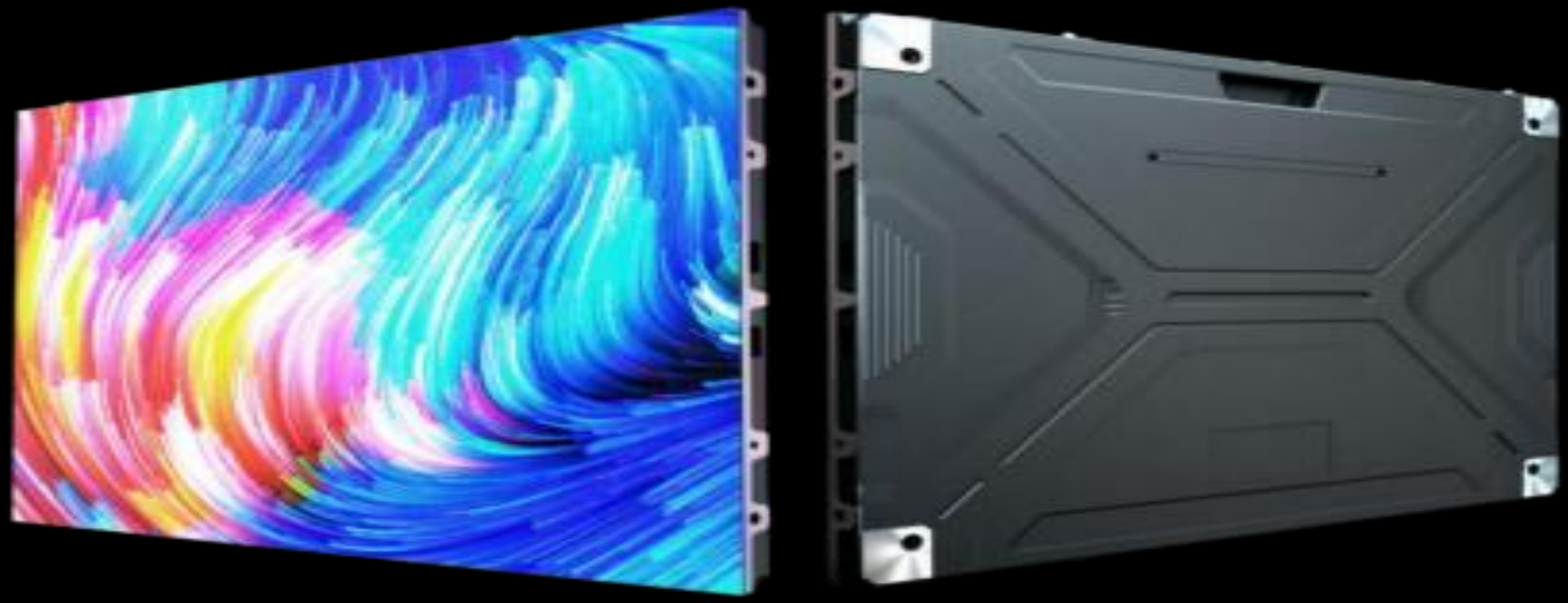
AURORA SIGNAGE

V SPEC SERIES II

Indoor LED Display



USER MANUAL

V1.0

CONTENTS

This manual systematically introduces the product components, ports, specifications, as well as installation, function applications and other instructions, aiming at guiding user to start an efficient experience with V Spec Series;

This manual is applicable for customized projects of V Spec Series, and takes installation modes of 4*4 cabinet layout as an example. The version of this manual is V4.0.

WARNING!

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Please read this manual thoroughly before operation;

The possibility of damage to the device and the inability to recover due to ignoring the following contents of the warning is extremely high;

The manufacturer shall not responsible for any incorrect, irregular or unsafe operations;

Please cut off product power supply under situations of off-work state, disassembly, installation, maintenance;

Please make sure the AC power meets local building & electrical standards and equipped with overload and earth faulty protection;

If abnormality occurs in the display, such as abnormal smell, smoke, electric leakage or temperature happens, please cut off the power immediately and then contact the professional;

It must be ensured that the display and its accessories are properly and reliably grounded before use;

Pay attention to personal safety during installation and prevent touching sharp edges;

Do not use electrical accessories that are not certified by the equipment manufacturer.

Do not invert and throw the equipment during handling and storage;
Do not tilt and collide to scratch the equipment during the installation process;
Do not drench and immerse the equipment in water;
Do not enable the air outlet of the air conditioner close to the display screen;
Do not place or use the display in an environment with volatile, corrosive or flammable chemicals;
Do not use the equipment in humidity above 65% or in outdoor rainy days;
Do not clean the display equipment with water and chemical solvents.

