Unilumin

USIM II MANUAL Creative Indoor LED Display

PRODUCT



UNILUMIN GROUP CO.,LTD.

Revision Records

Version	Revised Content	Date	
01	Initial release	March 1st,2021	

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

The manual is the property of Unilumin Group Co., Ltd. The Unilumin LED's operating software is developed based on the Windows operating system. No part of the manual can be transcripted, transmitted, reproduced, translated, edited, published, stored to a retrieval system, or used in any form by any individual or organization without a prior written permission of Unilumin.

Trademark



Unilumin is the registered trademark of Unilumin Group Co., Ltd.

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

◆ WARNING!

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

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

Contents

Chapter 1 Product Introduction	9
1.1 Features	9
1.2 Cabinet Appearance	10
1.3 Specification	11
1.4 Scope Of Application	12
Chapter 2 Installation And Wiring	14
2.1 Out-Of-Box Inspection	14
2.2 General Installation	14
2.2.1 Fixed Installation	14
2.2.3 Hanged Installation	16
2.3 Wiring for LED Display	
2.3.1 Common Cables	18
2.3.2 Signal And Power Cable Connection	19
2.3.3 Smart Control Distribution Box	20
Chapter 3 Led Display Control Setting	22
3.1 Power-On Testing	22
3.2 Starting The Hardware	23
3.3 Unilumin N Series - Software Control Setting	23
3.3.1 Installing The Software	23
3.3.2 Display Configuration	24
3.3.3 Brightness Adjustment	28
3.3.4 Correction Coefficient Management	30
3.3.4.1 Setting Coefficients For A New Receiving Card	32
3.3.4.2 Setting Coefficients For A New Module	35
3.3.5 Pre-Storing Picture	37
Chapter 4 Led Display Playing Setting	40
4.1 Unilumin N Series - Led Display Playing Setting	40
4.1.1 Selecting A Playing Solution	40
4.1.2 Playing Setting	41

4.1.2.1 Display Window Setting	41
4.1.2.2 Startup Setting	42
4.1.3 Editing Professional Playing Solution	43
4.1.3.1 Editing The Time Segment	43
4.1.3.2 Editing The Program Page	45
4.1.3.3 Editing The Display Window	48
4.1.3.4 Editing The Media	51
4.1.3.5 Playing The Media	54
4.1.4 Saving And Opening A Playing Solution	56
Chapter 5 Startup, Shutdown, And Maintenance	58
5.1 Startup Sequence	
5.2 Shutdown Sequence	58
5.3 Daily Maintenance	58
5.4 Warm-Up Operation	58
5.4.1 Unilumin N Series - Setting The Prestored Picture	59
5.4.2 Unilumin N Series - Ageing Operation	60
Chapter 6 Troubleshooting And Component Replacing	62
6.1 Common Faults And Troubleshooting Methods	62
6.1.1 Failure In Lighting Up The Display	62
6.1.2 Incomplete Picture Or Incorrect Position Of Picture Displayed	62
6.1.3 Screen Blinking	63
6.1.4 Blinking Of A Cabinet In The Display	63
6.1.5 Failure In Lighting Up Of A Cabinet In The Display	63
6.1.6 Failure In Lighting Up Part Of The Modules In The Cabinet	64
6.2 Replacement Of Main Components	65
6.2.1 Front Maintenance Of Main Components	65
6.2.2 Rear Maintenance Of Main Components	68
Chapter 7 Packaging Transportation And Storage	73
7.1 Packaging	73
7.2 Transportation	73
7.3 Storage	73

Chapter 8 After-Sales And Warranty	74
8.1 Warranty Scope	74
8.2 Warranty Period	74
8.3 Warranty Service	74
8.3.1 Warranty Service Types	74
8.4 Disclaimer	75
8.5 Warranty Service Process	76
8.6 Other	77
8.7 Product Warranty Card	78
Contact Information	79



Chapter 1 Product Introduction

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

1.1 Features

- Ultrathin and lightweight aluminum die casting structure with thickness of 39.6 mm.
- 2) Three standard sizes of cabinets can realize mixed splicing and match different screen size applications.
- 3) Can realize different creativ wave e shapes such as 90° right angle, round corner square column, cylinder, wave inner and outer arcs etc.
- 4) Support front and rear installation, front and rear maintenance.
- 5) Can achieve 2000 nits peak brightness and HDR display effect with Unilumin UOS system.
- 6) Can realize global intelligent operation and maintenance with Unilumin Ucare software.

