Unilumin

UpanelSⅢ

PRODUCT MANUAL

Narrow Pixel Pitch LED Display



UNILUMIN GROUP CO.LTD.

Revision Records

Version	Revised Content	Date
01	Initial release	Jan .11, 2022

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.

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

♦ WARNING!

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

- 1) Do not place the LED display upside down or throw it during transport and storage.
- 2) Do not incline, scratch, or crash the LED display during installation.
- 3) Do not wet or submerge the LED display into water.
- 4) Do not direct the air outlet of an air conditioner to the LED display.
- 5) Do not place or use the LED display in an environment with volatile, corrosive or flammable chemical products.
- 6) Do not use the LED display outdoors in rainy days or when the humidity is higher than 80%.
- 7) Do not clean the LED display with water or chemical solvents.
- 8) Do not use any electrical accessories not approved by the equipment manufacturer.
- 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.
- Ensure good ventilation for the LED display when designing the heat dissipation solution.
- 3) Keep the storage environment of the LED display well ventilated and dry, with a humidity not exceeding 85%.
- 4) Use single-phase power supply for an LED display with the total power consumption not exceeding 3 kW, and three-phase power supply for an LED display with the total power consumption exceeding 3 kW.
- 5) Ensure that the LED display is powered on at least twice per week, and at least 2 hours each time.
- 6) Installing the LED display in the following places may result in an equipment failure and reduce its lifespan: near the sea, in an area with salt and alkali or sulphurous gases, near a kitchen exhaust position, or at a place where the difference between indoor and outdoor temperatures is great. Consult our professional personnel at the service center if the LED display must be installed in any of these places.
- 7) If the product is shipped to Spain, the Spanish manual will be attached accordingly.
- 8) Altitude during operation (m):5000m or less.

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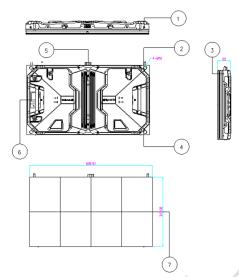
Chapter 1 Product Introduction

The UpanelSII series is a new generation of small pitch LED display product launched by Unilumin. Designed for HD display application scenarios, the UpanelSII series has a standard aspect ratio of 16:9 and has achieved perfect match between video signals and display terminals. The ultra-thin design makes the LED display fully integrate with scenarios. The exclusive function of intelligent module improves user experience and changes maintenance methods fundamentally. Meanwhile, front & rear maintenance design suits more occasions demand. Common cathode flip chip SMD provides high contrast ratio, greatly enriching the LED display color level, and presents a more delicate visual impact effect. Ultra-low standby power consumption of the screen, more energy-saving and environmentally friendly. Freely and seamlessly spliced into any size display to meet the needs of the application environment.

1.1 Features

- Intelligent Module, Front and rear maintenance design provides a better maintenance experience.
- 2) 5G bandwidth, 240 Hz frame frequency, smooth picture and low delay.
- 3) Common cathode Flip chip provides ultra-high contrast and delicate display.
- Ultra-low standby power consumption, more energy-saving and environmentally friendly.
- 5) Wireless connection between module and cabinet.

1.2 Cabinet Appearance



- 1. Upper/lower shoulder screw hole
- 2. Cabinet positioning column
- 3. Left/right shoulder screw hole
- 4. Cabinet mounting hole
- 5. Power port
- 6. Cabinet handle
- 7. Module

Fig 1-1 Cabinet Appearance

1.3 Specification

Parameter		Upanel0.9SII	Upanel1.2SII	Upanel1.5SII	Upanel1.9SII	Upanel2.5SII		
	Pixel composition	IRIGIB						
	LED type	2D type SMD						
	Pixel per Cabinet(dots)	640×360	480×270	384×216	320x180	240x135		
	Cabinet size (mm)	600 (W) ×337.5 (H) ×39.5 (D)						
	Aspect Ratio	16: 9	16: 9	16: 9	16: 9	16: 9		
Physical	Material	Die-casting aluminium						
Parameter	Planeness(mm)	≤0.15	≤0.15	≤0.15	≤0.15	≤0.15		
	Weight(kg)	7.5kg/panel	7.5kg/panel	7.5kg/panel	7.5kg/panel	7.5kg/panel		
	Refresh rate(Hz)	3840	3840	3840	3840	3840		
	Frame frequency(Hz)	50/60	50/60	50/60	50/60	50/60		
	Data interconnection	Sign cable≤1	Sign cable≤100m,Multi-mode optical fiber≤300m,Single-mode optical fiber≤10km					
	Brightness(nits)	600	600	600	600	600		
Optical Parameter	Color temperature(K)	2000~9500K(adjustable)						
Parameter	Viewing angle	160/160	160/160	160/160	160/160	160/160		
	Input voltage(V)			AC 100~240V				
	Input frequency(Hz)	50~60	50~60	50~60	50~60	50~60		
Electrical Parameter	Input power <max> (W/Cabinet)</max>	161±15	144±15	130±15	125.8±15	130±15		
	Input power <typical> (W/Cabinet)</typical>	51±15	45±15	43±15	75.2±15	43±15		
Circumsta	Working temperature/humidity	-20~+60/10~85% -10~+40/10~80%						
nce Paramete	Storage temperature/humidity							
	Ingress protection	Rear IP30						

Parameter		Upanel0.9SII	Upanel1.2SII	Upanel1.5SII	Upanel1.9SII	Upanel2.5SII	
		Pro	Pro	Pro	Pro	Pro	
	Pixel composition	IRIGIB					
	LED type	SMD					
	Pixel per Cabinet(dots)	640×360	480×270	384×216	320x180	240x135	
	Cabinet size (mm)	600 (W) ×337.5 (H) ×39.5 (D)					
	Aspect Ratio	16: 9	16: 9	16: 9	16: 9	16: 9	
Physical	Material		D	ie-casting aluminiu	m		
Parameter	Planeness(mm)	≤0.15	≤0.15	≤0.15	≤0.15	≤0.15	
	Weight(kg)	7.5kg/panel	7.5kg/panel	7.5kg/panel	7.5kg/panel	7.5kg/panel	
	Refresh rate(Hz)	3840	3840	3840	3840	3840	
	Frame frequency(Hz)	50/60	50/60	50/60	50/60	50/60	
	Data interconnection	Sign cable≤100m,Multi-mode optical fiber≤300m,Single-mode optical fiber≤10km					
	Brightness(nits)	1000	1000	1000	1000	1000	
Optical Parameter	Color temperature(K)	2000~9500K(adjustable)					
Farameter	Viewing angle	160/160	160/160	160/160	160/160	160/160	
	Input voltage(V)			AC 100~240V			
	Input frequency(Hz)	50~60	50~60	50~60	50~60	50~60	
Electrical Parameter	Input power <max> (W/Cabinet)</max>	137.1±15	126±15		144±15	134±15	
	Input power <typical> (W/Cabinet)</typical>	90.2±15	90±15		45±15	42±15	
Circumsta	Working temperature/humidity	-20~+60/10~85% -10~+40/10~80%					
nce Paramete	Storage temperature/humidity						
	Ingress protection	Rear IP30					

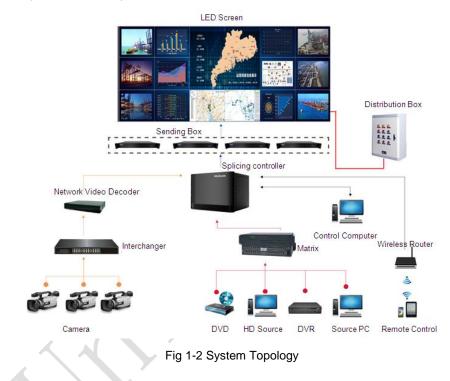
Parameter		Upanel0.9SII	Upanel1.2SII	Upanel1.5SII	Upanel1.9SII	Upanel2.5SII	
		Pro	Pro	Pro	Pro	Pro	
	Pixel composition	IRIGIB					
	LED type	SMD					
	Pixel per Cabinet(dots)	640×360	480×270	384×216	320x180	240x135	
	Cabinet size (mm)	600 (W) ×337.5 (H) ×39.5 (D)					
	Aspect Ratio	16: 9	16: 9	16: 9	16: 9	16: 9	
Physical	Material	Die-casting aluminium					
Parameter	Planeness(mm)	≤0.15	≤0.15	≤0.15	≤0.15	≤0.15	
	Weight(kg)	7.5kg/panel	7.5kg/panel	7.5kg/panel	7.5kg/panel	7.5kg/panel	
	Refresh rate(Hz)	3840	3840	3840	3840	3840	
	Frame frequency(Hz)	50/60	50/60	50/60	50/60	50/60	
	Data interconnection	Sign cable≤100m,Multi-mode optical fiber≤300m,Single-mode optical fiber≤10km					
0 1 1	Brightness(nits)	1200 ~ 1500	1200 ~ 1500	1200 ~ 1500	1200 ~ 1500	1200 ~ 1500	
Optical	Color temperature(K)	2000~9500K(adjustable)					
Parameter	Viewing angle	160/160	160/160	160/160	160/160	160/160	
	Input voltage(V)	AC 100~240V					
	Input frequency(Hz)	50~60	50~60	50~60	50~60	50~60	
Electrical Parameter	Input power <max> (W/Cabinet)</max>	137.1±15	126±15		144±15	134±15	
	Input power <typical> (W/Cabinet)</typical>	90.2±15	90±15		45±15	42±15	
Circumsta	Working temperature/humidity	-20~+60/10~85%					
nce Paramete	Storage temperature/humidity	-10~+40/10~80%					
	Ingress protection	Rear IP30					

Chapter 1 Product Introduction

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

1.4 System Solution

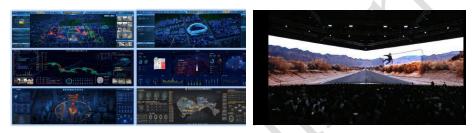
The display system consists of the LED display, sending box, control PC, matrix, splicing controller and power distribution box (refer to the shipping list for details). The following shows a topology of the system for reference:



Chapter 1 Product Introduction

1.5 Scope of Application

The UpanelSII series products can be assembled seamlessly into a screen of any size, and are extensively used as fixed LED displays for advertisements in public places such as Conference room, command and control room, exhibition hall, airport, station, urban rail and other public places display, as well as hotel lobby, company lobby, shopping mall, brand store, promotion site and home theater and other fields.



Control Room

Immersive experience



Meeting Room



Upscale Retail

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

Screen calibration is performed on the UpanelSII series product before shipment, and the product needs to be installed sequentially according to the cabinet number, as shown in Fig 2-1:

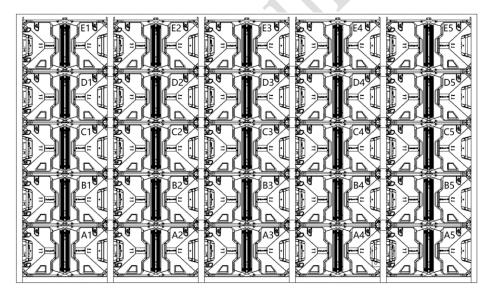


Fig 2-1 Rear View of the Display

2.2.1 Installation of Fixed LED Display-Rear Installation(Optional)

- 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.
- After the installation of the cabinet is completed, Connect the power cable and the signal cable between the cabinets;
- 5) The installation of the screen is completed.

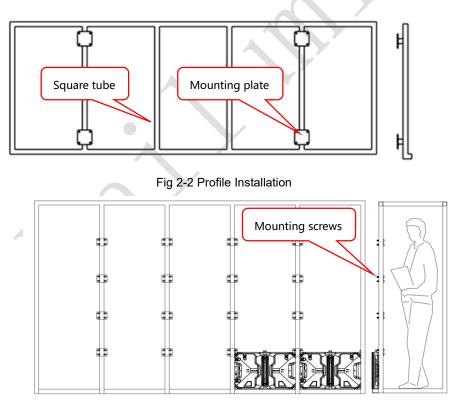


Fig 2-3 Cabinet Fastening

Chapter 3 LED Display Control Setting

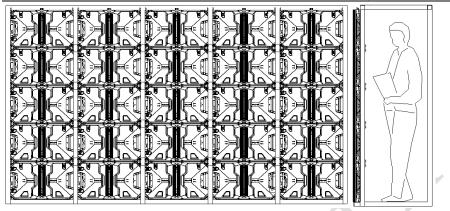


Fig 2-4 Rear View of Cabinet Installation

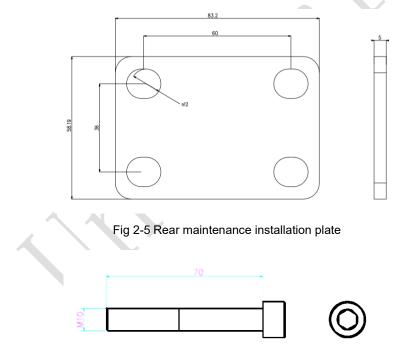


Fig 2-6 Rear installation M10×70 Inner hexagon bolt

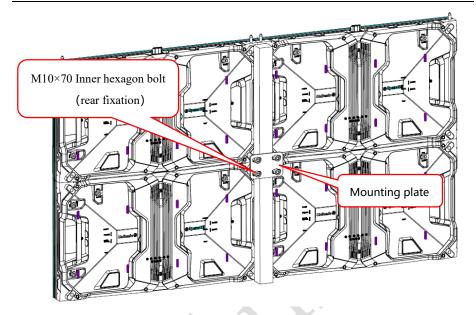


Fig 2-7 Back view of rear maintenance Installation Details

2.2.2 Installation of Fixed LED Display-Front Installation(Optional)

- 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.
- After the installation of the cabinet is completed, Connect the power cable and the signal cable between the cabinets;
- 5) Install the module on the corresponding cabinets.During the module installation keep flatness between the modules during modules installation;
- 6) The installation of the screen is completed.

Chapter 3 LED Display Control Setting

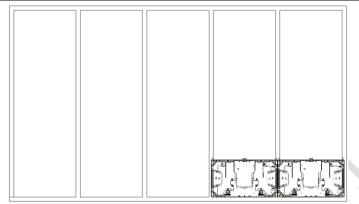


Fig 2-8 Cabinet Fastening

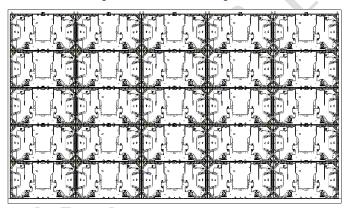


Fig 2-9 Front View of Cabinet Installation

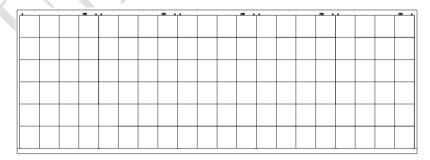


Fig 2-10 Front View of the Display

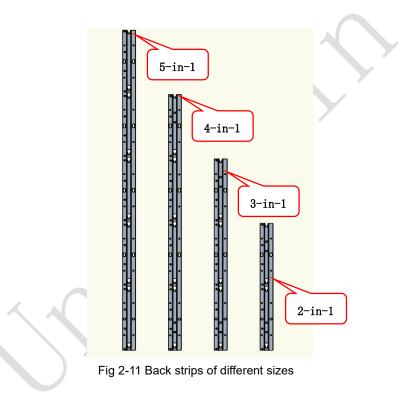
2.2.3 Installation of Fixed LED Back Strip Installation(Optional)

Back strip selection:

According to the size of the display, select the corresponding back strip (2-in-1

back strip, 3-in-1 back strip, 4-in-1 back strip, 5-in-1 back strip), as shown in Figure2-

11.



Installation steps:

1. Install the first back strip on the wall that needs to be fixed on according to the

screen size, and check whether the back strip is vertical, as shown in Figure 2-12.

Fig 2-12 Installing the first back strip

2. Fix the positioning device on the first back strip, confirm the specific position of the second back strip, and remove the positioning device after fixing the second back strip. According to the positioning device, repeat the above steps to complete the installation of other back strips, and ensure that all back strips are vertical;

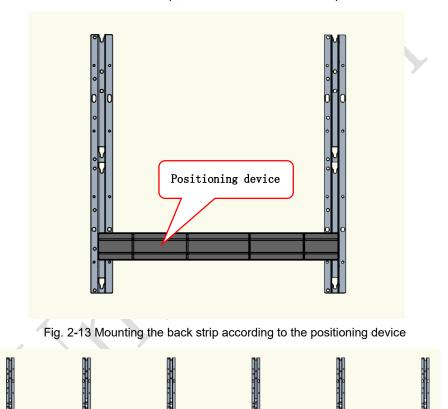
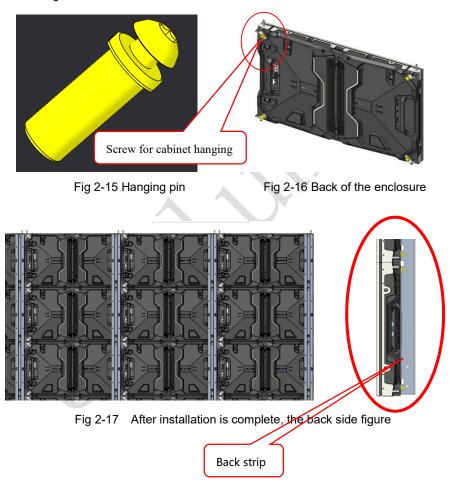


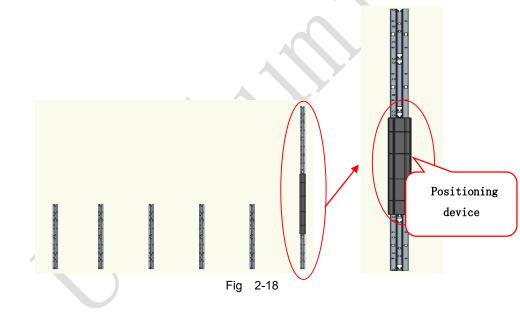
Fig 2-14 The installation of the back strip is complete

3. Install the hanging pin on the cabinet, align the cabinet with the installation hole on the back strip, and hang the cabinet on the back strip. The other cabinets are then hung on the back strip from the bottom to the top, from the middle to the sides. This is shown in Figure 2-15, 2-16, 2-17.



Chapter 3 LED Display Control Setting

4. If there are multiple rows of back strip to install, when installing the next row, you need to install the connector on the first back strip of the previous row, so as to confirm the position of the first back strip of the next row, connect the upper and lower back strips and ensure that the upper and lower back strips are on the same vertical line, and then repeat the above steps to complete the installation of other back strips and ensure that all the back strips are vertical. The cabinet is then hung on the back strip from the bottom to the top, from the middle to the two sides.



5. The installation of the back strip depends on the size of the cabinet. Different

cabinet sizes have different mounting distances in the center of the back strip.

Note: Confirm the array of the back strip according to the drawing of the order, the above array is for reference only.

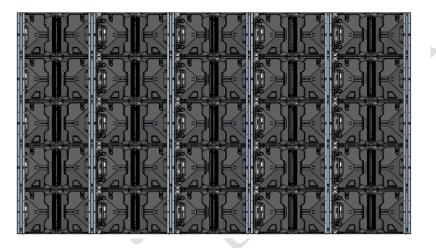


Figure 2-19 Back image after installation is complete



2.3 Module Flatness Adjustment

2.3.1 Module Flatness Adjustment

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



Fig 2-20 Adjustable magnet



Fig 2-21 Adjusting tool

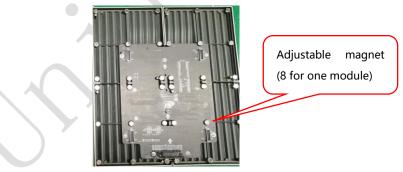


Fig 2-22 Schematic diagram of adjustable magnet

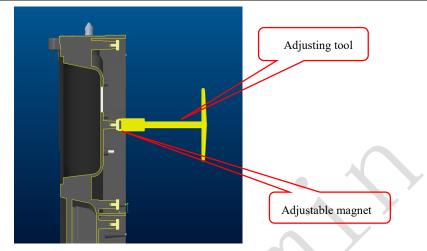


Fig 2-23 Schematic diagram of module flatness adjustment

2.4 Wiring for LED Display

2.4.1 Common Cables



Incoming Power Cables



Incoming Signal Cable





USB Cable

DVI Cable



Signal Cable for cabinet connection

2.4.2 Signal Cable Connection

Signal cables shall be connected based on the wiring diagram of the delivered products for the project.

