



Full-Color LED Display Controller

User Manual

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This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

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Industry Canada ICES-003 Compliance

This device meets the CAN ICES-3 (A)/NMB-3(A) standards requirements.

Preface

Applicable Models

This guide is applicable to full-color LED display controller.

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
 Danger	Indicates a hazardous situation which, if not avoided, will or could result in death or serious injury.
 Caution	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
 Note	Provides additional information to emphasize or supplement important points of the main text.

Safety Instruction

- Proper configuration of all passwords and other security settings is the responsibility of the installer and/or end-user.
- In the use of the product, you must be in strict compliance with the electrical safety regulations of the nation and region. Please refer to technical specifications for detailed information.
- Input voltage should meet both the SELV (Safety Extra Low Voltage) and the Limited Power Source with 100~240 VAC according to the IEC60950-1 standard. Please refer to technical specifications for detailed information.
- Do not connect several devices to one power adapter as adapter overload may cause overheating or a fire hazard.
- Please make sure that the plug is firmly connected to the power socket.
- If smoke, odor or noise rise from the device, turn off the power at once and unplug the power cable, and then please contact the service center.

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Chapter 1 Product Introduction

1.1 Overview

LED Full-Color Display Controller can be used with the full-color display units to achieve the seamless jointing of the video wall in any dimensions. It is applicable to the meeting rooms, studio, gym, airport, bank, advertisement, family cinema, etc.

1.2 Main Features

Basic Features

- Multi-signal interface: 6 channels of video signal input/output (2 channels of HDMI2.0 and 4 channels of DVI)); 1 channel of HDMI1.4 preview output
- 3D synchronization interface: 3D output available
- 24 network ports providing the load capability of up to 13.27 million pixels
- HDR output: Enhance the quality of the display, making the picture more realistic and vivid
- Multi-window display: Arbitrary layout of 9 windows, including 6 signal source windows and 3 graphic windows; arbitrary switching, cropping, splicing, and scaling of video signals
- Pre-monitor output screen: Send the monitoring content to the display via HDMI
- Self-splicing display: Multiple sending cards can realize a larger screen splicing display through self-splicing (maximum 8 sending cards can be cascaded) to ensure that each sending card is displayed simultaneously
- Scene presets: Up to 10 user scenes can be created and saved as templates, which can be directly recalled for easy use
- EDID settings: High-bandwidth digital content protection technology supporting HDCP 2.2 protocol

1.3 Physical Interface

Front Panel

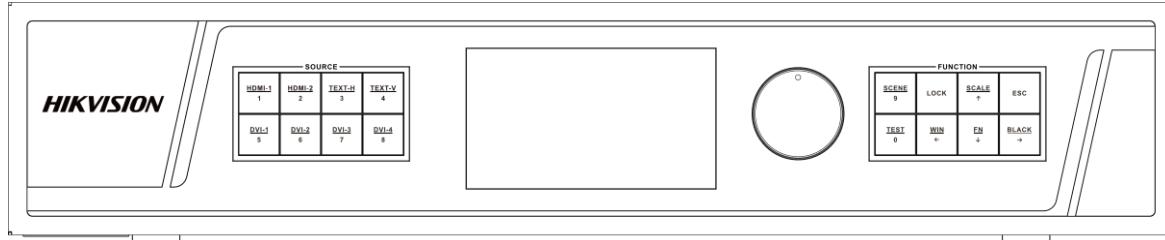


Figure 1-1 Front Panel Interface

Table 1-1 Interface Description of Front Panel

Indicator	Description	Indicator	Description
HDMI-1	HDMI signal input channel 1	HDMI-2	HDMI signal input channel 2
TEXT-H	Graphic clock or subtitle signal source (horizontal)	TEXT-V	Graphic clock or subtitle signal source (vertical)
DVI-1	DVI signal input channel 1	DVI-2	DVI signal input channel 2
DVI-3	DVI signal input channel 3	DVI-4	DVI signal input channel 4
SCENE	Scene selection	LOCK	Lock all buttons to avoid accidental touched.
SCALE	Full-screen zoom function of the bottom window	ESC	<ul style="list-style-type: none"> Long press: Unlock menu Press: Back to previous page or cancel operation
TEST	Press to set test image	WIN	Press to call window layout interface
FN	Press to custom function	BLACK	Black screen
LCD Panel	Display the current status of the device and set menu parameters.	Knob	<p>Non-menu mode: Rotate to adjust brightness</p> <p>Menu mode: Rotate to select menu items. Press to confirm or enter the next menu</p>

Note

- The indicator shows the working status of the input signal source.
 - Off: Input source is not enabled.
 - On: Input source is enabled with signal accessed.
 - Blink: Input source is enabled with no signal accessed.
- Number subscript is used to enter or switch numbers.
- The knob can be used for connection.

Rear Panel

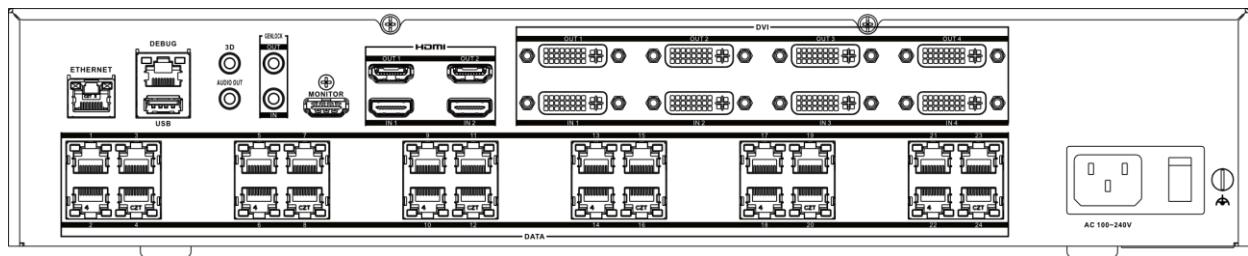


Figure 1-2 Rear Panel Interface

Table 1-2 Interface Description of Rear Panel

Interface	Description	Interface	Description
ETHERNET	Ethernet signal input/output	DEBUG	Debug interface
USB	USB interface	3D	3D synchronized signal output
AUDIO OUT	Audio output	GENLOCK OUT/IN	Self-splicing synchronized signal input/output
MONITOR	HDMI pre-monitor output	HDMI OUT 1/IN 1	HDMI signal output/input 1
HDMI OUT 2/IN 2	HDMI signal output/input 2	DVI OUT 1/IN 1	DVI signal output/input 1
DVI OUT 2/IN 2	DVI signal output/input 2	DVI OUT 3/IN 3	DVI signal output/input 3
DVI OUT 4/IN 4	DVI signal output/input 4	DATA 1~24	24 network interface output
AC 100~240V	Power interface	Switch	Power switch

Chapter 2 Device Activation and Login

2.1 Activate the Device

The client can only control the screen when it is used in conjunction with the sending card. Please activate the corresponding sending card in the client first when using it for the first time.

Before You Start

- The client software has been installed correctly.
- PC and the device are in the same LAN.

Steps

1. Run the client .

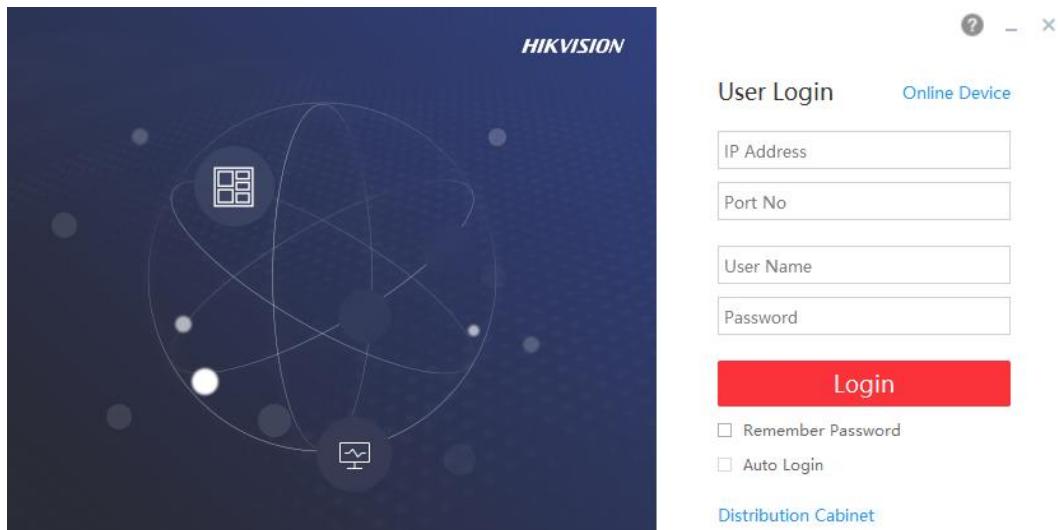


Figure 2-1 Client Interface

2. Click **Online Device** to show all online devices in the current network segment.

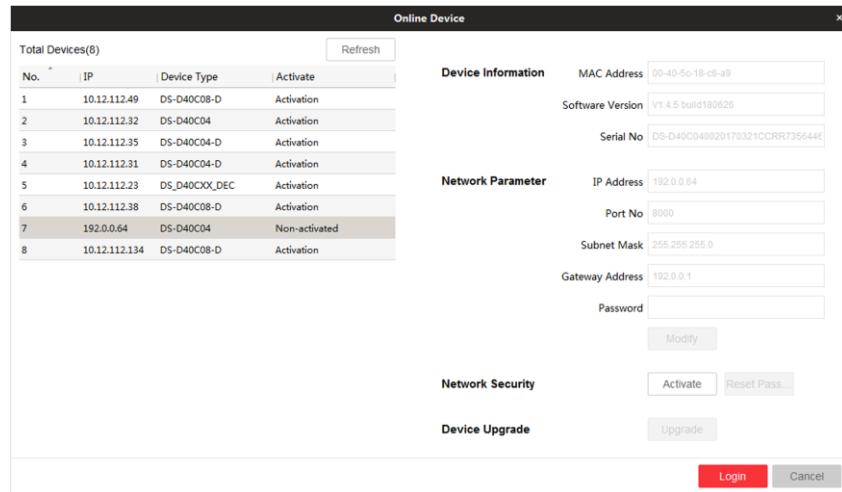


Figure 2-2 Activate Online Device

3. Select the device to be activated and click **Activate**.
4. Enter **Password** and **Confirm Password** in the popup window.

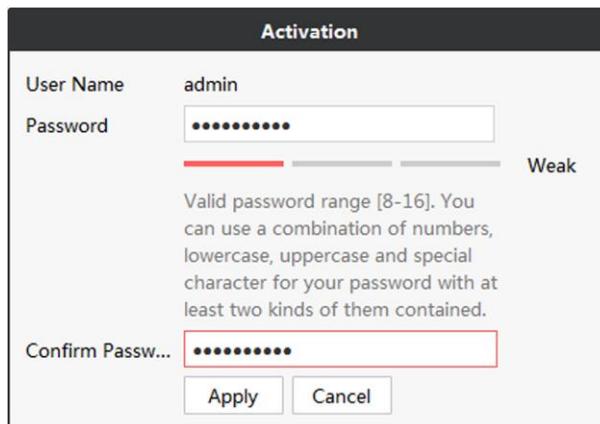


Figure 2-3 Activation

5. Click **Apply** to activate the device.
6. Select the activated device in Online Device interface. Modify network parameters and enter **Password**. Click **Modify** to save the modifications.



If the network segment which device connected has DHCP function, it will allocate IP by default, please skip step 6.

2.2 Add Power Distribution Cabinet (Optional)

You can add a power distribution cabinet as needed. The client can turn on/off the screen

remotely after adding the power distribution cabinet.

Steps

1. Run the client.
2. Click  on the right side of **Distribution Cabinet**.

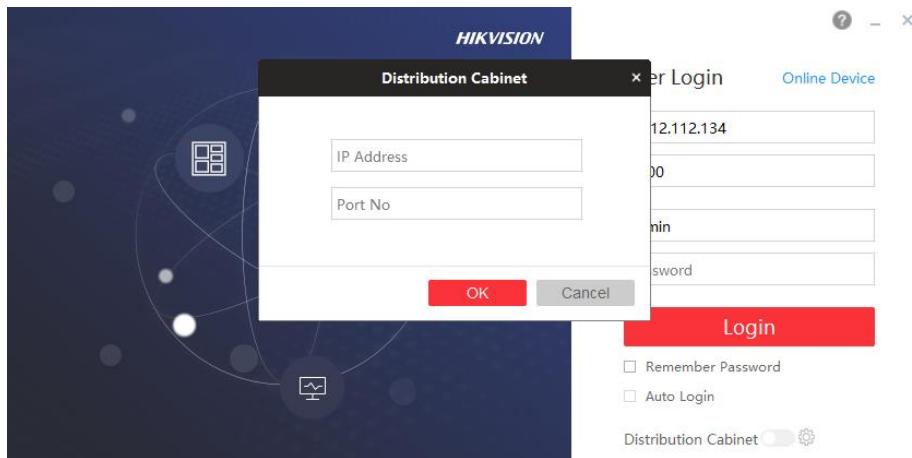


Figure 2-4 Login

3. Enter IP and port No. of power distribution cabinet.
4. Click **OK**.
5. Enable **Distribution Cabinet** to control the screen.

