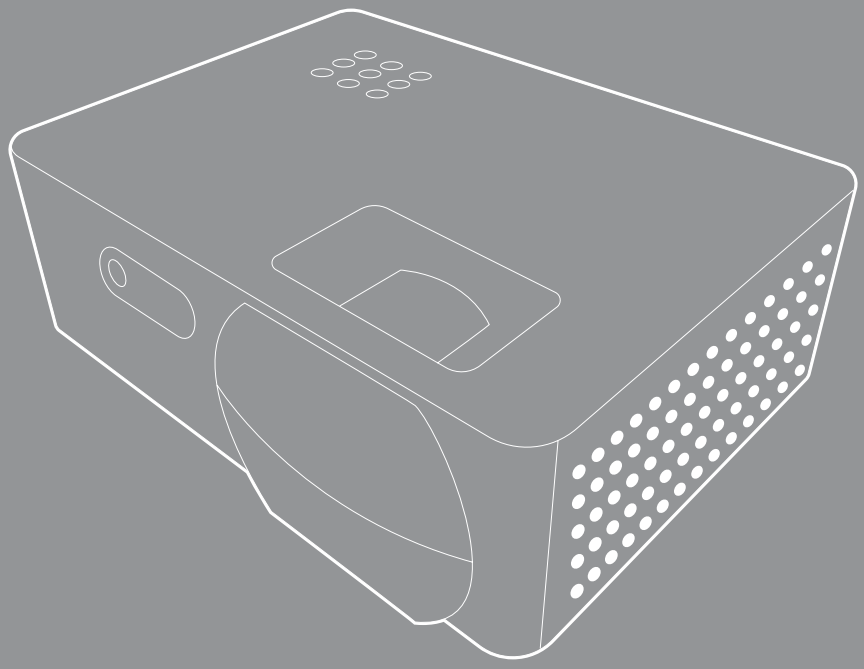
DLP® Projector



User manual

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SAFETY

	The lightning flash with arrow head within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
	The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

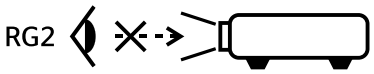
Please follow all warnings, precautions and maintenance as recommended in this user's guide.

Important safety instructions

- Do not block any ventilation openings. To ensure reliable operation of the projector and to protect from overheating, it is recommended to install the projector in a location that does not block ventilation. As an example, do not place the projector on a crowded coffee table, sofa, bed, etc. Do not put the projector in an enclosure such as a bookcase or a cabinet that restricts air flow.
- To reduce the risk of fire and/or electric shock, do not expose the projector to rain or moisture. Do not install near heat sources such as radiators, heaters, stoves or any other apparatus such as amplifiers that emit heat.
- Do not let objects or liquids enter the projector. They may touch dangerous voltage points and short out parts that could result in fire or electric shock.
- Do not use under the following conditions:
  - In extremely hot, cold or humid environments.
    (i) Ensure that the ambient room temperature is within 0°C ~ 40°C
    (ii) Relative humidity is up to 80%
  - In areas susceptible to excessive dust and dirt.
  - Near any appliance generating a strong magnetic field.
  - In direct sunlight.
- Do not use the unit if it has been physically damaged or abused. Physical damage/abuse would be (but not limited to):
  - Unit has been dropped.
  - Power supply cord or plug has been damaged.
  - Liquid has been spilled on to the projector.
  - Projector has been exposed to rain or moisture.
  - Something has fallen into the projector or something is loose inside.
- Do not place the projector on an unstable surface. The projector may fall over resulting in injury or the projector may become damaged.
- Do not block the light coming out of the projector lens when in operation. The light will heat the object and may melt, cause burns or start a fire.
- Please do not open or disassemble the projector as this may cause electric shock.
- Do not attempt to service the unit yourself. Opening or removing covers may expose you to dangerous voltages or other hazards. Please call Optoma before you send the unit for repair.
- See projector enclosure for safety related markings.
- The unit should only be repaired by authorized service personnel.
- Only use attachments/accessories specified by the manufacturer.
- This projector will detect the life of the light source itself.
- When switching the projector off, please ensure the cooling cycle has been completed before

disconnecting power.

- Turn off and unplug the power plug from the AC outlet before cleaning the product.
- Use a soft dry cloth with mild detergent to clean the projector housing. Do not use abrasive cleaners, waxes or solvents to clean the unit.
- Disconnect the power plug from the AC outlet if the product is not being used for a long period of time.
- Do not set up the projector in places where it might be subjected to vibration or shock.
- Do not touch the lens with bare hands.
- Remove battery/batteries from remote control before storage. If the battery/batteries are left in the remote for long periods, they may leak.
- Do not use or store the projector in places where smoke from oil or cigarettes may be present, as it can adversely affect the quality of the projector performance.
- Please follow the correct projector orientation installation as non standard installation may affect the projector performance.
- Use a power strip and/or surge protector, as power outages and brown-outs can KILL devices.
- Do not look into the projector lens during operation. The bright light may harm your eyes.
- According to the classification of photobiological safety of light sources and light source systems, this product is Risk Group 2, IEC 62471-5:2015.



SAFETY

Copyright

This publication, including all photographs, illustrations and software, is protected under international copyright laws, with all rights reserved. Neither this manual, nor any of the material contained herein, may be reproduced without the written consent of the author.

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Disclaimer

The information in this document is subject to change without notice. The manufacturer makes no representations or warranties with respect to the contents hereof and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose. The manufacturer reserves the right to revise this publication and to make changes from time to time in the content hereof without obligation of the manufacturer to notify any person of such revision or changes.

Trademark recognition

Kensington is a U.S. registered trademark of ACCO Brands Corporation with issued registrations and pending applications in other countries throughout the world.

The terms HDMI, HDMI High-Definition Multimedia Interface, HDMI Trade dress and the HDMI Logos are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

DLP®, DLP Link and the DLP logo are registered trademarks of Texas Instruments and BrilliantColor™ is a trademark of Texas Instruments.

All other product names used in this manual are the properties of their respective owners and are acknowledged.

FCC

This device has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the device and receiver.
- Connect the device into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Notice: Shielded cables

All connections to other computing devices must be made using shielded cables to maintain compliance with FCC regulations.

Caution

Changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by the Federal Communications Commission, to operate this projector.

Operation Conditions

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference and

SAFETY

2. This device must accept any interference received, including interference that may cause undesired operation.

Notice: Canadian users

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

Remarque à l'intention des utilisateurs canadiens

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Declaration of Conformity for EU countries

- EMC Directive 2014/30/EU (including amendments)
- Low Voltage Directive 2014/35/EU
- RED 2014/53/EU (if product has RF function)

WEEE



Disposal instructions

Do not throw this electronic device into the trash when discarding. To minimize pollution and ensure utmost protection of the global environment, please recycle it.

Cleaning the lens

- Before cleaning the lens, be sure to turn off the projector and unplug the power cord to allow it to completely cool down.
- Use a compressed air tank to remove the dust.
- Use a special cloth for cleaning the lens and gently wipe the lens. Do not touch the lens with your fingers.
- Do not use alkaline/acid detergents or volatile solvents such as alcohol for cleaning the lens. If the lens is damaged due to the cleaning process, it is not covered by the warranty.



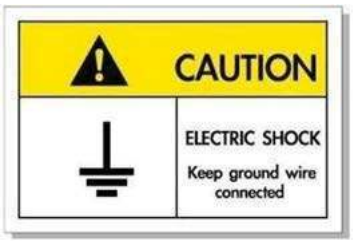
Warning: Do not use a spray containing flammable gases to remove dust or dirt from the lens. This may cause a fire due to excessive heat inside the projector.



Warning: Do not clean the lens if the projector is warming up as this may cause the lens' surface film to peel off.



Warning: Do not wipe or tap the lens with a hard object.



To avoid electric shock, the unit and its peripherals must be properly grounded (earthed).

INTRODUCTION

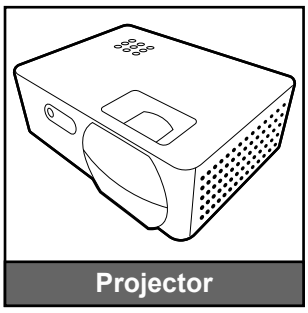
Thank you for purchasing an Optoma projector. For a full list of features please visit the product page on our website, where you will also find additional information and documentation such as FAQs.

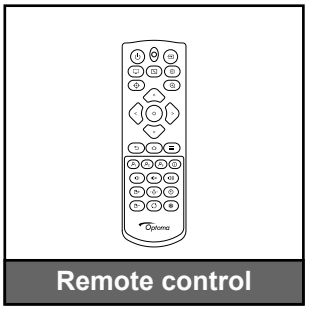
Package overview

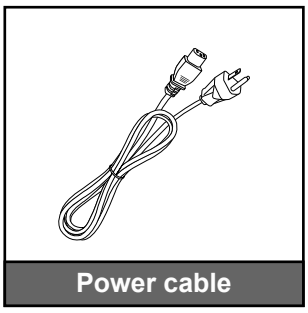
Carefully unpack and verify that you have the items listed below under standard accessories. Please check with your place of purchase. Some accessories may vary from region to region.

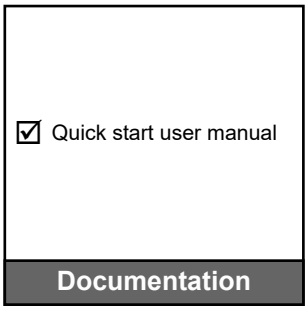
The warranty card is only supplied in some specific regions. Please consult your dealer for detailed information.

Standard accessories


Projector


Remote control


Power cable



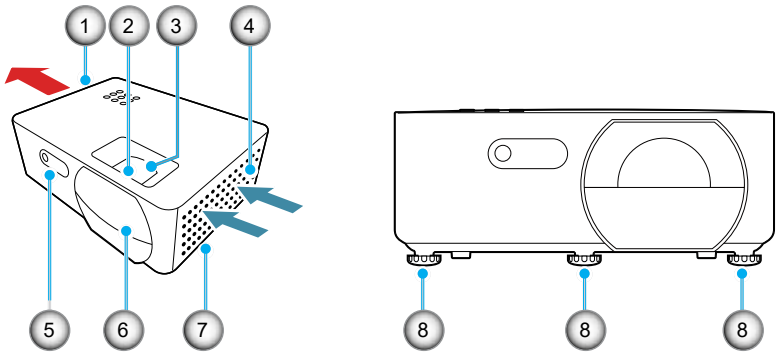
Documentation

Note:

- *For access to the setup information, user manual, warranty information, and product updates – please scan the QR Code or visit the following URL: https://www.optoma.com/support/download*
- *The accessories may vary depending on the region.*

INTRODUCTION

Product overview



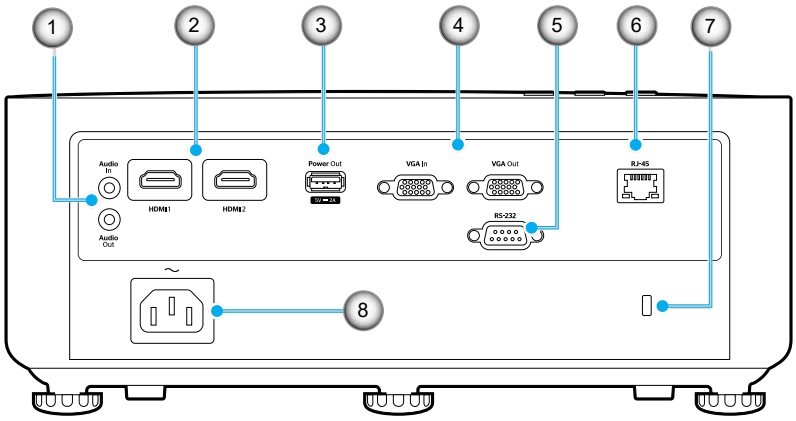
Note:

- *Do not block projector intake and exhaust vents.*
- *When operating the projector in an enclosed space, allow at least 30 cm clearance around the intake and exhaust vents.*

No	Item	No	Item
1.	Ventilation (outlet)	5.	IR receiver
2.	Focus ring	6.	Lens
3.	Zoom lever	7.	Security bar
4.	Ventilation (inlet)	8.	Tilt-Adjustment feet

INTRODUCTION

Connections



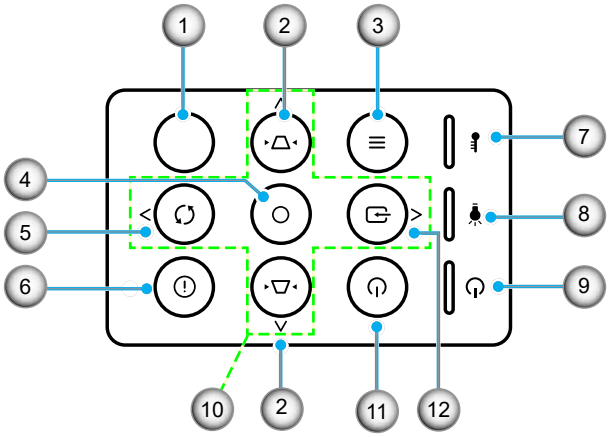
No	Item	No	Item
1.	Audio In/Audio Out connector	5.	RS-232 connector
2.	HDMI 1/HDMI 2 connector	6.	RJ-45 connector
3.	USB Power Out (5V ⎓ 2A)	7.	Kensington™ lock port
4.	VGA In/VGA Out connector	8.	AC power jack

Note:

- *Supported signal modes vary by model and sales region.*

INTRODUCTION

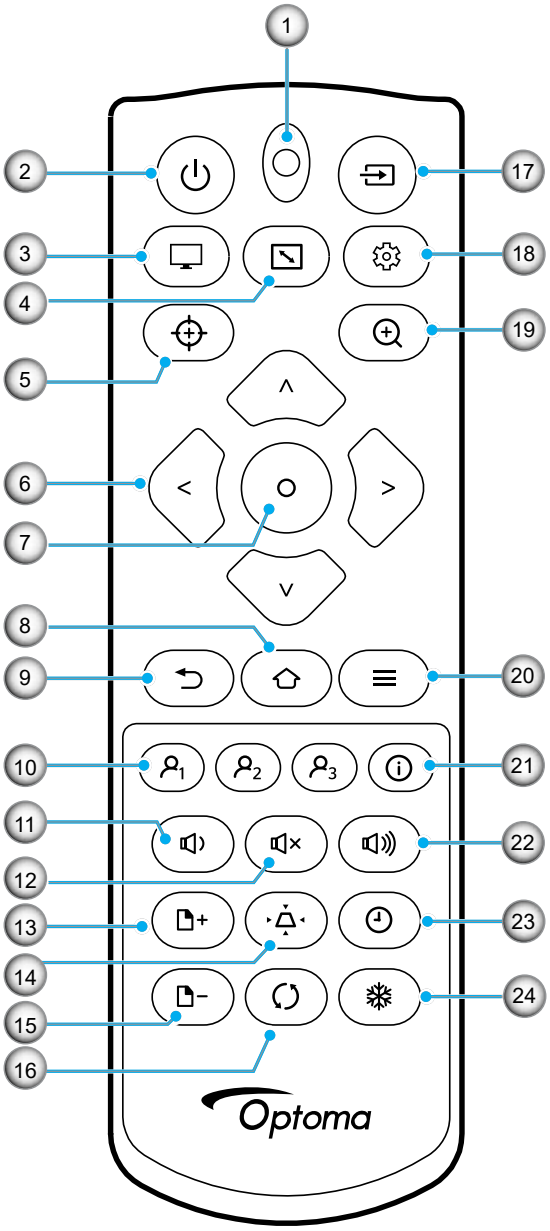
Keypad



No	Item	No	Item
1.	IR receiver	7.	Temp LED
2.	Keystone correction	8.	Lamp LED
3.	Menu	9.	Power LED
4.	Enter	10.	Four directional select keys
5.	Re-Sync	11.	Power
6.	Information	12.	Source

INTRODUCTION

Remote control



No	Item	No	Item
1.	LED indicator	13.	Page up
2.	Power On/Off	14.	Keystone correction
3.	Picture Mode	15.	Page down
4.	Aspect Ratio	16.	Re-sync
5.	Focus	17.	Source
6.	Directional keys	18.	Settings/Setup menu
7.	Enter	19.	Zoom
8.	Home	20.	Menu
9.	Return	21.	Information
10.	User 1/2/3 (assignable)	22.	Volume +
11.	Volume -	23.	Sleep Timer
12.	Mute	24.	Freeze

INTRODUCTION

Note:

