SPECIFICATION

(Outdoor D series 320X160mm)

Product name: Outdoor full color display P8 5S module

Specification No. : D-P8(2727)- 5S-320X160-V*

Document No. 827275320160

Version No. : Rev1.0

Editor:	Auditor:	Approval:

STATEMENT:

1. **The information should be more accurate, but there may still be errors.Pls refer to the actual products for details , the information is for reference only.**
2. **Any updates to the information, pls refer to the latest version of the specification without further notice.**
3. **The final interpretation of the information belongs to Xiamen Eryi technology Co.,Ltd.**

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1、**Product usage precautions**

●Packaged products should be placed in a dry environment, with humidity controlled below 60% RH. If the humidity exceeds 60% RH, dehumidification treatment is required, especially in spring or rainy weather, which requires special attention. The ambient temperature should be controlled below 30 ℃, and if it exceeds 30 ℃, it needs to be cooled down;

●The product has been stored for more than a month and needs to undergo 6 hours of aging before normal use. The aging method is as follows: set the full brightness to 10% 1H, 30% 1H, 60% 2H, 80% 1H, and 100% 1H (gradually increasing brightness aging);

●In the process of use and transportation, no dropping,

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pushing ,squeezing,pressing module to avoid damaging to the display.

●Display used in special environment(1.sea,swimming pool,bathing area,basement,tunnel;2.chemical environment, vulcanization environment, halogen environment;3.environments with high levels of sand and dust; 4. Strong ultraviolet environment; 5. an environment with strong electromagnetic fields; 6. Environment below -20 degrees and above+40 degrees),pls inform us before placing an order.

●Workers contacting the product must wear an electrostatic wristband and gloves, and all tools must be strictly grounded during the assembly process;

●It is necessary to confirm whether the module from the same batch before opening the box. Products with different batch numbers cannot be installed on the same screen, otherwise color blocks (mosaics) will appear on the display screen;

●Please inspect the correct wiring of the power port when the module is installed. The positive and negative poles must correspond to each other before power can be turned on.If the positive and negative poles are reversed, the module will be burned out,it is necessary to cut off the power in timely to avoid fire.Using the dedicated switching power supply for LED display, the max working voltage of the module is less than 50V, and 220V should not be connected directly , otherwise the module for all display will be burned out.

●When wiring the power supply, it is necessary to ensure that the terminal connector screws are tightened to prevent loose connections that may cause high contact resistance and lead to wire burning or product damage. The M4

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screw torque is 6-8 Kgf/cm ^{2} ， M3 screw torque 4-6 Kgf/cm ^{2}；

●Assembling PCB is prohibited when power is on ,The PCB should be assembled on the wall when the main power input is disconnected,and assembly with power and signal lines inserted is not allowed.

●Personnel are prohibited from touching LED display during in use in order to prevent static electricity generated by human friction from penetrating LED lamps, chips,and other components.

●The installation angle and height should be appropriate ,it is necessary to wrapped the sharp edges and corners to avoid the damage to human body from tough shell.

●Within the relative humid scope of 10%～65%RH, it is recommended to turn on display once a day and use it normally for more than 4 hours each time to remove moisture from the display. If the humid is higher than 65%RH, dehumidification treatment should be carried out for the environment. It is recommended to use it normally for more than 8 hours every day, and close relevant doors and windows at night to prevent the display screen from getting damp and causing defects.

●When the display screen is not used for a long time, it is necessary to reduce the brightness of the entire screen by 50% in advance, play for 12 hours, and preheat for "dehumidification" for 12 hours to avoid the LED screen from working and damaging the lamp tube after being damp.

●To guarantee the LED service life ,please play scrolling picture or text, don’t just show the static pictures or static text for a long time, which may result in

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the severe attenuation of lamp brightness or batch dead light issue,

- Sweat and other liquid is not allowed to drip to the display when disassembling and assembling ,if it is ,it should be cleaned with alcohol to prevent the liquid corrosion and damage to the product.

2. Scope of application

Mainly used in industry and commerce, post and telecommunications, sports, advertising, factories and mining enterprises, transportation, education system, stations, docks, airports,shopping malls, hospitals, hotels, banks, securities markets, construction markets, auction houses, industrial enterprise management and other public places. own media,display, information release, traffic induction, creative display and other purposes.