2.3 Login

Before any operation, you need to log into the LED client server.

Steps

1. Run the client to enter the login interface.
2. Enter **IP Address**, **User Name**, and **Password**.
3. Click **Login**.
4. Optional: Check **remember password** to remember the login password, so there is no need to enter password for the next login.
5. Optional: Check **Auto Login** to Log into the client automatically.
6. Optional: Click  on the upper right corner of the page to select language.

Chapter 3 Client Configuration and Operation

3.1 Wizard

For the first login, the client will pop up a wizard. Set the parameters as needed, and the client can recognize the screen parameters automatically when you log in the next time.

3.1.1 Display Attribute Configuration

You can configure some basic parameters in the display attribute window, such as screen type, screen scale, screen resolution and other parameters.

Screen Configuration

Configure screen scale, screen type, screen resolution and other parameters. Configure the screen resolution to match the display screen with the actual screen resolution, reducing the risk of incomplete display or partial black screen.

The screenshot shows a configuration window for display attributes. It includes the following fields:

- Screen Scale:** A row with two input fields: '6' and '4', with an asterisk (*) between them.
- Screen Type:** A row with a search input field 'Search...', a magnifying glass icon, and three buttons: 'Load from Screen', 'Load From Cloud', and 'Cure Parameter'.
- Screen Resolution:** A dropdown menu set to 'Custom Resolution'.
- Custom Screen Resolution:** A row with two input fields: '3840' and '2160', with an asterisk (*) between them.

Figure 3-1 Display Attributes

Screen Scale

Set rows and columns of the screen according to the actual situation. Each screen contains 2 receiving cards.

Screen Type

Select it according to the screen type and material number. Or click **Load from Screen/Load from Cloud** to select the screen type and material number.



After selecting **Load from Cloud**, you can enter keyword based on the cabinet model to pull the screen type automatically. For example, enter 13 in input box for P1.3.

Cure Parameters

Save parameters in the receiving card to ensure your screen displays properly after next reboot.

Screen Resolution

Select the appropriate resolution. Support custom resolution.

Custom Resolution

If there is no appropriate resolution in **Screen Resolution**, select **Custom Resolution**, and enter resolution in **Custom Screen Resolution**.



The width of the custom resolution should be a multiple of 4.

What to do next

Click **Next** and configure signal cable.

3.1.2 Configure Signal Cable

Configure signal cable according to the actual receiving card connection between LED cabinets.

Steps



After configuring the screen scale, LED screen will show the signal cable connection. The connection of client signal cables must match the screen connection.

1. Go to the Signal Cable Configuration interface.
 - Click **Next** in the Display Attribute interface.
 - Click **Basic Configuration** → **Signal Cable Configuration**.
2. Check **Display Actual Lines on Screen**. You need to connect the cable according to the position prompt on the screen.
3. Select sending port below **Please select sending port to connect**.



- The location prompt of each screen will indicate you to connect the signal cable. If the position prompt is **2-1**, the screen is the first screen to connect to No.2 sending port.
- Signal cable connection should be the same as the screen connection.

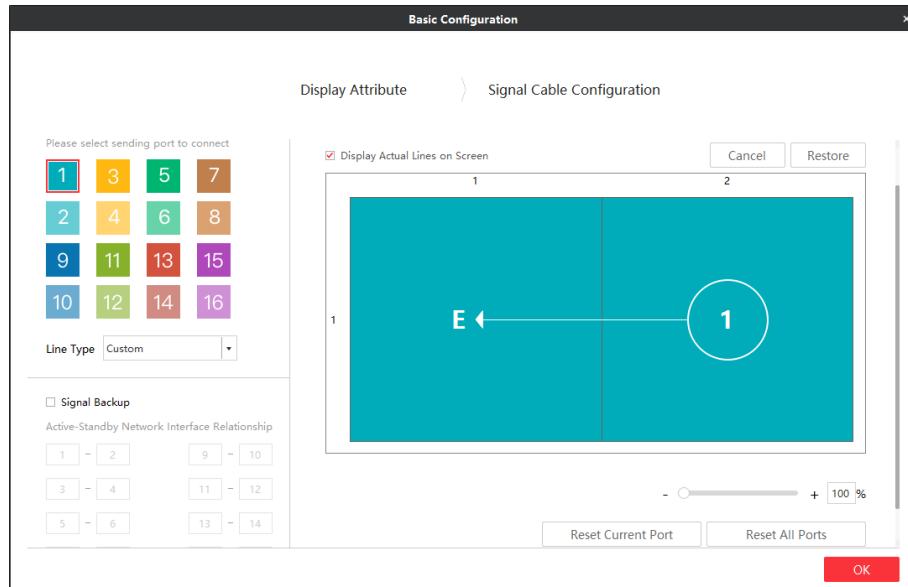


Figure 3-2 Signal Cable Configuration

4. Connect signal line.
 - Click the screen on the right side of the interface to connect signal line.
 - Select **Line Type**, and select starting port and end port on the right side of the interface.
5. Right-click on the right side of the interface after connection.
6. Select **Complete Signal Cable Connection**.
7. Click **Save**.

Port configuration information set. will pop up after the signal cable is connected.

Other Operation

Supports some auxiliary operations to complete the signal cable connection.

Sending Port

Port of sending card is applied to communicate between sending card and receiving card. The receiving card connected by signal sending port is Card1, the receiving card connected to the first sending card is Card2, and so on.

Cancel

Cancel last operation.

Restore

Resume last operation.

Reset Current Port

Cancel all settings of current signal sending port.

Reset All Ports

Cancel settings of all signal sending ports.

Signal Backup

Input signals by two channels to ensure signal stability.



If Signal Backup checked, the relation between the main and sub ports should be the same as that of the client.

3.2 Signal Input Type Configuration

Select the signal source type in the upper right corner of **Display Status**. You should select the signal source according to the sending card resolution.



Different signal source may result in different resolution.

3.3 Display Adjustment

Screen can get best display effects by configuring image parameters, brightness and enhancement, screen display parameters, etc.

3.3.1 Correct Screen/Seam

You can correct screen and seam manually or in a batch to deliver better LED display effects.

Correct Screen Manually

Correct display parameters of LED screens to achieve the same display effects.

Steps

1. Click **Screen Adjustment** → **Advanced Operation** → **Correction** → **Manual Correction** .

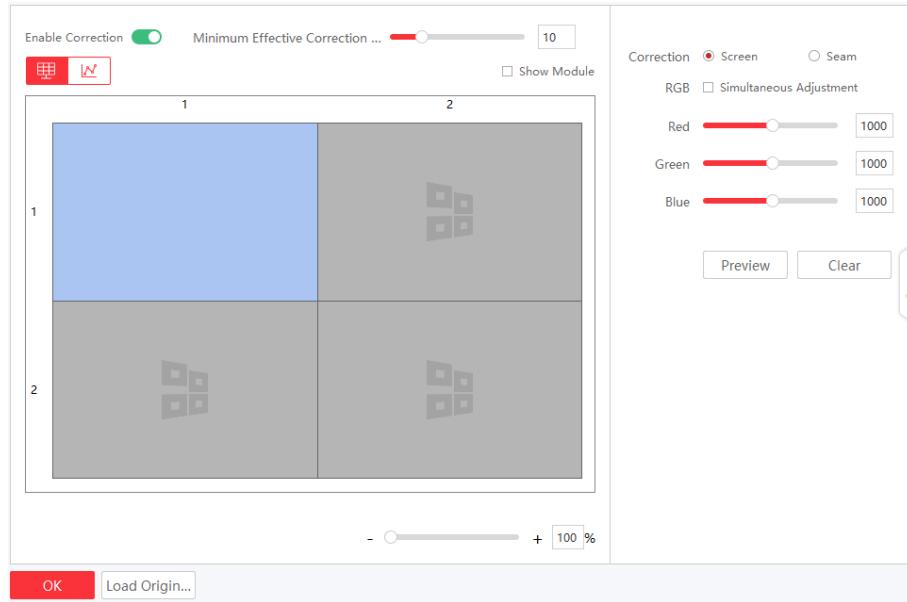


Figure 3-3 Correct Screen Manually

2. Select **Enable Correction**.
3. Select **Screen** in **Correction**. Drag the bar of **Minimum Effective Correction Value** and the data greater than the set value can be corrected.
4. Select area to correct.
 - Check **Show Module** and select the module to correct.
 - Uncheck **Show Module** and select the screen to correct.
5. Correct the whole screen or correct the selected area of the screen.
 - Correct the whole screen: click  and select the desired screen.

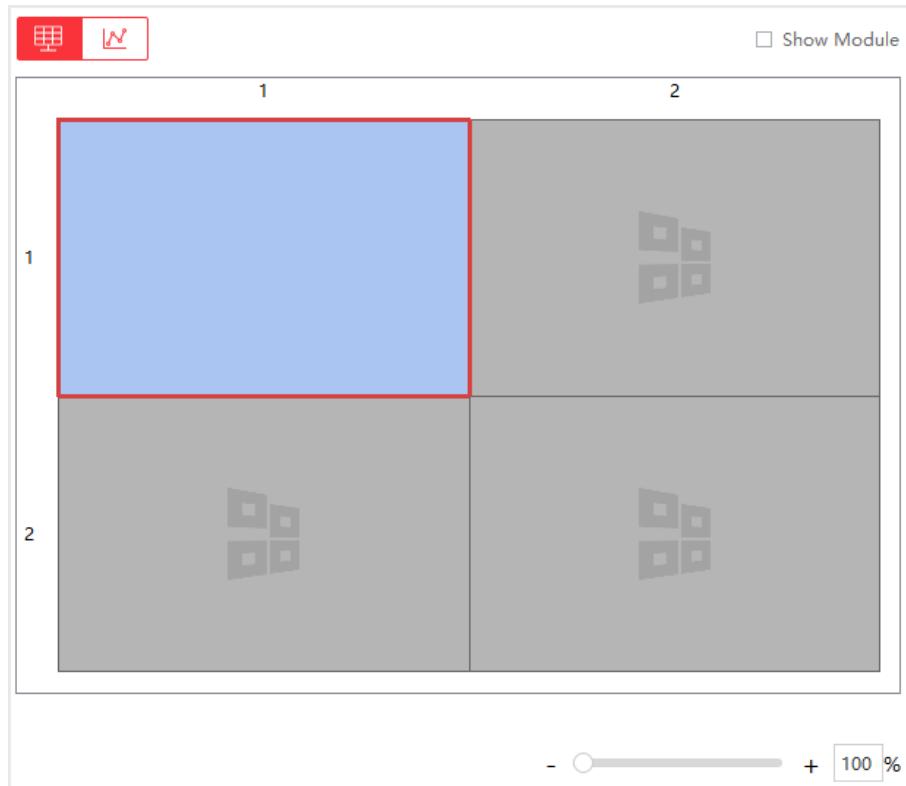


Figure 3-4 Correct the Whole Screen

- Correct the selected area of the screen: click , and input the start coordinate and end coordinate of the desired area.

<input checked="" type="checkbox"/> No.	Start Coordinate	End Coordinate
<input checked="" type="checkbox"/> 1	1,1	384,216
<input checked="" type="checkbox"/> 2	385,1	768,216
<input checked="" type="checkbox"/> 3	1,217	384,432
<input checked="" type="checkbox"/> 4	385,217	768,432

Figure 3-5 Correct the Area of the Screen

6. Adjust RGB value.

- Drag the bars.
- Enter numbers in the text boxes.



- You can check **Simultaneous Adjustment** to adjust RGB simultaneously.
- The number ranges from 800 to 1200, and the default value is 1000.

7. Click **Preview** or press **Enter** to check the effects.

Clear Reset all parameters if needed.

Load Original Data Load original correction data.



Note

The function may vary with models. The parameters will not be displayed when the function not supported.

