

「LC2624」
LED Controller

Datasheet

Table of contents

Foreword	1
1. Introduction	3
2. Features	3
3. Appearance	4
3.1. Front panel	4
3.2. Rear panel	5
4. Size	6
5. Specifications	7
6. Application	7
7. Operation Menu	8
7.1. Main Page	8
7.2. Brightness adjustment	9
7.3. Input settings	9
7.4. Window settings	10
7.5. Windows Preset	14
7.6. Display control	15
7.7. Advance Settings	17
7.8. Device Information	20
7.9. Network settings	20




Foreword

Thank you very much for purchasing our product. Please read this specification sheet carefully before operation.

All pictures in this specification are for reference only, the actual product may vary.

This specification may not correspond exactly to the product or its accessories you purchased. Our company reserves the right to modify any information in this specification at any time, and will regularly update this specification in accordance with product upgrade. Updated content will be added to the new version of this specification without prior notice, please understand.

Icon conventions

	illustrate	Necessary tips, supplements and explanations to help you understand the content described in the specification more clearly.
	Notice	Matters that must be paid attention to and followed during operation will remind you to use the equipment in a more convenient and efficient way.
	Warning	There may be potentially dangerous situations and you are warned to use the equipment safely.

Safety instructions

To ensure personal and equipment safety, when installing, operating, and maintaining equipment, please follow the safety instructions on the equipment and in the manual to ensure optimal equipment performance and avoid dangerous or illegal situations.



warn

- It is strictly prohibited to place the device in an environment with flammable or explosive gases or smoke, and no operations may be performed in such an environment.
- The equipment installation environment is strictly prohibited from water seepage, dripping, and condensation, otherwise dehumidification equipment must be installed.
- When laying lines, strong current lines and weak current lines must be laid separately to avoid mutual interference.
- Keep the equipment away from sources of fire, and do not place containers containing liquids on or near the equipment.
- Please unplug the power plug when there is lightning or when it is not used for a long time.
- It is prohibited to use parts not approved by the manufacturer to avoid damage to the equipment.
- It is prohibited to use control software not issued by the manufacturer to control the equipment.
- It is prohibited to alter, cover, or tear the equipment information labels attached to the equipment.
- If the plug and power cord are damaged or frayed, liquid is spilled into the device, or the device is dropped and damaged, you should unplug the power source immediately and leave it to professionals.
- All maintenance work should be completed by professionals. Unauthorized maintenance is strictly prohibited to avoid equipment damage and risk of electric shock.

**Notice**

- The equipment should work in an environment with good air circulation and suitable temperature and humidity.
 - Please install the device on a stable and stable work surface or in a standard rack, cabinet, or chassis.
 - Do not use any objects to block the ventilation holes of the device, and leave more than 20 cm of heat dissipation space around the device.
 - Please use a single-phase three-wire 100-240V AC power supply with a protective ground, and ensure that the entire engineering system uses the same ground. Do not use a power supply without ground protection, and the ground pin of the power cord cannot be damaged.
 - turning on the device, please make sure that signal cables, communication cables and other wires are well connected and not loose.
 - Before moving the device, please turn off the power of the device and add anti-collision protection to the device to avoid damage to the device due to electric shock, extrusion, bump, scratch, impact, etc.
-

1. Introduction

The LC series 2624 type is a LED controller that integrates video processing and video transmission. Its ultra-high video signal processing capabilities, powerful LED load, and convenient operation and maintenance make this controller for various size of LED screens, and can be widely used in control room, exhibitions, entertainment event, and conferences.



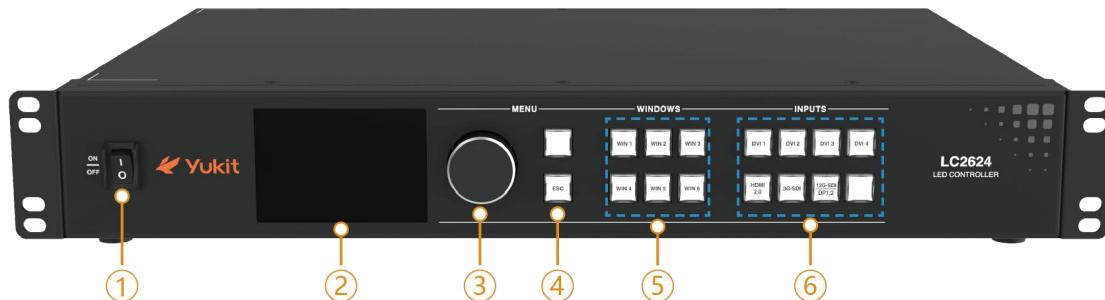
2. Features


- Support HDMI 2.0, DVI, 3G-SDI, 12G-SDI/DP1.2 (Optional) signal input;
- Configured with 24x Gigabit Ethernet outputs, single device supports maximum load of 15.6 million pixels, with a maximum 16,384 pixels in the horizontal and 8,192 pixels in the vertical;
- Equipped with 1 HDMI monitoring port to monitor the LED display in real time;
- Support up to 6 x layers on LED screen simultaneously;
- Support signal source pre monitoring (additional pre monitoring sub cards need to be configured)
- Built-in multiple common input resolutions, supporting source resolution adaptation;
- Input signals can be switched with one click through the front panel buttons;
- Supports signal cropping, which can enlarge certain areas or crop the black edges of the signal source;
- Brightness/color temperature/color gamut/ Gamma are precisely adjusted to ensure the LED display more natural and realistic;
- Supports saving and recalling multiple presets, and quickly switching large-screen layouts;
- Customized label on input signal;
- Supports one-click switching of output scaling mode, and can customize the output window size and position;
- Supports embedded audio and 3.5mm independent audio input and output;
- Support input interface EDID configuration (except SDI signal);
- Adopt genlock technology to ensure signal synchronization among LED displays;
- A single device can control multiple sets of screens of different sizes and shapes simultaneously;
- Support backup to ensure stable operation of the system.

3. Appearance

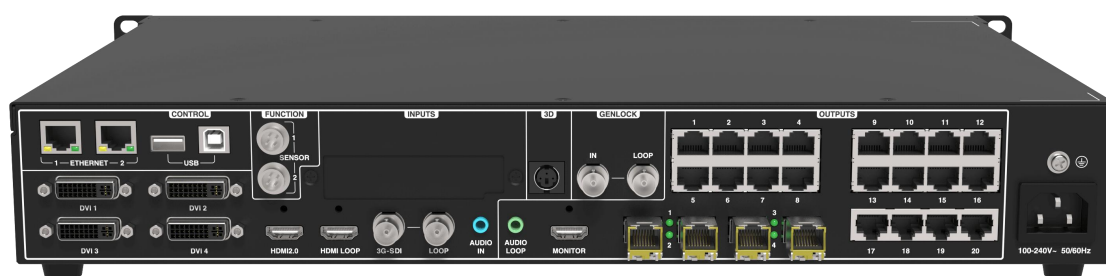
The following is a schematic diagram of the front panel and rear panel of the device. The appearance of the product shall be subject to the actual product.