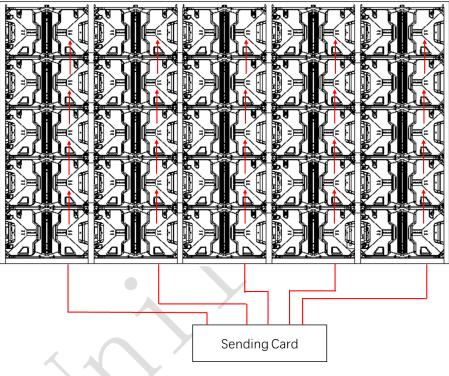


Fig 2-24 Signal Cable Connection Diagram of Upanel1.2SII

2.4.3 Power Cable Connection

Power cables shall be connected based on the wiring diagram of the delivered products for the project.

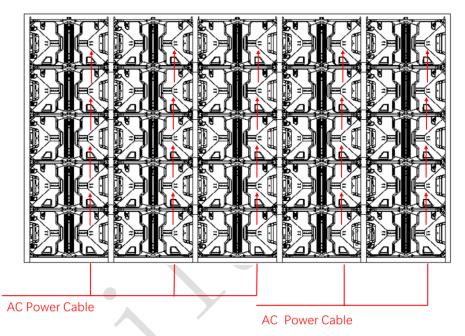


Fig 2-25 Power Cable Connection Diagram of Upanel1.2SII

2.4.4 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.

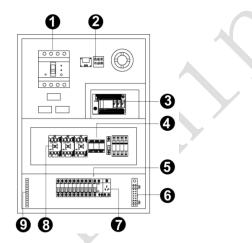


Fig 2-26 Internal Structure of Distribution Box

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

PLC connection of the smart control distribution box:

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

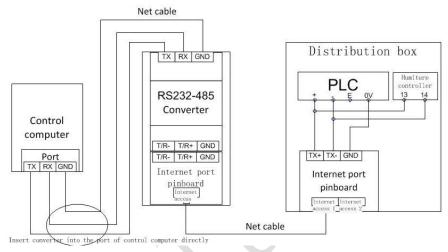


Fig 2-27 Distribution Box PLC Connection Diagram

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.
- 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.
- 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).

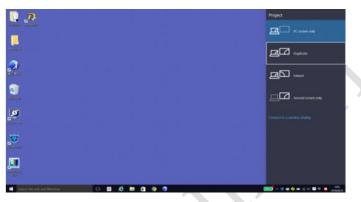


Fig 3-1 Replication Mode

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.

System(S)	Tools(C)	Plug-in T	ool(P) Us	er(U) Lan	guage(Lang)	(L) Help(Ш			
Brightness	s Display	<u> </u>	onitor Fur	Advanced Enter Dem Inter Card	Login(A) no Mode(E)					
Control S			Other	Device:	0	View	<u>r Detail</u>			
- Monitor Info										
H		- 111		\sim	8	*		*	ŀ	
										-

Fig 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.

🖳 User Login	× ×
Password:	
Login	Cancel

Fig 3-4 User Login

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

System(S)	Tools(C)	Plug-in To	ool(P) Us	er(U) Lang	guage(Lang)	(L) Help(H	-I)		
Screen Cor		tness Cali	bration Di	splay Contro	Monitor	Function C	ard		
Control S Monitor Info		1	Other	Device:	0	View	<u>z Detail</u>		
H		111			8	*		-	··

Fig 3-5 Main Window for Advanced User

Click Next, as shown in Figure 3-6:

🖳 Screen Config	×
Select communication port	
Current operation COM4 -	
Config Screen	
💿 Load Config File	Browse
	Next Close

Fig 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.

	Board Scan Board Scre	en Connection		
Curr	rent Display Mode ending Board esolution: 1920 x 10	080 Graphics out resolution:	ut 1920 x 1080	Refresh
R	the sending board displa esolution: 1920 x 10 efresh Rate: 60		stom: 1920	x 1080 (x) Set
	Backup Setting the current device: S Master D	Set Master Device	Set Slave Device	Device
				001100
	Master Sending Board Index	Master Port Index	Slave Sending Board Index	Slave Port Index
				Slave Port Index
	Board Index		Board Index	
	Board Index		Board Index	

Fig 3-7 Sending Board Configuration

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

Chip:	MBI5036	Size:	32W×16H	Scan Type:	1/2 scan	>>
Direction:	Horizontal	Decode Type:	74HC138 Decod	ing Data Group:	2	
Cabinet Info						
Regular			irre	gular		
Pixel Width:	32 🌲			dth: ?? Heigh	t ??	Please
Pixel Height:	16 🌻	<=128 the	ake sure e width	ading error. Please adj	ust nerform	make sure E
Module Case	Right to Left	of	the			and height of the
Module Case	Right to cent	•	ionet is	Construct	liew Cabinet	cabinet is 🔻
Performance Set	ing					
Group Swap	More Sett	ling				
Refresh Rate:	60	✓ Hz	Accelerate Rate:	1		
Gray Scale:	Normal 8192	•	Gray Mode:	Brightness First 👻		
Data Clock:	12.5	 MHz 	Data Duty:	50 👻	(25~75) %	
Clock Phase:	6	•	Low Gray Comp	0		
Blanking Time:	15	(=1.20us)	Ghost Control En	13	(1~14)	
	3	(0~12)				
Line Change Ti			Load f	ile Save File	Road From H	W Send To HW
Line Change Ti						

Fig 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.

Screen Config-COM4	
Senang Board Screen Connection	Screen N 1
Screen Type: Simple Screen Basic Information	Standard Screen Oroplex Screen
Location: X: 0 Y: 0	Virtual Mo 🔲 Enable
The current network port operations Sending Board Index	Scan Board Columns: 1 ResetAll Hide Line
1 Port Index 1 2 3 4	1 Sending#: Port Scan Bo.: Width:0 Height:0
Back Clear Port	
Scan Board Size Width: 128	
Height 128 🛓	
Detect Status	Note:Click or drag left mouse button to config screen, right ReadFile Save File Readform HW Send To HW
Factory Restore	Save Config File Save Close

Fig 3-9 Screen Connection

2) Click Send to HW.

Chapter 3 LED Display Control Setting

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

nding Board Scan Board Screen Connection					Screen N	- Config
Screen1 Screen Type: O Simple Screen	Standa	rd Screen	Complex Sc	reen		
Basic Information Location: X: 0 Y: 0	Virtual Mo	Enable	••			
The current network port operations Sending Board Index	Scan Board Columns:	5	Scan Board Rows: 1	0 Reset A	🗾 🛅 Hide Line	
		1	2	3	4	5
1		Sending#1 Port1	Sending#:1 Port1	Sending#1 Port1	Sending#1 Port1	Sending#1 Port1
Port Index	1	Scan ES.4 Width:128 Height:128	Width: 128 Height: 128	Width: 128 Height 128	Ocan Bo.:4 Width:128 Height:128	Ocan Do.5 Width:128 ≣ Height:28
1 2 3 4	2	Sending#:1 Port:1 Scan BID:10-	Sending#:1 Port:1	Sending#:1 Port 1	Sending#1 Port1	Sending#1 Port1
	- 2	Width:128 Height:128	Width 128 Height 128	Width 128 Height 128	Width:128 Height:128	Width:128 Height:128
Connect to d	3	Sending#:1 Port:2 Scan ES 1	Sending#1 Port2 Dcan Dor2	Sending#.1 Port.2	Sending#.1 Port:2 Ocen Doc4	Sending# 1 Port2 Coon Br_5
Scan Board Size	3	Width:128 Height:128	Width: 128 Height: 128	Width: 128 Height: 128	Width 128 Height 128	Width:1:8 Height=28
Width: 128		Sending#1 Port2	Sending#:1 Port:2	Sending#:1 Port:2	Sending#1 Port:2	Sendin;#:1 Port:2
Height 128	▶ 4	Scan E 10 Width: 128 Height 128	Width 128 Height 128	Width 128 Height 128	Width:128 Height 128	Con Do.:6 Width:128 Height:128
Set Blank Apply to port	Note:Cli	-				reen, right
Detect Status			Rea	ad File Sav	e File Read	from HW Send To HW

Fig 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:

System(S)	Tools(C)	Plug-in T		er(U) Lang	juage(Lang)	(L) Help(H				
Screen Cor	nfig Bright	tness Cal		isplay Contro	I Monitor	Function C	ard			
Local System	m Info									
Control S	ystem:	1	Other	Device:	0	View	<u>(Detail</u>			
Monitor Info										
H	- 1	- 111		\bigcirc	8	¥		*	. III	

Fig 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.

Soft Mode Enhanced Mode Fixed Value Mode A Mode B A Costorn Camma Ta Custorn Chaip: BISO36 A Toi 54 So A	Manual Sched Config Auto Config Auto adjus Config play Quality Soft Mode Enhanced Mode Gamma Adjustment Fixed Value Mode A Mode B inthess Adjustment 25 (100.0%) Custom Camma Ta or Temperature Adjustment Custom Custom Gamma Ta or Temperature Adjustment Custom Custom Gamma Ta or Temperature Adjustment FROB brightness (100.0%) Store 101.54 (100.0%) C 101.54 Synchronous (100.0%) Default Value Normal mode	I-Screen1					
Signa Quality Camma Adjustment Soft Mode Enhanced Mode Soft Mode Enhanced Mode Soft Mode Fixed Value Mode A Mode B Castom Castom Olor Temperature Adjustment Chip: Clastom Chip: Point Chip: St5036 Point Chip: St5036 Soft Mode Node A Mode A Mode B Castom Castom Chip: St5036 Soft Mode Node A Mode A Mode A Mode A Mode A Castom Chip: Mode A Node B Mode A Mode A Mode A Mode A Mode A Mode A Mode A Node B Mode A Mode A Mode A Mode A Mode A Mode A	play Quality © Soft Mode Phiness Adjustment © Soft Mode Phiness Adjustment © Soft Mode © Mode A @ Mode B Custom © Custom © Cust	ustment Mode	_				
Soft Mode Enhanced Mode Fixed Value Mode A Mode B A 28 Custom Custom Chip: BISO36 A 101 54 Soft A 101 54 Soft Soft A 101 54 Soft Soft Soft A 101 54 Soft A 101 5	Soft Mode Enhanced Mode Fixed Value Mode A Mode B Castom Castom Castom Chip: BI5036 (100.0%) Costom Chip: BI5036 (100.0%) Costom Chip: BI5036 (100.0%) Costom	🖲 Manua) 🛛 🔘	Sched C	onfig O Aut	0	Config O Auto	adjus Config
• 28 • 28 • 28 • 28 • 28 • 28 • 28 • 28 • 28 • 28 • 28 • 28 • 28 • 28 • 28 • 28 • 28 • 10154 • 10154 • 10154 • 10154 • 10154 • 10154 • 10154 • 255 • (100.0%) • • 10154 • 255 • (100.0%) • • 10154 • 525 • (100.0%) • • 10154 • 525 • (100.0%) • • 10154 • 525 • (100.0%) • • 10154 • 525 • (100.0%) • • 255 • (100.0%) • • 255 • Synchronous • • 100.0%) • • • 255 • Synchronous • • • 005 • • 005	anites nujusanem 28 Custom Custom or Temperature Adjustment Custom Custom Chip: etaip: #15036 in + 10154 etaip: + 10154 etaip: + 10154 etaip: + 10154 etaip: - 10154 etaip: - 10154 bit - 255 Synchronous (100.0%) Default Value Normal mode		01	Enhanced Mode			
Costom Carma Ta obor Temperature Adjustment (100.0%) Custom Carma Ta obor Temperature Adjustment Exist BIS036 ROB brightness sain ************************************	255 Custom Gamma Ta or Temperature Adjustment 100.0%) Custom Gamma Ta in Example Example (100.0%) in Image: Custom Custom (100.0%) in Image: Custom Custom (100.0%) in Image: Custom Image: Custom Image: Custom in	htness Adjustme	ant			Mode A	Mode B
Costom Carma Ta obor Temperature Adjustment (100.0%) Custom Carma Ta obor Temperature Adjustment Exist BIS036 ROB brightness sain ************************************	255 Custom Gamma Ta or Temperature Adjustment 100.0%) Custom Gamma Ta in Example Example (100.0%) in Image: Custom Custom (100.0%) in Image: Custom Custom (100.0%) in Image: Custom Image: Custom Image: Custom in			_	_	•	* 2.8
Custom EBIS036 ain ROB brightness • 101.54 • 255 • 101.54 • 255 • 101.54 • 255 • 101.54 • 255 • 101.54 • 255 • 101.54 • 255 • 101.54 • 255 • 101.54 • 255 • 101.54 • 101.54	Custom Ckip: BIS036 In •				0%)	Custom	
Aain ROB brightness Image: Constraint of the state	Anno 255 Contronous Controno			PRICE	26		
0: •	• • • • • • • • • • • • • • • • • • •		Chip:	B 130	30	RGB brightness	
(100.0%) (100.0%) (100.0%) (100.0%) (100.0%) (100.0%) (100.0%) (100.0%) (100.0%)	(100.0%) (100.0		0	101.54	04	P 4	> 255
B + + 100.0%) B + + 255 J Synchronous (100.0%)	(100.0%) Synchronous (100.0%) Default Value Normal mode Refresh Seve To Hardwalt		-	1 101.04	70		(100.0%)
B + 101.54 % B + 255 Ø Synchronous Synchronous (100.0%)				+ 101.54	%	G: *	▶ 255
7 Synchronous (100.0%)	Synchronous (100.0%) Default Value Normal mode Refresh						(100.0%)
	Default Value Refresh Eave To Hardwalt	e		101.54	96	B: 🔸	Second Second
Default Value Normai mode	Refresh Save To Hardwar	Synchronous				Synchronous	(100.0%)
				Default Value			Normal mode
							<u></u>
						Refresh	Save To Hardwar
Refresh Save To Hardware							
Refresh Save To Hardward							

Fig 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.

Chapter 3 LED Display Control Setting

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 UTWII 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:

System(S)	Tools(C)	Plug-in To	ool(P) Us	er(U) Lan	guage(Lang)	(L) Help(H	-1)		
Screen Cor		tness Cali	bration Di	splay Contro	Monitor	Function C	ard		
Control S		1	Other	Device:	0	View	<u>/ Detail</u>		
Monitor Info									
	-	- 111	62	$\langle \rangle$	8	¥			

Fig 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:

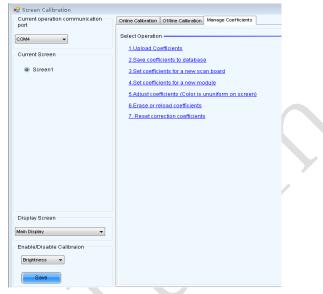


Fig 3-14 Manage Coefficients

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**:

	n Board in Screen on:X=0,Y=0 Si		Lect Area On reen			
(1, 1)	(1,2)	(1.3)	(1.4)		Zoom:	
(2, 1)	(2.2)	(2.3)	(2.4)		.0	*
			В	ack)	Return

Fig 3-15 Selecting Area for New Receiving Card

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

	Online Calibration Offline	Calibration Manage C	pefficients			
	Select the source of Co	efficients				
	 Database 	🔘 Refe	er to Su			
	Select Database:				Browse	
X	Select Adjust Lin				Browse	
\sim	Type:	Unknown	Cabinet ID:	~		
	Columns:	Unknown	Rows:	Unknown		
	Discription:	Unknown				
	Upload Mode	🔘 Fast Upload	 Stable Upload 			
	(<u> </u>				Back Next	Return



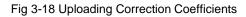
3) Select the corresponding correction coefficients:

Current operation communication — port	· · · · · · · · · · · · · ·	
:OM4 -	database	・ 49 混死 database の
Current Screen	- 組织▼ 新建文件夹	BI • 🗔 😡
Screen1	★ CHERE © 50000168_A1151 ★ THE ≤ 50000168_A1153 ★ THE ≤ 50000168_A1157 ★ THE ≤ 50000168_A1157 ★ THE ≤ 50000168_A1157 ★ THE ≤ 50000168_A1151 ★ THE ≤ 50000168_A1151 ★ THE ≤ 50000168_A1151	
	文件名(1):	● Access Database(*.mdb;*.db ▼ 野开行(O) 取3通
Display Screen	·	
tain Display 🗸		
Enable/Disable Calibraion		Back Next Return

Fig 3-17 Selecting Correction Coefficients for Receiving Card

4) Select Stable Upload and click Next:

Current operation communication	Online Calibration Offline	Calibration Manage C	Coefficients					
COM4 *	Select the source of Co		erto Su					
@ Screen1	Select Database Select Adjust Line		sktopidatabasel50000	168_A1152.db		Browse		
	Туре:	Cabinet D	Cabinet ID:	A1151	•			
	Columns: Discription:	192	Rows:	192				
		Fast Upload	Stable Upload	>				
Display Screen								
lain Display +								
Enable/Disable Calibraion					Back	e Next	Return	



Chapter 3 LED Display Control Setting

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

Simple	0					
Red	*				89.7	
Green:	*		 		89.6	
Blue:	*				92.8	
Advanc		Show Color Wi				

Fig 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.

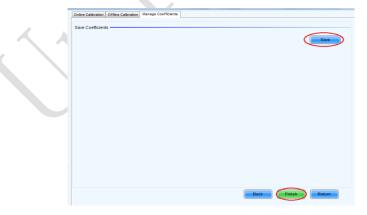


Fig 3-20 Saving Correction Coefficients

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:

Current operation communication	Online Calibration Offine	Calibration Manage Coef	fficients			
264 +	Select the New Module					
Current Screen	Screen:1 Locati	on:X=0, Y=0 S	ixe:512W×256H			
Screen1	O Screen O Pixel	 Topole 	ogy or List	lect Area On reen		
	(1,1)	(1.2)	(1.3)	(1.4)	Zoom	
	(2.1)	(2.2)	(2.3)	(2.4)		
splay Screen						
ein Display -						
nable/Disable Calibraion				Back	Next	

Fig 3-21 Selecting Cabinet for the New Module

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

😪 Screen Calibration	
- Current operation communication - port	Online Calibration Offine Calibration Manage Coefficients
COH4 v	Select the New Module
Current Screen	Scan Bo.: (0,0,0), Location:: (384,0), Size: 128×128
Screen1	Screen Pixel Topology or List
	Module Size: 16 😨 x 16 😨
	Display Mode: Modules Pixels
	· · · · · · · · · · · · · · · · · · ·
	• • • • • • • • • • • • • • • • • • • •
Display Screen	
Main Display ~	
Enable/Disable Calibraion	
Disable -	Back Next Return
Save	

Fig 3-22 Selecting Position of New Module

Chapter 3 LED Display Control Setting

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.

urrent operation communication	Online Calibration Offline	Calibration Manage (Coefficients				
ort	Unare Galeraton Uffine	vane duyii manaye v					
M4 +	Select the source of Co	efficients					
urrent Screen	Database	Rel	ler to Su				-
	Select Database:				Browse		
Screen1	Select Adjust Line				Browse		
	Type:	Unknown	Cabinet ID:		-		
	Columns:	Unknown	Rows:	Unknown			
	Discription:	Unknown					
	Upload Mode	Fast Upload	Stable Upload	>			
splay Screen							
n Display 👻							
able/Disable Calibraion					Back	Return	1
Disable 👻						-cerum	

Fig 3-23 Obtaining Correction Coefficients for a New Module

3.3.4.3 Replace Module with Flash

The module of UTWII has Flash, which can save the calibration coefficient. After replacing the module, make sure that the receiving have read coefficient from the Flash and save.

Click Setting on the main window and select Module Flash, as shown in following fig.

System(S)	Settings (C) Tools(T) Plug-in (P) User(U)	Language(L) Help(H)	
Screen Conf Local System Control Sy	Screen Configuration (S) Brightness(B) Multi-function Card(F) Multiple-screen Management(A) Hardware Information(H) Prestore Screen (R)	rol Monitoring Multi-function Card Cloud Monitoring	
- Monitor Inforn	Advanced Color Configuration (O) Adjust screen effect Cloud Monitoring(C)		7
	Module Flash (U)		
Service Status	Receiving Card Relay(I) Configure Information Management(M) The Main Window Starting Position(P)	.i.	

Main Window

Click Check Coefficient in Modules, the receiving card will read coefficient from module, then Click Save Calibration Coefficient on Receiving Card

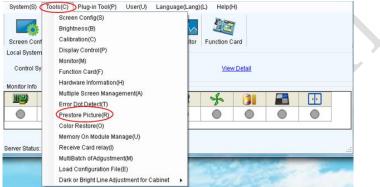
	Module Flash	J
	Current Oper COM99	
~	Send by Address Send by Topology Select Screen Screen:1 Starting coordinate X=0, Y=0 Size 512W×256H Screen1 Full Full Select by Topology Select Area o	
	Operate All Pixels	
	View calibration coefficient. Check coefficients in modu. Save calibration coefficient. Flash Check	

Fig 3-24 Save Calibration Coefficient on Receiving Card

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

	Prestore Picture Settings
	Communication port selection
	Communication COM4
	Screen1
	Prestore Picture Settings
	Select Pi Browse
	Effect Settings
	Screen Effect Stretch
	Cabinet Effect
$\langle \rangle$	Save To Hardware Check Store Picture
	Function Settings
	Boot Screen
	🗐 Enable Time: 2 🖨 s
	Cable Disconnect
	Black Last Frame Prestore Picture
	No DVI Signal
	Black
	Send Save To Hardware

Fig 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.