8. Click **Apply**.

Correct Seam Manually

Steps

1. Click **Screen Adjustment** → **Advanced Operation** → **Correction** → **Manual Correction**.

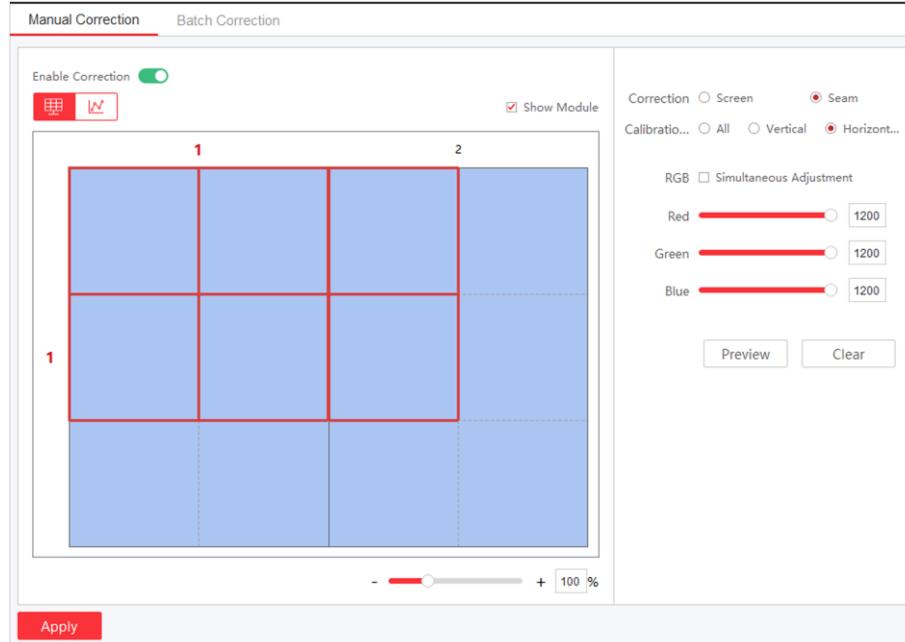


Figure 3-6 Correct Seam Manually

2. Select **Enable Correction**.

3. Select **Seam** in **Correction**.

4. Select **Calibration Range**.

All

Correct all seams.

Vertical Line

Correct all vertical seams.

Horizontal Line

Correct all horizontal seams.

5. Select area to correct.

- Check **Show Module** and select the module to correct.
- Uncheck **Show Module** and select the screen to correct.

6. Drag the bar to adjust **Seam Width**.



The seam width ranges from 1 to 10.

7. Adjust RGB value.

- Drag the bars.
- Enter numbers in the text boxes.



- You can check **Simultaneous Adjustment** to adjust RGB simultaneously.
- The number ranges from 800 to 1200, and the default value is 1000.

8. Click **Preview** to check the effects.

9. Click **Apply**.

Batch Correct Screen

You can correct screen display in a batch by importing correction file.

Before You Start

- The correction file has been obtained from the supplier.
- Select a screen as the start of the batch correction in the **Manual Correction**.

Steps

1. Click **Screen Adjustment** → **Advanced Operation** → **Correction** → **Batch Correction**.

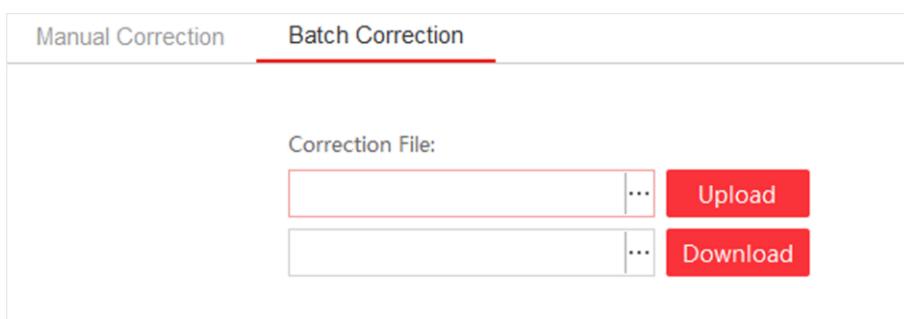


Figure 3-7 Batch Correction

2. Click **...** to select correction file.

3. Click **Upload**. The screens/seams will be corrected based on the uploaded file.

Operation	Description
Download	Download the correction file as the backup files. You can also upload this correction file to correct other devices.

Advanced Correction

Part of devices support to enable advanced correction.

Before You Start

The device support advanced correction.

Steps

1. Click **Screen Adjustment** → **Advanced Operation** → **Correction** → **Advanced Correction** .
2. Select area to correct.
 - Check **Show Module** and select the module to correct.
 - Uncheck **Show Module** and select the screen to correct.
3. Enable full-screen color gamut, lamp board color gamut and lamp board white balance according to actual needs.
4. Optional: Click **Clear** to restore all correction data.

3.3.2 Configure Screen Color

You can adjust color temperature and color standard as needed.

Before You Start

Connect the signal source to the device before configuring the image contrast and saturation.

Steps

1. Go to **Screen Adjustment** → **Basic Control** → **Image Adjustment**.

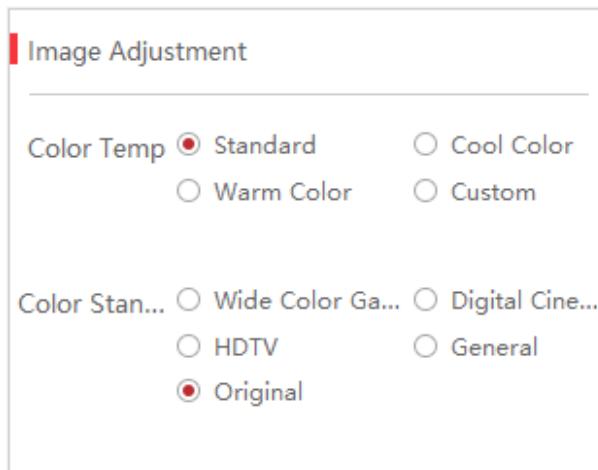


Figure 3-8 Image Adjustment

2. Select **Color Temperature** .

3. Select Color Standard.

Wide Color Gamut

Applicable to UHD (Ultra High Definition) devices.

Digital Cinema

Applicable to digital cinemas and high-end displays.

HDTV

Applicable to HDTV(High Definition Television) and other common video devices.

General

Applicable to general displays.

Original

Restore to the original color.

3.3.3 Configure Brightness

Configure LED screen brightness.

Steps

1. Click **Screen Adjustment** → **Basic Control** → **Basic Configuration**.

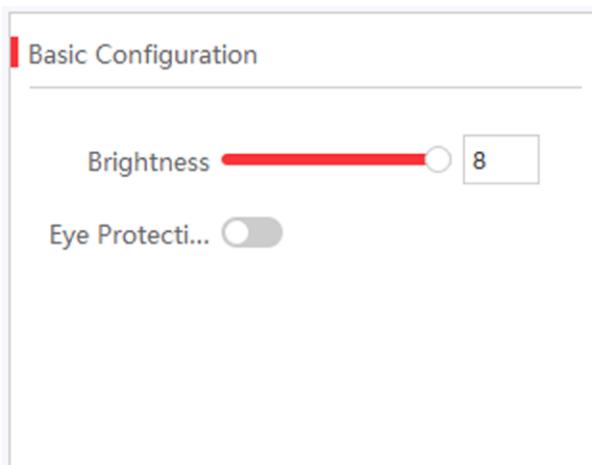


Figure 3-9 Brightness Adjustment

2. Adjust the brightness. Brightness ranges from 1 to 100.

- Slide the slider.
- Enter numbers in the text box.

Brightness

Brightness is a photometric measure of the luminous intensity per unit area of light traveling in a given direction. It describes the amount of light that passes through, is emitted or reflected from a particular area, and falls within a given solid angle. The SI unit for luminance is candela per square meter (cd/m²).



If the device has configured multi-functional card, you can check **Auto** to enable auto brightness adjustment.

3. Enable **Eye Protection Mode** as needed.

3.3.4 Input Capability

You can enable 4K signal input, 3D video processing, input signal auto detection, and resolution self-adaption, and select input format as needed.

Steps

1. Click **Screen Management** → **Advanced Operation** → **Input Capability**.

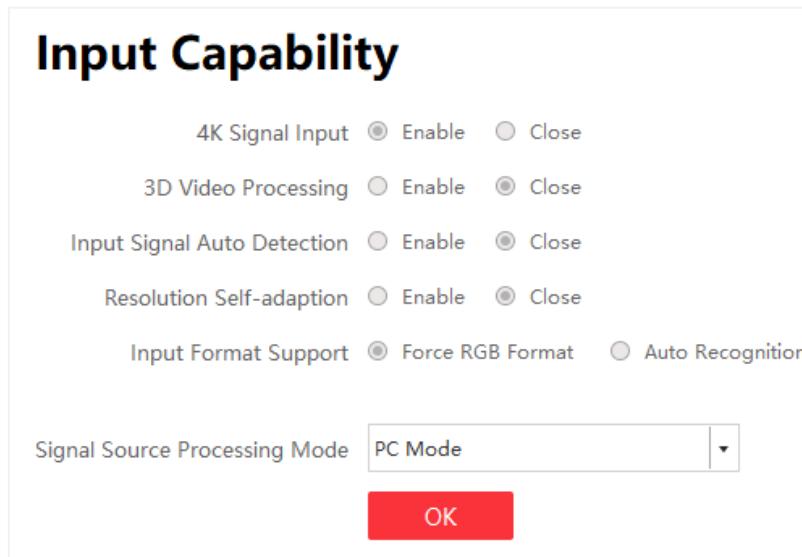


Figure 3-10 Input Capability

2. Set parameters as needed.

4K Signal Input

If you disable 4K signal input, we recommend you using 1080p signal input.

3D Video Processing

Check **Enable** when there is need for 3D video processing.



- Before enabling **3D Video Processing**, you need to install mulch-functional card first.
- Only when 3D parameters are configured into screens, **3D Video Processing** can be enabled.
- After enable **3D Video Processing**, **3D Processing Mode** and **Left-Right Image Switch** can be supported.

3D Processing Mode

3D Processing Mode is **Left-Right Alternating**, the frame rate for signal source input is 60 Hz, the video is played in the full screen and there is no need for other operations.

Left-Right Image Switching

When the left image is opposite to the right image, you can enable **Left-Right Image Switching**.

Input Signal Auto Detection

Check **Enable** to detect input signal automatically.

Resolution Self-Adaption

Check **Enable**, and the input and output resolution will be the same automatically.

Input Format Support

The input standard is RGB by default. Select **Auto Recognition** when the signal standard is not RGB.

Signal Source Processing Mode

Support **PC** mode or **TV** mode. RGB value ranges from 0 to 255 in PC mode and from 16 to 235 in TV mode. When the picture is distorted, you can switch the mode to adjust.

3. Click **OK**.

3.4 Volume Adjustment

You can adjust the audio input volume of LED display on the client.

Before You Start

The **Input Capability** is enabled.

Steps

1. Go to **Screen Adjustment** → **Basic Control** → **Basic Configuration**.
2. Slide the slider or enter numbers in the text box to adjust the volume.

3.5 Configure a Scene

You can save the configurations of, for example, signal input type, 3D video processing, or video opening window, as a scene to call for convenience.

Steps

1. Click **Scene** on the right of the interface.

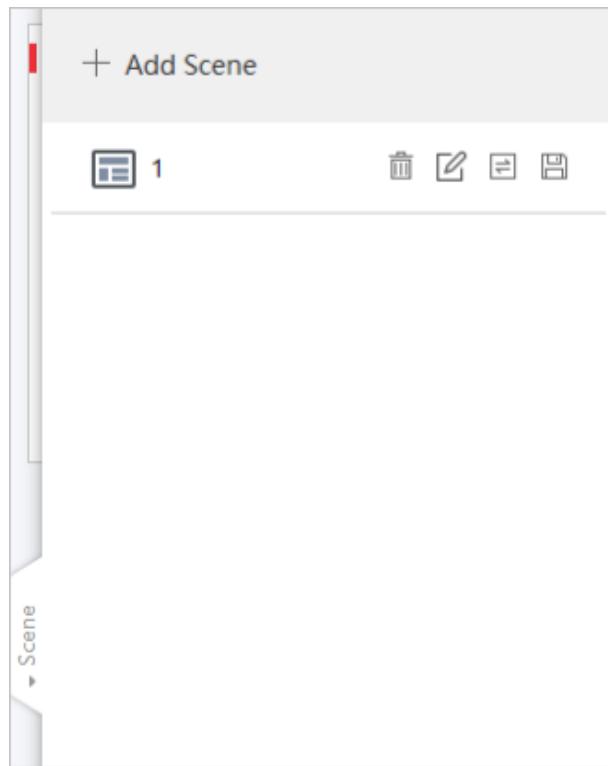


Figure 3-11 Scene Configuration

2. Click **+**.
3. Enter a scene name.
4. Click **Finish** to save the scene into the scene list.
5. Optional: You can also do the following operations.

Operation	Description
	Delete the scene.
	Edit the scene name.
	Call the scene.
	Apply the scene.

3.6 Add Device Alias

Device alias is used to distinguish devices from each other.

Steps

1. Select **Display Status** → **Device Alias**.
2. Click .
2. Edit device alias.
3. Click **OK** to save the device alias.

3.7 Configure OSD

Screen will display prompts after configuring OSD (On-screen Display).

Steps

1. Click **Screen Adjustment** → **Advanced Operation** → **OSD Configuration**.

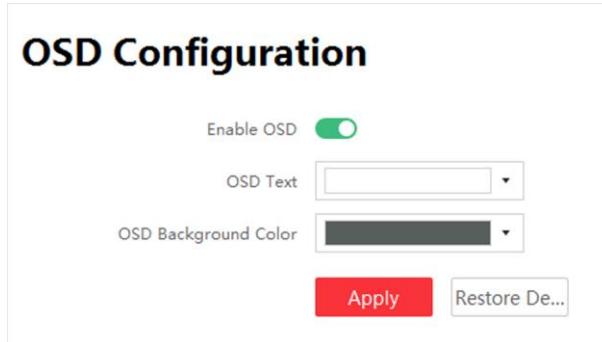


Figure 3-12 OSD Configuration

2. Click **Enable OSD**.
3. Configure **OSD Text** and **OSD Background Color**.
4. Click **Apply**.

Operation	Description
Restore Default	Restore to default OSD settings.

