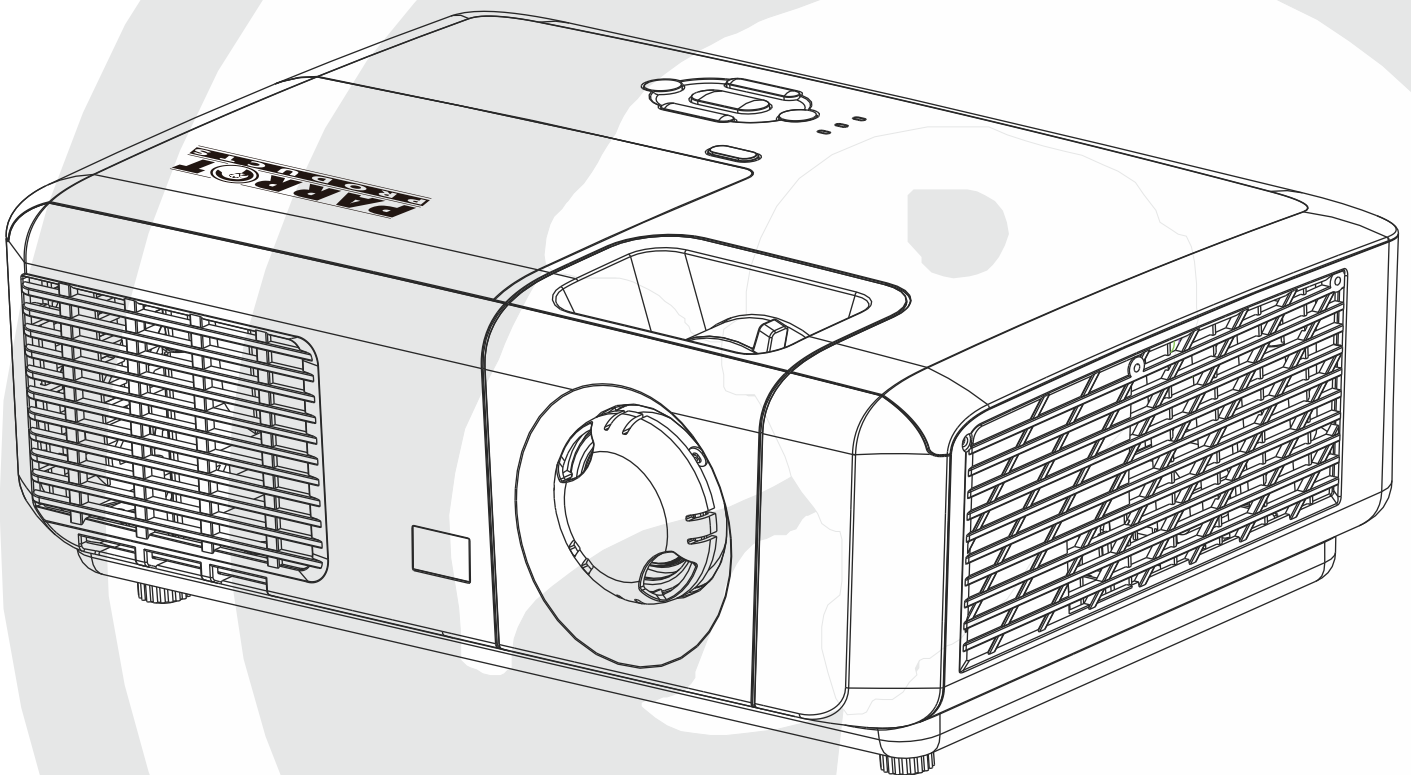




Projector DLP XGA 3600 Ansi Long Throw - OP0454

User Manual



Tel: (RSA) 010 140 4900 / Email: sales@parrot.co.za
www.parrot.co.za

Table of Contents



Key safety instructions1

Introduction.....

Projector features.....3

Shipping contents4

External appearance of the projector5

Device control and functions6

Projector Positioning.....12

Choosing a location.....12

Projection Dimension.....13

Connection.....14

Connect to the computer or monitor15

Connecting to Video source devices16

Connecting to HDMI devices17

To connect the projector to a
Component Video source device:17

Connecting to composite video source
devices18

Operation19

Activate the projector.....19

Disabling the password function21

Setting a password21

If you forget your password21

Entering the password recall
procedure22

Change Password22

Disabling the password function22

Switching input signal23

Changing HDMI input settings24

Adjusting the projected image25

Perform keystone correction.....26

Zoom out to see details27

Selecting the aspect ratio27

About the aspect ratio.....28

Optimizing the image29

Using Screen Color29

Fine-tuning of image quality in
user modes30

Setting the presentation timer.....32

Hiding the image.....34

Locking control keys34

Lamp Settings.....34

Extending lamp life35

Timing of replacing the lamp36

Replacing the lamp36

Operations at high altitudes36

3D functions.....37

Switch off the projector37

Menu operations38

Description of each menu41

Maintenance.....45

Care of the projector.....45

LED Indicator46

Troubleshooting.....47

Specifications48

Projector specifications48

Dimensions49

Ceiling mount installation.....49

Timing chart50


Key safety instructions



Design and testing of your projector has been carried out in compliance with the latest safety standards for information technology (IT) devices. However, it is extremely important for you to follow the instructions and product labels provided in this manual during use to ensure user safety.

Safety Instructions

- **Please read through this manual before using the projector.** Save it for future reference.
- **Do not look straight at the projector lens during operation.** The intense light beam may damage your eyes.
- **Refer servicing to qualified service personnel.**
- **Always open the lens shutter or remove the lens cap when the projector light source has been switched on.**
- In some areas there may be line voltage instability. This projector is designed to operate safely within a mains voltage between 100 to 240 volts AC, but could fail if power cuts or surges of ± 10 volts occur. **In areas where the mains voltage may fluctuate or cut out, it is recommended that you connect your projector through a power stabilizer, surge protector or uninterruptible power supply (UPS).**
- Do not obstruct the projection lens with any objects when the projector is switched on.
- Place the projector on a flat, stable surface to avoid any damage.
- Do not attempt to disassemble this projector. The projector contains high voltage parts that may cause electrocution or death when it comes in contact with the human body. Do not disassemble or remove any covers. Refer servicing to qualified service personnel.
- Do not place this projector in any of the following environments.
 - Space that is poorly ventilated or confined. Allow at least 50 cm clearance from walls and ensure free flow of air around the projector.
 - Environments of extreme heat or cold.
 - Areas that are extremely humid, dusty, or smoky may contaminate optical components, shortening the projector's life span and darkening the image.
 - Locations near fire alarms
 - Locations with altitudes greater than 3000 m (10000 feet).

- Do not block the ventilation holes. If the ventilation holes are seriously obstructed, the projector may overheat resulting in a fire.
 - Do not place this projector on a blanket, bedding or any other soft surface.
 - Do not place near flammable objects.
 - Do not step on the projector or place any objects on top of it. These acts may damage the projector itself as well as cause accidents or personal injury.
 - Do not place liquids near or on the projector. Liquids spilled into the projector may cause damage. If the projector does become wet, please unplug the power cable from the power socket and contact your local repair center for repairs.
 - This product can be mounted on a ceiling suspension mount for back projection.
-  **Use only ceiling suspension mounts that meet the relevant requirements and ensure that the installation is safe.**
- When the projector is under operation, you may notice some heated air and odour from its ventilation grill. It is a normal phenomenon and not a product defect.
 - Do not use the safety lever during transport or installation purposes. The safety lever should only be used with the anti-theft cables sold on the market.

Safety instructions for ceiling mounting of the projector

If you intend to mount your projector from the ceiling, ensure suitable projector ceiling mount bracket and that it is securely and safely installed.

There may be safety risks if you fail to use an appropriate projector ceiling mounting kit. Use of inappropriate connectors or screws of the wrong specifications or length may cause the projector to fall from the ceiling.

You can purchase a projector ceiling mounting bracket from Parrot Products (Pty) Ltd.

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.

- Compatible with NTSC, PAL, SECAM and HDTV
- D-Sub 15-pin terminal can be connected to analog video
- Equipped with HDMI connection, supports HDCP (PA501S with no such features)
- Multi-language On-Screen Display (OSD) menus
- Digital keystone correction to correct distorted images
- RS-232 interface supports serial control
- The power saving mode reduces the lamp power consumption by up to 30% when no input signal is detected for a set length of time.
- Presentation timer for better control of time during presentations
- 3D Ready supported
- Select Fast Shutdown
- Colour management can be used to adjust the colour according to your preferences
- The screen type correction function can be projected on a variety of pre-set colour surfaces

Note

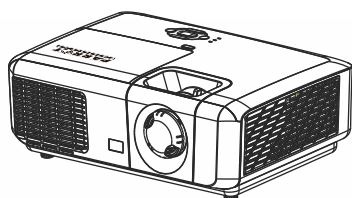
- *The information in this manual is subject to change without notice.*
- *Without the express written consent, reproduction, transfer or photocopying of this document in full or in part is prohibited.*

Contents

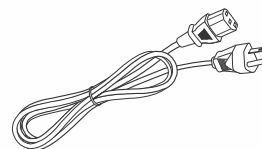


Carefully unpack the product and check that you have all of the items shown below. If any of these items are missing, please contact your place of purchase.

