FO4 FS Series

Outdoor

HD Small-pitch LED Display

specifications

KMTEKLED PHOTOELECTRICITY CO.LTD

Vision: Make the LED display more colorful,more intelligent, To be the leading brand in led screen industry.

Catalogue

Chapter 1 Product Introduction

- **Four-level energy-saving technology**

  Class I dynamic energy saving: when the signal is not displayed, turn off the driving circuit of the constant current tube chip;

  Level II black screen energy saving: when the display screen is completely black, the static consumption current of the chip drops from 6mA to 0.6mA;

  Level III full-screen energy saving: when the low level is maintained for 300ms, the static consumption current of the chip drops from 6mA to 0.5mA;

  Class IV shunt power supply and step-down energy saving: the current first passes through the lamp bead, and then goes to the negative electrode of the IC, so that the forward voltage drop becomes smaller and the on-resistance becomes smaller.

- **Real color, more realistic picture**

  The refresh rate is up to 3840Hz, the contrast ratio is up to 5000:1, and the grayscale is above 16 bit. Red, green and blue three-in-one LED lamp beads, with good consistency, and the viewing angle can reach more than 140°.

- **Structure optimization, flexible installation**

  Provide a variety of sizes of cabinets to choose from, different sizes of cabinets can be spliced with each other, and support various installation methods such as floor-standing, hoisting, and wall-mounted. Detachable power supply cabinet, hard connection, front and rear maintenance, to meet the needs of different customers.

- **Driving Project**

  It has the function of list up and down hidden, high refreshing ratio, dark dot amended in first line, low grayscale amended, color cast and spot amended, etc.

- **Stable and high protection**

  Outdoor application products, IP66 protection grade, integrated all-aluminum design, with corrosion resistance, high melting point, flame retardant and fire resistance, moisture resistance and salt spray resistance, can operate normally in the seaside environment for a long time, strong environmental adaptability, outdoor all-weather work.

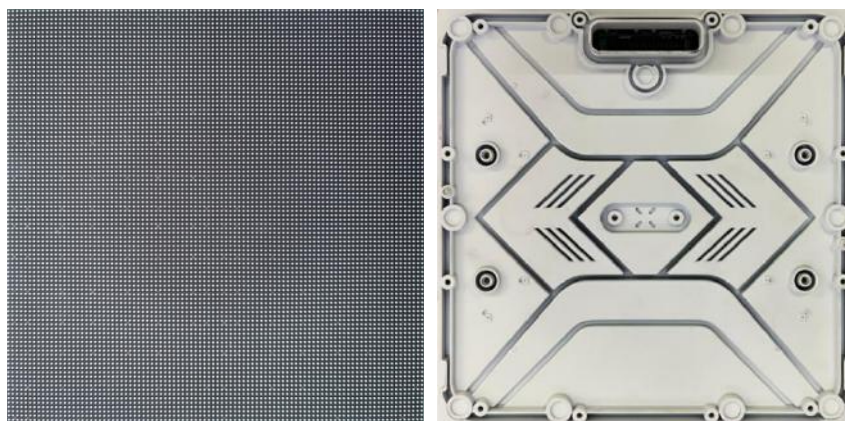- **Stable and reliable performance**

  Ultra-low temperature rise, low power consumption, low attenuation, and the good thermal conductivity of the aluminum module itself, make the heat dissipation effect of the whole screen better, no need to install air conditioners, high reliability and long service life

