Digital Projector

User Manual

Home Cinema Series I W2720i

V 1.01

Warranty and Copyright information

Limited warranty

BenQ warrants this product against any defects in material and workmanship, under normal usage and storage.

Proof of purchase date will be required with any warranty claim. In the event this product is found to be defective within the warranty period, BenQ's only obligation and your exclusive remedy shall be replacement of any defective parts (labor included). To obtain warranty service, immediately notify the dealer from which you purchased the product of any defects.

Important: The above warranty shall be void if the customer fails to operate the product in accordance with BenQ's written instructions, especially the ambient humidity must be in-between 10% and 90%, temperature in-between 0°C and 35°C, altitude lower than 4920 feet, and avoiding to operate the projector in a dusty environment. This warranty gives you specific legal rights, and you may have other rights which vary from country to country.

For other information, please visit www.BenQ.com.

Copyright

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HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

BenQ ecoFACTS

BenQ has been dedicated to the design and development of greener product as part of its aspiration to realize the ideal of the "Bringing Enjoyment 'N Quality to Life" corporate vision with the ultimate goal to achieve a low-carbon society. Besides meeting international regulatory requirement and standards pertaining to environmental management, BenQ has spared no efforts in pushing our initiatives further to incorporate life cycle design in the aspects of material selection, manufacturing, packaging, transportation, using and disposal of the products. BenQ ecoFACTS label lists key eco-friendly design highlights of each product, hoping to ensure that consumers make informed green choices at purchase. Check out BenQ's CSR Website at http://csr.BenQ.com/ for more details on BenQ's environmental commitments and achievements.

Product carbon footprint (PCF)

The carbon footprint of a product is the estimated carbon emission throughout its entire life cycle. The information may be available on the package or online.

The carbon footprint stated for this product is the current estimate and the actual result may be subject to change due to unforeseen conditions. This means the actual product carbon footprint may be different from the declared statement.

You may not find your product's carbon footprint as it was not available at the time the product was shipped. The information should be online once it's available.

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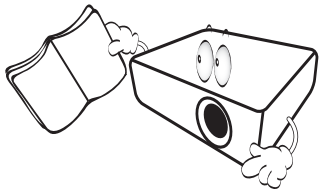
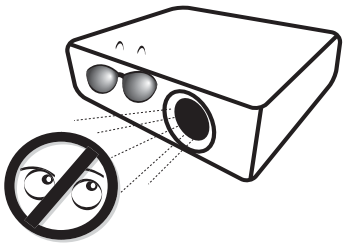
Important safety instructions

Your projector is designed and tested to meet the latest standards for safety of information technology equipment. However, to ensure safe use of this product, it is important that you follow the instructions mentioned in this manual and marked on the product.

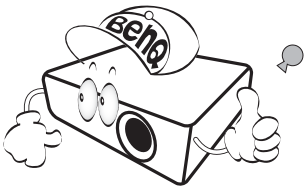
1. Please read this manual before you operate your projector. Save it for future reference.



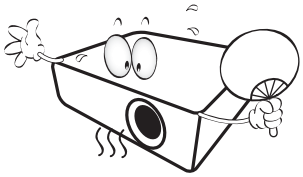
2. Do not look straight at the projector lens during operation. The intense light beam may damage your eyes.



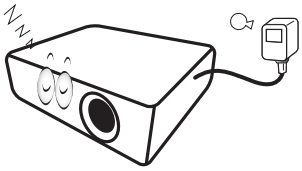
3. Refer servicing to qualified service personnel.



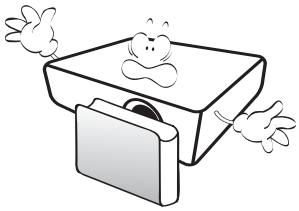
4. Always open the lens shutter (if any) or remove the lens cap (if any) when the projector light source is on.
5. The light source becomes extremely hot during operation.



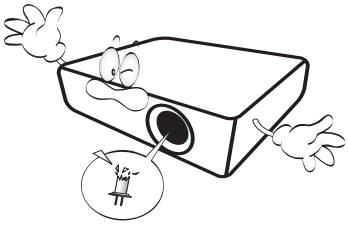
6. In some countries, the line voltage is NOT stable. This projector is designed to operate safely within a mains voltage between 100 to 240 volts AC, but could fail if power cuts or surges of ±10 volts occur. In areas where the mains voltage may fluctuate or cut out, it is recommended that you connect your projector through a power stabilizer, surge protector or uninterruptible power supply (UPS).



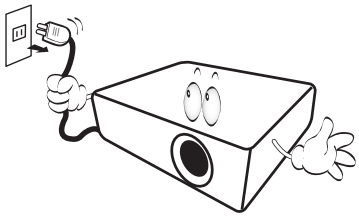
7. Do not block the projection lens with any objects when the projector is under operation as this could cause the objects to become heated and deformed or even cause a fire.



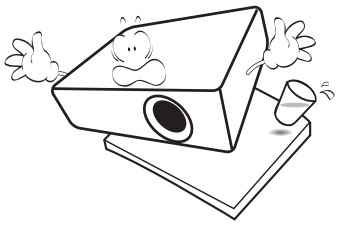
8. Do not operate light sources beyond the rated light source life. Excessive operation of light sources beyond the rated life could cause them to break on rare occasions.



9. Never replace the light source assembly or any electronic components unless the projector is unplugged.

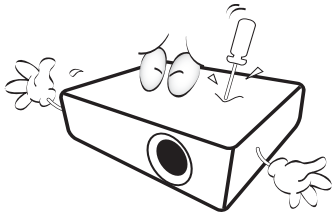


10. Do not place this product on an unstable cart, stand, or table. The product may fall, sustaining serious damage.

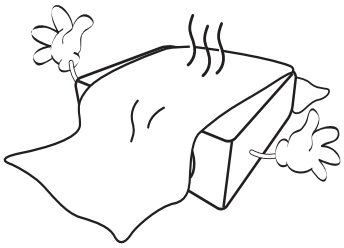


11. Do not attempt to disassemble this projector. There are dangerous high voltages inside which may cause death if you should come into contact with live parts. The only user serviceable part is the light source which has its own removable cover.

    Under no circumstances should you ever undo or remove any other covers. Refer servicing only to suitably qualified professional service personnel.

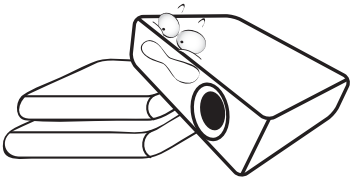


12. Do not block the ventilation holes.
    - Do not place this projector on a blanket, bedding or any other soft surface.
    - Do not cover this projector with a cloth or any other item.
    - Do not place inflammables near the projector.

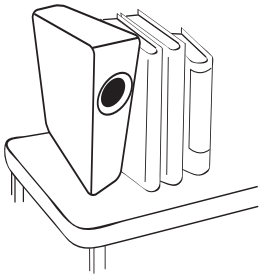


    If the ventilation holes are seriously obstructed, overheating inside the projector may result in a fire.

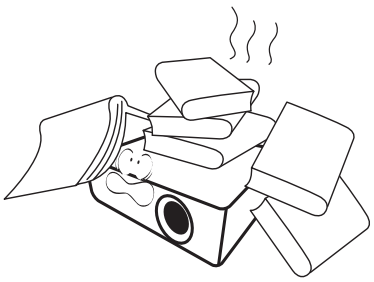
13. Always place the projector on a level, horizontal surface during operation.
    - Do not use if tilted at an angle of more than 10 degrees left to right, nor at angle of more than 15 degrees front to back. Using the projector when it is not fully horizontal may cause a malfunction of, or damage to, the light source.



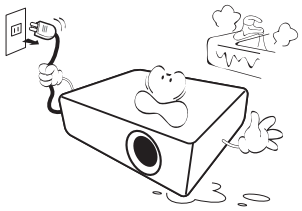
14. Do not stand the projector on end vertically. Doing so may cause the projector to fall over, causing injury or resulting in damage to the projector.



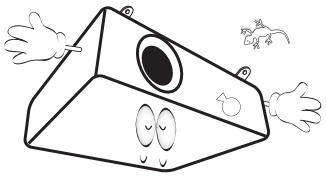
15. Do not step on the projector or place any objects upon it. Besides probable physical damage to the projector, doing so may result in accidents and possible injury.



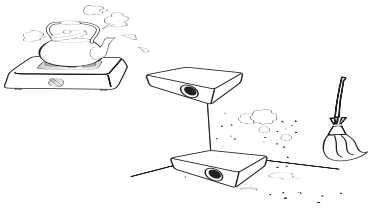
16. When the projector is under operation, you may sense some heated air and odor from its ventilation grill. It is a normal phenomenon and not a product defect.
17. Do not place liquids near or on the projector. Liquids spilled into the projector may cause it to fail. If the projector does become wet, disconnect it from the power supply's power outlet and call BenQ to have the projector serviced.



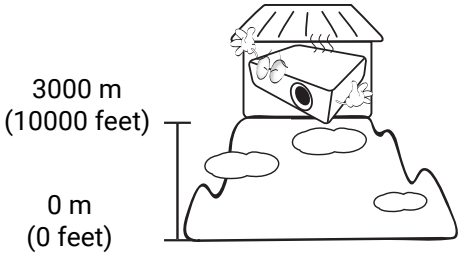
18. This product is capable of displaying inverted images for ceiling/wall mount installation.



19. This apparatus must be earthed.
20. 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 free flow of air around the projector.
    - Locations where temperatures may become excessively high, such as the inside of a car with all windows rolled up.
    - Locations where excessive humidity, dust, or cigarette smoke may contaminate optical components, shorten the projector's life span and darken the image.



    - Locations near fire alarms
    - Locations with an ambient temperature above 40°C / 104°F
    - Locations where the altitudes are higher than 3000 m (10000 feet).



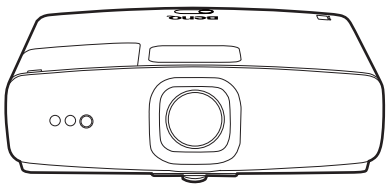
To avoid damaging the DLP chips, never aim a high-power laser beam into the projection lens.

Introduction

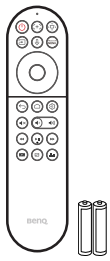
Shipping contents

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

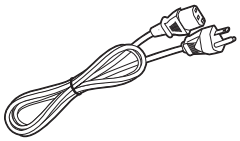
Standard accessories



Projector



Remote controls with batteries



Power cord

QS02 Android TV dongle (availability varies by region)

Lens cover (pre-installed)

Cable management clip and screws

User documents

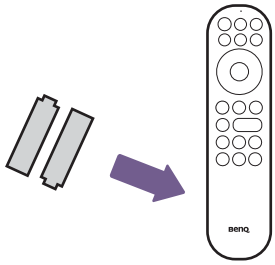
- The supplied accessories will be suitable for your region, and may differ from those illustrated.
- *A warranty card is only supplied in some specific regions. Please consult your dealer for detailed information.

Optional accessories

- Universal wall mount

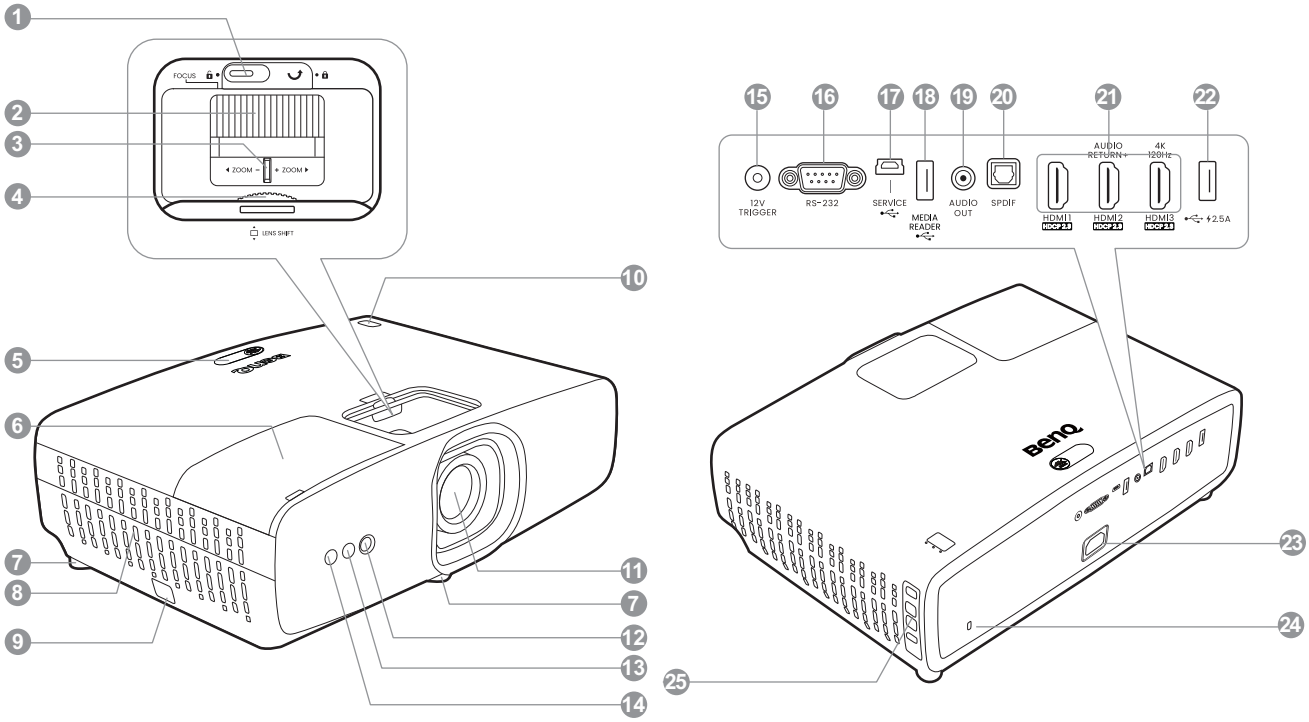
Replacing the remote control batteries

1. Push down and open the battery cover, as illustrated.
2. Remove the old batteries (if applicable) and install two AAA batteries. Make sure that the positive and negative ends are positioned correctly, as illustrated.
3. Refit the battery cover until it clicks into place.

