ego DISPLAY

EasyFLEX

PRODUCT MANUAL

Creative
Indoor LED Display

Distributed by

audio/effetti®

Version	Revised Content	Date
V1.0	Initial release	September 4th，2024

The manual may be modified without any prior notice.

Instructions

Thank you for choosing our product. Please read the Product Manual carefully before using the product. The manual may contain errors despite all our efforts, and may be subject to change without prior notice. Contact us if you have any questions or suggestion when using the manual. We will try our best to help you resolve the problems in time, and highly appreciate your suggestions.

Copyright

Read the following content carefully to ensure correct use of the LED display products:

◆ WARNING!

The LED display may be damaged and become irreparable if you ignore the following warnings.

1) Do not place the LED display upside down or throw it during transport and storage.
2) Do not incline, scratch, or crash the LED display during installation.
3) Do not wet or submerge the LED display into water.
4) Do not direct the air outlet of an air conditioner to the LED display.
5) Do not place or use the LED display in an environment with volatile, corrosive or flammable chemical products.
6) Do not use the LED display outdoors in rainy days or when the humidity is higher than 80%.
7) Do not clean the LED display with water or chemical solvents.
8) Do not use any electrical accessories not approved by the equipment manufacturer.
9) Make sure the LED display and its auxiliary devices are grounded correctly and reliably before they are used.
10) Switch off the power immediately and contact the professional personnel when the LED display has any abnormal conditions such as peculiar smell, smoke, electric leakage, and abnormal temperature.

◆ CAUTION!

The optimum displaying effect may fail to be achieved if you ignore the following cautions.

1) Wear antistatic gloves when installing or repairing the product.
2) Ensure good ventilation for the LED display when designing the heat dissipation solution.
3) Keep the storage environment of the LED display well ventilated and dry, with a humidity not exceeding 85%.
4) Use single-phase power supply for an LED display with the total power consumption not exceeding 3 KW, and three-phase power supply for an LED display with the total power consumption exceeding 3 KW.
5) Ensure that the LED display is powered on at least twice per week, and at least 2 hours each time.
6) Installing the LED display in the following places may result in an equipment failure and reduce its lifespan: near the sea, in an area with salt and alkali or sulphurous gases, near a kitchen exhaust position, or at a place where the difference between indoor and outdoor temperatures is great. Consult our professional personnel at the service center if the LED display must be installed in any of these places.
7) Altitude during operation (m): 5000m or less.

Contents

Chapter 1 Product Introduction

The EasyFLEX series is an innovative indoor LED display product launched by our company for the new commercial display application. Three standard sizes of cabinets realize mixed splicing and match different screen size applications. The EasyFLEX series can realize different creative shapes such as 90°right angle, round corner square column, cylinder, wave inner and outer arcs etc. according to the customer's on-site needs. The EasyFLEX series can be mounted on the wall, installed on the floor, or hanged on the ceiling, depending on the requirements for front or rear installation and maintenance.

1.1 Features

1) Ultrathin and lightweight aluminum die casting structure with thickness of 40 mm.
2) Three standard sizes of cabinets can realize mixed splicing and match different screen size applications.
3) Can realize different creative wave shapes such as 90° right angle, round corner, square column, cylinder, wave inner and outer arcs etc.
4) Support front and rear installation, front and rear maintenance.

1.2 Cabinet Appearance

The EasyFLEX series products have three standard sizes of cabinets, including 500 × 1000 mm, 500 × 500 mm and 500 × 250 mm. EasyFLEX supports 500mm * 250mm and 250mm * 500mm cabinet using the same modules.

Figure 1-1 500mm*1000mm cabinet appearance

Figure 1-2 250mm*750mm cabinet appearance

Figure 1-3 250mm*500mm cabinet appearance

1.3 Specification

Parameter	EasyFLEX 1.9	EasyFLEX 2.5	EasyFLEX 3.9
Pixel composition	1R1G1B	1R1G1B	1R1G1B
Pixel pitch (mm)	1.9	2.5	3.9
Pixel density (dots)	262,144	160,000	65,536
Pixels per panel (dots)	256*512/ 128*256/ 128*384	200*400/ 100*200/ 100*300	128*256/ 64*128/ 64*192
Cabinet size (mm)	500（W）*1000（H）*40（D） 250（W）*500（H）/ 750（H）*40（D）		
Display area (m^2)	0.5/0.125/0.1875		
Material	Die-casting Aluminum		
Weight (kg)	10/3.5/4.5		
Grey scale (bit)	14		
Refresh rate (Hz)	3840		
Frame frequency (Hz)	50/60		
Data interconnection	Signal Cable (≤100m)；Multi-Mode Fiber (≤300m)；Single Mode Fiber (≤15km)		
Brightness (nits)	800	800	800
Color temperature (K)	2000K~9300K Adjustable		
Contrast ratio	5000:1		
Viewing Angle (°)	160°/160°		
Input voltage (V)	AC 100~240		
Input frequency (Hz)	50~60		
Input power <max/typical> (W/㎡)	460	450	450
Input power <typical> (W/panel)	154	150	150
Storage temperature and humidity (℃/RH)	-20℃~+55℃/10-85%RH		
Working temperature and humidity (℃/RH)	-10℃~+45℃/10-80%RH		
Ingress protection	IP30		

1.4 Scope of Application

The EasyFLEX series can realize different creative shapes such as 90°right angle, round corner square column, cylinder, wave inner and outer arcs etc. according to the customer's on-site needs, which is widely used in retail brand stores, large supermarkets, large commercial exhibition centers, high-end brand exhibition halls, hotel creative applications and other occasions.

Retail

Superstore

Exhibition hall

Liner

Chapter 2 Installation and Wiring

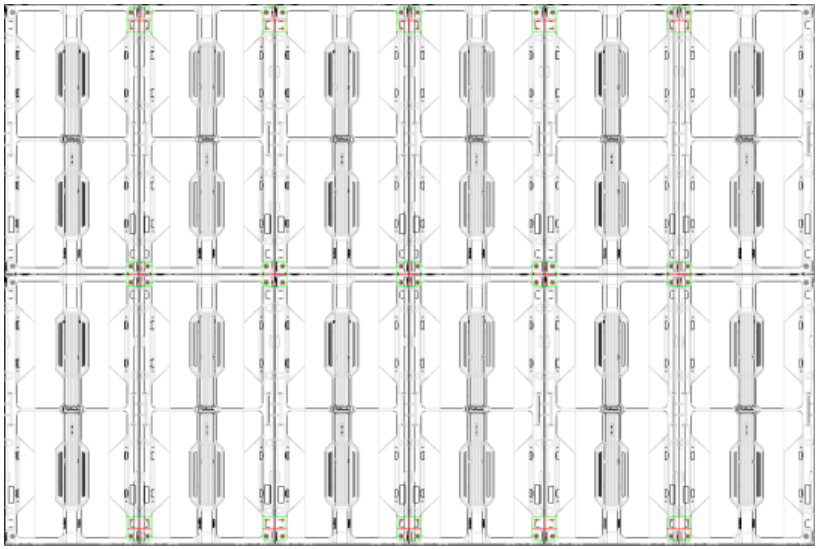
2.1 Out-of-Box Inspection

Check whether the packages are damaged. If the packages are intact, check the main components against the shipping list. If any inconsistency is found, contact us in time.

The main components include cabinets, signal cable, power cable, USB cable, DVI cable, and sending box. For details about the components, refer to the shipping list.

2.2 General Installation

2.2.1 Fixed Installation



EasyFLEX products are installed sequentially as shown in Figure 2-1:

Figure 2-1 Rear View of the Display

1) Check whether the bottom beam is level. Make sure that its levelness is within ±1mm.
2) Install the cabinets sequentially from bottom to top and from middle to both sides. In addition, fix the connecting plates and cabinets with installation screws to the square tubes.
3) Keep proper joints and flatness between the cabinets during cabinet installation.

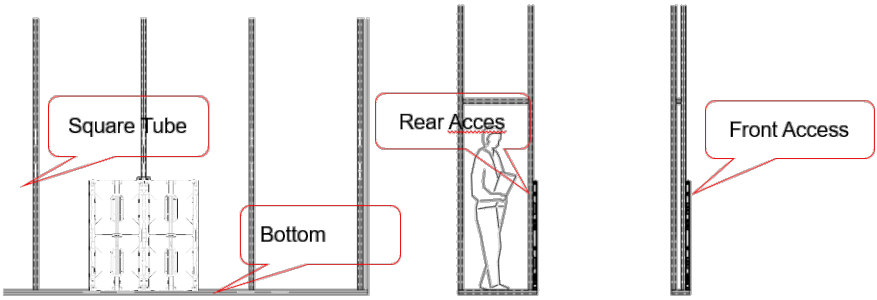


Figure 2-2 Cabinet Fastening

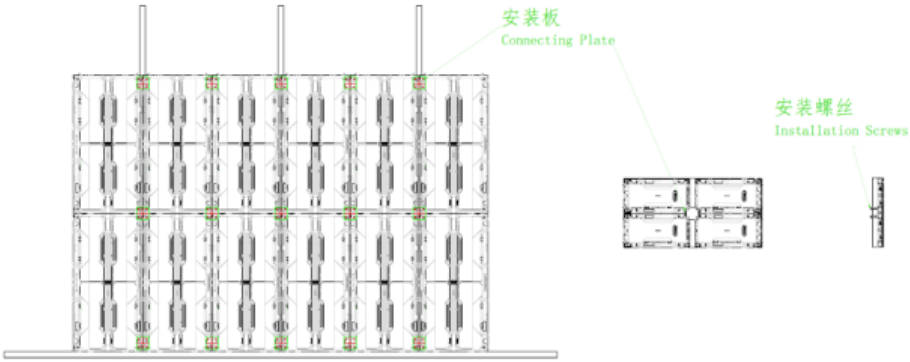


Figure 2-3 Rear View of Cabinet Installation

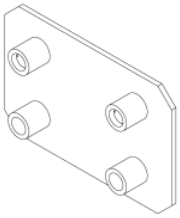


Figure 2-4 Connecting Plate

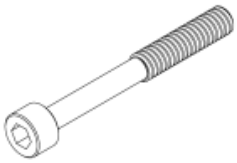


Figure 2-5 Installation Screw

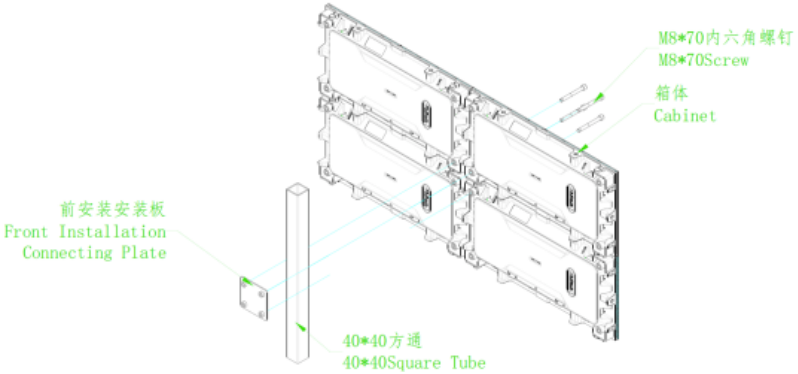


Figure 2-6 Front Installation Details

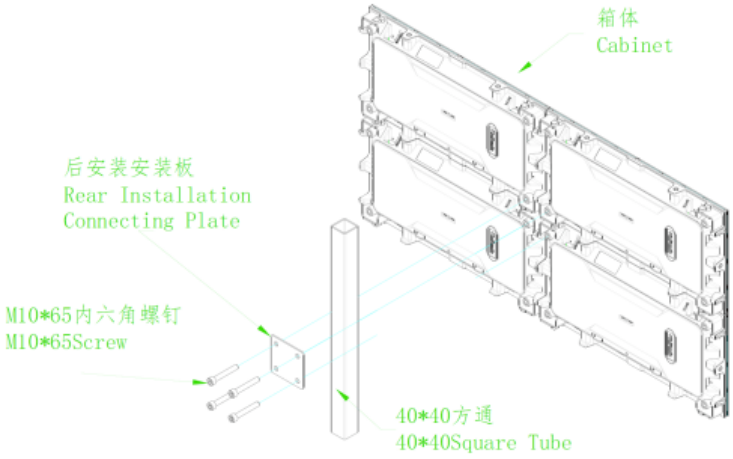


Figure 2-7 Rear Installation Details

2.2.2 Hanged Installation

1) Adjust the levelness of the hanging beam by using the synthetic fiber slings, to prevent tilting of the LED display, as shown in Figure 2-8.

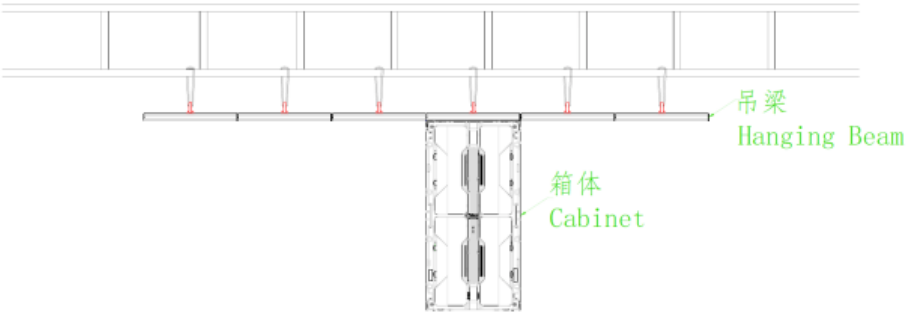


Figure 2-8 Installation of Hanging Cabinets (1)

2) Fasten the cabinets sequentially from middle to both sides. These cabinets can be fastened through plug screws to the hanging beam and can be fastened with each other through plug screws, as shown in Figure 2-9.

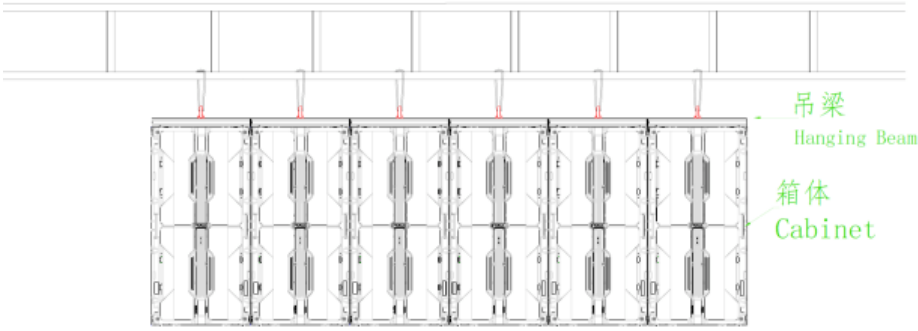


Figure 2-9 Installation of Hanging Cabinets (2)

3) Fasten other cabinets sequentially from top to bottom and from middle to both sides (the number of cabinets in the horizontal direction is not restricted while the total height of all cabinets in the vertical direction shall not be more than 10 m).

