



# **LCD Display Wall Unit**

## **User Manual**








# Foreword

## General

This manual introduces the installation, functions and operations of the LCD Display Wall Unit (hereinafter referred to as the "Device"). Read carefully before using the device, and keep the manual safe for future reference.

## Safety Instructions

The following signal words might appear in the manual.

Signal Words	Meaning
 DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
 CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, reductions in performance, or unpredictable results.
 TIPS	Provides methods to help you solve a problem or save time.
 NOTE	Provides additional information as a supplement to the text.

## Revision History

Version	Revision Content	Release Time
V1.0.4	Updated FAQ.	July 2025
V1.0.3	Updated FAQ.	March 2025
V1.0.2	Updated back cover.	May 2023
V1.0.1	Updated daily maintenance requirements.	December 2022
V1.0.0	First release.	November 2022

## Privacy Protection Notice

As the device user or data controller, you might collect the personal data of others such as their face, audio, fingerprints, and license plate number. You need to be in compliance with your local privacy protection laws and regulations to protect the legitimate rights and interests of other people by implementing measures which include but are not limited: Providing clear and visible identification to inform people of the existence of the surveillance area and provide required contact information.

## About the Manual

- The manual is for reference only. Slight differences might be found between the manual and the product.

- We are not liable for losses incurred due to operating the product in ways that are not in compliance with the manual.
- The manual will be updated according to the latest laws and regulations of related jurisdictions. For detailed information, see the paper user manual, use our CD-ROM, scan the QR code or visit our official website. The manual is for reference only. Slight differences might be found between the electronic version and the paper version.
- All designs and software are subject to change without prior written notice. Product updates might result in some differences appearing between the actual product and the manual. Please contact customer service for the latest program and supplementary documentation.
- There might be errors in the print or deviations in the description of the functions, operations and technical data. If there is any doubt or dispute, we reserve the right of final explanation.
- Upgrade the reader software or try other mainstream reader software if the manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and company names in the manual are properties of their respective owners.
- Please visit our website, contact the supplier or customer service if any problems occur while using the device.
- If there is any uncertainty or controversy, we reserve the right of final explanation.

# Important Safeguards and Warnings

This section introduces content covering the proper handling of the device, hazard prevention, and prevention of property damage. Read carefully before using the device, and comply with the guidelines when using it.

## Transportation Requirements



Transport the device under allowed humidity and temperature conditions.

## Storage Requirements



Store the device under allowed humidity and temperature conditions.

## Installation Requirements



### DANGER

- This device cannot be used independently. To prevent injury, it must be securely installed according to the instructions provided in this document.
- Stability Hazard

Possible result: The device might fall down and cause serious personal injury.

Preventive measures (including but not limited to):

- ◇ Only use cabinets and brackets specified for the device.
- ◇ Only use furniture and structures that can safely support the device.
- ◇ Do not place the device on the edge of the furniture or structure that is supporting it.
- ◇ Always educate children about the dangers of climbing furniture to reach the device and its controller.
- ◇ Carefully arrange the cables connected to the device to avoid people tripping over them and pulling on them.
- ◇ Make sure that the device is installed on a stable surface.
- ◇ Do not put the device on tall furniture, such as cabinets and bookcases, without first ensuring that the supporting structure is stable enough to bare the device.
- ◇ Do not place the device on fabric and other similar material.
- ◇ Do not place items, such as toys and remote controls, that may entice children to climb on top of the device or furniture on which the device is placed.



### WARNING

- Do not connect the power adapter to the device while the adapter is powered on.
- Strictly comply with the local electrical safety code and standards. Make sure that the ambient voltage is stable and meets the power supply requirements of the device.
- Do not connect the device to two or more kinds of power supplies, to avoid safety risks and damage to the device.


- Please follow the electrical requirements to power the device.
  - ◇ Following are the requirements for selecting a power adapter.
    - The power supply must conform to the requirements of IEC 60950-1 and IEC 62368-1 standards.
    - The voltage must meet the SELV (Safety Extra Low Voltage) requirements and not exceed ES-1 standards.
    - When the power of the device does not exceed 100 W, the power supply must meet LPS requirements and be no higher than PS2.
  - ◇ We recommend using the power adapter provided with the device.
  - ◇ When selecting the power adapter, the power supply requirements (such as rated voltage) are subject to the device label.



- Personnel working at heights must take all necessary measures to ensure personal safety including wearing a helmet and safety belts.
- Do not place the device in a place exposed to sunlight or near heat sources.
- Keep the device away from dampness, dust, and soot.
- Install the device in a well-ventilated place, and do not block its ventilation.
- Prevent liquid from dripping or splashing on the device. Do not put any objects filled with liquid, such as a vase, on top of the device.
- Use an adapter or cabinet power supply provided by the manufacturer.
- The device is a class I electrical appliance. Make sure that the power supply of the device is connected to a power socket with protective earthing.
- When installing the device, make sure that the power plug can be easily reached to cut off the power.
- The signal output devices and the LCD Display must be on the same grounding, and the earth impedance must be less than 1  $\Omega$ .
- To ensure heat dissipation, make sure the gap is wide enough between the device and the surrounding area.
- A 16 A overcurrent protection device must be installed in the external power circuit of the product. If multiple devices are connected in parallel, the rated value must be increased accordingly.
- Operating temperature: 0 °C to 40 °C (32 °F to 104 °F).