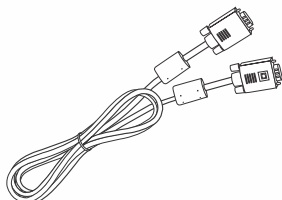
 The supplied items will be suitable for your region, and may differ from those illustrated.



Projector



Power cord



VGA cable

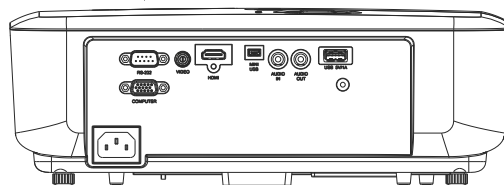
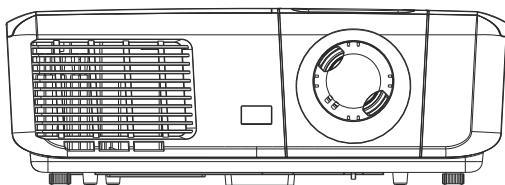


Remote control

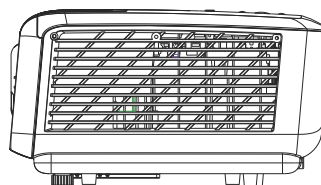
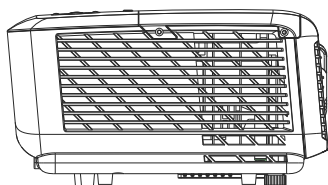
External appearance of the projector



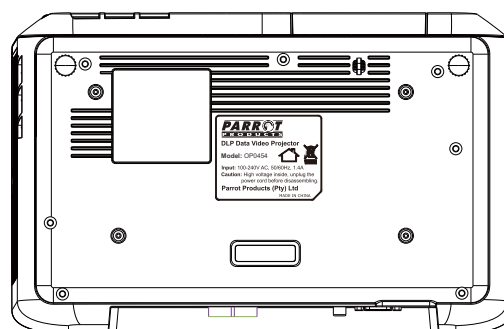
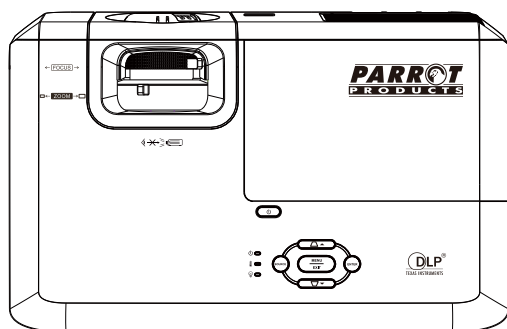
Front / rear



Side

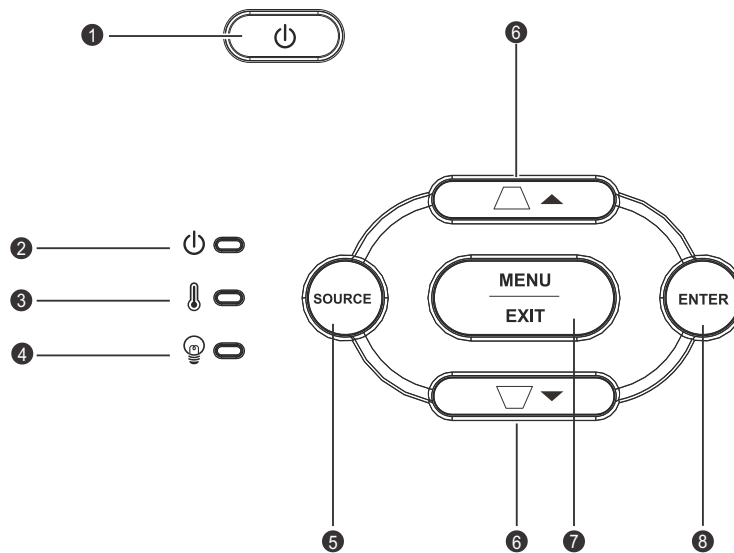







Top / bottom



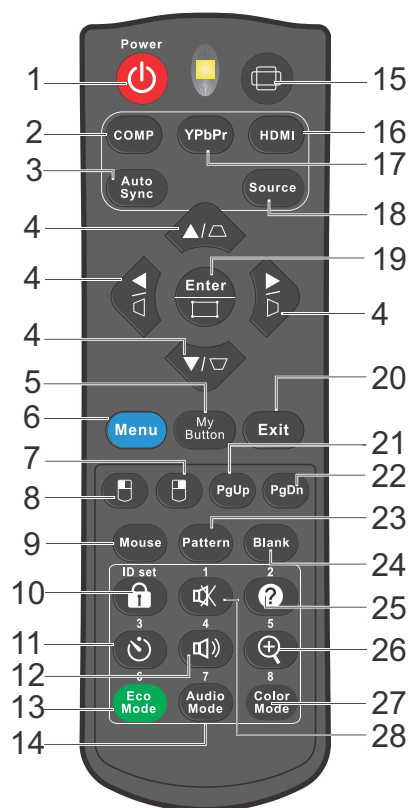
Warning

- This equipment must be connected to earthed connection.
- You may add power interruption devices in the fixed wiring or plug in the power cable to a nearby socket for convenience. If failures or errors occur during equipment operations, use the power interruption device to cut the power or unplug the power cable from the socket.



1. 
Turn the projector power on or off.
2.  (**POWER LED indicator**)
Please refer to "LED indicator message".
3.  (**TEMP LED indicator**)
Please refer to "LED indicator message".
4.  (**LAMP LED indicator**)
Please refer to "LED indicator message".
5. **SOURCE**
A source selection bar display.
6.  (**Keystone button**)
Manually corrects distorted images resulting from an angled projection.
Left/ Right/ Up/ Down (Navigation button)
Selects the required menu option to make adjustments.
7. **MENU/EXIT**
Menu: Displays or exits the on-screen display menu.
Exit: Returns the previous OSD menu, exits and saves the menu settings.
8. **ENTER**
Enter the selected on-screen display (OSD) menu item.

Remote control



- | | |
|-------------------------|------------------------------|
| 1. Power | 2. Computer |
| 3. Auto Sync | 4. Keystone button |
| | direction button |
| 5. My button | 6. Menu |
| 7. Mouse (right button) | 8. Mouse (left button) |
| 9. Mouse | 10. Lock/ID Set(no function) |
| 11. Timer | 12. Volume |
| 13. Lamp Eco mode | 14. Audio mode |
| 15. Scale ratio | 16. HDMI |
| 17. YPbPr (no function) | 18. Input source |
| 19. Enter | 20. Exit |
| 21. Page up | 22. Page down |
| 23. Test pattern | 24. Blank screen |
| 25. Help | 26. Magnify |
| 27. Color mode | 28. Mute |

Using the remote control cursor



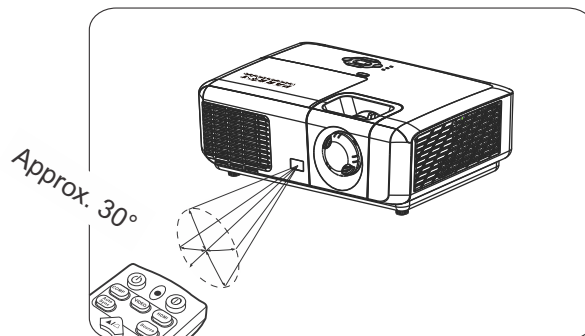
Use the remote control to operate your computer during presentations for greater flexibility.

1. Before using the remote control to replace your cursor, connect one end of the USB cable to the projector Mini USB port and the other end to the PC or notebook computer. See [“Connect to the computer”](#) for details.
2. Change the input signal to D-Sub or HDMI via PC source.
3. To use the software displayed on the connected computer (such as Microsoft PowerPoint), go to the previous or next page by pressing the previous page / next page.

Remote control effective range

There is an infra-red (IR) remote control sensor located at the front of the projector. Hold the remote control and maintain a perpendicular angle within 30 degrees with the IR remote control sensor to achieve normal remote control functions. The distance between the remote control and the sensor should not exceed 8 meters (about 26 feet).

Do not obstruct the IR sensor on the projector as this may block the IR beam.



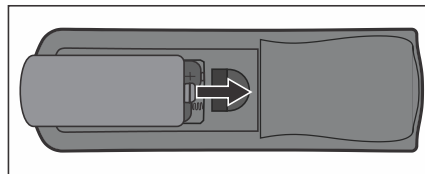
Note

- *Operate the remote control where you can see the remote sensor.*
- *Do not shake or drop the remote control.*
- *Store the remote control in a cool, dry place.*
- *Do not spill water on the remote control or place moist objects on it.*
- *Do not disassemble the remote control.*

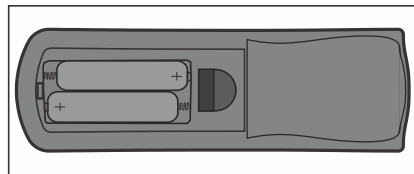
Replacing the remote control battery



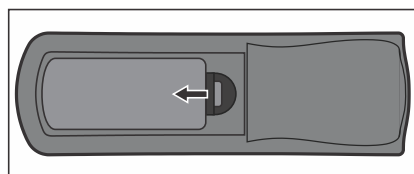
1. To open the battery cover, place the remote control with the backside facing upwards. Press down at the indicated area and then slide the battery lid upwards along the indicated direction.