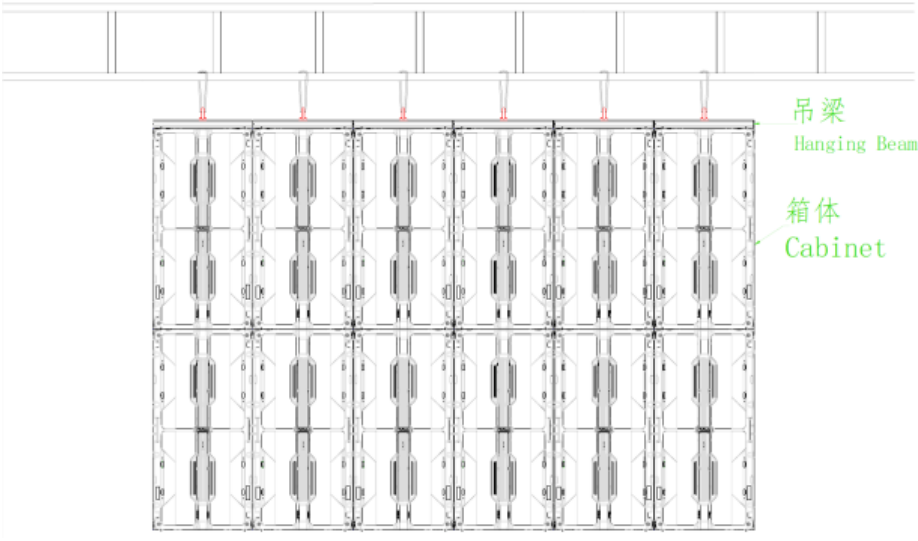


Figure 2-10 Installation of Hanging Cabinets (3)

2.2.3 Module Flatness Adjustment

When there is a deviation in flatness between adjacent modules, use the adjustment tool to adjust the magnet on the cabinet. At the low end, the module regulates the adjustable magnets until the module is flush with the adjacent modules. (one module has 8 adjustable magnets)

Fig 2-11 Adjustable magnet

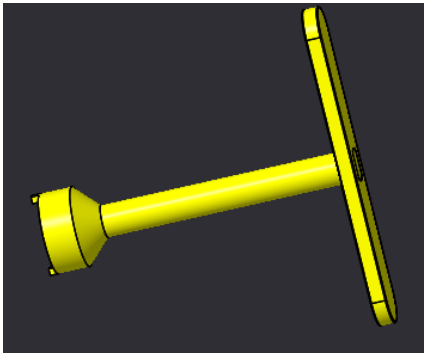


Fig 2-12 Adjusting tool

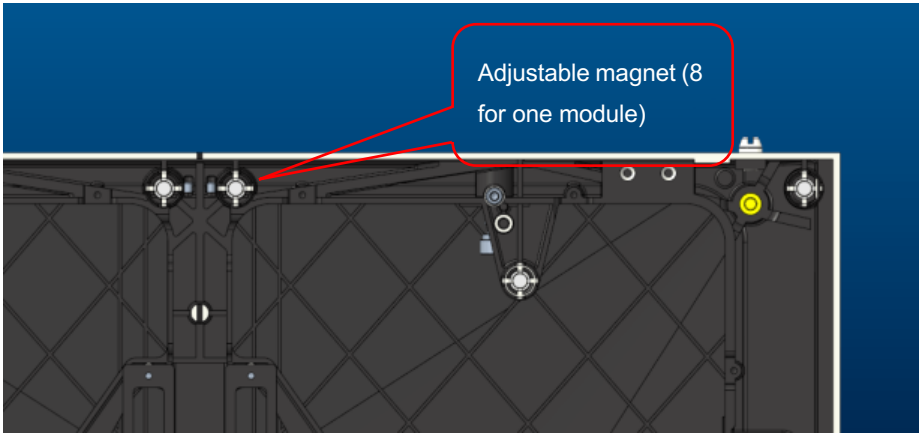


Fig 2-13 Schematic diagram of adjustable magnet

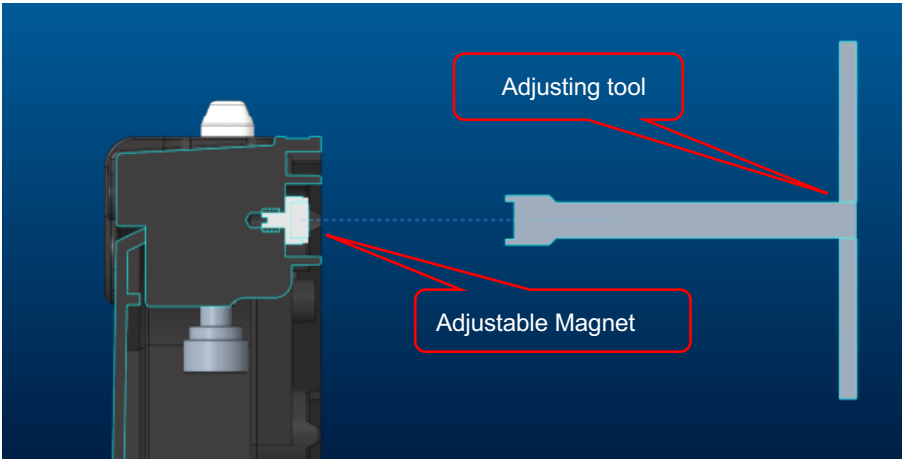


Fig 2-14 Schematic diagram of module flatness adjustment

2.3 General Installation

2.3.1 Common Cables

		
Incoming Power Cable	Power Cable Passing Through Cabinet	DVI Cable
		
Incoming Signal Cable	Signal Cable Passing Through Cabinet	USB Cable

2.3.2 Signal and Power Cable Connection

Figure 2-15 shows the signal cable connection for cabinets with an arrangement of 6 cabinets (Width) × 2 cabinets (Height). Signal cables shall be connected based on the wiring diagram of the delivered products for the project.

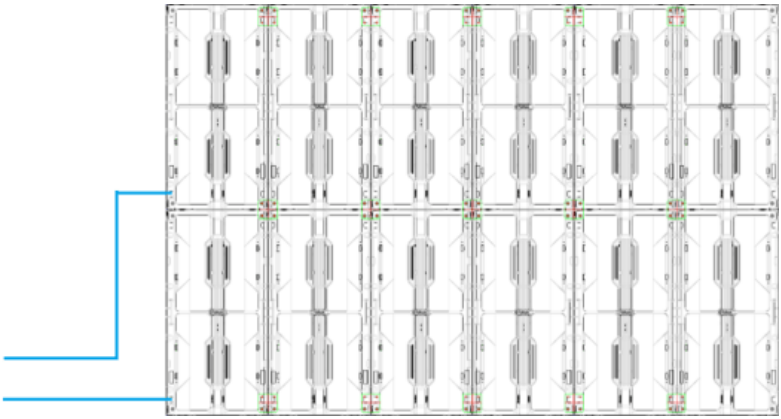


Figure 2-15 Signal Cable Connection Diagram

Figure 2-16 shows the power cable connection for cabinets with an arrangement of 6 cabinets (Width) × 2 cabinets (Height). Power cables shall be connected based on the wiring diagram of the delivered products for the project.

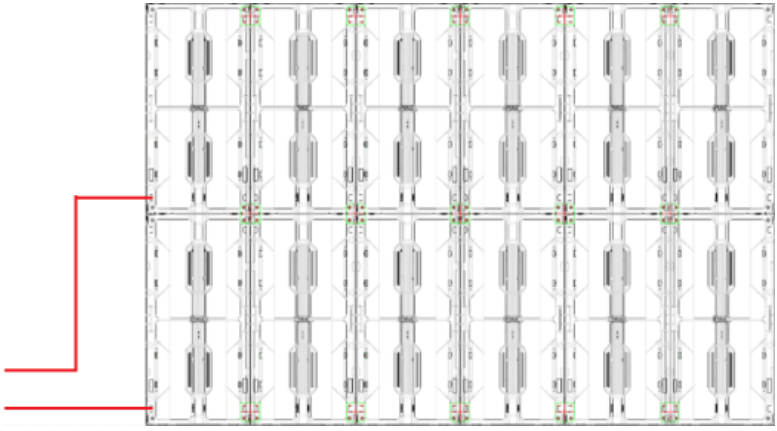


Figure 2-16 Power Cable Connection Diagram

2.3.3 Smart Control Distribution Box

The Smart Control Distribution Box can be used for distributing electric power to the LED display, and has the function for real-time monitoring of the temperature, humidity, smoke, and mains voltage of the external environment. The control software has the scheduled start/stop function, allowing you to set any time for the LED display to be remotely started or stopped.

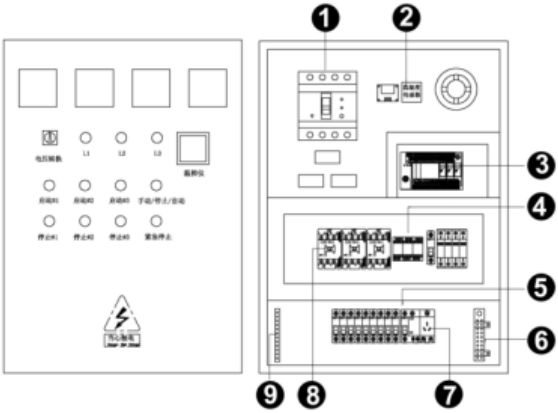


Figure 2-17 Internal Structure of Distribution Box

SN	Component	Remark (s)
1	Main switch	Three-phase five-wire Input
2	Temperature sensor	Used for temperature detection
3	PLC	Used for smart control
4	Relays	Used to control the ON/OFF of the AC contactor
5	Circuit breaker	MCB , Connect to display live wire
6	Neutral wire socket	Connect neutral wire
7	Power Port	/
8	AC Contactor	Used to control the ON/OFF of the current
9	Earth wire socket	Connect earth wire

PLC connection of the smart control distribution box:

The PLC communication system is RS485 which uses converter from control computer RS232 to RS485. For more detail information, please refer to our *Intelligent Power Distribution Management System Manual*.

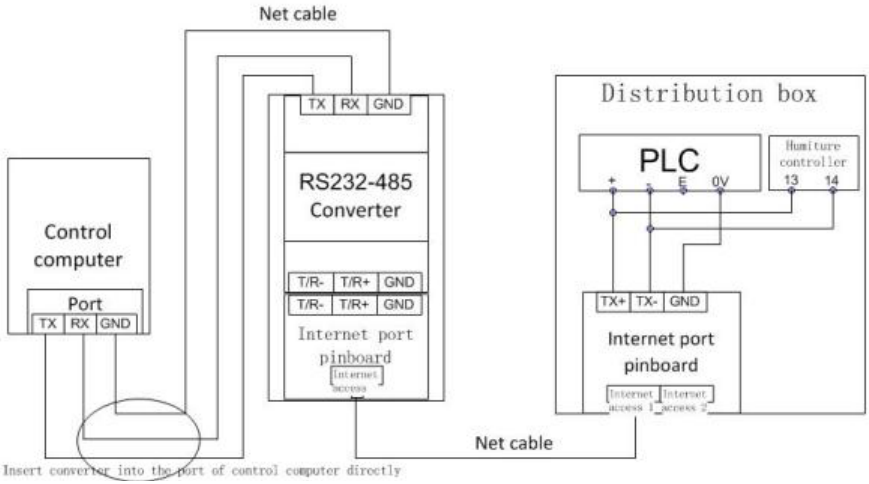


Figure 2-18 Distribution Box PLC Connection Diagram

Chapter 3 LED Display Control Setting

3.1 Power-on Testing

Before performing control setting on the LED display, confirm that each device is connected correctly.

1) Before turning on the power of the LED display, you must use a multimeter to test the live wire, neutral wire, and ground wire of the AC power supply, in order to ensure they are not conductive with each other.
2) The ground wire must be in reliable contact with the ground, and kept away properly from the live wire. The connected power supply shall be distant from high-power equipment.
3) When the 3-phase and 5-wire system is adopted, the load shall be distributed evenly among the phases to ensure three-phase balance as far as possible.
4) The input voltage must meet the voltage requirements indicated the cabinet rating label.
5) Connect the USB cable provided for the sending box to the USB port on the control PC.
6) Check whether cables for the LED display are connected in accordance with the power cable and signal cable connection diagrams provided for the delivered products.

3.2 Starting the Hardware

Start the control PC Windows system. After the graphics card driver is activated, set graphics card of the control PC to replication mode and confirm that the green indicator of the sending box is blinking normally (blinking once per second).

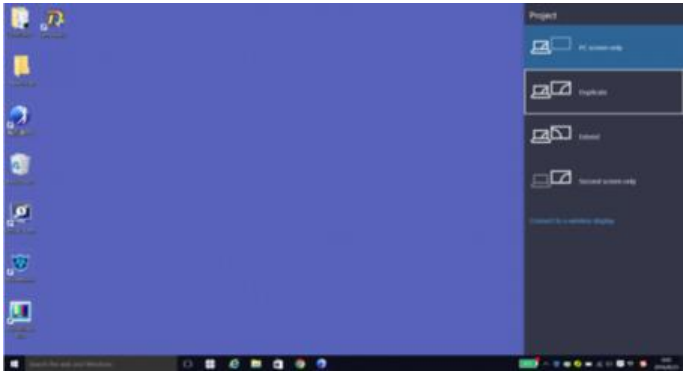


Figure 3-1 Replication Mode

3.3 Software Control Setting

3.3.1 Installing the Software

Open the optical disk provided for the delivered products. Install the LED control software UniLCT-Mars stored in the optical disk to the control PC. Then install UniStudio.

Fig 3-2 Software Installation

NOTE: You can follow the software installation wizard to install the software.

3.3.2 Display Configuration

Run UniLCT-Mars. Make sure that **Control System** on the main window is 1. Click the **User** option and select **Advanced Login**, as shown in Figure 3-3.

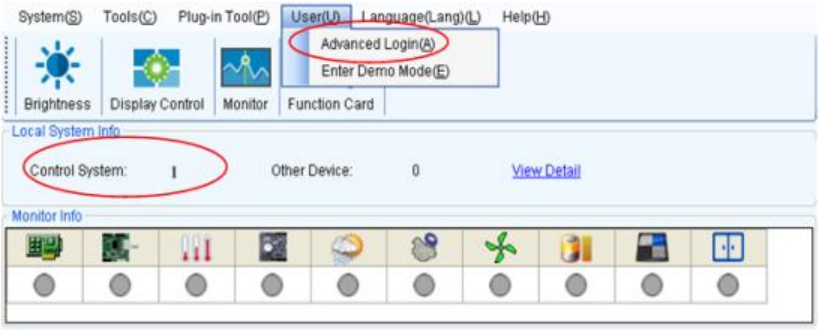


Figure 3-3 Main Window of UniLCT-Mars

Enter the initial password “admin”, as shown in Figure 3-4, to go to the advanced user window.