1.2 Cabinet Appearance

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



Figure 1-1 500mm*1000mm cabinet appearance

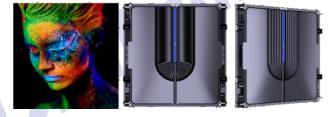


Figure 1-2 500mm*500mm cabinet appearance



Figure 1-3 500mm*250mm cabinet appearance

1.3 Specification

			l	l		
Parameter	UslimII1.5	UslimII1.8	UslimII2.5	UslimII3.2	UslimII3.9	
Pixel composition	1R1G1B					
Pixel pitch (mm)	1.5 1.8 2.5 3.2 3.9				3.9	
Pixel density(dots)	409,600	291,600	160,000	77,344	65,536	
	320*160/	270*135/	200*100/	156*78/	128*64/	
Pixels per panel(dots)	320*320/	270*270/	200*200/	156*156/	128*128/	
	320*640	270*540	200*400	156*312	128*256	
Cabinet size (mm)	500	(W) *250 (H)	/*500 (H) /*	1000 (H) *39	.6 (D)	
Display area(m²)			0.125/0.25/0.	5		
Material		Die	casting Alum	inum		
Weight(kg)			3.2/5.6/10.5			
Grey scale (bit)	14					
Refresh rate(Hz)	3840					
Frame frequency(Hz)	50/60					
D. C. C. C.	Signa	l Cable (≤100m);	Multi Mode	Fiber (≤300m);	Single Mode	
Data interconnection	Fiber (≤15km)					
Brightness(nits)	1000					
Color temperature(K)	2000K~9300K Adjustable					
Contrast ratio	5000:1					
Viewing Angle(°)	155°/155°					
Input voltage(V)	AC 100~240					
Input frequency (Hz)	50~60					
Input power <max typical="">(W/m²)</max>	500					
Input power <typical>(W/panel)</typical>	167					
Storage temperature	-20°C~+55°C/10-85%RH					
and humidity(°C/RH) Working temperature						
and humidity(°C/RH) -10°C~+45°C/10-80%)%RH				
Ingress protection	ess protection Front IP30/Rear IP10					

1.4 Scope of Application

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





Retail

Superstore



Exhibition hall

Liner

Chapter 2 Installation and Wiring

2.1 Out-of-Box Inspection

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

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

2.2 General Installation

2.2.1 Fixed Installation

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

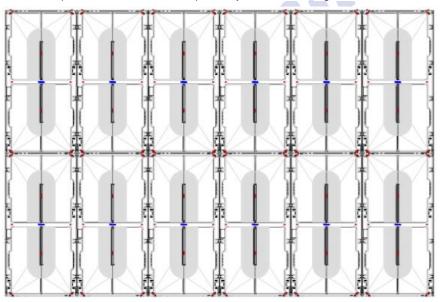


Figure 2-1 Rear View of the Display

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

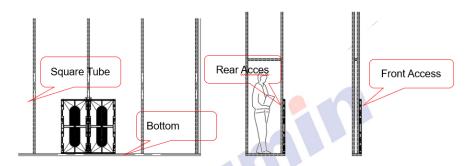


Figure 2-2 Cabinet Fastening

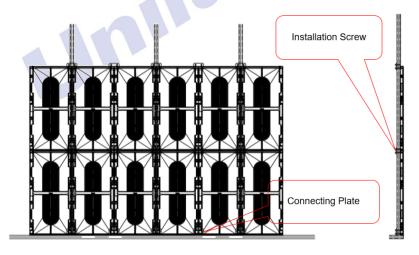


Figure 2-3 Rear View of Cabinet Installation

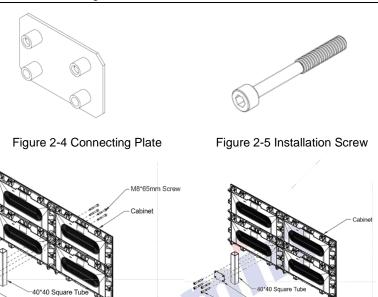


Figure 2-6 Front Installation Details

Front Installation Connecting Plate

Figure 2-7 Rear Installation Details

M8*65mm Screw

2.2.2 Hanged Installation

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 2-8.

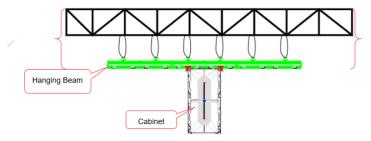


Figure 2-8 Installation of Hanged Cabinets (1)

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

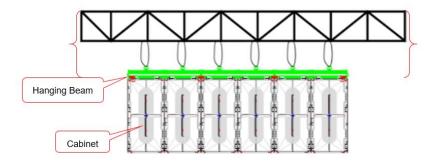


Figure 2-9 Installation of Hanged Cabinets (2)

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

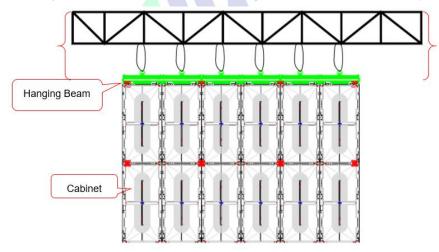
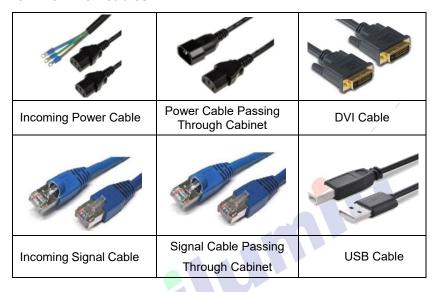


Figure 2-10 Installation of Hanged Cabinets (3)2.3 Wiring for LED Display

2.3 General Installation

2.3.1 Common cables



2.3.2 Signal and Power Cable Connection

Figure 2-12 shows the signal cable connection for cabinets with an arrangement of 6 cabinets (Width) × 2 cabinets (Height). Signal cables shall be connected based on the wiring diagram of the delivered products for the project.