3. Product Description

- Product version: The refresh rate of this product is divided into regular version (1920Hz) and TOP version (3840Hz).
- Indoor D series uniform kit size and hole position, the box hole position is universal;
- High performance:LED high-density full color screen dedicated driver IC and input buffer IC, bright color, more delicate video picture;
- Good effect: The driver IC of red, green and blue leds driven by OE signal can form 4,398 billion color transformations;
- Ultra-wide Angle: The use of surface paste lamp, multi-directional viewing effect；
- Display effect: high contrast, improve light and shade, enhance picture details, restore true colors.
- Low power consumption: Use constant current mode to drive LED,

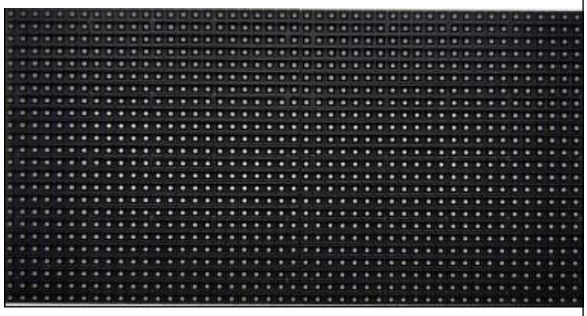
uniform light, low power consumption ;

●High portability: The module is light in weight and easy to install and disassemble.

●Strong reliability: high protection lamp bead, front filling glue, back for three anti-paint painting, waterproof and moisture-proof, stable and reliable;

●The pixel pitch is 8 mm, and there are 40*20 pixel points, each pixel point is composed of 1R1G1B;

Module pictures

front view	back view
	

Note:pictures for reference only ,subject to available product.

4. Product technical parameters

Module technical parameters					
Pixel pitch	8.0mm	Input Voltage(DC)	4.5-5.0V	Module Weight	0.48± 0.01kg
Pixel configuration	1R1G1B	Module power	≤ 42W	Accessory materials	Polycarbonate PC material
Length*Width	320*160mm	Maximum current	8.0± 0.3A	Copper nut	6*8*M4
Module Thickness	19.6±0.25mm	pixel density	15625Dots/㎡	Drive type	1/5 scan Constant drive
Lamp type	SMD2727	Resolution	40*20=800Dots		
Optional control card	CYSTAR, DIGIBIRD, Colorlight, NOVASTAR, etc.				
Color and temperature(K)	9600-12500 adjustable	Unit area	0.0512		

Technical parameters of the cabinet			
Recommended size	960mm*960mm* 90mm Length*Width*Height	Cabinet Material	Die-cast aluminum/magnesium alloy
Resolution	120*120=14400Dots		
Cabinet area	0.9216 ㎡		
Cabinet weight	29.8 ± 0.05kg		

Technical parameters of the screen			
Brightness of white balance	3700-4200 cd/㎡	Note:Excessive requirements for high brightness will seriously reduce the life of the display	
Horizontal Viewing Angle	140 ± 10°	Vertical Viewing Angle	130 ± 10°
Optimum viewing distance	≥ 8.0m	Operating environment	Outdoor
Maximum power per square module	≤ 821w/m²	Brightness uniformity	≥ 97%
Distribution power（Maximum power per square meter÷78%÷85%）		1238w/m²	

System control parameters			
Cray scale	Red, Green, Blue 12-14bits	Display Color	43980 billions of kinds
Frame rate	≥60Frames /second	Refresh rate	≥ 1920/3840Hz
Control method	Computer control, point-by-point correspondence, video synchronization, and Real-time display	Brightness adjustment	256 levels of manual/automatic
Input signal	DVI/VGA,VIDEO（MULTIPLE STANDARD），RGBHV、COMPOSITE VIDEO SIGN、S-VIDEO,Ypbpr(HDTV)		

