ego DISPLAY

# EasyHP Series

## PRODUCT MANUAL

Distributed by

audio/effetti®

# Revision Record

| Serial No. | Version | Brief description of revision | Revision date |
|---|---|---|---|
| 1 | Version 1 | First issue | July 28, 2020 |
| 2 | Version 2 | Addition of specifications of the pitch 1.2 、1.3 and 1.5 | August 19, 2020 |
| 3 | Version 3 | Add part of installation | January 1, 2021 |
| 4 | Version 4 | Add warning content and factory address | April 21,2021 |
| 5 | Version 5 | Modify configuration parameters such as power consumption | December 16,2022 |

# Special Note

Thank you very much for choosing the product. To ensure your smooth use, please read the manual carefully before using. Although the Company has made best to be accurate and reliable when compiling the manual, there are still some careless mistakes. Therefore, the Company will modify and change the contents of the manual at any time without notice. Please understand. In case of any problems or suggestions during use, please contact us according to the contact information provided in the manual, and we will try our best to help you in time. We sincerely thank you for your suggestions and will evaluate and adopt them as soon as possible.

# Copyright

**To ensure the correct use of the display screen, please read the following carefully:**

## ◆Warning!

It is of great possibility that the equipment will be damaged and unrecoverable due to ignoring of the warning.

1) Do not invert or throw the equipment during handling and storage；
2) Do not tilt to scrape or collide to scratch the equipment during installation；
3) Do not drench or soak the equipment；
4) Do not put the air outlet of air conditioner close to the display screen；
5) Do not place or use the display screen in the environment with volatile, corrosive and combustible chemicals；
6) Do not use it in an environment with a humidity above 80% or in an outdoor rainy day；
7) Do not clean the display screen with water and chemical solvents；
8) Do not use electrical accessories that have not been certified by the equipment manufacturer；
9) Ensure that the display screen and auxiliary equipment are grounded correctly and reliably before use；
10) In case of abnormalities of the display screen, such as peculiar smell, smoke, electricity leakage and abnormal temperature, please cut off the power immediately, and then contact professionals；
11) This is a class a product. In the living environment, this product may cause radio interference. In this case, users may need to take practical measures against interference.

## ◆Attention!

It is of great possibility that the best display effect can not be obtained due to ignoring of the attention.

1) Be sure to wear anti-static gloves and anti-static bracelets when installing and repairing the product;
2) Be sure to take the smooth air circulation behind the display screen into account when designing the heat dissipation solution;
3) The storage environment of the display screen shall be ventilated and dry, and the humidity shall not exceed 85%;
4) Adopt single-phase power supply when the total power consumption of display screen is no greater than 3 KW, and three-phase power supply when the total power is greater than 3 KW;
5) Under normal conditions, ensure that the display screen is powered on and started at least twice a week, with the lighting time not less than 2 hours each time;
6) If the display screen is installed in seaside, saline-alkali area, areas containing sulfide gas and near kitchen smoke exhaust, and places with large temperature difference between indoor and outdoor, it may cause equipment failure and affect the service life. In case it is inevitable, please consult the professionals in our service outlets.

# Contents

# Chapter I Product Introduction

EasyHP series is a new generation of LED display products of the Company, which is based on high-definition display application, has strong color reproducibility, stable picture and wide viewing angle, and supports wide-range adjustment of color temperature and brightness. The product is particularly outstanding in the design of safety application, with strong protection and high reliability, and can be freely and seamlessly spliced into display screens of any dimensions to meet the requirements of the application environment to the maximum extent.

## 1.1 Characteristics

1) Independent patent: Exclusive energy-saving patented technology of Audio Effetti;
2) High-efficiency energy saving: Ultra-low power consumption, 25%-35% energy saving compared with conventional 5 V screen;
3) High stability: Low heating, temperature rise and color drift, and long service life;
4) Uniform dimensions: With uniform dimensions of the whole series of 320 mm*160 mm, which can realize the interchange of indoor modules.
5) Low application cost: With universal high-reliability driver IC and mass production LED lights.

## 1.2 Cabinet Appearance

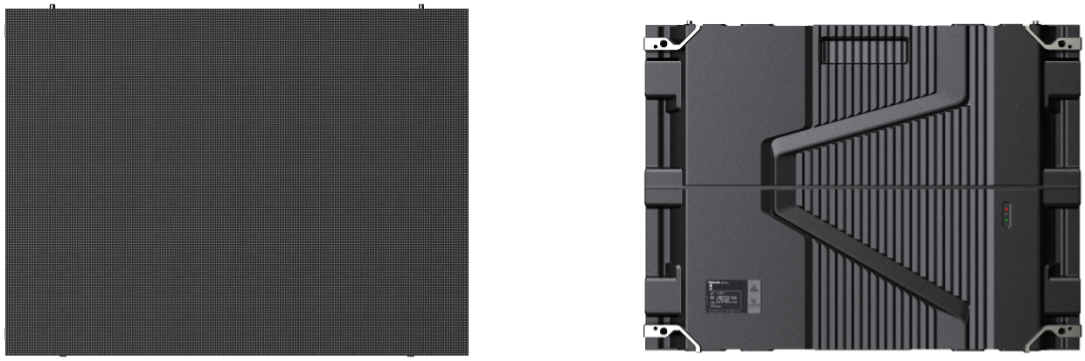


Fig. 1-1 Cabinet picture

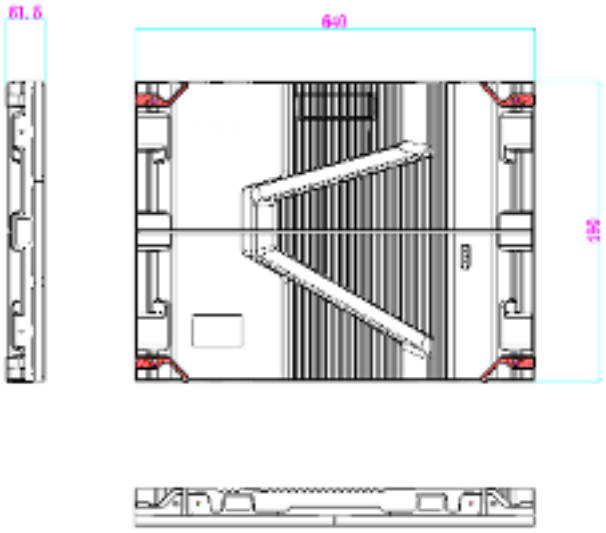



Fig. 1-2 Drawing and specification of cabinet

# 1.3 Specifications parameters

## Indoor EasyHP product parameter

| Parameter | | EasyHP1.2 | EasyHP1.5 | EasyHP1.8 |
|---|---|---|---|---|
| Module Parameter | LED Type | SMD1010 | SMD1212 | SMD1515 |
| | Pixel Pitch（mm） | 1.25 | 1.538 | 1.839 |
| | Module Resolution（W×H） | 256x128 | 208x104 | 174x87 |
| | Driver IC | PWM | PWM | PWM |
| | HUB | HUB320 | HUB320 | HUB320 |
| | Module Dimension（mm） | 320（W)×160（H)×16.5（D) | | |
| | Module Weight（kg） | 0.48 | 0.48 | 0.48 |
| | Max Power Consumption of Module（W） | ≤18 | ≤10 | ≤17 |
| | Module Power Requirements | Support DC4.2~5V power supply | | |
| Optical parameter | Single-dot Brightness/Color Calibration | Yes | Yes | Yes |
| | White Balance Brightness（nits） | 600 CD/$m^2$ | 600 CD/$m^2$ | 600 CD/$m^2$ |
| | Standard Color Temperature（K） | 6500K (1000K ~ 9500K Adjustable ) | | |
| | Beam Angle（Hor/Ver°） | 160° /140° | 160° /140° | 160° /140° |
| | Brightness/Chromaticity Uniformity | ≥95% | ≥95% | ≥95% |
| | Contrast Ratio | 3000：1 | 3000：1 | 3000：1 |
| Electronic parameter | Input Power <Max> (W/$m^2$) | 522W/$m^2$ | 386W/$m^2$ | 432W/$m^2$ |
| | Input Power <Typical> (W/$m^2$) | 157W/$m^2$ | 116W/$m^2$ | 130W/$m^2$ |
| | Power Supply Input Voltage | AC186~264V，Frequency 47-63（Hz） | | |
| | Security Feature | GB4943/EN60950 | | |
| Performance Parameter | Frame Changing Frequency | 50&60 | | |
| | Drive Mode | Constant Current Drive, 1/64 Scan | Constant Current Drive, 1/52 Scan | Constant Current Drive, 1/58 Scan |
| | Processing Depth | 12-14bit | 12-14bit | 12-14bit |
| | Refresh Rate | 4200Hz | 4200Hz | 4200Hz |
| | Video Support | 2K HD, 4K UHD | 2K HD, 4K UHD | 2K HD, 4K UHD |
| Environmental Parameter | Life Typical Value (HRS) | 100,000H | 100,000H | 100,000H |
| | Working Temperature/ Humidity Range（℃/RH） | -10℃~45℃ / 10%~50%RH (No Condensation) | | |
| | Storage Temperature / Humidity Range（℃/RH） | -20℃~55℃ / 10%~60%RH (No Condensation) | | |

Remark: 1. The above parameters are typical or recommended 2. Product parameters or configuration adjustments without notice
3. Customized products, please confirm the parameters with our company

## Indoor EasyHP product parameter

| Parameter | | EasyHP1.8 | EasyHP2 | EasyHP2.5 |
|---|---|---|---|---|
| Module Parameter | LED Type | SMD1515 | SMD1515 | SMD2121 |
| | Pixel Pitch（mm） | 1.86 | 2 | 2.5 |
| | Module Resolution（W×H） | 172*86 | 160*80 | 128x64 |
| | Driver IC | PWM | PWM | PWM |
| | HUB | HUB75 | HUB75 | HUB75 |
| | Module Dimension（mm） | 320（W)×160（H)×16.6（D) | 320（W)×160（H)×14（D) | |
| | Module Weight（kg） | 0.43 | 0.45 | 0.47 |
| | Max Power Consumption of Module（W） | ≤14 | ≤16 | ≤14 |
| | Module Power Requirements | Support DC4.2~5V power supply | | |
| Optical parameter | Single-dot Brightness/Color Calibration | Yes | Yes | Yes |
| | White Balance Brightness（nits） | 600 CD/$m^2$ | 600 CD/$m^2$ | 500 CD/$m^2$ |
| | Standard Color Temperature（K） | 6500K (1000K ~ 9500K Adjustable ) | | |
| | Beam Angle（Hor/Ver°） | 160°/140° | 160°/140° | 160°/140° |
| | Brightness/Chromaticity Uniformity | ≥95% | ≥95% | ≥95% |
| | Contrast Ratio | 3000：1 | 3000：1 | 3000：1 |
| Electronic parameter | Input Power <Max>（W/$m^2$） | 280W/$m^2$ | 408W/$m^2$ | 356W/$m^2$ |
| | Input Power <Typical>（W/$m^2$） | 75W/$m^2$ | 122W/$m^2$ | 107W/$m^2$ |
| | Power Supply Input Voltage | AC186~264V，Frequency 47-63（Hz） | | |
| | Security Feature | GB4943/EN60950 | | |
| Performance Parameter | Frame Changing Frequency | 50&60 | | |
| | Drive Mode | Constant Current Drive, 1/43Scan | Constant Current Drive, 1/40 Scan | Constant Current Drive, 1/32 Scan |
| | Processing Depth | 12-14bit | 12-14bit | 12-14bit |
| | Refresh Rate | 4200 Hz | 4200 Hz | 4200 Hz |
| | Video Support | 2K HD, 4K UHD | 2K HD, 4K UHD | 2K HD, 4K UHD |
| Environmental Parameter | Life Typical Value (HRS) | 100,000H | 100,000H | 100,000H |
| | Working Temperature/ Humidity Range（℃/RH） | -10℃~45℃ / 10%~50%RH (No Condensation) | | |
| | Storage Temperature / Humidity Range（℃/RH） | -20℃~55 ℃ / 10%~60%RH (No Condensation) | | |

Remark: 1. The above parameters are typical or recommended; 2. Product parameters or configuration adjustments without notice;
3. Customized products, please confirm the parameters with our company.

## 1.4 System solution

The display system is mainly composed of LED display screen, sending box, control computer, matrix, splicing controller, distribution box and other equipment (please refer to the shipping list for details). The system topological graph is as follows:

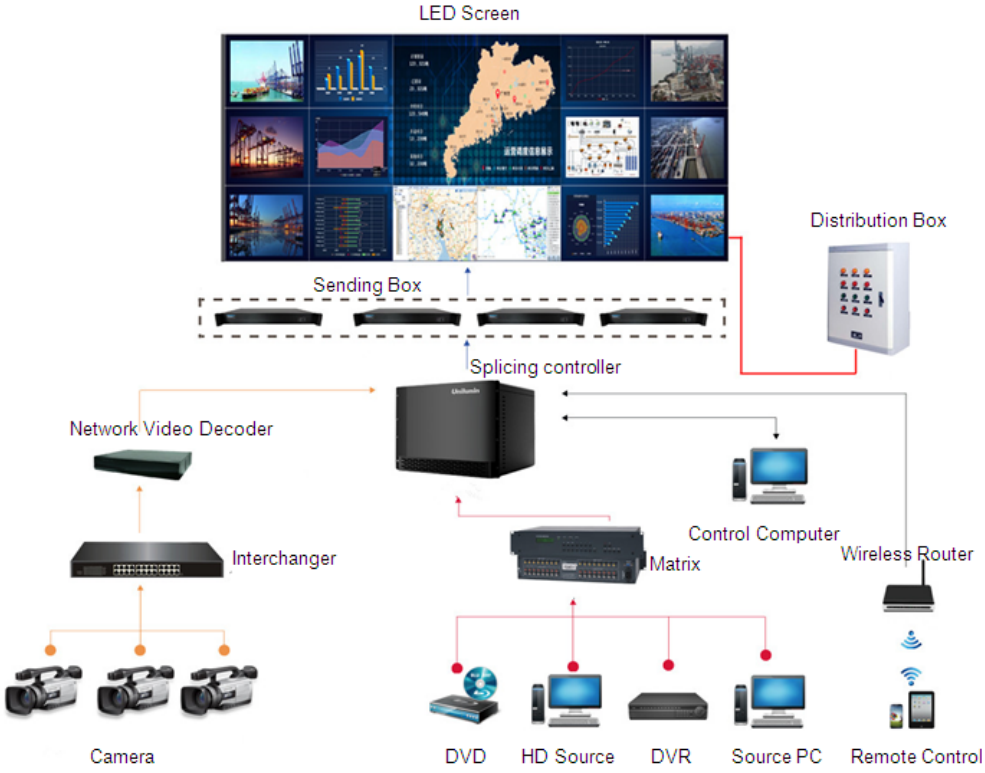
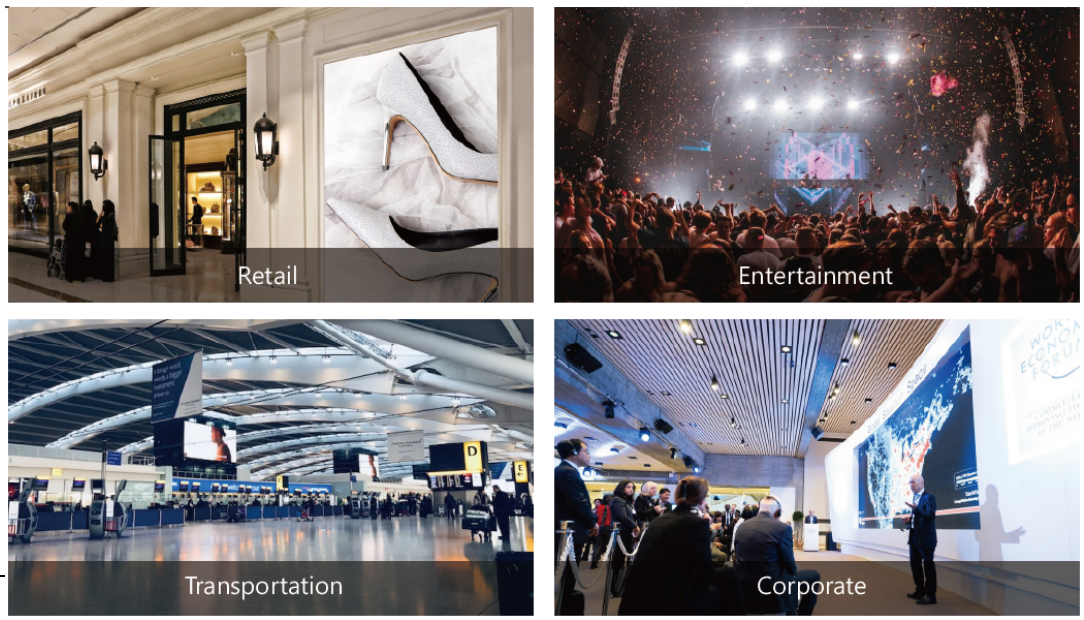



