Product Specification

Product: Outdoor Full Color Q4 1/10 Scan Module

Item No.: Q4 Front Maintenance

Version: 1.0

1. Scope of Application

This technical manual is only applicable to the outdoor Q4-10S, the following are conventional product parameters, and can be customized if you have special requirements.

2. Application Precautions

Project		Description
Environmental Precautions	Temperature Requirements	Storage temperature range: -10°C-30°C, if it exceeds 30°C, cooling treatment is required. Operating temperature range: -20°C-40°C, other temperature ranges need to be equipped with temperature control equipment. The temperature of the lamp surface when the module is working: ≤85°C, if the temperature exceeds the standard, temperature control equipment should be installed.
	Humidity Requirements	Storage humidity range: 10%RH-60%RH, if the humidity exceeds 60%RH, dehumidification is required. Working humidity range: 10%RH -90%RH, if the humidity exceeds the standard, it can be used normally only after dehumidification of the use environment.
	Corrosive gas resistance	Corrosive gases in the environment containing salt or acid gas in the air will cause corrosion of electronic components, crystal leakage and other phenomena.
	Static hazard, prevent lightning strike	The metal components of the screen, the shell of the switching power supply, and the box should be well grounded, and the grounding resistance should be ≤10Ω. Prevent electrostatic damage to electronic devices, while avoiding leakage of electricity to the human body.
Precautions for use	Static Protection	The installer must wear an electrostatic wristband and electrostatic gloves, and all tools must be strictly grounded during the assembly process.
	Screen Waterproof	After the whole screen is installed, it is necessary to ensure that the interior of the screen will not enter the water. The surrounding of the screen, the box and the connection of the box should be covered with waterproof glue, and strict waterproof treatment should be done.
	Hazard description of magnetic installation	It is not recommended for customers to install the module outdoors by magnetic installation. If it is installed outdoors, the following hazards will occur: 1) Rain and snow will enter from the front of the display to

	method	the back of the display, causing the electronic components on the IC surface of the module, system cards, switching power supplies and wires to be soaked and corroded, resulting in premature failure; 2) The magnetic installation method cannot guarantee the flatness and assembly effect of the display screen; 3) The magnetic installation method is easy to deform the module in extremely cold weather.
	Product batch number control	Products of different batch numbers cannot be installed on one screen, otherwise color blocks (mosaic) will appear on the screen.
	Product wiring	The module cannot be directly connected to 220V, and the positive and negative poles of the power supply of the module cannot be reversed.
	Disassembly and transportation process	Do not drop, push, squeeze or press the module to avoid damage to the display.
	Mounting torque control	When wiring the power supply, make sure that the terminal connector screws are tightened to prevent the connector position from loosening, which may lead to high contact resistance and cause wire burning or product damage. The torque of M4 screw is 6.0-8.0 Kgf.cm, and the torque of M3 screw is 4.0-6.0 Kgf.cm.
	Play Control	Do not only display still pictures or static text for a long time, which will cause serious attenuation of lamp brightness or cause batch dead lights. Please play scrolling pictures or text.
	Prohibition of live work	It is forbidden to assemble the module when the power is turned on. The module should be assembled on the wall with the main power input disconnected. It is not allowed to assemble the plug-in power cord and signal line.
	Environmental inspection	The installation site of the display screen needs to be equipped with a temperature and humidity meter to monitor the surrounding environment of the screen in time. After the heavy rain, you should promptly check whether there are moisture, water droplets, moisture and other problems inside the display screen.
	Loading program file selection	It is required to use the system card officially recommended by Qiangli Jucai and the loader in the one-key debugging of the official website to avoid abnormal performance during the debugging process.
	Parameter settings	The refresh frequency is required to be set according to the specified value in the specification to protect the normal service life of the lamp
	Play Control	Do not display still pictures, text or fixed backgrounds for a long time, to avoid serious attenuation of lamp brightness or batch dead lights, please play scrolling pictures or text

	Product use environment	It is strictly forbidden to use the indoor screen in an outdoor or sub-outdoor environment
	Avoid construction on the installed LED screen	After the LED display is installed, construction is strictly prohibited to prevent the LED display from being affected by high current impact and dust, such as electric welding, chainsaw and other equipment operations.