2. Take out the old batteries (if required) and then place 2 new AAA batteries according to the indicated orientation. The positive pole of the battery should be directed at the (+) direction while the negative pole should be directed at the direction.



3. Align the battery cover with the bottom of the remote control and return the cover to its original position to complete the process.



Warning

- Do not store the remote control in extreme hot, cold or moist spaces.
- Only use 2 AAA batteries as shown above.
- Refer to the manufacturer's instructions and local environmental regulations to dispose of old batteries.
- Do not throw batteries into fires. There may be danger of an explosion.
- If the battery is flat or if you will not be using the remote control for a while, remove the battery to prevent battery leaks from damaging the remote control.

Projector Positioning



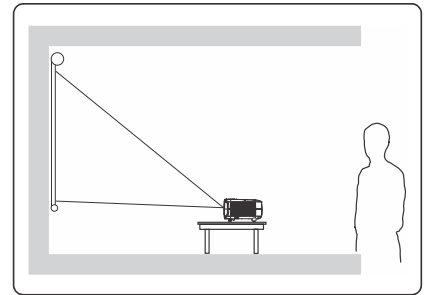
Choosing a location

You may refer to the room layout or personal preference to determine the location of installation. Considerations include size and position of the screen, location of a suitable power outlet, as well as the location and distance between the projector and other equipment.

There are 4 potential installation locations for the projector:

1. Front Table

For this location, the projector is placed right in front of the screen. This is the most commonly used position. It is quick to setup and highly mobile.

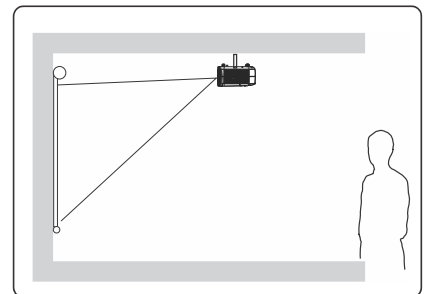


2. Front Ceiling

For this location, the projector is suspended upside-down from the ceiling in front of the screen.

Purchase a Projector Ceiling Mounting bracket from your dealer to mount your projector from the ceiling.

After activating your projector, go to **System Settings: Projector Position** menu and set to **Front Ceiling**.

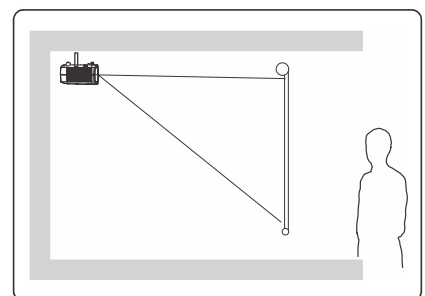


3. Rear Ceiling

For this location, the projector is suspended upside-down from the ceiling behind the screen.

Note that a special rear projection screen and Projector Ceiling Mounting bracket are required for this installation location.

After activating your projector, go to **System Settings: Projector Position** menu and select **Rear Ceiling**.

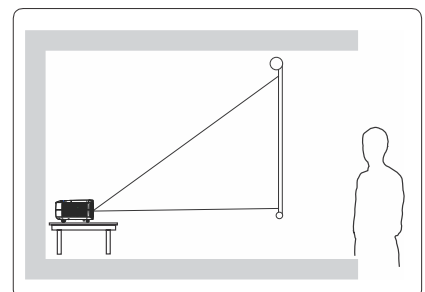


4. Rear Table

For this location, the projector is placed right behind the screen.

Note that a special rear projection screen is required.

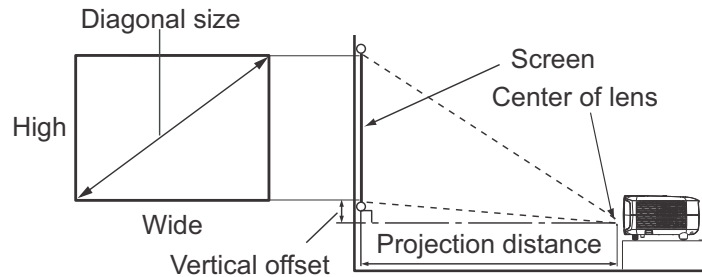
After turning on the projector, go to **System Settings: Projector Position** menu and select **Rear Table**.



Projection Dimension



Refer to the chart below to determine the screen size and projection distance.



For SVGA / XGA DLP models

4:3 screen diagonal				
Screen size			Projection distance [Inch (mm)]	Vertical offset [Inch (mm)]
Diagonal [Inch (mm)]	Wide [Inch (mm)]	High [Inch (mm)]		
50 (1270)	40 (1016)	30 (762)	77 (1956)	3.8 (96)
60 (1524)	48 (1219)	36 (914)	93 (2362)	4.5 (115)
70 (1778)	56 (1422)	42 (1067)	109 (2769)	5.3 (134)
80 (2032)	64 (1626)	48 (1219)	125 (3175)	6.0 (154)
90 (2286)	72 (1829)	54 (1372)	141 (3581)	6.8 (173)
100 (2540)	80 (2032)	60 (1524)	156 (3962)	7.6 (192)
120 (3048)	96 (2438)	72 (1829)	188 (4775)	9.1 (230)
140 (3556)	112 (2845)	84 (2134)	220 (5588)	10.6 (269)
150 (3810)	120 (3048)	90 (2286)	236 (5994)	11.3 (288)

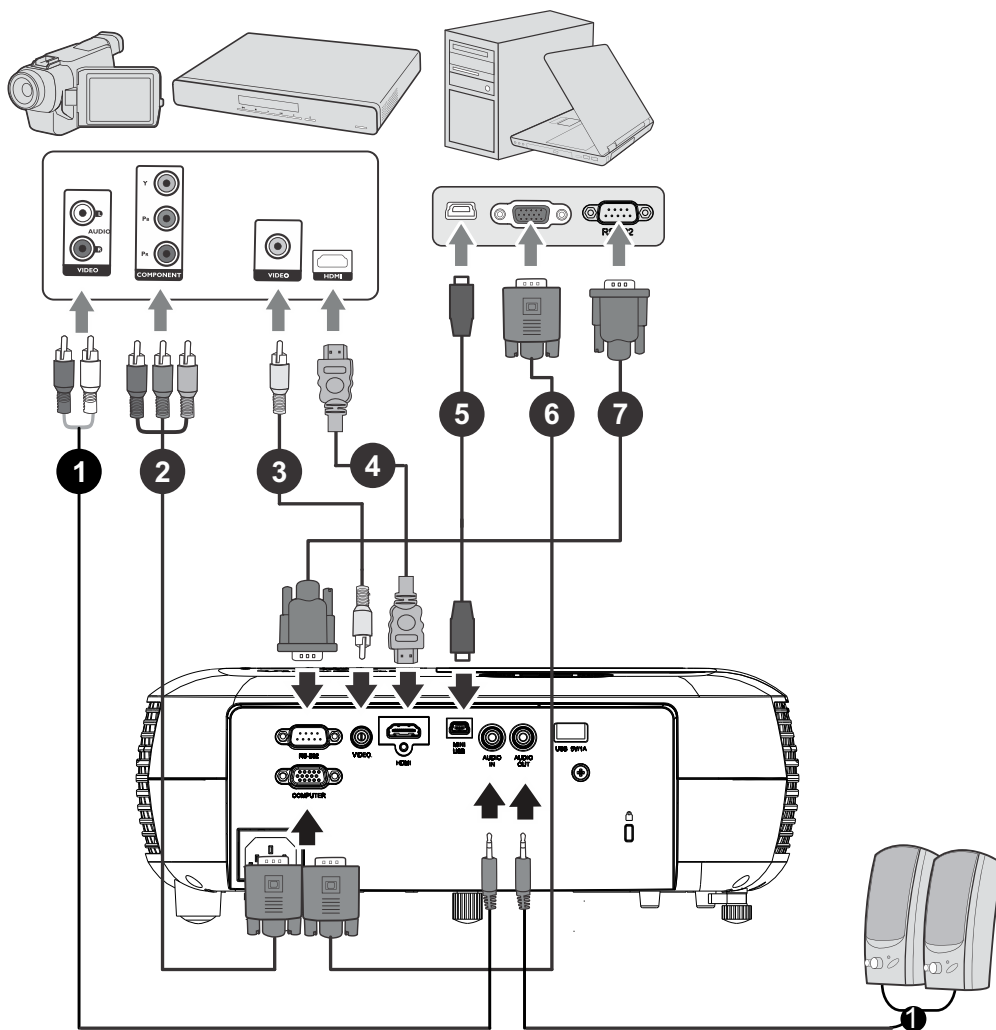
Connection

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

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

 In the connections shown below, some cables may not be included (please refer to “[page 4 contents](#)”). You may purchase the required signal cables from an electronics store.