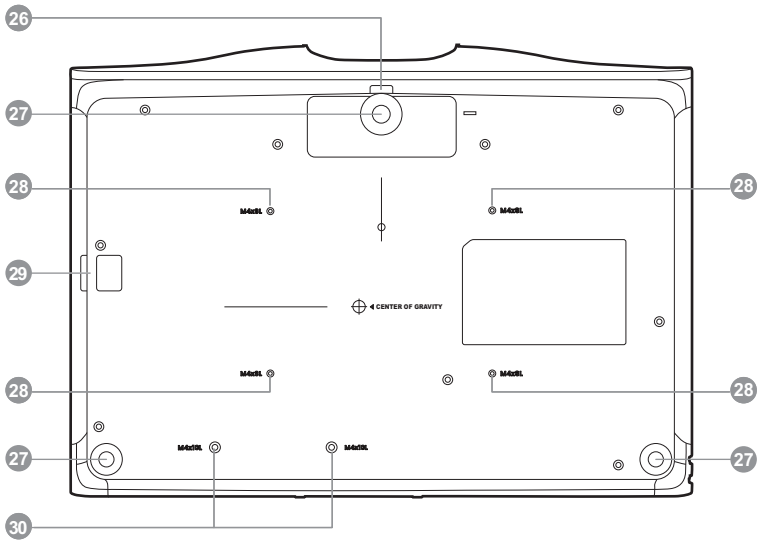


- Avoid leaving the remote control and batteries in an excessive heat or humid environment like the kitchen, bathroom, sauna, sunroom or in a closed car.
- Replace only with the same or equivalent type recommended by the battery manufacturer.
- Dispose of the used batteries according to the manufacturer's instructions and local environment regulations for your region.
- Never throw the batteries into a fire. There may be danger of an explosion.
- If the batteries are dead or if you will not be using the remote control for an extended period of time, remove the batteries to avoid damage to the remote control from possible battery leakage.

Projector exterior view



1. Focus ring stabilizer
2. Focus ring
3. Zoom ring
4. Lens shift wheel
5. IR remote control sensor and ambient light sensor
6. Wireless dongle compartment
7. Adjustable feet
8. Air vents
9. Security bar
10. **POWER indicator light** / **TEMPerature warning light** / **LAMP indicator light** (See Indicators on page 53)
11. Projection lens
12. Camera (for auto screen adjustments)
13. IR remote control sensor
14. Time Of Flight sensor (for auto screen adjustments)
15. 12 V trigger jack (for electric projection screens)
16. RS-232 control port
17. USB Mini-B port (for firmware upgrades)
18. USB Type-A port (1.5A media reader/drive, firmware download)
19. Audio output jack
20. SPDIF output port
21. HDMI 1 / HDMI 2 (with Audio Return+) / HDMI 3 (4K 120Hz input) input port (HDCP 2.3)
22. USB Type-A port (2.5A power supply)
23. AC power jack
24. Kensington anti-theft lock slot
25. External control panel (see Controls and functions on page 13)

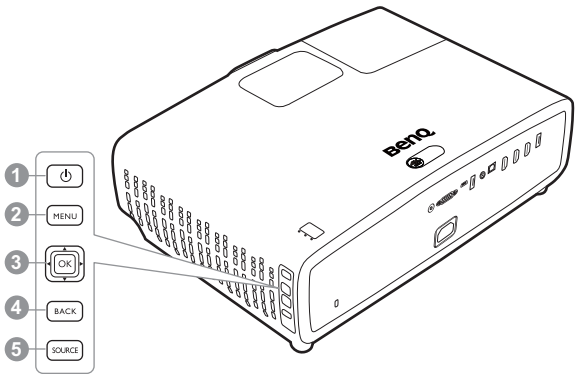


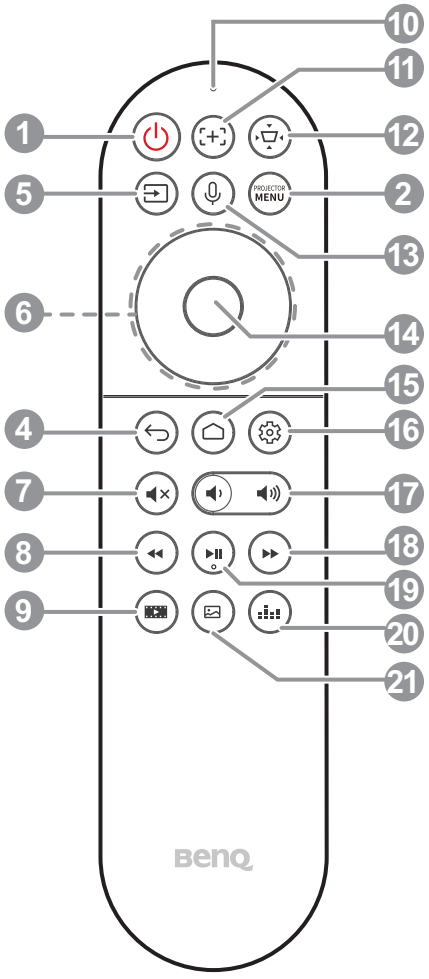
26. Front adjustable foot release latch
27. Adjustable feet
28. Wall/ceiling mount screw holes
29. Security bar
30. Cable routing bracket screw holes

Controls and functions

Projector & Remote control

All the key presses described in this document are available on the remote control or projector.





1. **Power /**

   Toggles the projector between standby mode and on.

2. **Menu /**

   Turns on the On-Screen Display (OSD) menu.

3. **OK** key **and joystick** (▲, ▼, ◄, ►)

   When pressed, confirms a selected item in the ATV or projector OSD menu. When the input source is ATV, press to play or pause a video or audio file during media playback.

   When pushed in a direction, navigates up/down/left/right to select a desired ATV or projector OSD menu item.

4. **Back /**

   When the input source is in ATV, press to go back to the previous ATV option, close an ATV warning or reminder pop-up menu, or exit the current Android application under the ATV source.

   When the projector OSD menu is on, press to go back to the previous projector OSD menu, close a projector warning or reminder pop-up menu, or exit and save projector menu settings.

5. **Source /**

   Displays the source selection bar.

6. **Arrow keys** (▲, ▼, ◄, ►)

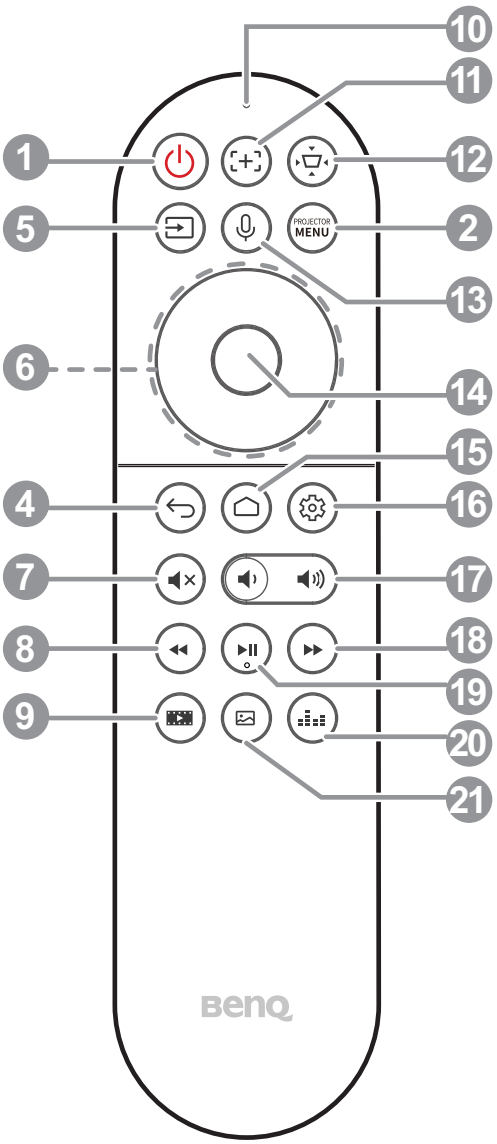
   Navigates up/down/left/right to select a desired ATV or projector OSD menu item.

7. **Mute**

   Toggles projector audio between on and off.

8. **Rewind**

   Rewinds video or audio playback.



9. **Filmmaker**

   Switches Picture Mode to Filmmaker mode.

10. **Microphone**

    Receives voice commands.

11. **N/A**

    This key has no function.

12. **Screen adjustment**

    Displays the **Screen Adjustment** menu.

13. **Voice search / Voice assistant**

    Press and hold the **Voice search** / **Voice assistant** button to activate voice assistant. Hold this key and speak to the microphone at the top of the remote control while using voice assistant.

14. **OK**

    Confirms a selected item in the ATV or projector OSD menu.

    When the input source is ATV, press **OK** to play or pause a video or audio file during media playback.

15. **Android TV home screen**

    Displays Android TV home screen.

16. **Android settings**

    Displays Android settings.

17. **Volume keys**

    Decreases or increases the projector volume.

18. **Fast forward**

    Fast forwards current video or audio playback

19. **Play / Pause**

    Plays/Pauses a video or audio playback

20. **Sound mode**

    Displays sound mode menu.

21. **Picture mode**

    Displays the Picture Mode menu.

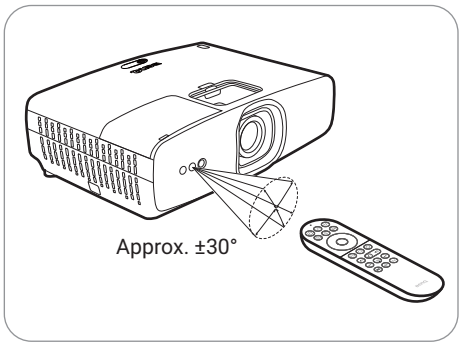
Do not block the projection lens from projecting as this could cause the blocking object to become heated and deformed or even cause a fire.

Remote control effective range

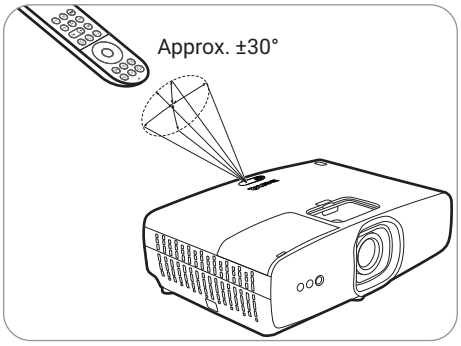
The remote control must be held at an angle within 30 degrees perpendicular to the projector's IR remote control sensor(s) to function correctly. The distance between the remote control and the sensor(s) should not exceed 8 meters (~ 26 feet).

Make sure that there are no obstacles between the remote control and the IR sensor(s) on the projector that might obstruct the infra-red beam.

- Operating the projector from the front

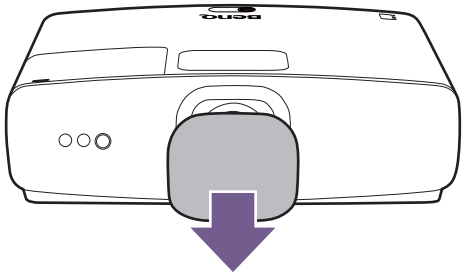


- Operating the projector from the top



Removing the lens cover

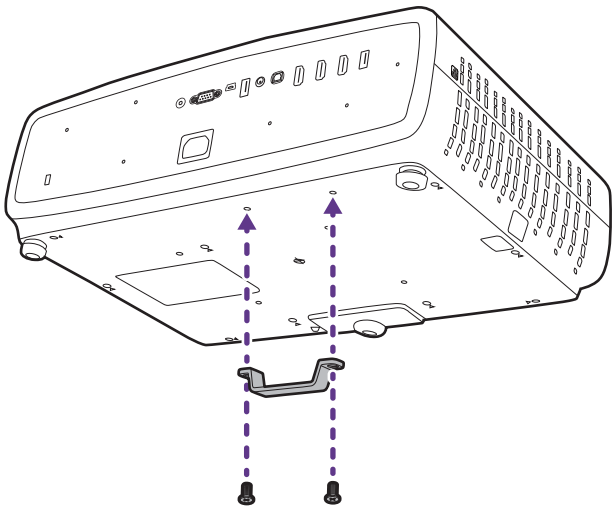
The lens cover must be removed before turning on the projector. Hold the top and bottom of the lens cover and then pull it outward to remove it from the projector.



Do not attach the lens cover while the projector is on as this could cause the lens cover to become heated and deformed or even cause a fire.

Installing the cable routing bracket

When mounting the projector, the cable routing bracket can be used to secure cables connected to the projector. To install the bracket, align it with the bracket screw holes at the bottom of the projector and then use a screwdriver to fasten the two screws that secure the bracket in place.



Positioning your projector

Choosing a location

Before choosing an installation location for your projector, take the following factors into consideration:

• • Size and position of your screen

• • Electrical outlet location

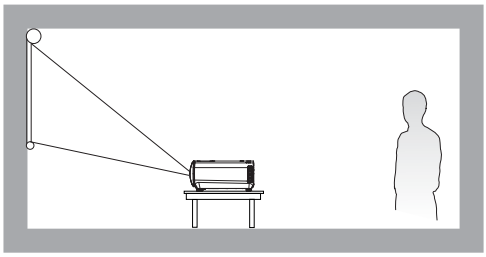
• • Location and distance between the projector and the rest of your equipment

The projected image size and vertical offset depend on how far you place the projector, and the zoom setting you choose. The table and diagram from Projection dimensions on page 18 can help decide exact distance and height of your projector

You can install your projector in the following ways.