Figure 3-4 User Login

After login, click **Screen Config** on the main window, as shown in Figure 3-5:

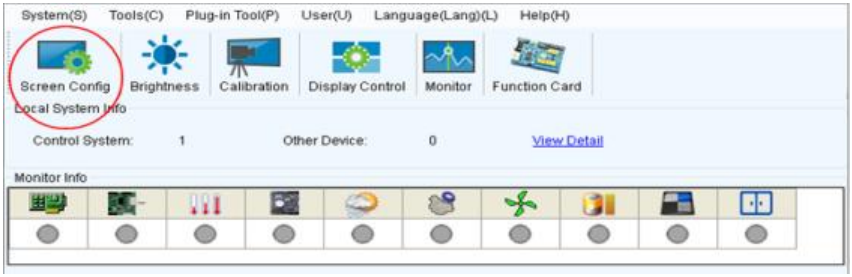


Figure 3-5 Main Window for Advanced User

Click **Next**, as shown in Figure 3-6:

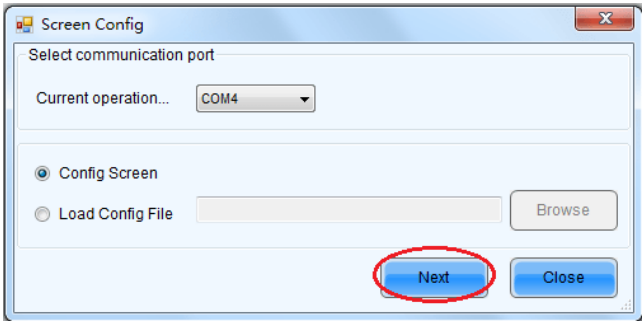


Figure 3-6 Screen Configuration

The following window is displayed. Set **Sending Board Resolution** (1920×1080 recommended). Set **Graphics Output Resolution** to the same value as **Sending Board Resolution**. Then click **Save** to save the settings.

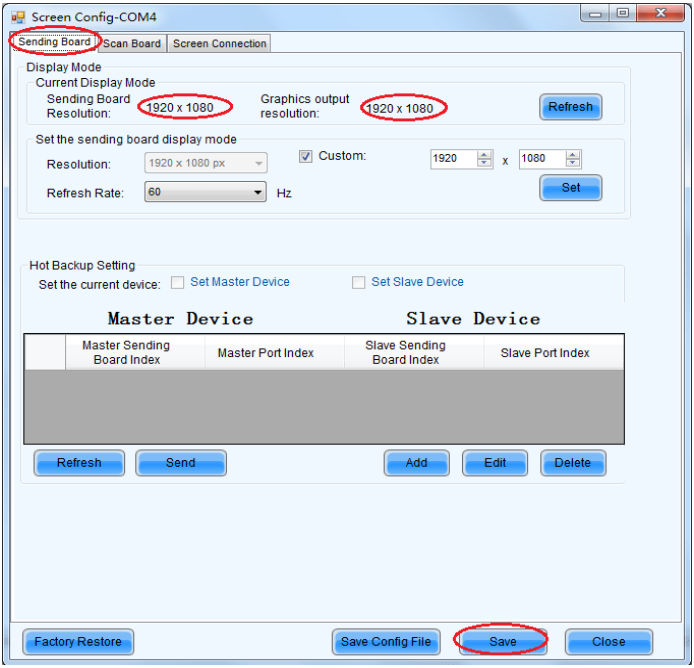


Figure 3-7 Sending Board Configuration

After configuring the parameters on the **Sending Board** page, click **Scan Board** to display the following window:

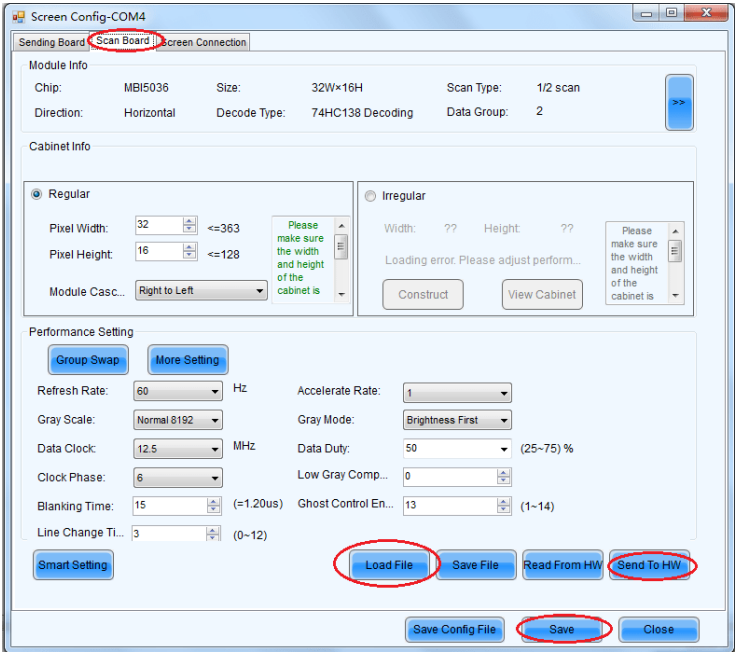


Figure 3-8 Scan Board Configuration

1） Click **Load File** to load the file xxxx.rcfg stored in the optical disk.

2） Click **Send to HW**.

3） After sending, confirm that the loaded picture received by scan board is normal on the screen. Then click **Save**.

After configuring the parameters on the **Scan Board** page, click **Screen Connection** to display the following window:

1) Click **Read File** to load the file xxxx.scr stored in the optical disk, as shown in Figure 3-9.

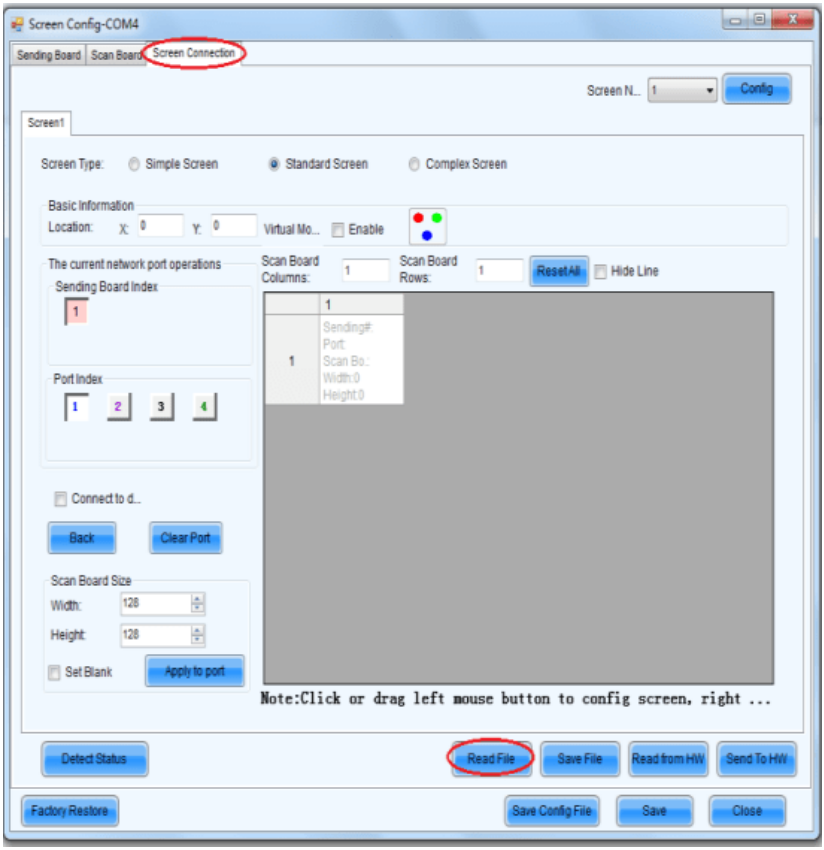


Figure 3-9 Screen Connection

2) Click **Send to HW**.

3) After sending, confirm that the screen is complete. Then click **Save**.

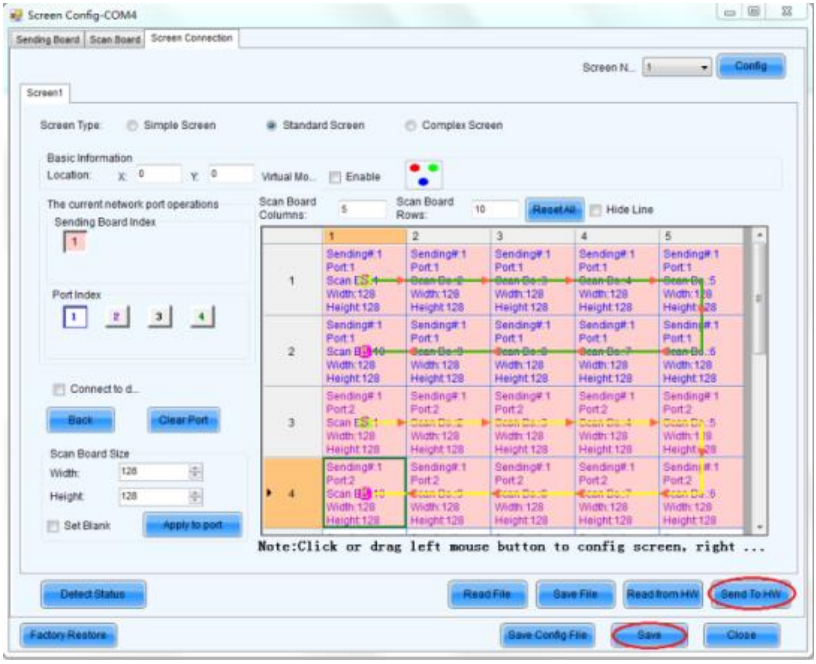


Figure 3-10 Screen Connection with Loaded File

3.3.3 Brightness Adjustment

On the main window, click **Brightness**, as shown in Figure 3-11, to display the brightness adjustment interface:

Figure 3-11 Main Window for Advanced User

There are four brightness adjustment modes, namely **Manual**, **Schedule**, **Auto**, and **Auto Adjustment by Hardware**. After adjustment is finished, click **Save to HW** to save the adjustment results to the hardware.

1. Manual Adjustment

Select **Manual** and adjust the brightness by dragging the scroll bar below **Brightness Adjustment** or directly modifying the brightness value (the maximum value is 255) next to the scroll bar.

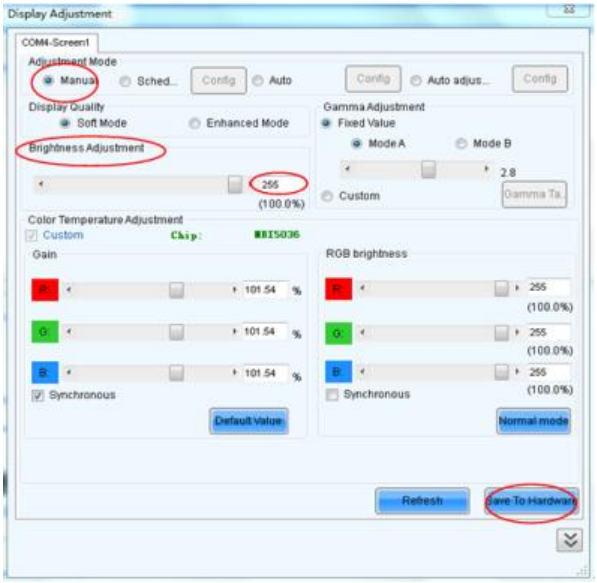


Figure 3-12 Manual Adjustment

Display Quality: Includes Soft mode and Enhanced mode. The Soft mode is generally used for indoor LED displays while the Enhanced mode is used for outdoor LED displays.

Gamma Adjustment: Includes Mode A and Mode B. The LED display in Mode A can light up earlier than that in Mode B.

Gain: For chips with current gain function, adjusting the current gain can improve the chip's current output.

RGB brightness: Adjusts the brightness of Red (R), Green (G) or Blue (B) separately.

2. Automatic Adjustment

Schedule, **Auto**, and **Auto Adjustment by Hardware** are automatic adjustment modes. Automatic adjustment function is not recommended for indoor LED display products because the indoor environment has stable ambient light and is rarely affected by the ambient brightness. If you really need to use this function, you can configure this function by using the wizard.

3.3.4 Correction Coefficient Management

The EasyFLEX series products have been subject to correction before shipment. To ensure the optimum displaying effect of the screen, you need to activate the correction function when using the LED display, and to reload the correction coefficients after replacing the modules or receiving card. This Section introduces how to upload the correction coefficients after replacing the modules or receiving card.

On the main window, click **Calibration**, as shown in Figure 3-13, to display the screen calibration interface:

Figure 3-13 Main Window for Advanced User

Configure **Enable/Disable Calibration** to **Brightness**, click **Save**, and then click **Manage Coefficients** to display the following window:

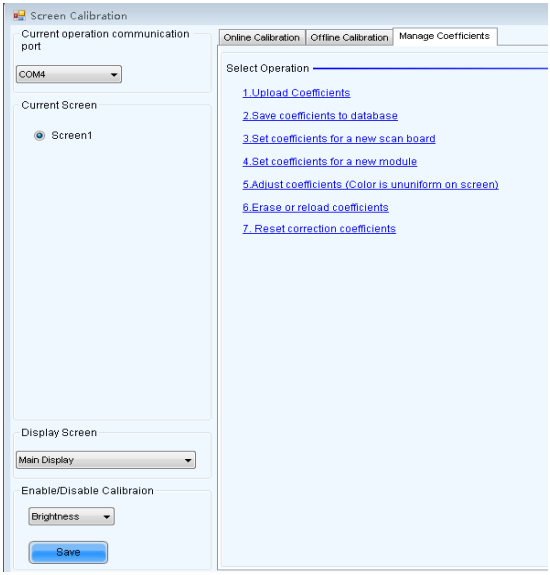


Figure 3-14 Manage Coefficients

Upload coefficients: Upload the correction coefficient database generated by the software or read back by the display screen to the screen.

Save coefficients to database: Read back and save the coefficients from the screen to the coefficient database.

Set coefficients for a new scan board: After replacing the scan board (receiving card), set the correction coefficients for the new receiving card.

Set coefficients for a new module: After replacing a module, set the correction coefficients for the new module.

Adjust Coefficients (Color is uniform on screen): Adjust the correction coefficients for a selected area on the screen to achieve a satisfactory effect.

Erase or reload Coefficients: Erase or reload the correction coefficients for a selected area on the LED display.

Reset Correction Coefficients: Reset the calibration coefficients on whole or selected section of LED display.

3.3.4.1 Setting Coefficients for a New Receiving Card

1) As shown in Figure 3-15, select **Topology or List**. Select the position of the replaced receiving card. Click **Next**:

Figure 3-15 Selecting Area for New Receiving Card

2) Select the coefficient source. Click **Browse** at **Select Database**.