Precautions before installation

Wear anti-static gloves and anti-static bracelet during installation and maintenance;
Air movement across the back of the display must be considered when designing the heat dissipation scheme;
The storage environment of the display should be ventilated and dry, and the humidity should not exceed 60%;

Precautions during operation

- The display cabinet should be installed and powered within 48 hours after unpacking. In case of dampness, iplease ensure the display cabinst is not powered. The screen must be dehumidified, and it is suggested that the pre testing conditions should be (60± 5)℃ for 12 hours;
- The modules after dehumidification shall be installed within 5 hours, and then conduct dehumidification for the whole screen; see Diagram 1 for screen dehumidification (2 cycles, 26 hours in total);
- When the humidity of working environment is higher than 65% RH, the display cabinet should be packed into the box for dry and sealed storage immediately after each use;
- If the display cabinet stays off-work mode for 15 days, it is recommended to power up to normal brightness step by step to dehumidification (refer to Diagram 1);

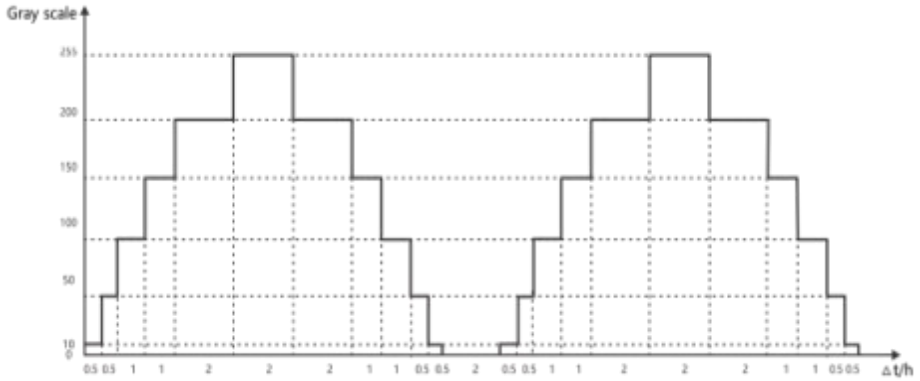


Diagram 1

- It is recommended to limit the maximum brightness of the display by software, ensuring that the LED cabinet surface temperature to maintain below 40 。C during pre testing use;
- Under normal circumstances, the display must be powered on and turned on at least twice a week, and each time shall not less than 2 hours;
- If the display is installed in the salty area, saline-alkali area, sulfur-containing gas area, placed near kitchen smoke exhaust or with large indoor and outdoor temperature disparities, it may contribute to equipment failure and affect the overall service life. If inevitable, please consult our professional and technical personnel for installation advice and recommendations.

1. Product Introduction

1.1 Product Brief

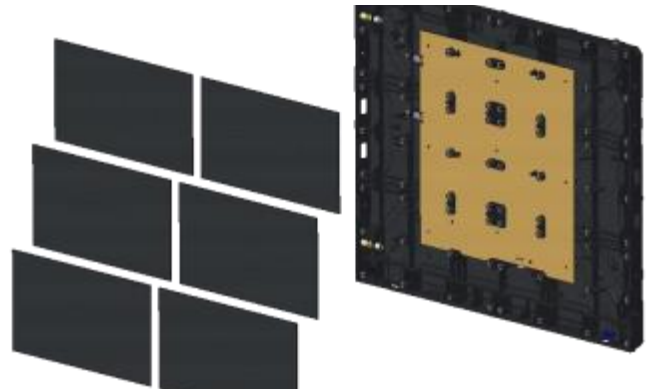
V Spec LDC640 series II now has pixel pitch options of 1.2mm, 1.5mm, 1.8mm and 2.5mm, which can be widely used in TV studios, command and control centers, monitoring centers, video conference rooms, large commercial supermarkets, airport, railway stations, exhibition halls and other environments with high display display quality requirements.

1.2 Product Features

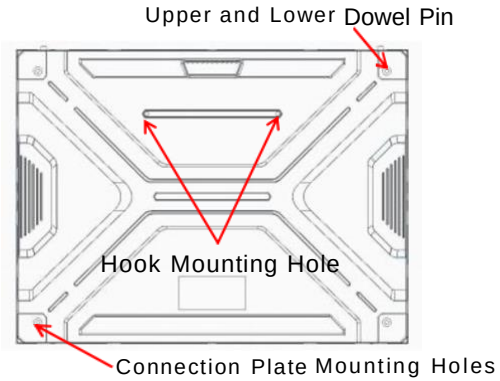
- Smooth image quality. Apply PWM driver IC, achieving a vivid display effect without compromising image detail.
- 1920-3840Hz high refresh rate and 11-13bits high gray scale levels.
- High contrast ratio. High-contrast LEDs and PCB are a feature of this LED Display system, ensuring a better screen contrast effect.
- Auroras developed , molded cabinet structure, high precision cabinet with better screen uniformity.
- Adopt high-level row driver IC, eliminating problems like “Caterpillar” (short circuit of LEDs row) and “Cross” (open circuit of LEDs row) on the screen.
- Support full front maintenance,ensuring efficient service maintenance.
- Reliable product quality. Comprehensive testing of components, systematic testing procedures, standard manufacturing process, and strict QC.
- EMC class A; Low radiation. EMC design, low radiation rating satisfies EMC class A.
- “Green” product. Lead free process through manufacturing, environmentally-friendly product, and in line with national ROHS directives of China and EU.