3. Product Specification

3.1. The display screen is mainly composed of red LED chips, green LED chips and blue LED chips packaged into a pixel point to form a matrix, and then fixed to the plastic kit;

3.2. The display screen contains a driver chip and an input buffer chip, which can be connected to the LED display control system to display video, images and text information;

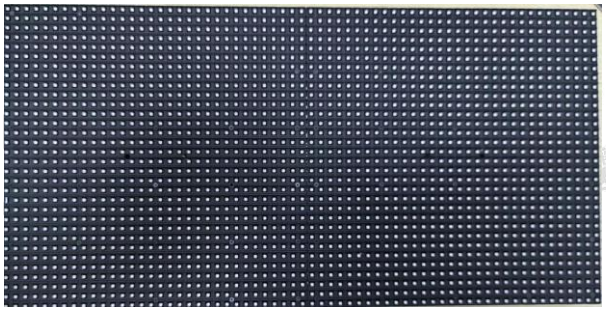
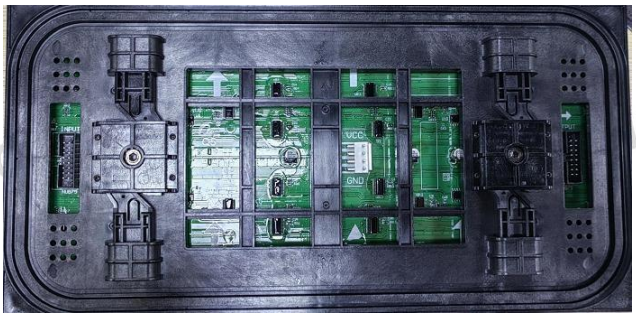
3.3. Through the system control to drive the red LED, green LED and blue LED driving IC, 4,398 billion color conversions can be formed.

3.4. The module l and the cabinet can be spliced arbitrarily in the horizontal and vertical directions to form different sizes of display screens.

3.5. Features

- High-quality lamps, high-efficiency lamp brightness utilization rate, while guaranteeing lamp lifespan and high-quality plastic component(塑胶件）
- High contrast can achieve good display effect.
- The weight is easy to install and disassembly.
- Single point and single lamp maintenance can be carried out, with low cost.
- It is driven by a constant current, with uniform light emission and low power consumption.

3.6. Module Picture

Front View	Rear View
	

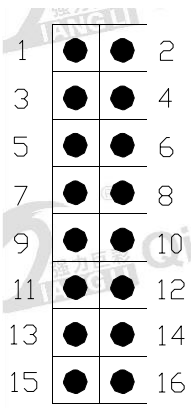
4.Technical Specification

Module	Pixel Pitch	4mm	Pixel Density	62500Dots/㎡
	Configuration	1R1G1B	LED Lamp	SMD1921
	Size (Width*Height*Depth)	320*160*18.5mm	Weight	0.45kg±0.01kg
	Structure	Lamp & IC in same PCB	Resolution	80*40=3200Dots
	Input Voltage (DC)	4.5±0.1V	Maximum Current	≤9.51A
	Power Consumption	≤47W	Driving Method	Constant Current 1/10 Scan
	40A Power Supply for	2-3 pcs module	50A Power Supply for	3-4 pcs module
	40A PFC Power Supply for	3-4 pcs module	80A Power Supply for	6-7 pcs module
Screen	Brightness	≥4500cd/㎡	Brightness Uniformity	＞0.95
	Horizontal Viewing Angle	140 ±10 degree	Vertical Viewing Angle	130 ±10 degree
	Best Viewing Distance	≥4 m	Black Spot Ratio	< 0.0003； 0 when shipped from the factor
	Max Power Consumption	≤909 W/㎡	Operation Environment	Outdoor
	Grayscale	14-16bits (RGB each)	Display Color	4398 Billion
	Frame Frequency	≥60 frame/sec	Refresh Frequency	≥1920 Hz

	Control Mode	Computer control, Point-to-point, Video synchronization, real-time display	Brightness Adjustment	256-grade manual / automatic
	Input signal	DVI/VGA/HDMI/DP, composite video signal, S-VIDEO, YpbPr(HDTV)		
	Life Span	≥100,000 hours	Average Failure Free Time	≥10,000 hours
	Attenuation (3 years later)	≤15％	Operating Humidity	10％-90％RH