System Operating Characteristics

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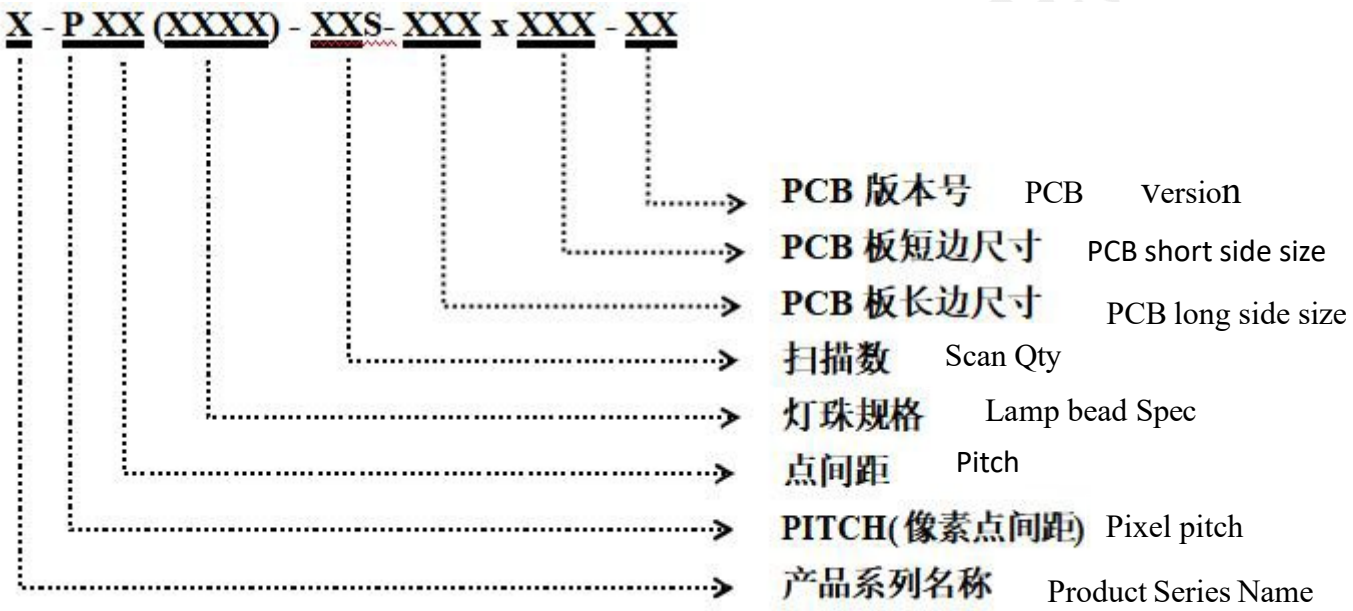
Theoretical service life	≥100000hours	Mean Time Between Failure (MTBF)	≥10000hours
Decay rate (3 years of operation)	≤15%	Point of continuous loss of control	0
Operating Temperature Range	-20 to50℃	Blind spot rate	＜0.0001
Screen Horizontal Flatness	＜1mm/㎡	Operating humidity range	10% to90%RH
Screen vertical flatness	＜1mm/㎡		

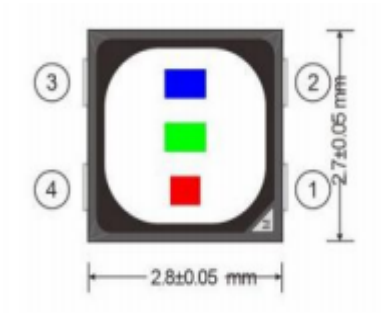
5、PCB 介绍 PCB introduction

5.1 PCB 命名 PCB naming



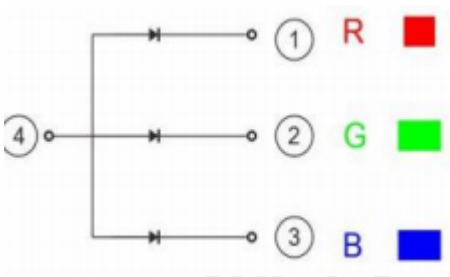
5.2 LED core parameters (2727 lamp bead)

Illuminant color	Wave length (nm)	luminous intensity（mcd）		reverse current I_R	test condition	angle of illumination	forward voltage (v)(Typ.)
	(Typ.)	MI N	MAX	VR = 10V 时		(Typ.)	
R	615-630	350	500	0.2	IF=20MA	110°	1.8-2.4
G	512-535	900	1500	0.2	IF=20MA	110°	2.8-3.4
B	460-475	120	180	0.2	IF=10MA	110°	2.8-3.4



