



Digital Projector User Manual

Installation Projector | LK952 / LK953ST

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 40°C, altitude lower than 3000 m (used with High Altitude Mode), 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.

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Patents

Please go to <http://patmarking.benq.com/> for the details on BenQ projector patent coverage.

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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).

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.

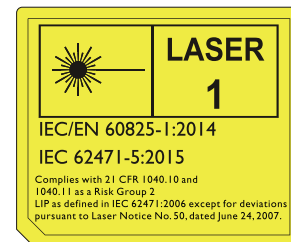


The projector's light source unit uses a laser.

Laser Caution

This product belongs to CLASS I laser product and complies with IEC 60825-1:2014.

LASER RADIATION, DO NOT STARE INTO BEAM, CLASS I LASER PRODUCT.

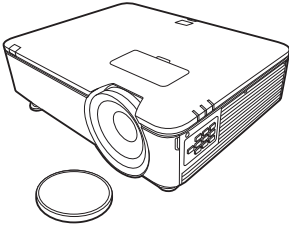


Introduction

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



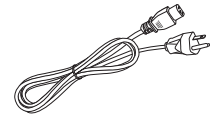
Projector



Remote control and batteries



Installation guide



Power cord

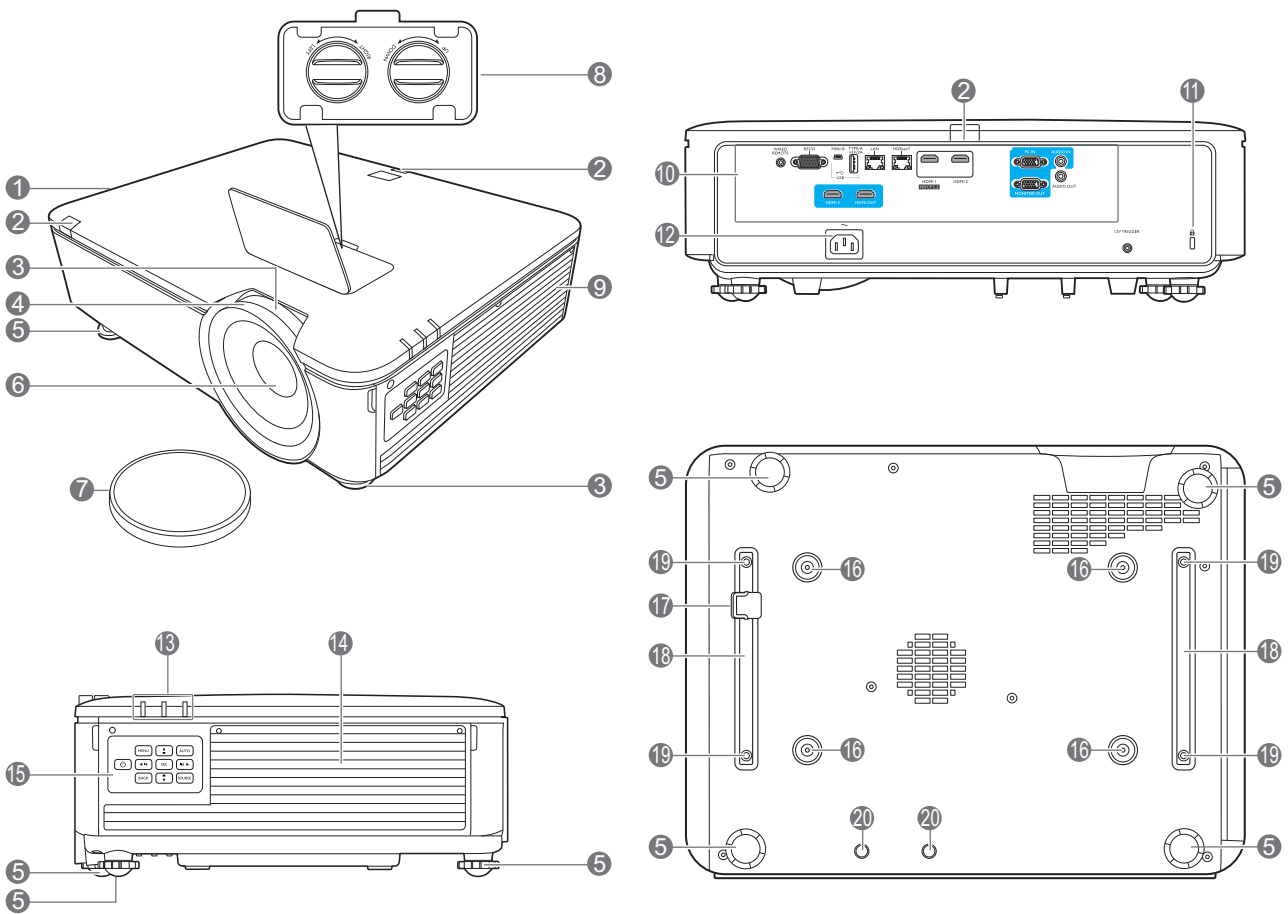


The supplied accessories will be suitable for your region, and may differ from those illustrated.

Optional accessories

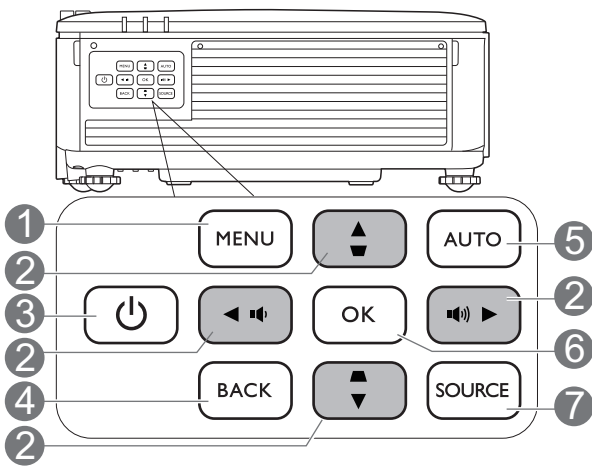
1. Ceiling mount CMG3
2. 3D glasses
3. InstaShow™ (WDC10)

Projector exterior view



- | | |
|---|--|
| <ul style="list-style-type: none"> 1. Vent (heated air exhaust) 2. IR remote sensor 3. Zoom ring 4. Focus ring 5. Adjuster feet 6. Projection lens 7. Lens cover 8. Lens shift adjustment knobs (LEFT/RIGHT, UP/DOWN) 9. Vent (cool air intake) 10. Control terminals (See Control terminals on page 9.) 11. Kensington anti-theft lock slot | <ul style="list-style-type: none"> 12. AC power jack 13. POWER indicator light/TEMPerature warning light/LIGHT indicator light (See LED Indicators on page 37.) 14. Filter cover 15. External control panel (See Control Panel on page 8.) 16. Ceiling mount holes 17. Security bar 18. Projector holder 19. Third party mounting holes 20. InstaShow holes |
|---|--|

Control Panel

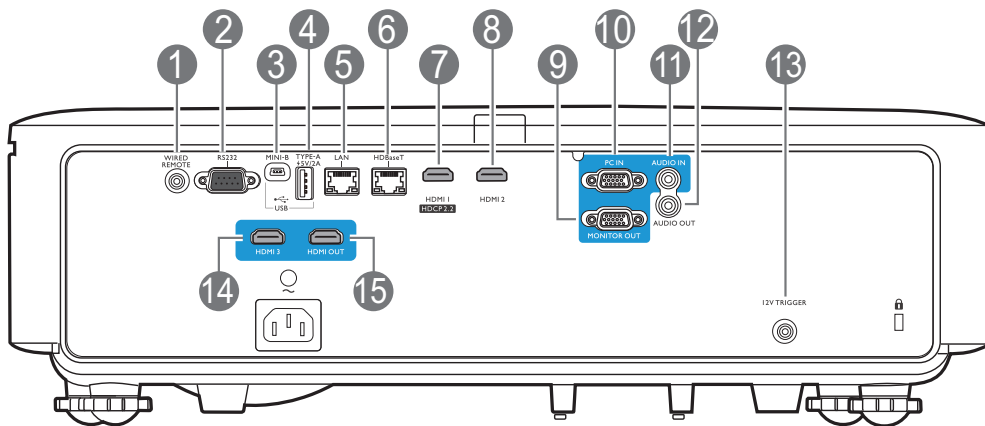


- MENU**
Turns on the On-Screen Display (OSD) menu.
- Arrow keys (▲, ▼, ◀, ▶)**
When the On-Screen Display (OSD) menu is activated, these keys are used as directional arrows to select the desired menu items and to make adjustments.
Keystone keys (▴, ▾)
Displays the keystone correction page.
Volume keys (🔊, 🔊)
Decreases or increase the projector volume.
- POWER**
Toggles the projector between standby mode and on.
- BACK**
Goes back to previous OSD menu, exits and saves menu settings.
- AUTO**
Automatically determines the best picture timings for the displayed image when PC signal (analog RGB) is selected.
- OK**
Confirms the selected On-Screen Display (OSD) menu item.
- SOURCE**
Displays the source selection bar.



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

Control terminals



1. WIRED REMOTE

For connection to a wired remote control.

2. RS232

Standard 9-pin D-sub interface for connection to PC control system and projector maintenance.