 The following links and icons are for references only. Connection jacks at the back of the projectors may differ according to the projector model.



- | | |
|-----------------------------------|---------------------------------|
| 1. Audio cable | 5. USB cable (mini-B to type A) |
| 2. VGA (D-Sub) to HDTV (RCA) line | 6. VGA cable (D-Sub to D-Sub) |
| 3. Composite video line | 7. RS-232 cable |
| 4. HDMI cable | |

Connect to the computer

1. Use the VGA cable provided. Plug one end to the D-Sub output jack at the computer end.
2. Connect the other end of the VGA cable to the COMPUTER signal input jack on the projector.

 Many notebooks have not activated their monitor jack after being connected to the monitor. The user can often press FN + F3 or CRT / LCD button to switch the externally connected monitor ON / OFF. Find the function key labeled with the CRT / LCD or monitor icon on the notebook. Press the FN key and the labeled function key. Please refer to the instruction manual provided with the notebook computer for the combination keys and their functions.

Connecting to Video source devices

You can connect the projector to any of the following video source device with an output jack:

- HDMI
- Component video
- Video (composite video)

Only 1 of the aforementioned connection methods is required to connect the projector to the video source device. However, different connection methods would provide a different video quality. The connection method selected would be determined by the presence of matching jacks on the projector and Video source device:

Best video quality

HDMI is the best video connection method available. If the source device comes with HDMI jacks, you will be able to acquire uncompressed digital video quality.

Please refer to [“Connecting to HDMI devices”](#) for details on how to connect the projector to HDMI devices.

If you don't have any usable HDMI source, the next best video signal would be Component Video (not to be confused with Composite Video). Digital TV tuners and DVD players are provided with Component Video output sockets. If your device includes Component Video, then this would be your primary choice of connection to the (composite) video.

Please refer to [“To connect the projector to a Component Video source device:”](#) for details on how to connect your projector to Component Video devices.

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.

Please refer to [“Connecting to composite video source devices”](#) for details on how to connect your projector to composite video devices.


Use an HDMI cable to establish a connection between the projector and HDMI device.

1. Connect one end of the HDMI cable to the HDMI output jack on the video device.
2. Connect the other end of the cable to the HDMI signal input jack on the projector.

To connect the projector to a Component Video source device:

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

- If so, you can continue with this procedure.
 - If not, you will need to reassess which method to use to connect to the device.
1. Take a VGA (D-Sub) Component adapter cable and connect the end with 3 RCA type connectors to the Component Video output sockets of the Video source device. Match the colour of the plugs to the colour of the sockets; green to green, blue to blue, and red to red.
 2. Connect the end of the VGA (D-Sub) Component adapter cable (with the D-Sub type connector) to the COMPUTER jack on the projector.

 **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. You must also check that the signal cables have been connected correctly.**

Connecting to composite video source devices

Examine your video source device to determine if an unused composite output jack is available:

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

 **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. You must also check that the signal cables have been connected correctly.**

 **When the component video is not available, use the composite video connection method to connect to this device. See [“Connecting to Video source devices”](#) for details.**

Activate the projector

Plug the power cord into the projector and into a wall socket. Turn on the switch on the wall socket.


Press  Power to switch on the projector.

If this is the first time that you've switched on the projector, please refer to on-screen instructions and select your OSD language.

Switch on all connected equipment.

The projector will then begin a search of the input signals. The lower right corner of the screen will display the current input signal being scanned. If the projector fails to detect a valid signal, the screen will display a **[NO SIGNAL]** message until an input signal is found.

You can press "Source" to select the input signal required. See ["Switching input signal"](#) for details.

 If the input signal frequency / resolution is outside the operating range of the projector, the blank screen will display the **[Out of Range]** message. Please change to an input signal which is compatible with the projector's resolution or set the input signal to a lower setting. For more details, please refer to the **[Resolution Table]**.

Disabling the password function

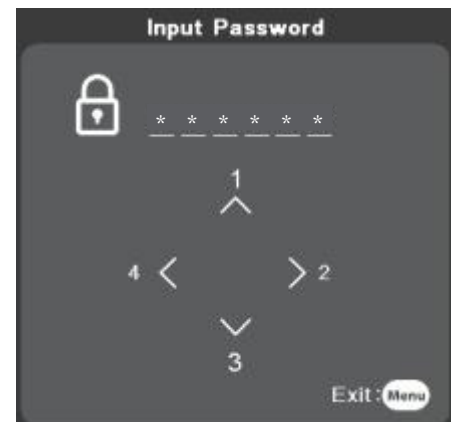


For security purposes and to help prevent unauthorized use, the projector includes an option for setting up password security. Passwords may be set using the On-Screen Display (OSD) menu. Please refer to the [Using the menus] section for details on OSD menu operations.

Setting a password

 Once a password has been set, the user must provide the correct password after starting the projector. Otherwise, the projector cannot be used.

1. Open the OSD Menu and enter **System > Security Settings** menu.
2. Press [Enter]. The **Security Settings** page will be displayed.
3. Select **Power Lock**, then press ◀/▶ and select **ON**.
4. The picture on the right shows 4 arrow keys (◀, ▲, ▼, ▶) each representing (1, 2, 3, 4) respectively. press the arrow keys to enter six digits for the password and confirm that password.
5. After completing password settings, the OSD menu will return to the **Security Settings** page.
6. Press [Exit] to leave the OSD menu.



If you forget your password

If the password function is activated, you will be asked to enter the six-digit password every time you turn on the projector. If you enter the wrong password, the password error message as pictured above will be displayed for 5 seconds before the message [INPUT PASSWORD] is shown. You can enter another 6-digit password. You may use the password recall procedure if you forgot your password and did not record it in this manual. See [“Entering the password recall procedure”](#) for details.

If you enter an incorrect password 5 times in succession, the projector will automatically shut down.

1. Press and hold the [Auto Sync] button on the remote control for 3 seconds.
2. Write down the number and turn off your projector.
3. Seek help from the local service center to decode the number. You may be required to provide proof of purchase to verify that you are an authorized user of the projector.


Change Password

1. Open the OSD and enter **System Settings > Security Settings > Change Password** menu.
2. Press [Enter]. The message **[INPUT CURRENT PASSWORD]** will be shown.
3. Enter the old password.
 - If the password entered is correct, another message **[INPUT NEW PASSWORD]** will be shown.
 - If the password entered is incorrect, then the password error message will be displayed for 5 seconds before the screen shows the **[INPUT CURRENT PASSWORD]**. You will then need to re-enter the password. You can either press [Exit] to cancel the process or try other passwords.
4. Enter a new password.
5. You have successfully assigned a new password to the projector. Remember to enter the new password next time the projector is started.
6. Press [Exit] to leave the OSD menu.

 Any digit entered will be displayed as asterisks [*] on-screen. We recommend writing down the password and placing it somewhere safe for future reference in case you forget.

Disabling the password function

1. Open the OSD menu and enter **System Settings > Security Settings > Power On Lock** menu.
2. Press ◀▶ and select **OFF**.

 Though the password function is disabled, you need to keep the old password on hand should you ever need to re-activate the password function by entering the old password.

Switching input signal

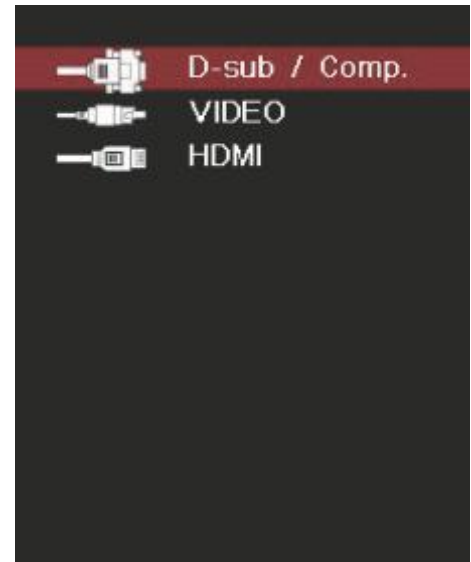
The projector can be connected to multiple devices at the same time. However, it can only display one full screen at a time.

If you want the projector to automatically search for various signals, please confirm that the **Quick Auto Search** function in the **SYSTEM** menu is switched **ON**.

You may also press the source selection button on the remote control or search for available input signals to manually select the desired signals.

1. Press [Source] to display the source selection column.
2. Keep pressing the ▲/▼ until you see the desired signal, then press [Enter].

Once detected, the selected source information will display on the screen for a few seconds. If there are multiple devices connected to the projector, repeat steps 1 to 2 to search for another signal.



Changing HDMI input settings



In the unlikely event that you connect the projector to a device (such as DVD or Bluray player) via the projector's HDMI input jack, and the projected picture displays the wrong colours, please change the colour space settings to one that complies with the colour space settings of the output device.