3.1. Front panel



Num	Type	Description
①	Power	Device power switch button
②	LCD screen	Display the current status and menu of the device.
③	Confirm	Press to confirm the operation, rotate to select menus and adjust parameters.
④	ESC	Exit the current menu or cancel the current operation.
⑤	Win	Button Description: Press the button to enter the corresponding window editing mode. At this time, press the input source button to switch the input source to the corresponding window and display it in full screen. Button light status: Flashes when selected.
⑥	Input	Button Description: DVI 1~4, HDMI 2.0, 3G-SDI, 12G-SDI/DP 1.2 input source button, press to switch the corresponding input source to the window display. Button light status: Steady on: There is a signal source connected; Off: No signal source is connected.
③&④	Button lock	Pressing the "Confirm" and "ESC" buttons at the same time on any menu page will lock the front panel buttons and jump to the main page. In this case, all button functions except the power switch are invalid. The lock logo is displayed in the upper right corner of the main page  . Press again. Click to unlock.

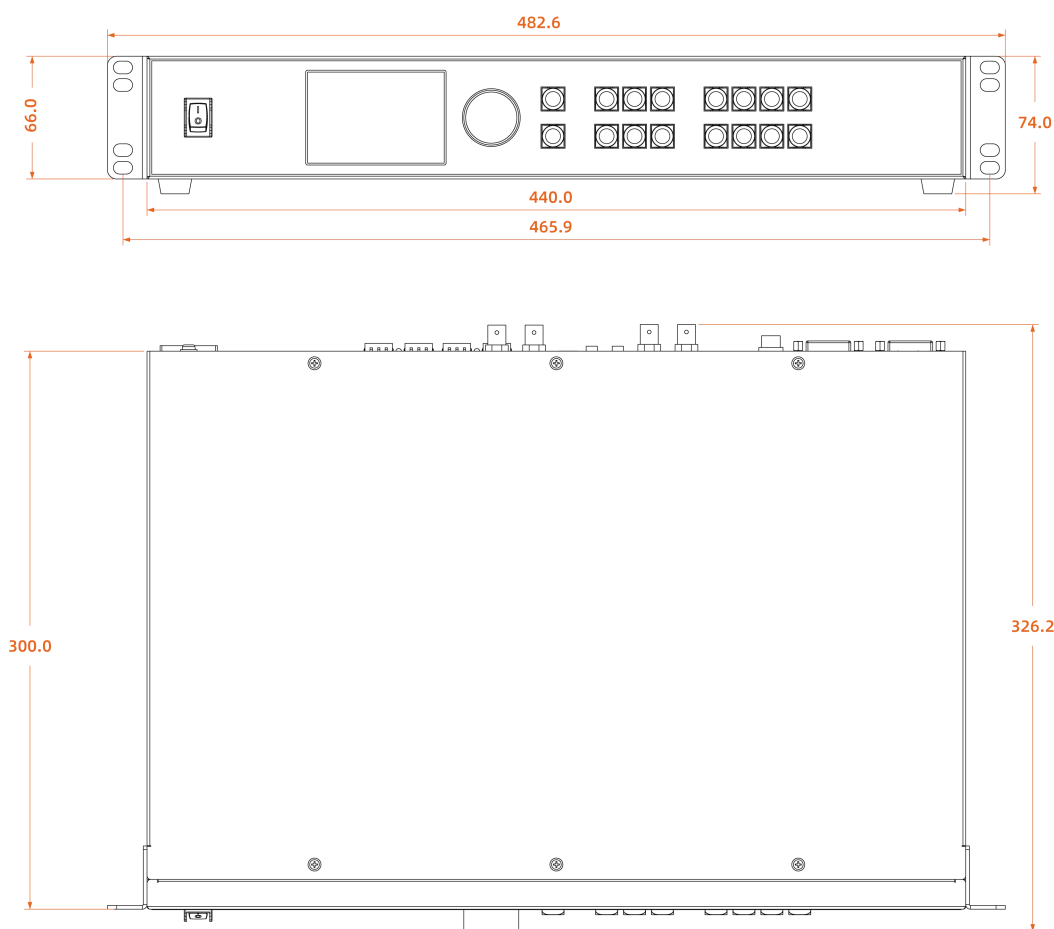
3.2. Rear panel



Type	Interface	Description
Input	HDMI 2.0	<ul style="list-style-type: none"> 1 x HDMI2.0 Support HDCP 2.2 The maximum supported resolution is: 4096× 2160 @60Hz Support custom resolution Maximum width: 8188 Maximum height: 8188 <p>NOTE: Horizontal pixels must be multiples of 4. Including: horizontal total points, horizontal synchronization width, horizontal synchronization leading edge, horizontal synchronization trailing edge, and horizontal effective points.</p>
	DVI 1-4	<ul style="list-style-type: none"> 4 x DVI , VESA standard Support HDCP 1.4 The maximum supported resolution is: 2048 ×1080 @60Hz Support custom resolution Maximum width: 2048 Maximum height: 4096
	3G-SDI	<ul style="list-style-type: none"> 1 x 3G-SDI , supports 3G-SDI, HD-SDI input format, supports loopout Supported resolution: 1920 x 1080p 60/50/24/25/30, 1280 x 720p 60/50 Custom resolution is not supported Interlaced signal input is not supported
	12G-SDI	<ul style="list-style-type: none"> 1 x 12G-SDI (optional), support loopout; Support 12G-SDI, 6G-SDI, 3G-SDI, HD-SDI input format ; The maximum supported resolution is: 4096 x 2160P @ 60Hz ; Custom resolution is not supported Interlaced signal input is not supported
	DP1.2	<ul style="list-style-type: none"> 1 x DP1.2 (optional) Support HDCP 2.2 The maximum supported resolution is: 4096× 2160 @60Hz Support custom resolution Maximum width: 4096 Maximum height: 4096 <p>NOTE: Horizontal pixels must be multiples of 4. Including: horizontal total points, horizontal synchronization width, horizontal synchronization leading edge, horizontal synchronization trailing edge, and horizontal effective points.</p>
Audio	IN	3.5 mm audio interface x1, independent audio input.
	OUT	3.5 mm audio interface x1, independent audio output.
Output	1-20	20 x RJ45, 20 Gigabit network interface outputs, connected to the receiving card.
	OPT1-4	The photoelectric conversion module in the equipment accessories needs to be inserted into the interface, corresponding to the 21-24 network interface.
	HDMI	1 x HDMI , monitors LED display with a resolution of 1920 x 1080 @60Hz.