3. USB MINI-B

For firmware upgrade only.

4. USB TYPE A

Support 5V/2A output.

5. LAN

For connection to RJ45 Cat5/Cat6 Ethernet cable to control the projector through a network.

6. HDBaseT

For connection to RJ45 Cat5/Cat6 cable to input uncompressed high-definition video (HD).

7. HDMI I (HDCP2.2)

Connection to HDMI (4K) source.

8. HDMI 2

Connection to HDMI source.

9. MONITOR OUT

Connection to other display equipment for concurrent playback display. (Used with **PC IN** port.)

10. PC IN

15-pin VGA port for connection to RGB source or PC.

11. AUDIO IN

Connection to an audio input source via an audio cable. (Used with **PC IN** port.)

12. AUDIO OUT

Connection to a speaker or headset.

13. 12V TRIGGER

Trigger external devices such as an electric screen or light control, etc.

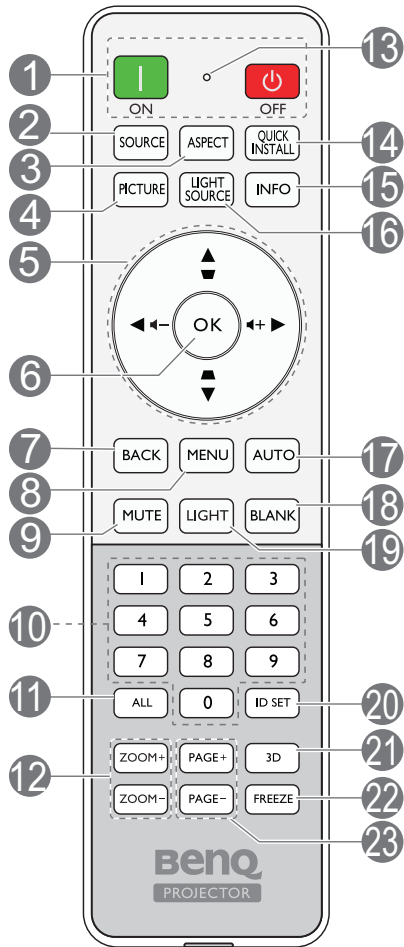
14. HDMI 3

Connection to HDMI source.

15. HDMI OUT

Connection to other display equipment for concurrent playback display. (Used with **HDMI 3** port.)

Remote control



1. **ON/OFF**

Toggles the projector between standby mode and on.

2. **SOURCE**

Displays the source selection bar.

3. **ASPECT**

Selects the display aspect ratio.

4. **PICTURE**

Selects an available picture setup mode.

5. **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 increase the projector volume.

6. **OK**

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

7. **BACK**

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

8. **MENU**

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

9. **MUTE**

Toggles projector audio between on and off.

10. **Numeric buttons**

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

11. **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.

12. **ZOOM+/ZOOM-**

No function.

13. **ID setting indicator**

14. **QUICK INSTALL**

No function.

15. **INFO**

Displays the projector information.

16. **LIGHT SOURCE**

Selects a suitable light source power among the provided modes.

17. **AUTO**

Automatically determines the best picture timings for the displayed image.

18. 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.

19. 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.

20. 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.

21. 3D

No function.

22. FREEZE

No function.

23. PAGE+/PAGE-

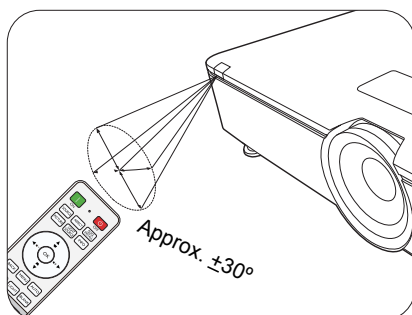
No function.

Remote control effective range

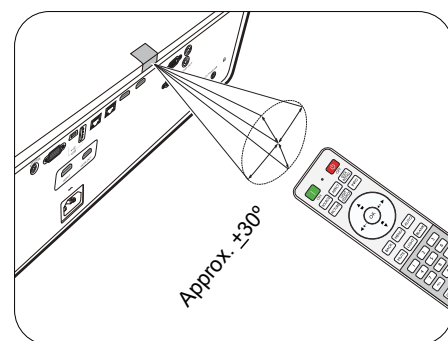
The remote control must be held at an angle within 30 degrees perpendicular to the projector's IR remote control sensor(s) to function correctly. The distance between the remote control and the sensor(s) should not exceed 8 meters (~ 26 feet).

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

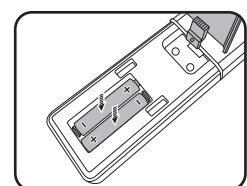
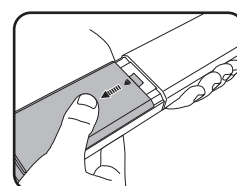


- Operating the projector from the rear



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.

Installation

Choosing a location

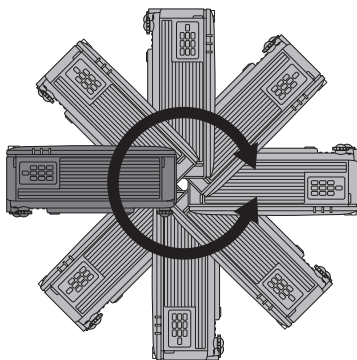
Before choosing an installation location for your projector, take the following factors into consideration:

- 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: **Front Table, Front Ceiling, Rear Ceiling, Rear Table.** (See [Projector Position on page 31.](#))

The projector can also be installed at following angles:

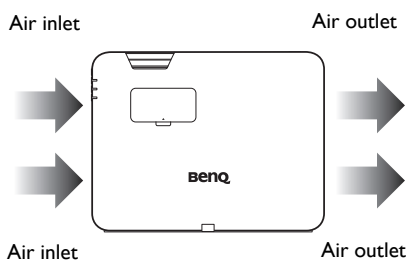
360-degree projection



! 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.

Cooling notice

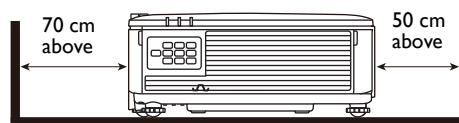
Ventilation



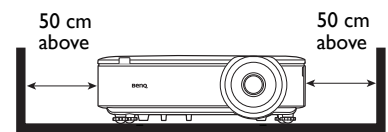
Caution for installation

For proper ventilation of the projector, make sure to leave some space around the projector as shown in the illustration below:

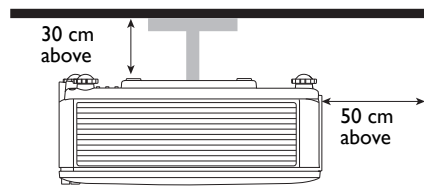
• Table



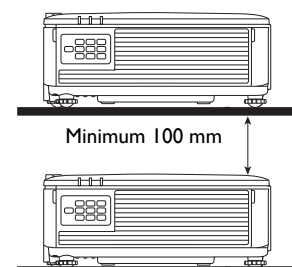
• Table



• Ceiling



• Stacking

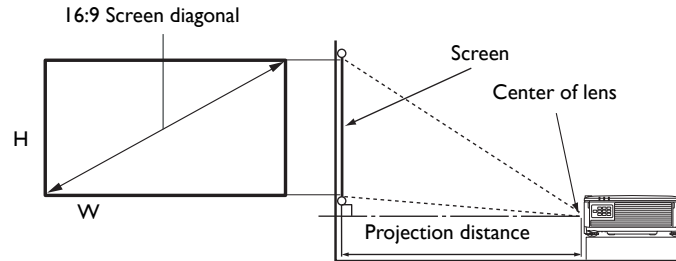


- Avoid using the projector in a poorly ventilated or confined space.
- The light source life may be affected if the projector is used tilted at an angle of more than ± 15 degrees.

Obtaining a preferred projected image size

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

Projection dimensions



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

Screen size				Distance from screen (mm)		
Diagonal		W (mm)	H (mm)	Min length (max. zoom)	Average	Max length (min. zoom)
Inch	mm					
30	762	664	374	903	1176	1448
40	1016	886	498	1204	1567	1930
50	1270	1107	623	1505	1959	2413
60	1524	1328	747	1806	2351	2896
80	2032	1771	996	2409	3135	3861
90	2286	1992	1121	2710	3527	4343
100	2540	2214	1245	3011	3918	4826
110	2794	2435	1370	3312	4310	5309
120	3048	2657	1494	3613	4702	5791
130	3302	2878	1619	3914	5094	6274
140	3556	3099	1743	4215	5486	6757
150	3810	3321	1868	4516	5878	7239
160	4064	3542	1992	4817	6269	7722
170	4318	3763	2117	5118	6661	8204
180	4572	3985	2241	5419	7053	8687
190	4826	4206	2366	5720	7445	9170
200	5080	4428	2491	6022	7837	9652
250	6350	5535	3113	7527	9796	12065
300	7620	6641	3736	9032	11755	14478

