

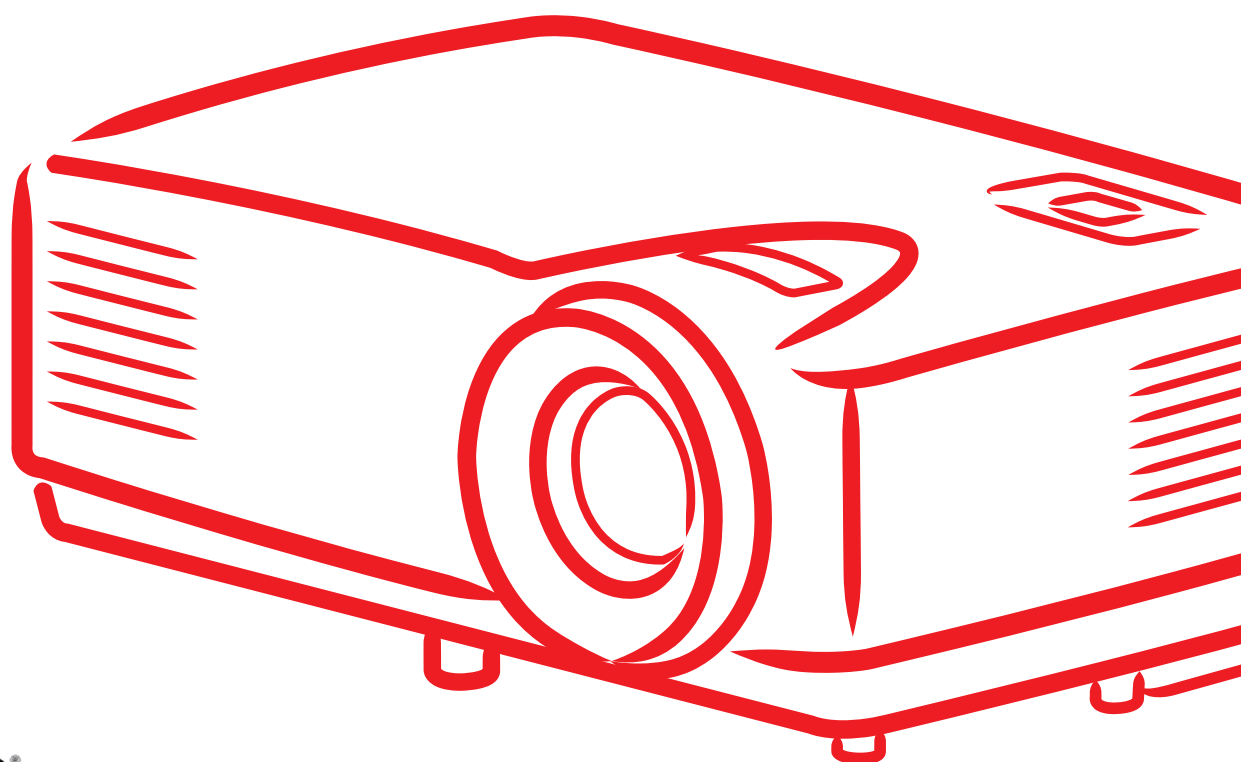


Own your audience.

User's Manual

PCL-DF320XT

**DLP
SHORT
THROW
PROJECTOR**



FCC Notice

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 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, detectable by turning the equipment in question 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 distance between the equipment and the receiver
- Connect the equipment to an outlet on a different circuit than that which the receiver is connected to
- Or consult the dealer or an experienced radio/TV technician for help.

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

1. This device may not cause harmful interference, and
2. This device must accept any interference that may cause undesired operation.

Safety Instructions

Read all of these instructions before you operate your projector and save for future reference.

1. Read instructions
All the safety and operating instructions should be read before the appliance is operated.

2. Notes and warnings
All notes and warnings in the operating instructions should be adhered to.

3. Cleaning
Unplug the projector from the wall socket before cleaning. Use a damp cloth for cleaning the projector housing. Do not use liquid or aerosol cleaners.

4. Accessories
Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
Keep the plastic packing materials (from the projector, accessories and optional parts) out of the reach of children as these bags may result in death by suffocation. Be particularly careful around the small children.

5. Ventilation
The projector is equipped with ventilation holes (intake) and ventilation holes (exhaust). Do not block or place anything near these slots, or internal heat build-up may occur, causing picture degradation or damage to the projector.

6. Power sources
Check that the operating voltage of your unit is identical with the voltage of your local power supply.

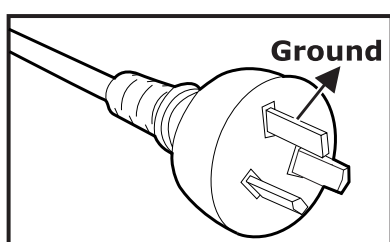
7. Servicing
Do not attempt to service this projector yourself. Refer all servicing to qualified service personnel.

8. Replacement parts
When replacement parts are required, be sure that the replacement parts are specified by the manufacture. Unauthorized substitutions may result in fire, electric shock or other hazards.

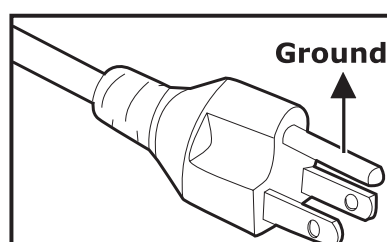
9. Moisture Condensation
Never operate this projector immediately after moving it from a cold location to a warm one. When the projector is exposed to such a change in temperature, moisture may condense on the lens and the crucial internal parts. To prevent the unit from possible damage, do not use the projector for at least 2 hours when there is an extreme or sudden change in temperature.

Notes on the AC Power Cord

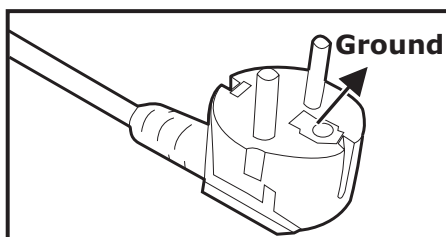
AC Power Cord must meet the requirement of countries where you use this projector. Please confirm your AC plug type with the graphics below and ensure that the proper AC Power Cord is used. If the supplied AC Power Cord does not match your AC outlet, please contact your sales dealer. This projector is equipped with a grounding type AC line plug. Please ensure that your outlet fits the plug. Do not defeat the safety purpose of this grounding type plug. We highly recommend using a video source device also equipped with a grounding type AC line plug to prevent signal interference due to voltage fluctuations.



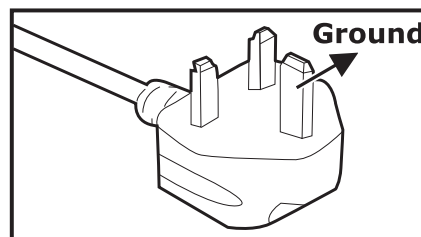
For Australia and
Mainland China



For the U.S.A. and Canada



For Continental Europe



For the U.K.

CONTENTS

Introduction	5
Projector Features	5
Projector Overview	6
Using the Product	8
Control Panel	8
Connection Ports	9
Remote Control	10
Installing the Batteries	11
Remote Control Operation	12
Connection	13
Connecting a computer or monitor	14
Connecting Video source devices	15
Operation	18
Powering On/Off the Projector	18
Adjusting the Projector Height	19
Adjusting the Projector Focus	19
Adjusting Projection Image Size	20
Menu Operation	21
Maintenance	25
Cleaning the Lens	25
Cleaning the Projector Housing	25
Replacing the Lamp	26
Specifications	28
Dimensions	30
Ceiling mount installation	30
Appendix	31
LED Indicator Messages	31
Compatibility Modes	32
Troubleshooting	34
RS-232 Command and Configuration	35

Introduction

Projector Features

The projector integrates high-performance optical engine projection and a user - friendly design to deliver high reliability and ease of use.