To perform this operation:

1. Open the OSD menu and enter **ADVANCED > HDMI settings** menu.
2. Press [Enter].
3. Select **HDMI format**, then press ◀/▶ to select a suitable colour space according to the colour space settings of the output device.
 - **RGB**: Changes the colour space to RGB.
 - **YUV**: Changes the colour space to YUV.
 - **Auto**: Sets the projector to automatically detect the colour space settings.
4. Select **HDMI Range**, then press ◀/▶ to select a suitable color range according to the color range settings of the output device.
 - **Enhanced**: Changes HDMI colour range to 0-255.
 - **Normal**: Changes HDMI colour range to 16-235.
 - **Auto**: Sets the projector to automatically detect the HDMI range of the input signal.

☞ This function is only available when the HDMI input jack is being used.

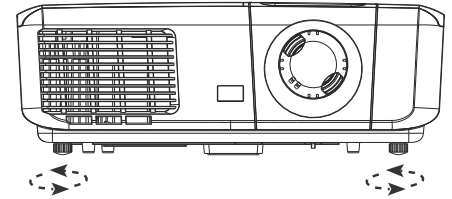
☞ Please refer to equipment documentation to gain more details on colour space and HDMI range settings.

Adjusting the projected image



Adjusting the projection angle

The projector is equipped with an adjustment support peg. The adjustment support peg may be used to adjust projection height and projection angle along the vertical axis. The user may turn the adjustment support peg to make fine adjustments to projection angle and position of the projected image until it reaches the desired location.

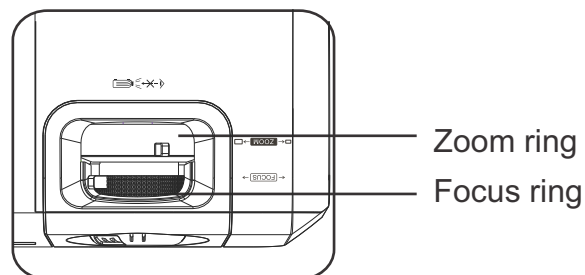


Lift and adjust the feet

If the projector is placed on an uneven surface or where the screen and projector are not perpendicular to each other, the projected image may be subject to keystone (trapezoidal) distortion. For more details on projection calibration, please refer to [“Perform keystone correction”](#).

Auto-adjustments to the image

The focus ring can be used to adjust the image clarity.



1. Sharpen the image by rotating the focus ring. It is recommended to use still images for focusing.
2. Turn the zoom ring to adjust the image size.

Perform keystone correction



Keystone distortion occurs where the projected image becomes trapezoidal in shape (keystone distortion) and is a result of poor projection angle.

To correct this, you should adjust projector height and use the following steps to correct the issue manually.

● Using the remote control

1. Press \triangle/\square to display the Keystone Correction page.
2. Press \triangle to initiate Keystone Correction at the top of the image. Press \square to initiate Keystone Correction at the bottom of the image.



● Using the OSD menu

1. Open the OSD menu and open **Display > Keystone** menu.
2. Press [Enter]. This will bring up the **Keystone** page.
3. Select **Vertical** and then press \triangle to initiate Keystone Correction at the top of the image or press \square to initiate Keystone Correction at the bottom of the image.

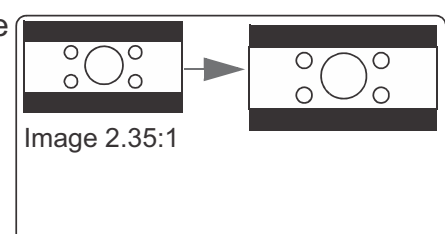
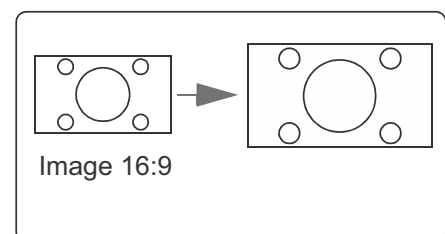
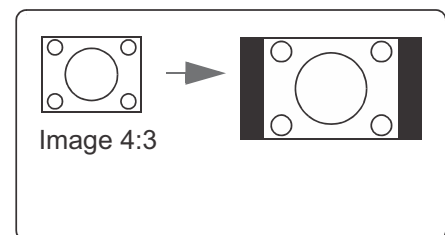
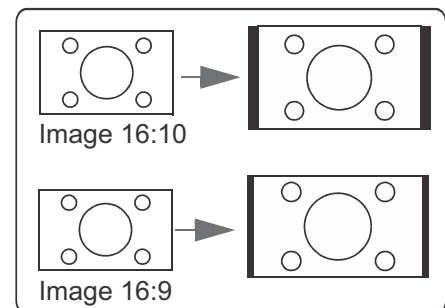
Selecting the aspect ratio

The 'aspect ratio' is the ratio of the image width to the image height. Most analog TV's and computers have a 4:3 aspect ratio, while digital TV and DVDs have 16:9 aspect ratios. With the advent of digital signal processing, digital display devices like this projector can dynamically stretch and scale the image output to a different aspect than that of the image input signal. To change the projected image ratio (no matter what aspect the source is):

1. Open the OSD Menu and enter **Display > Aspect ratio** menu.
2. Press **▲/▼** to select an aspect ratio that suits the format of the video signal and your display requirements.

About the aspect ratio

1. **Auto:** Proportional scaling of an image to fit the projector's natural resolution in its horizontal width. This is suitable where the incoming image is neither in 4:3 nor 16:9 aspect ratios but where you want to make most use of the screen without altering the image's aspect ratio.
2. **4:3:** Scales a picture so that it is displayed in the center of the screen with a 4:3 aspect ratio. This is most suitable for 4:3 pictures such as those for computer monitors, standard definition TV, and 4:3 aspect DVD movies as these can be displayed without aspect alteration.
3. **16:9:** Scales a picture so that it is displayed in the center of the screen with a 16:9 aspect ratio. This is most suitable for images which are already in a 16:9 aspect such as high definition TV.
4. **2.35:1:** Scales a picture so that it is displayed at the center of the screen with a 2.35:1 aspect ratio without change.



Selecting a picture mode

The projector is preset with several predefined picture modes. You may choose one of these modes that best fits your operating environment and input signal picture type.

To select an operation mode, please follow the steps described below.

- Press [Colour Mode] repeatedly until you arrive at the mode you desire.
- Enter **Image > Colour mode** menu and press ◀/▶ to select the required mode.

Picture modes for different types of signals

The following lists the Picture modes that can be used for different signal types.

1. **Standard mode:** Suitable for normal conditions during the daytime environment.
2. **Photo mode:** Suitable for viewing photos or static images.
3. **Movie Mode:** Applicable for playing colored movies, video clips from digital cameras, or DVs from a PC input in darker (dim) environments to achieve the best viewing effects.
4. **Brightest:** Maximizes the brightness of the projected image. This mode is suitable when using projectors in environments such as well-lit rooms where extra-high brightness is required.
5. **Presentation mode:** Used during daytime presentations to match PC and laptop tint.

Using Screen Colour

When the projection surface is colored (such as walls that are painted in colours other than white), the **Screen Colour** function can be used to calibrate the colour of the projected image in order to prevent colour offsets between the source and colour of the projected image.

To use this function, go to **Display > Screen Colour** menu, and press ◀/▶ to select the colour that is closest to that of the projection surface. Several preset colour options are available, namely: **white board**, **green board** and **blackboard**. These setup functions may differ according to model type.

 This function is only available when PC input signals were selected.

Adjusting Brightness

Enter **Image > Brightness** menu and then press ◀/▶.

The higher the value, the brighter the image.



Adjusting this control allows the black area of the image to appear just as black to reveal details within.

Adjusting Contrast

Enter **Image > Contrast** menu and then press ◀/▶.

The higher the value, the greater the contrast. Contrast is determined by how white is white or black is black the lighter the contrast the better.



Adjusting Colour

Enter **Image > Advanced > Colour** menu and press ◀/▶.

Lower settings produce less colour saturation. If the setting is too high, colours on the image will be overpowering, which makes the image unrealistic.

👉 This function is only available when the input signals are **Video**, **YPbPr** or **YCbCr**.

Adjusting Tint

Enter **Image > Advanced > Tint** menu and press ◀/▶.

The higher the value, the more reddish the picture becomes. The lower the value, the more greenish the picture becomes.

👉 This function is only available when the input signal is **Video**.

Adjusting Sharpness

Enter **Image > Advanced > Sharpness** menu and then press

Higher settings produce sharper images. The lower the value, the softer the picture becomes.

👉 This function is only available when the input signals are **Video**, **YPbPr** or **YCbCr**.

Adjusting Brilliant Colour



Enter **Image > Advanced > Brilliant Colour** menu and press ◀/▶.

This feature utilizes a new colour-processing algorithm and system level enhancements to enable higher brightness while providing truer, more vibrant colours of the projected image. Brightness levels of mid-tone areas commonly seen in videos and natural landscapes are increased by more than 50%, allowing the projector to generate images in realistic and true colours. To acquire this quality of images, please select the level you desire. If not required, set this option to **OFF**.

Reducing image noise

Enter **Image > Advanced > Noise Reduction** menu, and then press ◀/▶.

This function is capable of reducing image noise generated electrically by different media players. Higher settings will provide lower image noise.

 This function is only available when PC or Video input signals are selected.

Selecting a Colour Temperature

Enter **Image > Colour Temperature** menu, and then press [Enter].