2. Product Components

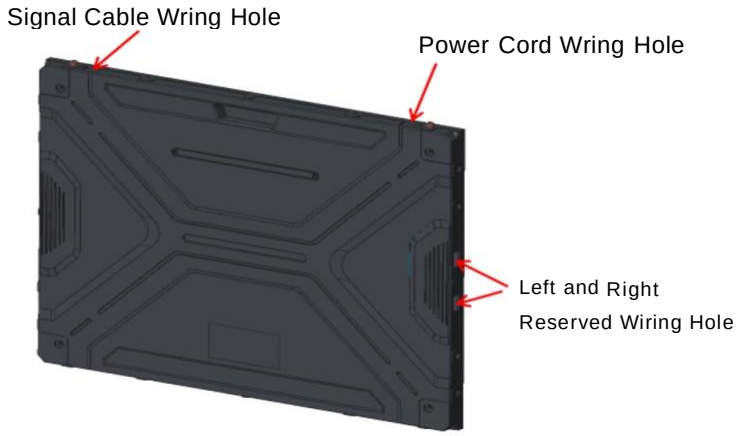
2.1 Module Composition



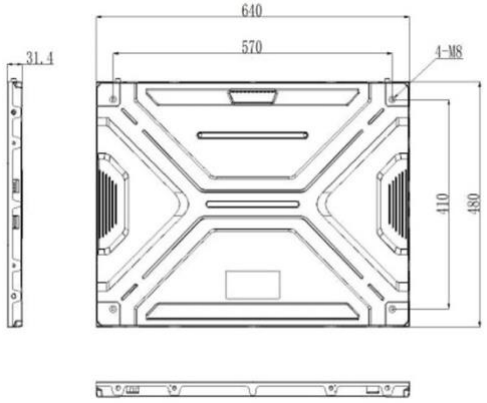
2.2 Cabinet Composition



2.3 Wiring Hole Location



2.4 Mounting Hole Location



3. Product Assembly

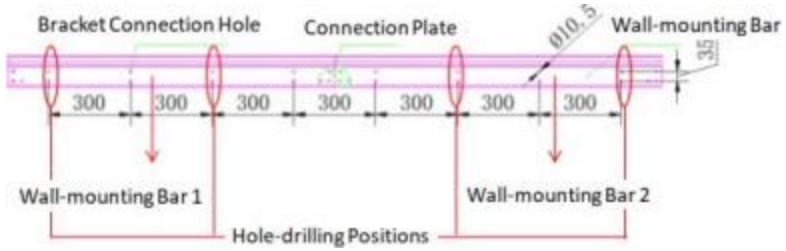
3.1 Wall-mounting Installation (Recommended)

3.1.1 Wall-mounting bar installation

Locate the positions to drill holes for upper and lower wall-mounting bars according to the size of mounting holes on the installation diagram. Then draw dowel points on the wall (use level instrument to ensure position precision) based on the height requirement of screen to ground on site, and at least 16 points are required for upper and lower wall-mounting bars.

Note: 1) The upper and lower wall-mounting bars are respectively composed of the wall-mounting bar 1 and the wall–mounting bar 2, which are joined by connection plates.

3.1.2 It is recommended that wall-mounting bar 1 and wall-mounting bar 2 shall be installed with 4 holes, and other holes are reserved ones. The hole-drilling positions are as shown in below diagram:



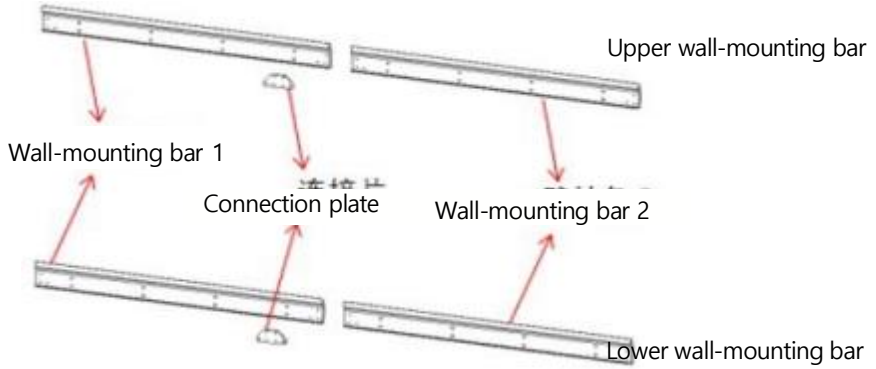
Drill M8 expansion bolt mounting holes at the position of the drawing points by electric drill. The diameter of each mounting hole shall be 10mm, and the positional accuracy beside two holes shall not exceed 1mm.

Note:

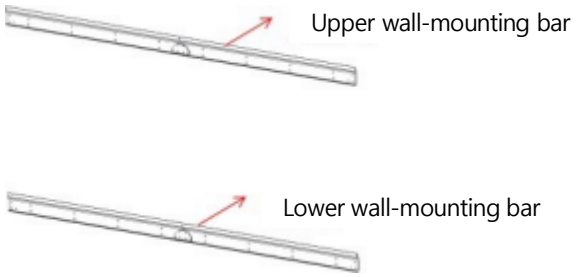
a) Expansion bolts are shown below.

b) If the hole is deflected or encounters the reinforcement bar inside the wall during drilling, other reserved holes nearby can be used.