LK953ST

Screen size				Distance from screen (mm)		
Diagonal		W (mm)	H (mm)	Min length (max. zoom)	Average	Max length (min. zoom)
Inch	mm					
30	762	664	374	538	565	591
40	1016	886	498	717	753	788
50	1270	1107	623	897	941	985
60	1524	1328	747	1076	1129	1182
80	2032	1771	996	1435	1505	1576
90	2286	1992	1121	1614	1694	1773
100	2540	2214	1245	1793	1882	1970
110	2794	2435	1370	1972	2070	2167
120	3048	2657	1494	2152	2258	2364
130	3302	2878	1619	2331	2446	2561
140	3556	3099	1743	2510	2634	2758
150	3810	3321	1868	2690	2823	2955
160	4064	3542	1992	2869	3011	3152
170	4318	3763	2117	3048	3199	3349
180	4572	3985	2241	3228	3387	3547
190	4826	4206	2366	3407	3575	3744
200	5080	4428	2491	3586	3763	3941
250	6350	5535	3113	4483	4704	4926
300	7620	6641	3736	5380	5645	5911



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

• 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

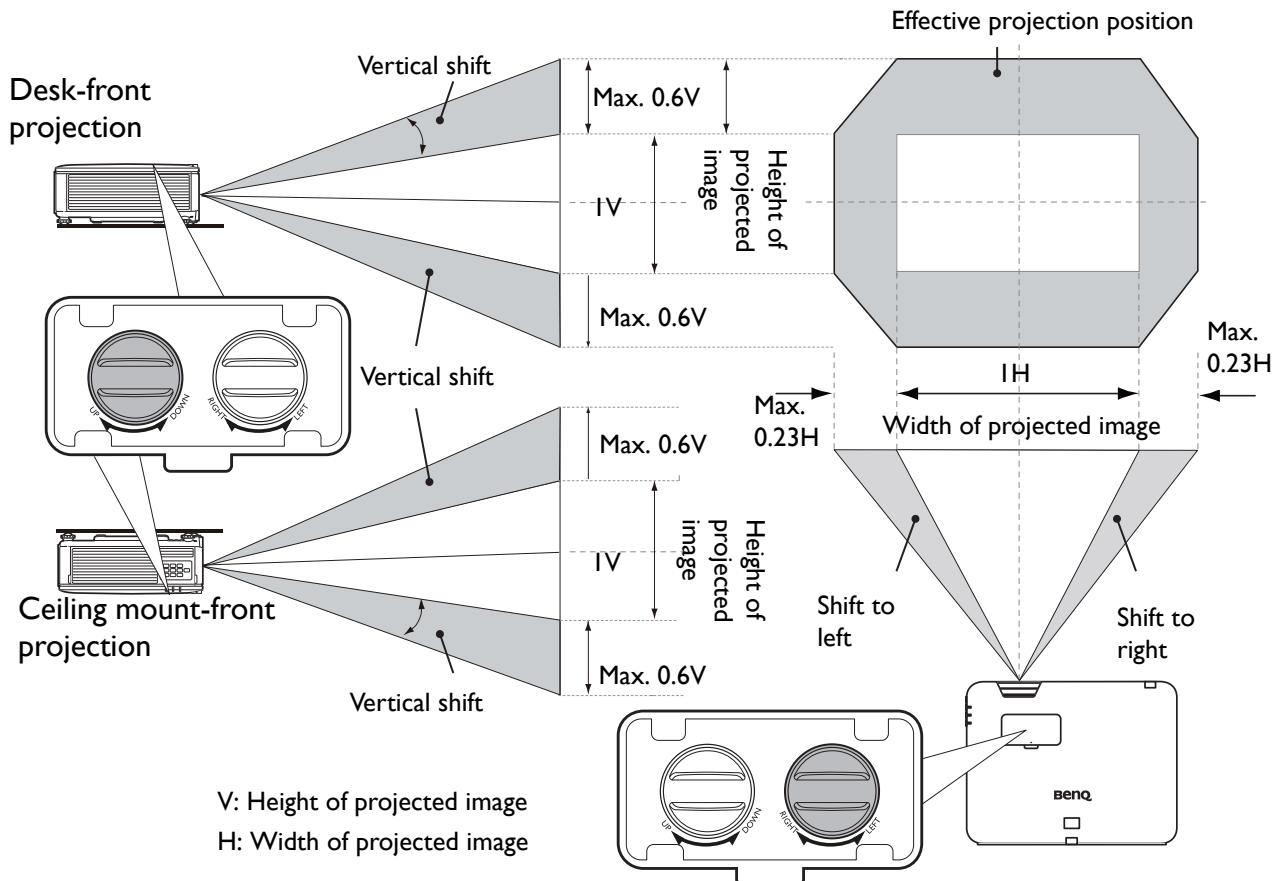
- Purchase a BenQ projector mounting kit from the place you purchased your BenQ projector.
- BenQ recommends that you also purchase a separate security cable and attach it securely to both the security bar on the projector and the base of the mounting bracket. This will perform the secondary role of restraining the projector should its attachment to the mounting bracket become loose.
- Ask your dealer to install the projector for you. Installing the projector on your own may cause it to fall and result in injury.
- Take necessary procedures to prevent the projector from falling off such as during an earthquake.
- The warranty doesn't cover any product damage caused by mounting the projector with a non-BenQ brand projector mounting kit.
- Consider the surrounding temperature where the projector is ceiling 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.

Adjusting the projector position

Shifting the projection lens

The lens shift control provides flexibility for installing your projector. It allows the projector to be positioned off the center of the screen.

The lens shift is expressed as a percentage of the projected image height or width. You can turn the knobs on the projector to shift the projection lens in any direction within the allowable range depending on your desired image position.



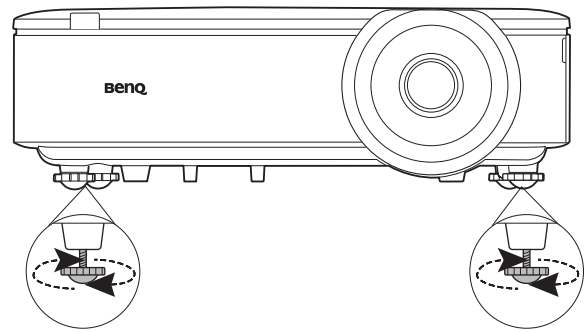
- Lens shift adjustment will not result in a degraded picture quality.
- Please stop turning the adjustment knob when you hear a clicking sound indicating that the knob has reached its limit. Over-turning the knob may cause damage.

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

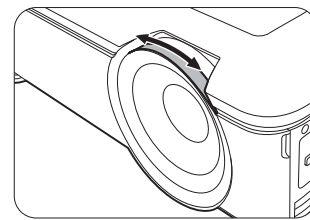
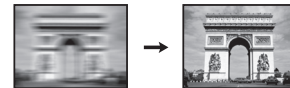
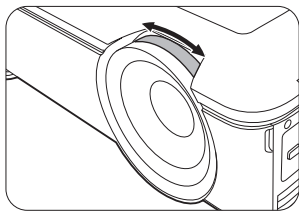
To retract the feet, screw the adjuster feet in a reverse direction.



! 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 size and clarity

1. Adjust the projected image to the size that you need using the zoom ring.
2. Sharpen the image by rotating the focus ring.



Correcting keystone

! This function is not available when there is no input signal. If you wish to use this function when there is no input signal, activate **Test Pattern** first.

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

To correct this, you will need to manually correct it following these steps.

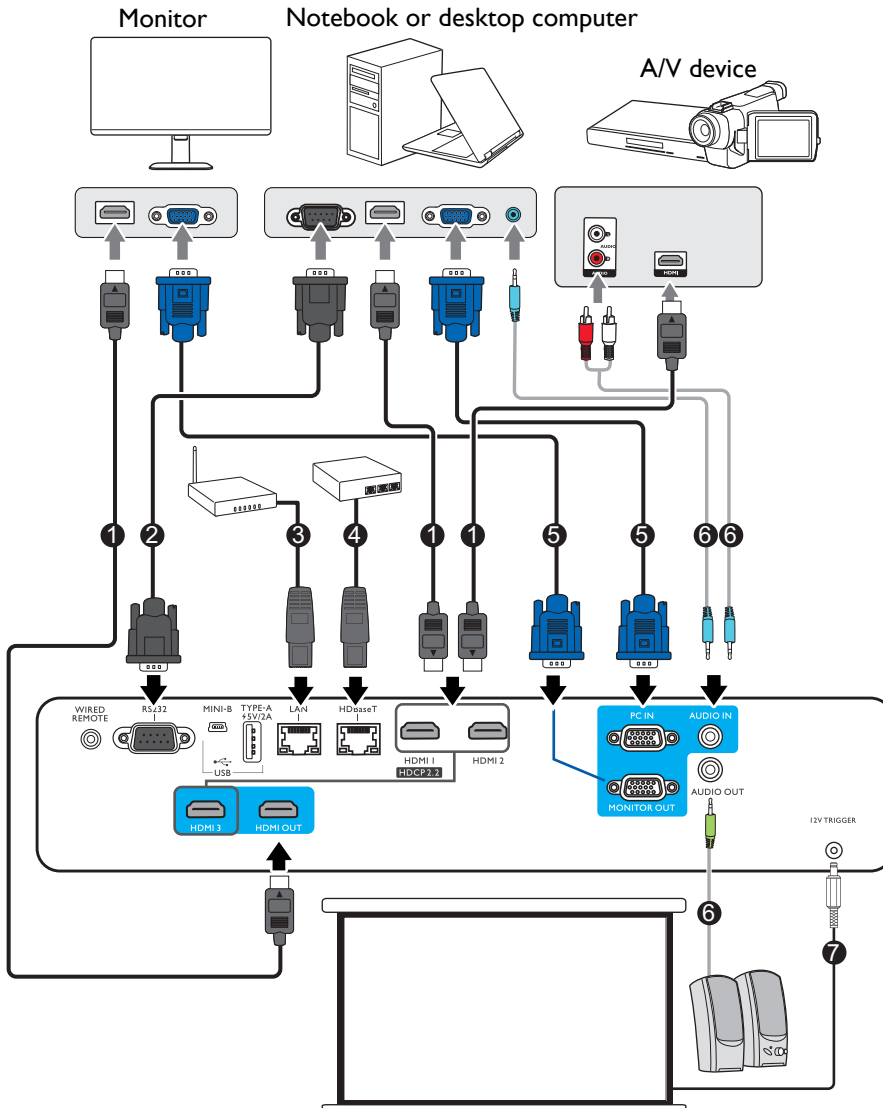
1. Do one of the following steps to display the keystone correction page.
 - Press **▲** / **▼** on the projector or remote control.
 - Go to **INSTALLATION > Keystone** and press **OK**.
2. After the **Keystone** correction page displays. Press **▲** to correct keystoning at the top of the image. Press **▼** to correct keystoning at the bottom of the image.
3. When **Keystone** correction page displays, you can also do the following settings:
 - Press **OK** to reset the keystone values.