Lamp beads spec

Lamp beads polarity



5.3 Pin Header Signal Pin Definition (HUB75)

Pin location				Pin location function					
pin location				pin no.	function	remarks	pin no.	function	remarks
1	●	●	2	1	R1	red data signal	2	G1	green data signal
3	●	●	4	3	B1	blue data signal	4	GND	power supply grounding
5	●	●	6	5	R2	red data signal	6	G2	green data signal
7	●	●	8	7	B2	blue data signal	8	GND	power supply grounding
9	●	●	10	9	A	A scan signal	10	B	B scan signal
11	●	●	12	11	C	C scan signal	12	GND	power supply grounding
13	●	●	14	13	CLK	Clock Latch Signal	14	LAT	Shift Latch Signal
15	●	●	16	15	OE	Enable Signal	16	GND	power supply grounding

5.4 Driver IC

Constant current driver IC

The chip is a driver IC designed for full-color LED display, 16 PWM constant current output, support 1~64 scan arbitrary scan. Integrated Noise Free TM technology, with excellent anti-interference characteristics, so that constant current and low gray effect is not affected by PCB board.Different external resistors can be used to regulate the current size of the output stage to

precisely control the luminous brightness of the LED.

≥1920Hz features	≥3840Hz features
Fade function	Integrate Ghosting Elimination
Improve the caterpillar phenomenon caused by damaged lamp beads	Elimination of open-circuit caterpillars and bad-point crosses
Improved lamp bead damage function	Integrated lamp bead protection circuit to reduce lamp bead damage
Good anti-interference ability and low gray effect	Effectively solve low gray blocks, off-color, pockmarks, the first line is darker

The Line driver IC

This line driver IC is a line driver designed for LED scanning screen, which Integrated 138 decoding circuit and power PMOS tube, adopts SOP16 package type, and integrates anti-burning power tube, anti-ghosting, LED lamp bead protection and other functions.

Features

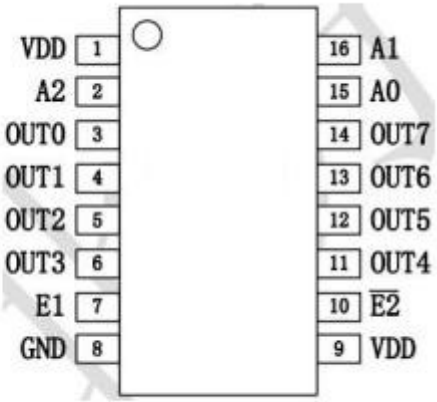
- Integrated 138 decoding circuit
- Integrated 8 power PMOS output pins, on-resistance 100mΩ, maximum current 2.5A
- Input open circuit, input lock self-test function, anti-burning power PMOS tube,

  Improved caterpillar phenomenon caused by short string of LED display light beads

  Integrated anti-LED bead reverse breakdown regulator circuit.

5.5 Pin definition

恒流驱动 IC　Constant current driver IC



行驱动 IC　Line driver IC

Pin introduction

Name	Constant Current Driver IC Function
GND	chip ground
SIN	Shift Register Serial Data Input Port
DCLK	Shift register clock input port
LE	According to the latch side of the instruction, different LE lengths represent different instructions.
OUT0～OUT15	Constant Current Source Output Port
GLK	钟Display Clock
SDO	Shift Register Serial Data Output Port
R-EXT	Constant current setting port, external resistor to ground to set the maximum current value of constant current source
VDD	power supply port
Name	**Line Driver IC Function**
VDD	Power supply side
A0-A2	A0-A2Logical input port
OUT1~OUT8	OUT1~OUT8,Driver output port
EN1、EN2	Logic Enables the input port. When EN1=1, EN2=01,The output is turned on.
GND	power supply grounding

