



Digital Projector User Manual

LH860ST

V 1.00

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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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 the user manual / installation guide and marked on the product.

1. **Please read the user manual / installation guide 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. To temporarily turn off the light source, use the blank function.
8. Do not operate light sources beyond the rated light source life.
9. Do not place this product on an unstable cart, stand, or table. The product may fall, sustaining serious damage.
10. 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.

Under no circumstances should you ever undo or remove any other covers. Refer servicing only to suitably qualified professional service personnel.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. This apparatus must be earthed.

17. 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).

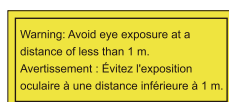
18. To avoid damaging the DLP chips, do not direct a high-power laser beam onto the projection lens.

Risk Group 2

1. According to the classification of photobiological safety of light sources and light source systems, this product is Risk Group 2, IEC 62471-5:2015.
2. Possibly hazardous optical radiation emitted from this product.
3. Do not stare at operating light source. May be harmful to the eyes.
4. As with any bright source, do not stare into the direct beam.



The projector's light source unit uses a laser.



- Notice is given to supervise children and to never allow them to stare into the projector beam at any distance from the projector.
- Notice is given to use caution when using the remote control for starting the projector while in front of the projection lens.
- Notice is given to the user to avoid the use of optical aids such as binoculars or telescopes inside the beam.

Laser Caution

This product belongs to CLASS 1 consumer laser product and complies with IEC 60825-1:2014, EN 60825-1:2014/A11:2021 and EN 50689:2021.



Above laser caution are located on the bottom of this apparatus.

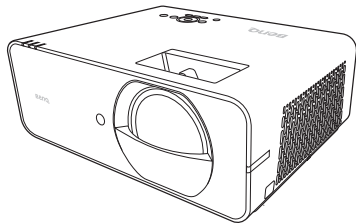
Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

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 control with batteries



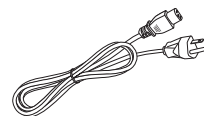
Installation guide



Regulatory statements



Warranty card*



Power cord



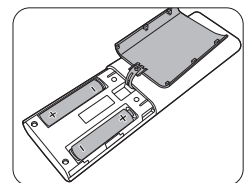
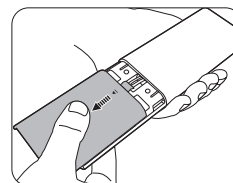
- The supplied accessories will be suitable for your region, and may differ from those illustrated.
- *The warranty card is only supplied in some specific regions. Please consult your dealer for detailed information.

Optional accessories

1. QP30
2. Filter kits
3. Ceiling mount (CMG3)

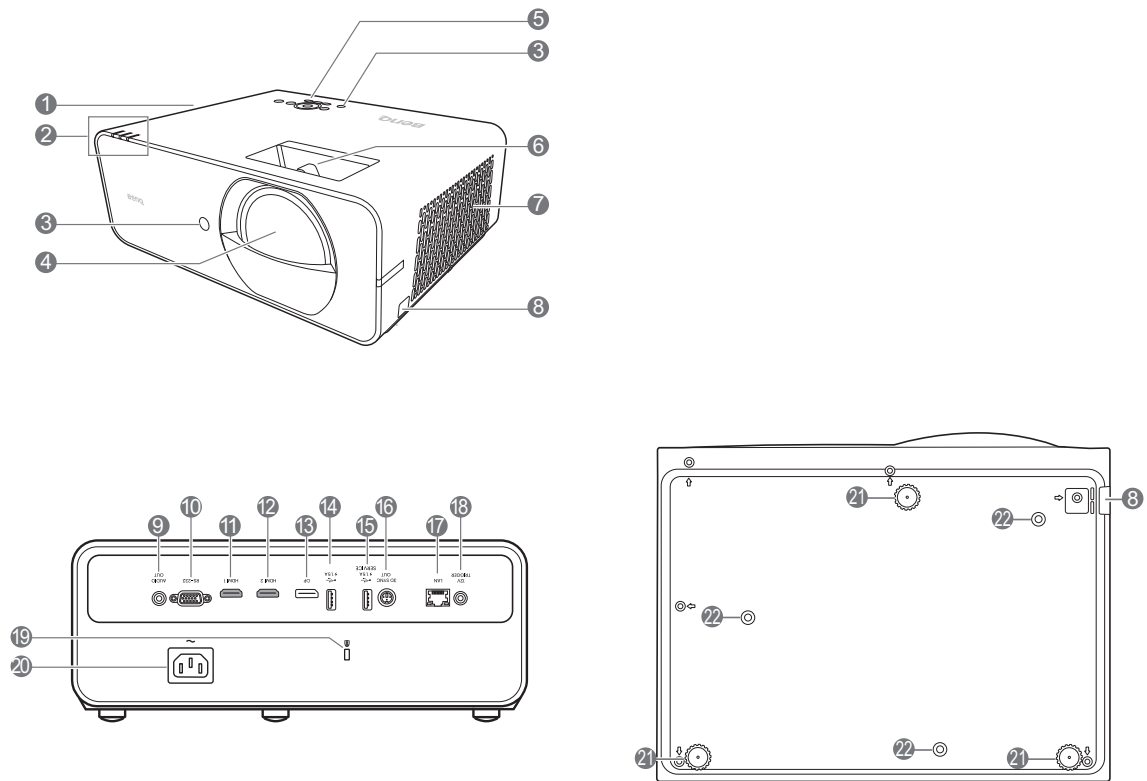
Replacing the remote control batteries

1. Press and slide off 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. Slide the battery cover in 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



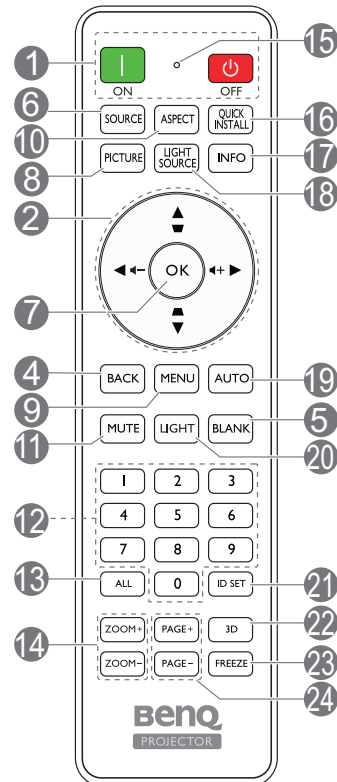
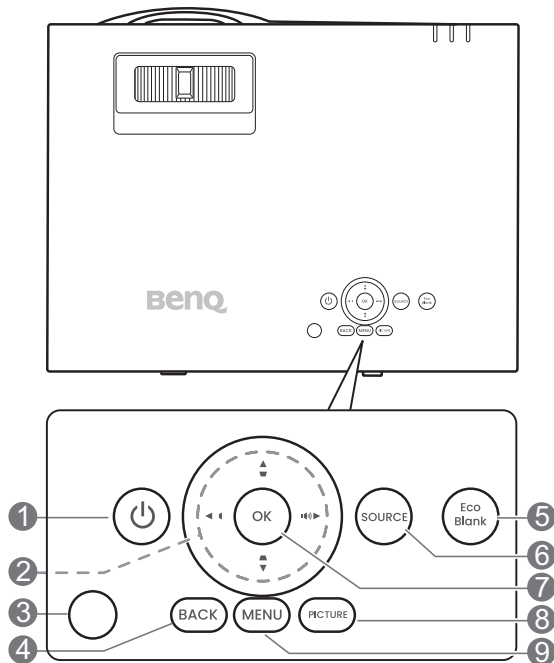
- | | |
|--|--|
| 1. Vent (air exhaust) | 11. HDMI 1 input port |
| 2. POWER indicator light/TEMPerature warning light/LIGHT indicator light
(See Indicators on page 55.) | 12. HDMI 2 input port |
| 3. IR remote sensors | 13. DisplayPort |
| 4. Projection lens | 14. USB Type-A port (5V/1.5A power supply) |
| 5. External control panel
(See Controls and functions on page 8.) | 15. USB Type-A port (5V/1.5A power supply) (for
firmware upgrade) |
| 6. Focus ring | 16. 3D Sync output |
| 7. Vent (air inlet) | 17. RJ-45 LAN input jack |
| 8. Security bar | 18. 12V trigger |
| 9. Audio output jack | 19. Kensington anti-theft lock slot |
| 10. RS-232 control port | 20. AC power jack |
| | 21. Adjuster feet |
| | 22. Wall mount 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.

ON / **OFF**

Toggles the projector between standby mode and on.

2. Arrow keys (, , ,)

When the On-Screen Display (OSD) menu is activated, these keys are used as directional arrows to select the desired menu items and to make adjustments.

Keystone keys (,)

Displays the keystone correction page.

Volume keys (,)

Decreases or increases the projector volume.

3. IR remote sensor

4. **BACK**

Goes back to previous OSD menu, exits and saves menu settings.

5. **ECO BLANK/BLANK**

Used to hide the screen picture.



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.

6. **SOURCE**

Displays the source selection bar.

7. **OK**

Confirms the selected On-Screen Display (OSD) menu item.

8. **PICTURE**

Selects an available picture setup mode.

9. **MENU**

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

10. **ASPECT**

Selects the display aspect ratio.

11. **MUTE**

Toggles projector audio between on and off.

12. Numeric buttons

Enters numbers in network settings or when setting the remote control ID. Numeric buttons 1, 2, 3, 4 cannot be pressed when asked to enter password.

13. **ALL**

Press and hold **ID SET** until the ID setting indicator lights up. Press **ALL** to clear current ID setting of the remote control. The ID is cleared successfully when you see the ID setting indicator starts flickering and then blackout.

14. **ZOOM+ / ZOOM-**

Magnifies or reduces the projected picture size.

15. ID setting indicator

16. **QUICK INSTALL**

Quickly selects several functions to adjust the projected image and displays the test pattern.

17. **INFO**

Displays the projector information.

18. **LIGHT SOURCE**

Selects an available light mode.

19. **AUTO**

No function.

20. **LIGHT**

Turns on the remote control backlight for a few seconds. To keep the backlight on, press any other key while the backlight is on. Press the key again to turn the backlight off.

21. **ID SET**

Sets the code for this remote control. Press and hold **ID SET** until the ID setting indicator lights up. Enter the ID for the remote control (between 01~99). The remote control ID should be the same as the corresponding projector ID. The ID is saved successfully when you see the ID setting indicator starts flickering and then blackout.

22. **3D**

Displays the **3D** menu.

23. **FREEZE**

Freezes the projected image.

24. **PAGE+ / PAGE-**

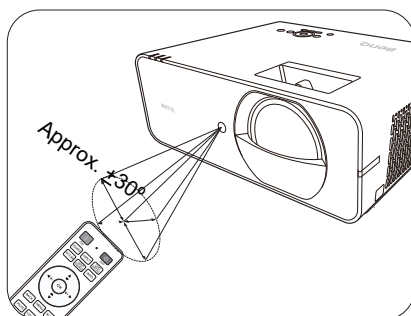
Operate your display software program (on a connected PC) which responds to page up/down commands (like Microsoft PowerPoint).

Remote control effective range

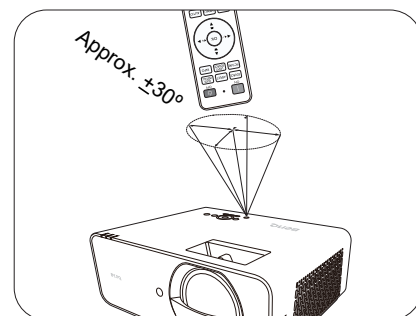
The remote control must be held at an angle within 30 degrees perpendicular to the projector's IR remote control sensor(s) to function correctly. The distance between the remote control and the sensor(s) should not exceed 8 meters (~ 26 feet).

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



Positioning your projector

Choosing a location

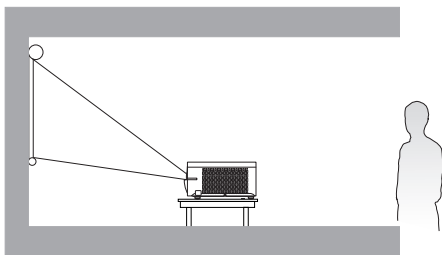
Before choosing an installation location for your projector, take the following factors into consideration:

- Size and position of your screen
- Electrical outlet location
- Location and distance between the projector and the rest of your equipment

You can install your projector in the following ways.

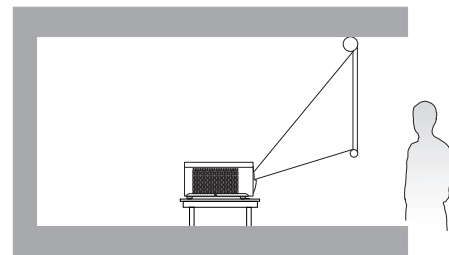
1. Front

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.



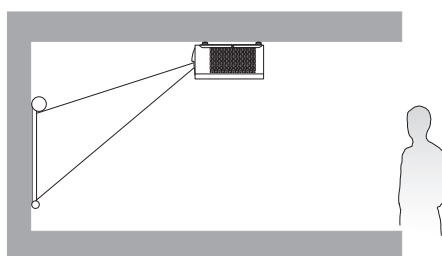
2. Rear

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



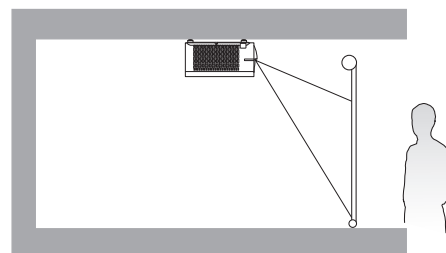
3. Front Ceiling

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



4. Rear Ceiling

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

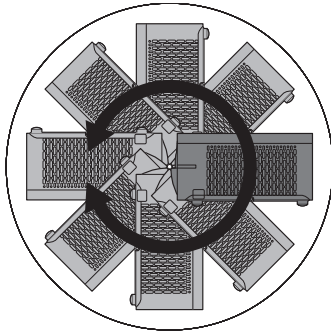


After turning on the projector, go to **Advanced** menu - **Installation** > **Projector Position**, press **OK** and press ◀/▶ to select a setting.