## Operation Requirements



-  The device or remote control contains button batteries. Do not swallow the batteries due to the risk of chemical burns.

Possible result: The swallowed button battery can cause serious internal burns and death within 2 hours.




Preventive measures (including but not limited to):

- ◇ Keep new and used batteries out of reach of children.
- ◇ If the battery compartment is not securely closed, stop using the product immediately and keep out of reach of children.
- ◇ Seek immediate medical attention if a battery is believed to be swallowed or inserted inside any part of the body.
- Battery Pack Precautions

Preventive measures (including but not limited to):

- ◇ Do not transport, store or use the batteries in high altitudes with low pressure and environments with extremely high and low temperatures.
- ◇ Do not dispose the batteries in fire or a hot oven, or mechanically crush or cut the batteries to avoid an explosion.
- ◇ Do not leave the batteries in environments with extremely high temperatures to avoid explosions and leakage of flammable liquid or gas.
- ◇ Do not leave the batteries in environments with extremely high temperatures to avoid explosions and leakage of flammable liquid or gas.

**WARNING**

- In a domestic environment this may cause radio interference in which case you may be required to take adequate measures.
-    Do not use multiple devices together to avoid generating high current.

Preventative measure: Ground the device to protective ground before you power it on.



- Check whether the power supply is correct before use.
- Do not unplug the power cord on the side of the device while the adapter is powered on.
- Operate the device within the rated range of power input and output.
- Use the device under allowed humidity and temperature conditions.
- Do not drop or splash liquid onto the device, and make sure that there is no object filled with liquid on the device to prevent liquid from flowing into it.
- Do not disassemble the device without professional instruction.

## Maintenance Requirements

**DANGER**

Replacing unwanted batteries with the wrong type of new batteries might result in explosion.

Preventive measures (including but not limited to):

- Replace unwanted batteries with new batteries of the same type and model to avoid the risk of fire and explosion.
- Dispose of the old batteries as instructed.



- Power off the device before maintenance.
- The appliance coupler is a disconnection device. Keep it at a convenient angle when using it.

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# 1 Maintenance

## 1.1 Environment Requirements

- The Device can only be installed indoors. It is recommended to install air conditioner in the room where the Device is installed. Do not use the Device in environments with high humidity and heavy dust.
- Do not block the vent of the Device and the air circulation around the Device. Otherwise, the temperature inside the Device might rise and therefore cause a fire.

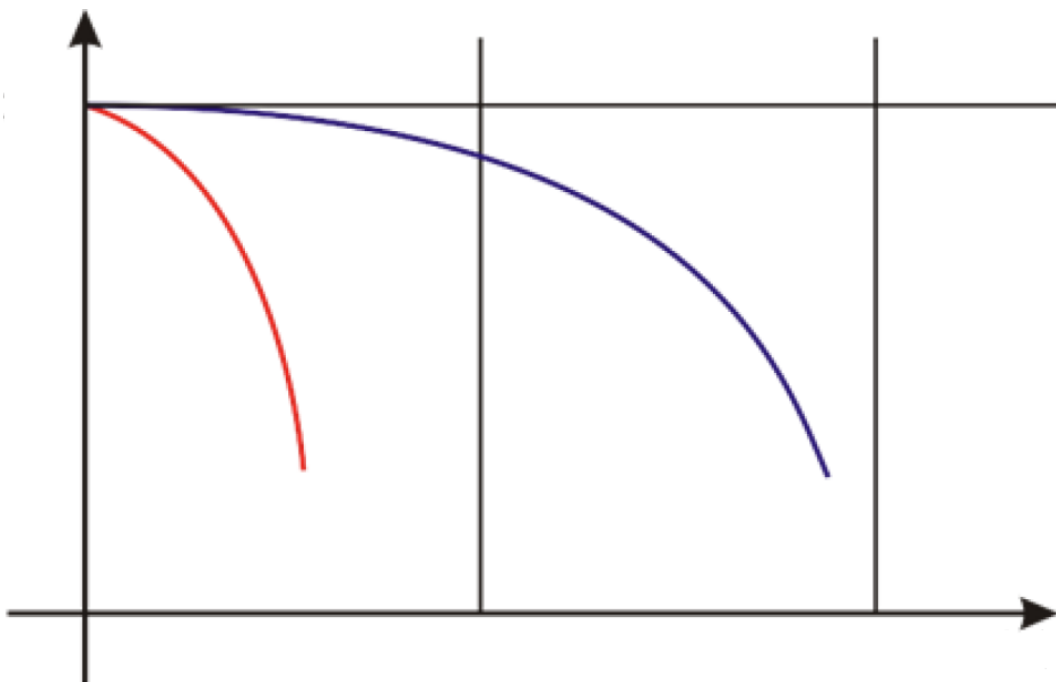
## 1.2 Daily Maintenance Requirements

Strictly comply with the daily maintenance requirements of the Device to prolong its service life and reduce emission for energy saving.

### Operating Time

Because of high temperature, electronic products will accelerate aging after running for a long time and working overloaded, resulting in a significant reduction in its theoretical service life.

Figure 1-1 Performance



Follow the recommendations below to extend device service life and save maintenance costs.

- After 10 hours of continuous operation, turn off the Device for 15–30 minutes.
- After 7/24 continuous operation, turn off the Device for 2 hours.