3.4 Unilumin K series - Software Control Setting

3.4.1 Installing the Software

Open the optical disk provided for the delivered products. Install the LED control software Unilumin.exe stored in the optical disk to the control PC.



Fig 3-26 Software Installation

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

3.4.2 Display Configuration

3.4.2.1 Login to the Display Settings Interface

1) Open the software, enter the main window, click "Control" \rightarrow "LED Screen Settings"; enter the password: 168 in the pop-up password box ,then enter the LED Screen Settings interface, as shown below:

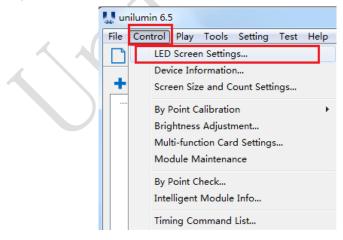


Fig 3-27 Main Window

	P	assword	Input			X		
		Authoriz	Zed Password		ancel			
		Fig	3-28 Enter	the Pass	word			
D Screen Settin	ıgs							
	n Parameters Rec	ceiver Mapping(Look Fi	rom Front)					
	n Parameters Rec		rom Front)	Total: 0	No Sender	r Detected		Simulation Detect Senders
ing Device Screen Select Sending Dev Net Carc	n Parameters Rec vice d @ Ser			Total: 0	No Sender			
ing Device Screen Select Sending Dev Net Carc	n Parameters Rec vice d @ Ser				No Sender		12	
ing Device Screen Select Sending Dev Net Carc Input Signal Inform	n Parameters Rec vice d @ Ser						1 2 Run Time	Detect Senders
Ing Device Screet Select Sending Dev Net Carc Input Signal Inform Type Size	d OSer	nder C		Detect	Recever Ca	irds		Detect Sender
ng Device Screen Select Sending Dev Net Carc Net Carc Input Signal Inform Type Size	d OSer	nder C		Detect	Recever Ca	irds		Detect Sender
ng Device Screen Select Sending Dev Net Carc Input Signal Inform Type Size Sender Resolution Resolution	n Parameters Rec vice d Ser nation (EDID) 1024 x 768	nder C) Play Box	Detect	Recever Ca	irds		Detect Sender
ng Device Screen Select Sending Dev Net Carc Input Signal Inform Type Size Sender Resolution Resolution Advanced Parame	n Parameters Rec vice d Ser (EDID) (1024 x 768	nder C) Play Box	Detect	Recever Ca	irds		Detect Sender
ng Device Screen Select Sending Dev Net Carc Input Signal Inform Type Size Sender Resolution Resolution Advanced Paramet MTU	n Parameters Rec vice d Ser (EDID) (1024 x 768 tter [Standard	nder C Frame Rate) Play Box	Detect	Recever Ca	irds		Detect Sender
ing Device Screen Select Sending Dev Net Carc Input Signal Inform Type Size Sender Resolution Resolution Advanced Parame	n Parameters Rec vice d Ser (EDID) (1024 x 768	nder C) Play Box	Detect	Recever Ca	irds		

Fig 3-29 LED Screen Settings

3.4.2.2 Set the Sending Card

1) Detect Senders

Enter the LED Screen Settings interface, select the "Sending Device" page, and then click "Sender" \rightarrow "Detect senders". If the sending card is detected, the "Sending

Chapter 3 LED Display Control Setting

Device" page will display the information of the sending card in detail: the card type and quantity, the input signal information of the sending card, etc, as shown below:

LED Screen Set	tings							
nding Device Scr	een Parameters Rec	eiver Mapping((Look From Front)					
Select Sending [Net C		der	🔘 Play Box	Total: (No Sende	r Detected		Simulation Detect Senders
Input Signal Infi	ormation			Dete	ect Recever Ca	ards A	1 2	
			Fig 3-30 D	etect Se	enders			Y
ling Device Screen	n Parameters Receiver	Mapping(Look	From Front)					
Select Sending De								
O Net Car		er	O Play Box	Total: 1	S2 6.0 arm 6	.0		Detect Senders
Net Car	rd () Sende	el	O Play Box				1 2	Detect Senders
	rd () Sende	e]	O Play Box		S2 6.0 arm 6		1 2	Detect Senders
Input Signal Infor	rd <u>Sende</u> mation	e]] Frame R			Recever Cards		1 2 Run Time	Detect Senders Support Chips
Input Signal Inform Type Size	rd • Sende]		Detect	Recever Cards	All	الكر الكر ا	
Input Signal Inform Type Size	rd • Sende]		Detect	Recever Cards	All	الكر الكر ا	
Input Signal Inform Type Size Sender Resolution Resolution	rd © Sende mation DVI 1366 × 768 (EDID) 1366 × 768	Frame R	tate 60 Hz	Detect	Recever Cards	All	الكر الكر ا	
Input Signal Inform Type Size Sender Resolution Resolution	rd © Sende mation DVI 1366 × 768 (EDID) 1366 × 768	Frame R	Late 60 Hz Send	Detect	Recever Cards	All	الكر الكر ا	
Input Signal Inform Type Size Sender Resolution Resolution Advanced Paramet MTU	rd Sende mation DVI 1366 × 768 (EDID) 1366 × 768	Frame R	tate 60 Hz	Detect	Recever Cards	All	الكر الكر ا	
Input Signal Inform Type Size Sender Resolution Resolution Advanced Paramet	rd Sender mation DVT 1366 × 768 (EDID) 1366 × 768 ter Standard	 Frame R Bette 	Late 60 Hz Send	Detect	Recever Cards	All	الكر الكر ا	
Input Signal Infor Type Size Sender Resolution Resolution Advanced Paramet MTU Frame Output	rd © Sende mation DVI 1366 × 768 (EDID) 1366 × 768 ter Standard Every Frame	 Frame R Bette 	send	Detect	Recever Cards	All	الكر الكر ا	

Fig 3-31 Sending Card Information

2) Input Signal View

After detecting the sending card , if the video signal is connected properly. The video input signal type, frame rate, width and height are displayed in detail in the "Input Signal Information".

Select Sending		Mapping(Look Fron	TTORY
◯ Net	t Card Sende	er C) Play Box
-Input Signal Ir	nformation		
Input Signal Ir Type	nformation DVI]	

Fig 3-32 Input Signal Information

3) Settings the Sending Card Parameters

After detecting the sending card, can make some settings on the sending card parameters on the "Sending Device" page.

Sending Device Scree	n Parameters Receiver M	apping(Look From Front)				
Select Sending D		O Play Box	Total: 1	S2 6.0 arm 6.0		Detect Senders
Input Signal Info Type	DVI		Detect	Recever Cards	1 2	
Size	1366 × 768	Frame Rate 60 Hz	Port	Index Version	Run Time	Support Chips
Sender Resolution		∽ Send				
Advanced Parame	eter					
мти	Standard	Better Graylevel On Low Brig	ghtness			
Frame Output	Every Frame	~				
Sync Method	Auto	~ Send				
Test Mode	Off	✓ Port Area Setting	g			
		Factory Restore	re			

Fig 3-33 Settings the Sending Card Parameters

3.4.2.3 Screen Parameters Setting

After setting the send card interface, click "Screen Parameters" to set the screen parameters:

1) Click "Load..." to load the "xxxx. rcvbp " file on the CD

2) Click "Send"

3) After sending is complete, confirm that the display screen menu of the single receiving card is normal, click "Save to Receivers" to save

LED Screer	Setting	as									
Sending Device	Screen	Parameters	Receive	r Mapping	g(Look From Fr	ont)					
Module Info											
Mo	udle Size	16W×16H			Driver IC	Normal Chip		Data Polarity	Positive Phase	Reverse	
Sc	an Mode	32 scan			Decode IC	138 Decoding		OE Polarity	Low Valid	Reverse	
Cabinet Set	ting										
	Width	64		<=76	Cascade	From Right to Left	•	Data Group	Normal 16 grou	ps 🔹	
	Height	64		<=256	Split Style	No Split	•		Data Group	o Swap	
Performance	e Setting										
Refr	esh Rate	3840	•		Multiple	Refresh x 16	•	Calibration Mode	Disable	•	Blanking Phase
Gr	ay Level	8192	•		Gray Mode	Balanced Low Gra	y •	Calibration	From Receiver	Cards 🔻	SCK Duty Ratio
	DCLK	15.6 MHz	•		Display Mode	Gray-level First	•	No Signal Action	Keep the Last F	rame 🔹	Intelligent Module Setting
Blanki	ing Value	0 🔹 (×100ns)	Bri	ghtness Level	8	•	Input Bit Depth	8bit	•	Custom Gamma Table
	Brightn	ness Percent:	60%		Minimum O	E: 19.2 ns		Enable Gradual	Disable	•	Other Parameters
								Gamma Value	2.8	•	Independent Setting
I	ntelligent	Setting		Scre	en Test		Send A	fter Modify			
Read		Load	_	Sa	ave	Send	Save to R	eceivers			

Fig 3-34 Screen Parameters

3.4.2.4 Display Connection

After the screen parameters are solidified to the receiving card, click on "Receiver Mapping" to setting, connect the display.

- 1) Click "Load...", load the "xxxx. mapping " files on the disc;
- 2) Click "Send";

3) After sending is complete, confirming that the display screen menu is normal, click "Save to Devices" to save.

Sender No. 🛨	r Information		-	A No.	⊞ &]]	\otimes	100% ~	Show Connection Lines	Standard O Comp	olex
1		1		1	2	3	4		Receiver Card	.ayout
Port				Port: 1-2	Port: 1-2	Port: 1-2	Port: 1-2	4	Col Count 4	\$
1-1 1-2			1	Index: 5 Width 128 Height: 128	Index: 6 Width: 128 Height: 128	Index: 7 Width: 128 Height: 128	Width 28 Height: 128		Row Count 4	\$
Parat the Cu	rrent Port Number		-	Port: 1-2	Port: 1-2	Port: 1-2	Port: 1-2		Reset All	Select A
Reset the Cu			2	Index: 4 Width: 128	Index: 3 Width: 128	Index: 2 Width: 128	Undex: 1 Width S.28		Selected Card I	nformatio
				Height: 128	Height: 128	Height: 128	Height: 128		No. 8	
			3	Port: 1-1 Index: 5	Port: 1-1 Index: 6	Port: 1-1 Index: 7	Port: 1-1 Index: 8		Width 12	8
				Width 128 Height: 128	Width: 128 Height: 128	Width: 128 Height: 128	Width 28 Height: 128		Apply 1	o Colum
				Port: 1-1	Port: 1-1	Port: 1-1	Port: 1-1		Height 12	8 🗘
			4	Index: 4 Width: 128	Index: 3 Width: 128	Index: 2 Width: 128	Index: 1 WidthS,28		Apply 1	o Row
			_	Height: 128	Height: 128	Height: 128	Height: 128		Operatio	n Guide
									-	5
										-
									τŢ	Πt
									ŢŢ	ţIJ.
Mapping is modified										
Read	Load	Save		Send	Course	to Devices				

Fig 3-35 Receiver Mapping

3.4.3 Brightness Adjustment

In the main window, click "Control" \rightarrow "Brightness Adjustment", enter the brightness adjustment interface and adjust the brightness.

Chapter 3 LED Display Control Setting

🛄 unilum	in 6.5				
File Cor	ntrol Play	Tools	Setting	Test	Help
•	LED Scree Device Inf Screen Siz	ormatio	n	ngs	
	By Point C				-
	Brightnes				
	Multi-fund Module N			5	
	By Point C Intelligent		Info		
	Timing Co	mmand	List		

Fig 3-36 Brightness Adjustment

S2 6.0 arm 6.0				Detect Sender
		100%]	
		6500	Enable Color	Temperature
				Save To Sender
Automatic Brightness Adj	ustmentDetect multi-fu	inction card(12.5	50)	
Enable Auto Adjus	t Curve Edit			
Brightness	65%		Current Settings:	Auto Adjust
	Save To	Multi-function C	Card	

Fig 3-37 Brightness Adjustment Interface

There are various ways to adjust the brightness: automatic adjustment of multifunction card, timing brightness adjustment, manual adjustment, white balance adjustment, brightness correction adjustment, etc.

 Manual adjustment: In the brightness adjustment interface, manually pull the brightness bar to change the brightness percentage, adjust the brightness of the display.

ghtness Adjustment	\times
Ianual Adjustment	
S2 6.0 arm 6.0 Detect Sender	1
100%	
6500 Color Temperature	
Save To Sender	
Automatic Brightness AdjustmentDetect multi-function card(12.50)	
Enable Auto Adjust Curve Edit	
Brightness 65% Current Settings: Auto Adjust	
Save To Multi-function Card	

Fig 3-38 Manual Brightness Adjustment

 Automatic brightness adjustment: In the brightness adjustment interface, check "Enable auto adjust" and click "Save to Multi-function Card". The brightness is the current brightness percentage of the display.

Brightness Adjustment	×
Manual Adjustment	
S2 6.0 arm 6.0	Detect Sender
	100%
	6500 Color Temperature
check on Enable Auto Adjust	detect multi-fuctiogaversdender
Automatic Brightness AdjustmentDetect multi-func	
Enable Auto Adjust Curve Edit	state change after save parameters
Brightness Automatic change of brightness perce	Current Settings: Auto Adjust
Save To M	ulti-function Card
save parameters	

Fig 3-39 Automatic Brightness Adjustment

3.4.4 Calibration

3.4.4.1 Setting Coefficients for a New Module

1) First set the window to be greater than or equal to the actual screen pixel size;

Jan U	inilumin 6.5						
	Control Play						
2) 🖻 🖥 🛛	╝╋┖				±‡ ≤ <u>≞</u> •	
S	creen Size and	Count					x
	Screen Count	1 -					
	Index	X	Y	Width	Height	Positon	
	LED1	0	0	256	256	Start X	0
						Start Y	0
	set	the window	w to be gre	eater than o	יור	Size	
		al to the ad				Width	256
						Height	256
							Apply

Fig 3-40 Screen Size and Count

 In the main window, click "Control" → "By Point Calibration" → "Brightness Calibration", enter the calibration interface;

🚙 ur	nilum	in 6.5	l
File	Con	trol Play Tools Setting Test Help	
		LED Screen Settings	🔲 🗖 🖪 🖓 🖓 🔸
_		Device Information	
+		Screen Size and Count Settings	
		By Point Calibration	Brightness Calibration
		Brightness Adjustment	Chroma Calibration
		Multi-function Card Settings	
		Module Maintenance	
		By Point Check	
		Intelligent Module Info	Unilumi
		Timing Command List	



 Click "Get Screen Information" → "Read" ,get screen information and read back the screen correction coefficient;

	nuness	Calibra	ation										
Edit Mo	ode A	rea In	nport	Export									
Sender				5	Send and	d Read							
Sender	1			\sim	I	Port	All Ports	\sim			Send		
Get	tting Scr	een Info	rmation		Rece	iver	All Card	5 ×			Read		
Modify	the Coe	fficient						Scr	een Disp	lay			
Coeffi	cient 1	Fine	Tuning	0.02			Res	et De	efault	Red G	ireen E	Blue W	hite
Red	Green												
	Green	Blue											
	1	Blue 2	3	4	5	6	7	8	9	10	11	12	13
1	1	2	3 1.000	-	-			-					
1 2	1 1. 000	2 1. 000	-	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
	1 1.000 1.000	2 1. 000 1. 000	1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.000 1.000
2	1 1.000 1.000 1.000	2 1. 000 1. 000 1. 000	1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1. 000 1. 000 1. 000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000
2	1 1.000 1.000 1.000 1.000	2 1.000 1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1. 000 1. 000 1. 000 1. 000
2 3 4	1.000 1.000 1.000 1.000 1.000	2 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1. 000 1. 000 1. 000 1. 000 1. 000	1.000 1.000 1.000 1.000 1.000	1. 000 1. 000 1. 000 1. 000 1. 000	1.000 1.000 1.000 1.000 1.000	1. 000 1. 000 1. 000 1. 000 1. 000	1.000 1.000 1.000 1.000 1.000	1. 000 1. 000 1. 000 1. 000 1. 000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000

Fig 3-42 Brightness Calibration

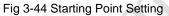
 Click "Import" → "By Region" → "Normal" to import the correction coefficient of the replaced spare module;

1 1,000 1,0	Sende	r.		All			>	_			4	
Getting Screen I By Block Color-Space Modify the Coefficient Screen Display Default Red Coefficient 1 Fine-Tuning 0.02 + - Reset Default Red I 1 2 3 4 5 6 7 8 9 10 1 1.000	Sende	y 1		By F	legion	3	>	N	ormal.		4	Ser
Coefficient 1 Fine-Tuning 0.02 + Reset Default Red I 1 2 3 4 5 6 7 8 9 10 1 1 2 3 4 5 6 7 8 9 10 1 1 2 3 4 5 6 7 8 9 10 1 1 0 10 1 1 0 10 1 1 0 10 1 1 0 10 1 0	G	etting Scr	een 1	11-411-1		r Card	>					Rei
Red Green Blue 1 2 3 4 5 6 7 8 9 10 1 1,000 1.000 1	Modif	y the Coe	fficient						Sa	een Dis	play	
1 2 3 4 5 6 7 8 9 10 1 1.000	Coeff	ident 1	Fine	Tuning	0.02	× 4		Res	et D	efault	Red	Gree
1 2 3 4 5 6 7 8 9 10 1 1.000		Autom -	1.000		Westercound.			1.00		CIGUIC	rec.u	
1 1,000 1,0				. roning	(WinterGreat,			1			THE U	Orec
2 1.0000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.00	Red	Green	Blue		(Protection)			1				
a second s		Green	Blue 2	3	4	5	1.1.1	7	8	9	10	
	1	Green 1 1.000	Blue 2 1.000	3	4	5	1.000	7 1.000	8 1. 000	9	10	00 1.
The second	1 2	Green 1 1.000 1.000	Blue 2 1.000 1.000	3 1.000 1.000	4 1. 000 1. 000	5 1.000 1.000	1,000 1,000	7 1. 000 1. 900	8 1.000 1.000	9 1.000 1.000	10 1.00	00 1.
	1	Green 1 1.000 1.000 1.000	Blue 2 1.000 1.000 1.000	3 1.000 1.000 1.000	4 1. 000 1. 000	5 1.000 1.000 1.000	1.000 1.000 1.000	7 1.000 1.000 1.000	8 1.000 1.000 1.000	9 1.000 1.000 1.000	10 1.00 1.00	00

Fig 3-43 Brightness Calibration

5) Enter the location of the module that needs to resend the correction coefficient;

Starting Point Setting		\times
Screen Size 256*256		
Start X 256	Start Y 256	
ОК	Cancel	



6) Selecting a correction coefficient file for the module of the corresponding area;

Brightness Calibration				
Edit Mode Area Import Export				
Sender Send an	nd Read		Calibration Setting	
Sender 1 ~	Port All Ports V	Send	Disable Calibration	
Getting Screen Information Rec	, U 打开			×
	← → × ↑ 🖡 >	此电脑 > 桌面 > unilumin	✓ じ 搜索"unilu	min" 🔎
Modify the Coefficient Coefficient 1 Fine-Tuning 0.02 ~	组织 • 新建文件夹	Ę		III • 🔳 🕐
Red Green Blue 1 2 3 4 5 1 1.000 1.000 1.000 1.000 1.000	 ★ 快速访问 ▲ 桌面 	 ▲ 名称 ▲ 32OS ▲ 64OS 	2	8改日期 019/1/17 9:43 019/1/17 9:43 019/1/17 9:43 000
2 1.000 1.000 1.000 1.000 1.000 3 1.000 1.000 1.000 1.000 1.000 4 1.000 1.000 1.000 1.000 1.000		 clt_files config_files data 	2	019/1/17 9:43 019/1/17 9:43 019/7/22 9:28
5 1.000 1.000 1.000 1.000 1.000	FileRecv	v <		> 00
6 1.000 1.000 1.000 1.000 1.000 7 1.000 1.000 1.000 1.000 1.000 8 1.000 1.000 1.000 1.000 1.000	لا	文件名(N):	~ Normal Co 打开(Q	oof (*.3fCoef, *.3BCc ~ 00) 取消 00
9 1.000 1.000 1.000 1.000 1.000 10 1.000 1.000 1.000 1.000 1.000 1.000		00 1. 000 1. 000 1. 000 1. 000	0 1. 000 1. 000 1. 000 1. 000 1. 0	000000000000000000000000000000000000000

Fig 3-45 Selecting Correction File

7) After importing the calibration file, click "Send" to enable brightness correction;

Sender			5	Send and	Read			_				_	Calibr	ation Se	tting				
Sender 1 V		V Port All Ports			; ~	Send				Enable Brightness(Coef from Receiver Card)									
Getting Screen Information				Receiver All Cards ~ Read				Read	d			Мо			odify				
Modify	y the Co	efficient						Scr	een Disp	lay			L						
Coeffi	icient 1	Fine	Tuning	0.02	~ +		Res	et D	efault	Red G	ireen E	Blue V	/hite						
Red	Green					6													
Red	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Red	1	2		1	1200			100		12/08	1222	0.000000	13 1.000	12.02%			0.00700	12/45	2002
	1 1. 000	2 1. 000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	100000	1.000	1.000	1.000	1.000	1.000	1. 0
1	1 1.000 1.000	2 1.000 1.000	1.000 1.000	1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.000	1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.000 1.000	1.0 1.0
1 2	1 1.000 1.000 1.000	2 1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000	1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1. 0 1. 0 1. 0
1 2 3	1 1.000 1.000 1.000 1.000	2 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.0 1.0 1.0
2 3 4	1 1.000 1.000 1.000 1.000 1.000	2 1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1. 000 1. 000 1. 000 1. 000 1. 000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1.0 1.0 1.0 1.0 1.0

Fig 3-46 Brightness Calibration

 Open the LED screen setting window, on the screen parameter page :select "Brightness" in the "Calibration Mode", select "From Receiver Card" in the "Correction", and then click "Save to Receivers".