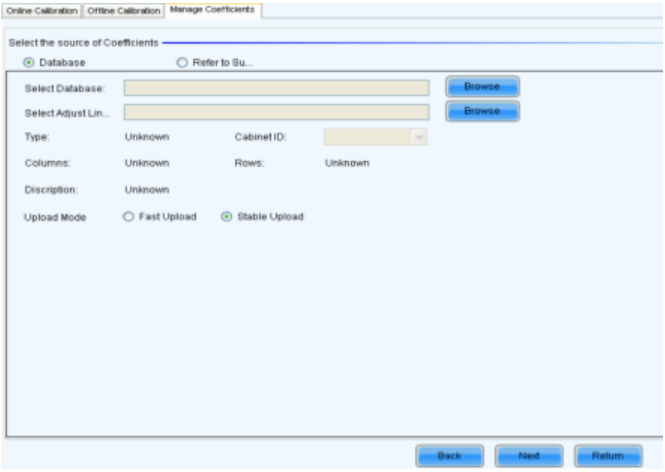


Figure 3-16 Obtaining Correction Coefficients for Receiving Card

3) Select the corresponding correction coefficients:

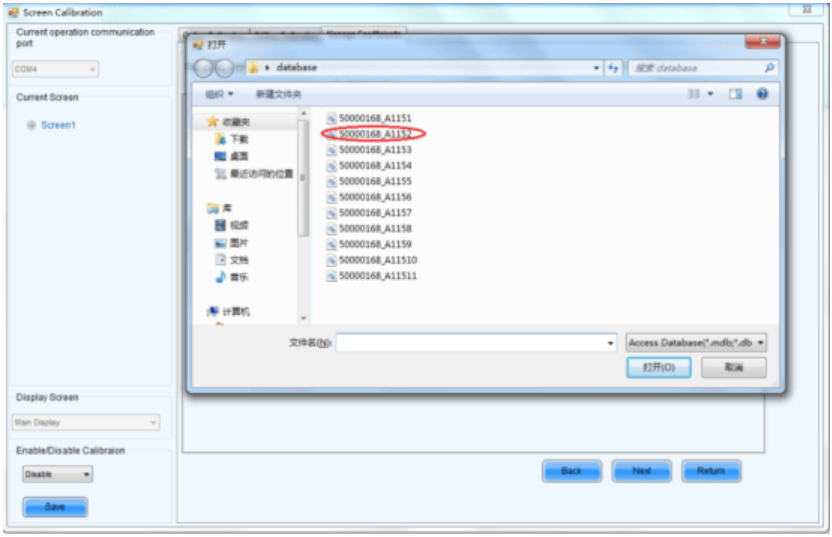


Figure 3-17 Selecting Correction Coefficients for Receiving Card

4) Select **Stable Upload** and click **Next**:

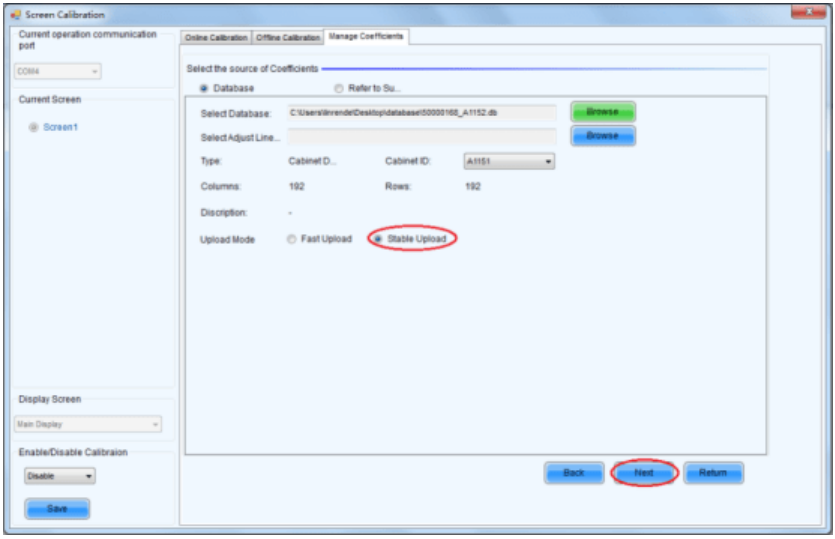


Figure 3-18 Uploading Correction Coefficients

5) Adjust Coefficient: Perform a simple adjustment if the displaying effect is not good enough after you upload the coefficient. Then click **Next**.

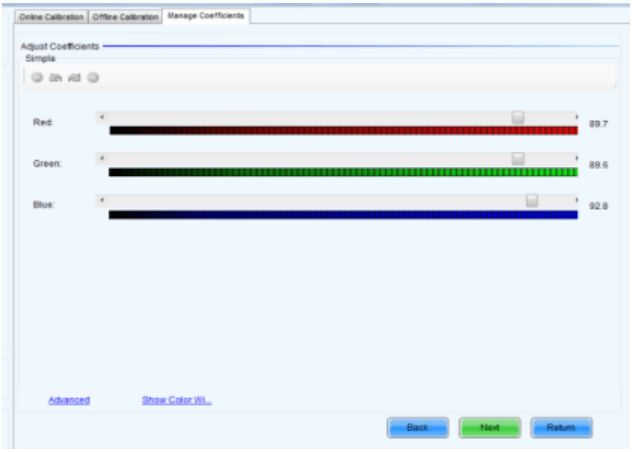


Figure 3-19 Simple Adjustment

Red：Adjust the red brightness value of calibration coefficients.

Green：Adjust the green brightness value of calibration coefficients.

Blue：Adjust the blue brightness value of calibration coefficients.

6) Save Coefficients: Click **Save** to save the correction coefficients to the hardware. The saved coefficients are retentive even after a power failure. Then click **Finish**.

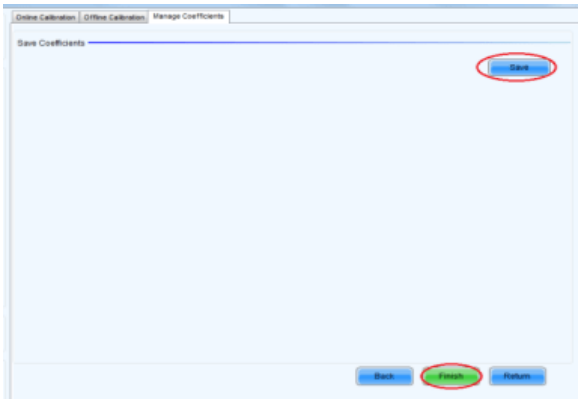


Figure 3-20 Saving Correction Coefficients

3.3.4.2 Setting Coefficients for a New Module

1） Select Position of the New Module: Select **Topology or List**. Then select the position of the receiving card where the new module is located. Double click the selected position:

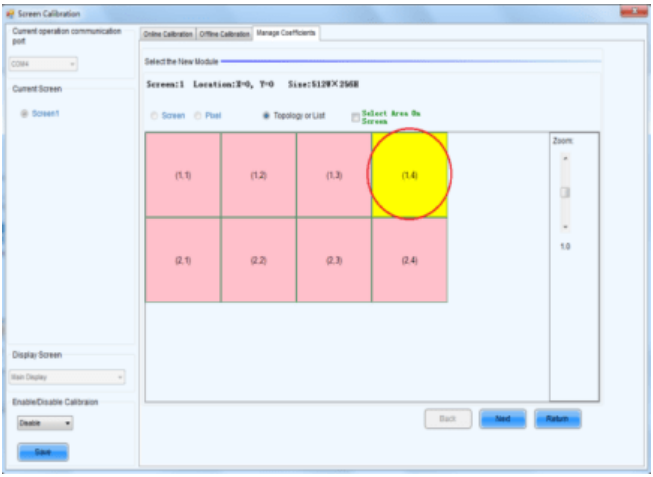


Figure 3-21 Selecting Cabinet for the New Module

2） Choose **Display Mode** to **Modules**. Select the position of the new module and click **Next**.

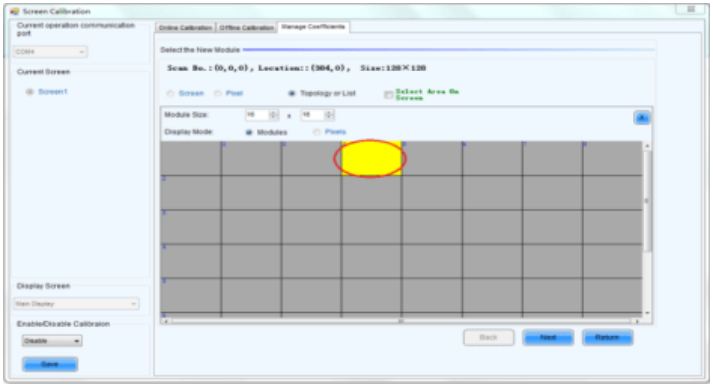


Figure 3-22 Selecting Position of New Module

Module Size： Set the size of the module in a cabinet. The software determines each module arrangement based on module size and cabinet size.

3） Adjust the coefficients (similar to the steps of coefficient adjustment in setting coefficients for a new scan board). For details, refer to Step 2 and Step 3 in Section 3.5.1).

4） Save the correction coefficients to the hardware (Use similar steps in setting coefficients for a new receiving card. For details, refer to Step 4, Step 5, and Step 6 in Section 3.5.1) so that they are retentive after a power failure.

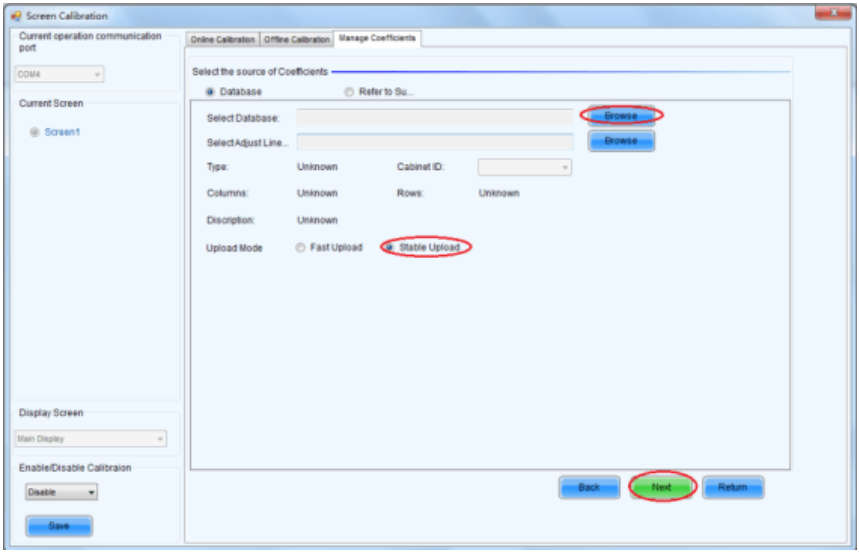
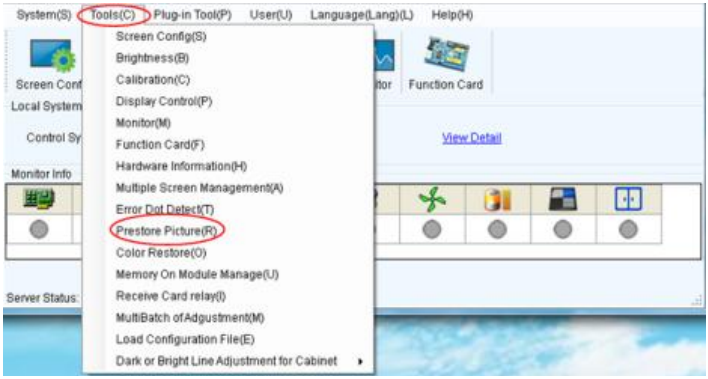


Figure 3-23 Obtaining Correction Coefficients for a New Module

3.3.5 Pre-storing Picture

On the Prestore Picture interface, you can save a picture as the prestored picture for the screen. This prestored picture can be set as a screen displayed upon booting, signal cable disconnection, or DVI signal absence.

On the main window, click **Tool** and select **Prestore Picture**, as shown in Figure 3-25.



Prestore Picture

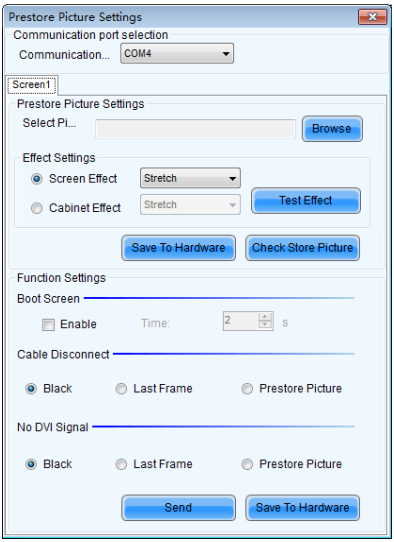


Figure 3-25 Prestore Picture Settings

1）Prestore Picture Settings

Select Picture: Click **Browse** to select the directory of the picture.

Screen Effect: Set the selected picture to be displayed on the whole screen by means of stretching, tiling, or centering.

Cabinet Effect: Set the selected picture to be displayed on each cabinet of the screen by means of stretching, tiling, or centering (the number of pictures displayed by each cabinet shall be equal to the number of receiving cards in the cabinet).

Click **Test Effect** to display the selected picture on the screen.
Click **Save to Hardware** to save the picture as a prestored picture to the hardware.
Click **Check Store Picture** to display the stored picture on the screen so as to check its effect.

2） Function Settings

Boot Screen: Set whether to use the prestored picture and set the displaying time of the prestored picture when the screen is powered on.

Cable Disconnect: Set the picture to be displayed by the cabinet whose signal cable is disconnected.

No DVI Signal: Set the picture to be displayed in the period in which the screen does not receive any DVI signals.

Click **Send** to the settings to the hardware (the settings will be lost if you do not click **Save to Hardware**).

Click **Save to Hardware** to save the current settings so that these settings are retained even if there is a power failure.

Chapter 4 LED Display Playing Setting

4.1 LED Display Playing Setting

4.1.1 Selecting a Playing Solution

The playing software UniStudio has three playing modes, namely Simple playing program, Professional playing program, and Priority programs of the page. Professional playing program is used most commonly. This Section introduces the Professional playing program only.

Run the software to enter the main window. Click **Setting** > **Switch schedule mode**. On the editing mode setting window, select **Professional playing program** and click **OK**. As showed in Figure 4-1 and Figure 4-2.