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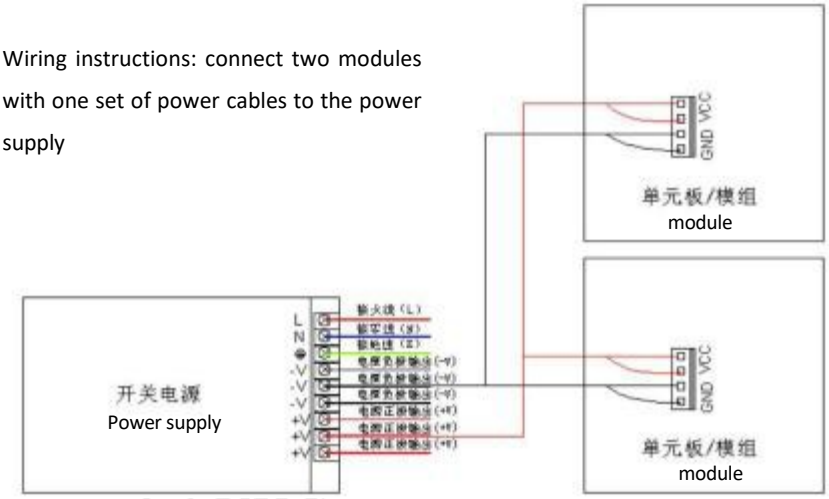
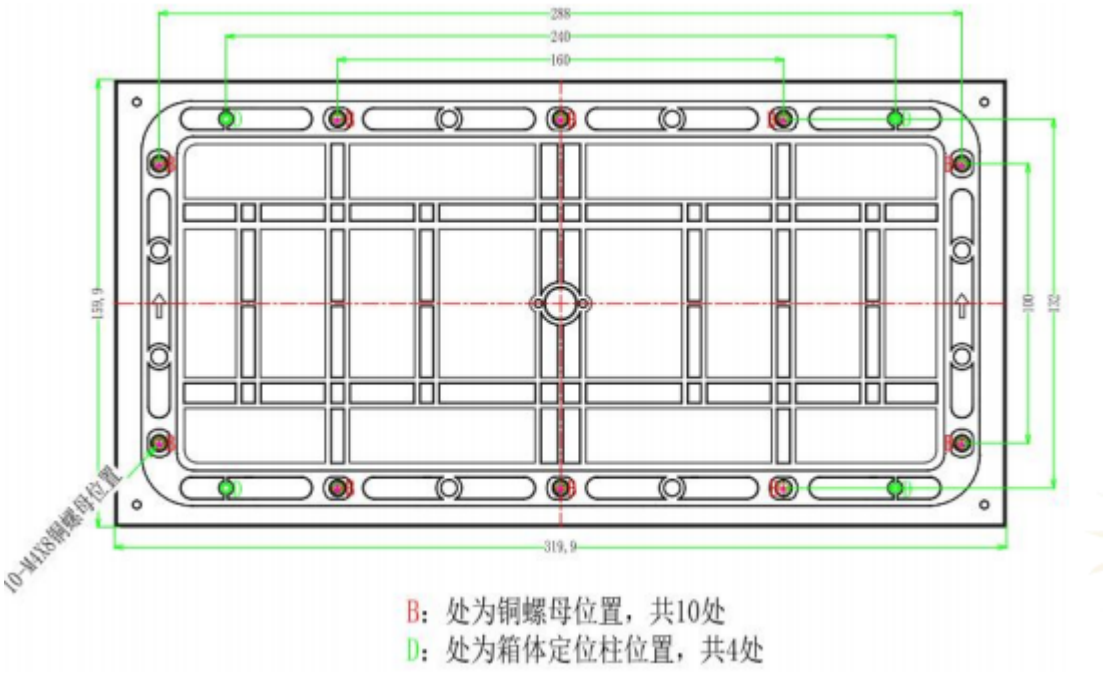
6. Recommended Carrying Capacity for Power Supply & Control Cards

Recommended power supply		Module Brightness	Recommended Carrying Capacity (pieces)
Recommendation 1	4.5V 40A	3700-4200cd/m²	3-4
Recommendation 2	5V 40A	3700-4200cd/m²	3-4
	Wiring instructions: connect two modules with one set of power cables to the power supply 		

Note: To beloadedaccordingto thestandardloadingprocedureof ErYi

Kystar			
Recommended Carrying Capacity for G612C		Recommended Carrying Capacity for G616C	
Width 3* height 12	120*240dots	Width 3* height 16	120*320 dots
Colorlight			
Recommended Carrying Capacity 5A75E			
Width 4* height 16	160*320 dots		
Novastar			
Recommended Carrying Capacity DH7512		Recommended Carrying Capacity DH7516	
Width 4* height 12	160*240 dots	Width 4* height 16	160*320 dots