Module Information	arameters Receiver N	Apping(Look From Front)				
	4000-4011		Margaral Chin		Desitive Diseas		
Moudle Size	TOW×TOH	Driver IC	Normal Chip	Data Polarity	Positive Phase Reverse	2	
Scan Mode	32 scan	Decode IC	138 Decoding	OE Polarity	Low Valid Reverse	2	
Cabinet Setting							
Width	64	<=76 Cascade	From Right to Left $\qquad \qquad \qquad$	Data Group	Normal 16 groups	~	
Height	64	<=256 Split Style	No Split ~		Data Group Swap		
Performance Setting							
					2		
Refresh Rate	3840 ~	Multiple	Refresh x 16 V	Calibration Mode	Brightness	 Blanking Phase 	
Gray Level	8192 ~	Gray Mode	Balanced Low Gray \sim	Calibration	From Receiver Cards	✓ SCK Duty Ratio	
DCLK	15.6 MHz ~	Display Mode	Gray-level First ~	No Signal Action	Keep the Last Frame	✓ Intelligent Module Setting	
Blanking Value	0 🔹 (×100ns) Brightness Level	8 ~	Input Bit Depth	8bit	 Custom Gamma Table 	
Brightn	ess Percent: 60%	Minimum (DE: 19.2 ns	Enable Gradual	Disable	 Other Parameters 	
				Gamma Value	2.8	✓ Independent Setting	

Fig 3-47 LED Screen Setting

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 Fig 4-1 and Fig 4-2.

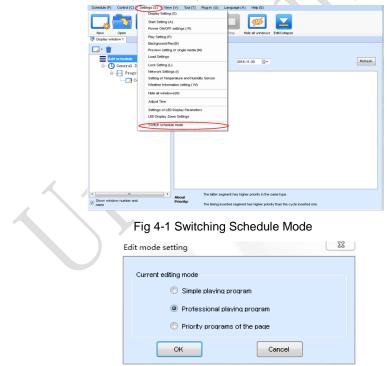


Fig 4-2 Edit Mode Setting

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:

Display Window Setting	
Number of Display 1 Update Update	
Display window 1	
Name: Display window 1	
Start X: 3 🚔 Width: 400 🚔	
Start Y: -9 🚔 Height: 400 🚔	
On Top: 🔘 Never 🔘 Always 💿 Playing	
Set frame 20 THZ	
Show Display Window (Shift+H)	
Lock display window (Shift+L)	
Display Window Border Line	
Note: After the display window is locked, it is unable to use the mouse to change size and position of display window.	
OK Cancel	

Fig 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 Fig 4-4:

Start setting	23	J
Auto Run after Power-on		
✓ Restart Software on Time		
Every 1 🚖 day, restart software once.		
Restart time: 2:00:00 🚔 -		
•		
Exit of software on time		/
Exit Time: 00:00:00		
Enable Auto Play		
Display window 1		
Please select the schedule file to be played.		
Play the schedule played last time		
Instant plug and play of USB disk		
OK		

Fig 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 Fig 4-5:

	w (V) Tool (T) Plug-i	n (U) Language (A) Help (E)
New (N) Open (O)		
Save (S)	S La L	
Save As (A) Save A	s Play Pau	se Stop Hide all windows Edit/Collapse
Backup (B)		
Export to USB Disk (E)	Data Data at Cabad	
Recent schedule (R)	From 2016-11-30	
- O General Segment 1	2010-11-30	
Program1		
- Common Windowl		
<	The	atter segment has higher priority in the same type.
Show window number and name	- About Prioritic	ining inserted segment has higher priority than the cycle inserted one.

Fig 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 Fig 4-6:

Schedule (P) Control (C) Settings (S) View (V New Open Save Save As Displey window 1	Tool (T) Pugu-in (U) Language (A) Help (E) Image: Play Image: Play Image: Play Image: Play Image: Play Play Plays Stop Hide all windows Edit/Collapse
Add schedule Conach Vindov1	ame: Ceneral Segment1 There Property Effective Date Specified date From 2016-11-30 To 2016-11-30 Effective Daty Effective Daty V Vectorsday V Vectorsday V Vectorsday V Priday V Friday V Sunday Effective Three44ae Day Effective Three44ae Day At Day From 10.00.00 To 11.00.00
m Show window number and name	

Fig 4-6 Properties of General Time Segment

4.1.3.2 Editing the Program Page

1) Creating a program page

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

Schedule (P) Control (C) Settings (S) View (V)	Tool (T) Plug-in (U) Language (A) Help (E)
New Open Save Save As	Pay Pause Stop Hide al windows Edit/Collapse
Display window 1	
	r: General Segment1 e Property hve Date pecified date From 2016-11-30 == To 2016-11-30 == tve Day of the Week I I Monday I Tuesday I Wednesday I Thursday I Friday I Saturday I Sunday
Move Up Move Down	Ive Time Of the Day I Day From 10.00.00 😥 To 11.00.00
Delete Clear Programs	
Preview Current Segment Set screen	_
Hide Play window (Shift+H)	
r m +	_

Fig 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 Fig 4-8:

Schedule (P) Control (C) Settings (S) View (V) Tool (T) Plug-In (U) Language (A) Help (E)
New Open Save Save As Play Pause Stop Hide all windows Edit/Collapse
Add schedule Background Color:
General Segment 1 Background Picture No background picture
Conaon Window1 Display Type: Stretch
Back Music: 🖷 🗰 🛣 ት 🐺
Specify number of times: 1
Specify duration: 00.06.00
O Cycle:
K
Show window number and name

Chapter 4 LED Display Playing Setting

Fig 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:



Fig 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 Fig 4-10.

Add schedule	Background Color:		-1-
Programl	Background Picture:	No background picture	~
HolidayPage1	Display Type:	Stretch	~
Move Up Move Down Copy Paste Delete Clear Window Save the Current	v wccasting Window and Humidity Window	nt Program Page	

Fig 4-10 Program Page Operation Menu

4.1.3.3 Editing the Display Window

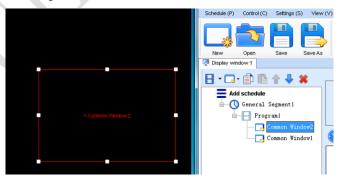
1) Adding a display window

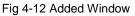
After adding a program page, you need to add a display window to this program page. Click **Add Window** on the toolbar of the program page to add a window to the current program page. See Fig 4-11:

Schedule (P) Control (C) Settings (S) View (V) Tool New Open Serve Save As Pay	- 🖬 🗖 🜌	
Copying Window	d Color: d Picture: No beckground picture pe: Stretch c:	+ * ☆ ₩
	Incity number of times:	

Fig 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 Fig 4-12:





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 Fig 4-
 - 13:

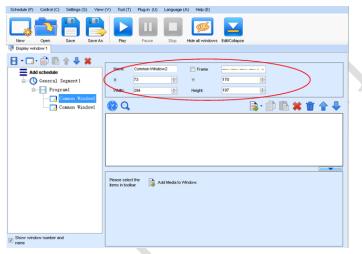


Fig 4-13 Setting the Window Size

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

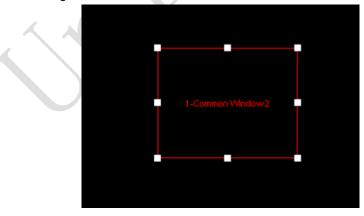


Fig 4-14 Adjusting the Window Size Using the Mouse

3) Deleting a display window

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

New Open Save Display window 1	Save As	Play	Pause	Stop P	lide all windows	Edit/Collapse	
Add schedule		lame:	Common Windo	w2	Trane		
General Segment	55X		119	1 1 1 1	Y. Height	119	(4) (4)
Conson	Vindow2	Q		154		(.
Program2							11

Fig 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 Fig 4-16:

New Open Display window 1	Save Save As	Play	Pause	Stop	Hide all windows	Edit/Collapse	
Add schedule	Move Down	Name:	Common Windo	w2	🛅 Frame		
General		х	119	(A) (V)	Y.	119	0
Prog		Wath	166	0	Height:	131	4
	Common Window2	00					. .
Prog							

Fig 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 Fig 4-17:



Fig 4-17 Adding the Media

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

Seeker) Over() Selling () Ver() Tu() Tuga () Legage() He(1)	
New Open Save Save As Play Pauce Stop Hide all windows Edit/Collapse	
Citipley window 1	
E · C · D I · A · A · A · A · A · A · A · A · A ·	
Add schedule	
6- () General Segment I X 119 6- Y. 119 6-	
Prograal VMdbx 166 💿 Height 131 😳	
	🖬 🏠 🐺
Program2 1 Scroling Test	Any Times
- • • • • • • • • • • • • • • • • • • •	
Text Property	
hello	
	- 🗶
Font: Arial V Size (px): 10 V B J U S	
Text Effect Suspension Depth 2	÷.
Show window number and Colorful cheracters: None •	

Fig 4-18 Media Setting Window

2) Setting the media properties

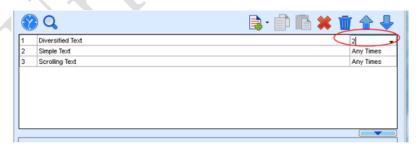
Different media have different properties. After a medium in the media list is selected, the property page of this medium is displayed below the selected medium. On this property page, you can change the properties of the medium. See Fig 4-19:

Schedule (P) Control (C) Settings (S) View	(V) Tool (T) Plug-in (U)	Language (A) Help (E)		
🗔 🔷 💾 💾				
New Open Save Save As	Play Pause	Stop Hide all windows	Edit/Collapse	
Display window 1				
🗄 • 🗔 • 🗊 🖺 🛊 🦊 🗰				
Add schedule	Name: Common Windo	w1 Erame		
General Segmenti	X: 0	÷ Y:	0	
Programl	Wath: 400	0 Height	400 💠	
Connon Window2				
Connon Window1	😵 Q.		🗟 - 🗊 📑 🗰 🕷 🟢	含 ♣ 🔰
Program2	1 Diversified Text			y Times
- 📑 ¥1	2 Simple Text			y Times
	3 Scroling Text		An	y Times
	Edit Text			
	Background: Pure celer		Transpare.	
	Random		- Speed: 5	.1 s
	Special Random		- Speed 5	.1 s
	Stay Time: 3	🖨 S 🕅 Ve	ertical line	
Show window number and name	Complete Play	Play Duration: 00 :	00:05.000	
😢 name				
				4

Fig 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 dropdown list. See Fig 4-20:



Double click

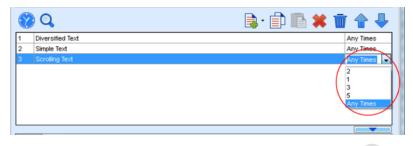




Fig 4-20 Changing the Media Playing Times

Right click the media to perform operations on the selected media, as shown in Fig

1 01	
4-71	-
- L I	٠

Schedule (P) Control (C) Settings (S) View	(V) Tool (T)	Plug-in (U)	Language (A)	Help (E)			
New Open Save Save As	Play	Pause	Stop H	ide all windows	Edl/Collapse		
Display window 1							
🗄 • 🗔 • 🗊 🗈 🛊 🖊 🗰							
Add schedule	Name: C	ommon Window	1	Frame			
General Segment1	X: 0		-	Y:	0	-	
Programl	Wath: 4	00	4	Height:	400	÷	
Common Window2	8 Q						* 🖬 🛧 🖊
Program2	1 Diversified	Text					Any Times
- 1 ¥1	2 Simple Tex	t		Move	1 h		Any Times
_	3 Scroling T	ext			Down		Any Times
					DOWIN	_	
				Copy			
				Paste			
				Insert	Media	•	
				Delete	•		
	Text Propert	~		Renar	ne		
		×11		-	Properties to	_	
	Hello!			Appry	Properties to		^ 🗸
	Fort	Arial		Size (px):	16	• B I U	s
	Text Effect				Depth: 2		
	Colortul						
	characters:	None			•		
Show window number and name	Horizontal alignment	Algn 👻	Vertical Al	gn • Spacing:	1 🕀 Kerning:	0 🔹	Vertical line

Fig 4-21 Media Operation Menu

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

New Open Save Save A	Pay Pause Stop	Hele all windows Edl/Collapse	
Add schedde Comercial Segment 1 Program 1 Common Window? Program 2 Vi	Name: Connton Window1 X: 0 Width: 400 I: Diversified Text 2: Single Text 3: Scroling Text Please select the tens in toobar Add Media to	File Diversified Text Single-row text Sorolling Text Analog Clock Dight Clock Flash clock Lunar Calender Media Table Defablase Traing Dight Court-down Timer Vealurer forecasting Temperature and Hankity URL Streaming Media Vindow RSS	Any Trees
Show window number and name		Video Device External Program Add Copied Media	

Fig 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 Fig 4-23:



Fig 4-23 Play Key on the Toolbar

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

🐺 Screenl	
Current Common Segment1 [2012/6/27 0:00:00 To 2012/6/28 0:00:00] Playir	Ig
Segment: Next Common Segment(In Segment1 [2012/6/28 0:00:00 To 2012/6/29 0:00:00] a week):	
Play Info	
Global Page Common Page(Page1) Status:Playing	A E
≟₩ (0, 0, 359, 328) Current Media: oppo. AVI	
Current Inserted Inserted Segment2 [2012/6/27 18:48:00] Playing	poor
Next Inserted Segment2 [2012/6/27 18:50:00]	
Play Info	
-Common Page (Page1) Status: Playing	*
Ė─₩ (0, 0, 215, 184)	
Current Media: Analog clock	E
Next Media:Analog clock	
Play Error	
	*

Fig 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 Fig 4-25:



Fig 4-25 Short-cut Menu

Chapter 4 LED Display Playing Setting

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:

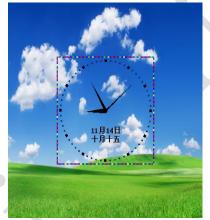
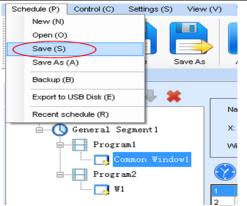


Fig 4-26 Transparent Displaying Effect of the Clock

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 Fig 4-27:



Chapter 4 LED Display Playing Setting

Fig 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 Fig 4-28:

G Schedule	0	Window Editing Area			
General Segment1	11 打开				-
Common Wind	O + + - 3	2档 🕨	• 4 R.R.	文档	
	组织 ▼ 新建文件夹			111 · C	1 6
	😺 T#t 🔺	文档库		排列方式: 文件	
	E 42	包括:2个位置			-
	92. 最近访问的位置	名称	修改日期	供型	3
		Labeling	2016/8/15 13:42	文件夹	
	100 K	My ISO Files	2015/5/14 11:24	文件夹	
	▶ ■ 视频	My RTX Files	2016/7/1 9:18	文件夹	
	●■問片	NovaDog	2016/8/21 19:13	文件夹	
	⇒⊇文档	NovaLCT 2012	2016/8/9 18:39	文件夹	
	> 👌 童乐	NovaStudio2012	2016/8/21 19:13	文件夹	
		😹 RTXC File List	2014/7/11 8:45	文件夹	
	▶ 栗 计算机	3 Tencent	2014/4/25 9:51	文件夹	
		Tencent Files	2014/7/11 15:05	文件夹	
·					

Fig 4-28 Opening a Playing Solution File

4.2 Unilumin K series - LED Display Playing Setting

4.2.1 Set the Count and Size of the Screen

Open the software, click "Control " \rightarrow "Screen Size and Count Settings" in the main window, as shown below:

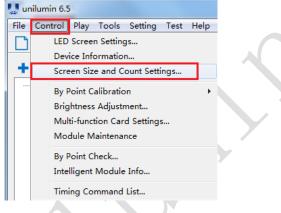


Fig 4-29 Main Window

Set the count of LED screens and the starting position and size of the screen in the

' Screen Size and Count " window.	
-----------------------------------	--

Screen Size and (Count					×
Screen Count	1 🔻					
Index	X	Y	Width	Height	Positon	
LED1	0	0	256	256	Start X	0
					Start Y	0
					Size	
					Width	256
					Height	256
						Apply

Fig 4-30 Screen Size and Count Settings

4.2.2 Setting the Program Page

The program page is divided into two types: "Normal Page" and "Global Page".

Global Page: The program page that is played continuously during playback, can contain multiple windows. Only one global page can be set per screen.

Normal Page: The normal page can contain multiple windows, and each normal page can have different window layouts.

💭 unilumin 6.5	
File Control Play Tools Setting Test He	
🗋 🚔 🗏 📮 🗗 📝 🕨 🛛	
Normal Page	
Global Page	
Import Pages from another Program	
Rename	

Fig 4-31 Program Page

1) Click the button **+** on the program editing toolbar, pop up the menu to create a new program page;

👞 unilumin 6.5 - new *	
File Control Play Tools Setting Test	Help II II
LED1	Page Properties Background Picture Background Color Background Music No Background Music
	Play Duration Image: by Appoint 1:00:00 Image: bit of the appoint of

Fig 4-32 Adding New Program Page

Chapter 4 LED Display Playing Setting

2) After creating the program page, click the Add button + or right click on the program page node to bring up the add program window menu.

	📕 unilu	imin 6.5 - new *	
	File C	ontrol Play Tools Setting Test	ŀ
		∋ 🖩 📮 🗗 📝 🕽	•
			1.
		File Window	Pi
	Þ	Sync Window	Bi
		Multi-Line Text Window	В
	H	Single Line Text Window	Bi
	1	Single Column Text Window	
		Subtitle Window	Pl
	0	Clock Window	
		Timing Window	(
		Webpage Window	N
		StreamVideo Window	t
		RSS Window	
		Table Window	
		Database Window	
c		Weather Window	_
		Video Capture Window	
		Environment Information Window	
へく	1:1	Sports Scores Window	
		Desk Area Window	
		Play Current Page	
		riay current rage	
		Rename	

Fig 4-33 Add Program Window Menu

3) After adding the file window, select the file window and click the Add button + to select the desired material.



Fig 4-34 Material Menu

4) After adding the material, can set the material properties in the property box, as shown below:

🛄 unilumin 6.5 - new *	
File Control Play Tools Setting Te	est Help
	🕨 📗 🗖 🖪 🕞 🗠 🔍 🗘
+ ʰ ʰ + × ٩	Image Properties
	Path D:\我的图片\洲明logo\洲明LOGO英文.png
in Mormal Page 1	Size W 2818 Keep Aspect Ratio
□····□. File Window I	H 516 Apply to All Pictures
	Opacity 100%
	Play Times 1 Rotate Normal V
	Effect Properties
	None Random Repeat X 1 Repeat Y V Connect
	In 02:Random Time 5 100ms
	Stay No Effect Time 50 100ms
	Out 02:Random Time 5 100ms

Fig 4-35 Display Setting Interface

4.2.3 Adjust Window Position and Size

Method One: Select the play window and then drag the mouse to adjust its size and position.