Connection

Before connecting, carefully read the operating instructions for connecting the external device. 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.

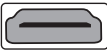



1	HDMI cable
2	RS232 cable
3	RJ-45 cable
4	HDBaseT matrix switcher
5	VGA cable
6	Audio cable
7	Electric screen, etc.





- 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.
- Before connecting a cable to the projector or to a device that is connected to the projector, touch any nearby metallic objects to remove any static electricity from your body.
- Do not use unnecessarily long cables to connect the projector or a device to the projector. Using a longer cable that is wound makes it act like an antenna, making it more susceptible to noise.
- When connecting cables, connect GND first and then insert the connecting terminal of the connecting device.
- 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.

You need only connect the projector to a video source device using just one of the connecting methods, however each provides a different level of video quality.

Terminal		Picture quality
HDMI 1 (HDCP2.2)/HDMI 2/HDMI 3		Best
PC IN		Normal





Operation

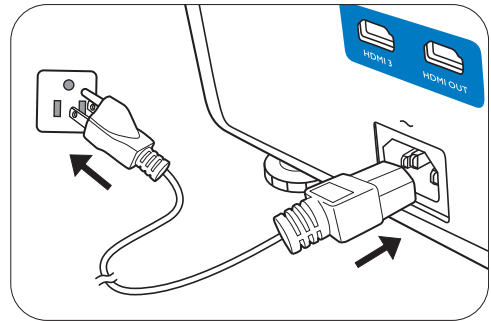
Starting up the projector

1. Plug the power cord. 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 30 seconds. In the later stage of start up, a startup logo is projected.

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

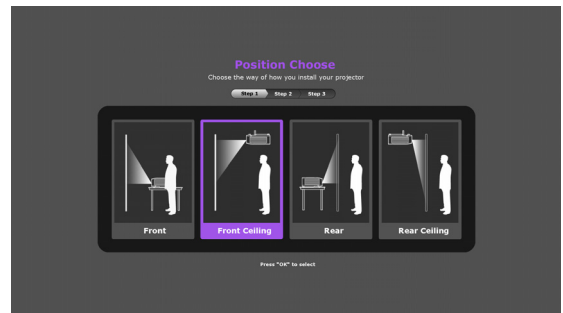
3. If this is the first time you turn on the projector, the setup wizard appears to guide you through setting up the projector. If you have already done this, skip this step and move on to the next step.
 - Use the arrow keys (/ / / ) on the projector or remote control to move through the menu items.
 - Use **OK** to confirm the selected menu item.



Step 1:

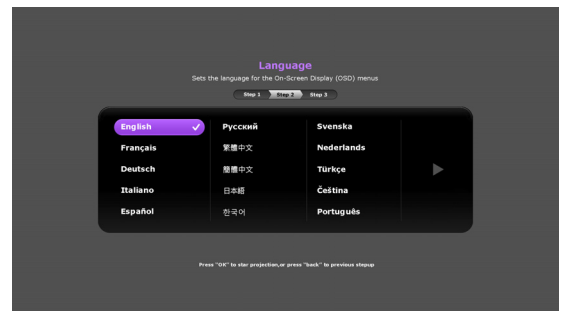
Specify **Projector Position**.

For more information about projector position, see [Choosing a location](#).



Step 2:

Specify OSD **Language**.

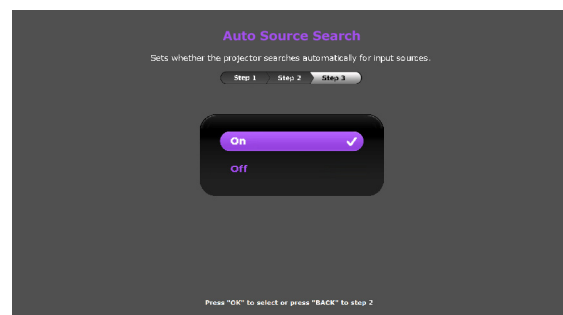


Step 3:

Specify **Auto Source**.

Select **On** if you want the projector to always search for available signals automatically when the projector is turned on.

Now you've completed the initial setup.



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 23](#).
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 24](#).



- Please use the original accessories (e.g. power cord) to avoid possible dangers such as electric shock and fire.
- 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 41](#).
- If no signal is detected for 3 minutes, the projector automatically enters saving mode.

Using the menus

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



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

Below is the overview of the OSD menu.

	<p>1 Main menu icon</p> <p>2 Main menu</p> <p>3 Sub-menu</p>	<p>4 Current input signal</p> <p>5 Status</p> <p>6 Press BACK to go to the previous page or to exit.</p>
--	--	---

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.

Securing the projector

Using a security cable lock

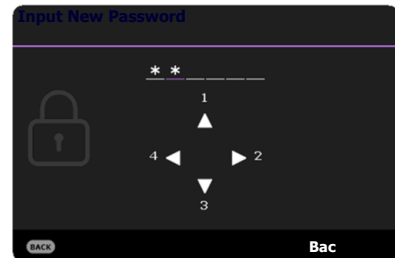
The projector has to be installed in a safe place to prevent theft. Otherwise, purchase a lock, such as the Kensington lock, to secure the projector. You can locate a Kensington lock slot on the rear side of the projector. See item 11 on [page 7](#).

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

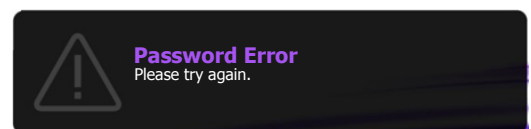
1. Go to **SYSTEM SETUP: ADVANCED > Password**. Press **OK**. The **Security Settings** page appears.
2. Highlight **Change Password** and press **OK**.
3. The four arrow keys (▲, ►, ▼, ◀) respectively represent 4 digits (1, 2, 3, 4). According to the password you desire to set, press the arrow keys to enter six digits for the password.
4. Confirm the new password by re-entering the new password.
Once the password is set, the OSD menu returns to the **Security Settings** page.
5. To activate the **Power On Lock** function, press ▲/▼ to highlight **Power On Lock** and press ◀/▶ 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

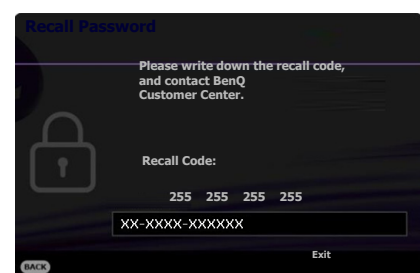
If you enter the wrong password, the password error message will appear, and the **Input Current Password** message follows. If you absolutely do not remember the password, you can use the password recall procedure. See [Entering the password recall procedure on page 23](#).



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 **SYSTEM SETUP: ADVANCED > Password > Change Password**.
2. Press **OK**. The message “**Input Current Password**” appears.
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 **SYSTEM SETUP: ADVANCED > Password > Power On Lock** and press **◀/▶** to select **Off**. The message “**Input Current 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

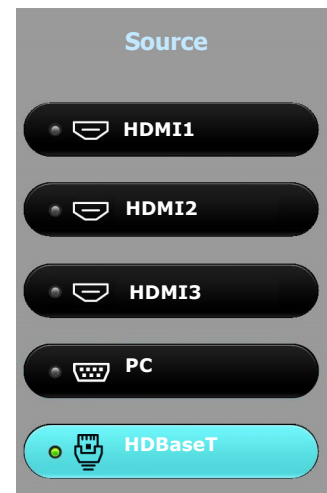
The projector can be connected to multiple devices at the same time. However, it can only display one full screen at a time. When starting up, the projector automatically searches for the available signals.

Be sure the **SYSTEM SETUP: BASIC > Auto Source** menu is **On** if you want the projector to automatically search for the signals.