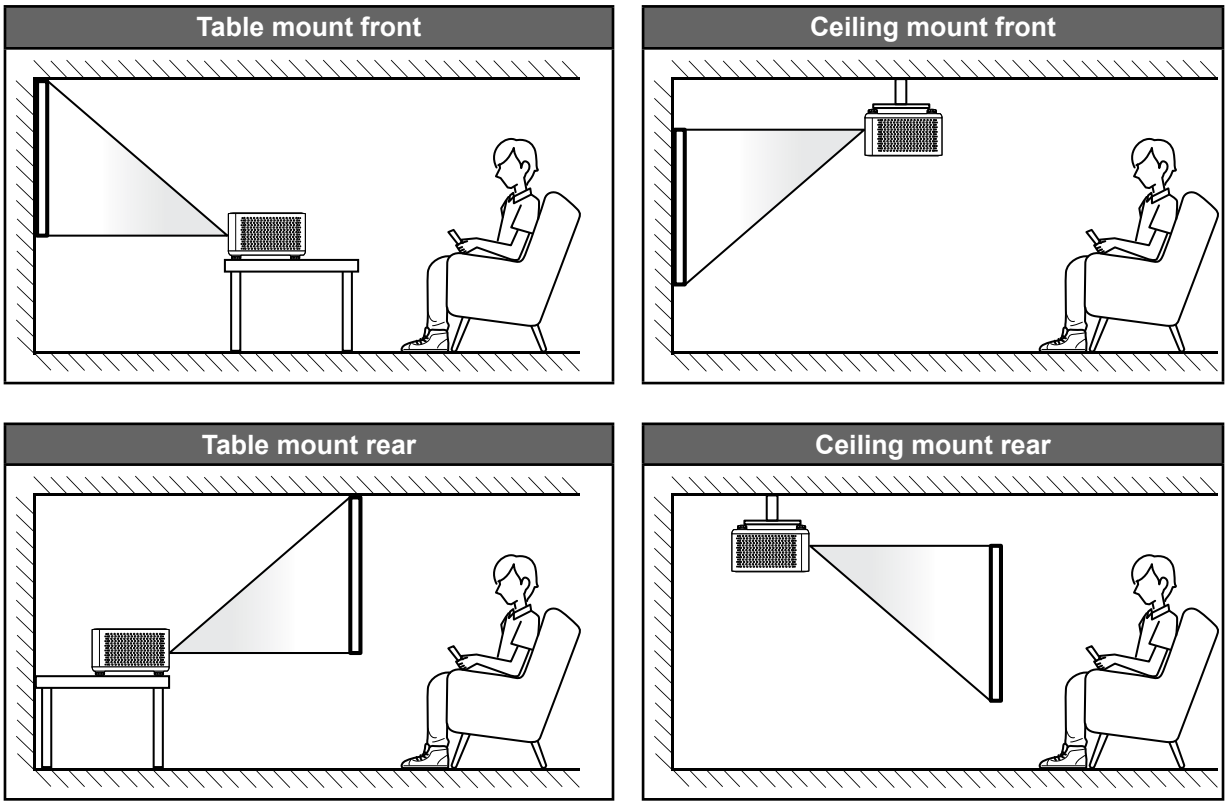
- *Some buttons may not function on models that do not support these features.*
- *Before using the remote control for the first time, remove the transparent insulation tape. See page 19 for battery installation.*
- *The inclusion of the battery for the remote control may vary depending on the region.*
- *The remote control may vary depending on the region.*

SETUP AND INSTALLATION

Installing the projector

Your projector is designed to be installed in one of four possible positions.

Your room layout or personal preference will dictate which installation location you select. Take into consideration the size and position of your screen, the location of a suitable power outlet, as well as the location and distance between the projector and the rest of your equipment.



Projector should be placed flat on a surface and 90 degrees / perpendicular to the screen.

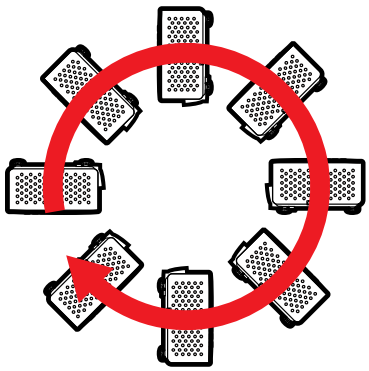
- How to determine projector location for a given screen size, please refer to distance table on pages *59~61*.
- How to determine screen size for a given distance, please refer to distance table on pages *59~61*.

Note: *As the projector is moved farther away from the screen, the size of the projected image increases and the vertical offset also increases in proportion.*

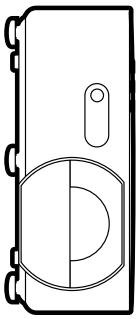
SETUP AND INSTALLATION

Projector installation notice

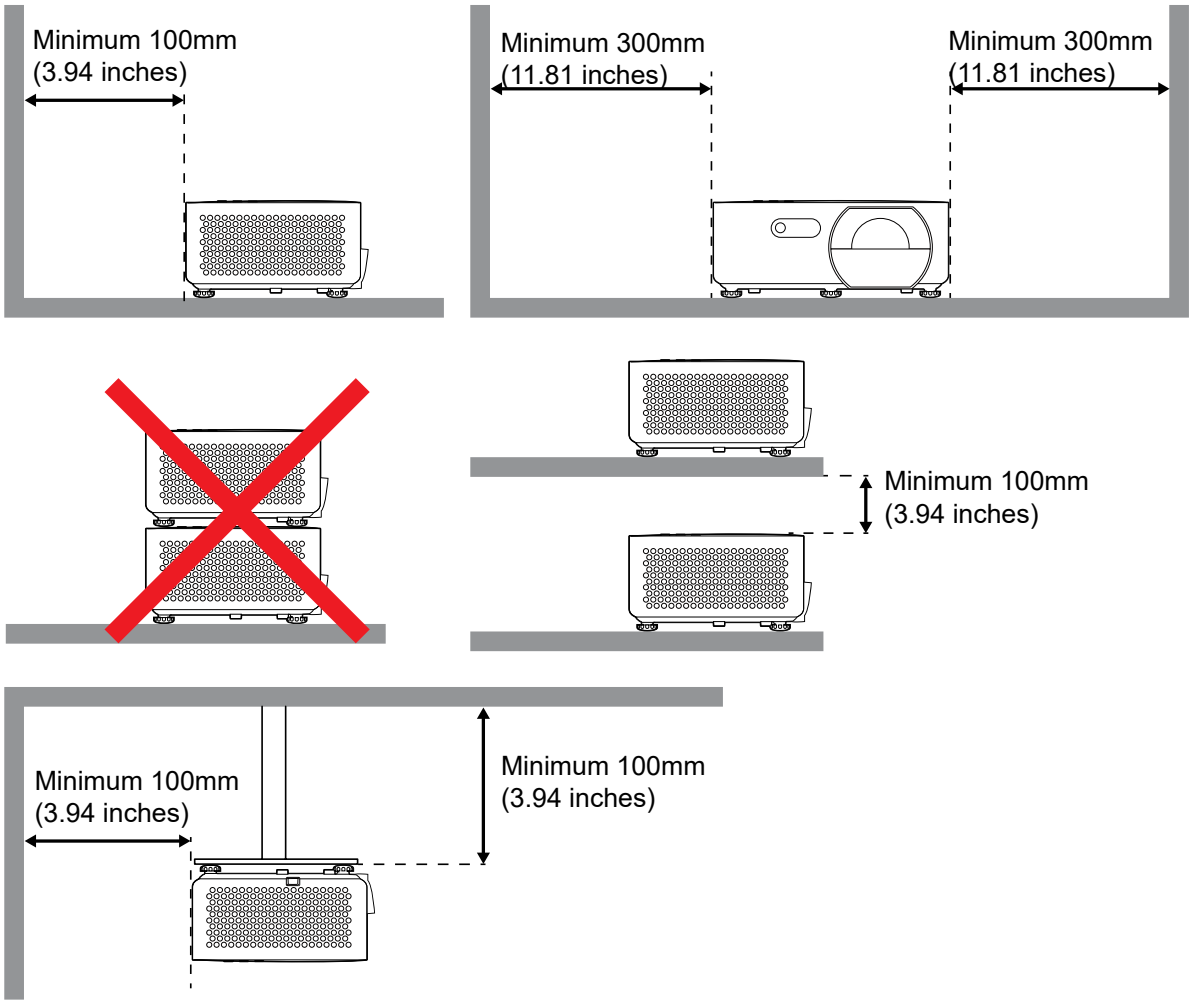
- 360° free orientation operation



- Portrait



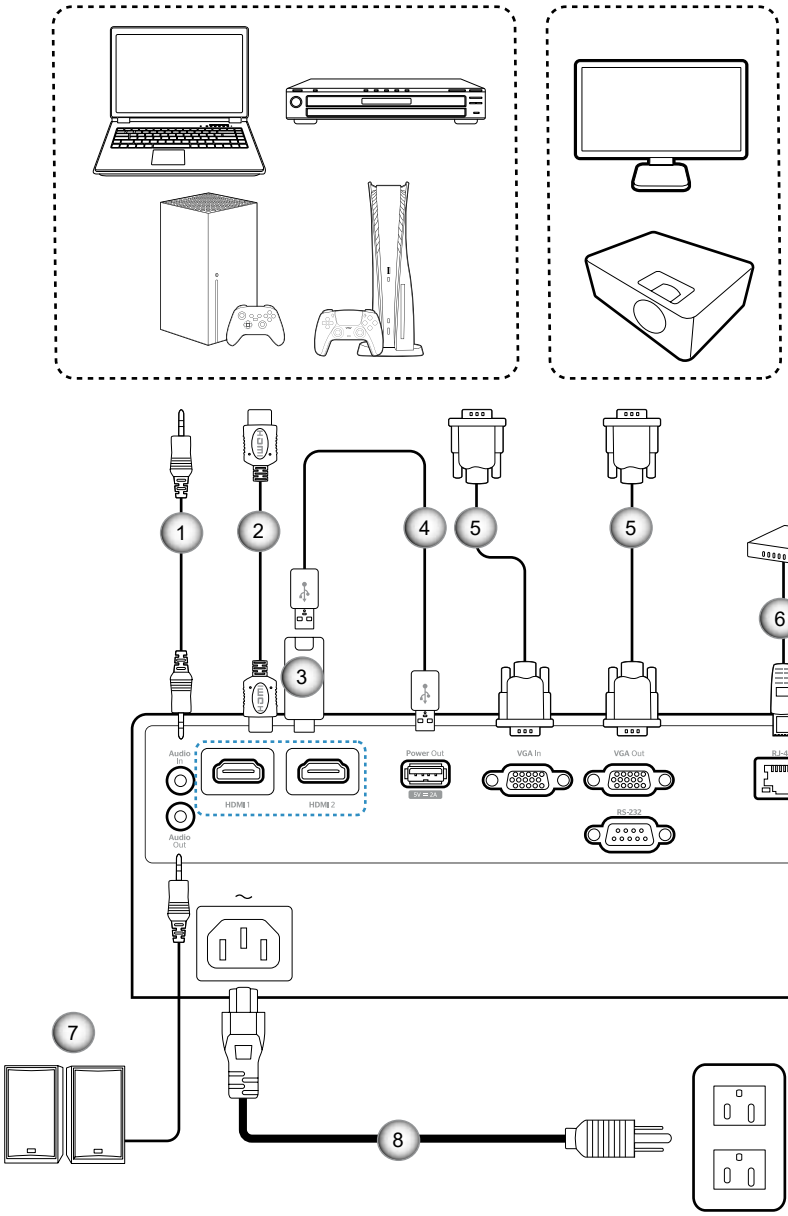
- Allow at least 30 cm clearance around the exhaust vent.



- Ensure that the intake vent does not draw in hot air from the exhaust vent.
- When operating the projector in an enclosed space, ensure that the surrounding air temperature within the enclosure does not exceed operation temperature while the projector is running, and the air intake and exhaust vents are unobstructed.
- All enclosures should undergo a certified thermal evaluation to ensure that the projector does not recycle exhaust air, as this may cause the device to shut down even if the enclosure temperature remains within the acceptable operation temperature range.

SETUP AND INSTALLATION

Connecting sources to the projector



No	Item	No	Item
1.	Audio cable	5.	VGA cable
2.	HDMI cable	6.	RJ-45 cable
3.	HDMI dongle	7.	Speakers
4.	USB power cable	8.	Power cable

Note:

- *To ensure the best image quality and avoid connection errors, we recommend the use of High Speed or Premium Certified HDMI cables up to 5 meters.*

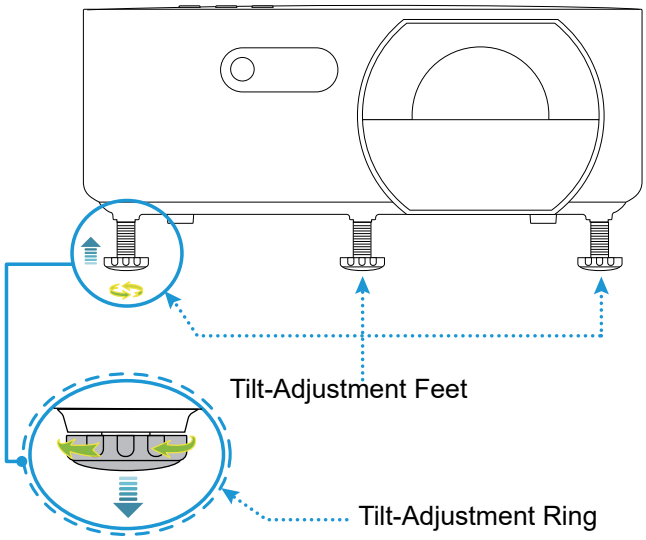
SETUP AND INSTALLATION

Adjusting the projector image

Image height

The projector is equipped with elevator feet for adjusting the image height.

1. Locate the adjustable foot you wish to adjust on the underside of the projector.
2. Rotate the adjustable foot clockwise or counterclockwise to raise or lower the projector.

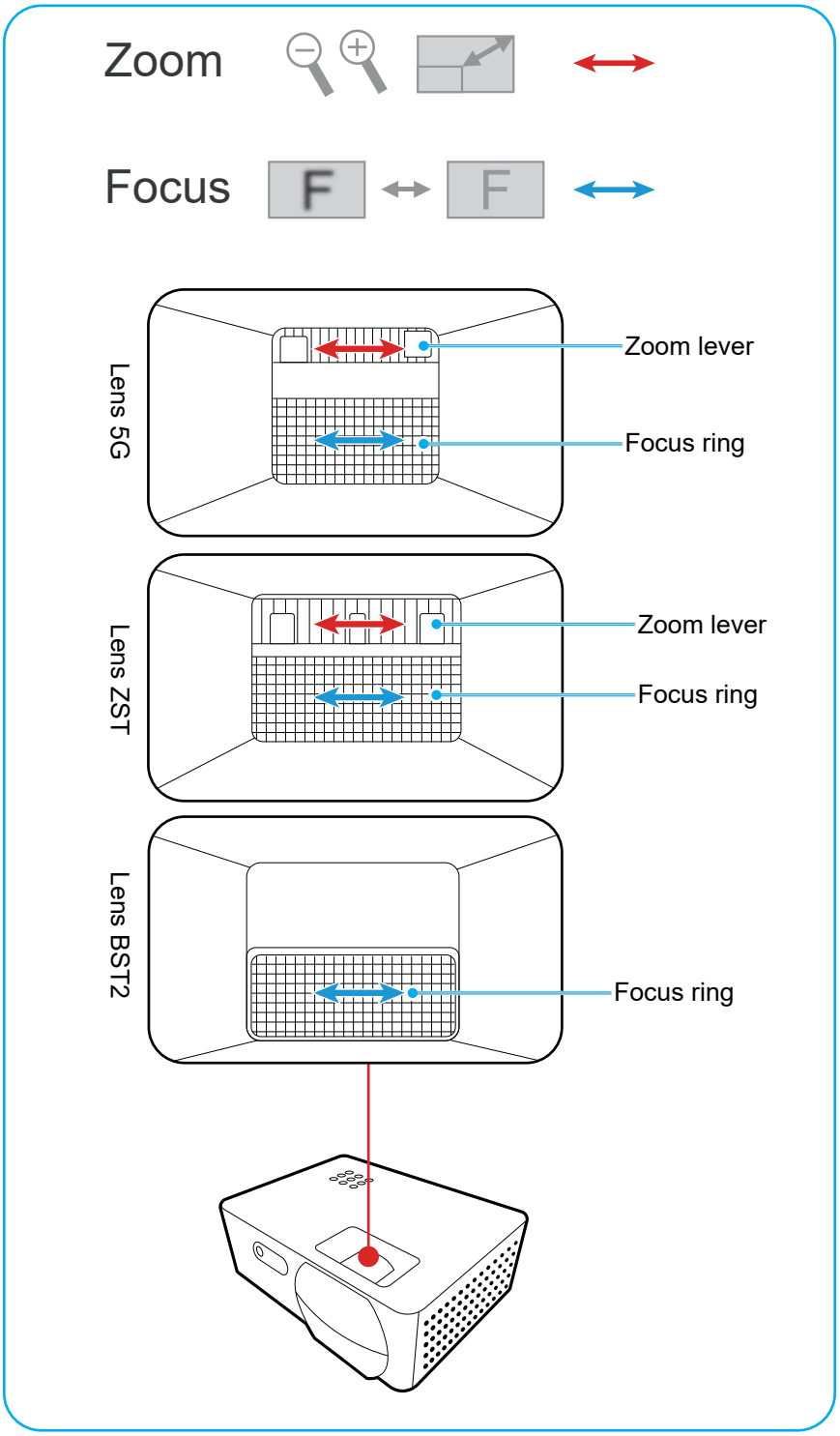


SETUP AND INSTALLATION

Zoom and focus

Lens 5G/Lens ZST Model

- To adjust the image size, turn the zoom lever clockwise or counterclockwise to decrease or increase the projected image size.
- To adjust the focus, turn the focus ring clockwise or counterclockwise until the image is sharp and legible.