Method Two: Set it in the window properties, as shown below:

unilumin 6.5 - new *		
File Control Play Tools Setting Te	•	
	🕨 📗 🗖 🖬 🐼 🏤 🔩 🔍	
+ ि ि ↑ ↓ × Q	Window Properties	
Normal Page 1	X 0 🚔 Width 128 🚔	
File Window 1	Y 0 V Height 128 V	
	Border 0 💌 Layer 2:Bottom 💌 Same Effect	
	Duration 0:00:00:000 File Count 0	

Fig 4-36 Window Properties

The coordinate X: It lies on the top left corner of the window in pixels, which is accordingly on the left boundary of the LED screen.

The coordinate Y: It lies on the top left corner of the window in pixels, which is accordingly on the upper boundary of the LED screen.

Width: The width of the window in pixels.

Height: The height of the window in pixels.

Window operation icon: For window shortcuts, there are left, right, top, bottom, and maximize.

Border: To set the width of the window border line in pixels.

Color: To select the color of the window border line.

Layer: The window in the program page has a hierarchical position relationship, and "1: top" is for the most front.

Same Effect: The files in the window are played with the same special effects. Get rid of this check, you can set different effects. If checked, the image in the file window can be set to different duration and special effects.

Duration: The time is required for all programs to play in this window.

File Count: The number of programs within this window.

4.2.4 Playing the Program

 Play the current program file, click the play button ^[III] or click the main window "Play" → "Play" to start playing.

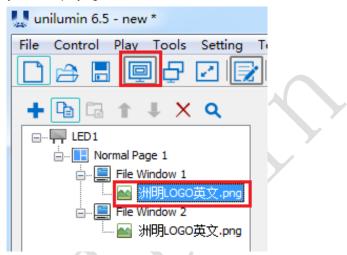


Fig 4-37 Play the Current Program File

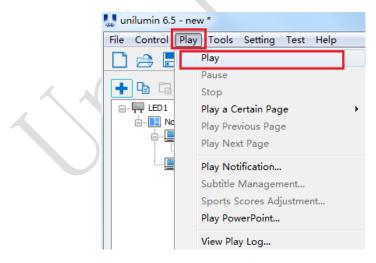


Fig 4-38 Play the Current Program File

Chapter 4 LED Display Playing Setting

2) Play multiple programs at the same time: Set the playback content, click the program page that want to play or click the "File" → "Open" button to open the file that want to play, then click "Play" → "Play" to play multiple programs. The program plays as shown in the figure:

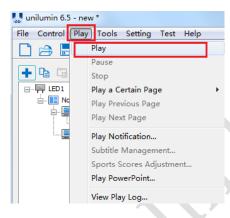






Fig 4-40 Program Plays

4.2.5 Edit Window

Delete: Select the material/window to be deleted, click the delete button to delete the material/window; or right click on the material/window to be deleted, and in the pop-up options, click "Delete", as shown below:

🚚 unilumin 6.5 - new *	
File Control Play Tools Setting Te	st Help
	► II -
🛨 🖻 🖬 🕇 🕂 🗙 🔍	Image Pro
	Path
	Size
Add Image	
- 🔤 洲 🔀 Full Screen	
Lock Position	and Size
🖍 Rename	
X Delete	
Fig 4-41 Delete	

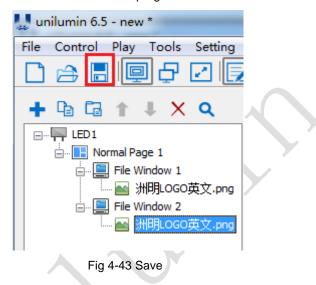
2) Copy: Select the window that want to copy, click the Copy button

copied location, and click the Paste button \Box .

🜉 unilumin 6.5 - new *
File Control Play Tools Setting
+ 🖪 🕯 🕸 🗙 🔍
🖃 🛄 File Window 1
🖃 🗐 File Window 2 🤸
→ 新明FOGO英文.png

Fig 4-42 Copy

Save: After making the desired program page, click the button ^I to save the button or click "File" → "Save" to save the program.



4.2.6 Timed Playback and Control

- 1) Click "Control" → "Timing Command List" to enter the timing instruction list window;
- Click "Add..." to add an instruction. In the "Timing Command List" window, set the execution content and time of the instruction. If there are multiple instructions, repeat the operation.
- 3) The details of the instructions include: play, pause, play program, power on LED display, power off LED display, show on LED display, show off LED display, set brightness, show LED play screen, hide LED play screen, restart this application, close this application, restart computer, shut down computer.

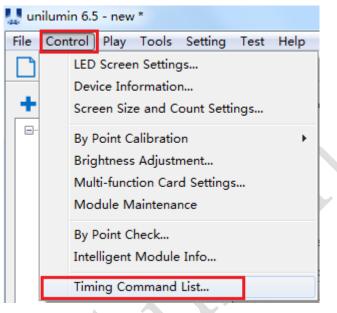


Fig 4-44 Timing Command List

ndex	Content	Execution Time	Valid Date	Valid Week	Program/Value

Fig 4-45 Action Table

Command	Play	•			
Execution	21:15:13	* *			
Valid Date		Vali	d Week		
Every	v Dav		No Limit		
	ified Date		 Specified 	Doundary	
			Monday	Sunday	
From 201	19/ 7/18 👻		Wednesday	Thursday	
To 201	19/ 7/18 👻		Friday	Saturday	
	ОК		Cancel		
		-46 Timina	Command L	ist	
	Fig 4	-46 Timing	Command L	ist	
Timing Con	Fig 4	-46 Timing	Command L	ist	
_	Fig 4	-46 Timing	Command L	ist	
Timing Con	Fig 4 mmand List	-46 Timing	Command L	ist	
_	Fig 4 nmand List d Play Play Pause		Command L	ist	
Comman	Fig 4 mmand List d Play n Play Play Pro Play Prover 0	ogram Dn LED Display	-	ist	
Comman	Fig 4 mmand List d Play n Play Play Pro Play Pro Power 0 Power 0	ogram On LED Display Off LED Display	-	ist	
Comman	Fig 4 nmand List d Play n Pause Play Pro Power (Show O Show O	ogram On LED Display Off LED Display In LED Display	-	ist	
Comman Executio	Fig 4 mmand List d Play n Pause Play Pro Power (Show O Show O ate Set Brig Every Day Show Li	ogram On LED Display Off LED Display In LED Display Iff LED Display Iff LED Display Intness ED Play Screen	, d Week	ist	
Comman Executio Valid D @	Fig 4 mmand List d Play n Pause Play Pro Power (Show O Show O Show O Show O Show O Show C Show C Show C Show C Show C Show C Show C	ogram On LED Display Off LED Display In LED Display Inf LED Display Inf LED Display Infress ED Play Screen	▼ d Week () No Limit		
Comman Executio Valid D I I I I I I I I I I I I I I I I I I I	Fig 4 mmand List d Play n Pause Play Pro Power (Show C Show C Sh	ogram On LED Display Off LED Display In LED Display In LED Display In thess ED Play Screen ED Play Screen : this Application is Application	d Week No Limit Specified	Sunday	
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Comman Executio Valid D © From	Fig 4 mmand List d Play n Pause Play Pro Power (Show O Show O ate Stev O Show C Show	ogram On LED Display Off LED Display off LED Display off LED Display off LED Display off LED Display D Play Screen to Play Screen to Play Screen to Schoplication computer	d Week No Limit Specified	Sunday	ay lay

Chapter 4 LED Display Playing Setting

Fig 4-47 Setting Timing Command List

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.
- 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).
- 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 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 Fig 5-1.

	Prestore Picture Settings
	Communication port selection
	Communication COM4
	Screen1
	Prestore Picture Settings
	Select Pi
	Effect Settings
	Screen Effect Stretch
	Test Effect
	Cabinet Effect Stretch
	Save To Hardware Check Store Picture
	Function Settings
	Boot Screen
	🕼 Enable Time: 60 🚔 s
	Time: 60 🐨 s
\checkmark	Cable Disconnect
	Black Last Frame Prestore Picture
	No DVI Signal
	No DVI Signal
	Black C Last Frame Prestore Picture
	Black O Last Frame Prestore Picture
	Send Save To Hardware

Fig 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 Fig 5-2:

System(S)	nfig Bright m Info	Plug-in To thess Cali	bration Dis	play Contro		Function C	ard			
Control S		1	Other E	evice:	0	View	<u>v Detail</u>			
	-	- 111		$\langle \rangle$	8	¥		**	. III	

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 Fig 5-3:

Display Quality Soft Mode	© E	inhanced Mode		Gamma Adjustment Fixed Value	
Brightness Adjustme	ent			Mode A	Mode B
				•	* 2.8
		10.2	*)	Custom	Gamma T
Color Temperature A					
Custom	Chip:	BI50	36	DODALAN	
Gain				RGB brightness	
R (+ 101.54	%	R (▶ 255
					(100.0
G: 4	Lin I	▶ 101.54	%	G: *	▶ 255
					(100.0
B; <		▶ 101.54	%	B: <	▶ 255
Synchronous				Synchronous	(100.0
		Default Value			Normal mod

Fig 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 Fig 5-4 and Fig 5-5.

System(S)	Tools(C)	Plug-in To	iol(P) User	(U) Lang	guage(Lang)	(L) Help(H	-1)		
	-	÷ 🗖			$\sim \sim$	1	7		
Screen Cor	nfig Bright	ness Calil	bration Disp	lay Contro	Monitor	Function C	ard		
-Local Syster	m Info								
Control S	ystem:	1	Other De	evice:	0	View	<u>v Detail</u>		
Monitor Info									
H		- 111		$\langle \rangle$	8	*		 	
									-



Screen Control		- 23
COM4-Screen1		
Black Out	Freeze	
Self Test white	• Send	
		Close

Fig 5-5 Display Control

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

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

5.4.3 Unilumin K series - Ageing Operation

If the display is not used for 14 consecutive days, please follow the instructions below for aging before using it again.

In the main window, click "Test" - "Aging Test" to enter the aging interface. Drag the playback window on the software to the display area of the display.

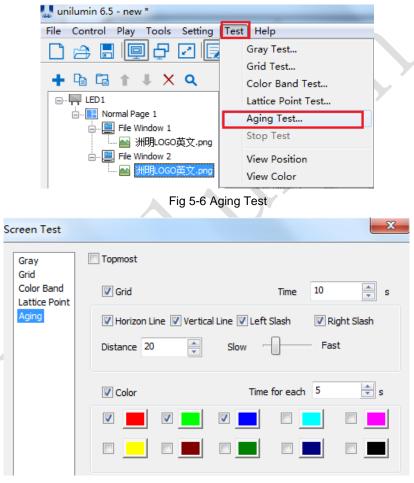


Fig 5-7 Screen Test

Chapter 6 MP - LED Display Control-setting

6.1 Power-on Testing

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

- 8) 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.
- 9) 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.
- 10) 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.
- 11) The input voltage must meet the voltage requirements indicated the cabinet rating label.
- Connect the USB cable provided for the sending box to the USB port on the control PC.
- 13) 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.

6.2 Preparation

This chapter covers the activities and considerations that need to be made prior to ordering equipment. If assistance is needed with any of the items below, Megapixel VR is available to assist. Please contact a sales associate. Ensure compatibility of the display product being considered with the HELIOS system. The HELIOS system can be used with a continuously expanding list of products. Please see the HELIOS software release notes available on the Megapixel VR website for current product compatibility.

6.2.1 Video Input

Pixel dimensions - The number of pixels in the final display is a major factor in selecting a video input type. If at all possible it is best to first settle on a quantity of pixels that need to be driven before selecting an input format.

Input formats - Select an input format that can support the required pixels. HELIOS accepts three input formats:

- HDMI
- DisplayPort
- SDI

6.2.2 Custom Input Bandwidth Calculations

HDMI and DisplayPort can support custom input resolutions and frame rates, it is important to confirm that the intended resolution/frame rate will fit within the bandwidth limits. Bandwidth limit confirmation is less of a concern when using SDI since SDI is a controlled standard with fixed formats

Input	Frequency	Maximum Pixel Dimensions	Maximum Bandwidth		
HDMI	60Hz	4096 x 2160	14.4G		
DisplayPort	60Hs	5120 x 2880	22.6G		

The following formula is used make the maximum bandwidth calculation:

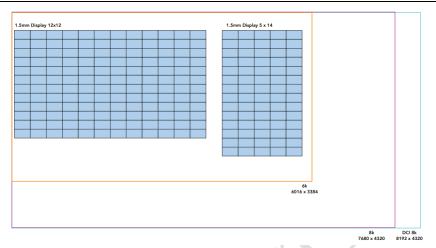
(Pixel Width * Pixel Height) * Frame Rate * (Bits/Pixel * 3) = Maximum Bandwidth As an example, the largest standard aspect ratio DisplayPort signal HELIOS supports is 5K (5120x2880) @60 Hz 8bit. Bits per pixel is multiplied by 3 since each pixel gets a red, green, and blue signal.

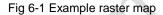
(5120 * 2880) * 60 * (8 * 3) = 21,233,664,000 (21.2G)

6.2.3 Creating a Raster Map

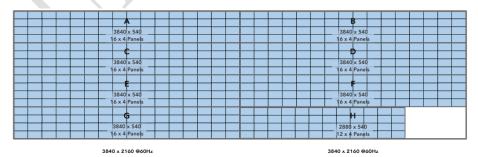
It is a good idea to create a raster map drawing to document which portion of the video signal serves which portion of the display. The example below contains two separate displays (blue tiles). In this case, the pixel dimensions of both displays will fit on a 6K raster. The larger 8K and DCI 8K rasters are shown for reference.

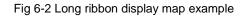
Chapter 7 Packaging Transportation and Storage





Sometimes, the 'as built' shape of the system does not fit any horizontal or vertical rasters, but the total number of pixels can. This is the case with a long ribbon display. Rasters can be rearranged, (within certain limitations) on the front end if necessary. In the end, the picture to be transmitted to a display needs to fit inside of the pixel dimensions of one of the three supported input signals (HDMI, DisplayPort, or SDI). For long strip style displays this means that the incoming picture needs to be divided into segments, these are labeled with capital letters in the example below (A, B, C etc.). Content can be created in segments or the segmentation can be accomplished with media processing equipment prior to the HELIOS Processor. The example below shows a dual HDMI input configuration (see the following section on dual input cards).





Chapter 7 Troubleshooting and Component Replacement

6.2.4 Dual Input Cards

If the total number of pixels will not fit any single input raster, the system can be fed video from multiple input cards. A HELIOS Processor with the necessary hardware (dual DisplayPort or dual HDMI cards) can receive dual video signals of the same type of signal. When HELIOS is outfitted with two of the same card type (DisplayPort or HDMI) it will stitch the two rasters together into one continuous output to tiles. Please see the Input Setup section in Chapter 5 for more information on configuring this mode.

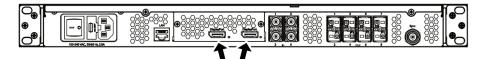


Fig 6-3 Dual DisplayPort Input Card Configuration

Data Distribution At this point it can be helpful to draw out the data topology (Fig 10). Decide if the display will be cabled vertically or horizontally. Calculate the number of network switches it will take to distribute data to the display. In the system example below we use a tile with the pixel dimensions 480 x 270 (tiles are 129,600 pixels). From the Output Port Capacity table in Appendix G we see that a 1Gbps switch port running a color bit depth of 12 at 30Hz can support up to 850,000 pixels (850,000 / 129,600 = 6.5). If bit depth and frequency requirements change, the system bandwidth must be recalculated. This tells us we can safely put 6 of these tiles on a 1Gb link.

· · · · · · · · · · · · · · · · · · ·						
Bit Depth	10	10	10	12	12	12
Device	Switch Port	Switch Port	HELIOS Fiber	Switch Port	Switch Port	HELIOS Fiber
Ethernet Speed (Gbps)	1	2.5	10	1	2.5	10
Video FPS						
24	1,275,000	3,187,500	12,750,000	1,062,500	2,656,250	10,625,000
25	1,225,000	3,062,500	12,250,000	1,020,000	2,550,000	10,200,000
30	1,020,000	2,550,000	10,200,000	850,000	2,125,000	8,500,000
48	635,000	1,587,500	6,350,000	531,000	1,328,125	5,312,500
50	610,000	1,525,000	6,100,000	510,000	1,275,000	5,100,000
60	510,000	1,275,000	5,100,000	425,000	1,062,000	4,250,000
120	240,000	600,000	2,400,000	200,000	500,000	2,000,000
144	195,000	487,500	1,950,000	160,000	400,000	1,600,000
240	100,000	250,000	1,000,000	90,000	225,000	900,000

Fig 6-4 Output capacity table

Check to make sure the entire data load on each network switch is within the limits of 10Gb fiber. In this case, we are using a color bit depth of 12 at 30Hz. So, the 10Gb link can support 8,500,000 pixels / 129,000 = 65.58 tiles per 10Gb link. With only 24 tiles in the example system we know we are well within the limits. Always aim to distribute data evenly, spread the load across switches and switch ports as evenly as possible.

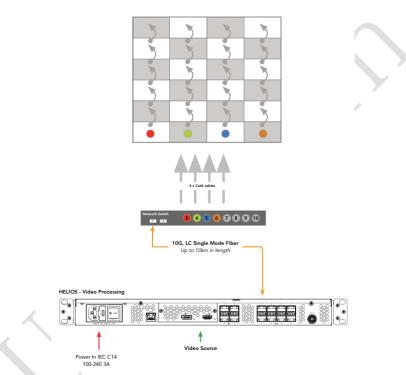


Fig 6-5 Example data distribution drawing

Cable infrastructure - Check that the types of cables chosen are appropriate for the display type and for the location. This is the point at which site specific considerations need to be made. Important items to check:

• Where will the video source device reside?

• Is the HELIOS Processor close enough to the video source device to be within the specification of the video protocol being used (e.g. HDMI, DisplayPort, and SDI).

• Is there power for the HELIOS Processor at the location?

· Has power for the network switches been allotted?

• What is the distance from the HELIOS Processor to the network switches at the display? Is this under the 10km specification of the single-mode fiber?

• What is the distance from the network switch to the first panel in the display that each drives? Is this under the 100 meter limit of the copper Ethernet signal?

6.3 Connections

The HELIOS system consists of the HELIOS Processor, the network switches, and the fiber link between them. The HELIOS Processor is designed to be the receiver unit that the primary video signal connects to. We recommend installing the HELIOS Processor near source equipment. The network switches are intended to be placed next to the LED display panels. The system is always aware of the components that are connected to it and where the components are connected.

6.3.1 IP Addressing

The IP address of the HELIOS Processor is reported on the front screen of the HELIOS Processor. Regardless of what the final network settings for the HELIOS system will be, the web UI client must initially be conFigd to the network that the HELIOS Processor is on so that the web UI is accessible. Each device and operating system has slightly different ways to make these settings, please refer to the instructions of the particular device being used. A HELIOS Processor that has been factory reset will be set to DHCP/Auto IP by default. This is the mode that should be used when operating the HELIOS Processor has discovered a DHCP server, the HELIOS Processor will likely have a 192.168.XX.YY address. If it has not been served an IP address by DHCP, the HELIOS Processor will default to an automatic private address (169.254.XX.YY). If DHCP/Auto IP is the chosen mode, the web UI host device must also be set to DHCP in order to join the same network. The HELIOS Processor can be conFigd to a fixed IP as well. If this is the desired mode, ensure both the IP and the subnet mask for the web UI host have been set to the correct range.

The IP address of the HELIOS can be set using the front panel interface.

1. Press the encoder on the front of the HELIOS unit, then turn the encoder to select

Settings.



2. Select IP Adressing.



3. Choose between DHCP or Static IP, depending on the network that the HELIOS needs to join.

	ed 125pc	(1) 1000E	(AL/OX - 100) (3) 10GbE	(5) No link	Addressing (DHCP)	р Анни Арргу	e - Dettings + HELIOS Back	\bigcirc		
Router: 0.0.0.0 m HELIOS		(2) No Enk	(d) No link	(6) No link		Mļ	EGAPIXEL			
0.0.0.0 - 10 CB Dev 10-		3				P Addres	s « Settings « HELIOS		5358	
1 IPv4: 0.0.0.0 in:21.0060.00 Subnet: 255.255.255.255 :2020 Router: 0.0.0.0 in:	192	168	0	4 / 24 255.255.255.0	Addressing (Static)	Apply	Back	\bigcirc		

4. Once the settings have been made press **Apply**.

The IP address of the HELIOS can also be set using the web UI interface under

Settings > Processors Settings > Networking.