Install the upper and lower wall-mounting bars with the expansion bolts shown in the diagram above. Fix the wall-mounting bar 1 and the wall-mounting bar 2 respectively with six M6*16 connection plates, as shown below:



The front view of installed wall-mounting bar is as follows:



3.1.3 Check whether the wall-mounting bar is properly installed, which requires: a. Level accuracy; b. correct spacing between the two rows of wall hanging bars is correct.

(1) Levelness Check

(2) Spacing check and adjustment with follow below steps:

a) Use a level instrument to measure the horizontal alignment of wall-mounting bar. If it is not level horizontally, make adjustment by loosening the expansion bolt and gently pushing wall-mounting bars. And then tighten the wall-mounting bar with screws.

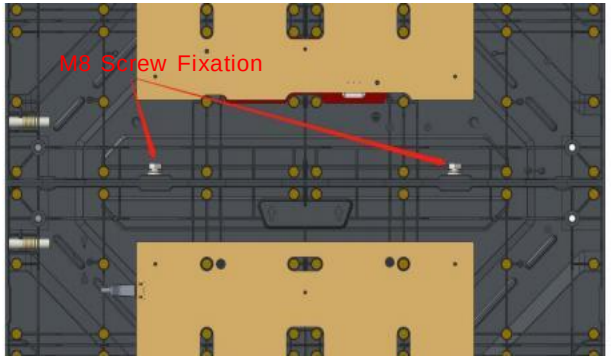
b) Use a tape measure to check whether the spacing between the upper and lower rows of wall-mounting bars is correct. If it is not correct, adjustment by loosening the expansion bolt and gently pushing wall-mounting bars. And then tighten the wall-mounting bar with screws.

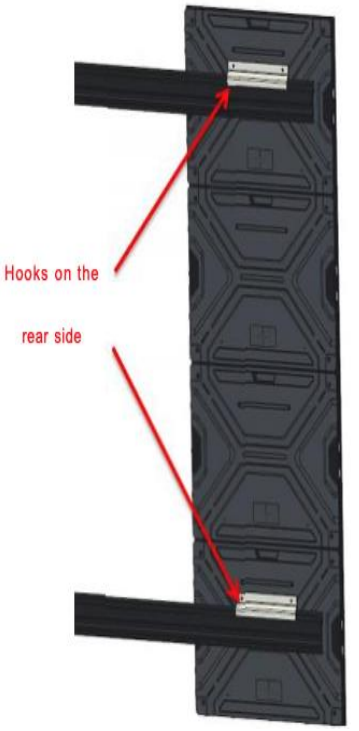
Note: The expansion bolt and the mounting hole have a clearance of 1mm to be fine-tuned.

3.1.4 Assemble modules and cabinets

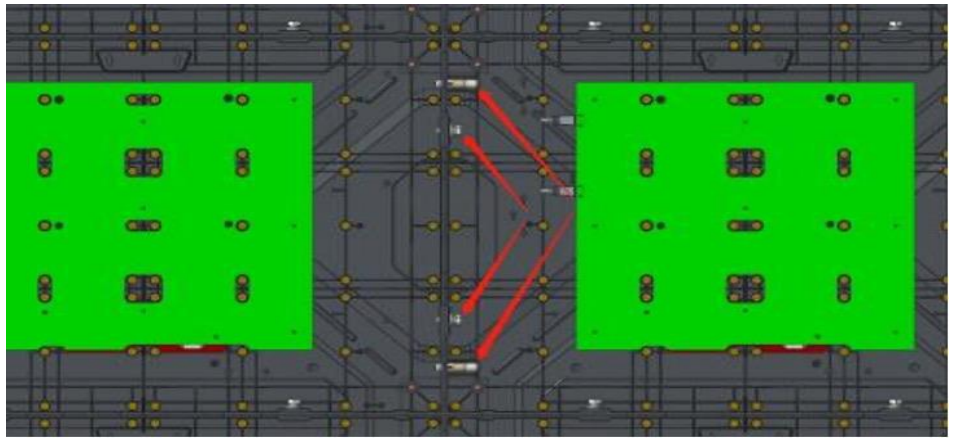
There are six modules on one cabinet, please install magnets on each module before connecting cables on cabinet. The position of each magnet on module is based on actual installation methode.