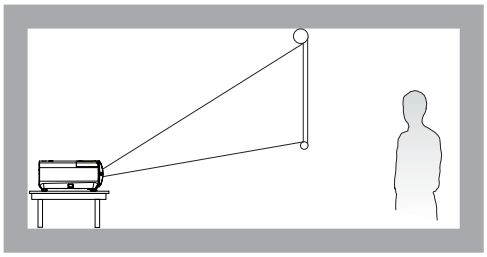
1. **Front Table**

Select this location with the projector placed on the table in front of the screen. This is the most common way to position the projector for quick setup and portability.



2. **Rear Table**

Select this location with the projector placed on the table behind the screen. Note that a special rear projection screen is required.



3. **Front Ceiling**

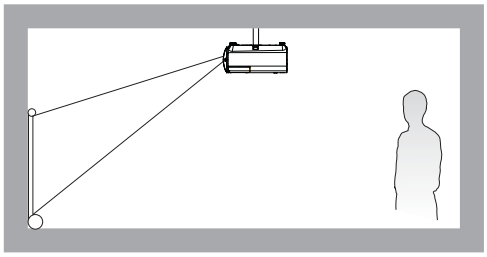
Select this location with the projector suspended upside-down in front of the screen. Purchase the BenQ Projector Ceiling/Wall Mount Kit from your dealer to mount your projector.

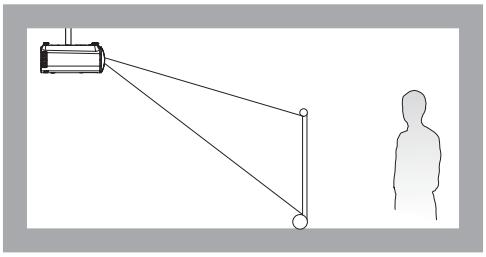
The projector does not feature ceiling mount components/equipment. When choosing to use a ceiling location, you must place it on an elevated and even shelf purchased separately. Make sure the shelf is stable enough to support the projector's weight. Secure the shelf properly and keep the projector from falling.

4. **Rear Ceiling**

Select this location with the projector suspended upside-down from behind the screen. Note that a special rear projection screen and the BenQ Projector Ceiling/Wall Mount Kit are required for this installation location.

The projector does not feature ceiling mount components/equipment. When choosing to use a ceiling location, you must place it on an elevated and even shelf purchased separately. Make sure the shelf is stable enough to support the projector's weight. Secure the shelf properly and keep the projector from falling.





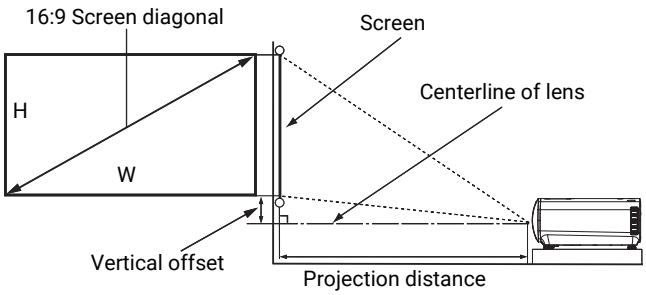
After turning on the projector, go to **Advanced** menu - **Installation** menu > **Projector Position** and press ◄ / ► to select a setting.

Obtaining a preferred projected image size

The distance from the projector lens to the screen, the zoom setting, and the video format each factors in the projected image size.

Projection dimensions

• The screen aspect ratio is 16:9 and the projected picture is in a 16:9 aspect ratio



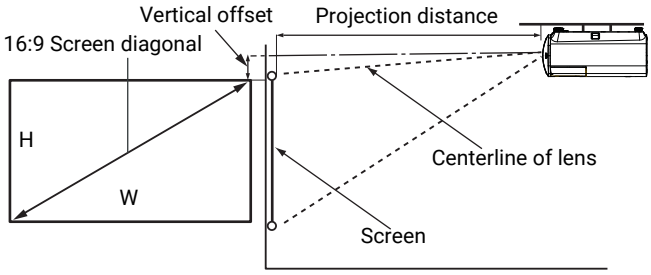


Image size				Projection distance (mm)			Vertical offset (mm)
Diagonal		W (mm)	H (mm)	Min. Length	Average	Max. Length	
Inch	mm			(Max. Zoom)		(Min. Zoom)	
30	762	664	374	664	764	863	19
40	1016	886	498	886	1018	1151	25
50	1270	1107	623	1107	1273	1439	31
60	1524	1328	747	1328	1528	1727	37
80	2032	1771	996	1771	2037	2302	50
95	2413	2103	1183	2103	2419	2734	59
100	2540	2214	1245	2214	2546	2878	62
110	2794	2435	1370	2435	2800	3166	68
120	3048	2657	1494	2657	3055	3454	75
130	3302	2878	1619	2878	3310	3741	81
140	3556	3099	1743	3099	3564	4029	87
150	3810	3321	1868	3321	3819	4317	93
160	4064	3542	1992	3542	4073	4605	100
170	4318	3763	2117	3763	4328	4893	106
180	4572	3985	2241	3985	4583	5180	112
190	4826	4206	2366	4206	4837	5468	118
200	5080	4428	2491	4428	5092	5756	125

For example, if you are using a 100-inch screen, the recommended projection distance is 2,546 mm.

If your measured projection distance is 2,300 mm, the closest match in the "Projection distance (mm)" column is 2,419 mm. Looking across this row shows that a 95" (about 2.4 m) screen is required.

All measurements are approximate and may vary from the actual sizes.
BenQ recommends that if you intend to permanently install the projector, you should physically test the projection size and distance using the actual projector in situ before you permanently install it, so as to make allowance for this projector's optical characteristics. This will help you determine the exact mounting position so that it best suits your installation location. The distance between the ambient light reflection screen and the projector should also be considered during installation.

Mounting the projector

If you intend to mount your projector, we strongly recommend that you use a proper fitting BenQ projector mounting kit and that you ensure it is securely and safely installed. If you use a non-BenQ brand projector mounting kit, there is a safety risk that the projector may fall down due to an improper attachment through the use of the wrong gauge or length screws.

Before mounting the projector

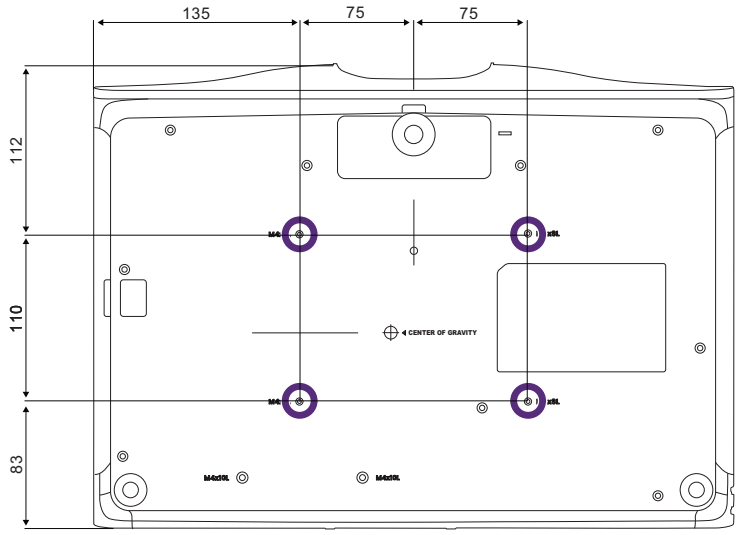
- Purchase a BenQ projector mounting kit from the place you purchased your BenQ projector.
- BenQ recommends that you also purchase a separate Kensington lock compatible security cable and attach it securely to both the Kensington lock slot on the projector and the base of the mounting bracket. This will perform the secondary role of restraining the projector should its attachment to the mounting bracket become loose.
- Ask your dealer to install the projector for you. Installing the projector on your own may cause it to fall and result in injury.
- Take necessary procedures to prevent the projector from falling off such as during an earthquake.
- The warranty doesn’t cover any product damage caused by mounting the projector with a non-BenQ brand projector mounting kit.
- Consider the surrounding temperature where the projector is ceiling/wall mounted. If a heater is used, the temperature around the ceiling/wall may be higher than expected.
- Read the user manual for the mounting kit about the range of torque. Tightening with torque exceeding the recommended range may cause damage to the projector and subsequently falling off.
- Make sure the power outlet is at an accessible height so that you can easily shut down the projector.

Ceiling/Wall mount installation diagram

Ceiling/Wall mount screw: M4

(Max. L = 11 mm; Min. L = 8 mm)

Amount: 4 pcs

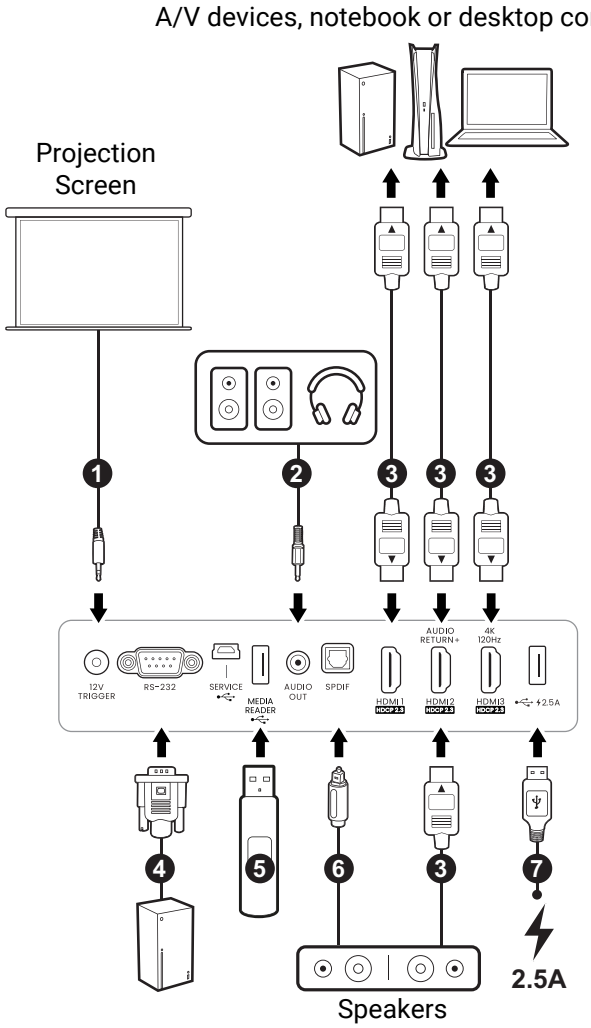


Unit: mm

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. 12V trigger for screen control
2. Audio cable
3. HDMI cable
4. RS232 cable
5. USB Storage Device for Media Reader, Firmware Upgrade
6. SPDIF cable
7. USB cable (A type)

- In the connections above, some cables may not be included with the projector (see Shipping contents on page 9). They are commercially available from electronics stores.
- The connection illustrations are for reference only. The rear connecting jacks available on the projector vary with each projector model.
- Many notebooks do not turn on their external video ports when connected to a projector. Usually a key combo like FN + function key, or Windows + F9 with a monitor symbol turns the external display on/off. Press FN and the labeled function key simultaneously. Refer to your notebook's documentation to find your notebook's key combination.
- 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.
- The built-in speaker(s) will be muted when the AUDIO OUT jack is connected.
- Please check your computer's baud rate at 9600 so that you can connect the projector by using a suitable RS-232 cable.

Operation

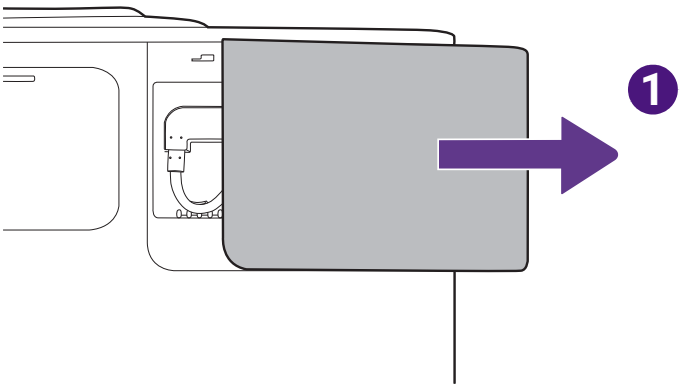
Installing the Android TV dongle (regional specific)

Required for product supplied with the Android TV dongle QS02.

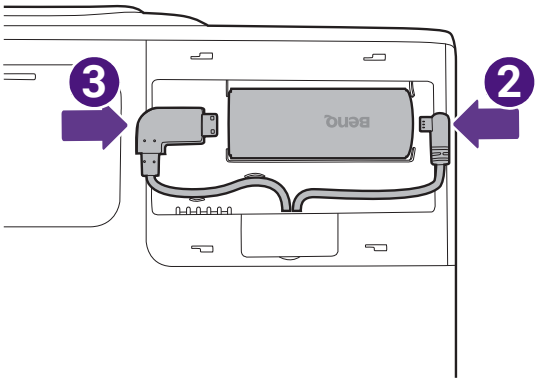
The supplied streaming dongle varies by region. In some of the regions, the Android TV dongle QS02 is supplied and you need to make installation and setup properly before use.

You must first install the Android TV dongle before you can begin to use the projector. To install the dongle:

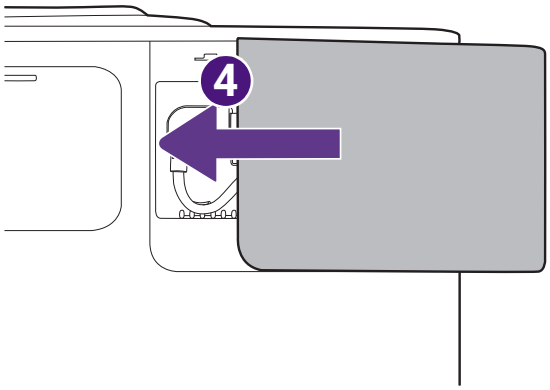
1. Slide the wireless dongle compartment cover outward and then lift it up to remove it from the projector.



