

Unilumin

UpadIV

**PRODUCT
MANUAL**

Rental LED Display



UNILUMIN GROUP CO.,LTD.

Revision Records

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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

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Trademark

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Read the following content carefully to ensure correct use of the indoor 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.

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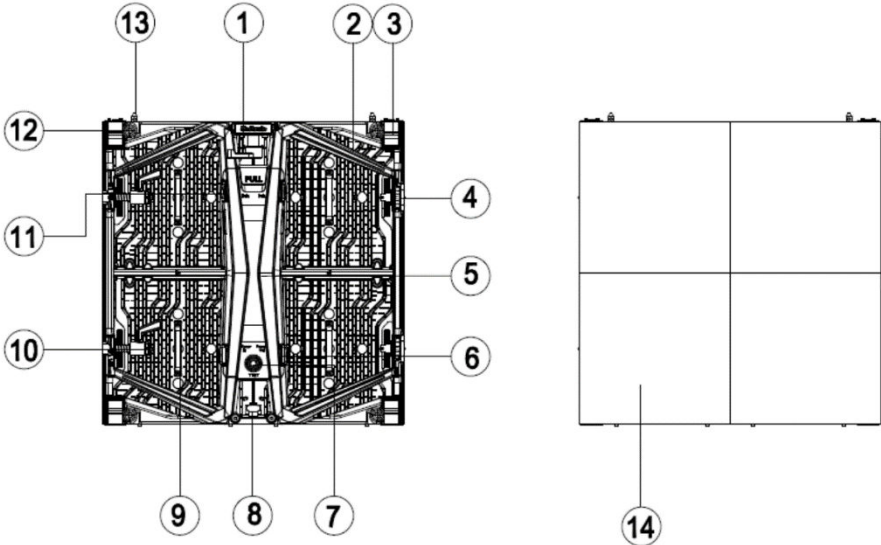
Chapter 1 Product Introduction

The UpadIV series is a latest integrated indoor rental LED display product made of die-cast Magnesium frames. The cabinets are of standard size and thus can be assembled seamlessly and accurately. The cabinets can be assembled by a single person. The angle block replacement takes only 3 seconds. The magnetic modules are modularized to allow quick front service and tool-free rear module service. The automatic protection can protect LEDs at the top and bottom during the whole operating process, effectively reducing over 50% damages caused by installation. The black SMD LED is used to achieve wide viewing angle, high contrast ratio, and sharp image output. This product is well suited to light and dark scenes with the Dual Drive Configuration (DDC) technology. High Dynamic Range (HDR) technology makes the display more gorgeous. The modules have the calibration and data storage function to realize automatic module calibration on site. The UpadIV series can be used as hanged LED display, floor-mounted LED display, and arc-shaped LED display for different application environments.

1.1 Features

- 1) Ultrathin, lightweight, and highly stable Magnesium die casting structure.
- 2) Magnetic module: front service & tool-free rear module service.
- 3) The automatic protection can protect LEDs at the top and bottom.
- 4) DDC and HDR technology.
- 5) Automatic calibration function.
- 6) $-5^{\circ}\sim+10^{\circ}$ high-precision curving supports various designs.
- 7) Can be used as hanged LED display and floor-mounted LED display.

1.2 Cabinet Appearance



- 1. Lock pillar 2. Cabinet handle 3. Automatic protection structure 4. Angle block slot
- 5. Centre box 6. Power port 7. Test button 8. Locking tab 9. Module handle 10. Left/right lock
- 11. Signal port 12. Cabinet mounting hole M10 13. Location pin 14. Module

Figure 1-1 Appearance of Cabinet

NOTE: The preceding figures are for reference only. The product appearance, color and functional parts may differ from those indicated on the figures due to product improvements and product series expansion, and are subject to the specific product model.

1.3 Specification

Parameter		UpadIV2	UpadIV2.9
Physical Parameter	Pixel configuration	1R1G1B	1R1G1B
	LED type	3-in-1 Black SMD	3-in-1 Black SMD
	Pixel density(dots)	147,456	112,896
	Pixels per panel(dots)	192x192	168x168
	Cabinet size(WxHxD)/(mm)	500x500x70.1	500x500x70.1
	Display area(m ²)	0.25	0.25
	Material	Die-cast Magnesium	Die-cast Magnesium
	Planeness(mm)	<0.25	<0.25
	Weight(kg)	6.3	6.3
Electronic parameter	Grey scale(bit)	14	13
	Refresh rate(Hz)	3,840	2,880
	Drive type	1/16	1/28
	Frame frequency(Hz)	50/60	50/60
	Data interconnection	Signal cables≤100m; Multi-mode fibers≤300m; Single-mode fibers≤10km	
Optical parameter	Brightness(nits)	1000	800
	Color temperature(K)	2,000~9,300 adjustable	2,000~9,300 adjustable
	Contrast ratio	3,000:1	3,000:1
	Viewing Angle(°)	140/120	140/120
Electrical parameter	Input voltage(V)	AC 100~240	AC 100~240
	Input frequency(Hz)	50~60	50~60
	Input power <max/typical>(W/panel)	120/40	120/40
Circumstance parameter	Storage temperature and humidity(°C/RH)	-20~+50/10~80%	-20~+50/10~80%
	Operation temperature and humidity(°C/RH)	-10~+45/10~80%	-10~+45/10~80%
	Ingress protection	IP30	IP30

Note: Specifications are for reference only and are subject to change without notice.

1.4 Scope of Application

The UpadIV series products can be assembled seamlessly into a screen of any size, and are extensively used for performance stages, high-end automotive shows, summit forums, exhibitions, events, artistic performance, and other public places.



Automotive Show



Corporate & Conference



TV Show



Stage

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 Installation of Floor-mounted LED Display

- 1) Adjust all ground beams to the same level by using a horizontal ruler.
- 2) Connect the ground beam support to the back frame.
- 3) Install the cabinets sequentially from bottom to top and from middle to both sides. Fasten the adjacent cabinets with locks. For details, refer to “Fastening Upper and Lower Cabinets with Locks” and “Fastening Left and Right Cabinets with Locks”. (The number of cabinets in the horizontal direction is not restricted, but the total number of all cabinets in the vertical direction cannot exceed 6M.)
- 4) Fasten the cabinets with connectors on the back frame.
- 5) Add a suitable number of counterweights such as sand bags to the ground beam support based on the safety conditions on the installation site, in order to secure the support to the ground.

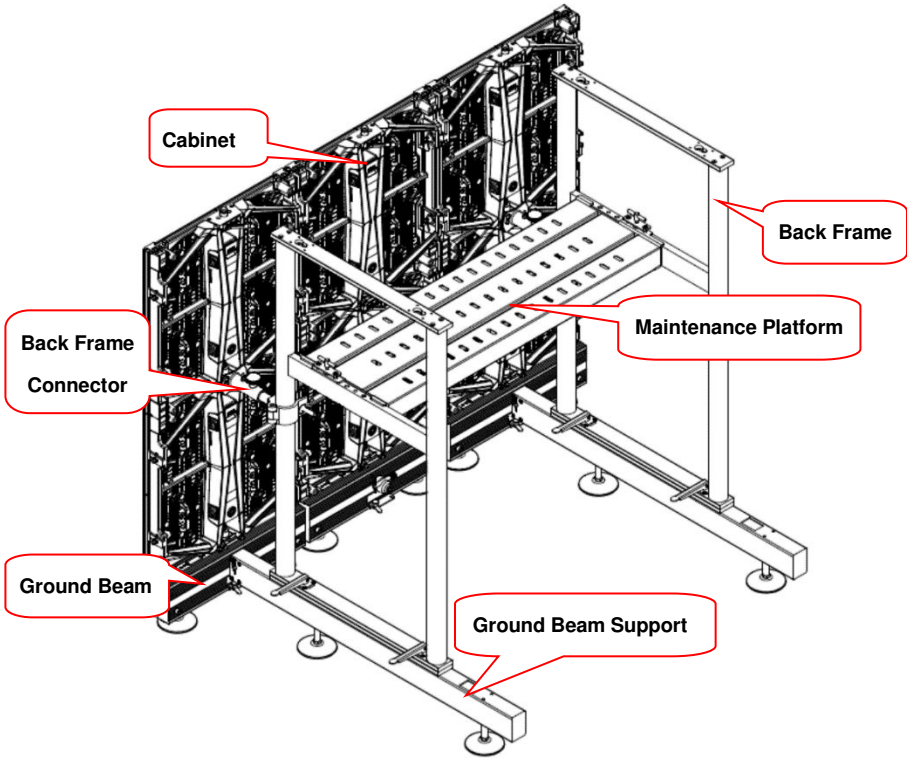






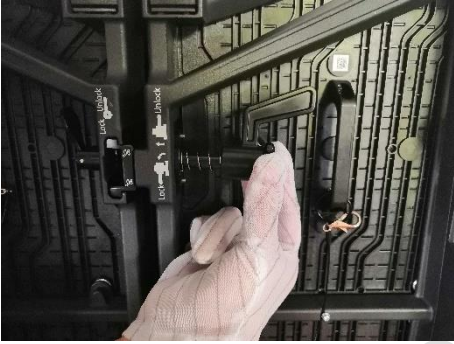




Figure 2-1 Installation of Floor-mounted LED Display

Installation steps are as follows:

Fastening Upper and Lower Cabinets with Locks		
Step	Picture	Description
1	 A close-up photograph showing a hand in a white glove turning a blue locking tab on a black metal cabinet. The tab is being rotated to its leftmost position. The brand name 'Unitumia' is visible on the metal plate below the tab.	Turn the locking tab to the leftmost position.
2	 A close-up photograph showing a hand in a white glove lifting the blue locking tab upwards. The tab is now in a vertical position. The brand name 'Unitumia' is visible on the metal plate below the tab.	Lift the locking tab.
3	 A close-up photograph showing a hand in a white glove pushing the blue locking tab to the right side. The tab is now in a horizontal position on the right. The brand name 'Unitumia' is visible on the metal plate below the tab.	Push the lock to the locking position on the right side.

Operation of Replacing Angle Block		
Step	Picture Instruction	Operation
1		Put hand shank up.
2		Remove angle block and replace it with a new one.
3		Press down the hand shank

Operation of Left-right Connection		
Step	Picture Instruction	Operation
1		Keep handle up then push it through left cabinet
2		Switch hand shank to horizontal
3		Press down the hand shank

2.2.2 Installation of Hanged LED Display

- 1) Adjust the levelness of the hanging beam by using the synthetic fibre slings, to prevent tilting of the LED display, as shown in Figure 2-9.

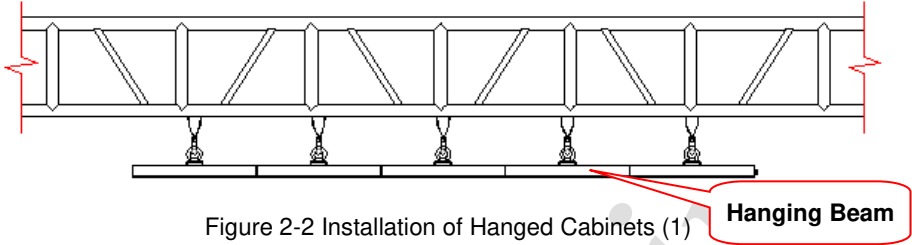


Figure 2-2 Installation of Hanged Cabinets (1)

- 2) Fasten the cabinets sequentially from middle to both sides. These cabinets can be fastened through upper/lower locks to the hanging beam and can be fastened with each other through the left/right locks, as shown in Figure 2-10.