Chapter 2 Structural Appearance
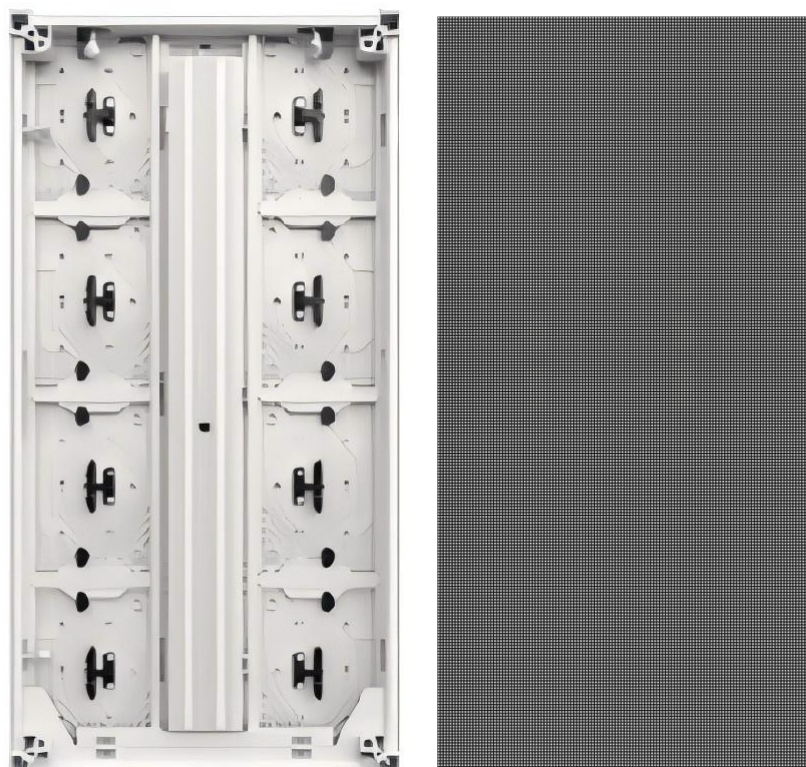
2.1 Module Pictures   (FO4 FS Series)

Picture 2-1 Plastic Module(250*250*18mm)

2.2 Cabinet Pictures

Picture 2-2 Aluminium Profiles cabinet(500*1000*85mm)

2.3 Technical Parameters

Table 2-1 Technical Parameters（Common anode）

Item	FS2.604	FS2.97	FS3.91	FS4.81
Pixel Composition(SMD)	1415	1415	1415	1921
Pixel Pitch(mm)	2.604	2.97	3.91	4.81
Module Resolution(W×H)	96×96	84×84	64×64	52×52
Module Size(mm)	250×250×18			
Module Weight(kg)	0.7			
Module Qty/Cabinet(W×H)	2×4			
Cabinet Resolution(W×H)	192×384	168×336	128×256	104×208
Cabinet Size(mm)	500×1000×85			
Cabinet Area(㎡)	0.5			
Cabinet Weight(kg/cabinet)	13.6			
Cabinet Material	Aluminium Profiles			
Cabinet Density（dot/m²）	147456	112896	65536	43264
IP Rating	IP66			
White Balance Brightness(nits)	≥4500	≥4500	≥4500	≥4500
Color Processor(bit)	16			
Color Temperature(K)	6500-9000			
Visual Angle(H/V)	140°/ 120°			
Luminous point centre deviation	＜3%			
Luminance uniformity	≥97%			
Chromaticity uniformity	Within ±0.003Cx, Cy			
Contrast Ratio	≥5000:1			
The Max Power Consumption(W/㎡)	700	700	700	700
Average Power Consumption(W/㎡)	235	235	235	235
Input Voltage	AC100~240V			
Frequency(Hz)	50&60			
IC Driving(s)	1/24	1/21	1/16	1/13
Refreshing Ratio(Hz)	3840			
Maintenance Method	Front and Rear			
Lifespan(hrs)	100,000			
Work Temperature/Humidity	-10℃-50℃/10%RH-98%RH (Non Condensing)			
Storage Temperature/Humidity	-20℃-60℃/10%RH-98%RH (Non Condensing)			

*Note: Maximum power consumption fluctuates by 10% depending on the batch of LED chips, and specifications are subject to change without notice.