The projector offers the following features:

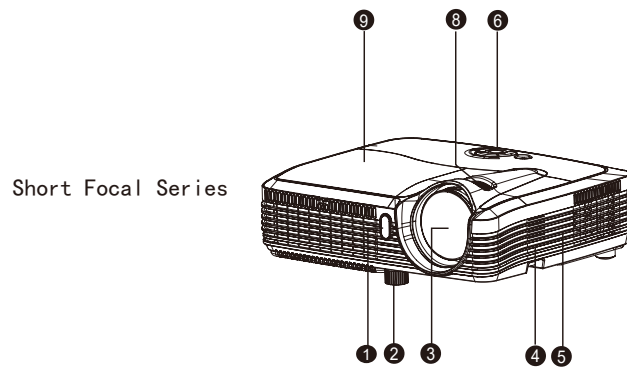
- Single chip 0.55" Texas Instruments DLP® technology
- XGA (1024 x 768 pixels) (For short focal series)
- Compatibility with Macintosh® computers
- Compatibility with NTSC, PAL, SECAM and HDTV
- D-Sub 15-pin terminal for analog video connectivity
- User-friendly, multi-language on-screen display
- Advanced electronic keystone correction
- RS-232 connector for serial control
- Less than 1 W power consumption in green mode
- Compatibility with HDMI(For short focal series)



- *The information in this manual is subject to change without notices.*
- *The reproduction, transfer or copy of all or any part of this document is not permitted without express written consent.*

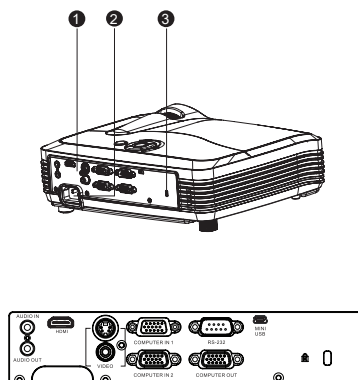
Projector Overview

Front View



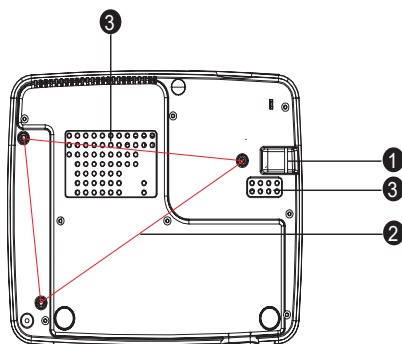
- | | |
|----------------------------------|---------------------|
| ① Front IR remote control sensor | ⑥ Control panel |
| ② Elevator foot | ⑦ Focus ring |
| ③ Projection lens | ⑧ Tuning focal ring |
| ④ Speaker | ⑨ Lamp cover |
| ⑤ Ventilation holes | |

Rear View



- ❶ Connection ports
- ❷ AC power socket
- ❸ Kensington lock

Bottom View



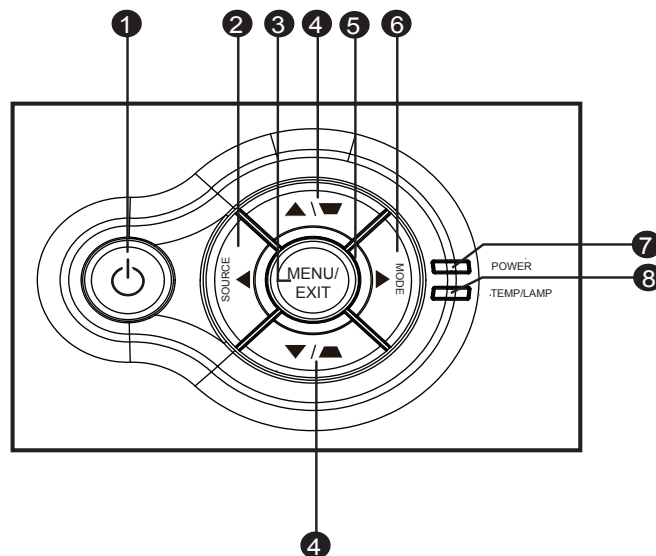
- ❶ Security bar
- ❷ Ceiling mount holes
- ❸ Ventilation holes



- This projector can be used with a ceiling mount for support. The ceiling mount is not included in the package.
- Contact your dealer for information to mount the projector on a ceiling.

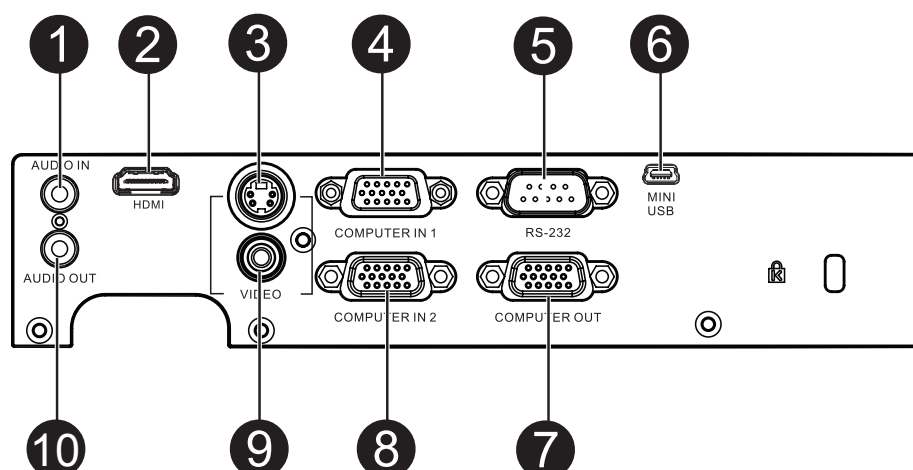
Using the Product

Control Panel



- 1 Power**
Turn the projector on or off.
- 2 Source**
Display the source selection bar.
- 3 Menu/Exit**
Display or exit the on-screen display menus.
- 4 Keystone/Arrow keys (▲/Up, ▼/Down)**
Manually correct distorted images resulting from an angled projection.
- 5 Four directional buttons**
Use four directional buttons to select items or make adjustments to your selection.
- 6 Mode**
Change the color mode setting by sequence.
- 7 Power** (Power LED indicator)
Refer to “LED Indicator Messages”.
- 8 (Temp/Lamp)** (Temp/Lamp LED indicator)
Refer to “LED Indicator Messages”.

Connection Ports



1 AUDIO IN

Connect an audio output from video equipment or computer to this jack.

2 HDMI(For Telephoto 2 and Short focal series)

Connect HDMI output from video equipment to this jack.

3 S-VIDEO

Connect S-Video output from video equipment to this jack.

4 COMPUTER IN 1

Connect image input signal (analog RGB or component) to this jack.

5 RS-232

When operating the projector via a computer, connect this to the controlling computer's RS-232C port.

6 MINI USB

This connector is for firmware update and mouse function support.

7 COMPUTER OUT

Connect to a computer display, etc.

8 COMPUTER IN 2

Connect image input signal (analog RGB or component) to this jack.

