# 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.<br>Operating temperature range: -20°C-40°C, other temperature ranges need to be equipped with temperature control equipment.<br>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.<br>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.<br>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:<br>1) Rain and snow will enter from the front of the display to |

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|---|---|---|
| | 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;<br>2) The magnetic installation method cannot guarantee the flatness and assembly effect of the display screen;<br>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;

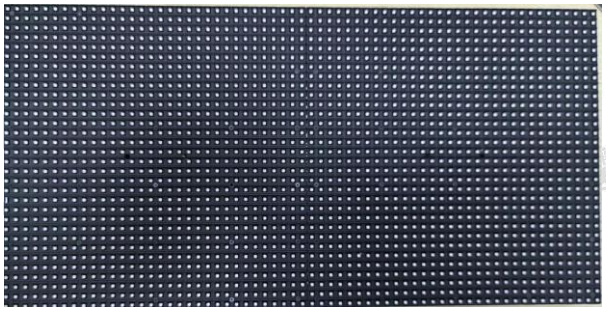
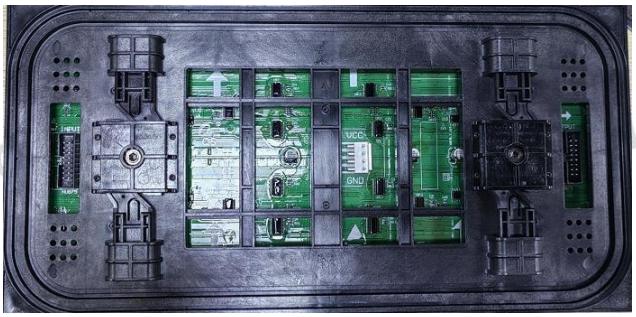
**3.3.** Through the system control to drive the red LED, green LED and blue LED driving IC, 4,398 billion color conversions can be formed.

**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 |
|---|---|
|  |  |

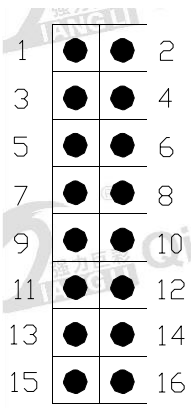
# 4.Technical Specification

| | | | | |
|---|---|---|---|---|
| Module | Pixel Pitch | 4mm | Pixel Density | 62500Dots/㎡ |
| | Configuration | 1R1G1B | | |
| | 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 | ≥5000cd/㎡ | 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 | ≥5000 Hz |

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|---|---|---|---|---|
| | 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