2.4 Packing List

Table 2-2 Packing List

Packing List	Quantity	Unit
LED Display	1	Set
User Manual	1	pcs
Approved Certificate	1	pcs
Warranty Card	1	pcs
Construction Notification	1	pcs

2.5 Power Supply Configuration Project

Table 2-3 Supply Configuration Project

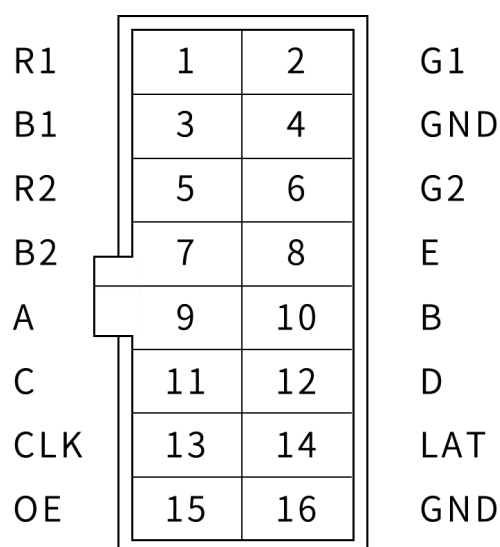| Power Supply	Configuration Project
300/400W Power Supply	Can load 4pcs modules

2.6 Accessories

Table 2-4 Accessories List

Accessories		
Power Supply	Single Cable	Screws, connecting sheet, Sleeve Piece

Chapter 3 Interface Definition

3.1 Interface Picture（HUB75）
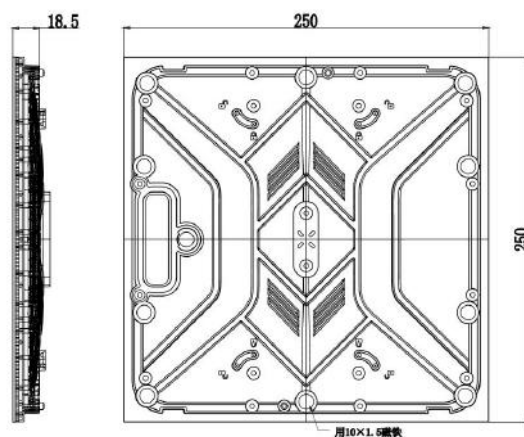
Picture 3-1 Interface Picture（HUB75）

R1	1	2	G1
B1	3	4	GND
R2	5	6	G2
B2	7	8	E
A	9	10	B
C	11	12	D
CLK	13	14	LAT
OE	15	16	GND

3.2 Interface Definition

Table 3-1 Interface Definition

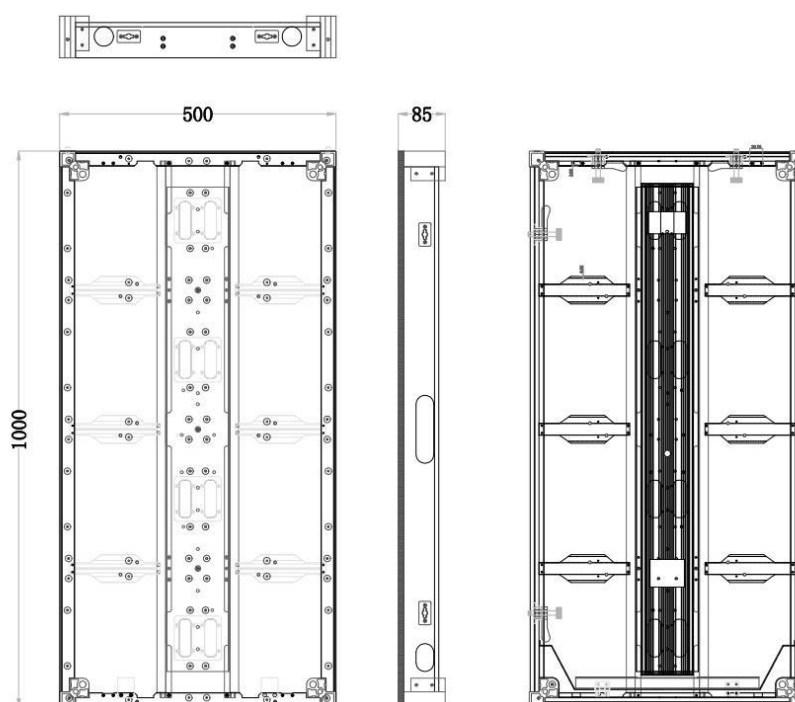| Pin	Signal	Function	Pin	Signal	Function
1	R1	Red Data Signal	2	G1	Green Data Signal
3	B1	Blue Data Signal	4	GND	Power Ground
5	R2	Red Data Signal	6	G2	Green Data Signal
7	B2	Blue Data Signal	8	E	Row Decoding Signal
9	A	Row Decoding Signal	10	B	Row Decoding Signal
11	C	Row Decoding Signal	12	D	Row Decoding Signal
13	CLK	Clock Signal	14	LAT	Latch Signal
15	OE	Enable Signal	16	GND	Power Ground