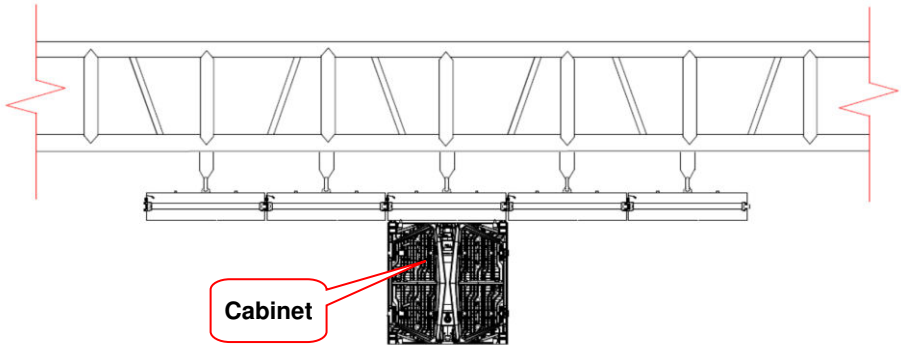


Figure 2-3 Installation of Hanged Cabinets (2)

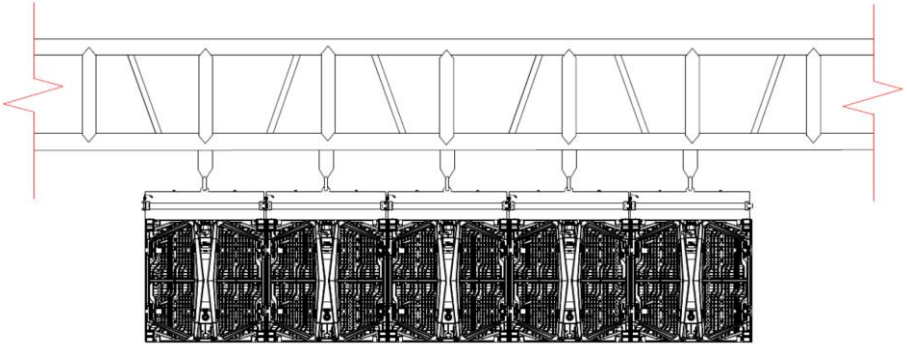


Figure 2-4 Installation of Hanged Cabinets (3)

- 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 number of all cabinets in the vertical direction shall not be more than 10M).

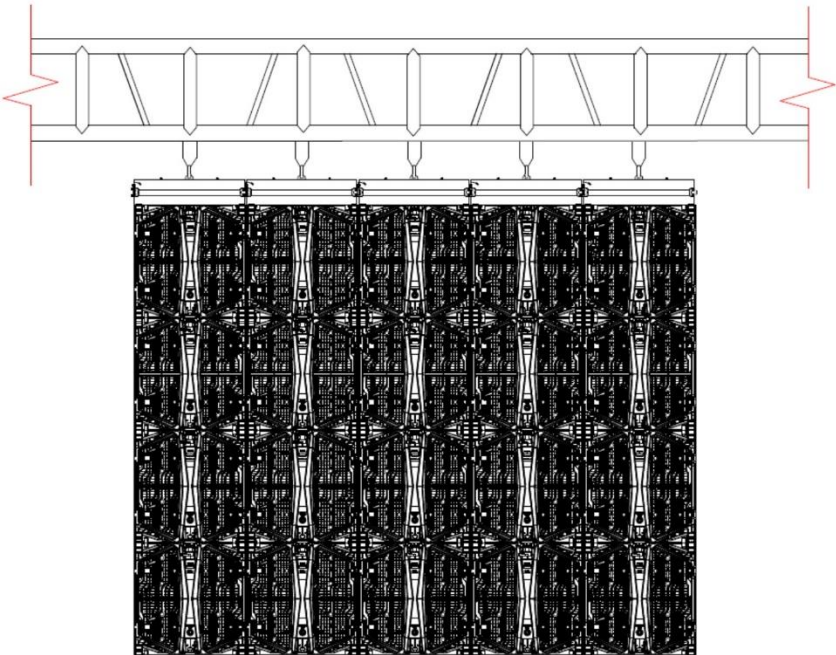


Figure 2-5 Installation of Hanged Cabinets (4)

2.3 Wiring for LED Display

2.3.1 Common Cables

Common cables used for the indoor series LED displays include:



Incoming Power Cable



Power Cable Passing Through Cabinet



Incoming Signal Cable



Signal Cable Passing Through Cabinet



DVI Cable



USB Cable

2.3.2 Signal Cable Connection

Figure 2-6 shows the signal cable connection for cabinets with an arrangement of 6 cabinets (Width) \times 4 cabinets (Height). Signal cables shall be connected based on the wiring diagram of the delivered products for the project.

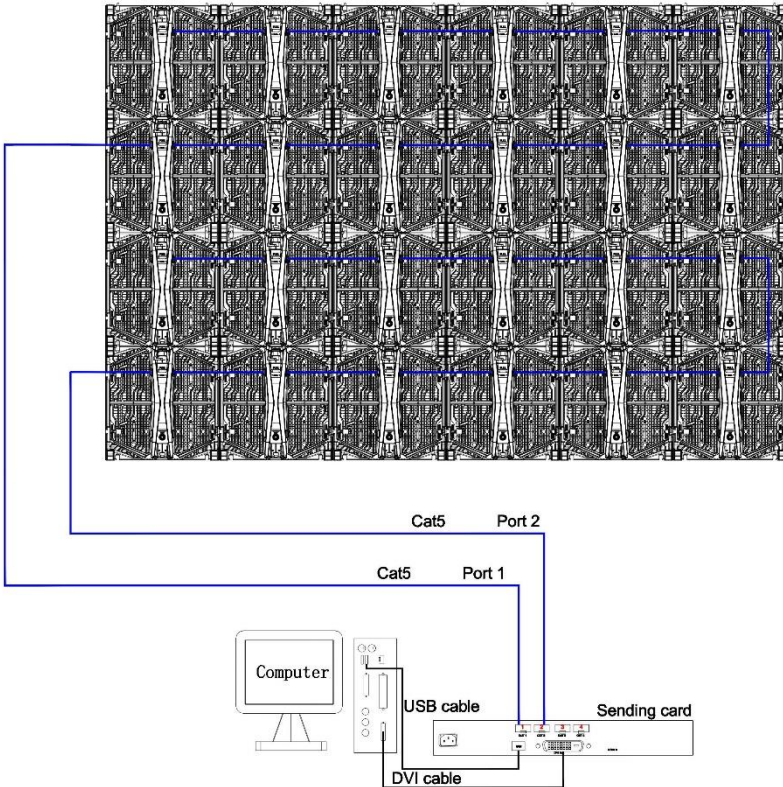


Figure 2-6 Signal Cable Connection Diagram

2.3.3 Power Cable Connection

Figure 2-7 shows the power cable connection for cabinets with an arrangement of 6 cabinets (Width) × 4 cabinets (Height). Power cables shall be connected based on the wiring diagram of the delivered products for the project.

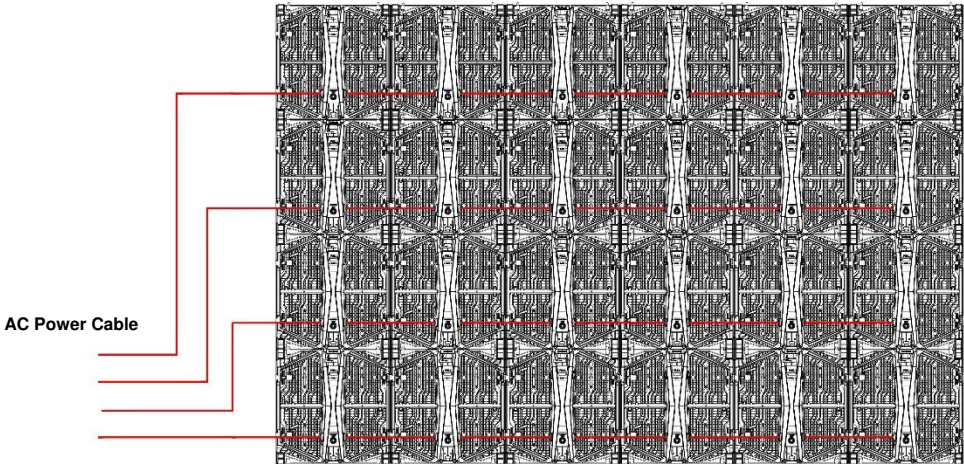


Figure 2-7 Power Cable Connection Diagram

2.3.4 Distribution Box for Rental LED Display

The distribution box for rental LED display is specifically designed for rental application. The distribution box has features such as small size, light weight, quick installation and maintenance, and is designed with truckles for easy movement and transportation. The CEE standard compliant power plugs are used for the inputs and outputs. The “stepwise delayed power-on” mode is used for the output to avoid instant impacts of large load on the power grid. This can effectively protect the electronic elements in the LED display and extend its lifespan. The multiple outputs, strong compatibility, and high flexibility can realize quick power connection. The highly reliable and enclosed cabinet can avoid direct contact with human body and effectively prevent foreign objects. Protection against short circuit, overcurrent, overvoltage, overload, overtemperature, and lightning is provided.

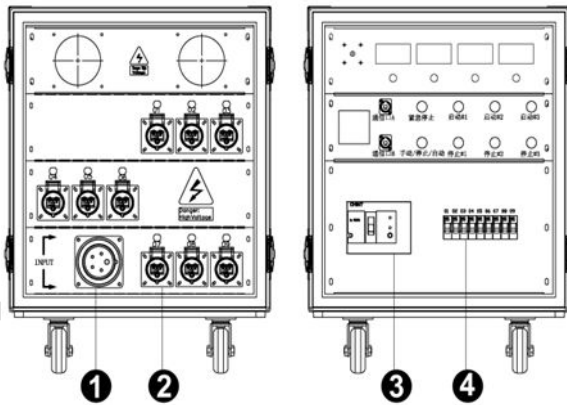


Figure 2-8 Internal Structure of Distribution Box

SN	Component	Remark (s)
1	Input port	3-phase, 5-wire power supply
2	Output port	Power output port
3	Master switch	Control main power on or power off
4	Air switch	Control branch power on or power off

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 Preparation

3.2.1 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).

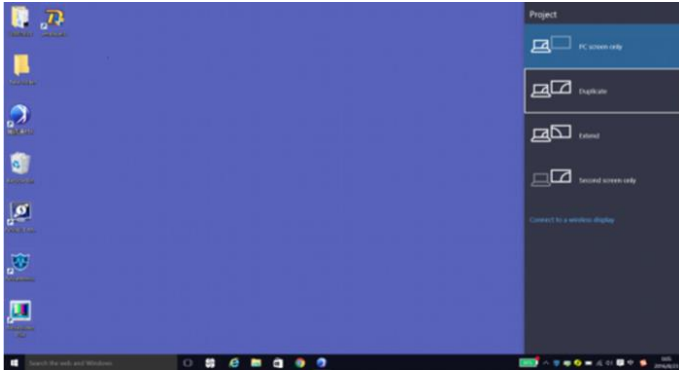


Figure 3-1 Replication Mode

3.2.2 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 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.

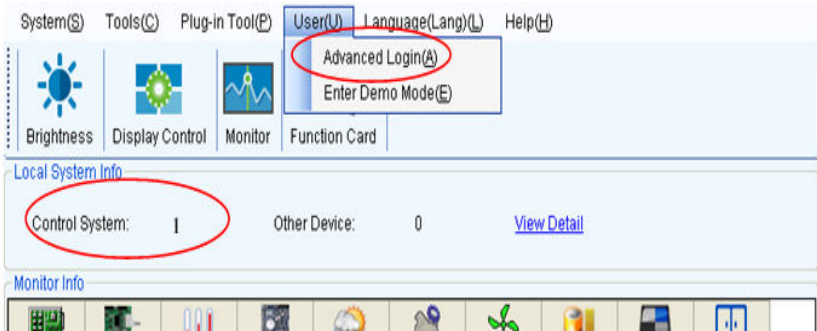


Figure 3-3 Main Window of UniLCT-Mars

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

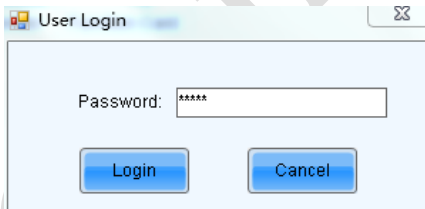


Figure 3-4 User Login

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:

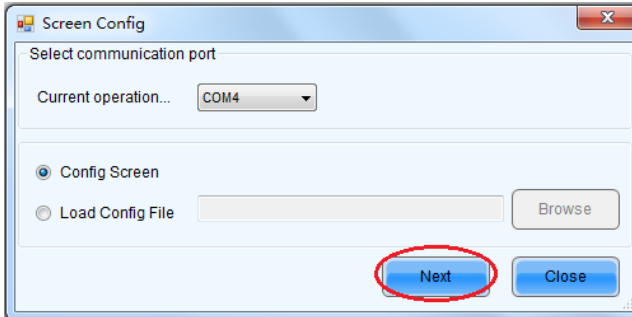


Figure 3-6 Screen Config

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.