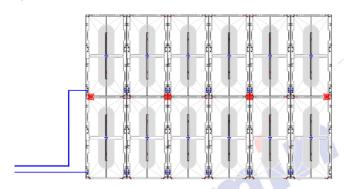


Figure 2-12 Signal Cable Connection Diagram

Figure 2-13 shows the power cable connection for cabinets with an arrangement of 6 cabinets (Width) × 2 cabinets (Height). Power cables shall be connected based on the wiring diagram of the delivered products for the project.

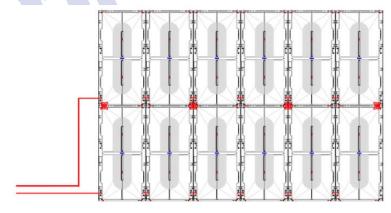


Figure 2-13 Power Cable Connection Diagram

2.3.3 Smart Control Distribution Box

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

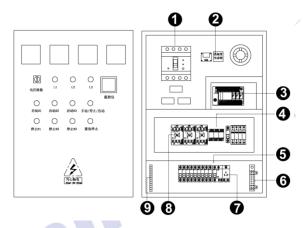


Figure 2-14 Internal Structure of Distribution Box

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

PLC connection of the smart control distribution box:

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

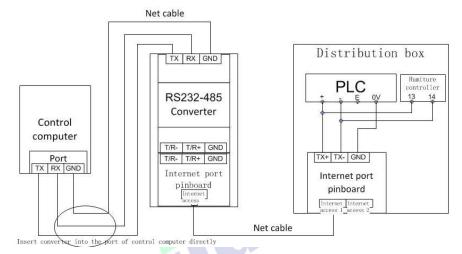


Figure 2-15 Distribution Box PLC Connection Diagram

Chapter 3 LED Display Control Setting

3.1 Power-on Testing

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

- 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 highpower equipment.
- 3) When the 3-phase and 5-wire system is adopted, the load shall be distributed evenly among the phases to ensure three-phase balance as far as possible.
- 4) The input voltage must meet the voltage requirements indicated the cabinet rating label.
- 5) Connect the USB cable provided for the sending box to the USB port on the control PC.
- 6) Check whether cables for the LED display are connected in accordance with the power cable and signal cable connection diagrams provided for the delivered products.

3.2 Starting the Hardware

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

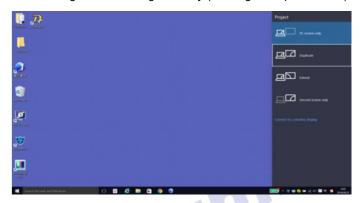


Figure 3-1 Replication Mode

3.3 Unilumin N series - Software Control Setting

3.3.1 Installing the Software

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



Fig 3-2 Software Installation

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

3.3.2 Display Configuration

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



Figure 3-3 Main Window of UniLCT-Mars

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



Figure 3-4 User Login

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

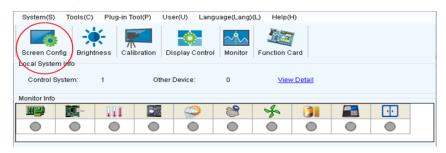


Figure 3-5 Main Window for Advanced User

Click Next, as shown in Figure 3-6:

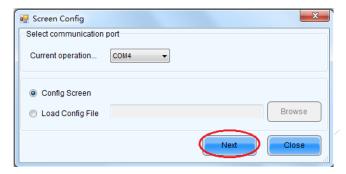


Figure 3-6 Screen Configuration

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

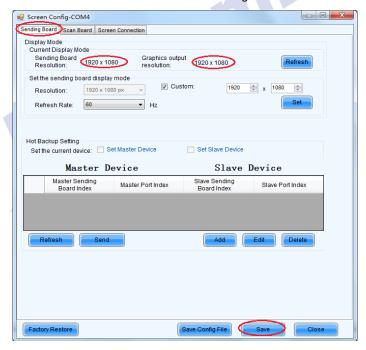


Figure 3-7 Sending Board Configuration

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

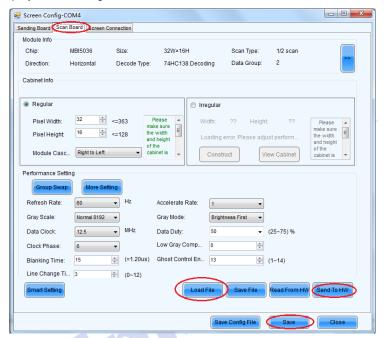


Figure 3-8 Scan Board Configuration

- 1) Click **Load File** to load the file xxxx.rcfg stored in the optical disk.
- 2) Click Send to HW.
- 3) After sending, confirm that the loaded picture received by scan board is normal on the screen. Then click **Save**.

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

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

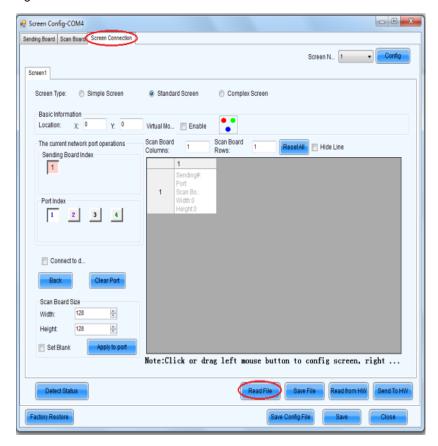


Figure 3-9 Screen Connection

2) Click Send to HW.