To select the source:



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

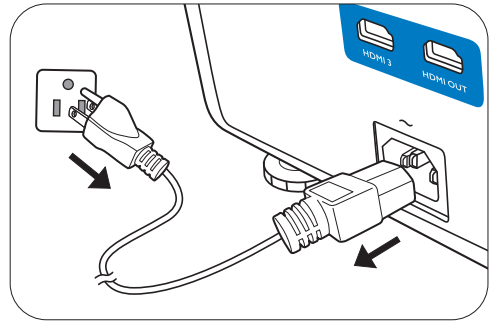
Once detected, the selected source information will appear at the corner of the screen for seconds. If there is multiple equipment connected to the projector, repeat steps 1-2 to search for another signal.



- 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 31](#).

Shutting down the projector

1. Press  and a confirmation message will appear prompting you. If you don't respond in a few seconds, the message will disappear.
2. Press  a second time. The **POWER indicator light** flashes orange, the projection light source shuts down.
3. Once the cooling process finishes, the **POWER indicator light** is a steady orange and fans stop. Disconnect the power cord from the power outlet.



- To protect the light source, the projector will not respond to any commands during the cooling process.

- Press  again to start the projector after the **POWER indicator light** turns a steady orange.


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.

PICTURE menu

<p>Picture Mode</p>	<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. • PRESN: Is designed for presentations. The brightness is emphasized in this mode to match PC and notebook coloring. • 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. • Vivid: With well-balanced color saturation and contrast with a low brightness level, this is most suitable for enjoying movies in a totally dark environment (as you would find in a commercial cinema). • DICO-S: Follows the standard of DICOM to get the gray level parameter. • User 1/User 2: Recalls the settings customized based on the current available picture modes. See User Mode Management on page 26. • HDR: Delivers High Dynamic Range effects with higher contrasts of brightness and colors. This mode is only available when: <ul style="list-style-type: none"> • DISPLAY > HDR is set at Auto, and HDR content is detected. • DISPLAY > HDR menu is set at HDR.
<p>User Mode Management</p>	<p>There are two user-definable modes if the current available picture modes are not suitable for your need. You can use one of the picture modes (except the User 1/User 2) as a starting point and customize the settings.</p> <ul style="list-style-type: none"> • Load Settings From <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 Mode Management, and press OK. The User Mode 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>User Mode Management (Continued)</p>	<p>• Rename User Mode</p> <p>Select to rename the customized picture modes (User 1 or 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 Mode Management, and press OK. The User Mode Management page is displayed. 4. Press ▼ to highlight Rename User Mode and press OK. The Rename User Mode page is displayed. 5. Use ▲/▶/▼/◀ to select desired characters. 6. When done, press OK and BACK to exit.
<p>Brightness</p>	<p>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.</p>
<p>Contrast</p>	<p>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.</p>
<p>Color</p>	<p>Lower setting produces less saturated colors. If the setting is too high, colors on the image will be overpowering, which makes the image unrealistic.</p>
<p>Tint</p>	<p>The higher the value, the more greenish the picture becomes. The lower the value, the more reddish the picture becomes.</p>
<p>Sharpness</p>	<p>The higher the value, the sharper the picture becomes.</p>
<p>Advanced</p>	<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/BenQ: Select these values according to your preference. • 2.2/2.3: Increases the average brightness of the picture. Best for a lit environment, meeting room or family room. • 2.4: Best for viewing movies in a dark environment. • 2.6/DICOM: Best for viewing movies which are mostly composed of dark scenes. <div style="text-align: center;"> <p>High Brightness Low Contrast</p>  <p>Low Brightness High Contrast</p> <p>1.8 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.8 BenQ</p> </div> <p>• HDR Brightness</p> <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>

• **Color Temperature**

- **Preset:** There are several preset color temperature settings available. The available settings may vary according to the signal type selected.

Normal	Maintains normal colorings for white.
Cool	Makes images appear bluish white.
Lamp Native	With the light source's original color temperature and higher brightness. This setting is suitable for environments where high brightness is required, such as projecting pictures in well lit rooms.
Warm	Makes images appear reddish white.

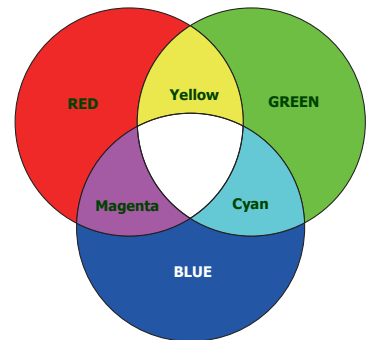
You can also set a preferred color temperature by adjusting the following options.

- **R Gain/G Gain/B Gain:** Adjusts the contrast levels of Red, Green, and Blue.
- **R Offset/G Offset/B Offset:** Adjusts the brightness levels of Red, Green, and Blue.

• **Color Management**

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.



- **Primary Color:** Selects a color from among Red, Yellow, Green, Cyan, Blue, or Magenta.
- **Hue:** Increase in the range will include colors consisted of more proportions of its two adjacent colors. Please refer to the illustration for how the colors relate to each other. For example, if you select Red and set its range at 0, only pure red in the projected picture will be selected. Increasing its range will include red close to yellow and red close to magenta.
- **Gain:** Adjusts the values to your preference. The contrast level of the primary color you select will be affected. Every adjustment made will reflect to the image immediately.
- **Saturation:** Adjusts the values to your preference. Every adjustment made will reflect to the image immediately. For example, if you select Red and set its value at 0, only the saturation of pure red will be affected.



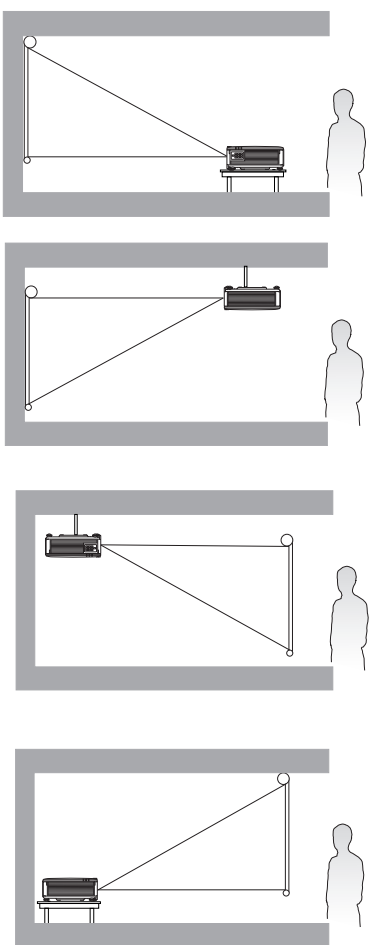
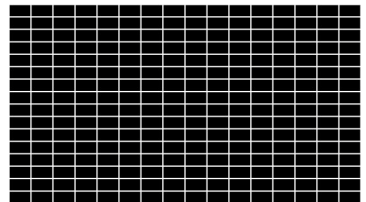
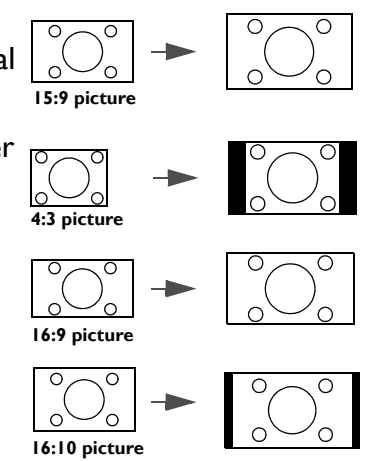
Saturation is the amount of that color in a video picture. Lower settings produce less saturated colors; a setting of "0" removes that color from the image entirely. If the saturation is too high, that color will be overpowering and unrealistic.

<p>Advanced (Continued)</p>	<ul style="list-style-type: none"> • Color Gamut <p>Color Gamut refers to the range of colors that can potentially be displayed by a device. There are some standards to define difference levels of color gamuts for display devices, such as CIE 1976, sRGB, Adobe RGB, NTSC, etc.</p> <p>With this projector, selecting Auto will automatically apply the most suitable color gamut to the image source. You can also select BT. 709, BT. 2020, or DCI-P3 according to your needs.</p>
	<ul style="list-style-type: none"> • CinemaMaster <ul style="list-style-type: none"> • Color Enhancer: Allows you to fine-tune the saturation of colors with larger flexibility. It modulates complex color algorithms to flawlessly render saturated colors, fine gradients, intermediate hues and subtle pigments. • Flesh Tone: Provides a smart adjustment of hue only for calibrating people's skin color, not other colors in the image. It prevents discoloration of skin tones from the light of the projection beam, portraying every skin tone in its most beautiful shade. • Pixel Enhancer 4K: It is a super-resolution technology which radically enhances Full HD content in terms of colors, contrast, and textures. It's also a Detail Enhancement Technology refines surface details for true-to-life images that pop off the screen. Users can adjust levels of sharpness and detail enhancement for optimal viewing. • DCTI/DLTI: Sophisticated algorithms significantly improve color and light output when producing images with contrasting colors or bright and dark scales. DCTI heightens color vibrancy for drastic color transitions without noise interference. DLTI reduces noise from fast switching of varied luminance to optimized brightness and contrast. The result is picture quality with the utmost picture depth and color performance.
	<ul style="list-style-type: none"> • Noise Reduction: Reduces electrical image noise caused by different media players. The higher the value, the less the noise.
	<ul style="list-style-type: none"> • Light Source Mode: Selects a suitable light source power from among the provided modes. See Setting the Light Source Mode on page 36.
<p>Reset Current Picture Mode</p>	<p>Returns all of the adjustments you've made for the selected Picture Mode (including preset modes, 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.