Options available to Colour Temperature settings will depend on the choice of the signal type.

1. **Cool:** Provides the highest colour temperature. **Cool** colours allow the image to display white colours with the more blue undertones compared to other temperatures.
2. **Normal:** Maintains a normal white colour tone.
3. **Warm:** White colours in the image will be provided with a light red undertone.

Setting a preferred colour temperature

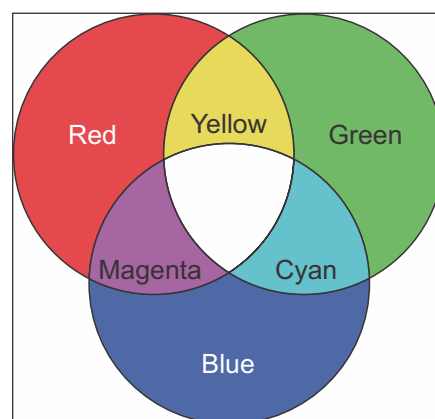
This function is only available when PC input signals have been selected.

1. Enter **Image > Colour Temperature** menu, and then press [Enter].
2. Press ◀/▶ to select **Cool**, **Normal** or **Warm**, and press [Enter].
3. Press ◀/▶ to select the item you wish to change, then press ◀/▶ to adjust its value.
 - **Red Gain/Green Gain/Blue Gain:** Adjusts the contrasts of the red, green, and blue colors.
 - **Red Offset/Green Offset/Blue Offset:** Adjusts the brightness of red, green, and blue colors.

Colour management should be considered in permanent installations with controlled lighting such as boardrooms, theatres or lecture halls. It provides fine colour control adjustments to allow for accurate colour reproduction.


To adjust the settings:

1. Open the OSD menu, go to **Image > Advanced > Colour Management** menu.
2. Press [Enter] to bring up the **Colour Management** page.
3. Select **Primary Colour** and press ◀/▶ to select any one of the colours from red, yellow, green, cyan, blue, or magenta.
4. Press ▼ to select the **Hue**, then press ◀/▶ to select the range. Enlarging the range will include colors composed of higher proportions of 2 similar colors. Please refer to the illustration to the right for how the colors relate to each other.



For example, if you select red and set the range to 0, you will only select pure red areas of the projected image. Increasing the range will include shades of red closer to yellow and magenta.

5. Press ▼ to select **Saturation**, then press ◀/▶ to adjust its values according to your preferences. The effect of each adjustment will be immediately reflected upon the image.
For example, if you select Red and set its value at 0, only the saturation of pure red will be affected.

 **Saturation is the amount of that colour in a picture. A lower setting produces less saturated colours. A setting of 0 will remove color from the image. If the saturation is too high, the color will be overpowering and unrealistic.**

6. Press ▼ and select **Gain**, then press ◀/▶ to adjust its values according to your preferences. This affects the contrast level of the primary color selected. The effect of each adjustment will be immediately reflected upon the image.
7. Repeat steps 3 to 6 to carry out other color adjustments.
8. Press [Exit] to save the settings and exit.

Setting the Presentation Timer



The presentation timer can indicate the presentation time on-screen to help you achieve better time management when giving presentations. Follow these steps to utilize this function:

1. Enter **Basic > Presentation Timer** menu.
2. Press [Enter] to show the **Presentation Timer** page.
3. Select **Timer Period** and press ◀/▶ to confirm the duration. Duration can be set to 1 to 5 minutes, with 1 minute increments, or 5 to 240 minutes in 5 minute increments.

☞ Once the timer has been activated, resetting the timer interval will re-activate the timer.

4. Press ▼ and select the **Timer Display**. Then press ◀/▶ to select whether to display or hide the on-screen timer.

Selection	Description
Always	Displays the timer on screen throughout the presentation time.
1 min/2 min/3 min	Display timer on-screen in the last 1 / 2 / 3 minutes.
Never	Hides the timer throughout the presentation time.

5. Press ▼ and select **Timer Position**, and then press ◀/▶ to set timer location.

Top-Left → Bottom-Left → Top-Right → Bottom-Right

6. Press ▼ to select **Timer Counting Direction**, then press ◀/▶ to select the required timer method.

Selection	Description
Count Up	Increases from 0 to the preset time.
Count Down	Decrease from the preset time to 0.

7. To activate Presentation Timer, press ▼, then press ◀/▶ and select **Start Counting**, then press [Enter].
8. A confirmation message will be displayed. Select **Yes** and press [Enter] to confirm the selection. The screen will display the message **[Timer is On!]**. Once activated, the timer will start its countdown.

To cancel the timer, perform the following steps:

1. Enter **Basic > Presentation Timer** menu.
2. Select **OFF**. Press [Enter]. A confirmation message will be displayed afterwards.
3. Select **Yes** and press [Enter] to confirm the selection. The screen will display the message **[Timer is Off!]**.

Hiding the image



In order to draw the audience's attention to the presenter, you may press Blank to hide the screen image. Press any key on the projector or remote to restore the image. After hiding the image, the lower right corner of the screen will display the text **[Blank]**.

You can go to **Basic > Blank Timer** menu to set blank screen duration. Once the blank screen countdown is complete, the image will be automatically re-displayed.


 After pressing **[Blank]**, the projector will automatically enter **Power Saving** mode.



Caution

Do not block the projector lens. The blocking item may be heated to the point of deformation or may even cause a fire.

Locking control keys

Locking the control buttons of the projector allows you to prevent projector settings from being changed accidentally. Once **Panel Key Lock** has been activated, with the exception of the  Power button, none of the buttons on the Projector can be used.

1. Go to **System Settings > Panel Key Lock** menu.
2. Press **◀/▶** and select **ON**.
3. A confirmation message will be displayed afterwards. Select **Yes** to confirm your choice.
To switch off the Panel Key Lock, press **▶** and hold the button on the Projector for 3 seconds.
You may also use the remote to enter **System Settings > Panel Key Lock** menu, press **◀/▶** and select **OFF**.

 Buttons on the remote control can still be used even if the Panel Key Lock function has been switched on.

 If you press the  Power button to switch off the projector without switching off the Panel Key Lock function, the projector buttons will remain locked when you switch it on the next time.

Lamp Settings

Setting the projector in ECO/Dynamic ECO/Super ECO mode reduces system noise, power consumption and extends the lamp operation life.

Lamp mode	Description
Normal	Provides full lamp brightness.
Eco	Reduces lamp power consumption by 20% and lowers brightness to extend the lamp life and decreases the fan noise.
Dynamic Eco	Reduces lamp power consumption by up to 70% depending on the content brightness level.
Super ECO	Reduces lamp power consumption by 70% and lowers brightness to extend the lamp life and decreases the fan noise.

 Long-term to use super ECO mode is not recommend.

Reset Lamp Timer: Set the lamp hours to zero.

Lamp Usage Timer: Displays the time (hours) that the lamp has been running.

Extending lamp life

The projector lamp is a consumable item. To extend the lamp life, you can make the following settings in the OSD menu.

Setting Lamp Mode

Use the **Eco** mode to reduce system noise and power by 20%. If you select **Eco** mode, the light intensity will decrease and the projection pattern will be darker.

Setting the projector to **Eco** mode also extend the lamp life. To set **Eco** mode, go to **Advanced > Lamp Settings > Lamp Mode**, press **Enter** to enter the lamp mode, and then press **▲/▼** to select **Eco**, or press **Eco Mode** on the remote control to select.

Setting Auto Power Off

This function allows the projector to turn off automatically when no input source is detected after the set time, to avoid unnecessary wastage of lamp life.

1. Open the OSD menu and go to the **Power Management > Smart Energy** menu.
2. Press **Enter** to display the **Smart Energy** page.
3. Select **Auto Power Off** and press **▲/▼** to select the time.
4. If the pre-set time length is not suitable for your needs, select **Disable**. The projector will not automatically shut down in a certain time period.

Setting the Sleep Timer

This function allows the projector to shut down automatically after the set time, to avoid unnecessary wastage of lamp life.

1. Open the OSD menu and go to the **Power Management > Smart Energy** menu.
2. Press **Enter** to display the **Smart Energy** page.
3. Select **Sleep Timer** and press **▲/▼** to select the time.
4. If the length of the pre-set time does not apply to your presentation, select **Disable**. The projector will not automatically shut down in a certain time period.

Set power saving

If no input source is detected after 5 minutes. The projector will reduce power consumption to avoid unnecessary waste of lamp life. You can further decide whether to let the projector turn off after the set time.

1. Open the OSD menu and go to the **Power Management > Smart Energy** menu.

2. Press Enter to display the **Smart Energy** page.
3. Select **Eco**. Press ▲/▼ and select **Enable**.
4. When **Enable** is selected, the projector lamp will be changed to **Eco Mode** after no signal is detected. If the projector has not detected the signal after 20 minutes, its lamp power will be changed to **SuperEco** mode.

Timing of replacing the lamp

When the lamp light is on, a new light bulb will need to be installed. Contact dealer for assistance. The lamp may cause the projector to malfunction.