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

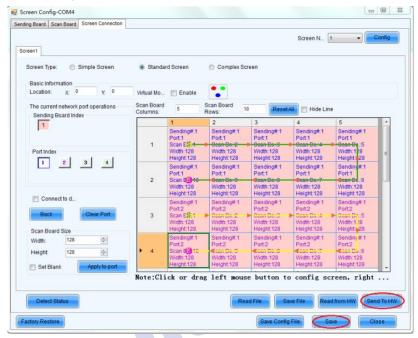


Figure 3-10 Screen Connection with Loaded File

3.3.3 Brightness Adjustment

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

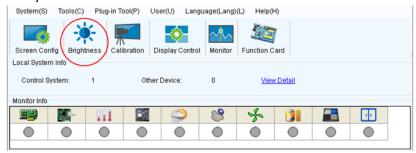


Figure 3-11 Main Window for Advanced User

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

1. Manual Adjustment

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

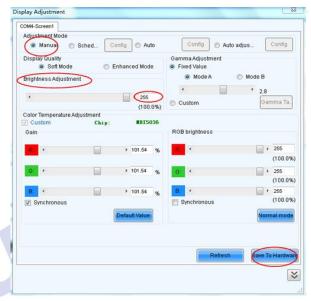


Figure 3-12 Manual Adjustment

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

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

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

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

2. Automatic Adjustment

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

3.3.4 Correction Coefficient Management

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

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



Figure 3-13 Main Window for Advanced User

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

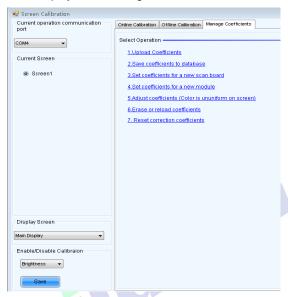


Figure 3-14 Manage Coefficients

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

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

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

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

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

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

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

3.3.4.1 Setting Coefficients for a New Receiving Card

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



Figure 3-15 Selecting Area for New Receiving Card

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

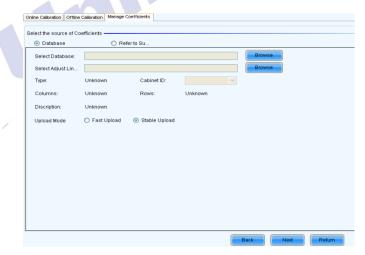


Figure 3-16 Obtaining Correction Coefficients for Receiving Card

3) Select the corresponding correction coefficients:



Figure 3-17 Selecting Correction Coefficients for Receiving Card

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



Figure 3-18 Uploading Correction Coefficients

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

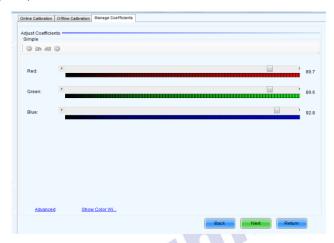


Figure 3-19 Simple Adjustment

Red: Adjust the red brightness value of calibration coefficients.

Green: Adjust the green brightness value of calibration coefficients.

Blue: Adjust the blue brightness value of calibration coefficients.

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

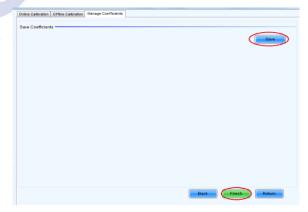


Figure 3-20 Saving Correction Coefficients

3.3.4.2 Setting Coefficients for a New Module

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

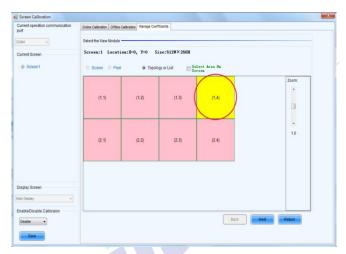


Figure 3-21 Selecting Cabinet for the New Module

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

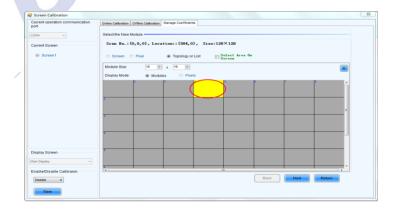


Figure 3-22 Selecting Position of New Module

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

- 3) Adjust the coefficients (similar to the steps of coefficient adjustment in setting coefficients for a new scan board). For details, refer to Step 2 and Step 3 in Section 3.5.1).
- 4) Save the correction coefficients to the hardware (Use similar steps in setting coefficients for a new receiving card. For details, refer to Step 4, Step 5, and Step 6 in Section 3.5.1) so that they are retentive after a power failure.