Fig. 1-2 System topological graph

## 1.5 Applicable scope

EasyHP series products can be seamlessly spliced into display screens of any dimensions, which are widely used in public places such as conference room, school multi-function hall, studio, airport, station and urban rail, as well as fields such as hotel lobby, company lobby, exhibition hall, shopping mall, brand store, promotion site and home theater.



# Chapter II Installation and Configuration

## 2.1 Unpacking check

Please carefully check the package for damage. If it is normal, continue to check the shipping list to verify the main parts. In case of any discrepancy, please contact us in time.
Main parts: Module, signal connection line and DC power line. Specific parts and the quantities are shown in the shipping list.

## 2.2 Installation method

The Cabinet is first fixed with the steel structure, and then the module is fixed to the cabinet by adding a magnetic column magnetic suction (indoor).
Advantages: High flatness, easy splicing of special-shaped screen (inner arc and outer arc), less use of steel structure, and high protection.

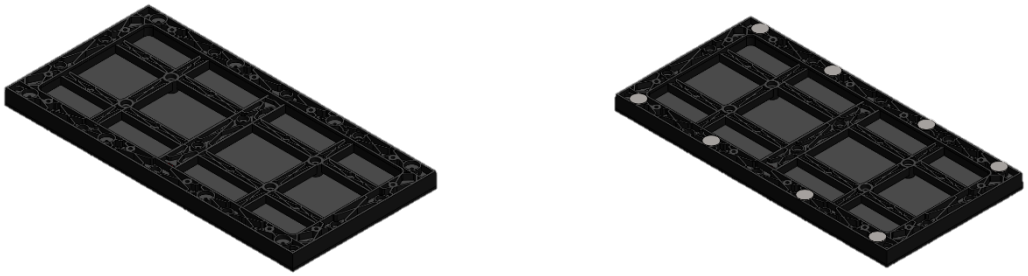


Figure 2-1 module with iron plate

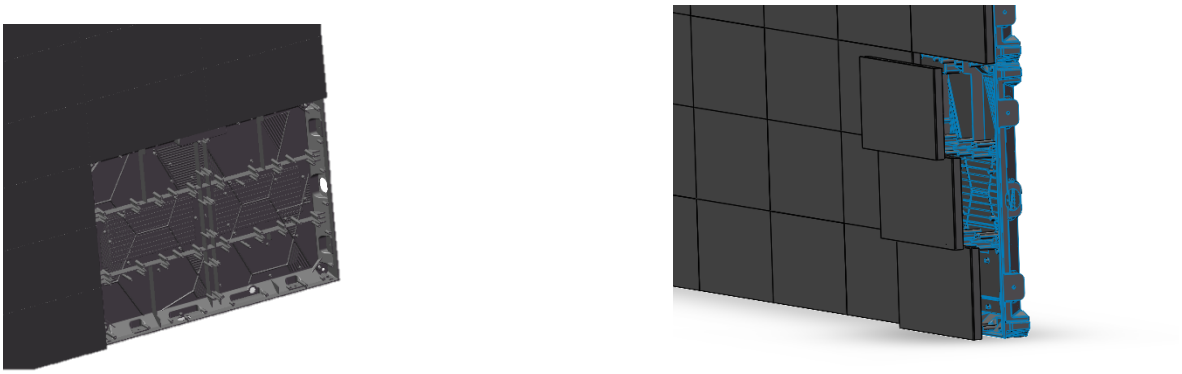


Figure 2-2 equipped with magnetic column

## 2.3 Installation of Cabinet- Front Installation

When used as fixed LED displays, the EasyHP products are installed sequentially according to the cabinet number, as shown in Figure 2-3:

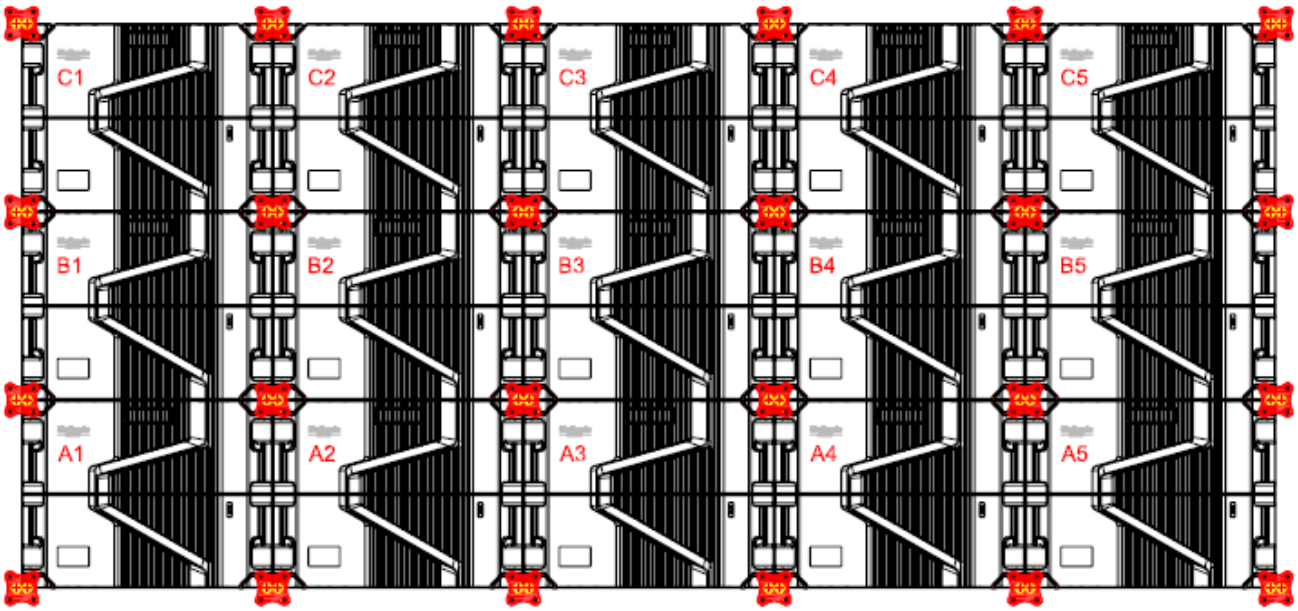



Figure 2-3 Rear View of the Display

1） Check whether the bottom beam is level. Make sure that its levelness and straightness is within ±1mm.

2） Install the cabinets sequentially from bottom to top and from middle to both sides. Fasten the adjacent cabinets with bolts. In addition, secure the connecting plates and cabinets with installation screws to the square tubes.

3） Keep proper joints and flatness between the cabinets during cabinet installation.

4） After the installation of the cabinet is complete, manually screw the power signal connection cable on the cabinet，Connection to the previous cabinet.

5） Then install the module on the corresponding box, the module installation process, need to pay attention to the gap between the module and flatness.

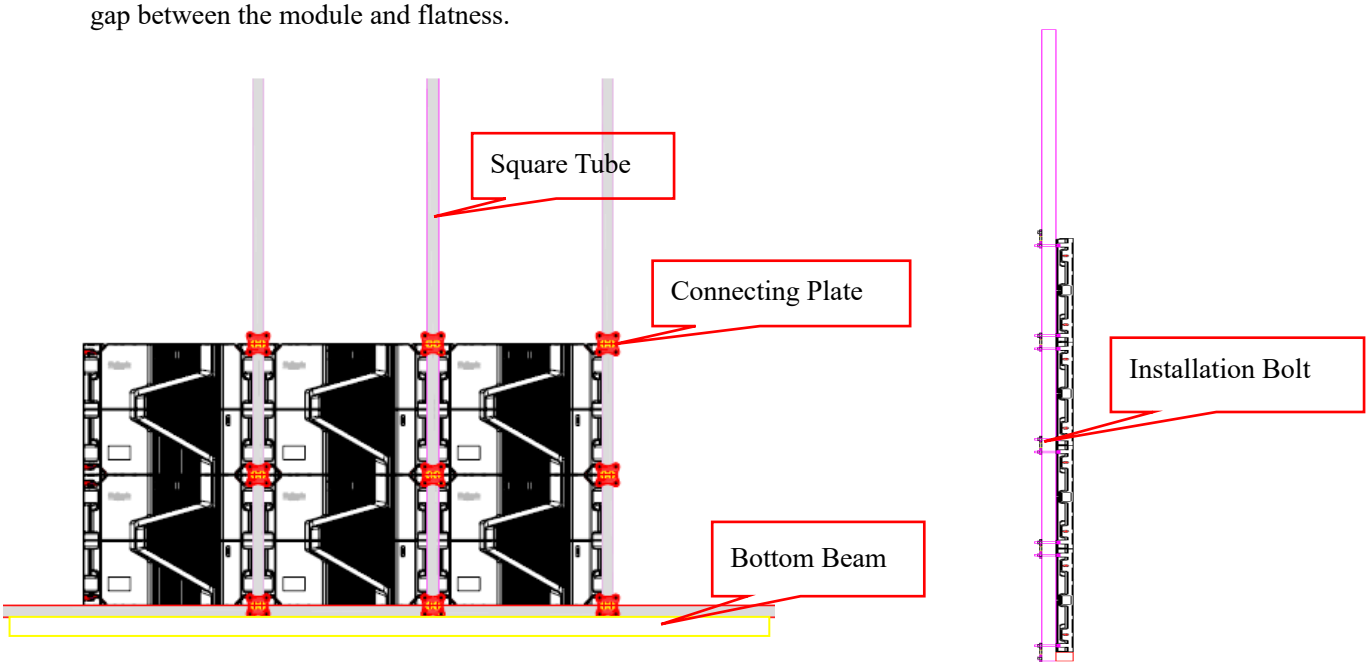



Figure 2-4 Cabinet Fastening

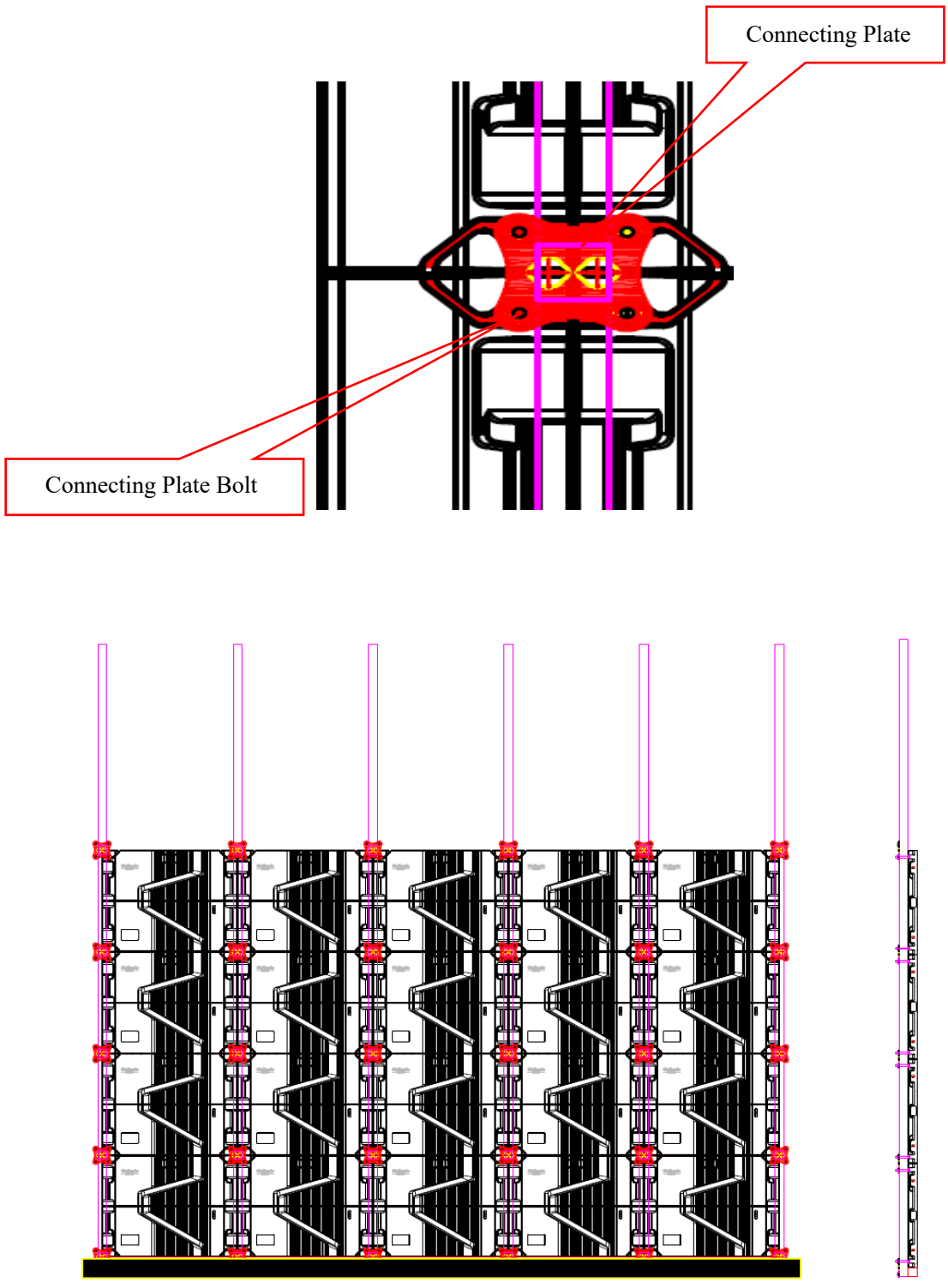



Figure 2-5 Rear View of Cabinet Installation

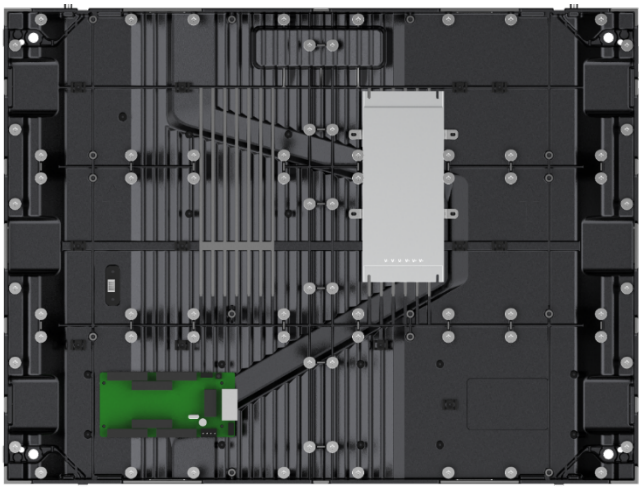
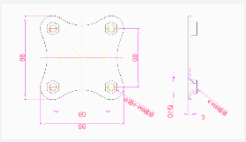
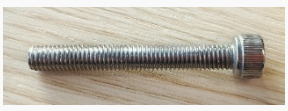