5.Signal Pin

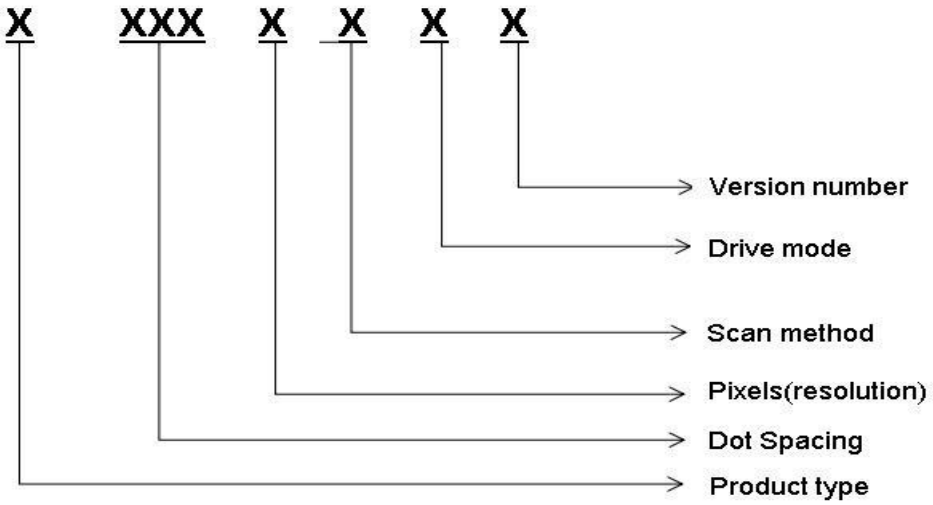
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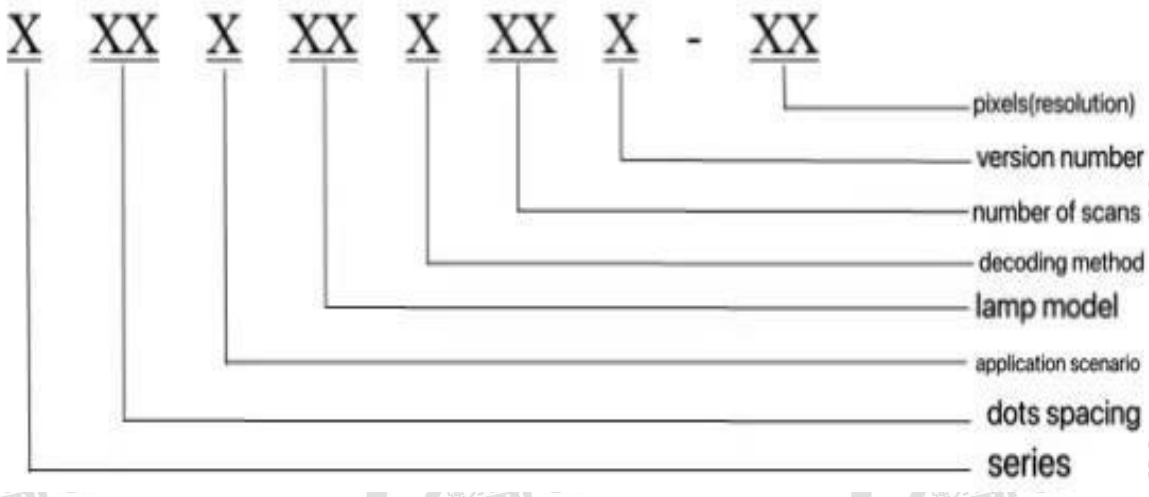
Pin	Signal	Function	Pin	Signal	Function
1	RD1	Red data signal	2	GD1	Green data signal
3	BD1	Blue data signal	4	GND	GND
5	RD2	Red data signal	6	GD2	Green data signal
7	BD2	Blue data signal	8	GND	GND
9	A	Line power control signal	10	B	Line power control signal
11	C	Line power control signal	12	D	Line power control signal
13	CLK	Clock signal	14	LAT	Data locking signal
15	OE	Enable signal	16	GND	GND