Fix cabinets in one column by serial number and install hooks on the back side. And then hang the cabinet column to wall-mounting bars as shown below:

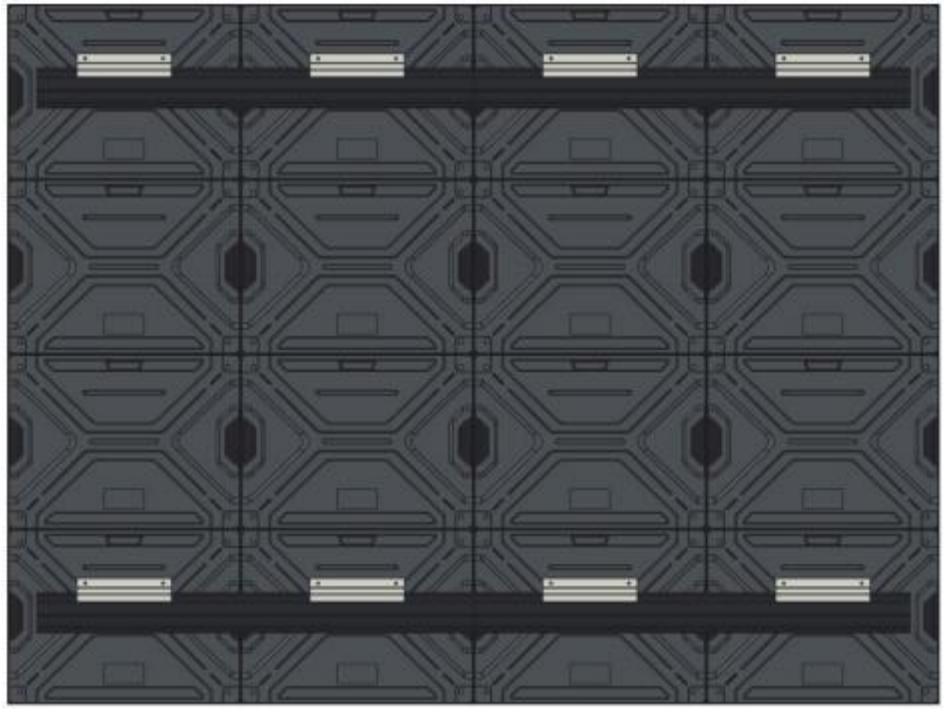




Connect left and right two cabinets by putting dowel pins on the left side into the slot of adjacent cabinet column, and fastening cabinet columns with M8 screws. Find installation details as shown below:



Complete cabinet installation by referring to above steps and final diagram is shown as below:



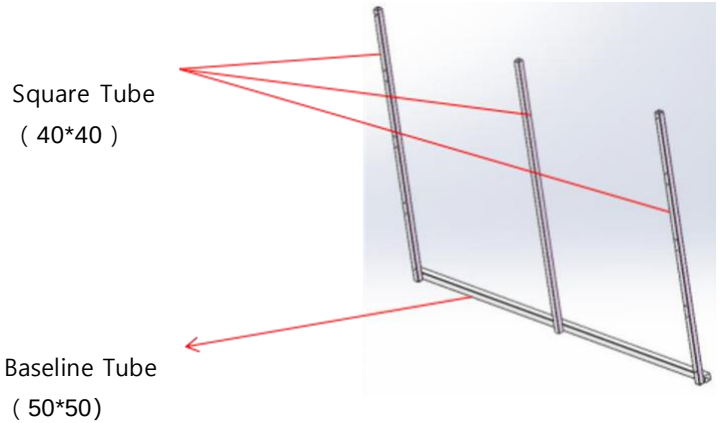
3.2 Frame-type Installation

3.2.1 Preparation before installation:

- Before installation, the installation steel structure should be made according to on-site requirements;
- The mounting square tube (vertical) should be fixed according to on-site environments;
- The baseline tube shall be fixed with square tube (vertical) by welding;

3.2.2 Install steel structure

Align the holes on baseline tube with the corresponding holes on square tube and weld the connection in turn;



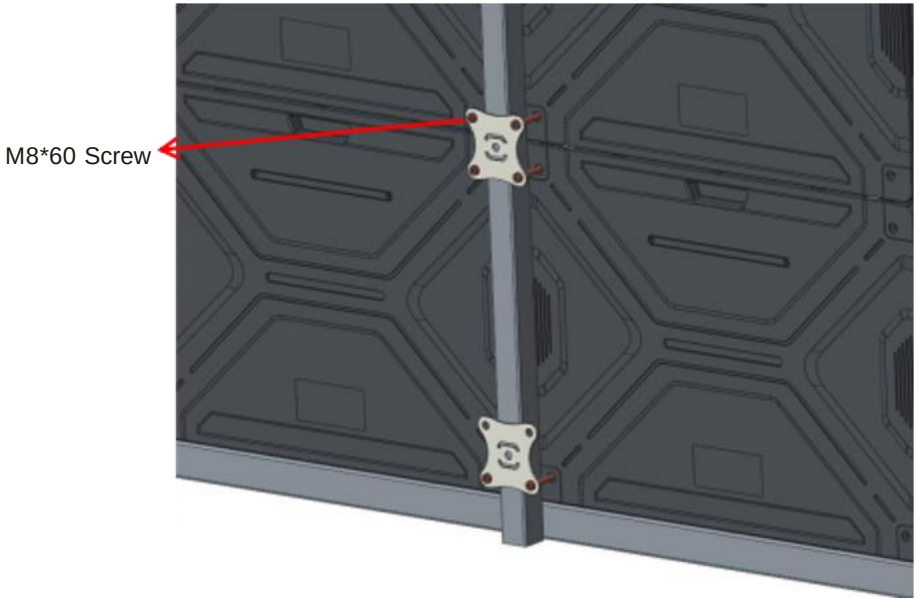
3.2.3 Assemble cabinets

Align and connect left and right two cabinets by locking dowel pins into adjacent slots, and fix cabinet columns with M8*20 screws;