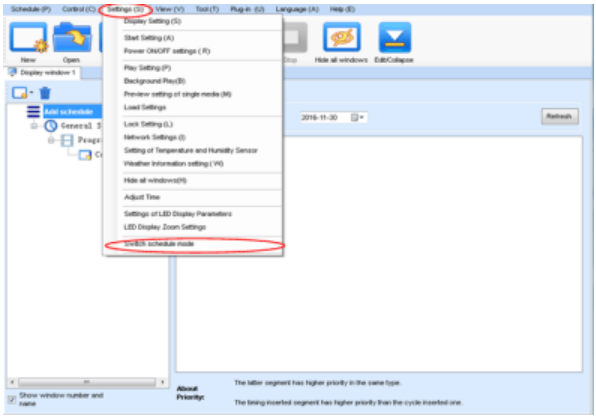


Figure 4-1 Switching Schedule Mode

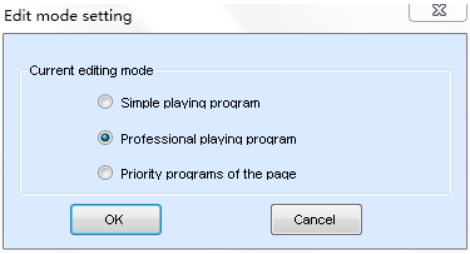


Figure 4-2 Edit Mode Setting

4.1.2 Playing Setting

4.1.2.1 Display Window Setting

Run the UniStudio, click **Settings** and select **Display Setting**, as in following fig:

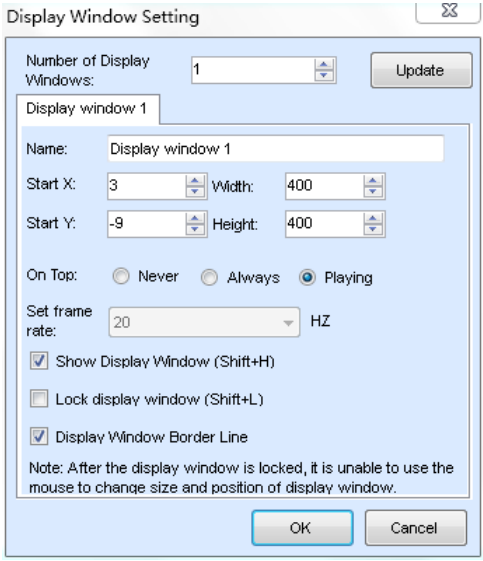


Figure 4-3 Display Window Setting

Number of Display Windows: Indicates the number of display windows. To increase or decrease the number of display windows, re-enter the number of display windows in the box next to **Number of Display Windows** and then click **Update**.

Start X: Indicates the horizontal start point of the display window.

Start Y: Indicates the vertical start point of the display window.

Width: Indicates the horizontal pixel value of the display.

Height: Indicates the vertical pixel value of the display.

Other configuration items are set to the default values.

4.1.2.2 Startup Setting

On the main window of the software, click **Setting** > **Start Setting** to enable the software to run automatically upon startup of the PC and to automatically activate a playing solution. See Figure 4-4:

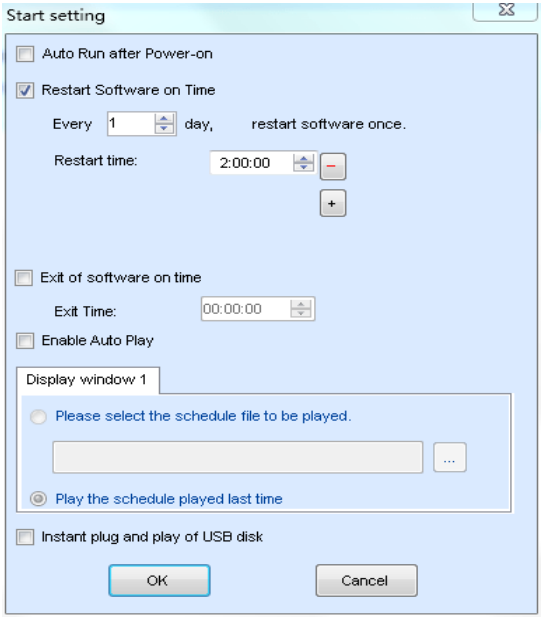


Figure 4-4 Startup Setting

Auto Run after Power-on: If you enable this function, UniStudio will run automatically the next time when the PC is started.

Restart Software on Time: If you enable this function, set the restart interval and time, and click **OK**, UniStudio will be automatically restarted after the PC time reaches the preset restart time. After the software is restarted, the window information and playing status before restart will be automatically recovered.

Exit of software on time: If you enable this function and set the exit time, the software will exit automatically upon the preset time. This function can prevent damages to the uploaded data caused by forcible exit of the software.

Enable Auto Play: If you enable this function and specify a playing solution for the screen, the software will automatically activate the specified playing solution once the software is started.

Instant plug and play of USB disk: If you enable this function, the PC will automatically read and activate the playing solution once the USB flash drive is inserted to the PC. If you do disable this function, the PC cannot implement the plug-and-play function even though you have inserted the USB flash drive to the PC.

4.1.3 Editing Professional Playing Solution

4.1.3.1 Editing the Time Segment

1) Creating a playing solution

On the main window of the software, click **Schedule** > **New**, as shown in Figure 4-5:

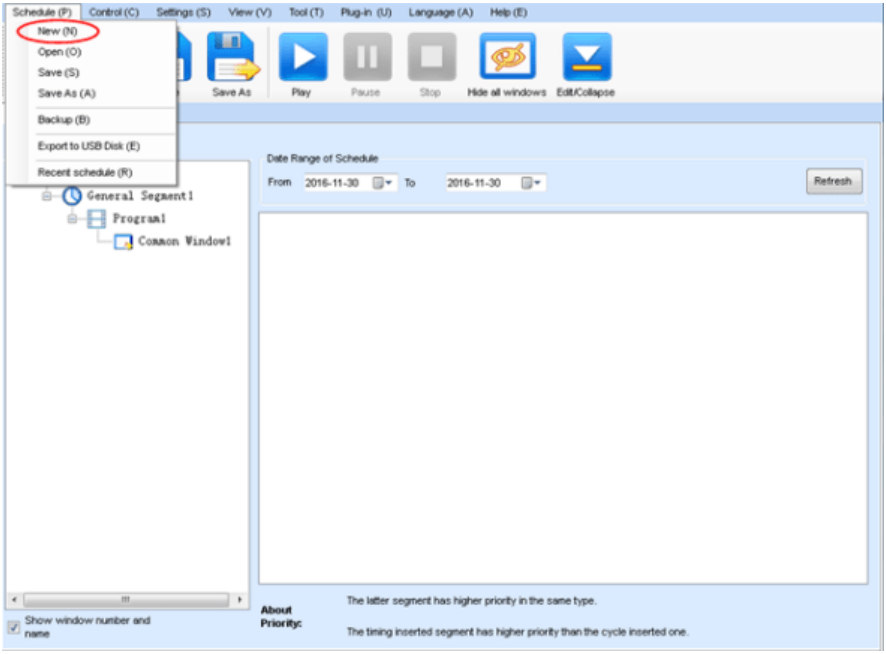


Figure 4-5 Creating a Playing Solution

2) Editing the properties of the playing solution

After adding a general time segment or interstitial segment, click **General Segment 1** to edit the properties displayed in the segment editing area on the right side, as shown in Figure 4-6:

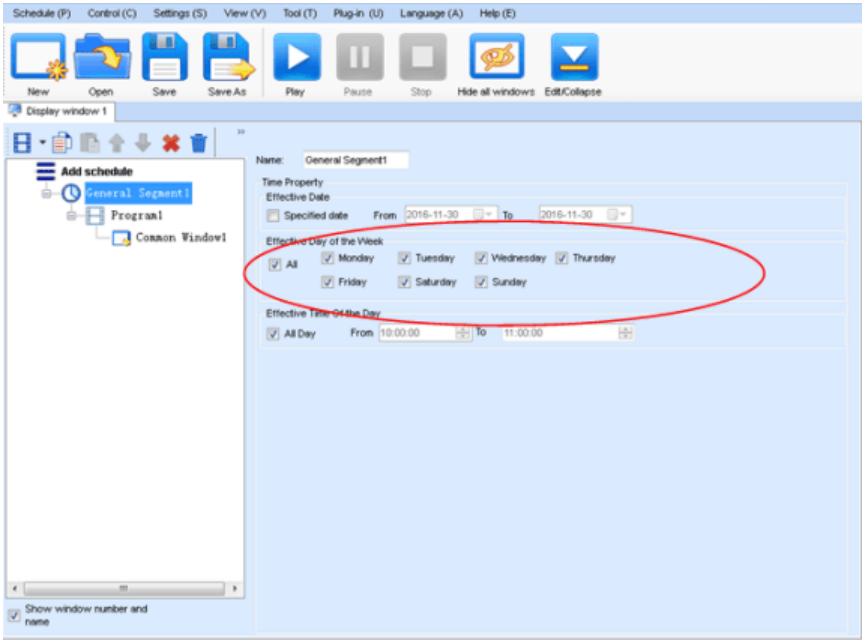


Figure 4-6 Properties of General Time Segment

4.1.3.2 Editing the Program Page

1) Creating a program page

As shown in Figure 4-7, right click **General Segment** or click the **Add Global Program Page** in the toolbar to create a program page:

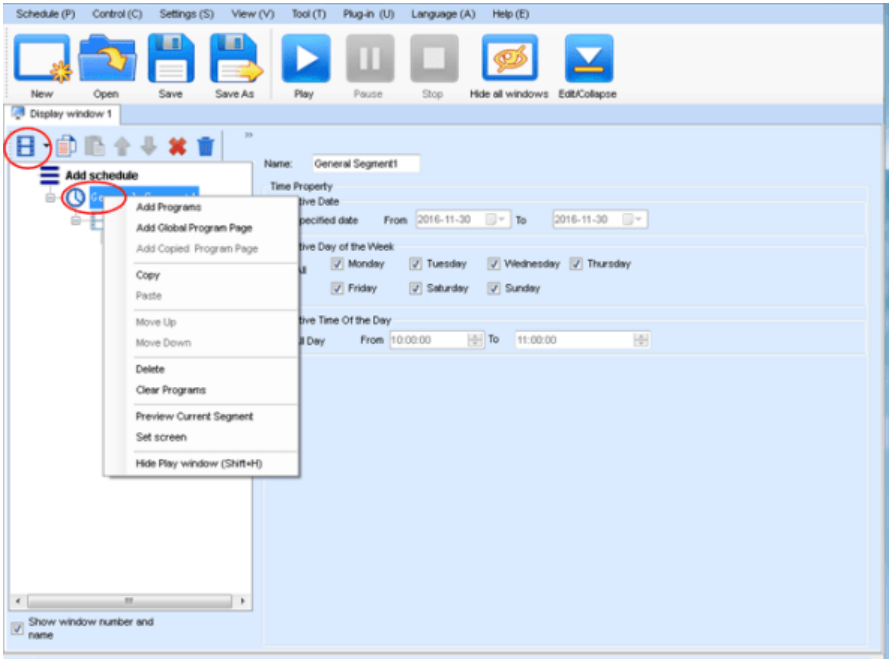


Figure 4-7 Creating a Program Page

2) Setting the properties

After creating the program page, click **Program 1** and set the background, displaying mode, and other properties displayed on the property page on the right side. See Figure 4-8:

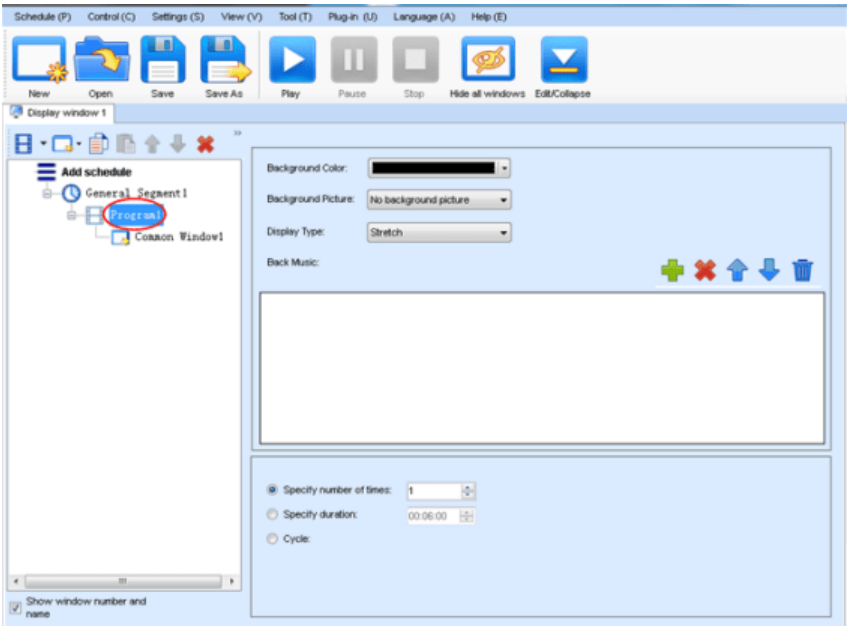


Figure 4-8 Properties of Program Page

If you select **Specify Number of Times**, the next general program page is played after the preset **Times to Play** for the display window with the longest playing time on the current program page has been reached.

If you select **Specify Duration**, the next program page is played after the preset **Play Duration** for the current program page has been reached.

If you select **Cycle**, the current program page will be played cyclically all the time.

When the current program page is played, the background picture or colour of the program page is displayed in the area not covered by the display window, as shown in Figure 4-9:

Figure 4-9 Background of Program Page

After adding the program page, you can move, copy, paste, or delete the program page by using the toolbar in the program page editing area, or by using the short-cut menu, as shown in Figure 4-10.