Chapter 4 Installation

4.1 Kit Installation

Picture 4-1 Hole Installation Diagram for Kit

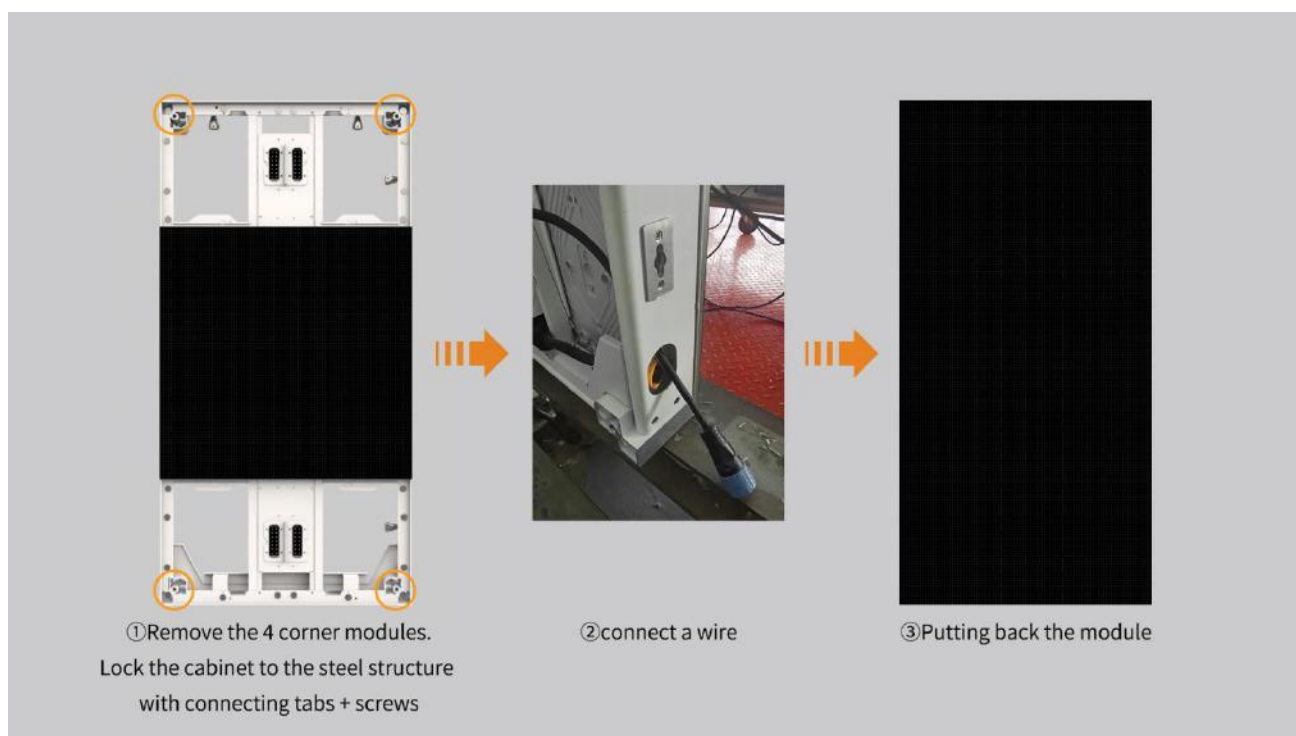## 