



# Indoor Full-Color LED Display Unit

Quick Start Guide

# Legal Information

## About this Document

- This Document includes instructions for using and managing the Product. Pictures, charts, images and all other information hereinafter are for description and explanation only.
- The information contained in the Document is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version of the Document at the Hikvision website (<https://www.hikvision.com>). Unless otherwise agreed, Hangzhou Hikvision Digital Technology Co., Ltd. or its affiliates (hereinafter referred to as "Hikvision") makes no warranties, express or implied.
- Please use the Document with the guidance and assistance of professionals trained in supporting the Product.

## About this Product

This product can only enjoy the after-sales service support in the country or region where the purchase is made.

## Acknowledgment of Intellectual Property Rights

- Hikvision owns the copyrights and/or patents related to the technology embodied in the Products described in this Document, which may include licenses obtained from third parties.
- Any part of the Document, including text, pictures, graphics, etc., belongs to Hikvision. No part of this Document may be excerpted, copied, translated, or modified in whole or in part by any means without written permission.
- **HIKVISION** and other Hikvision's trademarks and logos are the properties of Hikvision in various jurisdictions.
- Other trademarks and logos mentioned are the properties of their respective owners.
-  **HDMI**™ The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc. in the United States and other countries.

## LEGAL DISCLAIMER

- TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THIS DOCUMENT AND THE PRODUCT DESCRIBED, WITH ITS HARDWARE, SOFTWARE AND FIRMWARE, ARE PROVIDED "AS IS" AND "WITH ALL FAULTS AND ERRORS". HIKVISION MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY, SATISFACTORY QUALITY, OR FITNESS FOR A PARTICULAR PURPOSE. THE USE OF THE PRODUCT BY YOU IS AT YOUR OWN RISK. IN NO EVENT WILL HIKVISION BE LIABLE TO YOU FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, OR INDIRECT DAMAGES, INCLUDING, AMONG OTHERS, DAMAGES FOR LOSS OF

BUSINESS PROFITS, BUSINESS INTERRUPTION, OR LOSS OF DATA, CORRUPTION OF SYSTEMS, OR LOSS OF DOCUMENTATION, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE), PRODUCT LIABILITY, OR OTHERWISE, IN CONNECTION WITH THE USE OF THE PRODUCT, EVEN IF HIKVISION HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSS.

- YOU ACKNOWLEDGE THAT THE NATURE OF THE INTERNET PROVIDES FOR INHERENT SECURITY RISKS, AND HIKVISION SHALL NOT TAKE ANY RESPONSIBILITIES FOR ABNORMAL OPERATION, PRIVACY LEAKAGE OR OTHER DAMAGES RESULTING FROM CYBER-ATTACK, HACKER ATTACK, VIRUS INFECTION, OR OTHER INTERNET SECURITY RISKS; HOWEVER, HIKVISION WILL PROVIDE TIMELY TECHNICAL SUPPORT IF REQUIRED.
- YOU AGREE TO USE THIS PRODUCT IN COMPLIANCE WITH ALL APPLICABLE LAWS, AND YOU ARE SOLELY RESPONSIBLE FOR ENSURING THAT YOUR USE CONFORMS TO THE APPLICABLE LAW. ESPECIALLY, YOU ARE RESPONSIBLE, FOR USING THIS PRODUCT IN A MANNER THAT DOES NOT INFRINGE ON THE RIGHTS OF THIRD PARTIES, INCLUDING WITHOUT LIMITATION, RIGHTS OF PUBLICITY, INTELLECTUAL PROPERTY RIGHTS, OR DATA PROTECTION AND OTHER PRIVACY RIGHTS. YOU SHALL NOT USE THIS PRODUCT FOR ANY PROHIBITED END-USES, INCLUDING THE DEVELOPMENT OR PRODUCTION OF WEAPONS OF MASS DESTRUCTION, THE DEVELOPMENT OR PRODUCTION OF CHEMICAL OR BIOLOGICAL WEAPONS, ANY ACTIVITIES IN THE CONTEXT RELATED TO ANY NUCLEAR EXPLOSIVE OR UNSAFE NUCLEAR FUEL-CYCLE, OR IN SUPPORT OF HUMAN RIGHTS ABUSES.
- IN THE EVENT OF ANY CONFLICTS BETWEEN THIS DOCUMENT AND THE APPLICABLE LAW, THE LATTER PREVAILS.

**© Hangzhou Hikvision Digital Technology Co., Ltd. All rights reserved.**

# Preface

## Applicable Models

This guide is applicable to indoor full-color LED display units.

## Symbol Conventions

The symbols that may be found in this document are defined as follows.

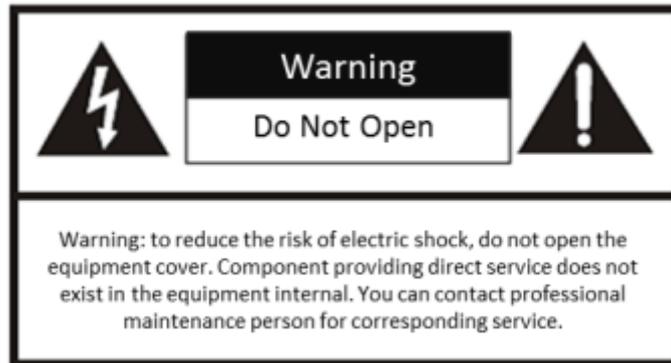
Symbol	Description
 <b>Note</b>	Provides additional information to emphasize or supplement important points of the main text.
 <b>Caution</b>	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
 <b>Danger</b>	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.

## Safety Instructions

### Caution

- The reduce the risk of fire or electric shock, please do not expose the device to rain or humid environment.
- The device may generate radio interference in indoor environment. Necessary precautions may be required.
- Electric discharge may last for a short period of time after the power is shut down. Please wait two minutes after the power is shut down before operating the device.
- To avoid the risk of electric shock, please do not operate when the power is on.
- Please do not plug and unplug the power cable when the power is on.
- Ensure correct voltage and wiring of the terminals for connection to mains supply.
- The device is only suitable for installation on the concrete or non-flammable surfaces, to prevent molten material from dripping to the bottom during fire caused by internal failure.
- Keep 90 degrees when moving and using the device.
- Do not place anything containing liquid on the device to avoid the risk of fire or electric shock caused by liquid-splashing.

- Install the device no more than 5 mm away from the wall or other metal racks in case of lamp board drop resulting in electric shock.
- After installation, there should be no openings around the LED module. The bottom bracket under the wire outlet position should completely cover the bottom hole only to let the wire out, to prevent the molten material from dripping to the bottom during fire caused by internal failure.
- To ensure safety, the installation parts and the wall should support four times the weight of the device.



 **Warning**

- In the use of the product, you must be in strict compliance with the electrical safety regulations of the nation and region.
- The device shall not be exposed to water dripping or splashing, and no objects filled with liquids, such as vases, shall be placed on the device.
- Provide a surge suppressor at the inlet opening of the device under special conditions such as the mountain top, iron tower, and forest.
- The protective grounding of the device should be reliably connected to the building protective grounding.
- Do not touch the bare components (such as the metal contacts of the inlets) and wait for at least 5 minutes, since electricity may still exist after the device is powered off.
- + identifies the positive terminals of the device which is used with, or generates direct current, and - identifies the negative terminal(s) of the device which is used with, or generates direct current.
- No naked flame sources, such as lighted candles, should be placed on the device.
- Install the device according to the instructions in Quick Start Guide.
- To prevent injury, this device must be securely attached to the installation surface in accordance with the installation instructions.
- Never place the device in an unstable location. The device may fall, causing serious personal injury or death.
- The additional force shall be equal to three times the weight of the device but not less than 50 N. The device and its associated mounting means shall remain secure during the installation.

After the installation, the device, including any associated mounting plate, shall not be damaged.

- The interface varies with the models. Please refer to the product datasheet for details.
- If the device needs to be wired by yourself, select the corresponding wire to supply power according to the electric parameters labeled on the device. Strip off wire with a standard wire stripper at corresponding position. To avoid serious consequences, the length of stripped wire shall be appropriate, and conductors shall not be exposed.
- Make sure that the power has been disconnected before you wire, install, or disassemble the device.
- If smoke, odor, or noise arises from the power supply or device, immediately turn off the power, unplug the power cable, and contact the service center.
- The equipment has been designed, when required, modified for connection to an IT power distribution system.
- NEVER place items that might tempt children to climb, such as toys and remote controls, on the top of the equipment.
- CAUTION: This bracket is intended for use only with LED display unit. Use with other equipment may result in instability causing injury.
- This device is suitable for mounting on concrete or other non-combustible surface only to avoid fire hazard.
- The power supply or device must be connected to an earthed mains socket-outlet.
- High voltage for the power supply. Do not disassemble it.
- An all-pole mains switch shall be incorporated in the electrical installation of the building.
- A readily accessible disconnect device shall be incorporated external to the equipment, rated 220/230/240 VAC, 6 A for each device. A single device is recommended for AC 220 V/ 230 V/ 240 V, 6 A circuit breakers. When multiple devices are superimposed, a suitable circuit breaker should be selected according to the total rated current, but it must not exceed the building equipped circuit specifications.
- To reduce the risk of electric shock, install protective shield on the exposed connector after installing LED screen.
- The power supply or device must be connected to an earthed mains socket-outlet.
- High voltage for the power supply. Do not disassemble it.
- CAUTION: This device is for use only with LED bracket. Use with other (carts, stands, or carriers) may result in instability causing injury.
- The device external wiring connected to the hazardous live terminals requires installation by an instructed person.
- To reduce the risk of electric shock, install protective shield on the exposed connector after installing LED screen.
- Disconnect the power plug before installing the protective shield.
- Disconnect the power plug before maintenance.
- Make sure the power supply is well-grounded.

- The external wire connection between device and hazardous electronic terminals should be operated by professionals.
- Please strictly follow the installation method in this guide.
- To prevent injury, the device must be securely fixed to the ground, wall, ceiling, or steel frame. The all-in-one rack should be fixed to the ground with expansion screws.
- The supporting rack can only be used with the device. Using it with other devices may cause instability and injury.
- The device can only be used with the supporting rack. Using it with other equipment (such as a cart, shelf, or handling device) may cause instability and injury.
- This is a class A product and may cause radio interference in which case the user may be required to take adequate measures.

# TABLE OF CONTENTS

<b>Chapter 1 Product Introduction .....</b>	<b>1</b>
1.1 Overview .....	1
1.2 Product Components .....	1
<b>Chapter 2 Rack Installation .....</b>	<b>2</b>
2.1 About Rack .....	2
2.2 Install the Rack .....	2
2.2.1 Precautions .....	2
2.2.2 Install the Wall-Mounted Rack .....	2
2.2.3 Install the All-in-One Rack .....	7
<b>Chapter 3 Cabinet Installation .....</b>	<b>18</b>
3.1 Precautions .....	18
3.2 Stitch Cabinet Frames .....	18
3.2.1 Locate Cabinet Frame .....	18
3.2.2 Stitch Cabinet Frames Horizontally .....	19
3.2.3 Stitch Cabinet Frames Vertically .....	20
3.3 Install the Cabinet onto the Rack .....	23
3.3.1 Install the Cabinet onto the Rack (Front) .....	23
3.3.2 Install the Cabinet onto the Rack (Rear) .....	26
3.4 Connect Power Cord and Network Cable .....	28
3.4.1 Connect the Power Cord and Network Cable to the Primary Cabinet .....	29
3.4.2 Connect the Power Cord and Network Cable between Cabinets .....	30
3.4.3 Stitch Lamp Boards .....	32
3.5 Adjust Lamp Boards on the Cabinets Horizontally .....	39
3.6 Configuration Example .....	39
<b>Chapter 4 Software Debugging .....</b>	<b>41</b>

# Chapter 1 Product Introduction

## 1.1 Overview

A full-color LED display unit (hereinafter referred to as the device, the product, or the LED) is a large display panel that uses an array of light-emitting diodes as dot matrix modules or pixels for information display. It has a very small pixel pitch, which indicates the shortest distance between the centers of two pixels, helping to realize the nearly seamless splicing of screens. With clear and vivid visual presentation of colors, stable performance, long service life, strong adaptability, and cost-effective, the full-color LED display unit can be widely applied to scenarios such as radio and television broadcasting, video surveillance, conference display, and information display.

## 1.2 Product Components

An LED control system includes sending and receiving cards. The sending card packages images and sends them to the receiving card. The receiving card unpackages and processes the images, and then displays the images on the LED display unit.

## Chapter 2 Rack Installation

### 2.1 About Rack

There are two types of racks for installing our full-color LED products: all-in-one rack and wall-mounted rack. The wall-mounted rack is used for installing front-maintenance cabinets only. The all-in-one rack can be used for installing front-maintenance cabinets and back-maintenance cabinets.

### 2.2 Install the Rack

#### 2.2.1 Precautions

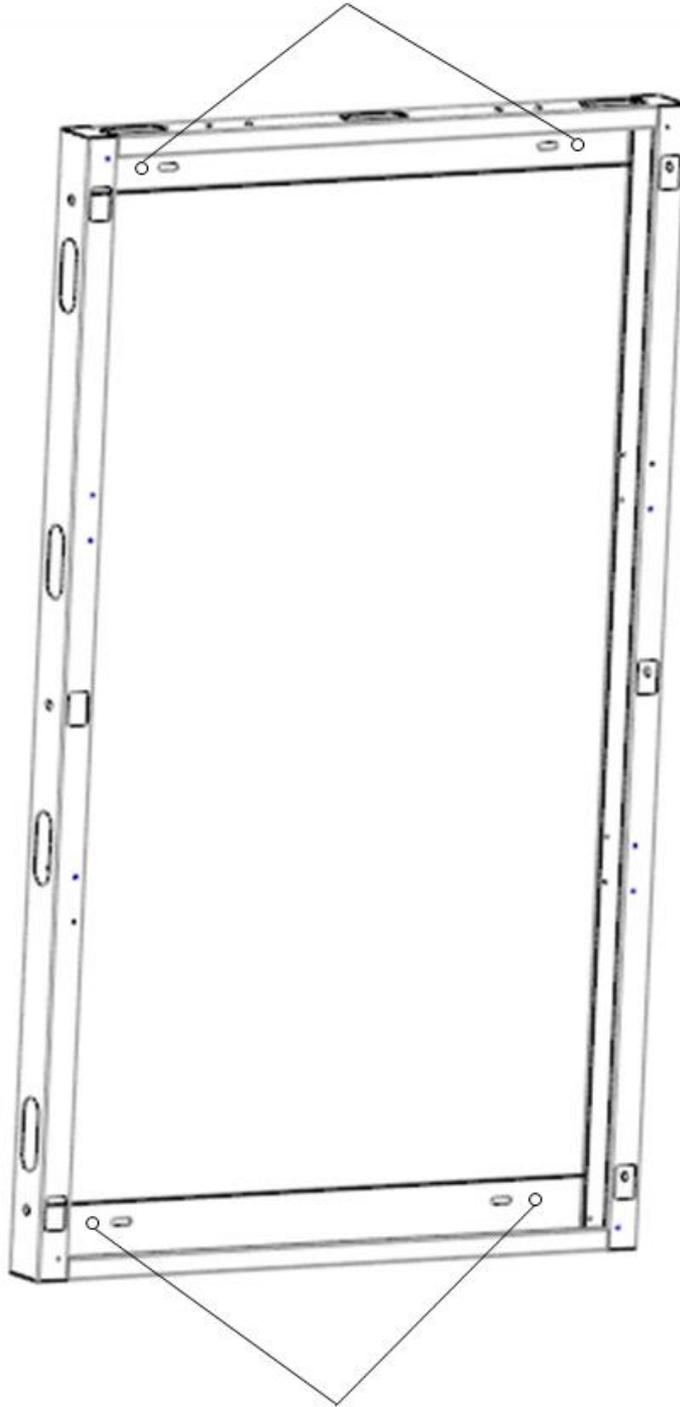
- Installation personnel must wear protective gear.
- Take safety measures when working at heights.
- Make sure that the rack is mounted vertically to the flat ground without tilting or twisting.
- Check that all structural parts and fasteners are fully mounted without missing.
- After all the accessories are mounted, clean all the metal debris in the rack.

#### 2.2.2 Install the Wall-Mounted Rack

Step 1 Use a gradienter to determine the mounting position of the rack.

Step 2 Install four M6 × 60 expansion bolts into the wall and tighten the nuts in order to fix the rack onto the wall.