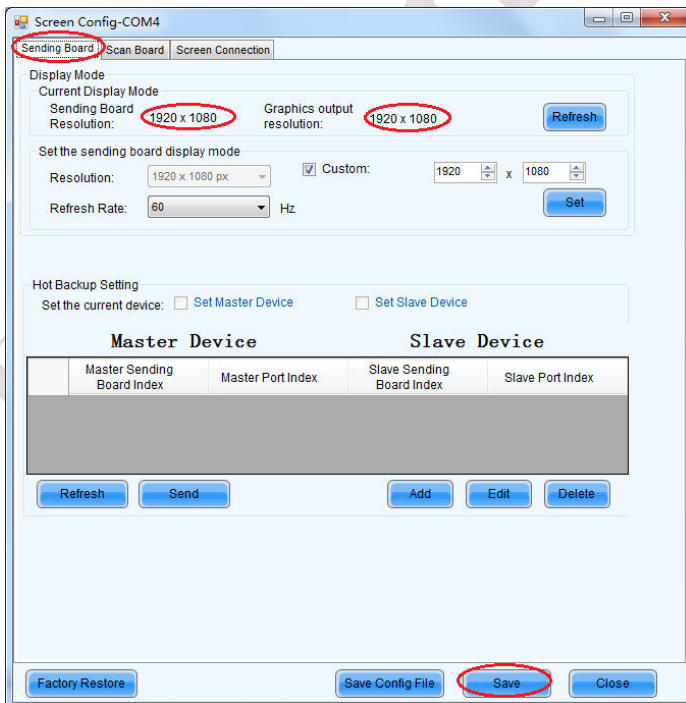


Figure 3-7 Sending Board Configuration

Chapter 3 LED Display Control Setting

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

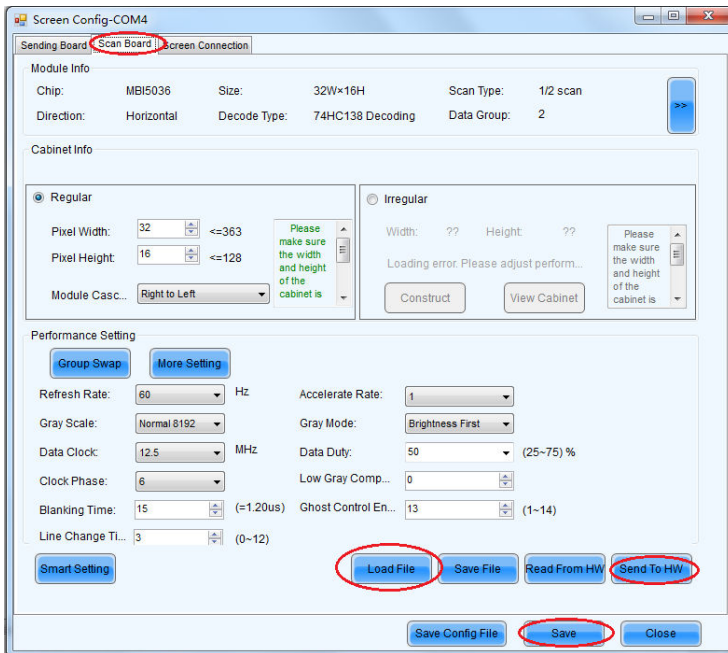


Figure 3-8 Scan Board Configuration

- 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.

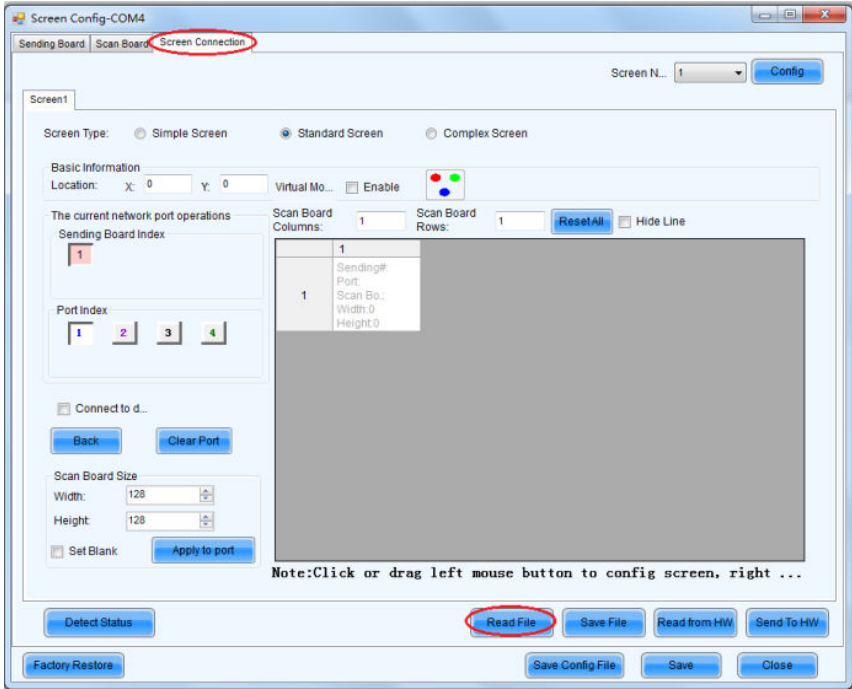


Figure 3-9 Screen Connection 1

- 2) Click **Send to HW**.
- 3) After sending, confirm that the screen is complete. Then click **Save**.

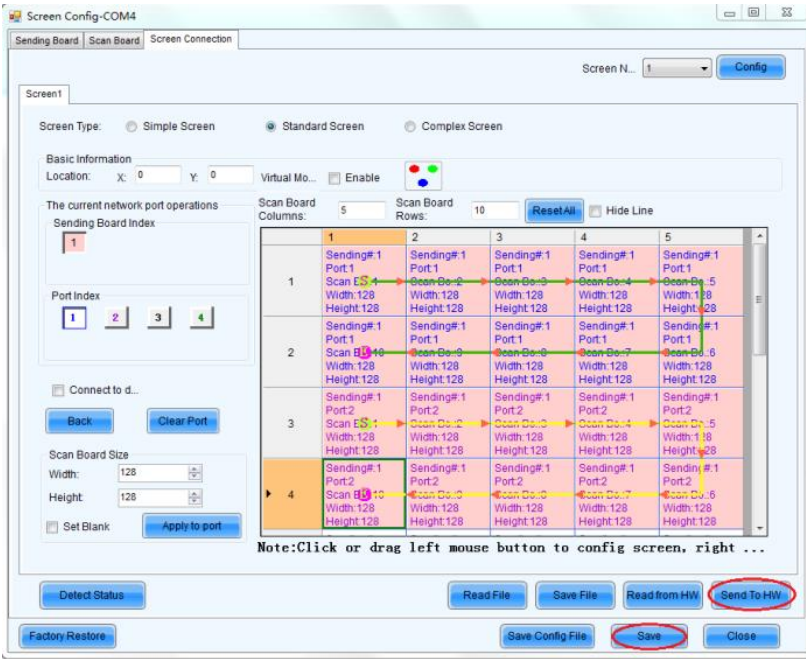


Figure 3-10 Screen Connection with Loaded File

3.4 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.

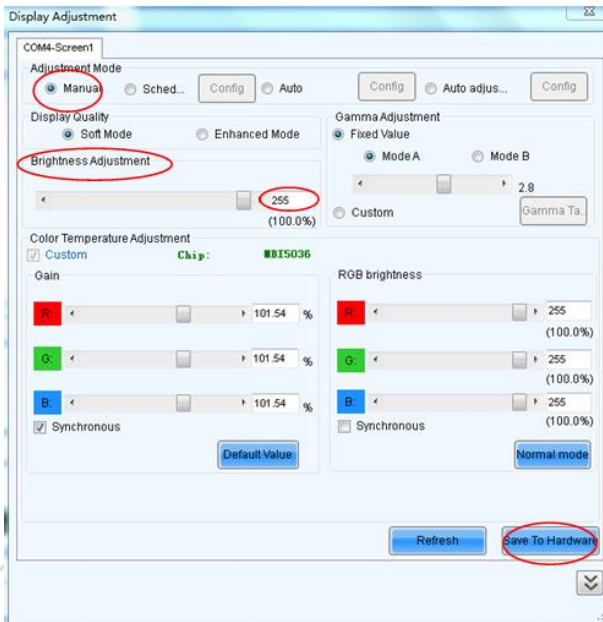


Figure 3-12 Manual Adjustment

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.

3.5 Correction Coefficient Management

The UpadIV 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:

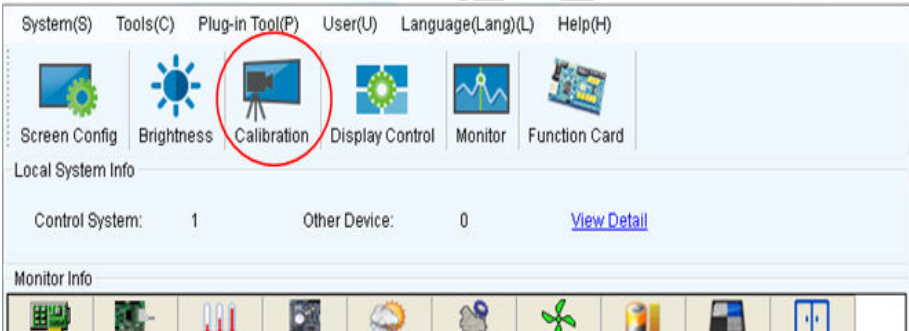


Figure 3-13 Main Window for Advanced User

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

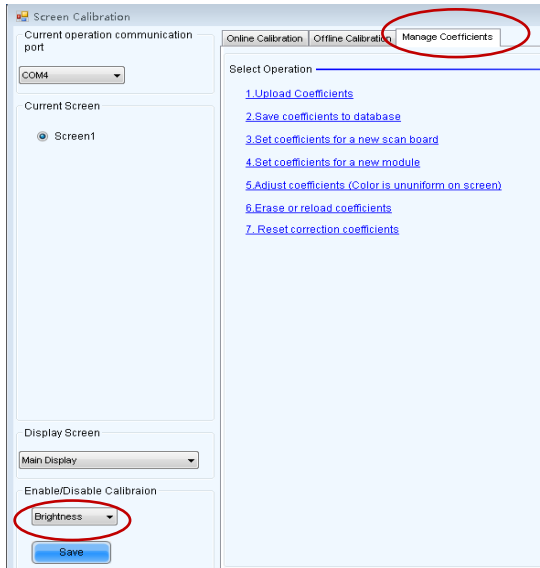


Figure 3-14 Manage Coefficients

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 ununiform 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.