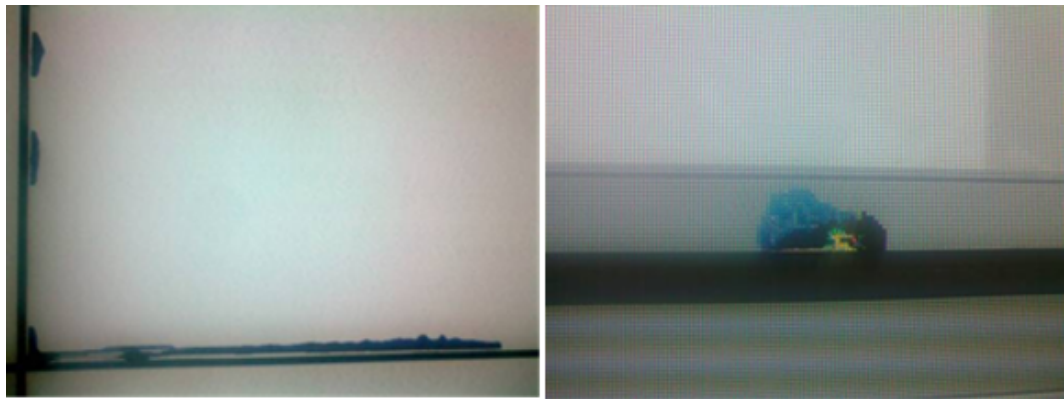


## Temperature, Humidity, and Ventilation

The ideal working temperature of the Device is  $22\text{ }^{\circ}\text{C} \pm 4\text{ }^{\circ}\text{C}$  ( $71.6\text{ }^{\circ}\text{F} \pm 39.2\text{ }^{\circ}\text{F}$ ), and the ideal relative humidity is 30%–70% (no condensation). Make sure that there is no significant temperature difference and sudden change of humidity, and if necessary, gradual temperature and humidity change is recommended.

If the Device is used for a long time in environments with high humidity or in air-conditioned room under  $16\text{ }^{\circ}\text{C}$  ( $60.8\text{ }^{\circ}\text{F}$ ), water vapor and droplets will be generated on the surface and the frame of the LCD, and then gradually penetrate into the LCD, slowly corrode and destroy its internal structure, causing liquid leakage.

Figure 1-2 Liquid leakage



During daily operation, pay attention that:

- Before turning off the Device, make sure that the temperatures of the air conditioners in the server room and the room where the Device is installed are the same, and turn on or off these air conditioners at the same time.
- If the Device has been turned off for a long time, check whether there are water drops on the surface. If yes, do not power on the Device, and do not dry the surface with wet cloth. Use absorbent paper to dry the surface, and contact our after-sales service.



Free warranty service is not applicable to damages (include but not limited to damages to the Device, user or any third party) arising from incorrect use and maintenance of the Device.

## Cleaning

Use degreasing cotton or soft cloth to clean the screen.

- The ideal detergent is isopropanol or n-hexane. Do not use ketone (like acetone) to clean the screen. Before cleaning the screen, pull the plug out of the socket.
- Do not use wet cloth to clean the Device because water vapor and droplets will be generated on the surface and the frame of the LCD, and then gradually penetrate into the LCD, slowly corrode and destroy its internal structure, causing liquid leakage.
- The panel is fragile. As a result, do not press or scratch the surface of the screen with great force.

## Power Supply

Stable 100–240 V single phase power supply is needed; otherwise the Device cannot work normally. To get stable voltage and prevent damage caused by electrical surge, use stabilized voltage supply.

## Storage

- If the Device will not be used for a long time, cover it with dustproof cover.
- If the Device has not been used for over six months before you start to use it again, do dust removal first, or contact professionals to do the maintenance.



If the Device is not in use for a long time, it will gather dust and heat dissipation will be influenced.

## Dust-proof Requirements

During debugging and operation, the dust concentration of the working area should not exceed 10 mg/m<sup>3</sup>.

If the Device must be used in environments with high temperature and high humidity, or the Device must be in single display mode for a long time, we strongly recommend you contact our engineers to get suggestions. Otherwise the reliability and performance might be greatly influenced.

## 2 Unpacking the Box

Check against the packing list to see whether the components are complete.



The appearance, items, or quantity might be different according to the actual device.

Table 2-1 Packing list

Item	Quantity
LCD display wall unit	1
AC power cable	1
DP cable	1
Network cable	1
Remote control	1
Battery	1 pair

## 3 Introduction

### 3.1 Appearance

Figure 3-1 Appearance



The resolution of the screen is 1920 × 1080.

### 3.2 Ports

Figure 3-2 Ports

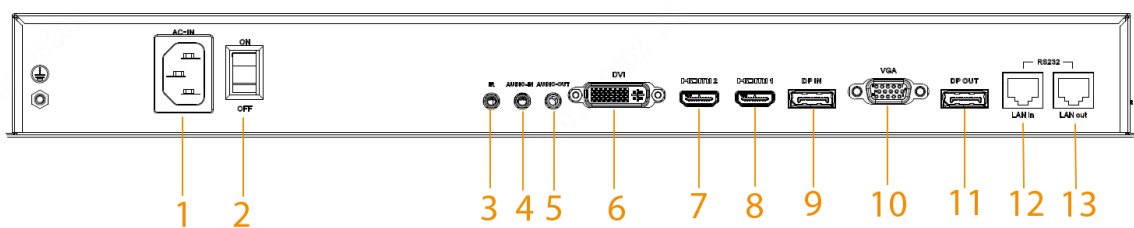


Table 3-1 Ports description

No.	Port	Description
1	AC IN	AC power input port.
2	Power switch	AC power switch.
3	IR	Connects to the IR extension cable.
4	AUDIO-IN	Inputs audio signals.
5	AUDIO-OUT	Outputs audio signals.