### Wall-mounted Installation Holes



### Wall-mounted Installation Holes

Figure 2-1 Wall-mounted Installation Holes on the Rack

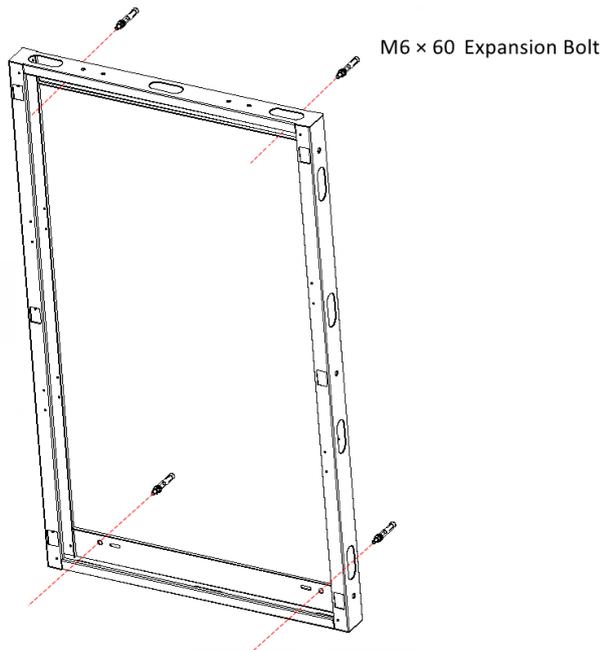


Figure 2-2 Install Wall-Mounted Rack onto the Wall

Step 3 Repeat step 1 and step 2 to install the remaining racks onto the wall.

Step 4 Use M6 x 20 screws to connect the adjacent racks, and then adjust the gaps between them.

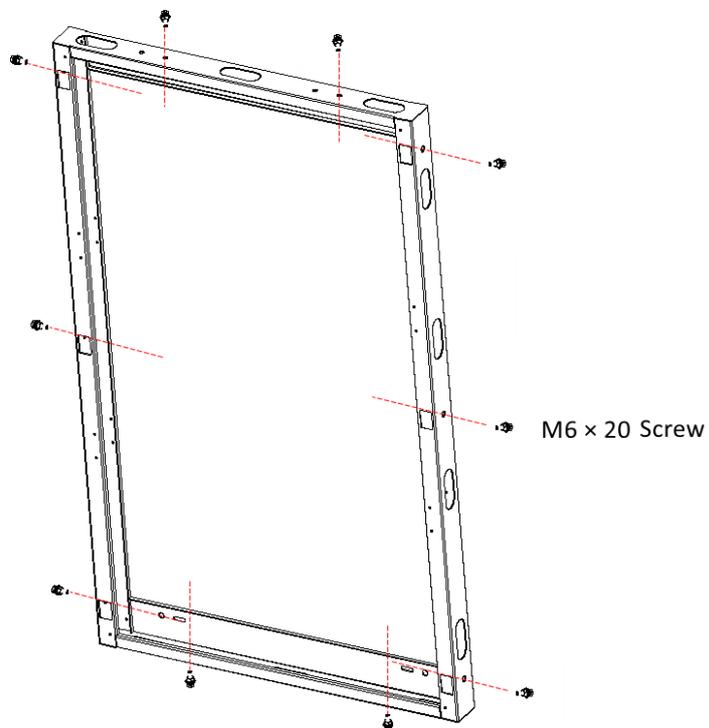


Figure 2-3 Horizontal and Vertical Installation Holes of the Rack

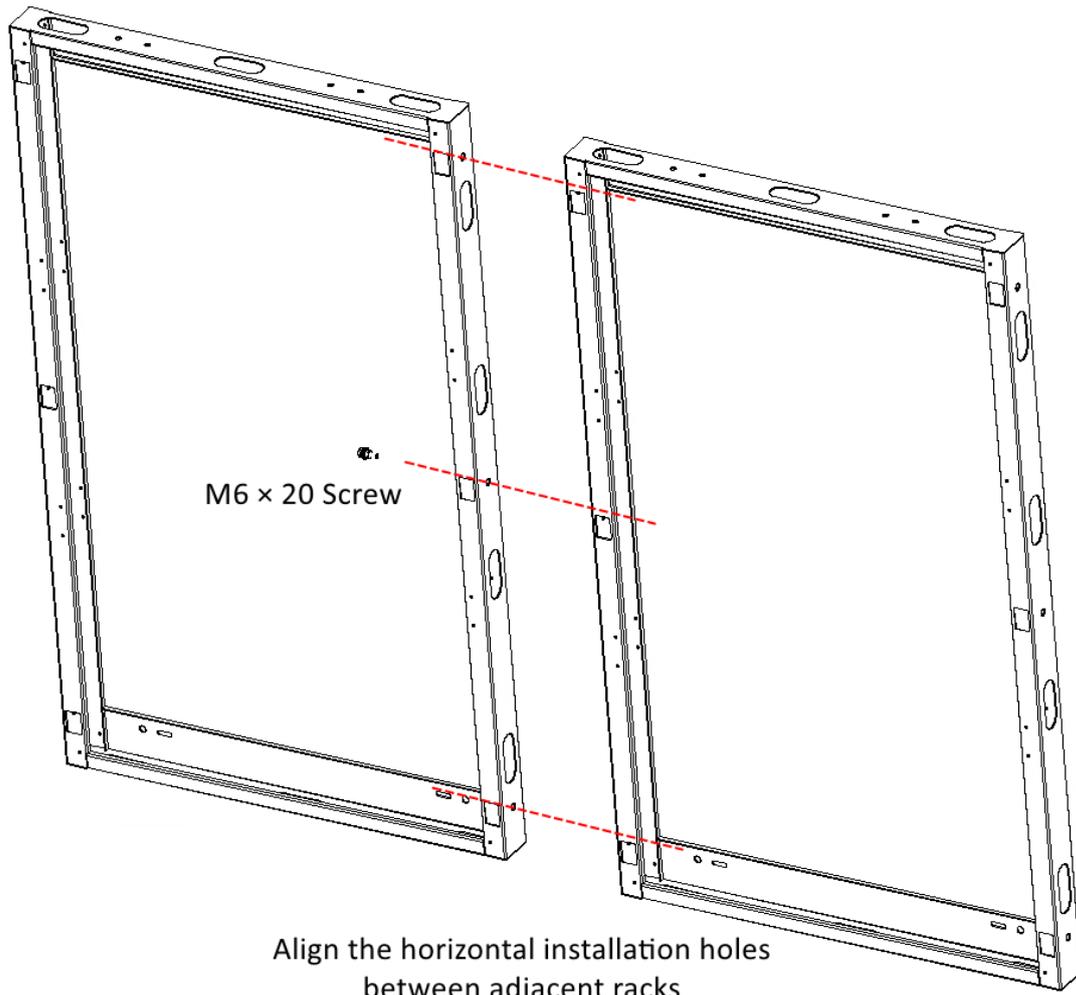


Figure 2-4 Stitch the Adjacent Racks Horizontally

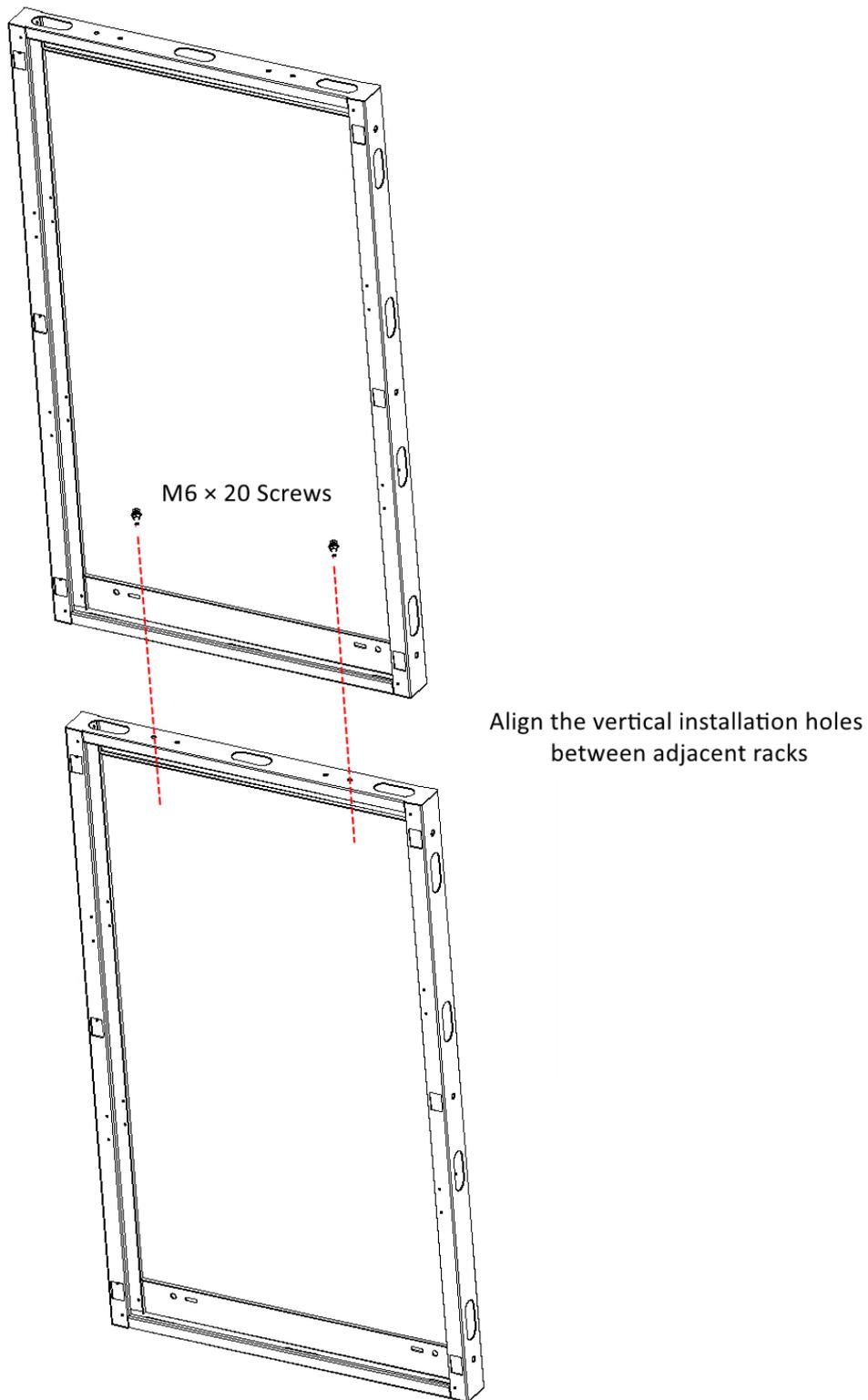


Figure 2-5 Stitch the Adjacent Racks Vertically

Step 5 Install the first cabinet from the center of the bottom row, and fix the cabinet onto the rack by using four ST4.8 x 50 self-tapping screws.

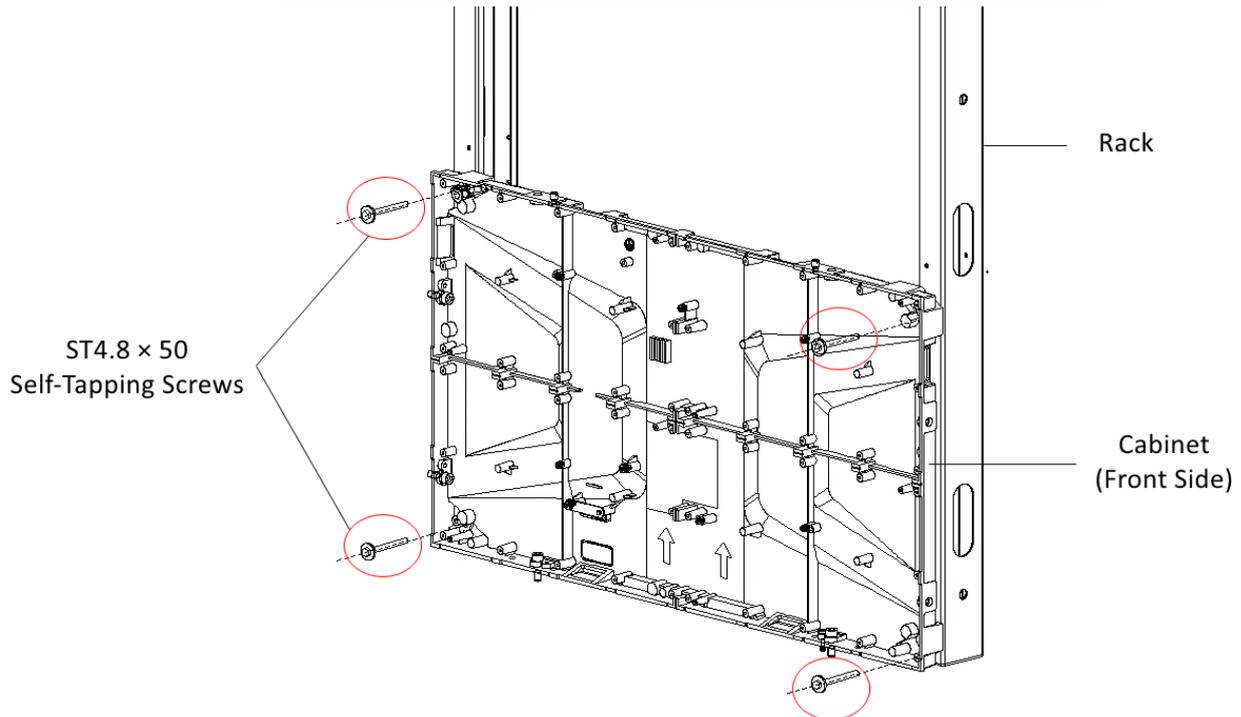


Figure 2-6 Fix the Cabinets with the Rack

Step 6 Install the remaining cabinets onto the racks from middle to both sides and from top to bottom. Use a gradienter to measure and ensure that the cabinets are flat and vertical after installation.

**Note**

- Do not fix the screws between the connectors and cabinets too tight for future adjustments.
- Pay attention to the leveling of frames and front lamp boards also need to be fine-tuned according to the actual situation to ensure that lamp boards are adjusted horizontally and seams are even and the joint distance is within the required range.
- Install the device no more than 5 mm away from the wall or other metal racks in case of lamp board drop resulting in electric shock.
- After installation, there should be no openings around the LED module. The bottom bracket under the wire outlet position should completely cover the bottom hole only to let the wire out, to prevent the molten material from dripping to the bottom during fire caused by internal failure.
- To ensure safety, the installation parts and the wall should support four times the weight of the device.

## 2.2.3 Install the All-in-One Rack

### Install the Bottom Chassis

Step 1 Fix the anchor bolts to the bottom chassis and stitch the bottom chassis.

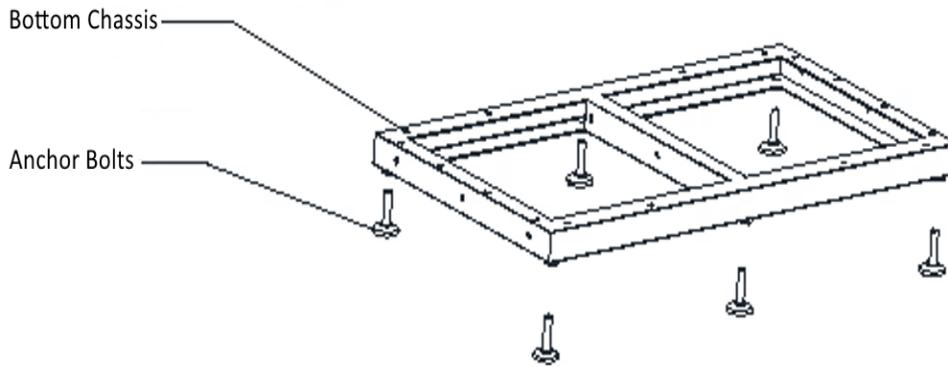


Figure 2-7 Stitch the Bottom Chassis

Step 2 Level the bottom chassis and then tighten the bolts.



Figure 2-8 Level the Bottom Chassis

 **Note**

If you want to fix the all-in-one rack, insert 10 × 110 mm expansion bolts to fasten the rack frame.

**Install the Rack Frame and Base Frame**

Step 1 Position the rack frame into the bottom chassis and then fasten the rack frame.