3.8 Configure Network

The device will obtain IP automatically when the network segment of the device has changed.

Before You Start

The network segment connected by the device has DHCP (Dynamic Host Configuration Protocol) function.

Steps

1. Click **Screen Adjustment** → **Advanced Operation** → **Network Configuration**.
2. Click **Obtain IP Address Automatically**.



This function is enabled by default.

3.9 Configure No-Signal Screensaver

The screen will display default no-signal screensaver when there is week input signal or no input

signal.

Steps



You can choose default mode, custom mode, and black screen mode. Here we take custom mode as an example.

1. Click **Screen Adjustment** → **Basic Control** → **No-Signal Screensaver** .

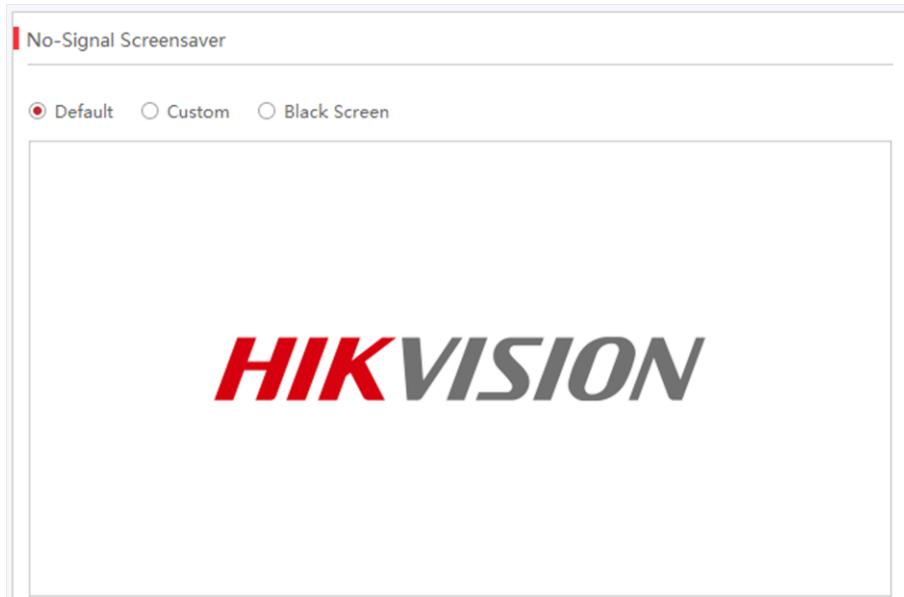


Figure 3-13 No-Signal Screensaver Configuration

2. Click **Custom**.

3. Click **Select Picture** to select the pictures.

4. Click **Upload**.



- The picture format only can be JPG and resolution should be between 320 * 240 and 3840 * 3840.
- If you upload more than one picture, the pictures will be auto switches automatically when the screensaver displays.

5. Optional: Check **Random Play**.

6. Optional: select **Picture Auto-Switch Interval**.

System will auto-switch pictures randomly according to the interval when there is no input signal.

3.10 Configure On/off Image

You can use the screen saver as the on/off image or customize the image. Take customizing the on/off image as an example.

Steps

1. Click **Screen Adjustment** → **Advanced Operation** → **On/Off Image**.

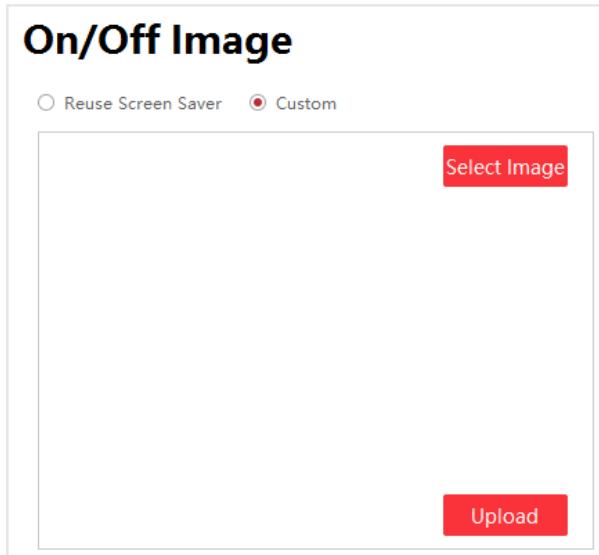


Figure 3-14 On/Off Image Configuration

2. Click **Custom**, and click **Select Image** to select an image in your computer.
3. Click **Upload**.



Only images in JPG format with resolution from 320 × 240 to 3840 × 3840 are available.

3.11 Configure Multicast Control

Through multicast function, you can control and configure several devices simultaneously.

Steps

Multicast

In computer networking, multicast is group communication where information is addressed to a group of destination computers simultaneously. Multicast can be one-to-many distribution.

1. Click **Screen Adjustment** → **Advanced Operation** → **Multicast Control**.
2. Check **Enable Multicast**.



Note
Items available for multicast control include brightness/white balance, signal input switch, dehumidification configuration, attribute configuration, system configuration, basic configuration, and advanced configuration. Check the items based on your needs.

3. Check the device you want to synchronize.

4. Click **OK**.



You can login to any checked IP to achieve multicast control.

3.12 Configure Screen Splicing

You can splice multiple LED screens into one to display a complete picture, without the need for processing by professional video wall controllers. 3D screen splicing is available.

Steps

1. Click **Screen Splicing Configuration**.

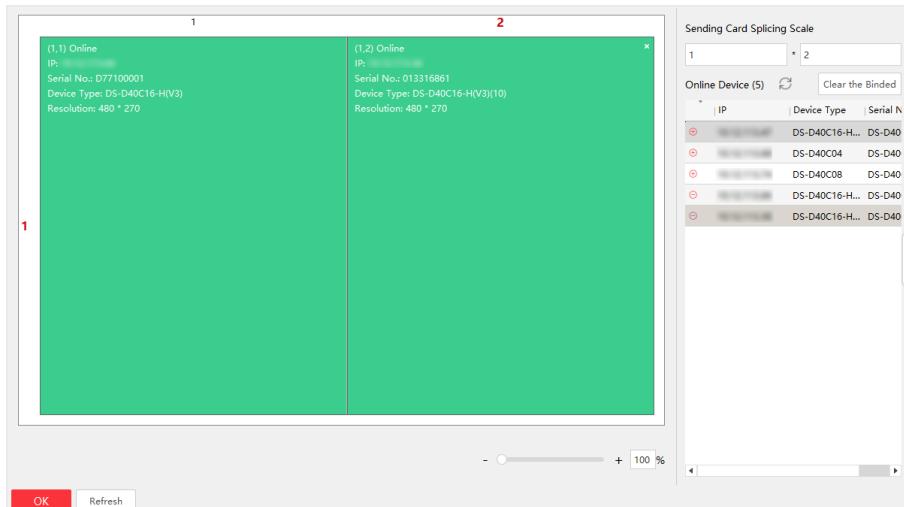


Figure 3-15 Screen Splicing Configuration

2. Configure the sending card splicing scale. Up to 8 sending cards are available for the splicing scale.



When splicing multiple sending cards, be sure to connect the GENLOCK cable correctly! The following figure uses a 2×2 sending card as an example to illustrate the connection method.

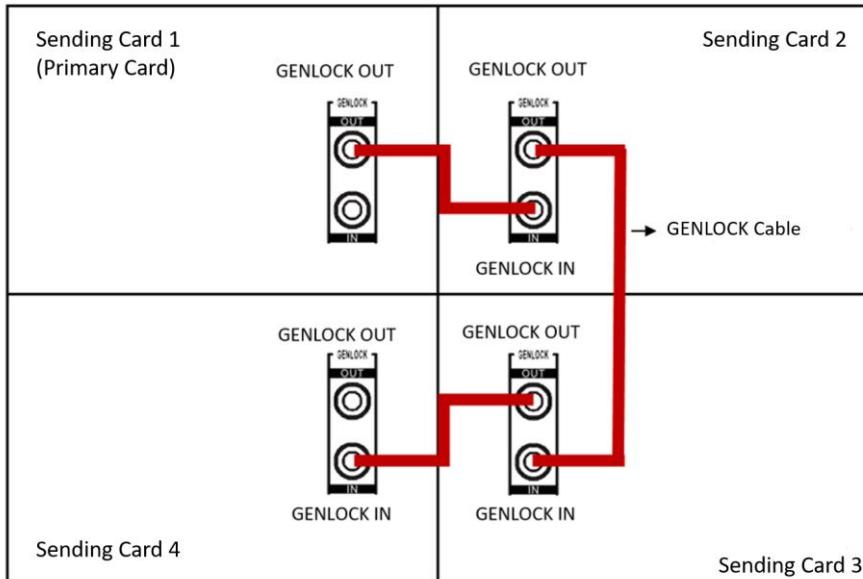


Figure 3-16 GENLOCK Connection

3. Bind devices to the specific display areas. You can use one of the following ways.
 - Click to choose the area, and then click  before the desired device to bind.
 - Drag the desired device to the area to bind.

 **Note**

- Please enter the user name and password for the first time login of the device.
- If you want to splice a new device, click  before the bound device first, and then click  before the desired device.
- If the bound device is offline, the splicing area will turn grey.

4. Click **OK**.
5. Optional: You can click **Clear the Bound** to clear all the bound devices.

3.13 Configure Multi Input Image

Multi-input screens are virtual split screens on the LED display. It supports the display of HDMI signal source, DVI signal source, subtitles, graphic clock and other content.

Select **Multi-screen Display Configuration** → **Multi Input Configuration** → **Configuration**.

The interface is divided into 3 areas. Area 1 can choose the layout template or signal source, area

2 can edit window, and area 3 can set window parameters.

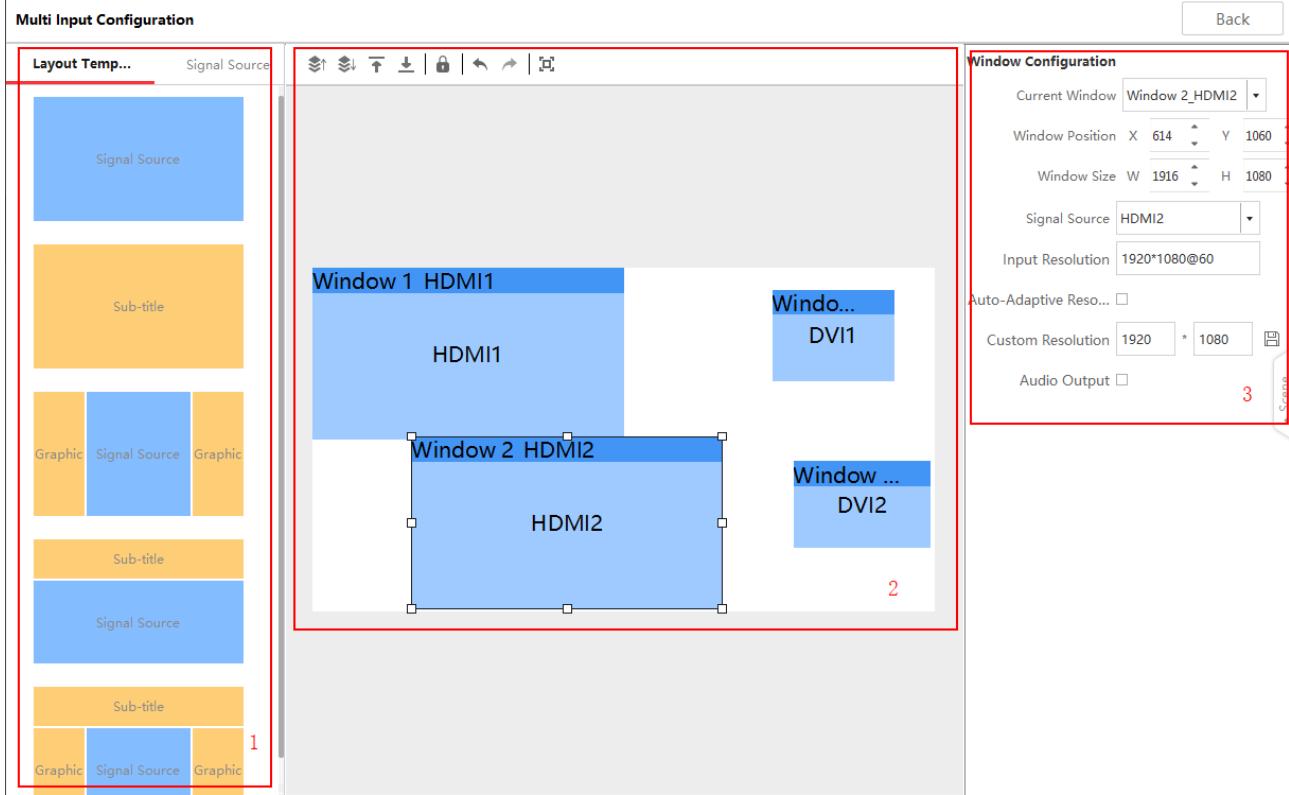


Figure 3-17 Multi Input Image Configuration

Table 3-1 Multi Input Configuration Parameters

Area	Parameter/Button	Description	Note
1	Layout Template	Providing multi template for window editing	Applying the new template will clear the original template data.
	Signal Source	Select the signal source according to actual needs	-
2	⬆️ / ⬇️	Move signal source up/down	-
	⬆️ / ⬇️	Move signal source to top/bottom	-
	🔒	Lock current signal source	-
	⟲ / ⟳	Revoke/Restore	-
	Fullscreen	Full-screen display	-

Area	Parameter/Button	Description	Note
3		current signal source	
	Current Window	Name of selected window	-
	Window Position	Horizontal and vertical coordinates of selected window	-
	Window Size	Width and height of selected window	-
	Signal Source	Signal source can be selected	HDMI, DVI
	Input Resolution	Resolution of current signal source	HDMI, DVI
	Auto-Adaptive Resolution	Enable/Disable auto-adaptive resolution	HDMI
	Custom Resolution	Custom resolution of current window	HDMI
	Audio Output	Enable/Disable audio output of current signal source	HDMI

Note

- Support to configure the template window or add signal source to the template window.
- Up to 8 windows can be added in one screen.
- The same HDMI or DVI source can only be added once.
- The sub-title source can only be added once.
- The graphic source can be added twice.