No.	Port	Description
6	DVI	Inputs DVI signal. Supports maximum 4K@30 Hz.
7	HDMI 2	Inputs HDMI signal. Supports maximum 1080p@60 Hz.
8	HDMI 1	Inputs HDMI signal. Supports maximum 4K@60 Hz.
9	DP IN	Inputs DP signal. Supports maximum 4K@60 Hz.
10	VGA	Inputs VGA signal. Supports maximum 1080p@60 Hz.
11	DP OUT	Outputs DP signal. Supports maximum 4K@30 Hz.
12	LAN in	RJ-45 port. Inputs RS-232 signals for controlling the screen.
13	LAN out	RJ-45 port. Outputs RS-232 signals for controlling signal loop output.

### 3.3 Remote Control



Make sure to keep the remote control safe if the Device is installed in public areas.

Figure 3-3 Remote control buttons

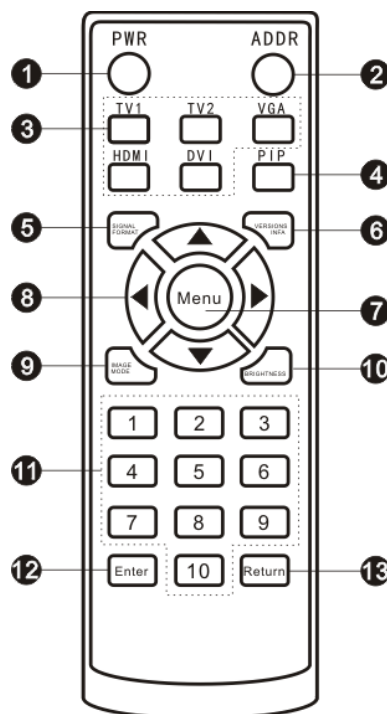


Table 3-2 Remote control buttons description

No.	Name	Function
1	Power	Power on/standby.
2	Address	Shortcut keyboard for address setting (dedicated to monitors).

No.	Name	Function
3	Signal source	<p>Shortcut keyboard for selecting signal source.</p> <ul style="list-style-type: none"> <li>• TV1: Pause button, used to stop playing videos.</li> <li>• TV2: Switch signals to CVBS signals.</li> <li>• VGA: Switch signals to VGA signals.</li> <li>• HDMI: Switch signals to HDMI signals.</li> <li>• DVI: Switch signals to DVI signals.</li> </ul>
4	Picture-in-picture (PIP)	Press <b>PIP</b> to start playing multimedia.
5	Signal format	Shortcut keyboard for displaying the current input signals.
6	Version info	Shortcut keyboard for displaying version of the system.
7	Menu	<ul style="list-style-type: none"> <li>• Press <b>Menu</b> to display or exit the menu.</li> <li>• Press <b>Menu</b> to confirm the operation that you have done.</li> </ul>
8	Direction buttons	<ul style="list-style-type: none"> <li>• Left and right direction buttons: Press ◀ or ▶ (left or right) to select the item at the left or right of the current item that you have selected on the screen (if you have selected voice, you can use these buttons to adjust the volume).</li> <li>• Up and down direction buttons: Press ▲ or ▼ (up or down) to select items above or below the current item that you have selected on the screen.</li> </ul>
9	Image mode	Shortcut keyboard for selecting image mode.
10	Brightness (backlight)	Shortcut keyboard for selecting backlight mode.
11	Number buttons	Press number buttons to enter numbers.
12	Enter	Press <b>Enter</b> to confirm and enter the multimedia page.
13	Return	Press <b>Return</b> to exit the multimedia page.

## 4 Local Configuration

Use the remote control to configure parameters for the Device. Press the **Menu** button of the remote control, and then the menu of the Device is displayed.