MEGAPIXEL	HELIOS (Demo mode)						Eallover - Main (Active) 4) HDMI @ Sync to HDMI 1008 Kelvin-2.6
III Mapping	Processor Settings	Security	Saved Configurations	Update Center	Shortcuts	About	
 Seams Adjustments Input 	> 0C Processor						
Ill Output	> Interface						
 GhostFrame III Devices 	→ III Ties						
🗢 Health 💶	✓ ₱ Networking						
OC Settings	IP Configuration	IOIP Addressin					
	IPv4 Address 192.168.1.123						
	Subnet Mask 255.255.255.0						
	Router 192.168.1.1						
	DNS 192.168.1.1						
	DHCP Client ID						
Lack Controls	MAC Address						
Image Settings Video Patterns							
■ Pause ♥ Blackout	> 🛪 JACN (ANSI E1.3)	D					

Fig 6-6 Web UI Network Settings

6.3.2 Display Configuration

Front Panel UI

The front panel interface is targeted towards getting remote web UI access to HELIOS. When the encoder is rotated (not pressed) the HELIOS will cycle through four (4) data

Chapter 7 Troubleshooting and Component Replacement

display pages. The fourth page (shown below) will display a QR code for the IP address of the unit. The front menu also has a few other basic controls for settings and operation of the display. To conFig the IP address settings, press the encoder, highlight the **Settings** menu option, and press the encoder to select.



Fig 6-7 Front Panel IU

6.3.3 Web UI

The web UI contains all of the other controls that are needed for setting up a display system. The web UI conFigs the HELIOS Processor for the various supported video panels and provides controls to the input and output signal parameters such as selection of source, position and color.

In the previous chapter on Networking this guide discusses the necessary settings to both the HELIOS Processor and the device that is to be used as the web UI host. Having conFigd these settings correctly is a prerequisite. The web UI will not be accessible if this has not been done. The HELIOS web UI runs remotely on any device capable of supporting Chrome or Safari web browsers. Shown below is the mapping pane of the HELIOS web UI.

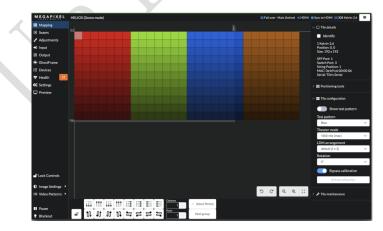


Fig 6-8 HELIOS Web UI

Chapter 7 MP - Playing on the LED Display

7.1 Creating Maps

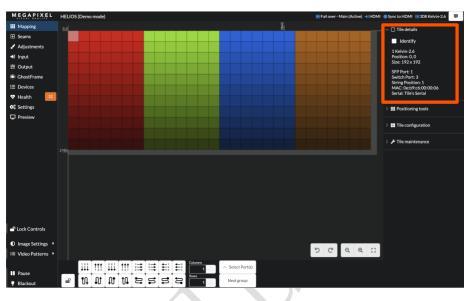
The HELIOS Processor uses a map to determine which segments of the incoming raster to consider as an 'active pixel region'. Areas of the incoming raster that are not associated with display fixtures, are never transmitted to the system. If only two fixtures are mapped, only two fixtures worth of panel data is transmitted.

If tiles have been discovered they will be placed on the map. By default, when panels are discovered, they are all stacked in the top left (0,0) position. HELIOS does not support offline mapping. Only automatically discovered tiles can be mapped.

If tiles have been discovered they will be placed on the map. By default, when panels are discovered, they are all stacked in the top left (0,0) position. HELIOS does not support offline mapping. Only automatically discovered tiles can be mapped.

The mapping tools at the bottom of the page are used to move the panels into the positions that they occupy in the physical system. Select a group of panels, define the columns and rows that they should be arranged in, then select the cable order. When the cable order icon button is pressed, the selected panels will be re-ordered. HELIOS can undo and redo maps incase something did not turn out as desired. Panel locations can also be adjusted manually by drag and drop or by typing the desired X and Y coordinates.

Display panels are tinted according to the network switch that the panels are connected to (Red = 1, Green =2, Blue = 3 etc.). In the example below the system has been cabled in columns with seven columns per port. There are four network switches in the system example below.

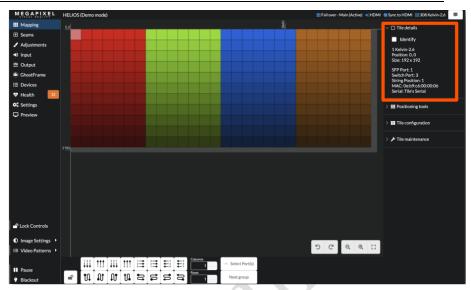


7.1.1 Tile details

Fig 7-1 Mapping Pane

The right side of the mapping pane has accordion menus with tools to manage tiles. Select at least one tile to see information about it.







Directly below, is an Identify checkbox. When this is checked ON, selected tiles will be highlighted in the system (blue dot on tile in the user interface). The Identify behavior has two modes (1) Rear indicators only or (2) Front identify & Rear indicator. On the Processor Settings tab in the Tiles accordion, a drop down menu offers these two choices.

The **Show Indicators** toggle on the **Settings** \rightarrow **Processor Settings** pane, enables/disables the rear tile run time indicators (i.e solid blue, red, etc.). The **Identify** function operates independently, it will be available even when this setting is disabled.

MEGAPIXEL	HELIOS (Demo mode)					
III Mapping	Processor Settings	Security	Saved Configurations	Update Center	Shortcuts	Abou
Seams						
🖌 Adjustments	✓ ♥ Processor					
➡ Input	Description				_	
≢ Output	HELIOS (Demo mo	ode)				
less GhostFrame	Operating mode					
∃ Devices	Standard DP/HDM	l - up to 8 x 10Gi	bE fiber SFP+ modules		~	
🏶 Health 🛛 12						
🗢 Settings	> 🖬 Interface					
C Preview	 Tiles Show Rear Identify behavior Front identify & Rear 				~	
	Automatic				~	

Chapter 7 Troubleshooting and Component Replacement

Fig 7-3 Tile Identify behavior

Directly below, is an Identify checkbox. When this is checked ON, selected tiles will be highlighted in the system (blue dot on tile in the user interface). The Identify behavior has two modes (1) Rear indicators only or (2) Front identify & Rear indicator. On the Processor Settings tab in the Tiles accordion, a drop down menu offers these two choices.



7.1.2 Position Tools

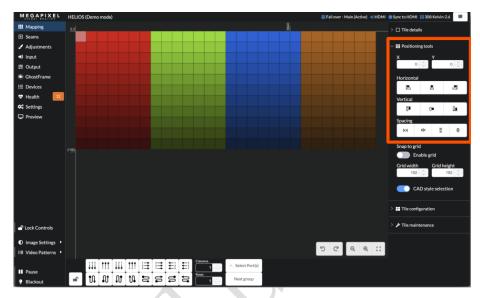


Fig 7-4 Positioning tools

The mapping tools section contains alignment and spacing tools to aid in manual positioning tiles on the map. A grid with a Snap to grid function is available. Set the grid to the pixel size of the tiles being mapped to ensure accurate positioning of all tiles.

The CAD style selection toggle can help make the selection style behave in a more familiar way. When this mode is ON dragging from right to left only selects the tiles inside the drag boundary zone. When this mode is OFF the drag right to left action selects all tiles that the drag boundary touches. Regardless of how CAD style selection is set, dragging from left to right always selects everything that is touched by the selection box.

7.1.3 Tile Configuration

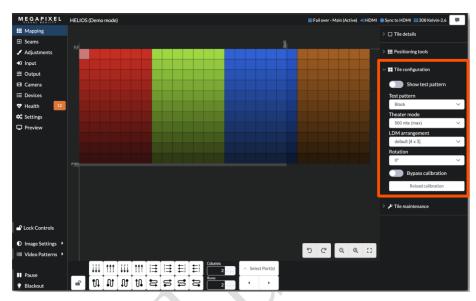


Fig 7-5 Tile configuration.

Test pattern toggle - Select the tile test pattern desired and then choose to enable it with the toggle. These patterns are tile patterns that each individual tile calls up from on board memory. This is different from the Video Patterns located above Pause and Blackout that send a video signal from the HELIOS to the entire array of tiles.

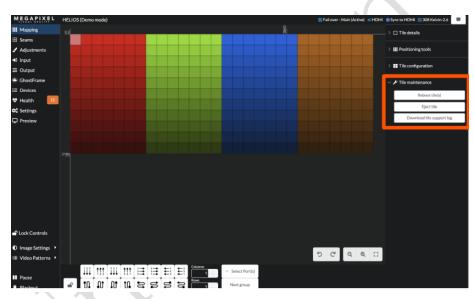
Theater mode - A special low light level calibration configuration. If a tile has been calibrated for special low light situations, the tile will utilize full bit-depth at the selected lower luminance. If a tile does not have this additional calibration file, it will not support theater mode and will default to showing maximum luminance.

LDM arrangement - A single tile type can sometimes have multiple LDM configurations. If the tile type being used supports this, the drop down menu will list them here.

Rotation - Rotate the video being displayed on a tile so that the tile can be physically installed at a rotated angle but still display right side up video. Keep in mind that rotated tiles may not look the same as other non rotated tiles. LED panels with vertically stacked diode SMDs are especially affected by rotation changes to their viewing angle.

Reload calibration - Reload calibration is useful if an LDM has been replaced and calibration data needs to be reloaded.

Bypass calibration (Advanced) - This toggle is available as an advanced function for rare cases where tile calibration data is suspect. Turn the toggle on to disable tile's uniformity correction and color space retargeting.



7.1.4 The maintenance

Fig 7-6 Tile maintenance.

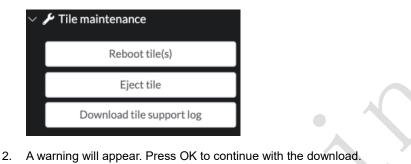
Reboot tile(s) - HELIOS can send soft reboot commands to selected tiles. Select tiles to reboot and press the Reboot Tiles(s) button. Caution using this feature in a show environment! The tile(s) will go black as they reboot.

Eject tile - Some tiles have an ejection mechanism this button can be used to trigger it. Once ejected a tile will lose communication with HELIOS. For safety reasons only one tile at a time can be ejected.

Download tile support log - Requests technical support logs from selected tile(s). These logs contain current state and some activity logs since boot that are used by MVR technicians and developers for troubleshooting. When tiles report information in Chapter 7 Troubleshooting and Component Replacement

this manner they may show visual artifacts for a few seconds as the tile is processing and sending the log.

1. Press the Download tile support log button.





Cancel

3. After pressing OK a zip'ed log file is downloaded to the download location set in the browser.

tile-support-2021....zip

7.2 Seams Pane

Displays occasionally have minor intensity variations at physical tile seams. This is usually caused by inconsistent physical gaps between tiles. Prior to adjusting seams electronically, the installation should be checked for hardware inconsistencies (e.g. latches not engaged, tiles and LDMs not seated properly). The HELIOS Processor provides seam correction by specifically adjusting the intensity of the edge LEDs. Shown below is a selection of horizontal seams highlighted in light blue. When using the Tile Seams tab, each selectable region in the user interface is the edge of a tile. When using the LDM Seams tab each selectable regions is an LDM (LED module) boundary.

We have found that video game controllers are well suited for the seam correction

workflow. The HELIOS UI supports Xbox and Playstation* controllers. The game controller connects via USB or Bluetooth to the laptop or mobile device that is running the HELIOS web UI. Multiple users are supported as each browser connection can have a game controller connected.

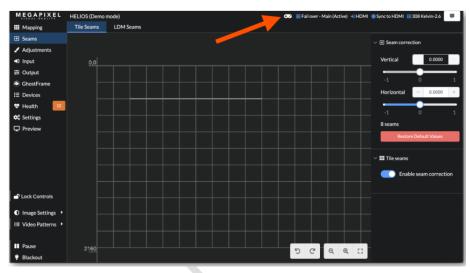


Fig 7-7 Seams pane.

Steps to setup a Bluetooth controller with a mobile host:

- 1. Begin with the controller turned off. Then, put the controller in pairing mode:
 - Xbox press the Xbox button to turn on the controller. Then, press and hold the Connect button for a few seconds.

• PlayStation - press and hold the PS and Share buttons at the same time until the light bar begins to flash. 2. Navigate to the Settings and ensure Bluetooth is turned on.

- Find the name of the controller under Other Devices. Tap the name to connect.
- 2. With the web browser in focus and connected to HELIOS press the X button on the controller.
- 3. A game pad icon should appear on the HELIOS UI confirming the link with the game controller.

The warning below is shown when a user connects to HELIOS using the https:// protocol, as each HELIOS includes its own self-signed certificate.

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As browsers move to requiring a secure context for gamepad support, users will need to use an https:// connection to enjoy gamepad powered seam correction. Existing http:// (no 's') connection will soon no-longer register that a game controller is even connected.

This change was defined by the W3C who are concerned with protecting the privacy & security of users on the internet. We are actively exploring options, but for now a user has to connect to HELIOS using the https:// protocol to be able to use gamepads on Firefox, and soon the other major browsers.

If a warning such as the one below appears when connecting to HELIOS via https://, press the Advanced... button on the warning page and Accept the Risk and Continue in order to bypass the warning.

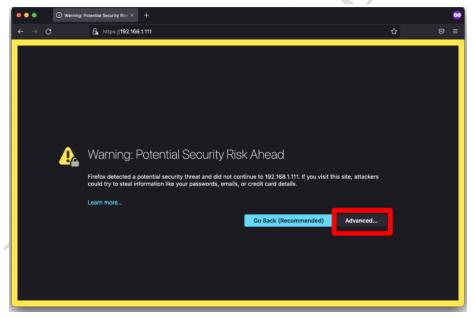


Fig 7-8 https:// warning 'Advanced'

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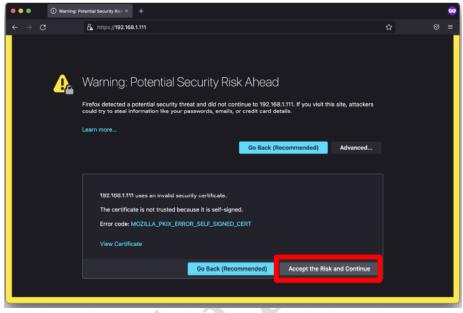
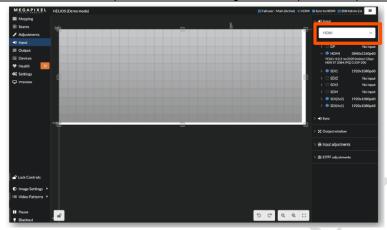


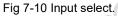
Fig 7-9 Game pad warning 'Accept the Risk and Continue'

7.3 Input Pane

The HELIOS Processor supports three different types of input formats (HDMI, DisplayPort, and SDI). The HELIOS interface for selecting inputs is a drop down menu on the Inputs pane (highlighted by the orange rectangle in the example below). After a factory defaults restore, HELIOS will automatically select the first valid input that it receives. As an example, if the first valid input HELIOS receives is HDMI, HELIOS will be select and remain selected on HDMI even if the signal is no longer present. If HDMI is then unplugged and DisplayPort plugged in, the HELIOS needs the user to select the DisplayPort source manually. Changes are sent live to the entire system immediately.

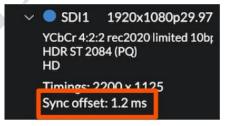


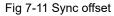
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When an external sync (genlock) is not present, HELIOS will lock to the frequency of the input signal. If using an external sync we strongly discourage using a different frequency than the selected input signal. Mismatched frequencies can cause stuttering and vertical tearing between displays, along with other undesirable artifacts.

Sync offset - shows how far away that input's sync is from the system's sync. If HELIOS is locked to input it should be close to zero. For external genlock it should be a fixed value (non-changing). The key thing to look for is a stable value. If sync offset is incrementing or decrementing, the source is shifting relative to the sync. A shifting sync offset is a reliable indication that the source is not locked. If the sync offset frequency is shifting more than half of a frame time, something is adding a large delay to the signal.





In the case of multiple inputs, the joined inputs will show the sync offset for the primary input. Expand the other inputs to check that they also have similar sync offsets to the primary. If the inputs are not in sync, the stitching options will turn orange/yellow

to prompt the user that one of the links is bad. With HELIOS conFigd for an SDI 2x2. SDI1 sync offset is likely 0, and SDI2-4 should also be close to zero. If they are not, or if the sync offset values are not stable, then those signals are not using the same clock.

HELIOS supports 120Hz input signals (see the Input Capability Matrix in Appendix G). 120Hz operation can decrease system latency by half (compared to a 60Hz setup) and improve the on camera appearance of some displays. Using a 120Hz input source will reduce the maximum quantity of pixels by half (e.g. 4,250,000 pixels per 10Gb HELIOS port to 2,125,000 pixels). 720P and 1080P are the best suited input resolutions for 120Hz operation. HELIOS supports 2x2 SDI inputs. The quadrants match the physical port layout on the HELIOS unit; the top left input (input #1) is the top left quadrant, the bottom right input (input #4) is the bottom right quadrant.

When HELIOS has dual HDMI or dual DisplayPort cards installed, the two rasters are stitched together automatically. The input drop down menu will show the stitched rasters as two options (1x2) one wide by two tall or (2x1) two wide by one tall.



Fig 7-12 Dual DisplayPort selection

7.3.1 Sync

HELIOS can sync frames to either the frame rate of the inbound signal or to an external genlock. When an external genlock signal is required (as is the case with redundant systems), use the Allow external sync toggle to enable it.



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Fig 7-13 Sync settings

HELIOS has hidden Sync controls under the Advanced Mode toggle. Enable Advanced Mode under Settings \rightarrow Processor settings \rightarrow Advanced, to reveal the hidden controls, then return to the Sync panel to use them.

 → Sync Allow external sync Input 60.00 Hz External No sync Output 60.00 Hz
Sync delay (ns)
60.00 🔶 Auto

Fig 7-14 Advanced Sync settings

NanoSync (Advanced)

HELIOS NanoSync gives users the most accurate sync control of any LED system. HELIOS synchronizes the actual light output of the LED tile to the source within 1/4 microsecond (250 nanoseconds). Often HELIOS delivers frames much faster than other equipment such as projectors. Cameras can also require precise alignment to match with the shutter exposure. **No Input signal frequency (Hz) - (Advanced)**

If the inbound signal is ever lost, HELIOS will continue to output test patterns at the frame rate of the last valid input. There are some cases where it is useful to toggle Auto off in order to set the output frequency manually so that test patterns are generated at the frequency of a future valid signal before it arrives.

7.3.2 Output Window

The input signal is contained within the output window (light grey region with small square handles). The output window allows for sizing and positioning of the inbound video signal using the output window controls. Drag any of the handles (circled below) on the edges of the window to manually resize or use the numerical fields to enter precise values. Generally, the output window size should be set to the aspect ratio of the input signal to avoid distorting the picture.

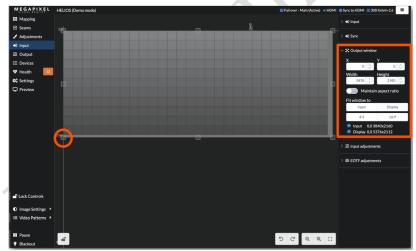


Fig 7-15 Output window

Crop (Advanced)

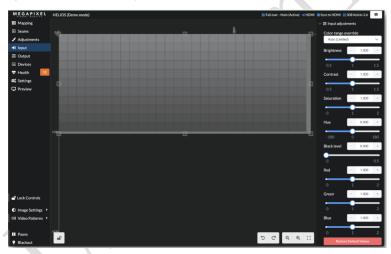
To display only a portion of an input signal, use the crop function by enabling Advanced Mode under Settings \rightarrow Processor settings \rightarrow Advanced. Toggle the Enable Cropping function ON and enter the size and position coordinates for the crop box.

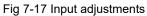


Fig 7-16 Crop region controls

7.3.3 Input Adjustments

The input adjustments section allows the user to make visual changes (brightness, contrast, saturation) to each of the incoming signals independently. Input adjustment settings are saved separately for each input.





Color range override - defines how to interpret the levels of values in the video signal. The range of values used to interpret the video is defined by two quantization ranges, Limited and Full. Limited video content is contained within 16 - 235 standard for video. In the limited range, 16 and below is treated as pure black and 235 - 255 is treated as pure white. Full range video content uses the full 0-255 range (pure black is 0 and pure white is 255). The way that HELIOS interprets the video must match how it was encoded. If this isn't set correctly there can be a complete loss of shadow detail or

conversely, washed out highlights. If Auto does not identify the encoding correctly this toggle is the location to make a manual selection.

Brightness - adjusts the incoming image to be lighter or darker. First, adjust the brightness to reproduce black correctly then, contrast.

NOTE: This brightness control adjusts the incoming video brightness and should not be used for adjusting the luminance of the display.

Contrast - increases or decreases the differences in brightness across the image. Saturation - increases or decreases purity of colors. Full desaturation turns colors grey.

Hue - changes the color of the video, re-mapping it around the color wheel.

Black level - a combined brightness + contrast control. See Low Level Noise Reduction in Appendix D for how this control is used to eliminate low level noise in an image.