Note

If the lamp temperature is too high, the lamp indicator and temperature indicator will light up. Turn the power off and let the projector cool for 45 minutes. If the lamp is turned on again, the lamp indicator or temperature indicator will still be on. Please consult your dealer. For details, see page 46 “[LED Indicator](#)”.

Replacing the lamp



Turn off the power and unplug the projector from the wall outlet. To replace the lamp, contact a qualified service representative.

Operations at high altitudes

We recommend using the **High Altitude Mode** when the environment is at 1500 to 3000 meters above sea level and the temperature is between 5°C to 25°C.



Note

Do not activate High Altitude Mode if the environment is at 0 to 1500 meters above sea level and the temperature is between 5°C to 35°C.

Activating High Altitude Mode under such circumstances will lead to excessive cooling of the projector.

Activating **High Altitude Mode**:

1. Open the OSD menu and enter **System Settings > High Altitude Mode** menu.
2. Press ▼ and select **ON**.
3. Select **Yes**, and then press [Enter].



There is a chance that louder operational noises will be generated when using the projector in **High Altitude Mode**. The reason for this is the increased fan speed necessary to improve overall system cooling and performance.

Using this projector under extreme environments that exceed the mentioned limits may lead to auto-shutdown designed to prevent overheating of the projector. Under such circumstances, you should switch to **High Altitude Mode** to solve these issues. However, this does not mean that this projector is able to operate under any and all harsh or extreme conditions.

This projector comes with 3D functions that offer greater depth and immersion when viewing 3D movies, videos, sports, and games. You would need a pair of 3D glasses when viewing 3D images and videos.

If the 3D signal comes from an HDMI 1.4a compatible device, this projector will look for a 3D Sync data signal. Once detected, the projector will automatically switch to 3D projection. Under other circumstances, you may need to manually select the 3D Sync format to ensure that the proper projection of 3D images.

Selecting 3D Sync formats:

1. Use the 3D button on the remote control to enter the **3D Settings** menu or enter **Advanced > 3D Settings** menu.
2. Press [Enter] to bring up the **3D Settings** page.





Once 3D Sync function has been activated:

- Brightness of the projected image will be reduced.
- Color modes cannot be adjusted.
- Zoom functions can only enlarge the image to a limited degree.

If the 3D image has been severely inverted, you may set the 3D Sync Invert function to [Invert] to correct this problem.

Switch off the projector

1. Press the  Power button. A confirmation message will be displayed on screen. The message will disappear if you do not respond within a few seconds.
2. Press the  Power Button again, and the projector is turned off. Wait until the fan is completely stopped and unplug the power cord.
3. Disconnect the power cord from the wall socket if the projector will not be used in an extended period of time.

Menu system

Please note that the on-screen display (OSD) menu may vary according to the type of signal received.

The projector must detect at least one valid signal in order to use the menu items. If no device has been connected to the projector or if no signal has been detected, only a few menu items will be accessible.

Main menu	Sub-menu		Options
1. Display	Screen Color		Off / Blackboard / Green board / White board
	Aspect Ratio		Auto / 4:3 / 16:9
	Keystone		-40~40
	Position		Up / Down: -5~5 Left / Right: -5~5
	Phase		0~31
	H. Size		-15~15
	Zoom		0.8X~2.0X
	Overscan		0~5
	3X Fast Input		Inactive/Active
2. Image	Color mode		Standard / Presentation / Movie / Brightest / Photo
	Brightness		0~100
	Contrast		-50~50
	Color Temperature	Warm	Red gain / Green gain / Blue gain /
		Normal	Red offset / Green offset / Blue
		Cool	offset
	Advanced	Color	-50~50
		Hue	-50~50
		Sharpness	0~31
		Gamma	C1/C2/C3/C4/C5/C6/C7/C8/G1/G2/ G3/G4/G5/DICOM SIM/sRGB
	Color Management	Brilliant Color	Off/1/2/3/4/5/6/7/8/9/10
		Noise Reduction	0~31
			Red / Green / Blue / Primary color Cyan / Magenta/ Yellow
		Tint	-99~99
		Saturation	0~199
		Gain	5~195
	Reset color settings		Reset/Cancel

Main menu	Sub-menu		Options
3. Power Management	Auto Power On	Direct power on	On / Off
		Auto Power Off	Disable / 1 0 min / 20 min / 30 min
	Smart Energy	Sleep Timer	Disable / 30 min / 1 hr / 2 hr / 3 hr / 4 hr / 8 hr / 12 hr
		Power Saving	Disable / Enable
	Smart Restart		Disable / Enable
	Quick Power Off		Disable / Enable
4. Basic	Audio Settings	Mute	On / Off
		Volume	0~20
	Presentation Timer	Timer Period	1/2/3/4/5/10/15/20/60/120/240
		Timer Display	Always / 1 min / 2 min / 3 min / Never
		Timer Position	Top-Left / Bottom-Left / Top-Right / Bottom-Right
		Timer Counting Direction	Count Down/Count Up
		Start Counting	On / Off
	Pattern		Off / Test Card / Note Pad / World Map / Stave / Trellis Chart
	Blank Timer		Disable / 5 min / 10 min / 15 min / 20 min / 25 min / 30 min
	Message		On / Off
	Splash Screen		Black / Blue / ViewSonic / Off
5. Advanced	3D settings	3D Sync	Off / Frame Sequential / Frame Packing / Top-Bottom / Side-by-Side / Auto
		3D Sync Invert	Disable / Enable
	HDMI settings	HDMI Format	Auto / RGB / YUV
		HDMI Range	Auto / Enhanced / Normal
		HDMI Cable	Long / Normal
	Lamp Settings	Lamp Mode	Normal / Eco / Dynamic / SuperEco
		Reset Lamp Hours	Reset / Cancel
		Lamp Hours	
	DCR		On / Off
	Closed Caption		Off / CC1 / CC2 / CC3 / CC4
	Reset settings		Reset / Cancel

Main menu	Sub-menu	Options
6. System	Language	Multi-language OSD selection
	Projector Position	Front Table/Rear Table / Rear Ceiling / Front Ceiling
	Menu Settings	Menu Display Time
		5 sec / 10 sec / 15 sec / 20 sec / 25 sec / 30 sec
	Menu Position	Center / Top-Left / Top-Right / Bottom-Left / Bottom-Right
		Center / Top-Left / Top-Right / Bottom-Left / Bottom-Right
	High Altitude Mode	On / Off
	Quick Auto Search	On / Off
	Security Settings	Change Password
		Input Current Password / Input New Password
	Power On Lock	On / Off
7. Information	Panel Key Lock	On / Off
	Remote control code	1/2/3/4/5/6/7/8
	RS232 Baud Rate	2400/4800/9600/14400/19200/38400/57600/115200
	• Source	
	• Color Mode	
	• Resolution	
	• Color System	
	• Firmware Version	
	• 3X Fast Input	

Care of the projector

Do not attempt to disassemble any part of the projector. For servicing or repair contact your dealer.

Cleaning the lens

You can clean the dust-free glass lens if you notice any dirt or dust on its surface.

- Use a canister of compressed air to remove dust.
- Use a lens cleaning wipe or a soft, moist cloth to clean away any dirt or smudges on the dust-free glass.



Note

Do not spray or clean if lens is hot. Wait for projector lens to cool. Should the lens be hot cleaning a hot lens will cause the lens to crack.

Cleaning the projector case

Before cleaning the case, please refer to the proper shutdown procedure described in “Switch off the projector” to shutdown the projector and unplug the power cable.

- To remove dirt or dust, wipe the case with a soft, lint-free cloth.
- To remove stubborn dirt or stains, moisten a piece of soft cloth with water and a neutral pH detergent and wipe.



Note

Never use wax, alcohol, benzene, thinners, or other chemical-based detergents or abrasive solutions. These can damage the case.

Storing the projector

Follow the instructions below to store the projector for an extended time:

- Make sure the temperature and humidity of the storage area are within the recommended range for the projector. Please refer to “Specifications” or inquire your dealer for details of the recommended range.
- Retract the projector support pegs.
- Remove the battery from the remote control.
- Pack the projector in its original packaging or equivalent material.

Transporting the projector

It is recommended that you transport the projector within its original packaging or equivalent material.

LED Indicator



Projector status	Power indicator	Temp indicator	Lamp indicator
Stand-by mode	BLUE	Off	Off
Normal Operations	Before turning on, constantly lit after flashing for ten seconds	Off	Off
Temperature 1	BLUE	Flashing	Off
Temperature 2	BLUE	RED	Off
Fan Error 1	Off	RED	Flashing
Fan Error 2	Off	Flashing	Flashing
Fan Error 3	Off	RED	RED
Color Wheel Error	Off	Flashing	RED
Lamp abnormal	Off	Off	RED
Lamp-Lit error cooling	BLUE	Off	Flashing
Temperature Error	Off	RED	Off

? Projector is not turning on

Cause	Remedy
There is no power from the power cable.	Plug one end of the power cable at the AC inlet of the projector and the other end in the power outlet. If the power outlet has a switch, make sure that it is switched on.
Attempting to turn the projector on again during the cooling process.	Wait until the cooling down process has completed.