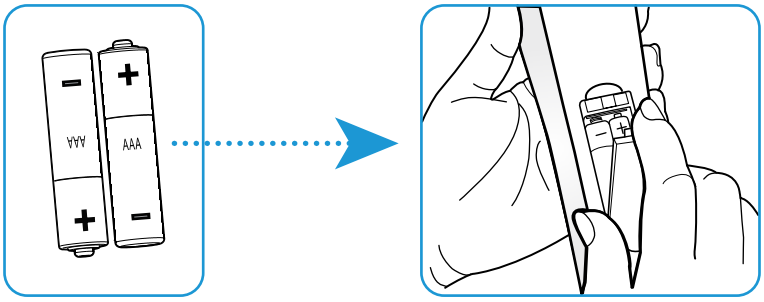


SETUP AND INSTALLATION

Remote setup

Two AAA size batteries are supplied for the remote control.

1. Remove the battery cover on the back of the remote control.
2. Insert the AAA batteries into the battery compartment as illustrated.
3. Replace the back cover on the remote control.



CAUTION: To ensure safe operation, please observe the following precautions:

- Replacement of a battery with an incorrect type that can defeat a safeguard (AAA size battery type);
- Disposal of a battery into a fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion;
- Leaving a battery in an extremely high-temperature environment that can result in an explosion or the leakage of flammable liquid or gas; and
- A battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas.

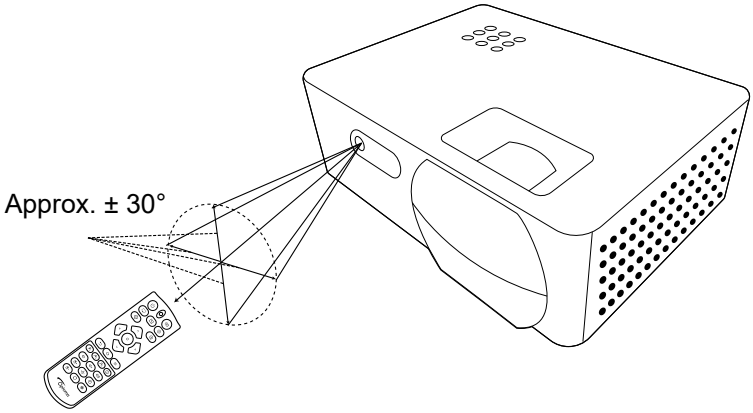
Note: *The inclusion of the battery and the battery type for the remote control may vary depending on the region.*

SETUP AND INSTALLATION

Effective range

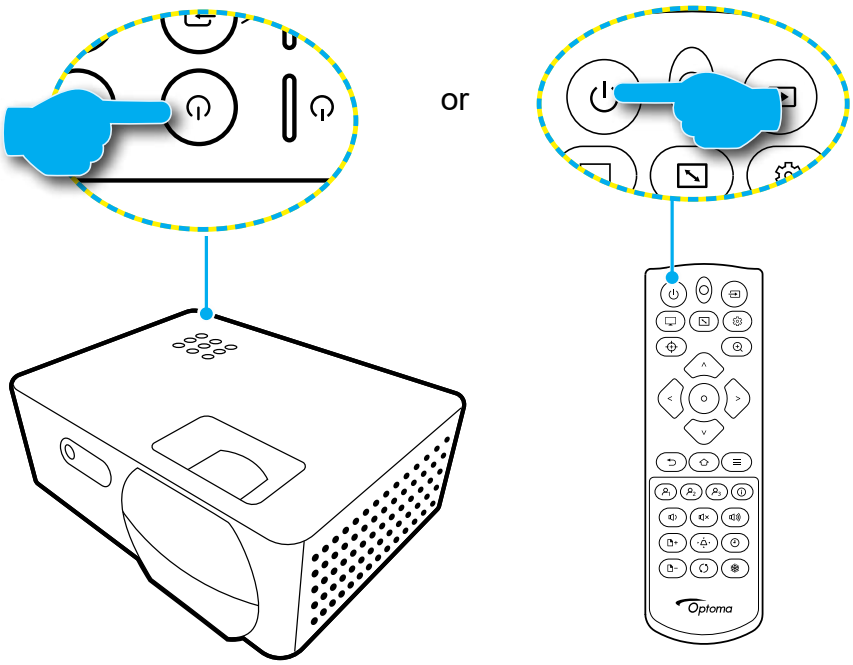
The Infra-Red (IR) remote control sensor is located on the top and front sides of the projector. Ensure that the remote control is held within 30 degrees of the perpendicular to the projector's IR remote control sensor to ensure correct functionality. The distance between the remote control and the sensor should not be longer than 8 meters (26 feet).

- Make sure that there are no obstacles between the remote control and the IR sensor on the projector that might obstruct the infra-red beam.
- Make sure the IR transmitter of the remote control is not directly exposed to sunlight or fluorescent lamps.
- Please keep the remote controller at least 2 m away from fluorescent lamps or the remote controller may malfunction.
- If the remote control is close to inverter-type fluorescent lamps, it might become ineffective from time to time.
- If the remote control and the projector are within a very short distance of one another, the remote control might become ineffective.



USING THE PROJECTOR

Powering on/off the projector



Powering on

1. Securely connect the power lead and signal/source cable. When the cables are connected, the Power LED will turn red.
2. Turn on the projector by pressing the ⏻ button on the projector or remote control.
3. A start up screen will be displayed and the Power LED turns blue.

Note: *The first time the projector is turned on, you will be prompted to select the preferred language, projection orientation, and other settings.*

Powering off

1. Turn off the projector by pressing the ⏻ button on the projector or remote control. The following message will be displayed.



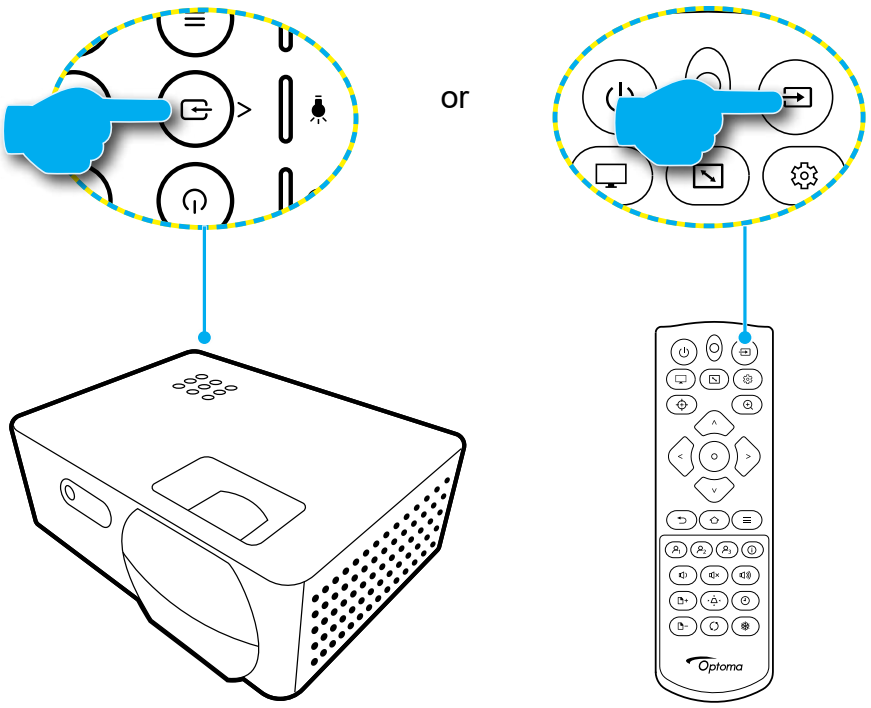
2. Press the ⏻ button again to confirm; otherwise the message will disappear after 15 seconds. When you press the ⏻ button for the second time, the projector will shut down.
3. When the Power LED turns solid red, this indicates the projector has entered standby mode.
4. Disconnect the power lead from the electrical outlet and the projector.

Note: *It is not recommended that the projector is turned on immediately, right after a power off procedure.*

USING THE PROJECTOR

Selecting an input source

Turn on the connected source that you want to display on the screen, such as computer, notebook, video player, etc. The projector will automatically detect the source. If multiple sources are connected, press the ⇨ button on the projector or remote control to select the desired input.

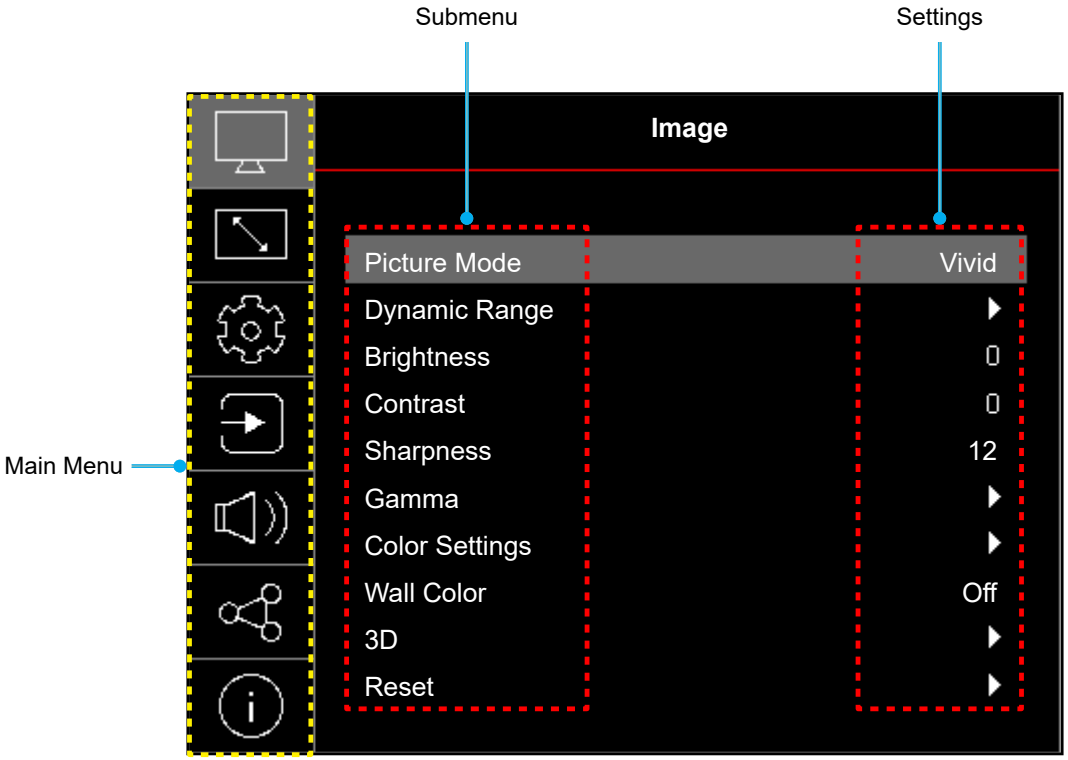


USING THE PROJECTOR

Menu navigation and features

The projector has multilingual on-screen display (OSD) menus that allow you to make image adjustments and change a variety of settings. The projector automatically detects the input source.

1. To open the OSD, press ☰ on the projector keypad or remote control.
2. With the OSD displayed, press ∧ / ∨ to select an item in the main menu, then press ○ to enter its submenu.
3. Press ∧ / ∨ to select an item in the submenu, then press ○ to view further settings. Adjust the settings with ∧ / ∨ / < / > .
4. To save and exit, press ☰ or ⮌. The OSD will close and the projector will automatically save the changes.



USING THE PROJECTOR

OSD menu

Note: *The OSD menu tree items and features vary by model and region. Optoma reserves the right to add or remove items to improve product performance without notice.*

1. Main menu: Image

Submenu 1	Submenu 2	Submenu 3	Values
Picture Mode			Vivid
			Bright
			HDR
			HLG
			Cinema
			Game
			Sport
			Reference
			DICOM SIM.
			3D
			Golf SIM.
			ISF Day
			ISF Night
			ISF 3D
Dynamic Range	HDR/HLG		Off
			Auto
Brightness			-50 ~ 50
Contrast			-50 ~ 50
Sharpness			1 ~ 15
Gamma			Film
			Graphics
			1.8
			2.0
			2.2
			2.4
			(Hidden) Blackboard
			(Hidden) DICOM SIM.
			(Hidden) HDR EOTF
			(Hidden) 3D
Color Settings	Color		-50 ~ 50
	Tint		-50 ~ 50
	Color Temperature		Warm
			Standard
			Cool
			Cold

Submenu 1	Submenu 2	Submenu 3	Values
Color Settings	CMS	Color	White, Red, Green, Blue, Cyan, Magenta, Yellow
		Hue	-50 ~ 50
		Saturation	-50 ~ 50
		Luminance	-50 ~ 50
		Reset	No
			Yes
		Exit	
	Color Space		Auto
			RGB(0~255)
			RGB(16~235)
			RGB
			YUV
Wall Color			Off
			Blackboard
			Light Yellow
			Light Green
			Light Blue
			Pink
			Gray
3D	3D Mode		Off
			On
	3D Tech		DLP-Link
	3D Format		Auto
			SBS
			Top and Bottom
			Frame Sequential
			Frame Packing
	3D Sync Invert		Off
			On
	Reset		Cancel
			OK
Reset			No/Yes

Picture Mode

There are several predefined display modes that you can choose from to suit your viewing preference. Each mode has been fine-tuned by our expert color team to ensure superior color performance for wide range of content.

- **Vivid**
  Selecting this mode balances color saturation and brightness for a brighter display. Choose this mode for setups with ambient lighting, or where brighter images/presentations are necessary.
- **Bright**
  This mode is suitable for environments where extra-high brightness is required, such as using the projector in well-lit rooms.

- **HDR/HLG**

  Decodes and displays High Dynamic Range (HDR)/Hybrid Log Gamma (HLG) content for the deepest blacks, brightest whites, and vivid cinematic color using REC.2020 color gamut. This mode will be automatically enabled if HDR/HLG is set to Auto (and HDR/HLG Content is sent to projector – 4K UHD Blu-ray, 1080p/4K UHD HDR/HLG Games, 4K UHD Streaming Video). While HDR/HLG mode is active, other display modes (Cinema, Reference, etc.) cannot be selected as HDR/HLG delivers color that is highly accurate, exceeding the color performance of the other display modes.

- **Cinema**

  Provides the best balance of detail and colors for watching movies.

- **Game**

  Optimizes your projector for maximum contrast and vivid colors allowing you to see shadow detail when playing video games.

- **Sport**

  Optimizes your projector for watching sports playback or playing sports games.

- **Reference**

  This mode reproduces colors as close as possible to the way the movie director intended. Color, color temperature, brightness, contrast and gamma settings are all configured to Rec.709 color gamut. Select this mode for the most accurate color reproduction when watching movies.

- **DICOM SIM.**

  This mode has been created for viewing grayscale images, perfect for viewing X-rays and scans during medical training*.

  Note: **This projector is not suitable for use in medical diagnosis.*

- **3D**

  Optimized settings for watching 3D content.

  Note: *To experience the 3D effect, you will need to have compatible DLP Link 3D glasses. See “3D” on page 28 for more information.*

- **Golf SIM.**

  This mode is suitable for use with golf simulation software, enhancing both blue and green colors to reproduce true-to-life golf course scenes.

- **ISF Day/ISF Night/ISF 3D**

  The ISF calibration menu is password protected and only accessible by authorized ISF calibrators. We recommend that setup and calibration be performed by an ISF certified installation technician.