9 VIDEO

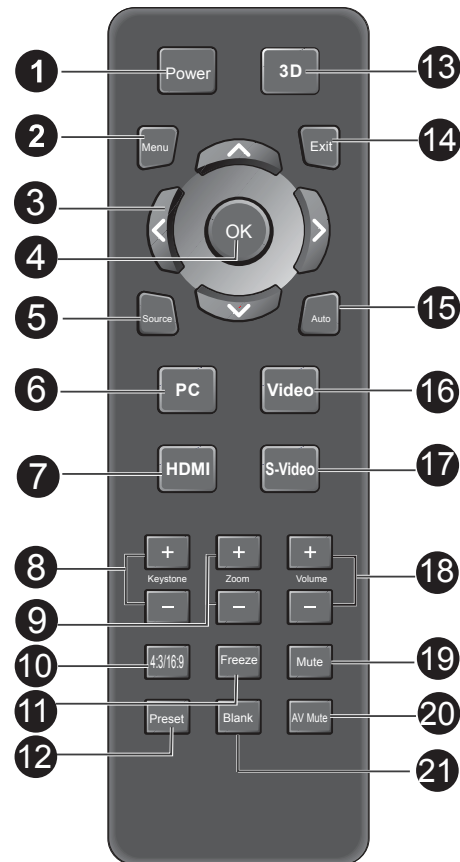
Connect composite video output from video equipment to this jack.

10 AUDIO OUT

Connect to a speaker or other audio input equipment.

Remote Control

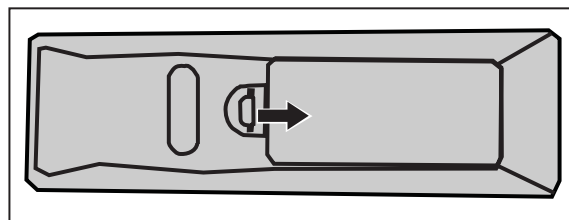
- ❶ **Power**
Turn the projector on or off.
- ❷ **Menu**
Display on-screen display menus.
- ❸ **Arrow keys** ▲ / ▼ / ◀ / ▶
Use directional arrows to select the desired menu items and to make adjustments.
- ❹ **Enter**
Confirmed selections.
- ❺ **Source**
Display the source selection bar.
- ❻ **PC**
Switch to PC input source.
- ❼ **HDMI**
Switch to HDMI input source.
- ❽ **Keystone +/-**
Manually correct distorted images resulting from an angled projection.
- ❾ **Magnify +/-**
Magnifies or reduces the projected picture size.
- ❿ **4:3/16:9**
Press this button to switch the image aspect ratio from 4:3 to 16:9.
- ⓫ **Freeze**
Press "Freeze" to pause the screen image. Press again to cancel the Freeze function.
- ⓬ **Preset**
Change the color mode setting by sequence.
- ⓭ **3D**
Turn on/off 3D function.
- ⓮ **Exit**
Goes back to previous OSD menu.
- ⓯ **Auto**
Automatically determines the best picture timings for the displayed image.



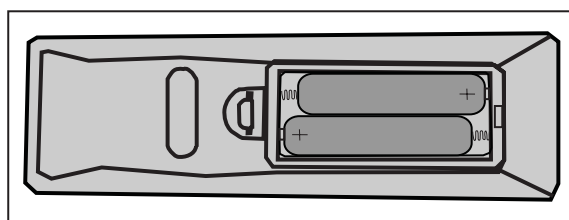
- ⓯ **Video**
Switch to Video input source.
- ⓰ **S-Video**
Switch to S-Video input source.
- ⓱ **Volume**
Adjust the volume level.
- ⓲ **Mute**
Cut off the sound temporarily.
- ⓳ **AV Mute**
Cut off the AV Mute temporarily. Only pressing AV Mute again can output sound and image. If any other buttons are pressed, the projection image will become abnormal and no sound will be output.
- ⓴ **Blank**
Hide the screen picture.

Installing the Batteries

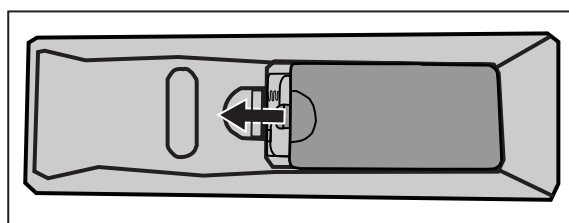
1. Open the battery cover in the direction shown.



2. Install batteries as indicated by the diagram inside the compartment.



3. Close the battery cover into position.



Caution

- Risk of explosion if battery is replaced by an incorrect type.
- Dispose of used batteries according to the instructions.
- Make sure the plus and minus terminals are correctly aligned when loading a battery.

NOTE

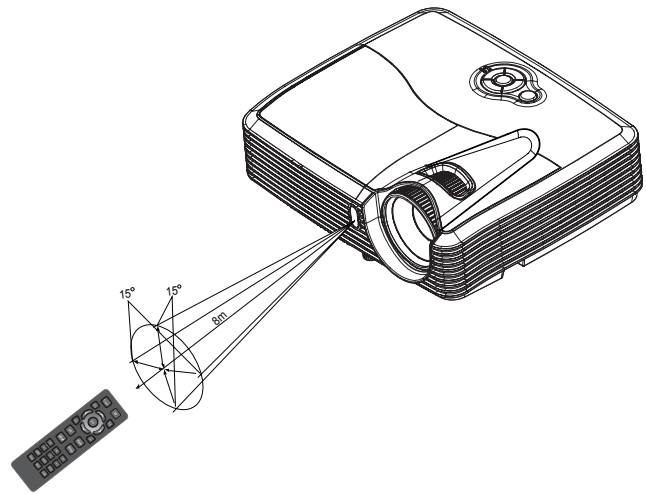


- Keep the batteries out of the reach of children. There is a danger of death by accidentally swallowing the batteries.
- Remove batteries from remote control when not using for extended periods.
- Do not dispose of the used batteries along with household waste. Dispose of used batteries according to local regulations.
- Danger of explosion may happen if batteries are incorrectly replaced. Replace all the batteries with new ones.
- Batteries should not be in or near to fire or water, keep batteries in a dark, cool and dry place.
- If suspect battery leakage, wipe out the leakage and then replace new batteries. If the leakage adheres to your body or clothes, rinse well with water immediately.

Remote Control Operation

Point the remote control at the infrared remote sensor and press a button.