Type	Interface	Description
Control	ETHERNET 1	Connect to the control PC.
	ETHERNET 2	Connect to other device .
	USB-B	Connect to the control PC.
	USB-A	Reserved interface
Functional	SENSOR 1~2	2-channel sensor interface can be used for brightness and temperature and humidity monitoring.
	3D	Reserved for future, not available right now.
	GENLOCK	Genlock interface.
Power	AC 100-240V	50/60Hz

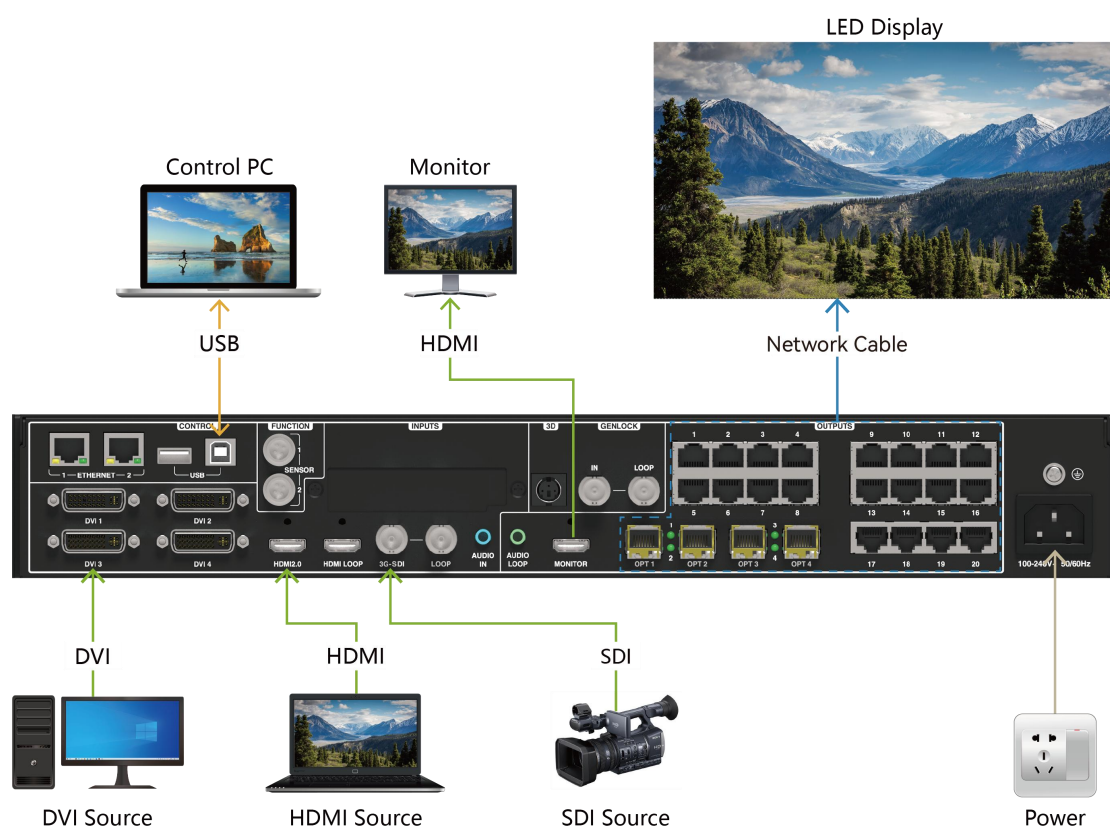
4. Size



5. Specifications

Specification	Description
Electrical	Power supply AC100-240V 50/60Hz
	Power 50W
Physical	Size (L x W x H) 482.6mm x 300mm x 66mm (Excluding foot pads and interfaces)
	Net weight 4.8kg
Packaging	Suitcase 540mm x 390mm x 162mm
	Large carton box 565mm x 405mm x 187mm

6. Application



7. Operation Menu

Through the front button and menu, source switching, brightness adjustment, input settings, output settings, screen control, template control and advance settings can be realized.

Button instructions:

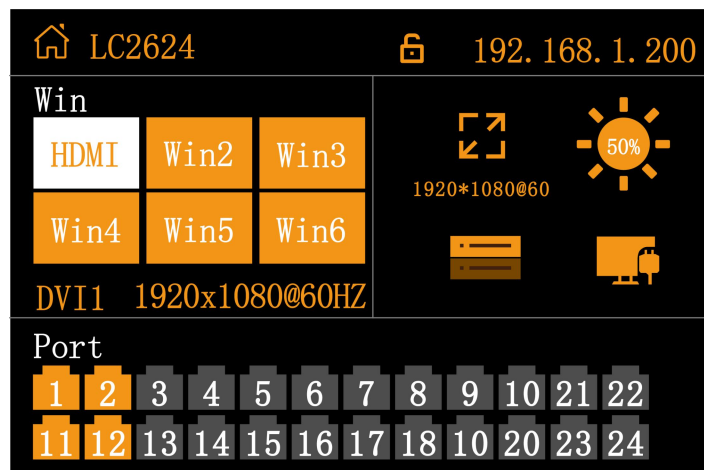
Confirm button:










- In the main page, press the confirm button to enter the menu page;
- In the menu page, rotate the confirm button to select a menu item, and press the confirm button to enter the next level menu or enter the current menu setting state;
- After entering the parameter menu (such as brightness) setting state, rotate the confirm button to adjust the parameters. Press the confirm button to save the parameters and exit the setting state.






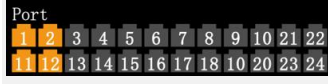


ESC button:

- Press to exit the current operation or return to the previous menu.