Dynamic Range

- **HDR/HLG**

  Configures the High Dynamic Range (HDR)/Hybrid Log Gamma (HLG) setting and its effect when displaying video from 4K Blu-ray players and streaming devices.

  – Auto: Automatically detects HDR/HLG signal.

  – Off: Turns off HDR/HLG processing. When setting to Off, the projector will NOT decode HDR/HLG content.

Brightness

Adjusts the brightness of the image.

Contrast

The contrast controls the degree of difference between the lightest and darkest parts of the picture.

Sharpness

Adjusts the sharpness of the image.

Gamma

Sets the gamma curve type. After the initial setup and fine tuning are completed, utilize the Gamma Adjustment steps to optimize your image output.

- **Film**
  For home theater.
- **Graphics**
  For PC/Photo source.
- **1.8/2.0/2.2/2.4**
  For specific PC/Photo source.

Color Settings

- **Color**
  Adjusts the image from black and white to fully saturated color.
- **Tint**
  Adjusts the color balance of red and green.
- **Color Temperature**
  Selects a color temperature from Warm, Standard, Cool, and Cold.
- **CMS**
  Selects the following options:
  – Color: Adjusts the red, green, blue, cyan, yellow, magenta, and white level of the image.
  – Hue: Adjusts the color balance of red and green.
  – Saturation: Adjusts the image from black and white to fully saturated color.
  – Luminance: Adjusts the luminance of the selected color.
  – Reset: Resets all of the settings to the factory defaults.
- **Color Space**
  Selects an appropriate color matrix type from the following: Auto, RGB (0-255), RGB (16-235), and YUV.

USING THE PROJECTOR

Wall color

Designed to adjust the colors of the projected image when projecting onto a wall without a screen. There are several predefined modes that you can choose from to suit the color of your wall. Each mode has been fine-tuned by our expert color team to ensure superior color performance.

Note: *For accurate color reproduction, we recommend using a screen.*

3D

Note: *This projector is a 3D ready projector with DLP-Link 3D solution.*

Note: *Please ensure that 3D glasses are in use for DLP-Link 3D content before enjoying your video.*

Note: *To enable 3D mode, the input frame rate should be set to 60Hz only, lower or higher frame rate is not supported.*

Note: *To reach the best performance, resolution 1920x1080 is recommended, please note that 4K (3840x2160) resolution is not supported in 3D mode.*

- **3D Mode**
  Use this option to disable or enable the 3D function.
- **3D Tech**
  Use this option to select 3D technology.
  – DLP-Link: Uses optimized settings for DLP 3D Glasses.
- **3D Format**
  Use this option to select the appropriate 3D format.
  – Auto: When a 3D identification signal is detected, the 3D format is selected automatically.
  – SBS: Displays the 3D signal in “Side-by-Side” format.
  – Top and Bottom: Displays the 3D signal in “Top and Bottom” format.
  – Frame Sequential: Displays the 3D signal in “Frame Sequential” format.
  – Frame Packing: Displays the 3D signal in “Frame Packing” format.
- **3D Sync Invert**
  Use this option to enable or disable the 3D sync invert function.
- **Reset**
  Resets all of the 3D settings to the factory defaults.

Reset

Resets all of the adjustments you’ve made in the Image menu to the factory defaults.

USING THE PROJECTOR

2. Main menu: Display

Submenu 1	Submenu 2	Submenu 3	Values
Projection Orientation			(icon) Front
			(icon) Rear
			(icon) Ceiling-Top
			(icon) Rear-Top
Light Source Mode	Eco.		
	Constant Power		100% / 95% / 90% / 85% / 80% / 75% / 70% / 65% / 60% / 55% / 50%
Dynamic Black			Off
			On
Low Latency Mode			Off
			On
Screen Type			4:3
			16:9
			16:10
			1:1
			Custom
Aspect Ratio			4:3
			16:9
			16:10
			Full
			Native
			Auto
Geometric Correction	V Keystone		-30~30
	H Keystone		-30~30
	Four Corners		
	Reset		
Edge Mask			0 ~ 10
Digital Zoom			-5~25
Image shift	 H		-100 ~ 100
	 V		-100 ~ 100
Signal	Automatic		Off
			On
	Frequency		-10~10
	Phase		0~31
	H.Position		-5~5
	V.Position		-5~5
Reset			No / Yes

Projection Orientation

Selects a preferred projection orientation between Front, Rear, Ceiling-Top, and Rear-Top.

USING THE PROJECTOR

Light Source Mode

Selects a light source mode depending on the installation requirements.

- **Eco**
  Sets the light source output to a fixed 50% level to reduce power consumption.
- **Constant Power**
  Lets you select a preferred, fixed light source output percentage between 50% and 100%.

Dynamic Black

Enable this feature to automatically adjust the picture brightness for optimum contrast performance.

Low Latency Mode

Enable this feature to reduce response times (input latency) during gaming. The following image settings will be disabled when this mode is enabled: Aspect Ratio, Geometric Correction, Digital Zoom, Image Shift. See below for more information.

- The input lag by signals is described in the following table.
- The values in the table can vary slightly.

Source Timing	Low Latency Mode	
	On	Off
1080p/60Hz	16.7ms +/- 10%	33.4ms +/- 10%
1080p/120Hz	8.4ms +/- 10%	25.1ms +/- 10%
4K/60Hz	33.7ms +/- 10%	33.7ms +/- 10%

Screen Type

Selects the screen type from 4:3, 16:9, 16:10, 1:1, or Custom. It is recommended selecting a screen type that matches/closes to your projection screen. The chosen Screen Type determines which Aspect Ratio options are available.

Aspect Ratio

Determines how the input source is scaled under Screen Type. Select the aspect ratio of the displayed image from the following options. Available Aspect Ratio options vary according to the selected Screen Type.

- **4:3**
  This format is for 4:3 input sources.
- **16:9**
  This format is for 16:9 input sources, like HDTV and DVD enhanced for Wide screen TV.
- **16:10**
  This format is for 16:10 input sources, like HDTV and DVD enhanced for Wide screen TV.
- **Full**
  Scales the image to fill the entire Screen Type display area. The image may stretch if the source

aspect ratio differs.

- **Native**
  This format displays the original image without any scaling.
- **Auto**
  Automatically selects the appropriate display format.

Table: Aspect Ratio Availability by Screen Type -- WXGA (1280 x 800) models

			Aspect Ratio					
		EDID Native Resolution	Auto	4:3	16:9	16:10	Native	Full
Screen Type	4:3	1067 x 800	v	N/A	N/A	N/A	N/A	N/A
	16:9	1280 x 720	v	v	v	v	v	v
	16:10 (Default)	1280 x 800	v	v	v	v	v	v
	1:1	800 x 800	v	N/A	N/A	N/A	N/A	N/A
	Custom	depending on the input source's resolution	v	N/A	N/A	N/A	N/A	N/A

- 1:1, and Custom are specific for Golf SIM.
- Symbol key: v = supported; N/A = not available.

Table: Aspect Ratio Availability by Screen Type -- 1080p (1920 x 1080) models

			Aspect Ratio					
		EDID Native Resolution	Auto	4:3	16:9	16:10	Native	Full
Screen Type	4:3	1440 x 1080	v	N/A	N/A	N/A	N/A	N/A
	16:9 (Default)	1920 x 1080	v	v	v	v	v	v
	16:10	1728 x 1080	v	N/A	N/A	N/A	N/A	N/A
	1:1	1080 x 1080	v	N/A	N/A	N/A	N/A	N/A
	Custom	depending on the input source's resolution	v	N/A	N/A	N/A	N/A	N/A

- 1:1, and Custom are specific for Golf SIM.
- Symbol key: v = supported; N/A = not available.

Geometric Correction

- **V Keystone**
  Adjusts image distortion vertically and makes a squarer image. Vertical keystone is used to correct a keystoned image shape in which the top and bottom borders of the image are unequal in length.
- **H Keystone**
  Adjusts image distortion horizontally and makes a squarer image. Horizontal keystone is used to correct a keystoned image shape in which the left and right borders of the image are unequal in length.
- **Four Corners**
  This setting allows adjustments for each corner to make a square image when the projection surface is

not level.

- **Reset**
  Resets all the settings in the Geometric Correction menu to the factory defaults.

Edge Mask

Conceals the poor picture quality in the four edges.

The greater the value, the more portion of the picture is concealed while the screen remains filled and geometrically accurate. Setting 0 means the picture is 100% displayed.

Digital Zoom

Displays the digital zoom setting menu for adjustments.

Note: *Zoom settings are retained on power cycle of the projector.*

Image Shift

Adjusts the projected image position horizontally (H) or vertically (V).

Signal

- **Automatic**
  Automatically configures the signal (the frequency and phase items are grayed out). When Automatic is disabled, the frequency and phase items appear for tuning and saving the settings.
- **Frequency**
  Changes the display data frequency to match the frequency of your computer's graphics card. Use this function only if the image appears to flicker vertically.
- **Phase**
  Synchronizes the signal timing of the display with the graphics card. If the image appears to be unstable or flickers, use this function to correct it.
- **H.Position**
  Adjusts the horizontal position of the image.
- **V.Position**
  Adjusts the vertical position of the image.

  Note: *This menu is only available if the input source is VGA.*

Reset

Resets all the settings in the Display menu to the factory defaults.

The following settings will still remain: Light Source Mode, Geometric Correction.

USING THE PROJECTOR

3. Main menu: Setup

Submenu 1	Submenu 2	Submenu 2	Values
Test Pattern			Off
			Green Grid
			Magenta Grid
			White Grid
			White
Language			English
			عـربي
			Čeština
			Dansk
			Nederlands
			فارســی
			Suomi
			Français
			Deutsch
			ελληνικά
			Magyar
			Bahasa Indonesia
			Italiano
			日本語
			한국어
			Norsk
			Polski
			Português
			Română
			Русский
			簡体中文
			Español
			Svenska
			ไทย
			繁體中文
			Türkçe
			Tiếng Việt
Menu Settings	Menu Location		Top left
			Top right
			Center
			Bottom left
			Bottom right
	Menu Timer		Off
			5s
			10s
			20s
			30s
	Information Hide		Off
			On

Submenu 1	Submenu 2	Submenu 2	Values
High Altitude			Off
			On
Power Settings	Direct Power On		Off
			On
	Signal Power On		Off
			On
	Auto Power Off (min.)		0 ~ 180
	Sleep Timer (min.)		0 ~ 990
			Always On (No/Yes)
	Power Mode (Standby)		Eco
			Active
			Active (20 mins)
Security	Security		Off
			On
	Security Timer		Month
			Day
			Hour
	Change Password		
Startup Logo			Default
			User
			Neutral
Background Color			None
			Blue
			Red
			Green
			Gray
			Logo
System Update	Auto		Off
			On
	Update		Off/On
Reset	Reset OSD		Cancel
			OK
	Reset to Default		Cancel
			OK

Test Pattern

Selects a suitable test pattern.

Language

Sets the language for the OSD menus.

USING THE PROJECTOR

Menu Settings

- **Menu Location**
  Sets the OSD menu position.
- **Menu Timer**
  Sets the duration the OSD menu stays visible on the screen.
- **Information Hide**
  Enable this function to hide the information message.

High Altitude

When “On” is selected, the fans will spin faster. This feature is useful in high altitude areas where the air is thin.

Power Settings

- **Direct Power On**
  Choose “On” to activate Direct Power mode. The projector automatically powers on when AC power is supplied, without having to press the ⏻ button on the projector or remote control.
- **Signal Power On**
  Choose “On” to activate Signal Power On mode. The projector automatically powers on when a signal is detected, without having to press the “Power” key on the projector or remote control.

  Note: *This function is applicable to an HDMI source.*
- **Auto Power Off (min.)**
  Sets the countdown timer interval in 1-minute increments. The countdown timer starts when no signal is being sent to the projector. The projector automatically powers off when the countdown finishes.

  Note: *Adjusting power-related functions may increase energy consumption.*
- **Sleep Timer (min.)**
  Sets the countdown timer interval in 30-minute increments. The countdown timer starts whether or not a signal is being sent to the projector. The projector automatically powers off when the countdown finishes.

  Note: *The Sleep Timer is reset every time the projector is powered off.*
- **Power Mode (Standby)**
  Sets the projector’s power consumption when the projector is in standby mode.
  – Eco: Reduces power consumption to < 0.5W.
  – Active: Keeps the projector in normal power consumption.
  – Active (20 mins): Keeps the projector in normal power consumption for 20 minutes. After 20 minutes, the projector switches to Eco mode.

USING THE PROJECTOR

Security

- **Security**
  Enable this function to require a password before using the projector.
  – On: Choose “On” to require password verification when turning on the projector.
  – Off: Choose “Off” to turn on the projector without password verification.
- **Security Timer**
  Select the time (Month/Day/Hour) to set how long the projector can be used. Once this time has elapsed, you will be prompted to enter your password again.
- **Change Password**
  Use to set or change the password that is required when turning the projector on.

Startup Logo

Use this function to set the desired startup screen. If changes are made, they will take effect the next time the projector is powered on.

- **Default**
  Displays the default startup screen.
- **User**
  Logo capture tool required.
  Note: *Please visit the website (https://www.optoma.com/offerings/projectors-select-location) to download the logo capture tool. Supported file formats: png/bmp/jpg.*
- **Neutral**
  Logo is not displayed on the startup screen.

Background Color

Selects a background color when no signal is available.

Note: *If the background color is set to “None”, the background color is black.*

Reset

- **Reset OSD**
  Resets all settings in the Device Setup menu to their factory defaults.
  The following settings will still remain: Language, Security.
- **Reset to Default**
  Resets all settings to the factory defaults.

USING THE PROJECTOR

4. Main menu: Input

Submenu 1	Submenu 2	Submenu 3	Values
Auto Source			Off
			On
Auto Input Switch			Off
			On
Rename Input Source	HDMI 1		Default / Custom
	HDMI 2		Default / Custom
	VGA		Default / Custom
Input Hide	HDMI 1		No / Yes
	HDMI 2		No / Yes
	VGA		No / Yes
VGA Out			Off / On
EDID Settings (WXGA models)	HDMI 1 EDID		1.4
	HDMI 2 EDID		1.4
EDID Settings (1080P models)	HDMI 1 EDID		1.4 / 2.0
	HDMI 2 EDID		1.4 / 2.0
HDMI CEC Settings	HDMI Link		Off
			On
	Power On Link		Mutual
			PJ --> Device
			Device --> PJ
	Power Off Link		Off
			On
Reset			No
			Yes

Auto Source

Choose this option to let the projector automatically find an available input source.

Auto Input Switch

When an HDMI input signal is detected, the projector will automatically switch to it as the input source.

Rename Input Source

Renames the current input source to your desired name.

On the Rename Input Source page:

1. Press ○ to display the on-screen keyboard.
2. Press the arrow keys to select each desired digit/letter, and press ○ to confirm each input.
3. Repeat the step above and when done, highlight Commit.

4. Press o and the input source name changes.

Input Hide

If you want to hide an input source, select the source here. When the input source is hidden, the related functions will not be available.

VGA Out

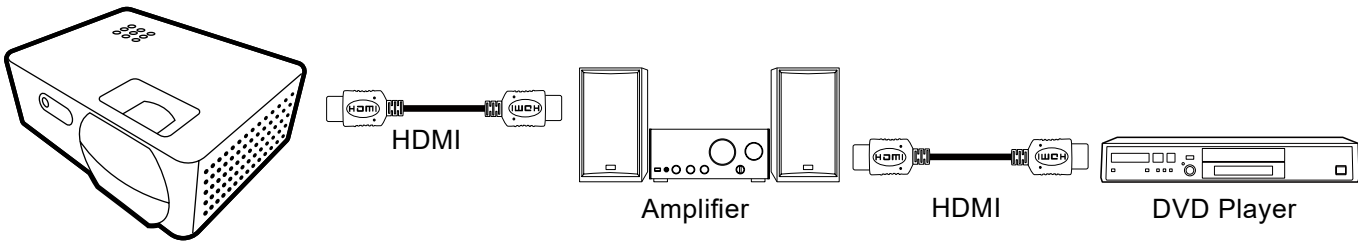
Sets the VGA signal output.

EDID Settings

For the 1080P models, use this setting to switch the HDMI EDID between version 1.4 and 2.0 to match your projector and input devices. Choosing the lower version may resolve display issues with some older players.

HDMI CEC Settings

Note: *When you connect HDMI CEC-compatible devices to the projector with HDMI cables, you can control them on the same power on or power off status using the HDMI Link control feature in the projector's OSD. This lets one device or multiple devices in a group power on or power off via HDMI Link Feature in a typical configuration, your DVD player may be connected to the projector through an amplifier or home theater system.*



- **HDMI Link**
  Enables/Disables the HDMI Link function.
- **Power On Link**
  Sets the CEC power command.
  – Mutual: Both the projector and CEC device will be turned on simultaneously.
  – PJ → Device: The CEC device will automatically turn on after the projector is switched on.
  – Device → PJ: The projector will automatically turn on after the CEC device is turned on.
- **Power Off Link**
  Sets the CEC power command.