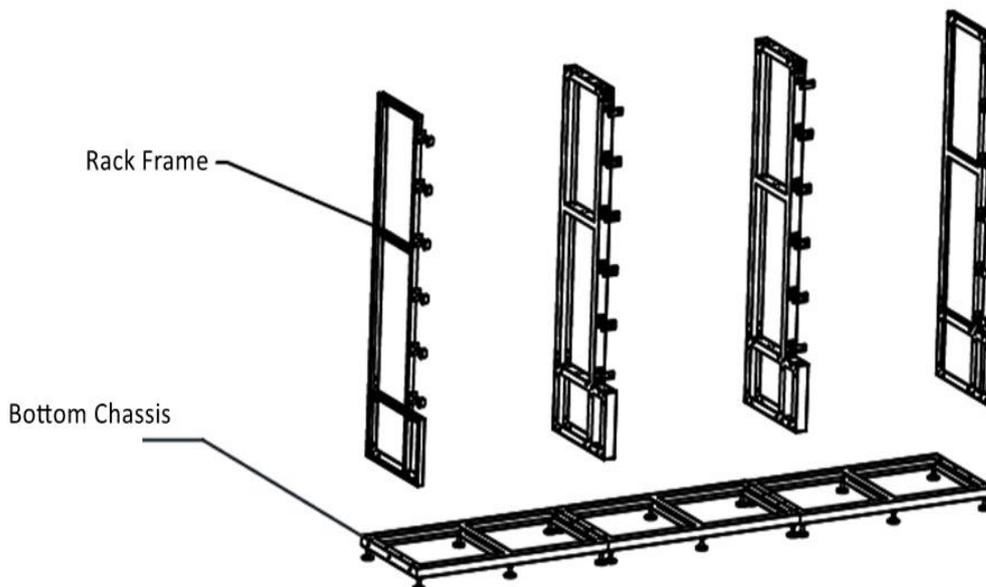


Figure 2-9 Fix the All-in-One Rack Frame

Step 2 Fasten the bottom base frame into the bottom chassis and rack frame respectively.

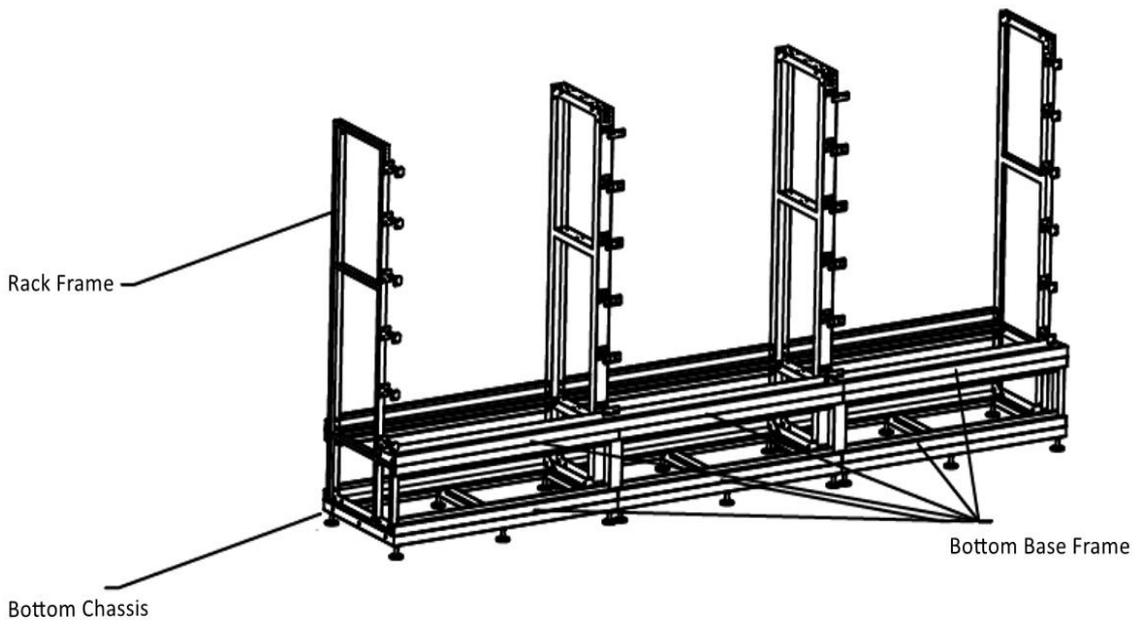


Figure 2-10 Fix the Bottom Base Frame

Step 3 Connect the top base frame with rack frame and tighten the bolts.

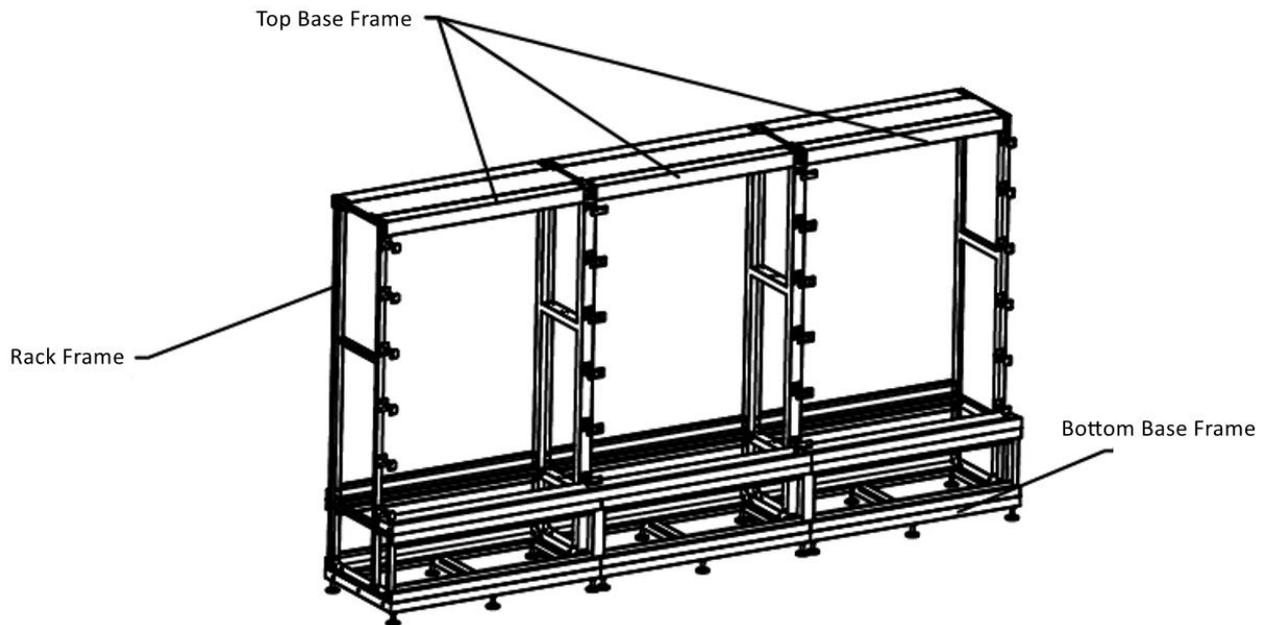


Figure 2-11 Fix the Top Base Frame

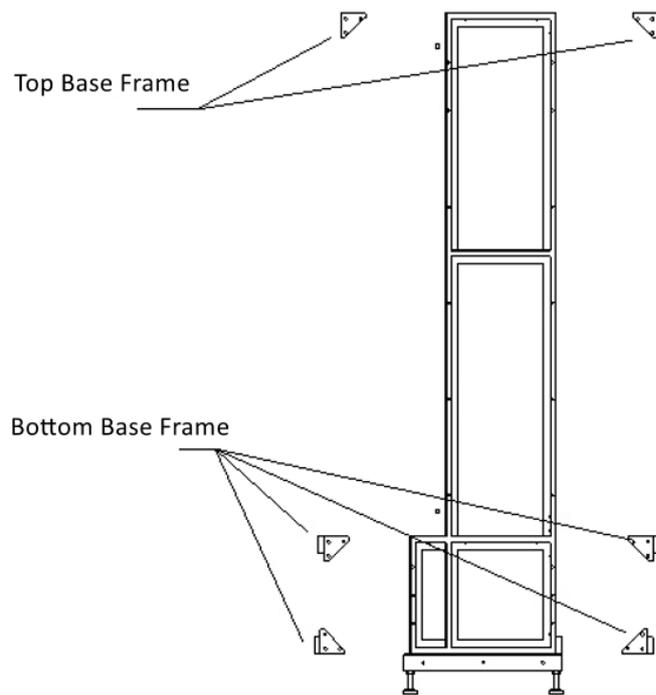


Figure 2-12 Side View of Base Frames Installation (Top and Bottom)

### Install the Bottom Filler Strip

- Step 1 Connect the filler strips with the rack frames according to the length and fix with the screws.
- Step 2 Tighten the screws after the installation is flush.

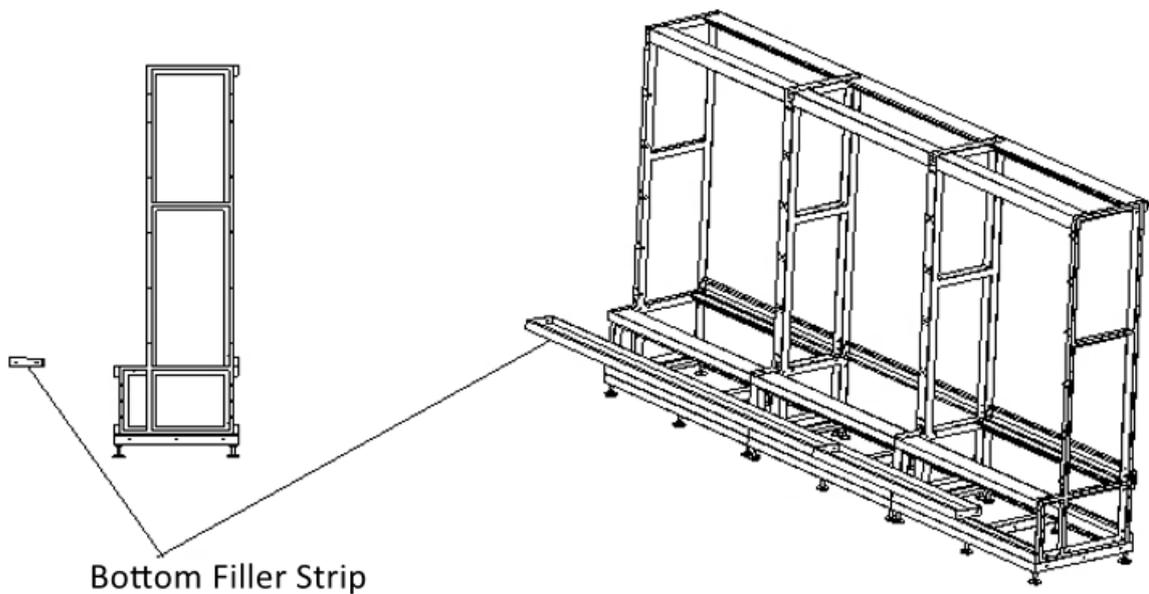


Figure 2-13 Install the Bottom Filler Strip

### Install the Connectors

Connector is shown in the figure below.

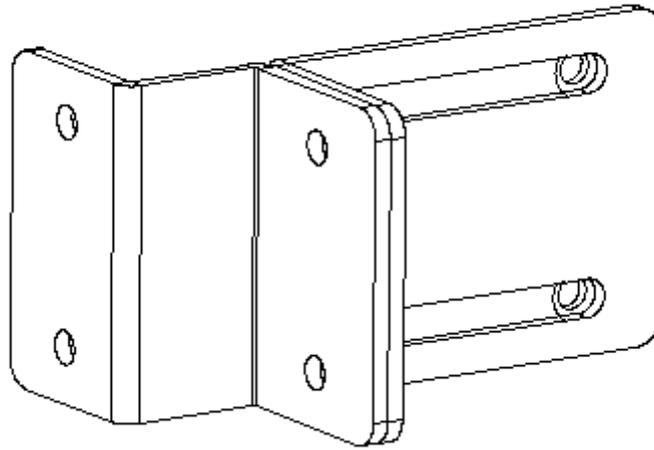


Figure 2-14 Connector

Step 1 Install the connectors on the rack frames according to the corresponding position.

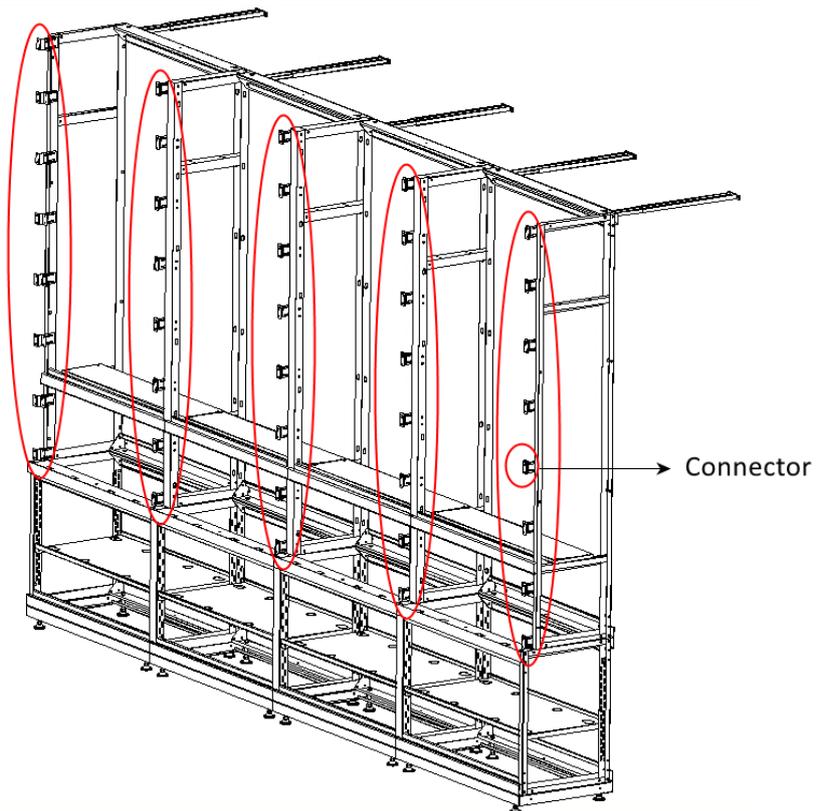


Figure 2-15 Install the Connector

Step 2 Connect rack frames and connectors and tighten the screws.

## Install the Cabinet

Step 1 Install the first cabinet from the lower middle part of the rack frame, insert the M8 screw from the front to the back to secure the cabinet to the connector.

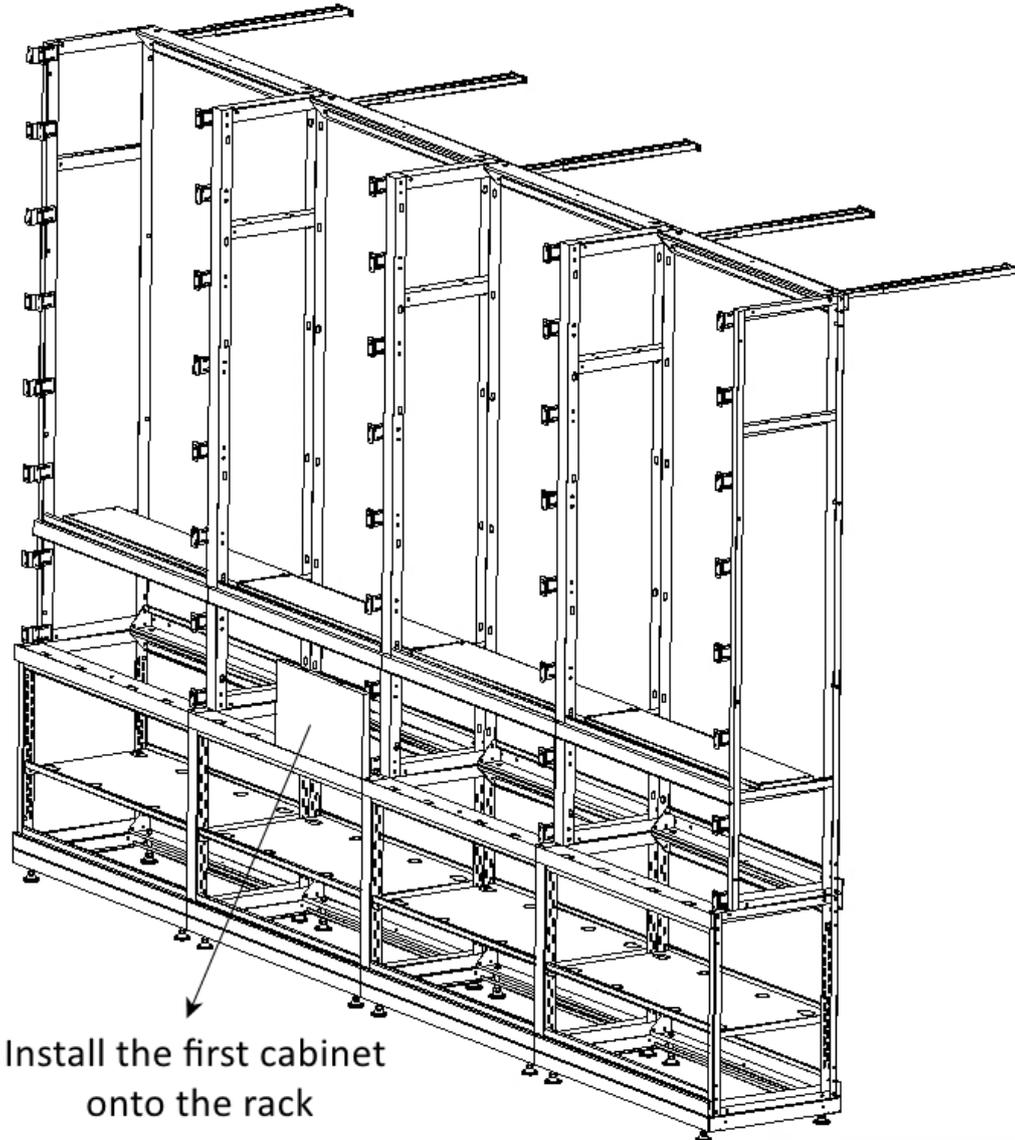


Figure 2-16 Install the First Cabinet

Step 2 If there is no connector on the back of the adjacent cabinets, use a joint piece to interlock the two cabinets. Put the joint piece on the mounting holes on the back of the adjacent cabinets, insert M8 screws from back to front, and fix the joint piece to the cabinet in turn.

