NEC

Projector

M380HL / M430WL

User's Manual

Model No.
NP-M380HL / NP-M430WL

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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 Instruction
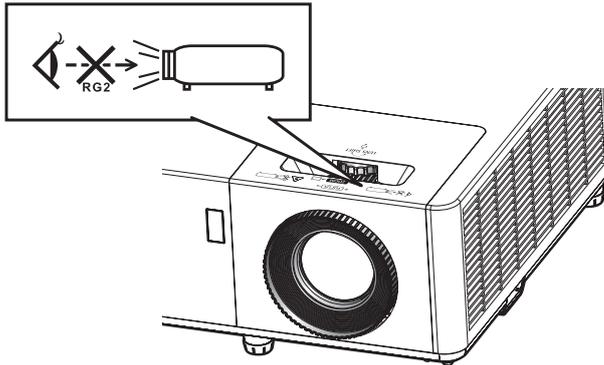
- Do not stare into the beam, RG2.

   As with any bright source, do not stare into the direct beam, RG2 IEC 62471-5:2015.

- Do not block any ventilation openings. To ensure reliable operation of the projector and to protect from over heating, 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 book case 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 emits 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 5°C ~ 40°C

      (ii) Relative humidity is 10% ~ 85%

   – 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 in 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 our customer service 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.

- Do not look into straight into the projector lens during operation. The bright light may harm your eyes.

- 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. Allow 90 seconds for the projector to cool down.

- 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 display housing. Do not use abrasive cleaners, waxes or solvents to clean the unit.

- Disconnect the power plug from AC outlet if the product is not being used for a long period of time.

- Do not setup 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.

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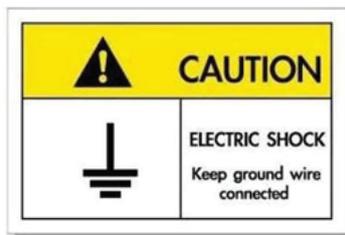
To avoid electric shock, the unit and its peripherals must be properly grounded (earthed).

Laser Radiation Safety Information

- This product is classified as CLASS 1 LASER PRODUCT - RISK GROUP 2 of IEC60825-1 : 2014 and also complies with 21 CFR 1040.10 and 1040.11 as a Risk Group 2, LIP (Laser Illuminated Projector) as defined in IEC 62471:5:Ed. 1.0. For more information see Laser Notice No. 57, dated May 8, 2019.

- As with any bright source, do not stare into the direct beam, RG2 IEC 62471-5:2015

FDA additional warning label

"WARNING: MOUNT ABOVE THE HEADS OF CHILDREN"
Additional warning against eye exposure for close exposures less than 1 m

"AVERTISSEMENT : INSTALLER AU-DESSUS DE LA TÊTE DES ENFANTS."
Avertissement supplémentaire contre l'exposition oculaire pour des expositions à une distance de moins de 1 m

"警告:安装在高于孩童头顶处"
关于小于1 m近距离眼睛暴露的附加警告

「警告 : 安装在高於兒童頭部處」
針對 1 m 以下近距離眼睛接觸的額外警告

Class 1 laser product label

CLASS 1 LASER PRODUCT / APPAREIL À LASER DE CLASSE 1
LASERPRODUKT DER KLASSE 1
ЛАЗЕРНОЕ ИЗДЕЛИЕ 1 КЛАССА ОПАСНОСТИ
등급 1 레이저 제품 / 第一級雷射產品 / 1 类激光产品
IEC 60825-1:2014 CLASS 1 LASER PRODUCT RISK GROUP 2
クラス 1 レーザ製品 JIS C 6802:2014

- Outline of laser emitted from the built-in light module:
  - Wave length: 449 - 461 nm
  - Maximum power: 186 W

- The laser module is equipped in this product. Use of controls or adjustments of procedures other than those specified herein may result in hazardous radiation exposure.

- Additional instructions to supervise children, no staring, and not use optical aids.

- Notice is given to supervise children and to never allow them to stare into the projector beam at any distance from the projector.

- Notice is given to use caution when using the remote control for starting the projector while in front of the projection lens.

- Notice is given to the user to avoid the use of optical aids such as binoculars or telescopes inside the beam.

- When turning on the projector, make sure no one within projection range is looking at the lens.

- Keep any items (magnifying glass etc.) out of the light path of the projector. The light path being projected from the lens is extensive, therefore any kind of abnormal objects that can redirect light coming out of the lens, can cause an unpredictable outcome such as a fire or injury to the eyes.

- The use of a ceiling mount is recommended with this product to place it above the eyes of children.

- Any operation or adjustment not specifically instructed by the user's guide creates the risk of

hazardous laser radiation exposure.

- Do not open or disassemble the projector as this may cause damage by the exposure of laser radiation.

- Do not stare into beam when the projector is on. The bright light may result in permanent eye damage.

Without following the control, adjustment or operation procedure may cause damage by the exposure of laser radiation.

Laser light radiation range

The figure below shows the maximum radiation range of the laser light.

Horizontal angle (unit: degree)

Model	Zoom	Lens position
		Center (Reference value)
		HC
M380HL	Wide	19.7
	Tele	12.6
M430WL	Wide	18.8
	Tele	12.0
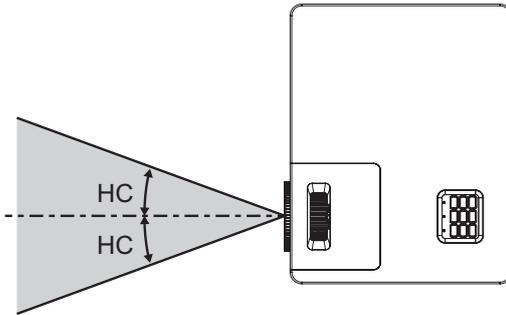
Vertical angle (unit: degree)

Model	Zoom	Lens position	
		Center (Reference value)	Upper most
		VC	VU
M380HL	Wide	11.4	25.6
	Tele	7.2	16.6
M430WL	Wide	10.8	23.7
	Tele	6.8	15.4
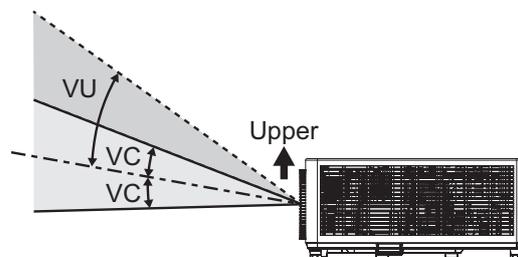
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DLP®, DLP Link and the DLP logo are registered trademarks of Texas Instruments and BrilliantColor™ is a trademark of Texas Instruments.

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

⚠ WARNING

- The Federal Communications Commission does not allow any modifications or changes to the unit EXCEPT those specified by Sharp NEC Display Solutions of America, Inc. in this manual. Failure to comply with this government regulation could void your right to operate this equipment.

- This equipment 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 equipment 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 equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment 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 equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio / TV technician for help.

Supplier's declaration of conformity (for USA only)

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

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

U.S.Responsible Party:	Sharp NEC Display Solutions of America, Inc.
Address:	3250 Lacey Rd, Ste 500 Downers Grove, IL 60515
Telephone Number:	630-467-3000
Type of Product:	Projector
Equipment Classification:	Class B Peripheral
Model Number:	NP-M430WL / NP-M380HL

FC

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

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 numerique de la classe B est conforme a 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)

Disposing of your used product

In the European Union

EU-wide legislation as implemented in each Member State requires that used electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes projectors and their electrical accessories. When you dispose of such products, please follow the guidance of your local authority and/or ask the shop where you purchased the product.
After collecting the used products, they are reused and recycled in a proper way. This effort will help us reduce the wastes as well as the negative impact to the human health and the environment at the minimum level.
The mark on the electrical and electronic products only applies to the current European Union Member States.

Outside the European Union

If you wish to dispose of used electrical and electronic products outside the European union, please contact your local authority and ask for the correct method of disposal.

For EU: The crossed-out wheeled bin implies that used batteries should not be put to the general household waste! There is a separate collection system for used batteries, to allow proper treatment and recycling in accordance with legislation.

According the EU directive 2006/66/EC, the battery can't be disposed improperly. The battery shall be separated to collect by local service.

(for Germany only)

Machine Noise Information Regulation - 3. GPSGV,
The highest sound pressure level is less than 70 dB (A) in accordance with EN ISO 7779.

Information of the AUDIO OUT mini jack
The AUDIO OUT mini jack does not support earphone/headphone terminal.

INTRODUCTION

Package Overview

Carefully unpack and verify that you have the items listed below under standard accessories. Some of the items under optional accessories may not be available depending on the model, specification and your region of purchase. 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 lead

Lens cap

☑ Warranty Card
☑ User's Manual
☑ Quick Start Guide

Documentation

VGA cable
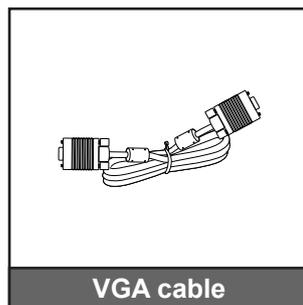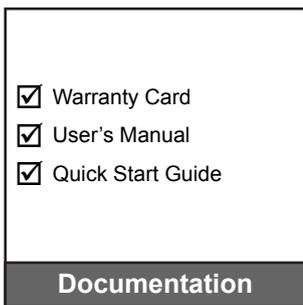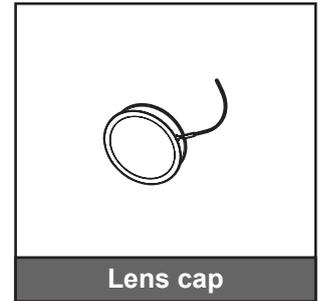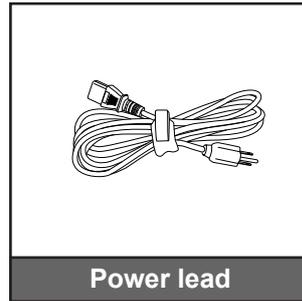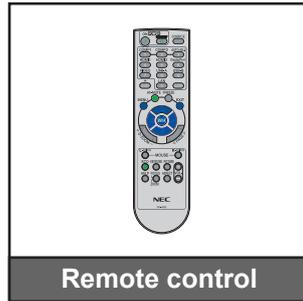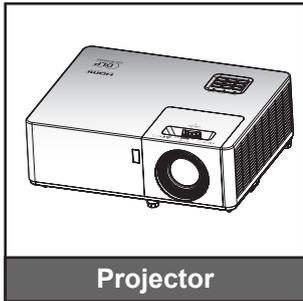
Note: *The remote control is shipped with the batteries.*