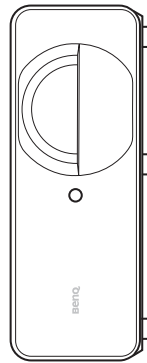
You can also use **QUICK INSTALL** on the remote control to access this menu.

The projector can also be installed at following angles:

360-degree projection



One-way portrait

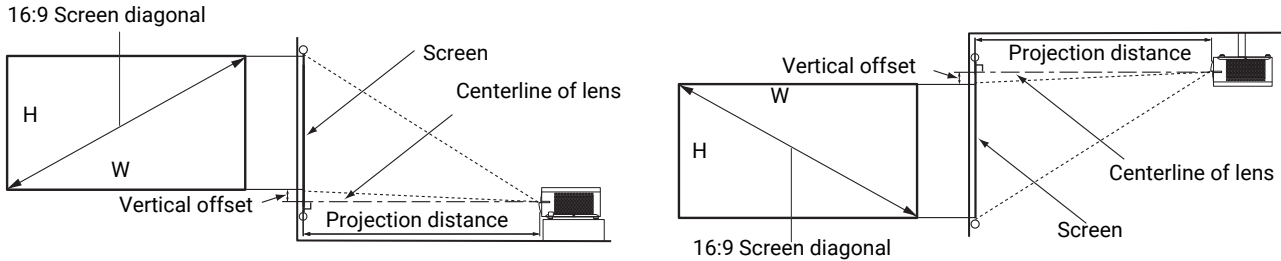


Installation of the projector should be performed carefully. Incomplete or improper installation may cause the projector to fall, resulting in personal injury or property damage.

Obtaining a preferred projected image size

The distance from the projector lens to the screen, the zoom setting (if available), 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

Screen size				Projection distance (mm)			Vertical offset (mm)
Diagonal		H (mm)	W (mm)	Min distance (with max zoom)	Average	Max distance (with min zoom)	
Inch	mm						
30	762	374	664	332	332	332	19
40	1016	498	886	443	443	443	25
50	1270	623	1107	553	553	553	31
60	1524	747	1328	664	664	664	37
70	1778	872	1550	775	775	775	44
80	2032	996	1771	886	886	886	50
90	2286	1121	1992	996	996	996	56
100	2540	1245	2214	1107	1107	1107	62
110	2794	1370	2435	1218	1218	1218	68
115	2921	1432	2546	1273	1273	1273	72
120	3048	1494	2657	1328	1328	1328	75
130	3302	1619	2878	1439	1439	1439	81
140	3556	1743	3099	1550	1550	1550	87
150	3810	1868	3321	1660	1660	1660	93
160	4064	1992	3542	1771	1771	1771	100
170	4318	2117	3763	1882	1882	1882	106
180	4572	2241	3985	1992	1992	1992	112
190	4826	2366	4206	2103	2103	2103	118
200	5080	2491	4428	2214	2214	2214	125
210	5334	2615	4649	2324	2324	2324	131
220	5588	2740	4870	2435	2435	2435	137
230	5842	2864	5092	2546	2546	2546	143
240	6096	2989	5313	2657	2657	2657	149
250	6350	3113	5535	2767	2767	2767	156
260	6604	3238	5756	2878	2878	2878	162
270	6858	3362	5977	2989	2989	2989	168
280	7112	3487	6199	3099	3099	3099	174
290	7366	3611	6420	3210	3210	3210	181
300	7620	3736	6641	3321	3321	3321	187

For example, if you are using a 120-inch screen, the recommended projection distance in the "Average" column is 1328 mm.

If your measured projection distance is 2000 mm, the closest match in the "Average" column is 1992 mm. Looking across this row shows that a 180" (about 4.6 m) screen is required.



- To optimize your projection quality, we suggest you do the projection within non-gray area.

- The projection performances will vary based on the actual projection size and ambient light.

- 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.



- Ceiling installation must be done by a qualified professional. Contact your dealer for more information. It is not recommended you install the projector yourself.

- Only use the projector on a solid, level surface. Serious injury and damage can occur if the projector is dropped.

- Do not use the projector in an environment where extreme temperature occurs. The projector must be used at temperatures between 32 degrees Fahrenheit (0 degrees Celsius) and 104 degrees Fahrenheit (40 degrees Celsius).

- Screen damage will occur if the projector is exposed to moisture, dust or smoke.

- Do not cover the vents on the projector. Proper ventilation is required to dissipate heat. Damage to the projector will occur if the vents are covered.

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.

- 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.

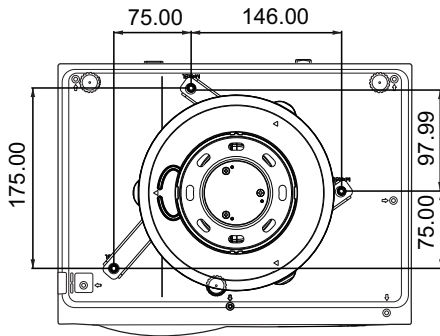
- The warranty doesn't cover any product damage caused by mounting the projector with a non-BenQ brand projector mounting kit.

- Consider the surrounding temperature where the projector is ceiling/wall mounted. If a heater is used, the temperature around the ceiling 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.

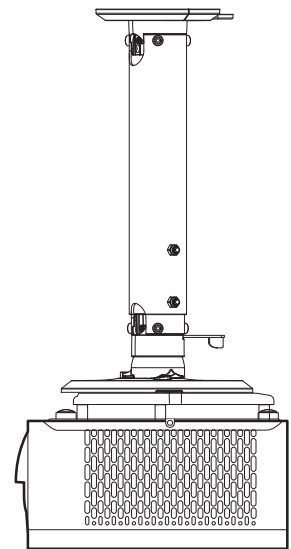
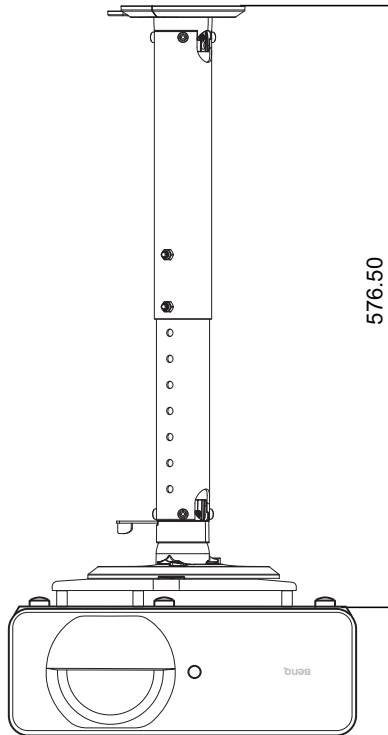
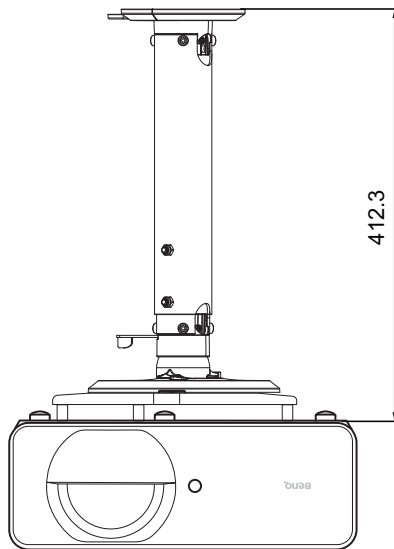
- Make sure the power outlet is at an accessible height so that you can easily shut down the projector.

Ceiling mount installation diagram



BenQ ceiling mount CMG3 (5J.JAM10.001)
Ceiling mount screw: M4 x 8L (Unit: mm)

Unit: mm

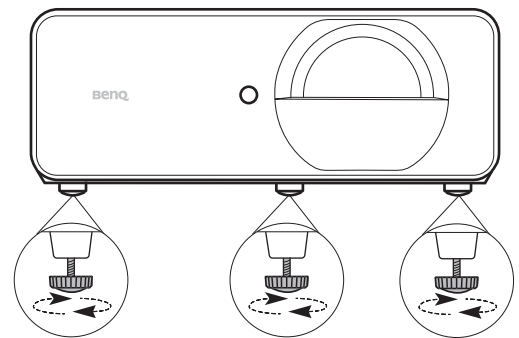


Adjusting the projected image

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 adjust the adjuster feet to fine-tune the horizontal angle.

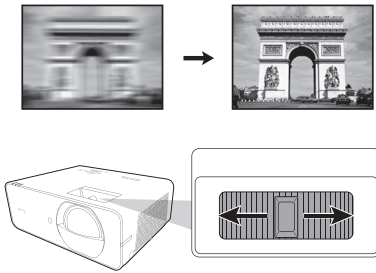
To retract the feet, screw the adjuster feet in a reverse direction.



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.

Fine-tuning the image clarity

- Sharpen the image by rotating the focus ring.



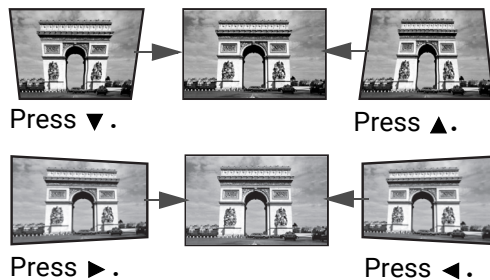
Correcting keystone

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

To correct this, besides adjusting the height of the projector, if you want the projector to automatically correct image keystoning, be sure the **Auto Vertical Keystone** function in the **Advanced Menu - Installation** menu is **On**.

Or you will need to manually correct it following these steps.

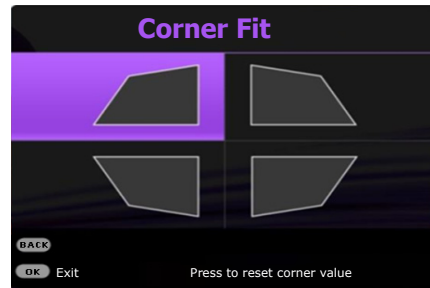
1. Do one of the following steps to display the keystone correction page.
 - Press **▲/▼**.
 - Press **QUICK INSTALL** on the remote control. Press **▼** to highlight **2D Keystone** and press **OK**.
 - Go to **Advanced Menu - Installation > 2D Keystone** and press **OK**.
2. After the **2D Keystone** correction page displays. Use **▲/▼** to correct vertical keystone distortion. Use **◀/▶** to correct horizontal keystone distortion.



Adjusting Corner Fit

You can manually adjust four corners of the image by setting the horizontal and vertical values.

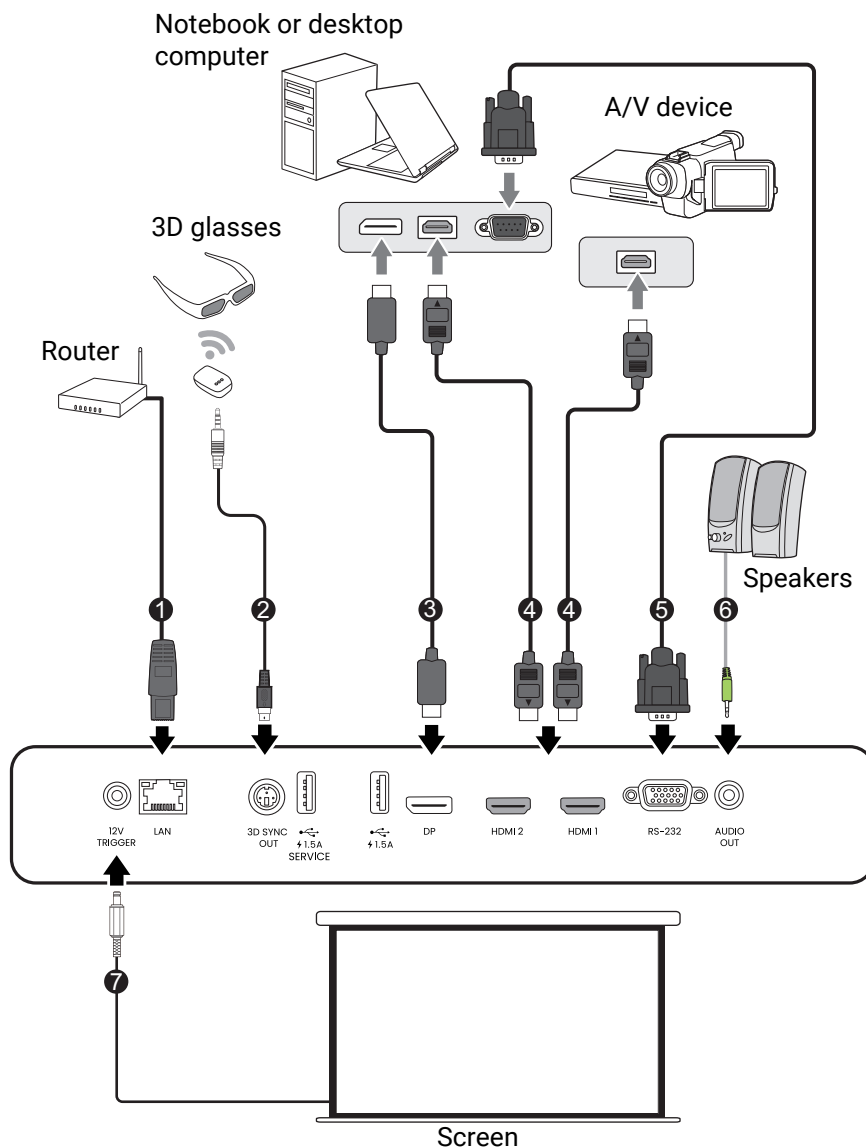
1. To display the corner fit correction page, go to **Advanced** menu - **Installation** > **Geometry** > **Corner Fit** and press **OK**.
2. Press **▲/▼/◀/▶** to select one corner and press **OK**.
3. Press **▲/▼** to adjust vertical values.
4. Press **◀/▶** to adjust horizontal values.