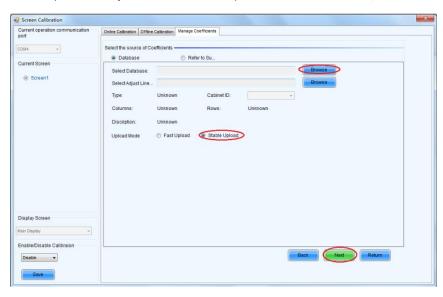
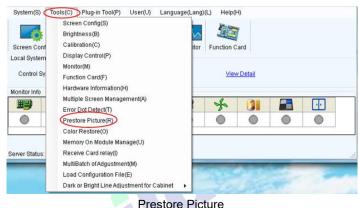


Figure 3-23 Obtaining Correction Coefficients for a New Module

3.3.5 Pre-storing Picture

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

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



Prestore Picture Settings Communication port selection Communication... COM4 Prestore Picture Settings Select Pi Browse Effect Settings Screen Effect Test Effect Cabinet Effect Save To Hardware Check Store Picture Function Settings **Boot Screen** Enable Cable Disconnect Black Cast Frame Prestore Picture No DVI Signal -Black Cast Frame Prestore Picture Save To Hardware

Figure 3-25 Prestore Picture Settings

1) Prestore Picture Settings

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

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

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

Click **Test Effect** to display the selected picture on the screen.

Click **Save to Hardware** to save the picture as a prestored picture to the hardware.

Click **Check Store Picture** to display the stored picture on the screen so as to check its effect.

2) Function Settings

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

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

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

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

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

Chapter 4 LED Display Playing Setting

4.1 Unilumin N series - LED Display Playing Setting

4.1.1 Selecting a Playing Solution

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

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

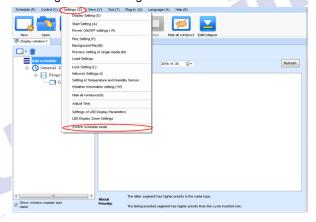


Figure 4-1 Switching Schedule Mode

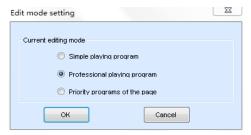


Figure 4-2 Edit Mode Setting

4.1.2 Playing Setting

4.1.2.1 Display Window Setting

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

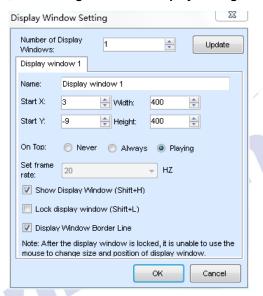


Figure 4-3 Display Window Setting

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

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

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

Width: Indicates the horizontal pixel value of the display.

Height: Indicates the vertical pixel value of the display.

Other configuration items are set to the default values.