2. Connect the Micro USB cable located in the compartment to the Micro USB port on the dongle.
3. Connect the Mini HDMI cable to the Mini HDMI port on the dongle.

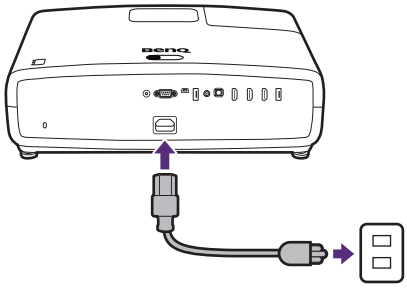


4. Place the dongle into the compartment and then re-install the compartment cover.



Starting up the projector

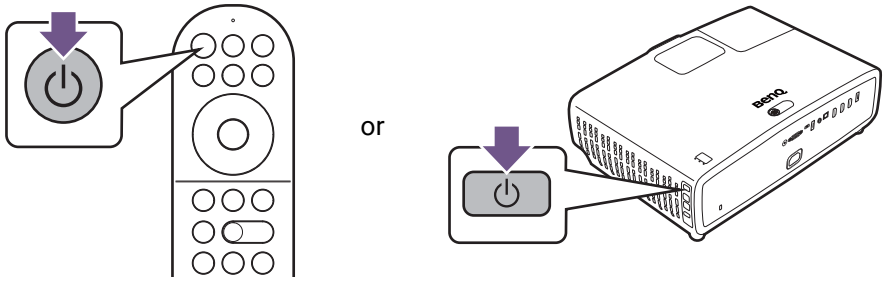
1. Plug the power cord. Turn on the power outlet switch (if necessary). The power indicator on the projector lights orange after power has been applied.



2. Press ⏻ on the projector or the remote control or on the projector to start the projector. The power indicator flashes green and then stays green when the projector is on.

   The start up procedure takes within a minute. In the later stage of starting up, a start-up logo is projected.

   (If necessary) Rotate the focus ring to adjust the image clarity.



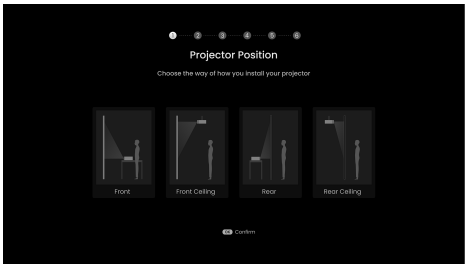
3. If this is the first time you turn on the projector, the setup wizard appears to guide you through setting up the projector. Follow the on screen instructions.

If you have already done this, skip this step and move on to the next step

Step 1:

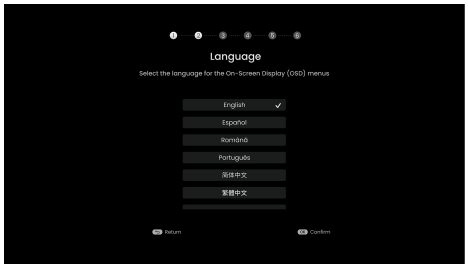
Specify **Projector Position**.

For more information about projector position, see Choosing a location on page 17.



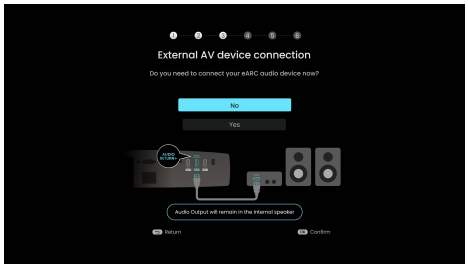
Step 2:

Specify OSD **Language**.



Step 3:

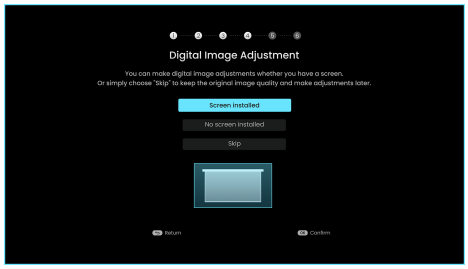
Confirm whether you want to connect an eARC audio device.



Step 4:

Adjust the image based on the environment in which the projector is installed.

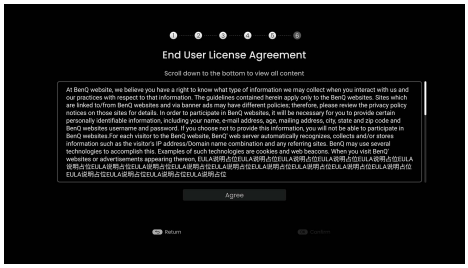
- **Screen installed**: faster installation with digital image adjustment. This option performs auto screen fit.
- **No screen installed**: faster installation with digital image adjustment. This option performs 2D keystone.
- **Skip**: This option does not make image adjustment at this moment.



Using image adjustments in this step will slightly alter the image quality. If you do not want the image quality to be altered, select **Skip**.

Step 5:

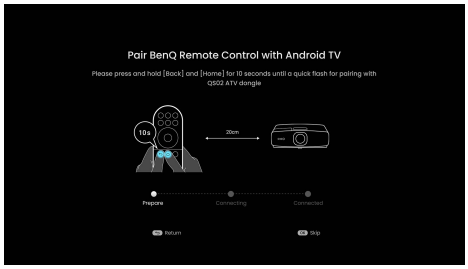
Agree to the End User License Agreement.



Step 6:

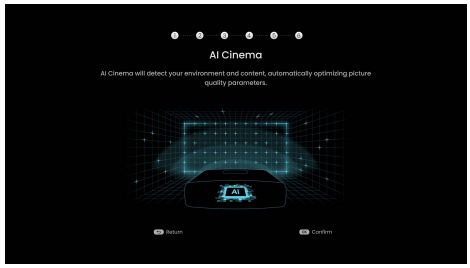
Pair the remote control to the QS02 Android TV dongle.

If you have not installed the QS02 Android TV dongle yet, you will be reminded to do so prior to this step.



Step 7:

Activate the projector's **AI Cinema** feature. See Optimizing the image quality by AI Cinema on page 36 for more information on this feature.



4. Switch all of the connected equipment on.
5. The projector will search for input signals and detect if a signal is available from the input source that was last used and switch to that input source if it is available, if a signal is not available, the projector will display Source menu.

   You can also press **SOURCE** to select your desired input signal. See Switching input signal on page 29.

- Please use the original accessories (e.g. power cord) to avoid possible dangers such as electric shock and fire.
- If the projector is still hot from previous activity, it will run the cooling fan for approximately 90 seconds before energizing the light source.

- The Setup Wizard screenshots are for reference only and may differ from the actual design.
- If the frequency/resolution of the input signal exceeds the projector's operating range, you will see the message "Out of Range" displayed on the background screen. Please change to an input signal which is compatible with the projector's resolution or set the input signal to a lower setting. See Timing chart on page 57.
- If no signal is detected for 3 minutes, the projector automatically enters saving mode.

QS02 Android TV setup (regional specific)

Required for product supplied with the Android TV dongle QS02.

You should install QS02 first as instructed in Installing the Android TV dongle (regional specific) on page 22.

Screens and procedures vary for product that supplies with other streaming dongles. Simply follow the on-screen instructions.

Before you start

Check that you have:

• A Wi-Fi Internet connection

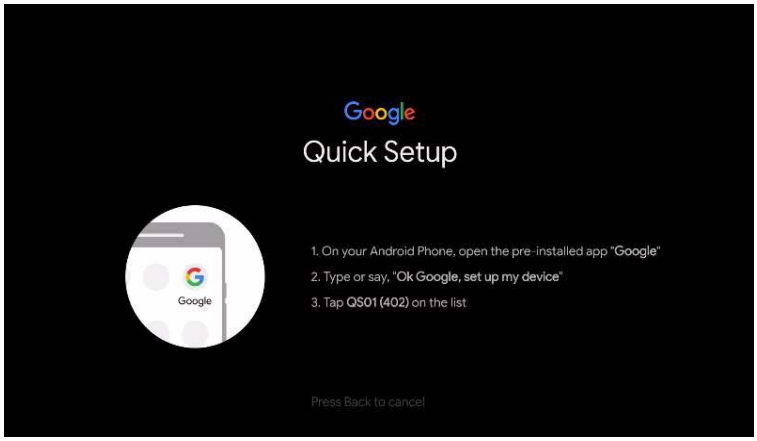
• A Google Account

Then follow the on-screen instructions to setup Android TV.

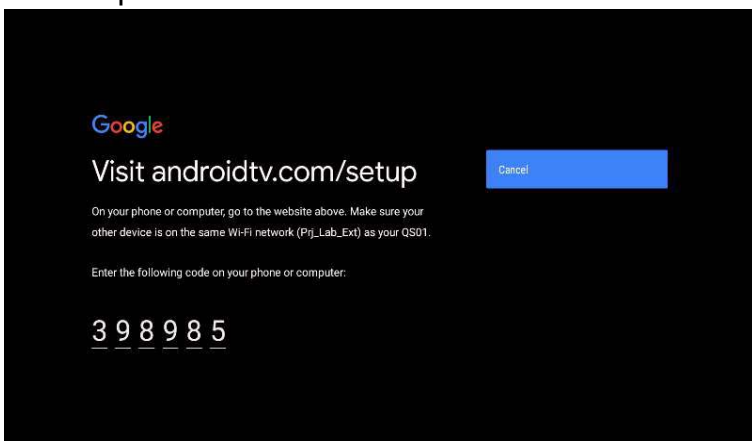
Set up your device

There are 3 options to set up your device

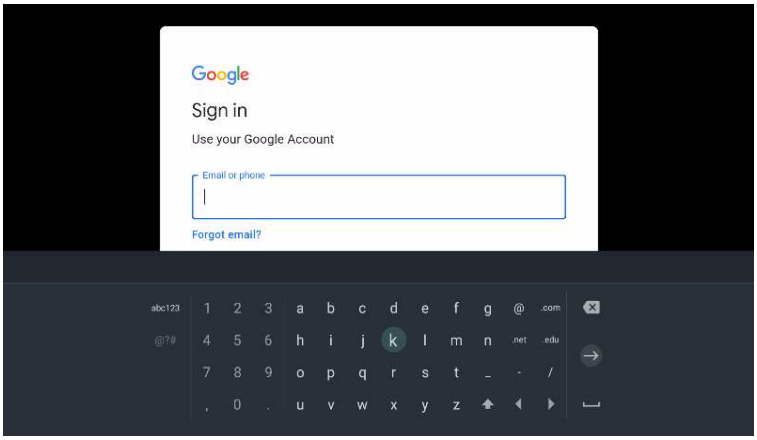
• Quick Setup using an Android phone



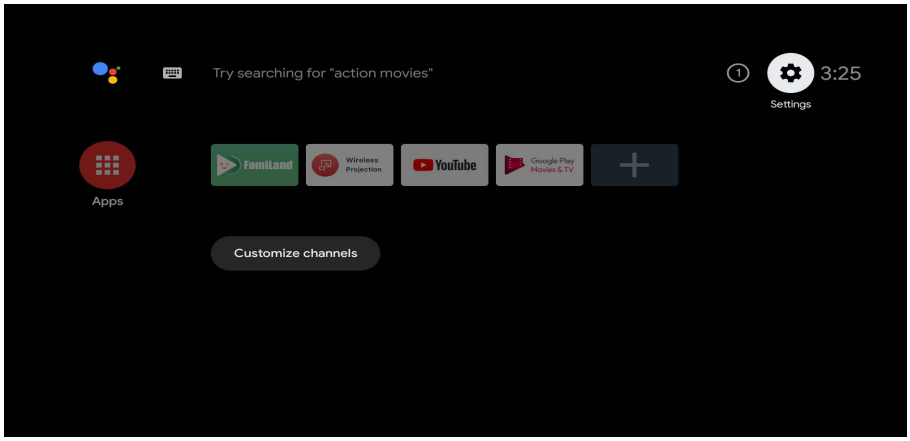
• Using your phone or computer



• Using your remote control



Display Android TV home screen



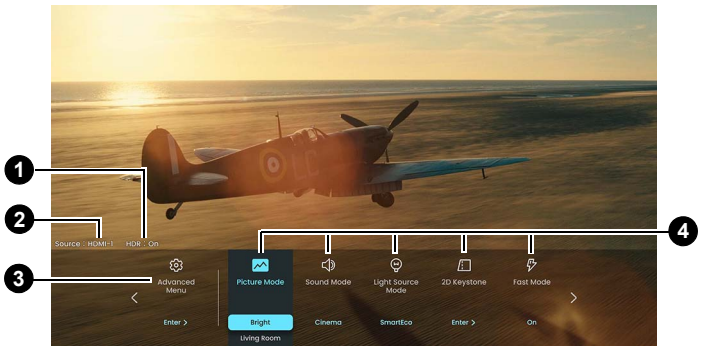
For more information, visit https://support.google.com/androidtv/

Using the menus

The projector is equipped with On-Screen Display (OSD) menus for making various adjustments and settings.

The OSD screenshots below are for reference only, and may differ from the actual design.

Below is the overview of the **Basic** OSD menu.

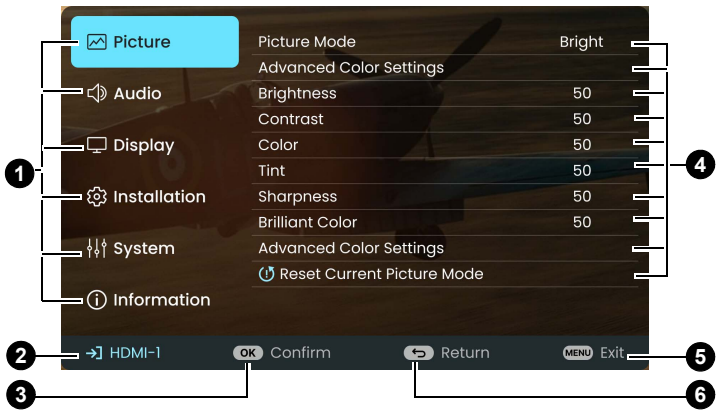


1. **HDR** status
2. Current input signal
3. **Advanced** Menu
4. Main menus

To access this home screen, press the menu button on the remote control.