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	RJ-45 cable
2	3D IR emitter
3	DisplayPort cable
4	HDMI cable
5	RS-232 cable
6	Audio cable
7	12V trigger cable



- In the connections above, some cables may not be included with the projector (see [Shipping contents on page 6](#)). 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 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.

Connecting audio

The projector has built-in mono speaker(s) which are designed to provide basic audio functionality accompanying data presentations for business purposes only. They are not designed for, nor intended for stereo audio reproduction use as might be expected in home theater or home cinema applications. Any stereo audio input (if provided), is mixed into a common mono audio output through the projector speaker(s).



The built-in speaker(s) will be muted when the **AUDIO OUT** jack is connected.

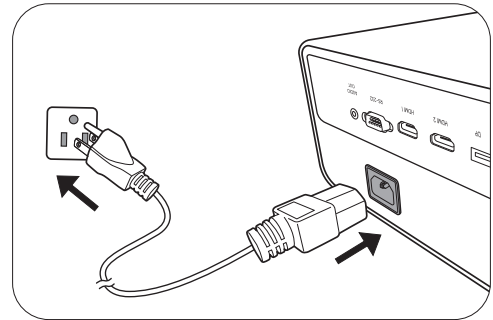


The projector is only capable of playing mixed mono audio, even if a stereo audio input is connected.

Operation

Starting up the projector

1. Plug the power cord into the AC power jack on the projector. Turn on the power outlet switch (where fitted). The power indicator on the projector lights orange after power has been applied.
2. Press  on the projector or  on the remote control to start the projector. The power indicator flashes green and stays green when the projector is on.



The start up procedure takes about 10 seconds. In the later stage of start up, a startup logo is projected.

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

3. If the projector is activated for the first time, select your OSD language following the on-screen instructions.
4. If you are prompted for a password, press the arrow keys to enter a 6-digit password. See [Utilizing the password function on page 21](#).
5. Switch all of the connected equipment on.
6. The projector will search for input signals. The current input signal being scanned appears. If the projector does not detect a valid signal, the message “No Signal” will continue displaying until an input signal is found.



You can also press **SOURCE** to select your desired input signal. See [Switching input signal on page 23](#).



- 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 lamp.



- 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 59](#).
- If no signal is detected for 3 minutes, the projector automatically enters saving mode.

Using the menus

The projector is equipped with 2 types of On-Screen Display (OSD) menus for making various adjustments and settings.

- **Basic** OSD menu: provides primary menu functions. (See [Basic Menu on page 27](#))
- **Advanced** OSD menu: provides full menu functions. (See [Advanced Menu on page 28](#))

To access the OSD menu, press **MENU** on the projector or remote control.

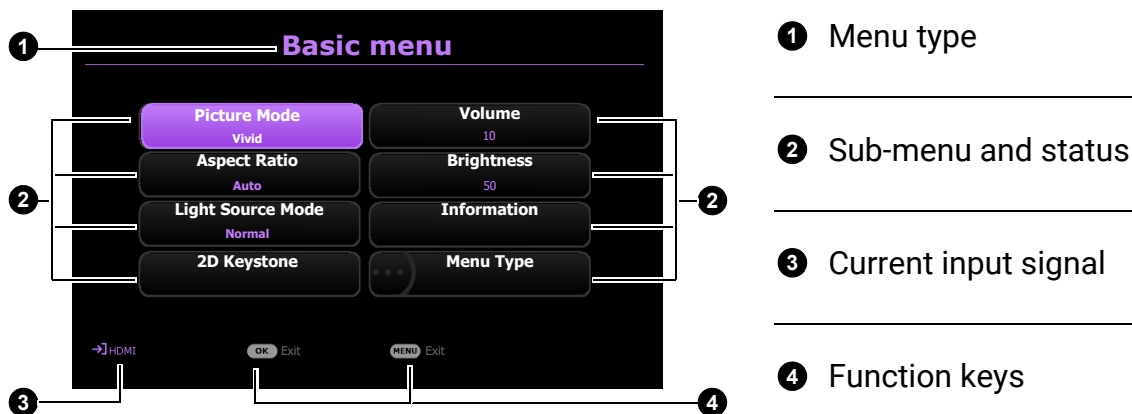
- Use the arrow keys (▲/▼/◀/▶) on the projector or remote control to move through the menu items.
- Use **OK** on the projector or remote control to confirm the selected menu item.

The first time you use the projector (after finishing the initial setup), press **MENU**, and the **Advanced** OSD menu will be displayed.



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

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



If you intend to switch from the **Basic** OSD menu to the **Advanced** OSD menu, follow the instructions below:

1. Go to **Menu Type** and press **OK**.
2. Press ▲ / ▼ to select **Advanced** and press **OK**. Your projector will switch to **Advanced** OSD menu.

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



Likewise, when you wish to switch from the **Advanced** OSD menu to the **Basic** OSD menu, follow the instructions below:

1. Go to **System > Menu Settings > Menu Type** and press **OK**.
2. Press **▲ / ▼** to select **Basic**. Your projector will switch to the **Basic** OSD menu.

Securing the projector

Using a security cable lock

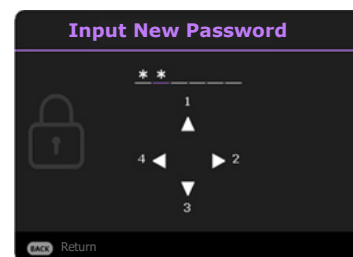
The projector has to be installed in a safe place to prevent theft. Otherwise, purchase a lock, such as the Kensington lock, to secure the projector. You can locate a Kensington lock slot on the rear side of the projector. See item 19 on [page 7](#).

A Kensington security cable lock is usually a combination of key(s) and the lock. Refer to the lock's documentation for finding out how to use it.

Utilizing the password function

Setting a password

1. Go to **Advanced** menu - **System > Security Settings > Password**. Press **OK**. The **Password** page appears.
2. Highlight **Change Password** and press **OK**.
3. The four arrow keys (**▲**, **▶**, **▼**, **◀**) respectively represent 4 digits (1, 2, 3, 4). According to the password you desire to set, press the arrow keys to enter six digits for the password.
4. Confirm the new password by re-entering the new password.
5. To activate the **Power On Lock** function, go to **System > Security Settings > Password > Power On Lock**, press **OK** and **◀/▶** to select **On**. Input the password again.

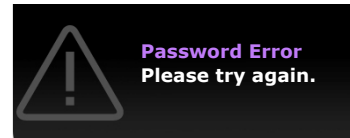


- The digits being input will display as asterisks on-screen. Make a note of your selected password and keep it in a safe place in advance or right after the password is entered so that it is available to you should you ever forget it.
- Once a password has been set and the **Power On Lock** is activated, the projector cannot be used unless the correct password is entered every time the projector is started.

If you forget the password

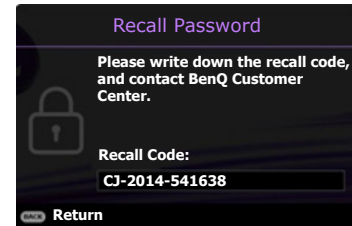
If you enter the wrong password, the password error message will appear, and the **Input Password** message follows. If you absolutely do not remember the password, you can use the password recall procedure. See [Entering the password recall procedure on page 22](#).

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



Entering the password recall procedure

1. Press and hold **OK** for 3 seconds. The projector will display a coded number on the screen.
2. Write down the number and turn off your projector.
3. Seek help from the local BenQ service center to decode the number. You may be required to provide proof of purchase documentation to verify that you are an authorized user of the projector.



Changing the password

1. Go to **Advanced** menu - **System** > **Security Settings** > **Password**. Press **OK**. The **Password** page appears.
2. Highlight **Change Password** and press **OK**.
3. Enter the old password.
 - If the password is correct, another message **Input New Password** appears.
 - If the password is incorrect, the password error message will appear, and the message **Input Current Password** appears for your retry. You can press **BACK** to cancel the change or try another password.
4. Enter a new password.
5. Confirm the new password by re-entering the new password.

Disabling the password function

To disable password protection, go to **Advanced** menu - **System** > **Security Settings** > **Password** > **Power On Lock** and press **OK** and **◀/▶** to select **Off**. The message **Input Password** appears. Enter the current password.

- If the password is correct, the OSD menu returns to the **Security Settings** page. You will not have to enter the password next time turning on the projector.
- If the password is incorrect, the password error message will appear, and the message **Input Current Password** appears for your retry. You can press **BACK** to cancel the change or try another password.



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

Switching input signal

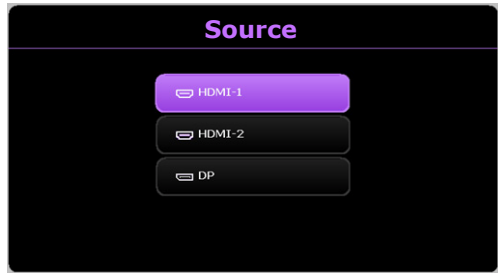
The projector can be connected to multiple devices at the same time. However, it can only display one full screen at a time. When starting up, the projector automatically searches for the available signals.

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

To manually select the source:

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

Once detected, the selected source information will appear at the corner of the screen for seconds. 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. See [Aspect Ratio on page 36](#).

Controlling the projector through a Wired LAN environment

Wired LAN allows you to manage the projector from a computer using a web browser when the computer and the projector are properly connected to the same local area network.

Configuring the Wired LAN

If you are in a DHCP environment:

1. Take a RJ45 cable and connect one end to the RJ45 LAN input jack of the projector and the other end to the RJ45 port.



When connecting the RJ45 cable, avoid coiling and intertwining the cable as it may cause signal noise or interruption.

2. Make sure the menu type is **Advanced**. See [Using the menus on page 20](#) for how to switch to the **Advanced** OSD menu.
3. Go to the **Advanced** menu - **System > Network Settings** menu.
4. Highlight **Wired LAN** and then press **OK**. The **Wired LAN** page is displayed.
5. Press **▲/▼** to highlight **DHCP** and press **◀/▶** to select **On**.
6. Press **▲/▼** to highlight **Apply** and press **OK**.
7. Go back to the **Network Settings** page.
8. Press **▲/▼** to highlight **AMX Device Discovery** and press **◀/▶** to select **On** or **Off**. When **AMX Device Discovery** is **On**, the projector can be detected by AMX controller.
9. Please wait for around 15 - 20 seconds, and then re-enter the **Wired LAN** page.

- The **IP Address**, **Subnet Mask**, **Default Gateway**, and **DNS Server** settings will be displayed. Note down the IP address displayed in the **IP Address** row.



If the **IP Address** still does not display, contact your ITS administrator.

If you are in a non-DHCP environment:

- Repeat steps 1-4 above.
- Press **▲/▼** to highlight **DHCP** and press **◀/▶** to select **Off**.
- Contact your ITS administrator for information on the **IP Address**, **Subnet Mask**, **Default Gateway**, and **DNS Server** settings.
- Press **▲/▼** to select the item you want to modify and press **OK**.
- Press **◀/▶** to move the cursor and then press **▲/▼** to enter the value.
- To save the setting, press **OK**. If you do not want to save the setting, press **BACK**.
- Press **BACK** to return to the **Network Settings** page, press **▲/▼** to highlight **AMX Device Discovery** and press **◀/▶** to select **On** or **Off**.
- Press **BACK** to exit the menu.

Controlling the projector remotely through a web browser

As Adobe no longer support Flash Player after December 31 2020, access to Flash Player is removed from all browsers, including Internet Explorer and Google Chrome. As a result, the Crestron RoomView service from BenQ, which is Flash-based, will also be discontinued. BenQ suggests using the following alternatives to manage and monitor multiple projectors.

- Crestron RoomView Express: this software can be downloaded from Crestron's official website. <https://www.crestron.com/resources/get-roomview>
- BenQ DMS Local: this software can be downloaded from the official BenQ website. Please reach out to BenQ service for further assistance with installation if needed. <https://www.benq.com/en-us/business/projector/dms-local.html>

i	<ul style="list-style-type: none"> • Menu (MENU) • OK • ▲(▽) • ◀ • Blank (BLANK) 	<ul style="list-style-type: none"> • Back (BACK) • ▼(△) • ▶ • Input (SOURCE) 	See Projector & Remote control on page 8 for details.
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ii

To switch input source, click on your desired signal.



The source list varies according to the connectors available on the projector. "Video" stands for the Video signal.

This page on the projector allows you to set up or adjust secure access privileges for remote network operation.

Projector Web Server
Device Name: LH860ST

On this page, you can manage the secure access settings. The following operations are available:



- i. You can name the projector, keep track of its location and the person in charge of it.
- ii. You can adjust the **Network** settings.
- iii. Once set, access to the remote network operation on this projector has been password-protected.
- iv. Once set, access to the tools page has been password-protected.
- v. Press **Exit** to go back to the remote network operation page.