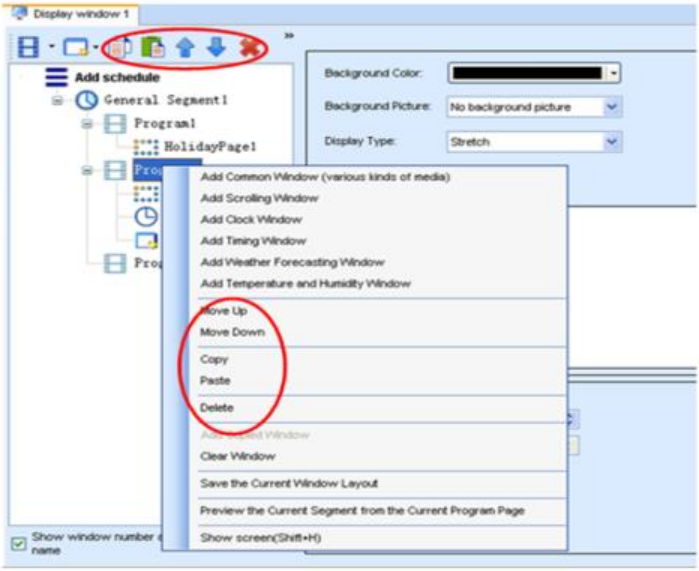


Figure 4-10 Program Page Operation Menu

4.1.3.3 Editing the Display Window

1) Adding a display window

After adding a program page, you need to add a display window to this program page. Click **Add Window** on the toolbar of the program page to add a window to the current program page. See Figure 4-11:

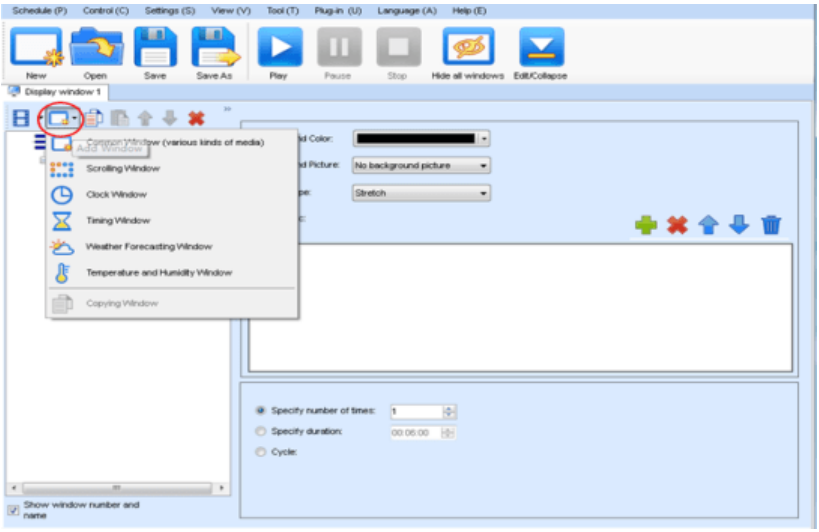


Figure 4-11 Adding a Window to Program Page

After the window is added, the added window is selected and displayed on the screen, as shown in Figure 4-12:

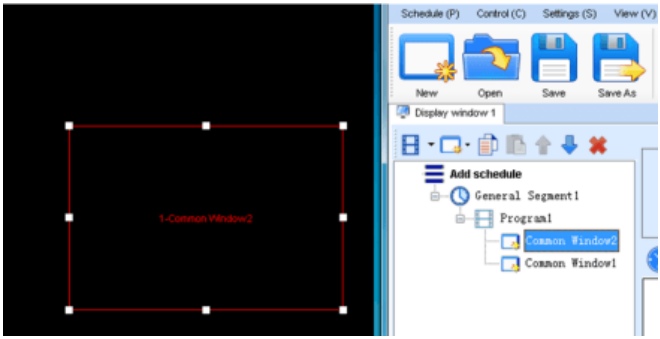


Figure 4-12 Added Window

2) Setting the location and size of the display window

The location and size of the new window is generated randomly and can be adjusted based on actual conditions by using either of the following two methods:

a) Directly specify the new location and size in the setting pane, as shown in Figure 4-13:

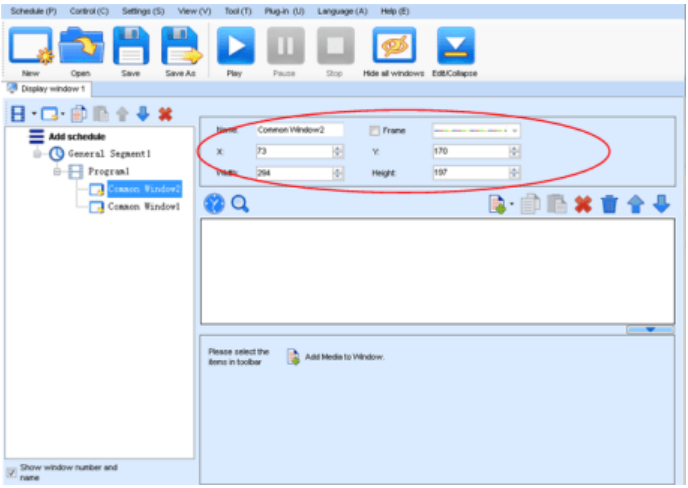


Figure 4-13 Setting the Window Size

b) Click the display window on the screen and adjust its size by using the mouse, as shown in Figure 4-14:

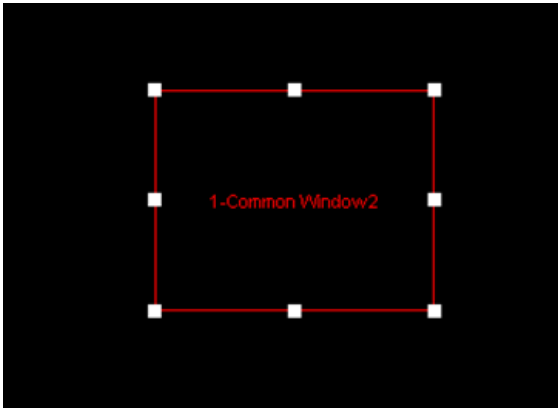


Figure 4-14 Adjusting the Window Size Using the Mouse

3) Deleting a display window

Select the window to be deleted. Click the delete key to delete the window, as shown in Figure 4-15:

Figure 4-15 Deleting the Display Window

4) Moving a display window

Select the program or window. Click the direction key to adjust the playing sequence, as shown in Figure 4-16:

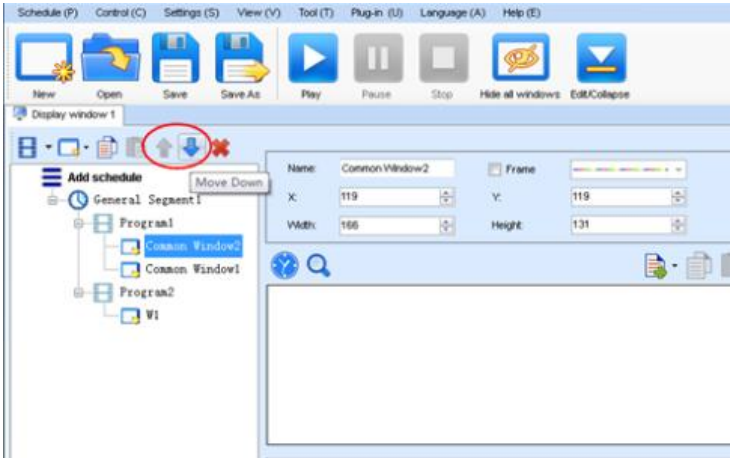


Figure 4-16 Moving a Display Window

4.1.3.4 Editing the Media

1) Adding the media

The type of window for adding the media is **Common Window**. Click the **Add Media** button of a common window to select media of different types to be added into the media list. See Figure 4-17:

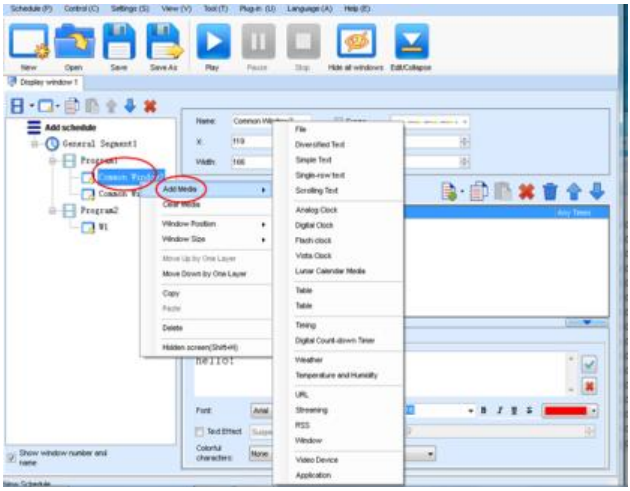


Figure 4-17 Adding the Media

After adding the media, you can set the media texts and properties, as shown in Figure 4-18.

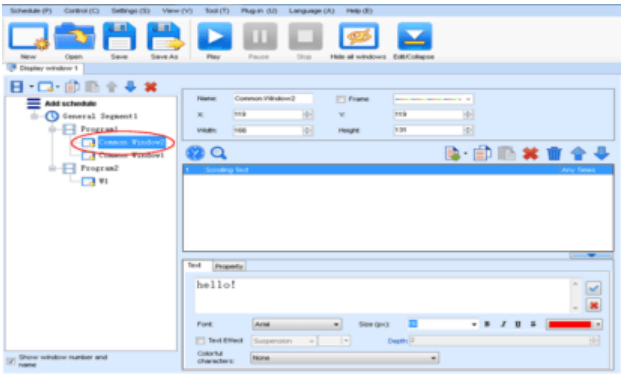


Figure 4-18 Media Setting Window

2) Setting the media properties

Different media have different properties. After a medium in the media list is selected, the property page of this medium is displayed below the selected medium. On this property page, you can change the properties of the medium. See Figure 4-19:

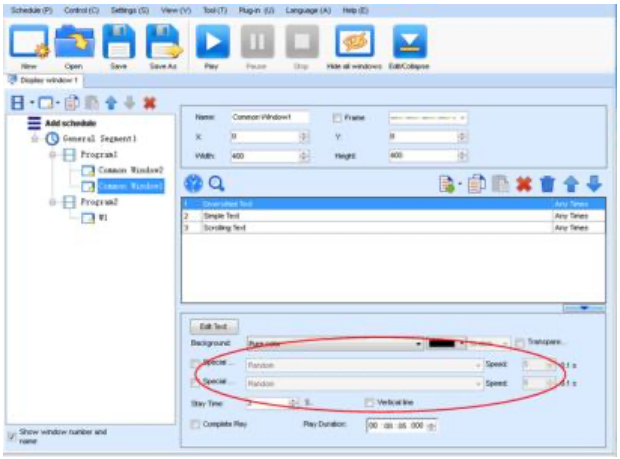
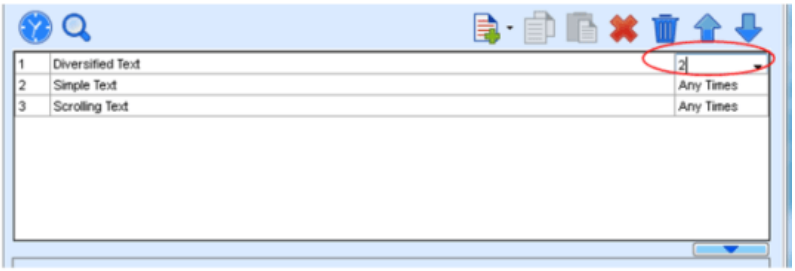


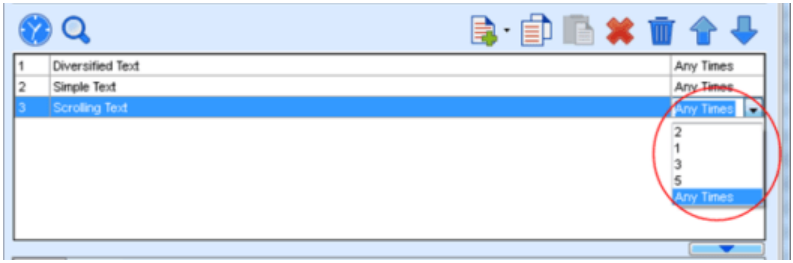
Figure 4-19 Properties of Medium

3) Editing the media in the common window

In an actual application, if different playing times are required for different media, you can select the media in the media list and then double click **Times to Play** to modify the playing times by either entering a new value or selecting a value from the drop-down list. See Figure 4-20:



Double click



Modify

Figure 4-20 Changing the Media Playing Times

Right click the media to perform operations on the selected media, as shown in Figure 4-21:

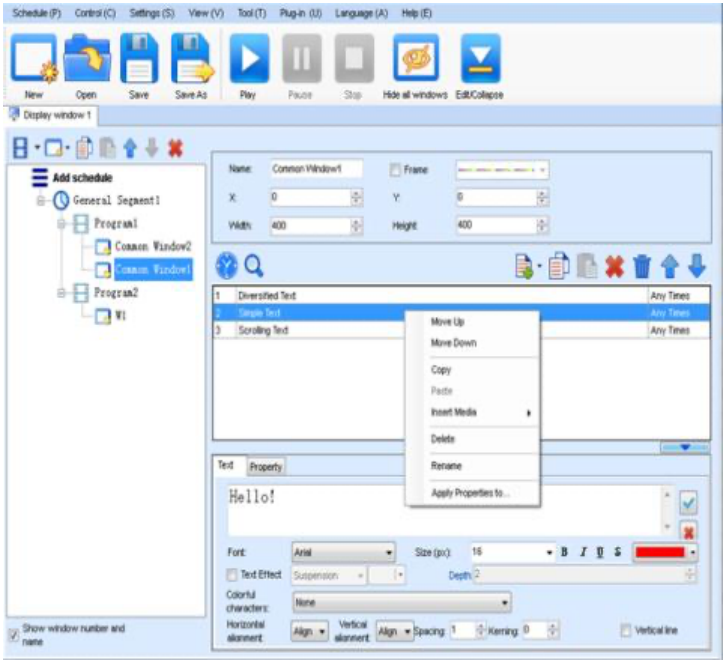


Figure 4-21 Media Operation Menu

Right click a blank area in the media playlist. A media playing menu is displayed, as shown in Figure 4-22:

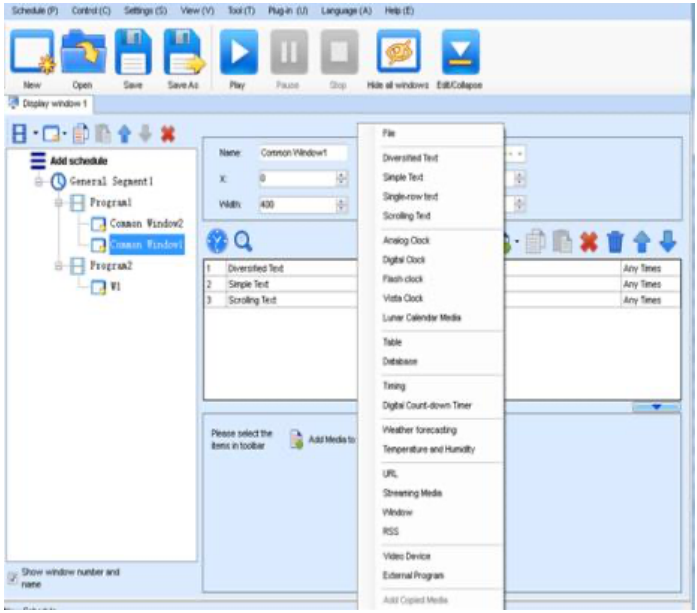


Figure 4-22 Media Playing Menu

4.1.3.5 Playing the Media

After the playing mode is edited or loaded, click the play key on the main toolbar to start the current playing mode, as shown in Figure 4-23:

Figure 4-23 Play Key on the Toolbar

After play is activated, the editing page is switched to the playing page, as shown in Figure 4-24:

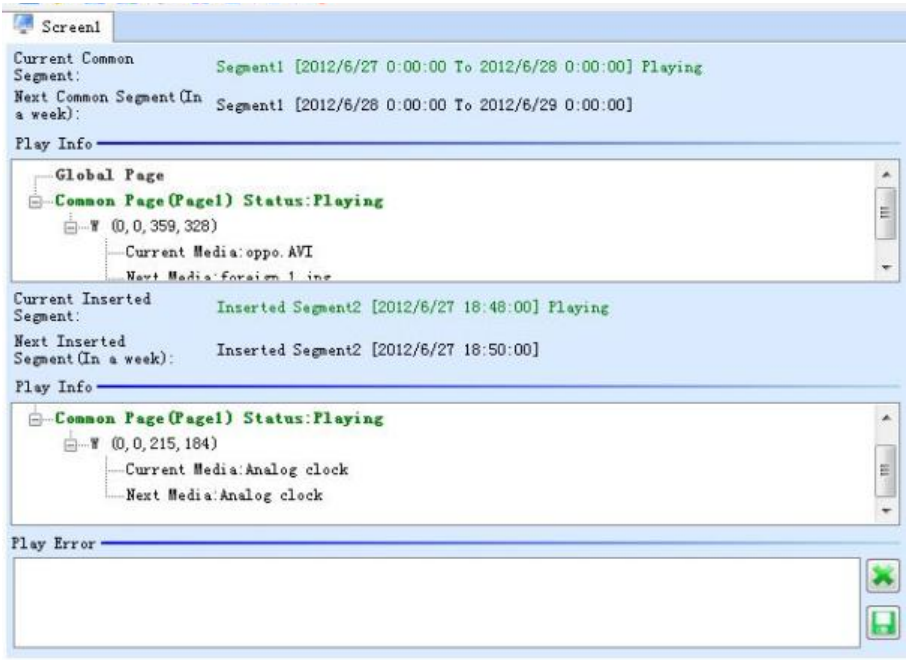


Figure 4-24 Play Information Page

Clicking **Pause** or **Stop** on the toolbar can pause or stop the currently played program. You can also perform this operation by using the operation menu that appears when you right click the display window. See Figure 4-25:

Figure 4-25 Short-cut Menu

Attention: All display windows on the same program page plays simultaneously. If the display windows overlap with each other, the upper-layer windows will cover the lower-layer windows. For example, if you add a common window and then a clock window of the same size and coordinate, the common window will cover the clock window when they are playing. If you want to display the clock window, you need to click **Pause**, perform the **Move Up** operation to move the clock window to the front side of the common window, and then click **Play**. If the clock is displayed transparently, the clock will overlay the media of the common window when the playing solution is played upon the moving operation. Figure 4-26 shows the displaying effect:

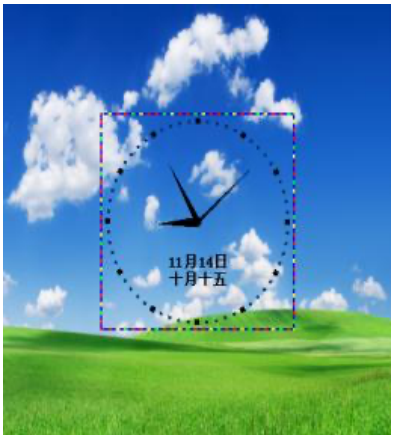


Figure 4-26 Transparent Displaying Effect of the Clock

4.1.4 Saving and Opening a Playing Solution

Save: After a playing solution is created, you can click **Schedule** on the toolbar and select **Save** or **Save As** to save the playing solution in the format of **xxxx.plym**. See Figure 4-27:

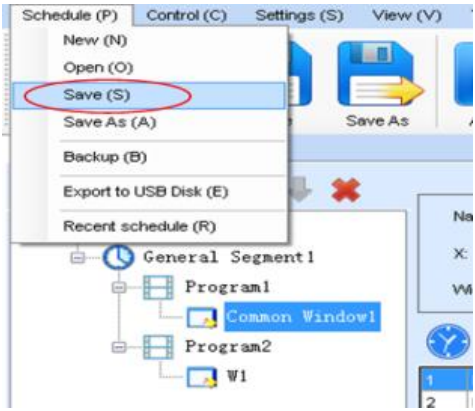


Figure 4-27 Saving a Playing Solution File

Open: After a playing solution is saved, you can directly click **Schedule** in the toolbar and select **Open** to open the playing solution. See Figure 4-28:

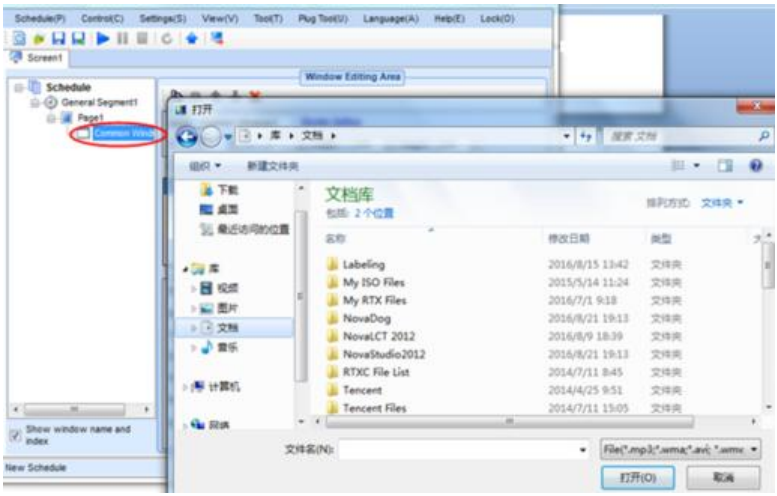


Figure 4-28 Opening a Playing Solution File

Chapter 5 Startup, Shutdown, and Maintenance

5.1 Startup Sequence

1) Start the distribution box for the LED display.
2) Start the control computer.
3) Start the video processor.
4) Start the sending box.
5) Screen color will reach to best status after 5 minutes lighting up.(Color gradually c hanges as the temperaure warms up)

5.2 Shutdown Sequence

1) Shut down the video processor.
2) Shut down the sending box.
3) Shut down the control PC.
4) Shut down the distribution box for the LED display.

5.3 Daily Maintenance

1） Check whether ambient temperature and humidity meet the operating conditions for the LED display on a daily basis.

2） Use the LED display and its auxiliary devices at least twice a week and two hours each time. Before using the LED display, perform warm-up operations if it has been idle for 14 days (for details about warm-up operations, see Section 5.4).

3） It is recommended that you should use a soft antistatic brush to clear dust on the screen surface monthly in order to achieve an optimum displaying effect.

4） Check the parts in the distribution box quarterly. Check whether the power cables and signal cables for the LED display are connected securely and safely, and whether the display is grounded reliably.

5） Check whether the steel structure is secure on a yearly basis.

6） In dry seasons, perform warm-up operations on the LED display and its auxiliary devices at least once every two months if it is idle for a long period of time.

7） In wet seasons, perform warm-up operations on the LED display and its auxiliary

devices at least once a month if it is idle for a long period of time.

5.4 Warm-up Operation

If the LED display has been idle for 14 days, perform warm-up operations before using the LED display.

Set the prestored picture as follows when you initially start the LED display. This setting is for warm-up operation only. You do not need to set the prestored picture if the LED display is used frequently.

5.4.1 Setting the Prestored Picture

For details about how to set the prestored picture, refer to Section 3.6. Select a black background picture. Set **Boot Screen** to 60 seconds. Set both **Cable Disconnect** and **No DVI Signal** to **Prestored Picture**. Then click **Save to Hardware**. See Figure 5-1.

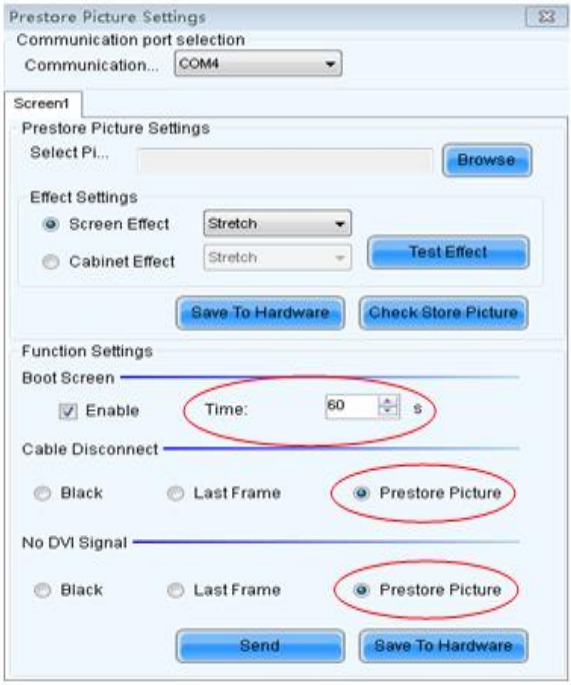


Figure 5-1: Prestore Picture Setting

5.4.2 Ageing Operation

On the main window, click **Brightness** to enter the brightness adjustment interface, as shown in Figure 5-2:

Figure 5-2 Main Window for Advanced User

Select **Manual** and set the brightness to 26 (the brightness is about 10%) by dragging the scroll bar below **Brightness Adjustment**. See Figure 5-3:

Figure 5-3 Manual Adjustment

NOTE: It is recommended that manual brightness adjustment be finished within 60 seconds.

Return to the main window. Click **Display Control** to enter the **Screen Control** interface. Set **Self Test** to **White**. Click **Send** to finish the operation. As showed in Figure 5-4 and Figure 5-5.

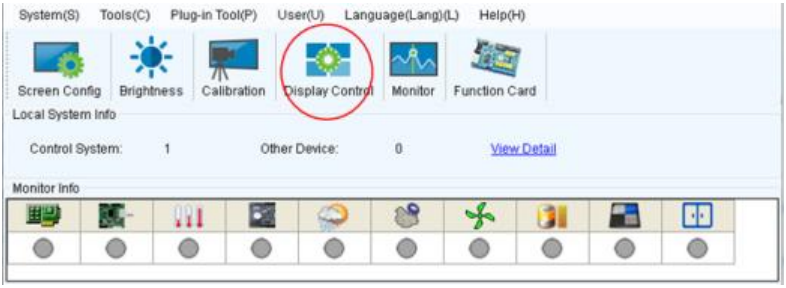


Figure 5-4 Display Control

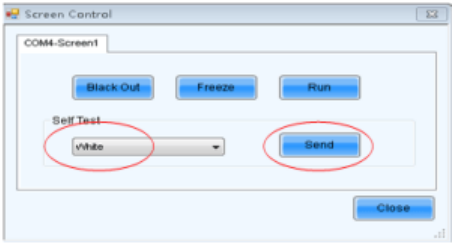


Fig 5-5 Display Control

Adjust the screen brightness and perform ageing based on the steps described in Section 5.4.2.

SN	Display Brightness	Ageing time
1	10%	1 h
2	30%	2 h
3	60%	2 h
4	80%	2.5 h
5	100%	0.5 h

Chapter 6 Troubleshooting and Component Replacing

6.1 Common Faults and Troubleshooting Methods

6.1.1 Failure in Lighting up the Display

Causes:

1) No power is supplied to the display or the control devices.
2) The LED display does not have input signals.
3) The control PC is in sleep mode or the graphics card is set incorrectly.

Troubleshooting method:

1) Check AC power input of the display and the control devices.
2) Check cables between the sending box and the receiving card. Check whether the DVI cable between the control PC and the sending box is connected reliably.
3) Check whether the control PC is in sleep mode or monitor protection mode. If the control PC is not in sleep mode, check whether the graphics card is configured properly on the software.

6.1.2 Incomplete Picture or Incorrect Position of Picture Displayed

Causes:

1) The connecting file for the screen is incorrect.
2) Receiving card signal cables between cabinets do not contact properly.
3) The displaying position and screen size are set incorrectly.

Troubleshooting method:

1) Check whether the display's signal cable connection method is same to that of the loaded file xxxx.scr.
2) Check whether the signal cable is connected to the cabinet receiving card. If the receiving card is faulty, replace the receiving card.
3) Check whether Displaying Position and Screen Size on the software are set to actual screen size.

6.1.3 Screen Blinking

Causes:

1) The ports on the sending box are loose, or the signal cables are too long.
2) The output resolution of the playing device or sending box is set incorrectly.

Troubleshooting method:

1) Check whether the DVI cable and signal cable are connected to the display and devices, or whether the length of signal cables exceeds the maximum transmission distance (the effective transmission distance shall not exceed 10 m for DVI cable, 100 m for signal cable, 300 m for multi-mode optical fiber, and 15 km for single-mode optical fiber).
2) Check whether the resolution of the playing device and the sending box is greater than or equal to the resolution of the screen.

6.1.4 Blinking of a Cabinet in the Display

Causes:

1) The output of receiving card or hub card is faulty.
2) The receiving card program is incorrect.

Troubleshooting method:

1) Check whether the receiving card signal cable and hub card in the cabinet are connected correctly.
2) Check the receiving card program for the cabinet or check the receiving card.

6.1.5 Failure in Lighting up of a Cabinet in the Display

Causes:

1) The power supply, receiving card, or hub card for the cabinet is faulty.
2) Signal output of the previous cabinet is faulty.

Troubleshooting method:

1) Check voltage at the DC side of the power supply and the receiving card power supply. Check the receiving card signal indicator light in the cabinet. Check whether the hub card contacts properly with the receiving card.
2) Check output signals of the receiving card of the previous cabinet, or replace the signal cable.

6.1.6 Failure in Lighting up Part of the Modules in the Cabinet

Causes:

1) Output of the power supply for the modules is faulty.
2) Output of signal which controls the related modules is faulty.

Troubleshooting method:

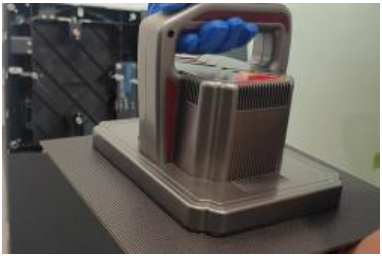
1) Check DC voltage for the modules.
2) Check the hub card ports that control the modules.

6.2 Replacement of Main Components

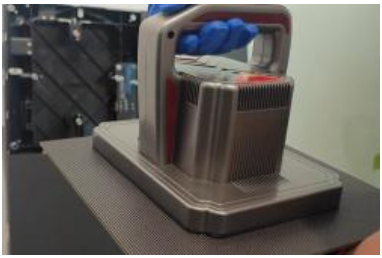
Before performing maintenance on the LED display, cut off the power supply to ensure your personal safety and equipment safety.