INTRODUCTION

Product Overview
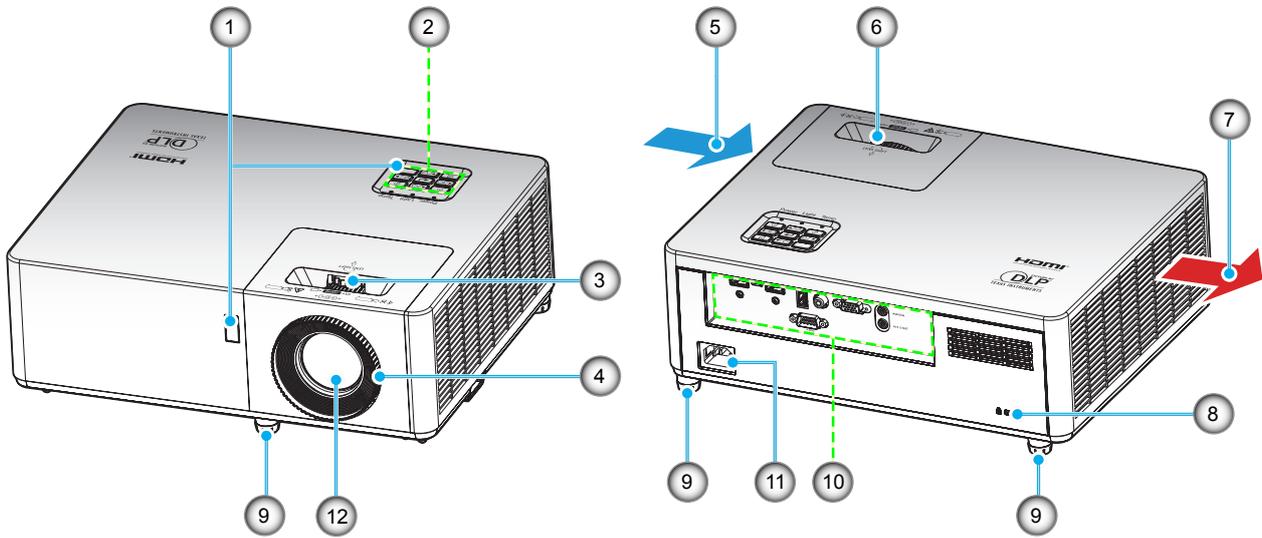
Note:

- *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.	IR Receivers	7.	Ventilation (outlet)
2.	Keypad	8.	Kensington™ Lock Port
3.	Lens Shift Dial	9.	Tilt-Adjustment Feet
4.	Focus Ring/Focus Lever	10.	Input / Output
5.	Ventilation (inlet)	11.	Power Socket
6.	Zoom Lever	12.	Lens

INTRODUCTION

Connections
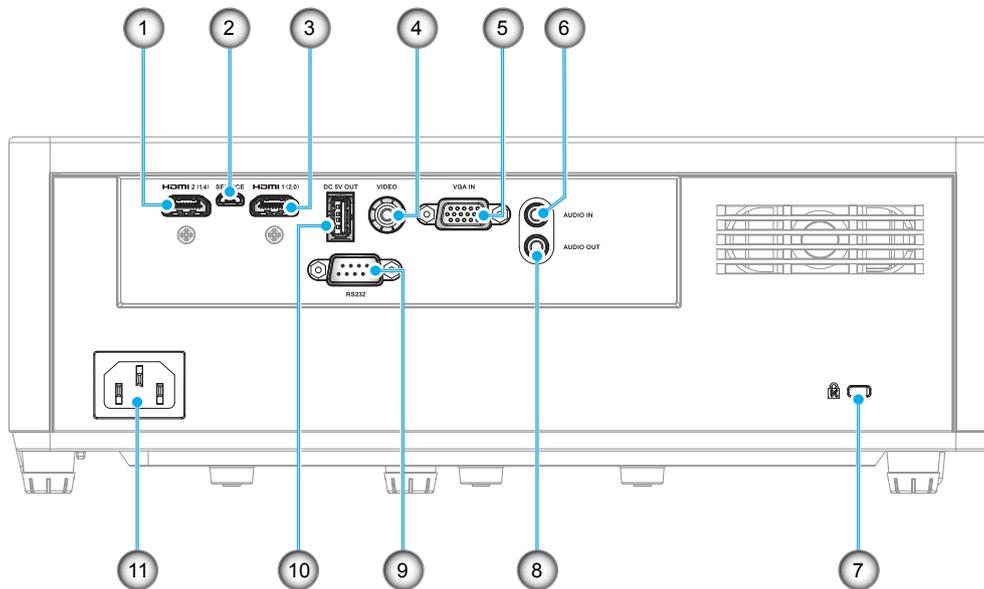
No	Item	No	Item
1.	HDMI 2 Connector	7.	Kensington™ Lock Port
2.	Micro USB Connector	8.	Audio Out Connector
3.	HDMI 1 Connector	9.	RS-232 Connector
4.	Video Connector	10.	USB Power Out (5V⎓1.5A) Connector
5.	VGA In Connector	11.	Power Socket
6.	Audio In Connector		

INTRODUCTION

Keypad
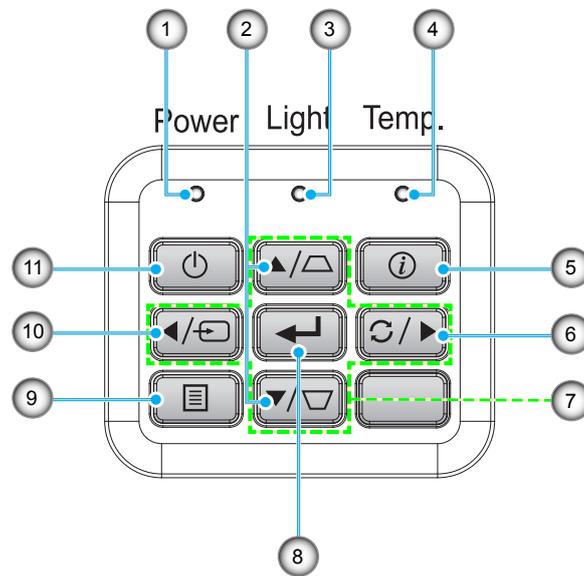
No	Item	No	Item
1.	Power LED	7.	Four Directional Select Keys
2.	Keystone Correction	8.	Enter
3.	Light LED	9.	Menu
4.	Temp LED	10.	Source
5.	Information	11.	Power
6.	Re-Sync		

INTRODUCTION

Remote control
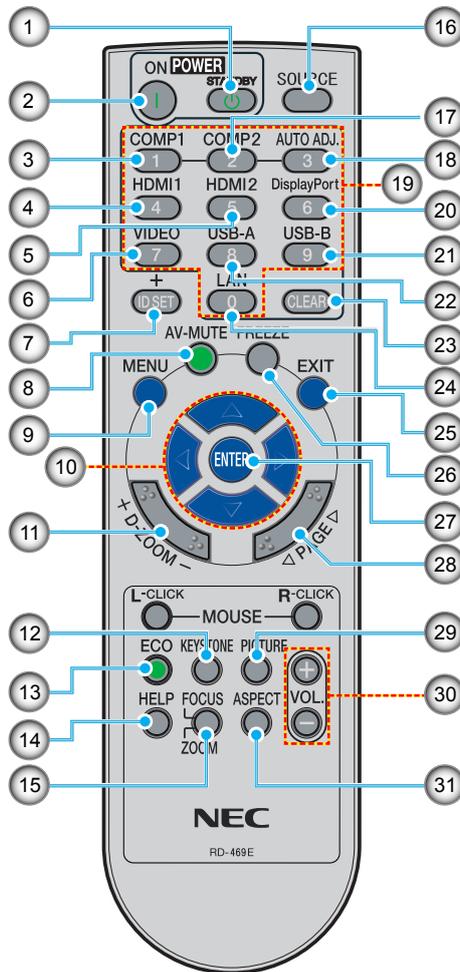
No	Item	Description
1.	STANDBY	Power off the projector. Please see the "Powering on / off the projector" section on page *23*.
2.	ON	Power on the projector. Please see the "Powering on / off the projector" section on page *23*.
3.	COMPUTER 1	Press "1" to choose source from VGA In connector.
4.	HDMI 1	Press "4" to choose source from HDMI 1 connector.
5.	HDMI 2	Press "5" to choose source from HDMI 2 connector.
6.	VIDEO	Press "7" to choose source from VIDEO connector.
7.	ID SET	No function.
8.	AV-MUTE	Momentarily turn off/on the audio and video.
9.	MENU	Launch the on-screen display (OSD), back to the top level of OSD for the OSD main menu operation.
10.	Four Directional Select Keys	Use the ▲, ▼, ◄, or ► button to select items or make adjustments to your selection. When the image is magnified by using the D-ZOOM + button, the ▲, ▼, ◄, or ► button moves the image.
11.	D-ZOOM	Zoom in/out the projected image.
12.	KEYSTONE Correction	Adjust the image to compensate for distortion caused by tilting the projector.
13.	ECO	Display the *Brightness Mode* menu.
14.	HELP	Display the *Information* menu.

INTRODUCTION

No	Item	Description
15.	FOCUS/ZOOM	No function.
16.	SOURCE	Select the desired input source.
17.	COMPUTER 2	No function.
18.	AUTO ADJ.	Automatically synchronize the projector to the input source.
19.	Number Buttons	No function.
20.	DisplayPort	No function.
21.	USB B	No function.
22.	USB A	No function.
23.	CLEAR	No function.
24.	LAN	No function.
25.	EXIT	Exit the settings.
26.	FREEZE	Pause the screen image. Press again to resume the screen image.
27.	ENTER	Confirm your section of items in sub menu operation.
28.	PAGE	Page up/down in USB mode.
29.	PICTURE Mode	Choose your desired display mode. Please see page *32*.
30.	VOL. +/-	Increase/decrease speaker volume.
31.	ASPECT	Choose your desired aspect ratio. Please see page *35*.

Note: *Some keys may have no function for models that do not support these features.*

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.

Table mount front	Ceiling mount front
Table mount rear	**Ceiling mount rear**
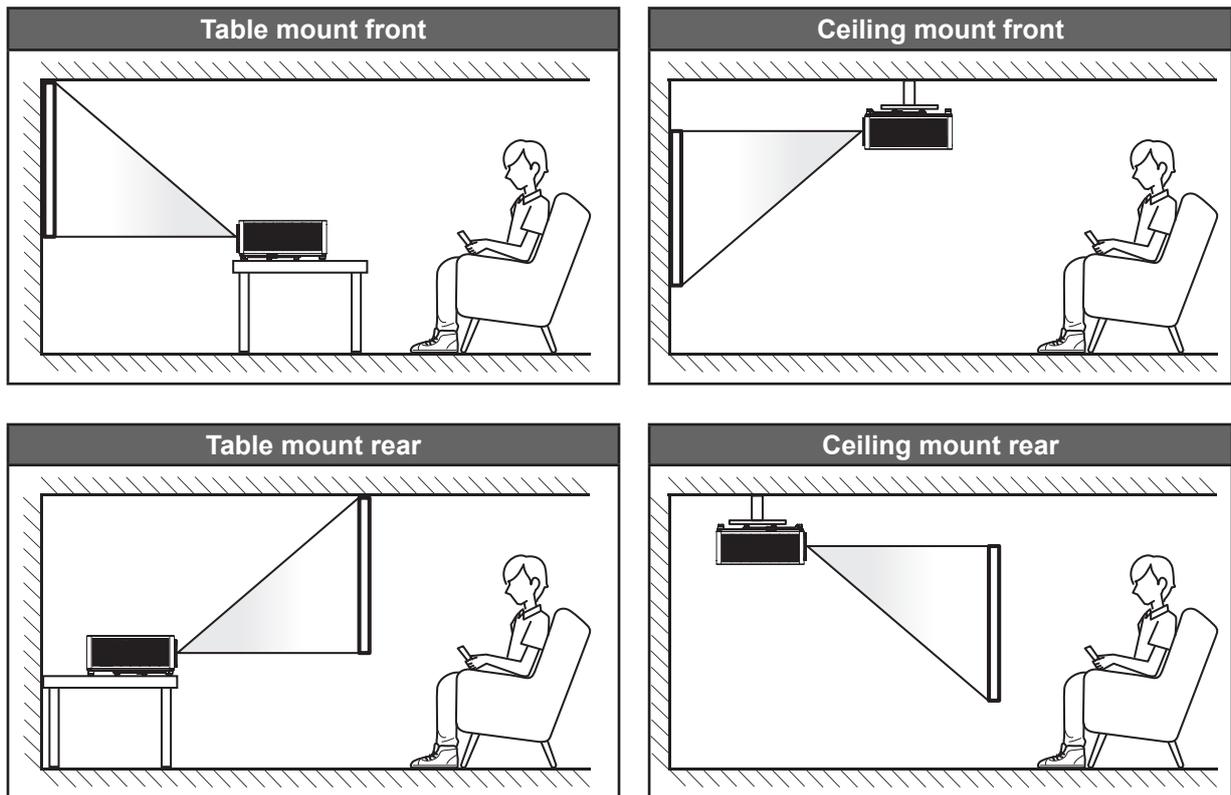
Projector should be placed flat on a surface and 90 degrees / perpendicular to the screen.