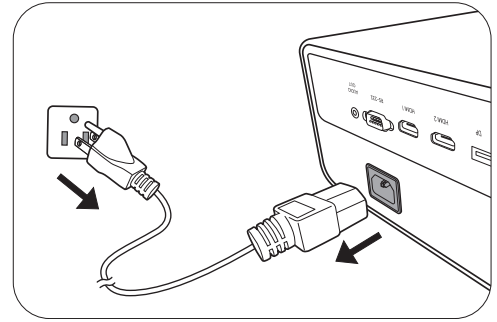
Please pay attention to the limitation of input length (including space and other punctuation keys) in the list blow:

Category Item	Input Length	Maximum Number of Characters
Crestron Control	IP Address	15
	IP ID	4
	Port	5
Projector	Projector Name	22
	Comment	22
	Assigned To	22
Network Configuration	DHCP (Enabled)	(N/A)
	IP Address	15
	Subnet Mask	15
	Default Gateway	15
	DNS Server	15
User Password	Enabled	(N/A)
	New Password	16
	Confirm	16
Admin Password	Enabled	(N/A)
	New Password	16
	Confirm	16

For more information, visit <http://www.crestron.com> & www.crestron.com/getroomview.

Shutting down the projector

1. Press  on the projector or remote control 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.
3. The power indicator becomes a steady orange. 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 lamp life.
- Lamp life results will vary depending on environmental conditions and usage.

Menu operation

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

Menu (Ref. Page)	Options
Picture Mode (29)	Bright/Simulation/sRGB/Presentation/Vivid/(3D)/(HDR10)/(HLG)/User 1/User 2
Aspect Ratio (36)	Auto/4:3/16:9/16:10/1:1/21:9/5:4
Light Source Mode (53)	Normal
	ECO
	SmartEco
	Custom
2D Keystone (15)	H: -30~0~30
	V: -30~0~30
Volume (34)	0 – 20
Brightness (30)	0–100
Information (50)	Native Resolution
	Detected Resolution
	Source
	Picture Mode
	Light Source Mode
	3D Format
	Color System
	Dynamic Range
	Light Source Usage Time
	Projector ID
	Firmware Version
	Service Code
Menu Type (46)	Basic/Advanced

Advanced Menu

1. Main menu: **Picture**

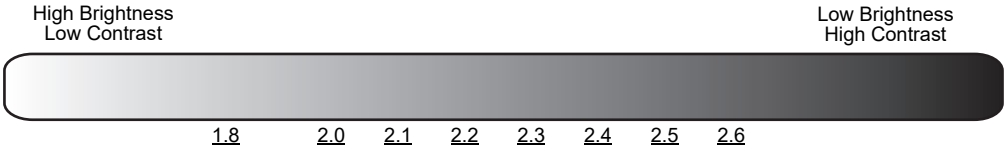
Structure

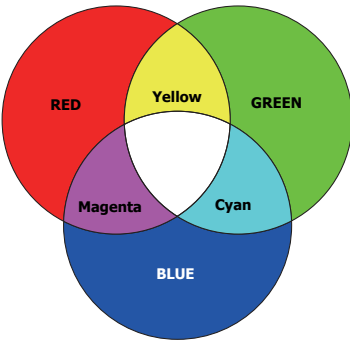
Menu		Options	
Picture Mode		Bright/Simulation/sRGB/Presentation/Vivid/(3D)/(HDR10)/(HLG)/User 1/User 2	
User Management	Load Settings From	sRGB/Simulation/Presentation/Vivid	
	Rename User Mode		
Brightness		0–100	
Contrast		0–100	
Sharpness		0–15	
Advanced Color Settings	Gamma Selection		1.8/2.0/2.1/2.2/2.3/2.4/2.5/2.6/BenQ/BenQ 2
	Color Temperature Tuning	R Gain/G Gain/B Gain	0–200
		R Offset/G Offset/B Offset	0–511
	Color Management	R/G/B/C/M/Y	Hue/Saturation/Gain
		White Balance	R Gain/G Gain/B Gain
		Reset	Reset/Cancel
	Brilliant Color		Off/On
	Light Source Mode		Normal/ECO/SmartEco/Custom
	Custom Brightness		50%–100%
HDR Brightness		-2/-1/0/1/2	
Noise Reduction		0 – 15	
Reset Current Picture Mode		Reset/Cancel	


Function descriptions

Menu	Descriptions
Picture Mode	<p>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.</p> <ul style="list-style-type: none">• 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.• Simulation: Is designed for entertainment content; it delivers vibrant and brilliant color performance, making the visuals captivating and eye catching. Ideal for entertainment usage.• sRGB: Maximizes the purity of RGB colors to provide true-to-life images regardless of brightness setting. It is most suitable for viewing photos taken with an sRGB compatible and properly calibrated camera, and for viewing PC graphic and drawing applications such as AutoCAD.• Presentation: Is designed for presentations. The brightness is emphasized in this mode to match PC and notebook coloring.• Vivid: Perfecting the balance of color saturation and brightness, is appropriate for playing video clips under ambient light.• 3D: Is appropriate for playing 3D images and 3D video clips. This mode is only available when 3D function is enabled and 3D content is detected.• HDR10: Delivers High Dynamic Range effects with higher contrasts of brightness and colors for HDR Blu-ray movies. Picture Mode will be switched to HDR10 automatically while detecting metadata or EOTF info from HDR contents.• HLG: Delivers High Dynamic Range effects with higher contrasts of brightness and colors. Picture Mode will be switched to HLG automatically while detecting metadata or EOTF info from HLG streaming contents.• User 1/User 2: Recalls the settings customized based on the current available picture modes. See User Management on page 30.

Menu	Descriptions
User Management	<p>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.</p> <p>• Load Settings From</p> <ol style="list-style-type: none"> 1. Go to Picture > Picture Mode. 2. Press ◀/▶ to select User 1 or User 2. 3. Press ▼ to highlight User Management, and press OK. The User Management page is displayed. 4. Select Load Settings From and press OK. 5. Press ▼/▲ to select a picture mode that is closest to your need. 6. Press OK and BACK to return to the Picture menu. 7. Press ▼ to select the sub-menu items you want to change and adjust the values with ◀/▶. The adjustments define the selected user mode. <p>• Rename User Mode</p> <p>Select to rename the customized picture mode (User 1/User 2). The new name can be up to 9 characters including English letters (A-Z, a-z), digits (0-9), and space (_).</p> <ol style="list-style-type: none"> 1. Go to Picture > Picture Mode. 2. Press ◀/▶ to select User 1 or User 2. 3. Press ▼ to highlight User Management, and press OK. The User Management page is displayed. 4. Press ▼ to highlight Rename User Mode and press OK. The Rename User Mode page is displayed. 5. Use ▲/▶ / ▼/◀, and OK to set desired characters. 6. When done, press BACK to save the changes and exit.
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.
Sharpness	The higher the value, the sharper the picture becomes.

Menu	Descriptions
Advanced Color Settings	<p>• Gamma Selection</p> <p>Gamma refers to the relationship between input source and picture brightness.</p> <ul style="list-style-type: none"> • 1.8/2.0/2.1: 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. • BenQ/BenQ 2: Finely-tuned gamma to optimize details and increase contrast. 
	<p>• Color Temperature Tuning</p> <p>You can set a preferred color temperature by adjusting the following options.</p> <ul style="list-style-type: none"> • 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.

Menu	Descriptions
	<ul style="list-style-type: none"> • Color Management <p>The Color Management provides six sets (RGBCMY) of colors to be adjusted. When you select each color, you can independently adjust its range and saturation according to your preference.</p> <p>To make adjustments, press the ▲/▼ arrows to highlight an independent color from among Red (R), Green (G), Blue (B), Cyan (C), Magenta (M), Yellow (Y) or White (W). The following menu items are displayed for your choice.</p> <ul style="list-style-type: none"> • Hue: Press ▲/▼ to adjust the video hue of the selected primary color. • Saturation: Press ▲/▼ to adjust the video saturation of the selected primary color. • Gain: Press ▲/▼ to adjust the video gain of the selected primary color. <p>If you selected White Balance, you can adjust the contrast levels of Red, Green, Blue, Cyan, Magenta, Yellow and White by selecting R Gain, G Gain, and B Gain.</p> <p>To return all the settings to the factory default values, highlight Reset, and press OK.</p>
<p>Advanced Color Settings (Continued)</p>	<div data-bbox="406 1055 470 1115" data-label="Image"> </div> <p>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.</p>  <ul style="list-style-type: none"> • Brilliant Color <p>This function utilizes a new color-processing algorithm and system level enhancements to enable higher brightness while providing truer, more vibrant colors in picture. It enables a greater than 50% brightness increase in mid-tone images, which are common in video and natural scenes, so the projector reproduces images in realistic and true colors.</p> • Light Source Mode <p>Selects a suitable light source power from among the provided modes. See Extending light source life on page 53.</p> • Custom Brightness <p>You can adjust the light source brightness. This function is only available when Light Source Mode is Custom.</p> • HDR Brightness <p>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.</p> • Noise Reduction <p>Reduces electrical image noise caused by different media players.</p>

Menu	Descriptions
Reset Current Picture Mode	<p>Returns all of the adjustments you've made for the selected Picture Mode (including the preset mode, User 1 and User 2) to the factory preset values.</p> <ol style="list-style-type: none"> 1. Press OK. The confirmation message is displayed. 2. Use ◀/▶ to select Reset and press OK. The current picture mode returns to the factory preset settings. <div data-bbox="399 443 459 504">  </div> <p>The following settings will still remain: Picture Mode, Load Settings From.</p>

2. Main menu: **Audio**

Structure

Menu	Options
Audio Output	Internal Speaker/3.5mm Jack
Mute	Off/On
Volume	0 – 20
Power On/Off Ring Tone	Off/On
Reset Audio	Reset/Cancel

Function descriptions





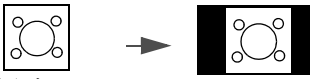
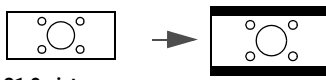
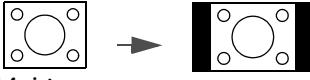
Menu	Descriptions
Audio Output	Selects an audio output source from built-in speakers (Internal Speaker), or the audio output jack (3.5mm Jack).
Mute	Select On to temporarily turn off the projector's internal speaker or the volume being output from the audio output jack. To restore the audio, select Off .
Volume	Adjusts the volume level of the projector's internal speaker or the volume being output from the audio output jack. If the Mute function is activated, adjusting Volume will turn off the Mute function.
Power On/Off Ring Tone	Sets the ring tone for the projector On or Off . The Power On/Off Ring Tone can only be adjusted here. Setting the sound mute or adjusting the sound level do not affect the Power On/Off Ring Tone .
Reset Audio	Returns all of the adjustments you've done under the Audio menu to the factory preset values.


3. Main menu: **Display**

Structure

Menu			Options
Aspect Ratio			Auto/4:3/16:9/16:10/1:1/21:9/5:4
Auto Source Search			Auto/Off
Source Rename			HDMI-1/HDMI-2/DisplayPort
3D	3D Sync Mode		DLP Link/VESA 3D
	3D Mode		Auto/Top Bottom/Frame Sequential/Frame Packing/Side by Side/Off
	3D Sync Invert		Disable/Invert
	Save 3D Settings		3D Settings 1/3D Settings 2
	Apply 3D Settings		3D Settings 1/3D Settings 2
HDMI Settings	HDMI Format		Auto/Limited/Full
	HDMI Equalizer	HDMI-1/HDMI-2	Auto/1/2/3/4/5
	HDMI EDID	HDMI-1/HDMI-2	Enhanced/Standard
	Electronics Control		Off/On
	Power On Link		Off/From Device
	Power Off Link		Off/From Projector
Screen Fill	Standard		16:9 (1920 x 1080)
			16:10 (1728 x 1080)
			4:3 (1440 x 1080)
			1:1 (1080 x 1080)
			21:9 (1920 x 822)
			5:4 (1350 x 1080)
	Enhanced		16:9 (3840 x 2160)
			16:10 (1728 x 1080)
			4:3 (1440 x 1080)
			1:1 (1080 x 1080)
			21:9 (1920 x 822)
			5:4 (1350 x 1080)
Fast Mode			Off/On
Blending Ready			Off/On
Reset Display			Reset/Cancel

Function descriptions

Menu	Descriptions
Aspect Ratio	<p>There are several options to set the image's aspect ratio depending on your input signal source.</p> <ul style="list-style-type: none"> • Auto: Scales an image proportionally to fit the projector's native resolution in its horizontal or vertical width.
	 <p>15:9 picture</p>
	<ul style="list-style-type: none"> • 4:3: Scales an image so that it is displayed in the center of the screen with a 4:3 aspect ratio.
	 <p>4:3 picture</p>
	<ul style="list-style-type: none"> • 16:9: Scales an image so that it is displayed in the center of the screen with a 16:9 aspect ratio.
	 <p>16:9 picture</p>
	<ul style="list-style-type: none"> • 16:10: Scales an image so that it is displayed in the center of the screen with a 16:10 aspect ratio.
Auto Source Search	 <p>16:10 picture</p>
	<ul style="list-style-type: none"> • 1:1: Scales an image so that it is displayed in the center of the screen with a 1:1 aspect ratio.
	 <p>1:1 picture</p>
	<ul style="list-style-type: none"> • 21:9: Scales an image so that it is displayed in the center of the screen with a 21:9 aspect ratio.
	 <p>21:9 picture</p>
Source Rename	<ul style="list-style-type: none"> • 5:4: Scales an image so that it is displayed in the center of the screen with a 5:4 aspect ratio.
	 <p>5:4 picture</p>
3D	<p>Allows the projector to automatically search for a signal.</p>
	<p>Renames the current input source to your desired name.</p> <p>On the Source Rename page:</p> <ol style="list-style-type: none"> 1. Press OK to display the on-screen keyboard. 2. Press ▲/▼/◀/▶ to select each desired digit/letter, and press OK to confirm each input. 3. Repeat the step above and when done, press BACK and ▼ to highlight Commit. 4. Press OK and the source name changes.
3D	<p>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.</p>

Menu	Descriptions
3D (Continued)	<p>When watching 3D contents:</p> <ul style="list-style-type: none"> • The image may seem misplaced; however, this is not a product malfunction. • Take appropriate breaks when watching 3D contents. • 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 be refrained from watching 3D contents. • 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.
	<p>• 3D Sync Mode Select a proper 3D sync mode.</p>
	<p>• 3D Mode The projector can automatically enable 3D mode via the contents when the source type is HDMI and supports 1.4a. If you want the projector to automatically choose an appropriate 3D format when detecting 3D contents, select Auto. If the projector cannot recognize the 3D format, choose a 3D mode from among Top Bottom, Frame Sequential, Frame Packing and Side by Side.</p>
	<p>When 3D Mode is enabled:</p> <ul style="list-style-type: none"> • The brightness level of the projected image decreases. • The Picture Mode cannot be adjusted. • The 2D Keystone can only be adjusted within limited degrees.
	<p>• 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.</p> <p>• Save 3D Settings When you have successfully displayed the 3D contents after making the appropriate adjustments, you can enable this function and choose a set of 3D settings to memorize current 3D settings.</p> <p>• Apply 3D Settings After the 3D settings are saved, you can decide if you would like to apply them by choosing a set of 3D settings that you have saved. Once applied, the projector will automatically play the incoming 3D contents if it matches the 3D settings saved.</p>
	<p> Only the set(s) of 3D settings with memorized data is available.</p>

Menu

Descriptions

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

Switches between **Enhanced** for HDMI 2.0 EDID and **Standard** for HDMI 1.4 EDID. Selecting **Standard** which supports up to 1080p 60Hz may solve abnormal display issues with some old players.