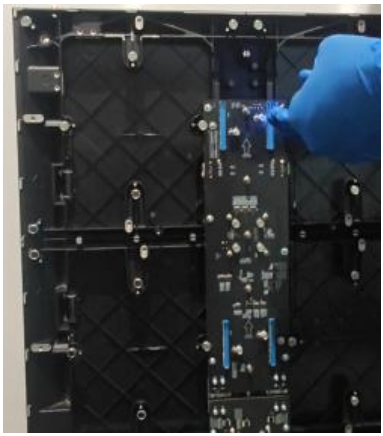
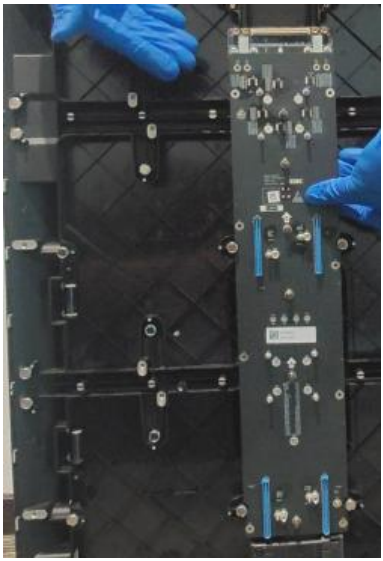
6.2.1 Front Maintenance of Main Components

Replace a module of the LED display based on the following steps:

Front maintenance step	Picture	Description
Step 1		1. Locate the malfunction cabinet and malfunction module. 2. Disconnect the screen power. 3. Press the front maintenance tool by aiming at the center of the malfunction module (If the front maintenance tool is a suction tool, turn on the switch)
Step 2		1. Suck out the module 2. Remove it from the tool. (If the front maintenance tool is a suction tool, grab and hold the module before turn off the tool)

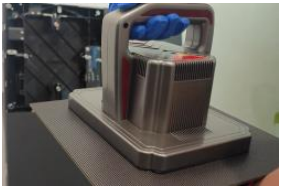
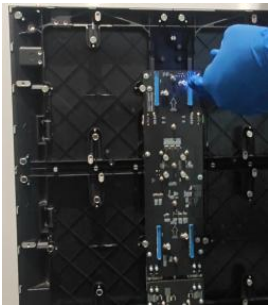
Replace hub card (receiving card is integrated on the hub card) of the LED display based on the following steps:

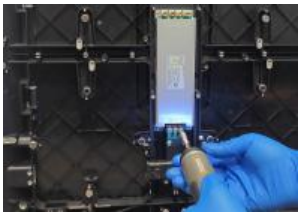
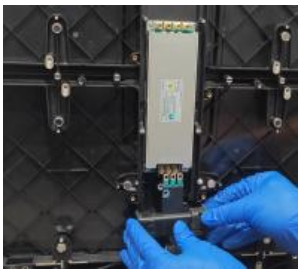
Front maintenance step	Picture	Description
Step 1		1. Locate the malfunction cabinet. 2. Locate the malfunction hub card. 3. Disconnect the screen power. 4. Press the front maintenance tool by aiming at the center of the module, which is at the corresponding position of the malfunction hub card (If the front maintenance tool is a suction tool, turn on the switch)
Step 2		1. Suck out the module 2. Remove it from the tool. (If the front maintenance tool is a suction tool, grab and hold the module before turn off the tool)

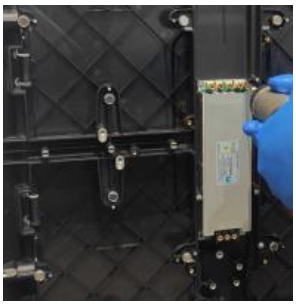
Step 3	 	A connector card is located at the middle between upper hub and lower hub. Use a screwdriver to remove the screws fixing the hub card. Screw number for 500x1000: Upper hub: 6 used to fix with cabinet 4 used to fix with connector Lower hub: 8 used to fix with cabinet 4 used to fix with connector

Step 4	 	Pull out the hub card

Replace a power supply of the LED display based on the following steps:

Front maintenance step	Picture	Description
Step 1		1. Locate the malfunction cabinet. 2. Locate the malfunction PSU. 3. Disconnect the screen power. 4. Press the front maintenance tool by aiming at the center of the module, which is at the corresponding position of the lower hub card (If the front maintenance tool is a suction tool, turn on the switch)
Step 2		1. Suck out the module 2. Remove it from the tool. (If the front maintenance tool is a suction tool, grab and hold the module before turn off the tool)
Step 3		A connector card is located at the middle between upper hub and lower hub. Use a screwdriver to remove the screws fixing the lower hub card. Screw number for 500x1000: Lower hub: 8 used to fix with cabinet 4 used to fix with connector

Step 4		Remove the lower hub card
Step 5		Use a screwdriver to remove the screws fixing the IEC connector. Screw number for 500x1000: IEC connector: 3 used to fix with cabinet 3 used to fix with PSU
Step 6		Remove IEC connector

Step 7		Use a screwdriver to remove the screws fixing the PSU. Screw number for 500x1000: PSU: 2 used to fix with cabinet
Step 8		Remove the malfunction PSU.

6.2.2 Rear Maintenance of Main Components

When replacing the module, pull out the network cable and power cable, push out the module by gripping the handle of the module with your fingers, then pull out the cable (to prevent the module from falling), and take out the module; when installing the module, pay attention to the direction of the module, DC cable and the DC plug-in cable

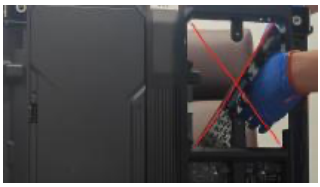
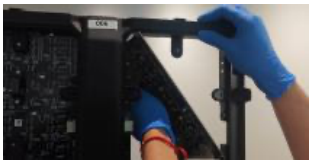
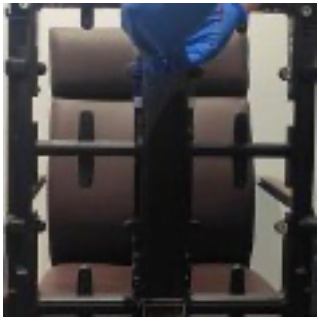
Replace module of the LED display based on the following steps:

Rear maintenance step	Picture	Description
Step 1		1. Locate the malfunction cabinet. 2. Locate the malfunction module. 3. Disconnect the screen power.
Step 2		Remove the back cover plate from the cabinet that has the malfunction module.
Step 3		Grab the malfunction module rear handle.
Step 4		Push forward until the module detached from the cabinet

Step 5		Slowly rotate to one of the red line position
Step 6		Slowly move backward through the hole

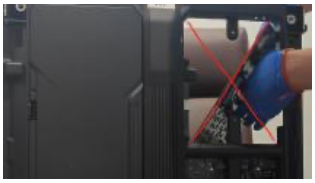
Replace HUB card of the LED display based on the following steps:

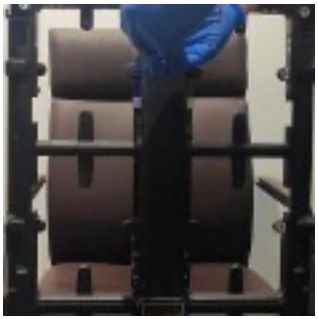
Rear maintenance step	Picture	Description
Step 1		1. Locate the malfunction cabinet. 2. Locate the malfunction hub card. 3. Disconnect the screen power.
Step 2		Remove the back cover plate from the cabinet that has the malfunction hub card.
Step 3		Grab the module rear handle.
Step 4		Push forward until the module detached from the cabinet

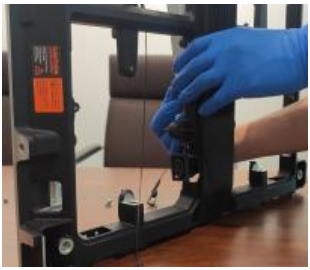
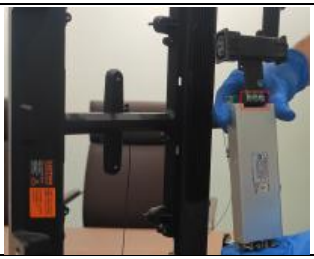
Step 5		Slowly rotate to one of the red line positions
Step 6		Slowly move backward through the hole
Step 7		Remove the screws used to fix the upper hub card, connector card and lower hub card. (500x1000) Screw number for 500x1000: Upper hub: 6 used to fix with cabinet Connector card: 2 used to fix with cabinet Lower hub: 8 used to fix with cabinet
Step 8		Push the hub card forward. (Upper+connector+lower)

Step 9		1. Slowly rotate the hub card to suitable position. 2. Move the hub card backward through the hole.

Replace a power supply of the LED display based on the following steps:

Rear maintenance step	Picture	Description
Step 1		1. Locate the malfunction cabinet. 2. Locate the malfunction hub card. 3. Disconnect the screen power.
Step 2		Remove the back cover plate from the cabinet that has the malfunction hub card.
Step 3		Grab the module rear handle.
Step 4		Push forward until the module detached from the cabinet
Step 5		Slowly rotate to one of the red line positions

Step 6		Slowly move backward through the hole
Step 7		Remove the screws used to fix the upper hub card, connector card and lower hub card. (500x1000) Screw number for 500x1000: Upper hub: 6 used to fix with cabinet Connector card: 2 used to fix with cabinet Lower hub: 8 used to fix with cabinet
Step 8		Push the hub card forward. (Upper+connector+lower)
Step 9		1. Slowly rotate the hub card to suitable position. 2. Move the hub card backward through the hole.

Step 10		Use a screwdriver to remove the screws fixing the PSU and IEC connector. Screw number for 500x1000: 3 used to fix IEC connector 2 used to fix PSU
Step 11		Remove PSU and IEC connector
Step 12		Use a screwdriver to remove the screws fixing between the PSU and IEC connector. Screw number for 500x1000: 3 used to fix between the PSU and IEC connector.

Chapter 7 Packaging Transportation and Storage

7.1 Packaging

The EasyFLEX series products would be packaged with standard carton package.

Figure 7-1 Carton Package

7.2 Transportation

The cabinets must be packaged before transportation. The product shall not be placed upside down or horizontally, and must be protected against the wind, rain, direct sunlight, and corrosive liquid during transportation. The stacking layers shall not exceed three layers for wood cases.

7.3 Storage

The cabinets shall be stored in an environment with an ambient temperature ranging from -20°C to +55°C and a relative humidity ranging from 10% to 85% RH. Do not store the cabinets in an environment with volatile, corrosive, or flammable chemical products.

Chapter 8 After-Sales and Warranty

8.1 Warranty Scope

This Warranty Policy applies to LED display products (hereinafter referred to as “Products”) purchased directly from Audio Effetti and within Warranty Period. Any products not purchased directly from Audio Effetti does not apply to this Warranty Policy.

8.2 Warranty Period

The warranty period shall be in accordance with the specific sales contract. Please make sure warranty card or other valid warranty documents are in safekeeping.

8.3 Warranty Service

Products shall be installed and used strictly aligned with the Installment Instructions and Cautions for Use stated in the product manual. If Products have defects of quality, materials, and manufacturing during normal use, Audio Effetti provides warranty service for Products under this Warranty Policy.

8.3.1 Warranty Service Types

1) Online Remote Free Technical Service:

The remote technical guidance provided through instant messaging tools such as telephone, mail, and other means to help solve simple and common technical problems. This service is applicable for technical problems including but not limited to the connection issue of signal cable and power cable, system software issue of software use and parameter settings, and replacement issue of the module, power supply, system card, etc.

2) Return to Factory Repair Service:

For problems of Products that cannot be solved by online remote service, Audio Effetti will confirm with the customers whether to provide returning to the factory repair service. If factory repair service is needed, customer shall bear the freight, insurance, tariff and customs clearance for return delivery of the returned products or parts to

Audio Effetti's service station. And Audio Effetti will send back the repaired products or parts to customer and only bear one-way freight. Audio Effetti will reject unauthorized return delivery via pay upon arrival and will not be liable for any tariffs and custom clearance fees. Audio Effetti shall not be held liable for any defects, damages or losses of the repaired products or parts due to transportation or improper package.

3) Provide On-site Engineer Service for Quality Issues:

If there is a quality issue as stipulated in Article 5 of this Warranty Policy, and Audio Effetti believes the condition is necessary, on-site engineer service free of charge will be provided. In this case, customer shall provide a fault report to Audio Effetti for on-site service application. The content of the fault report shall include but not limited to photos, videos, number of faults, etc., to enable Audio Effetti to conduct preliminary fault judgment. If the quality problem is not covered by this Warranty Policy after the on-site investigation of Audio Effetti's engineer, customer shall pay travel expenses and technical service fees as per Article 7.4. Defective parts replaced by Audio Effetti's on-site engineers shall be the property of Audio Effetti.

8.4 Disclaimer

No warranty liability shall be assumed by Audio Effetti for defects or damages due to the following conditions:

1) Unless written agreed otherwise, this Warranty Policy does not apply to consumables, including but not limited to connectors, networks, fiber optic cables, cables, power cables, signal cables, aviation connectors, and other wire and connections.
2) Defects, malfunctions or damages caused by improper use, improper handling, improper operation, improper installation/disassembly of the display or any other customer misconduct. Defects, malfunctions or damages caused during transportation.
3) Unauthorized disassembly and repair without permission of Audio Effetti.
4) Improper use or improper maintenance not in accordance with the product manual.
5) Man-made damages, physical damages, accident damages and product misuse, such as component defect damage, PCB board defect, etc.

6) Product damage or malfunction caused by Force Majeure Events, including but not limited to war, terrorist activities, floods, fires, earthquakes, lightning, etc.
7) The product shall be stored in a dry, ventilated environment. Any product defects, malfunctions or damages caused by storage in an external environment that does not comply with the product manual, including but not limited to extreme weather, humidity, salt haze, pressure, lightning, sealed environment, compressed space storage etc.
8) Products used in conditions not meeting product parameters including, but not limited to lower or higher voltage, extreme or excessive power surges, improper power conditions.
9) Defects, malfunctions, or damages caused by non-compliance with technical guidelines, instructions, or precautions during the installation.
10) Natural loss of brightness and color under normal conditions. Normal degradation in the performance of the Product, normal wear and tear.
11) Lack of necessary maintenance.
12) Other repairs not caused by product quality, design, and manufacturing.
13) Valid warranty documents cannot be provided. Product serial number is torn or damaged. Product shell or other external parts are damaged.
14) Repairs after Warranty Period.
15) Products which have too significant damages caused by mishandling, accidents, improper maintenance, and failure to comply with product manual to be prepared.
16) Products malfunctions caused by unmatched play or control devices that are not provided by Audio Effetti. If Products are damaged arising out of the aforementioned unmatched devices and require Audio Effetti's repair, charging rate shall be as per Article 7.4.

8.5 Warranty Service Process

1) Remote Service Process:

Submit service requirements through website, email, telephone and other service channels of Audio Effetti with warranty card or contract number. Specific content of the service and contact information shall be provided.

2) Product Return to Repair Process:

Submit service requirements through the website, email, telephone and other service channels of Audio Effetti with warranty card or contract number. Packing list of the returned product and postal information to receive the repaired product shall be provided.

Audio Effetti's postal information is stipulated in Article 11.

Customer instructions:

a) Shall provide a brief fault report (can be attached to the surface of the repaired item)

b) Shall provide packing list (including contract number, model and quantity of the repaired item)

c) Shall provide receipt postal information (company name, address, consignee, contact information, etc.)

d) To avoid damages of the returned products during transportation, please be cautious about the package and protection of the products. Audio Effetti is not responsible for any damages to the returned products or parts during delivery.

3) On-site Engineer Service Process:

Submit service requirements through the website, email, telephone and other service channels of Audio Effetti with warranty card or contract number. Service content, site address, contact information, and visa application information shall be provided.

8.6 Other

This Warranty Policy is a standard application of Audio Effetti. No other third party (including any agent, distributor or sales representative) is authorized to make any representations or warranties that are different from this Warranty Policy. Unless otherwise confirmed by Audio Effetti in written forms of contract or other documents, any warranty clauses that conflict with this Warranty Policy shall be deemed to be automatically invalid. Final power of interpretation of this Warranty Policy shall be be vested in Audio Effetti.

8.7 Product Warranty Card

Product Warranty Card					
Order No.		**Shipment Date**		**Warranty Period**	
Product Model				**Product Quantity**	
Customer Name		**Contact Information**			
Customer Address:					
Remark(s):					
Warranty Record					
Warranty Date	**Fault and Troubleshooting**		**Completion Date**	**Signature of Customer**	

Contact Information

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