Figure 2-6 Location Map

## 2.4 Accessories for LED display

### 2.4.1 Common Accessories

<table>
<tr><td colspan="3">Module magnetic suction accessories</td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>Magnetic column<br>（Just for reference）</td><td>DC power cable<br>（Just for reference）</td><td>Flat cable<br>（Just for reference）</td></tr>
<tr><td colspan="3">Cabinet assembly accessories</td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>Magnetic sheet with stud<br>（Just for reference）</td><td colspan="2">Connecting Plate</td></tr>
<tr><td>  </td><td colspan="2">  </td></tr>
<tr><td>Bolt:M8*60<br>（Connecting plate bolt）</td><td colspan="2">Bolt:M5*20<br>（Cabinet connection bolts）</td></tr>
</table>

### 2.4.2 Power & Signal Cable Connection

Figure2-7, 2-8show the power & signal cable connection for cabinets with an arrangement of 4 cabinets (Width) × 4 cabinets (Height).Signal cables shall be connected based on the wiring diagram of the delivered products for the project.

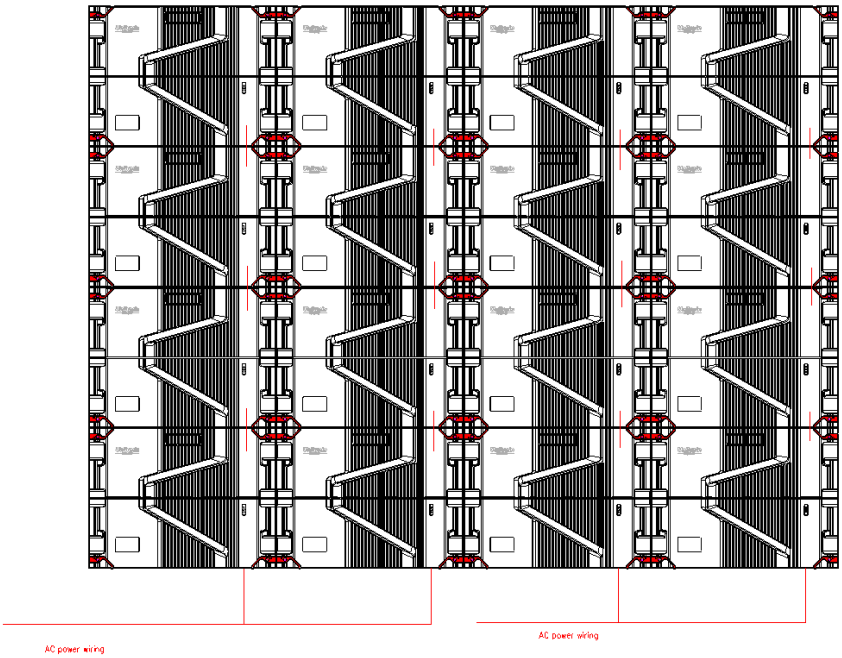



Figure 2-7 Power Cable Connection Diagram

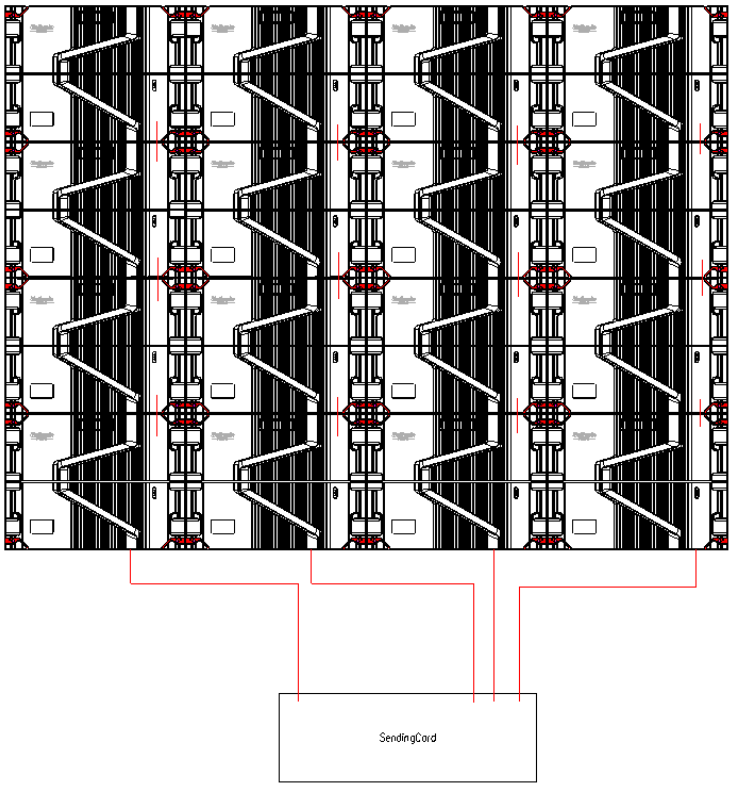



Figure 2-8 Signal Cable Connection Diagram

## 2.5 Intelligent control distribution box

The intelligent control distribution box can be used for power distribution of display screen, and it is also equipped with auxiliary functions of monitoring the temperature, humidity, smoke, power supply voltage and other status of the external environment in real time. The control software is added with timed on-off function. Through time setting, the functional requirements of remote opening and closing of the display screen at any time can be realized.

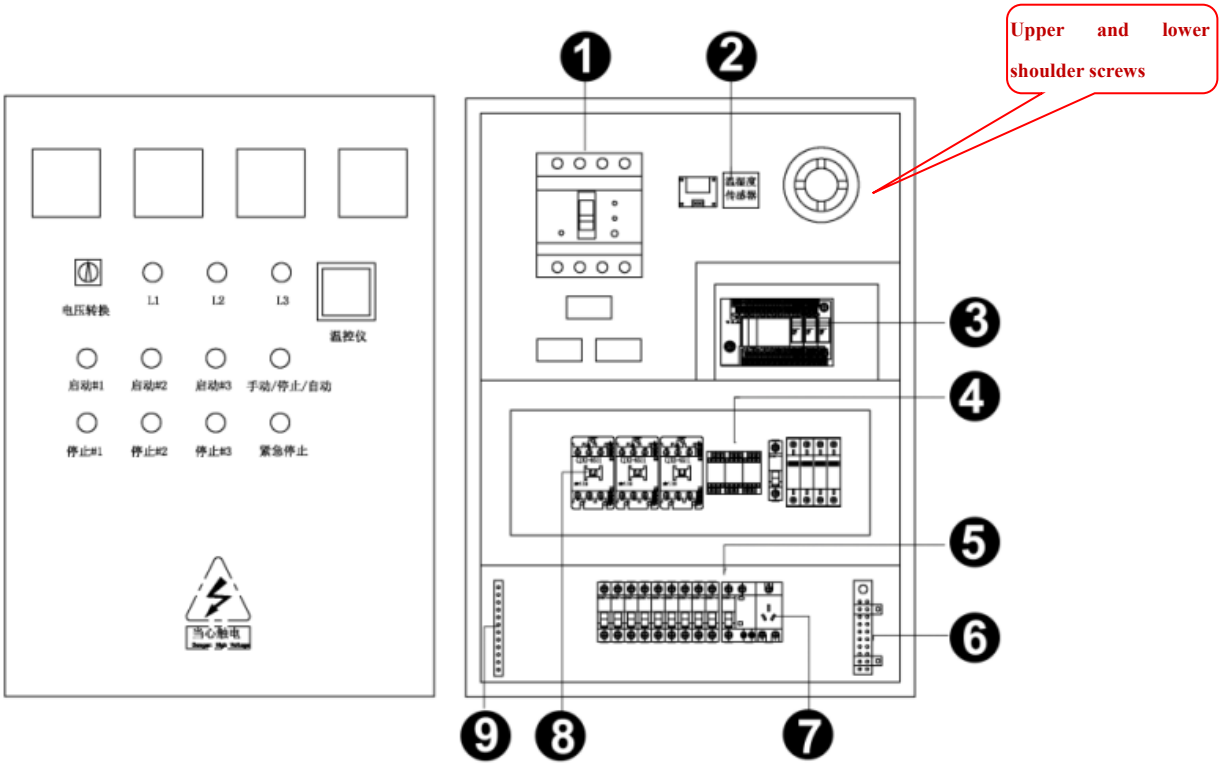
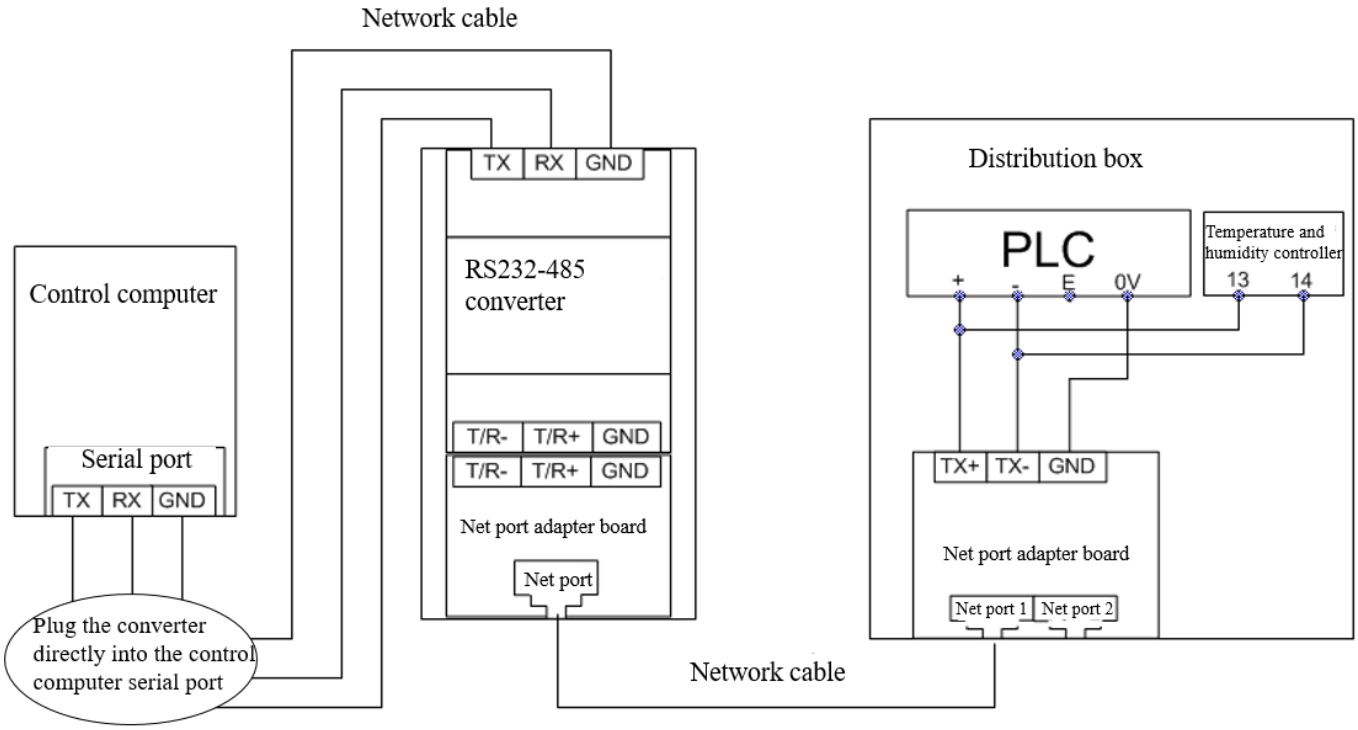



Fig. 2-3 Internal schematic diagram of distribution box

| Serial No. | Name | Remarks |
|---|---|---|
| 1 | Master switch | Three-phase five-wire input power supply |
| 2 | Temperature sensor | Detect temperature |
| 3 | PLC | Intelligent control |
| 4 | Relay | Control the on and off of AC contactor |
| 5 | Air switch | Connect to the incoming live wire of the display screen |
| 6 | Neutral line row | Connect to the incoming neutral line of the display screen |
| 7 | Power socket | / |
| 8 | AC contactor | Control the connection and disconnection of current |
| 9 | Ground wire row | Connect to the incoming ground wire of the display screen |

Connection description of PLC of intelligent control distribution box:

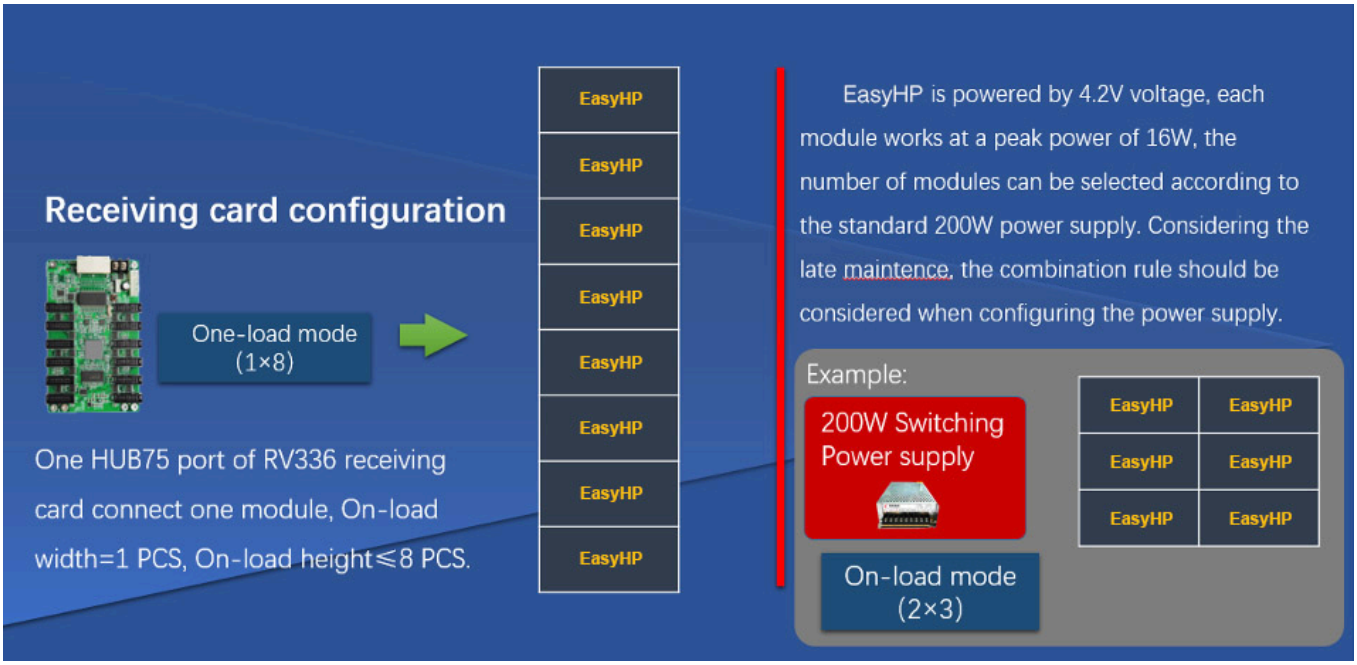
Convert the PLC communication from the serial port RS232 of the control computer to RS485 with a converter, and then connect it to the converter of the PLC through a network cable. For specific settings and operations, please refer to the *Manual of Intelligent Power Distribution Management System*.




Connection schematic diagram of PLC of intelligent control distribution box

## 2.6 General receiving card and power configuration of the product

1） Take EasyHP 2 as an example:



2） General receiving card and power configuration of the product

| Product Model | Receive card with load | Supply voltage | Power supply | Power supply with load |
|---|---|---|---|---|
| EasyHP 1.25 | 1pc(1 Cabinet ) | 4.2V/4.5V | 200W-4.2V-B | 1pc(1 Cabinet ) |
| EasyHP 1.538 | 1pc(1 Cabinet ) | 4.2V/4.5V | 200W-4.2V-B | 1pc(1 Cabinet ) |
| EasyHP 1.839 | 1pc(1 Cabinet ) | 4.2V/4.5V | 200W-4.2V-B | 1pc(1 Cabinet ) |
| EasyHP 2 | 1pc(1 Cabinet ) | 4.2V/4.5V | 200W-4.2V-B | 1pc(1 Cabinet ) |
| EasyHP 2.5 | 1pc(1 Cabinet ) | 4.2V/4.5V | 200W-4.2V-B | 1pc(1 Cabinet ) |
| EasyHP 3.076 | 1pc(1 Cabinet ) | 4.2V/4.5V | 200W-4.2V-B | 1pc(1 Cabinet ) |
| EasyHP 4 | 1pc(1 Cabinet ) | 4.2V/4.5V | 200W-4.2V-B | 1pc(1 Cabinet ) |

# 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).

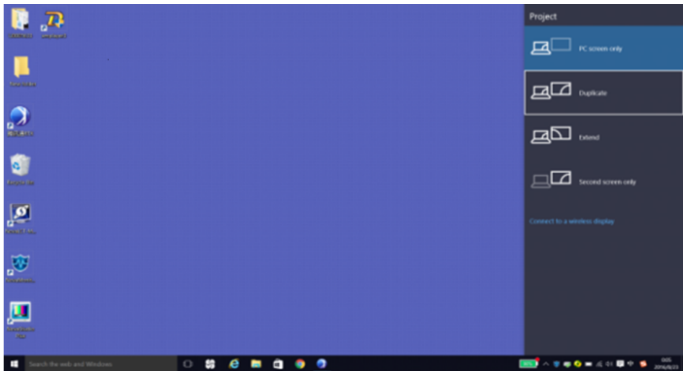



Figure 3-1 Replication Mode

### 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.

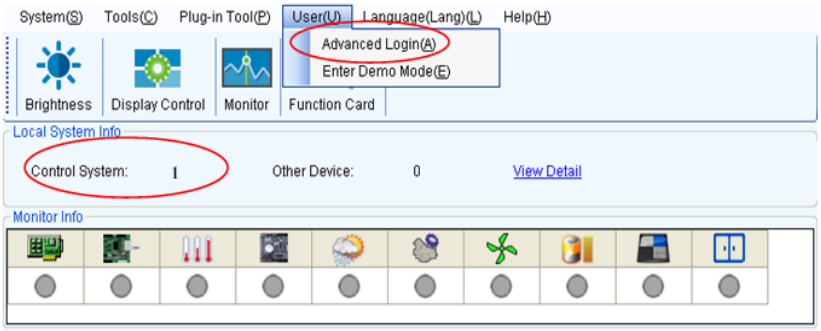



Figure 3-3 Main Window of UniLCT-Mars

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

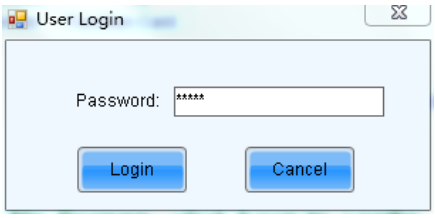



Figure 3-4 User Login

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

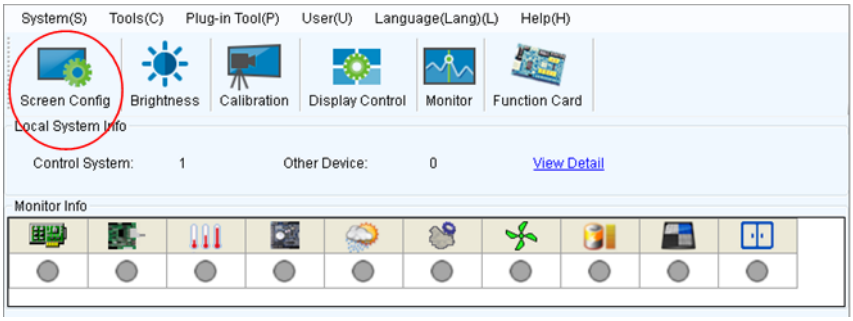



Figure 3-5 Main Window for Advanced User

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

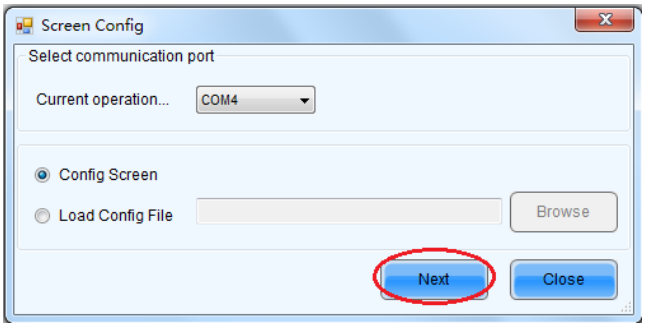



Figure 3-6 Screen Config

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**.**

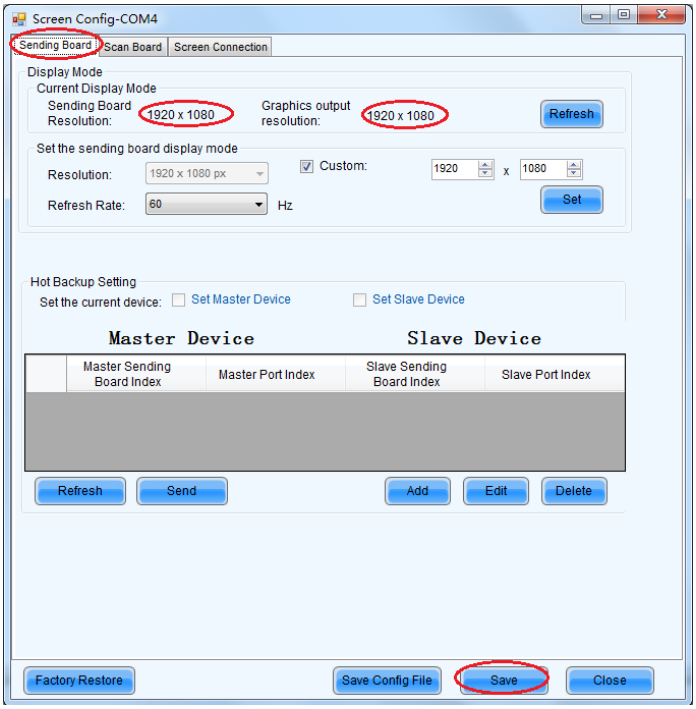



Figure 3-7 Sending Board Configuration

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

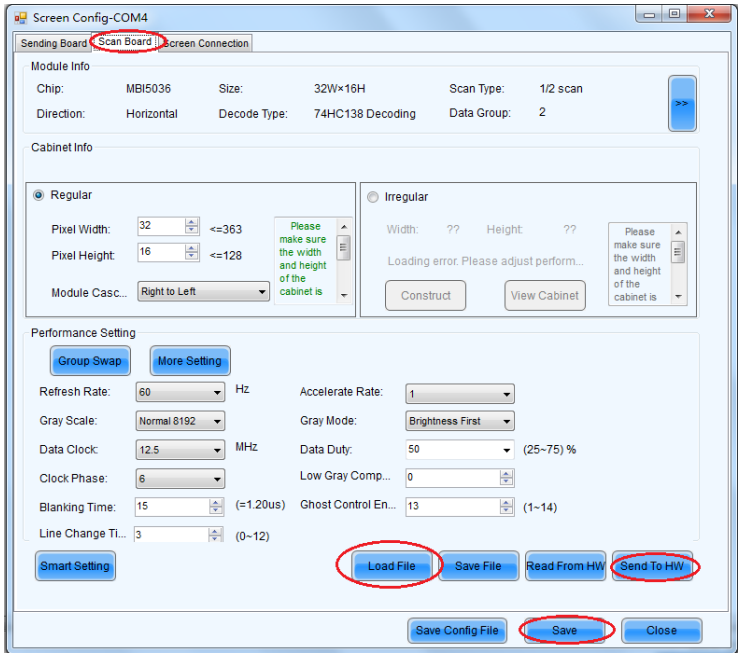



Figure 3-8 Scan Board Configuration

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.

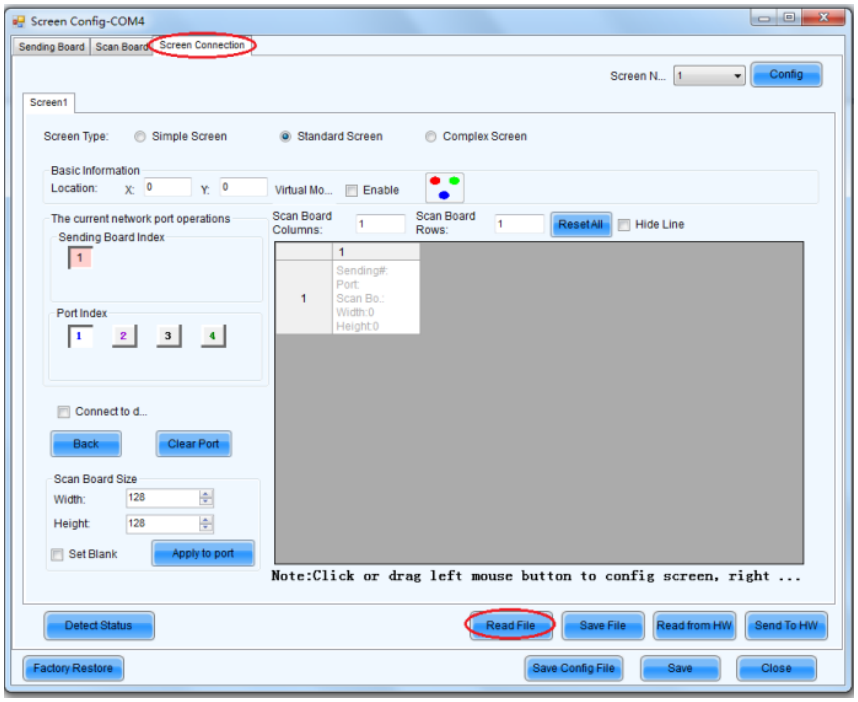



Figure 3-9 Screen Connection 1

2) Click **Send to HW.**

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

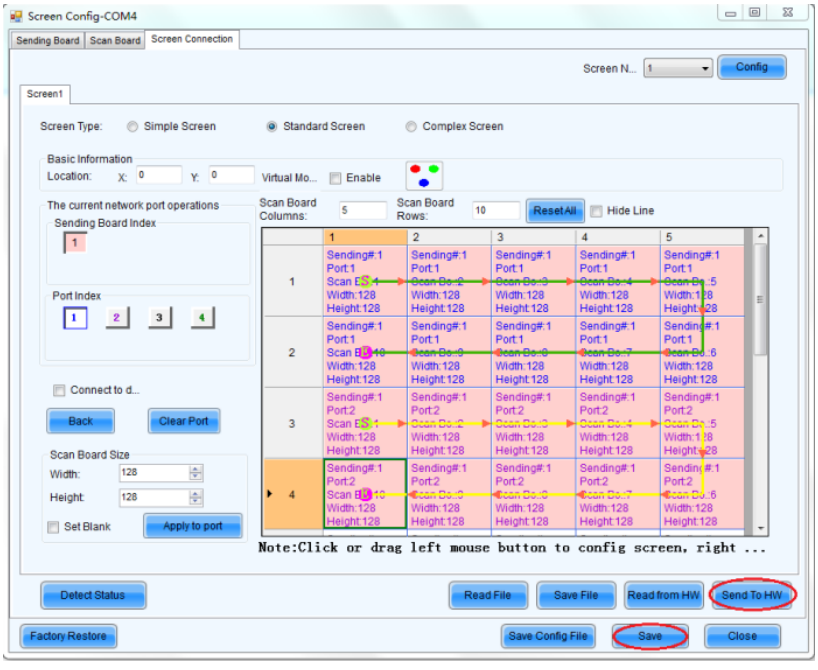



Figure 3-10 Screen Connection with Loaded File

## 3.4 Brightness Adjustment

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

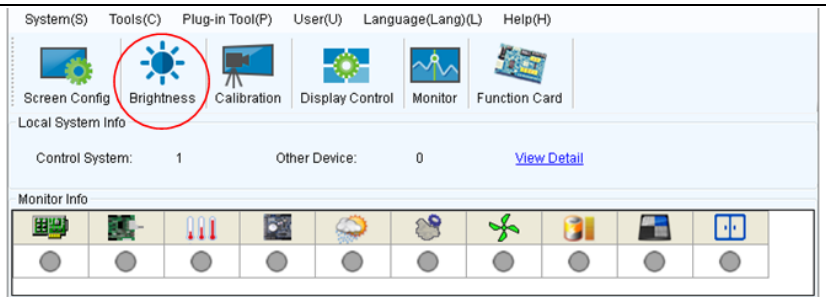



Figure 3-11 Main Window for Advanced User

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.