- Operating the projector from the front

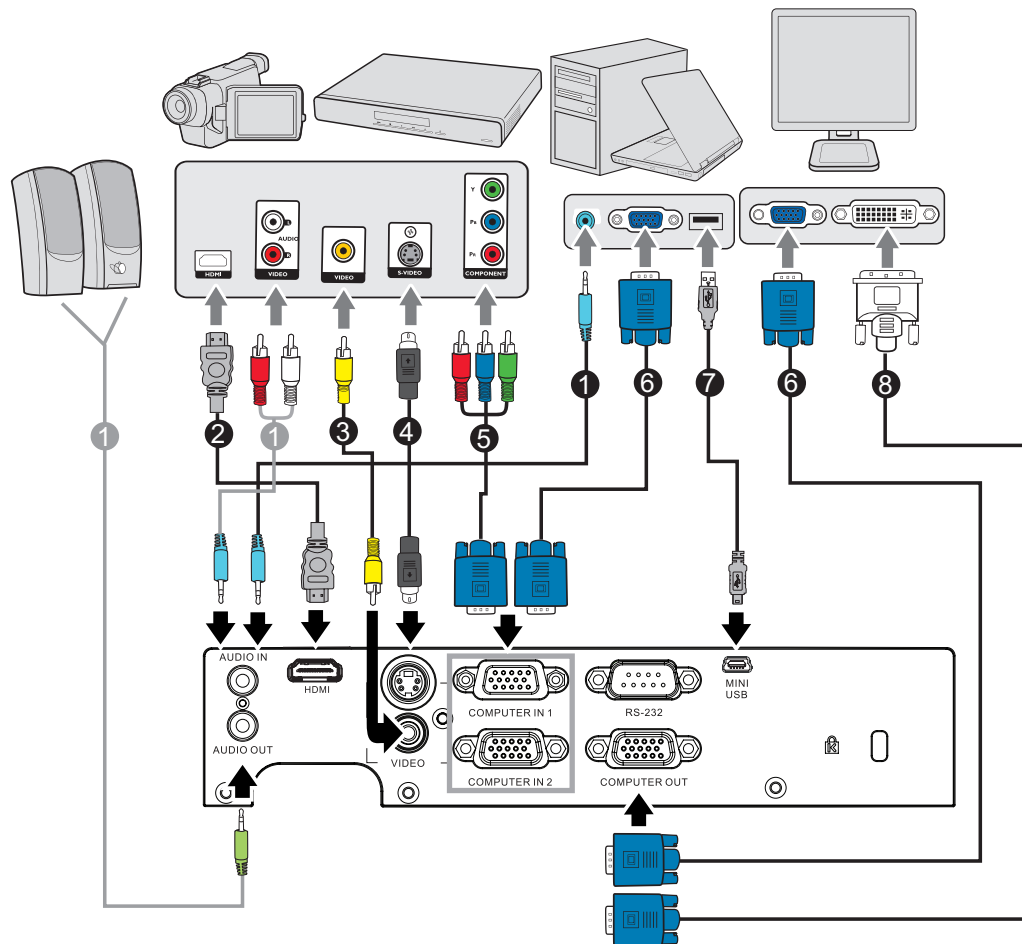


- *The remote control may not operate when there is sunlight or other strong light such as a fluorescent lamp shining on the remote sensor.*
- *Operate the remote control from a position where the remote sensor is visible.*
- *Do not drop the remote control or jolt it.*
- *Keep the remote control out of locations with excessively high temperature or humidity.*
- *Do not get water on the remote control or place wet objects on it.*
- *Do not disassemble the remote control.*

Connection

When connecting a signal source to the projector, be sure to:

1. Turn all equipment off before making any connections.
2. Use the correct signal cables for each source.
3. Ensure the cables are firmly inserted.



① Audio cable	⑤ VGA (D-Sub) to HDTV (RCA) cable
② HDMI cable	⑥ VGA cable (D-Sub to D-Sub)
③ Composite Video cable	⑦ USB cable
④ S-Video cable	⑧ VGA to DVI-A cable



Important

- In the connections shown above, some cables may not be included with the projector (see "Packing list"). They are commercially available from electronics stores.
- The connection illustrations above are for reference only. The rear connecting jacks available on the projector vary with each projector model.
- For detailed connection methods, see pages [14-17](#).

Connecting a computer or monitor

Connecting a computer

The projector provides two VGA input sockets that allow you to connect them to both IBM® compatibles and Macintosh® computers. A Mac adapter is needed if you are connecting legacy version Macintosh computers.

To connect the projector to a notebook or desktop computer:

1. Take the supplied VGA cable and connect one end to the D-Sub output socket of the computer.
2. Connect the other end of the VGA cable to the **COMPUTER IN 1** or **COMPUTER IN 2** signal input socket on the projector.



Important

■ Many notebooks do not turn on their external video ports when connected to a projector. Usually a key combo like FN + F3 or CRT/LCD key turns the external display on/off. Locate a function key labeled CRT/LCD or a function key with a monitor symbol on the notebook. Press FN and the labeled function key simultaneously. Refer to your notebook's documentation to find your notebook's key combination.

Connecting a monitor

If you want to view your presentation close-up on a monitor as well as on the screen, you can connect the **COMPUTER OUT** signal output socket on the projector to an external monitor with a VGA cable following the instructions below:

To connect the projector to a monitor:

1. Connect the projector to a computer as described in [“Connecting a computer” on page 14](#).
2. Take a suitable VGA cable (only one supplied) and connect one end of the cable to the D-Sub input socket of the video monitor.
Or if your monitor is equipped with a DVI input socket, take a VGA to DVI-A cable and connect the DVI end of the cable to the DVI input socket of the video monitor.
3. Connect the other end of the cable to the **COMPUTER OUT** socket on the projector.



Important

■ The **COMPUTER OUT** output only works when **COMPUTER IN 1** or **COMPUTER IN 2** is made to the projector.

Connecting Video source devices

You can connect your projector to various Video source devices that provide any one of the following output sockets:

- Component Video
- S-Video
- Video (composite)

You need only connect the projector to a Video source device using just one of the above connecting methods, however each provides a different level of video quality. The method you choose will most likely depend upon the availability of matching terminals on both the projector and the Video source device as described below:

Best video quality

The best available video connection method is Component Video (not to be confused with composite Video). Digital TV tuner and DVD players output Component Video natively, so if available on your devices, this should be your connection method of choice in preference to (composite) Video.

See [“Connecting a Component Video source device” on page 16](#) for how to connect the projector to a component video device.

Better video quality

The S-Video method provides a better quality analog video than standard composite Video. If you have both composite Video and S-Video output terminals on your Video source device, you should elect to use the S-Video option.

See [“Connecting an S-Video source device” on page 16](#) for how to connect the projector to an S-Video device.

Least video quality

Composite Video is an analog video and will result in a perfectly acceptable, but less than optimal result from your projector, being the least video quality of the available methods described here.

See [“Connecting a composite Video source device” on page 17](#) for how to connect the projector to a composite Video device.

Connecting a Component Video source device

Examine your Video source device to determine if it has a set of unused Component Video output sockets available:

- If so, you can continue with this procedure.
- If not, you will need to reassess which method you can use to connect to the device.

To connect the projector to a Component Video source device:

1. Take a VGA (D-Sub) to HDTV (RCA) cable and connect the end with 3 RCA type connectors to the Component Video output sockets of the Video source device. Match the color of the plugs to the color of the sockets; green to green, blue to blue, and red to red.
2. Connect the other end of the cable (with a D-Sub type connector) to the **COMPUTER IN 1** or **COMPUTER IN 2** socket on the projector.



Important

- If the selected video image is not displayed after the projector is turned on and the correct video source has been selected, check that the Video source device is turned on and operating correctly. Also check that the signal cables have been connected correctly.

Connecting an S-Video source device

Examine your Video source device to determine if it has an unused S-Video output socket available:

- If so, you can continue with this procedure.
- If not, you will need to reassess which method you can use to connect to the device.

To connect the projector to an S-Video source device:

1. Take an S-Video cable and connect one end to the S-Video output socket of the Video source device.
2. Connect the other end of the S-Video cable to the **S-VIDEO** socket on the projector.



Important

- If the selected video image is not displayed after the projector is turned on and the correct video source has been selected, check that the Video source device is turned on and operating correctly. Also check that the signal cables have been connected correctly.
- If you have already made a Component Video connection between the projector and this S-Video source device using Component Video connections, you need not connect to this device using an S-Video connection as this makes an unnecessary second connection of poorer picture quality. See [“Connecting Video source devices” on page 15](#) for details.

Connecting a composite Video source device

Examine your Video source device to determine if it has a set of unused composite Video output sockets available:

- If so, you can continue with this procedure.
- If not, you will need to reassess which method you can use to connect to the device.

To connect the projector to a composite Video source device:

1. Take a Video cable and connect one end to the composite Video output socket of the Video source device.
2. Connect the other end of the Video cable to the **VIDEO** socket on the projector.



Important

- If the selected video image is not displayed after the projector is turned on and the correct video source has been selected, check that the Video source device is turned on and operating correctly. Also check that the signal cables have been connected correctly.
- You need only connect to this device using a composite Video connection if Component Video and S-Video inputs are unavailable for use. See [“Connecting Video source devices” on page 15](#) for details.