• Electronics 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.


• Power On Link/Power Off Link

When you connect an HDMI CEC-compatible device to your projector with an HDMI cable, you can set the behavior of powering on/off between the device and the projector.

Power On Link > From Device	When the connected device is turned on, the projector will be activated, too.
Power Off Link> From Projector	When the projector is turned off, the connected device will be shut down, too.

!

Please disable **Eco** (Go to **System** > **Power Management**) before enabling **Power On Link** / **Power Off Link**.

Menu	Descriptions
Screen Fill	<p>The native resolution will change according to your selection.</p> <ul style="list-style-type: none"> • Standard (only available when HDMI EDID is Standard) <ul style="list-style-type: none"> • 16:9 (1920 x 1080): Native resolution in the Information page will show 1920 x 1080. Projection of all aspect ratio will be limited in that specific range. • 16:10 (1728 x 1080): Native resolution in the Information page will show 1728 x 1080. Projection of all aspect ratio will be limited in that specific range. • 4:3 (1440 x 1080): Native resolution in the Information page will show 1440 x 1080. Projection of all aspect ratio will be limited in that specific range. • 1:1 (1080 x 1080): Native resolution in the Information page will show 1080 x 1080. Projection of all aspect ratio will be limited in that specific range. • 21:9 (1920 x 822): Native resolution in the Information page will show 1920 x 822. Projection of all aspect ratio will be limited in that specific range. • 5:4 (1350 x 1080): Native resolution in the Information page will show 1350 x 1080. Projection of all aspect ratio will be limited in that specific range. • Enhanced (only available when HDMI EDID is Enhanced) <ul style="list-style-type: none"> • 16:9 (3840 x 2160): Native resolution in the Information page will show 3840 x 2160. Projection of all aspect ratio will be limited in that specific range. • 16:10 (1728 x 1080): Native resolution in the Information page will show 1728 x 1080. Projection of all aspect ratio will be limited in that specific range. • 4:3 (1440 x 1080): Native resolution in the Information page will show 1440 x 1080. Projection of all aspect ratio will be limited in that specific range. • 1:1 (1080 x 1080): Native resolution in the Information page will show 1080 x 1080. Projection of all aspect ratio will be limited in that specific range. • 21:9 (1920 x 822): Native resolution in the Information page will show 1920 x 822. Projection of all aspect ratio will be limited in that specific range. • 5:4 (1350 x 1080): Native resolution in the Information page will show 1350 x 1080. Projection of all aspect ratio will be limited in that specific range. <p> Aspect Ratio will be fixed at Auto if an option other than 16:10 (1728 x 1080) or 16:9 (3840 x 2160) is selected.</p>

Menu	Descriptions
Fast Mode	<p>Minimizes the response time between the input source and the displayed image. For the optimized latency, when Fast Mode is activated, 2D Keystone/Aspect Ratio/Geometry/Image Resizing will return to the default settings.</p> <p>*Fast Mode can only be enabled for below input timing adopted by most of popular games:</p> <ul style="list-style-type: none"> • 1080p 60Hz/120Hz/240Hz • 4K 60Hz
Blending Ready	<p>When this function is activated, the following settings will apply:</p> <ul style="list-style-type: none"> • Picture Mode will be set as sRGB. • Direct Power On will be set as On. • Fast Mode will be activated. • Functions related to digital image correction, such as Aspect Ratio, 2D Keystone, Geometry, Wall Color and Image Resizing, will be disabled. • Screen Fill will be set as native resolution. • Apply Image Memory will be unavailable.
Reset Display	<p>Returns all the settings on the Display main menu to the factory default values.</p>

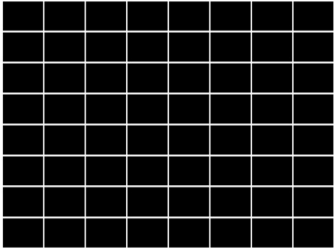

4. Main menu: **Installation**




Structure

Menu		Options
Projector Position		Front/Front Ceiling/Rear/Rear Ceiling
2D Keystone		H: -30 – +30 V: -30 – +30
Auto Vertical Keystone		Off/On
12V Trigger		Off/On
Test Pattern		On/Off
High Altitude Mode		On/Off
Baud Rate		9600/14400/19200/38400/57600/ 115200
Projector ID		Off/01/02/.../99
Geometry	Corner Fit	H: 0 – 640 V: 0 – 360
	Digital Zoom	1.0X – 2.0X
	Digital Shrink & Shift	0.75X~1.0X
Image Resizing	Blanking	Modes of Adjustment
		Top
		Bottom
		Left
		Right
Wall Color		Off/Light Yellow/Pink/Light Green/Blue/Blackboard
Image Memory	Save Image Memory	Memory-1/Memory-2/Memory-3/ Memory-4/Memory-5
	Apply Image Memory	
	Rename	

Function descriptions

Menu	Descriptions
Projector Position	The projector can be installed on a ceiling or behind a screen, or with one or more mirrors. See Choosing a location on page 10 for details.
2D Keystone	See Correcting keystone on page 15 for details.
Auto Vertical Keystone	Automatically corrects the keystone at the left/right side of the projected image.
12V Trigger	<p>There is one 12V trigger that works independently according to your needs for installation scenarios.</p> <ul style="list-style-type: none"> • Off: If this is selected, the projector will not send electronic signal out when it is turned on. • On: The projector will send a low to high electronic signal out when it is turned on, a high to low signal out when it is turned off.

Menu	Descriptions
Test Pattern	<p>Adjusts the image size and focus and check that the projected image is free from distortion.</p> 
High Altitude Mode	<p>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.</p> <p>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.</p> <p>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.</p>  <p>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.</p>
Baud Rate	<p>Selects a baud rate that is identical with your computer's so that you can connect the projector using a suitable RS-232 cable. This function is intended for qualified service personnel.</p>
Projector ID	<p>Sets the projector ID for this projector (between 01~99). When multiple adjacent projectors are in operation at the same time, switching the projector ID codes can prevent interference from other remote controls. After the Projector ID is set, switch to the same ID for the remote control to control this projector. See Projector & Remote control on page 8.</p> <p>Set the ID</p> <ol style="list-style-type: none"> 1. Press and hold ID SET until the ID setting indicator lights up. 2. Enter the ID for the remote control (between 01~99). The remote control ID should be the same as the corresponding projector ID. 3. The ID is saved successfully when you see the ID setting indicator starts flickering and then blackout. <p>Clear the ID</p> <ol style="list-style-type: none"> 1. Press and hold ID SET until the ID setting indicator lights up. 2. Press ALL to clear current ID setting of the remote control. 3. The ID is cleared successfully when you see the ID setting indicator starts flickering and then blackout.

Menu	Descriptions
Geometry	<ul style="list-style-type: none"> • Corner Fit See Adjusting Corner Fit on page 16 for details.
	<ul style="list-style-type: none"> • Digital Zoom Magnifies or reduces the projected image size. <ol style="list-style-type: none"> 1. After the adjustment bar displays, press ▲/▼ on the projector or ZOOM+/ZOOM- on the remote control repeatedly to reduce or magnify the image to a desired size. 2. Press OK to enter panning mode. 3. Press the directional arrows (▲, ▼, ◀, ▶) on the projector or remote control to navigate the picture.  <p>The picture can only be navigated after it is magnified. You can further magnify the picture while searching for details.</p>
Image Resizing	<ul style="list-style-type: none"> • Digital Shrink & Shift Shrinks and/or shifts the projected image. <ol style="list-style-type: none"> 1. After the adjustment bar displays, press ◀/▶ repeatedly to shrink or magnify the picture to a desired size. 2. Press OK to activate digital shift function. 3. After digital shift function is activated, press the directional arrows (▲, ▼, ◀, ▶) to shift the image. 4. Press AUTO to restore the picture to its original size.  <p>The picture can only be shifted after it shrank.</p>
	<ul style="list-style-type: none"> • Blanking Blanks some parts of the projected image. <ol style="list-style-type: none"> 1. Select the Modes of Adjustment first by pressing ◀/▶. 2. Press ▲/▼ to highlight the area you want to adjust and press ◀/▶ to adjust its range.  <p>Enacting the Reset All Blanking Settings function will return all items in the Blanking menu to the factory preset values. Pressing AUTO clears the values of selected item (excluding Modes of Adjustment).</p>
Wall Color	<p>Corrects the projected picture's color when the projection surface such as a painted wall which may not be white, the Wall Color feature can help correct the projected picture's colors to prevent possible color difference between the source and projected pictures. There are several precalibrated colors to choose from: Light Yellow, Pink, Light Green, Blue, and Blackboard.</p>

Menu	Descriptions
Image Memory	<ul style="list-style-type: none"> • Save Image Memory: Allows you to save and apply several sets of image settings for regularly used circumstances, including the following settings: Source, Resolution, Picture Mode, Light Source Mode, Aspect Ratio, Screen Fill, Projector Installation, 2D Keystone, Geometry, Image Resizing, Wall Color, and focus setting. You can choose one set of memory to save the current settings. • Apply Image Memory: After the image memories are saved, you can decide if you would like to apply it by choosing a set of memory that you have saved. • Rename: Renames the image memories.

5. Main menu: **System**


Structure







Menu		Options		
Language		English / Français / Deutsch / Italiano / Español / Русский / 繁體中文 / 简体中文 / 日本語 / 한국어 / Svenska / Nederlands / Türkçe / Čeština / Português /ភាសាខ្មែរ / Polski / Magyar / Hrvatski / Română / Norsk / Dansk / Български / Suomi / Bhs Ind / Ελληνικά / العربية / हिन्दी / Tiếng Việt / فارسی		
Background Settings	Background	Black/Blue/Purple/Grey		
	Splash Screen	BenQ/Black/Blue		
Menu Settings	Menu Type	Basic/Advanced		
	Menu Display Time	5 sec/10 sec/20 sec/30 sec/Always		
	Menu Position	Center/Top-Left/Top-Right/ Bottom-Right/Bottom-Left		
	Reminder Message	Off/On		
Light Source Information	Light Source Usage Time			
	Normal Mode			
	ECO Mode			
	SmartECO Mode			
	Custom Mode			
Power Management	Equivalent Light Hours			
	Eco	Off/On		
	Network Standby Mode	Off/On		
	Auto Disable Network Standby Mode	Never/20 min/1 hr/3 hr/6 hr		
	Audio Pass Through	Off/HDMI-1/HDMI-2		
Operation Settings	LED Indicator		Off/On	
	Power On/Off Settings	Direct Power On	Off/On	
		Signal Power On	HDMI-1	
			HDMI-2	
		Auto Power Off	Disable/3 min/10 min/15 min/ 20 min/25 min/30 min	
	Air Filter Settings	Reset Filter Timer	Reset/Cancel	
		Filter Usage Time		
		Filter Time-up Notify	OSD	
			RS232	
Page Up/Down		Off/On		
Security Settings	Panel Key Lock	Off/On	Yes/No	
	Password	Change Password		
		Power On Lock		



Menu		Options	
Network Settings	Wired LAN	Status	
		DHCP	Off/On
		IP Address	
		Subnet Mask	
		Default Gateway	
		DNS Server	Apply
		AMX Device Discovery	Off/On
		MAC Address (Wired)	
IR Receiver	IR Front	On/Off	
	IR Rear		
Update firmware OTA		On/Off	
Factory Default		Reset/Cancel	
Reset System		Reset/Cancel	

Function descriptions

Menu	Descriptions
Language	Sets the language for the On-Screen Display (OSD) menus.
Background Settings	<ul style="list-style-type: none"> • Background Sets the background color for the projector.
	<ul style="list-style-type: none"> • Splash Screen Allows you to select which logo screen will be displayed during projector start-up.
Menu Settings	<ul style="list-style-type: none"> • Menu Type Sets the OSD menu type according to your needs.
	<ul style="list-style-type: none"> • Menu Display Time Sets the length of time the OSD will remain active after your last key press.
	<ul style="list-style-type: none"> • Menu Position Sets the On-Screen Display (OSD) menu position.
	<ul style="list-style-type: none"> • Reminder Message Sets the reminder messages on or off.
	This menu page displays the following information: <ul style="list-style-type: none"> • Light Source Usage Time
Light Source Information	<ul style="list-style-type: none"> • Light hours used under Normal Mode, ECO Mode, SmartECO Mode, Custom Mode.
	<ul style="list-style-type: none"> • Equivalent Light Hours