Figure 4-1 Main menu

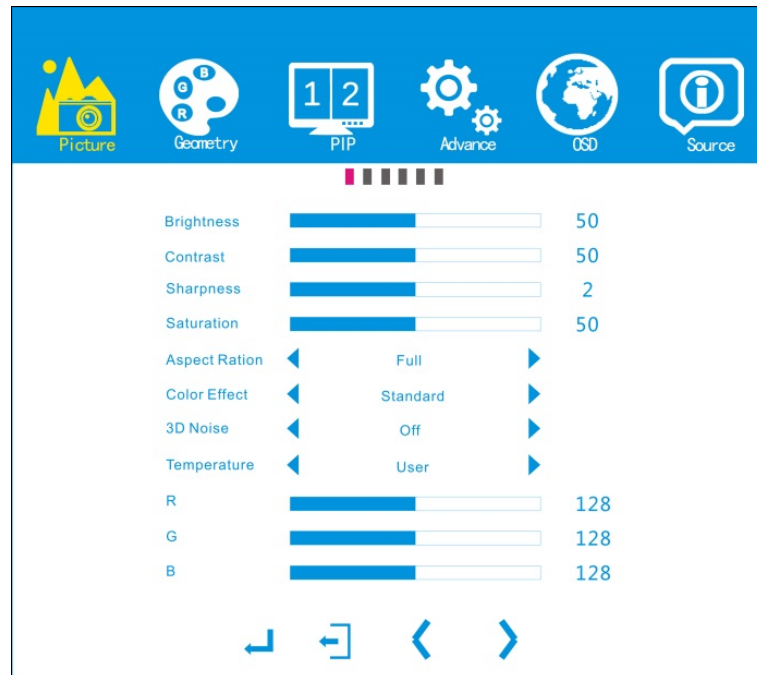



Table 4-1 Icon description

Icon	Main menu description
Picture	Set imaging effect for the Device.
Geometry	Set picture positions and ADC auto adjustment when VGA signal source is connected.
PIP	Set PIP (picture-in-picture) mode, position, and the signal source for each PIP mode.
Advance	Set advanced parameters of images.  Advanced options must be set by professional personnel.
OSD	Set system parameters.
Source	Set input source.

### Procedure

- Step 1** Press **Menu** on the remote control, and then the menu bar is displayed on the Device.  
You can start adjusting the corresponding parameters.
- Step 2** Press **Enter** or **◀ / ▶** to adjust the corresponding submenu.
- Step 3** Press **Exit** to exit the current menu.

## 4.1 Picture

You can set the brightness, contrast, sharpness, saturation, and more to get the ideal image. Press **Menu** on the remote control, and then the **Picture** menu bar is displayed by default.

Figure 4-2 Picture

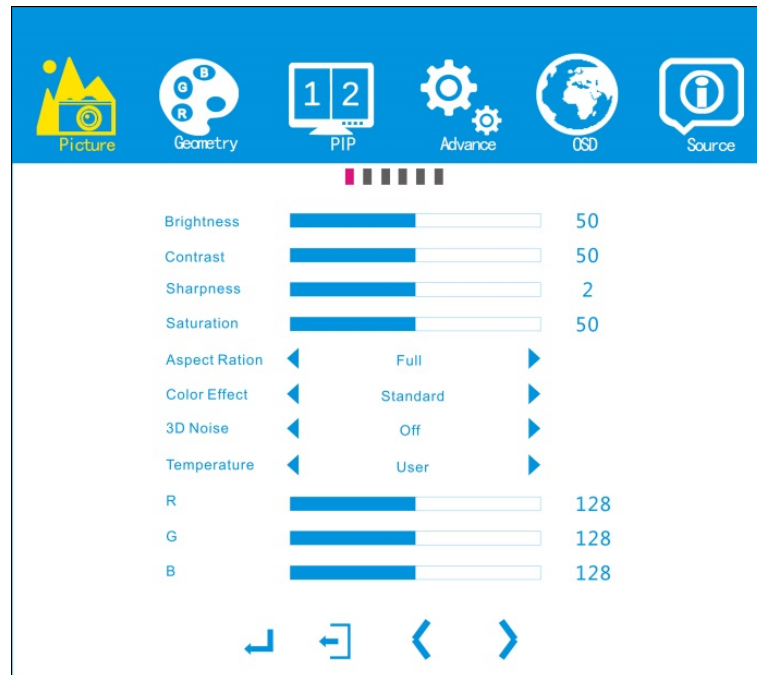



Table 4-2 Picture parameters description

Parameter	Description
Brightness	Brightness of images. Brightness range is 0 to 100. The higher the value, the brighter the image.
Contrast	Difference of the darkest and brightest parts of the image. Contrast range is 0 to 100. The higher the value, the darker the shadows and the brighter the highlights.
Sharpness	Edge contrast. Sharpness range is 0 to 4. The higher the value, the larger the contrast along or near the edges in the image.
Saturation	Color saturation of images. Saturation range is 0 to 100. The higher the value, the deeper the color.
Aspect Ratio	Display ratio of images. You can select <b>Full</b> (full screen), <b>16:9</b> , <b>5:4</b> , and <b>4:3</b> .
Color Effect	Overall effect of the image. You can select <b>Standard</b> , <b>Game</b> , <b>Movie</b> , <b>Photo</b> , and <b>Vivid</b> .
3D Noise	Enable 3D noise reduction to reduce image noise and improve image quality. You can select from <b>Off</b> , <b>Low</b> , <b>Middle</b> , and <b>High</b> .
Temperature	Color temperature of the image. You can select <b>User</b> (user defined), <b>9300</b> , <b>7500</b> , <b>6500</b> , <b>5800</b> , and <b>SRGB</b> .  You can adjust <b>R</b> , <b>G</b> , and <b>B</b> values in <b>User</b> mode.



The steps of setting the picture parameters are similar, and here uses adjusting **Brightness** as the example.

## Procedure

- Step 1** Press **Menu** on the remote control.
- Step 2** Press **▲** or **▼** on the remote control to select the **Brightness** bar, and then press **Enter** to confirm your selection.
- Step 3** Press **◀** or **▶** to adjust the brightness.

## 4.2 Geometry

Adjust image and screen positions. You can only set geometry parameters when VGA source is connected.

Press **Menu** on the remote control and then press **◀** or **▶** to go to the **Geometry** page.