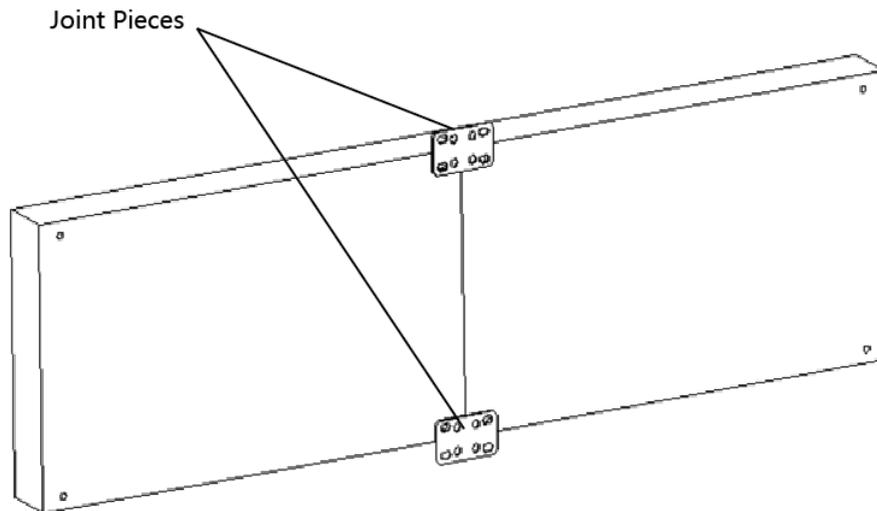


Figure 2-17 Fix the Cabinets with Joint Pieces

Step 3 Install the remaining cabinets from middle to both sides and from bottom to top.

 **Note**

- After the rack frames are installed, use a lifting hammer to measure whether each part is vertical or not and ensure that those are on the same level.
- Fasten the connectors on the vertical rack frames of the screen in accordance with the requirement of locating size of the cabinet installation.
- The cabinet adjacent to the connector is threaded through the connector using screws and secured to the fixing holes on the back of the cabinet. The cabinets that are not connected to the connectors are fixed with joint pieces.
- The cabinet should be concave 3 mm inward than the lower filler strip.
- Do not fix the screws between the connectors and cabinets too tight for future adjustment.
- In normal cases, you should lock out LED lamp boards after they are adjusted horizontally and vertically because the boards will probably be moved during the installation of other lamp boards.
- Ensure that the screen is flat and without evident gap. Otherwise, make some adjustments.

Step 4 Use a level to measure and ensure that the cabinets are flat and vertical.

 **Note**

When there is a deviation in height, simply place a thin iron sheet under the bottom. Do not try to resolve the deviation by hitting the cabinets on the top because it will result in larger deviation later.

Step 5 Repeat the above steps to complete the installation of other cabinets. Ensure that all the cabinets are flat and vertical and the seams between the cabinets are even. Then tighten the anchor bolts to complete the installation.

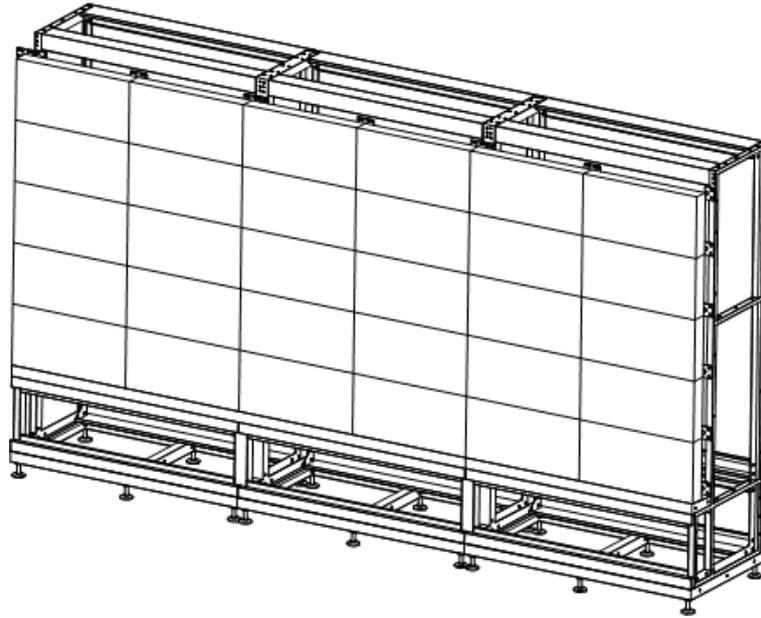


Figure 2-18 Screen Installation Finished

 **Note**

- For details about cabinet stitching, see ***Stitch Cabinet Frames***.
- For details about lamp board installation, see ***Stitch Lamp Boards***.

**Install the Top Filler Strip**

Step 1 Install the filler strips on the rack frames according to their length and fix them with screws.

Step 2 Tighten the screws.

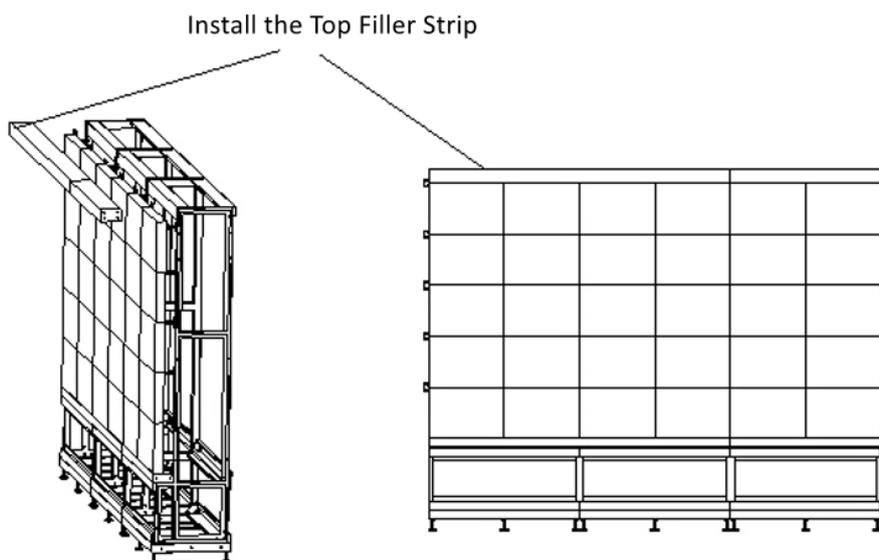


Figure 2-19 Install the Top Filler Strip

### Install the Aisle Pedals (for Large-scale Projects)

Step 1 Put the aisle pedals on the middle of the rack frames.

Step 2 Use the screws to connect the aisle pedals with the rack frames and then tighten the screws.

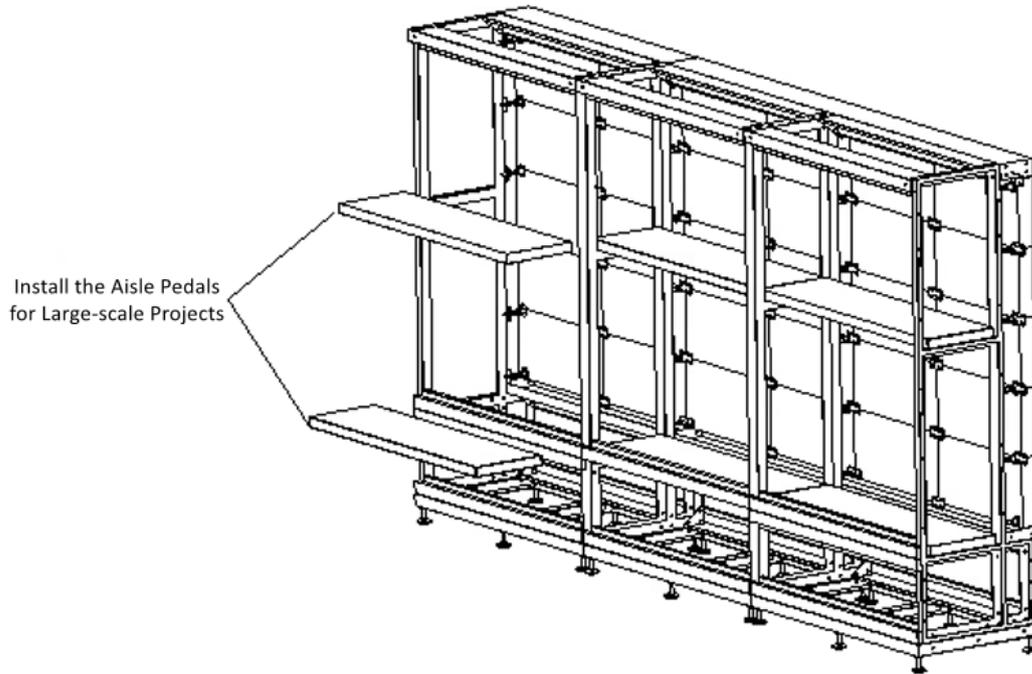


Figure 2-20 Fix the Aisle Pedals

#### Note

If the splicing scale of the screen is too high, install the aisle pedals first for the convenience of screen installation.

### Install the Cover Plates

Install the left cover plates, right cover plates, front cover plates, back cover plates, and top cover plates respectively.

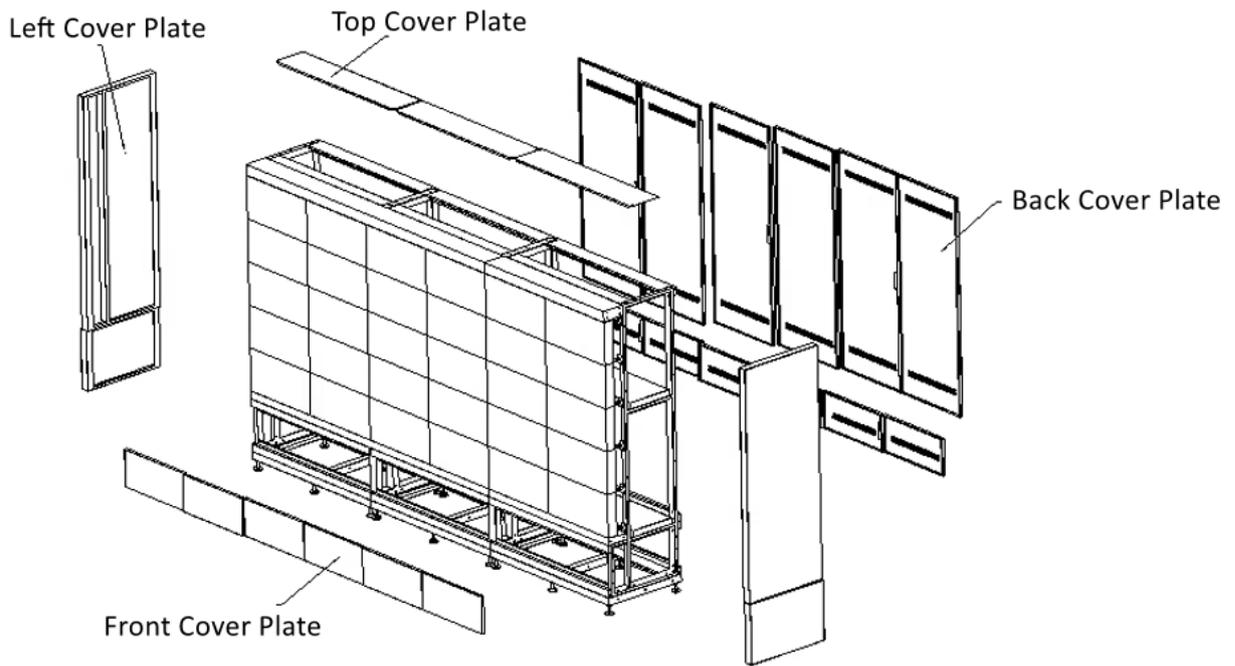


Figure 2-21 Fix the Cover Plates

The figure shows as follows after the installation is finished.

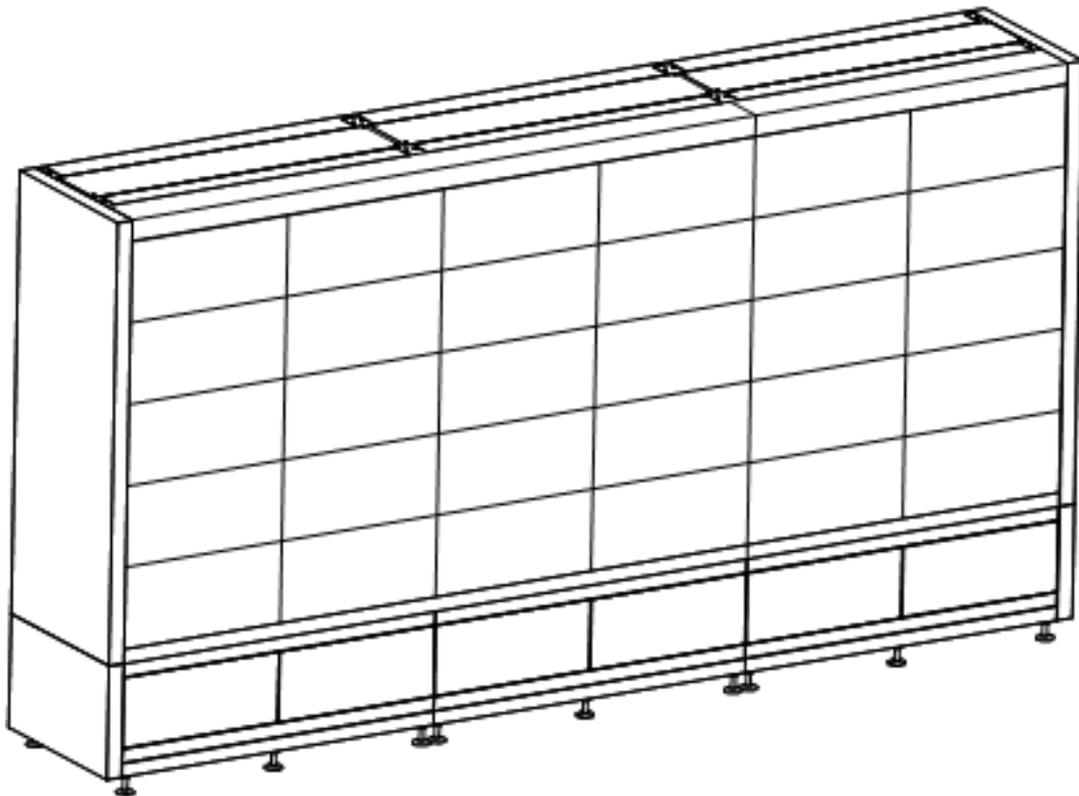


Figure 2-22 Screen Installation Finished

 **Note**

- Install the device no more than 5 mm away from the wall or other metal racks in case of lamp board drop resulting in electric shock.
- The all-in-one rack should be fixed to the ground with expansion screws.
- The device is only suitable for installation on the concrete or non-flammable surfaces, to prevent molten material from dripping to the bottom during fire caused by internal failure.

## Chapter 3 Cabinet Installation

A cabinet is a basic unit for LED engineering installation in which LED modules are neatly mounted on a metal sheet (cast aluminum) box, with a built-in independent receiving card and switching power supply, an engineering installation structure, and independent display.



Because the product has different models, the following description takes one model as an example. The actual model prevails when the product is not marked.

### 3.1 Precautions

Read the following precautions before you install the device:

- Electric discharge may last for a short period of time after the power is shut down. Please wait two minutes after the power is shut down to operate the device.
- Only use the original power cord delivered with the device. Contact authorized dealer to purchase power cord with same specifications.
- Please do not frequently plug or unplug the power cord when the power is on.
- To reduce the risk of fire or electric shock, please do not expose the device to rain or humid environment.
- Avoid humid or high-PH environment to prevent damage to the LED lamps.