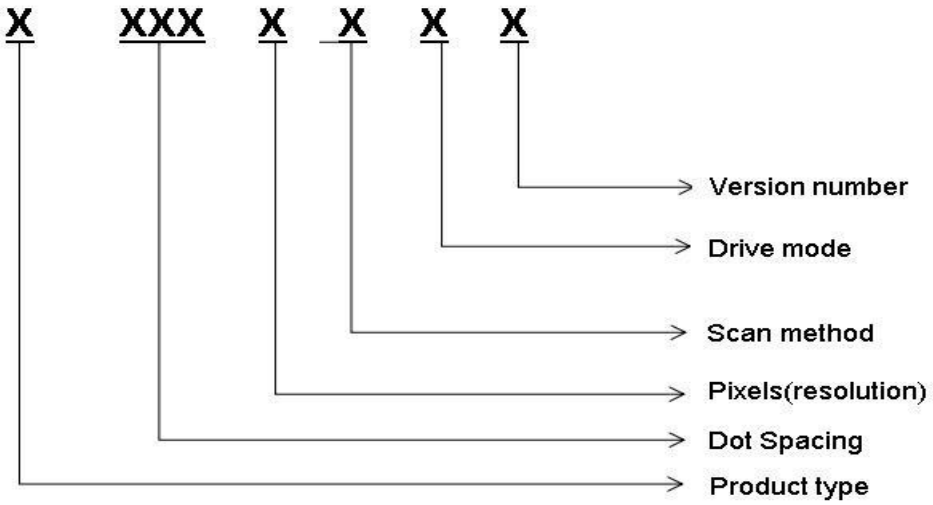
**HUB75**



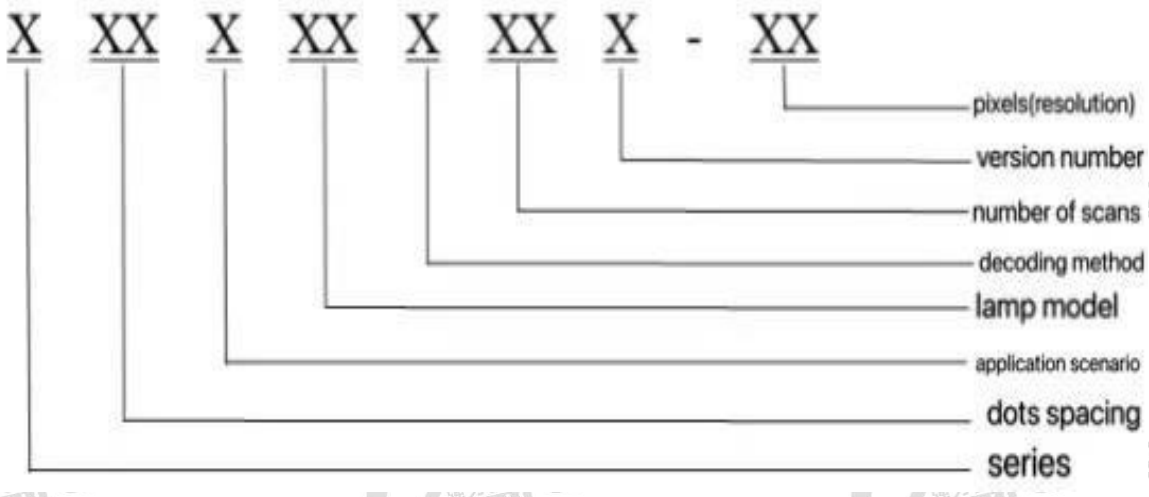

| Pin | Signal | Function | Pin | Signal | Function |
|---|---|---|---|---|---|
| 1 | RD1 | Red data signal | 2 | GD1 | Green data signal |
| 3 | BD1 | Blue data signal | 4 | GND | GND |
| 5 | RD2 | Red data signal | 6 | GD2 | Green data signal |
| 7 | BD2 | Blue data signal | 8 | GND | GND |
| 9 | A | 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：