4.1.2.2 Startup Setting

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

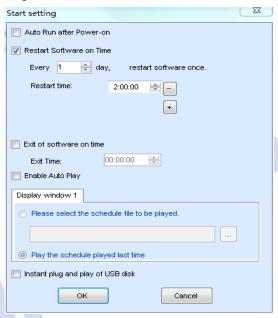


Figure 4-4 Startup Setting

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

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

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

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

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

4.1.3 Editing Professional Playing Solution

4.1.3.1 Editing the Time Segment

1) Creating a playing solution

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

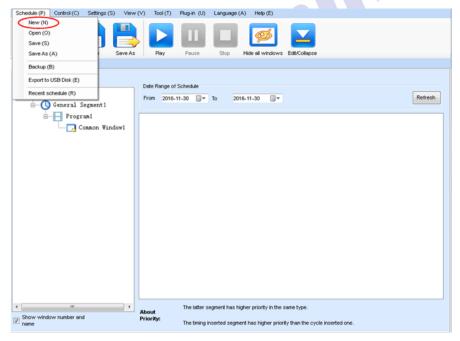


Figure 4-5 Creating a Playing Solution

2) Editing the properties of the playing solution

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

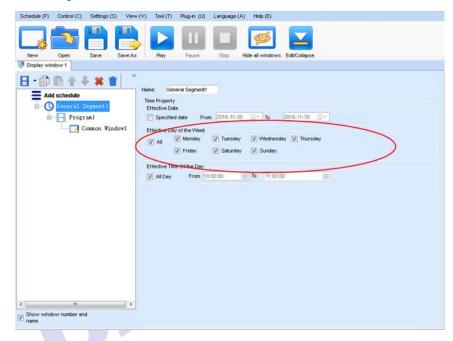


Figure 4-6 Properties of General Time Segment

4.1.3.2 Editing the Program Page

1) Creating a program page

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

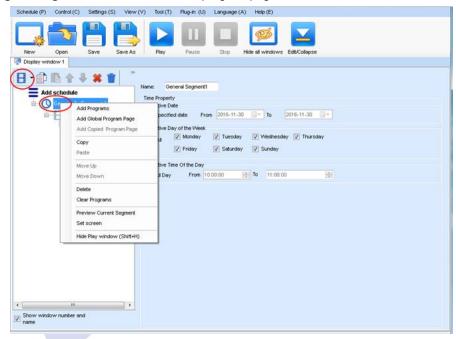


Figure 4-7 Creating a Program Page

2) Setting the properties

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

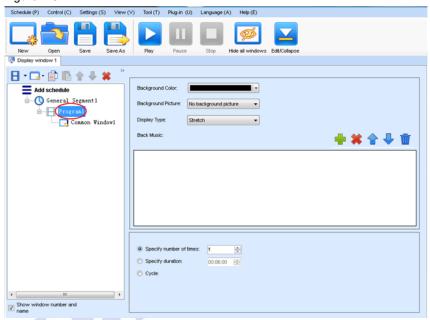


Figure 4-8 Properties of Program Page

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

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

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

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



Figure 4-9 Background of Program Page

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

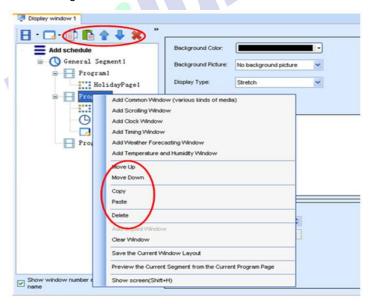


Figure 4-10 Program Page Operation Menu

4.1.3.3 Editing the Display Window

1) Adding a display window

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

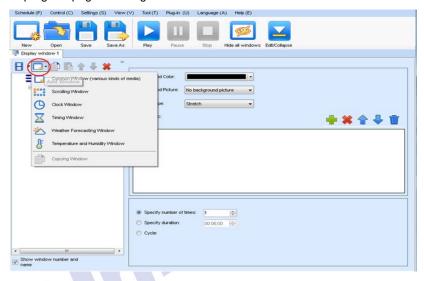


Figure 4-11 Adding a Window to Program Page

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

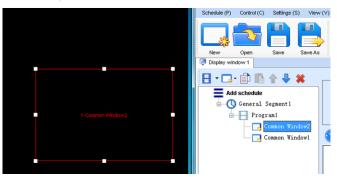


Figure 4-12 Added Window

- 2) Setting the location and size of the display window
- The location and size of the new window is generated randomly and can be adjusted based on actual conditions by using either of the following two methods:
- a) Directly specify the new location and size in the setting pane, as shown in Figure 4-13:

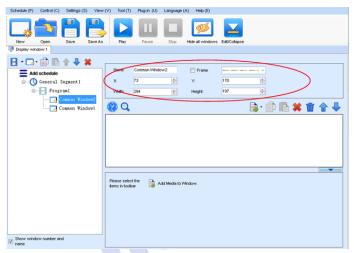


Figure 4-13 Setting the Window Size

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

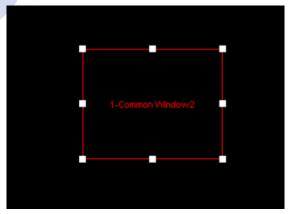


Figure 4-14 Adjusting the Window Size Using the Mouse

3) Deleting a display window

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



Figure 4-15 Deleting the Display Window

4) Moving a display window

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

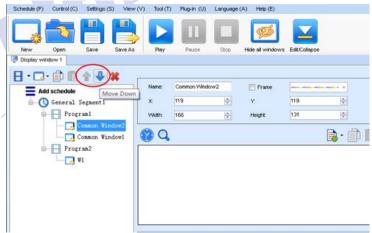


Figure 4-16 Moving a Display Window

4.1.3.4 Editing the Media

1) Adding the media

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



Figure 4-17 Adding the Media

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



Figure 4-18 Media Setting Window

2) Setting the media properties

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

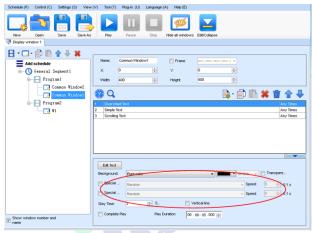
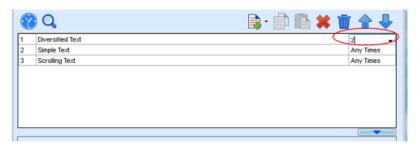