### 3.2 Stitch Cabinet Frames

#### 3.2.1 Locate Cabinet Frame

Align two cabinet frames with the locating studs, locating holes, and installation holes. Each cabinet frame is equipped with two vertical locating studs, two vertical locating holes, and two sets of horizontal installation holes.

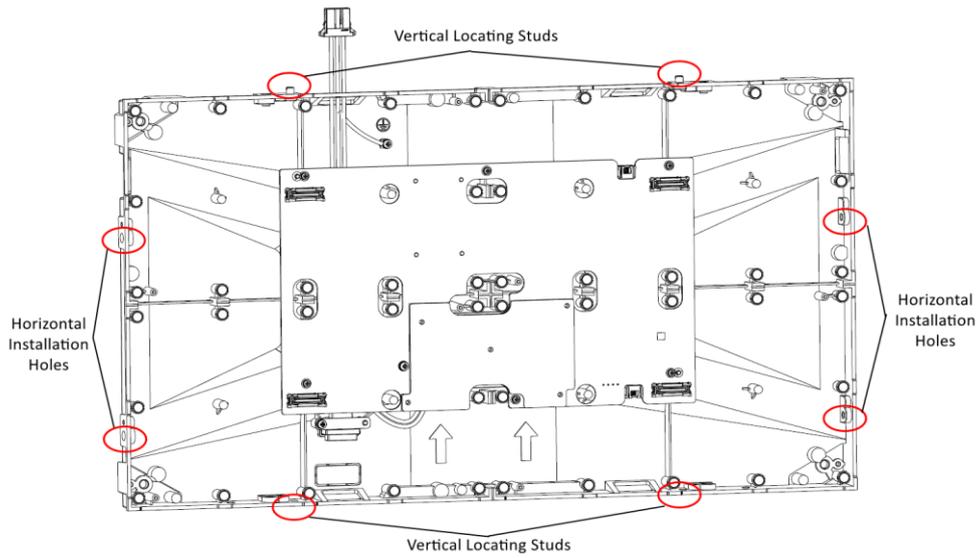


Figure 3-1 Locating Studs, Locating Holes and Installation Holes

### 3.2.2 Stitch Cabinet Frames Horizontally

Step 1 Align the installation holes in the horizontal direction of the two adjacent cabinet frames, and adjust the cabinet frames to the relative height.

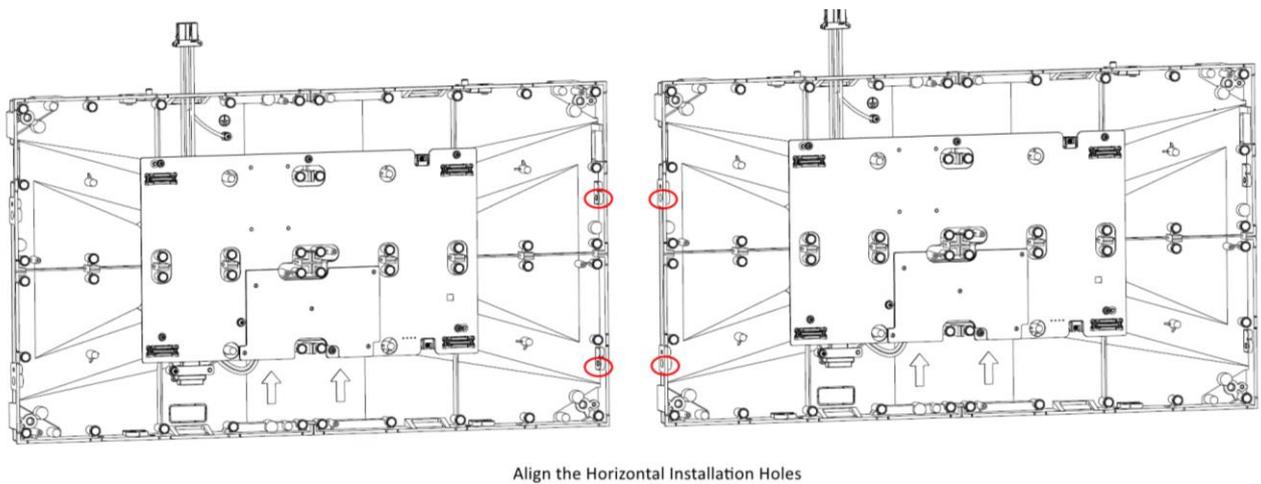
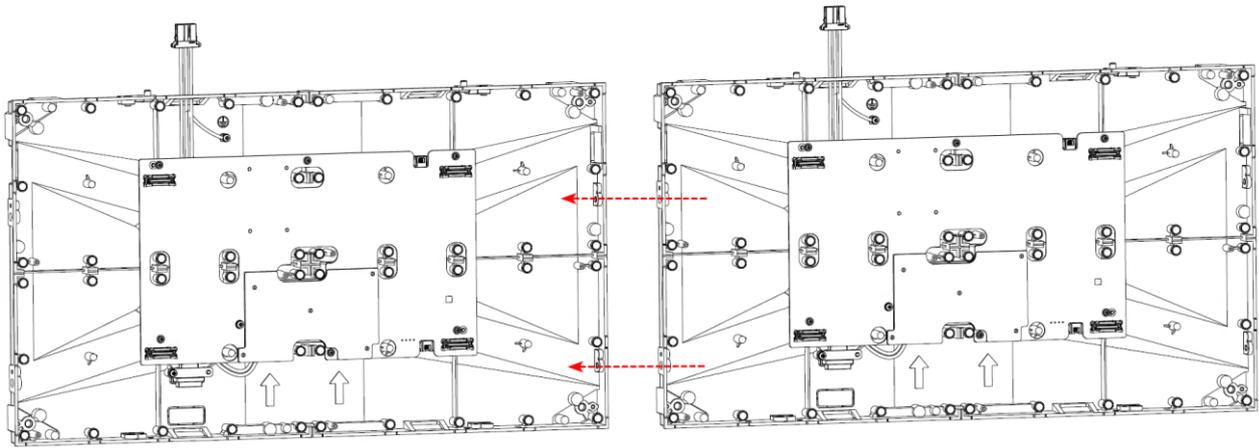


Figure 3-2 Align the Horizontal Installation Holes

Step 2 Insert two M6 hex screws into the adjacent installation holes from right to left only. Do not fasten the screws with nuts.



Insert Two M6 Hex Screws from Right to Left

Figure 3-3 Stitch Cabinet Frames Horizontally

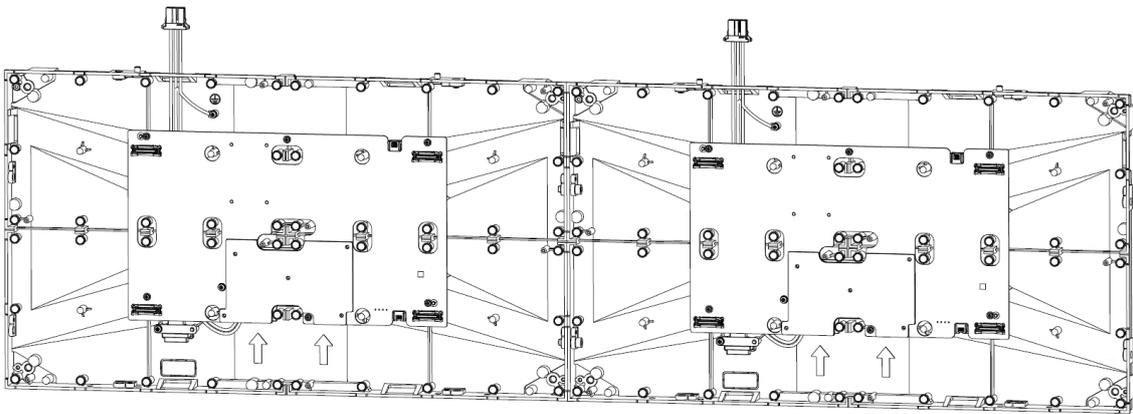
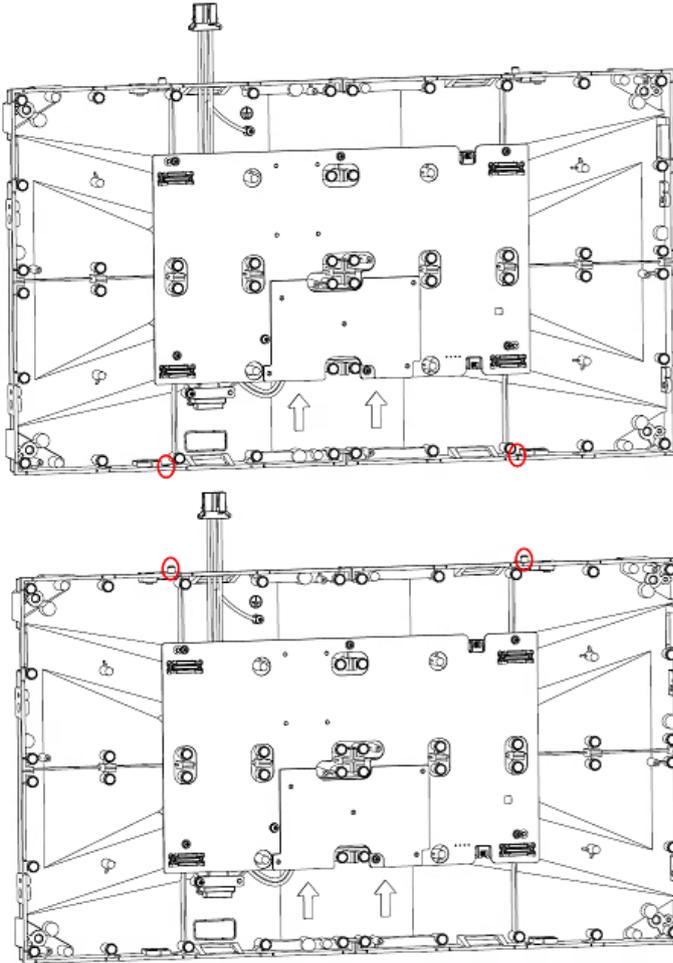


Figure 3-4 Cabinets Stitched

### 3.2.3 Stitch Cabinet Frames Vertically

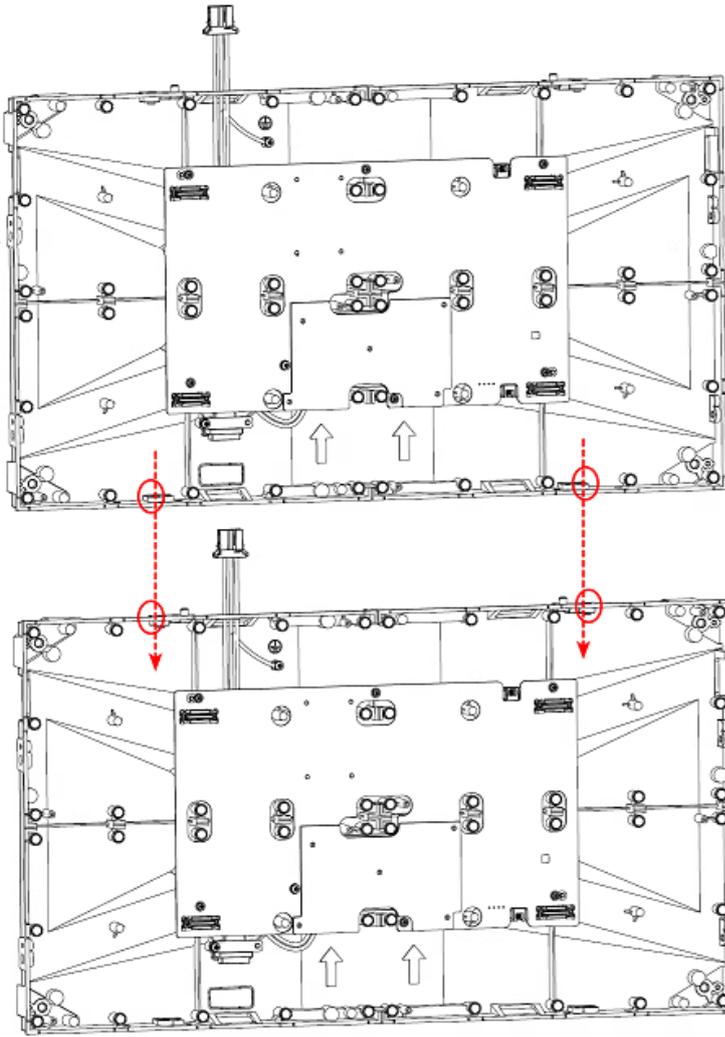
Step 1 Align the locating studs in the vertical direction of the two adjacent cabinet frames with the locating holes, and adjust the cabinet frames to the relative level.



Align the Vertical Locating Holes  
with Vertical Locating Studs

Figure 3-5 Align the Locating Holes with the Locating Studs Vertically

Step 2 Insert two M6 hex screws into the adjacent installation holes from top to bottom only.



Insert Two M6 Hex Screws  
from Top to Bottom

Figure 3-6 Stitch Cabinet Frames Vertically

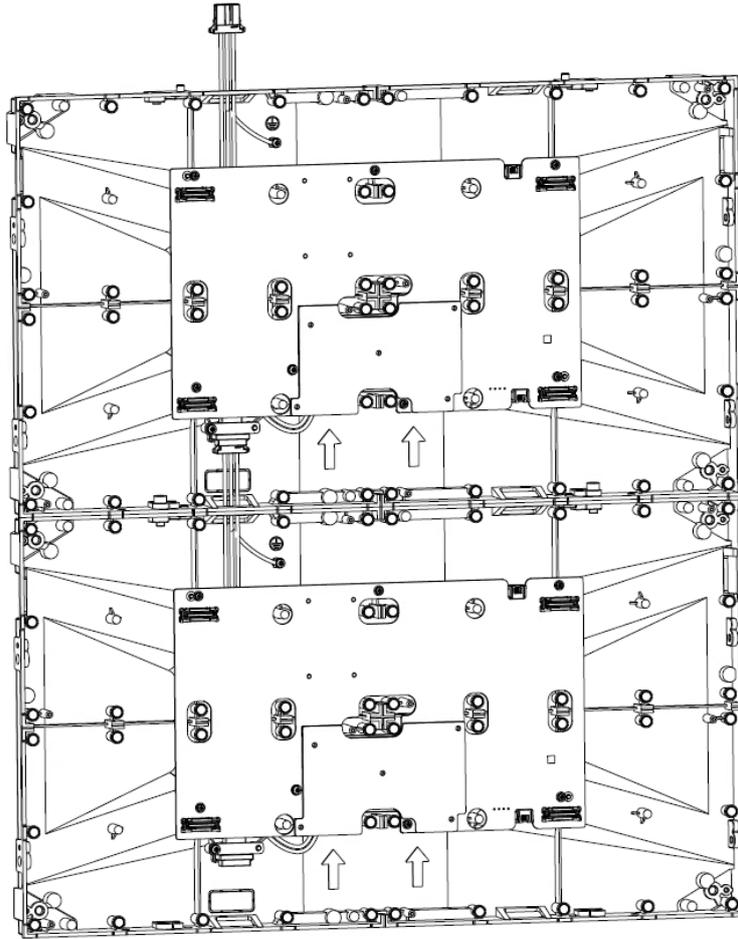


Figure 3-7 Cabinets Stitched

After the horizontal and vertical stitching, a LED display unit stitching is completed.

### 3.3 Install the Cabinet onto the Rack

#### 3.3.1 Install the Cabinet onto the Rack (Front)

##### ***Before you start***

Before installing the cabinet, disconnect the external power switch. After completing the cabinet installation, reconnect it to the external power supply.

**Step 1** When installing the custom-made rack, set a reasonable distance between adjacent racks based on the size of the module.

**Step 2** After the rack is installed, install the cabinets row by row from bottom to top and from the middle to both sides.

**Step 3** Take installing the two cabinets in the middle of the first row at the bottom as an example, first align the adjacent frames of the cabinets with the racks.

**Step 4** Place a connector between the rack and cabinets. Align the two bolt fixation holes on the connector with the two installation holes on the top of the cabinets. Insert two M6 × 18 bolts from front to back.

**Step 5** Insert one M5 tapping screw to fix the connector to the rack.

**Step 6** When fixing the two cabinets at the same position in the second row, align the remaining two bolt fixation holes on the connector with the two installation holes on the bottom of the cabinets, and insert two M6 × 18 bolts from front to back.