Operation

Powering On/Off the Projector

Powering On the Projector:

1. Complete the AC power cord and peripheral signal cable(s) connections.
2. Press  to turn on the projector.
The projector takes a minute or so to warm up.
3. Turn on your source (computer, notebook, DVD, etc.). The projector automatically detects your source.
 - If you are connecting multiple sources to the projector simultaneously, press **SOURCE** on the projector or **Source** on the remote control to select your desired signal or press your desired signal key on the remote control.



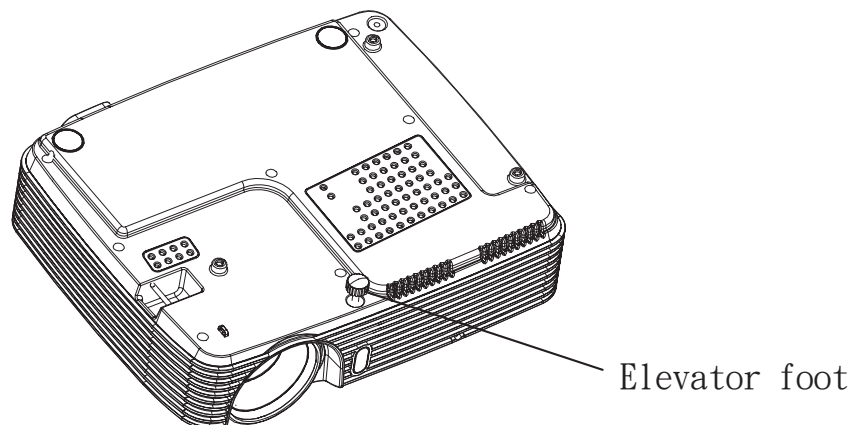
Warning

- Never look into the lens when the lamp is on. This can damage your eyes.
- This focal point concentrates high temperature. Do not place any object near it to avoid possible fire hazard.

Powering Off the Projector:

1. Press  to turn off the projector lamp. You will see a message "Power off? Press Power again" appear on the screen.
2. Press  again to confirm.
 - The cooling fans continue to operate for cooling cycle.
 - When the Power LED becomes steady blue and the projector has entered stand-by mode.
 - If you want to turn the projector back on, you must wait until the projector has completed the cooling cycle and has entered stand-by mode. Once in stand-by mode, simply press  to restart the projector.
3. Disconnect the AC power cord from the electrical outlet and the projector.
4. Do not turn on the projector right after power off.

Adjusting the Projector Height

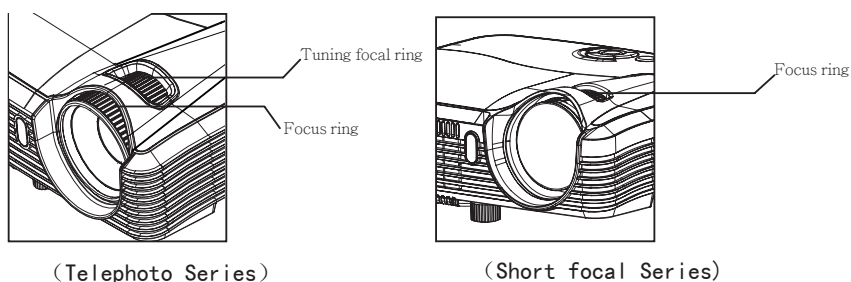


The projector is equipped with an elevator foot to adjust the image height. To raise or lower the image, turn the elevator foot to fine-tune the height. To level the image on the screen, turn the tilt-adjustment foot to fine-tune the height.

NOTE

- To avoid damaging the projector, make sure that the elevator foot is fully retracted before placing the projector in its carrying case.

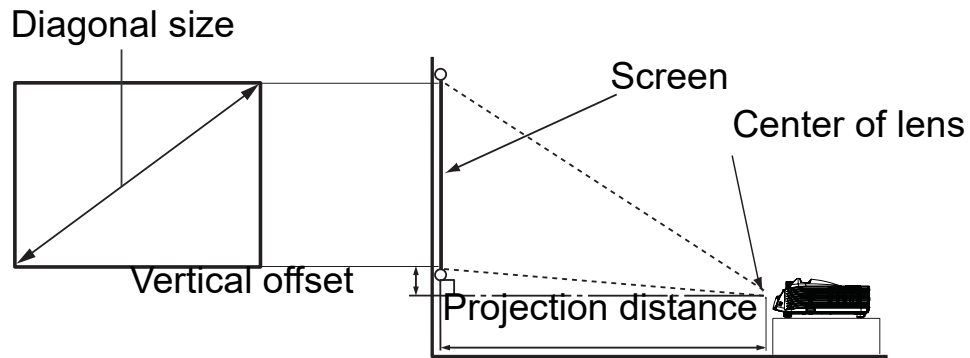
Adjusting the Projector Focus



1. Focus the image by rotating the focus ring. A still image is recommended for focusing.
2. Turn the tuning focal ring to adjust the image size.

Adjusting Projection Image Size

Refer to the graphic and table below to determine the screen size and projection distance.



Short Focal Series

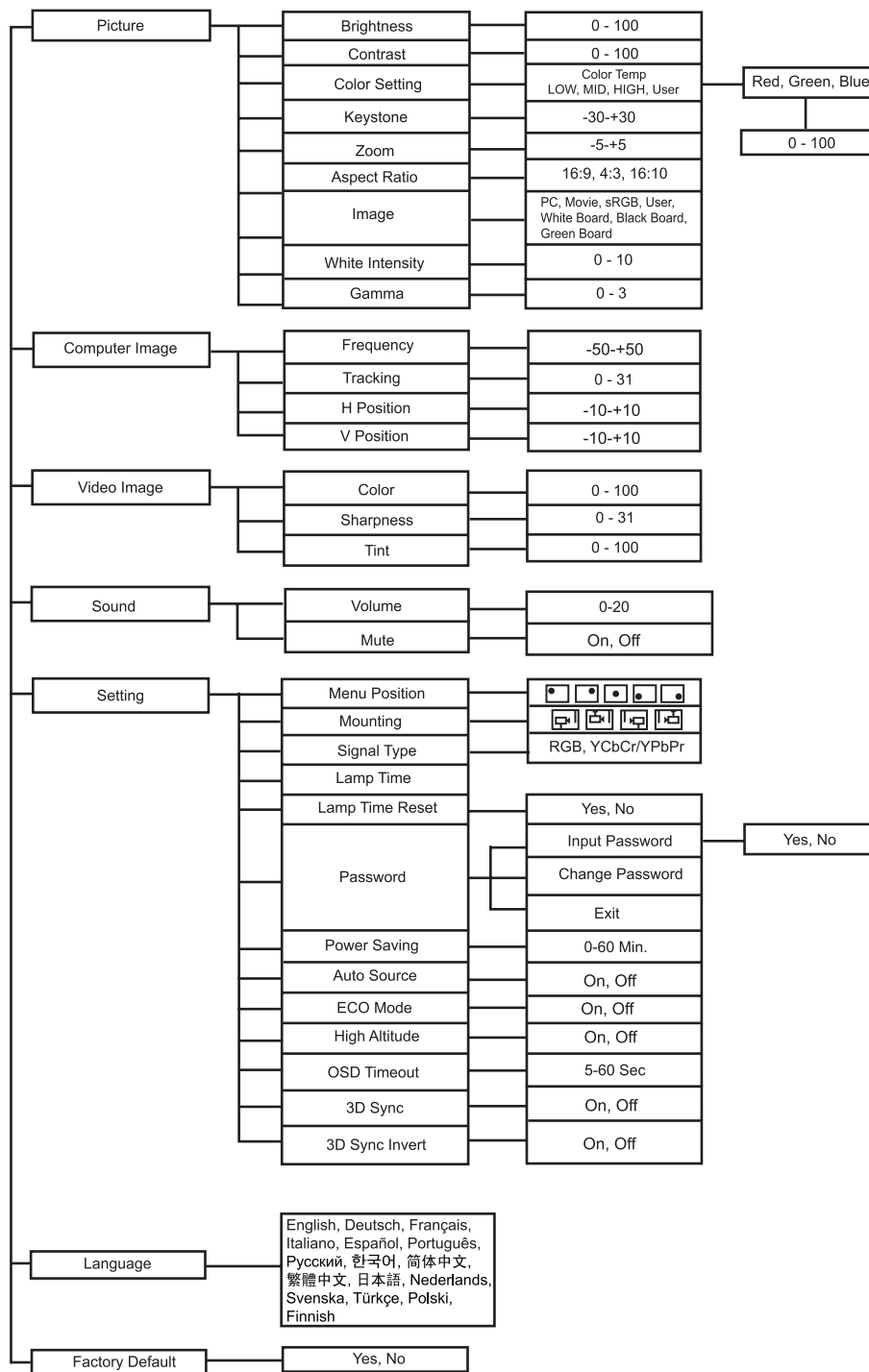
Screen size Diagonal [inch (cm)]	4 : 3 Screen		
	Projection distance [inch (m)]	Image height [inch (cm)]	Vertical offset [inch (cm)]
30 (76)	14 (0.4)	18 (46)	1.4 (3)
60 (152)	29 (0.8)	36 (91)	2.7 (7)
80 (203)	39 (1.0)	48 (122)	3.6 (9)
100 (254)	49 (1.3)	60 (152)	4.5 (11)
150 (381)	75 (1.9)	90 (229)	6.8 (17)
200 (508)	100 (2.5)	120 (305)	9.0 (23)
250 (635)	125 (3.2)	150 (381)	11.3 (29)
300 (762)	150 (3.8)	180 (457)	13.5 (34)