3.5.1 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**:

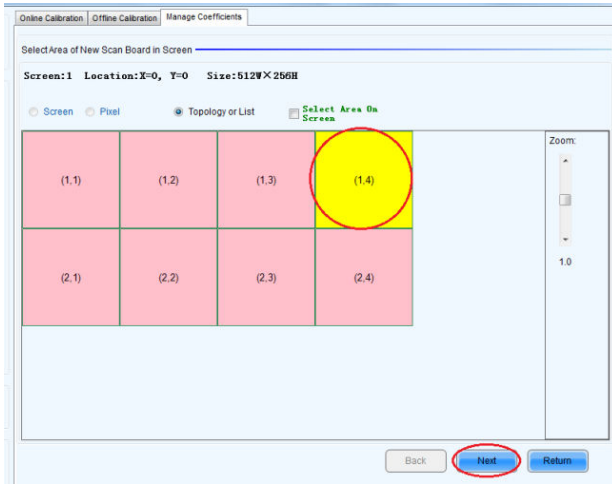


Figure 3-15 Selecting Area for New Receiving Card

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

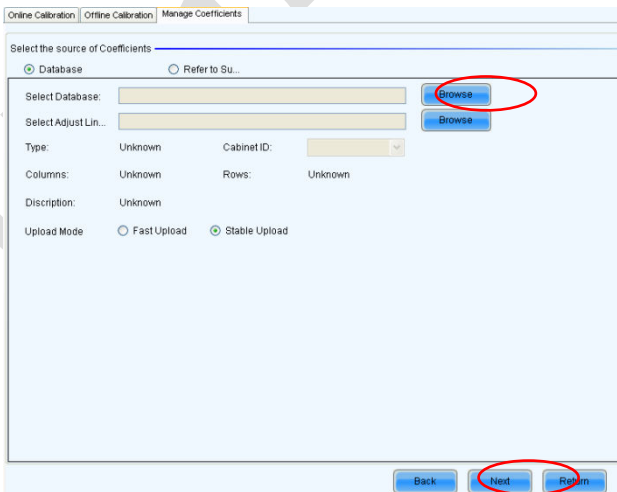


Figure 3-16 Obtaining Correction Coefficients for Receiving Card

3) Select the corresponding correction coefficients:

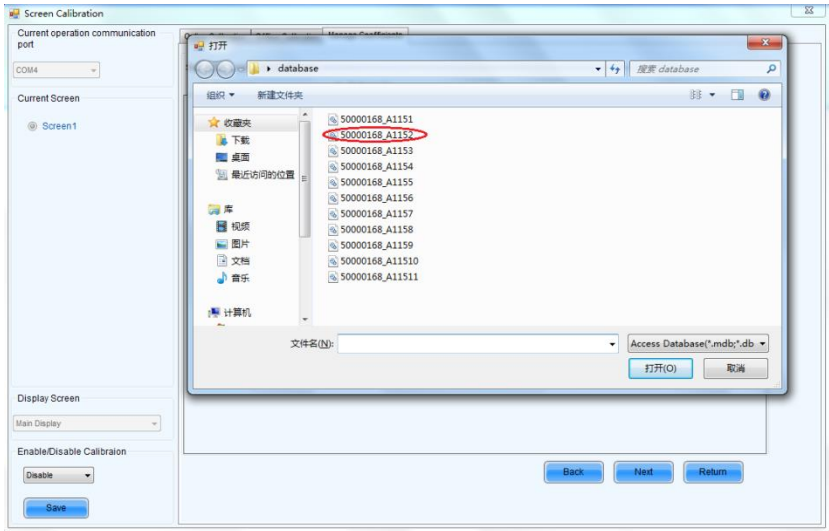


Figure 3-17 Selecting Correction Coefficients for Receiving Card

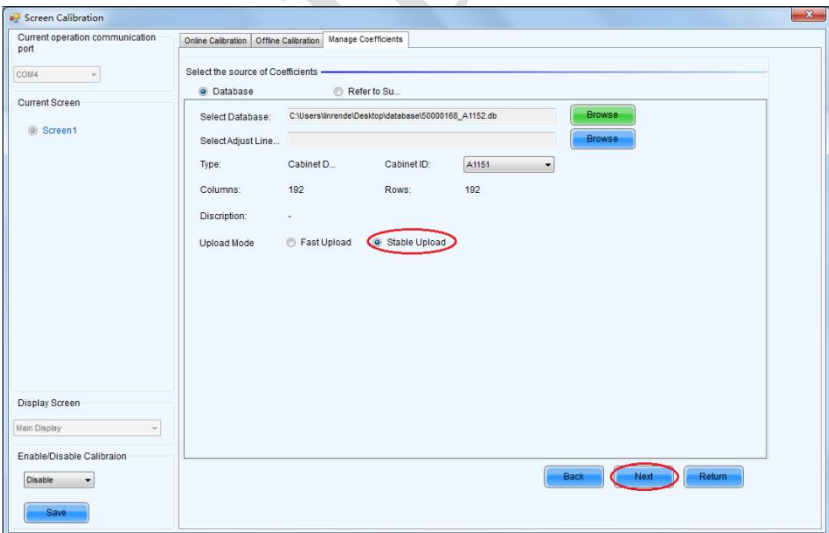
4) Select **Stable Upload** and click **Next**:

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**.

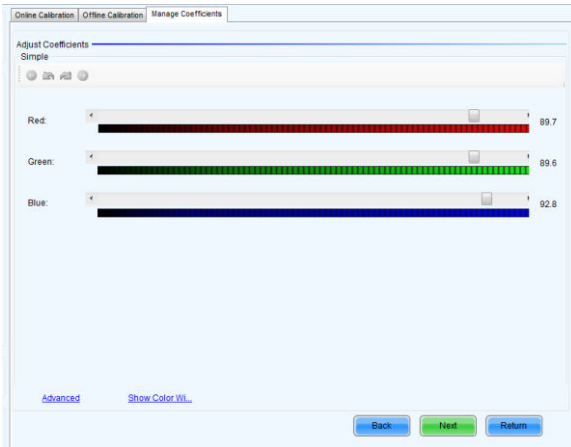


Figure 3-19 Simple Adjustment

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**.

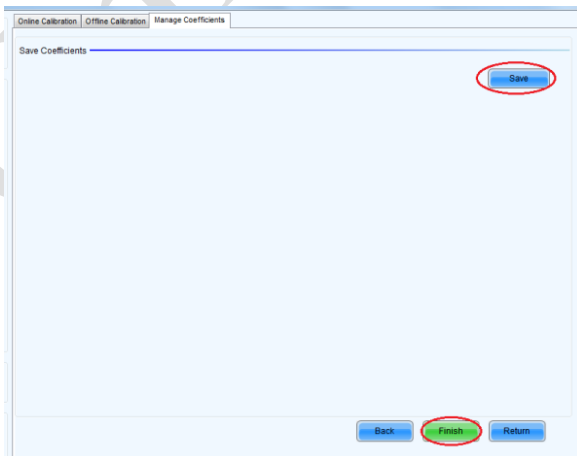


Figure 3-20 Saving Correction Coefficients

3.5.2 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:

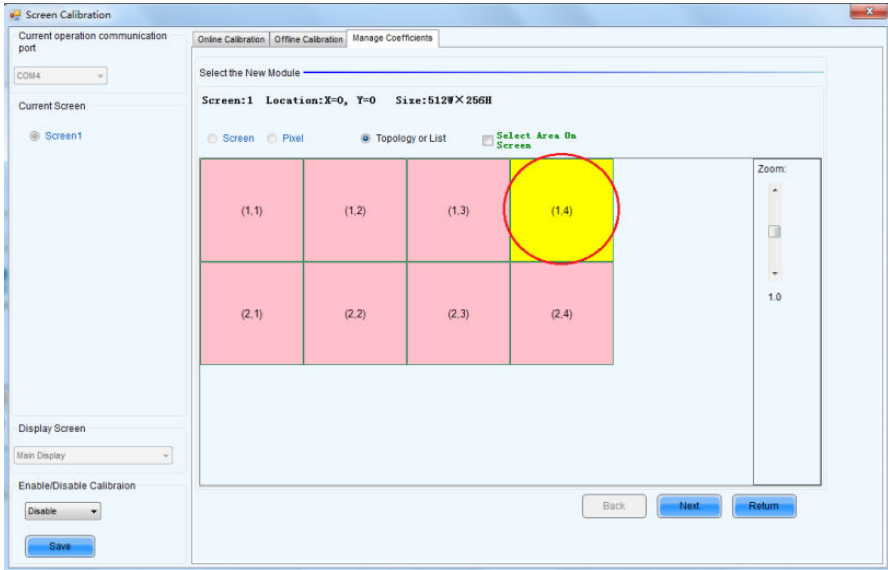


Figure 3-21 Selecting Cabinet for the New Module

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

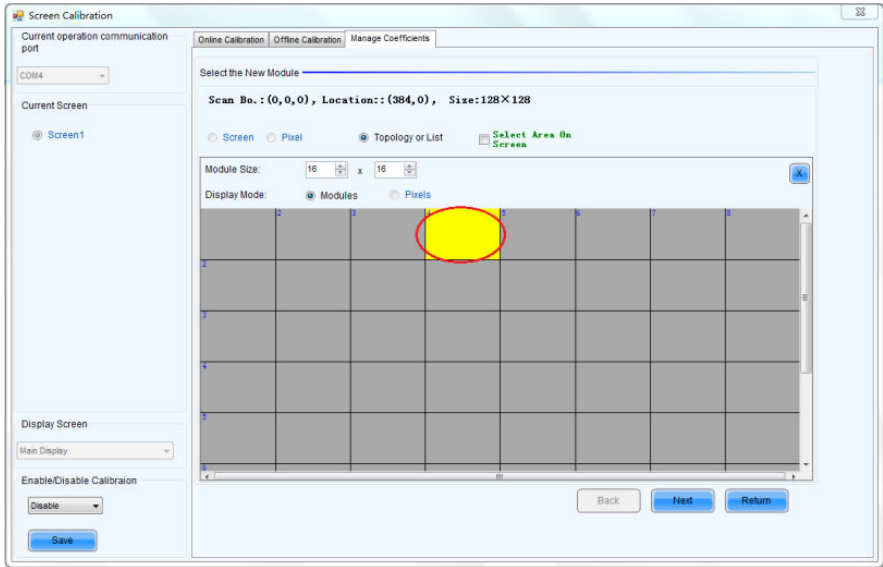


Figure 3-22 Selecting Position of New Module

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 receiving card). 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.

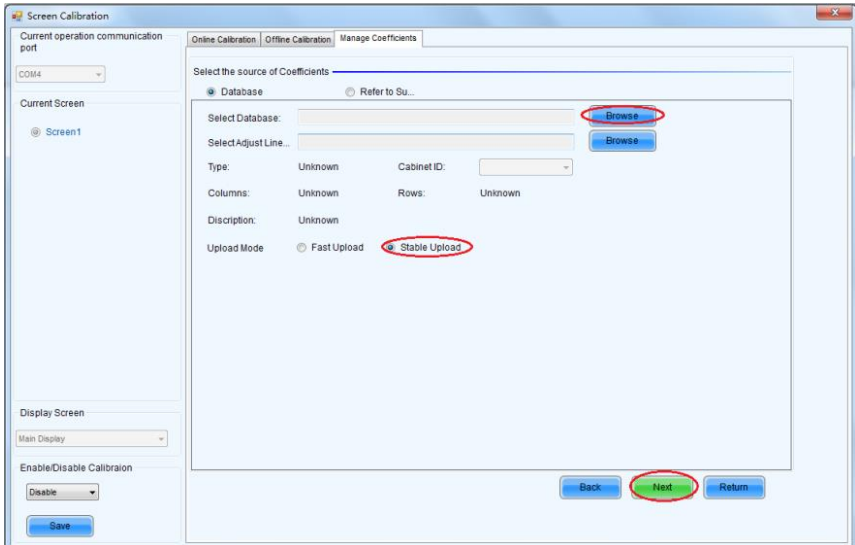


Figure 3-23 Obtaining Correction Coefficients for a New Module

3.6 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 3-24:

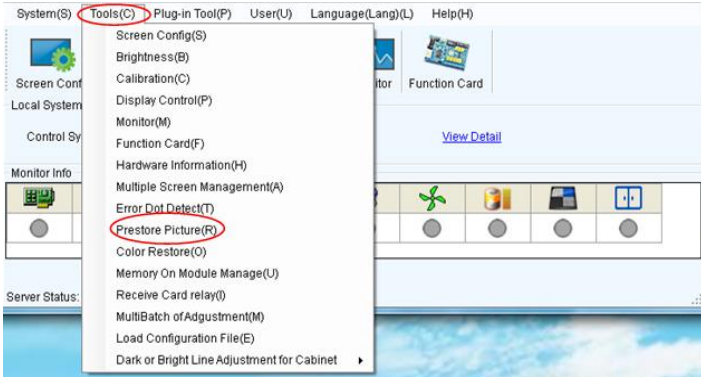


Figure 3-24 Prestore Picture

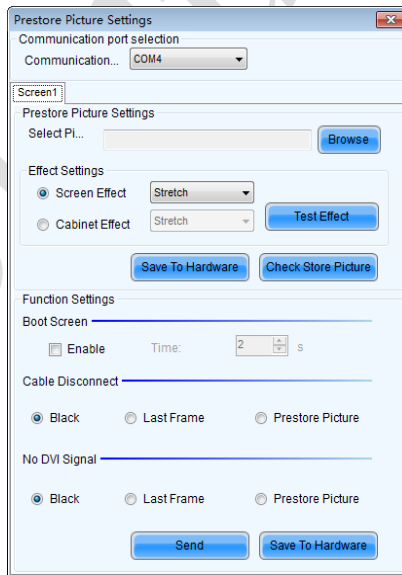


Figure 3-25 Prestore Picture Settings

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 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 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.