7.1. Main Page



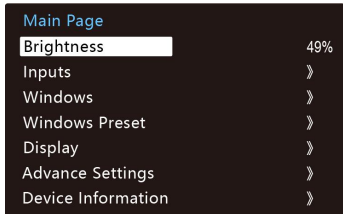
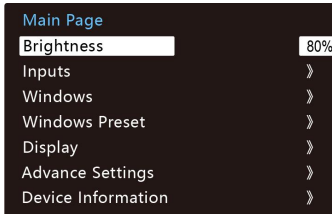
Icon	Description
 LC2624	Product model
192.168.1.200	Default IP
 / 	 : Lock logo, indicating that the button is locked and cannot be operated;  : Unlock logo, indicating that the buttons are unlocked and can operate normally.
	Window and input source status.  : The window is opened and "HDMI" is used as the input source;  : The window is not open;  1920x1080@60HZ: Pressing the corresponding input button will show information whether there is signal access. If not connected, it will display "No Signal". If connected, it will display the signal type and resolution.

Icon	Description
	Output screen resolution.
	Brightness value.
	Control interface connection status  : Connected  : Unconnected
	Network interface connection status.  : Unconnected  : Connected

7.2. Brightness adjustment

1. Press the confirm button to enter the Main Page and select "Brightness";
2. Press the confirm button to enter the setting state, rotate the confirm button to adjust the brightness;
3. Press the confirm button to save the settings.

Example: Adjust brightness from 49% to 80%.

Main Page	Setup completed
	

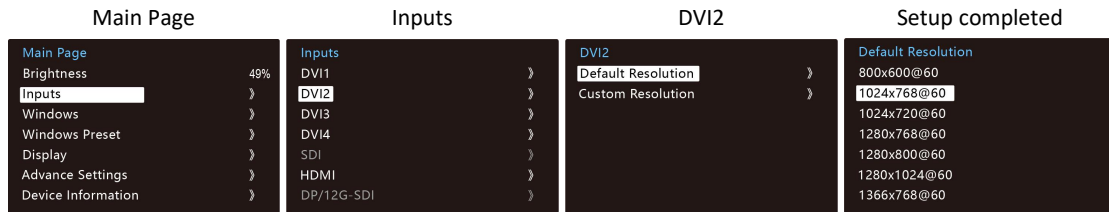
7.3. Input settings

In the "Inputs" menu, you can set the input source resolution. The device provides two methods: Default Resolution and Custom Resolution.

7.3.1. Default Resolution

1. Press the confirm button to enter the Main Page and select "Inputs";
2. Press the confirm button to select the target input source;
3. Press the confirm button and select "Default Resolution";
4. Press the confirm button and select the target resolution ,then press the confirm button again to complete the setting.

Example: Set DVI2 input source resolution to 1024 X 768@60.

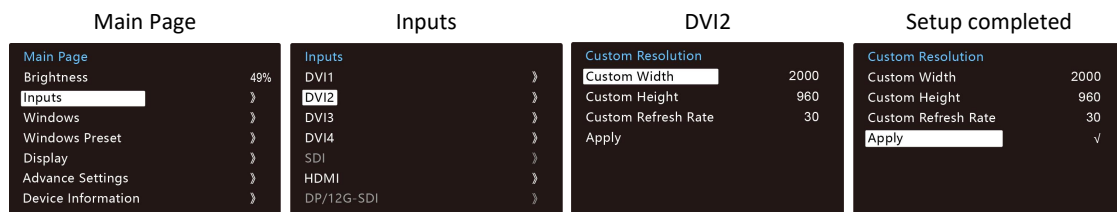


7.3.2. Custom Resolution

If the required resolution is not in the built-in resolution library, you can customize the settings.

1. Press the confirm button to enter the Main Page and select "Inputs";
2. Press the confirm button to select the target input source;
3. Press the confirm button and select "Custom Resolution";
4. Press the confirm button to set "Custom Width", "Custom Height" and "Refresh Rate". After the settings are completed, select "Apply" and press the confirm button to save the settings.

Example: Set DVI2 input source resolution to 2000 X 960@30Hz .



7.4. Window settings

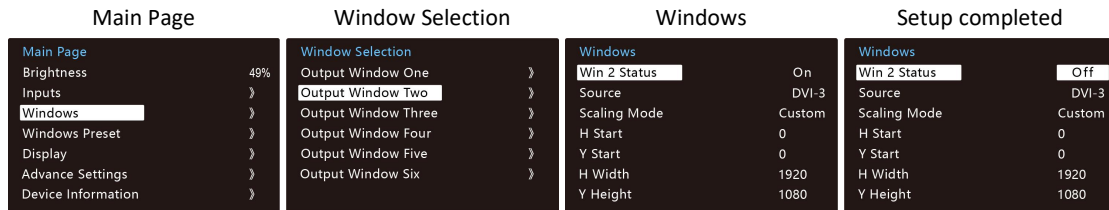
In the "Windows" menu, you can select a specific window for settings, control the opening/closing of the window, switch the window input source, and adjust the window position and scaling mode.

7.4.1. Open/Close window

The device supports opening 6 windows at the same time, and the windows can be opened/closed through the buttons on the front panel.

1. Press the confirm button to enter the Main Page and select "Windows";
2. Press the confirm button to select the target window;
3. Press the confirm button and select "Win 1(2/3/4/5/6) Status";
4. Press the confirm button to enter the setting state, rotate the confirm button to select On/Off , press the confirm button again to save the settings.

Example: Close window 2.



7.4.2. Switch input source

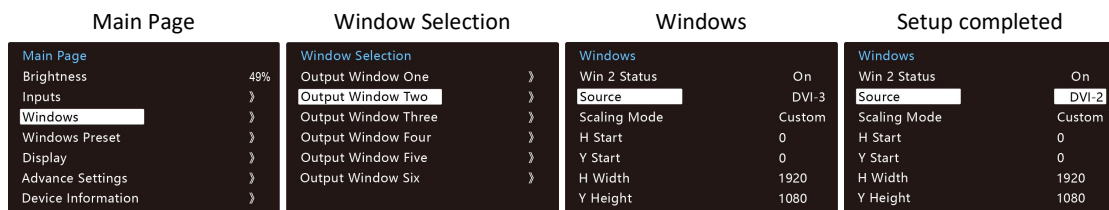
The device provides two input source switching methods:

The first one: Through the input source button in the INPUTS area of the front panel. For details , please refer to——[3.1 Front panel](#) .

Second type: Complete it through the “Windows” menu.

1. Press the confirm button to enter the Main Page and select "Windows";
2. Press the confirm button to select the target window;
3. Press the confirm button and select "Source";
4. Press the confirm button to enter the setting state, rotate the confirm button to select input source , press the confirm button again to save the settings.

Example: Switch the input source of window 2 from DVI3 to DVI2.



7.4.3. Scaling Mode

Window scaling mode can be set, including full screen, pixel-to-pixel and custom.