3.2.4 Install remaining cabinets in pairs.

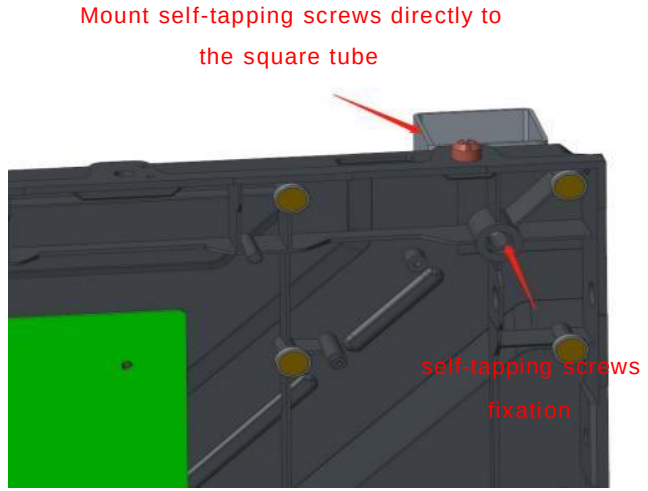
3.2.5 Install assembled cabinets

Place two cabinets with four big connection plates on the baseline tube, and fix the plates with the installation structure by M8*60 hexagonal head bolts and small connection plates;

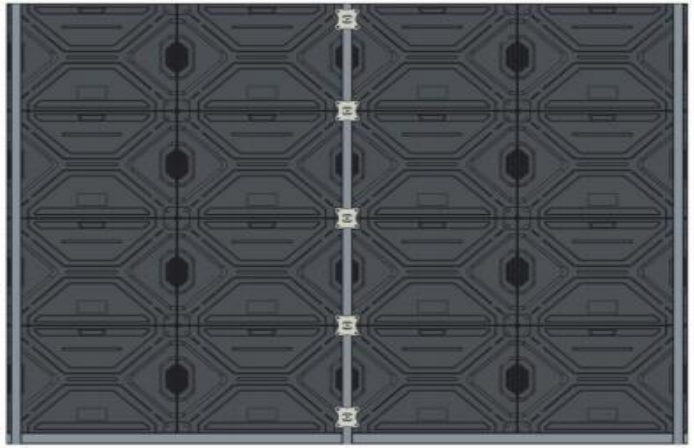


3.2.5.1 Connect the other modules adjacent to the first row in turn by referring to the previous installation method;

3.2.5.2 Fix the left-most and right-most cabinet columns to the square tube with self-tapping screws.



3.2.5.3 Complete installation of all assembled cabinets by above steps, the finished diagram is as follows:



Special note: the installation method described in this manual is only for guidance and reference, and shall not be used as the basis for on-site construction.

3.3 Install Cover Strips

3.3.1 Cover Strips Specifications:

Proceed to cover strip installation after the whole screen installation is finished. Cover strips are divided into left and right cover strip (480*57mm), upper and lower cover strip (640*57mm), and corner cover strip (494*57mm) as shown below:

Cover Strip Type	QTY	Example
upper and lower cover strip	X*2 (X indicates the number of cabinet column)	customized project with 4 cabinet columns shall need 8 upper and lower cover strips
left and right cover strip	2Y-2 (Y indicates the number of cabinet row)	customized project with 4 cabinet rows shall need 6 left and right cover strips
corner cover strip	2	2 corner strips shall be needed despite the layout of cabinets