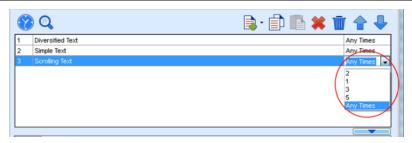
Figure 4-19 Properties of Medium

3) Editing the media in the common window

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



Double click



Modify

Figure 4-20 Changing the Media Playing Times

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

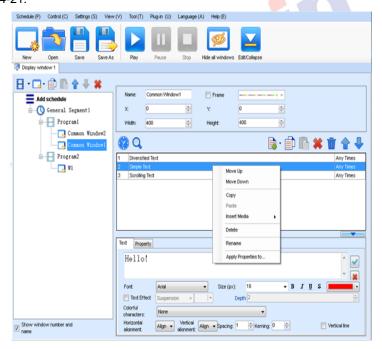


Figure 4-21 Media Operation Menu

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

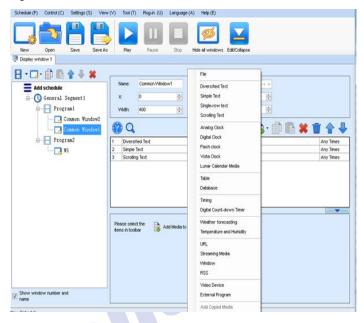


Figure 4-22 Media Playing Menu

4.1.3.5 Playing the Media

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



Figure 4-23 Play Key on the Toolbar

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



Figure 4-24 Play Information Page

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



Figure 4-25 Short-cut Menu

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

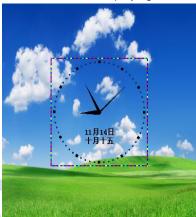


Figure 4-26 Transparent Displaying Effect of the Clock

4.1.4 Saving and Opening a Playing Solution

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

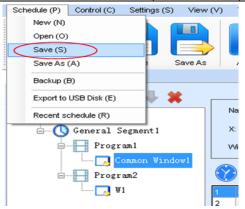


Figure 4-27 Saving a Playing Solution File

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

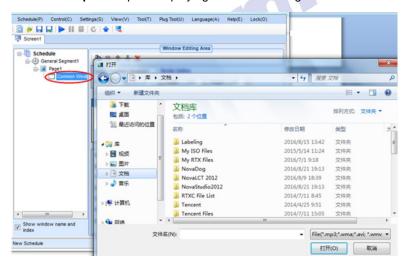


Figure 4-28 Opening a Playing Solution File

Chapter 5 Startup, Shutdown, and Maintenance

5.1 Startup Sequence

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

5.2 Shutdown Sequence

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

5.3 Daily Maintenance

- Check whether ambient temperature and humidity meet the operating conditions for the LED display on a daily basis.
- 2) Use the LED display and its auxiliary devices at least twice a week and two hours each time. Before using the LED display, perform warm-up operations if it has been idle for 14 days (for details about warm-up operations, see Section 5.4).
- 3) It is recommended that you should use a soft antistatic brush to clear dust on the screen surface monthly in order to achieve an optimum displaying effect.
- 4) Check the parts in the distribution box quarterly. Check whether the power cables and signal cables for the LED display are connected securely and safely, and whether the display is grounded reliably.
- 5) Check whether the steel structure is secure on a yearly basis.
- 6) In dry seasons, perform warm-up operations on the LED display and its auxiliary devices at least once every two months if it is idle for a long period of time.
- 7) In wet seasons, perform warm-up operations on the LED display and its auxiliary

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

5.4 Warm-up Operation

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

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

5.4.1 Unilumin N series - 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.

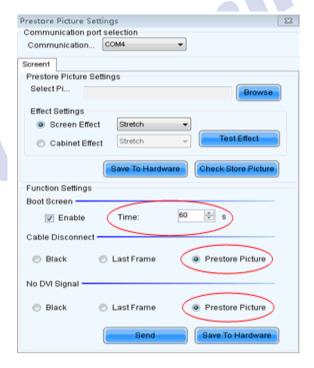


Figure 5-1: Prestore Picture Setting

5.4.2 Unilumin N series - Ageing Operation

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



Figure 5-2 Main Window for Advanced User

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



Figure 5-3 Manual Adjustment

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

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



Figure 5-4 Display Control

Screen Control

COM4-Screent

Black Out

Freeze

Run

Self Test

White

Close

Fig 5-5 Display Control

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

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

Chapter 6 Troubleshooting and Component Replacing

6.1 Common Faults and Troubleshooting Methods

6.1.1 Failure in Lighting up the Display

Causes:

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

Troubleshooting method:

- 1) Check AC power input of the display and the control devices.
- 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:

- 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:

- 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 singlemode 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.
- The receiving card program is incorrect.

Troubleshooting method:

- 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:

- 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, cut off the power supply to ensure your personal safety and equipment safety.

6.2.1 Front Maintenance of Main Components

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

Neplace a II	Replace a module of the LED display based on the following steps:		
Front maintenance step	Picture	Description	
Step 1		Disconnect the power, use the big magnet maintenance tool, press the tool by aiming at the center of the module to make the magnet hold the module	
Step 2		Remove the module	
Step 3		Pull out the cable and power wire on the module and replace the module	

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

Front maintenance	Picture	Description
step		20000
Step 1		Disconnect the power, remove the module at the corresponding position of the power supply according to the previous maintenance and replacement steps
Step 2		Remove the four bolts that secure the power supply board
Step 3		Take out the power supply and fixing board
Step 4		Remove the fixing bolts of the power wire and the power supply and replace it

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

Front	erving card of the LED display based on the following steps.		
maintenance	Picture	Description	
step			
Step 1		Disconnect the power, remove the module at the corresponding position of the receiving card according to the previous maintenance and replacement steps	
Step 2		Use a screwdriver to remove the bolts that fix the hub board and the power wire on the hub board	
Step 3		Pull out the network cable, module cable and the signal indicator cable on the receiving card	

Chapter 6 Troubleshooting and Component Replacing

Step 4

Remove the receive card and replace it

6.2.2 Rear Maintenance of Main Components

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

Rear maintenance step	Picture	Description
Step 1		Disconnect the power supply, open the back cover of the cabinet

Chapter 6 Troubleshooting and Component Replacing

	Chapter o Houbleshooting	and Component Replacing
Step 2		Pull out the network cable and DC power plug
Step 3		Hold the module handle with your fingers and push out the module
Step 4		Take out the module from the reserved space of the cabinet and replace the module

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

Rear		
maintenance	Picture	Description
step		

Chapter 6 Troubleshooting and Component Replacing

Step 1

Disconnect the power, open the back cover of the cabinet, remove the fixing bolts of the power supply

Remove the four bolts that secure the power supply board

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

Rear maintenance	Picture	Description
step		
Step 1		Disconnect the power, open the back cover of the cabinet, remove the fixing bolts of the power wire and the power supply
Step 2		Pull out the network cable and cable of hub card
Step 3		Use a screwdriver to remove the bolts fixing the hub board on the left and right sides

Chapter 6 Troubleshooting and Component Replacing

Step 4



Remove the hub card from the reserved space of the cabinet and replace it



Chapter 7 Packaging Transportation and Storage

7.1 Packaging

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





Figure 7-1 Carton Package

7.2 Transportation

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

7.3 Storage

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

Chapter 8 After-Sales and Warranty

8.1 Warranty Scope

This Warranty Policy applies to LED display products (hereinafter referred to as "Products") purchased directly from Unilumin Group Co., Ltd. (hereinafter referred to as "Unilumin") and within Warranty Period. Any products not purchased directly from Unilumin does not apply to this Warranty Policy.