- How to determine projector location for a given screen size, please refer to distance table on pages *45-46*.

- How to determine screen size for a given distance, please refer to distance table on pages *45-46*.

Note: *The further away the projector is placed from the screen the projected image size increases and vertical offset also increases proportionally.*

SETUP AND INSTALLATION

Projector installation notice

- 360-degree free orientation operation
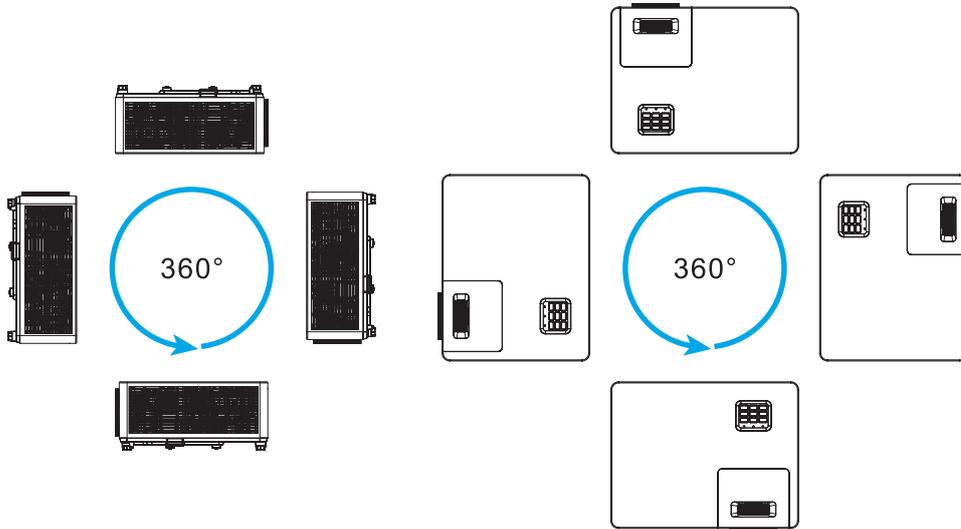
Note: *The fan will default to "High altitude mode" when the projector is installed within the range highlighted.*

225°~315°
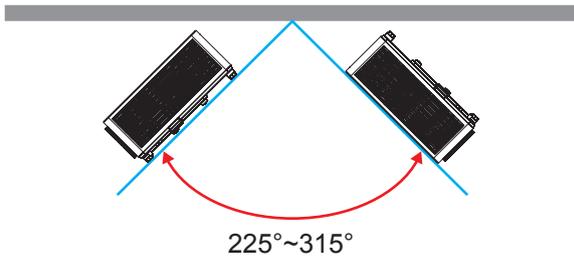
- Allow at least 30 cm clearance around the exhaust vent.

Minimum 100mm
(3.94 inches)

Minimum 300mm
(11.81 inches)

Minimum 300mm
(11.81 inches)

Minimum 100mm
(3.94 inches)

SETUP AND INSTALLATION

Minimum 100mm
(3.94 inches)

Minimum 100mm
(3.94 inches)
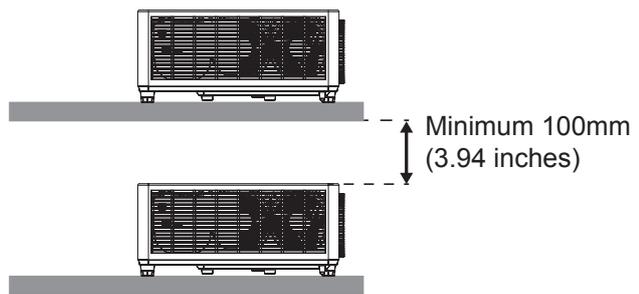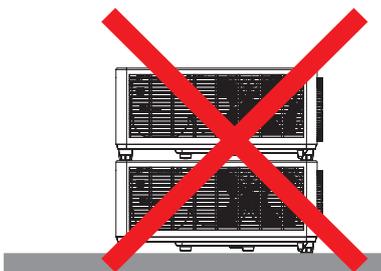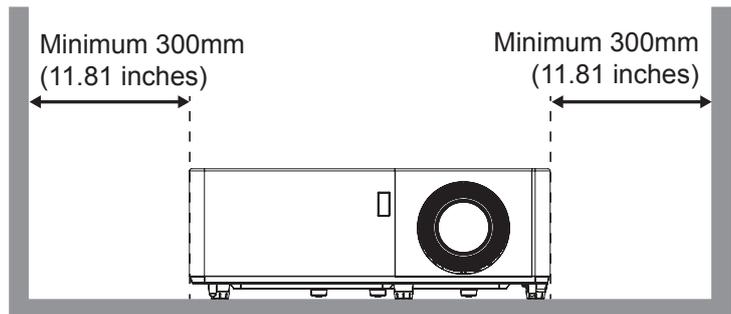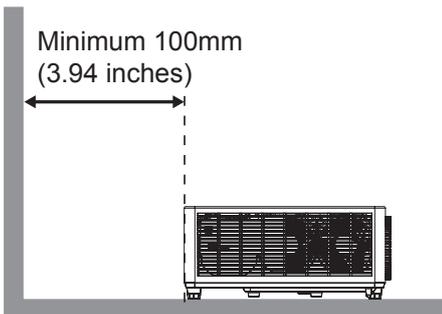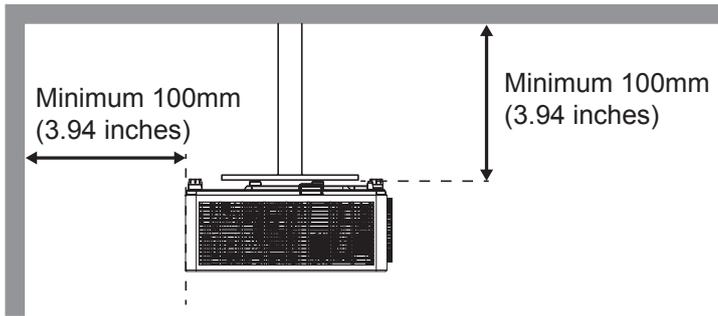
- Ensure that the intake vents do not recycle hot air from the exhaust vent.

- 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 pass a certified thermal evaluation to ensure that the projector does not recycle exhaust air, as this may cause the device to shutdown even if the enclosure temperature is with the acceptable operation temperature range.

SETUP AND INSTALLATION

Connecting sources to the projector
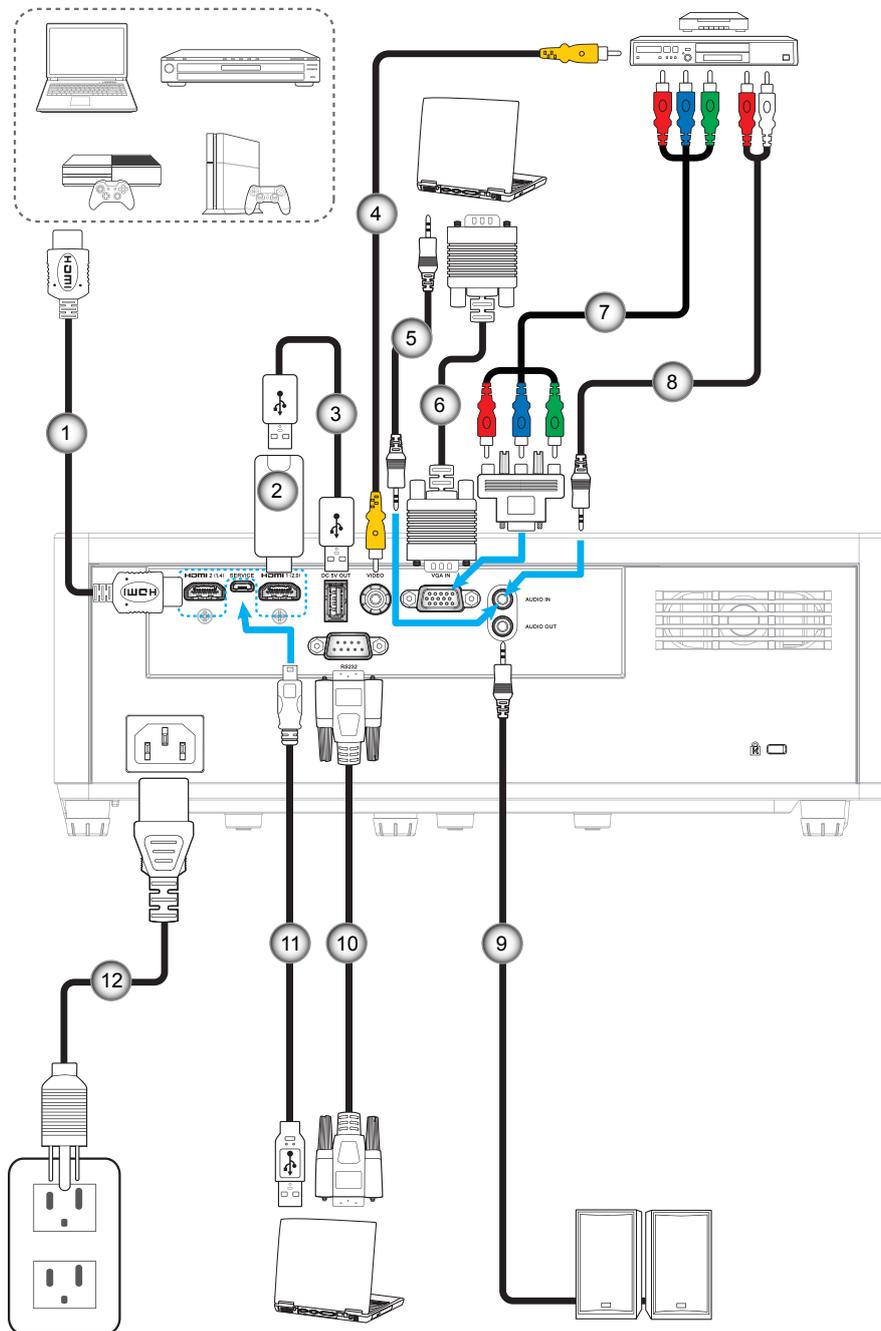
No	Item	No	Item
1.	HDMI Cable	7.	RCA Component Cable
2.	HDMI Dongle	8.	Audio In Cable
3.	USB Power Cable	9.	Audio Out Cable
4.	Video Cable	10.	RS232 Cable
5.	Audio In Cable	11.	USB Cable
6.	VGA In Cable	12.	Power Cord

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.