- Position the projector in a horizontal position; other positions can cause heat build-up and damage to the projector.
- Keep a space of 30 cm or more between the sides of the projector.
- Do not use the projector in a smoky environment. Smoke residue may build-up on critical parts and damage the projector or its performance.
- Consult with your dealer for special installation such as suspending from a ceiling.

Menu Operation

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



How to operate

1. Press the **Menu** button to open the OSD menu.
2. When OSD is displayed, use ▲ / ▼ to select any feature in the main menu.
3. After selecting the desired main menu item, press ► to enter sub-menu for feature setting.
4. Use ▲ / ▼ to select the desired item and adjust the settings with ◀ / ▶.
5. Press the **Menu** button, the screen will return to the main menu.
6. To exit OSD, Press the **Menu** button again. The OSD menu will close and the projector will automatically save the new settings.

Picture (Computer / Video Mode)

Brightness

Brighten or darken the image.

Contrast

Set the difference between light and dark areas.

Color Setting

Adjust the color temperature. At higher temperature the screen looks colder; at lower temperature, the screen looks warmer. If you select "User", then you can change the intensity of each of 3 color (Red, Green, Blue) to customize user color temperature.

Keystone

Manually correct distorted images resulting from an angled projection.

Zoom

Zoom in and out the images.

Aspect Ratio

Select how the picture fits on the screen:

- 16:9 : The input source will be scaled to fit the width of the screen.
- 4:3 : The input source will be scaled to fit the projection screen.
- 16:10: The input source will be scaled to fit the projection screen.

Image

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

- PC : For computer or notebook.
- Movie : For home theater.
- sRGB : For PC standard color.
- User : Memorize user's settings.
- White Board : For white projection screen type.
- Black Board : For black projection screen type.
- Green Board: For green projection screen type.

White Intensity

Increase the brightness of white areas.

Gamma

Effect the represent of dark scenery. With greater gamma value, dark scenery will look brighter.

Computer Image (Computer Mode)

Frequency

Adjust the timing of the projector relative to the computer.

Tracking

Adjust the phase of the projector relative to the computer.

H Position (Horizontal Position)

Adjust the image left or right within the projection area.

V Position (Vertical Position)

Adjust the image up or down within the projection area.

Video Image (Video Mode)

Color

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

Sharpness

Sharpen or soften the image.

Tint

Shift colors toward red or green.

Sound (Computer / Video Mode)

Volume

Adjust the volume level.

Mute

Cut off the sound temporarily.

Setting (Computer / Video Mode)

Menu Position

Choose the menu location on the display screen.

Mounting

Adjust the picture to match the orientation of the projector: upright or upside-down, in front of or behind the screen. Invert or reverse the image accordingly.

Signal Type

Specify the source to the COMPUTER IN 1/COMPUTER IN 2 terminal that you wish to project.

■ RGB : For VGA signal

■ YCbCr/YPbPr:For component signal

Lamp Time

Display the lamp's elapsed operating time (in hours).

Lamp Time Reset

Reset the lamp Hour to 0 hours.

Password

Set or change the password. When the password function is added, image projection will require to input the preset password when turning on the projector.

Power Saving

If no input signal and no operation are performed for a specific period of time, projector will automatically turn off. When Power Saving is set to "0", projector will not automatically turn off.

Auto Source

Automatically scan through all the input source.

ECO Mode

Use this function to dim the projector lamp light output which will lower power consumption and increase lamp life.

High Altitude

Use this function to allow the fans operates at full speed continuously to achieve proper high altitude cooling of the projector.

OSD Timeout

Duration of OSD menu display countly starts (at idle state by second).

3D Sync

■ On: Enable 3D Sync function.

■ Off: Disable 3D Sync function.

When 3D Sync is set to "On", the settings for input source or broadcast device are required as below:

1. For S-VIDEO and VIDEO input source, signal type should be NTSC (60).
2. For computer input source, the hardware and software requirements should be Windows 7 operating system, 3D videos and professional 3D video player softwares. Computer's output frequency should be 120Hz and display card should be higher than NVIDIA 9800.

3D Sync Invert

■ On: Invert left and right frame contents.

■ Off: Default frame contents.

Language (Computer / Video Mode)

Select the language used by the on-screen menu.

Factory Default (Computer / Video Mode)

Restore settings to factory default.

Maintenance

The projector needs proper maintenance. You should keep the lens clean as dust, dirt or spots will project on the screen and diminish image quality. If any other parts need replacing, contact your dealer or qualified service personnel. When cleaning any part of the projector, always switch off and unplug the projector first.



Warning

Never open any of the covers on the projector. Dangerous electrical voltages inside the projector can cause severe injury. Do not attempt to service this product yourself. Refer all servicing to qualified service personnel.

Cleaning the Lens

Gently wipe the lens with lens cleaning paper. Do not touch the lens with your hands.

Cleaning the Projector Housing

Gently wipe with a soft cloth. If dirt and stains are not easily removed, use a soft cloth dampened with water, or water and neutral detergent, and wipe dry with a soft, dry cloth.



