One-Port	2K, HD	24, 25, 30, 48, 50, 60	DVI (Single)	1x DDIC	1	X					
One-Port	4K	24, 25, 30	HDBaseT	1x IMXB	1	X					X
One-Port	2K, HD	24, 25, 30, 48, 50, 60	HDBaseT	1x IMXB	1	X	X	X			X

## Optional input cards

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

To determine which SDI signal types are officially supported, see [Boxer 4K30 signal connectivity](#) on page 33.

## 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

## Temperature sensor thresholds

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

Location	Warning (°C)	Error (°C)	Remarks
Air intake	47	--	
IMXB CPU	82	95	
IMXB FPGA	82	95	
Backpane	82	95	
HIP scaler	82	95	
HIP warp red	82	95	
HIP warp green	82	95	
HIP warp blue	82	95	
Red FPGA	82	95	
Formatter FPGA red	82	95	
Formatter FPGA green	82	95	
Formatter FPGA blue	82	95	
Option card 1	82	95	
Option card 2	82	95	
Option card 3	82	95	
Option card 4	82	95	
Housekeeping board	82	95	
Lamp driver A1	95	--	
Lamp driver A2	95	--	
Lamp driver A3	95	--	
Lamp driver B1	95	--	
Lamp driver B2	95	--	
Lamp driver B3	95	--	
Heatsink 2	85		
Heatsink 3	70		
Heatsink 5	85		

## Warning thresholds for fans

All fan warnings are set to ~75% of their normal operating speeds.

<b>Location</b>	<b>Warning</b>	<b>Error</b>
Bulb blower B3	100	100
Bulb blower B2	100	100
Bulb blower B1	100	100
Bulb blower A3	100	100
Bulb blower A2	100	100
Bulb blower A1	100	100
Lamp fan B3	100	100
Lamp fan A3	100	100
Lamp fan B2	100	100
Lamp fan A2	100	100
Lamp fan B1	100	100
Lamp fan A1	100	100
Radiator fan A	800	800
Radiator fan B	800	800
Radiator fan C	800	800
Radiator fan D	800	800
HIP blower A	800	0
HIP blower B	800	0
Intake A	800	800
Intake B	800	800
Lamp driver intake	800	0
Lamp driver exhaust	800	0
Formatter-green	800	0
Formatter-red	800	0
Formatter-blue	800	0
LAD blower A	800	800
LAD blower B	800	800
Card cage exhaust	1600	0
Card cage exhaust	1600	0
Card cage intake	1600	0
Card cage intake	1600	0

## Warning threshold for liquid cooling module

Location	Warning
Liquid cooling pump	180 RPM

## Power requirements

Parameter	Requirement
<b>Rated voltage</b>	
Input 1	200 - 240 VAC
Input 2	100 - 130 VAC; 200- 240 VAC
<b>Rated current</b>	
Input 1	19A maximum
Input 2	13.8 - 10.6 A; 9.3 - 7.7 A
Line frequency	50/60 Hz
<b>AC input coupler</b>	
Input 1	IEC 309, 32 A/250 VAC
Input 2	IEC 320 - C14, 15 A/125 VAC, 10 A/250 VAC
Inrush current	40 A maximum
<b>Maximum power consumption</b>	
Input 1	3800 W
Input 2	1380 W

## Physical specifications

<b>Projector size</b>	
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)
<b>Projector weight</b>	
Without lens	73 kg (160 lbs)
Shipping without lens (includes packaging)	95 kg (210 lbs)
<b>Operating position</b>	Omni-directional

## Accessories

<b>Lenses (sold separately)</b>	
<b>Description</b>	<b>Part number</b>
Lens 1.13-1.31:1 HB Zoom	144-103105-XX
Lens 1.31-1.63:1 HB Zoom	144-104106-XX
Lens 1.63-2.17:1 HB Zoom	144-105107-XX
Lens 1.99-2.71:1 HB Zoom	144-106108-XX
Lens 2.71-3.89:1 HB Zoom	144-107109-XX
Lens 3.89-5.43:1 HB Zoom	144-108100-XX
Lens 4.98-7.69:1 HB Zoom	144-109101-XX
Lens 0.72:1 HB Fixed	144-110103-XX
Lens 0.9:1 Fixed	144-111014-XX

<b>Other accessories (sold separately)</b>	
<b>Description</b>	<b>Part number</b>
IR remote	003-120918-XX
AutoSTACK	108-308101-XX -- ???
Rigging frame	144-112015-XX



**Notice.** Failure to comply with the following may result in property damage.

- When shipping the projector installed in the frame, you must provide adequate packaging to protect the projector from shipping vibrations.
- Packaging tape is required to ensure safe shipment of the projection lens to restrain the zoom ring from rotating during shipping.

## Regulatory

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

## Safety

- CAN/CSA C22.2 No. 60950-1
- ANSI/UL 60950-1
- IEC 60950-1

- EN 60950-1
- IEC 62471-1

## Near Field Communication Reader



Warning: Changes or modifications not expressly approved by Christie Digital Systems Canada Inc. could void the user's authority to operate the equipment

Contains: FCC ID: XU6-NFCR,

IC : 8691A-NFCR

## Approvals

This product is designed and built to comply with all relevant directives, standards, safety, health and environmental rules and regulations required for the product to be sold in: USA/Canada, EU, Australia/New Zealand, Kuwait, China, Korea, Japan, Mexico, Ukraine, Russia, India, Argentina, Brazil, Singapore, South Africa, and Saudi Arabia international packaging recycling mark requirements.

## Electro-magnetic compatibility

### Emissions

FCC CFR47, Part 15, Subpart B, Class A

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

CISPR 22/EN 55022, Class A

- IEC 61000-3-2/EN61000-3-2

### Immunity

CISPR 24/EN55024

- 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

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

China Ministry of Information Industry Order No.39 (02/2006) on the control of pollution caused by electronic information products, hazardous substances concentration limits (SJ/T11363-2006), and the applicable product marking requirements (SJ/T11364-2006)

## Environment

<b>Operating environment</b>	
Temperature	5 to 40°C (41 to 104°F)
Humidity (non-condensing)	10 to 80%
Altitude	To be confirmed
<b>Non-operating environment</b>	
Temperature	-40 to 70°C (-40 to 158°F)

#### Corporate offices

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USA – Cypress  
ph: 714-236-8610

Canada – Kitchener  
ph: 519-744-8005

#### Consultant offices

---

Italy  
ph: +39 (0) 2 9902 1161

#### Worldwide offices

---

Australia  
ph: +61 (0) 7 3624 4888

Brazil  
ph: +55 (11) 2548 4753

China (Beijing)  
ph: +86 10 6561 0240

China (Shanghai)  
ph: +86 21 6278 7708

Eastern Europe and  
Russian Federation  
ph: +36 (0) 1 47 48 100

France  
ph: +33 (0) 1 41 21 44 04

Germany  
ph: +49 2161 664540

India  
ph: +91 (080) 6708 9999

Japan (Tokyo)  
ph: 81 3 3599 7481

Korea (Seoul)  
ph: +82 2 702 1601

Republic of South Africa  
ph: +27 (0)11 510 0094

Singapore  
ph: +65 6877-8737

Spain  
ph: + 34 91 633 9990

United Arab Emirates  
ph: +971 4 3206688

United Kingdom  
ph: +44 (0) 118 977 8000