Reset

Resets all settings in the Input Settings menu to the factory defaults.

USING THE PROJECTOR

5. Main menu: Audio

Submenu 1	Submenu 2	Submenu 3	Values
Volume			0 - 100
Mute			Off
			On
Internal Speaker			Off
			On
Reset			No
			Yes

Volume

Adjusts the volume level.

Mute

Use this option to temporarily turn off the sound.

Note: *“Mute” function affects both internal and external speaker volume.*

Internal Speaker

Turns the internal speaker on or off.

Reset

Resets all settings in the Audio menu to the factory defaults.

USING THE PROJECTOR

6. Main menu: Control

Submenu 1	Submenu 2	Submenu 3	Values
Device ID			0 ~ 99
Remote Settings [depends on remote]	IR Function		Off
			On
	User 1		HDMI 1/HDMI 2/Test Pattern/ Brightness/Contrast/Sleep Timer/ Color Matching/Color Temp/Gamma/ Projection/ Light Source Settings/Zoom/ Freeze [Depends on model]
	User 2		
	User 3		
Keypad Settings	Keypad Lock		Off
			On
LAN	Network Status		(read only)
	MAC Address		(read only)
	DHCP		Off
			On
	IP Address		192.168.0.100
	Subnet Mask		255.255.255.0
	Gateway		192.168.0.254
	DNS 1		192.168.0.51
	DNS 2		0.0.0.0
	IPv6 Settings	IPv6	Off
			On
		Auto Configuration	On
			Manual
		Temporary Address	On
			Off
		Link Local	----:----:----:----:----:----:----:----
		IP Address	----:----:----:----:----:----:----:----
		Network Prefix Length	0 ~ 128
		Gateway	----:----:----:----:----:----:----:----
		DNS 1	----:----:----:----:----:----:----:----
		DNS 2	----:----:----:----:----:----:----:----
	Reset		No
			Yes

USING THE PROJECTOR

Submenu 1	Submenu 2	Submenu 3	Values
Control	Crestron		On
			Off
	Extron		On
			Off
	PJ Link		On
			Off
	AMX Device Discovery		On
			Off
	Telnet		On
			Off
	HTTP		On
			Off
Reset			No / Yes

Device ID

Sets the projector ID from 0 to 99. Once set, the projector can be controlled via RS-232 commands.

Note: *For a full list of RS232 commands, please refer to the RS-232 user manual on our website.*

Remote Settings

- IR Function

  Sets the IR control.

  – On: When set to On, the projector can be operated with the remote control via the top and front IR receivers.

  – Off: When set to Off, the projector cannot be operated with the remote control. You can only use the control keys on the projector.

- User 1/User 2/User 3

  Allows you to customize the three user buttons (User_1, User_2, User_3) on the remote control. You can assign a function to each user button for quick access.

  To customize the user button:

  1. Go to the Control > Remote Settings menu.
  2. Select a user button (User 1, User 2, or User 3) to assign a function to it.
  3. Press < / > to select a desired function.
  4. Once the function is selected, press ⮌ to return to the previous menu.
  5. Repeat step 1-4 to assign functions to the other user buttons.

  Once User 1, User 2, and User 3 have been assigned the desired menu functions, pressing the corresponding user buttons (User_1, User_2, User_3) on the remote control will display the menus that have been set.

Keypad Settings

- Keypad Lock

Locks the projector's keypad.

– On: Locks the keypad. The projector can still be operated with the remote control.

– Off: Unlocks the keypad. The keys operate normally.

LAN

Configures the projector's network settings. See "Setting up network control" on page 45 for more information.

- Network Status
  Displays the network connection status. (Read only)
- MAC Address
  Displays the MAC address. (Read only)
- DHCP
  Turn on DHCP to automatically acquire IP address, subnet mask, gateway, and DNS.
- IP Address
  Assigns the projector's IP address.
- Subnet Mask
  Assigns the projector's subnet mask.
- Gateway
  Assigns the projector's gateway.
- DNS 1/DNS 2
  Assigns the projector's DNS.
- IPv6 Settings
  Configures IPv6 parameters for the projector's network connection.
  – IPv6: When set to Off, the IPv6 stack is disabled and all IPv6 items are greyed out. When set to On, IPv6 is enabled and the following IPv6 items become configurable.
  – Auto Configuration: When set to On, the projector automatically obtains its IPv6 address, network prefix length, gateway, and DNS servers from the network (for example, via SLAAC or DHCPv6). When set to Manual, the static IPv6 input fields become editable so you can enter fixed values.
  – Temporary Address: When set to On, the projector generates temporary IPv6 addresses for outbound connections according to RFC 4941, helping to prevent tracking of a single stable address. When set to Off, the projector uses only stable IPv6 addresses.
  – Link Local: Displays the automatically generated link-local IPv6 address (fe80::/64). This value is assigned by the system and is shown as a read-only field.
  – IP Address: When Auto Configuration is set to Manual, enter the projector's global or unique local IPv6 address here (for example, fd00::1).
  – Network Prefix Length: When Auto Configuration is set to Manual, this item defines the prefix length for the IPv6 network. For most networks that use SLAAC, a prefix length of 64 is recommended.
  – Gateway: When Auto Configuration is set to Manual, this item sets the IPv6 default gateway address used to reach external networks.
  – DNS 1: When Auto Configuration is set to Manual, this item sets the primary IPv6 DNS server.
  – DNS 2: When Auto Configuration is set to Manual, this item sets the secondary IPv6 DNS server, used when DNS 1 is unavailable.

- Reset
  Resets all settings in the LAN menu to the factory defaults.

Control

This projector can be controlled remotely by a computer or other external devices through the wired network connection. It allows users to control one or more projectors from a remote control center, such as turning the projector on or off, and adjusting the image settings such as brightness or contrast.

Use the Control submenu to select a control interface for the projector.

- Crestron
  Controls the projector from a Crestron controller and related software. (Port: 41794)
  For more information, please visit http://www.crestron.com.
- Extron
  Controls the projector from Extron control systems. (Port: 2023)
  For more information, please visit http://www.extron.com.
- PJ Link
  Controls the projector using PJLink v2.0 commands. (Port: 4352)
  For more information, please visit http://pjlink.jbmia.or.jp/english.
- AMX Device Discovery
  Controls the projector from AMX devices. (Port: 9131)
  For more information, please visit http://www.amx.com.
- Telnet
  Controls the projector using RS-232 commands through a Telnet connection. (Port: 23)
  For more information, refer to “RS-232 by Telnet function” on page 53.
- HTTP
  Controls the projector from a web browser. (Port: 80)
  For more information, refer to “Web control pages” on page 49.

Note:

- *Crestron is a registered trademark of Crestron Electronics, Inc. of the United States.*
- *Extron is a registered trademark of Extron Electronics, Inc. of the United States.*
- *AMX is a registered trademark of AMX LLC of the United States.*
- *PJLink applied for trademark and logo registration in Japan, the United States of America, and other countries by JBMIA.*
- *For more information about the various types of external devices which can be connected to the LAN / RJ-45 port and remotely control the projector, as well as the supported commands for these external devices, please contact the Support-Service directly.*

Reset

Resets all settings in the Control menu to the factory defaults. IPv6 Settings remain unchanged.

USING THE PROJECTOR

7. Main menu: Information

Submenu 1	Submenu 2	Values
Regulatory		
Serial Number		
Source		
Color Info.		
Light Source Hours		
Picture Mode		
System Temp.		
Device ID		00 ~ 99
Light Source Mode		
OMS		Paired/Unpaired
FW Version	DDP	Cxx
	LAN	Lxx

Information

View the projector information as listed below:

- Regulatory
- Serial Number
- Source
- Color Information
- Light Source Hours
- Picture Mode
- System Temp.
- Device ID
- Light Source Mode
- OMS
- FW Version

USING THE PROJECTOR

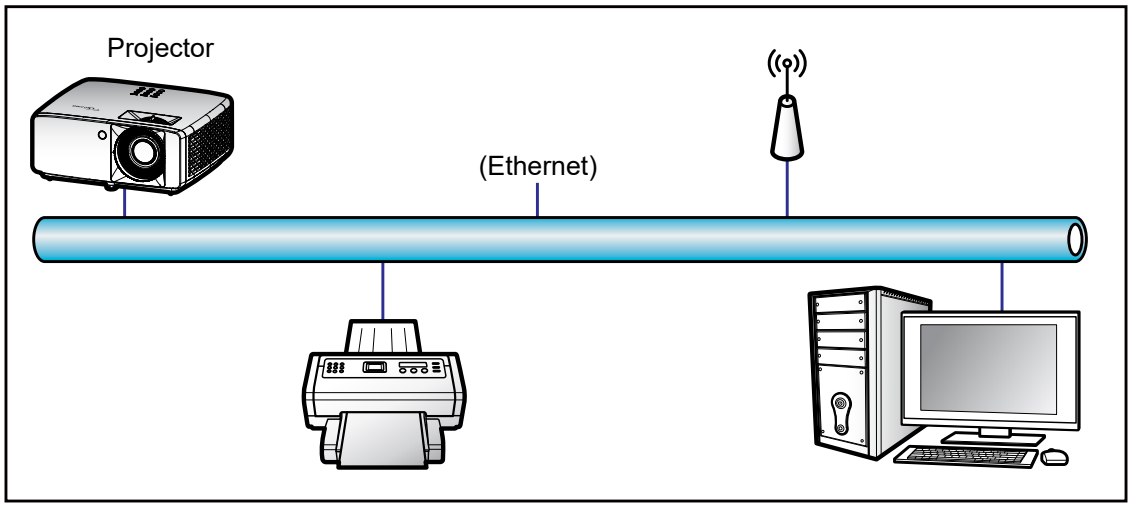
Setting up network control

LAN / RJ-45 function

For simplicity and ease of operation, the projector provides flexible networking and remote management features.

Through the wired Ethernet (RJ-45) connection, you can remotely:

- Turn the projector Power On / Off
- Adjust brightness and contrast
- Check projector status information such as Video Source, Sound Mute, and more



Wired LAN terminal functionality

This projector can be controlled by using a PC (laptop) or other external device via the LAN / RJ-45 port. It is compatible with the following control systems.

- Crestron®
- Extron®
- AMX® (Device Discovery)
- PJLink™

Note: *Trademarks*

- *Crestron is a registered trademark of Crestron Electronics, Inc. of the United States.*
- *Extron is a registered trademark of Extron Electronics, Inc. of the United States.*
- *AMX is a registered trademark of AMX LLC of the United States.*
- *PJLink applied for trademark and logo registration in Japan, the United States of America, and other countries by JBMIA.*

Note: *Compatibility*

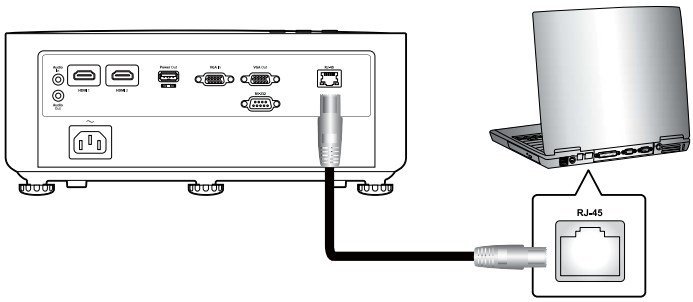
- *The projector supports the specified command set of the Crestron Electronics controller and related software, for example RoomView®. For details, visit http://www.crestron.com/*
- *This projector is compliant with supported Extron devices. For details, visit http://www.extron.com/*
- *This projector is supported by AMX Device Discovery. For details, visit http://www.amx.com/*
- *This projector supports all commands of PJLink Class 1 (Version 1.00). For details, visit* http://pjlink.jbmia.or.jp/english/

USING THE PROJECTOR

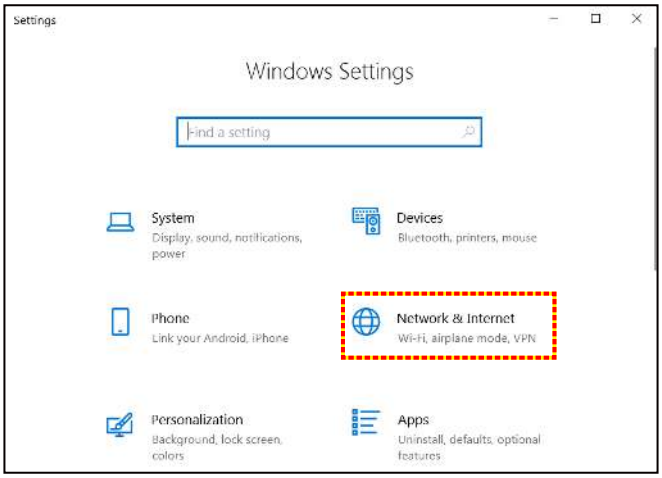
For more detailed information about the external devices which can be connected to the LAN / RJ-45 port and remote control the projector, and the supported commands for those devices, please contact the Support-Service directly.

Connecting the projector directly to your computer

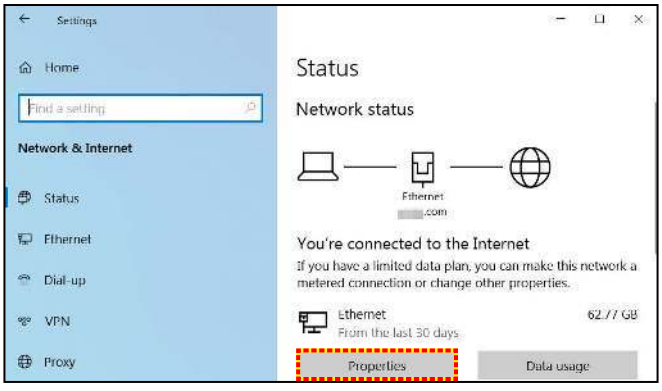
1. Connect an RJ-45 cable to the RJ-45 port on the projector and the PC (laptop).



2. On the PC (Laptop), select **Start** > **Settings** > **Network & Internet**.



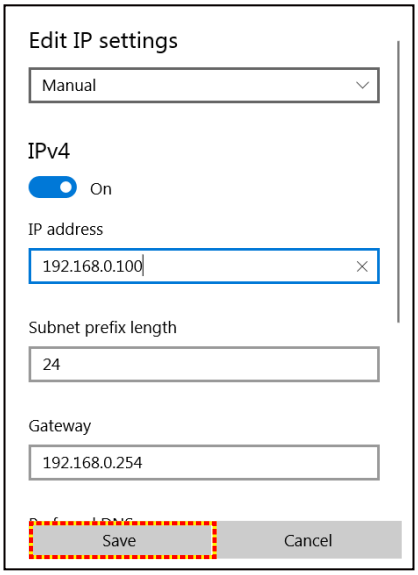
3. In the **Ethernet** section, select **Properties**.



4. In the **IP settings** section, select **Edit**.



5. Enter the desired IP address and Gateway, then select Save.



Note:

- *The steps in this section are based on Windows 10.*

6. Press ☰ (Menu key) on the projector or remote control.
7. Open **Control** > **LAN**.
8. Enter the following connection parameters:
   - DHCP: Off
   - IP Address: 192.168.0.100
   - Subnet Mask: 255.255.255.0
   - Gateway: 192.168.0.254
   - DNS 1: 192.168.0.51
9. Press O (Enter key) to confirm the settings.
10. Open a web browser on the PC.
11. In the address bar, enter the projector's IP address: 192.168.0.100.



12. Press Enter. See "Web control pages" on page 49 for the next steps.

USING THE PROJECTOR

Connecting the projector to the same network (LAN) as your computer

1. Use an RJ-45 Ethernet cable. Connect one end to the projector's RJ-45 port and the other end to a router or network switch. Make sure your computer is connected to the same local area network.
2. Press ☰ (Menu key) on the projector or remote control.
3. Open **Control** > **LAN**.
4. Turn on the DHCP function to allow a DHCP server to automatically acquire an IP address.
5. Open a web browser on your computer.
6. In the address bar, enter the projector's IP address.