RGB gains - boost or reduce the amount of Red, Green or Blue in the image. Note that these controls are intended for content correction/tweaking. To adjust the RGB levels of the display it is recommended to instead use the Output \rightarrow RGB Gains.

High Dynamic Range

HDR on HELIOS is comprised of several features all working together: bit depth, gamut, and decoding with an HDR transfer function. Standard definition content uses the the typical SDR gamma curve. HDR uses an entirely different function to map a higher range of brightness onto a display. HDR is more than just brightness, it also includes a wider range of colors. As such, the system must use, at minimum, 10 bit color. HELIOS should ideally be set to 12 bits if possible. Check that the bandwidth is sufficient under the **Outputs** pane **Display bit depth** accordion. A true HDR end result requires that the entire pipeline, from content to wall, is aligned and capable of supporting HDR.

HDR Checklist:

1. The tiles must be capable of a wide gamut.

2. Output gamut needs to be set to Automatic (see the Output pane Display gamut accordion). 3. Content must be encoded in HDR.

4. The playback device must support HDR.

5. HELIOS must receive the signal and recognize it as HDR. Check under the disclosure triangle to see the details of the input signal. In the example below, HELIOS

is receiving a PQ signal. If for some reason an HDR input signal is not recognized as HDR, use the manual override discussed on the next page.

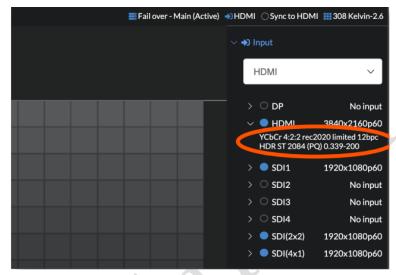
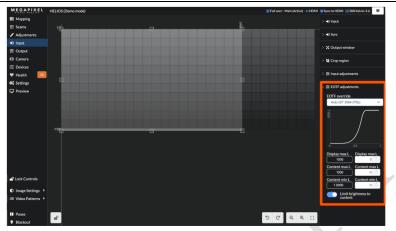


Fig 7-18 Input signal info

NOTE: When connecting consumer playback equipment such as an Apple TV or an Xbox to be an input source it is important to be mindful that these units default to a 4:2:0 color scheme. HELIOS does not fully support 4:2:0. When HELIOS receives a 4:2:0 color signal, it will send a black and white image to the tiles. Set the input source to 4:2:2 in order to regain full color operation.

7.3.4 EOTF Adjustments

The HELIOS EOTF (Electro Optical Transfer Function) adjustments are used to inspect and manually override EOTF settings encoded in the source signal's metadata. If content has a standard dynamic range, it should be interpreted with the SDR setting. Content encoded with a high dynamic range should be set to the EOTF with which it was mastered. Most HDR content will have a metadata label indicating which transfer function was used. HELIOS with default settings, should automatically recognize and select the correct EOTF for the content. If for some reason the user needs to override the automatic settings, this drop down menu allows for manual selection.

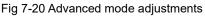


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Fig 7-19 EOTF adjustments

When HELIOS is operating in default mode the override controls; Display max L, Content max L, and Content min L are read only values (left example below). With Advanced mode ON (see the Advanced mode in the Processor Settings section) editable fields appear. Advanced users may enter specific numbers here. If the correct values are not known, keep the field values at zero. The system is in automatic mode when these values are at zero. If non-zero values are entered, keep Advanced mode ON so that the values affecting the system are visible.





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The PQ curve is defined in nits. As such, PQ content reports a max L (luminance) to HELIOS. In other words, PQ content needs to be displayed at the brightness level at which it is mastered. The graph below the drop down is provided to help explain the relationship between the content max L and display max L. If there is a max L mismatch between the content and the display, the graph shows how the mismatch is being handled.

Example (A) - display max L and content max L are both 10,000 nits.

Example (B) - display max L is 10,000 nits, content max L is 1,000 nits. HELIOS can show all the content directly 1:1.

Example (C) - display max L is 1,000 nits, content max L is 10,000 nits. HELIOS introduces rolloff to preserve highlights.

Example (D) - HELIOS will also show the curves of SDR and other supported transfer functions.

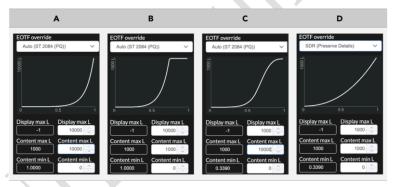


Fig 7-21 EOTF max L graph examples

If PQ encoded content calls for a level that exceeds the capabilities of the tiles, the limit will be the tile's maximum brightness. The Limit brightness to content toggle is available for cases where the content's brightness information is not desired. If tiles are being limited by PQ encoded content and a brighter display is needed, turn OFF the toggle. The HELIOS will ignore the content brightness and allow the tiles to reach their max brightness.

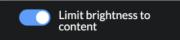


Fig 7-22 Limit brightness toggle

PQ is currently the only signal which advertises and uses content light levels. HLG uses display max L but ignores content levels. The numerical fields are not used for SDR + traditional HDR signals. Display max L is always determined by the connected tiles. Tiles will still respect the Output adjustment \rightarrow Limit to lowest tile max setting. If it is not set, then tiles should all be at the same brightness regardless of the EOTF. An image settings popup will notify when the Limit brightness to content or the Limit to lowest tile max is being applied. In a scenario where HELIOS is receiving a PQ signal, with content max L set to 100 nits, and the tile max L is 500 nits, the Image Settings adds the words (Limited by content) below the nits value report. If the EOTF is switched to where content max L is no longer used, the input settings message also goes away.

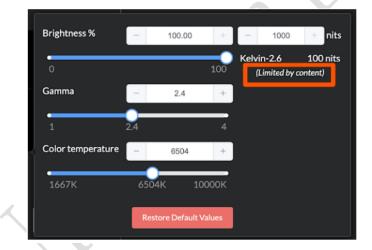


Fig 7-23 Limit message

NOTES:

• When the content level is unknown or not advertised, content max L is assumed to be the same as display max L. In other words, content is assumed to have been mastered for the display.

• In the case of mixed tile types, brightness is restricted to the tile type with the lowest peak brightness. Mixed tile type systems are not recommended.

7.4 Output Pane

7.4.1 Display Gamut

The gamut tool sets the range of each color for the system using CIE1931 chromaticity (x & y) coordinates to define the targeted value for red, green, and blue. The user can choose a standard preset from a drop down list (Rec. 2020 in the example below) or set custom targets to match the display being driven by the HELIOS processor to other devices, such as a projector. Tile capabilities are indicated by the entire rainbow region (both transparent and opaque). The achievable colors for a system are indicated by the opaque rainbow region at the center. Lastly, a black region (identified by the orange arrow below) indicates colors targeted by the settings that are beyond the capability of the display. If the color targets are set within the display capabilities, this black region will not appear.

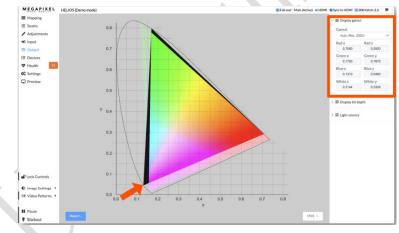
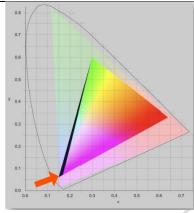


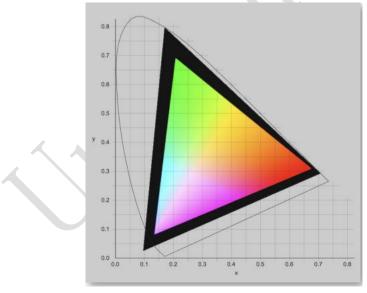
Fig 7-24 Display gamut

In the example below, the large transparent triangle shows the capabilities of the tile are greater than the targets of the system. It also shows a small black region on the left (orange arrow below) where some blue colors are out of range.





Tiles can only show colors within their capabilities, regardless of gamut settings. In the example below, the color targets were set extremely wide, placing them outside the display's range. Therefore, HELIOS shows a wide black perimeter region.





Each tile type has its own color capabilities. When a system is made up of mixed tile types HELIOS is set to widest gamut. Widest will determine the widest possible gamut from all connected tiles. This can result in a lowest common denominator color

Chapter 7 Troubleshooting and Component Replacement target selection; tiles with wider gamut capabilities will be restricted to the more narrow gamut setting to match all tile capabilities.

HELIOS can generate a Tile Calibration Report for a system. Press the blue Report... button to open the report in a new tab.

7.4.2 Report

HELIOS can generate a Tile Calibration Report for a system. Press the blue Report... button to open the report in a new tab.

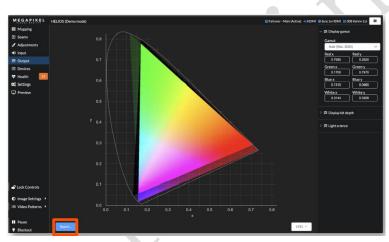


Fig 7-27 Color report button

The Tile Calibration Report (shown below) is useful for content creators and colorists who need to know the color capabilities of the system.

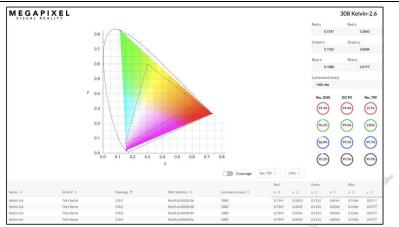


Fig 7-28 Tile Calibration Report

Custom Gamut (Advanced)

HELIOS supports custom gamut settings. Enable Advanced Mode under Settings

\rightarrow Processor settings \rightarrow Advanced.

Display bit depth

The system can operate at 10 bit or 12 bit. This menu controls the current setting and shows per-port bandwidth percent utilization. 12 bit operation is recommended. Selecting 10 bit operation will reduce bandwidth utilization.

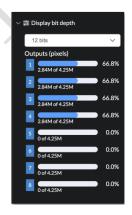


Fig 7-29 Display bit depth

7.4.3 Light science

Low light levels can be challenging for LED displays. Banding can appear in low light level, smooth gradients as tiles struggle to reproduce the low light level signal. HELIOS can improve the visual appearance of these dark regions by expanding the bit depth in the video signal. HELIOS normally uses 10 or 12 bits per color, but with Light science enabled, it will increase the bits per color to 22 (default) or as high as 32 effectively smoothing low light level banding.

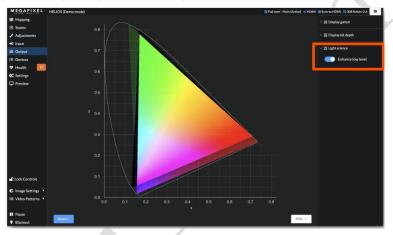
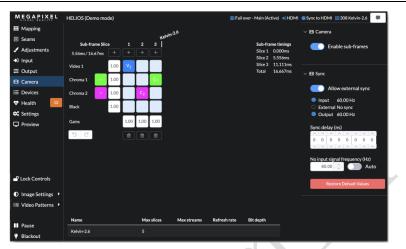


Fig 7-30 Light Science

7.4.4 Camera (Advanced)

Without a GhostFrame license, HELIOS will display the Camera pane. The Camera pane is a limited subset of the full GhostFrame tools. As such, all of the rules and methodology discussed in the previous section of GhostFrame apply to Camera. The Camera pane is used for aligning camera shutters to colored slices. One video slice and colored slices are possible, but stills and additional video slices require a GhostFrame license.





NOTE: Tile test patterns disable Camera. Tile test patterns and tile Identify are mutually exclusive to Camera.

7.5 Devices Pane

The Devices pane is a dynamic list of all connected system devices. The information is split into two tabs, a Processing tab and a Display Devices tab. This pane is usually the first place a system technician will check to discover the status of a system.

7.5.1 Processing Tab

Divided starting at the top with information for the HELIOS Processor(s) followed by Network Switches.

 MEQ.A 21.511
 MEDIOS Demonsol
 Destra Dorder.

 Mediage
 Destra Dorder.
 Destra Dorder.

 Mediage
 Destra Dorder.
 Destra Dorder.
 Destra Dorder.

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 Destra Dorder.
 Destra Dorder.

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 Distra Dorder.
 <thDistra Dorder.</th>

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Fig 7-32 Devices pane

Processor

The main device section of the HELIOS Processor displays the full list of tracked parameters. Use the description field to name the processor as desired. This is the same as changing the name in **Settings > Description**.

Serial: 0201190520-0010 Version: a19:08.0.20037 Output: 60:00 Hz
Firmware: v19:08:0.234 OS: 19:05.1(c51/dae) Runtime: 5.2 days Uptime: 2.9 days
IPv4:192.168.1.123/255.255.255.0 IPv6 MAC: 8c:68:c400.00:66
1,8,1:44A 12V,1:35A 2,5,1:389 mA 3,3,1:15A CaseTemp: 38.8 °C CPUTemp: 64.2 °C DDR,1:1.4A FanCtrl[0]: 1868 RPM FanCtrl[1]: 1883 RPM
FanCtrl(2): 1317 RPM FanCtrl(3): 1400 RPM P5_MGTRAVCC: 849 mV P5_MGTRAVTT: 1.8 V P5#2: 11.9 V P5#2: 11.9 V SFP_3: 2.4 A VCC_PSAUX: 1.8 V
VCC_PSINTFP: 835 mV VCC_PSINTLP: 835 mV VCCAUX: 1.8 V VCCBRAM: 843 mV VCCINT: 834 mV VCCINT_1: 123.4 VCC0_PSIOR: 3.3 V VCC0_PSIO1: 3.3 V
VCC0,PSIO2.33V VCC0,PSIO3:25V
Serial: 28 PN: MP8K (PCB-0001) Revision: 2
Serial: 172 PN: VFMC_DP (PCB-0005) Revision: 1
Serial: 24 PN: VFMC.HDMI (PCB-0004) Revision: 1

Fig 7-33 Devices Pane - HELIOS Parameters.

The **In** section of the HELIOS Processor displays details about the input SFP+ units. The square icon with the number on it is the input icon. When this icon is a blue square with white text (input 1 in the example below) the unit is receiving video through the SFP+. When the HELIOS recognizes the SFP+ but there is no video, the icon will be a dark green (input 3 in the example below). In both blue and dark green modes the there will be parameters displayed and a label regarding the type of SFP+ that is in the slot. A black with light blue outline icon (ports 2 and 4 in the example below) indicates that the HELIOS unit does not recognize any SFP+ in the slot.

Processor	
> HELIOS - HELIOS 1	Serial: 0201190520-0010 Version: a19.08.0.20337 Output: 60.00 Hz
~ In 1 2 3 4	
1 12G SDI	SFP Pile PCB-0006 SFP Sile 118110900011
2 -	
3 12G SDI	SFP PN: PCB-0006 SFP SN: 118110900012
4 -	
> Out 1 2 3 4 5 6 7 8	33.49 308 Kelvin-2.6

Fig 7-44 Devices Pane - HELIOS Inputs

The Out section shows the status of the outputs and a percentage of utilization of the entire HELIOS Processor. Expand the output section of the HELIOS Processor to see details about the outputs.

The shape and the color of the port indicators relate to the port connection. Links connecting to a processor are square. So all the processor ports are square. The port on the switch connecting to HELIOS will be square (as it's connected to a processor). Similarly the upstream port on the first tile in a chain is also square (as it links back to a processor). Standard HELIOS outputs will always be square since all Standard HELIOS output SFP+ units are 10Gb.

Each port shows a progress style bar showing the port's percent utilization. Underneath the bar is the quantity and type of tiles connected.

Indicator Color	Meaning	Processor	Serial 2011/0520-0010 Venien at 108.030027 Output 62:0019
		> HELIOS-HELIOS (Demo mode)	Serial COLLEGE DOLLEGE WHERE LEVEL 0 20037 Output addo-w
Orange	Unsupported SFP	> m 🚺 🖬 🖉	
			308 Kehin-2.6
Red	< 1GbE link speed	1 10514	77 KeNin-2.6
Blue	1 GbE - 2.5 GbE	2 10646	77 KeNin-2.6
bide	1 GDE - 2.5 GDE	3 10Gbé	77 KeNi+2.6
Dark Blue	10 GbE	4 10Gađ	77 Kehin 2.6
		 5 30GbE	No tiles
Dark Green	SFP with no link	6 30GHE	No ties
		7 10G8E	No tiles
Inverted Blue	SFP with link	10514	No tiles

Fig 7-45 Devices pane - HELIOS Outputs

7.5.2 Network Switches

This section displays details for the network switches. Enter a description for the switch if this is helpful for managing the system. This assigned description is persisted within the switch. A remote reboot switch button can also be found here.

Network Switches		
~ 1 M4200-10MG-PoE+ -	Serial: 4FT4787R80004 Version: 12.0.2.26	
Description Reboot >	Center: Locales: UP-4:1/4/254.253.370 MAC:28:00.88/er:70:d1 Uptime:E:0 days	
> 12345678910	77 Kelvin 26	66.8%

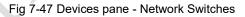
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Fig 7-46 Devices pane - Network Switch Parameters

The ports section displays details about the ports. Here again, the square shape icon indicates that 0/1 is connected to a processor. Switch port IDs use slot/port nomenclature. On standard size switches, all ports are considered slot 0; port IDs are numbered 0/1 - 0/9 as shown in the example below. HELIOS also works with larger switches with up to 96 ports. These switches are divided into 12 slots of 8 ports each. Numbering follows the same schema starting with slot 0.

To the right of each port ID is a percent utilization bar with connected tile quantity and type below.

Network Switches		
> 1 M4200-10MG-PoE+ -	Serial: 4FT4787R80004 Version: 12.0.2.26	
1 2 3 4 5 6 7 8 9 10	77 Kelvin-2.6	66.89
0/1 10GbE	Connected to HELIOS port 1	
0/2 No link	No tiles	0.09
0/3 1G6E	11 Kelvin-2.6	95.4
0/4 1GbE	11 Kelvin-2.6	95.4
Q/5 1GbE	11 Kelvin-26	95.4
0/6 1GbE	11 Kelvin-2.6	95.4
0/7 1GbE	11 Kelvin-2.6	95.4
GAB 1GbE	11 Kelvin-26	95.4
019 1GbE	11 Kelvin-26	95.4
0/10 No link	No tiles	0.0



7.5.3 Display Devices Tab

The Display Devices section contains a list of connected tiles with detailed parameters and status for each. The list can be sorted by any of the column headers. The Alerts column can be especially useful to identify all devices with active alerts.

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eams			HELIOS	Switch	String									Identify
djustments Iput	Name ©	Connected ¢	Port ©	Port 0	P01 0	Serial # 0	version Q	MAC Address 🜩	UNK	Alerts 😜	CPU ©	на с	ню о	•
lutput	Kelvin-2.6	🔁 Main				Tile's Serial	a19.08.0.0	0eta:00:00:00:00			40.1*C	6009 RPM	33.2 %	•
evices								0eba00.00.00.02						•
ealth	Kelvin-2.6	15 Main				Tile's Serial	a19.060.0	0etha0000.00.04				SEM RPM		•
review								Qetha:00.00.0006						•
	Kelvin-2.6					Titr's Serial	#1908.0.0	0etu:00:00:00:08				5562 RPM		-
								0etu00000000						•
	Kelvin-2.6					Titr's Serial	a19060.0	0eta:00:00:02:01				6044 RPM		•
	Kehis-2.6					Tile's Serial	a19.08.0.0	0eta:00:00:00:05				5340 RPM		•
						The's Serial		0eta:00:00:00:09				5897 RPM		•
								0etta 00:00:00:00				5628 RPM		•
	Kelvin-2.6					Titra Serial	a19.08.0.0	0e:ba:00:00:00:07				5920 RPM		•
								02 e1 53000001	32			SSOB RPM		•
	Kalvin-2.6					Tild's Serial	a19.08.0.0	02xf13:00:00:03				5868 RPM		•
ck Controls								02+113:00:00:05				6012 RPM		•
age Settings *	Kelvis-2.6	S Main				Tile's Serial	#19.08.0.0	02xe113:00:00:07				5692 RPM		•
deo Patterns *								02xt13:00:00:09						
						Tile's Serial	+19.06.0.0	02xf14.00.00.01				5982 RPM		

Fig 7-48 Devices pane - Display Devices

7.6 Health Pane

The health pane contains comprehensive network status information about all parts of a connected HELIOS system. This pane contains three tabs; Alerts, Heat map and Reports.

7.6.1 Alerts

To help prioritize alerts, the HELIOS color codes alert badges based on the severity of the condition.



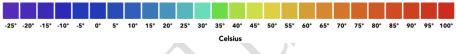
Chapter 7 Troubleshooting and Component Replacement The alerts tab provides a list of devices that need attention. Use the disclosure triangle to reveal details about the location of each alert within the system.