6.Product Model Naming Instructions

（1） Mode 1：

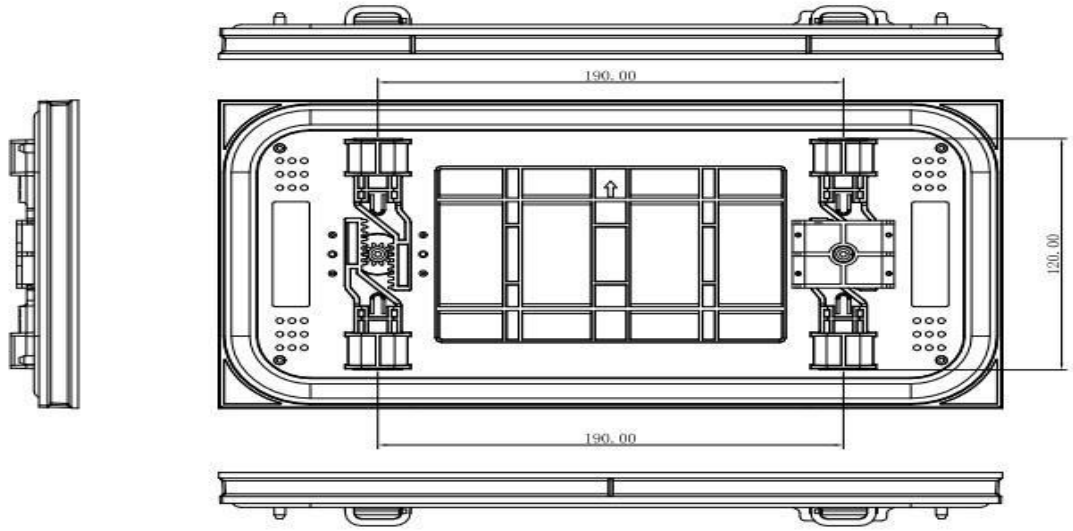


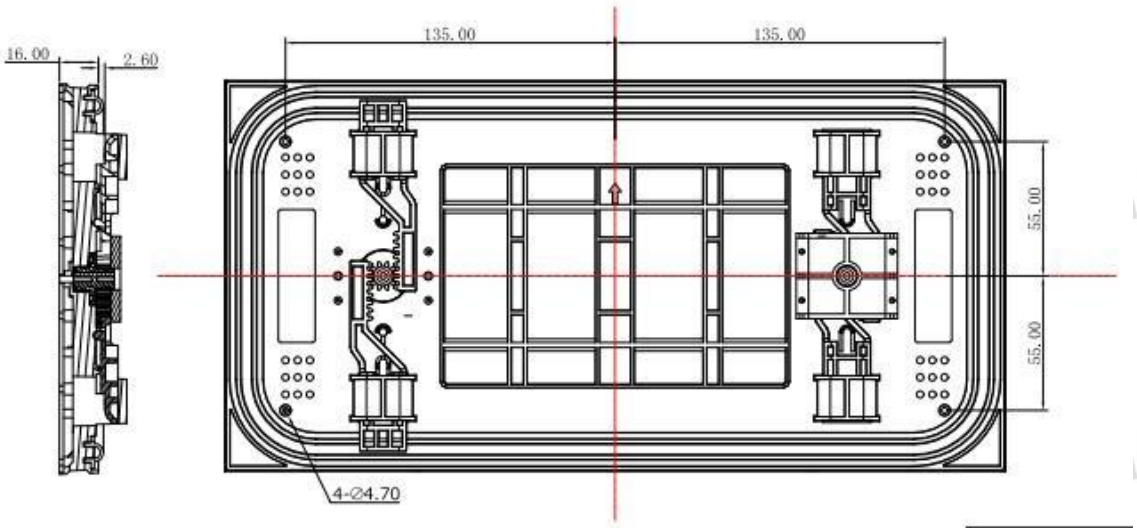
（2） Mode 2：



7. Mounting Hole Bitmap

7.1. Installation hole bitmap of panel:

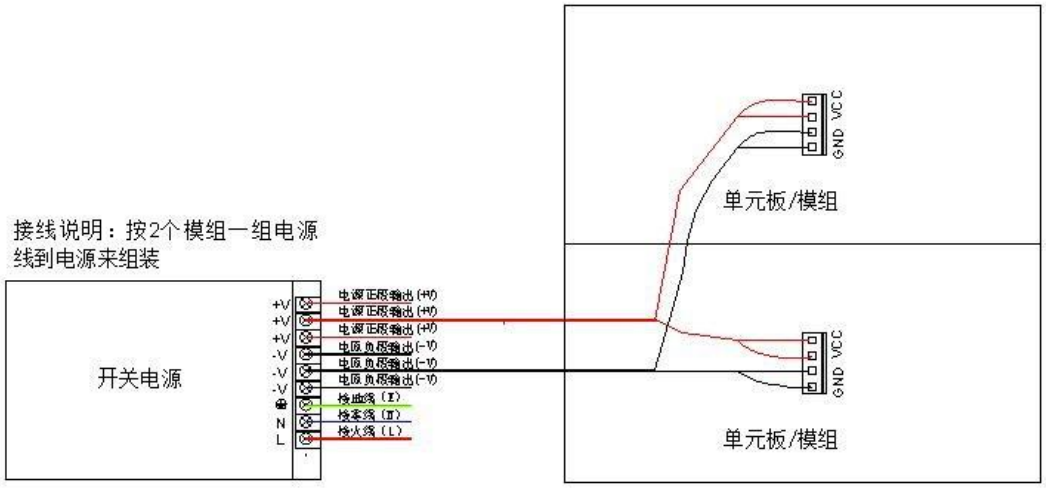




Remarks: **"If you need to make a cabinet, please inform salesmen in advance and confirm the hole bitmap of the ordered product. Please refer to the CAD drawing for details."** All dimensions are in mm.