Figure 4-3 Geometry (VGA)

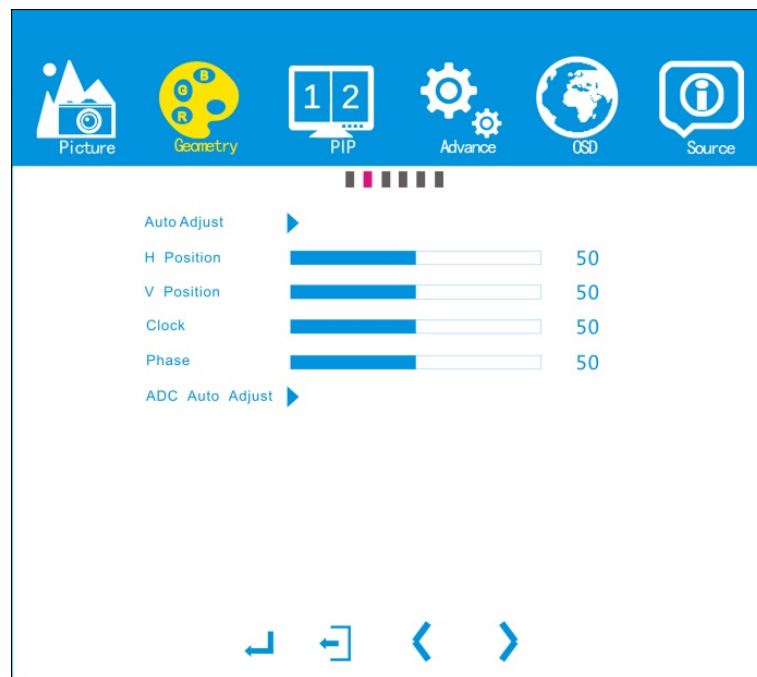


Table 4-3 Geometry (VGA) parameters description

Parameter	Description
Auto Adjust	Automatically adjust the position of image.
H Position	Adjust the horizontal position of screen. Horizontal position range is 0 to 100.
V Position	Adjust the vertical position of screen. Vertical position range is 0 to 100.
Clock	Improper clock and phase values might make the images get blurry. We recommend you to keep the default values.
Phase	
ADC Auto Adjust	When the color of the VGA image is abnormal, the system automatically restores to normal image color through ADC auto adjust.

The steps of setting the geometry parameters are similar, and here takes **Auto Adjust** as the example.

## Procedure

- Step 1 Press **Menu** on the remote control.
- Step 2 Press ◀ or ▶ on the remote control to go to the **Geometry** page.
- Step 3 Press ▲ or ▼ to select **Auto Adjust**, and then press **Enter** to start auto adjustment.
- Step 4 (Optional) Press ◀ or ▶ to adjust the value of **H Position**, **V Position**, **Clock**, or **Phase**.

## 4.3 PIP

PIP (picture-in-picture) allows you to set how many split windows can be displayed on the screen.

Press **Menu** on the remote control and then press ◀ or ▶ to go to the **PIP** page.

Figure 4-4 PIP



Table 4-4 PIP parameters description

Parameter	Description
Mode	You can select PIP modes from <b>1P</b> (1 window), <b>2P TB</b> (2 horizontal split windows), <b>2P PIP</b> (1 smaller window inside 1 bigger window), <b>4P</b> (4 split windows), and <b>PIP</b> (2 vertical split windows).
PIP Position	You can adjust PIP position only in <b>PIP</b> mode. PIP positions available: <b>Centre</b> , <b>Top L</b> (upper left), <b>Top R</b> (upper right), <b>Button L</b> (lower left), and <b>Button R</b> (lower right).
PIP Size	You can set PIP size only in <b>PIP</b> mode. The size value ranges from 1 to 10. The larger the value, the larger the size.
Input Swap	You can switch the input source of each window in <b>2P TB</b> , <b>2P PIP</b> , <b>4P</b> , and <b>PIP</b> modes.

Parameter	Description
Select Region	Select the region that you want to adjust picture settings.
Input	Select the input source signal for each window. You can select <b>VGA</b> , <b>DVI</b> , <b>HDMI1</b> , <b>HDMI2</b> , <b>OPS</b> , <b>DP</b> , and <b>Auto</b> .

The steps of setting PIP parameters are similar, and here uses setting **Mode** as an example.

## Procedure

- Step 1** Press **Menu** on the remote control.
- Step 2** Press ◀ or ▶ on the remote control to go to the **PIP** page.
- Step 3** Press ▲ or ▼ to select the **Mode** bar, and then press **Enter** to confirm your selection.
- Step 4** Press ◀ or ▶ to select the mode that you want, and then press **Enter** to confirm your selection.

## 4.4 Advance



**DANGER**

Non-professionals are prohibited from modifying the advanced parameters. We are not responsible for any product problems arising from modifications by non-professionals.

## 4.5 OSD

Press **Menu** on the remote control and then press ◀ or ▶ on the remote control to go to the **OSD** page.