4.2 Cabinet Installation

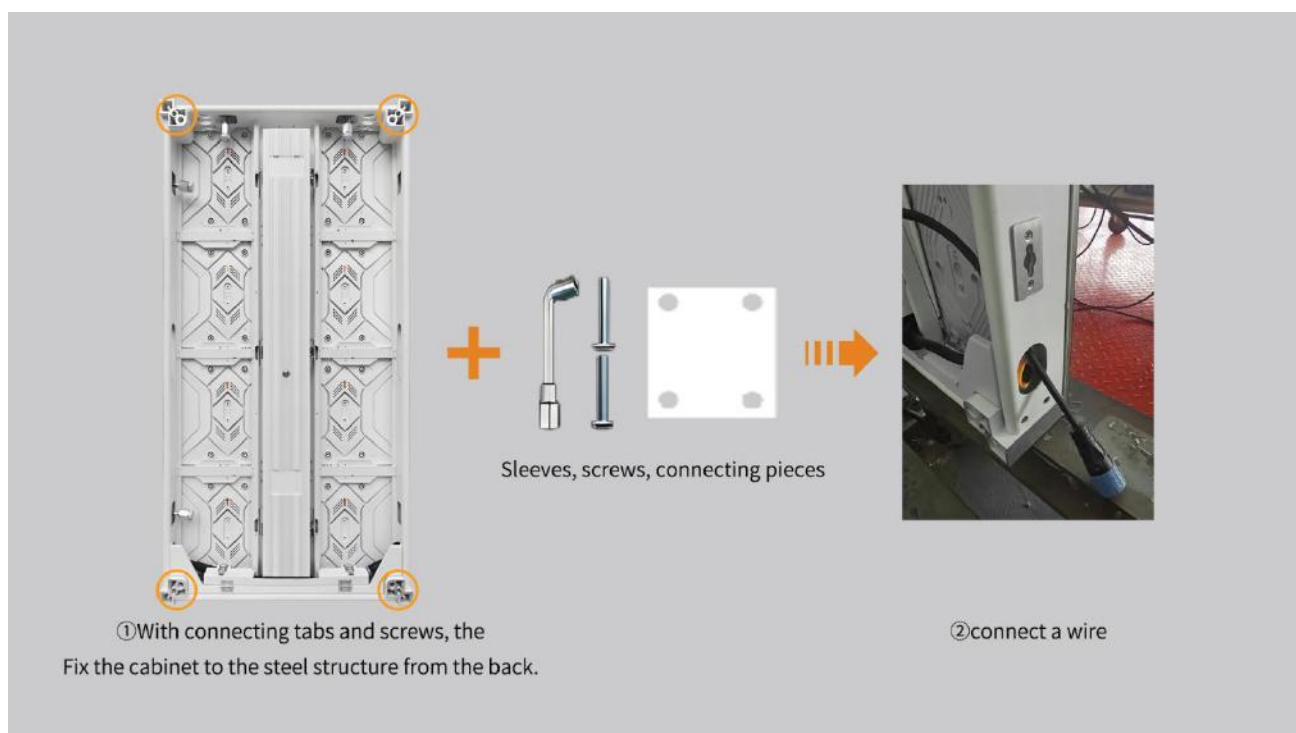Picture 4-2 Hole Installation Diagram for Kit