Menu	Descriptions
Power Management	<ul style="list-style-type: none"> • Eco <p>The projector maintains at normal standby mode with less than 0.5 W power consumption when this function is enabled. Turning off this function allows the projector to provide network, monitor out, and audio pass through functions in standby mode.</p>
	 <p>Changing this setting will make power consumption higher.</p>
	<ul style="list-style-type: none"> • Network Standby Mode <p>When activated, the projector maintains at network standby mode with less than 2W power consumption.</p>
	<ul style="list-style-type: none"> • Auto Disable Network Standby Mode <p>Allows the projector to disable the network function after a set period of time after it enters standby mode. For instance, if 20 min is selected, the projector is able to provide the network function for 20 minutes after it enters standby mode. When 20 minutes is up, the projector enters normal standby mode.</p>
	<ul style="list-style-type: none"> • Audio Pass Through <p>The projector can play sound when it is in standby mode and the corresponding jacks are correctly connected to devices. Press ◀/▶ to choose the source that you wish to use. See Connection on page 17 for how to make the connection.</p>

Menu	Descriptions
Operation Settings	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Direct Power On: Allows the projector to turn on automatically once the power is fed through the power cord. • Signal Power On: Sets whether to turn the projector directly on without pressing  POWER or  ON when the projector is in standby mode and detects a HDMI signal. • 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. • Air Filter Settings <ul style="list-style-type: none"> • Reset Filter Timer: Resets the filter timer. • Filter Usage Time: Displays the filter hours used since the last reset. • Filter Time-up Notify: Allows you to choose how to be notified after accumulating 300 hours of filter time. • Page Up/Down When this function is enabled, the PAGE+ /PAGE- buttons on the remote control can be used to perform page up/down commands.  Once enabled, the USB power delivery function will not be available.
Security Settings	<ul style="list-style-type: none"> • Panel Key Lock With the control keys on the projector locked, you can prevent your projector settings from being changed accidentally (by children, for example). When the Panel Key Lock is on, no control keys on the projector will operate except  POWER. To release panel key lock, press and hold ► (the right key) on the projector for 3 seconds, or use the remote control to turn this function off.  If you turn off the projector without disabling panel key lock, the projector will still be in locked status the next time it is turned on. • Password/Change Password/Power On Lock See Utilizing the password function on page 21.


Menu	Descriptions
	<ul style="list-style-type: none"> • Wired LAN See Controlling the projector through a Wired LAN environment on page 23.
Network Settings	<ul style="list-style-type: none"> • AMX Device Discovery When this function is On, the projector can be detected by AMX controller. • MAC Address (Wired) Displays the mac address for this projector.
IR Receiver	You can enable or disable the selected remote receiver.
Update firmware OTA	To enable this function, select On . When you turn on the projector, the system will check the QOTA server for a newer version of the firmware. If an update is available, a notice will be displayed when you turn off the projector. If you choose to allow the update, the projector will install the firmware and then turn off once the process is complete. The next time you turn on the projector, it will show the update status.
	Returns all settings to the factory preset values.
Factory Default	 <p>The following settings will still remain: Projector Position, 2D Keystone, Auto Vertical Keystone, 12V Trigger, High Altitude Mode, Baud Rate, Projector ID, Corner Fit, Digital Shrink & Shift, Blanking, Wall Color, Light Source Information, Reset Filter Timer, Filter Usage Time, Security Settings, Network Settings.</p>
	Returns all the settings on the System main menu to the factory default values.
Reset System	 <p>The following settings will still remain: Light Source Information, Reset Filter Timer, Filter Usage Time, Security Settings, Network Settings, IR Receiver, Update firmware OTA.</p>

6. Main menu: **Information**

Structure

Menu	Options
Native Resolution	
Detected Resolution	
Source	
Picture Mode	
Light Source Mode	
3D Format	
Color System	
Dynamic Range	
Light Source Usage Time	
Projector ID	
Firmware Version	
Service Code	

Function descriptions

Menu	Descriptions
Native Resolution	Shows the native resolution of the projector.
Detected Resolution	Shows the native resolution of the input signal.
Source	Shows the current signal source.
Picture Mode	Shows the selected mode on the Picture menu.
Light Source Mode	Shows the used light source mode.
3D Format	Displays the current 3D mode.
	 3D Format is only available when 3D is enabled.
Color System	Shows the input system format.
Dynamic Range	Shows the dynamic range of the input source.
Light Source Usage Time	Shows the number of hours the light has been used.
Projector ID	Shows projector ID of the projector.
Firmware Version	Shows the firmware version of your projector.
Service Code	Shows the projector's serial number.

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 26](#) 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 57](#) 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 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 hour is as follows:

1. Light Usage Time = (x+y+z+a) hours, if:
Time used in **Normal Mode** = x hours
Time used in **ECO Mode** = y hours
Time used in **SmartECO Mode** = z hours
Time used in **Custom Mode** = a hours

2. Equivalent Light Hour = α hours

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

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

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

Z= light source life spec of **SmartECO Mode**

A= light source life spec of **Custom Mode**

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



For time used in each light 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** manually, it will probably have deviation from the value shown in OSD menu since projector system calculates time used for each light mode in "Minutes" then rounds down to an integer in hours shown in OSD.

To obtain the light hour information:

Go to **Advanced** menu - **System** > **Light Source Information** and press **OK**. The **Light Source Information** page appears.

You can also get the light hour information on the **Information** menu.

Extending light source life

• Setting the **Light Source Mode**

Go to **Advanced** menu - **Picture** > **Advanced Color Settings** > **Light Source Mode**, press **OK**. The **Light Source Mode** page appears.

Setting the projector in **ECO**, **SmartEco** or **Custom** mode extends lamp life.

Light Mode	Description
Normal	Provides full light brightness
ECO	Lowers brightness to extend the light life and decreases the fan noise
SmartEco	Lowers brightness to offer a longer light source life
Custom	Enables the light source brightness adjustment bar so that you can adjust the setting to your liking

• 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 ◀/▶ to set a period of time.



Changing this setting will make power consumption higher.

Installing and replacing the filter (optional)

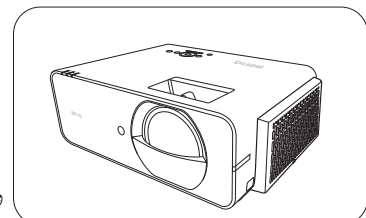
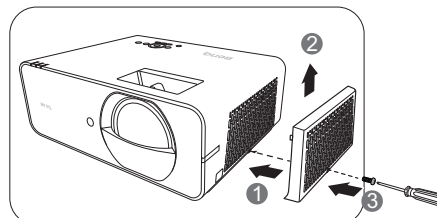
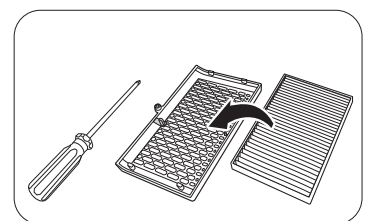
In order to prolong the lifetime of your projector and ensure smooth air circulation for efficient internal cooling, it is important to replace the filter periodically. We recommend replacing the filter every 300 hours to keep the best dust-proof ability.



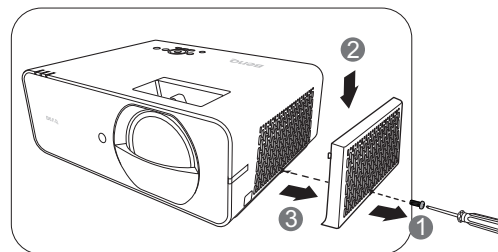
- Be sure to turn OFF the projector and unplug it from power source before replacing the filter.
- If your projector is ceiling-mounted or is not easily accessible, pay special attention to your personal safety when replacing the filter.

To install and replace the filter, follow the steps below:

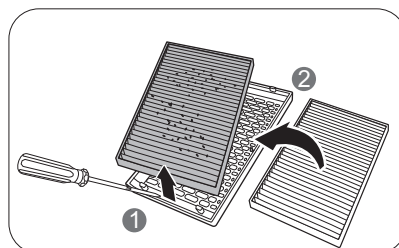
1. Have the following items ready:
 - A suitable cross-head (phillips type) screwdriver
 - Spare filter (available from your dealer)
2. Place the filter into the cover.
3. Install the filter cover using the screwdriver and tighten the screw.



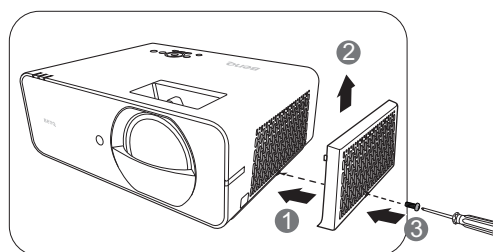
4. To replace the filter, loosen the screw and remove the filter cover.



5. Replace the old (used) filter in the filter cover with the spare (new) filter. Dispose of the old filter properly according to your local regulations.













































































6. Re-install the filter cover using the screwdriver and the screw removed in step 4.



After installing or replacing the filter, the projector will automatically detect the change and reset the filter timer.

Indicators

Light			Status & Description
POWER	TEMP	LIGHT	
Power events			
			Stand-by mode
			Powering up
			Normal operation
			Normal power-down cooling
			Downloading
			Color wheel start fail
			Phosphor wheel start fail
			LAN download fail
			LAN download processing
Burn-in events			
			Burn-in ON
			Burn-in OFF
Light source events			
			Light source life exhausted
			Light source error in normal operation
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)
			Fan 4 error (the actual fan speed is outside the desired speed)
			Temperature 1 error (over limited temperature)
			Temperature 2 error (over limited temperature)
			Thermal sensor 2 open error
Filter events			
			Filter replacement warning
			Light source life exhausted and filter replacement warning

	 : 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.

? Blurred image

Cause	Remedy
The projection lens is not correctly focused.	Adjust the focus of the lens using the focus ring.
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.

? 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.

? The password is incorrect.

Cause	Remedy
You do not remember the password.	See Entering the password recall procedure on page 22.

Specifications

Projector specifications



All specifications are subject to change without notice.

Optical

Resolution
1920 (H) x 1080 (V)
Display system
1-CHIP DMD
Lens
F = 2.0, f = 5.28 mm
Clear focus range
0.88 – 2.21
Light source
Laser

Electrical

Power supply
AC100–240V, 4.0 A, 50–60 Hz (Automatic)
Power consumption
347 W (Max); < 0.5 W (Standby)

Mechanical

Weight
5.2 Kg \pm 100 g

Output terminals

Speaker
10 watt x 1
Audio signal output
PC audio jack x 1
3D VESA
3D SYNC OUT x 1

Control

USB
Type-A power supply 5V / 1.5 A x 1 (firmware upgrade)
Type-A power supply 5V / 1.5 A x 1

Control

RS-232 serial control
9 pin x 1
LAN control
RJ45 x 1
12V trigger x 1
IR receiver x 2

Input terminals

Video signal input
SD/HDTV signal input
Digital - HDMI 2.0 x 2
Digital - DisplayPort x 1

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

Transporting

Original packing or equivalent is recommended

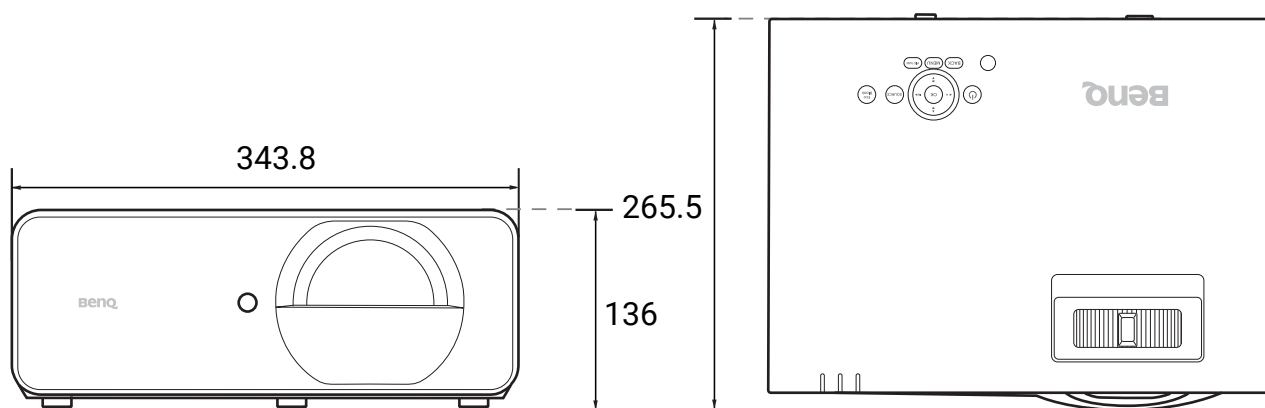
Repairing

Please visit below website and choose your country to find your service contact window.
<http://www.benq.com/welcome>

Dimensions

343.8 mm (W) x 265.5 mm (D) x 136 mm (H)