Tilt-Adjustment Feet

Tilt-Adjustment Ring
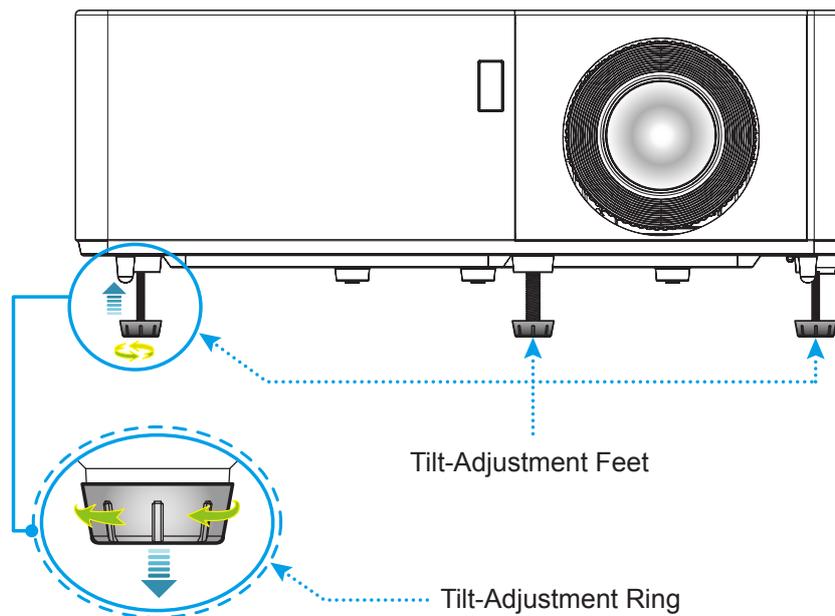
Zoom, lens shift, and focus

*   To adjust the image size, turn the zoom lever clockwise or counterclockwise to increase or decrease the projected image size.

*   To adjust the image position, turn the lens shift dial clockwise or counterclockwise to adjust the position of the projected image vertically.

*   To adjust the focus, turn the focus ring/focus lever clockwise or counterclockwise until the image is sharp and legible.

Lens Shift Dial

Zoom Lever

Focus Ring
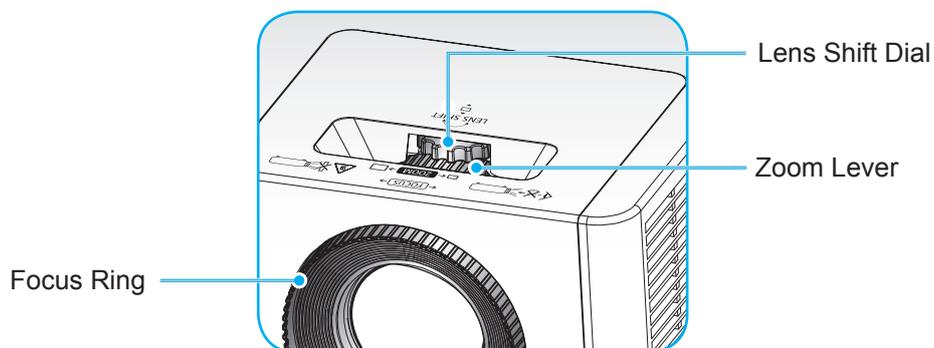
SETUP AND INSTALLATION

Remote setup

Installing / replacing the batteries

Two AAA size batteries are supplied for the remote control.

1. Press firmly and slide the battery cover off.
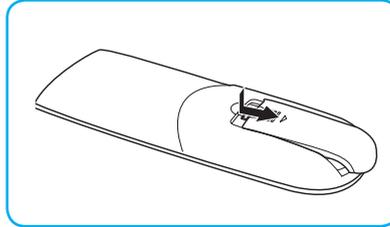
2. Install new batteries (AAA). Ensure that you have the batteries' polarity (+/–) aligned correctly.
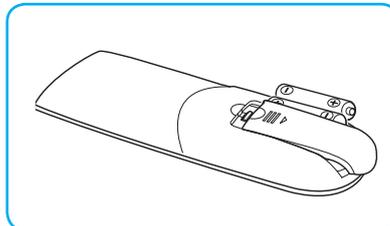
3. Slip the cover back over the batteries until it snaps into place.
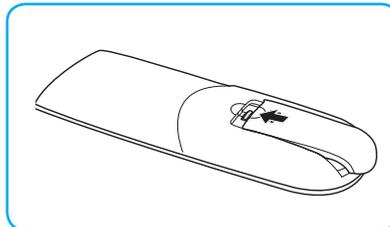
Note: *Replace only with the same or equivalent type batteries.*

CAUTION

Improper use of batteries can result in chemical leakage or explosion. Be sure to follow the instructions below.

- Do not mix batteries of different types. Different types of batteries have different characteristics.
- Do not mix old and new batteries. Mixing old and new batteries can shorten the life of new batteries or cause chemical leakage in old batteries.
- Remove batteries as soon as they are depleted. Chemicals that leak from batteries that come in contact with skin can cause a rash. If you find any chemical leakage, wipe thoroughly with a cloth.
- The batteries supplied with this product may have a shorter life expectancy due to storage conditions.
- If you will not be using the remote control for an extended period of time, remove the batteries.
- When you dispose of the batteries, you must obey the law in the relative area or country.

SETUP AND INSTALLATION

Effective range

Infra-Red (IR) remote control sensor is located on the top and front sides of the projector. Ensure to hold the remote control at an angle within 60 degrees perpendicular to the projector's IR remote control sensor to function correctly. The distance between the remote control and the sensor should not be longer than 7 meters (22 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 being shined by sunlight or fluorescent lamps directly.

- Please keep the remote controller away from fluorescent lamps for over 2 m or the remote controller might become 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, the remote control might become ineffective.

- When you aim at the screen, the effective distance is less than 5 m from the remote control to the screen and reflecting the IR beams back to the projector. However, the effective range might change according to screens.

Approx. ±30°

Approx. ±30°
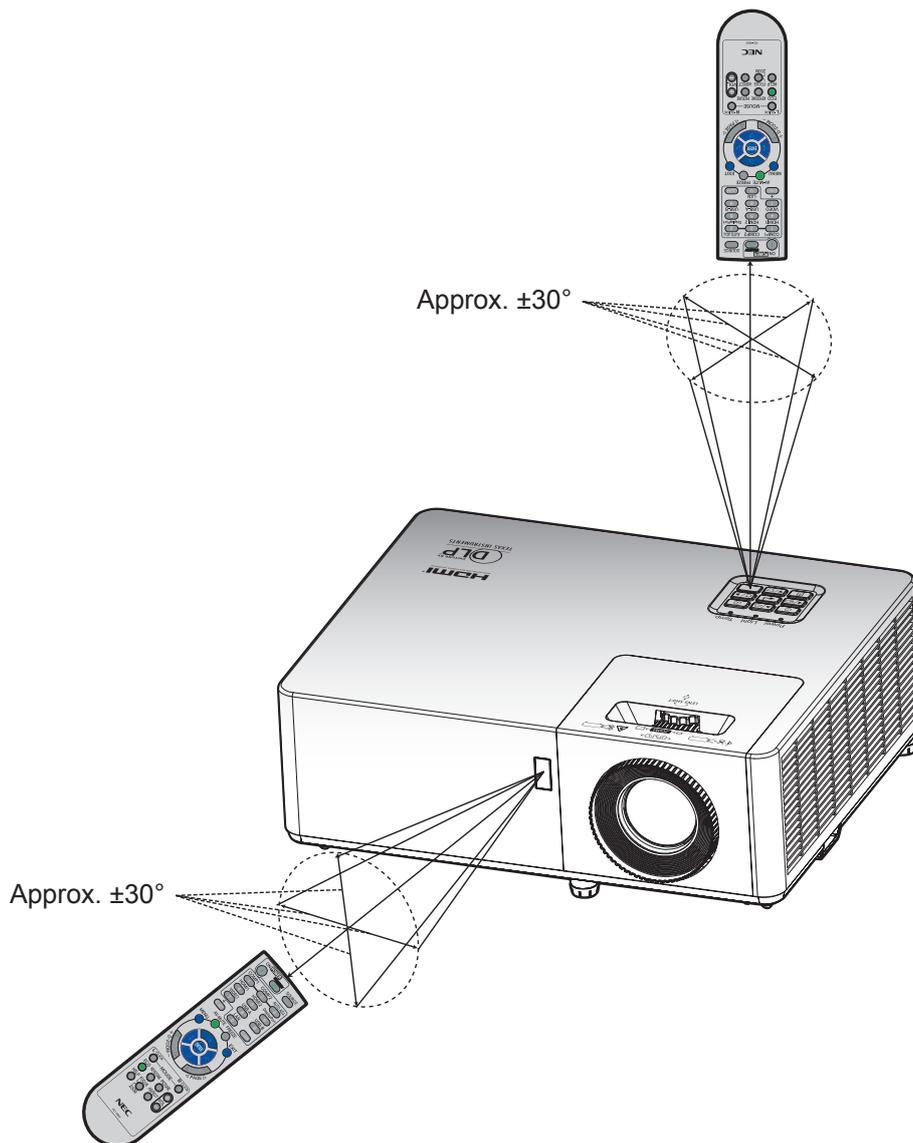
USING THE PROJECTOR

Powering on / off the projector

or
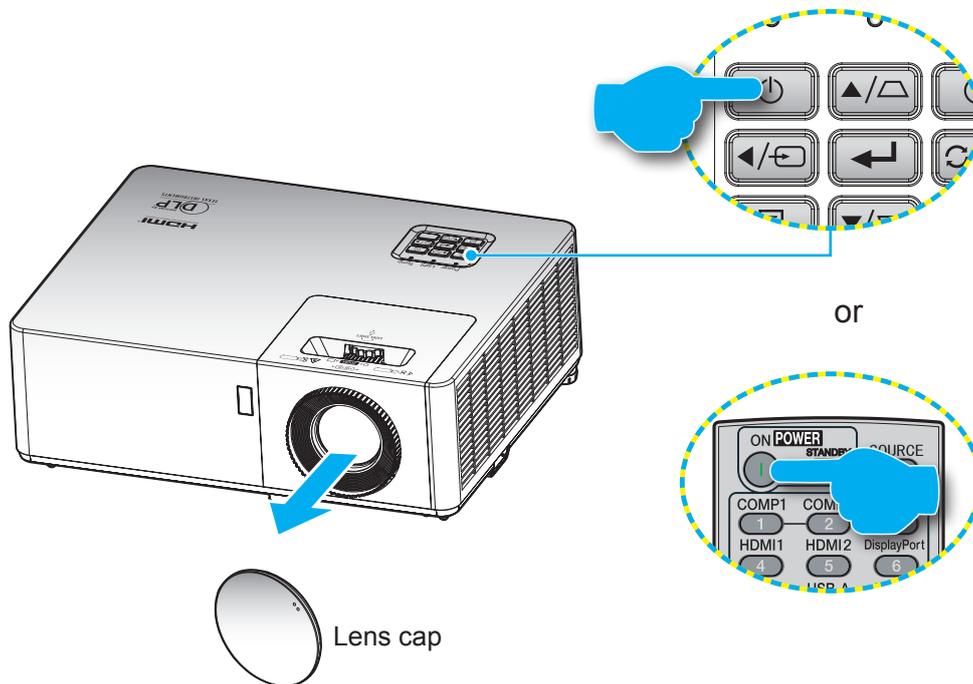
Lens cap

Powering on

1. Remove the lens cap.
2. Securely connect the power lead and signal/source cable. When connected, the Power LED will turn red.
3. Turn on the projector by pressing the ⏻ button on the projector keypad or the **ON** button on the remote control.
4. A start up screen will display in approximately 10 seconds and the Power LED will be flashing 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 keypad or the **STANDBY** button on the remote control.
2. The following message will be displayed:

> Power Off
>
> Power Off?
> Press power key again.