Configure HDMI/DVI Signal Source Image

1. Click **Signal Source**. Drag *HDMI* or *DVI* signal source to the editing area (Area 2).

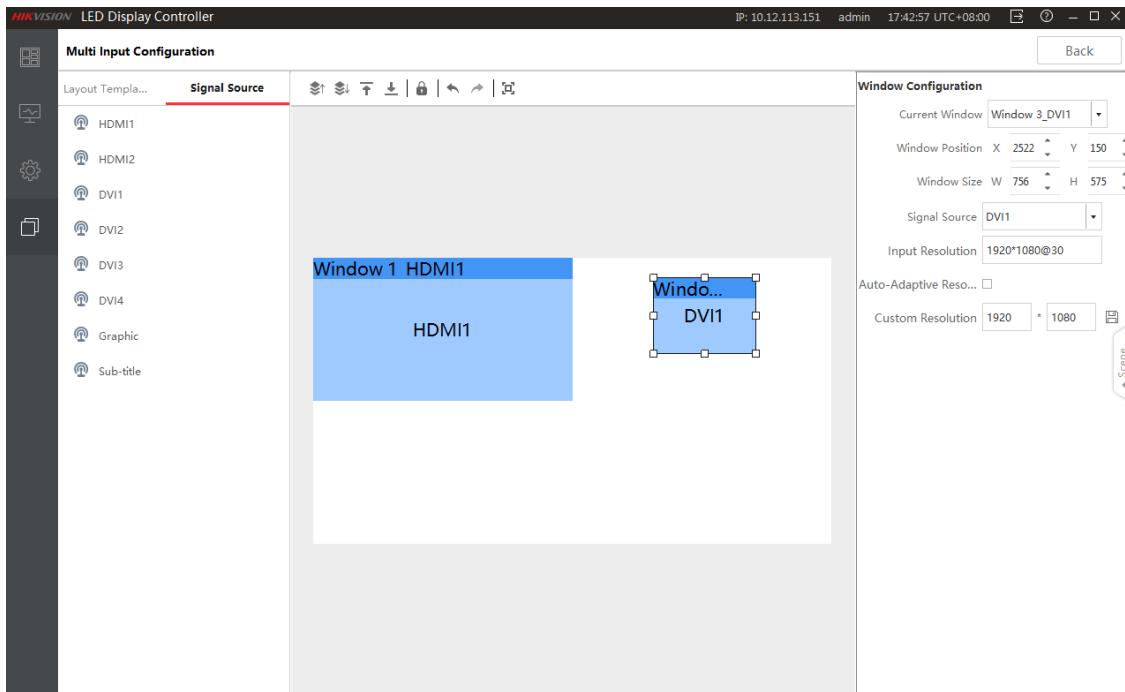


Figure 3-18 Configure HDMI/DVI Source

2. Select windows need to be edited.
 - Left click the window in the editing area.
 - Click **Current Window** in **Window Configuration**, and select the window need to be edited in drop down box.
3. Adjust the position and size of the window.
 - Select and drag the window to adjust position; select and drag the edge of the window to adjust size.
 - Click **Current Window** in **Window Configuration**, set the **Window Position** and **Window Size**.
4. Select **Signal Source**.
5. Check the **Auto-Adaptive Resolution** according to the actual needs.
6. Optional: If not check **Auto-Adaptive Resolution**, you can enter **Custom Resolution** and click .
7. Optional: Check **Audio Output**.

Configure Graphic Image

1. Click **Signal Source**. Drag *Graphic* signal source to the editing area (Area 2).

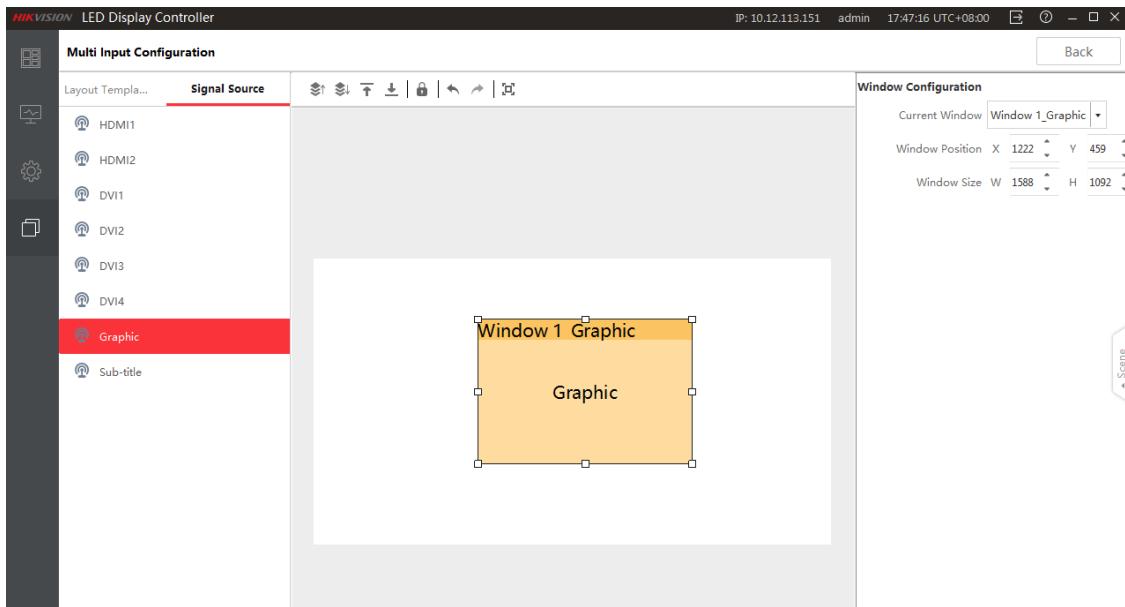


Figure 3-19 Configure Graphic Source

2. Select windows need to be edited.
 - Left click the window in the editing area.
 - Click **Current Window** in **Window Configuration**, and select the window need to be edited in drop down box.
3. Adjust the position and size of the window.
 - Select and drag the window to adjust position; select and drag the edge of the window to adjust size.
 - Click **Current Window** in **Window Configuration**, set the **Window Position** and **Window Size**.
4. Double click the graphic window to enter editing page.

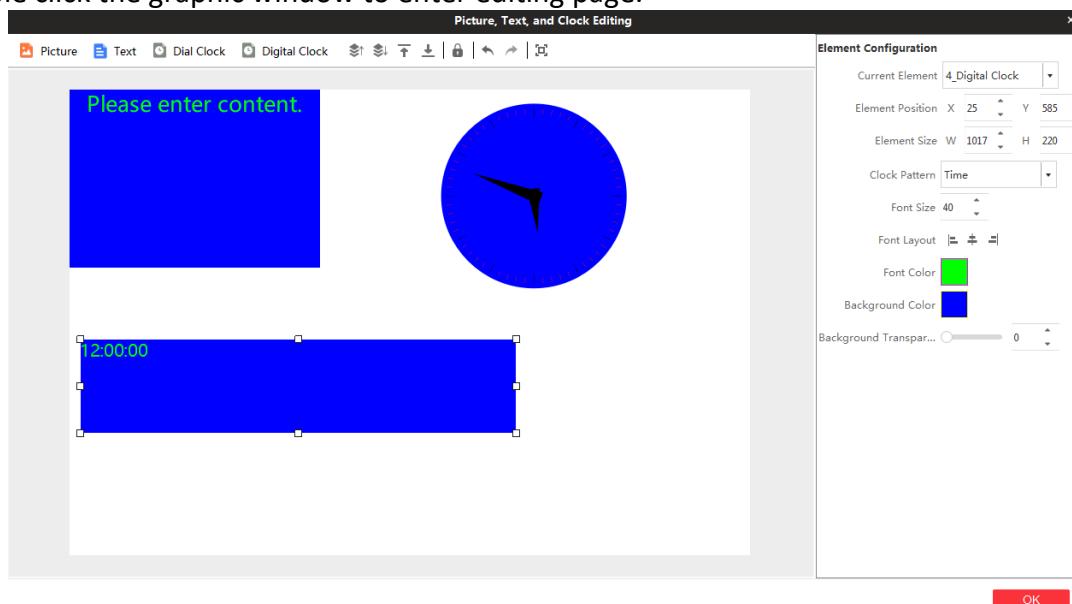


Figure 3-20 Add Graphic Source Elements

5. Click **Picture, Text, Dial Clock** or **Digital Clock** in the elements bar on the upper left corner to add different elements.

Note

Up to 3 picture elements, 2 clock elements and 5 text elements can be added.

6. Click the element to be edited, set the parameters in **Element Configuration** on the right side of the page.

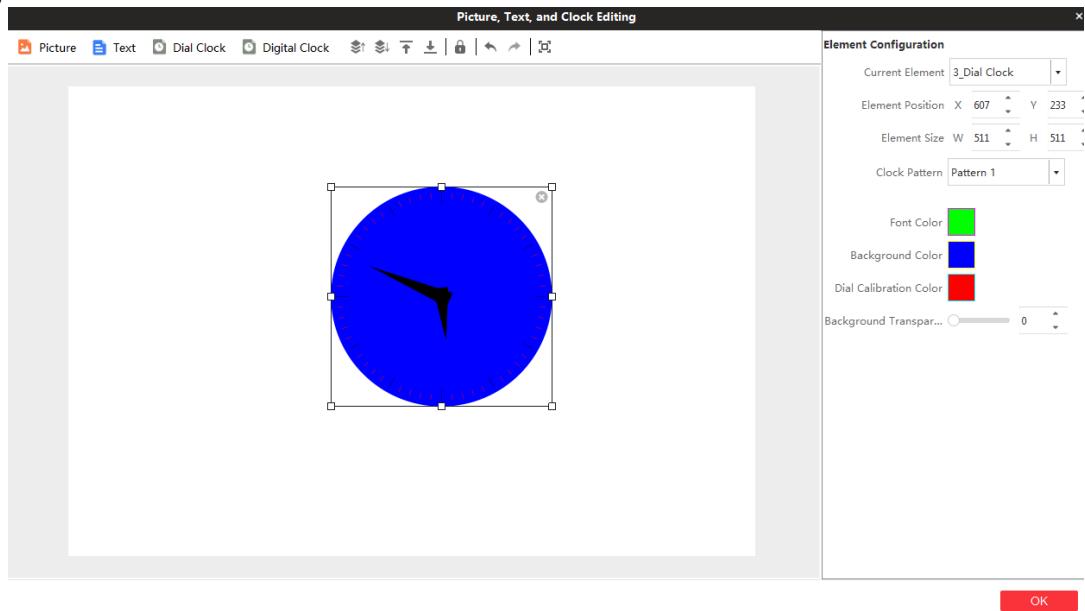


Figure 3-21 Set Graphic Source Parameters

Table 3-2 Graphic Source Parameters

Parameter/Button	Description
Picture	Add picture elements, you can adjust the position and size of the picture. You can also upload the local picture.
Text	Add text elements, you can adjust the parameters according to actual needs.
Dial Clock	Add dial clock, you can adjust the parameters according to actual needs.
Digital Clock	Add digital clock, you can adjust the parameters according to actual needs.