7. Mounting Hole Position

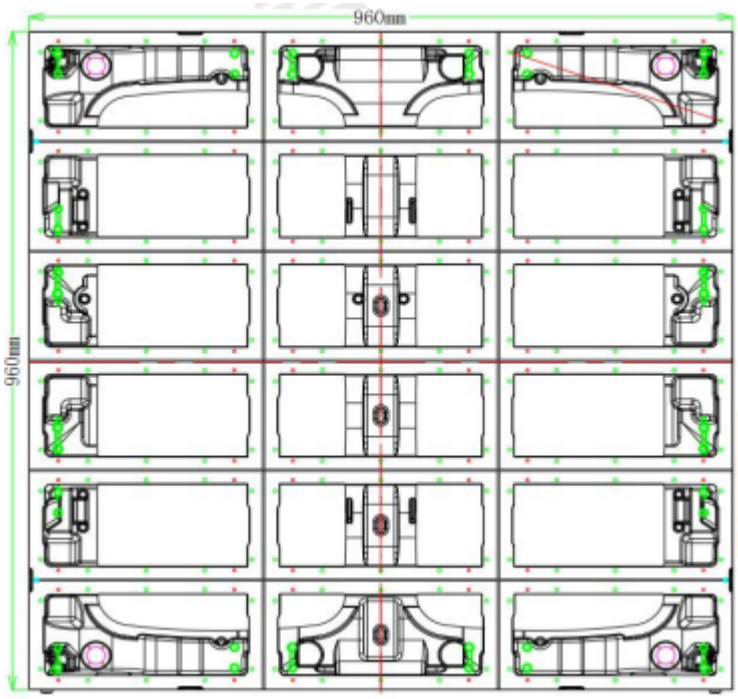


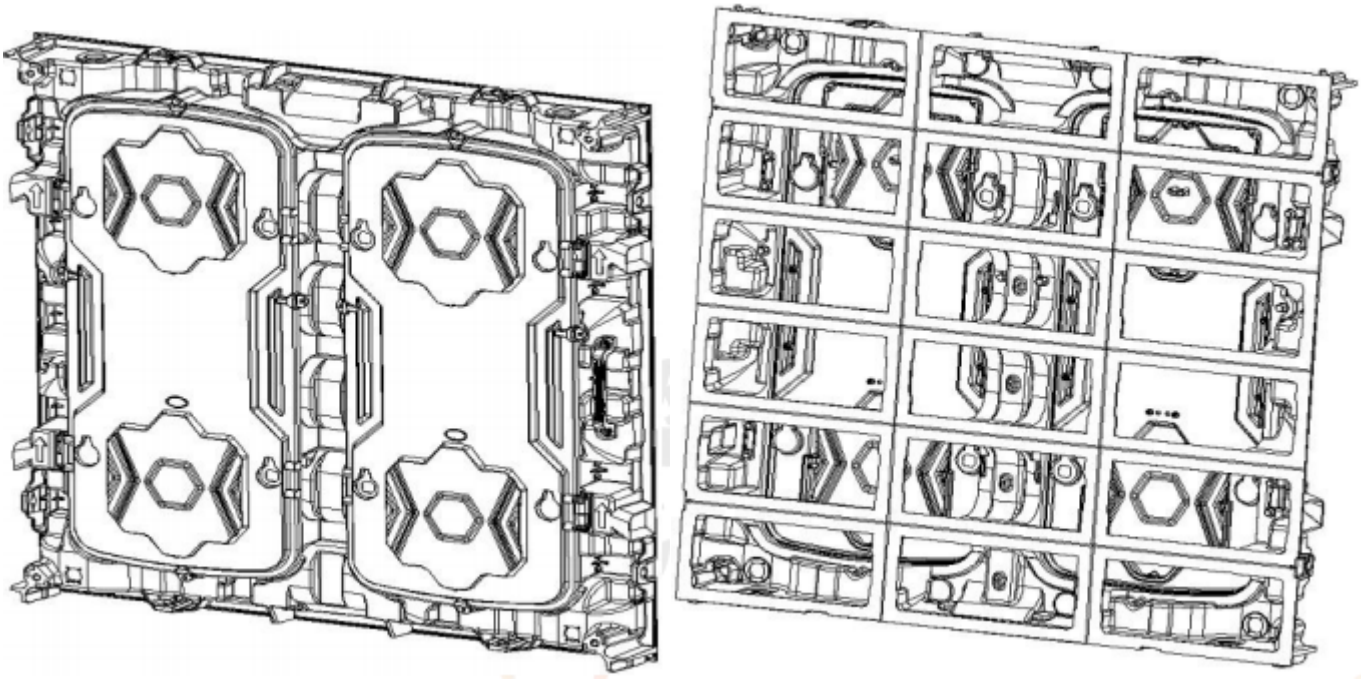
B: There are 12 copper nut positions
D: There are 2 cabinet positions

Remarks: If you make cabinet,Please inform and confirm the hole diagram of the ordered product in advance, See CAD drawings for details; All dimensions are in mm.