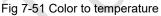
Alerts	Heat map	Reports						
	Count	Severity	Brief			Description		Since
	1	Error	Over temp			Exceeds normal operating temperation	ire	18.9 hours
			HELIOS	Switch	String			
	Name 🜩		Port ≑	Port ≑	Pos 🌩	Serial # 🗢	MAC Address 🗢	
	Kelvin-2.6		1	4	8	Tile's Serial	0e:b9:c5:00:00:00	

Fig 7-50 Alerts tab

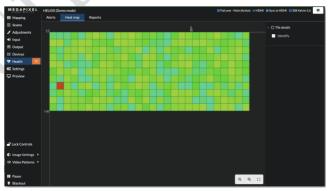
7.6.2 Heat map

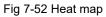
The heat map tab displays thermal information for tiles in the system. Temperatures are indicated in a rainbow palette that shows thermal differences in 5° degree increments.





In the example below, one tile has raised an alert with a CPU at 89.5°C. Use this view to quickly identify any temperature anomalies in the system. The heat map is not just useful for recognizing panels that are excessively hot. It is good practice to warm LED panels up prior to being used at full brightness. Use the heat map to monitor progress and to confirm when panels are ready for use.





7.6.3 Reports

The reports tab can fetch data from tiles and provide a downloadable (csv file format) report for several data points in the system. This function queries tiles for the information when a selection is made with the drop down menu. The page will be blank until a report type has been selected. In the example below, Alerts was selected. **Device Serial Numbers** - Centralized view of all SNs, useful for inventory tracking.

Device Versions - Active device versions.

Tile counters - Total run time along with various diagnostic counters to help with troubleshooting cable issues.

ing	Alerts Heat map	Reports							
s tments	Alerts			× I	Download				
unents				HELIOS	Switch	String			
ıt	Alert \$	Severity 🗢	Name ¢	Port 🜩	Port ¢	Pos 🜩	MAC Address 💠	Serial # 🗢	
ra	Over temp		Kelvin-2.6				0e:b9:c5:00.00.00	Tile's Serial	
es h <u>12</u>	Backup missing		Kelvin-2.6				0e:ba:00:00:00:06	Tile's Serial	
65	Backup missing		Kelvin-2.6				0e:ba:00:00:00:08	Tile's Serial	
w	Backup missing		Kelvin-2.6				0e:ba:00:00:00:09	Tile's Serial	
	Backup missing		Kelvin-2.6				0e:ba:00:00:00:0a	Tile's Serial	
	Backup missing		Kelvin-2.6				0e:ba:00:00:00:04	Tile's Serial	
	Backup missing		Kelvin-2.6				0e:ba:00:00:00:07	Tile's Serial	
	Backup missing		Kelvin-2.6				0e:ba:00:00:00:03	Tile's Serial	
	Backup missing		Kelvin-2.6				0e:ba:00:00:00:00	Tile's Serial	
	Backup missing		Kelvin-2.6				0e:ba:00:00:00:02	Tile's Serial	
	Backup missing		Kelvin-2.6				0e:ba:00:00:00:05	Tile's Serial	
Controls	Backup missing		Kelvin-2.6				0e:ba:00:00:00:01	Tile's Serial	
Patterns ►									

Fig 7-53 Reports tab

7.7 Settings Pane

The Settings Pane contains six tabs; Processor Settings, Security, Saved Configurations, Update Center, Shortcuts and About.

MEGAPIXEL	HELIOS (Demo mode)						📰 Fail over - Mair	(Active) 🔿 HDI	41 🔵 Sync to HDM	I 111 308 Kelvin-2.6	
III Mapping	Processor Settings	Security	Saved Configurations	Update Center	Shortcuts	About					
🖌 Adjustments	V 🕫 Processor										
→) Input	Description				_						
幸 Output	HELIOS (Demo mo	ide)									
GhostFrame	Operating mode										
IE Devices	Standard DP/HDM	- up to 8 x 10G	E fiber SFP+ modules		~						
🗢 Health 🛛 12											
😂 Settings	> 💷 Interface										
Direview											
	> 🏭 Tiles										
	> 1 Networking										
	> 🛪 sACN (ANSI E1.31										
	> Licensing										
	> Redundancy										
	> 🗃 Stacking										
Lock Controls	> Cloud										
Image Settings •											
IIII Video Patterns 🕨	> 🛃 Advanced										
	> C Reset										
Pause											
Blackout											

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Fig 7-54 Processor settings.

7.7.1 Processor Settings

Processor

Description - Enter the name of the processor, changes are updated live.

Operating Mode -

- Standard license HELIOS can use both 10GbE fiber SFP+ modules or 1GbE copper SFP modules.
 - Junior license HELIOS can only use 1GbE copper SFP modules.

	✓ ♥ Processor
1	Description
	Beta Demo
	Operating mode
	Standard DP/HDMI w/12G SDI - up to 8 x 10GbE fiber output SFP+ modules / 12G SDI input SFP+ $$ $$

Fig 7-55 Description and Operating mode selection

Operating Mode (continued) - Changing the operating mode will trigger a pop-up warning asking for confirmation. Select Switch Mode to change and reconFig the system for the new module type.

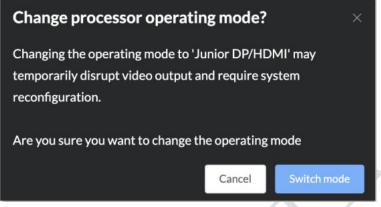


Fig 7-56 Switch mode confirmation

• Interface - Select between a dark or a light colored theme.

Interface	
Theme	
Dark	~



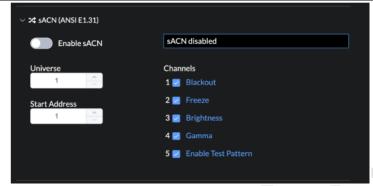
• Tiles - Show / Hide tile indicators.

	✓ III Tiles	
	Show Rear Indicators	
J	Identify behavior	
	Front identify & Rear indicator	\sim
	Fan control	
٩.	Automatic	\sim

Fig 7-58 Tile Indicator controls

• Networking - ConFig the IP settings of the HELIOS Processor.

• **sACN (ANSI E1.31)** - Use the sACN or E1.31 protocols to control the HELIOS Processor. When sACN is active, GUI controls are locked out.



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Fig 7-59 sACN

The table below shows how HELIOS will behave when it receives the listed values.

Channel	Function	Value
1	Blackout	0 = Normal operation 1 - 255 = Blackout
2	Freeze	0 = Normal operation 1 - 255 = Freeze
3	Brightness	Slider position % mapped to sACN
4	Gamma	Slider position % mapped to sACN
5	Test Pattern	0 = Normal operation 1 - 255 = Show test pattern

• Licensing - HELIOS units require a license to operate. There are two main types of licenses, HELIOS Standard and HELIOS Junior, other specialized licenses such as the GhostFrame license are also available. Shown below is a HELIOS Standard license. To enter a license use the Activate license button. This button allows license activation via an activation key. The web UI will then communicate with the MVR licensing server to generate a license for the system. Alternately, to obtain a license the system ID and serial number will need to be sent to a MVR representative. The About tab (shown later in this section) has a Download Support Archive button. Contact your Megapixel VR representative with this archive to obtain new or upgrade existing licenses. Once the new license file has been obtained, select the Upload license button, then navigate to the license file on the local host machine to load a license into the HELIOS.

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Licensing		
Туре	Licensee	
Demo	Megapixel VR	
System ID H5PP-EQDH-FBHJ-YUQI	E-PWGP-J9ZD-QECQ-9HAB	Serial # 0201190520-0010
Activate license Up	load license	

Fig 7-60 Licensing

• **Redundancy (Advanced)** - Please see the Data Redundancy section in Appendix F for details.

\sim	a Rec	lundancy			
	Redu	ndancy role			
	Ma	'n			~
	Redu	ndancy mode			
	No	10			~]
	Over	ide test pattern (when in b	ackup role)		
	Sm	all Grid			~]
		Take processor offline o	n input failure		
	0	Enable input monitoring on Go Main & Go Backup only			
		Processor		Role	State
	-	Beta Demo		Main	Active
				Go Main	Go Backup

Fig7-61 Redundancy settings

• **Stacking (Advanced)** - Stacking allows individual processors that operate sections of a large screen to synchronize functions such as blackout, pause, and color adjustments. In most cases, stacking should be used with redundancy in the HELIOS

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system.			
\sim	Stacking		
	Enable Proce	ssor Stacking	
	Group		
	IP address	Processor	Group
		Enable stacking	to share processor state



• Cloud - Enable analytics to be sent to the development team.

• Advanced - When advanced features are enabled, several features that have not been selected for general release will show up throughout the user interface.

• Reset - Returns a unit to factory defaults. It removes all mapping, saved configurations,

and saved software/firmware. Creating a saved configuration prior to resetting is recommended.

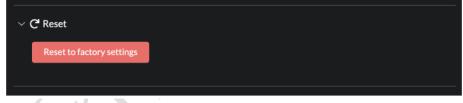


Fig 7-63 Reset to Factory defaults

7.7.2 Saved Configurations

The Saved Configurations is used to export a collection of settings. This is useful for configuring a spare unit or to save a progress state while building a new system. It is also the recommended method for documenting and storing full configurations. Select New to create a saved configuration.

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MEGAPIXEL	HELIOS Demo		+) SDI(2x2)	🔵 59.94Hz Ext. Sync 🚦	#4 BM4, 1 BP2.8-	v21, 1 BQ4.6, 30 EC1.5, 6 KV2.6-H	IDRF, 6 RB2.3 💷
III Mapping	Processor Settings	Security	Saved Configurations	Update Center	Shortcuts	About	
Seams	Select		× k	Upload Net			
🖌 Adjustments	001301			Oproud Net			
➔ Input	No saved configurations fo						
垚 Output	Save Configurations allow you to						
GhostFrame	 Quickly apply settings for 	or repeat jobs	pping tiles to backup your work				
I≡ Devices	 Filter configuration scop Download/Upload confi 	e as desired gurations to any	processor				
💝 Health 🛛 🛛 🕫							
😂 Settings							
Preview							
Lock Controls							
Image Settings							
IIII Video Patterns 🕨							
Pause							
Blackout							

Fig 7-64 Blank 'Saved Configurations' pane

The system automatically assigns a title based on system time and date, which can be customized by editing the field. Below the name of the configuration is a list of system parameter filters. If certain parameters are not desired, use the toggle to remove that particular parameter. For example, inputs often have similar color settings across processors in a multi processor system. Rather than manually entering the same input color adjustments to all processors, create a New Saved Configuration with specific input settings enabled and upload to each processor.

MEGAPIXEL	HELIOS Demo	SDI(2)	x2) 🔵 59.94Hz Ext. Sync 🔢 4 BM4, 1 BP2.8-V21,	1 BQ4.6, 30 EC1.5, 6 KV2.6-HDRF, 6 RB2.3
III Mapping	Processor Setting			pout
Seams	Select	Create New Saved Configuration		
🖋 Adjustments		Name		
➡) Input	No saved configur	HELIOS Demo - 2021-08-06_18:12:03		
≢ Output			_	
GhostFrame	 Download a s Quickly apply 	Settings to Save		
I≣ Devices	 Filter configu Download/U; 	> Mapping		
🗢 Health 🛛 18				
🕫 Settings		> Seams		
D Preview		> Input		
		> Output		
		> GhostFrame		
Lock Controls		> Settings		
● Image Settings ▶				
IIII Video Patterns 🕨			Cancel Create Configuration	
Pause				
Ø Blackout				

Fig 7-65 Default configuration name

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The New button has 'quick access' file management options under the drop down on the right of the button.

Download - retrieve the configuration as a file

Update - overwrite the existing configuration with recent changes

Rename - change the name of the file

Clone - duplicate the file

Delete - remove the file

Processor Settings	Security	Saved Configuratio	ns	Update Cent	er Shor	tcuts
HELIOS Demo - 2021-0	08-06_18:12:03	~]	×	Upload	New 🗸	
					Download	
> Mapping					Update	
> Seams					Rename	
> Input					Clone	
> Output					Delete	

Fig 7-66 Blank 'Saved Configurations' pane

The following steps detail how to move a configuration file from one processor to another.

1. After the configuration file has been created, select the file with the drop down menu.

Then use the disclosure triangle on right side of the New button to select Download from the options.

Processor	Settings	Security	Saved Conf	iguratio	ns	Update Ce	nter	Shortcuts	About
HELIOS (D	emo mode)	- 2021-08-19_17:	31:20	~	ېر	Upload	New	· · ·	
							Downl	load	
 Mapping 	5						Updat	0	
Марре	d positions:	: 308 tile(s)					Renam		
\sim Seams							Clone		
Seam v	alues: 308	tile(s)					Delete	2	

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2. Connect to the target processor, navigate back to the Saved Configurations tab and Upload the configuration file.



4. Apply Configuration to activate the file.

MEGAPIXEL	HELIOS Demo	+) SDI(2x2)	● 59.94Hz Ext. Sync 111 4 BM4, 1 BP:	2.8-V21, 1 BQ4.6, 30 EC1.5, 6 KV2.6-HDRF, 6 RB2.3	
III Mapping	Processor Settings Security	Saved Configurations	Update Center Shortcuts	About	
	HELIOS Demo - 2021-08-06 18:12:03	× 4	Upload New V		
🖌 Adjustments					
➔ Input					
	 Mapping 				
GhostFrame	Mapped positions: 48 tile(s)				
IE Devices					
🗢 Health 🛛 18	✓ Seams				
C Settings	Seam values: 48 tile(s)				
Preview	Seam values: 48 tile(s)				
	~ Input				
	Input source: sdi2X2				
	Input RGB: 1.0, 1.0, 1.0				
Lock Controls	Input adjustments: Black level 0.0 Brightness 1.0 Contrast 1.0 Hue 0.0				
Image Settings •	Saturation 1.0				
IIII Video Patterns 🕨	Sync allowed: true				
	Sync delay: 0				
Pause			Apply Configuration		
Blackout					

7.7.3 Preview Pane

The Preview pane displays a low resolution, low frame rate version of actively connected inputs. The layout of the preview window layout will reconFig based on which inputs are active and which input is selected. In the example below the HELIOS unit is receiving a quad SDI signal, but the unit has HDMI selected as the current input. Four active SDI feeds are visible below a black HDMI preview.

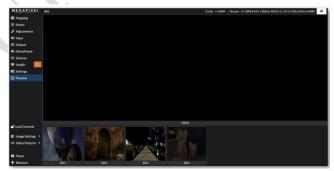


Fig 7-67 Preview pane - No HDMI input

Chapter 7 Troubleshooting and Component Replacement In the example below SDI 1 has been selected as the input. The preview pane shows SDI 1 maximized at the top. Other active, but not selected inputs are shown as thumbnails at the bottom of the pane.

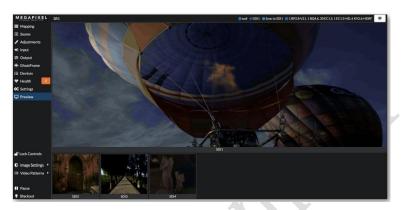


Fig 7-68 Preview pane - SDI 1 selected

With either of the Quad SDI (SDI 1x4 or SDI 2x2) input options selected, the Preview pane stitches the four SDI feeds together.



Fig 7-69 Preview pane - Quad SDI

Chapter 8 Troubleshooting and Component

Replacement

8.1 Common Faults and Troubleshooting Methods

8.1.1 Failure in Lighting up the Display

Causes:

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

Troubleshooting method:

- 1) Check AC power input of the display and the control devices.
- 2) Check cables between the sending box and the receiving card. Check whether the DVI cable between the control PC and the sending box is connected reliably.
- 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 conFigd properly on the software.

8.1.2 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.
- Check whether the signal cable is connected to the cabinet receiving card. If the receiving card is faulty, replace the receiving card.
- Check whether Displaying Position and Screen Size on the software are set to actual screen size.

8.1.3 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.

8.1.4 Blinking of a Cabinet in the Display

Causes:

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

Troubleshooting method:

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

8.1.5 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.

8.1.6 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.

8.2 Replacement of Main Components

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

8.2.1 Replacement of Module

Cut off the power supply of the display, replace a module of the LED display based on the following steps:

A. During the LED display connected to power:

Method 1: Find out the failure cabinet, popping out integrate module by intelligent bracelet.

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Steps	Picture	Description
Step 1		Find the failure cabinet
Step 2		With induction hand ring approaching the module (module two-thirds height position in the middle of the area)
Step 3		Wait for the module to pop out.
Step 4		Hold the module bottom and remove the module from front side slowly, loose the back rope and replace a new one.

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Steps	Picture	Description
Step 1	Settings (C) Tools(T) Plug-in (P) User(U) Language(L) Help(H) Screen Control COM11-Screen1 Information Ivm 1 ation Service version: Service version: Commandation Service version: Commandation Commandation Service version: Commandation Comm	Log in to the software, click on the screen control → start the maintenance interface → enter the password: unilumin or admin
Step 2	Sorter Streening Card Sorter Streening Card Sorter Streening S	Select the faulty module, click the right mouse button, and click the pop-up option
Step 3		Wait the module pop-up out gently
Step 4		Hold the module bottom and remove the module from front side slowly, loose the back rope and replace a new one.

Method 2: Find out the failure cabinet, popping out integrate module by software.

B. switch off the power:

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Find out the failure cabinet and switch off the power. Replace a module of the LED display based on the following steps:

Front Maintenance	Picture	Description
Step 1		Find out the failure cabinet and switch off the power.
Step 2		take the module out from the cabinet by tool and replace it.

Rear Maintenance	Picture	Description		
Step 1		Find the faulty cabinet and disconnect the power supply		
Step 2		Unmount the cabinet cover		
Step 3		take the integrate module out through the rail		
Step 4		Take the module out by suction tool and replace it		

8.2.2 Replacement of Power Supply

Cut off the power supply of the display , replace a power supply of the LED display based on the following steps:

Front maintenance	Picture	Description		
Step 1		Remove the integrated module out of the fault cabinet,then remove the screw fixing the HUB card.		
Step 2		Remove the power supply cover		
Step 3		Remove the power supply and replace it.		

Rear maintance	picture	description
Step 1		Unmount the power supply cover
Step 2		Disconnect the power supply wire
Step 3		Take it off and replace it

8.2.3 Replacement of Receiving Card

Cut off the power supply of the display , replace receiving card of the LED display based on the following steps:

Front maintenance	Picture	Description			
Step 1		Remove the module of the fault cabinet			
Step 2		Remove the fixing screw of the HUB card			
Step 3		Remove the failure receiving card and replace it			

8.2.3 Replacement of HUB Card

Cut off the power supply of the display , replace HUB card of the LED display based on the following steps:

Front maintenance	Picture	Description
Step 1		Remove the module of the fault box,loosen the fixing screws of the left and right adapter plate,and remove them
Step 2		Remove the faulty HUB card and replace it

Front maintenance	Picture	Description		
Step 1		Unmount the screw fixed the HUB		
Step 2		Take it off and replace it		

Chapter 9 Packaging Transportation and

Storage

9.1 Packaging

The UMiniII series products would be packed in carton, and the carton is vacuumpacked in an anti-static bag, and finally packed in heavy-duty carton, as shown below:



Fig 9-1 Package in Carton



Fig9-2 Package in Heavy-Duty Carton

9.2 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 plywood cases.

9.3 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 10 After-Sales and Warranty

10.1 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.

10.2 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.

10.3 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.

11.3.1 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 on-site 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 on-site 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 on-site engineers shall be the property of Unilumin.

10.4 Disclaimerjavascript:;

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.

- 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.
- 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.
- Valid warranty documents cannot be provided. Product serial number is torn or damaged. Product shell or other external parts are damaged.
- 14) Repairs after Warranty Period.
- 15) Products which have too significant damages caused by mishandling, accidents, improper maintenance, and failure to comply with product manual to be prepared.
- 16) Products malfunctions caused by unmatched play or control devices that are not provided by 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.

10.5 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:

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

- b) Shall provide packing list (including contract number, model and quantity of the repaired item)
- c) Shall provide receipt postal information (company name, address, consignee, contact information, etc.)
- d) To avoid damages of the returned products during transportation, please be cautious about the package and protection of the products. 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.

10.6 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.

10.7 Product Warranty Card

Product Warranty Card							
Order No.		Shipment Date	•		Warranty Period		
Product					Product		
Model					Quantity		
Customer	Contact						
Name	Information						
Customer Addre	ss:						
Remark(s):							
Warranty Record							
Warranty Date	Fault and Troubleshooting		Comple Date	npletion ite		Signature of Customer	
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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.

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Website: www.unilumin.com

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

24-hour service hotline: 400-677-3888