Unit: mm



Timing chart

Supported timing for HDMI (HDCP) input

• PC timings

Resolution	Mode	Vertical Frequency (Hz)	Horizontal Frequency (kHz)	Pixel Frequency (MHz)	Supported 3D format		
					Frame Sequential	Top Bottom	Side by Side
640 x 480	VGA_60	59.940	31.469	25.175	Supported	Supported	Supported
	VGA_72	72.809	37.861	31.500			
	VGA_75	75.000	37.500	31.500			
	VGA_85	85.008	43.269	36.000			
720 x 400	720 x 400_70	70.087	31.469	28.3221			
800 x 600	SVGA_60	60.317	37.879	40.000	Supported	Supported	Supported
	SVGA_72	72.188	48.077	50.000			
	SVGA_75	75.000	46.875	49.500			
	SVGA_85	85.061	53.674	56.250			
	SVGA_120 (Reduce Blanking)	119.854	77.425	83.000	Supported		
1024 x 768	XGA_60	60.004	48.363	65.000	Supported	Supported	Supported
	XGA_70	70.069	56.476	75.000			
	XGA_75	75.029	60.023	78.750			
	XGA_85	84.997	68.667	94.500			
	XGA_120 (Reduce Blanking)	119.989	97.551	115.5	Supported		
1152 x 864	1152 x 864_75	75	67.5	108			
1024 x 576	BenQ Notebook Timing	60.00	35.820	46.996			
1024 x 600	BenQ Notebook Timing	64.995	41.467	51.419			
1280 x 720	1280 x 720_60	60	45.000	74.250	Supported		
1280 x 768	1280 x 768_60	59.870	47.776	79.5	Supported		
1280 x 800	WXGA_60	59.810	49.702	83.500	Supported	Supported	Supported
	WXGA_75	74.934	62.795	106.500			
	WXGA_85	84.880	71.554	122.500			
	WXGA_120 (Reduce Blanking)	119.909	101.563	146.25	Supported		
1280 x 1024	SXGA_60	60.020	63.981	108.000		Supported	Supported
	SXGA_75	75.025	79.976	135.000			
	SXGA_85	85.024	91.146	157.500			
1280 x 960	1280 x 960_60	60.000	60.000	108		Supported	Supported
	1280 x 960_85	85.002	85.938	148.500			
1360 x 768	1360 x 768_60	60.015	47.712	85.500		Supported	Supported
1440 x 900	WXGA+_60	59.887	55.935	106.500		Supported	Supported
1400 x 1050	SXGA+_60	59.978	65.317	121.750		Supported	Supported
1600 x 1200	UXGA	60.000	75.000	162.000			
1680 x 1050	1680 x 1050_60	59.954	65.290	146.250		Supported	Supported
640 x 480@67Hz	MAC13	66.667	35.000	30.240			
832 x 624@75Hz	MAC16	74.546	49.722	57.280			
1024 x 768@75Hz	MAC19	75.020	60.241	80.000			
1152 x 870@75Hz	MAC21	75.06	68.68	100.00			
1920 x 1080@60Hz	1920 x 1080_60 (CEA-861)	60	67.5	148.5	Supported	Supported	Supported
1920 x 1200@60Hz	1920 x 1200_60 (Reduce Blanking)	59.950	74.038	154.0000	Supported		
1920 x 1080@120Hz	1920 x 1080_120	120.000	135.000	297	Supported		
1920 x 1200@120Hz	1920 x 1200_120 (Reduce Blanking)	119.909	152.404	317.00	Supported		
3840 x 2160	3840 x 2160_30 For 4K2K model	30	67.5	297			
3840 x 2160	3840 x 2160_60 For 4K2K model	60	135	594			



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

• Video timings

Timing	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Frequency (MHz)	Supported 3D format			
					Frame Sequential	Frame Packing	Top Bottom	Side by Side
480i	720 (1440) x 480	15.73	59.94	27				
480p	720 x 480	31.47	59.94	27	Supported			
576i	720 x 576	15.63	50	27				
576p	720 x 576	31.25	50	27				
720/50p	1280 x 720	37.5	50	74.25		Supported	Supported	Supported
720/60p	1280 x 720	45.00	60	74.25	Supported	Supported	Supported	Supported
1080/24P	1920 x 1080	27	24	74.25		Supported	Supported	Supported
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				Supported
1080/60i	1920 x 1080	33.75	60	74.25				Supported
1080/50P	1920 x 1080	56.25	50	148.5			Supported	Supported
1080/60P	1920 x 1080	67.5	60	148.5	Supported		Supported	Supported
1080/120P	1920 x 1080	135	120	297	Supported			
1080/240P	1920 x 1080	135	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				

• Supported detail timings for sampling and color depth

Display format (refresh rate)	Chroma subsampling	8 Bit	10 Bit	12 Bit
4K/60p (60 Hz)	4:4:4	Supported		
	4:2:2	Supported	Supported	
	4:2:0	Supported	Supported	Supported
4K/50p (50 Hz)	4:4:4	Supported		
	4:2:2	Supported	Supported	
	4:2:0	Supported	Supported	Supported
4K/30p (30 Hz)	4:4:4	Supported	Supported	Supported
	4:2:2	Supported	Supported	Supported
	4:2:0			
4K/24p (24 Hz)	4:4:4	Supported	Supported	Supported
	4:2:2	Supported	Supported	Supported
	4:2:0			
1080P/60P (60 Hz)	4:4:4	Supported	Supported	Supported
	4:2:2	Supported	Supported	Supported
	4:2:0			
1080P/50P (50 Hz)	4:4:4	Supported	Supported	Supported
	4:2:2	Supported	Supported	Supported
	4:2:0			
1080P/30P (30 Hz)	4:4:4	Supported	Supported	Supported
	4:2:2	Supported	Supported	Supported
	4:2:0			
1080P/24P (24 Hz)	4:4:4	Supported	Supported	Supported
	4:2:2	Supported	Supported	Supported
	4:2:0			

Supported timing for DisplayPort input

• PC timings

Resolution	Mode	Vertical Frequency (Hz)	Horizontal Frequency (kHz)	Pixel Frequency (MHz)	Supported 3D format		
					Frame Sequential	Top Bottom	Side by Side
640 x 480	VGA_60	59.940	31.469	25.175	Supported	Supported	Supported
	VGA_72	72.809	37.861	31.500			
	VGA_75	75.000	37.500	31.500			
	VGA_85	85.008	43.269	36.000			
720 x 400	720 x 400_70	70.087	31.469	28.3221			
800 x 600	SVGA_60	60.317	37.879	40.000	Supported	Supported	Supported
	SVGA_72	72.188	48.077	50.000			
	SVGA_75	75.000	46.875	49.500			
	SVGA_85	85.061	53.674	56.250			
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	XGA_70	70.069	56.476	75.000			
	XGA_75	75.029	60.023	78.750			
	XGA_85	84.997	68.667	94.500			
	XGA_120 (Reduce Blanking)	119.989	97.551	115.5	Supported		
1152 x 864	1152 x 864_75	75	67.5	108			
1024 x 576	BenQ Notebook Timing	60.00	35.820	46.996			
1024 x 600	BenQ Notebook Timing	64.995	41.467	51.419			
1280 x 720	1280 x 720_60	60	45.000	74.250	Supported	Supported	Supported
1280 x 768	1280 x 768_60	59.870	47.776	79.5	Supported	Supported	Supported
1280 x 800	WXGA_60	59.810	49.702	83.500	Supported	Supported	Supported
	WXGA_75	74.934	62.795	106.500			
	WXGA_85	84.880	71.554	122.500			
	WXGA_120 (Reduce Blanking)	119.909	101.563	146.25	Supported		
1280 x 1024	SXGA_60	60.020	63.981	108.000		Supported	Supported
	SXGA_75	75.025	79.976	135.000			
	SXGA_85	85.024	91.146	157.500			
1280 x 960	1280 x 960_60	60.000	60.000	108		Supported	Supported
	1280 x 960_85	85.002	85.938	148.500			
1360 x 768	1360 x 768_60	60.015	47.712	85.500		Supported	Supported
1440 x 900	WXGA+_60	59.887	55.935	106.500		Supported	Supported
1400 x 1050	SXGA+_60	59.978	65.317	121.750		Supported	Supported
1600 x 1200	UXGA	60.000	75.000	162.000			
1680 x 1050	1680 x 1050_60	59.954	65.290	146.250		Supported	Supported
640 x 480@67Hz	MAC13	66.667	35.000	30.240			
832 x 624@75Hz	MAC16	74.546	49.722	57.280			
1024 x 768@75Hz	MAC19	75.020	60.241	80.000			
1152 x 870@75Hz	MAC21	75.06	68.68	100.00			
1920 x 1080@60Hz	1920 x 1080_60 (CEA-861)	60	67.5	148.5	Supported	Supported	Supported
1920 x 1200@60Hz	1920 x 1200_60 (Reduce Blanking)	59.950	74.038	154.0000	Supported		
1920 x 1080@120Hz	1920 x 1080_120	120.000	135.000	297	Supported		
1920 x 1200@120Hz	1920 x 1200_120 (Reduce Blanking)	119.909	152.404	317.00	Supported		
3840 x 2160	3840 x 2160_30 For 4K2K model	30	67.5	297			
3840 x 2160	3840 x 2160_60 For 4K2K model	60	135	594			



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

• Video timings

Timing	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Frequency (MHz)	Supported 3D format			
					Frame Sequential	Frame Packing	Top Bottom	Side by Side
480i	720 (1440) x 480	15.73	59.94	27				
480p	720 x 480	31.47	59.94	27	Supported			
576i	720 x 576	15.63	50	27				
576p	720 x 576	31.25	50	27				
720/50p	1280 x 720	37.5	50	74.25		Supported	Supported	Supported
720/60p	1280 x 720	45.00	60	74.25	Supported	Supported	Supported	Supported
1080/24P	1920 x 1080	27	24	74.25		Supported	Supported	Supported
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				Supported
1080/60i	1920 x 1080	33.75	60	74.25				Supported
1080/50P	1920 x 1080	56.25	50	148.5			Supported	Supported
1080/60P	1920 x 1080	67.5	60	148.5	Supported		Supported	Supported
1080/120P	1920 x 1080	135	120	297	Supported			
1080/240P	1920 x 1080	135	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				

• Supported detail timings for sampling and color depth

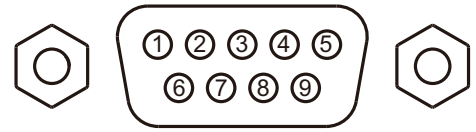
Display format (refresh rate)	Chroma subsampling	8 Bit	10 Bit	12 Bit
4K/60p (60 Hz)	4:4:4	Supported		
	4:2:2	Supported	Supported	
	4:2:0	Supported	Supported	Supported
4K/50p (50 Hz)	4:4:4	Supported		
	4:2:2	Supported	Supported	
	4:2:0	Supported	Supported	Supported
4K/30p (30 Hz)	4:4:4	Supported	Supported	Supported
	4:2:2	Supported	Supported	Supported
	4:2:0			
4K/24p (24 Hz)	4:4:4	Supported	Supported	Supported
	4:2:2	Supported	Supported	Supported
	4:2:0			
1080P/60P (60 Hz)	4:4:4	Supported	Supported	Supported
	4:2:2	Supported	Supported	Supported
	4:2:0			
1080P/50P (50 Hz)	4:4:4	Supported	Supported	Supported
	4:2:2	Supported	Supported	Supported
	4:2:0			
1080P/30P (30 Hz)	4:4:4	Supported	Supported	Supported
	4:2:2	Supported	Supported	Supported
	4:2:0			
1080P/24P (24 Hz)	4:4:4	Supported	Supported	Supported
	4:2:2	Supported	Supported	Supported
	4:2:0			

RS232 command

RS232 pin assignment

No.	Serial
1	NC
2	RX
3	TX
4	NC
5	GND

No.	Serial
6	NC
7	RTSZ
8	CTS2
9	NC



Function	Type	Operation	ASCII
Power	Write	Power On	<CR>*pow=on#<CR>
	Write	Power Off	<CR>*pow=off#<CR>
	Read	Power Status	<CR>*pow=?#<CR>
Source Selection	Write	COMPUTER/YPbPr	<CR>*sour=RGB#<CR>
	Write	HDMI (MHL)	<CR>*sour=hdmi#<CR>
	Write	HDMI 2 (MHL2)	<CR>*sour=hdmi2#<CR>
	Write	HDbaseT	<CR>*sour=hdbaset#<CR>
	Write	DisplayPort	<CR>*sour=dp#<CR>
	Read	Current source	<CR>*sour=?#<CR>
Audio Control	Write	Mute On	<CR>*mute=on#<CR>
	Write	Mute Off	<CR>*mute=off#<CR>
	Read	Mute Status	<CR>*mute=?#<CR>
	Write	Volume +	<CR>*vol=+#<CR>
	Write	Volume -	<CR>*vol=-#<CR>
	Write	Volume level for customer	<CR>*vol=value#<CR>
	Read	Volume Status	<CR>*vol=?#<CR>
Audio source select	Write	Audio pass Through off	<CR>*audiosour=off#<CR>
	Write	Audio-HDMI	<CR>*audiosour=hdmi#<CR>
	Write	Audio-HDMI2	<CR>*audiosour=hdmi2#<CR>
	Read	Audio pass Status	<CR>*audiosour=?#<CR>
Picture Mode	Write	Presentation	<CR>*appmod=preset#<CR>
	Write	sRGB	<CR>*appmod=srgb#<CR>
	Write	Bright	<CR>*appmod=bright#<CR>
	Write	Video	<CR>*appmod=video#<CR>
	Write	DICOM	<CR>*appmod=dicom#<CR>
	Write	Infographic	<CR>*appmod=infographic#<CR>
	Write	User1	<CR>*appmod=user1#<CR>
	Write	User2	<CR>*appmod=user2#<CR>
	Write	3D	<CR>*appmod=threed#<CR>
	Write	HDR	<CR>*appmod=hdr#<CR>
	Write	HLG	<CR>*appmod=hlg#<CR>
	Read	Picture Mode	<CR>*appmod=?#<CR>
Picture Setting	Write	Contrast +	<CR>*con=+#<CR>
	Write	Contrast -	<CR>*con=-#<CR>
	Write	Set Contrast value	<CR>*con=value#<CR>
	Read	Contrast value	<CR>*con=?#<CR>
	Write	Brightness +	<CR>*bri=+#<CR>
	Write	Brightness -	<CR>*bri=-#<CR>
	Write	Set Brightness value	<CR>*bri=value#<CR>
	Read	Brightness value	<CR>*bri=?#<CR>
	Write	Color +	<CR>*color=+#<CR>
	Write	Color -	<CR>*color=-#<CR>