3.3.2 Install Cover Strip

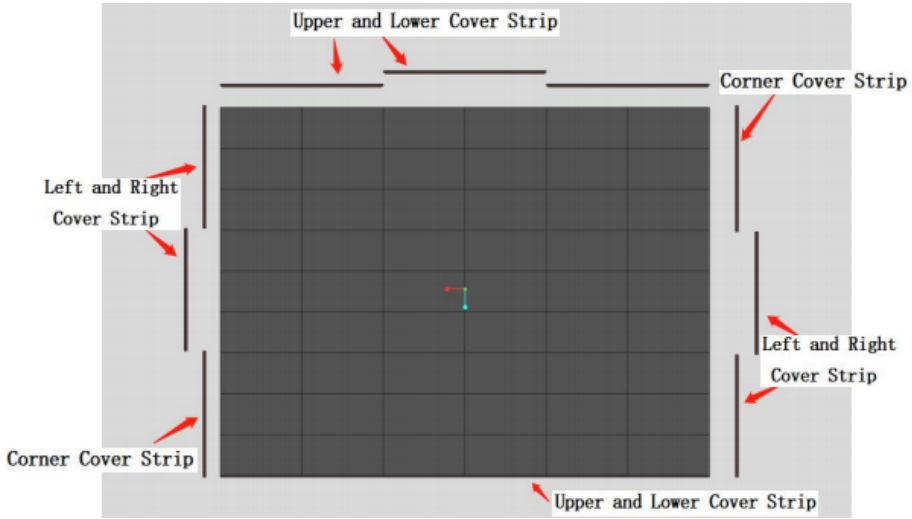
Left and Right Cover Strip

Upper and Lower Cover Strip

Corner Cover Strip

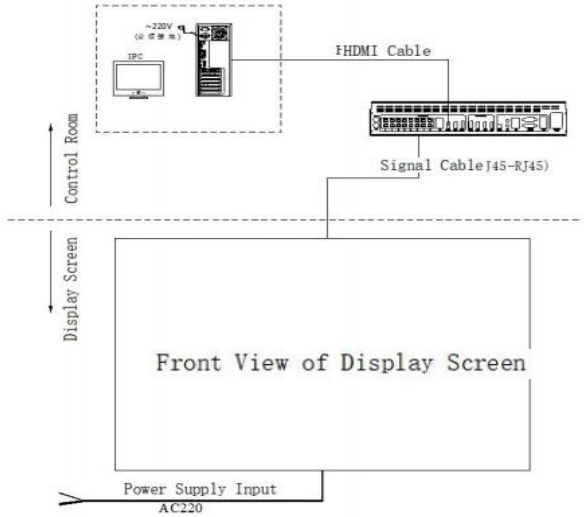
3.3.3 Assemble cabinets

Installation positions of different cover strips can be seen below



3.4 System Wiring

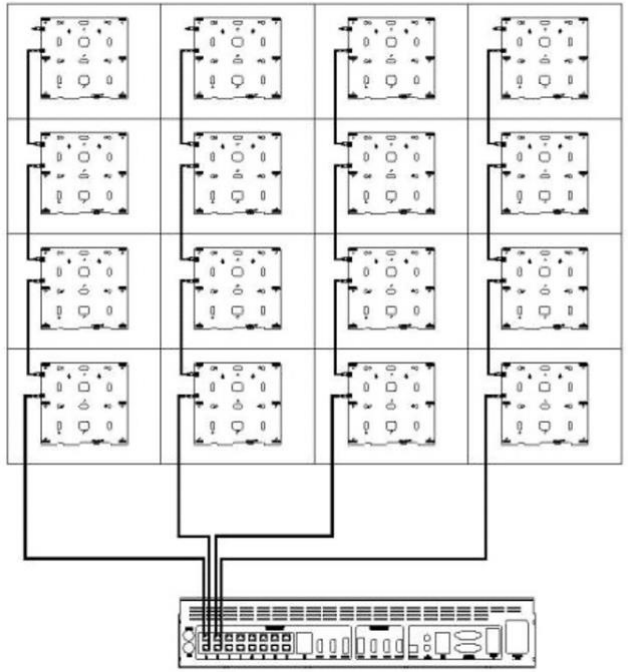
After installing cabinets, connect the power cord and signal cable according to the system wiring diagram for project. As shown below



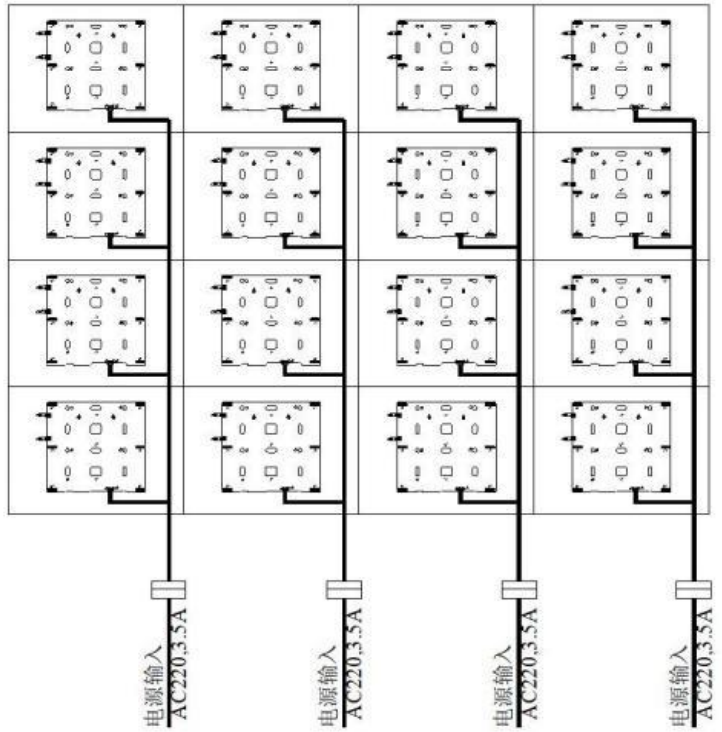
Notes:

- The P1.8 full-color LED display screen is composed of 90,828 pixels.
- A display area with 348*261 pixel dots shall require one control board, therefore the distance between controller and display screen should be less than 90m.
- The maximum power consumption of display screen is xxKW(based on actual panel quantity), and the power distribution capacity shall not be lower than the maximum power consumption.
- The power cord standard is as follows: L (live wire) --- brown; N (zero wire) --- blue; G (ground wire) --- yellow and green.