4.3 Cabinet structure
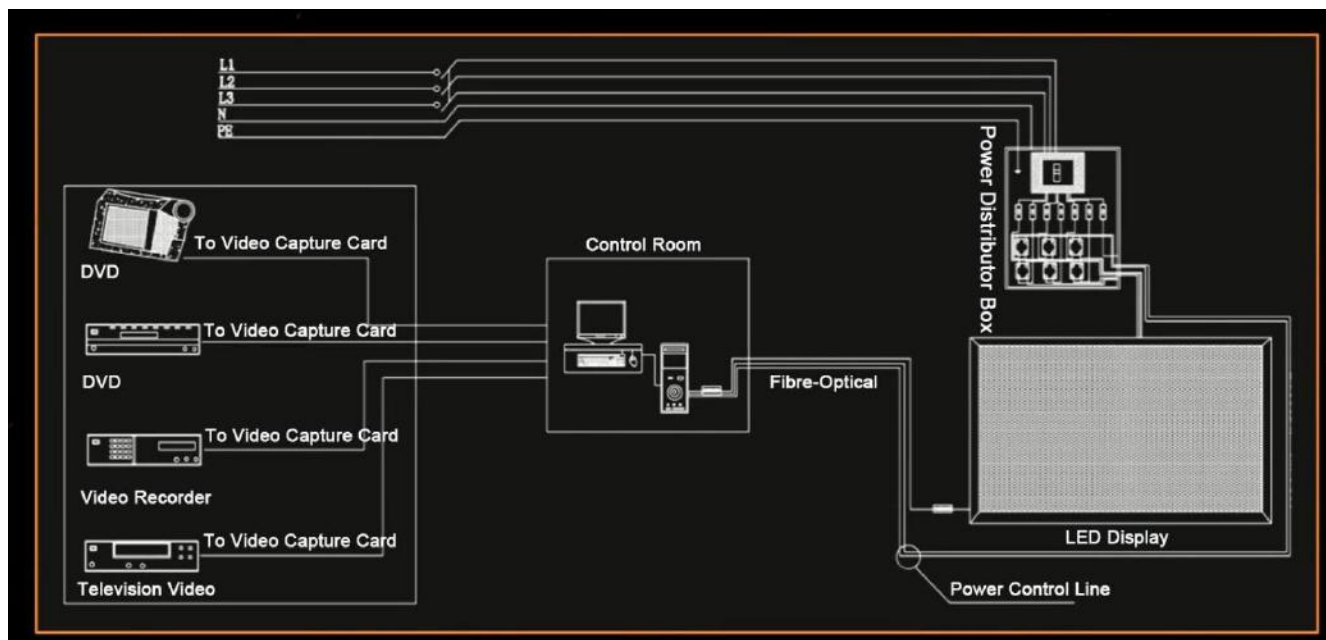
Picture 4-3 Cabinet Front Mount

①Remove the 4 corner modules.
Lock the cabinet to the steel structure
with connecting tabs + screws

②connect a wire

③Putting back the module

Picture 4-4 Cabinet Rear Mount

Sleeves, screws, connecting pieces

①With connecting tabs and screws, the
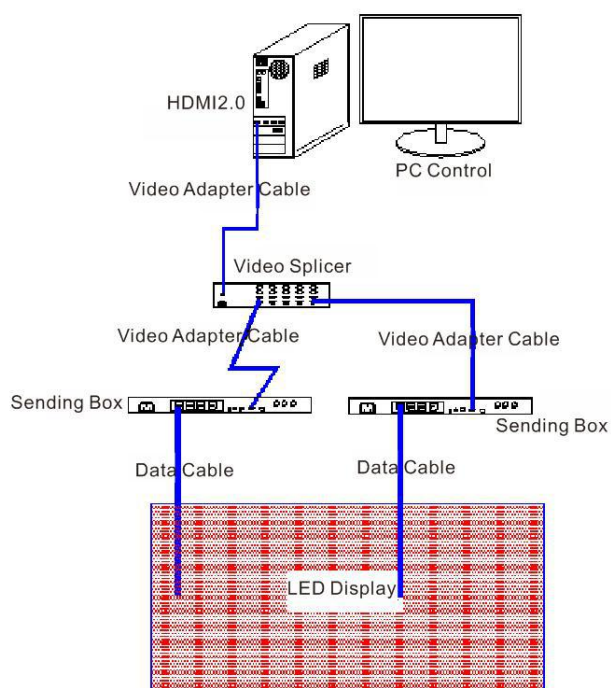Fix the cabinet to the steel structure from the back.

②connect a wire

4.4 Display Installation

Picture 4-5 Diagram for Connection

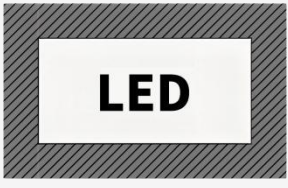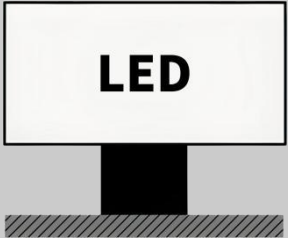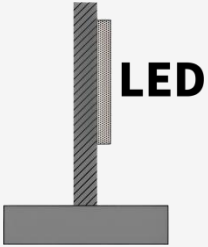## 4.5 Networking Introduction