**Step 7** Adjust the flatness between the cabinets and tighten the bolts.

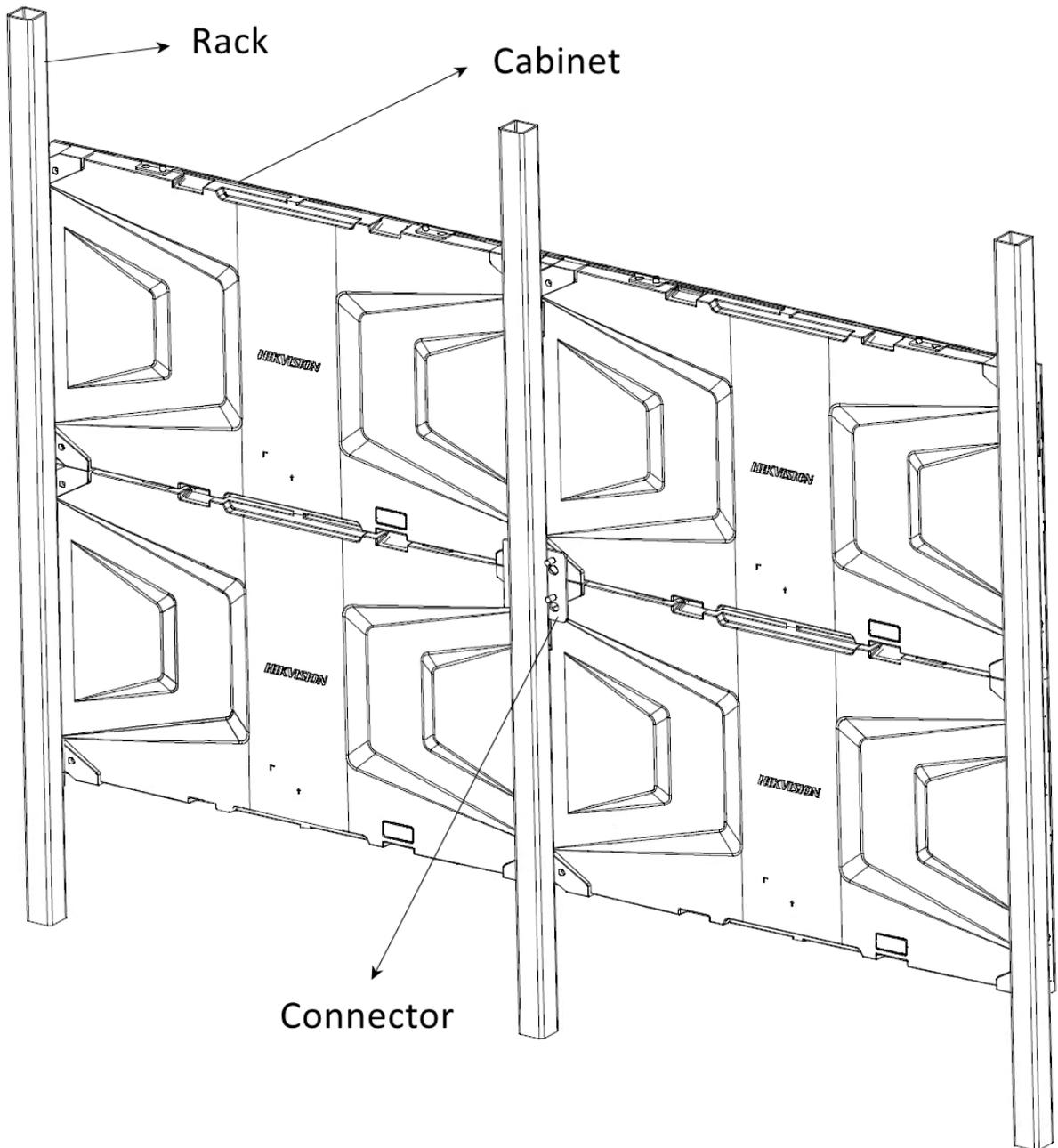


Figure 3-8 Fix the Cabinet, Connector and Rack (Rear View)

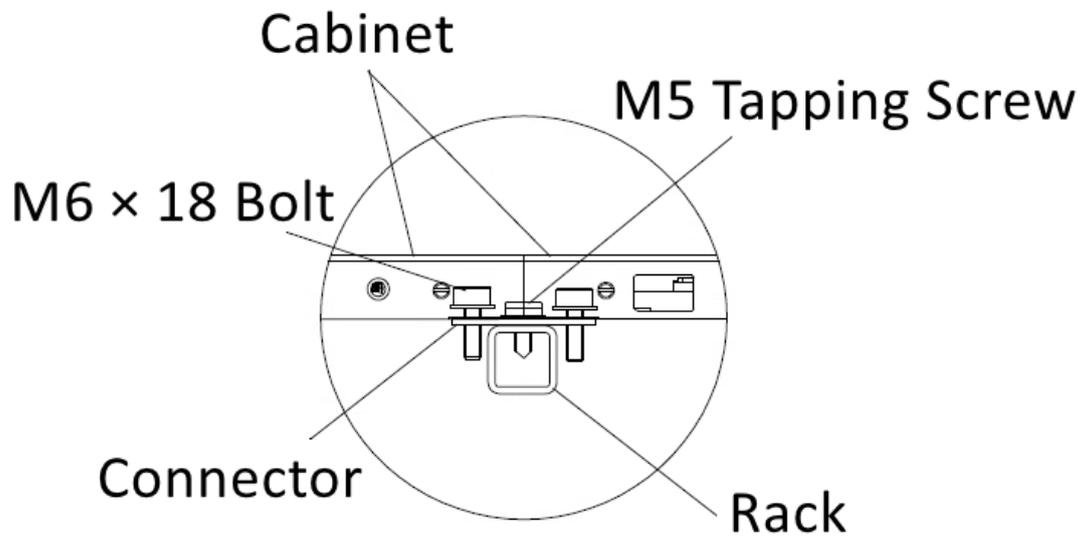


Figure 3-9 Fix the Cabinet, Connector and Rack (Top View )

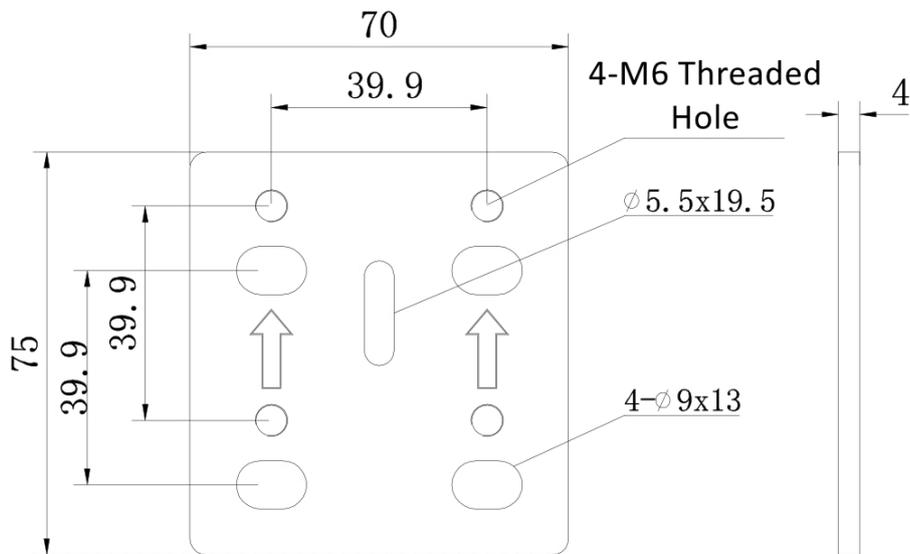


Figure 3-10 Fixation Holes and Dimension of the Connector

Step 8 Repeat the above steps to install the remaining cabinets.

### 3.3.2 Install the Cabinet onto the Rack (Rear)

**Before you start**

Before installing the cabinet, disconnect the external power switch. After completing the cabinet installation, reconnect it to the external power supply.

**Step 1** When installing the custom-made rack, set a reasonable distance between adjacent racks based on the size of the module.

**Step 2** After the rack is installed, install the cabinets row by row from bottom to top and from the middle to both sides.

**Step 3** Take installing the two cabinets in the middle of the first row at the bottom as an example, first align the adjacent frames of the cabinets with the racks.

**Step 4** Place a connector on the back of the rack. Align the two bolt fixation holes on the connector with the two installation holes on the top of the cabinet. Insert two M8 × 40 long bolts from back to front.

**Step 5** When fixing the two cabinets at the same position in the second row, align the two bolt fixation holes on the connector with the two installation holes on the bottom of the cabinets. Insert two M8 × 40 long bolts from back to front to fix the cabinets, connector, and rack sequentially.

**Step 6** Adjust the flatness between the cabinets and tighten the bolts.

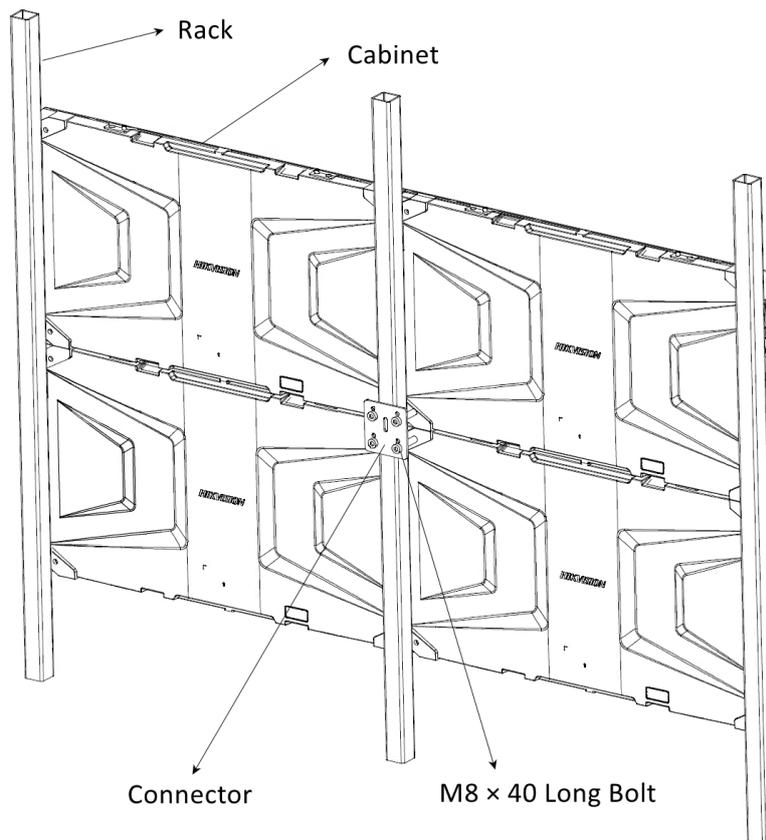


Figure 3-11 Fix the Cabinet, Connector and Rack (Rear View)

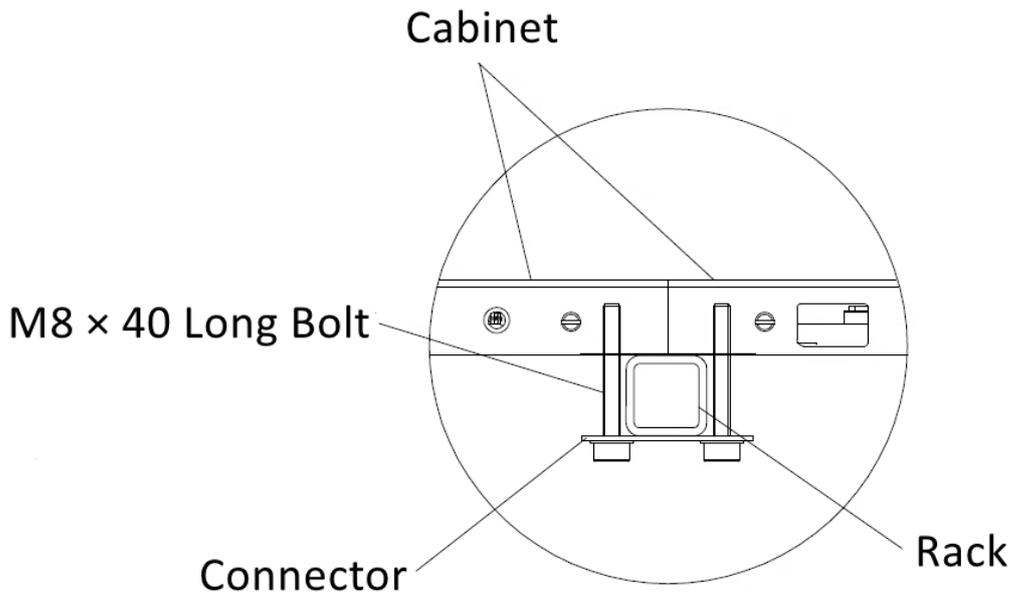


Figure 3-12 Fix the Cabinet, Connector and Rack (Top View)

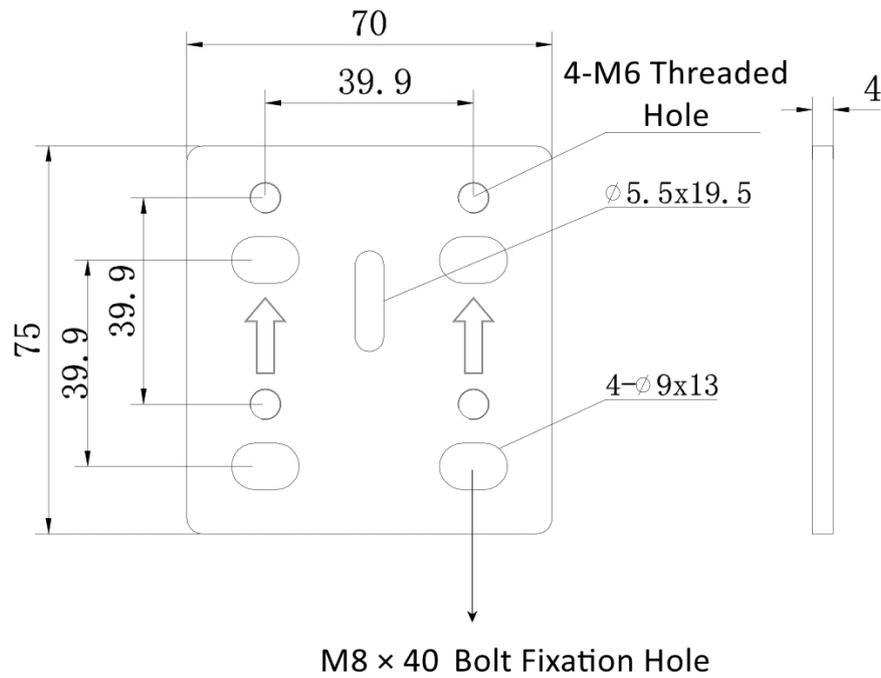


Figure 3-13 Fixation Holes and Dimension of the Connector

### 3.4 Connect Power Cord and Network Cable

Each cabinet is equipped with one power input interface, one power output interface, one network signal input interface and one network signal output interface.

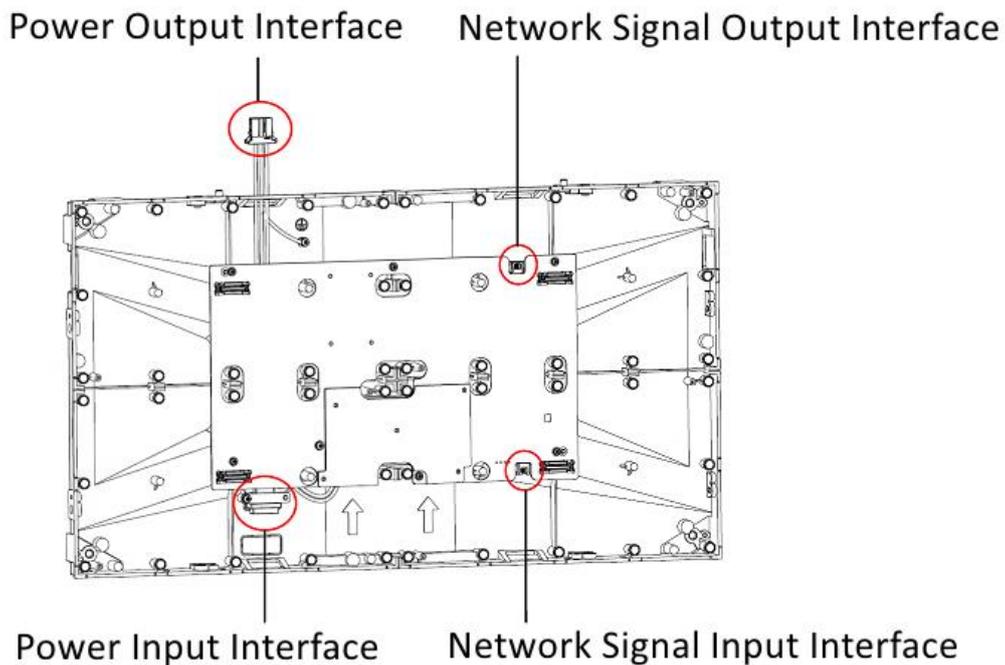


Figure 3-14 Power Interfaces and Network Interfaces

### 3.4.1 Connect the Power Cord and Network Cable to the Primary Cabinet

Connect an external power cord and a network cable from reserved cabling hole at the bottom of the cabinet to the power input interface and network signal input interface respectively by using a short power cord and a network cable.