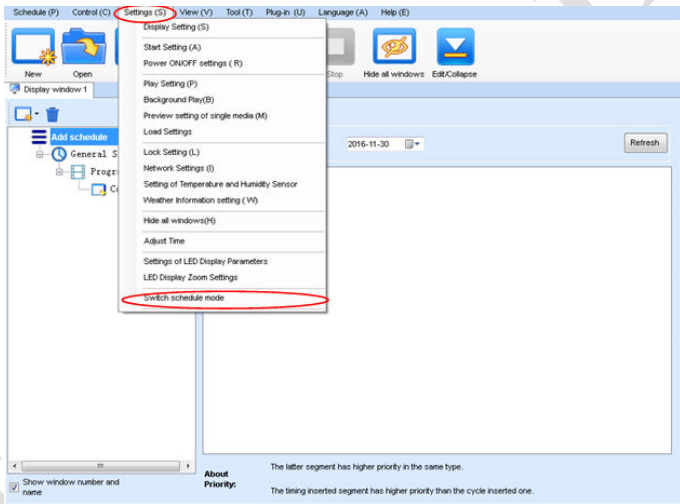


Figure 4-1 Switching Schedule Mode

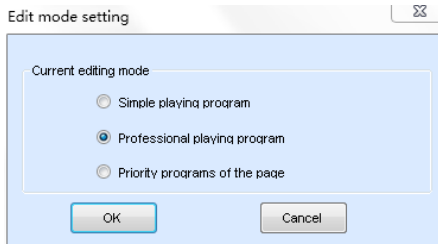


Figure 4-2 Edit Mode Setting

4.2 Playing Setting

4.2.1 Display Window Setting

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

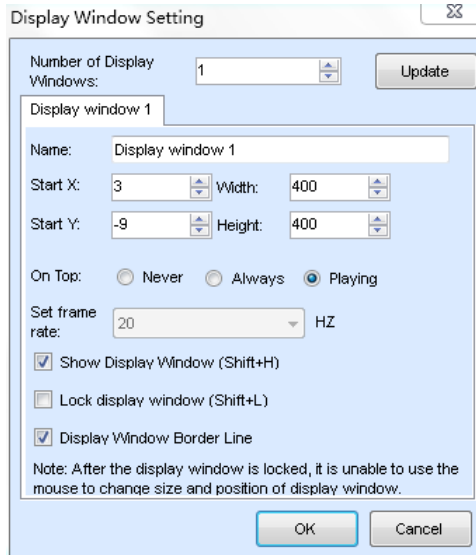


Figure 4-3 Display Window Setting

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.

4.2.2 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:

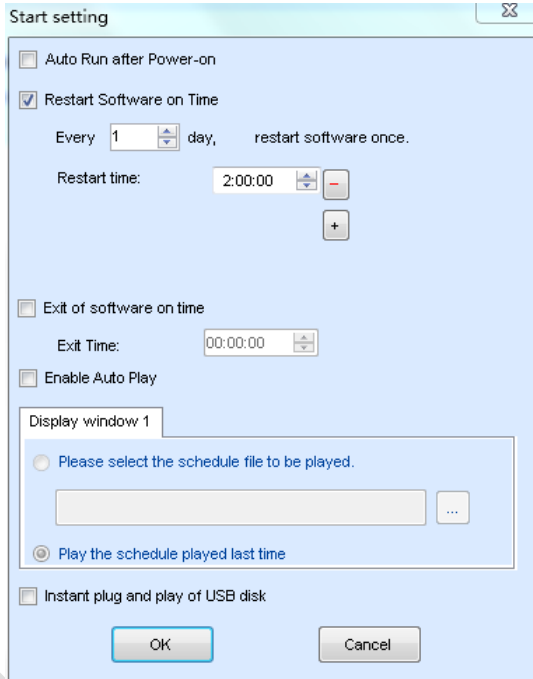


Figure 4-4 Startup Setting

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.

4.3 Editing Professional Playing Solution

4.3.1 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:

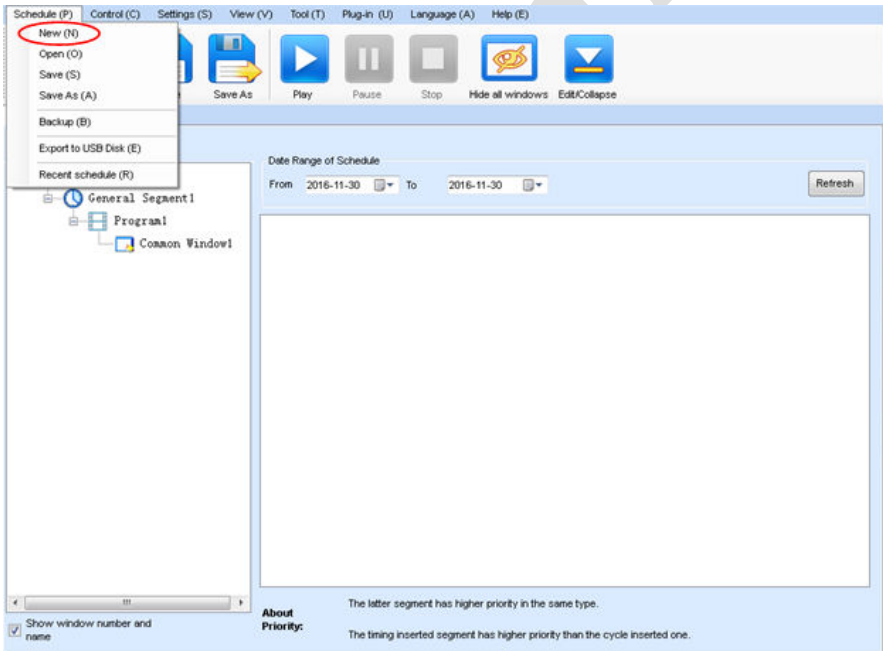


Figure 4-5 Creating a Playing Solution

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:

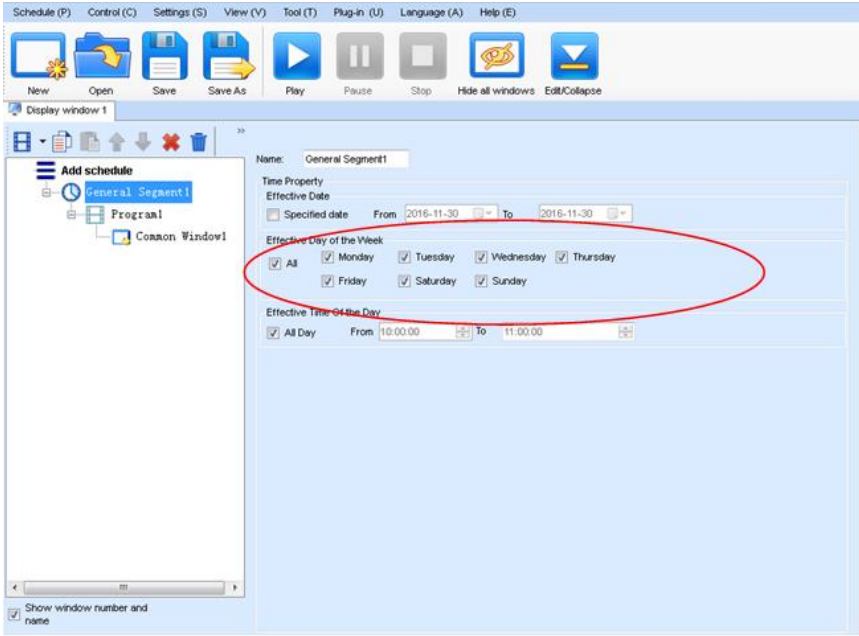


Figure 4-6 Properties of General Time Segment

4.3.2 Editing the Program Page

1) Creating a program page

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

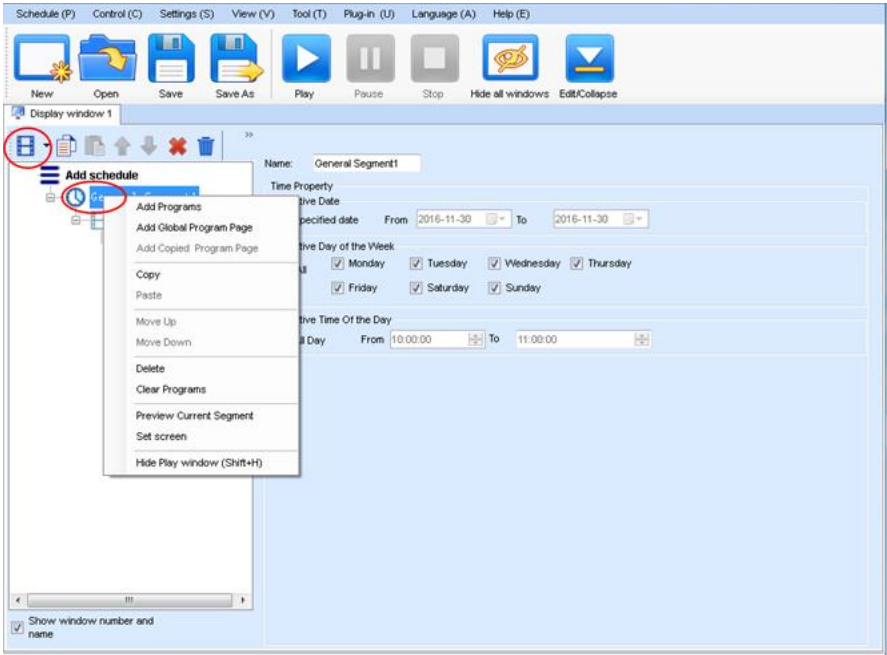


Figure 4-7 Creating a Program Page

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:

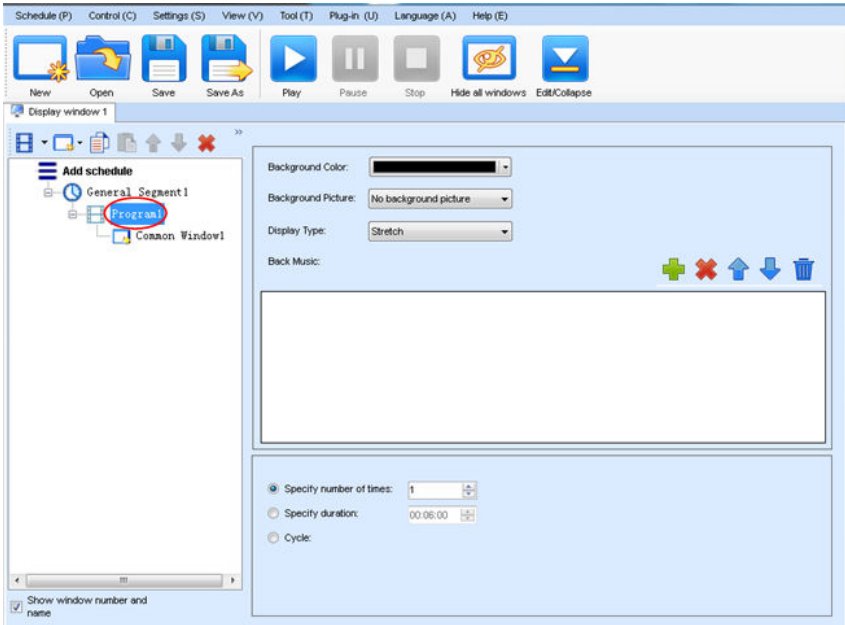


Figure 4-8 Properties of Program Page

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:

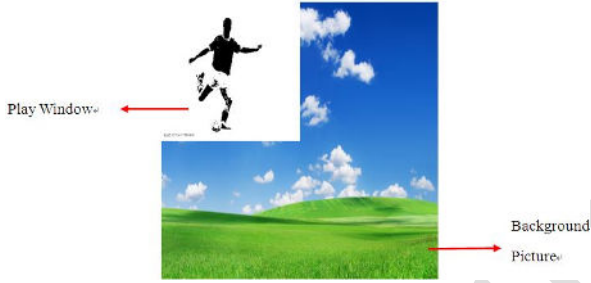


Figure 4-9 Background of Program Page

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.