Picture 4-6 Topographic Picture for networking

4.6 Installation Method

Installation Type	Picture
Hanging Style	 **LED**
Supporting Style	**LED**
Landing Style	**LED**
Inlaying Style	**LED**
Struting Style	**LED**
Wall-attaching Style	**LED**

Chapter 5 Description for Product Features

5.1 Aluminium profile cabinet structure

With light weight, corrosion resistance, high precision, good flatness, not easy to deform, good heat dissipation, etc., stronger and more durable than the sheet metal cabinet, aluminium profile structure after finishing, can improve the screen splicing accuracy, screen consistency is better, the standard cabinet is as light as 16kg, the thickness is only 85mm.

5.2 Multiple cabinet sizes

Can be spliced with each other to meet the needs of splicing of different area sizes.

500*500*85mm / 6.8kg   500*750*85mm / 10.2kg   500*1000*85mm / 13.6kg

5.3 Hardwired and wireless throughout

The structure of the product is hard-wired, hidden wire design, the whole wireless, neat and beautiful appearance.

5.4　Naked eye 3D display

FS3.91 supports 90-degree curved splicing, which easily realises outdoor close-up naked eye 3D display effect.
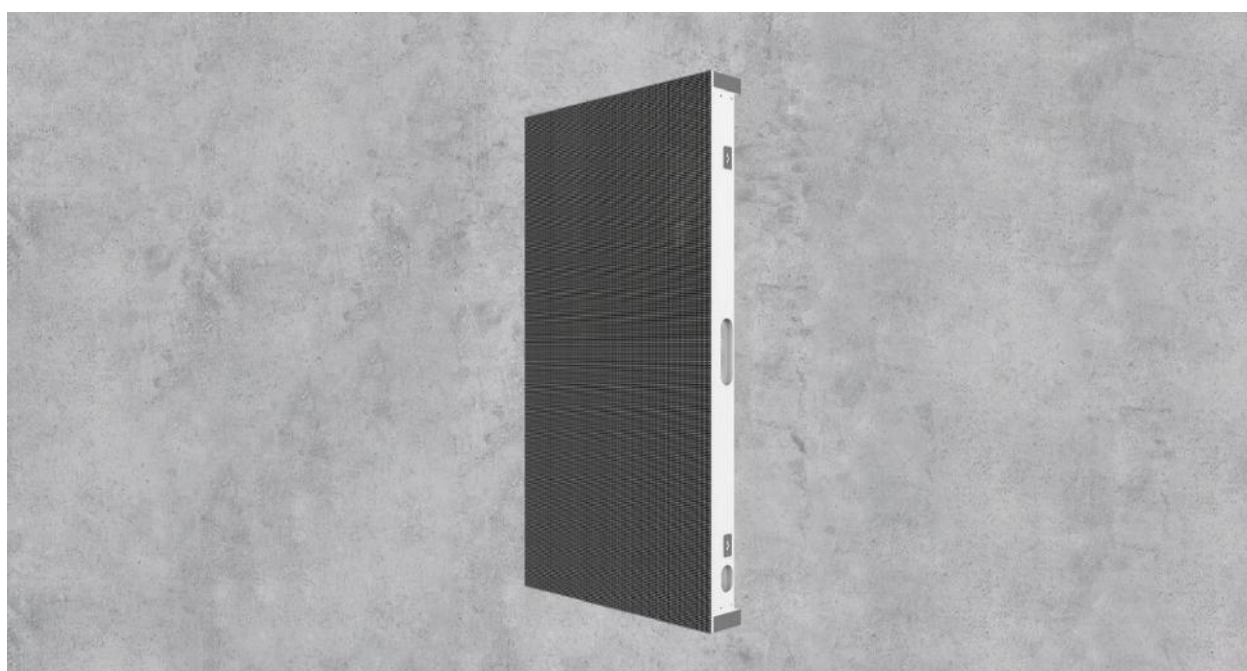
5.5 Waterproof design

IP66 protection level, using outdoor special independent waterproof module and excellent sealing waterproof cabinet to prevent water vapour from attacking the screen, fanless design to reduce the leakage of water failure points.