### 3.4.1 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.

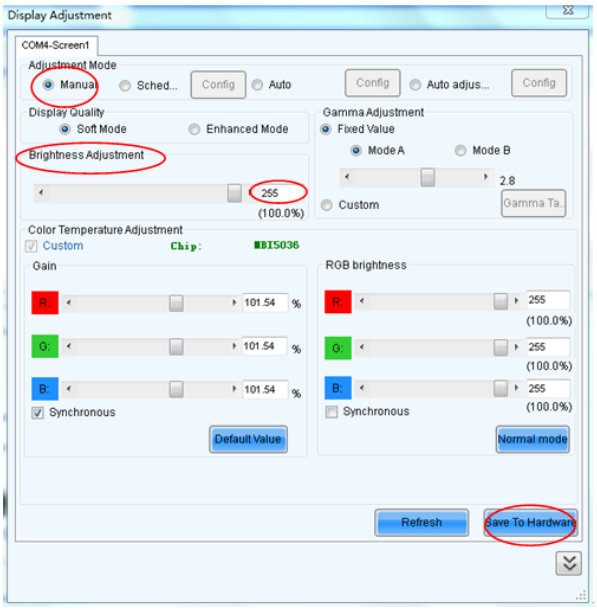



Figure 3-12 Manual Adjustment

**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.

### 3.4.2 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 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:

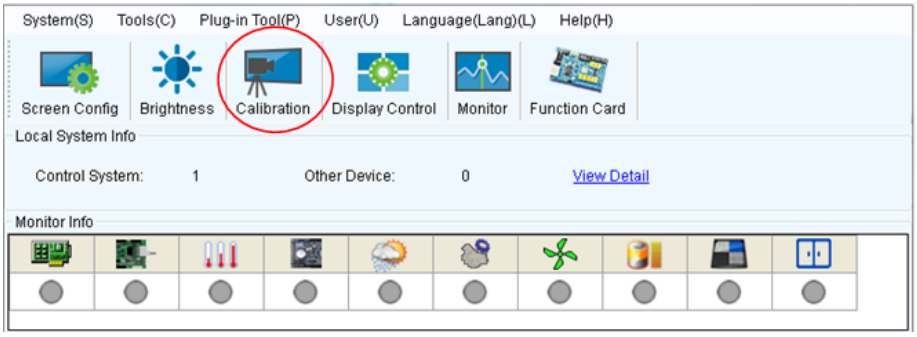



Figure 3-13 Main Window for Advanced User

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

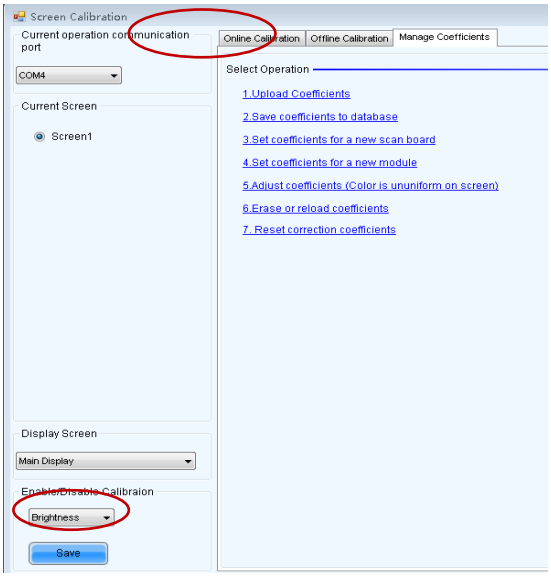



Figure 3-14 Manage Coefficients

**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.**

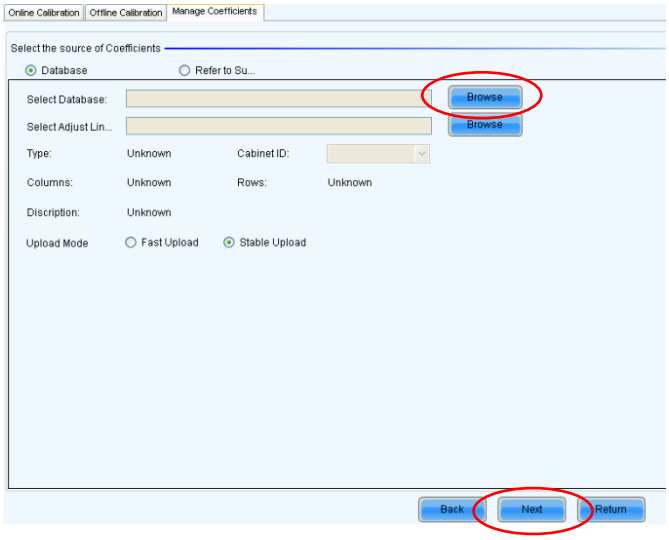



Figure 3-16 Obtaining Correction Coefficients for Receiving Card

3) Select the corresponding correction coefficients:

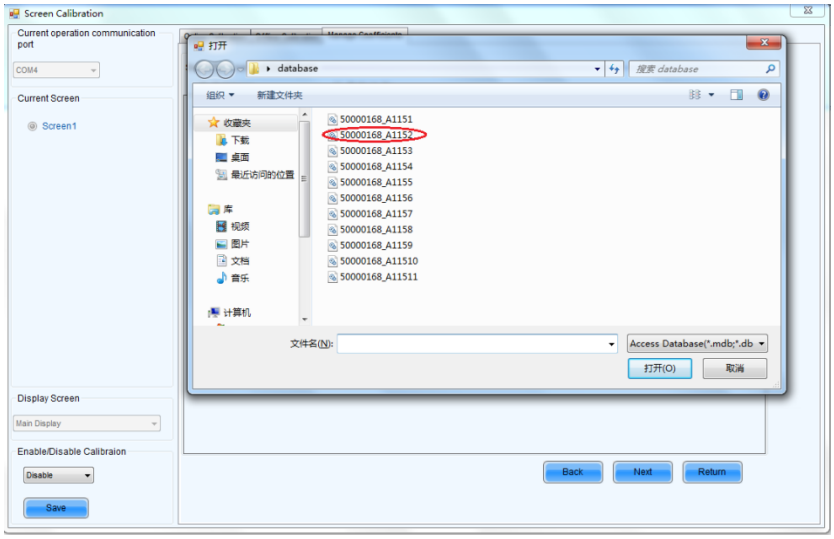



Figure 3-17 Selecting Correction Coefficients for Receiving Card

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

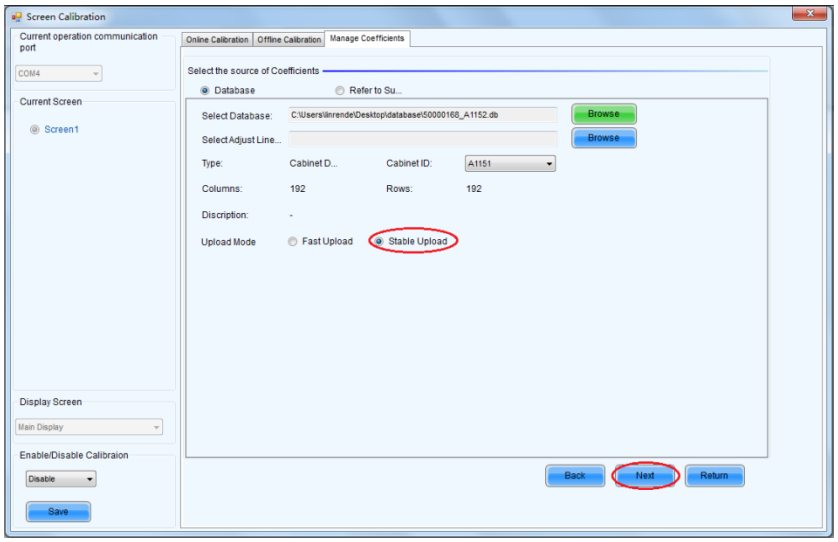



Figure 3-18 Uploading Correction Coefficients

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

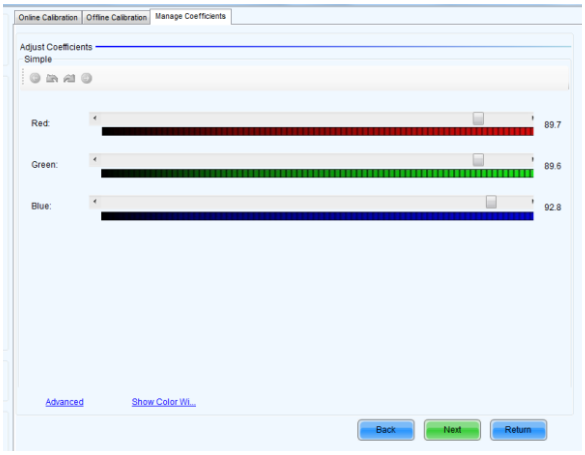



Figure 3-19 Simple Adjustment

**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.**

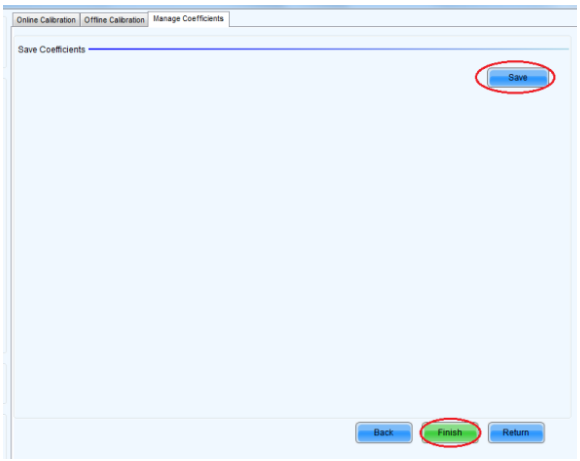



Figure 3-20 Saving Correction Coefficients

### 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.**

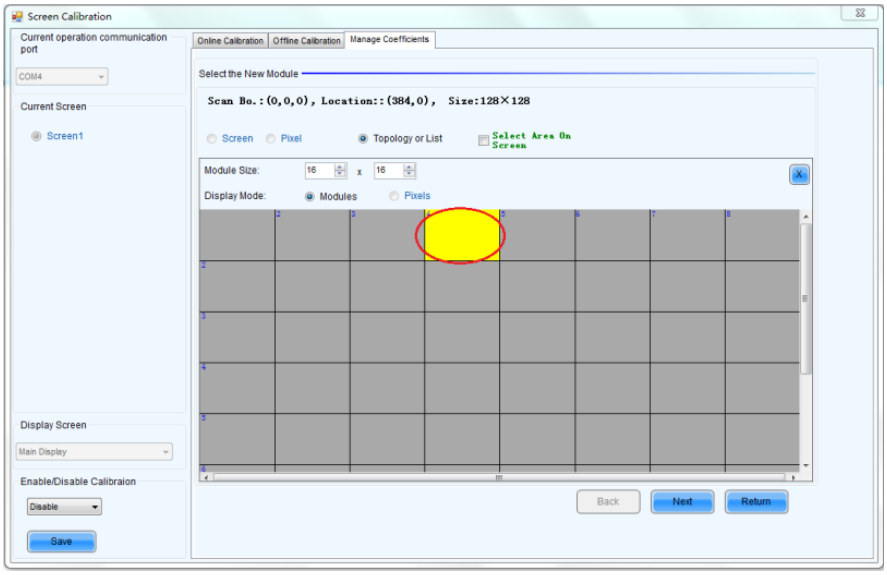



Figure 3-22 Selecting Position of New Module

**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.

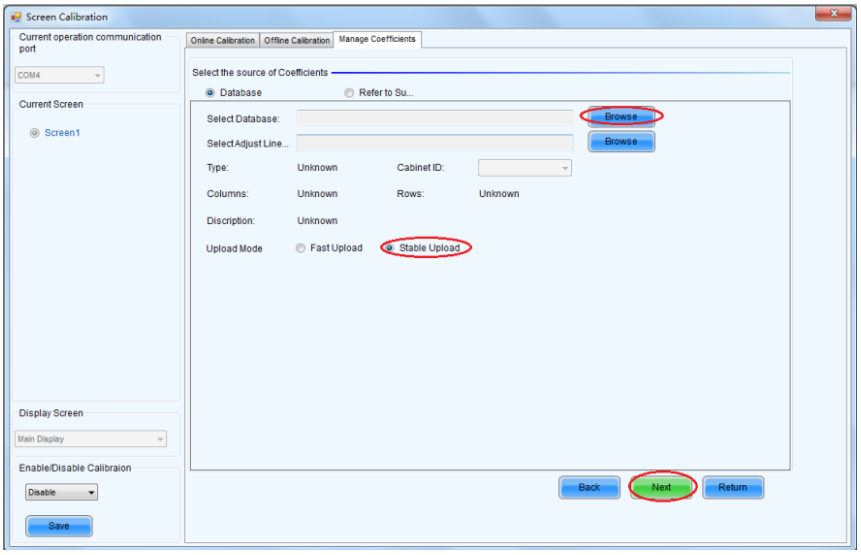



Figure 3-23 Obtaining Correction Coefficients for a New Module

## 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.

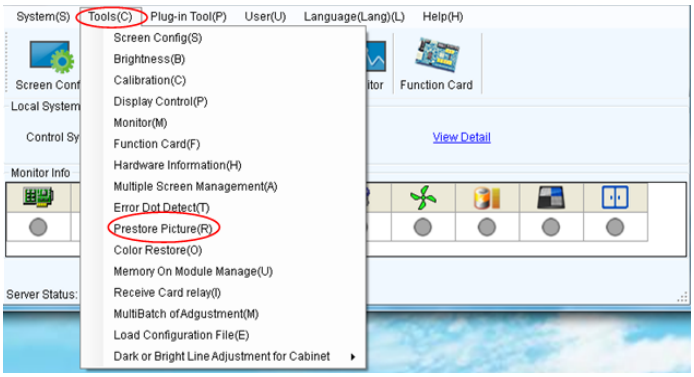



Figure 3-24 Prestore Picture

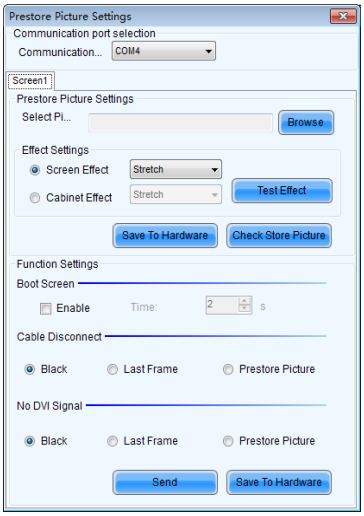



Figure 3-25 Prestore Picture Settings

### 3.6.1 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.

### 3.6.2 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.

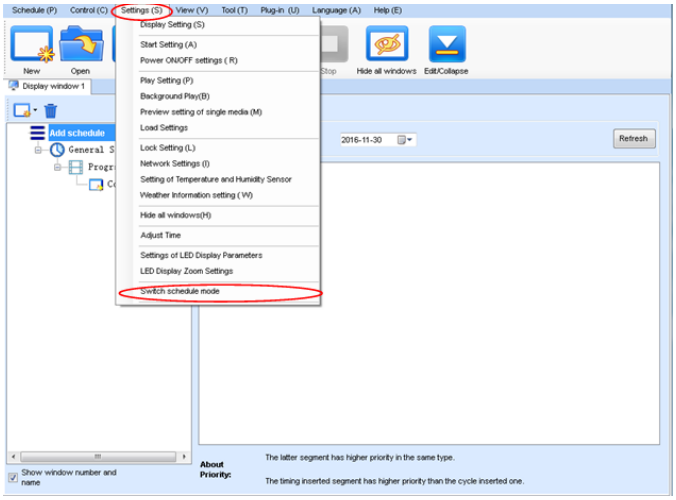



Figure 4-1 Switching Schedule Mode

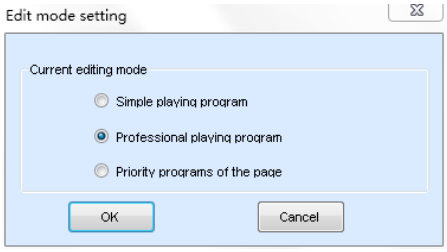



Figure 4-2 Edit Mode Setting

## 4.2 Playing Setting

### 4.2.1 Display Window Setting

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

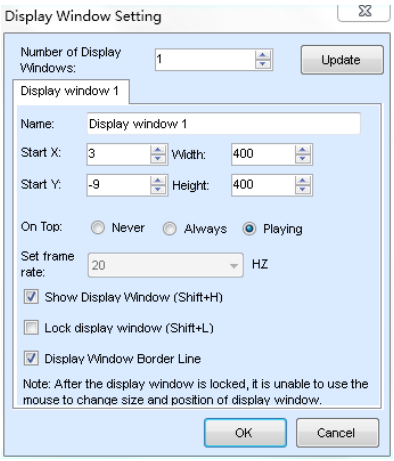



Figure 4-3 Display Window Setting

**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**:**

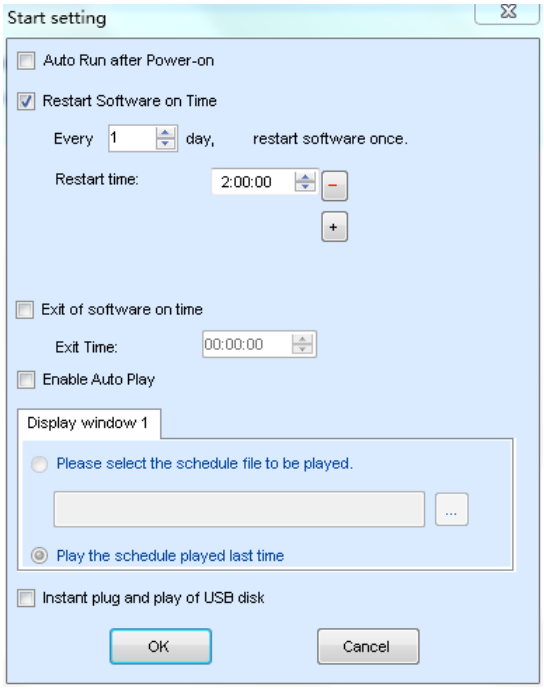



Figure 4-4 Startup Setting

**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:

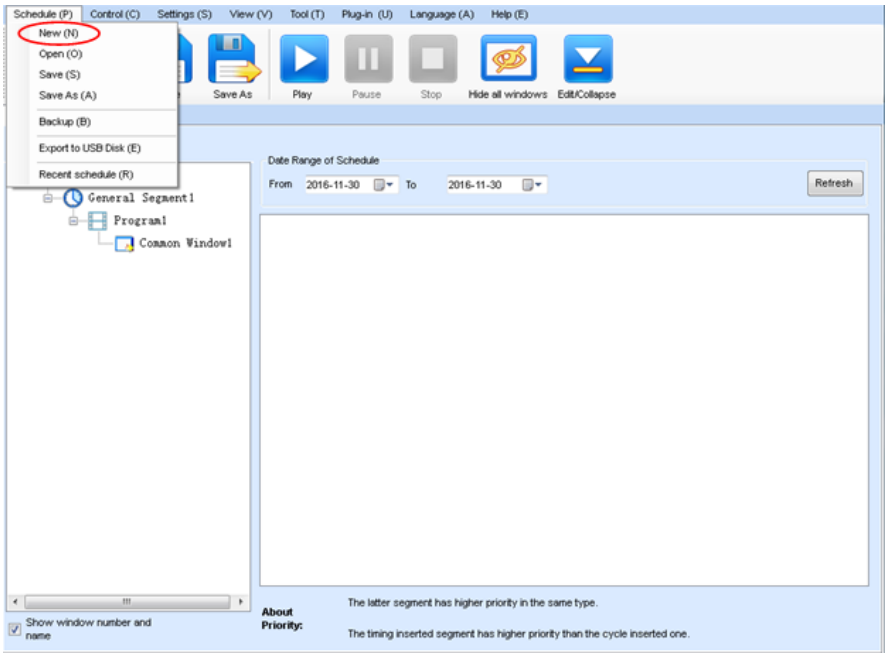



Figure 4-5 Creating a Playing Solution

### 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**:**

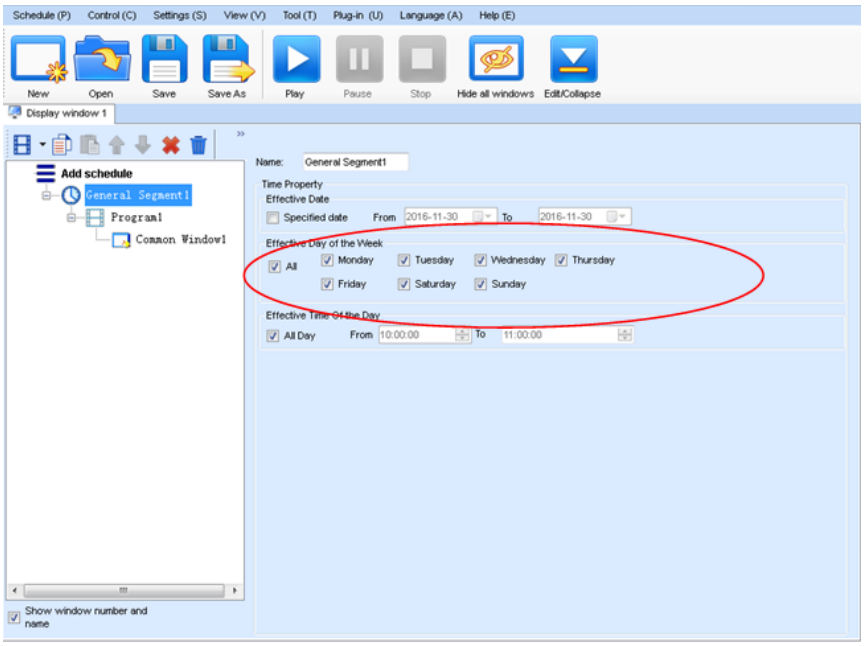



Figure 4-6 Properties of General Time Segment

### 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:

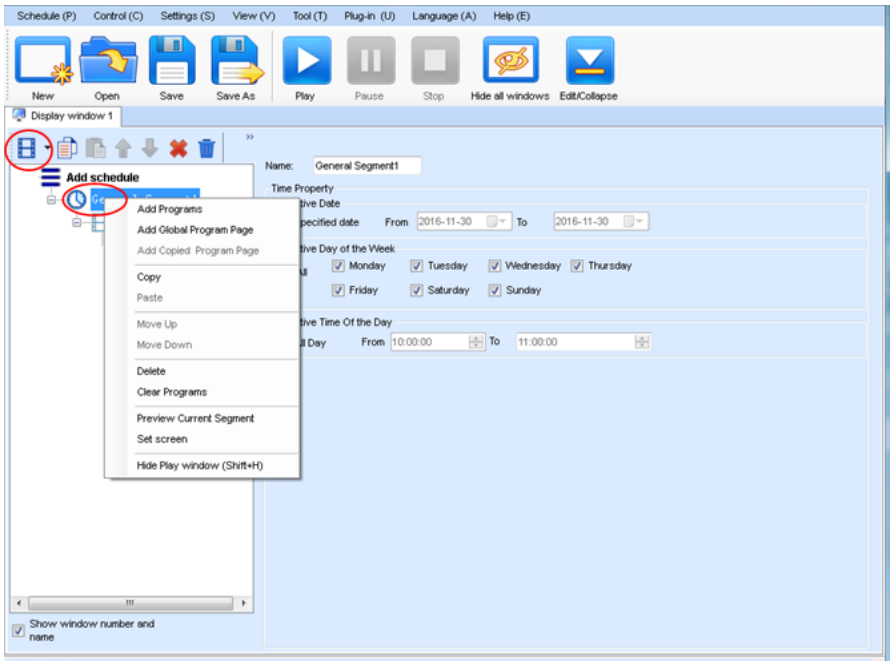



Figure 4-7 Creating a Program Page

#### 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:

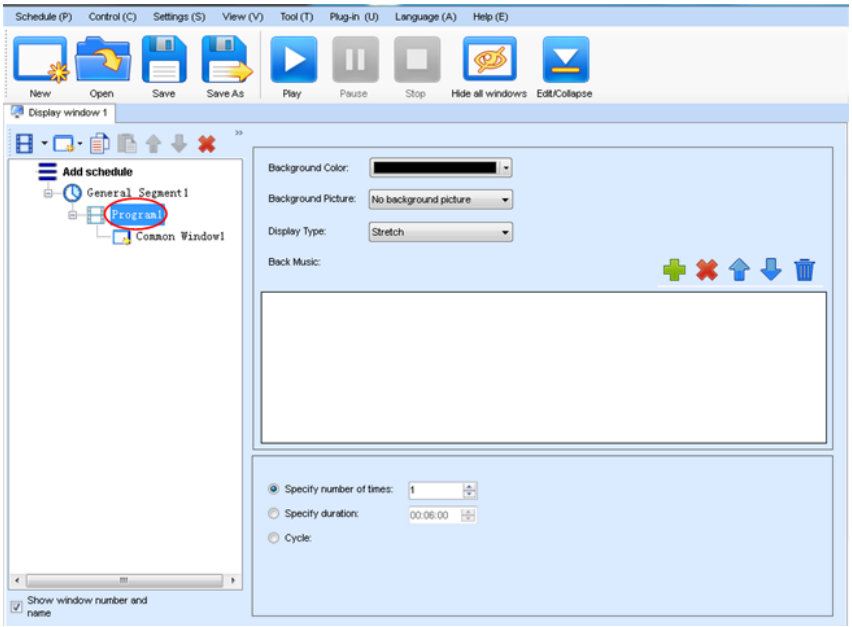



Figure 4-8 Properties of Program Page

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.