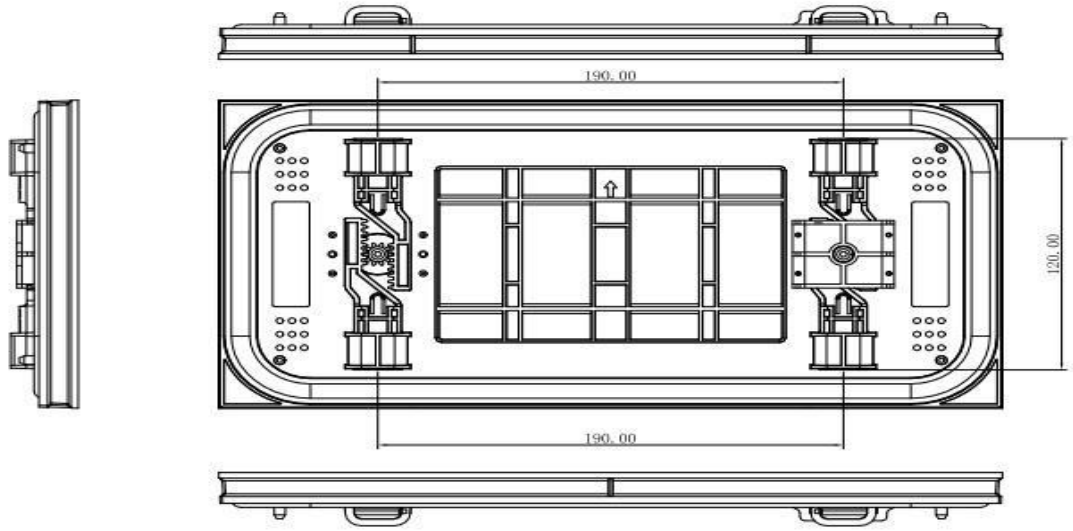


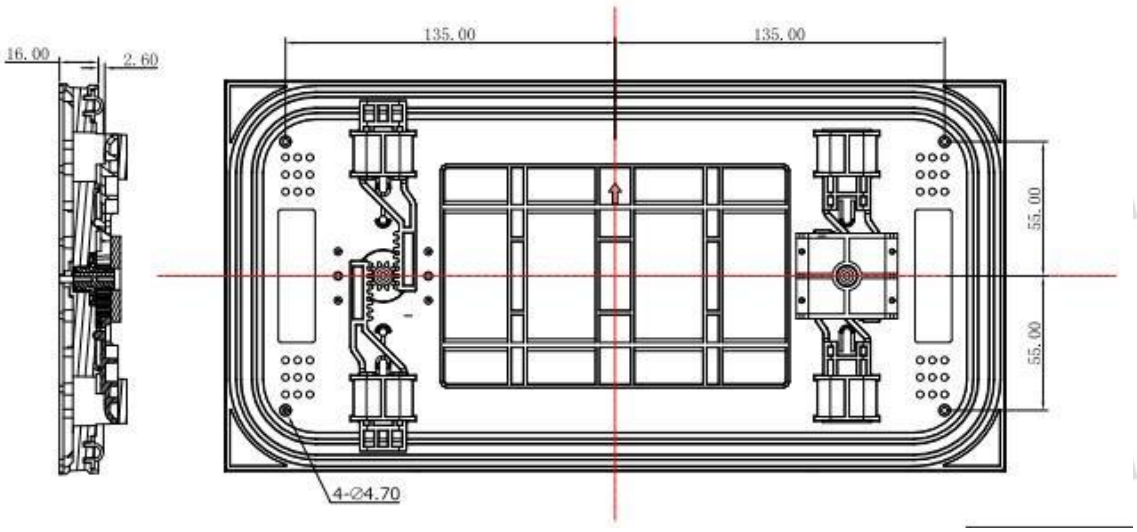

（2） Mode 2：



# 7. Mounting Hole Bitmap

## 7.1. Installation hole bitmap of panel:

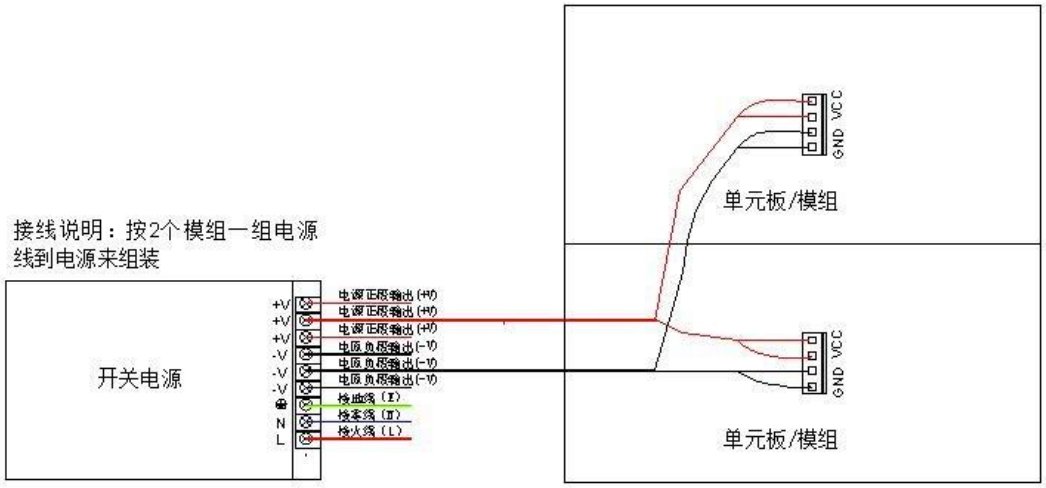



Remarks: **"If you need to make a cabinet, please inform salesmen in advance and confirm the hole bitmap of the ordered product. Please refer to the CAD drawing for details."** All dimensions are in mm.

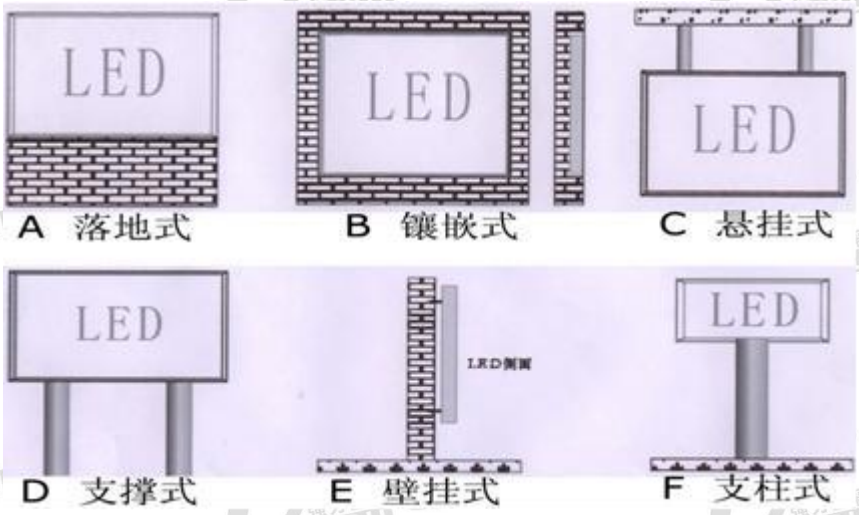
# 8. Installation Instructions

## 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.

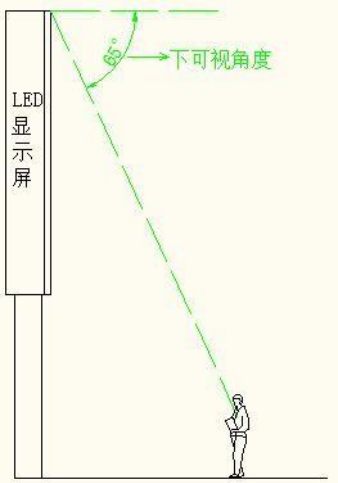



The cabinet is installed from the bottom layer, and the installation of wrong and garbled characters will affect the display effect of the screen. During installation, it should be noted that the bottom layer must be installed very flat, and then the upper cabinet should be installed. The connection 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.

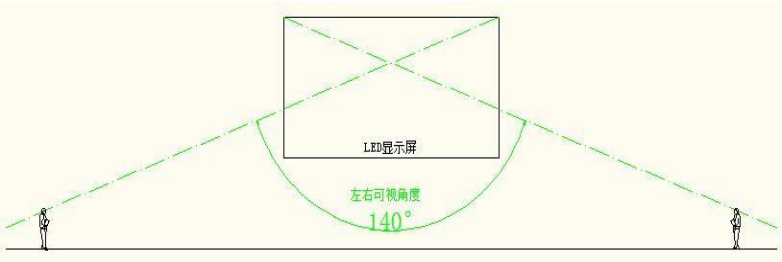
## 8.3. Screen acceptance requirements and methods:

**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.