3. Press the ⏻ or **STANDBY** button again to confirm, otherwise the message will disappear after 10 seconds. When you press the ⏻ or **STANDBY** button for the second time, the projector will shut down.
4. The cooling fans will continue to operate for about 10 seconds for the cooling cycle and the Power LED will flash blue. When the Power turns solid red, this indicates the projector has entered standby mode. If you wish to turn the projector back on, you must wait until the cooling cycle has finished and the projector has entered standby mode. When the projector is in standby mode, simply press the ⏻ button on the projector keypad or the **ON** button on the remote control again to turn on the projector.
5. 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 keypad or the **SOURCE** button on the remote control to select the desired input.

or

Lens cap
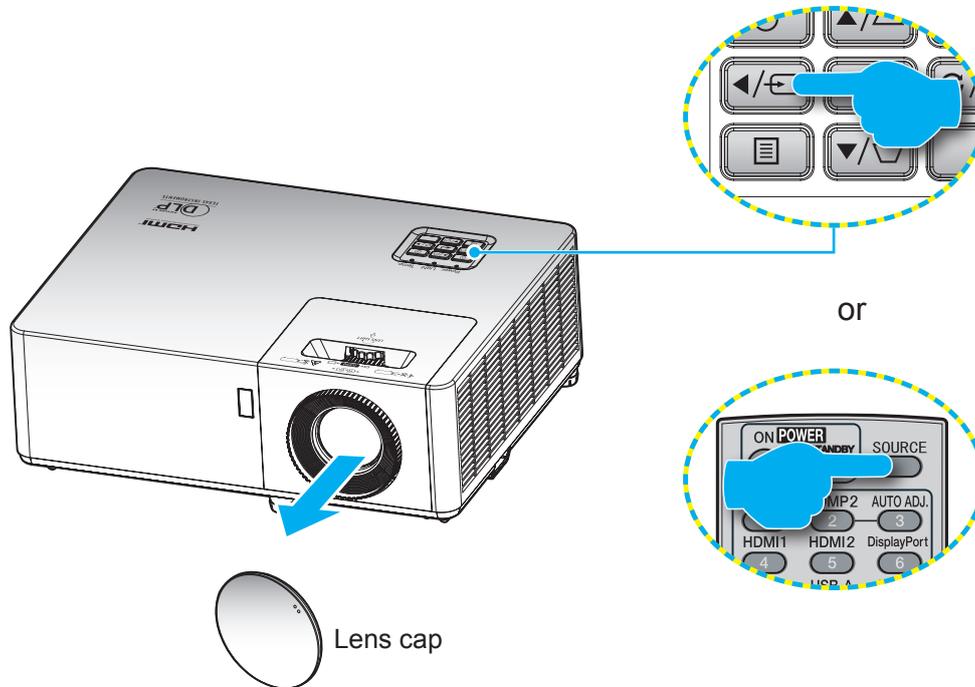
USING THE PROJECTOR

Menu navigation and features

The projector has multilingual on-screen display menus that allow you to make image adjustments and change a variety of settings. The projector will automatically detect the source.

1. To open the OSD menu, press the ▤ button on the projector keypad or the **MENU** button on the remote control.

2. When OSD is displayed, use ▲▼ keys to select any item in the main menu. While making a selection on a particular page, press the ↵ button on the projector keypad or the **Enter** button on the remote control to enter sub menu.

3. Use ◄► keys to select the desired item in the sub menu and then press the ↵ or **ENTER** button to view further settings. Adjust the settings by using ◄► keys.

4. Select the next item to be adjusted in the sub menu and adjust as described above.

5. Press the ↵ or **ENTER** button to confirm, and the screen will return to the main menu.

6. To exit, press the ▤ or **MENU** button again. The OSD menu will close and the projector will automatically save the new settings.

	Sub Menu		Settings
	Display		
	Image Settings		>
	3D		>
Main Menu	Aspect Ratio		4:3
	Edge Mask		0
	Zoom		0
	Image Shift		>
	Keystone		>
	Select	Exit	Enter

Navigation guide
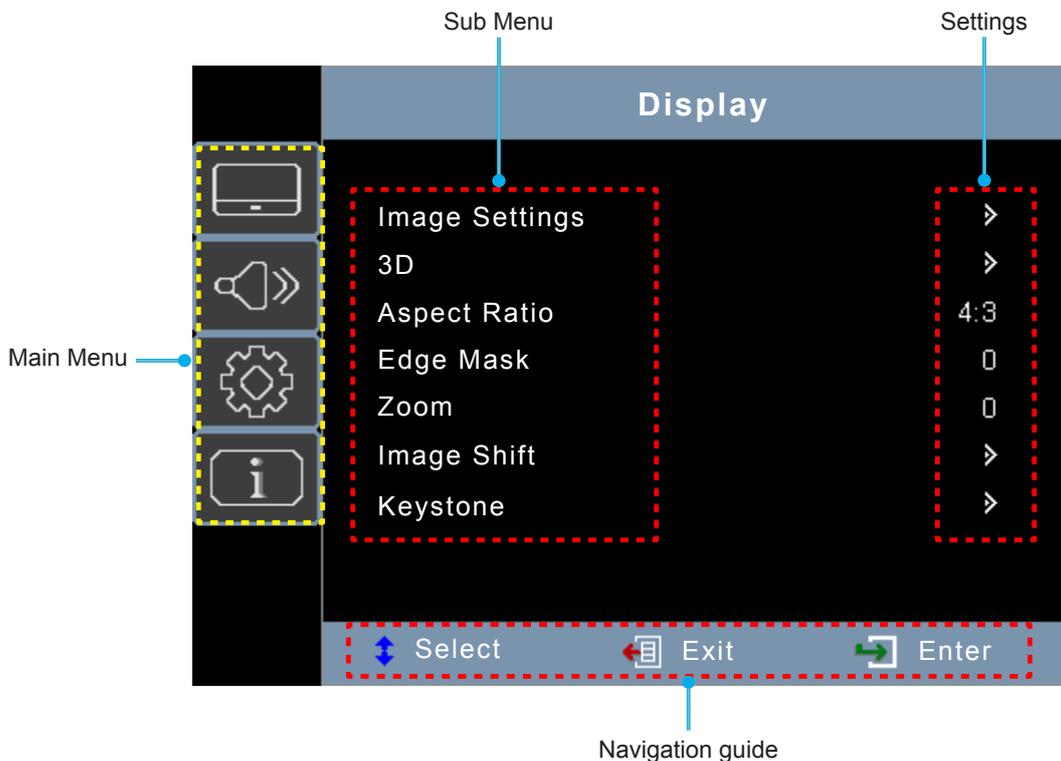
USING THE PROJECTOR

OSD Menu tree

Main Menu	Sub Menu	Sub Menu 2	Sub Menu 3	Sub Menu 4	Values
Display	Image Settings	Display Mode			Presentation
					Bright
					HDR SIM.
					HLG SIM.
					Cinema
					Game
					sRGB
					DICOM SIM.
					User
					3D
		Wall Color			Off [Default]
					Blackboard
					Light Yellow
					Light Green
					Light Blue
					Pink
					Gray
		Brightness			-50 ~ 50
		Contrast			-50 ~ 50
		Sharpness			1 ~ 15
		Color			-50 ~ 50
		Tint			-50 ~ 50
		Gamma	Film		
			Video		
			Graphics		
			Standard(2.2)		
			1.8		
			2.0		
			2.4		
			2.6		
		Color Settings	BrilliantColor™		1 ~ 10
			Color Temperature		Warm
					Standard
					Cool
					Cold

USING THE PROJECTOR

Main Menu	Sub Menu	Sub Menu 2	Sub Menu 3	Sub Menu 4	Values
Display	Image Settings	Color Settings	Color Matching	Color	Red [Default]
					Green
					Blue
					Cyan
					Yellow
					Magenta
					White(*)
				Hue / R(*)	-50 ~ 50 [Default: 0]
				Saturation / G(*)	-50 ~ 50 [Default: 0]
				Gain / B(*)	-50 ~ 50 [Default: 0]
				Reset	Cancel [Default]
					Yes
				Exit	
			RGB Gain/Bias	Red Gain	-50 ~ 50
				Green Gain	-50 ~ 50
				Blue Gain	-50 ~ 50
				Red Bias	-50 ~ 50
				Green Bias	-50 ~ 50
				Blue Bias	-50 ~ 50
				Reset	Cancel [Default]
					Yes
				Exit	
			Color Space [Not HDMI Input]		Auto [Default]
					RGB
					YUV
			Color Space [HDMI Input]		Auto [Default]
					RGB(0~255)
					RGB(16~235)
					YUV
		Signal	Automatic		Off
					On [Default]
			Frequency		-10 ~ 10 (depends on signal) [Default: 0]
			Phase		0~31 (depends on signal) [Default: 0]
			H. Position		-5 ~ 5 (depends on signal) [Default: 0]
			V. Position		-5 ~ 5 (depends on signal) [Default: 0]
		Brightness Mode			DynamicBlack
					Eco.
					Power (Power = 100%/ 95%/ 90%/ 85%/ 80%/ 75%/ 70%/ 65%/ 60%/ 55%/ 50%)
		Reset			

USING THE PROJECTOR

Main Menu	Sub Menu	Sub Menu 2	Sub Menu 3	Sub Menu 4	Values
Display	3D	3D Mode			Off [Default]
					On
		3D → 2D			3D [Default]
					L
					R
		3D Format			Auto [Default]
					SBS
					Top and Bottom
					Frame Sequential
		3D Sync Invert			On
					Off [Default]
	Aspect Ratio				4:3
					16:9
					16:10
					LBX
					Native
					Auto [Default]
	Edge Mask				0 ~ 10 [Default: 0]
	Zoom				-5 ~ 25
	Image Shift	H			-100 ~ 100 [Default: 0]
		V			-100 ~ 100 [Default: 0]
	Keystone	Four Corners			
		H Keystone			-30 ~30 / -15 ~ 15 [Default: 0]
		V Keystone			-30 ~30 / -15 ~ 15 [Default: 0]
		Auto Keystone			Off
					On [Default]
		Reset			
Audio	Mute				Off [Default]
					On
	Volume				0 ~ 10 [Default: 5]

USING THE PROJECTOR

Main Menu	Sub Menu	Sub Menu 2	Sub Menu 3	Sub Menu 4	Values
Setup	Projection				Front ◄▬◢ [Default]
					Rear ◄▭◣
					Ceiling-top ◄▬
					Rear-top ◄▭
	Screen Type				16:9
					16:10 [Default]
	Power Settings	Direct Power On			Off [Default]
					On
		Signal Power On			Off [Default]
					On
		Auto Power Off (min.)			0 ~ 180 (5 min increments) [Default: 20]
		Power Mode (Standby)			Active
					Eco. [Default]
		USB Power (Standby)			Off [Default]
					On
	Security	Security			Off [Default]
					On
		Security Timer	Month		
			Day		
			Hour		
			Exit		
		Change Password			[Default: 1234]
	HDMI CEC				Off [Default]
					On
	Test Pattern				Green Grid
					Magenta Grid
					White Grid
					White
					Off [Default]

USING THE PROJECTOR

Main Menu	Sub Menu	Sub Menu 2	Sub Menu 3	Sub Menu 4	Values
Setup	Options	Language			English [Default]
					Deutsch
					Français
					Italiano
					Español
					Português
					Polski
					Nederlands
					Svenska
					Norsk
					Suomi
					ελληνικά
					繁體中文
					简体中文
					日本語
					한국어
					Русский
					Magyar
					Čeština
					عـــربي
					ไทย
					Türkçe
					فارســـی
					Tiếng Việt
					Bahasa Indonesia
					Română
					Slovenčina
		Closed Captioning			CC1
					CC2
					Off [Default]
		Menu Settings	Menu Location		Top left ▪
					Top right ▪
					Center ▪ [Default]
					Bottom left ▪
					Bottom right ▪
			Menu Timer		Off
					5sec
					10sec [Default]
		Auto Source			Off [Default]
					On

USING THE PROJECTOR

Main Menu	Sub Menu	Sub Menu 2	Sub Menu 3	Sub Menu 4	Values
Setup	Options	Input Source			HDMI 1 [Default]
					HDMI 2
					VGA IN
					VIDEO
		High Altitude			Off [Default]
					On
		Logo			Default [Default]
					User
					Neutral
		Background Color			Black [Default]
					Blue
					Red
					Green
					Gray
					Logo
	Reset	Reset to Default			Cancel [Default]
					OK
Info	Serial Number				
	Source				
	Resolution				
	Refresh Rate				
	Display Mode				
	Power Mode (Standby)				
	Light Source Hours				
	Brightness Mode				
	FW Version	System			
		MCU			

Note: *Functions vary depending on model definition.*

USING THE PROJECTOR

Display menu

Display image settings menu

Display Mode

There are many factory presets optimized for various types of images.