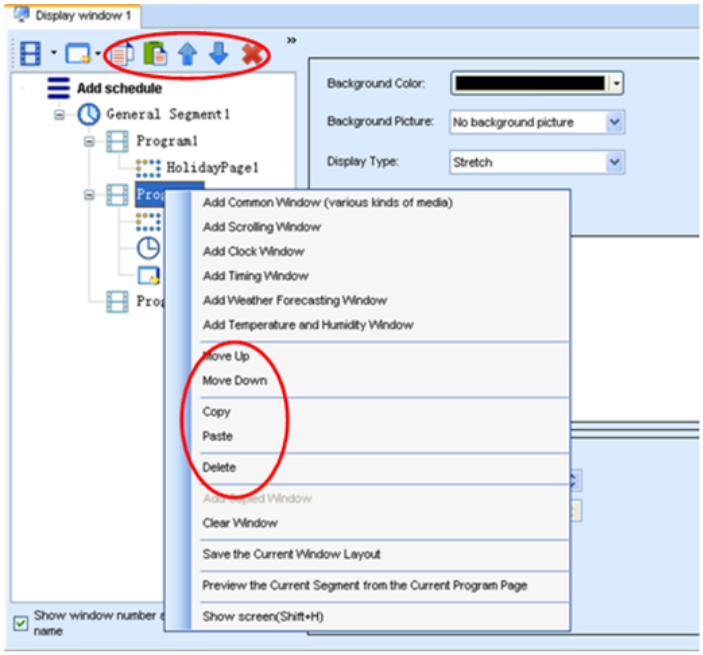



Figure 4-10 Program Page Operation Menu

### 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:

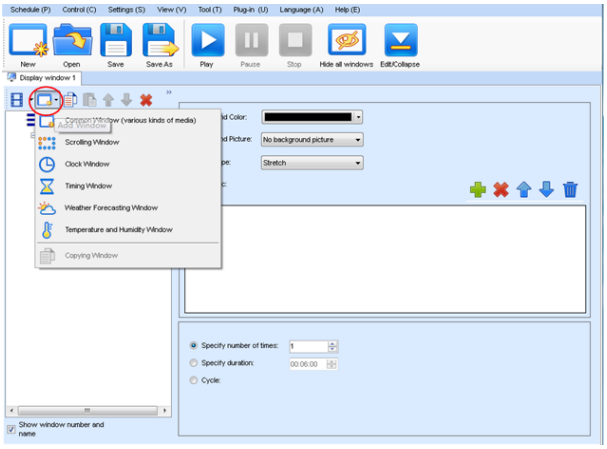


Figure 4-11 Adding a Window to Program Page

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

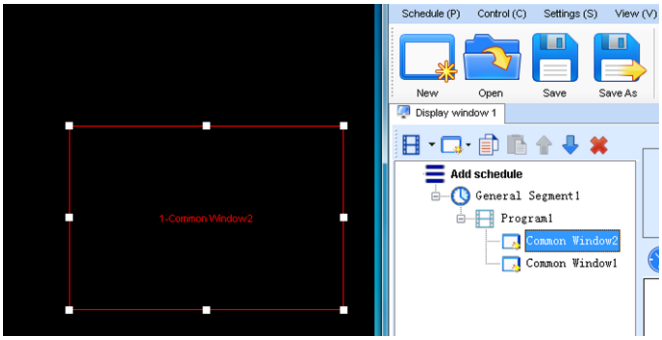



Figure 4-12 Added Window

## 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:

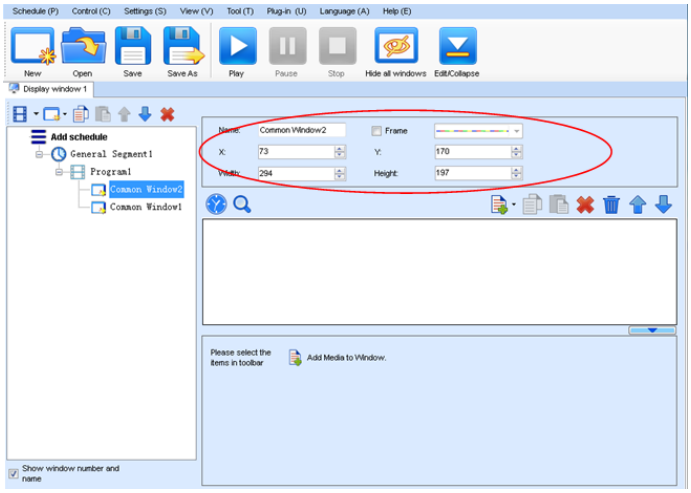



Figure 4-13 Setting the Window Size

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

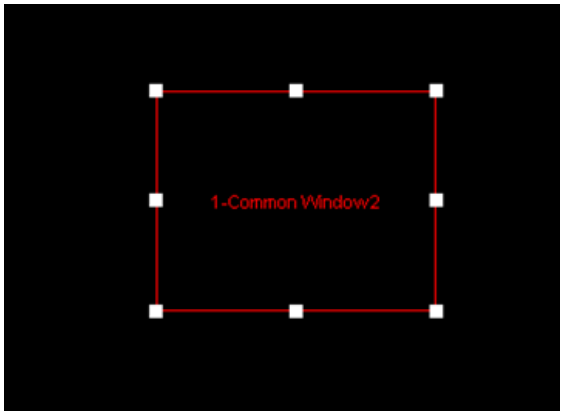



Figure 4-14 Adjusting the Window Size Using the Mouse

### 2) Deleting a display window

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

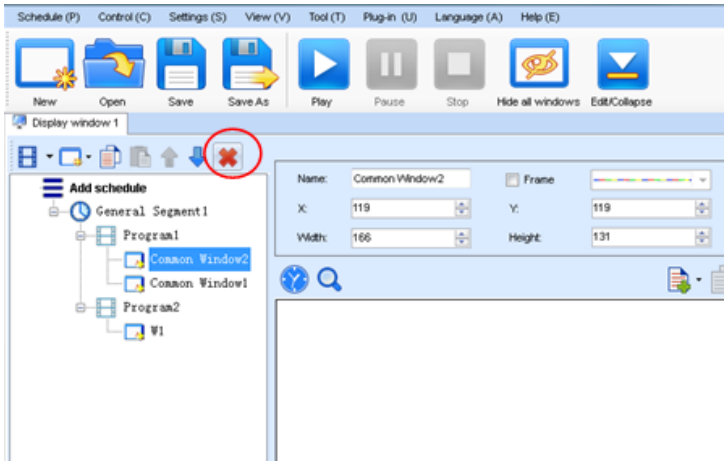



Figure 4-15 Deleting the Display Window

### 3) Moving a display window

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

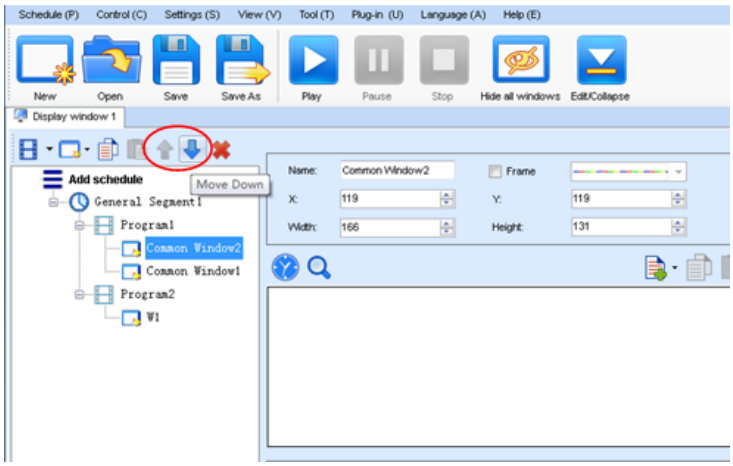



Figure 4-16 Moving a Display Window

## 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** button of a common window to select media of different types to be added into the media list. See Figure 4-17:

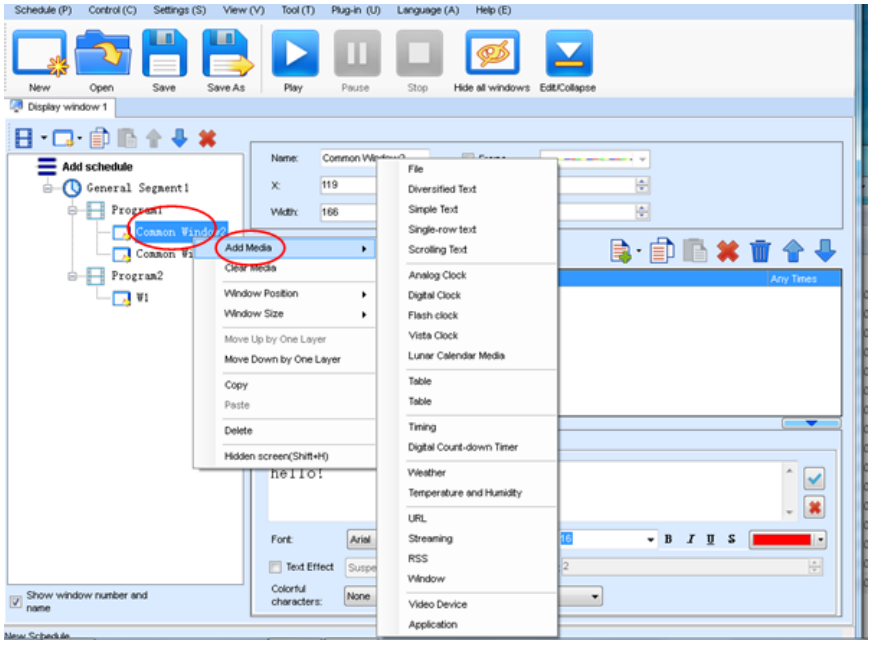



Figure 4-17 Adding the Media

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

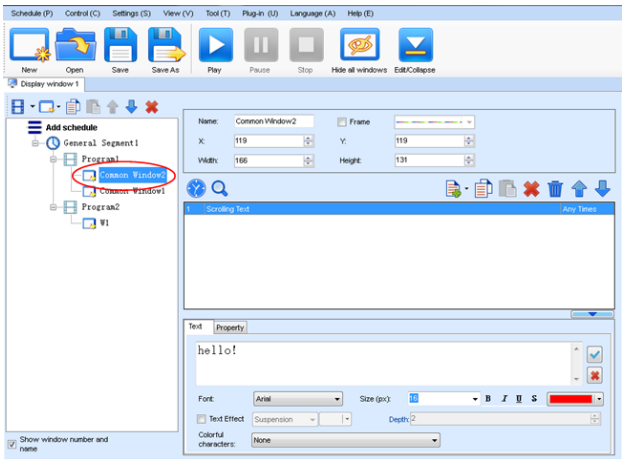



Figure 4-18 Media Setting Window

## 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:

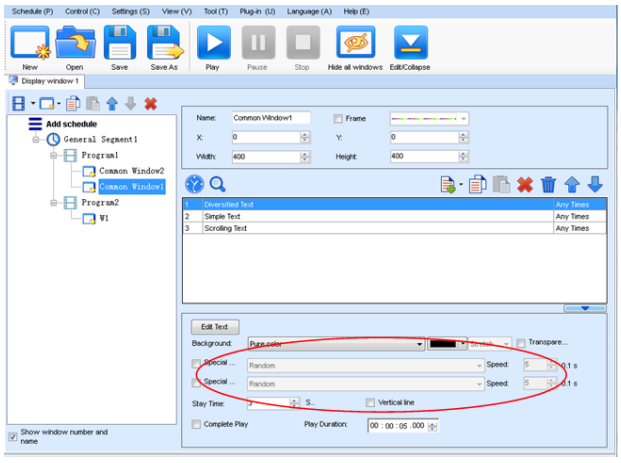



Figure 4-19 properties of Medium

### 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:

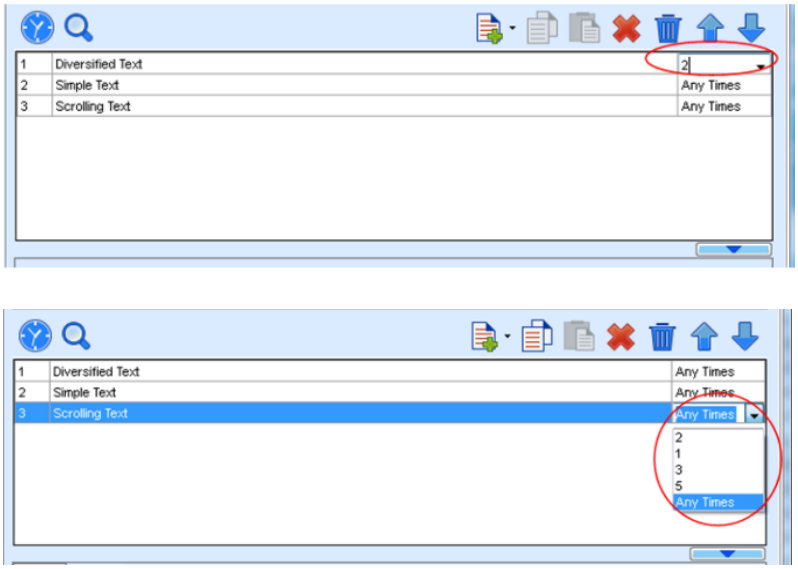



Figure 4-20 Changing the Media Playing Times

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

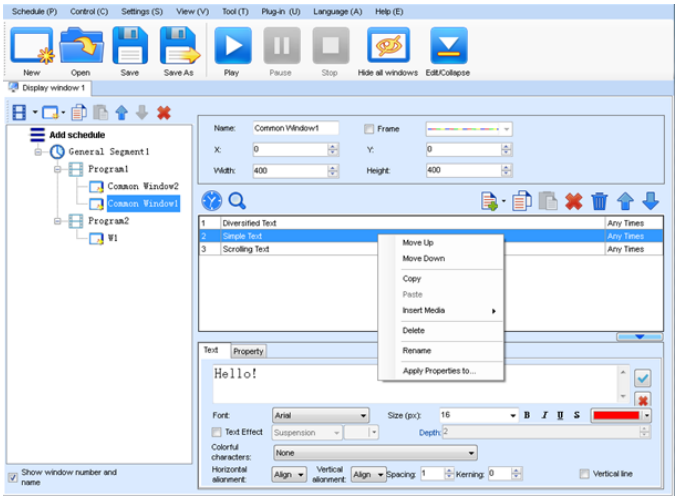



Figure 4-21 Media Operation Menu

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

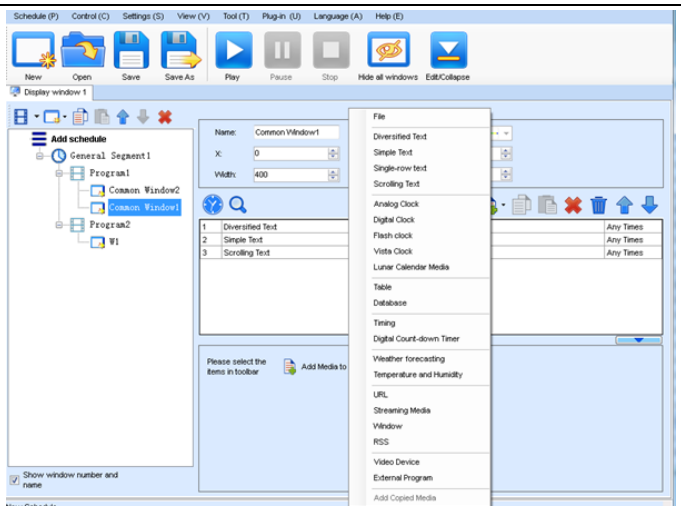


Figure 4-22 Media Playing Menu

### 4.3.5 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:

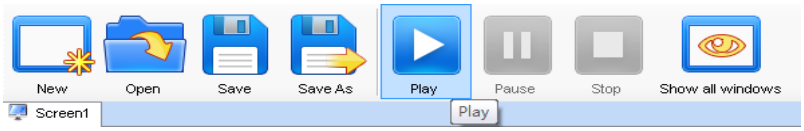



Figure 4-23 Play Key on the Toolbar

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:

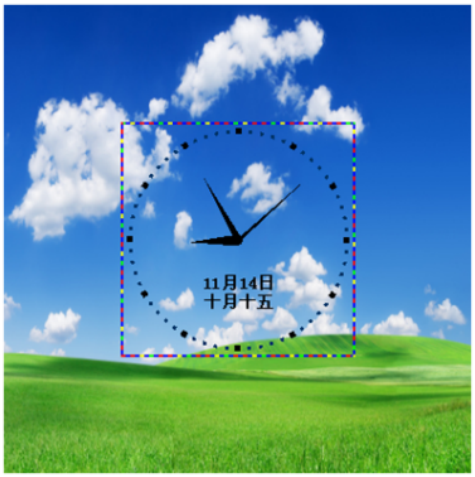



Figure 4-26 Transparent Displaying Effect of the Clock

## 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:

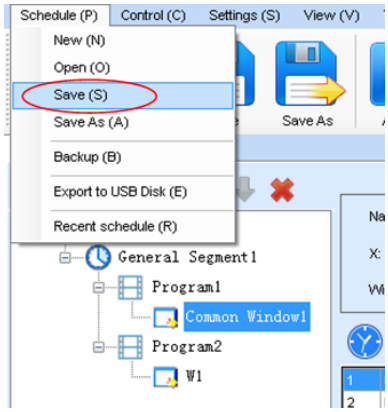



Figure 4-27 Saving a Playing Solution File

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:

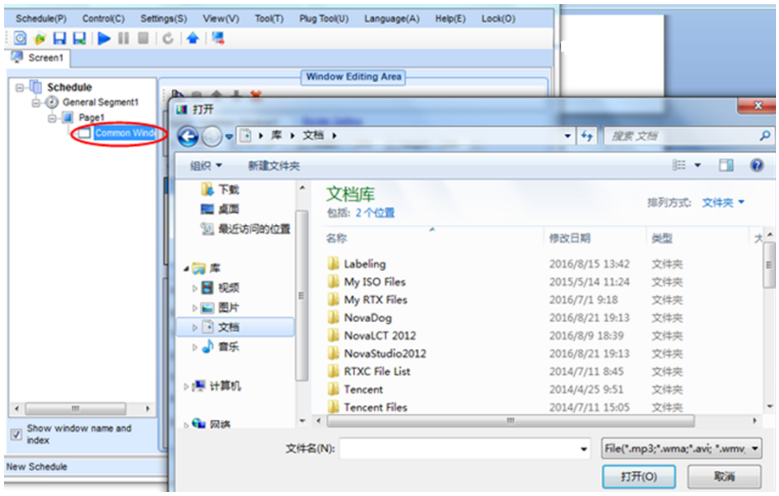



Figure 4-28 Opening a Playing Solution File

# 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 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.

## 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.

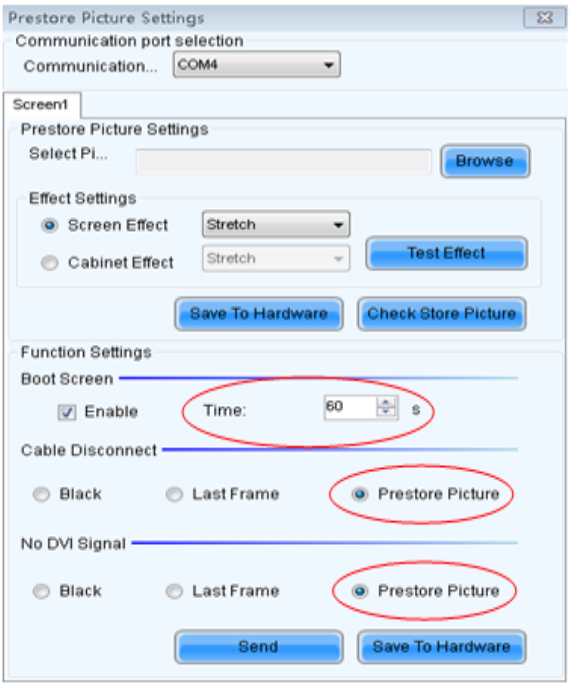



Figure 5-1: Prestore Picture Setting

### 5.4.2 Ageing

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

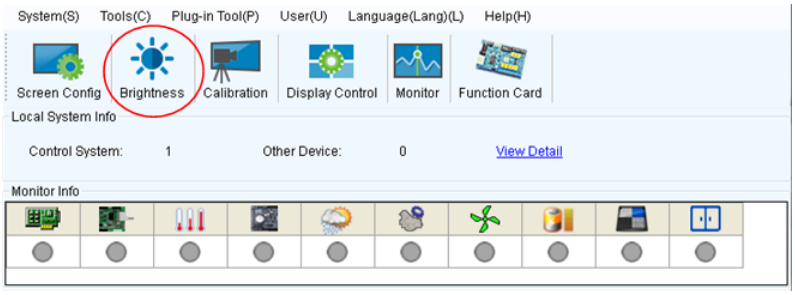



Figure 5-2 Main Window for Advanced User

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:

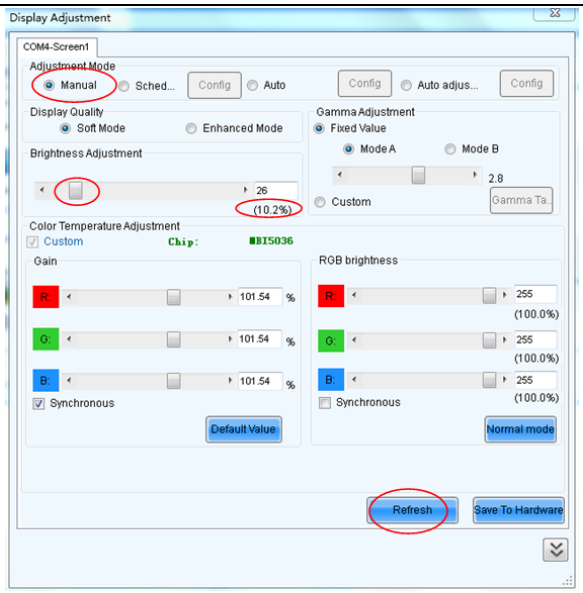



Figure 5-3 Manual Adjustment

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.

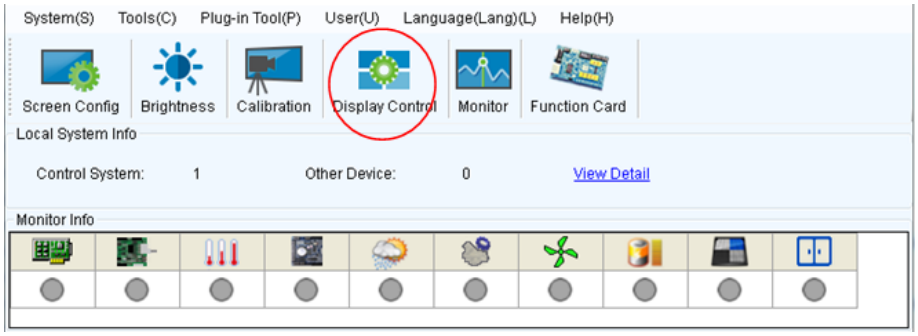



Figure 5-4 Display Control

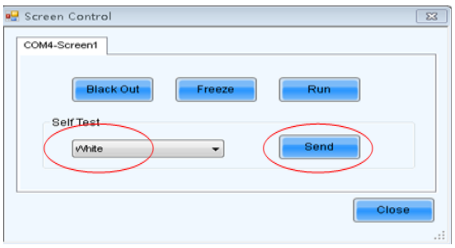



Figure 5-5 Display Control

### 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 VI Common Troubleshooting

## 6.1 Common faults and troubleshooting methods

### 6.1.1 The whole screen does not light up (black screen)

Cause analysis:

1） The display screen or control equipment has no power input;

2） The display screen has no signal input; and

3） The control computer is in the sleep status or the graphics card setting is incorrect.

Troubleshooting method:

1） Check whether the AC input of display screen and control equipment is normal;

2） Check whether the wiring between the sending box and receiving card is normal; and check whether the DVI line between the control computer and sending box is connected securely; and

3） Check whether the control computer enters the sleep status or monitor protection status, if not, check whether the graphics card is well set.

### 6.1.2 The image on the display screen is incomplete or in the wrong position

Cause analysis:

1） The file connected to the display screen is incorrect;

2） The network cable of receiving card between modules is poorly contacted; and

3） The parameter setting of display position and display screen dimension is incorrect.

Troubleshooting method:

1） Check whether the wiring mode of display screen signal is consistent with that of the loaded "xxxx.scr" file;

2） Check whether the associated network cable of module receiving card is loose, and replace the receiving card in case of failure; and

3） Check whether the parameter settings of "display position" and "display screen dimension" in the software are consistent with the actual one of display screen.

### 6.1.3 The whole screen is flashing or jittering

Cause analysis:

1） The interface of sending box is loose or the transmission distance of signal line is too long; and

2） The output resolution setting of player or sending box is incorrect.

Troubleshooting solution:

1） Check whether the equipment connection, DIV line and network cable of display screen are loose, or whether the length of signal line exceeds the allowable transmission distance (the effective transmission distance is as follows, respectively: DVI line: no greater than 10 m, network cable: no greater than 100 m, multimode optical fiber: no greater than 1,000 m, and single-mode optical fiber: no greater than 15 km); and

2） Check whether the resolution of player and sending box is equal to or greater than that of the display screen.

### 6.1.4 Certain unit module of display screen becomes blurred or is flashing

Cause analysis:

1） The receiving card or riser card is output poorly; and

2） The program of receiving card is incorrect.

Troubleshooting method:

1） Check whether the network cable of the associated receiving card of the module and the riser card are well-connected; and

2） Check whether the program of the associated receiving card of the module is normal, or whether the function of the

receiving card is normal.

### 6.1.5 Certain unit module of display screen does not light up

Cause analysis:

1） The power, receiving card or riser card connected to the module is faulty; and

2） The signal output of the previous unit module is poor.

Troubleshooting method:

1） Measure whether the voltage of power DC terminal and the input terminal of receiving card power is normal, whether the signal indicator light of the associated receiving card of the module is normal, and the riser card and receiving card are well-contacted; and

2） Check whether the signal output of the associated receiving card of the previous module is normal, or replace with a normal network cable.

### 6.1.6 Certain module does not light up

Cause analysis:

1） The power output of the switch for controlling relevant module is poor; and

2） The signal output for controlling relevant module is poor.

3） Troubleshooting method:

4） Check whether the DC voltage of relevant module is normal; and

5） Check whether the riser card interface or data cabling for controlling relevant module is normal.

# Chapter VII Packaging, Transportation and Storage

## 7.1 Packaging

As shown in the figure below:


The packaging picture is for reference only, the specific object shall prevail.

## 7.2 Transportations

The module must be packed before transportation. Products shall keep upright and flat, and shall be free from wind and rain, sun exposure, and corrosive liquid during transportation. The wooden cases shall be stacked up to three layers.

## 7.3 Storage

For storing the unit module, the ambient temperature shall be -20°C~+55°C, and the relative humidity shall be 10%~85% RH. Do not put the unit module in environment with volatile, corrosive and combustible chemicals.

# Chapter VIII After-sales Repair

## 8.1 Application of warranty clause

This clause is applicable to LED display screen that is directly purchased from Audio Effetti and within the warranty period, and is not applicable to any product not directly purchased from Audio Effetti.

## 8.2 Warranty period

The warranty period shall be subject to contractual agreement. Please properly keep the warranty card or other valid voucher.

## 8.3 Warranty service

For products that meet the requirements of the warranty clause, Audio Effetti provides warranty service for problems related to quality, material, manufacturing, etc. occurred in normal use. Audio Effetti is entitled to decide whether the product is faulty.

### 8.3.1 Type of warranty service

1) Free on-line remote service:
Provide remote technical guidance via instant messaging tools such as telephone, email and remote software to assist in solving problems occurred in equipment use. Including but not limited to connection of signal line and power cable, system software problems related to software use and parameter setting, and replacement of module, power and system card.
2) Return to factory for repair:
For products with problems cannot be solved via on-line remote service, Audio Effetti is entitled to decide whether to return to factory for repair, and whether to provide such service. The customer shall bear the transport expense, insurance premium, tariffs and customs clearance fees incurred in delivering the product or component that require returning to factory for repair to Audio Effetti or the nearest service point. Audio Effetti will send the repaired product or component back to you and only pay for the return shipping fees. Audio Effetti will not accept logistics parcel with freight at destination, will not bear any tarrifs or customs clearance fees incurred by sending the repaired items to the customers, and will not bear any responsibility for damage and loss due to transportation and packaging.
Provide the on-site engineer service for products with quality problems:
In case of quality problems specified in article 4 of warranty clause and when Audio Effetti deems it as necessary, Audio Effetti will provide free on-site engineer service. Under this circumstance, the customer shall provide Audio Effetti with fault report for application of on-site service. The content of fault report includes but not limited to pictures, videos and number of faults, so that Audio Effetti can carry out initial fault determination. If it is determined that the quality problem is beyond the warranty range upon the on-site analysis of Audio Effetti engineer, the customer shall pay for the travel expenses of engineer and the technical service fees according to the after-sales service standard.

## 8.4 Disclaimer

The warranty service provided by Audio Effetti does not cover the following situations:

1） Unless otherwise agreed, the warranty clause does not apply to the consumables, including but not limited to the connector, network cable, power cable, optical cable, signal cable, aviation connector and other wire connection items.
2） Complete or partial defect, fault or damage caused by improper use, treatment, operation and installation, monitor disassembly or any other misconduct of customer, and defect, fault or damage caused by transportation.
3） Disassembly and repair without authorization and permission of Audio Effetti.

4） Operation, use and maintenance not according to the product manual.

5） Man-made damage, physical damage, accidental damage, and damage due to product misuse, e.g. component defect and damage, PCB board defect.

6） Product damage or fault caused by force majeure, including but not limited to war, terrorist activity, flood, fire, earthquake, and lightning.

7） Any product defect, fault or damage caused by storing in external environment that does not meet the requirements of product manual (dry and ventilated environment), including but not limited to storing in extreme weather, environment with moisture, salt spray, pressure or lightning, closed environment, and compressed space.

8） Products used beyond the range of specified parameter, including but not limited to lower or higher voltage, extreme or excessive power surge, and improper power condition.

9） Defect, fault or damage incurred in installation caused by failure to follow the technical guidance, instruction or precautions.

10）Natural loss of brightness and color in normal circumstance.

11）Lack of necessary product maintenance.

12）Other repair not resulted from product quality, design and manufacturing.

13）Failure to provide valid warranty card, tearing off or damage of the sealing tape of product serial number, damage of the product case or other outer parts, or failure to provide other valid vouchers.

14）Problems incurred after the expiry of warranty period.

15）Products with major damage and cannot be repaired caused by improper operation or maintenance, accident, and failure to follow the specification.

16）Failure to operate normally or damage due to using player, control equipment, etc. not provided by Audio Effetti. In case of repair by Audio Effetti, the charging standard shall be executed according to the contract.

## 8.5 Warranty service process

1） Remote service process:

Submit the demand (include the detailed content of service required, contact information and contact person for remote docking) via Audio Effetti website, mail, telephone or special service window with warranty card or order number.

2） Product repair process:

Submit the demand (include the packing list of product to be repaired, the mailing address for sending back the repaired product, etc.) via Audio Effetti website, mail, telephone or special service window with warranty card or contract number.

a) Mailing information of Audio Effetti: (Audio Effetti Srl Via A. Manuzio, 57A - 16143 Genova (GE) Italia)
b) Instructions for customer mailing:
c) Simple fault description of products to be repaired (which can be pasted on the equipment surface)
d) Packing list (containing the contract order number, and type and number of equipment to be repaired)
e) Receipt information for sending products back (company name, receipt address, consignee, contact info, etc.)
f) Please pay attention to product packaging and protection to avoid damage during transportation of products to be repaired. Audio Effetti bears no responsibility to any damage resulted when sending the products or components to be repaired back to Audio Effetti.

3） On-site engineer service process:

Submit the demand (include the detailed content of service required, information of site address and contact person, etc.) via Audio Effetti website, mail, telephone or special service window with warranty card or order number.

## 8.6 Others

This warranty policy is the standard warranty clause of Audio Effetti. Anyone (include any agent, distributor or sales representative) shall have no right to make any statement or guarantee differs from this warranty clause. Unless confirmed in written forms such as contract and appendix by Audio Effetti, any warranty and guarantee content conflict with the

clause of this warranty policy will automatically become invalid.

## 8.7 Product warranty card

| Product Warranty Card | | | | | |
|---|---|---|---|---|---|
| Order No. | | Shipment date | | Warranty period | |
| Product model | | | | Product quantity | |
| Customer name | | Customer contact information | | | |
| Customer address: | | | | | |
| Remarks: | | | | | |
| Warranty record | | | | | |
| Warranty date | Fault and handling method | | Date of completion | Customer signature | |
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# Contact


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