5.6 Wall mounting

The FS series supports wall mounting without the need for a steel structure, saving installation costs.

Chapter 6 User Manual

6.1 Notification

Table 6-1 Notification

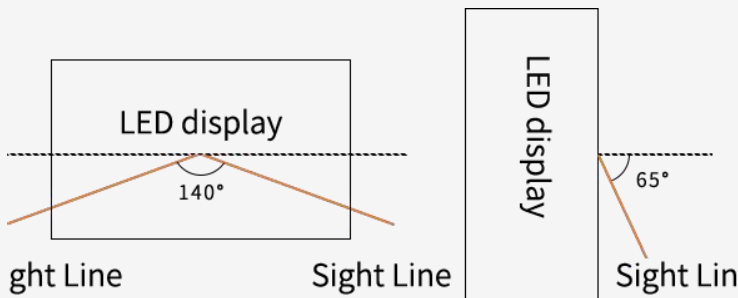| Item	Notification
Temperature	Keep the work temperature within -10℃～50℃
Humidity	Keep the storage temperature within -20℃～60℃
Waterproof	Keep the work humidity within 10%RH～98%RH
Dust-proof	Keep the storage humidity within 10%RH～98%RH
Anti-Electromagnetic radiation	IP66
Electrostatic Prevention	IP66
Temperature	LED display shouldn't put under the environment where has strong interference by electromagnetic radiation, which would be easy to picture display abnormal.
Humidity	It should be ground connected well for power supply, cabinet, mental cover of display body, the resistance of ground connection<10Ω, to avoid making any damage to electric components.

6.2 User Manual

Table 6-2 User Manual

Item	User Manual
Electrostatic Protection	The installer need wear electrostatic ring and electric gloves, each equipment should take ground connection well when installing.
Connection Type	There are positive and negative electrode silk printed on module, don't allow to reverse connect, and prohibit to connect with AC 220V.
Operate Type	Prohibit to assemble module, cabinet and whole of display under power on, operation should be under power off completely, to protect personal safety; Prohibit anyone to touch when the LED display is working, in case the static electricity which is generated by body to break through LED and other components.
Dismantle and Transportation	Don't allow to throw, push, compress module, to prevent module falling down, to avoid breaking kit, damage LED chips, etc.

Item	User Manual
Environmental Inspection	It should match temperature and humidity meter for LED display at installation site, to monitor its surrounding environment, so that it can find out if LED display being affected with damp, moisture, etc.
The Usage of LED display	1.The environmental humidity should be 10%RH~65%RH, it is suggested to turn on LED display one time each day, normal to use above 4 hours each time, to remove its damp.
	2.When the environmental humidity is above 65%RH, it should make dehumidification to environment, and it is suggested to work LED display above 8h each day.
	3.When LED display has not turned on for a long time, it should preheat LED display to remove moisture before use, to avoid damage LED because of damp, the specific method: 20% brightness to work for 2h, 40% brightness to work for 2h, 60% brightness to work for 2h, 80% brightness to work for 2h, 100% brightness to work for 2h, by this to gradually increase its brightness.

6.3 Acceptance Request and Method

Table 6-3 Acceptance Request and Method for LED display

Item	Acceptance Request and Method
Brightness of LED Display	Switch LED display to work as full brightness, use light-gun to measure the brightness of LED display within 10 minutes. When measuring its brightness, the light-gun need be vertical to LED display, to adjust the distance of light-gun and LED display, ensure the view window, black area, cover above 16 pixels, adjust focal length, to ensure LED chip being able to clearly view in eyepiece, then measure and record brightness data.
Visual Angle	The one should stand on the angle of 140°, bottom angle 65°to LED display when making measurement, it is requested that LED display should not have obvious the problem of dark block.

Chapter 7   Product Application

Suitable for advertising media, community publicity, enterprise display, tourist attractions, station advertising, roadside advertising and so on .

Outdoor advertising screen

Upright advertising screen

Scenic spot advertising screen