7. Click **OK**.

Configure Sub-title Image

1. Click **Signal Source**. Drag *Sub-title* signal source to the editing area (Area 2).

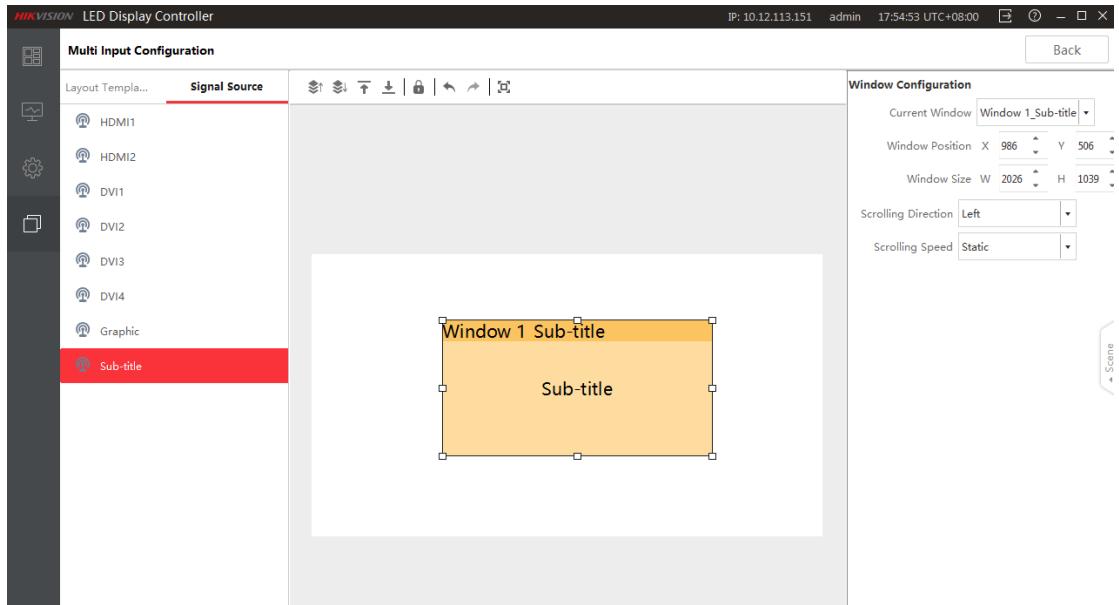


Figure 3-22 Configure Sub-title Source

2. Select windows need to be edited.
 - Left click the window in the editing area.
 - Click **Current Window** in **Window Configuration**, and select the window need to be edited in drop down box.
3. Adjust the position and size of the window.
 - Select and drag the window to adjust position; select and drag the edge of the window to adjust size.
 - Click **Current Window** in **Window Configuration**, set the **Window Position** and **Window Size**.
4. Configure **Scrolling Direction** and **Scrolling Speed**.
5. Double click the sub-title window to enter editing page.

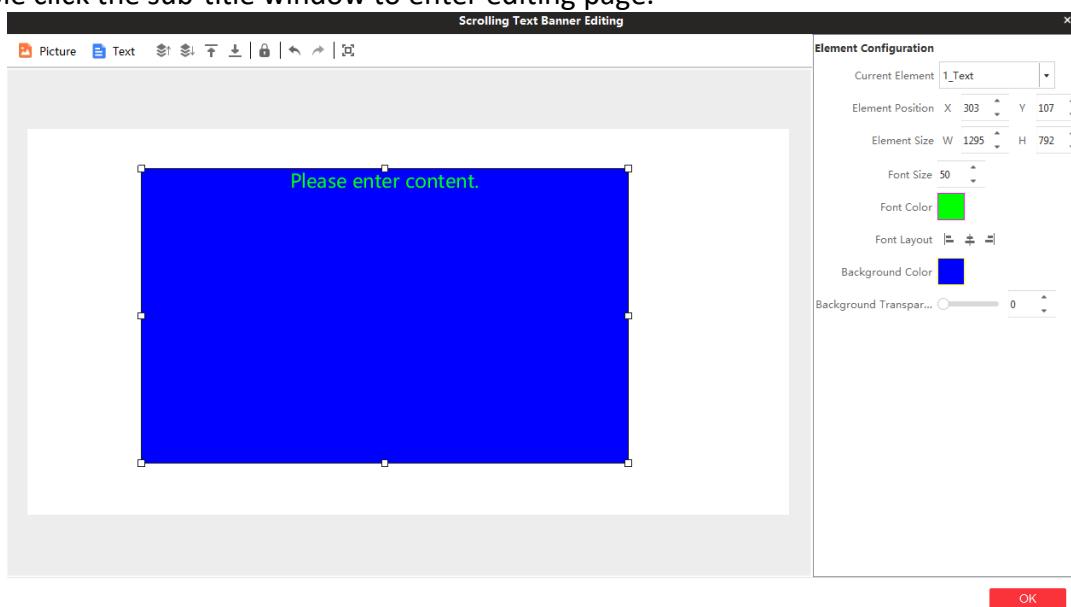


Figure 3-23 Add Sub-title Source Elements

6. Click **Picture** and **Text** in the elements bar on the upper left corner to add different elements.



Up to 3 picture elements and 5 text elements can be added.

7. Click the element to be edited, set the parameters in **Element Configuration** on the right side of the page.

Table 3-3 Graphic Source Parameters

Parameter/Button	Description
Picture	Add picture elements, you can adjust the position and size of the picture. You can also upload the local picture.
Text	Add text elements, you can adjust the parameters according to actual needs.

8. Click **OK**.

Chapter 4 Device Maintenance

4.1 Screen Defective Pixel Detection

You can check the defective pixels of the screen.

You can hover over the virtual screen on **Display Status** to check the number of defective pixels on the screen.

Table 4-1 Defective Pixel Detection

Icon	Description
	Show the position of defective pixels on the display.
	Show the coordinates of the defective pixels on the client.

4.2 Test Screen Color

You can select different images to test if the LED screen can display normally.

Steps

1. Click **Screen Adjustment** → **Advanced Operation** → **Screen Detection** .

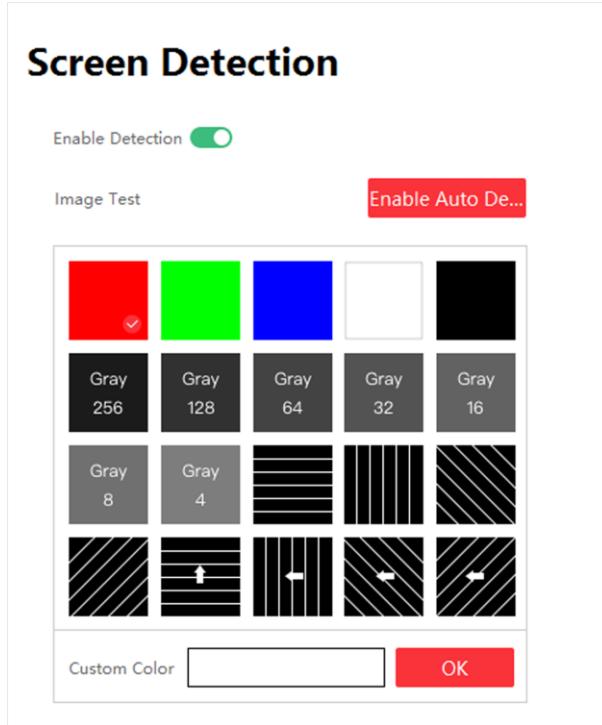


Figure 4-1 Screen Detection

2. Select **Enable Detection**.
3. Select the image you want to test.
 - Click the image you want to test.
 - Click the white box beside **Custom Color** to customize colors, and click **OK**.
 - Click **Enable Auto Detection**, and the system will display default images to test.

4.3 Configure Advanced Image

You can configure the level and brightness level of the original grayscale to improve the image quality.

Steps

1. Click **Screen Adjustment** → **Advanced Operation** → **Advanced Image Configuration**.

Advanced Image Configuration

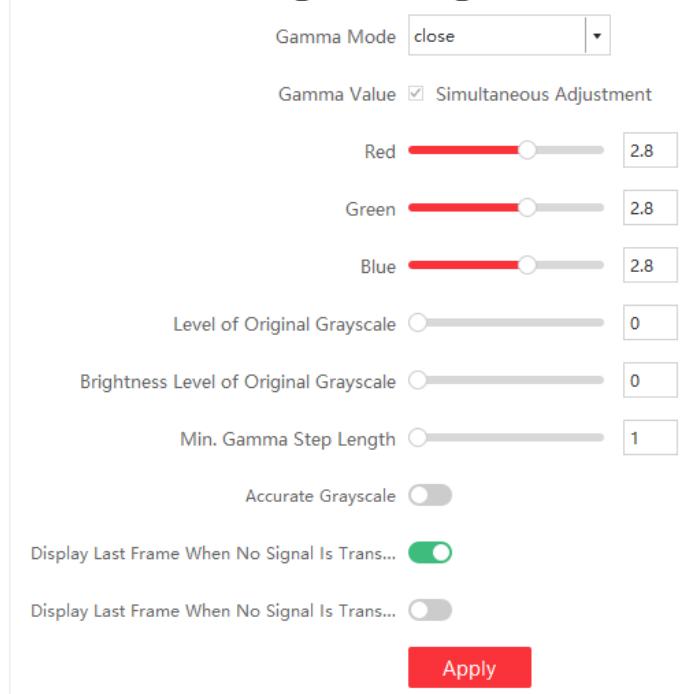


Figure 4-2 Advanced Image Configuration

2. Click **Gamma Mode** to adjust the contrast of the screen. You can select the contrast enhancement effect of **Weak**, **Medium** and **Strong** or disable the mode in the drop-down box.
3. Drag the bar or enter the value to adjust image parameters.

Red/Green/Blue

Indicates the red, green and blue parameter value. Synchronous adjustment is default.

Level of Original Grayscale

Indicates the corresponding grayscale level when the screen is on.

For example, when the grayscale level is set to 10, the screen starts to light up from the 10th grayscale.

Brightness Level of Original Grayscale

Indicates the brightness presented by the corresponding graying level.

Min. Gamma Step Length

Indicates the brightness of the low gray display, the larger the value, the brighter the low gray, and the smaller the contrast.

4. Optional: Enable **Accurate Grayscale** to make the grayscale transition uniform, so as to prevent problems such as grayscale bounce, color shift.
5. When the sending card or receiving card has no source input, enable **Display Last Frame When No Signal Is Transmitted to Sending Card** or **Display Last Frame When No Signal Is Transmitted to Receiving Card**, the screen can keep the last frame display, and continue to display normally when the signal is restored.



Note
When the receiving card is reset, the screen will display no signal screen saver.

6. Click **OK** to save the configuration.

4.4 Configure Dehumidification

The dehumidification function is to automatically adjust the brightness and preheat the lamp beads after the display is turned on, so as to evaporate the water vapor in the lamp beads, thereby improving the service life of the LED display. The user can configure the dehumidification mode of the following two triggering methods through the client:

4.4.1 Triggered by Shutdown Time

In this method, when the device is turned off for more than 24 hours, it will automatically match the dehumidification mode parameters according to the humidity type in the current area and enable the dehumidification function immediately when it is restarted.

Before You Start

When there are multiple sending cards in the same project, a switch has been used to place the sending cards that need dehumidification in the same network segment.

Steps

1. Log in any sending card. Click **Screen Adjustment** → **Advanced Operation** → **Multicast Control**.
 - 1) Click **Enable Multicast**.
 - 2) Check **Dehumidification**.
 - 3) Check all the devices that need to be dehumidified, including the device logged in.

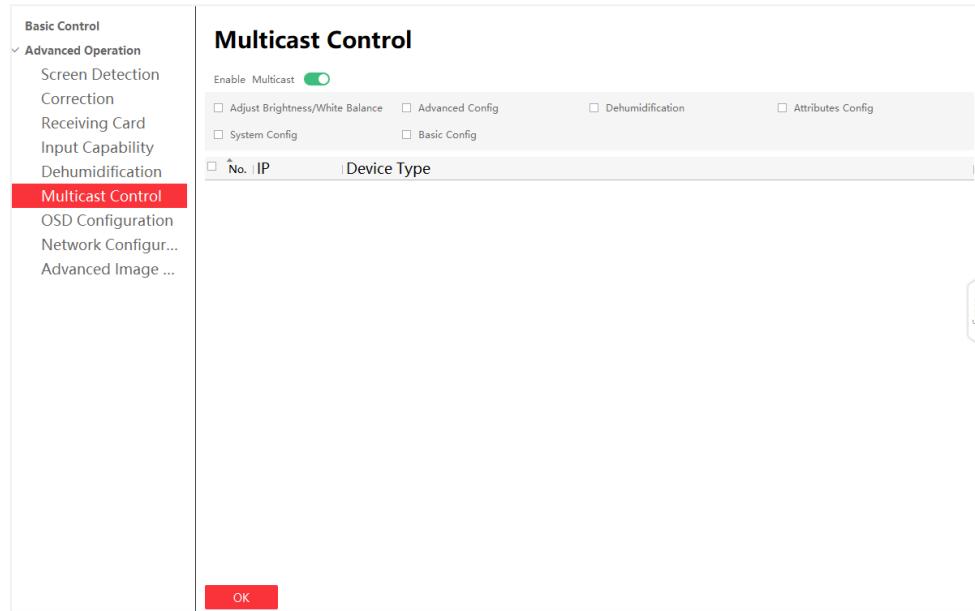


Figure 4-3 Configure Multicast Control

- 4) Click **OK**. The sending card logged in by the client is the primary dehumidification card by default, and other checked sending card devices will synchronize the dehumidification configuration of the primary card.