"Full" mode will zoom the current video source to full screen display.

"PtP" means that the input source is displayed pixel-to-pixel in the window;

"Custom" means that the window size and position can be adjusted as needed.

1. Press the confirm button to enter the Main Page and select "Windows";
2. Press the confirm button to select the target window;
3. Press the confirm button and select "Scaling Mode". You can select different mode according to the display requirements. Here, "Custom" is taken as an example;
4. After selecting the scaling mode, rotate the confirm button to select and set the "H Start", "Y Start", "H Width" and "Y Height" values in sequence , press the confirm button again to save the settings .

Example: Set the scaling mode of Window 2 to Custom, the window position to (600, 400), and the window size to 960*540.

Main Page	Window Selection	Windows	Setup completed
<div> <div>Main Page</div> <div>Brightness49%</div> <div>Inputs></div> <div>Windows></div> <div>Windows Preset></div> <div>Display></div> <div>Advance Settings></div> <div>Device Information></div> </div>	<div> <div>Window Selection</div> <div>Output Window One></div> <div>Output Window Two></div> <div>Output Window Three></div> <div>Output Window Four></div> <div>Output Window Five></div> <div>Output Window Six></div> </div>	<div> <div>Windows</div> <div>Win 2 StatusOn</div> <div>SourceDVI-2</div> <div>Scaling ModeCustom</div> <div>H Start0</div> <div>Y Start0</div> <div>H Width1920</div> <div>Y Height1080</div> </div>	<div> <div>Windows</div> <div>Win 2 StatusOn</div> <div>SourceDVI-2</div> <div>Scaling ModeCustom</div> <div>H Start600</div> <div>Y Start400</div> <div>H Width960</div> <div>Y Height540</div> </div>

Custom window effects:



7.4.4. Input Cropping

Input cropping selects part of the input source and enlarges the selected area to display in the entire window.

Note: 4K input sources do not support cropping.

1. Press the confirm button to enter the Main Page and select "Windows";
2. Press the confirm button to select the target window;
3. Press the confirm button and select "In/Cropping";
4. Press the confirm button to enter the forth-level menu, rotate the confirm button to select and set the "Win/H Start", " Win/Y Start t", " Win/H Width" and " Win/Y Height" values in sequence , press the confirm button again to save the settings .

Example: Set the input cropping of Window 2, the window position is (300, 200), and the window size is 1050 x 760.

The diagram illustrates the layout of the 'Main Page' and its associated windows. The 'Main Page' contains sections for 'Brightness' (49%), 'Inputs', 'Windows' (highlighted), 'Windows Preset', 'Display', 'Advance Settings', and 'Device Information'. The 'Window Selection' window lists 'Output Window One' through 'Output Window Six'. The 'Windows' window shows 'Scaling Mode' (Custom), 'H Start' (0), 'Y Start' (0), 'H Width' (1920), 'Y Height' (1080), 'In/Cropping' (highlighted), and 'Priority' (1). The 'Setup completed' window shows 'Win/H Start' (300), 'Win/Y Start' (200), 'Win/H Width' (1050), and 'Win/Y Height' (760).



input source: 1920 x 1080



window size: 1920 x 1080

7.4.5. Priority

The device supports opening 6 windows at the same time, and the window priority can be adjusted in "Windows" menu. The priority is represented by a number. The larger of the number, the higher of the priority, and the layer will be displayed frontward.

1. Press the confirm button to enter the Main Page and select "Windows";
2. Press the confirm button to select the target window;
3. Press the confirm button and select "Priority" ;
4. Press the confirm button to enter the setting state, rotate the confirm button to set the window priority , press the confirm button again to save the settings .

Example: Set Window 2 priority to 3.

Main Page	Window Selection	Windows	Setup completed
<div> Main Page Brightness 49% Inputs Windows Windows Preset Display Advance Settings Device Information </div>	<div> Window Selection Output Window One Output Window Two Output Window Three Output Window Four Output Window Five Output Window Six </div>	<div> Windows Scaling Mode Custom H Start 0 Y Start 0 H Width 1920 Y Height 1080 In/Cropping Priority 1 </div>	<div> Windows Scaling Mode Custom H Start 0 Y Start 0 H Width 1920 Y Height 1080 In/Cropping Priority 3 </div>

7.5. Windows Preset

The device supports saving the windows layout (including window position, level, signal source and other information) as preset. When necessary, the saved preset can be recalled, saved, loaded and deleted. Supports up to 64 preset.

7.5.1. Save

Once the window layout is configured, it can be saved as a preset. If the preset status is "Existing", save it again to replace previous.

1. Press the confirm button to enter the Main Page and select "Windows Preset";
2. Press the confirm button and select "WIN Preset Number" , set the preset number;
3. Select "Save" and press the confirm button ;
4. Select "Yes" and press the confirm button to save the preset. The preset status displays "Saved".

Example: Save the preset with the preset number set to 3.

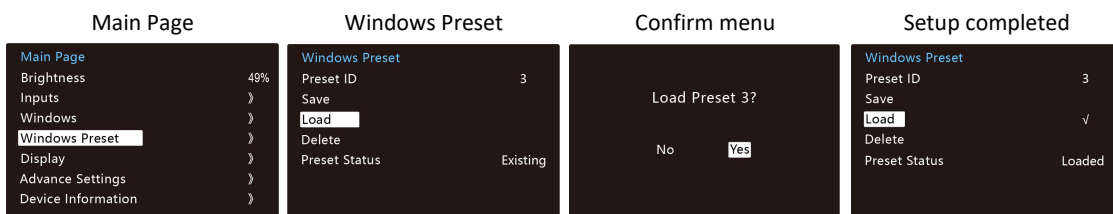
Main Page	Windows Preset	Confirm menu	Setup completed
<div> Main Page Brightness 49% Inputs Windows Windows Preset Display Advance Settings Device Information </div>	<div> Windows Preset Preset ID 3 Save Load Delete Preset Status Blank </div>	<div> Save Preset 3? No Yes </div>	<div> Windows Preset Preset ID 3 Save ✓ Load Delete Preset Status Saved </div>

7.5.2. Load

Preset loading is to apply the saved preset to the LED display.

1. Press the confirm button to enter the Main Page and select "Windows Preset";
2. Press the confirm button, select "WIN Preset Number", and select the preset whose preset status is "Existing";
3. Select "Load" and press the confirm button ;
4. Select "Yes" and press the confirm button to load the preset. The preset status displays "Loaded".

Example: Load the preset with preset number 3.