- **Presentation**: This mode is suitable for showing in front of public in connection to the PC.
- **Bright**: Maximum brightness from PC input.
- **HDR SIM.**: Decodes and displays High Dynamic Range (HDR) content for the deepest blacks, brightest whites, and vivid cinematic color using REC.2020 color gamut. This mode can be selected to enhances non-HDR content with simulated High Dynamic Range (HDR).
- **HLG SIM.**: Decodes and displays Hybrid Log Gamma(HLG) content for the deepest blacks, brightest whites, and vivid cinematic color using REC.2100 color gamut. This mode can be selected to enhances non-HLG content with simulated Hybrid Log Gamma(HLG).
- **Cinema**: Provides the best colors for watching movies.
- **Game**: Select this mode to increase the brightness and response time level for enjoying video games.
- **sRGB**: Standardized accurate color.
- **DICOM SIM.**: This mode can project a monochrome medical image such as an X ray radiography, MRI, etc.
- **User**: Memorize user's settings.
- **3D**: To experience the 3D effect, you need to have 3D glasses, make sure your PC/portable device has a 120 Hz signal output quad buffered graphics card and have a 3D Player installed.

Wall Color

Use this function to obtain an optimized screen image according to the wall color. Select between off, blackboard, light yellow, light green, light blue, pink, and gray.

Brightness

Adjust the brightness of the image.

Contrast

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

Sharpness

Adjust the sharpness of the image.

Color

Adjust a video image from black and white to fully saturated color.

Tint

Adjust the color balance of red and green.

USING THE PROJECTOR

<u>Gamma</u>

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

- **Film**: For home theater.
- **Video**: For video or TV source.
- **Graphics**: For PC / Photo source.
- **Standard(2.2)**: For standardized setting.
- **1.8 / 2.0 / 2.4 / 2.6**: For specific PC / Photo source.

Note: *If the **Display Mode** setting is set to **DICOM SIM., HDR SIM.,** or **HLG SIM.,** user cannot select **Gamma** setting.*

<u>Color Settings</u>

Configure the color settings.

- **BrilliantColor™**: This adjustable item utilizes a new color-processing algorithm and enhancements to enable higher brightness while providing true, more vibrant colors in picture.
- **Color Temperature**: Select a color temperature from Warm, Standard, Cool, or Cold.
- **Color Matching**: Select the following options:
  - Color: Adjust the red, green, black, cyan, yellow, magenta, and white level of the image.
  - Hue / R(red)*: Adjust the color balance of red and green.
    Note: *If the **Color** setting is set to **White**, you can adjust the red color setting.*
  - Saturation / G(green)*: Adjust a video image from black and white to fully saturated color.
    Note: *If the **Color** setting is set to **White**, you can adjust the green color setting.*
  - Gain / B(blue)*: Adjust the image brightness.
    Note: *If the **Color** setting is set to **White**, you can adjust the blue color setting.*
  - Reset: Return the factory default settings for color matching.
  - Exit: Exit the "Color Matching" menu.
- **RGB Gain/Bias**: This settings allows to configure the brightness (gain) and contrast (bias) of an image.
  - Reset: Return the factory default settings for RGB gain/bias.
  - Exit: Exit the "RGB Gain/Bias" menu.
- **Color Space (non-HDMI input only)**: Select an appropriate color matrix type from the following: AUTO, RGB, or YUV.
- **Color Space (HDMI input only)**: Select an appropriate color matrix type from the following: Auto, RGB(0-255), RGB(16-235), and YUV.

USING THE PROJECTOR

<u>**Signal**</u>

Adjust the signal options.

- **Automatic**: Configure automatically the signal (the frequency and phase items are grayed out). If automatic is disabled, the frequency and phase items will appear for tuning and saving the settings.

- **Frequency**: Change the display data frequency to match the frequency of your computer's graphic card. Use this function only if the image appears to flicker vertically.

- **Phase**: Synchronize the signal timing of the display with the graphic card. If the image appears to be unstable or flickers, use this function to correct it.

- **H. Position**: Adjust the horizontal positioning of the image.

- **V. Position**: Adjust the vertical positioning of the image.

Note: *This menu is only available if the input source is RGB/Component.*

<u>**Brightness Mode**</u>

Adjust the brightness mode settings.

- **DynamicBlack**: Use to automatically adjust the picture brightness in order to give optimum contrast performance.

- **Eco.**: Choose "Eco." to dim the projector light which will lower power consumption and extend the light life.

- **Power**: Choose the power percentage for brightness mode.

<u>**Reset**</u>

Return the factory default settings for color settings.

Display 3D menu

Note:
- *This projector is a 3D ready projector with DLP-Link 3D solution.*
- *Please make sure your 3D glasses are use for DLP-Link 3D before enjoy your video.*
- *This projector supports frame sequential (page-flip) 3D via HDMI/VGA ports.*
- *To enable 3D mode, the input frame rate should be set to 60Hz only, lower or higher frame rate is not supported.*
- *To reach the best performance, resolution 1920x1080 is recommended, please be noted that 4K (3840x2160) resolution is not supported in 3D mode.*

<u>**3D Mode**</u>

Use this option to disable the 3D function or select the appropriate the 3D function.

- **Off**: Select "Off" to turn off 3D mode.

- **On**: Select "On" to turn on 3D mode.

Note: *If the 2D and 3D sources enter projector at the same time, if the ghosting image appears in the 2D source, make sure to manually turn off the 3D function.*

<u>**3D → 2D**</u>

Use this option to specify how the 3D content should appear on the screen.

- **3D**: Display 3D signal.

- **L (Left)**: Display the left frame of 3D content.

- **R (Right)**: Display the right frame of 3D content.

USING THE PROJECTOR

3D Format

Use this option to select the appropriate 3D format content.

- **Auto**: When a 3D identification signal is detected, the 3D format is selected automatically.

- **SBS**: Display 3D signal in "Side-by-Side" format.

- **Top and Bottom**: Display 3D signal in "Top and Bottom" format.

- **Frame Sequential**: Display 3D signal in "Frame Sequential" format.

3D Sync Invert

Use this option to enable/disable the 3D sync invert function.

Display aspect ratio menu

Aspect Ratio

Select the aspect ratio of the displayed image between the following options:

- **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** (for WXGA model only): This format is for 16:10 input sources, like widescreen laptops.

- **LBX**: This format is for non-16x9, letterbox source and if you use external 16x9 lens to display 2.35:1 aspect ratio in full resolution.

- **Native**: This format displays the original image without any scaling.

- **Auto**: Automatically selects the appropriate display format.

Note: *Detailed informations about LBX mode:*

- *Some Letter-Box Format DVDs are not enhanced for 16x9 TVs. In this situation, the image will not look right when displaying image in 16:9 mode. In this situation, please try to use the 4:3 mode to view the DVD. If the content is not 4:3, there will be black bars around the image in 16:9 display. For this type of content, you can use LBX mode to fill the image on the 16:9 display.*

- *If you use an external anamorphic lens, this LBX mode also allows you to watch a 2.35:1 content (include Anamorphic DVD and HDTV film source) that supports anamorphic wide is enhanced for 16x9 Display in a wide 2.35:1 image. In this case, there are no black bars. Light source power and vertical resolution are fully utilized.*

USING THE PROJECTOR

Display edge mask menu

Edge Mask

Use this function to remove the video encoding noise on the edge of video source.

Display zoom menu

Zoom

Use to reduce or magnify an image on the projection screen.

Display image shift menu

Image Shift

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

Display keystone menu

Four Corners

Allow the image to be squeezed to fit an area defined by moving each of the four corners' x and y position.

H Keystone

Adjust image distortion horizontally and make 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. This is intended for use with horizontally on-axis applications.

V Keystone

Adjust image distortion vertically and make a squarer image. Vertical keystone is used to correct a keystoned image shape in which the top and bottom are slanted to one of the sides. This is intended when for use with vertically on-axis applications.

Auto Keystone

Correct keystone digitally to fit the projected image on the area on which you are projecting.

Note:
- *The image size will reduce slightly when adjusting the horizontal and vertical keystone.*
- *When the Auto Keystone is used, the Four Corner Adjustment function will be disabled*.

Reset

Return the factory default settings for keystone settings.

USING THE PROJECTOR

Audio menu

Audio mute menu

Mute

Use this option to temporarily turn off the sound.

· **On**: Choose "On" to turn mute on.

· **Off**: Choose "Off" to turn mute off.

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

Audio volume menu

Volume

Adjust the volume level.

Setup menu

Setup projection menu

Projection

Select the preferred projection between front, rear, ceiling-top, and rear-top.

Setup screen type menu

Screen Type (for WXGA model only)

Choose the screen type from 16:9 and 16:10.

Setup power settings menu

Direct Power On

Choose "On" to activate Direct Power mode. The projector will automatically power on when AC power is supplied, without pressing the "Power" key on the projector keypad or on the remote control.

Signal Power On

Choose "On" to activate Signal Power mode. The projector will automatically power on when a signal is detected, without pressing the "Power" key on the projector keypad or on the remote control.

Note: *Only supported on HDMI 1, HDMI 2, and VGA In connectors.*

Auto Power Off (min.)

Sets the countdown timer interval. The countdown timer will start, when there is no signal being sent to the projector. The projector will automatically power off when the countdown has finished (in minutes).

Power Mode (Standby)

Set the power mode setting.

· **Active**: Choose "Active" to return to normal standby.

· **Eco.**: Choose "Eco." to save power dissipation further < 0.5W.

USING THE PROJECTOR

USB Power (Standby)

Enable or disable the USB power function when the projector is in standby mode.

Setup security menu

Security

Enable this function to prompt for a password before using the projector.

- **On**: Choose "On" to use security verification when the turning on the projector.
- **Off**: Choose "Off" to be able to switch on the projector without password verification.

Security Timer

Can be select the time (Month/Day/Hour) function to set the number of hours the projector can be used. Once this time has elapsed you will be requested to enter your password again.

Change Password

Use to set or modify the password that is prompted when turning the projector on.

 Note: *Password default value is "1234" (first time).*

Setup HDMI link settings menu

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.*
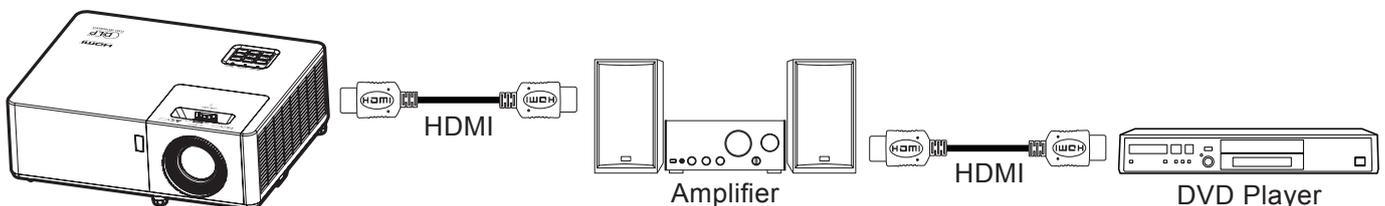
HDMI CEC

Default is Off. Select "On" to enable HDMI CEC function.