? No picture

Cause	Remedy
Video source is not turned on or is not connected correctly.	Switch the video source on and check that the signal cable is connected correctly.
The projector is not correctly connected to the input signal device.	Check the connection.
The input signal has not been correctly selected.	Select the correct input signal by using the [Source] key on the projector or remote control.

? Blurred image

Cause	Remedy
The projection lens is not correctly focused.	Use the focus function to adjust lens focus.
The projector and the screen are not aligned properly.	Adjust projection angle and direction as well as the height of the projector where necessary.

? Remote control does not work

Cause	Remedy
The battery is out of power	Replace the batteries.
There is an obstacle between the remote control and the projector.	Remove the obstacle.
You are too far away from the projector.	Stand within 8 meters (26 feet) of the projector.
The remote control does not match the remote control code of the projector.	Adjust the remote control code.

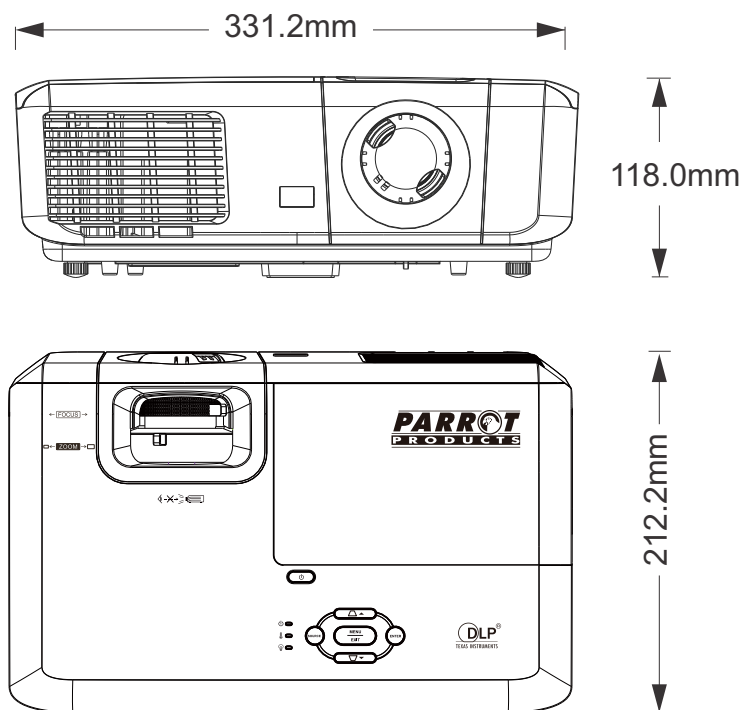
Projector specifications



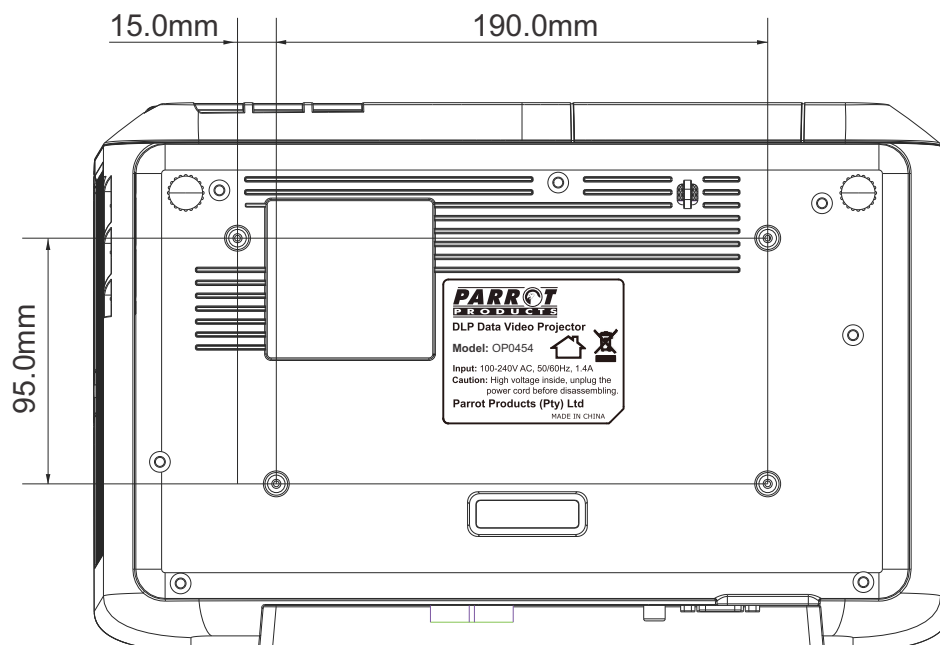
● All specifications are subject to change without notice.

Input Terminals		
1	VGA Input (DB 15 pin)	x1
2	HDMI (v1.4)	x1
3	Video (RCA)	x1
4	Audio In(3.5mm mini jack)	x1
Output Terminals		
1	Audio Out (3.5mm mini jack)	x1
2	USB (Type A) 5V/1A	x1
Control Terminals		
1	RS232 (9 pin type1)	x1
2	USB (Type mini B)	x1

Dimensions



Ceiling mount installation




Note: It is recommended to use the M4L8 screw for fixing the projector using the M4 screw hole. (M4/ L8 x 4)

Timing chart



Analog RGB			
Signal	Resolution (pixels)	Aspect Ratio	Refresh rate (Hz)
VGA	640x480	4:3	60/72/75/85
SVGA	800x600	4:3	60/72/75/85
XGA	1024x768	4:3	60/70/75/85
	1152x864	4:3	75
WXGA	1280x768	15:9	60
	1280x800	16:10	60/75/85
	1360x768	16:9	60
	1366x768	16:9	60
Quad-VGA	1280x960	4:3	60/85
SXGA	1280x1024	5:4	60
SXGA+	1400x1050	4:3	60
WXGA+	1440x900	16:10	60
UXGA	1600x1200	4:3	60
WSXGA+	1680x1050	16:10	60
HD	1280x720	16:9	60
MAC 13"	640x480	4:3	67
MAC 16"	832x624	4:3	75
MAC 19"	1024x768	4:3	75
MAC 21"	1152x870	4:3	75
HDTV (1080p)	1920x1080	16:9	60

HDMI			
Signal	Resolution (pixels)	Aspect Ratio	Refresh rate (Hz)
VGA	640x480	4:3	60
SVGA	800x600	4:3	60
XGA	1024x768	4:3	60
WXGA	1280x768	15:9	60
	1280x800	16:10	60
	1360x768	16:9	60
	1366x768	16:9	60
Quad-VGA	1280x960	4:3	60
SXGA	1280x1024	5:4	60
SXGA+	1400x1050	4:3	60
WXGA+	1440x900	16:10	60
WSXGA+	1680x1050	16:10	60
HDTV (1080p)	1920x1080	16:9	50/60
HDTV (1080i)	1920x1080	16:9	50/60
HDTV (720p)	1280x720	16:9	50/60
SDTV(480p)	720x480	4:3/16:9	60
SDTV(576p)	720x576	4:3/16:9	50
SDTV (480i)	720x480	4:3/16:9	60
SDTV (576i)	720x576	4:3/16:9	50

3D (including HDMI signal)			
Signal	Resolution (pixels)	Aspect Ratio	Refresh rate (Hz)
SVGA	800x600	4:3	60*/120**
XGA	1024x768	4:3	60*/120**
HD	1280x720	16:9	50*60*
WXGA	1280x800	16:9	60*
For Video Signal			
Signal	Resolution (pixels)	Aspect Ratio	Refresh rate (Hz)
SDTV (480i)***	720x480	4:3/16:9	60
<p> * 50 Hz and 60 Hz signals are supported for side by side, Top and Bottom, and Frame Sequential formats.</p> <p>** 120Hz signal only supports the frame Sequential format.</p> <p>*** The video signal (SDTV 480i) supports only the frame Sequential format.</p>			

HDMI 3D			
Within frame packing formats			
Signal	Resolution (pixels)	Aspect Ratio	Refresh rate (Hz)
1080p	1920x1080	16:9	23.98/24
720p	1280x720	16:9	50/59.94/60
Within side by side formats			
Signal	Resolution (pixels)	Aspect Ratio	Refresh rate (Hz)
1080i	1920x1080	16:9	50/59.94/60
720p	1280x720	16:9	50/60
Within Top and Bottom formats			
Signal	Resolution (pixels)	Aspect Ratio	Refresh rate (Hz)
1080p	1920x1080	16:9	23.98/24
720p	1280x720	16:9	50/59.94/60

Component video			
Signal	Resolution (pixels)	Aspect Ratio	Refresh rate (Hz)
HDTV (1080p)	1920x1080	16:9	50/60
HDTV (1080i)	1920x1080	16:9	50/60
HDTV (720p)	1280x720	16:9	50/60
SDTV(480p)	720x480	4:3/16:9	60
SDTV(576p)	720x576	4:3/16:9	50
SDTV (480i)	720x480	4:3/16:9	60
SDTV (576i)	720x576	4:3/16:9	50

Composite video		
Signal	Aspect Ratio	Refresh rate (Hz)
NTSC	4:3	60
PAL	4:3	50
PAL60	4:3	60
SECAM	4:3	50