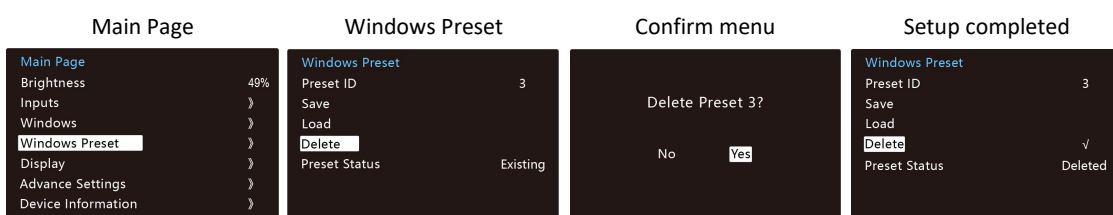


7.5.3. Delete

For presets that are no longer needed, you can clear the preset content. The preset number will not be cleared. After deletion, the preset status becomes "Blank".

1. Press the confirm button to enter the Main Page and select "Windows Preset";
2. Press the confirm button, select "WIN Preset Number", and select the preset whose preset status is "Existing";
3. Select "Delete" and press the confirm button ;
4. Select "Yes" and press the confirm button to delete the preset. The preset status displays "Deleted".

Example: Delete the preset with preset number 3.

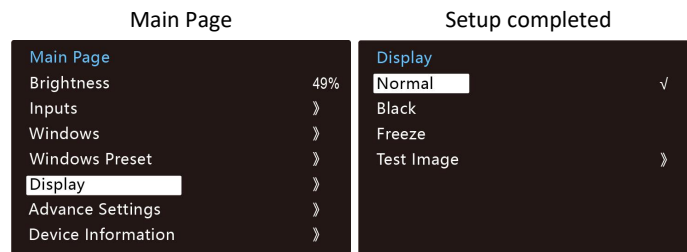


7.6. Display control

In the "Display" menu, you can control the LED display.

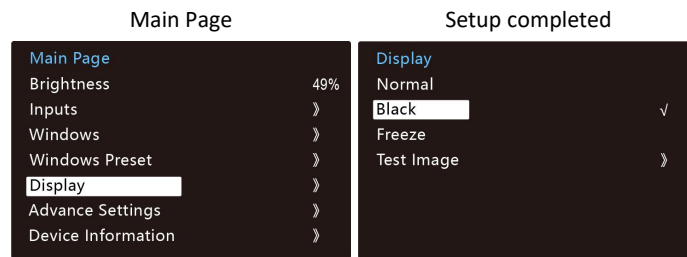
1. Press the confirm button to enter the Main Page and select "Display";
2. Press the confirm button and select the required function item to set.

Items	Description
Normal	Display the video source screen normally.
Black	The LED screen changes to a black screen display.
Freeze	The LED screen displays the last frame of the video source.
Test Image	The test image can be displayed on the LED screen to test the display effect. There are 14 built-in test images for users to choose from.



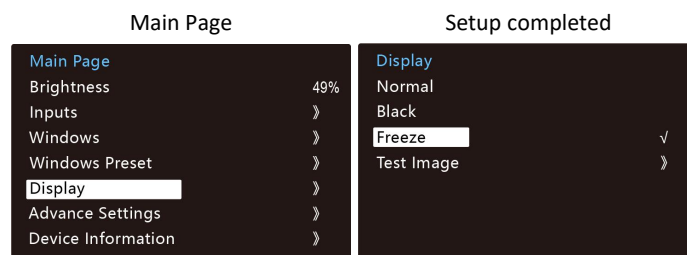
7.6.1. Black

Set to "Black", the LED screen displays a black screen.



7.6.2. Freeze

Set to "Freeze", the LED screen displays the last frame of the video source.



7.6.3. Test Image

You can use the test image to test the LED screen display effect.

Example: Set the test image to "Red".



7.7. Advance Settings

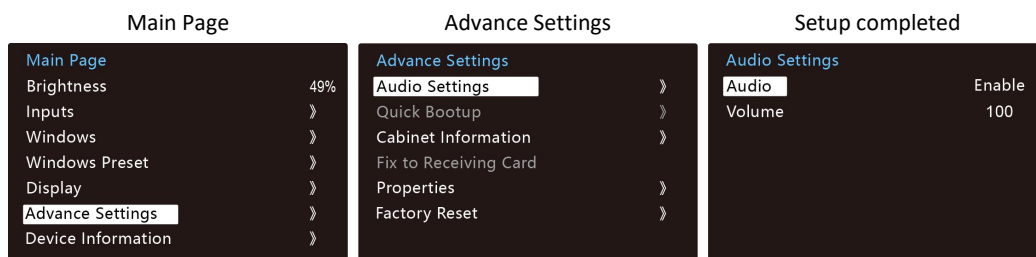
Advance settings include audio settings, loading cabinet configuration files, fix to receiving card, advanced property settings and restoring factory settings.

7.7.1. Audio settings

The audio can be turned enable or disable , the volume can be set.

1. Press the confirm button to enter the Main Page and select "Advance Settings";
2. Press the confirm button and select "Audio Settings";
3. Press the confirm button to enter the third-level menu, select "Audio" to enable/disable audio; select "Volume" to adjust the volume ;
4. After the settings are completed, press the confirm button to save the settings.

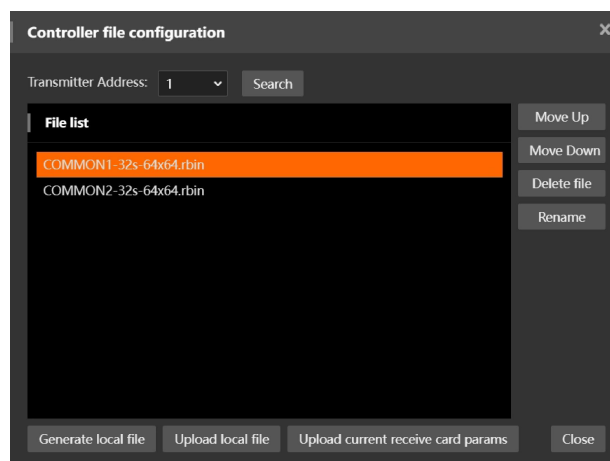
Example: Audio enabled, volume set to 100.