- Use the arrow keys (◄/►) on the remote control to move through the main menu items.
- Use the arrow keys (▲/▼) on the remote control to select each main menu item's settings.
- Select the **Advanced** Menu option and then press **OK** on the remote control to access the **Advanced** Menu.

Below is the overview of the **Advanced** OSD menu.

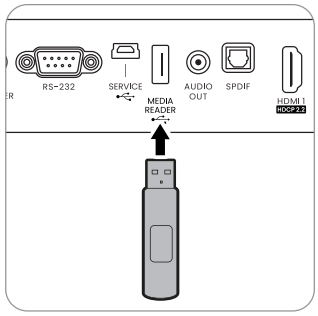


1. Main menus
2. Current input signal
3. Press **OK** to activate a sub-menu
4. Sub-menus
5. Press **PROJECTOR MENU** to exit the menu
6. Press **BACK** to go to the previous page or to exit the menu.

- Use the arrow keys (▲/▼/◄/►) on the remote control to move through the menu items.
- Press **OK** on the remote control to confirm the selected menu item.

Upgrading firmware

1. Go to BenQ Website and enter into **Product Page** > **Support** > **Software** to download the latest firmware file.
2. Unzip the download file, find and save the file named "W2720Upgrade.bin" to the USB flash drive.
   (Suggest to use the USB flash drive with FAT32 format)
3. Insert USB flash drive into **MEDIA READER** port.



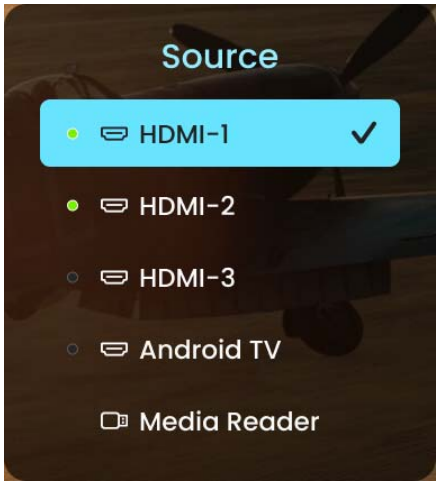
4. Go to **Advanced** Menu - **System** > **Firmware Upgrade** menu and press **OK**.
5. Select **Yes** to upgrade the firmware version. In the process of upgrading, please keep power on until updating finished.

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. When starting up, the projector automatically searches for the available signals.

Be sure the **Advanced** Menu - **Display** > **Auto Source Search** setting is **On** if you want the projector to automatically search for the signals.

To select the source:



1. Press **SOURCE** or . A source selection bar appears.
2. Press ▲/▼ until your desired signal is selected and press **OK**.

   Once detected, the picture from the selected source will appear. If there is multiple equipment connected to the projector, repeat steps 1-2 to search for another signal.

- The brightness level of the projected image will change accordingly when you switch between different input signals.
- For best display picture results, you should select and use an input signal which outputs at the projector's native resolution. Any other resolutions will be scaled by the projector depending upon the "aspect ratio" setting, which may cause some image distortion or loss of picture clarity.

Presenting from a Media Reader

The USB port on the projector allows you to browse image and document files stored on a USB flash drive connected to the projector. It can eliminate the need for a computer source.

Supported file formats

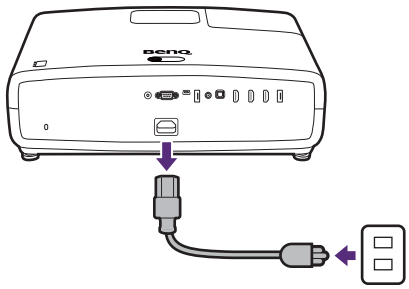
Items	File Extensions
Music	• MP3(.mp3) • MP2(.mp2) • M4A(.m4a) • Lossless(.flac) • WAV(.wav)
Video	• AVI(.avi) • MOV(.mov) • MPEG program stream (.mpg, .mp4) • 3GP(.3gp, 3g2) • ASF(.asf) • WMV(.wmv) • MKV(.mkv) • VOB(.vob) • DAT(.dat) • TS(.ts) • MPEG-4(.m4v) • FLV(.flv)
Photo	• JPG/JPEG • BMP • PNG

Viewing files

1. Plug a USB flash drive into the **MEDIA READER** port of the projector.
2. Press **SOURCE** and select **Media Reader**. The projector displays the built in media reader main page.
3. Press ▲ / ▼ to select the file type and press ► to enter the local disk device.
4. Select the folder or a file you want to display and press **OK**.
5. After a file is displayed, press **OK** to call out the function bar. You can press ◄ / ► to select the function and press **OK** to enact the selected item.

Shutting down the projector

1. Press ⏻ and a confirmation message will appear prompting you. If you don't respond in a few seconds, the message will disappear.
2. Press ⏻ a second time. The power indicator flashes orange, the projection light source shuts down and the fans will continue to run for approximately 90 seconds to cool down the projector.



3. Once the cooling process finishes, the power indicator becomes a steady orange and fans stop. Disconnect the power cord from the power outlet.

- To protect the light source, the projector will not respond to any commands during the cooling process.
- Avoid turning on the projector immediately after turning it off as excessive heat may shorten light source life.
- Light source life results will vary depending on environmental conditions and usage.

Direct power off

The AC power cord can be pulled out right after the projector is turned off. To protect the light source, wait about 10 minutes before re-starting the projector. If you attempt to re-start the projector, the fans may run for a few minutes to cool down. In such cases, press ⏻ again to start the projector after the fans stop and the power indicator turns orange.

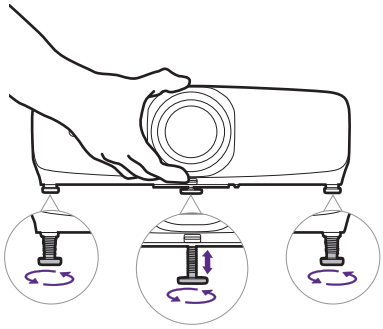
Adjusting the projected image

Adjusting the projection angle

If the projector is not placed on a flat surface or the screen and the projector are not perpendicular to each other, the projected image becomes trapezoidal. You can rotate the adjustable feet to fine-tune the image.

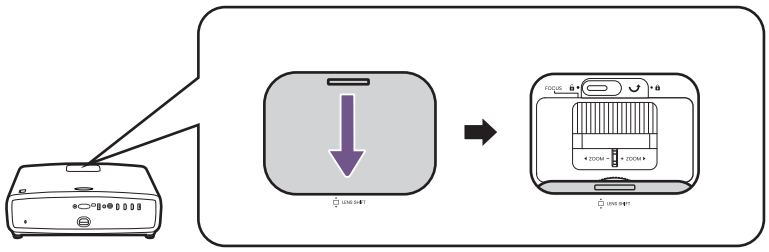
To retract the feet, rotate the adjuster feet in a reverse direction.

Work with the test pattern to adjust the projection angle properly. See Displaying test pattern for fine-tuning the image on page 34.



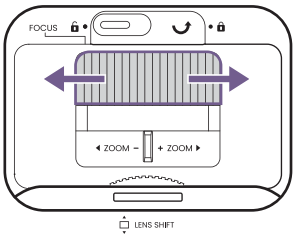
Do not look into the lens while the light source is on. The strong light from the light source may cause damage to your eyes.

To adjust focus, image size, or image height, open the cover on the top of the projector and adjust as desired. Once you have finished your adjustments, close the cover.

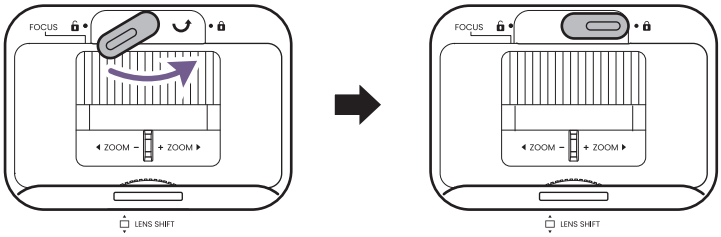


Fine-tuning the image clarity by the focus ring

1. Sharpen the image by rotating the focus ring.

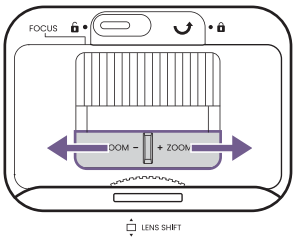


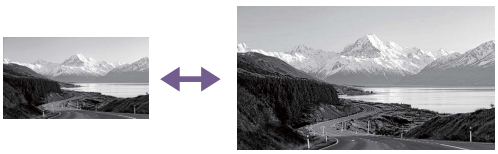
2. Once done, you can stabilize the settings to prevent from unexpected change.



Adjusting the image size by the zoom ring

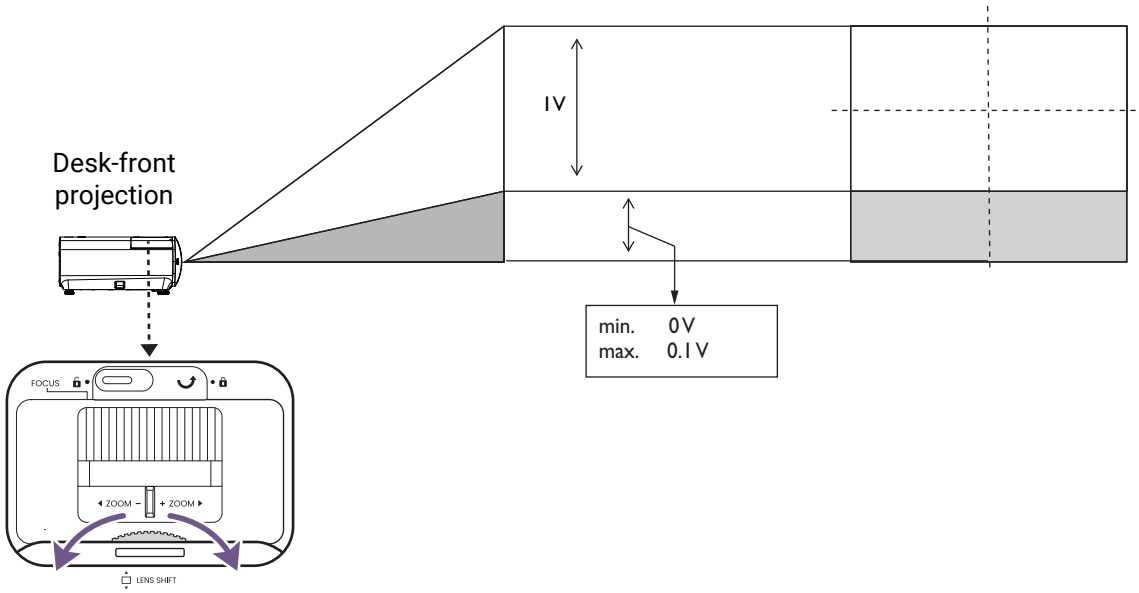
Turn the zoom ring to adjust the image size.





Adjusting the image height (lens shift)

Turn the lens shift wheel to shift the lens and change the image height.



Please stop turning the adjustment wheel when you hear a clicking sound indicating the wheel has reached its limit. Over-turning the wheel may cause damage.

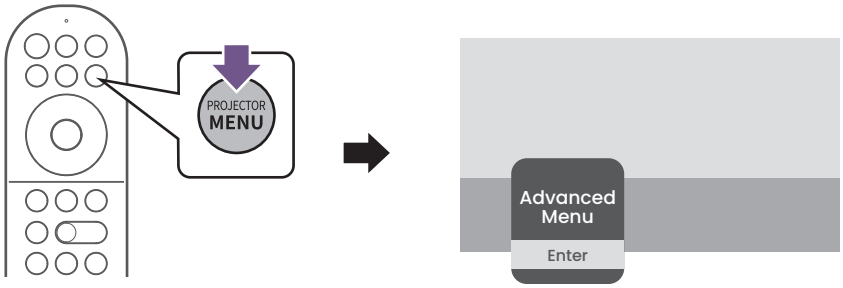
Fitting the image to your screen

To fit the image to your screen without altering the image quality, you can work with the test pattern.

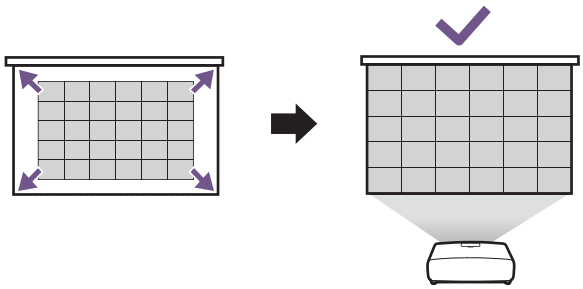
If you prefer to fit the image to the screen quickly, you are provided with keystone correction and auto screen fit function. Note that these digital image adjustments will alter the image quality.

Displaying test pattern for fine-tuning the image

1. Go to the **Advanced Menu** of the projector.



2. Go to **Installation** > **Smart Auto Settings** > **Test Pattern** and set to display the test pattern.
3. Proceed with adjustments of projection angle, zoom, and lens shift as desired.