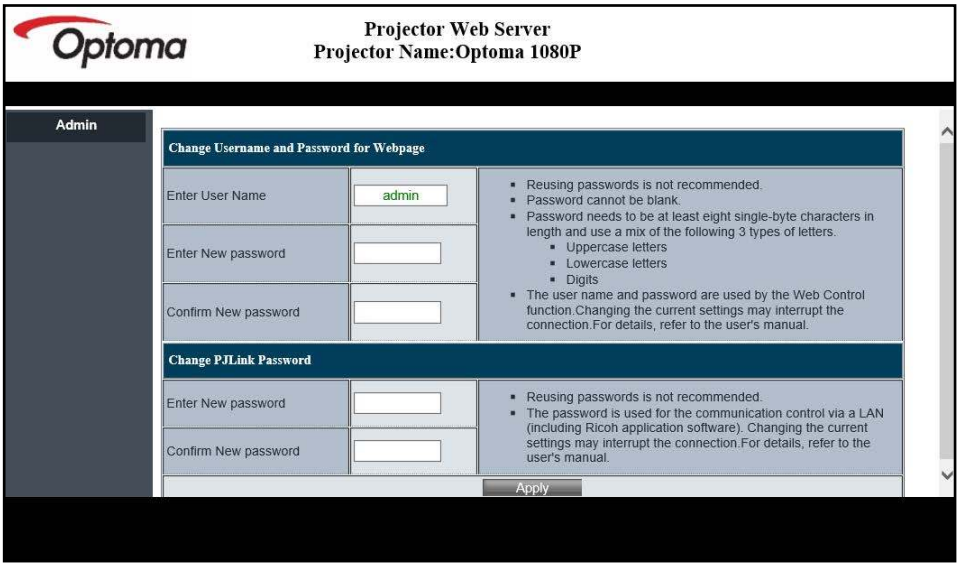
7. Press Enter. See "Web control pages" on page 49 for the next steps.

USING THE PROJECTOR

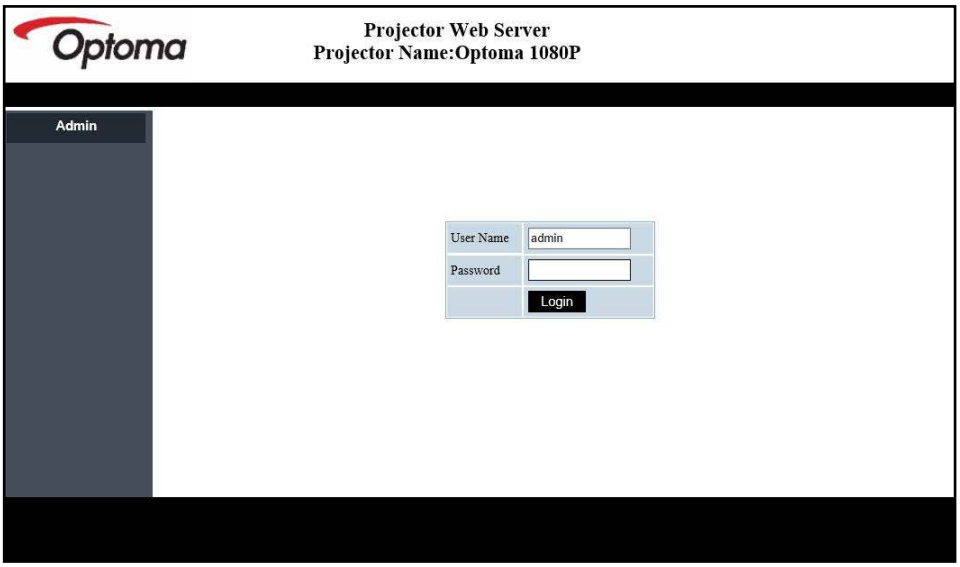
Web control pages

- *Log in*

  When you open the web page for the first time, you will see a screen like the one below. Set the user name, and password, then click Apply.



After setting the user name and password, you will see a screen like the one below. Enter the password in the Password field.

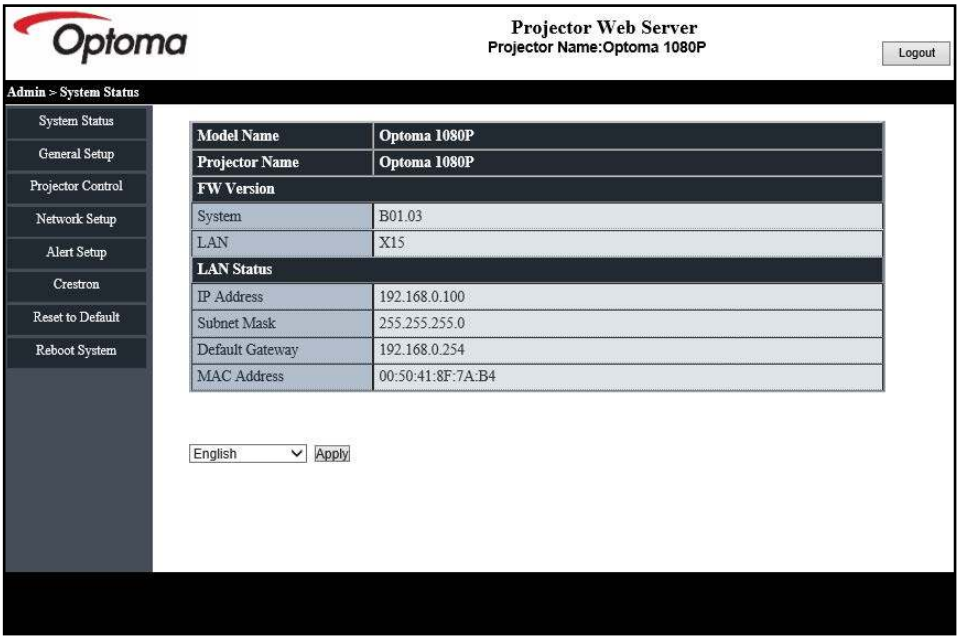


After successful login, the main web control page is shown.

- *System Status*

  The System Status page shows the current status of the projector including model name, firmware version, LAN configuration. You can also change the interface language on this page.

  Note: *The information shown in the example screenshots may differ from your actual projector.*

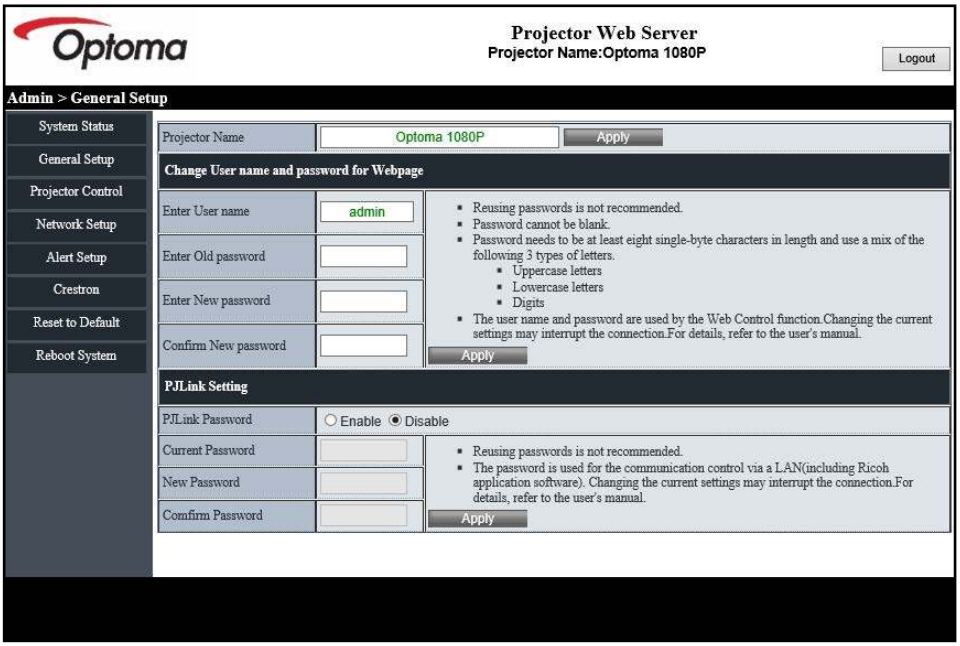


- *General Setup*

  Use the General Setup page to configure basic web-control settings.

  – Projector Name: The projector name set here is also used for PJLink control. Only alphanumeric characters (A–Z, a–z, 0–9) are allowed, with a maximum of 32 characters.

  – Password: Sets the password used to log in to the web interface. Only alphanumeric characters are allowed. The minimum length is 8 characters. If you enter an invalid character, an “Invalid Character” warning is displayed. If the New password and Confirm New Password fields do not match, an error message will be displayed. In this case, re-enter the password.

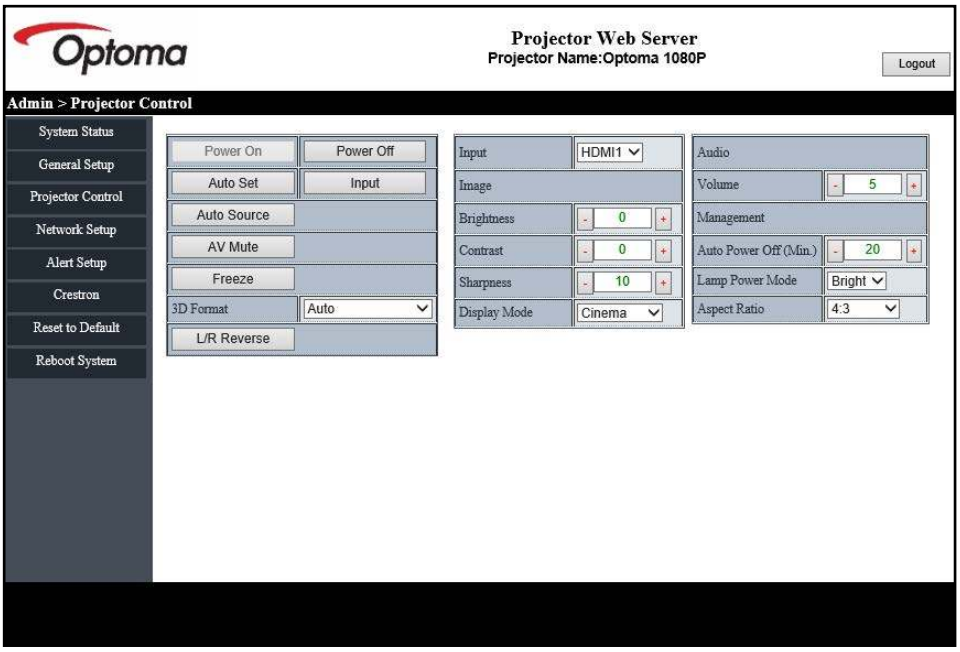


USING THE PROJECTOR

- *Projector Control*

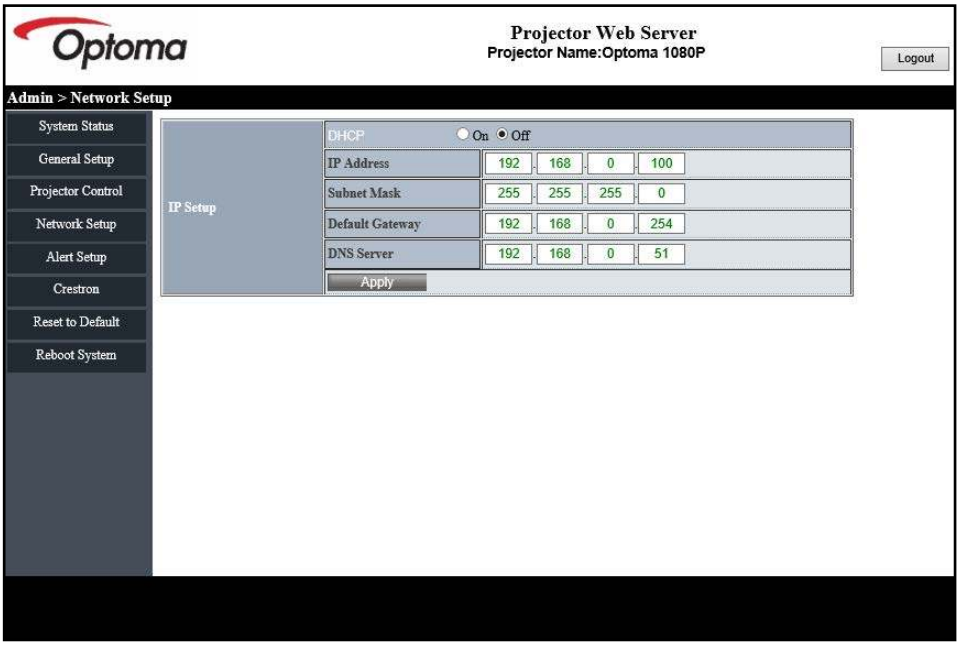
  Use the Projector Control page to operate the projector remotely.

  Click the on-screen control buttons to perform functions. When a button is clicked, the corresponding projector function is executed.



- *Network Setup*

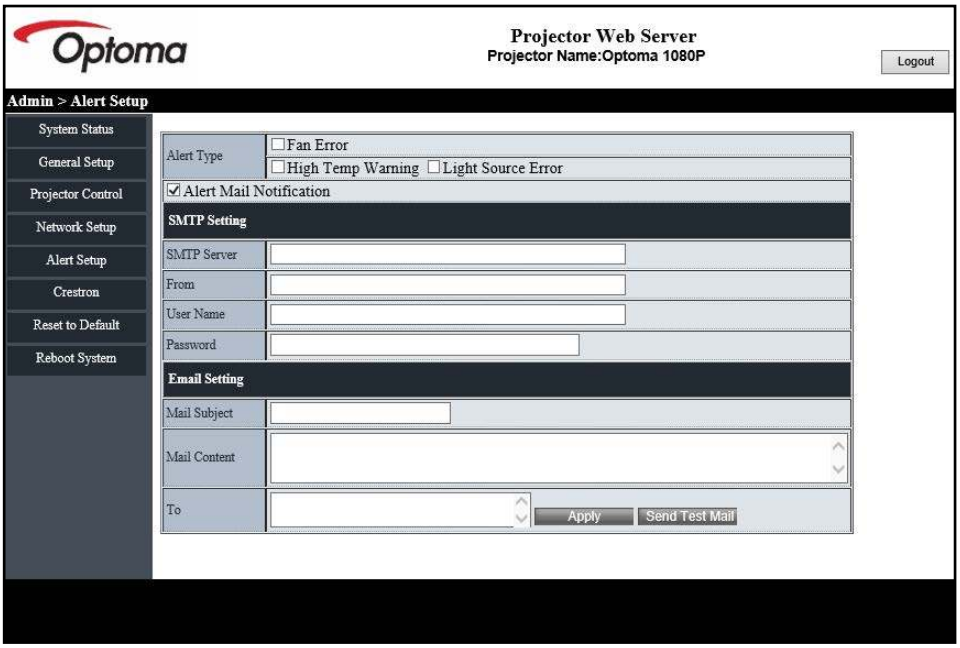
  Use the Network Setup page to configure the projector's network parameters. These settings correspond to those found in Control > LAN on the projector's on-screen display (OSD).



- *Alert Setup*

  You can send e-mail alerts when an error occurs. Use the Alert Setup page to configure alert mail settings.

  1. Alert types: Select the types of errors for which you want the projector to send an alert e-mail.
  2. Alert mail notification: Enable alert mail notification and configure all the fields for SMTP Setting and E-mail Setting.
     a) SMTP Server: Address (server name) of the SMTP mail server
     b) From: E-mail address of the sender
     c) User Name: User name for the mail server
     d) Password: Password for the mail server.
     e) Mail Subject
     f) Mail Content
     g) To: E-mail address of the recipient
  8. Click Apply to save the settings.
  9. Click Send Test Mail, then a test e-mail is sent. The message text is: “Email Test xxx.xxx.xxx.xxx *”.



USING THE PROJECTOR

RS-232 by Telnet function

As an alternative method of control, this projector supports RS-232 command control over the LAN / RJ-45 interface using Telnet.

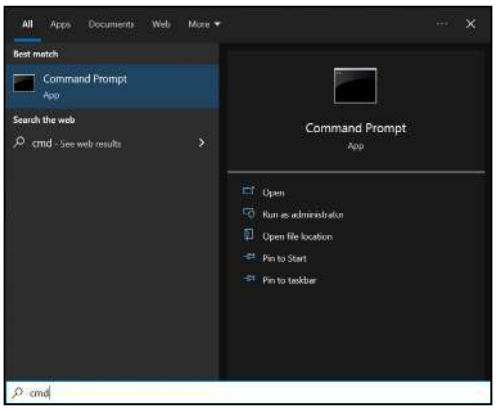
Quick Start for RS-232 by Telnet

Before you begin:

- Check the projector's IP address in the OSD.
- Make sure the PC/laptop can access the projector's web page.
- Make sure that Windows Firewall or other security software is not blocking the Telnet function.