8.2 Warranty Period

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

8.3 Warranty Service

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

8.3.1 Warranty Service Types

1) Online Remote Free Technical Service:

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

2) Return to Factory Repair Service:

For problems of Products that cannot be solved by online remote service, Unilumin will confirm with the customers whether to provide returning to the factory repair service. If factory repair service is needed, customer shall bear the freight, insurance, tariff and customs clearance for return delivery of the returned products or parts to Unilumin's service station. And Unilumin will send back the repaired products or parts to customer and only bear one-way freight. Unilumin will reject unauthorized return delivery via pay upon arrival and will not be liable for any tariffs and custom clearance fees. Unilumin shall not be held liable for any defects, damages or losses of the repaired products or parts due to transportation or improper package.

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

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

8.4 Disclaimer

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

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

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

8.5 Warranty Service Process

1) Remote Service Process:

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

2) Product Return to Repair Process:

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

Unilumin's postal information is stipulated in Article 11.

Customer instructions:

- Shall provide a brief fault report (can be attached to the surface of the repaired item)
- Shall provide packing list (including contract number, model and quantity of the repaired item)
- c) Shall provide receipt postal information (company name, address, consignee, contact information, etc.)
- d) To avoid damages of the returned products during transportation, please be cautious about the package and protection of the products. Unilumin is not responsible for any damages to the returned products or parts during delivery.

3) On-site Engineer Service Process:

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

8.6 Other

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

8.7 Product Warranty Card

	Product V	Varranty Card	t			
Order No.	Shipment Date		Warranty Period			
Product Model			Product Quantity			
Customer Name		Contact Information				
Customer Address:						
Remark(s):						
Warranty Record						
Warranty Date	Fault and Troubleshooting		npletion S	Signature of Customer		



Contact Information

Shenzhen Headquarters

Headquarter Address: No. 112 Yongfu Road, Qiaotou Community, Fuyong Street,

Bao'an District, Shenzhen

Pingshan manufacturing center: No. 6 North Lanjing Road, Pingshan New District,

Shenzhen.

Daya Bay manufacturing center: Longsheng Fifth Road, western Daya Bay, Huiyang

District, Huizhou.

Telephone (switchboard): + 86- (0) 755-29918999

Fax: + 86- (0) 755-29912092 Website: www.unilumin.com

Service Department Tel: + 86- (0) 755-29592226 (direct line)

24-hour service hotline: 400-677-3888

Display sales department

International department (direct line): +86- (0) 755-29918999

E-mail: sales@unilumin.com

Customer Service Center

Tel: +86-(0)755-89318939(direct line) 29918999-8806 (extension)

E-mail: Customer-service@unilumin.com

Hotline: 400-677-3888

Unilumin USA

Subsidiary Name: UNILUMIN USA LLC.

Unilumin USA HQ Address: 254W 31st St. 12th Floor, New York, NY 10001

Email: service@unilumin-usa.com

Tel: 001 844-263-3675

EUROPEAN SERVICE CENTER

Address: Parellaan 28, 2132 WS, hoofddorp, the Netherlands

E-mail: euro-support@unilumin.com

sales@unilumin.com

Tel:: +31(0)20 214 9657

UNILUMIN UK CO. LIMITED

Address: Profile West, 950 Great West Road, Brentford, Middlesex TW8 9ES

W

E-mail: sales@unilumin.com Tel: +44 (0) 208 568 6333

RUSSIA POST-SALE SERVICE CENTER

Address: Russia, 111250, Moscow, Zavoda Serp I Molot Drive, D.10

Tel: +86-755-29918999

SINGAPORE

Address: 10 Ubi Crescent #07- 36, Lobby B Ubi Techpark, Singapore 408564

E-mail: sales@unilumin.com

UNILUMIN GROUP CO., LTD (JAPAN)

Address: 6-chōme-104 Aioichō Naka-ku, Yokohama, Kanagawa, Japan

E-mail: sales@unilumin.com

UNILUMIN GERMANY GMBH

Address: Raiffeisenstr. 30 - 70794 Filderstadt

E-mail: info@unilumin.de Tel: +49 711 38967 898

UNILUMIN AUSTRALIA PTY LTD (BUSINESS IN OCEANIA)

Address: Level 1, Trak Centre, 443/449 Toorak Road, Toorak, VIC 3142

Tel: +61 3 9006 8960 +86-755-29918999 +61 3 9827 8374

E-mail: amer-support@unilumin.com

sales_au@unilumin.com

MIDDLE EAST SUBSIDIARY

Address: Suite 1702, Reef Tower, cluster O, Jumeriah Lake Towers, Dubai, UAE

Tel: 00971 4 4270171

E-mail: sales@unilumin.com

Unilumin UNILUMIN GROUP CO.,LTD.