8. Cabinet Diagram

Recommended use 960*960*90mm cabinet hole position diagram



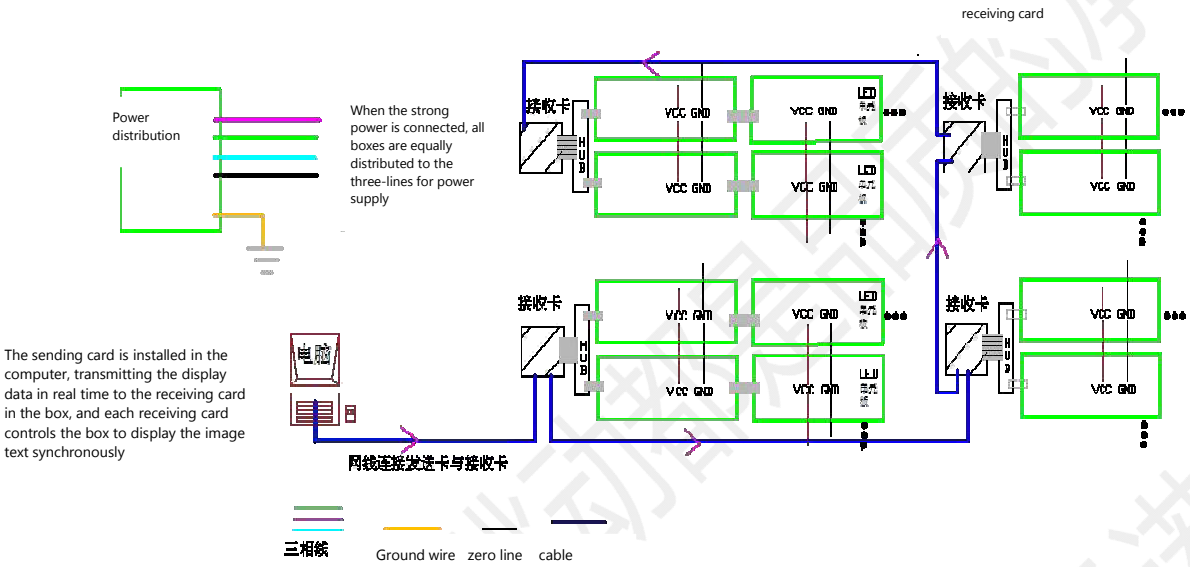


Note: Module and cabinet adopt the magnetic and front maintenance process to facilitate disassembly and assembly, and the unit of all sizes is mm.

Pixelpulse

B: There are 12 copper nut positions
D: There are 2 cabinet positions

9. Simple diagram of the electrical connection of the display



10. Acceptance requirements and methods of full display

● Screen brightness:set the screen to full brightness, set the brightness efficiency of

the test software to 80% on the computer, and use the light gun to measure the brightness of the screen within 10 minutes.When measuring the brightness, the light gun is required to be aligned with the screen, it is best to keep the light gun level with the screen, make sure that the black position of the observation window covers more than 16 pixels, and adjust the focus so that you can clearly see the light-emitting points before measuring and reading;

● Viewing angle:when measure, standing in the screen body of the left and right 140 ° position, the screen body of the lower viewing angle of 70 ° position to watch (i.e., the screen body of the vertical viewing angle of 140 °), the requirements of the screen body is no obvious black spots, no obvious dark block problems;

● Grounding: switching power supply shell, box, screen structure is correctly grounded, the grounding point is correctly grounding label marking, grounding resistance is required ≤ 10 ohms, every six months for a spot check;

● Lightning treatment: require buildings to have lightning rods or lightning belt facilities and effective grounding, require power distribution boxes with surge protectors, every six months to carry out a point of inspection for lightning protection facilities.

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