Step 1 Connect a short power cord and a network cable to the power input interface and network signal input interface on the primary cabinets at the bottom of the LED display.

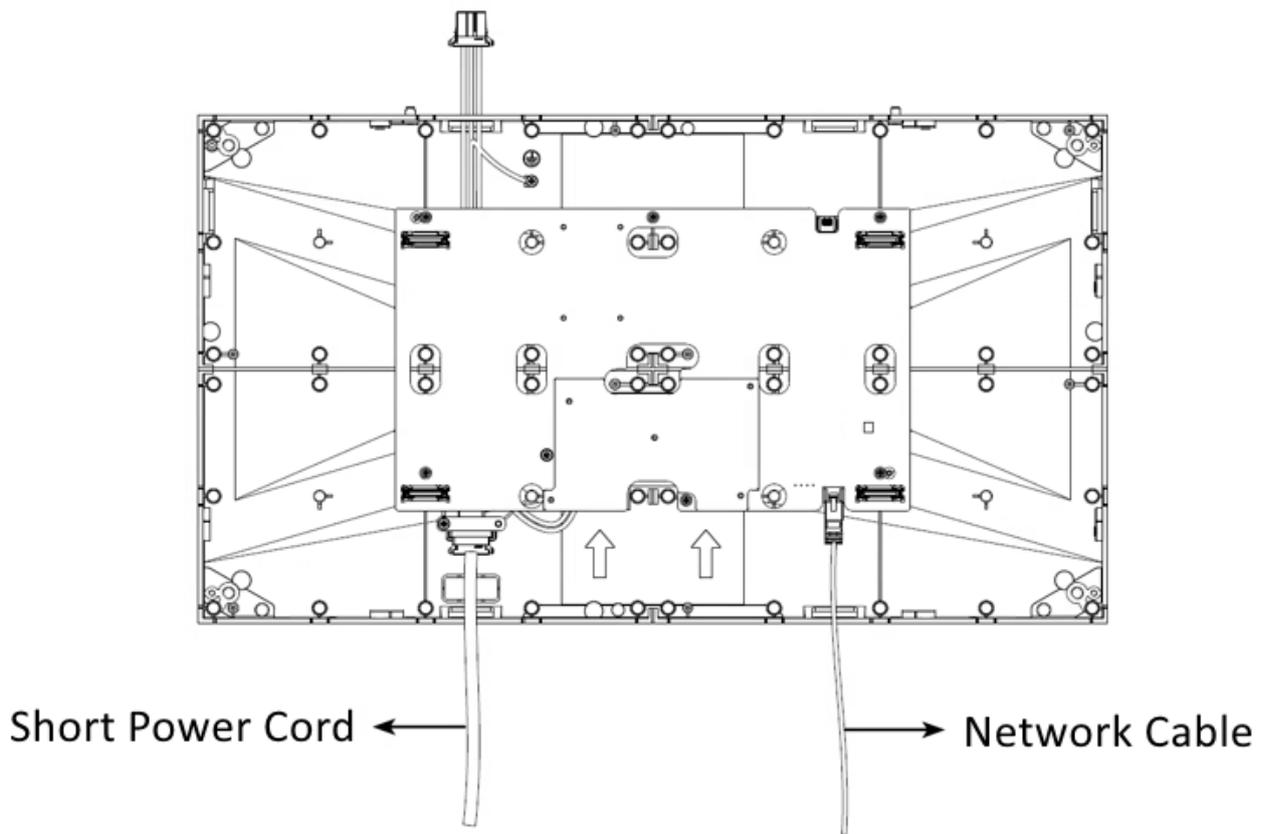


Figure 3-15 Connect the Power Cord and Network Cable to the Primary Cabinet

Step 2 Connect the cabinets to the external power supply and network.

### 3.4.2 Connect the Power Cord and Network Cable between Cabinets

#### Load Capability of Power Cords

The load capability of a single power cord is limited. You can calculate the max load of a single power cord by the following formula.

$$\text{Max Load of a Single Power cord} = \text{Power of the Cord} / \text{Power of the Cabinet}$$

#### Note

- You can choose power cords and cabinets of different specifications, and calculate the load capability by the formula.
- You can also use the HiTools Designer to calculate the maximum load capability of a single power cord. Then connect the power cord between the cabinets according to the load capability generated by the calculation.

#### Load Capability of Network Interfaces

The load capability of a single network interface of the sending card is limited. You can calculate the max load of a single network interface by the following formula.

$$\text{Max Load of a Network Interface} = \text{Pixel Capacity of a Network Interface} / \text{Cabinet Resolution}$$

**Example**

If equipped with a sending card of 650,000 pixels, the max load of a single network interface for a P1.2 cabinet of 480 × 270 resolution is 5 cabinets.

 **Note**

- The load capability of a single network interface can be calculated by the following formula.
- If the 3D function is enabled or a 10-bit single network port is connected, the load capacity will drop.

$$\text{Max Load of a Network Interface} = 125 \times 10^6 \times 94.8\% / A/B/\text{Cabinet Resolution}$$

A indicates the bit depth of the access image, such as access to an 8-bit image, A=3, access to an 10-bit image, A=4. B indicates the refresh rate of the signal source, such as access to a 60 Hz signal source, B=60, access to 3D image, B=120.

- You can also use the HiTools Designer to calculate the maximum load capability of a single network interface of a sending card. Then connect the network cables between the cabinets according to the load capability generated by the calculation.

**Before You Start**

Before connect the power cords and network cables, ensure that the device is powered off.

**Step 1** Pass the power output interface of the lower cabinet through the top wiring hole. Align the power output interface with the power input interface of the adjacent upper cabinet. Ensure that the silkscreen on the power output interface faces outward and insert it into the power input interface.

**Step 2** Pass the network cable through the wiring hole between adjacent cabinets. Connect one end of the network cable to the network input port of the upper cabinet. Connect the other end of the network cable to the network output port of the lower cabinet.

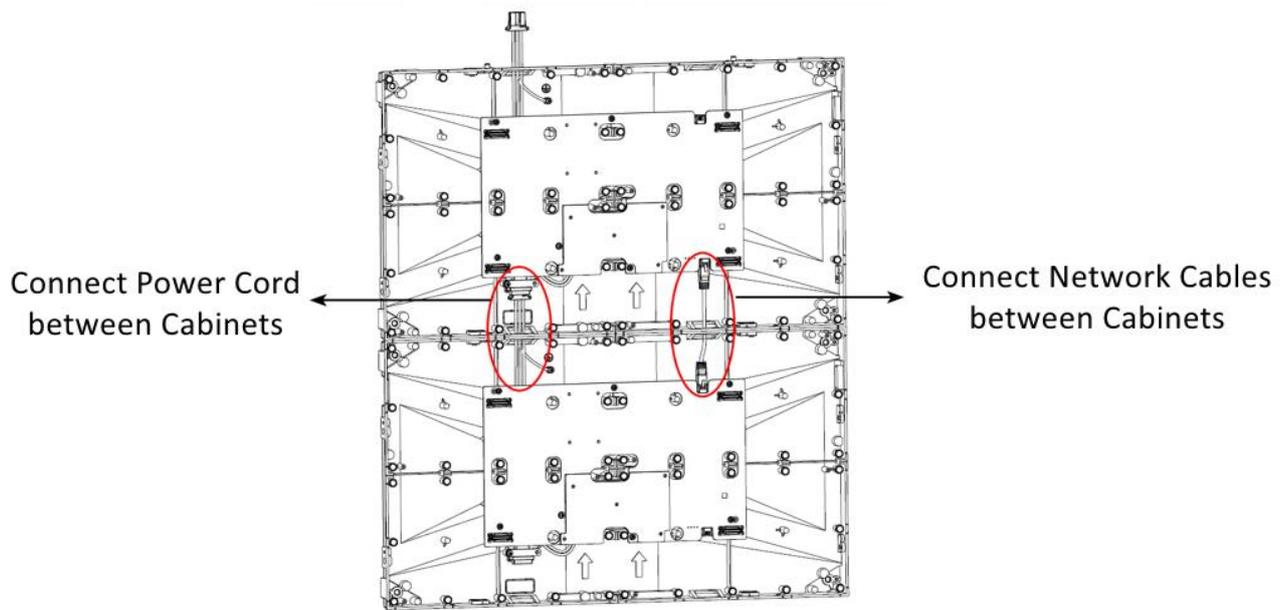


Figure 3-16 Vertical Cascading between Cabinets

- Step 3** For the top cabinet within the maximum load capability of power cord, use a dual-female horizontal cascading power cord and horizontal cascading extension power cords to connect the power output interface of the left cabinet to the same-side power output interface of the right adjacent cabinet. For the bottom cabinet within the maximum load capability of power cord, use a dual-male horizontal cascading power cord to connect the power output interface of the left cabinet to the same-side power input interface of the right adjacent cabinet.
- Step 4** For adjacent cabinets within the maximum load capability of network cable, use a 0.96 m horizontal cascading network cable to connect the left network port of the cabinet to the same-side network port of the right adjacent cabinet.
- Step 5** After cascading the power cords and network cables between the cabinets, hide the two power output interfaces of the last cabinet within the maximum load capability of the power cord inside.

### 3.4.3 Stitch Lamp Boards

Fix the lamp board on the cabinet frames by magnetic attraction. One cabinet frame is equipped with four lamp boards.

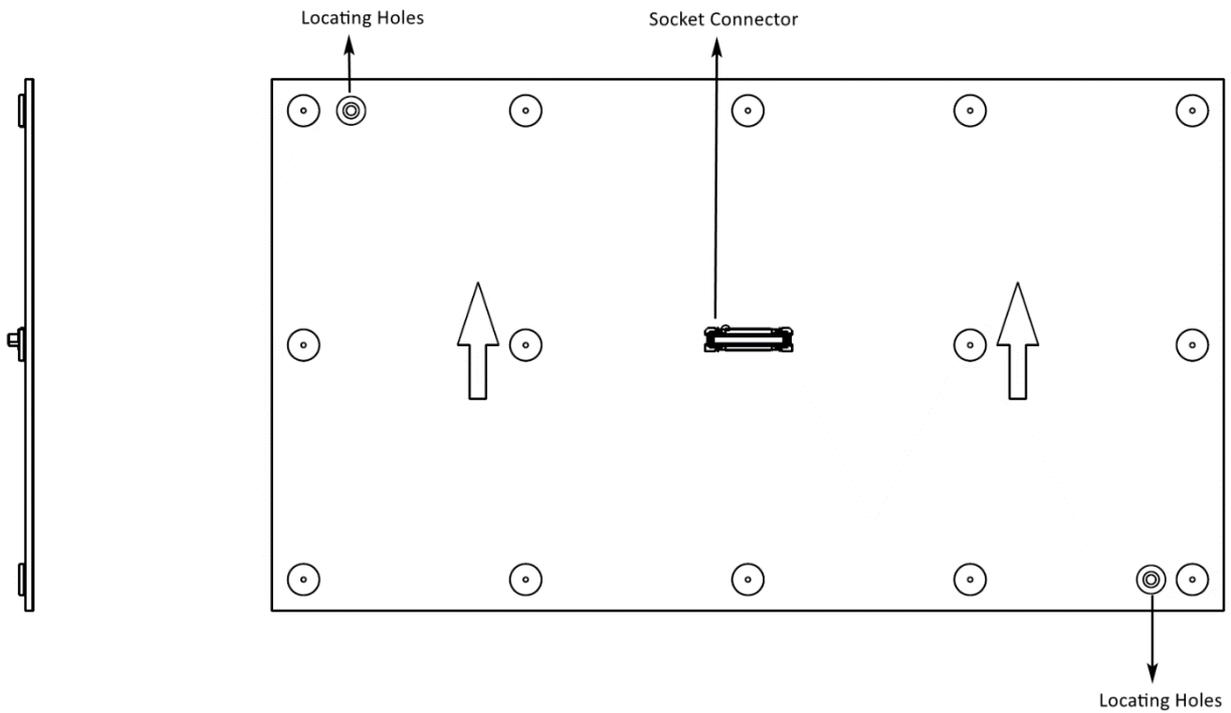


Figure 3-17 The Side and Back View of Lamp Boards

Step 1 Place the lamp board in the front of the cabinet frames, and align the lamp board and the edge of the cabinet frame initially.

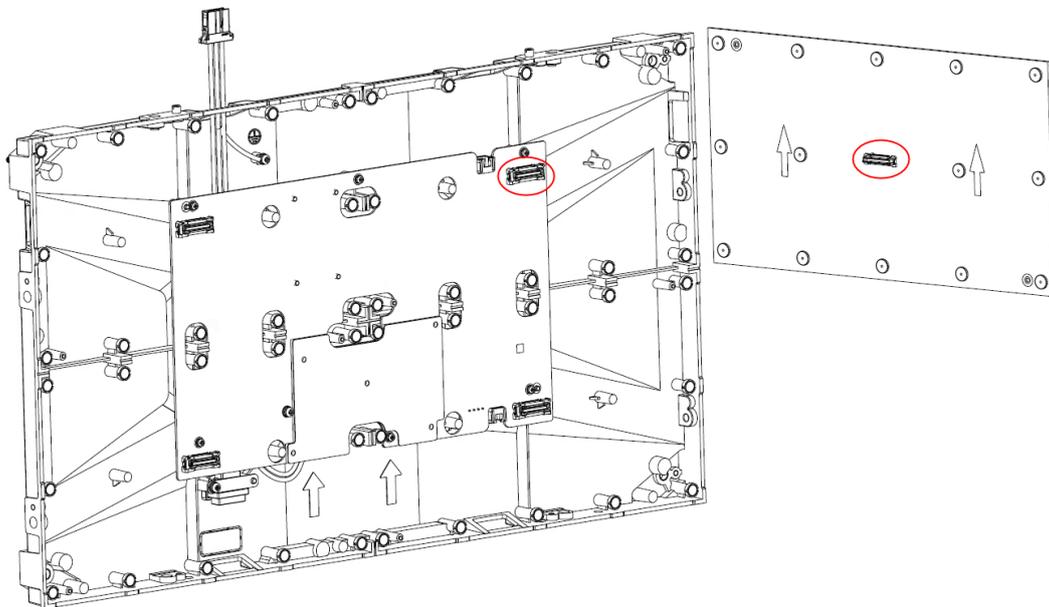


Figure 3-18 Absorb the Lamp Board

 **Note**

Please align the connector and pay attention to the direction of lamp board when absorbing the lamp board.

Step 2 Align and absorb the top edge of the lamp board with the cabinet frame, and then align the locating holes of the lamp board to the locating studs of the cabinet and absorb the remaining three sides of the lamp board.

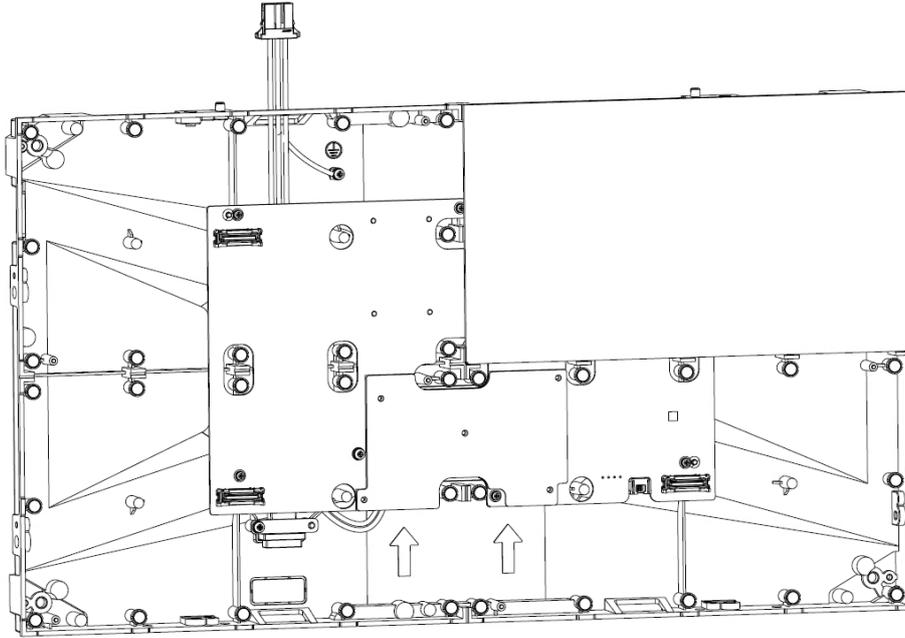


Figure 3-19 Install the First Lamp Board

Step 3 Stitch four lamp boards one by one.