Setup test pattern menu

Test Pattern

Select the test pattern from green grid, magenta grid, white grid, white or disable this function (off).

USING THE PROJECTOR

Setup options menu

Language

Select the multilingual OSD menu.

Closed Captioning

Closed Captioning is a text version of the program sound or other information displayed on the screen. If the input signal contains closed captions, you can turn on the feature and watch the channels. The available options include "Off", "CC1", and "CC2".

 Note: *Closed Captioning is only available for VIDEO input source.*

Menu Settings

Set the menu location on the screen and configure menu timer settings.

- **Menu Location**: Select the menu location on the display screen.

- **Menu Timer**: Set the duration where the OSD menu stays visible on the screen.

Auto Source

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

Input Source

Select the input source between HDMI 1, HDMI 2, VGA IN, and VIDEO.

High Altitude

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

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:** The default startup screen.

- **User:** Use the stored picture as the startup screen.

- **Neutral:** Logo is not displayed on startup screen.

Background Color

Use this function to display a blue, red, green, gray color, black, or logo screen when no signal is available.

Setup reset OSD menu

Reset to Default

Return the factory default settings for all settings.

USING THE PROJECTOR

Info menu

Info menu

View the projector information as listed below:

- Serial Number
- Source
- Resolution
- Refresh Rate
- Display Mode
- Power Mode (Standby)
- Light Source Hours
- Brightness Mode
- FW Version

ADDITIONAL INFORMATION

Compatible resolutions

Analog

Analog Native resolution: 1280x800@60Hz(WXGA); 1920x1080@60Hz(1080p); 1024x768@60Hz(XGA)

B0/Established Timing	B0/Standard Timing	B0/Detail Timing	B1/Video Mode	B1/Detail Timing
720 x 400 @ 70Hz	1280 x 720 @ 60Hz	1920x1080@60Hz(For 1080p model)		1366x768 @ 60Hz
640 x 480 @ 60Hz	1280 x 800 @ 60Hz	1024x768@60Hz(For XGA model)		1280x800@120Hz(RB)
640 x 480 @ 67Hz	1280x1024 @ 60Hz	1280x800@60Hz(For WXGA model)		1920x1200 @ 60Hz(RB)
640 x 480 @ 72Hz	1600X1200@60Hz			
640 x 480 @ 75Hz	1280X960@60Hz			
800 x 600 @ 56Hz	640x480@120Hz			
800 x 600 @ 60Hz	800x600@120Hz			
800 x 600 @ 72Hz	1024x768@120Hz			
800 x 600 @ 75Hz				
832 x 624 @ 75Hz				
1024 x 768 @ 60Hz				
1024 x 768 @ 70Hz				
1024 x 768 @ 75Hz				
1280 x 1024 @ 75Hz				
Manufacturer's Timings:				
1152 x 870@ 75Hz				

ADDITIONAL INFORMATION

Digital (HDMI1 2.0)

Digital Native resolution: 1280x800@60Hz(WXGA); 1920x1080@60Hz(1080p); 1024x768@60Hz(XGA)

Established Timing	Standard Timing	Descriptor timing -B0 (Detail timing)	Support Video Mode	Descriptor timing -B1 (Detail timing)
720 x 400 @ 70Hz	1280 x 720 @ 60Hz	1920x1080@60Hz(For 1080p model)		1920x1080@120Hz(*)
640 x 480 @ 60Hz	1280 x 800 @ 60Hz	1024x768@60Hz(For XGA model)		1366x768@60Hz
640 x 480 @ 67Hz	1280x1024 @ 60Hz	1280x800@60Hz(For WXGA model)		1920x1200 @ 60Hz(RB)
640 x 480 @ 72Hz	1600X1200@60Hz			
640 x 480 @ 75Hz			720 x 480p @ 60Hz 16:9	
800 x 600 @ 56Hz	640x480@120Hz		720 x 576p @ 50Hz 4:3	
800 x 600 @ 60Hz	800x600@120Hz		720 x 576p @ 50Hz 16:9	
800 x 600 @ 72Hz	1024x768@120Hz		1280 x 720p @ 60Hz 16:9	
800 x 600 @ 75Hz	1280x800@120Hz		1280 x 720p @ 50Hz 16:9	
832 x 624 @ 75Hz			1920 x 1080i @ 60Hz 16:9	
1024 x 768 @ 60Hz			1920 x 1080i @ 50Hz 16:9	
1024 x 768 @ 70Hz			1920 x 1080p @ 60Hz 16:9	
1024 x 768 @ 75Hz			1920 x 1080p @ 50Hz 16:9	
1280 x 1024 @ 75Hz			1920 x 1080p @ 24Hz 16:9	
			3840 x 2160 @ 24Hz	
			3840 x 2160 @ 25Hz	
			3840 x 2160 @ 30Hz	
			4096 x 2160 @ 24Hz	
Manufacturer's Timings:			3840 x 2160 @ 50Hz	
1152 x 870@ 75Hz			3840 x 2160 @ 60Hz	
			4096 x 2160 @ 50Hz	
			4096 x 2160 @ 60Hz	
			4096 x 2160 @ 25Hz	
			4096 x 2160 @ 30Hz	

(*) 1920x1080p@120Hz is over DDP442X-HV bandwidth, so TI won't guarantee the image quality for this timing.

TI Recommendations:

Without a viable work around, TI cannot support customer "Dual" Pixel inputs above 141 MHz (effective 282 MHz) with the DDP442xHV ASIC. The only recommendation TI has is for any high bandwidth video input, that would normally >141 MHz (dual pixel input), is to have it reduced in input clock speed by reducing the associated input source's blanking (Vertical and/or Horizontal). However, the blanking must still be above the minimum requirements of the ASIC. Removing blanking from the input source, other than reducing frame rate, would be the only way to reduce the high end input clocking to 141 MHz or lower.

ADDITIONAL INFORMATION

Digital (HDMI2 1.4)

Digital Native resolution: 1280x800@60Hz(WXGA); 1920x1080@60Hz(1080p); 1024x768@60Hz(XGA)

Established Timing	Standard Timing	Descriptor timing -B0 (Detail timing)	Support Video Mode	Descriptor timing -B1 (Detail timing)
720 x 400 @ 70Hz	1280 x 720 @ 60Hz	1920x1080@60Hz(For 1080p model)	640 x 480p @ 60Hz 4:03	1920 x 1080p @ 60Hz
640 x 480 @ 60Hz	1280 x 800 @ 60Hz	1024x768@60Hz(For XGA model)	720 x 480i @ 60Hz 16:9	1366x768@60Hz
640 x 480 @ 67Hz	1280x1024 @ 60Hz	1280x800@60Hz(For WXGA model)	720 x 480p @ 60Hz 4:3	1920x1080@120Hz(*)
640 x 480 @ 72Hz	1600X1200@60Hz		720 x 480p @ 60Hz 16:9	1920x1200@60Hz(RB)
640 x 480 @ 75Hz			720 x 576i @ 50Hz 16:9	
800 x 600 @ 56Hz	640x480@120Hz		720 x 576p @ 50Hz 4:3	
800 x 600 @ 60Hz	800x600@120Hz		720 x 576p @ 50Hz 16:9	
800 x 600 @ 72Hz	1024x768@120Hz		1280 x 720p @ 60Hz 16:9	
800 x 600 @ 75Hz	1280x800@120Hz		1280 x 720p @ 50Hz 16:9	
832 x 624 @ 75Hz			1920 x 1080i @ 60Hz 16:9	
1024 x 768 @ 60Hz			1920 x 1080i @ 50Hz 16:9	
1024 x 768 @ 70Hz			1920 x 1080p @ 60Hz 16:9	
1024 x 768 @ 75Hz			1920 x 1080p @ 50Hz 16:9	
1280 x 1024 @ 75Hz			1920 x 1080p @ 24Hz 16:9	
			3840 x 2160 @ 24Hz	
			3840 x 2160 @ 25Hz	
			3840 x 2160 @ 30Hz	
			4096 x 2160 @ 24Hz	
Manufacturer's Timings:				
1152 x 870@ 75Hz				

ADDITIONAL INFORMATION

True 3D video compatibility

		Input timing		
Input resolutions	HDMI 1.4a 3D Input	1280 x 720P @ 50Hz	Top-and-Bottom	
		1280 x 720P @ 60Hz	Top-and-Bottom	
		1280 x 720P @ 50Hz	Frame packing	
		1280 x 720P @ 60Hz	Frame packing	
		1920 x 1080i @ 50Hz	Side-by-Side(Half)	
		1920 x 1080i @ 60Hz	Side-by-Side(Half)	
		1920 x 1080P @ 24Hz	Top-and-Bottom	
		1920 x 1080P @ 24Hz	Frame packing	
	HDMI 1.3	1920 x 1080i @ 50Hz	Side-by-Side(Half)	SBS mode is on
		1920 x 1080i @ 60Hz		
		1280 x 720P @ 50Hz		
		1280 x 720P @ 60Hz		
		800 x 600 @ 60Hz		
		1024 x 768 @ 60Hz		
		1280 x 800 @ 60Hz		
		1920 x 1080i @ 50Hz	Top-and-Bottom	TAB mode is on
		1920 x 1080i @ 60Hz		
		1280 x 720P @ 50Hz		
		1280 x 720P @60Hz		
		800 x 600 @ 60Hz		
		1024 x 768 @ 60Hz		
		1280 x 800 @ 60Hz		
		480i	HQFS	3D format is Frame sequential

Note:

- *If 3D input is 1080p@24Hz, the DMD should replay with integral multiple with 3D mode.*
- *1080i@25Hz and 720p@50Hz will run in 100Hz; 1080p@24Hz will run in 144Hz; other 3D timing will run in 120Hz.*

ADDITIONAL INFORMATION

Image size and projection distance

WXGA

Diagonal Length Size of (16:9) Screen	Screen Size (W x H)				Projection Distance (D)				Offset (Hd)	
	(m)		(inch)		(m)		(feet)			
	Width	Height	Width	Height	Wide	Tele	Wide	Tele	(m)	(inch)
19.7	0.42	0.27	16.71	10.44	NA	1.0	NA	3.28	0.03	1.18
40	0.86	0.54	33.92	21.2	1.3	2.0	4.27	6.56	0.07	2.76
50	1.08	0.67	42.40	26.5	1.6	2.5	5.25	8.20	0.09	3.54
60	1.29	0.81	50.88	31.8	1.9	3.0	6.23	9.84	0.10	3.94
70	1.51	0.94	59.36	37.1	2.2	3.5	7.22	11.48	0.12	4.72
80	1.72	1.08	67.84	42.4	2.5	4.1	8.20	13.45	0.13	5.12
90	1.94	1.21	76.32	47.7	2.8	4.6	9.19	15.09	0.15	5.91
100	2.15	1.35	84.80	53	3.2	5.1	10.50	16.73	0.16	6.30
120	2.58	1.62	101.76	63.6	3.8	6.1	12.47	20.01	0.20	7.87
150	3.23	2.02	127.20	79.5	4.7	7.6	15.42	24.93	0.25	9.84
180	3.88	2.42	152.64	95.4	5.7	9.1	18.70	29.86	0.30	11.81
200	4.31	2.69	169.60	106	6.3	10.1	20.67	33.14	0.34	13.39
250	5.38	3.37	212.00	132.5	7.9	NA	25.92	NA	0.41	16.14
315.8	6.80	4.25	267.80	167.4	10.0	NA	32.81	NA	0.53	20.87