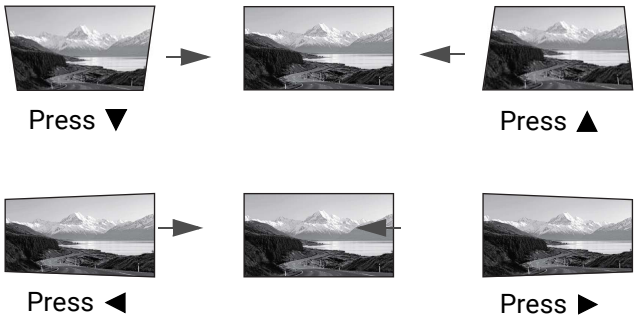


Correcting keystone

Keystoning refers to the situation where the projected image becomes a trapezoid due to angled projection.

To correct the distorted image:

1. Display the **2D Keystone** correction sub-menu from the following menus.
   - The setup wizard during the projector initial setup
   - The the **Basic** menu
   - The **Installation** menu in the **Advanced** settings menu.



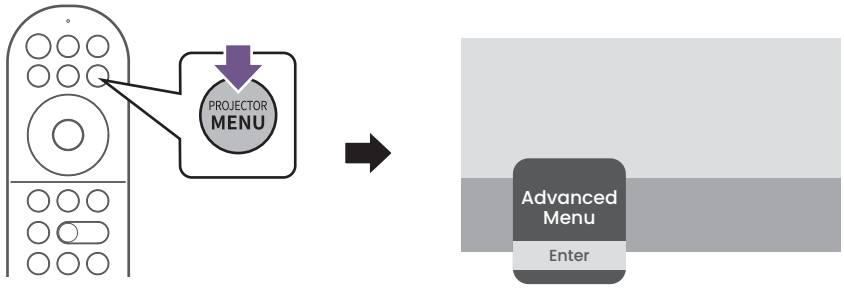
2. After the 2D Keystone correction page appears:
   - To correct keystoning at the top of the image, use ▼.
   - To correct keystoning at the bottom of the image, use ▲.
   - To correct keystoning at the right side of the image, use ◄.
   - To correct keystoning at the left side of the image, use ►.
   - To automatically correct the vertical and horizontal sides of the distorted image, press **OK** for 2 seconds.
3. When done, press ⮌ to save your changes and exit.

Auto screen fit

The auto screen fit function helps you to fit the image to your screen automatically. It is one of the digital image adjustment options in initial setup procedures when you power on the projector for the first time. You can manually perform this function from the menu.

Note that this image adjustment option will alter image quality.

1. Make sure the projected image covers the whole screen and is larger than the screen.
2. Go to the **Advanced Menu** of the projector.



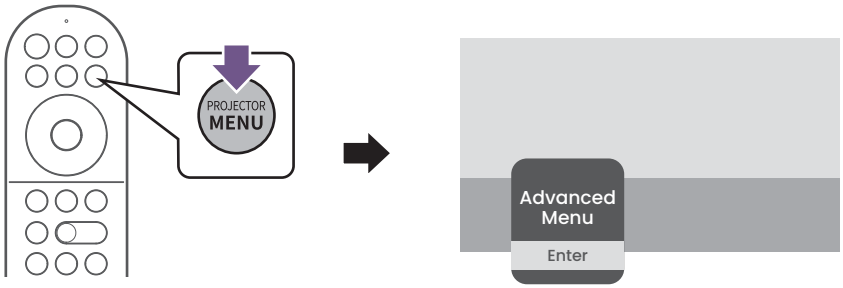
3. Go to **Installation** > **Smart Auto Settings** > **Auto Screen Fit**. The projector detects the screen and fit the image to the screen quickly.
4. If you wish to fine-tune the image and fits the screen perfectly, you can continue with manual screen fit.

- If **Auto Screen Fit** fails please:
  - Ensure that the auto screen adjustment camera lens is clean and is not covered by dust.
  - Reduce the ambient brightness for more accurate calibration.
  - Ensure the projected image extends past the borders of the projection screen.
  - Ensure there are no obstructions near the borders of the projection screen.
  - Ensure there is no light-reflecting objects above the projection screen.
  - Ensure there is no object in the vicinity that might reflect light onto the projection screen (e.g., a nearby object that might emit white light, something near the screen that keeps moving)

Manual screen fit

This feature allows you to adjust the edges of the image from 8 points. With the subtle adjustment, the image can fit the screen perfectly.

1. Go to the **Advanced Menu** of the projector.



2. Go to **Installation** > **Smart Auto Settings** > **Manual Screen Fit**. Use the arrow keys (▲, ▼, ◄, ►) on the remote control to manually adjust the sides and edges of the image to fit the screen.

Optimizing the image quality by AI Cinema

The AI Cinema feature allows the projector to automatically optimize the image quality by adjusting parameters such as saturation, brightness, contrast and picture mode in real time based on changes in environmental conditions (e.g., ambient light, projector position, screen distance) and/or the projected content.

AI Cinema can be enabled either during the initial power on via Setup Wizard, in the **Basic** settings menu, or **Advanced** settings menu (**Picture Mode** > **AI Cinema**).

If a re-calibration of the AI Cinema feature is needed, use the **BenQ AI Cinema Calibration** function in the **Advanced** settings menu (**Installation** > **Smart Auto Settings** > **BenQ AI Cinema Calibration**).

For optimal results, it's recommended that you adjust the ambient lighting to your usual viewing conditions before calibration.

Menu operation

Menu system

Please note that the on-screen display (OSD) menus vary according to the signal type selected and the projector model you are using.

The menu items are available when the projector detects at least one valid signal. If there is no equipment connected to the projector or no signal detected, limited menu items are accessible.

Basic menu

Advanced Menu	Switches to the **Advanced** OSD Menu. See Advanced menu on page 39.
Picture Mode	The projector is preset with several predefined picture modes so that you can choose one to suit your operating environment and input signal picture type. • **AI Cinema**: Automatically optimizes the image quality by adjusting parameters such as saturation, brightness, contrast and picture mode in real time based on changes in environmental conditions (e.g., ambient light, projector position, screen distance) and/or the projected content. See Optimizing the image quality by AI Cinema on page 36 for more information. • **Bright**: Maximizes the brightness of the projected image. This mode is suitable for environments where extra-high brightness is required, such as using the projector in well lit rooms. • **FILMMAKER MODE**: This mode is best for watching movies with accurate color and the deepest contrast at lower brightness level in rooms with a bit of ambient light, as if in a commercial cinema. • **Cinema**: Complement with accurate color and deepest contrast at lower brightness level, Cinema mode is suitable for playing movies in a environment with a bit of ambient light, as if in a commercial cinema. • **3D**: Optimized to bring up 3D effects when watching 3D content. This mode is only available when 3D function is enabled. • **HDR AI Cinema**: Delivers High Dynamic Range effects with higher contrasts of brightness and colors for HDR content while automatically optimizing the image quality in real time based on changes in environmental conditions and/or the projected content. See Optimizing the image quality by AI Cinema on page 36 for more information. • **HDR10**: Delivers High Dynamic Range effects with higher contrasts of brightness and colors for HDR Blu-ray movies. After auto-detecting metadata or EOTF info from HDR10 content, **HDR10** is available for selection.

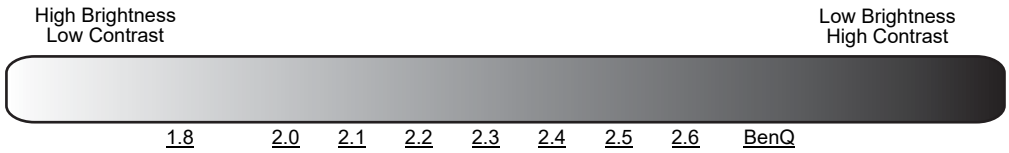
Picture Mode	• **HDR10+**: This mode is only available when HDR10+ content is detected. When HDR10+ is selected, HDR Brightness will be grayed out. • **FILMMAKER MODE (HDR)**: Delivers High Dynamic Range effects with higher contrasts of brightness and colors for HDR Blu-ray movies. After auto-detecting metadata or EOTF info from HDR10 contents, **FILMMAKER MODE (HDR)** are available for selection. • **HLG**: Delivers Hybrid Long Gamma effects by adding a logarithmic curve with extra brightness over the top of the signal. This mode is only available when HLG is enabled. • **ISF Night**: Only available when ISF is enabled. • **ISF Day**: Only available when ISF is enabled. • **User**: Recalls the settings customized based on the current available picture modes. See User Management on page 39.
Sound Mode	A variety of sound modes enables the user to select and adjust the best mode that matches current environment.
Light Source Mode	See Extending light source life on page 52.
Smart Auto Settings	This menu allows you to make manual adjustments to the projected image to correct for any distortions or to fine-tune the image, including configuring the following settings: • **2D Keystone**: See Correcting keystone on page 34. • **Auto Screen Fit**: This function automatically detects the edges of the screen and adjusts the image to fit it. See Auto screen fit on page 35 for details. • **Manual Screen Fit**: This function allows you to use the ▲, ▼, ◄, and ► buttons on the remote control to manually adjust the sides and edges of the image to fit the screen.
Fast Mode	Minimizes the response time between the input source and the displayed image.
HDR Brightness	The projector can automatically adjust the brightness levels of your image according to the input source. You can also manually select a brightness level to display better picture quality. When the value is higher, the image becomes brighter; when the value is lower, the image becomes darker.

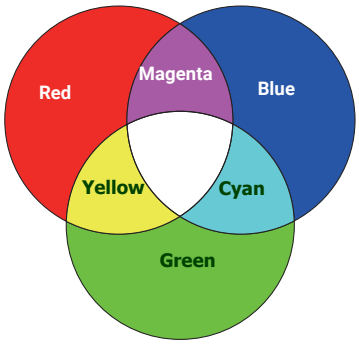
Information	• **Detected Resolution**: Shows the native resolution of the input signal. • **Source**: Shows the current signal source. • **Picture Mode**: Shows the selected mode in the **Picture Mode** menu. • **Light Source Mode**: Shows the selected mode in the **Light Source Mode** menu. • **3D Format**: Shows the current 3D mode. • **Color System**: Shows the color system used, e.g. YUV444-16bit-BT2020. • **Dynamic Range**: Shows the picture dynamic range, e.g. SDR, HDR10, HLG, etc. • **Light Source Usage Time**: Shows the number of hours the light source has been used. • **Firmware Version**: Shows the firmware version of your projector. • **Service Code**: Shows the projector's serial number.
Edit	• **Move**: Allows you to change the order of menu options on the basic menu. • **Show/Hide**: Allows you to show or hide certain menu options in the basic menu.

Advanced menu

Picture

Picture Mode	See Picture Mode on page 37.
User Management	• **Load Settings From** There is one user-definable mode if the current available picture modes are not suitable for your need. You can use one of the picture modes (except the User) as a starting point and customize the settings. 1. Go to **Picture** > **User Management**. 2. Press ▼ to select **Load Settings From** and press **OK**. 3. Press ▼ to select a picture mode that is closest to your need. 4. Press to select the sub-menu items you want to change and adjust the values with ◄/►. The adjustments define the selected user mode. • **Rename User Mode** You can change **User** to a name that is easier to identify or understand by the users of this projector. The new name can be up to 9 characters including English letters (A-Z, a-z), digits (0-9), and space (_). 1. Go to **Picture** > **User Management**. 2. Press to select **Rename User Mode** and press **OK**. 3. Use ▲/▼/◄/►, and **OK** to set desired characters. 4. When done, press ⮌ to save the changes and exit.
Fast Mode	See Fast Mode on page 38.

Brightness	The higher the value, the brighter the image. Adjust this control so the black areas of the image appear just as black and that detail in the dark areas is visible.
Contrast	The higher the value, the greater the contrast. Use this to set the peak white level after you have previously adjusted the Brightness setting to suit your selected input and viewing environment.
Color	A lower setting produces less saturated colors. If the setting is too high, colors on the image will be overpowering, which makes the image unrealistic.
Tint	The higher the value, the more greenish the picture becomes. The lower the value, the more reddish the picture becomes.
Sharpness	The higher the value, the sharper the picture becomes.
Advanced Color Setting	**Gamma Selection** Gamma refers to the relationship between input source and picture brightness. • **1.8/2.0/2.1/BenQ**: Select these values according to your preference. • **2.2/2.3**: Increases the average brightness of the picture. Best for a lit environment, meeting room or family room. • **2.4/2.5**: Best for viewing movies in a dark environment. • **2.6**: Best for viewing movies which are mostly composed of dark scenes. 
	Color Temperature Tuning There are several preset color temperature settings available. The available settings may vary according to the signal type selected. • **Color Temperature** Selects a color temperature from among **Normal**, **Cool**, or **Warm**. You can also set a preferred color temperature by adjusting the following options. • **R Gain/G Gain/B Gain** Adjusts the contrast levels of Red, Green, and Blue. • **R Offset/G Offset/B Offset** Adjusts the brightness levels of Red, Green, and Blue. • **Reset Color Temperature Tuning** All of the adjustments you've done for the **Color Temperature Tuning** menu return to the factory preset values.