- System grounding: an exclusive grounding wire to the control room, the grounding resistance shall be less than 4Ω .
- The diameter of the protective ground wire of display screen power supply shall not be smaller than the phase wire.
- No live operation is allowed.
- The port and appearance used for computer connection in the system connection diagram may be different from that of actual product, and please refer to the actual ones.
- The specific positions of all equipment in the system connection diagram shall be determined on site. The drawing only indicates the electrical connection.



Display Screen Signal Connection Wiring



Display Screen Power Supply Connection Wiring

Special note: the system connection mode described in this manual is only for reference, and the system connection of each project shall be carried out according to its wiring diagram.

3.5 Safety Precautions before Power-on

1) Before the screen is powered on, the cables connection between cabinets, main cables and other cables must be checked for any wrong connections, reverse connection, short circuit, circuit break, loosening, etc., and checked with multimeter and other tools. Before any maintenance of the screen, please disconnect all the power supply inside the screen to ensure the safety of personnel and the equipment. All equipment and cabling should never be operated under live electrical work.

2) Do not pull out and insert power cord, cabling and any other wires by force, or lay heavy objects on the power cord, signal cable, or communication cable, etc. Avoid stepping or pressing on the cables. Unqualified or self-installed cables should not be indiscriminately connected inside the screen.

3) In order to avoid the fire, do not overload power to the product. Please refer to the maximum power consumption of the product and avoid turning on all load switches at the same time. Otherwise, it is easy to cause high peak voltage and fire.

4. Common Troubleshooting

1. Control System Troubleshooting

Refer to Control System User Manual

2. Video Processor Troubleshooting

Refer to Video Processor User Manual

3. Hardware Troubleshooting

No.	Fault Description	Troubleshooting
1	Partial screen is black after power on	① Check whether the network cable inside the cabinet is disconnected or in loose contact. ② Check whether the power cord inside the cabinet is disconnected or in loose contact.
2	Display data corruption after replacing module or bridge board	Power off and restart the display, enabling the bridge board re-reads the module data.
3	White lines appear in the display area	After replacing the LED module or bridge board in the fault display area, power off and restart the display.
4	Disorganized picture on the whole screen or part of the screen	① Check the connection order of the display sending card port. ② Check the display signal cable connection sequence.
5	Black indicator	① Check whether the power supply is normal. ② Check whether the display on/off switch is turned on. ③ Check whether the display is in standby mode.

5. Product Maintenance

Item	Description
Temperature	Operating temperature range: - 20 ℃ - 40 ℃. If the temperature range is exceeded, install temperature control equipment. When the LED module is working, the temperature of the LEDs board surface shall be ≤ 60 ℃, and if the temperature exceeds the standard, temperature control equipment shall be installed.
Humidity	The working humidity is required to be 10% - 65% RH. If the humidity exceeds 65% RH, the display shall be used after dehumidification.
Dust	The display shall not be exposed to dusty environment, such as studio decoration, transformation, etc., and special protection shall be provided for the display. Installation should not be done under decoration environments.
Water	The waterproof rating of indoor display is low, and water can cause short circuit, resulting in circuit components damage. It is suggested to keep the display away from water sources
Gas	Corrosive gas environment containing salt or acid gas will cause corrosion of electronic components, crystal leakage and etc.
Electromagnetic Radiation	The display should not be placed in the environment where the RF radiation of electromagnetic radiation exceeds 5V /m interference source of field strength.
Cross Construction	After LED display installation, it is strictly prohibited to carry out construction near the screen. It is required to prevent large current and dust pollution from damaging the display.
Intensive Light	Intensive light will affect the display effect of the display, and long-term gaze will also cause decreased acuity, dazzling, and short-term blindness of the human eye.
Physical Injury	During display installation, be careful to the angle and height to prevent the sharp part of screen from damaging the human body.
Electrostatic Hazard	The metal part of the display shall be well grounded with grounding resistance≤ 4 Ω. Meanwhile, prevent damage to electronic devices by static electricity and injury to human body by static electricity in humid environment.

6. Warranty and After-sales Service

1. Warranty Policy

Our company provides high-quality after-sales service for all V Spec products with 4 year warranty. In order to meet the long-term quality assurance requirements of our customers, we can provide extended warranty services. The specific policies can be consulted with an Aurora sales representative.

2. After-sales Service

If you encounter any problems during the operation, please contact your sales representative, and we will arrange professional and technical personnel to provide support at the first time.

Service Hotline: +1300 841 542

7. Special Statement

- Intellectual Property Rights: The hardware design and software programs of this product are protected by copyright. The contents of this product and the manual shall not be copied without the authorization of the company.
- The contents of this manual are for reference only and do not constitute a commitment of any kind.
- The company reserves the right to make improvements and changes to the product design without prior notice
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