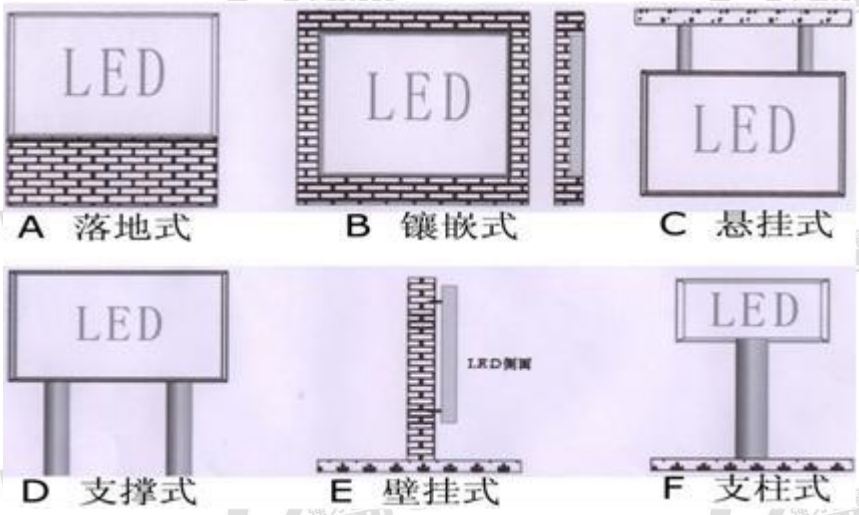
8. Installation Instructions

8.1. Schematic diagram of power supply and module wiring (this figure is for reference only, the specific wiring method refers to the actual object):



8.2. Amplitude range

8.2.1. There are six common installation methods for outdoor display screens.

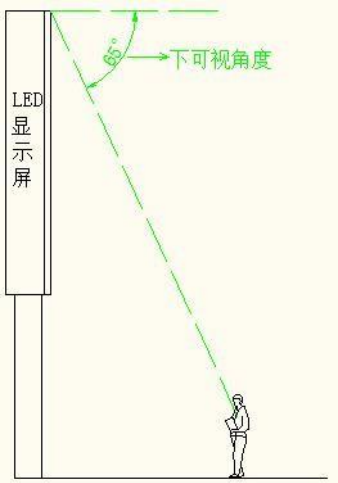


The cabinet is installed from the bottom layer, and the installation of wrong and garbled characters will affect the display effect of the screen. During installation, it should be noted that the bottom layer must be installed very flat, and then the upper cabinet should be installed. The connection between the cabinet and the cabinet should be Apply waterproof glue. After the whole screen is debugged, the surrounding of the screen structure must be strictly waterproofed.

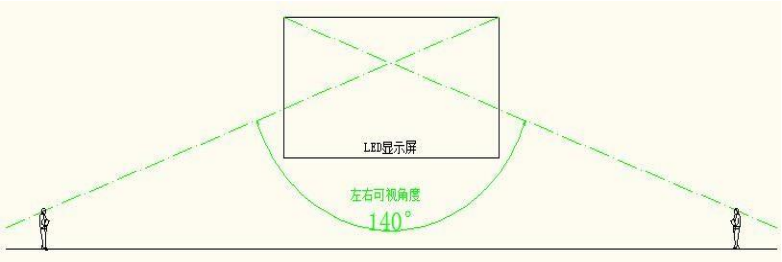
8.3. Screen acceptance requirements and methods:

8.3.1. Screen brightness: adjust the screen to full brightness, adjust the brightness efficiency in the test software to 80% on the computer, and use a light gun to measure the brightness of the screen within 10 minutes. Measuring the brightness requires that the light gun should be aimed at the screen body. It is best to measure the light gun to keep the screen body level, make sure that the black position of the observation window covers more than 16 pixels, and adjust the focal length for measurement.

8.3.2. Viewing angle: when measuring, people stand at a position of 140° left and right of the screen, and the viewing angle below the screen is 65°. It is required that the screen has no obvious black spots and no obvious dark blocks.



Screen upper and lower viewing angle



Left and right viewing angles of the screen

8.3.3. Grounding: The shell, box and screen structure of the switching power supply are properly grounded, the grounding point is correctly marked with the grounding mark, and a spot check is carried out every six months;

8.3.4. Lightning protection treatment: the building is required to have lightning rod or lightning protection belt facilities and be effectively grounded, and the power distribution box is required to be equipped with a surge protector, and the lightning protection facilities are required to be inspected every six months.