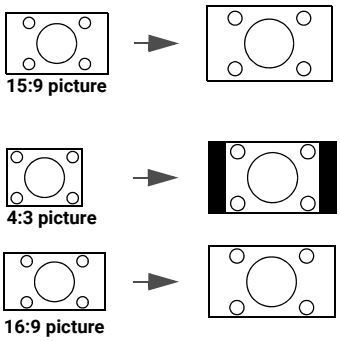
Advanced Color Setting	**Advanced Color Temperature Tuning** Advanced color temperature is used for fine-tuning White Balance from the bright parts to the dark parts of the video by different brightness levels which are divided into 11 signal levels (%). Users can adjust the intensity of Red/Green/Blue in the range of 0 - 100 for the color temperature of selected point at different brightness levels.
	Color Management This function provides eight sets (**R/G/B/C/M/Y/F** and **White Balance**) of colors to be adjusted. When you select each color, you can independently adjust its range and saturation according to your preference. • **Primary Color** Selects a color from among **R** (Red), **G** (Green), **B** (Blue), **C** (Cyan), **M** (Magenta), **Y** (Yellow), or **F** (Flesh Tone). • **Hue**: Increase in the range will include colors consisted of more proportions of its two adjacent colors. Please refer to the illustration for how the colors relate to each other. For example, if you select Red and set its range at 0, only pure red in the projected picture will be selected. Increasing its range will include red close to yellow and red close to magenta. • **Saturation**: Adjusts the values to your preference. Every adjustment made will reflect to the image immediately. 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 color in a video picture. Lower settings produce less saturated colors; a setting of “0” removes that color from the image entirely. If the saturation is too high, that color will be overpowering and unrealistic. • **Gain**: Adjusts the values to your preference. The contrast level of the primary color you select will be affected. Every adjustment made will reflect to the image immediately. • **White Balance** Adjusts the color temperature of white. • **R Gain**/**G Gain**/**B Gain**: Adjusts the contrast levels of Red, Green, and Blue. • **Reset** All of the adjustments you’ve done for the **Color Management** menu return to the factory preset values.
	Wide Color Gamut Complement with DCI-P3 color gamut and deepest contrast at lower brightness level for playing 4K HDR movies.

Advanced Color Setting	**CinemaMaster** • **Color Enhancer** Allows you to fine-tune the saturation of colors with larger flexibility. It modulates complex color algorithms to flawlessly render saturated colors, fine gradients, intermediate hues and subtle pigments. • **Pixel Enhancer 4K** A super-resolution technology which radically enhances Full HD content in terms of colors, contrast, and textures. It's also a Detail Enhancement Technology refining surface details for true-to-life images that pop off the screen. Users can adjust levels of sharpness and detail enhancement for optimal viewing. • **Motion Enhancer 4K** Enhances picture smoothness by motion estimation/motion compensation. • **Global Contrast Enhancer** Analyzes the entire frame of video content and enhances its contrast. • **Local Contrast Enhancer** Divides video content into different "zones", it can dim the dark parts of the screen without affecting the bright areas. This makes the contrast look great for watching movies, especially in the dark.
	Light Source Mode See Extending light source life on page 52.
	HDR Brightness The projector can automatically adjust the brightness levels of your image according to the input source. You can also manually select a brightness level to display better picture quality. When the value is higher, the image becomes brighter; when the value is lower, the image becomes darker.
	Noise Reduction Reduces electrical image noise. The higher the setting, the less the image noise.
Reset Current Picture Mode	Returns all of the adjustments you've made for the selected **Picture Mode** (including the preset mode, **User**) to the factory preset values. 1. Press **OK**. The confirmation message is displayed. Use ◄/► to select **Reset** and press **OK**. The current picture mode returns to the factory preset settings.

Audio

Sound Mode	A variety of sound modes enables user to select and adjust the best mode that matches current environment.
Audio Output	Selects audio output from internal or external speakers. • **Internal**: Audio output to internal speakers. • **S/PDIF**: Audio output to external speaker via S/PDIF and mute internal speakers. • **Audio Return+**: Turns on Audio Return(+) function and changes audio output from internal speakers to ARC/eARC soundbar via HDMI-2. • **3.5mm Jack**: Audio out to external speaker via 3.5mm Jack and mute internal speakers.
Audio Output Format	Selects the audio format from the source device connected to the **HDMI 1**, **HDMI 2**, or **HDMI 3** port and passes them to the external device via the **SPDIF** or **AUDIO RETURN+** (**HDMI 2**) ports of projector: • **Auto**: Detects EDID from input source and set audio format automatically. • **LPCM** • **RAW** • **RAW+**
Mute	Temporarily turns off the sound.
Volume	Adjusts the sound level.
L/R Switch	Switch the left/right audio channels.
Reset Audio	All of the adjustments you've done for the **Audio** menu return to the factory preset values.

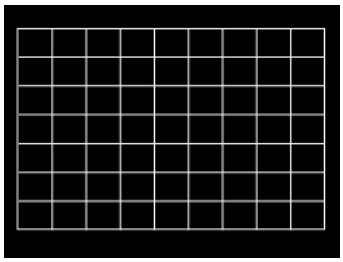
Display menu

Aspect Ratio	There are several options to set the image's aspect ratio depending on your input signal source. • **Auto**: Scales an image proportionally to fit the projector's native resolution in its horizontal or vertical width. • **4:3**: Scales an image so that it is displayed in the center of the screen with a 4:3 aspect ratio. • **16:9**: Scales an image so that it is displayed in the center of the screen with a 16:9 aspect ratio. 
Auto Source Search	Allows the projector to automatically search for a signal.
Source Rename	Renames the current input source to your desired name. On the **Source Rename** page, use ▲/▼/◀/▶, and **OK** to set the desired characters for the connected source item. When done, press ⮌ to save the changes and exit.
3D	This projector supports playing three-dimensional (3D) content transferred through your 3D-compatible video devices and contents, such as PlayStation consoles (with 3D game discs), 3D Blu-ray players (with 3D Blu-ray discs), and so on. After you have connected the 3D video devices to the projector, wear the BenQ 3D glasses and make sure the power is on to view 3D contents. When watching 3D content: • The image may seem misplaced; however, this is not a product malfunction. • Take appropriate breaks when watching 3D content. • Stop watching 3D contents if you feel fatigue or discomfort. • Keep a distance from the screen of about three times the effective height of the screen. • Children and people with a history of oversensitivity to light, heart problems, or any other existing medical conditions should refrain from watching 3D content. • The image may seem reddish, greenish, or bluish without wearing 3D glasses. However, you will not notice any color bias when watching 3D contents with 3D glasses. • The 4K source will not be displayed. • **3D Mode** The default setting is **Auto** and the projector automatically chooses an appropriate 3D format when detecting 3D content. If the projector cannot recognize the 3D format, press **OK** to choose a 3D mode from between **Frame Sequential**, **Frame Packing**, **Top Bottom**, and **Side by Side**. • **3D Sync Invert** When your 3D image is distorted, enable this function to switch between the image for the left eye and the right eye for more comfortable 3D viewing experience.

HDMI Settings	**HDMI Format** Selects a suitable RGB color range to correct the color accuracy. • **Auto** Automatically selects a suitable color range for the incoming HDMI signal. • **Limited** Utilizes the Limited range RGB 16-235. • **Full** Utilizes the Full range RGB 0-255.
	HDMI Equalizer Sets a suitable value to maintain the HDMI picture quality in long distance data transmission.
	HDMI EDID Switch the HDMI EDID version for each HDMI port between **Enhanced+**, **Enhanced**, or **Standard** (depending on the port) in order to solve compatibility issue with certain old players. • **Enhanced+**: Can switch to EDID that is compatible with 4K 120Hz • **Enhanced**: Can switch to HDMI 2.0 EDID (support 4K 60Hz HDR/HDR+) • **Standard**: Can switch to HDMI 1.4 EDID. Use this mode when you experience abnormal display issue with uncertain old players. HDMI1.4 EDID can support up to 1080p 60Hz.
	HDMI Device Control When you enable this function and connect an HDMI CEC-compatible device to your projector with an HDMI cable, turning on the HDMI CEC compatible device automatically turns on the projector, while turning off the projector automatically turns off the HDMI CEC compatible device.
	Projector Power On by Device When a device that the supports the CEC function (e.g. a player or an amplifier) to the projector's HDMI port, this function will allow you to wake up the projector (from a powered off state) when the CEC device is powered on. No action will be taken if the projector is already powered on. Enabling this setting will make power consumption higher.
	Device Power Off by Projector When a device that the supports the CEC function (e.g. a player or an amplifier) to the projector's HDMI port, this function will allow you to power off the CEC device when the projector is powered off. No action will be taken if the device is already powered off. Enabling this setting will make power consumption higher.

24P Real Cinema	• **On**: The projector will output 48Hz, 50Hz, 60Hz,100Hz, 120Hz, 240Hz depending on different input timing. • **Off**: The projector will only output 60Hz.
Reset Display	Returns all the settings on the **Display** menu to the factory default values.

Installation menu

Projector Position	The projector can be installed on a ceiling behind a screen, or with one or more mirrors. See Obtaining a preferred projected image size on page 18.
Smart Auto Settings	**2D Keystone** See Correcting keystone on page 34 for details. Before using **2D Keystone** ensure that the auto screen adjustment camera lens is clean and not covered by dust and that there are no obstructions in front of the projection wall/screen.
	Screen Fit Allows the projector to automatically detect the screen and adjust the image to fit the screen. See Auto screen fit on page 35 for details.
	Test Pattern Allows you to check if the projected image is free from distortion. 
	BenQ AI Cinema Calibration If your environmental conditions change (e.g., ambient light, projector position, screen distance) and/or the projected content, and the image quality parameters are not optimized in real time or produce undesirable results, you can select **BenQ AI Cinema Calibration** function for a recalibration of the image via the **AI Cinema** feature. See Optimizing the image quality by AI Cinema on page 36 for more information.
High Altitude Mode	We recommend you use the **High Altitude Mode** when your environment is between 1500 m–3000 m above sea level, and ambient temperature is between 0°C–30°C. Operation under "**High Altitude Mode**" may cause a higher decibel operating noise level because of increased fan speed necessary to improve overall system cooling and performance. If you use this projector under other extreme conditions excluding the above, it may display auto shut-down symptoms, which is designed to protect your projector from over-heating. In cases like this, you should switch to High Altitude mode to solve these symptoms. However, this is not to state that this projector can operate under any and all harsh or extreme conditions. Do not use the **High Altitude Mode** if your altitude is between 0 m and 1500 m and ambient temperature is between 0°C and 35°C. The projector will be over cooled, if you turn the mode on under such a condition.

12V Trigger	There is a 12V trigger that works independently according to your needs for installation scenarios. • **On**: If this is selected, the projector will send electronic signal out when it is turned on. • **Off**: If this is selected, the projector will not send electronic signal out when it is turned on.
Baud Rate	Select a baud rate that is identical with your computer's so that you can connect the projector with a suitable RS-232 cable and update or download the projector's firmware. This function is intended for qualified service personnel.

System menu

Language	Sets the language for the On-Screen Display (OSD) menus.
Background Settings	**Splash Screen** Allows you to select which logo screen will be displayed during projector start-up.
Menu Settings	**Menu Type** Selects OSD menu type.
	Menu Display Time Sets the length of time the OSD will remain active after your last key press.
	Menu Position Sets the On-Screen Display (OSD) menu position.
	ISF The ISF calibration menu is password protected and only accessible by authorized ISF calibrators. The ISF (Imaging Science Foundation) has developed carefully crafted, industry-recognized standards for optimal video performance and has implemented a training program for technicians and installers to use these standards to obtain optimal picture quality from BenQ video display devices. Accordingly, we recommend that setup and calibration be performed by an ISF certified installation technician. For more information, go to www.imagingscience.com or contact the dealer or retailer from whom you purchased the projector.
Light Source Information	Lists the amount of time (in hours) the projector light has been used for the following parameters: • **Light Source Usage Time** • **Normal Mode** • **ECO Mode** • **SmartEco Mode** • **Dynamic Mode** • **Equivalent Light Hours**

Operation Settings	**Reminder Message** Sets the reminder messages on or off.
	LED Indicator You can turn off the LED warning lights. This is to avoid any light disturbance when viewing images in a dark room.
	Power On/Off Settings • **Direct Power On** Allows the projector to turn on automatically once the power is fed through the power cord. • **Auto Power Off** Allows the projector to turn off automatically if no input signal is detected after a set period of time to prevent unnecessary waste of light source life. Changing this setting will make power consumption higher.
	BenQ HDMI Media Streaming (QS02) Enables or disables functions related to Android TV dongle (QS02).
Firmware Upgrade	Updates the projector firmware via the 1.5A **SERVICE** USB-A port at the rear of the projector.
Factory Default	Returns all settings to the factory preset values. The following settings will still remain: **2D Keystone**, **Projector Position**, **Light Source Information**, **Security Settings**, **Baud Rate**, and **High Altitude Mode**.
Reset System	Returns all the settings on the **System** menu to the factory default values.

Information menu

Information	See Information on page 39.

Maintenance

Care of the projector

Cleaning the lens

Clean the lens whenever you notice dirt or dust on the surface. Please be sure to turn off the projector and let it cool down completely before cleaning the lens.

- Use a canister of compressed air to remove dust.
- If there is dirt or smears, use lens-cleaning paper or moisten a soft cloth with lens cleaner and gently wipe the lens surface.
- Never use any type of abrasive pad, alkaline/acid cleaner, scouring powder, or volatile solvent, such as alcohol, benzene, thinner or insecticide. Using such materials or maintaining prolonged contact with rubber or vinyl materials may result in damage to the projector surface and cabinet material.

Cleaning the projector case

Before you clean the case, turn the projector off using the proper shutdown procedure as described in Shutting down the projector on page 31 and unplug the power cord.

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

Never use wax, alcohol, benzene, thinner or other chemical detergents. These can damage the case.

Storing the projector

If you need to store the projector for an extended time, please follow the instructions below:

- Make sure the temperature and humidity of the storage area are within the recommended range for the projector. Please refer to Specifications on page 56 or consult your dealer about the range.
- Retract the adjuster feet.
- Remove the battery from the remote control.
- Pack the projector in its original packing or equivalent.

Transporting the projector

It is recommended that you ship the projector with its original packing or equivalent.

Light source information

Getting to know the light source hour

When the projector is in operation, the duration (in hours) of light source usage is automatically calculated by the built-in timer. The method of calculating the equivalent light source hour is as follows:

Light Source Usage Time = (x+y+z)hours, if

Time used in **Normal** mode = x hours

Time used in **ECO** mode = y hours

Time used in **Dynamic** mode = z hours

Equivalent Light Hours = α hours

$$\alpha = \frac{A'}{X} \times x + \frac{A'}{Y} \times y + \frac{A'}{Z} \times z$$ if,

X = light source life spec of **Normal** mode

Y = light source life spec of **ECO** mode

Z = light source life spec of **Dynamic** mode

A' is the longest light source life spec among X, Y, Z

For time used in each light source mode shown in OSD menu:

• Time used is accumulated and rounded down to an integer in **hours**.