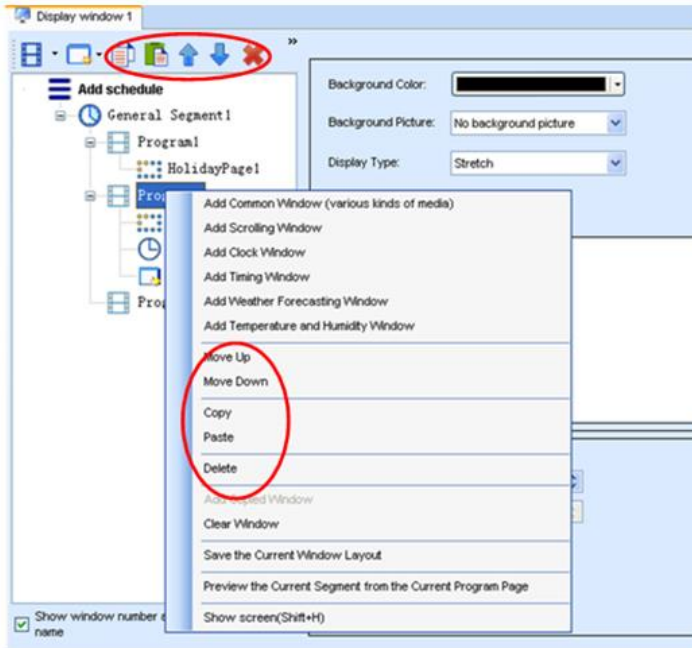


Figure 4-10 Program Page Operation Menu

4.3.3 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:

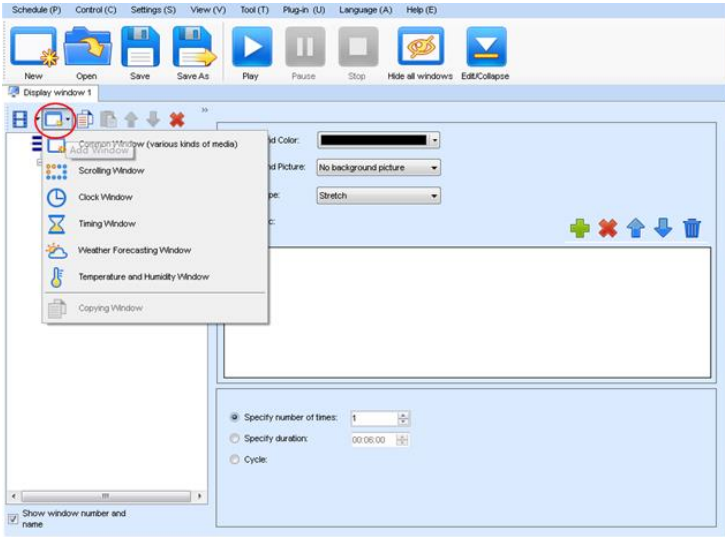


Figure 4-11 Adding a Window to Program Page

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

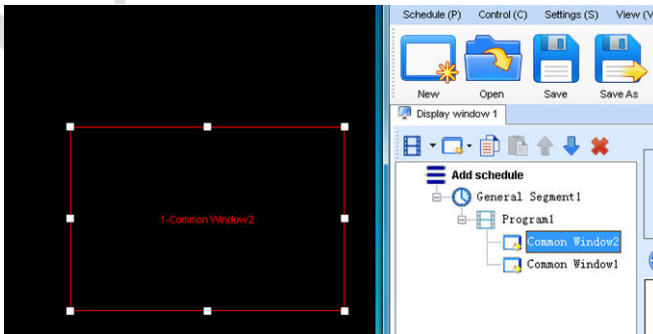


Figure 4-12 Added Window

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:

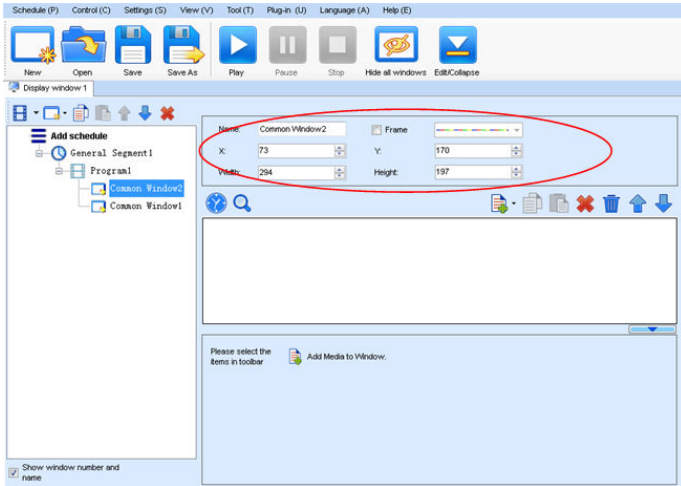


Figure 4-13 Setting the Window Size

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

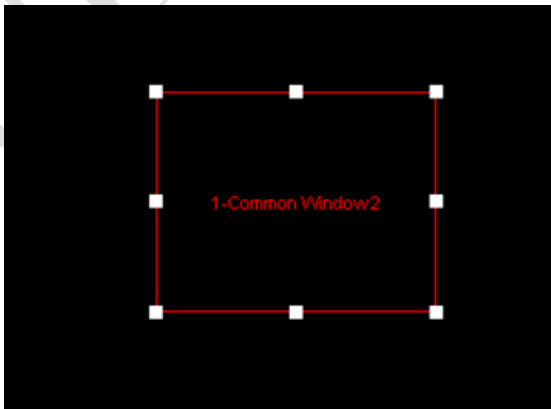


Figure 4-14 Adjusting the Window Size Using the Mouse

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:

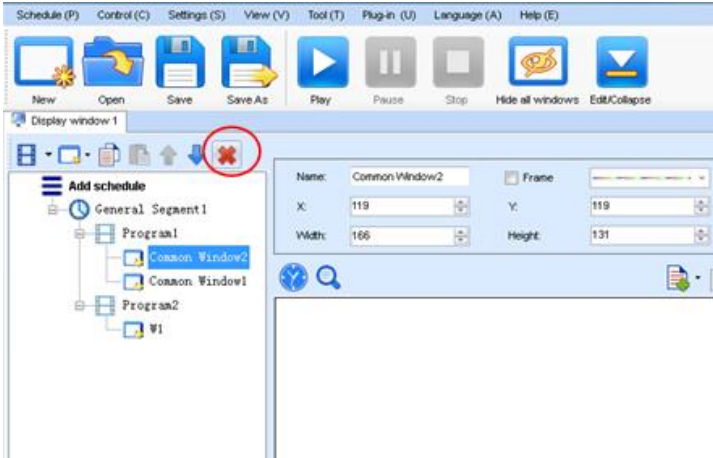


Figure 4-15 Deleting the Display Window

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:

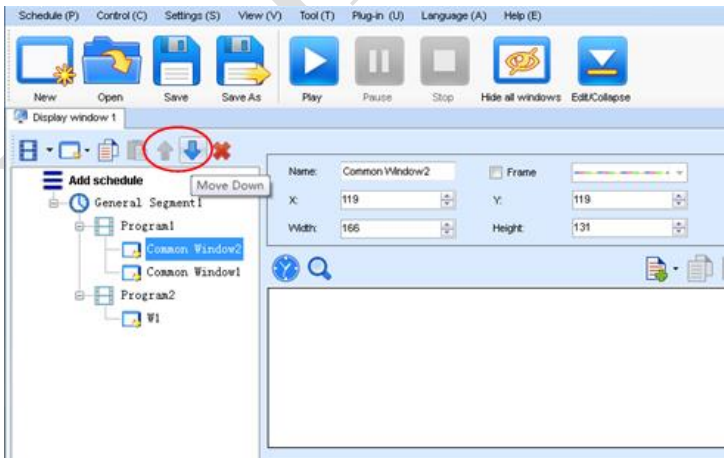


Figure 4-16 Moving a Display Window

4.3.4 Editing the Media

1) Adding the media

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

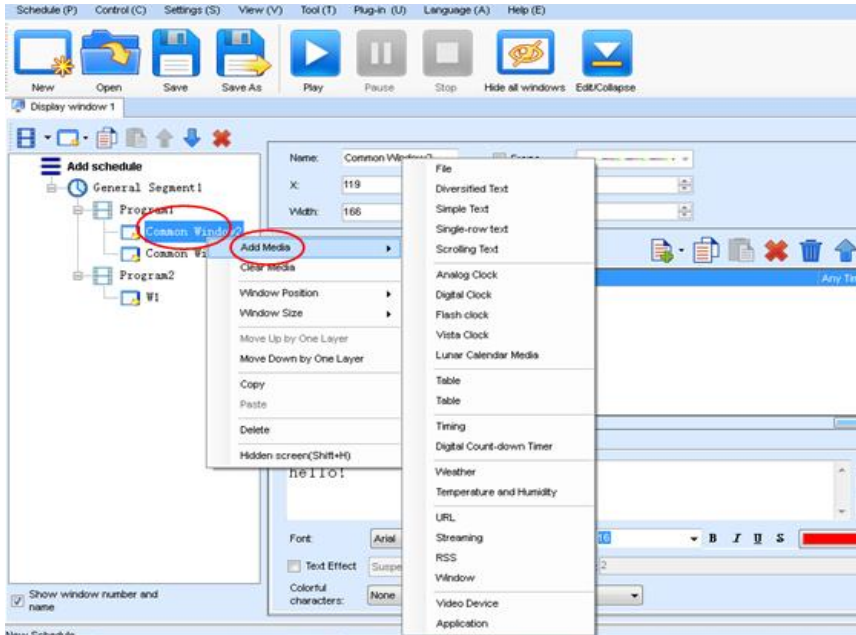


Figure 4-17 Adding the Media

Chapter 4 LED Display Playing Setting

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

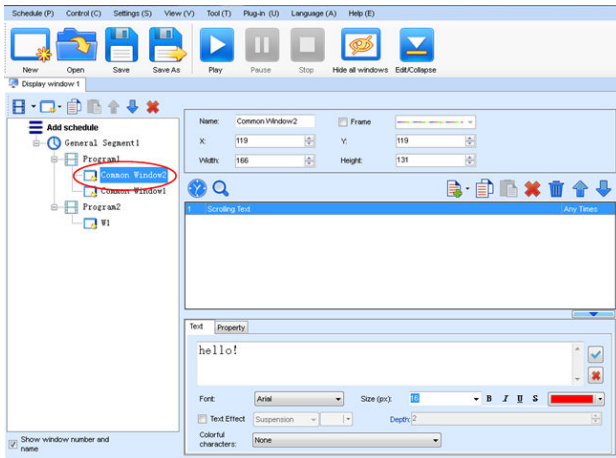


Figure 4-18 Media Setting Window

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:

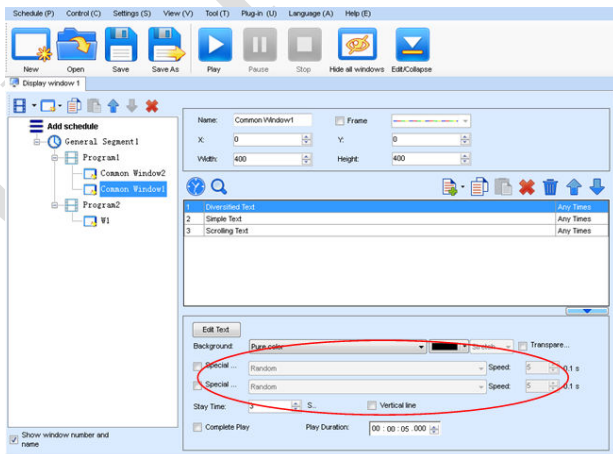


Figure 4-19 Properties of Medium

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:

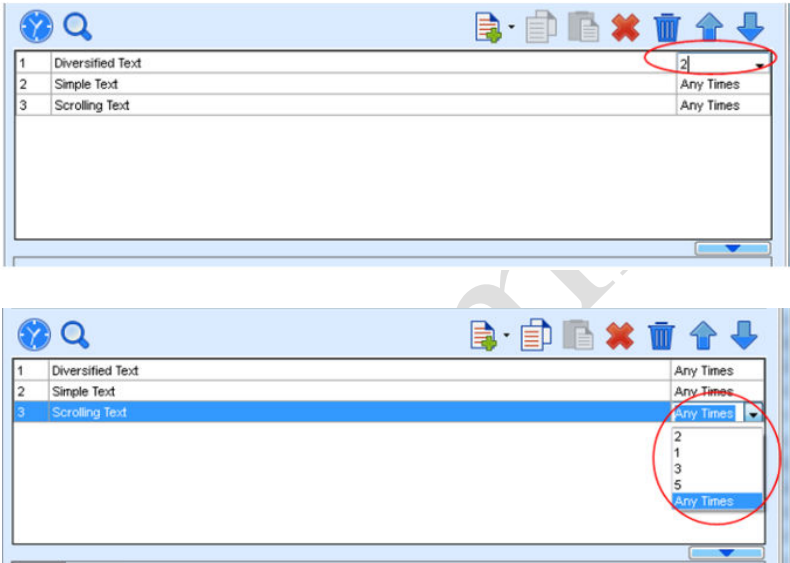


Figure 4-20 Changing the Media Playing Times

Chapter 4 LED Display Playing Setting

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

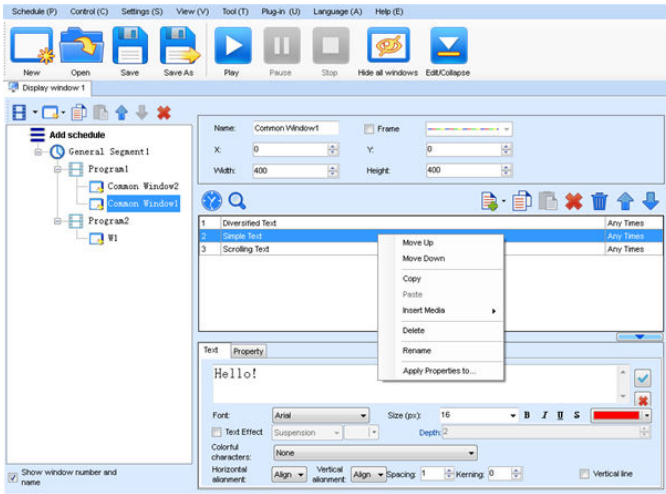


Figure 4-21 Media Operation Menu

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

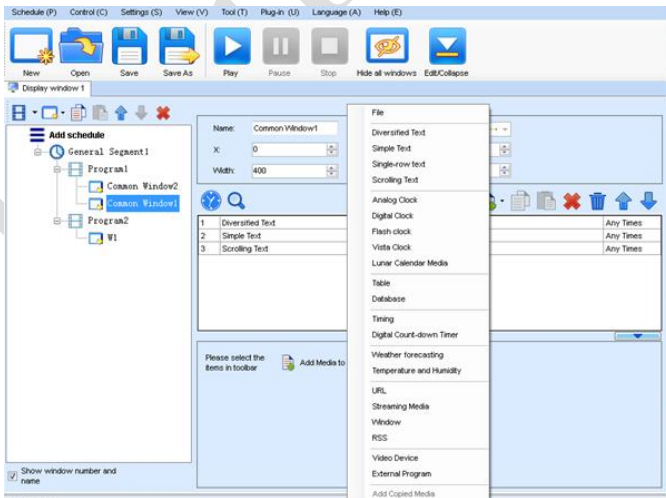


Figure 4-22 Media Playing Menu

4.3.5 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:

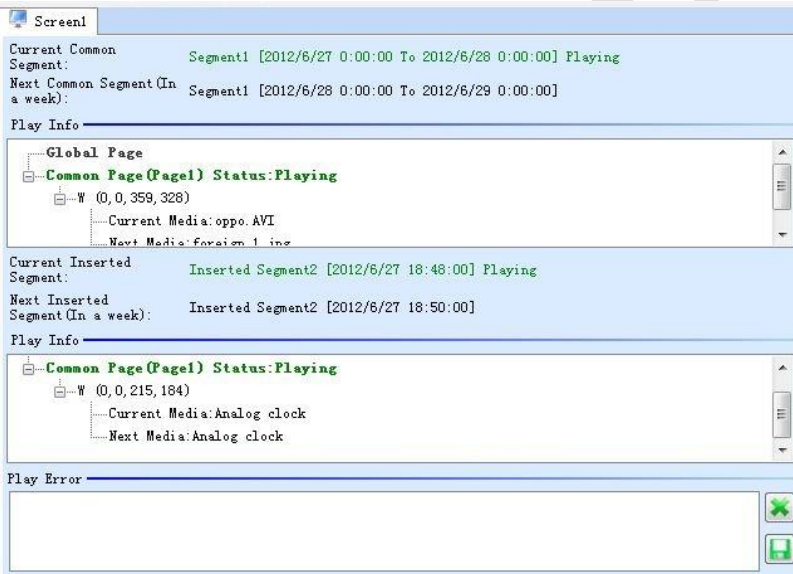


Figure 4-24 Play Information Page

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

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:

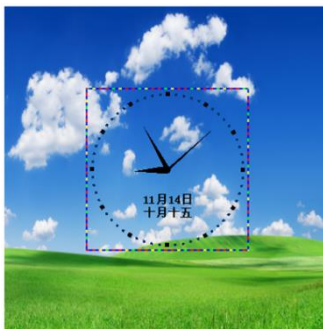


Figure 4-26 Transparent Displaying Effect of the Clock

4.4 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:

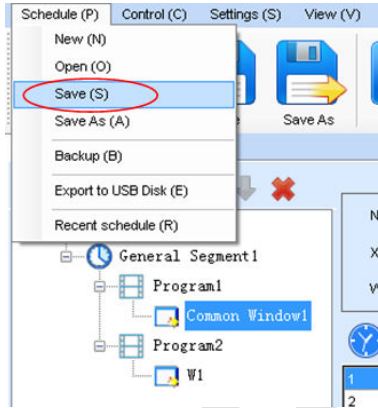


Figure 4-27 Saving a Playing Solution File

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:

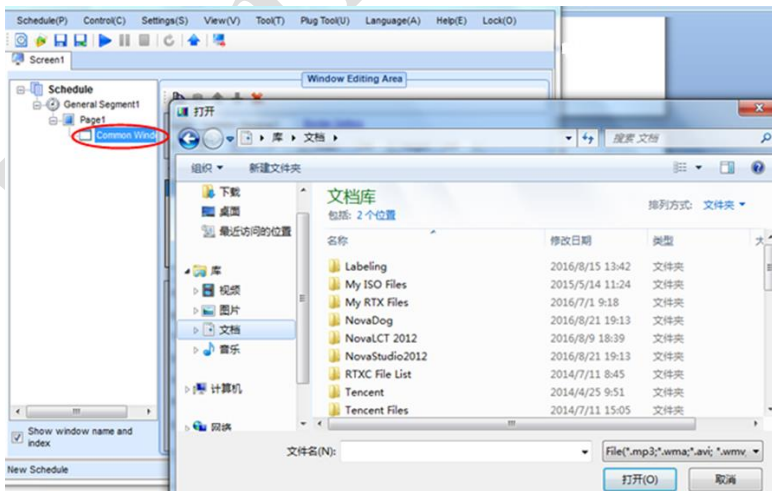


Figure 4-28 Opening a Playing Solution File

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.

5.2 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 Maintenance Sequence

- 1) If the product is used as a fixed LED display, it is recommended that you should use the LED display and its auxiliary devices twice a week and two hours each time. Before using the LED display, perform warm-up operations on the LED display if it has been idle for a long period of time (for details about warm-up operations, see Section 5.5).
- 2) If the product is used as a fixed LED display, 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.
- 3) If the product is used as a fixed LED display, check whether the steel structure of the fixed LED display is secure on a yearly basis.
- 4) If the product is used as a rental LED display, check whether the ground beam and back frame are secure before you use the product.
- 5) If the product is used as a rental LED display, check whether the parts in the distribution box are secure before you use the product.

- 6) If the product is used as a rental LED display, check the stability and integrity of the flight case before you use the product.
- 7) If the product is used as a rental LED display, place the cabinets into the flight case timely after you finishing using the product. Keep cabinets and internal part of the flight case dry.
- 8) 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.
- 9) 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.
- 10) 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 a long period of time, 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.

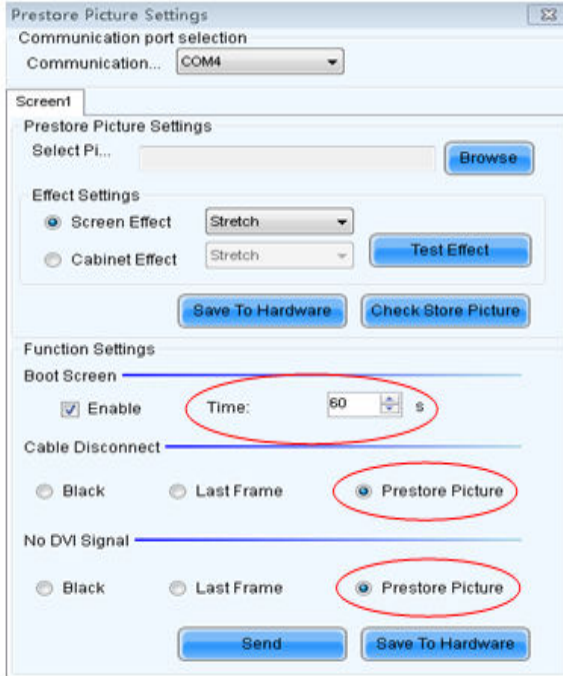


Figure 5-1 Prestore Picture Setting

5.4.2 Ageing

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

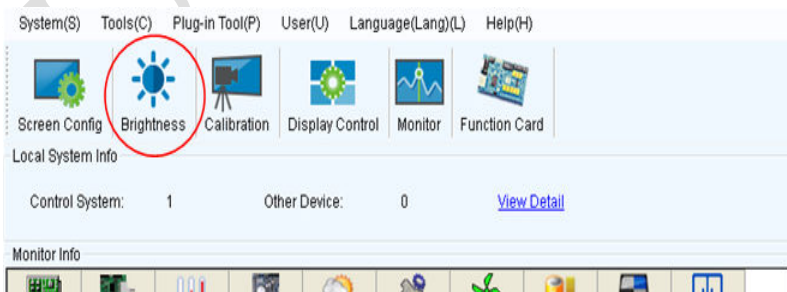


Figure 5-2 Main Window for Advanced User

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:

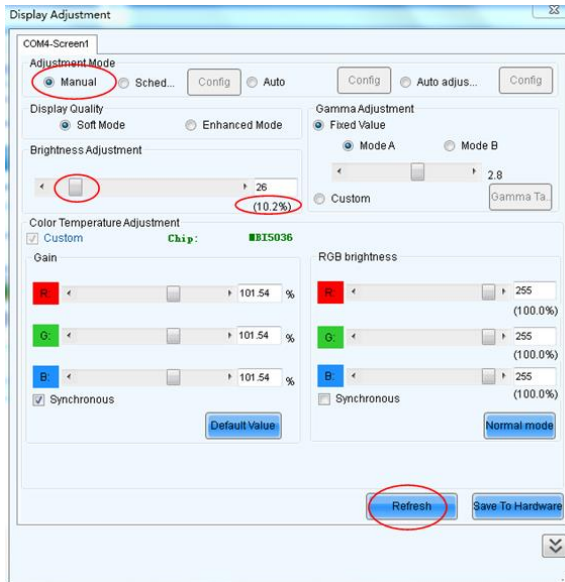


Figure 5-3 Manual Adjustment

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.