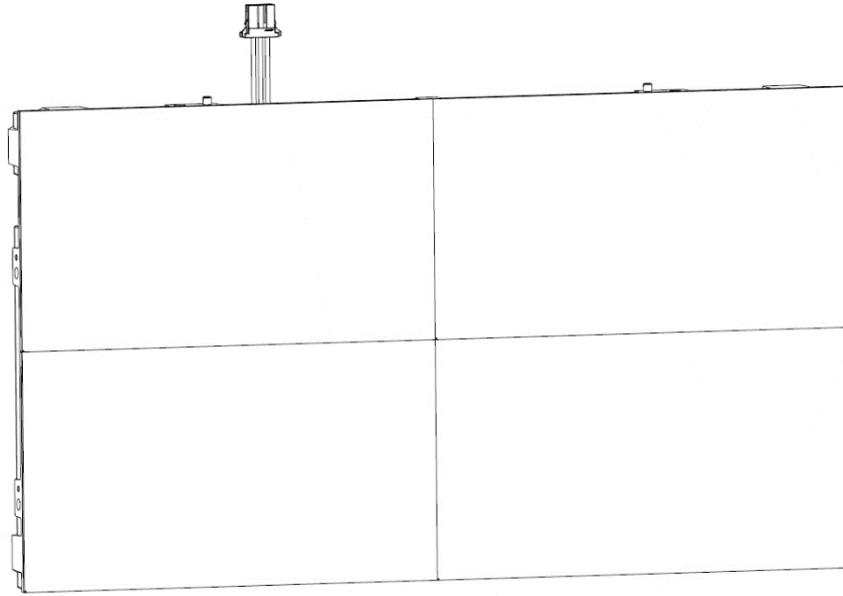


Figure 3-20 Lamp Board Installation Finished

Step 4 Optional: If you need to remove the lamp boards, remove the first lamp board by using the LED vacuum pumping tool, and remove other lamp boards with hands.

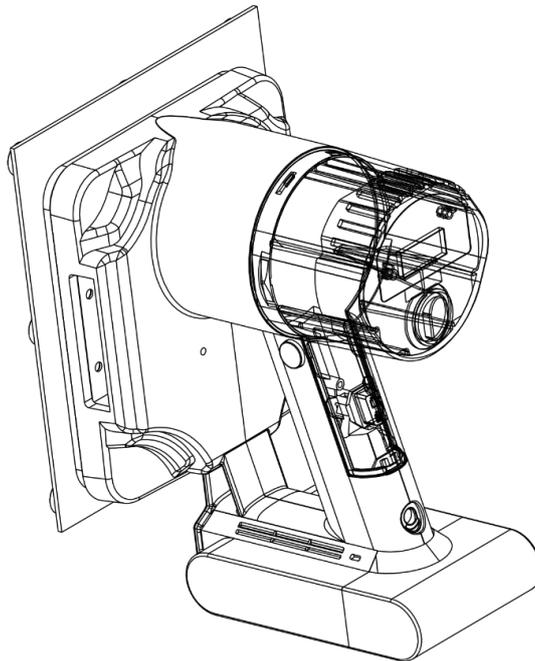


Figure 3-21 LED Vacuum Pumping Tool

## Label Lamp Boards for COB Cabinet in Order

### Note

- There is no requirement of installation sequence for the cabinets while the lamp boards on each cabinet must be installed in order.
- After calibration, each step must be carried out in order to ensure that the position of lamp boards on the cabinet remains the same, including installing the lamp boards on or removing from the aging frame, packaging the lamp boards. The labelling order of lamp board is shown as below.

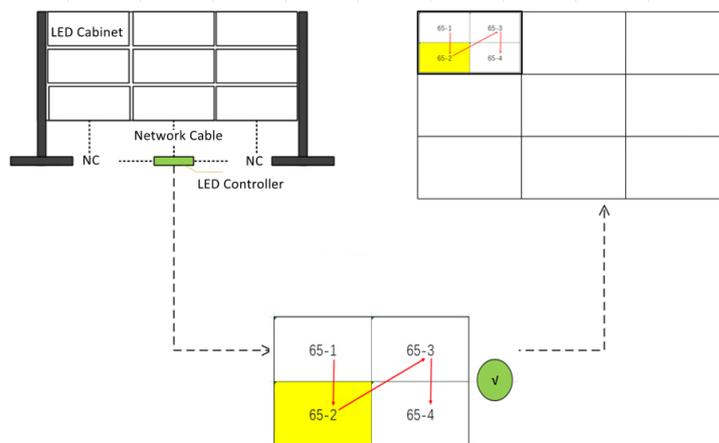


Figure 3-22 Label Lamp Boards in Order

When removing the lamp boards from the aging frame, labels will be stuck on the rear of the lamp boards on the cabinet. X indicates the ordinal number of the cabinet. For example, X=1 indicates the first cabinet, and X=2 indicates the second cabinet.

When installing on-site, cabinets can be installed arbitrarily, while lamp boards on each cabinet must be installed in order, namely, the ordinal numbers are the same in a cabinet.

### Stitch Lamp Boards in Order

There is no requirement of installation sequence for the cabinets while the lamp boards on each cabinet must be installed in order.

When stitching the lamp boards on the cabinet, you need to stitch the first lamp board on the upper left or right corner of the cabinet. Then the second lamp board should be stitched on the cabinet from top to bottom.

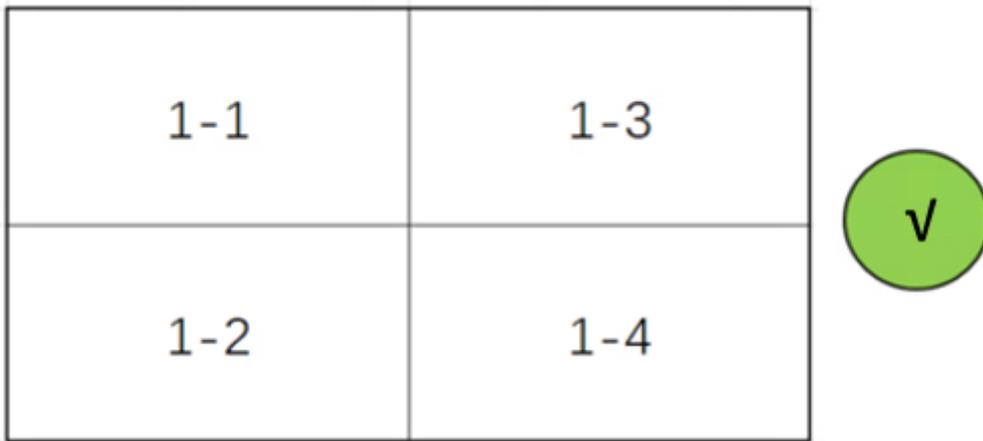


Figure 3-23 Correct Order of Stitching Lamp Boards

The following figure shows a wrong order of stitching lamp boards. In this case, you need to switch 1-2 lamp board and 1-3 lamp board.

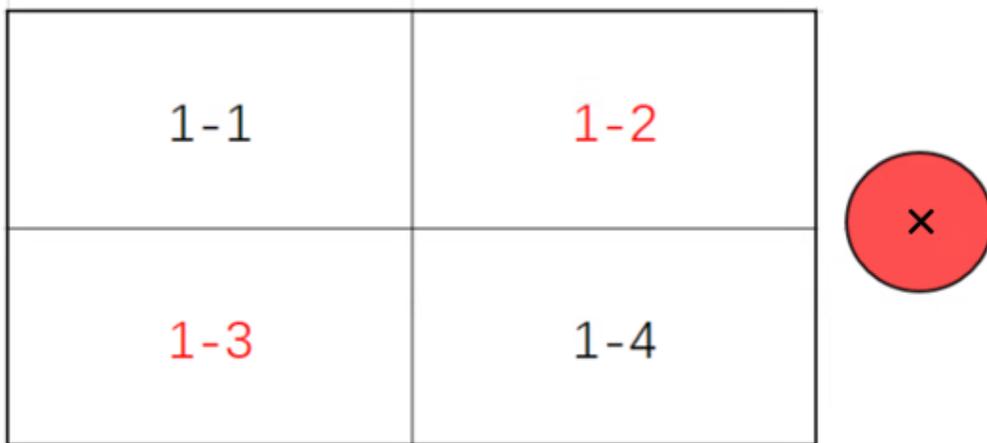


Figure 3-24 Wrong Order of Stitching Lamp Boards

The following figure shows a wrong order of stitching lamp boards. In this case, you need to change 2-3 lamp board into 1-3 lamp board.

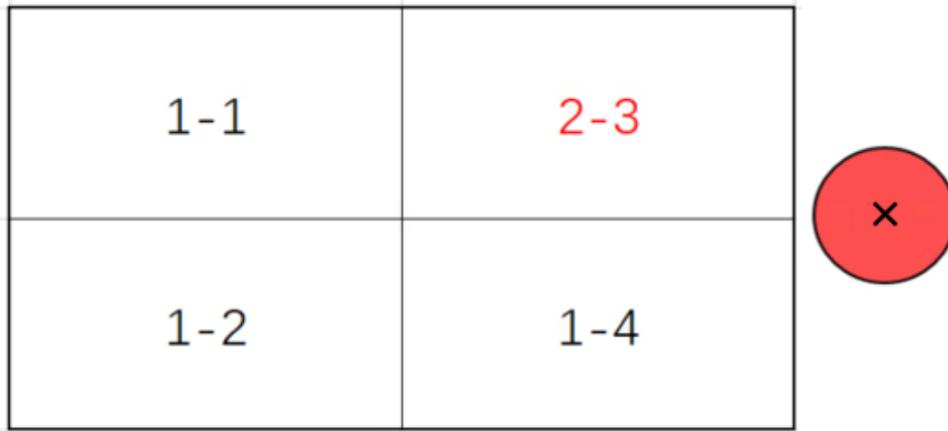


Figure 3-25 Wrong Order of Stitching Lamp Boards

**Stitch COB Cabinets in Order**

Labels are stuck on the COB cabinets. The letter on a label indicates the order type, and the number demonstrates the row number of cabinets when coming out from the factory. For example, A1 (or 1A) indicates the first row of the type A order in the factory.

When installing the COB cabinets, you need to install the cabinets with the same labels row by row. For example, you need to install the cabinets with A1 labels in the first row and then install the cabinets with A2 labels in the second row according to the requirement of installation sequence.

A1	A1	A1	A1	A1	A1
A2	A2	A2	A2	A2	A2
A3	A3	A3	A3	A3	A3
A4	A4	A4	A4	A4	A4
A5	A5	A5	A5	A5	A5
A6	A6	A6	A6	A6	A6

Figure 3-26 Stitch COB Cabinets in Normal Cases

If the first row of the rack can not be fully stitched with COB cabinets with A1 labels, you need to install COB cabinets with A2 labels or other labels after the cabinets with A1 labels.

A1	A1	A1	A1	A1	A2
A2	A2	A2	A2	A3	A3
A3	A3	A3	A4	A4	A4
A4	A4	A5	A5	A5	A5
A5	A6	A6	A6	A6	A6

Figure 3-27 Stitch COB Cabinets with Other Labels

### 3.5 Adjust Lamp Boards on the Cabinets Horizontally

Use a screwdriver to adjust the height of magnetic screws on the cabinet frame, which can help to adjust the height and flatness of the lamp boards after installation if they are uneven compared with the adjacent lamp boards.

The number of the adjusting points of each lamp board varies with different specification.

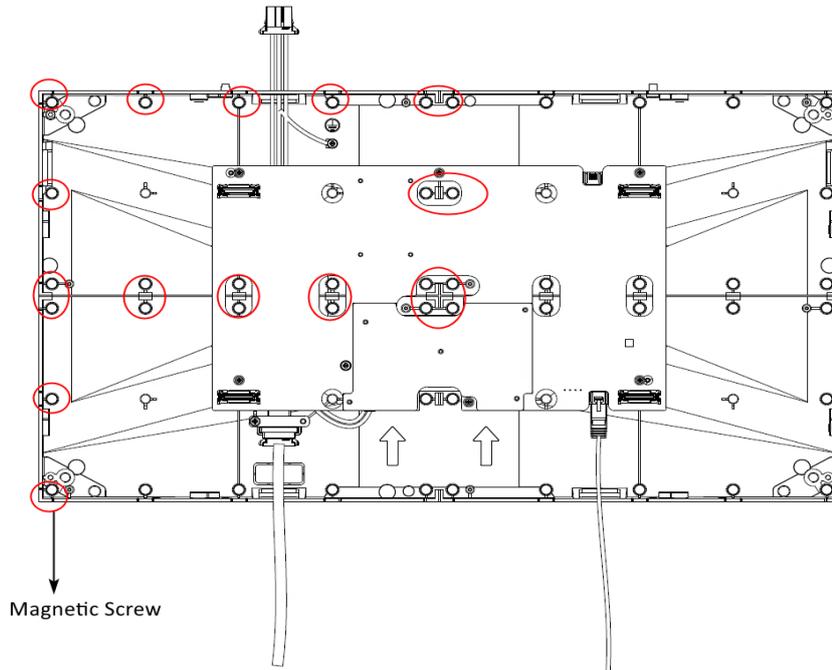


Figure 3-28 Adjusting Points of the Lamp Board

### 3.6 Configuration Example

Take 6 rows × 5 columns P1.2 cabinets for example, the resolution of a single cabinet is 480 × 270. The maximum load of a single network interface of a sending card for P1.2 cabinet is 5 cabinets. If the power consumption of the cabinet is 150 W, a power cord can load 15 cabinets.

#### Note

- The network cables are marked in green and the power cords in red.
- The maximum current of the power cable is 10 A. The power consumption of the power cord should be calculated according to the actual situation in specific region.

If the sending card provides 16 output interfaces with 12 network interfaces used, the cabling is shown in the following figure.

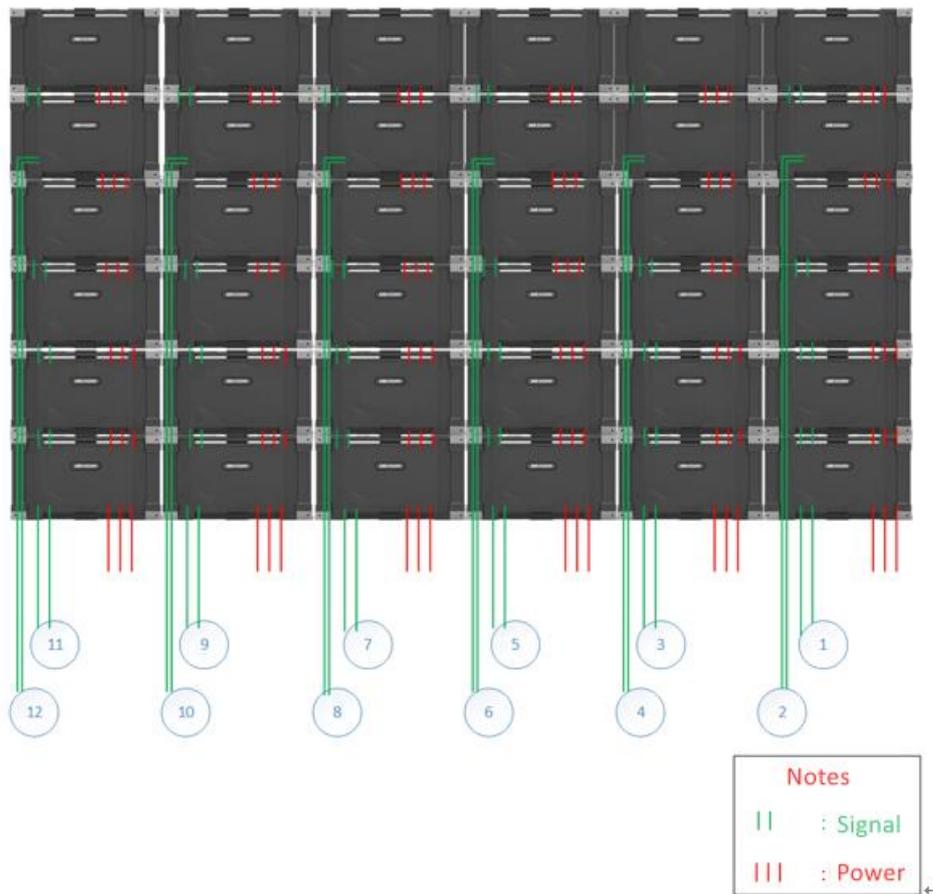


Figure 3-29 Cabling Diagram for 16 Output Interfaces

## Chapter 4 Software Debugging

The device supports configuration on the client of LED display unit. For more details about the installation and configuration process, scan the QR code to get the installation guide.





See Far, Go Further