Figure 4-5 OSD



Table 4-5 OSD parameters description


Parameter	Description
Backlight	Set the backlight mode of the screen. You can select from <b>Standard</b> , <b>Energy</b> , and <b>Highlight</b> .
Language	You can select the menu language from <b>Chinese</b> and <b>English</b> .
Menu Time	Set the time that the menu displays on the screen. The time ranges from 10 s to 60 s.
OSD H Position	Adjust the horizontal or vertical position of the menu. You can set the value of horizontal or vertical position from 0 to 100. 0 refers to the leftmost or uppermost side, and 100 refers to the rightmost or lowermost side.
OSD V Position	
Transparency	Adjust the transparency of the menu. The value ranges from 0 to 100. The larger the value, the more transparent the menu.
OSD Rotate	Adjust the angle of the menu. You can rotate the menu by <b>0</b> , <b>90</b> , or <b>270</b> degrees.
Reset	You can reset the settings to default value except advanced parameters and <b>R</b> , <b>B</b> , <b>G</b> values from <b>Picture</b> .
Mosaic Setting	Set mosaic options of screens. See Figure 4-6 and Table 4-6 .
Volume	<p>Set the volume of external speaker. The value ranges from 0 to 100. The larger the value, the higher the volume.</p>  <p>You can adjust the volume by directly pressing ◀ or ▶ on the remote control when no menu is displayed.</p>
Mute	Turn on or off volume.

Figure 4-6 Mosaic setting

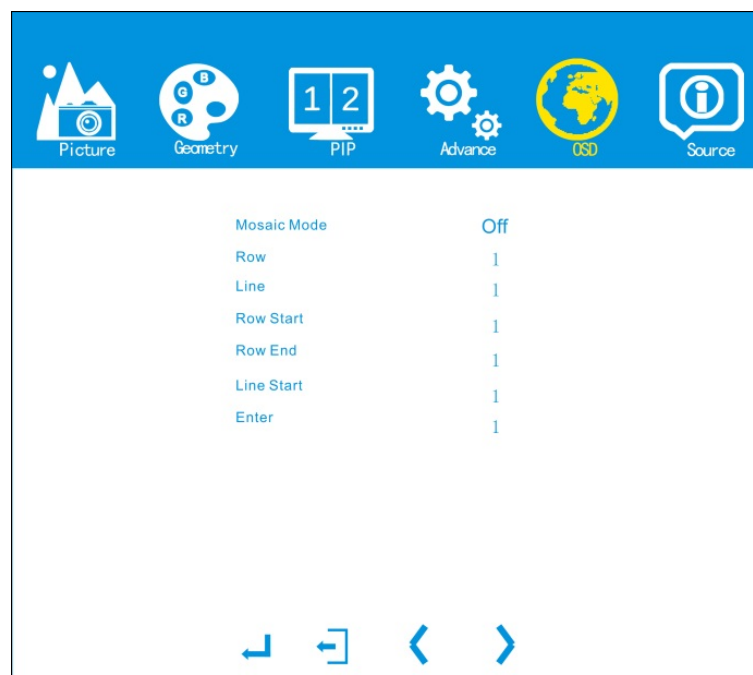


Table 4-6 Description of mosaic setting

Parameter	Description
Mosaic Mode	You can select <b>On</b> and <b>Off</b> . If mosaic mode is off, only one window will be displayed.
Row	Set the row that the screen locates.
Line	Set the line (column) that the screen locates.
Row Start	Set the start row of mosaic.
Row End	Set the end row of mosaic.
Line Start	Set the start line (column) of mosaic.
Enter	Confirm your selection.

The steps of setting OSD parameters are similar, and here uses setting **Backlight** as the example.

## Procedure

- Step 1 Press **Menu** on the remote control.
- Step 2 Press ◀ or ▶ on the remote control to go to the **OSD** page.
- Step 3 Press ▲ or ▼ to select the **Backlight** bar, and then press **Enter** to confirm your selection.
- Step 4 Press ◀ or ▶ to select the backlight mode that you want, and then press **Enter** to confirm your selection.



Step 4 is not required for **Reset** and **Mosaic Setting**.

## 4.6 Source

Select the input source, which includes **VGA**, **DP**, **HDMI1**, **HDMI2**, **DVI**, **OPS**, and **Auto**.

## Procedure

- Step 1 Press **Menu** on the remote control.
- Step 2 Press ◀ or ▶ on the remote control to go to the **Source** page.
- Step 3 Press ▲ or ▼ to select the source that is connected, and then press **Enter** to confirm your selection.



You can select signal source by pressing the corresponding buttons on the remote control when no menu is displayed.

Figure 4-7 Source



## 5 System Upgrade

System upgrade involves complicated operations. Please contact us for any upgrade and other related operations. Do not disassemble the Device or upgrade it by yourself. We are not responsible for any malfunctions and damages caused by arbitrary disassembly or upgrade.

## 6 FAQ

Most problems can be solved by the following solutions. For any other problem, contact after-sales service.



Some models use local dimming technology. In certain scenarios, the image might be overexposed, which is normal.

Table 6-1 FAQ

Problem	Possible Reasons
No images on the screen after turning on the Device.	<ul style="list-style-type: none"><li>● Power source (110 VAC or 220 VAC) is not connected to mains electricity.</li><li>● The power cable is broken.</li><li>● The power switch is off or broken.</li><li>● The indicator light is off.</li></ul>
No signal.	<ul style="list-style-type: none"><li>● Poor contact of signal wires.</li><li>● Signal source has no output.</li><li>● The signal wires are broken.</li><li>● The input signal type does not belong to the types supported by the Device.</li></ul>
LCD lost color.	<ul style="list-style-type: none"><li>● Poor contact of signal wires.</li><li>● The signal wires are broken.</li></ul>
Remote control does not work.	No batteries are installed, or batteries are not installed properly.
Device temperature is too high.	Device ventilation is not good.