If there is only one sending card in the project, only need to log in the sending card on the client, and the operations above are not required.

2. Click **System Settings** → **System Maintenance** → **Sync Time**.



Figure 4-4 Sync Time

3. Click **Screen Adjustment** → **Advanced Operation** → **Dehumidification Configuration**.

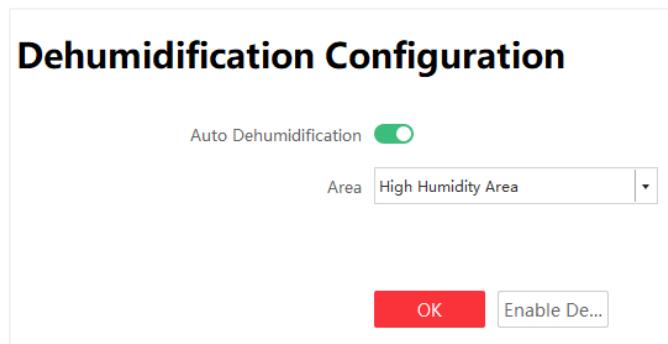


Figure 4-5 Configure Dehumidification

3. Enable **Auto Dehumidification**.
4. Select **Area** according to the actual situation.
5. Click **OK**.
 - **Enable Dehumidification:** Enable dehumidification immediately.



Note

You can manually disable the dehumidification function, but it is only valid for a single time, and the dehumidification function will be automatically enabled on the next startup.

4.4.2 Triggered by External Sensor

In this method, device will obtain the current ambient humidity through an external temperature and humidity sensor, and compare it with the humidity threshold set by the system. If the current humidity exceeds the threshold, it will automatically match the dehumidification parameters and enable the dehumidification function immediately.

Before You Start

- The sensor has been connected to the multi-function card through RS485.
- When there are multiple sending cards in the same project, a switch has been used to place the sending cards that need dehumidification in the same network segment.

Steps

1. Log in any sending card. Click **Screen Adjustment** → **Advanced Operation** → **Multicast Control**.
 - 1) Click **Enable Multicast**.
 - 2) Check **Dehumidification**.
 - 3) Check all the devices that need to be dehumidified, including the device logged in.

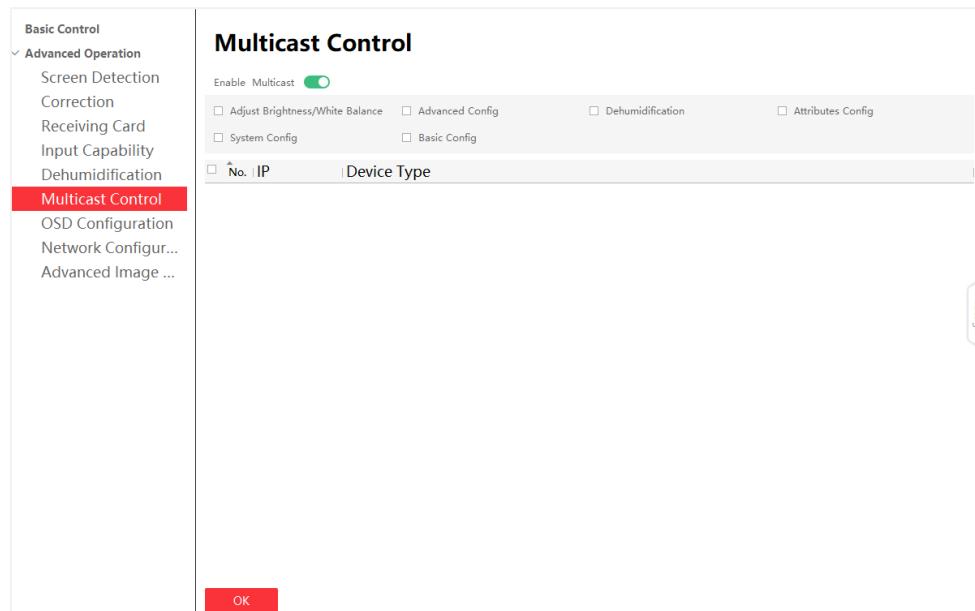


Figure 4-6 Configure Multicast Control

- 4) Click **OK**. The sending card logged in by the client is the primary dehumidification card by default, and other checked sending card devices will synchronize the dehumidification configuration of the primary card.

 **Note**

If there is only one sending card in the project, only need to log in the sending card on the client, and the operations above are not required.

2. Click **System Settings** → **System Detection**.

3. Check temperature and humidification detection and enter threshold. Click **Apply**.

4. Click **Screen Adjustment** → **Advanced Operation** → **Dehumidification Configuration**. Enable **Auto Dehumidification** and select **Area** according to the actual situation.

5. Click **OK**.

- **Enable Dehumidification:** Enable dehumidification immediately.

 **Note**

You can manually disable the dehumidification function, but it is only valid for a single time, and the dehumidification function will be automatically enabled on the next startup.

4.5 Configure Work Mode

You can configure the **Work Mode** in the upper-right corner on the **Display Status** interface.

Configure the work mode according to different scenes to get high system performance.

Four kinds of work modes are available: **Normal Mode**, **High-Performance Mode**, **Energy-Saving**

Mode and HDR Mode.

Normal Mode

The brightness is level 3 by default and level 6 at most. Normal contrast. Original grayscale is level 0. Low refresh rate.

High-Performance Mode

The brightness is level 7 by default and level 10 at most. High contrast. Original grayscale is level 1. High refresh rate.

Energy-Saving Mode

The brightness is level 3 by default and level 3 at most. Normal contrast. Original grayscale is level 0. Low refresh rate.

HDR Mode

The brightness is level 10 by default and level 10 at most. High contrast. Original grayscale is level 1. High refresh rate.



Note

- The **Normal Mode** is recommended to prevent overheat caused by high consumption.
- When the system is restored to default or factory settings, the work mode is **Normal Mode** by default.

4.6 Detect Screen Status

After enabling screen status detection, alarm information will be shown on the screen if the temperature, voltage, number of defective pixels of the screen and temperature of the sending card exceeded the limit.

Steps

1. Select **System Settings** → **System Detection**.
2. Set the limitation of the screen voltage, screen temperature, sending card temperature and number of defective pixels on the screen.
3. Click **Apply**.
4. Enable **Screen Display**.

4.7 View Device Information

Check client version information and official website.

Select **System Settings** → **About** to check client version information and official website.

Select **Display Status** to check device version information, including **Controller Version**, **FPGA Version**, **Card Type**, and so on.

4.8 View Receiving Card Information

View receiving card information, including network interface, number of connected devices, whether the version is matched, and version number.

Steps

1. Select **Display Status** → **Card Version**.

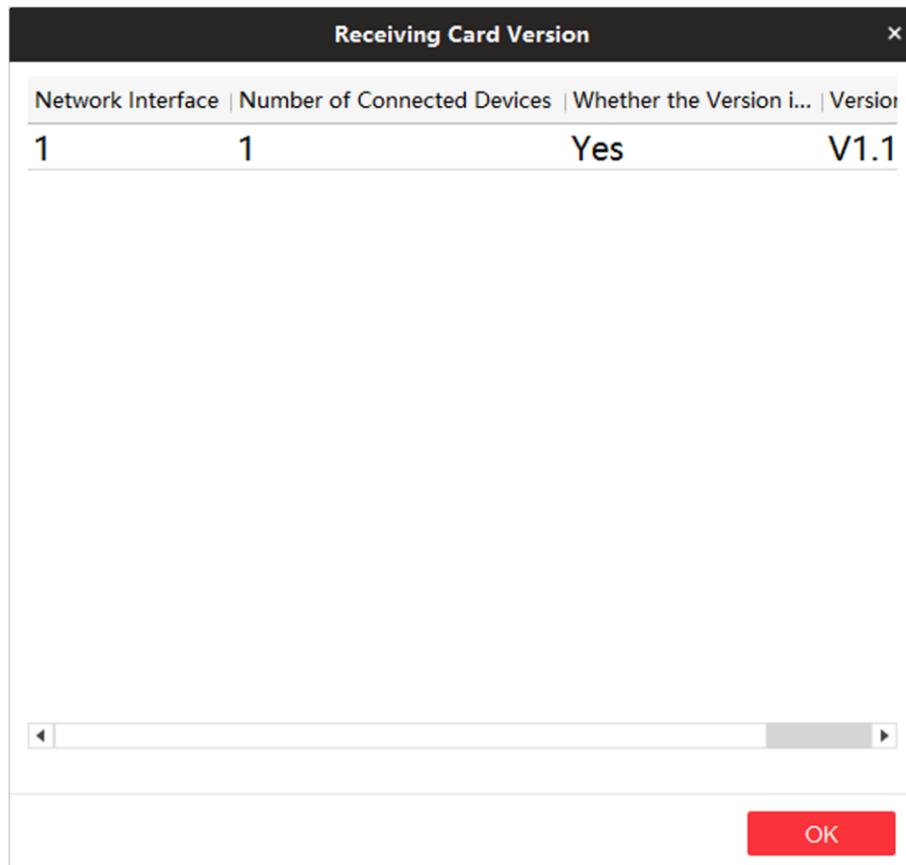


Figure 4-7 Receiving Card Version

2. Check receiving card details in the receiving card version interface for device maintenance.
3. Click **OK**.

4.9 Upgrade

Please use the latest firmware to obtain all possible security updates.



Note
Do not disconnect the power supply during updating.

4.9.1 Local Upgrade

Upgrade Receiving Card/Multi-functional Card

You can upload upgrade patch to upgrade receiving card or multi-functional card.

Steps

1. Click **System Settings** → **System Maintenance** → **Upgrade**
2. Click  to select upgrade patch.
3. Click **Upgrade**.

Operation	Description
Auto Update Receiving Card Version When Rebooting	When sending card reboots, it will detect receiving card version. System will update receiving card version by default if there is a new version.



If upgrading failed and the device cannot function correctly, please contact suppliers in time.

Result

The device will reboot automatically when upgrade finished.

Upgrade Sending Card

You can upload upgrade file to upgrade receiving card or multi-functional card.

Steps

1. Click **System Settings** → **System Maintenance** → **Upgrade**
2. Click  to select upgrade patch.
3. Click **Upgrade**.



If upgrading failed and the device cannot function, please contact suppliers in time.

Result

The device will reboot automatically when upgrade finished.

4.9.2 Online Upgrade

Upgrade Receiving Card Online

Get the newest version of the upgrade package from the cloud to upgrade the receiving card.

Before You Start

The PC has been connected to the Internet.

Steps

1. Click **Display Status**.
2. Click  on the right side of **Receiving Card Version**, the device will automatically get the newest version of the upgrade package from the cloud.



- If the receiving card is the newest version already, there is no need to upgrade.
- The receiving card will automatically restart when upgraded.

Upgrade Sending Card Online

Get the newest version of the upgrade package from the cloud to upgrade the sending card.

Before You Start

The PC has been connected to the Internet.

Steps

1. Click **Display Status**.
2. Click  on the right side of **Controller Version**, the device will automatically get the newest version of the upgrade package from the cloud.



- If the sending card is the newest version already, there is no need to upgrade.
- The sending card will automatically restart when upgraded.

4.10 Configure Receiving Card

View the configuration information related to the receiving card and modify it. It is generally used by technical support personnel to debug the equipment.

Select **Screen Adjustment** → **Advanced Operation** → **Receiving Card**. Enter password to the

receiving card configuration page.



Engineer password is Soft12345.

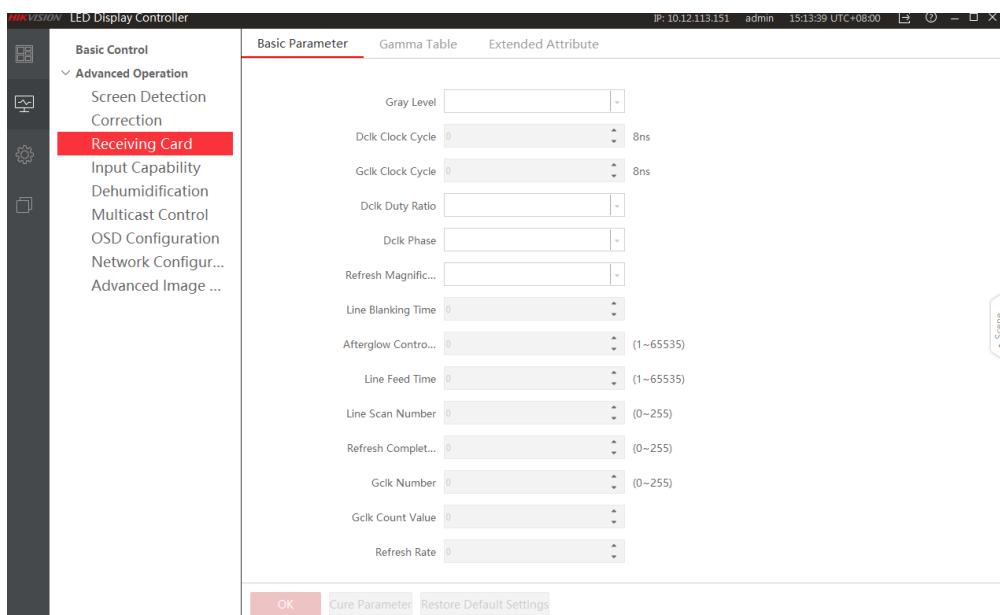


Figure 4-8 Receiving Card Configuration

Basic Parameter

View and modify the basic parameter of receiving card.