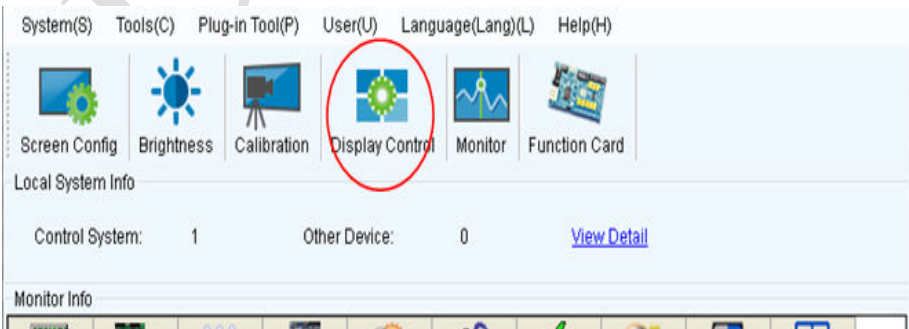


Figure 5-4 Display Control

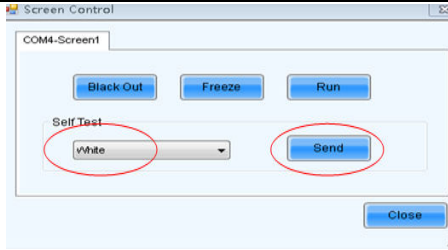


Fig 5-5 Display Control

5.4.3 Display Brightness and Ageing Time table

Adjust the screen brightness and perform ageing based on the steps described in Section 5.5.2.

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 Replacement

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 or flat cables that control the modules.




6.2 Replacement of Main Components

Before performing maintenance on the LED display, switch off the power to ensure your personal safety and equipment safety. When installing a new module, connect the flat cables first and then the DC power cable and make sure the directions of the modules, DC power cable, and flat cables are correct. Keep the accessories (such as screws that are removed during maintenance) properly in order to re-install them after the component has been replaced.

6.2.1 Maintenance of Main Components of Cabinets

Replace a module based on the following steps:

Step	Picture	Description
1	 A photograph of a server cabinet with blue straps used for maintenance. The cabinet is black and has several modules installed. The straps are used to secure the modules or to facilitate the removal of a component.	Locate the faulty cabinet. Disconnect the power cable and signal cable.

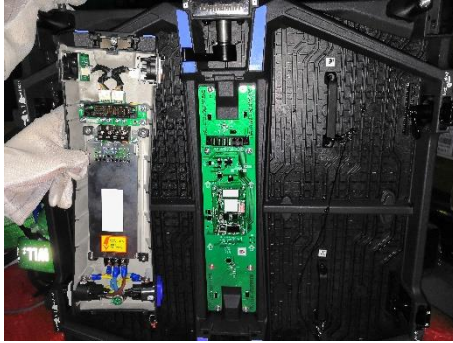
2		<p>Grasp the module handle, push anywhere of module cover</p>
3		<p>Remove the module out of the cabinet.</p>
4		<p>Unfasten the security rope of the defective module and replace it with a new one.</p>

Replace the power supply based on the following steps:

Step	Picture	Description
1		<p>Locate the faulty cabinet. Disconnect the power cable and signal cable.</p>
2		<p>Take the cover off.</p>
3		<p>Pull the button of power box up</p>

Chapter 6 Troubleshooting and Component Replacement




4



Replace the power box with a new one.

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Replace the receiving card based on the following steps:

Step	Picture	Description
1		<p>Locate the faulty cabinet. Disconnect the power cable, and then take the cover off</p>
2		<p>Remove the screws on receiving card.</p>
3		<p>Replace the receiving card with a new one</p>

Chapter 7 Packaging Transportation and Storage

7.1 Packaging

The UpadIV series products would be packaged in flight case. The flight case is suitable for packaging of rental LED displays.



Figure 7-1 Flight Case

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 two layers for flight cases.

7.3 Storage

The cabinets of indoor LED displays shall be stored in an environment with ambient temperature ranging from -20°C to +55°C and relative humidity ranging from 10% to 85% RH. For cabinets of outdoor LED displays, the ambient temperature and relative humidity for storage shall be ranging from -30°C to +60°C and 10% to 95% RH. Do not store the cabinets in an environment with chemicals that are volatile, corrosive, or flammable.

Chapter 8 After-Sales and Warranty

8.1 The Warranty Terms

This clause applies to LED display products purchased directly from Unilumin and under warranty. Any products not purchased directly from Unilumin are not applicable to these Terms.

8.2 Warranty Period

The warranty period is in accordance with the contract, please save the warranty card or other valid documents.

8.3 Warranty Service

Unilumin provides warranty service to the products meet the requirements of this warranty term. Including quality problem, materials problem and manufacturing problem during normal use. Unilumin has the right to judge whether the product has defects and problems.

8.3.1 Warranty service type

1) Free Online Remote Service:

Remote technical guidance provided by instant messaging tools such as telephone, mail, and remote software to help solve problems during the use of the device. Including but not limited to signal cable, power cable connection problems, software use, system software problems with parameter settings, module, power supply, system card replacement issues.

2) Locations Repair Service:

For problems that can't be solved by online remote service, Unilumin has the right to make decision on whether to send it back to service locations for repair service. The customer shall pay the freight, insurance, customs and customs clearance fees to the nearest service locations of Unilumin. Unilumin will send back the repaired products or equipment and only pay the shipping cost. Unilumin does not accept the payment of logistics parts and does not bear any customs duties and customs clearance fees

incurred in returning the repaired products or equipment. Unilumin is not responsible for damage and loss caused by transportation and packaging.

3) Engineers On-site service for product quality problems:

For quality problem stipulated in Article 4 and necessary, Unilumin will provide engineer on-site service free of charge. In this case, the customer should provide a report of the failure, which includes but not limited to photos, videos, quantity of faults, etc to Unilumin to make a preliminary fault judgment. If the on-site analysis by Unilumin engineers determines that the quality problem is not covered by the warranty, the customer shall pay the travel expenses of the engineer and pay the technical service fee according to the after-sales service standard.

8.4 Disclaimer

Free maintain&repairation won't be given under the following circumstance:

- 1) Unless otherwise agreed, this warranty does not apply to consumables, including but not limited to connectors, networks, cables, optical cables, cables, power cables, signal cables, aviation connectors and all other wire connection items.
- 2) Defects, faults or damage in whole or in part due to improper use, handling, operation, installation, disassembly of the display or any other improper behavior of the customer.
- 3) Disassemble and repair without permission and authorization from unilumin
- 4) Do not operate and maintain the product according to the product manual
- 5) Man-made damage, physical damage, accident damage and misuse of the product, as well as defects, malfunctions or damage happens during transportation;
- 6) Damage or malfunction caused by force majeure, including but not limited to force majeure events such as war, terrorist activities, floods, fires, earthquakes, lightning, etc.
- 7) This product should be stored in a dry and ventilated environment. Any product defects, malfunctions or damages caused by storage in an external environment that does not fit the product manual, including but not limit to extreme weather, humidity, salt spray, pressure, lightning, sealed environment, compressed space storage, etc.

- 8) Use the product outside the product parameters, including but not limit to lower or higher voltage conditions, extreme or excessive power surges, and inadequate power conditions.
- 9) During the installation process, defects, malfunctions or damages caused by non-compliance with technical guidelines, instructions or precautions.
- 10) Under normal conditions, natural loss of brightness and color.
- 11) The product lacks necessary maintenance.
- 12) Other repairs not caused by product quality, design, and manufacturing.
- 13) A valid warranty card cannot be provided, the product serial number casing is torn apart or damaged, or other documents are invalid.
- 14) Problems after the warranty period.
- 15) Products that are grossly damaged and cannot be repaired due to improper handling, accidents, improper maintenance, or failure to comply with product specifications.
- 16) Unilumin's product don't work or damage due to the match with equipment such as broadcasting and control system which are not provided by Unilumin, If the maintenance is required, the charging standard shall be implemented according to the contract.

8.5 Warranty service process

1) Remote service process:

With the warranty card or order number, you can submit requirements through the website of the company, email, telephone, and special customized window and you need to provide the details of remote control way and contacts.

2) Product rework process:

The warranty card or contract number is used to submit the demand through the website of the company, mail, telephone, and special service window, and the packing list of the returned product and the consignee address.

a) Unilumin Technology Mailing Information: (Unilumin Science and Technology Park, No. 6 Lanjing North Road, Pingshan District, Shenzhen)

b) Customer mailing instructions:

Chapter 8 After-Sales and Warranty

- c) Provide a brief description of the fault of the repaired product (can be attached to the surface of the device)
 - d) Packing list (including contract order number, type and quantity of equipment to be repaired)
 - e) Return receipt information (company name, delivery address, consignee and contact details, etc.)
 - f) In order to avoid damage to the returned items during logistics, please pay attention to the packaging and protection of the products. Unilumin will not be responsible for any damage to the products or parts returned to Unilumin.
- 3) Engineer on-site service process:

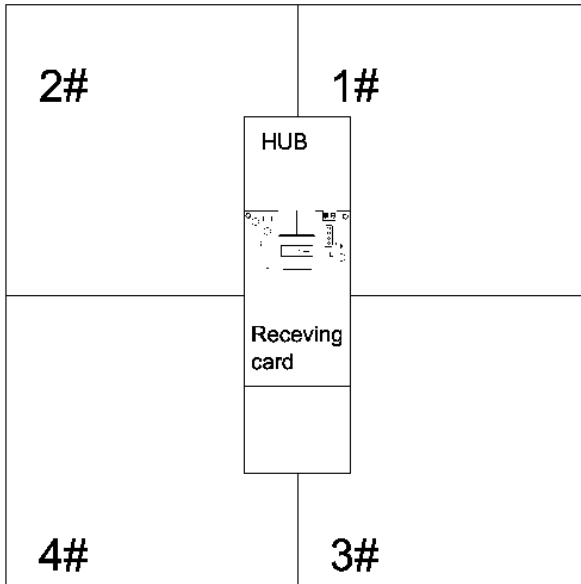
With the warranty card or order number, you can submit requirements through the website of the company, email, telephone, and special customized window and you need to provide specific content and site address of the service, information of the on-site contact.

8.6 Other

This warranty policy is the standard warranty terms of Unilumin. No one (including any agent, distributor or sales representative) is authorized to make any representations or warranties that are different from this warranty. Unless confirmed by Unilumin in the form of the contract, attachments, etc., any warranty and content that conflicts with the terms of this warranty policy will automatically become invalid. The final interpretation of this warranty policy belongs to Shenzhen Unilumin Technology Co., Ltd.

Attachment 1 - Path of Signal Cable inside the Cabinet

Receiving card Signal Cable Connection Diagram (Rear View) for Cabinet of UpadIV Series.





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