# Appendix 1 Security Commitment and Recommendation

Dahua Vision Technology Co., Ltd. (hereinafter referred to as "Dahua") attaches great importance to cybersecurity and privacy protection, and continues to invest special funds to comprehensively improve the security awareness and capabilities of Dahua employees and provide adequate security for products. Dahua has established a professional security team to provide full life cycle security empowerment and control for product design, development, testing, production, delivery and maintenance. While adhering to the principle of minimizing data collection, minimizing services, prohibiting backdoor implantation, and removing unnecessary and insecure services (such as Telnet), Dahua products continue to introduce innovative security technologies, and strive to improve the product security assurance capabilities, providing global users with security alarm and 24/7 security incident response services to better protect users' security rights and interests. At the same time, Dahua encourages users, partners, suppliers, government agencies, industry organizations and independent researchers to report any potential risks or vulnerabilities discovered on Dahua devices to Dahua PSIRT, for specific reporting methods, please refer to the cyber security section of Dahua official website.

Product security requires not only the continuous attention and efforts of manufacturers in R&D, production, and delivery, but also the active participation of users that can help improve the environment and methods of product usage, so as to better ensure the security of products after they are put into use. For this reason, we recommend that users safely use the device, including but not limited to:

## Account Management

### 1. Use complex passwords

Please refer to the following suggestions to set passwords:

- The length should not be less than 8 characters;
- Include at least two types of characters: upper and lower case letters, numbers and symbols;
- Do not contain the account name or the account name in reverse order;
- Do not use continuous characters, such as 123, abc, etc.;
- Do not use repeating characters, such as 111, aaa, etc.

### 2. Change passwords periodically

It is recommended to periodically change the device password to reduce the risk of being guessed or cracked.

### 3. Allocate accounts and permissions appropriately

Appropriately add users based on service and management requirements and assign minimum permission sets to users.

### 4. Enable account lockout function

The account lockout function is enabled by default. You are advised to keep it enabled to protect account security. After multiple failed password attempts, the corresponding account and source IP address will be locked.

### 5. Set and update password reset information in a timely manner

Dahua device supports password reset function. To reduce the risk of this function being used by threat actors, if there is any change in the information, please modify it in time. When setting security questions, it is recommended not to use easily guessed answers.

## Service Configuration

### 1. Enable HTTPS

It is recommended that you enable HTTPS to access Web services through secure channels.

### 2. Encrypted transmission of audio and video

If your audio and video data contents are very important or sensitive, we recommend you to use encrypted transmission function in order to reduce the risk of your audio and video data being eavesdropped during transmission.

### 3. Turn off non-essential services and use safe mode

If not needed, it is recommended to turn off some services such as SSH, SNMP, SMTP, UPnP, AP hotspot etc., to reduce the attack surfaces.

If necessary, it is highly recommended to choose safe modes, including but not limited to the following services:

- SNMP: Choose SNMP v3, and set up strong encryption and authentication passwords.
- SMTP: Choose TLS to access mailbox server.
- FTP: Choose SFTP, and set up complex passwords.
- AP hotspot: Choose WPA2-PSK encryption mode, and set up complex passwords.

### 4. Change HTTP and other default service ports

It is recommended that you change the default port of HTTP and other services to any port between 1024 and 65535 to reduce the risk of being guessed by threat actors.

## Network Configuration

### 1. Enable Allowlist

It is recommended that you turn on the allowlist function, and only allow IP in the allowlist to access the device. Therefore, please be sure to add your computer IP address and supporting device IP address to the allowlist.

### 2. MAC address binding

It is recommended that you bind the IP address of the gateway to the MAC address on the device to reduce the risk of ARP spoofing.

### 3. Build a secure network environment

In order to better ensure the security of devices and reduce potential cyber risks, the following are recommended:

- Disable the port mapping function of the router to avoid direct access to the intranet devices from external network;
- According to the actual network needs, partition the network: if there is no communication demand between the two subnets, it is recommended to use VLAN, gateway and other methods to partition the network to achieve network isolation;
- Establish 802.1x access authentication system to reduce the risk of illegal terminal access to the private network.

## Security Auditing

### 1. Check online users

It is recommended to check online users regularly to identify illegal users.

### 2. Check device log

By viewing logs, you can learn about the IP addresses that attempt to log in to the device and key operations of the logged users.

### 3. **Configure network log**

Due to the limited storage capacity of devices, the stored log is limited. If you need to save the log for a long time, it is recommended to enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

## Software Security

### 1. **Update firmware in time**

According to the industry standard operating specifications, the firmware of devices needs to be updated to the latest version in time in order to ensure that the device has the latest functions and security. If the device is connected to the public network, it is recommended to enable the online upgrade automatic detection function, so as to obtain the firmware update information released by the manufacturer in a timely manner.

### 2. **Update client software in time**

We recommend you to download and use the latest client software.

## Physical Protection

It is recommended that you carry out physical protection for devices (especially storage devices), such as placing the device in a dedicated machine room and cabinet, and having access control and key management in place to prevent unauthorized personnel from damaging hardware and other peripheral equipment (e.g. USB flash disk, serial port).

ENABLING A SMARTER SOCIETY AND BETTER LIVING

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