Operation	Description
OK	Apply the current parameters.
Cure Parameter	Save the set parameters. Load the cured parameters next startup.
Restore Default Settings	Restore the parameters to default.

Gamma Table

Check the receiving card to be viewed, click **Configure** to enter the editing page.

Operation	Description
	Click to switch view mode of Gamma table.
OK	Apply the current parameters.
Cure Parameter	Save the set parameters. Load the cured parameters next startup.

Operation	Description
Import	<p>Import local Gamma table.</p> <hr/>  Note Local Gamma table should be CSV file. <hr/>
Export	Export current Gamma table to local file.

Extended Attribute

According to the connected screen type obtain different chip parameters. Parameters can be manually modified and set.

Operation	Description
OK	Apply the current parameters.
Cure Parameter	Save the set parameters. Load the cured parameters next startup.
Restore Default Settings	Restore the parameters to default.
Advanced Configuration	Enter the binary configuration page.

Chapter 5 System Maintenance

This chapter mainly introduces importing/exporting configuration file, searching logs, restoring parameters, restoring default settings, and time synchronization.

5.1 Import/Export Configuration File

Configuration file can be exported for local backup.

Steps

1. Click **System Settings** → **System Maintenance**.
2. Import/Export configuration file.

Operation	Description
Export Configuration File	Select <i>Export element</i> (SendCardConfig/RecvCardConfig), click ... to choose file save path, click Export .
Import Configuration File	Click ... to choose configuration file, click Import .

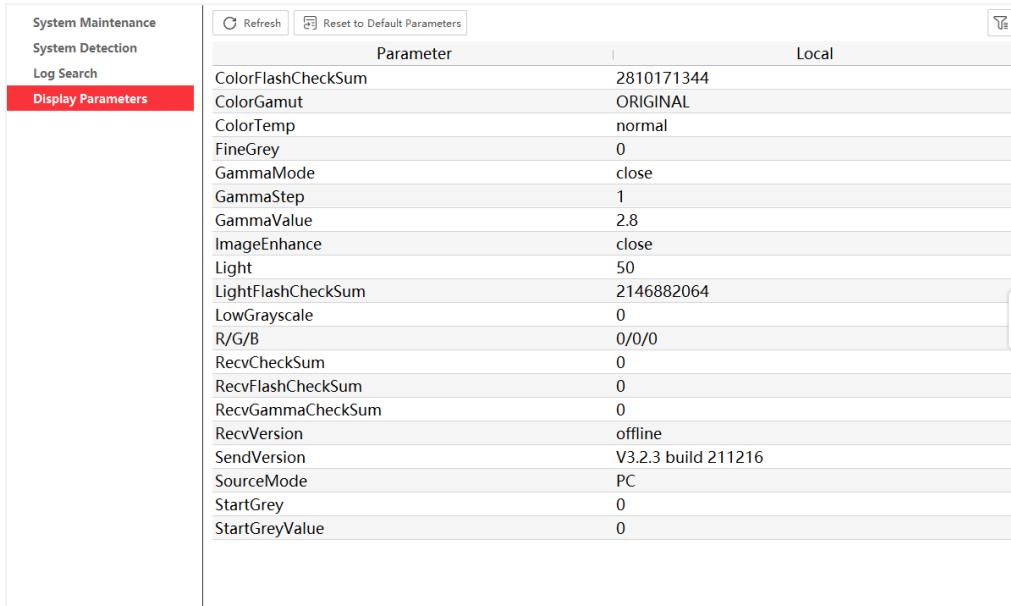


Exported configuration file is in encryption mode to prevent information disclosure. For more details, please contact us.

5.2 Check Display Parameters

Select **System Settings** → **System Maintenance** → **Display Parameters**. View device detail

information or reset the parameters.



Parameter	Local
ColorFlashCheckSum	2810171344
ColorGamut	ORIGINAL
ColorTemp	normal
FineGrey	0
GammaMode	close
GammaStep	1
GammaValue	2.8
ImageEnhance	close
Light	50
LightFlashCheckSum	2146882064
LowGrayscale	0
R/G/B	0/0/0
RecvCheckSum	0
RecvFlashCheckSum	0
RecvGammaCheckSum	0
RecvVersion	offline
SendVersion	V3.2.3 build 211216
SourceMode	PC
StartGrey	0
StartGreyValue	0

Figure 5-1 Display Parameters

- **Refresh:** Click to refresh the display parameters.
- **Reset to Default Parameters:** Click to reset current device parameters to default.
-  : Click to check one or more device IP to be viewed. You can compare parameters of different devices, and the different parameters will be marked as red.

5.3 Search and Export Logs

System operation logs can be searched and exported for backup.

Steps

1. Click **System Settings** → **Search Log** .
2. Set search conditions, including **Start Time** and **End Time**.
3. Click **Search**.



Up to 2000 search results can display. Please narrow down the search scope if there too many search results.

The results will be displayed in list.

4. Optional: Click **Export** to export all the search results.



Logs can be exported in CSV or XML file format. A prompt window will pop up when the logs are exported successfully.

5.4 Sync Time

Steps

1. Click **System Settings** → **System Maintenance** → **Sync Time**.
2. Set time synchronization mode.
 - Select **Local Time** to synchronize the device time with the client.
 - Click , set display time manually, and click **OK**.
3. Click **Time Sync**.

5.5 Remote Reboot

Both sending card and receiving card can be rebooted remotely.

Steps

1. Click **System Settings** → **System Maintenance** → **Others**.
2. Select **Sending Card** or **Receiving Card** in the **Remote Reboot**.
3. Click **Reboot**.

5.6 Restore Factory Settings

All settings can be restored to factory by default.

Steps

1. Click **System Settings** → **System Maintenance** → **Others**.
2. Click **Restore Factory Settings**.
3. Click **OK** in the pop-up window.

5.7 Restore User Default Settings

All settings can be restored to user default settings by default.

Steps

1. Click **System Settings** → **System Maintenance** → **Others**.
2. Click **Restore Default Settings**.
3. Click **OK** in the pop-up window.

Chapter 6 Local Configuration and Operation

Use a combination of multi-functional card and remote control to operate the LED screen OSD menu.

Ensure the device is connected and activated before using the remote control.

Press **Menu** button to go to **Local Operation**. You can configure the parameters of input, output, image, system, sending card and receiving card in **Local Operation**.

6.1 Multi-functional Card (Optional)

The multi-functional card has an infrared receiver and a light sensor. With a multi-functional card connected with a receiving card, you can control the device remotely.



Note

- Multi-functional card 2.0 also supports 3D function.
- You need to upgrade the sending card first to enable the function. Refer to *Upgrade Sending Card Online* for more details.

6.2 Remote Control Functions

There are two kinds of remote controls. If the sending card is used together with a multi-functional card, you can use the affiliated infrared remote control. If not, you can use the standard infrared remote control. The Max. distance of remote control is 10 m. The Max. angle of remote control is 45°.

Table 6-1 Remote Control Functions

Key	Description
	Turn on/off the screen
	Switch the signal source
	Adjust the volume
	Select the scene
	Adjust the brightness
Up, Down, Left, Right	Select the menu
	Back to the previous menu
OK	OK
	Enter the menu

Key	Description
	Quick navigation <ul style="list-style-type: none">● System information● Intelligent humidification● Adaptive resolution
	Help for infrared remote control
	Help for RF remote control
ID	Select specific ID screen (single/all)

 **Note**

ID key of the remote control would take effect only if the corresponding sending card model is DS-D42C16.

Chapter 7 FAQ

7.1 Full Screen is Unlit

Reason

- No power supply for screen or control device.
- No input signal.
- The controlling computer is sleeping or the graphics card settings are incorrect.
- Incorrect receiving card configuration.

Solution

- Check if the computer is in sleep or screensaver mode. If yes, start the computer, go to **Control Panel** → **Power Options** → **Change Plan Settings**, and set the sleep time to Never; If not, check the connection of the DVI cable between computer and control card.
- Check the graphics card settings.
- Check the connection between receiving card and sending card, and the connection between receiving cards.
- Restore to default settings.

7.2 Image is Incomplete or in Wrong Position

Reason

- Incorrect screen configuration file.
- Incorrect signal cable connection.
- Incorrect screen size configuration.

Solution

- For incomplete image, check if the configured screen scale and the actual screen scale are the same.
- For image in wrong position, check if the configured display position and screen scale are the same as the actual. If not, adjust the parameters based on the difference until they are the same.
- Check if the signal cable connection and the receiving card connection among screen cabinets are the same.
- Check if the configured sending card output resolution and the actual receiving card input resolution are the same.

7.3 Full-Screen Image Flashes or Vibrates

Reason

- DVI output of graphics card or other device fails.
- Receiving card number loaded by single network interface is larger than its load capacity.
- Signal cable is too long.

Solution

- Check system connection to see if the DVI cable or the network cable is loose, if the signal cable length exceeds the allowable transmission distance, etc.
- Reduce receiving card loading number of each network interface. Configure signal cable again on the client after changing connection mode.
- Check the resolution configurations of the graphics card, sending card, and video processor.

7.4 Spots/Strips Exist in Full-screen Image

Reason

Incorrect screen type configuration.

Solution

Check screen type configuration.

7.5 Certain Unit Image Flashes or Has Spots

Reason

- Loose connection of receiving card or HUB card.
- Incorrect receiving card program.

- Check the receiving card, HUB card, and data cable connection in the unit.
- Check if the receiving card program of the unit is correct, or if the receiving card functions well.

7.6 Certain Unit Screen is Unlit

Reason

- The power supply or the receiving card of the unit fails.
- The signal output of the previous unit fails.

Solution

- Check if the power supply output of the unit is 5 VDC.
- Check if power supply indicator of the receiving card in the unit is solid red, or if the receiving card is operating normally.
- Check the receiving card, HUB card, and data cable connection in the unit.
- Check if the receiving card signal output of the previous unit is normal.

7.7 Certain Module or Row of Modules are Unlit in Unit

Reason

- The switching power output controlling the modules fails.
- The signal output controlling the modules fails.

Solution

- Check if the power supply output of the modules is 5 VDC.
- Check the connection of the data cable and the HUB card controlling the modules.

7.8 Screen Display Error When Smart Settings

Reason

Screen parameter is wrong.

Solution

- Check if the resolution of receiving card and output resolution of graphics card is the same.
- Check if the smart setting wizard parameter is correct.

7.9 Searching Online Device Fail

Reason

- The network cable of the sending card is not connected.
- Incorrect software installation (the winp plugin is not installed or its version is incorrect).

Solution

- Check network cable connection.
- Reinstall the winp plugin, or update the winp plugin directly.

7.10 Sending Cards Have Color Difference

Reason

1. Click **System Settings** → **Display Parameters**.
2. Click  on the upper right corner, check sending card IP that display normal color, and click **OK**.
3. Compare display parameters of different device IP, the value marked in red and bold are differences and the reasons for the chromatic aberration.

Solution

According to the differences, it can be divided into following solutions:

- **RecvFlashCheckSum**, **LightFlashCheckSum** or **ColorGamutCheckSum** have differences
Export the configuration file of receiving card which display normal color, and import the configuration file to the receiving card which has chromatic aberration. Then adjust other parameters.
- Other display parameters have differences
Modify the corresponding parameters to make it consistent and eliminate chromatic aberration. Or click **Display Parameters** → **Reset to Default Parameters**, restore all the parameters to factory settings.

7.11 Screen Color is Inconsistent with LCD Display

Reason

The display capability of the screen depends on its own color gamut range. The color gamut of LEDs is much larger than that of LCDs, which causes the colors of the screen to be inconsistent with LCD monitors.

Solution

1. Click **Screen Adjustment** → **Basic Control** → **Image Adjustment**.
2. Select **HDTV**.
3. Adjust color temperature according to the actual situation based on LCD white image.

7.12 Color Exception of the Screen Loaded by Sending Card

Reason

- Incorrect sending card configuration.
- Invalid sending card signal source

Solution

- Select **Screen Adjustment** → **Advanced Operation** → **Screen Detection**. Click **Enable Detection** to check whether red, green, blue and white display normal. If display exception, please re-configure the sending card; if normal display, please check the sending card signal source.
- Connect sending card by PC or other signal source to check the signal source display. If display exception, please contact our technical support; if normal display, please check the signal source, signal source cable and transfer device.