Note: *Zoom Ratio: 1.6x*

1080p

Diagonal Length Size of (16:9) Screen	Screen Size (W x H)				Projection Distance (D)				Offset (Hd)	
	(m)		(inch)		(m)		(feet)			
	Width	Height	Width	Height	Wide	Tele	Wide	Tele	(m)	(inch)
20.2	0.45	0.25	17.61	9.9	NA	1.0	NA	3.28	0.04	1.57
40	0.89	0.5	34.86	19.6	1.2	2.0	3.94	6.56	0.08	3.15
50	1.11	0.62	43.58	24.5	1.6	2.5	5.25	8.20	0.10	3.94
60	1.33	0.75	52.29	29.4	1.9	3.0	6.23	9.84	0.12	4.72
70	1.55	0.87	61.01	34.3	2.2	3.5	7.22	11.48	0.14	5.51
80	1.77	1	69.73	39.2	2.5	4.0	8.20	13.12	0.16	6.30
90	1.99	1.12	78.44	44.1	2.8	4.5	9.19	14.76	0.18	7.09
100	2.21	1.25	87.16	49	3.1	5.0	10.17	16.40	0.19	7.48
120	2.66	1.49	104.59	58.8	3.7	6.0	12.14	19.69	0.24	9.45
150	3.32	1.87	130.74	73.5	4.7	7.4	15.42	24.28	0.30	11.81
180	3.98	2.24	156.88	88.2	5.6	8.9	18.37	29.20	0.36	14.17
200	4.43	2.49	174.32	98.1	6.2	9.9	20.34	32.48	0.40	15.75
250	5.53	3.11	217.89	122.6	7.8	NA	25.59	NA	0.50	19.69
320.4	7.09	3.99	279.25	157.1	10.0	NA	32.81	NA	0.64	25.20

Note: *Zoom Ratio: 1.6x*

ADDITIONAL INFORMATION

Top View

Screen

Screen (W)

Projection Distance (D)

Diagonal

Height

Width

Side View

Screen

Screen (H)

Offset (Hd)

Projection Distance (D)
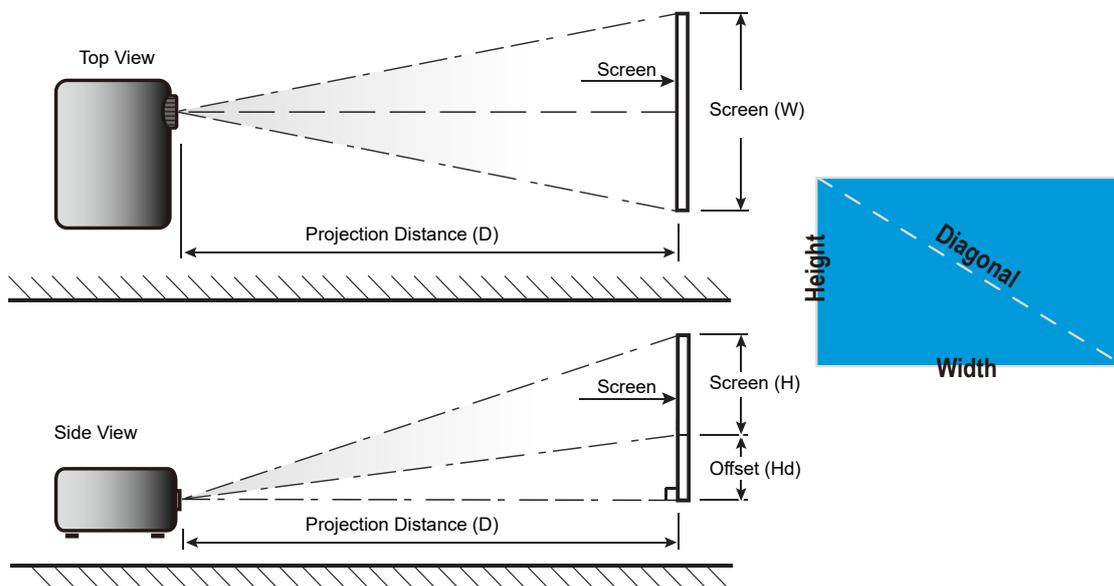
ADDITIONAL INFORMATION

Projector dimensions and ceiling mount installation

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*10
- Minimum screw length: 10mm
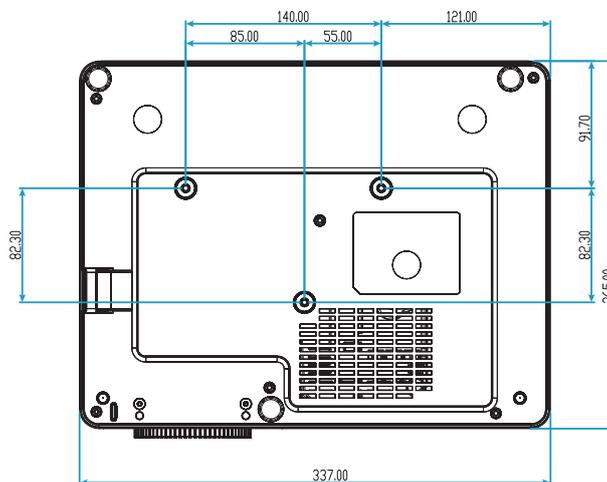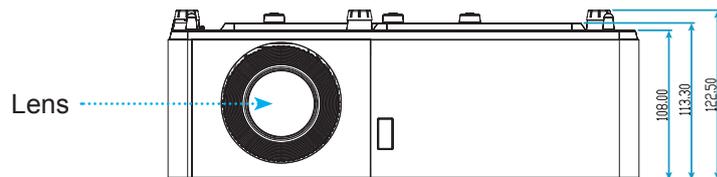
Unit: mm

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

Troubleshooting

If you experience a problem with your projector, please refer to the following information. If a 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 the pins of connectors are not crooked or broken.
- Ensure that the "Mute" feature is not turned on.

?   *Image is out of focus*

- Turn the focus ring/focus lever clockwise or counterclockwise until the image is sharp and legible. (Please see page *20)*.
- Make sure the projection screen is between the required distance from the projector. (Please refer to pages *45-46*).

?   *The image is stretched when displaying 16:9 DVD title*

- When you play anamorphic DVD or 16:9 DVD, the projector will show the best image in 16: 9 format on projector side.
- If you play the LBX format DVD title, please change the format as LBX in projector OSD.
- If you play 4:3 format DVD title, please change the format as 4:3 in projector OSD.
- Please setup the display format as 16:9 (wide) aspect ratio type 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 *20)*.
- Move the projector closer to or further from the screen.
- Press "Menu" on the projector panel, 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 "Setup → Projection" 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 7 m (22 ft) of the projector.
- Make sure batteries are inserted correctly.
- Replace batteries if they are exhausted.

ADDITIONAL INFORMATION

Warning indicators

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

- • "Light" LED indicator is lit red and if "Power" indicator flashes red.
- • "Temp" LED indicator is lit red and if "Power" indicator flashes red. This indicates the projector has overheated. Under normal conditions, the projector can be switched back on.
- • "Temp" LED indicator flashes red and if "Power" indicator flashes red.

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

LED lightning messages

Message	Power LED		Temp LED	Light LED
	(Red)	(Blue)	(Red)	(Red)
Standby state (Input power cord)	Steady light			
Power on (Warming)		Flashing (0.5 sec off / 0.5 sec on)		
Power on and Light lighting		Steady light		
Power off (Cooling)		Flashing (0.5 sec off / 0.5 sec on). Back to red steady light when cooling fan turns off.		
Error (Light failure)	Flashing			Steady light
Error (Fan failure)	Flashing		Flashing	
Error (Over temp.)	Flashing		Steady light	

- • Power off:

Power Off

Power Off?
Press power key again.

- • Temperature warning:

Warning

TEMPERATURE TOO HIGH

Please:
1. Make sure air in and outlets are not blocked.
2. Make sure the environment temperature is under 40 degree C.

If the problem persists in spite of the above.
Please contact a service center for repair.
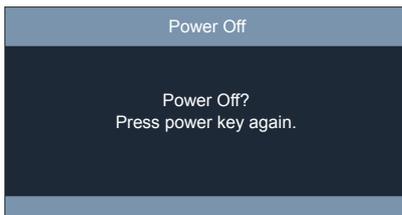
ADDITIONAL INFORMATION

Specifications

Optical	Description
Maximum resolution	1080p
Native resolution	• 1080p • WXGA
Lens	Manual zoom and manual focus
Image size (diagonal)	• WXGA: 19.7" ~ 315.8" (optimized@60") • 1080p: 20.2" ~ 320.4" (optimized@60")
Projection distance	• WXGA: 1.0m to 10m (optimized@1.87m) • 1080p: 1.0m to 10m (optimized@1.87m)

Electrical	Description
Inputs	• HDMI 1.4a • HDMI 2.0b • VGA In • Video (RCA connector (Y)) • Audio In 3.5mm • USB Type-A for power USB 5V/1.5A
Outputs	Audio Out 3.5mm
Control	• Micro USB • RS232
Color reproduction	1073.4 Million color
Scan rate	• Horizontal scan rate: 15.375~91.146 KHz • Vertical scan rate: 50~85 Hz (120Hz for 3D feature projector)
Built-in speaker	Yes, 10W
Power requirement	100 - 240V ±10%, AC 50/60Hz
Input current	3.0A

Mechanical	Description
Installation orientation	Front, Rear, Ceiling, Rear-top
Dimensions	• 337mm (W) x 265mm (D) x 108mm (H) (without feet) • 337mm (W) x 265mm (D) x 122.5mm(H) (with feet)
Weight	4.4±0.5kg
Environmental conditions	• Operating in 5~40°C , 10% to 85% humidity (non-condensing) • Non-operating in -10~60°C, 90%RH (Max.), non-condensing

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

ADDITIONAL INFORMATION

PC control codes and cable connection

PC control codes

Function	Code Data							
POWER ON	02H	00H	00H	00H	00H	02H		
POWER OFF	02H	01H	00H	00H	00H	03H		
INPUT SELECT COMPUTER	02H	03H	00H	00H	02H	01H	01H	09H
INPUT SELECT HDMI 1	02H	03H	00H	00H	02H	01H	A1H	A9H
INPUT SELECT HDMI 2	02H	03H	00H	00H	02H	01H	A2H	AAH
INPUT SELECT VIDEO	02H	03H	00H	00H	02H	01H	06H	0EH
PICTURE MUTE ON	02H	10H	00H	00H	00H	12H		
PICTURE MUTE OFF	02H	11H	00H	00H	00H	13H		
SOUND MUTE ON	02H	12H	00H	00H	00H	14H		
SOUND MUTE OFF	02H	13H	00H	00H	00H	15H		

**Note:** *Contact your local dealer for a full list of the PC Control Codes if needed.*

Cable connection

Communication Protocol

Baud rate...38400 bps
Data length...8 bits
Parity ....No parity
Stop bit..One bit
X on/off..None
Communications procedure...................Full duplex

PC control connector (D-SUB 9P)
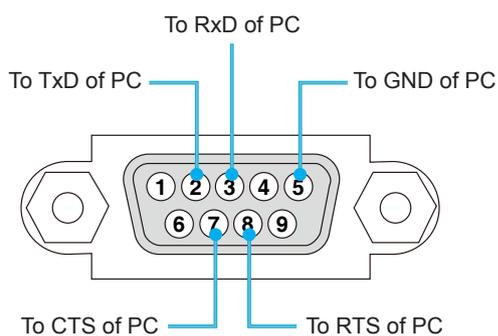
Note:

- *Pins 1, 4, 6, and 9 are no used.*
- *Jumper "Request to Send" and "Clear to Send" together on both ends of the cable to simplify cable connection.*