7.7.2. Cabinet Information

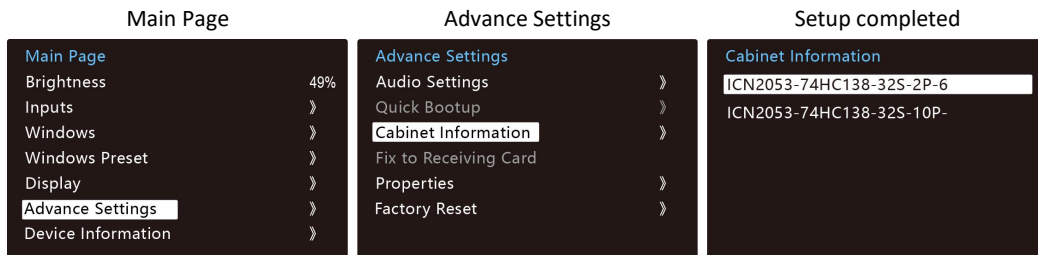
LED cabinet can be configured by loading the cabinet configuration file so that the cabinet can light up normally.

1. Use the control cable to connect the control PC and the device, open the configuration software, click "Screen Configuration" → Select the corresponding control device → "Receiving Card" → "Controller File Config", open the configuration window, and then click "Upload local file" button to upload the controller file in the control PC to the device, or click the "Upload current receive card params" button to save the current software configuration parameters as a controller file and upload it to the device;



2. Press the confirm button to enter the Main Page and select "Advance Settings";

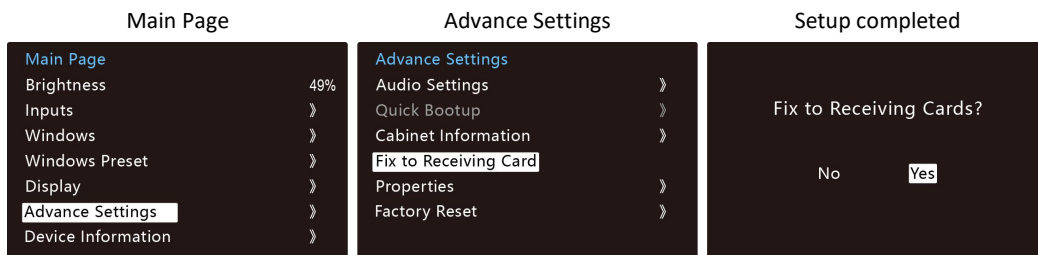
3. Press the confirm button to enter the secondary menu and select "Cabinet Information";
4. Press the confirm button to enter the third-level menu , select the controller file to be imported, and press the confirm button again to load the file.



7.7.3. Fix to receiving card

LED screen displays normally after loading the cabinet configuration file , you can fix this parameter to the receiving card.

1. Press the confirm button to enter the Main Page and select "Advance Settings";
2. Press the confirm button and select "Fix To Receiving Card";
3. Press the confirm button to enter the third-level menu, select "Yes", and press the confirm button again to fix the parameters to the receiving card.



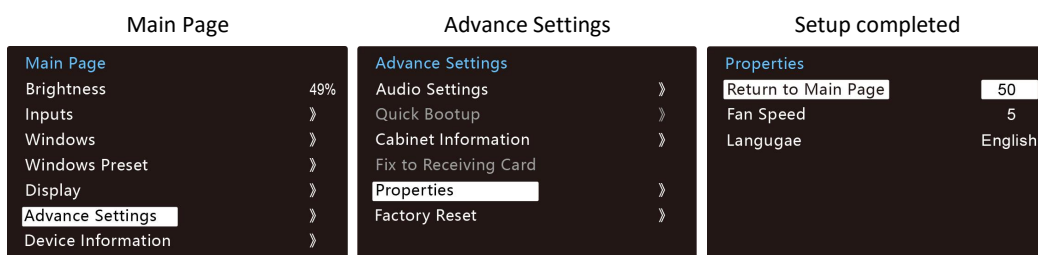
7.7.4. Properties

7.7.4.1. Return to Main Page

When the time spent without any operation on the menu interface exceeds the "Return to Main Page", the device will automatically return to the main page.

1. Press the confirm button to enter the Main Page and select "Advance Settings";
2. Press the confirm button and select " Properties";
3. Press the confirm button, select " Return to Main Page " and set the time. press the confirm button again to save the settings.

Example: Adjust the "Return to Main Page" value to 50s.

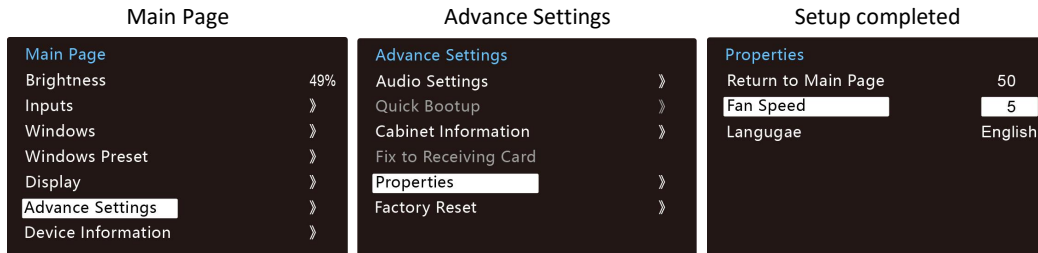


7.7.4.2. Fan Speed

The device supports cooling fan speed adjustment, and different speed levels can be selected according to the environment.

1. Press the confirm button to enter the Main Page and select "Advance Settings";
2. Press the confirm button and select "Properties";
3. Press the confirm button, select "Fan speed" and set the speed level, press the confirm button again to save the settings.

Example: Set the Fan speed level to 5.

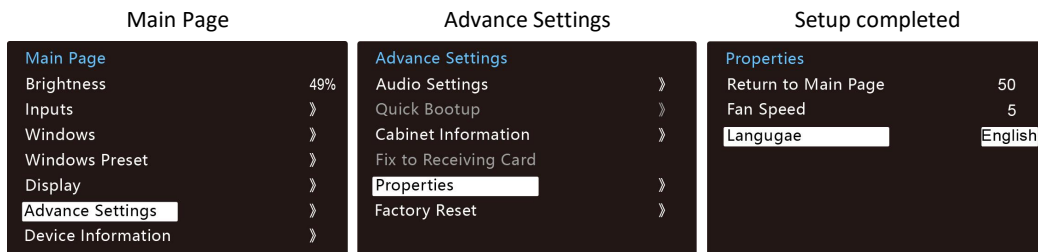


7.7.4.3. Language

The device supports two languages : English and Chinese . Users can switch language as needed .