Steps:

1. Click the Search box on the Windows taskbar, type "cmd", and press Enter.



2. The Command Prompt application opens.
3. At the prompt, enter the following command and press Enter:
   telnet ttt.xxx.yyy.zzz 23

   where "ttt.xxx.yyy.zzz" represents the IP address of the projector.
4. When the Telnet connection is established, you can enter RS-232 commands directly in the Telnet window. After you press Enter, the command is sent to the projector for control.

Specifications for RS-232 by Telnet

- Protocol: Telnet over TCP.
- Telnet port: 23**. For further details, please contact the Optoma service team).
- Telnet utility: Windows TELNET.exe (console mode).
- Ending the session: To end the Telnet session, simply close the Command Prompt window.
- Limitations for Telnet control:
  - Limitation 1: The maximum network payload for a Telnet control command must not exceed 50 bytes.
  - Limitation 2: Each RS-232 command for Telnet control must not exceed 26 bytes.
  - Limitation 3: The delay between commands must be greater than 200 ms.

ADDITIONAL INFORMATION

Compatible resolutions

Supported timing for PC input

Resolution	Mode	Refresh Rate (Hz)	Horizontal Frequency (kHz)	Clock (MHz)	Supported 3D format		
					Frame Sequential	Top Bottom	Side by Side
720 x 400	720 x 400_70	70.087	31.469	28.3221			
640 x 480	VGA_60	59.940	31.469	25.175	V	V	V
	VGA_72	72.809	37.861	31.500			
	VGA_75	75.000	37.500	31.500			
	VGA_85	85.008	43.269	36.000			
800 x 600	SVGA_60*	60.317	37.879	40.000	V	V	V
	SVGA_72	72.188	48.077	50.000			
	SVGA_75	75.000	46.875	49.500			
	SVGA_85	85.061	53.674	56.250			
1024 x 768	XGA_60	60.004	48.363	65.000	V	V	V
	XGA_70	70.069	56.476	75.000			
	XGA_75	75.029	60.023	78.750			
	XGA_85	84.997	68.667	94.500			
	XGA_120 (Reduce Blanking)	119.989	97.551	115.500	V		
1152 x 864	1152 x 864_75	75.00	67.500	108.000			
1280 x 720	1280 x 720_60	60	45.000	74.250	V	V	V
	1280 x 720_120	120	90.000	148.500	V		
1280 x 768	1280 x 768_60 (Reduce Blanking)	60	47.396	68.25	V	V	V
	1280 x 768_60	59.870	47.776	79.5	V	V	V
1280 x 800	WXGA_60	59.810	49.702	83.500	V	V	V
	WXGA_75	74.934	62.795	106.500			
	WXGA_85	84.880	71.554	122.500			
	WXGA_120 (Reduce Blanking)	119.909	101.563	146.25	V		
1280 x 1024	SXGA_60	60.020	63.981	108.000	V	V	V
	SXGA_75	75.025	79.976	135.000			
	SXGA_85	85.024	91.146	157.500			
1280 x 960	1280 x 960_60	60.000	60.000	108	V	V	V
	1280 x 960_85	85.002	85.938	148.500			
1360 x 768	1360 x 768_60	60.015	47.712	85.500	V	V	V
1366 x 768	1366 x 768_60	59.790	47.712	85.500	V	V	V

ADDITIONAL INFORMATION

Resolution	Mode	Refresh Rate (Hz)	Horizontal Frequency (kHz)	Clock (MHz)	Supported 3D format		
					Frame Sequential	Top Bottom	Side by Side
1440 x 900	WXGA+_60***	59.887	55.935	106.500	V	V	V
1400 x 1050	SXGA+_60***	59.978	65.317	121.750	V	V	V
1600 x 1200	UXGA***	60.000	75.000	162.000	V	V	V
1680 x 1050	1680 x 1050_60***	59.954	65.290	146.250	V	V	V
640 x 480@67Hz	MAC13	66.667	35.000	30.240			
832 x 624@75Hz	MAC16	74.546	49.722	57.280			
1024 x 768@75Hz	MAC19	74.93	60.241	80.000			
1152 x 870@75Hz	MAC21	75.06	68.68	100.00			
1920 x 1080 (VESA)	1920 x 1080_60****	60	67.5	148.5	V	V	V
1920 x 1200	1920 x 1200_60*** (Reduce Blanking)	59.950	74.038	154.000	V	V	V

Supported timing for HDMI input

- PC timings

Resolution	Mode	Refresh Rate (Hz)	Horizontal Frequency (kHz)	Clock (MHz)	Supported 3D format		
					Frame Sequential	Top Bottom	Side by Side
640 x 480	VGA_60	59.940	31.469	25.175	V	V	V
	VGA_72	72.809	37.861	31.500			
	VGA_75	75.000	37.500	31.500			
	VGA_85	85.008	43.269	36.000			
720 x 400	720 x 400_70	70.087	31.469	28.3221			
800 x 600	SVGA_56	56	35.2	36.000			
	SVGA_60	60.317	37.879	40.000	V	V	V
	SVGA_72	72.188	48.077	50.000			
	SVGA_75	75.000	46.875	49.500			
	SVGA_85	85.061	53.674	56.250			
1024 x 768	XGA_60	60.004	48.363	65.000	V	V	V
	XGA_70	70.069	56.476	75.000			
	XGA_75	75.029	60.023	78.750			
	XGA_85	84.997	68.667	94.500			
	XGA_120 (Reduce Blanking)	119.989	97.551	115.500	V		
1152 x 864	1152 x 864_75	75.00	67.500	108.000			
1280 x 720	1280 x 720_60	60	45.000	74.250	V	V	V
	1280 x 720_120	120	90.000	148.500	V		

ADDITIONAL INFORMATION

Resolution	Mode	Refresh Rate (Hz)	Horizontal Frequency (kHz)	Clock (MHz)	Supported 3D format		
					Frame Sequential	Top Bottom	Side by Side
1280 x 768	1280 x 768_60 (Reduce Blanking)	60	47.396	68.25	V	V	V
	1280 x 768_75	75	60.3	102.25			
1280 x 800	WXGA_60	59.810	49.702	83.500	V	V	V
	WXGA_75	74.934	62.795	106.500			
	WXGA_85	84.880	71.554	122.500			
	WXGA_120 (Reduce Blanking)	119.909	101.563	146.25	V		
1280 x 1024	SXGA_60	60.020	63.981	108.000	V	V	V
	SXGA_75	75.025	79.976	135.000			
	SXGA_85	85.024	91.146	157.500			
1280 x 960	1280 x 960_60	60.000	60.000	108	V	V	V
	1280 x 960_85	85.002	85.938	148.500			
1366 x 768	1366 x 768_60	59.790	47.712	85.500	V	V	V
1440 x 900	WXGA+_60	59.887	55.935	106.500	V	V	V
1400 x 1050	SXGA+_60	59.978	65.317	121.750	V	V	V
1600 x 1200	UXGA	60.000	75.000	162.000	V	V	V
1680 x 1050	1680 x 1050_60	59.954	65.290	146.250	V	V	V
1920 x 1200	1920 x 1200_60 (Reduce Blanking)	59.950	74.038	154.000	V	V	V
640 x 480@67Hz	MAC13	66.667	35.000	30.240			
832 x 624@75Hz	MAC16	74.546	49.722	57.280			
1152 x 870@75Hz	MAC21	75.06	68.68	100.00			
1920 x 1080 (VESA)	1920 x 1080_60	60	67.5	148.5	V	V	V

- Video timings --- 1080P

Resolution	Mode	Refresh Rate (Hz)	Horizontal Frequency (kHz)	Clock (MHz)	Supported 3D format		
					Frame Sequential	Top Bottom	Side by Side
720 (1440) x 480	480i	59.94	15.7	27.000			
720 x 480	480p	59.94	31.5	27.000			
720 (1440) x 576	576i	50	15.6	27.000			
720 x 576	576p	50	31.3	27.000			
1280 x 720	720/50p	50	37.5	74.250	V	V	
1280 x 720	720/60p	60	45.0	74.250	V	V	
1920 x 1080	1080/50i	50	28.1	74.250			V

ADDITIONAL INFORMATION

Resolution	Mode	Refresh Rate (Hz)	Horizontal Frequency (kHz)	Clock (MHz)	Supported 3D format		
					Frame Sequential	Top Bottom	Side by Side
1920 x 1080	1080/60i	60	33.8	74.250			V
1920 x 1080	1080/24P	24	27.0	74.250	V	V	
1920 x 1080	1080/30P	30	33.8	74.250			
1920 x 1080	1080/50P	50	56.3	148.500			
1920 x 1080	1080/60P	60	67.5	148.500			
1920 x 1080	1080/120P	120	135.0	297.000			
3840 x 2160	2160/24P	24	54.0	297.000			
3840 x 2160	2160/25P	25	56.3	297.000			
3840 x 2160	2160/30P	30	67.5	297.000			
3840 x 2160	2160/50P	50	112.5	594.000			
3840 x 2160	2160/60P	60	135.0	594.000			
4096 x 2160	4096 x 2160_24P	24	54.0	297.000			
4096 x 2160	4096 x 2160_25P	25	56.3	297.000			
4096 x 2160	4096 x 2160_30P	30	67.5	297.000			
4096 x 2160	4096 x 2160_50P	50	112.5	594.000			
4096 x 2160	4096 x 2160_60P	60	135.0	594.000			

- Video timings --- WXGA

Resolution	Mode	Refresh Rate (Hz)	Horizontal Frequency (kHz)	Clock (MHz)	Supported 3D format		
					Frame Sequential	Top Bottom	Side by Side
720 (1440) x 480	480i	59.94	15.7	27.000			
720 x 480	480p	59.94	31.5	27.000			
720 (1440) x 576	576i	50	15.6	27.000			
720 x 576	576p	50	31.3	27.000			
1280 x 720	720/50p	50	37.5	74.250	V	V	
1280 x 720	720/60p	60	45.0	74.250	V	V	
1920 x 1080	1080/50i	50	28.1	74.250			V
1920 x 1080	1080/60i	60	33.8	74.250			V
1920 x 1080	1080/24P	24	27.0	74.250	V	V	
1920 x 1080	1080/30P	30	33.8	74.250			
1920 x 1080	1080/50P	50	56.3	148.500			
1920 x 1080	1080/60P	60	67.5	148.500			
1920 x 1080	1080/120P	120	135.0	297.000			
3840 x 2160	2160/24P	24	54.0	297.000			

ADDITIONAL INFORMATION

Resolution	Mode	Refresh Rate (Hz)	Horizontal Frequency (kHz)	Clock (MHz)	Supported 3D format		
					Frame Sequential	Top Bottom	Side by Side
3840 x 2160	2160/25P	25	56.3	297.000			
3840 x 2160	2160/30P	30	67.5	297.000			
4096 x 2160	4096 x 2160_24P	24	54.0	297.000			
4096 x 2160	4096 x 2160_25P	25	56.3	297.000			
4096 x 2160	4096 x 2160_30P	30	67.5	297.000			

ADDITIONAL INFORMATION

Image size and projection distance

1080P ST TR 0.46

Screen Size				Projection Distance in mm			Wide Verticle Offset (Hd)
Diagonal (inch)	Diagonal (mm)	Height (mm)	Width (mm)	Min distance (w/ max zoom)	Average	Max distance (w/ min zoom)	
60	1524	747	1328	611	611	611	56
70	1778	872	1550	713	713	713	65
80	2032	996	1771	815	815	815	75
90	2286	1121	1992	917	917	917	84
100	2540	1245	2214	1018	1018	1018	93
110	2794	1370	2435	1120	1120	1120	103
120	3048	1494	2657	1222	1222	1222	112
130	3302	1619	2878	1324	1324	1324	121
140	3556	1743	3099	1426	1426	1426	131
150	3810	1868	3321	1528	1528	1528	140

Note:

- *Zoom Ratio: Fixed*

1080P ST TR 0.69 ~ 0.83

Screen Size				Projection Distance in mm			Wide Verticle Offset (Hd)
Diagonal (inch)	Diagonal (mm)	Height (mm)	Width (mm)	Min distance (w/ max zoom)	Average	Max distance (w/ min zoom)	
60	1524	747	1328	917	1009	1102	19
70	1778	872	1550	1069	1178	1286	22
80	2032	996	1771	1222	1346	1470	25
90	2286	1121	1992	1375	1514	1654	28
100	2540	1245	2214	1528	1682	1837	31
110	2794	1370	2435	1680	1851	2021	34
120	3048	1494	2657	1833	2019	2205	37
130	3302	1619	2878	1986	2187	2389	40
140	3556	1743	3099	2139	2355	2572	44
150	3810	1868	3321	2291	2524	2756	47

Note:

- *Zoom Ratio: 1.2x ± 2%*

ADDITIONAL INFORMATION

1080P RT

Screen Size				Projection Distance in mm			Wide Verticle Offset (Hd)
Diagonal (inch)	Diagonal (mm)	Height (mm)	Width (mm)	Min distance (w/ max zoom)	Average	Max distance (w/ min zoom)	
60	1524	747	1328	1979	2079	2178	19
70	1778	872	1550	2309	2425	2541	22
80	2032	996	1771	2639	2772	2905	25
90	2286	1121	1992	2969	3118	3268	28
100	2540	1245	2214	3299	3465	3631	31
110	2794	1370	2435	3628	3811	3994	34
120	3048	1494	2657	3958	4158	4357	37
130	3302	1619	2878	4288	4504	4720	40
140	3556	1743	3099	4618	4850	5083	44
150	3810	1868	3321	4948	5197	5446	47

Note:

- *Zoom Ratio: 1.1x ± 2%*

WXGA ST TR 0.49

Screen Size				Projection Distance in mm			Wide Verticle Offset (Hd)
Diagonal (inch)	Diagonal (mm)	Height (mm)	Width (mm)	Min distance (w/ max zoom)	Average	Max distance (w/ min zoom)	
60	1524	808	1292	633	633	633	40
70	1778	942	1508	739	739	739	47
80	2032	1077	1723	844	844	844	54
90	2286	1212	1939	950	950	950	61
100	2540	1346	2154	1055	1055	1055	67
110	2794	1481	2369	1161	1161	1161	74
120	3048	1615	2585	1267	1267	1267	81
130	3302	1750	2800	1372	1372	1372	88
140	3556	1885	3015	1478	1478	1478	94
150	3810	2019	3231	1583	1583	1583	101

Note:

- *Zoom Ratio: Fixed*

ADDITIONAL INFORMATION

WXGA ST TR 0.72~0.86

Screen Size				Projection Distance in mm			Wide Verticle Offset (Hd)
Diagonal (inch)	Diagonal (mm)	Height (mm)	Width (mm)	Min distance (w/ max zoom)	Average	Max distance (w/ min zoom)	
60	1524	808	1292	930	1002	1073	0
70	1778	942	1508	1086	1168	1251	0
80	2032	1077	1723	1241	1335	1430	0
90	2286	1212	1939	1396	1502	1609	0
100	2540	1346	2154	1551	1669	1788	0
110	2794	1481	2369	1706	1836	1967	0
120	3048	1615	2585	1861	2003	2145	0
130	3302	1750	2800	2016	2170	2324	0
140	3556	1885	3015	2171	2337	2503	0
150	3810	2019	3231	2326	2504	2682	0

Note:

- *Zoom Ratio: 1.2x ± 2%*

WXGA RT

Screen Size				Projection Distance in mm			Wide Verticle Offset (Hd)
Diagonal (inch)	Diagonal (mm)	Height (mm)	Width (mm)	Min distance (w/ max zoom)	Average	Max distance (w/ min zoom)	
60	1524	808	1292	2003	2100	2197	0
70	1778	942	1508	2337	2450	2563	0
80	2032	1077	1723	2671	2800	2929	0
90	2286	1212	1939	3005	3150	3295	0
100	2540	1346	2154	3339	3500	3662	0
110	2794	1481	2369	3672	3850	4028	0
120	3048	1615	2585	4006	4200	4394	0
130	3302	1750	2800	4340	4550	4760	0
140	3556	1885	3015	4674	4900	5126	0
150	3810	2019	3231	5008	5250	5492	0