• When time used is less than 1 hour, it shows 0 hours.

When you calculate **Equivalent Light Hours** hour manually, it will probably have deviation from the value shown in OSD menu since projector system calculates time used for each light source mode in "Minutes" then rounds down to an integer in hours shown in OSD.

To obtain the light source hour information:

Go to **System** > **Light Source Information** and press **OK**. The **Light Source Usage Time** information is displayed.

You can also get the light source hour information on the **Information** > **Light Source Usage Time** menu.

Extending light source life

• Setting the **Light Source Mode**

Go to the **Advanced** menu - **Picture** > **Advanced Color Setting** > **Light Source Mode** and press **OK**. The **Light Source Mode** page appears.

Setting the projector in **ECO** mode extends light source life.

Light Source Mode	Description
Normal	Provides full light source brightness
ECO	Lowers brightness to extend the light source life and decreases the fan noise
Low Dynamic	Automatically changes the black level of the projected pictures to enhance the effect of the contrast ratio. When set to **Low Dynamic** mode, the change in the black level will proceed smoothly, but will result in less obvious brightness changes for quick transitions between bright and dark scenes.

High Dynamic	Automatically changes the black level of the projected pictures to enhance the effect of the contrast ratio. When set to **High Dynamic** mode, the change in the black level will be quick, so that the transition between bright and dark scenes will be obvious. For some scenes, this sudden change in brightness may create a flashing effect that may lead to an uncomfortable viewing experience.

• Setting **Auto Power Off**

This function allows the projector to turn off automatically if no input signal is detected after a set period of time to prevent unnecessary waste of light source life.

To set **Auto Power Off** , go to **Advanced** Menu - **System** > **Operation Settings** > **Power On/Off Settings** > **Auto Power Off** and press ◄/►.

Changing this setting will make power consumption higher.

Indicators

Light			Status & Description
POWER	TEMP	LAMP	
Power events			
●	○	○	Stand-by mode
◉	○	○	Powering up
●	○	○	Normal operation
◉	○	○	Cooling down
◉	○	○	Downloading
●	○	◉	Light source life exhausted
Burn-in Message			
●	○	○	Burn-in ON
●	●	●	Burn-in OFF
Light source events			
○	○	●	Light source error in normal operation
○	○	◉	Light source is not lit up
Thermal events			
●	●	○	Fan 1 error (the actual fan speed is outside the desired speed)
●	◉	○	Fan 2 error (the actual fan speed is outside the desired speed)
●	●	○	Fan 3 error (the actual fan speed is outside the desired speed)
●	●	○	Temperature 1 error (over limited temperature)
●	◉	○	Temperature sensor 1 open error
●	●	○	Temperature sensor 1 short error

			Thermal IC #1 I2C connection error

	: **Off**	: Orange On : Orange Flashing	: Green On : Green Flashing	: Red On : Red Flashing

Troubleshooting

The projector does not turn on.

Cause	Remedy
There is no power from the power cord.	Plug the power cord into the AC power jack on the projector, and plug the power cord into 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
The video source is not turned on or connected correctly.	Turn 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 with the **SOURCE** key.
The lens cover is still closed.	Open the lens cover.

Blurred image

Cause	Remedy
The projection lens is not correctly focused.	Adjust the focus settings.
The projector and the screen are not aligned properly.	Adjust the projection angle and direction as well as the height of the projector if necessary.
The lens cover is still closed.	Open the lens cover.

Remote control does not work.

Cause	Remedy
The batteries are out of power.	Replace both of the batteries with new ones.
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.

Specifications

Projector specifications

All specifications are subject to change without notice.

Optical

Resolution
3840 x 2160 with XPR
1920 x 1080 without XPR

Display system
1-CHIP DMD

Lens
F = 1.8 - 1.85; f = 10.55 - 13.68 mm

Clear focus range
0.89m - 2.66m @ Wide,
1.16m - 3.46m @ Tele

Light source
LED

Zoom ratio
1.3x ±3%

Electrical

Power supply
AC100–240V, 6 A, 50/60 Hz (Automatic)

Power consumption
Max.: 241 W; Standby: 0.5W Max. at 100 - 240VAC

Mechanical

Weight
6.4 Kg ± 100 g (14.11 lbs ± 0.22 lbs)

Output terminals

Speaker
5 watt x 2

Audio signal output
PC audio jack x 1
SPDIF to optical x 1

Control

USB
Type-A (2.0) x 1: Media reader/drive, Firmware download (1.5A)
Type-A (2.0) x 1: Power supply (2.5A)
Mini-B x 1

12V DC x 1: Trigger for screen control

RS-232 serial control
9 pin x 1

IR receiver x 2

Input terminals

Video signal input
HDMI (HDCP 2.3) x 3
HDMI x1: Android TV Dongle

Environmental Requirements

Operating temperature
0°C–40°C at sea level

Operating relative humidity
10%–90% (without condensation)

Operating altitude
0–1499 m at 0°C–35°C
1500–3000 m at 0°C–30°C (with High Altitude Mode on)

Storage temperature
-20°C–60°C at sea level

Storage humidity
10%–90% RH (without condensation)

Storage altitude
30°C@ 0~12,200m above sea level

Repairing

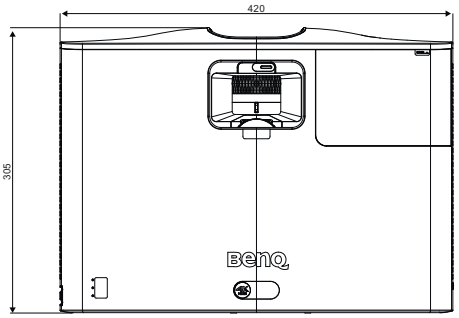
Please visit below website and choose your country to find your service contact window.
http://support.benq.com/

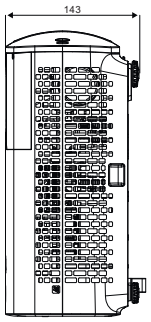
Transporting

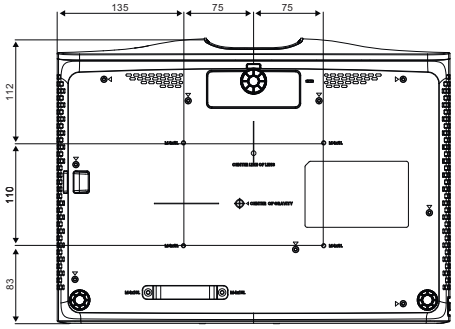
Original packing or equivalent is recommended.

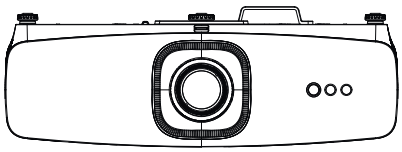
Dimensions

420 (W) x 305 (L) x 143 (H) (including feet)









Timing chart

Supported timing for HDMI (HDCP) input

• PC timings

Resolution	Mode	Refresh rate (Hz)	H-frequency (kHz)	Clock (MHz)	3D Field Sequential	3D over-under	3D side-by-side
640 x 480	VGA_60	59.94	31.469	25.175		XXX	XXX
	VGA_72	72.809	37.861	31.5			
	VGA_75	75	37.5	31.5			
	VGA_85	85.008	43.269	36			
720 x 400	720x400_70	70.087	31.469	28.3221			
800 x 600	SVGA_60	60.317	37.879	40		XXX	XXX
	SVGA_72	72.188	48.077	50			
	SVGA_75	75	46.875	49.5			
	SVGA_85	85.061	53.674	56.25			
	SVGA_120 (Reduce Blanking)	119.854	77.425	83			
1024 x 768	XGA_60	60.004	48.363	65		XXX	XXX
	XGA_70	70.069	56.476	75			
	XGA_75	75.029	60.023	78.75			
	XGA_85	84.997	68.667	94.5			
	XGA_120 (Reduce Blanking)	119.989	97.551	115.5			
1152 x 864	1152 x 864_75	75	67.5	108			

Resolution	Mode	Refresh rate (Hz)	H-frequency (kHz)	Clock (MHz)	3D Field Sequential	3D over-under	3D side-by-side
1024 x 576	BenQ Notebook Timing	60	35.82	46.996			
1024 x 600	BenQ Notebook Timing	64.995	41.467	51.419			
1280 x 720	1280 x 720_60	60	45	74.25		XXXX	XXXX
1280 x 768	1280 x 768_60	59.87	47.776	79.5		XXX	XXX
1280 x 800	WXGA_60	59.81	49.702	83.5		XXX	XXX
	WXGA_75	74.934	62.795	106.5			
	WXGA_85	84.88	71.554	122.5			
	WXGA_120 (Reduce Blanking)	119.909	101.563	146.25			
1280 x 1024	SXGA_60	60.02	63.981	108		XXX	XXX
	SXGA_75	75.025	79.976	135			
	SXGA_85	85.024	91.146	157.5			
1280 x 960	1280 x 960_60	60	60	108		XXX	XXX
	1280 x 960_85	85.002	85.938	148.5			
1360 x 768	1360 x 768_60	60.015	47.712	85.5		XXX	XXX
1440 x 900	WXGA+_60	59.887	55.935	106.5		XXX	XXX
1400X1050	SXGA+_60	59.978	65.317	121.75		XXX	XXX
1600x1200	UXGA	60	75	162		XXX	
1680x1050	1680x1050_60	59.954	65.29	146.25		XXX	XXX
640x480 @67Hz	MAC13	66.667	35	30.24			
832x624 @75Hz	MAC16	74.546	49.722	57.28			
1024x768 @75Hz	MAC19	75.02	60.241	80			
1152x870 @75Hz	MAC21	75.06	68.68	100			
1920x1080 @60HZ	1920X1080_60 (CEA-861)	60	67.5	148.5	XXX	XXXX	XXXX
1920x1200@60HZ	1920X1200_60 (Reduce Blanking)	59.95	74.038	154			
1920x1080@120HZ	1920X1080_120	120	135	297			
1920x1200@120HZ	1920X1200_120 (Reduce Blanking)	119.909	152.404	317			
1920x1080@240HZ	1920X1080_240	240	270	594			

- XXXX: Support auto-detect 3D and manually set 3D format. If source can output CEA861 720p/1080p and color space is RGB with 3D info frame then 3D auto detect function is also workable.
- XXX: Support manually set 3D format.
- XX: Support manually set 3D format (HDMI receiver or scaler down scaling 4K content to 1080p).

The timings showing above may not be supported due to EDID file and VGA graphics card limitations. It is possible that some timings cannot be chosen.

• Video timings

Timing	Resolution	H frequency (KHz)	V frequency (Hz)	Dot clock frequency (MHz)	3D Field Sequential	3D frame	3D over-under	3D side-by-side
480i	720(1440) x 480	15.73	59.94	27				
480p	720 x 480	31.47	59.94	27				
576i	720(1440) x 576	15.63	50	27				
576p	720 x 576	31.25	50	27				
720/50p	1280 x 720	37.5	50	74.25		XXXX	XXXX	XXXX
720/60p	1280 x 720	45	60	74.25	XXX	XXXX	XXXX	XXXX
1080/24P	1920 x 1080	27	24	74.25		XXXX	XXXX	XXXX
1080/25P	1920 x 1080	28.13	25	74.25				
1080/30P	1920 x 1080	33.75	30	74.25				
1080/50i	1920 x 1080	28.13	50	74.25				XXXX
1080/60i	1920 x 1080	33.75	60	74.25				XXXX
1080/50P	1920 x 1080	56.25	50	148.5			XXXX	
1080/60P	1920 x 1080	67.5	60	148.5	XXX		XXXX	XXXX
1080/120p	1920x1080	135	120	297				
1080/240p	1920x1080	270	240	594				
2160/24P	3840 x 2160	54	24	297				
2160/25P	3840 x 2160	56.25	25	297				
2160/30P	3840 x 2160	67.5	30	297				
2160/50P	3840 x 2160	112.5	50	594				
2160/60P	3840 x 2160	135	60	594				
##2160/120P	3840 x 2160	270	120	1188				

• XXXX: Support auto-detect 3D and manually set 3D format. If source can output CEA861 720p/1080p and color space is RGB with 3D info frame then 3D auto detect function is also workable.

• XXX: Support manually set 3D format.

• XX: Support manually set 3D format (HDMI receiver or scaler down scaling 4K content to 1080p).

• ##: 2160/120P Only HDMI 3 support (output downscaling to 1080p/120Hz).

• Detail Timing for sampling and color depth

Display Format (Refresh Rate)	Chorma Subsampling	8-bit	10-bit	12-bit
4K/60p (120 Hz)	4:4:4			
	4:2:2			
	4:2:0			
4K/60p (60 Hz)	4:4:4	V	V	V
	4:2:2	V	V	V
	4:2:0	V	V	V

Display Format (Refresh Rate)	Chorma Subsampling	8-bit	10-bit	12-bit
4K/60p (50 Hz)	4:4:4	V	V	V
	4:2:2	V	V	V
	4:2:0	V	V	V
4K/30p (30 Hz)	4:4:4	V	V	V
	4:2:2	V	V	V
	4:2:0	V	V	V
4K/24p (24 Hz)	4:4:4	V	V	V
	4:2:2	V	V	V
	4:2:0	V	V	V
1080P/60p (60 Hz)	4:4:4	V	V	V
	4:2:2	V	V	V
	4:2:0			
1080P/50p (50 Hz)	4:4:4	V	V	V
	4:2:2	V	V	V
	4:2:0			
1080P/30p (30 Hz)	4:4:4	V	V	V
	4:2:2	V	V	V
	4:2:0			
1080P/24p (24 Hz)	4:4:4	V	V	V
	4:2:2	V	V	V
	4:2:0			