DISPLAY menu

Image Position	Displays the position adjustment page. To move the projected image, use the directional arrow keys. This function is only available when a PC signal (analog RGB) is selected.
Overscan Adjustment	Conceals the poor picture quality in the four edges. The greater the value, the more portion of the picture is concealed while the screen remains filled and geometrically accurate. Setting 0 means the picture is 100% displayed.
PC Tuning	<ul style="list-style-type: none"> • H. Size: Adjusts the horizontal width of the image. • Phase: Adjusts the clock phase to reduce image distortion. • Auto: Adjusts the phase and frequency automatically.   <p>These functions are only available when the PC signal is selected.</p>
HDR	The projector supports HDR imaging sources. It can automatically detect the dynamic range of the source, and optimize settings to reproduce contents under wide range of light conditions. If the input source is not defined with dynamic range, you can also manually select HDR or SDR for it.
Silence	When this function is enabled: <ul style="list-style-type: none"> • The acoustic noise will be minimized. • The display resolution will be set at 1920 x 1080.








INSTALLATION menu

<p>Projector Position</p>	<ul style="list-style-type: none"> • Front Table Select this location with the projector placed on the table in front of the screen. This is the most common way to position the projector for quick setup and portability. • 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. • 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. • Rear Table Select this location with the projector placed on the table behind the screen. Note that a special rear projection screen is required. 	
<p>Test Pattern</p>	<p>Adjusts the image size and focus and check that the projected image is free from distortion.</p>	
<p>Aspect Ratio</p>	<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. • 4:3: Scales an image so that it is displayed in the center of the screen with a 4:3 aspect ratio. • 16:9: Scales an image so that it is displayed in the center of the screen with a 16:9 aspect ratio. • 16:10: Scales an image so that it is displayed in the center of the screen with a 16:10 aspect ratio. 	

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.
LED Indicator	<p>Selects to turn off the LED warning lights. This is to avoid any light disturbance when viewing images in a dark room.</p>
High Altitude Mode	<p>We recommend you turn on 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>You can also select Auto, allowing the projector to automatically detect the altitude and display reminder message suggesting you to adjust the setting when necessary.</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>
Keystone	<p>See Correcting keystone on page 18.</p>
Projector ID Settings	<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 Remote control on page 10</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.







SYSTEM SETUP: BASIC menu

Language	<p>Sets the language for the On-Screen Display (OSD) menus.</p>
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Background Color	Sets the background color for the projector.
Splash Screen	Allows you to select which logo screen will be displayed during projector start-up.
Operation Settings	<ul style="list-style-type: none"> • Auto 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. • 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 VGA signal.
Menu Settings	<ul style="list-style-type: none"> • Menu Position: Sets the On-Screen Display (OSD) menu position. • Menu Display Time: Sets the length of time the OSD will remain active after your last key press. • Reminder Message: Sets the reminder messages on or off.
Source Rename	<p>Renames the current input source to your desired name.</p> <p>On the Source Rename page, use /// to set the desired characters for the connected source item.</p> <p>When done, press OK to save the changes.</p>
Auto Source	Allows the projector to automatically search for a signal.
Audio Settings	<ul style="list-style-type: none"> • Mute: Temporarily turns off the sound. • Volume: Adjusts the sound level. • Power On/Off Ring Tone: Turns on or off the ring tone when the projector is in startup and shutdown process.  <p>The only way to change Power On/Off Ring Tone is setting On or Off here. Setting the sound mute or changing the sound level will not affect the Power On/Off Ring Tone.</p>

SYSTEM SETUP: ADVANCED menu

Light Source Information	<ul style="list-style-type: none"> • Light Source Timer: See Getting to know the light source hour on page 36.
HDMI Settings	<ul style="list-style-type: none"> • HDMI Range Selects a suitable RGB color range to correct the color accuracy. <ul style="list-style-type: none"> • Auto: Automatically selects a suitable color range for the incoming HDMI signal. • RGB Limited: Utilizes the Limited range RGB 16-235. • RGB Full: Utilizes the Full range RGB 0-255. • YUV Limited: Utilizes the Limited range YUV 16-235. • YUV Full: Utilizes the Full range YUV 0-255.
Password	See Utilizing the password function on page 23 .

<p>Key Lock</p>	<p>With the control keys on the projector and remote control locked, you can prevent your projector settings from being changed accidentally (by children, for example). When the Key Lock is on, no control keys on the projector will operate except  POWER.</p> <p>To release panel key lock, press and hold  (the right key) on the projector or remote control for 3 seconds.</p> <p></p> <p>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.</p>
<p>Network Settings</p>	<ul style="list-style-type: none"> • Wired LAN: See BenQ Network Projector Operation Guide. • AMX Device Discovery: When this function is On, the projector can be detected by AMX controller. • Network Standby: When this function is On, the projector is able to provide the network function when it is in standby mode. • MAC Address: Displays the mac address for this projector.
<p>Standby HDBaseT Setting</p>	<p>When this function is On, the projector will automatically turns on when receives a RS232 or IR power on signal.</p>
<p>Serial Port Setting</p>	<p>Press   to select the serial port.</p>
<p>Reset All Settings</p>	<p>Returns all settings to the factory preset values.</p> <p></p> <p>The following settings will still remain: Picture Mode, User Mode Management, Brightness, Contrast, Color, Tint, Sharpness, Advanced, Projector Position, Source Rename, Password, and Network Settings.</p>

INFORMATION menu

<p>Current System Status</p>	<ul style="list-style-type: none"> • Source: Shows the current signal source. • Picture Mode: Shows the selected mode in the PICTURE menu. • HDR: Shows the HDR status. • Resolution: Shows the native resolution of the input signal. • Color System: Shows input system format. • Color Gamut: Shows the color gamut. • Light Source Usage Time: Shows the number of hours the light source has been used. • Firmware Version: Shows the firmware version of your projector. • Projector ID: Show the projector ID number.
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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 25](#) 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 39](#) or consult your dealer about the range.
- Retract the adjuster feet.
- Remove the battery from the remote control.
- Pack the projector in its original packing or equivalent.

Transporting the projector

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

Light source information

Getting to know the light source hour

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

$$\text{Light Source Usage Time} = (\text{hours used in Normal mode}) + (\text{hours used in Economic mode}) + (\text{hours used in Dimming mode}) + (\text{hours used in Custom mode})$$

$$\text{Total (equivalent) light source hour} = 1.0 \times (\text{hours used in Normal mode}) + 1.0 \times (\text{hours used in Economic mode}) + 1.0 \times (\text{hours used in Dimming mode}) + 1.0 \times (\text{hours used in Custom mode})$$

To obtain the light source hour information:

1. Go to **SYSTEM SETUP: ADVANCED > Light Source Information** and press **OK**. The **Light Source Information** page appears.
2. Press **▼** to select **Light Source Timer** and press **OK**. The **Light Source Timer** is displayed. You can also get the light source hour information on the **INFORMATION** menu.

Extending light source life

• Setting the Light Source Mode

Go to **PICTURE > Advanced > Light Source Mode > Light Source Mode** or press **LIGHT SOURCE** on the remote control to select a suitable light source power from among the provided modes.



Light source mode	Description
Normal	Provides full light source brightness
Economic	Lowers brightness to extend the light source life and decreases the fan noise
Dimming	Lowers brightness to offer a longer light source life
Custom	Displays 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 **SYSTEM SETUP: BASIC > Operation Settings > Auto Off** and press **◀/▶**.



- The apparent brightness of the projected image will vary depending on the ambient lighting conditions, selected input signal contrast/brightness settings, and is directly proportional to projection distance.
- The light source brightness will decline over time and may vary within the light source manufacturers specifications. This is normal and expected behavior.

LED 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
			Scaler reset fail
			Burn-in ON
			Burn-in OFF
Light source events			
			Light source life exhausted
			Light source error in normal operation
			Light source is not lit up
Thermal events			
			Fan 1 error (the actual fan speed is outside the desired speed)
			Fan 2 error (the actual fan speed is outside the desired speed)
			Fan 3 error (the actual fan speed is outside the desired speed)
			Fan 4 error (the actual fan speed is outside the desired speed)
			Fan 5 error (the actual fan speed is outside the desired speed)
			Fan 6 error (the actual fan speed is outside the desired speed)
			Fan 7 error (the actual fan speed is outside the desired speed)
			Fan 8 error (the actual fan speed is outside the desired speed)
			Temperature 1 error (over limited temperature)

	 : Off	 : Orange On  : Orange Flashing	 : Green On  : Green Flashing	 : Red On  : Red Flashing
---	--	--	--	--

Troubleshooting

? The projector does not turn on.

Cause	Remedy
There is no power from the power cord.	Plug the power cord into the AC power jack on the projector, and plug the power cord into the power outlet. If the power outlet has a switch, make sure that it is switched on.
Attempting to turn the projector on again during the cooling process.	Wait until the cooling down process has completed.