- *Turn off the projector and remove the AC power cord from the power outlet before beginning maintenance work.*
- *Make sure the lens is cool before cleaning.*
- *Do not use detergents or chemicals other than those noted above. Do not use benzene or thinners.*
- *Do not use chemical sprays.*
- *Use a soft cloth or lens paper only.*

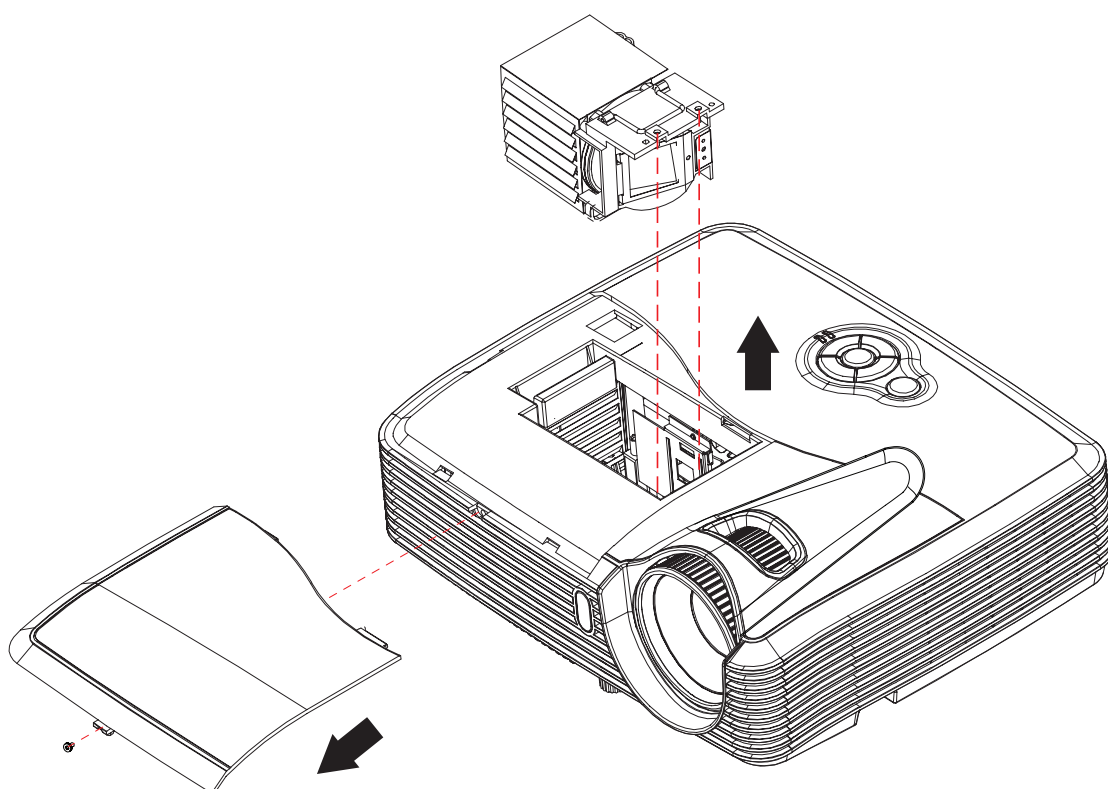
Replacing the Lamp

As the projector operates over time, the brightness of the projector lamp gradually decreases and the lamp becomes more susceptible to breakage. We recommend replacing the lamp if a warning message is displayed. Do not attempt to replace the lamp yourself. Contact the qualified service personnel for replacement.



- *The lamp is extremely hot right after turning off the projector. If you touch the lamp, you may scald your finger. When you replace the lamp, wait for at least 45 minutes for the lamp to cool down.*
- *Do not touch the lamp glass at any time. The lamp may explode due to improper handling, including the touching of the lamp glass.*
- *Lamp lifetime may differ from lamp to lamp and according to the environment of use. There is no guarantee of the same lifetime for each lamp. Some lamps may fail or terminate their lifetime in a shorter period of time than other similar lamps.*
- *A lamp may explode as a result of vibration, shock or degradation as a result of hours of use as its lifetime draws to an end. Risk of explosion may differ according to the environment or conditions in which the projector and lamp are being used.*
- *Wear protective gloves and eyeglasses when fixing or detaching the lamp.*
- *Faster on-off-cycles will damage the lamp and reduce lamp life. Wait at least for 5 minutes to turn off the projector after powering on.*
- *Do not operate the lamp in proximity to paper, cloth, or other combustible material nor cover it with such materials.*
- *Do not operate the lamp in an atmosphere containing an inflammable substance, such as thinner.*
- *Thoroughly ventilate the area or the room when operating the lamp in an oxygen atmosphere (in the air). If ozone is inhaled, it could cause headaches, nausea, dizziness, and other symptoms.*
- *The inorganic mercury is involved in the lamp. If the lamp bursts, the mercury inside the lamp will be exposed. Leave the area immediately if the lamp shatters while being operated and ventilate the area for at least 30 minutes in order to avoid the inhalation of mercury fumes. Otherwise it could be harmful to user's health.*

1. Turn off the projector.
2. If the projector is installed in a ceiling mount, remove it
3. Unplug the power cord.
4. Loosen the screw in the side of the lamp cover and remove the cover.
5. Remove the screws from the lamp module, raise the handle, and lift out the module.
6. Insert the new lamp module into the projector and tighten the screws.
7. Replace the lamp cover and tighten the screw.
8. Turn on the projector. If the lamp does not turn on after the warm-up period, try reinstalling the lamp.
9. Reset the lamp hour. Refer to the “**Setting > Lamp Time Reset**” menu.



- *Dispose the used lamp according to local regulations.*
- *Ensure that screws are tightened properly. Screws not tightened fully may result in injury or accidents.*
- *Since the lamp is made of glass, do not drop the unit and do not scratch the glass.*
- *Do not reuse the old lamp. This could cause the lamp to explode.*
- *Be sure to turn off the projector and unplug the AC power cord before replacing the lamp.*
- *Do not use the projector with the lamp cover removed.*

Specifications

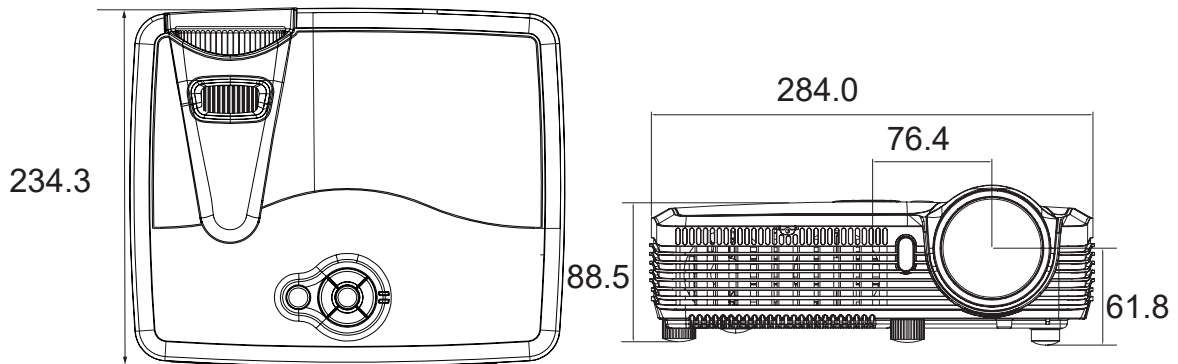
Short focal series

Display system	Single 0.55" DLP panel
Resolution	XGA (1024 x 768 pixels)
F/No.	2.6
Focal length	6.9mm
Screen size	30" - 300"
Lamp	240W
Input terminal	D-Sub 15-pin x 2, S-Video x 1, Video x 1, Audio signal input (3.5 mm stereo mini jack) x 1, HDMI x 1
Output terminal	D-Sub 15 pin x 1, Audio signal output (3.5 mm stereo mini jack) x 1
Control terminal	RS-232 x 1, Mini USB type x1 (supports firmware upgrade)
Speaker	2 watt x 1
Video compatibility	NTSC, NTSC 4.43 PAL, PAL-N, PAL M SECAM, Composite video
Scanning frequency Horizontal frequency Vertical frequency	31 - 100 KHz 50 - 120 Hz
Environment	Operating: Temperature: 0°C to 40°C Humidity: 10%-80% Storage: Temperature: -20°C to 60°C Humidity: 30%-85%
Power requirement	AC 100-240 V, 50 - 60 Hz, 3.2A
Power consumption	320 W (Max.)
Dimension (W x D x H)	284.0 x 234.3 x 88.5 mm
Weight	2.6 kg (5.7 lb)
Note: Design and Specifications are subject to change without prior notice.	