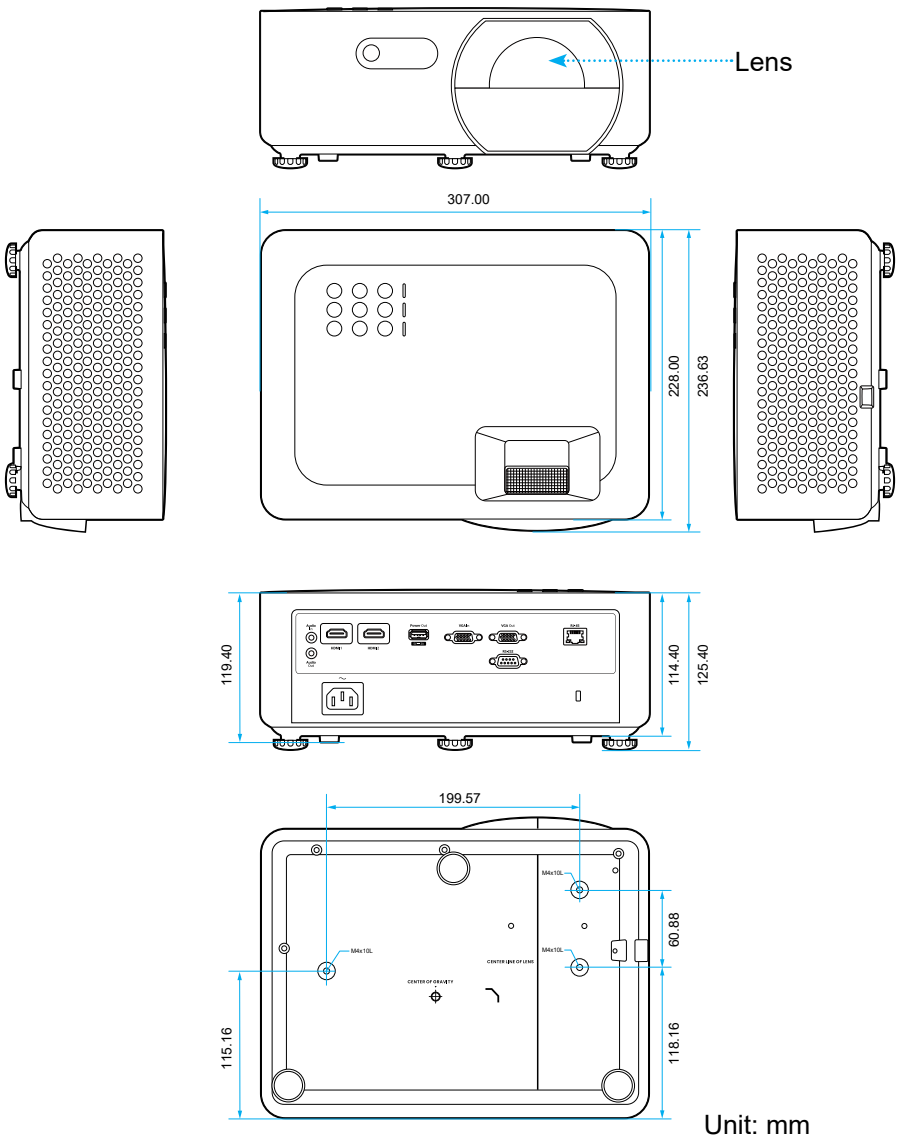
Note:

- *Zoom Ratio: 1.1x ± 2%*

ADDITIONAL INFORMATION

Projector dimensions and ceiling mount installation

1. To prevent damage to your projector, please use the Optoma ceiling mount kit.
2. If you wish to use a third party ceiling mount kit, please ensure the screws used to attach a mount to the projector meet the following specifications:
   – Screw type: M4*10mm
   – Minimum screw length: 10mm



Unit: mm

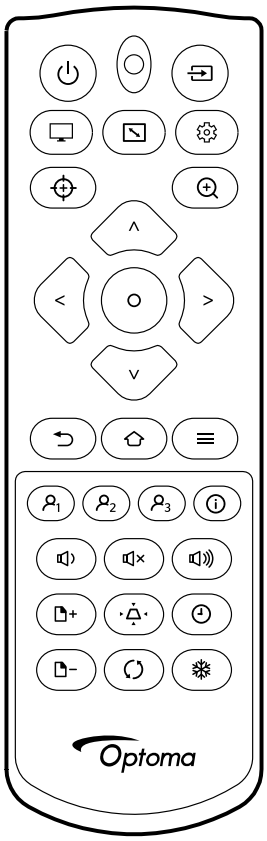
Note: *Please note that damage resulting from incorrect installation will void the warranty.*

Warning:

- If you buy a ceiling mount from another company, please be sure to use the correct screw size. Screw size will vary depending on the thickness of the mounting plate.
- Be sure to keep at least 10 cm gap between the ceiling and the bottom of the projector.
- Avoid installing the projector near a heat source.

ADDITIONAL INFORMATION

IR remote control codes



Button		Repeat Format (F1: Not-Repeat F2: Repeat)	Custom Code		Data		Description
			Byte 1	Byte 2	Byte 3	Byte 4	
Power On/Off		F1	32	CD	2	FD	Turns on/off the projector.
Source		F1	32	CD	C3	3C	Shows the Input Source menu.
Mode		F1	32	CD	5	FA	Shows the Picture Mode menu.
Aspect Ratio		F1	32	CD	64	9B	Shows the Aspect Ratio menu
Settings/ Setup Menu		F1	32	CD	A8	57	Enters the Device Setup main menu.
Focus		F1	32	CD	26	D9	Shows the Focus bar menu.
Zoom		F1	32	CD	08	F7	Shows the Zoom bar menu.
Up	^	F2	32	CD	11	EE	Selects items or makes adjustments to your selection.
Left	<	F2	32	CD	10	EF	
Right	>	F2	32	CD	12	ED	
Down	v	F2	32	CD	14	EB	

ADDITIONAL INFORMATION

Button		Repeat Format (F1: Not-Repeat F2: Repeat)	Custom Code		Data		Description
			Byte 1	Byte 2	Byte 3	Byte 4	
Enter		F1	32	CD	0F	F0	Confirms your item selection.
Return		F1	32	CD	0D	F2	Returns to the previous menu.
Home		F1	32	CD	A0	5F	• OSD on: Goes to the top level of its category. • OSD off: No function.
Menu		F1	32	CD	0E	F1	Turns on/off the onscreen display menus
User1		F1	32	CD	36	C9	Recalls user defined settings.
User2		F1	32	CD	65	9A	
User3		F1	32	CD	66	99	
Information		F1	32	CD	25	DA	Shows the information menu.
Vol-		F2	32	CD	8F	70	Decreases the projector volume.
Mute		F1	32	CD	52	AD	Toggles the projector audio between on and off.
Vol+		F2	32	CD	8C	73	Increases the projector volume.
Page Up		F2	32	CD	C1	3E	Goes to the previous or next OSD menu page.
Page Down		F2	32	CD	C2	3D	
Keystone Correction		F1	32	CD	7	F8	Shows the Geometric Correction menu.
Sleep Timer		F1	32	CD	63	9C	Shows the Sleep Timer menu.
Resync		F1	32	CD	C4	3B	Resynchronises the input source.
Freeze		F1	32	CD	6	F9	Freezes the image.

Note:

- *Some buttons may have no function for models that do not support these features.*

ADDITIONAL INFORMATION

Troubleshooting

If you experience a problem with your projector, please refer to the following information. If the problem persists, please contact your local reseller or service center.

Image problems

No image appears on-screen

- Ensure all the cables and power connections are correctly and securely connected as described in the "Installation" section.
- Ensure that the pins of the connectors are not crooked or broken.
- Ensure that the "Mute" feature is not turned on.

Image is out of focus

- Turn the focus ring clockwise or counterclockwise until the image becomes sharp and clear. (Please see page *18)*.
- Make sure the projection screen is between the required distance from the projector. (Please refer to pages *59~61*).

The image is stretched when displaying a 16:9 DVD title

- When you play an anamorphic DVD or a 16:9 DVD, the projector will display the best image in 16:9 format.
- If you play a 4:3 format DVD title, please change the format as 4:3 in the projector's OSD.
- Please set up the display format as 16:9 (wide) aspect ratio on your DVD player.

Image is too small or too large

- Turn the zoom lever clockwise or counterclockwise to increase or decrease the projected image size. (Please see page *18)*.
- Move the projector closer to or farther from the screen.
- Press ☰ (Menu) on the remote control, then go to "Display > Aspect Ratio". Try the different settings.

Image has slanted sides

- If possible, reposition the projector so that it is centered on the screen and below the bottom of the screen.

Image is reversed

- Select "Display > Projection Orientation" from the OSD and adjust the projection direction.

ADDITIONAL INFORMATION

Other problems

The projector stops responding to all controls

- If possible, turn off the projector, then unplug the power cord and wait at least 20 seconds before reconnecting power.

Remote control problems

If the remote control does not work

- Check the operating angle of the remote control is pointed within ±30° to the IR receiver on the projector.
- Make sure there are not any obstructions between the remote control and the projector. Move to within 8 m (26 ft) of the projector.
- Make sure batteries are inserted correctly.
- Replace batteries if they are exhausted.

ADDITIONAL INFORMATION

Warning indicator

When the warning indicators (see below) light up or flash, the projector will automatically shut down:

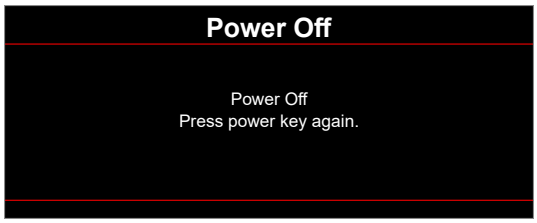
- Thermal error: The LED indicator lights red and flashes blue.
- Fan error: The LED indicator flashes red and lights blue.
- Light error: The LED indicator flashes blue.

Unplug the power cord from the projector, wait for 30 seconds and try again. If the warning indicator lights up or flashes, please contact your nearest service center for assistance.

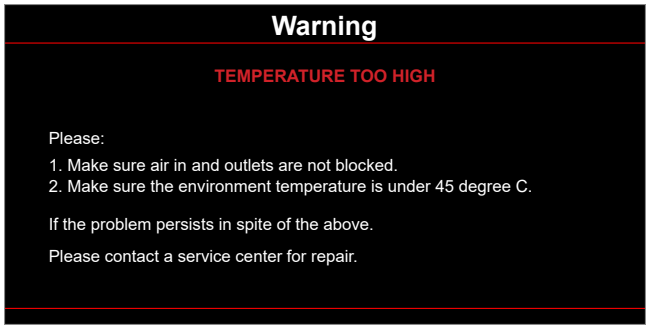
LED indicator messages

Message	Power LED		Temp LED	Lamp LED
	(Red)	(Green or Blue)	(Red)	(Red)
Standby state (Input power cord)	Steady light			
Power on (Warming)		Flashing		
Power on		Steady light		
Power off (Cooling)		Flashing		
Light error	Flashing			Steady light
Fan error	Flashing		Flashing	
Thermal error	Flashing		Steady light	

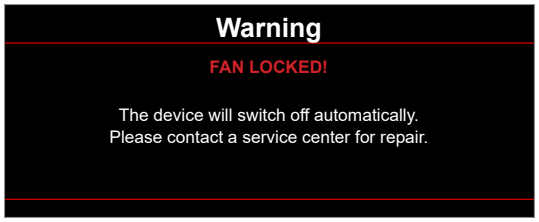
- Power off:



- Temperature warning:



- Fan warning:



ADDITIONAL INFORMATION

Specifications

Item		Description		
Model		1080P ST TR 0.46	1080P ST TR 0.69~0.83	1080P RT
Resolution		• 1920 x 1080	• 1920 x 1080	• 1920 x 1080
Lens	Throw ratio	• 0.46 (95”±3% @ 0.978m)	• 0.69 ~ 0.83” (95”±3% @ 1.44m)	• 1.49 ~ 1.64 (95”±3% @ 3.1m)
	F-stop	• 2.6	• 2.6 ~ 2.78	• 2.4 ~ 2.5
	Focal length	• 6.9	• 10.2 ~ 12.24	• 22 ~ 24.1
	Zoom range	• Fixed	• 1.2x ± 2%	• 1.1x ± 2%
Offset		• 107.5%, tolerance ± 3%	• 102.5%, tolerance ± 3%	• 102.5%, tolerance ± 3%
Image size		• 72” ~ 123”	• 60” ~ 120”	• 60” ~ 150”
Projection distance		• 0.74 m ~ 1.27 m	• 0.91 m ~ 1.82 m	• 1.96 m ~ 4.89 m
I/Os		• Audio In x 1 • Audio Out x 1 • HDMI 2.0 x 2 • USB Type-A x 1	• VGA-In x 1 • VGA-Out x 1 • RJ-45 x 1	• RS232 x 1 • AC Jack
Color		• 1.07 Billion Colors	• 1.07 Billion Colors	• 1.07 Billion Colors
Scan rate	Horizontal	• 15KHz to 135KHz	• 15KHz to 135KHz	• 15KHz to 135KHz
	Vertical	• 24Hz to 120Hz	• 24Hz to 120Hz	• 24Hz to 120Hz
Speaker		• 10W x 1	• 10W x 1	• 10W x 1
Power consumption	Standby	• 0.5W max.@240VAC	• 0.5W max.@240VAC	• 0.5W max.@240VAC
	Normal	• Typical 226W@110VAC Typical: 212W @240VAC	• Typical 226W@110VAC Typical: 212W @240VAC	• Typical 226W@110VAC Typical: 212W @240VAC
	Eco	• Typical: 130W @110VAC Typical: 124W @240VAC	• Typical: 130W @110VAC Typical: 124W @240VAC	• Typical: 130W @110VAC Typical: 124W @240VAC
Input current		• 3.2A	• 3.2A	• 3.2A
Installation orientations		• Front • Rear • Ceiling • Rear-top	• Front • Rear • Ceiling • Rear-top	• Front • Rear • Ceiling • Rear-top
Dimensions (W x D x H)		• 307 x 228 x 114.4 mm (without foot and lens)	• 307 x 228 x 114.4 mm (without foot and lens)	• 307 x 228 x 114.4 mm (without foot and lens)
Weight		• 3.2 (+/- 10%) kg	• 3.2 (+/- 10%) kg	• 3.1 (+/- 10%) kg
Environmental		• Operating in 0~40°C, 90% humidity (max., non-condensing)		

Note: *All specifications are subject to change without notice.*

ADDITIONAL INFORMATION

Item		Description		
Model		WXGA ST TR 0.49	WXGA ST TR 0.72~0.86	WXGA RT
Resolution		• 1280 x 800	• 1280 x 800	• 1280 x 800
Lens	Throw ratio	• 0.49 (87”±3% @ 0.915m)	• 0.72 ~ 0.87 (87”±3% @ 1.36m)	• 1.55 ~ 1.7 (87”±3% @ 2.9m)
	F-stop	• 2.6	• 2.6 ~ 2.78	• 2.4 ~ 2.5
	Focal length	• 6.9	• 10.2 ~ 12.24	• 22 ~ 24.1
	Zoom range	• Fixed	• 1.2x ± 2%	• 1.1x ± 2%
Offset		• 105%, tolerance ± 3%	• 105%, tolerance ± 3%	• 100%, tolerance ± 3%
Image size		• 70” ~ 120”	• 70” ~ 120”	• 60” ~ 150”
Projection distance		• 0.74 m ~ 1.26 m	• 1.10 m ~ 1.88 m	• 2 m ~ 5 m
I/Os		• Audio In x 1 • Audio Out x 1 • HDMI 1.4 x 2 • USB Type-A x 1	• VGA-In x 1 • VGA-Out x 1 • RJ-45 x 1	• RS232 x 1 • AC Jack
Color		• 1.07 Billion Colors	• 1.07 Billion Colors	• 1.07 Billion Colors
Scan rate	Horizontal	• 15KHz to 102KHz	• 15KHz to 102KHz	• 15KHz to 102KHz
	Vertical	• 24Hz to 120Hz	• 24Hz to 120Hz	• 24Hz to 120Hz
Speaker		• 10W x 1	• 10W x 1	• 10W x 1
Power consumption	Standby	• 0.5W max.@240VAC	• 0.5W max.@240VAC	• 0.5W max.@240VAC
	Normal	• Typical 226W@110VAC Typical: 212W @240VAC	• Typical 226W@110VAC Typical: 212W @240VAC	• Typical 226W@110VAC Typical: 212W @240VAC
	Eco	• Typical: 130W @110VAC Typical: 124W @240VAC	• Typical: 130W @110VAC Typical: 124W @240VAC	• Typical: 130W @110VAC Typical: 124W @240VAC
Input current		• 3.2A	• 3.2A	• 3.2A
Installation orientations		• Front • Rear • Ceiling • Rear-top	• Front • Rear • Ceiling • Rear-top	• Front • Rear • Ceiling • Rear-top
Dimensions (W x D x H)		• 307 x 228 x 114.4 mm (without foot and lens)	• 307 x 228 x 114.4 mm (without foot and lens)	• 307 x 228 x 114.4 mm (without foot and lens)
Weight		• 3.2 (+/- 10%) kg	• 3.2 (+/- 10%) kg	• 3.1 (+/- 10%) kg
Environmental		• Operating in 0~40°C, 90% humidity (max., non-condensing)		

Note: *All specifications are subject to change without notice.*

ADDITIONAL INFORMATION

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