? No picture

Cause	Remedy
The video source is not turned on or connected correctly.	Turn the video source on and check that the signal cable is connected correctly.
The projector is not correctly connected to the input signal device.	Check the connection.
The input signal has not been correctly selected.	Select the correct input signal with the SOURCE key.
The lens cover is still closed.	Open the lens cover.

? Blurred image

Cause	Remedy
The projection lens is not correctly focused.	Adjust the focus 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.
The lens cover is still closed.	Open the lens cover.

? Remote control does not work.

Cause	Remedy
The batteries are out of power.	Replace both of the batteries with new ones.
There is an obstacle between the remote control and the projector.	Remove the obstacle.
You are too far away from the projector.	Stand within 8 meters (26 feet) of the projector.

? The password is incorrect.

Cause	Remedy
You do not remember the password.	See Entering the password recall procedure on page 23 .

Specifications

Projector specifications



All specifications are subject to change without notice.

Optical

Resolution

1920(H) x 1080(V) Native
4K UHD on screen

Display system

1-CHIP DMD

Lens

LK952:

F = 1.81 to 2.1, f = 14.3 to 22.9 mm

LK953ST:

F = 1.83 to 1.86, f = 8.6 to 9.4 mm

Clear focus range

LK952:

1.8–6 m @ Wide,

2.88–9.60 m @ Tele

LK953ST:

1.07–3.58 m @ Wide,

1.18–3.94 m @ Tele

Light source

Laser diode

Electrical

Power supply

AC100–240V, 5.8A, 50–60 Hz (Automatic)

Power consumption

585 W (Max); < 0.5 W (Standby)

Mechanical

Weight

10.1 Kg (22.27 lbs)

Output terminals

RGB output

D-Sub 15-pin (female) x 1

HDMI output x 1

Audio signal output x 1

Speaker

(Stereo) 10 watt x 1

Control

RS-232 serial control

9 pin x 1

LAN control

RJ45 x 1

IR receiver x 2

Wired Remote control x 1

12V Trigger power supply 12V / 0.5A x 1

Input terminals

Computer input

RGB input

D-Sub 15-pin (female) x 1

Video signal input

Analog

Component RCA jack x 3 (through RGB input)

Digital

HDMI (2.2a) x 1; HDMI (HDCP 1.4) x 2

Audio signal input

PC audio jack x 1

USB

Mini Type B x 1; Type-A power supply 5V / 2 A x 1

HDBaseT RX x 1

Environmental Requirements

Operating temperature

0°C–40°C at sea level

Storage temperature

-20°C–60°C at sea level

Operating/Storage relative humidity

10%–90% (without condensation)

Operating altitude

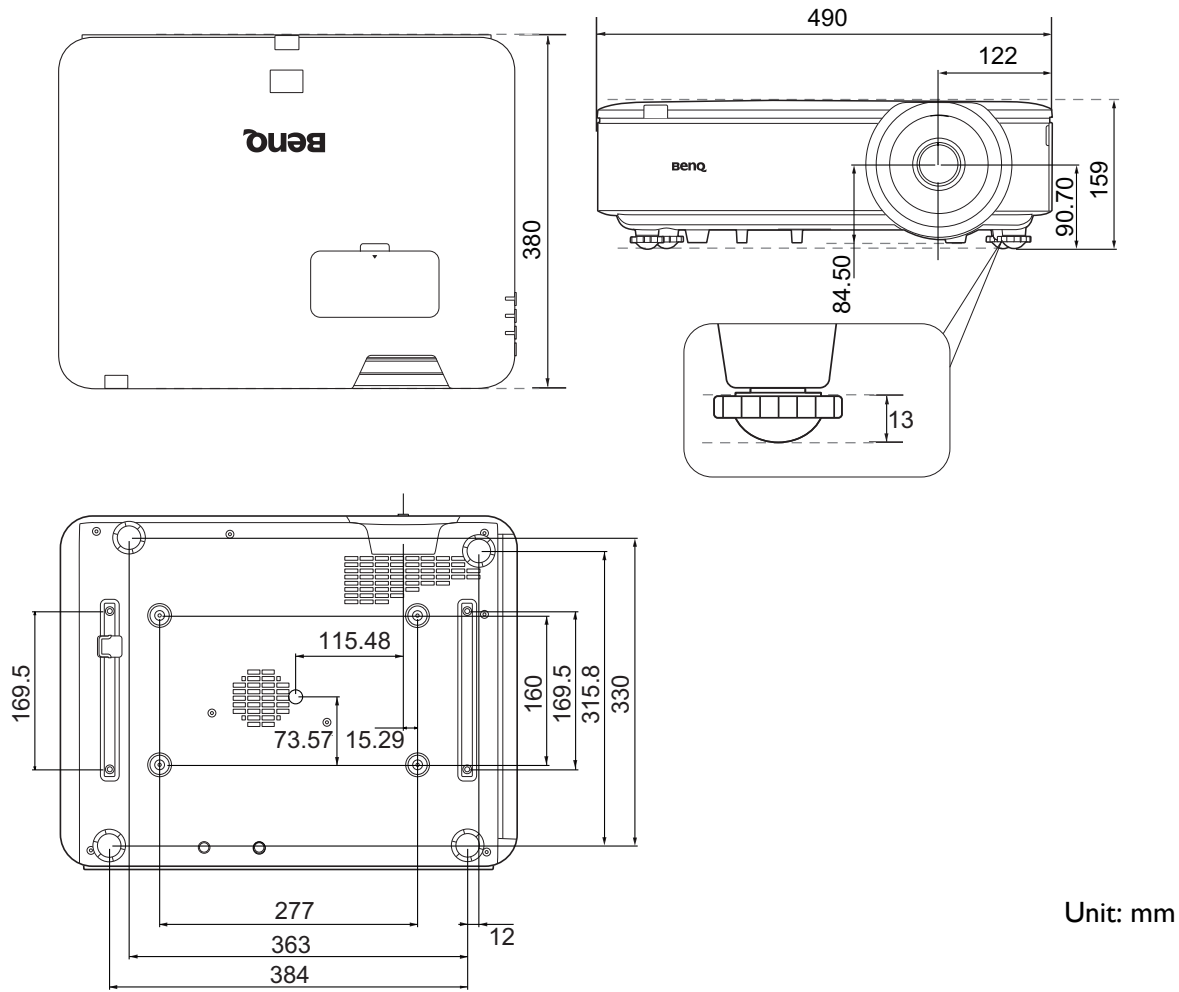
0–1499 m at 0°C–35°C

1500–3000 m at 0°C–30°C (with

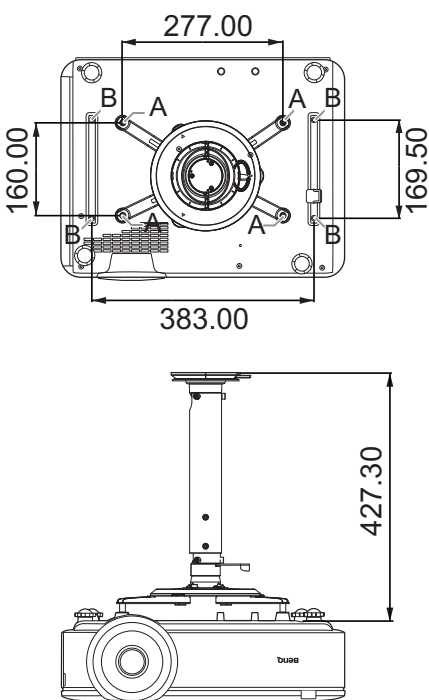
High Altitude Mode on)

Dimensions

490 mm (W) x 159 mm (H) x 380 mm (D)



Ceiling mount installation diagram

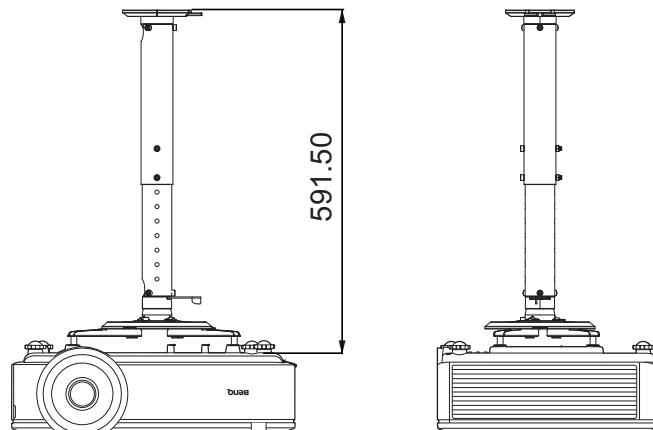


A: BenQ ceiling mount CMG3 (5J.JAM10.001)

Ceiling mount screw: M4
(Max. L = 25 mm; Min. L = 20 mm)

B: Third party mounting holes
Screw: M6 (Max. L = 8 mm)

Unit: mm



Timing chart

Supported timing for PC input

Resolution	Mode	Vertical Frequency (Hz)	Horizontal Frequency (kHz)	Pixel Frequency (MHz)
640 x 480	VGA_60	59.940	31.469	25.175
	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
	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
1024 x 768	XGA_60	60.004	48.363	65.000
	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
1152 x 864	1152 x 864_75	75	67.5	108
1024 x 576	BenQ Notebook_timing	60.0	35.820	46.966
1024 x 600	BenQ Notebook_timing	64.995	41.467	51.419
1280 x 720	1280 x 720_60	60	45.000	74.250
1280 x 768	1280 x 768_60	59.87	47.776	79.5
1280 x 800	WXGA_60	59.810	49.702	83.500
	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
1280 x 1024	SXGA_60	60.020	63.981	108.000
	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	108.000
	1280 x 960_85	85.002	85.938	148.500
1360 x 768	1360 x 768_60	60.015	47.712	85.5
1400 x 1050	SXGA+_60	59.978	65.317	121.750
1440 x 900	WXGA+_60	59.887	55.935	106.500
1600 x 1200	UXGA	60.000	75.000	162.000
1680 x 1050	1680 x 1050_60	59.954	65.290	146.250
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	74.93	60.241	80.000
1152 x 870@75Hz	MAC21	75.060	68.680	100.000



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.