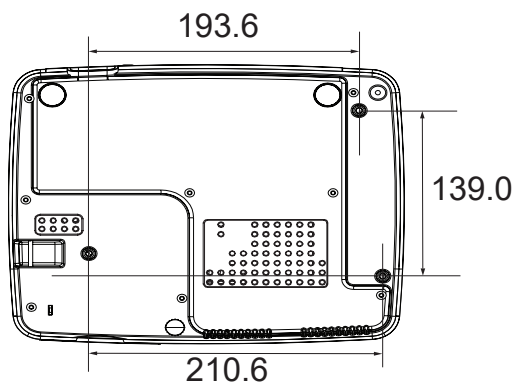
Dimensions

Short focal series

284.0 mm (W) x 234.3 mm (D) x 88.5 mm (H)



Ceiling mount installation



Ceiling mount screws:
M4 x 8 (Max. L = 8 mm)

Unit: mm

Appendix

LED Indicator Messages

Short focal series

Projector Status	POWER	TEMP/LAMP
Standby mode	Blue solid	Off
Normal running mode	Flashing 30" after powering on and then become solid blue	Off
Normal cooling	Blue solid	Off
Lamp ignition failed	Blue solid	Red solid
Lamp life end	Blue solid	Red solid
Temp error	Blue flashing	Off
Fan error	Blue flashes for 30" after Blue solid	Blue off after 10"
Color wheel or DMD error	Blue flashes for 30" after Blue solid	Off

Compatibility Modes

Computer:

Resolution	H-Sync [KHz]	V-Sync [Hz]
640 x 350	37.9	85.0
640 x 480	24.6	50.0
	31.5	59.9
	37.9	72.8
	37.5	75.0
	43.3	85.0
	61.9	120
720 x 400	31.5	70.0
	37.9	85.0
800 x 600	31.0	50.0
	35.2	56.0
	37.9	60.3
	48.1	72.0
	46.9	75.0
	53.7	85.1
	76.3	120.0
1024 x 768	48.4	60.0
	56.5	70.1
	60.0	75.0
	68.7	85.0
1152 x 864	67.5	75.0
1280 x 768	47.8	60.0
1280 x 800	49.7	60.0
1280 x 960	60.0	60.0
	85.9	85.0
1280 x 1024	64.0	60.0
1400 x 1050	65.3	60.0
1600 x 1200	75.0	60.0

Video:

Compatibility	Resolution	H-Sync [KHz]	V-Sync [Hz]
480i	720 x 480	15.8	60
480p	720 x 480	31.5	60
576i	720 x 576	15.6	50
576p	720 x 576	31.3	50
720p	1280 x 720	37.5	50
720p	1280 x 720	45	60
1080i	1920 x 1080	33.8	60
1080i	1920 x 1080	28.1	50
1080p	1920 x 1080	67.5	60
1080p	1920 x 1080	56.3	50

Troubleshooting

Refer to the symptoms and measures listed below before sending the projector for repairs. If the problem persists, contact your local reseller or service center. Please refer to "LED Indicator Messages" as well.

Start-up problems

If no lights turn on:

- Be sure that the power cord is securely connected to the projector and the other end is plugged into an outlet with power.
- Press the power button again.
- Unplug the power cord and wait for a short while, then plug it in and press the power button again.

Image problems

If the searching source is displayed:

- Press **Source** to select an active input source.
- Be sure the external source is turned on and connected.
- For a computer connection, ensure your notebook computer's external video port is turned on. Refer to the computer manual.

If the image is out of focus:

- While displaying the on-screen menu, adjust the focus ring.
- Check the projection lens to see if it needs cleaning.

If the image is flickering or unstable for a computer connection:

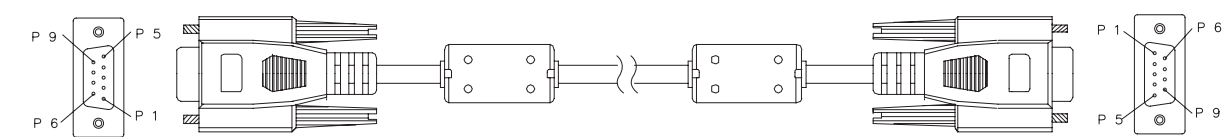
- Press **Menu**, go to **Computer Image** and adjust **Frequency** or **Tracking**.

Remote control problems

If the remote control does not operate:

- Be sure nothing is blocking the remote control receiver on the front of the projector. Use the remote control within the effective range.
- Aim the remote control at the screen or at the front of the projector.
- Move the remote control so it is more directly in front of the projector and not as far to the side.

RS-232 Command and Configuration



D-Sub 9 pin

1	1 CD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

Wire List

C1	COLOR	C2
1	Black	1
2	Brown	3
3	Red	2
4	Orange	6
5	Yellow	5
6	Green	4
7	Blue	8
8	Purple	7
9	White	9
SHELL	DW	SHELL

RS232 Serial Remote Command		
Item	Data	Note
Baud Rate	19200	
Parity Check	None	
Data Bit	8	
Stop Bit	1	
Serial Port	COM1	

Function	Action	Control code	Return code
Power			
	On	BE,EF,10,05,00,C6,FF,11,11,01,00,01,00	6
	Off	BE,EF,03,06,00,DC,DB,69,00,00,00,00,00	6
Source			
	COMPUTER IN 1 (Analog RGB)	BE,EF,03,19,00,19,29,01,47,02,CC,CC,00	6
	COMPUTER IN 2 (AnalogRGB)	BE,EF,03,19,1E,90,72,01,47,02,CC,CC,00	6
	Composite video	BE,EF,03,19,00,78,A8,01,47,02,CC,CC,00	6
	S- Video	BE,EF,03,19,00,E8,69,01,47,02,CC,CC,00	6
OSD			
	Menu	BE,EF,02,06,00,E9,D3,30,00,00,00,00,00	6
	Up	BE,EF,02,06,00,6D,D2,34,00,00,00,00,00	6
	Down	BE,EF,02,06,00,0B,D2,32,00,00,00,00,00	6
	Left	BE,EF,02,06,00,DA,D3,33,00,00,00,00,00	6
	Right	BE,EF,02,06,00,38,D2,31,00,00,00,00,00	6
ECO			
	On	BE,EF,03,06,00,EF,DB,6A,00,00,00,00,00	6
	Off	BE,EF,03,06,00,3E,DA,6B,00,00,00,00,00	6
Auto Source			
	On	BE,EF,03,06,00,89,DB,6C,00,00,00,00,00	6
	Off	BE,EF,03,06,00,58,DA,6D,00,00,00,00,00	6
	Source	BE,EF,02,06,00,57,D0,2E,00,00,00,00,00	6
	Auto	BE,EF,02,06,00,86,D1,2F,00,00,00,00,00	6
	Blank	BE,EF,02,06,00,DF,DF,66,00,00,00,00,00	6
Keystone			
	Keystone	BE,EF,02,06,00,3D,DE,64,00,00,00,00,00	6
	Up	BE,EF,03,06,00,10,DB,65,00,00,00,00,00	6
	Down	BE,EF,03,06,00,23,DB,66,00,00,00,00,00	6
	Image	BE,EF,03,06,00,F2,DA,67,00,00,00,00,00	6
	Aspect Ratio	BE,EF,03,06,00,0D,DA,68,00,00,00,00,00	6
	Factory Default	BE,EF,03,06,00,6B,DA,6E,00,00,00,00,00	6