1. Press the confirm button to enter the Main Page and select "Advance Settings";
2. Press the confirm button and select "Properties";
3. Press the confirm button, select "Language" and set the language, press the confirm button again to save the settings.

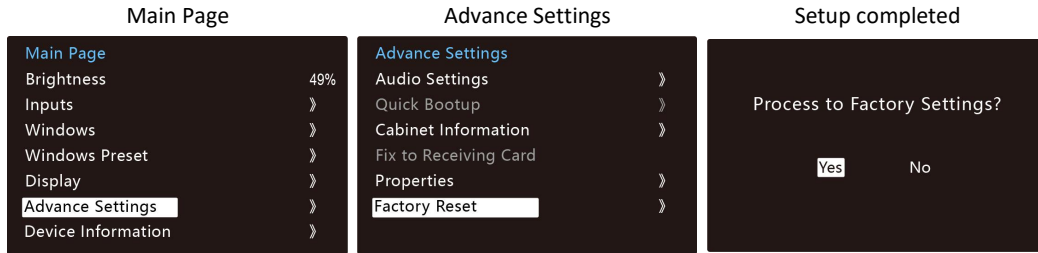
Example: Set the language to English.



7.7.5. Factory Reset

The device supports restoring factory settings.

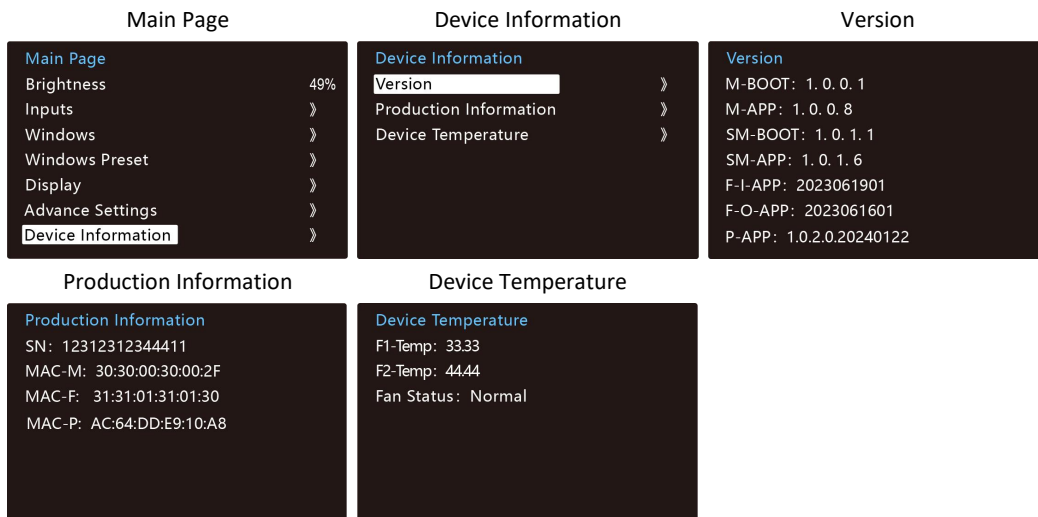
1. Press the confirm button to enter the Main Page and select "Advance Settings";
2. Press the confirm button and select "Factory Reset";
3. Press the confirm button, select "Yes", and press the confirm button again to restore the device to factory settings.



7.8. Device Information

Users can view device information through the front panel, including version, production data, and device temperature.

1. Press the confirm button to enter the Main Page and select "Device Information";
2. Press the confirm button to select "Version", "Production Data" or "Device Temperature";
3. Press the confirm button to enter the third-level menu to view the selected item.

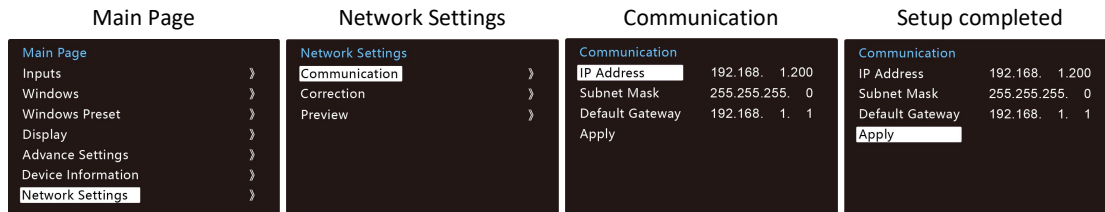


7.9. Network settings

7.9.1. Communication network

The device supports local IP modification. When modifying, you need to ensure that the device and the control computer are in the same network segment, and the device IP address and the control computer IP address cannot conflict.

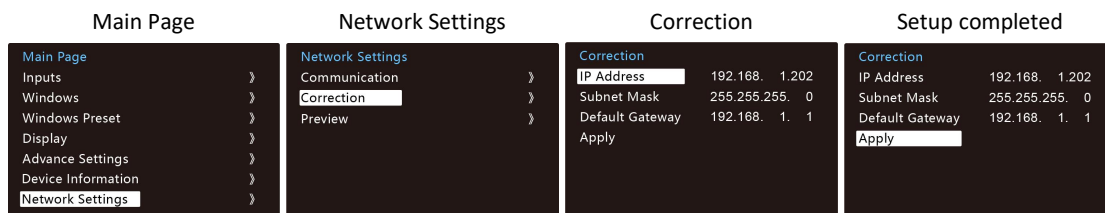
1. Press the confirm button to enter the Main Page and select "Network Settings";
2. Press the confirm button and select "Communication";
3. Press the confirm button to enter the third-level menu, where you can modify the IP address, mask and gateway;
4. After the modification is completed, select "Apply" and press the confirm button to confirm the modification.



7.9.2. Correction network

This IP address is used to send the receiving card calibration parameters to the device for calibration of the receiving card. It is necessary to ensure that there is no conflict between this IP address and the device IP address.

1. Press the confirm button to enter the Main Page and select "Network Settings";
2. Press the confirm button and select "Correction";
3. Press the confirm button to enter the third-level menu, where you can modify the IP address, mask and gateway;
4. After the modification is completed, select "Apply" and press the confirm button to confirm the modification.



7.9.3. Preview network

If the device is installed with a pre monitoring sub card, the IP information of the pre monitoring sub card can be modified. It is necessary to ensure that there is no conflict between this IP address and the device IP address.

1. Press the confirm button to enter the Main Page and select "Network Settings";
2. Press the confirm button and select "Preview";
3. Press the confirm button to enter the third-level menu, where you can modify the IP address, mask and gateway;
4. After the modification is completed, select "Apply" and press the confirm button to confirm the modification.