Supported timing for HDMI (HDCP) input

- PC timings

Resolution	Mode	Vertical Frequency (Hz)	Horizontal Frequency (kHz)	Pixel Frequency (MHz)
640 x 480	VGA_60	59.940	31.469	25.175
	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
	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
1024 x 768	XGA_60	60.004	48.363	65.000
	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
1152 x 864	1152 x 864_75	75.00	67.500	108.000
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
1280 x 768	1280 x 768_60	59.870	47.776	79.5
1280 x 800	WXGA_60	59.810	49.702	83.500
	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
1280 x 1024	SXGA_60	60.020	63.981	108.000
	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
	1280 x 960_85	85.002	85.938	148.500
1360 x 768	1360 x 768_60	60.015	47.712	85.500
1440 x 900	WXGA+_60	59.887	55.935	106.500
1400 x 1050	SXGA+_60	59.978	65.317	121.750
1600 x 1200	UXGA	60.000	75.000	162.000
1680 x 1050	1680 x 1050_60	59.954	65.290	146.250
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	60	67.5	148.5
1920 x 1200@60Hz	1920 x 1200_60 (Reduce Blanking)	59.950	74.038	154.0000
1920 x 1080 (VESA)	1920X1080_60 (for Auditorium model)	59.963	67.158	173
1920 x 1080@120Hz	1920X1080_120 (Only via HDMI 2.0)	120.000	135.000	297
3840x 2160	3840x2160_30 For 4K2K model	30	67.5	297
3840x 2160	3840x2160_60 For 4K2K model (Only via HDMI 2.0)	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	Vertical Frequency (Hz)	Horizontal Frequency (kHz)	Pixel Frequency (MHz)
480i	720 (1440) x 480	59.94	15.73	27
480p	720 x 480	59.94	31.47	27
576i	720 (1440) x 576	50	15.63	27
576p	720 x 576	50	31.25	27
720/50p	1280 x 720	50	37.5	74.25
720/60p	1280 x 720	60	45.00	74.25
1080/24P	1920 x 1080	24	27	74.25
1080/25P	1920 x 1080	25	28.13	74.25
1080/30P	1920 x 1080	30	33.75	74.25
1080/50i	1920 x 1080	50	28.13	74.25
1080/60i	1920 x 1080	60	33.75	74.25
1080/50P	1920 x 1080	50	56.25	148.5
1080/60P	1920 x 1080	60	67.5	148.5
2160/24P	3840 x 2160 (Only via HDMI 2.0)	24	54	297
2160/25P	3840 x 2160 (Only via HDMI 2.0)	25	56.25	297
2160/30P	3840 x 2160 (Only via HDMI 2.0)	30	67.5	297
2160/50P	3840 x 2160 (Only via HDMI 2.0)	50	112.5	594
2160/60P	3840 x 2160 (Only via HDMI 2.0)	60	135	594

Supported timing for HDBaseT input

- PC timings

Resolution	Mode	Vertical Frequency (Hz)	Horizontal Frequency (kHz)	Pixel Frequency (MHz)
640 x 480	VGA_60	59.940	31.469	25.175
	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
	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
1024 x 768	XGA_60	60.004	48.363	65.000
	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	115.500
1152 x 864	1152 x 864_75	75.00	67.5	108.000
1024 x 576@60Hz	BenQ Notebook Timing	60.00	35.820	46.996
1024 x 600@65Hz	BenQ Notebook Timing	64.995	41.467	51.419
1280 x 720	1280 x 720_60	60	45.000	74.250
1280 x 768	1280 x 768_60	59.870	47.776	79.5
1280 x 800	WXGA_60	59.810	49.702	83.500
	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
1280 x 1024	SXGA_60	60.020	63.981	108.000
	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
	1280 x 960_85	85.002	85.938	148.500
1360 x 768	1360 x 768_60	60.015	47.712	85.500
1440 x 900	WXGA+_60	59.887	55.935	106.500
1400 x 1050	SXGA+_60	59.978	65.317	121.750
1600 x 1200	UXGA	60.000	75.000	162.000
1680 x 1050	1680 x 1050_60	59.954	65.290	146.250
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	60	67.5	148.5
1920 x 1200	1920 x 1200_60 (Reduce Blanking)	59.95	74.038	154



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

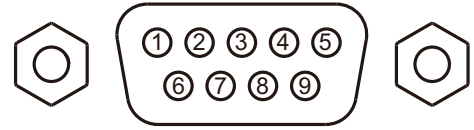
Timing	Resolution	Vertical Frequency (Hz)	Horizontal Frequency (kHz)	Pixel Frequency (MHz)
480i	720 (1440) x 480	59.94	15.73	27
480p	720 (1440) x 480	59.94	31.47	27
576i	720 x 576	50	15.63	27
576p	720 x 576	50	31.25	27
720/50p	1280 x 720	50	37.5	74.25
720/60p	1280 x 720	60	45.00	74.25
1080/24P	1920 x 1080	24	27	74.25
1080/25P	1920 x 1080	25	28.13	74.25
1080/30P	1920 x 1080	30	33.75	74.25
1080/50i	1920 x 1080	50	28.13	74.25
1080/60i	1920 x 1080	60	33.75	74.25
1080/50P	1920 x 1080	50	56.25	148.5
1080/60P	1920 x 1080	60	67.5	148.5
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

RS232 command

RS232 pin assignment

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

No.	Serial
6	NC
7	RTSZ
8	CTSZ
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	<CR>*sour=RGB#<CR>
	Write	HDMI	<CR>*sour=hdm1#<CR>
	Write	HDMI 2	<CR>*sour=hdm2#<CR>
	Write	HDMI 3	<CR>*sour=hdm3#<CR>
	Write	HDBaseT	<CR>*sour=hdbaset#<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>
Picture Mode	Read	Volume Status	<CR>*vol=?#<CR>
	Write	Presentation	<CR>*appmod=preset#<CR>
	Write	sRGB	<CR>*appmod=srgb#<CR>
	Write	Bright	<CR>*appmod=bright#<CR>
	Write	DICOM	<CR>*appmod=dicom#<CR>
	Write	Vivid	<CR>*appmod=vivid#<CR>
	Write	User1	<CR>*appmod=user1#<CR>
	Write	User2	<CR>*appmod=user2#<CR>
Read	Picture Mode	<CR>*appmod=?#<CR>	

Function	Type	Operation	ASCII
Picture Setting	Write	Contrast +	<CR>*con=+#<CR>
	Write	Contrast -	<CR>*con=-#<CR>
	Read	Contrast value	<CR>*con=?#<CR>
	Write	Brightness +	<CR>*bri=+#<CR>
	Write	Brightness -	<CR>*bri=-#<CR>
	Read	Brightness value	<CR>*bri=?#<CR>
	Write	Color +	<CR>*color=+#<CR>
	Write	Color -	<CR>*color=-#<CR>
	Read	Color value	<CR>*color=?#<CR>
	Write	Sharpness +	<CR>*sharp=+#<CR>
	Write	Sharpness -	<CR>*sharp=-#<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 Auto	<CR>*asp=AUTO#<CR>
	Write	Aspect Real	<CR>*asp=REAL#<CR>
Read	Aspect Status	<CR>*asp=?#<CR>	
Write	Auto	<CR>*auto#<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>
	Write	Quick auto search	<CR>*QAS=on#<CR>
	Write	Quick auto search	<CR>*QAS=off#<CR>
	Read	Quick auto search status	<CR>*QAS=?#<CR>
	Read	Projector Position Status	<CR>*pp=?#<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>
	Write	Standby Settings-Network on	<CR>*standbynet=on#<CR>
	Write	Standby Settings-Network off	<CR>*standbynet=off#<CR>
	Read	Standby Settings-Network Status	<CR>*standbynet=?#<CR>
	Lamp Control	Read	Lamp
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>
	Write	Blank On	<CR>*blank=on#<CR>
	Write	Blank Off	<CR>*blank=off#<CR>
	Read	Blank Status	<CR>*blank=?#<CR>
	Write	Menu On	<CR>*menu=on#<CR>
	Write	Menu Off	<CR>*menu=off#<CR>
	Write	Up	<CR>*up#<CR>
	Write	Down	<CR>*down#<CR>
	Write	Right	<CR>*right#<CR>
	Write	Left	<CR>*left#<CR>
	Write	Enter / OK	<CR>*enter#<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>