Function	Type	Operation	ASCII
Picture Setting	Write	Set Color value	<CR>*color=value#<CR>
	Read	Color value	<CR>*color=?#<CR>
	Write	Sharpness +	<CR>*sharp=+#<CR>
	Write	Sharpness -	<CR>*sharp=-#<CR>
	Write	Set Sharpness value	<CR>*sharp=value#<CR>
	Read	Sharpness value	<CR>*sharp=?#<CR>
	Write	Color Temperature-Warm	<CR>*ct=warm#<CR>
	Write	Color Temperature-Normal	<CR>*ct=normal#<CR>
	Write	Color Temperature-Cool	<CR>*ct=cool#<CR>
	Write	Color Temperature-lamp native	<CR>*ct=native#<CR>
	Read	Color Temperature Status	<CR>*ct=?#<CR>
	Write	Aspect 4:3	<CR>*asp=4:3#<CR>
	Write	Aspect 16:9	<CR>*asp=16:9#<CR>
	Write	Aspect 16:10	<CR>*asp=16:10#<CR>
	Write	Aspect 2.4:1	<CR>*asp=2.4:1#<CR>
	Write	Aspect Auto	<CR>*asp=AUTO#<CR>
	Read	Aspect Status	<CR>*asp=?#<CR>
	Write	Vertical Keystone +	<CR>*vkeystone=+#<CR>
	Write	Vertical Keystone -	<CR>*vkeystone=-#<CR>
	Read	Vertical Keystone value	<CR>*vkeystone=?#<CR>
	Write	Horizontal Keystone +	<CR>*hkeystone=+#<CR>
	Write	Horizontal Keystone -	<CR>*hkeystone=-#<CR>
	Read	Horizontal Keystone value	<CR>*hkeystone=?#<CR>
	Write	Overscan Adjustment +	<CR>*overscan=+#<CR>
	Write	Overscan Adjustment -	<CR>*overscan=-#<CR>
	Read	Overscan Adjustment value	<CR>*overscan=?#<CR>
	Write	4 Corners Top-Left-X Decrease	<CR>*cornerfittlx=-#<CR>
	Write	4 Corners Top-Left-X Increase	<CR>*cornerfittlx=+#<CR>
	Read	4 Corners Top-Left-X Status	<CR>*cornerfittlx=?#<CR>
	Write	4 Corners Top-Left-Y Decrease	<CR>*cornerfittly=-#<CR>
	Write	4 Corners Top-Left-Y Increase	<CR>*cornerfittly=+#<CR>
	Read	4 Corners Top-Left-Y Status	<CR>*cornerfittly=?#<CR>
	Write	4 Corners Top-Right-X Decrease	<CR>*cornerfittlx=-#<CR>
	Write	4 Corners Top-Right-X Increase	<CR>*cornerfittlx=+#<CR>
	Read	4 Corners Top-Right-X Status	<CR>*cornerfittlx=?#<CR>
	Write	4 Corners Top-Right-Y Decrease	<CR>*cornerfittly=-#<CR>
	Write	4 Corners Top-Right-Y Increase	<CR>*cornerfittly=+#<CR>
	Read	4 Corners Top-Right-Y Status	<CR>*cornerfittly=?#<CR>
	Write	4 Corners Bottom-Left-X Decrease	<CR>*cornerfitblx=-#<CR>
	Write	4 Corners Bottom-Left-X Increase	<CR>*cornerfitblx=+#<CR>
	Read	4 Corners Bottom-Left-X Status	<CR>*cornerfitblx=?#<CR>
	Write	4 Corners Bottom-Left-Y Decrease	<CR>*cornerfitbly=-#<CR>
	Write	4 Corners Bottom-Left-Y Increase	<CR>*cornerfitbly=+#<CR>
	Read	4 Corners Bottom-Left-Y Status	<CR>*cornerfitbly=?#<CR>
	Write	4 Corners Bottom-Right-X Decrease	<CR>*cornerfitbrx=-#<CR>
	Write	4 Corners Bottom-Right-X Increase	<CR>*cornerfitbrx=+#<CR>
	Read	4 Corners Bottom-Right-X Status	<CR>*cornerfitbrx=?#<CR>
	Write	4 Corners Bottom-Right-Y Decrease	<CR>*cornerfitbry=-#<CR>
	Write	4 Corners Bottom-Right-Y Increase	<CR>*cornerfitbry=+#<CR>
	Read	4 Corners Bottom-Right-Y Status	<CR>*cornerfitbry=?#<CR>
	Write	Digital Zoom In	<CR>*zoomI#<CR>
	Write	Digital Zoom out	<CR>*zoomO#<CR>
	Write	Auto	<CR>*auto#<CR>
	Write	Brilliant color on	<CR>*BC=on#<CR>
	Write	Brilliant color off	<CR>*BC=off#<CR>
	Read	Brilliant color status	<CR>*BC=?#<CR>
	Write	Auto(HDR)	<CR>*hdr=auto#<CR>

Function	Type	Operation	ASCII
Picture Setting	Write	SDR	<CR>*hdr=sdr#<CR>
	Write	HDR10	<CR>*hdr=hdr#<CR>
	Write	HLG	<CR>*hdr=hlg#<CR>
	Read	HDR status	<CR>*hdr=?#<CR>
Operation Settings	Write	Projector Position-Front Table	<CR>*pp=FT#<CR>
	Write	Projector Position-Rear Table	<CR>*pp=RE#<CR>
	Write	Projector Position-Rear Ceiling	<CR>*pp=RC#<CR>
	Write	Projector Position-Front Ceiling	<CR>*pp=FC#<CR>
	Read	Projector Position Status	<CR>*pp=?#<CR>
	Write	Quick auto search	<CR>*QAS=on#<CR>
	Write	Quick auto search	<CR>*QAS=off#<CR>
	Read	Quick auto search status	<CR>*QAS=?#<CR>
	Write	Direct Power On-on	<CR>*directpower=on#<CR>
	Write	Direct Power On-off	<CR>*directpower=off#<CR>
	Read	Direct Power On-Status	<CR>*directpower=?#<CR>
	Read	Signal Power On-Status	<CR>*autopower=?#<CR>
Baud Rate	Write	9600	<CR>*baud=9600#<CR>
	Write	14400	<CR>*baud=14400#<CR>
	Write	19200	<CR>*baud=19200#<CR>
	Write	38400	<CR>*baud=38400#<CR>
	Write	57600	<CR>*baud=57600#<CR>
	Write	115200	<CR>*baud=115200#<CR>
	Read	Current Baud Rate	<CR>*baud=?#<CR>
Lamp Control	Read	Lamp	<CR>*ltim=?#<CR>
	Write	Normal mode	<CR>*lampm=lnor#<CR>
	Write	Eco mode	<CR>*lampm=eco#<CR>
	Write	Dimming mode	<CR>*lampm=dimming#<CR>
	Write	Custom mode	<CR>*lampm=custom#<CR>
	Write	Light level for custom mode	<CR>*lampcustom=value#<CR>
	Read	Light level status for custom mode	<CR>*lampcustom=?#<CR>
	Read	Lamp Mode Status	<CR>*lampm=?#<CR>

Function	Type	Operation	ASCII
Miscellaneous	Read	Model Name	<CR>*modelname=?#<CR>
	Read	System F/W Version	<CR>*sysfwversion=?#<CR>
	Read	Lan F/W Version	<CR>*lanfwversion=?#<CR>
	Read	MCU F/W Version	<CR>*mcufwversion=?#<CR>
	Write	Blank On	<CR>*blank=on#<CR>
	Write	Blank Off	<CR>*blank=off#<CR>
	Read	Blank Status	<CR>*blank=?#<CR>
	Write	Freeze On	<CR>*freeze=on#<CR>
	Write	Freeze Off	<CR>*freeze=off#<CR>
	Read	Freeze Status	<CR>*freeze=?#<CR>
	Write	Menu On	<CR>*menu=on#<CR>
	Write	Menu Off	<CR>*menu=off#<CR>
	Read	Menu Status	<CR>*menu=?#<CR>
	Write	Up	<CR>*up#<CR>
	Write	Down	<CR>*down#<CR>
	Write	Right	<CR>*right#<CR>
	Write	Left	<CR>*left#<CR>
	Write	Enter	<CR>*enter#<CR>
	Write	Back	<CR>*back#<CR>
	Write	Source Menu On	<CR>*sourmenu=on#<CR>
	Write	Source Menu Off	<CR>*sourmenu=off#<CR>
	Read	Source Menu Status	<CR>*sourmenu=?#<CR>
	Write	3D Sync Off	<CR>*3d=off#<CR>
	Write	3D Auto	<CR>*3d=auto#<CR>
	Write	3D Sync Top Bottom	<CR>*3d=tb#<CR>
Miscellaneous	Write	3D Sync Frame Sequential	<CR>*3d=fs#<CR>
	Write	3D Frame packing	<CR>*3d=fp#<CR>
	Write	3D Side by side	<CR>*3d=sbs#<CR>
	Write	3D inverter disable	<CR>*3d=da#<CR>
	Write	3D inverter	<CR>*3d=iv#<CR>
	Read	3D Sync Status	<CR>*3d=?#<CR>
	Write	Remote Receiver-front	<CR>*rr=f#<CR>
	Write	Remote Receiver-top	<CR>*rr=t#<CR>
	Write	Remote Receiver-top+front	<CR>*rr=tf#<CR>
	Read	Remote Receiver Status	<CR>*rr=?#<CR>
	Write	AMX Device Discovery-on	<CR>*amxdd=on#<CR>
	Write	AMX Device Discovery-off	<CR>*amxdd=off#<CR>
	Read	AMX Device Discovery Status	<CR>*amxdd=?#<CR>
	Read	Mac Address	<CR>*macaddr=?#<CR>
	Write	High Altitude mode on	<CR>*Highaltitude=on#<CR>
	Write	High Altitude mode off	<CR>*Highaltitude=off#<CR>
	Read	High Altitude mode status	<CR>*Highaltitude=?#<CR>

Function	Type	Operation	ASCII
Color Calibration (only for service)	Write	Tint +	<CR>*tint=+#<CR>
	Write	Tint -	<CR>*tint=-#<CR>
	Write	Set Tint value	<CR>*tint=value#<CR>
	Read	Get Tint value	<CR>*tint=?#<CR>
	Write	Set BenQ gamma value	<CR>*gamma=value#<CR>
	Read	Gamma value status	<CR>*gamma=?#<CR>
	Write	Set HDR Brightness value	<CR>*hdrbri=value#<CR>
	Read	Get HDR Brightness value	<CR>*hdrbri=?#<CR>
	Write	Red Gain +	<CR>*RGain=+#<CR>
	Write	Red Gain -	<CR>*RGain=-#<CR>
	Write	Set Red Gain value	<CR>*RGain=value#<CR>
	Read	Get Red Gain value	<CR>*RGain=?#<CR>
	Write	Green Gain +	<CR>*GGain=+#<CR>
	Write	Green Gain -	<CR>*GGain=-#<CR>
	Write	Set Green Gain value	<CR>*GGain=value#<CR>
	Read	Get Green Gain value	<CR>*GGain=?#<CR>
	Write	Blue Gain +	<CR>*BGain=+#<CR>
	Write	Blue Gain -	<CR>*BGain=-#<CR>
	Write	Set Blue Gain value	<CR>*BGain=value#<CR>
	Read	Get Blue Gain value	<CR>*BGain=?#<CR>
	Write	Red Offset +	<CR>*ROffset=+#<CR>
	Write	Red Offset -	<CR>*ROffset=-#<CR>
	Write	Set Red Offset value	<CR>*ROffset=value#<CR>
	Read	Get Red Offset value	<CR>*ROffset=?#<CR>
	Write	Green Offset +	<CR>*GOffset=+#<CR>
	Write	Green Offset -	<CR>*GOffset=-#<CR>
	Write	Set Green Offset value	<CR>*GOffset=value#<CR>
	Read	Get Green Offset value	<CR>*GOffset=?#<CR>
	Write	Blue Offset +	<CR>*BOffset=+#<CR>
	Write	Blue Offset -	<CR>*BOffset=-#<CR>
	Write	Set Blue Offset value	<CR>*BOffset=value#<CR>
	Read	Get Blue Offset value	<CR>*BOffset=?#<CR>
	Write	Primary Color	<CR>*primcr=value#<CR>
	Read	Primary Color Status	<CR>*primcr=?#<CR>
	Write	Hue +	<CR>*hue=+#<CR>
	Write	Hue -	<CR>*hue=-#<CR>
	Write	Set Hue value	<CR>*hue=value#<CR>
	Read	Get Hue value	<CR>*hue=?#<CR>
	Write	Saturation +	<CR>*saturation =+#<CR>
	Write	Saturation -	<CR>*saturation =-#<CR>
Color Calibration (only for service)	Write	Set Saturation value	<CR>*saturation =value#<CR>
	Read	Get Saturation value	<CR>*saturation =?#<CR>
	Write	Gain +	<CR>*gain=+#<CR>
	Write	Gain -	<CR>*gain=-#<CR>
	Write	Set Gain value	<CR>*gain=value#<CR>
	Read	Get Gain value	<CR>*gain=?#<CR>
Service (Only for service)	Write	Service mode enable for error report	<CR>*error=enable#<CR>
	Read	Error code report	<CR>*error=report#<CR>
	Read	FAN 1 speed	<CR>*fan1=?#<CR>
	Read	FAN 2 speed	<CR>*fan2=?#<CR>
	Read	FAN 3 speed	<CR>*fan3=?#<CR>
	Read	FAN 4 speed	<CR>*fan4=?#<CR>
	Read	FAN 5 speed	<CR>*fan5=?#<CR>
	Read	FAN 6 speed	<CR>*fan6=?#<CR>
	Read	Temperature 1	<CR>*tmp1=?#<CR>
	Read	LED indicator	<CR>*led=?#<CR>