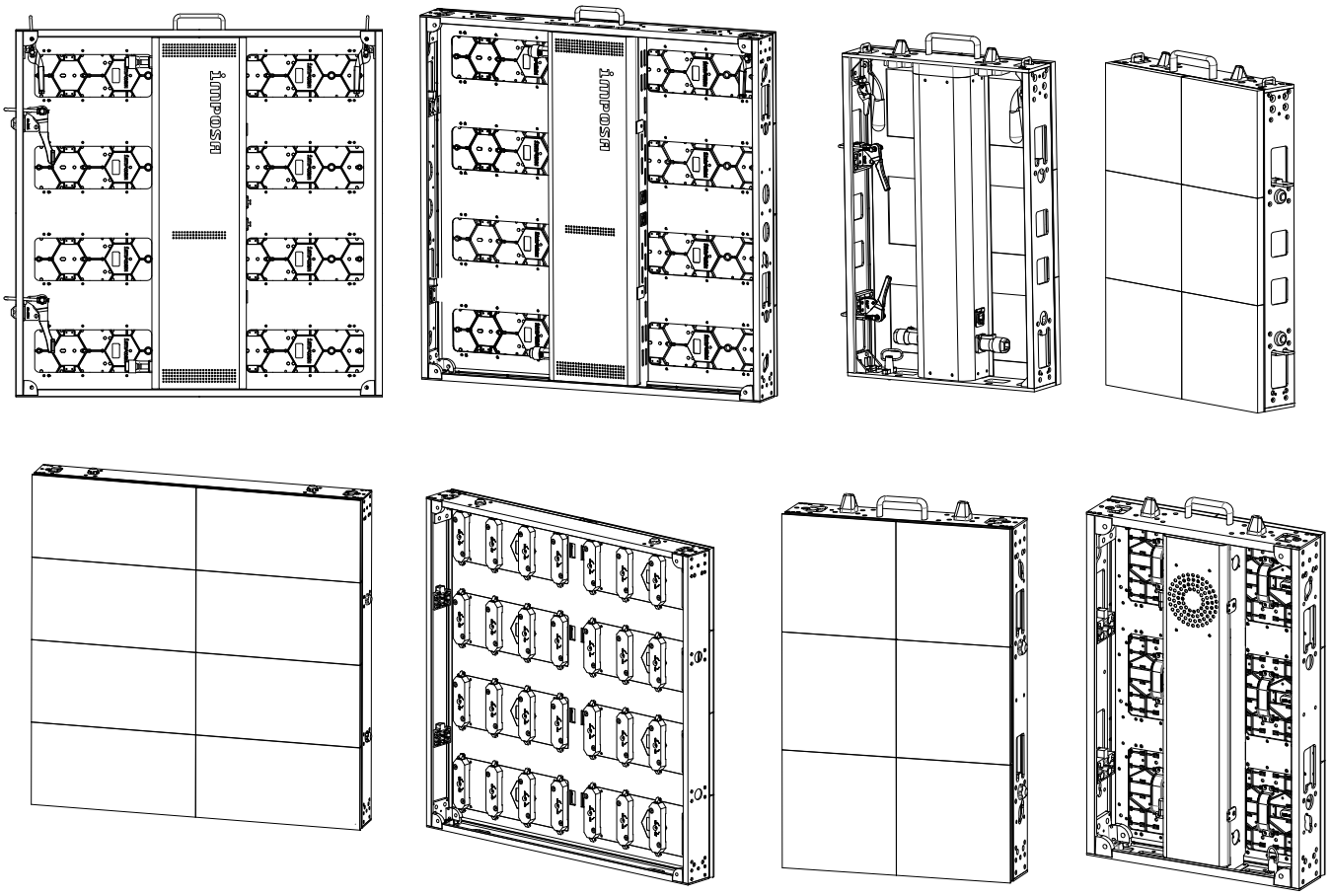
IMPOSA Lite II Series User’s Manual



Content

1. Safety

Before installing an IMPOSA Lite II display, one is required to read this chapter carefully to obtain important information as to how to prevent personal injury and to protect the display from damage during installation.

Overview

- Guidelines
- Safety instructions

1.1 Guidelines

- Before installing the display, make sure you have read the User's Manual with full understanding.
- Installation must be performed by authorized and qualified technical personnel only.
- The installation site must be solid and without any chance of sinking, tumbling or falling. It must be at the same time free of over-heat, radiation, pollution, corrosion or gas release.
- Only use components provided by the Manufacturer or those approved or specified by the Manufacturer during installation of IMPOSA Lite II series displays.
- Do not modify and/or replicate any component or accessory without permit from the Manufacturer.
- Always follow all installation instructions. Please contact the Manufacture if any problem arises.

Special attention should be paid to all "**CAUTION**" and "**TIPS**" mentioned in this User's Manual which respectively intends:

CAUTION: to draw operators' attention to an important instruction or to remind them of what might happen.

TIPS: to give advice on how to perform an operation better.

1.2 Safety instructions

Product care

- All parts must be fully protected and packed in good order during transportation, storage, etc. No external pressure shall be applied on them.
- No part of the product can come into contact with rain before or during installation. Keep them in dry and clean places.
- All parts must be prevented from being trampled, stroke or dropped. Follow all instructions while carrying or moving the parts. Otherwise the product can be subject to terminal damage.

Installation

- Before installation, ensure that the supporting structure or frame has sufficient strength to hold the display firm and safe.

- For hoist installation, the operator must follow all instructions given in this User's Manual, including where the hoist brackets should be located, that the crane used must come with sufficient capability to hoist the product, and that the operating ground must have the strength to sustain the crane, etc.

- Most components of the product are heavy. Therefore high attention should be paid to personnel safety during installation.

- All connection bolts must be fastened firmly and securely.

Power

- An IMPOSA Lite II display is to be powered by a 3-phase power with 5 lines. That is, it must come with an independent neutral line and an independent ground line.

- Provide the power and power supply circuits in accordance with the power consumption of the display. All circuits must come with protection tubes and confirm with the local electrical safety standards.

- The LDU and PSU must be installed near the display. Cables from the LDU and PSU to the display cannot be stretched or impaired. Power distribution from the PSU to the display cannot exceed what is required by this User's Manual.

- The input voltage of an IMPOSA Lite II display can be set at 120VAC or 220VAC. But ensure to set it right before power connection.

- Do not attempt to fix an impaired cable. Replace it with a new one.

- A big current is produced the moment a display is powered on. Therefore an air breaker that can sustain big currents should be used as the master power switch.

Grounding

- IMPOSA Lite II displays must be grounded with an INDEPENDENT ground wire.

- Displays to be installed independently from any architectural structure must be equipped with an independent ground wire and, if necessary, a lightning rod. The down lead of the lightning rod should be insulated with the frame of the display. Set the earth electrode of the lightning rod and that of the ground wire away from each other.

Usage

- LEDs on the display cannot be pressured at any time. Otherwise they can be damaged for good.

- Follow the steps mentioned in this User's Manual while cleaning the front side of the display. Only soft clothing or brush, neutral detergent and water are to be applied to the display.

- Power must be cut off before dismantling any part for maintenance.

2 IMPOSA Lite II series tiles

This chapter focuses on the main component of an IMPOSA Lite II display---IMPOSA Lite II tiles.

Overview

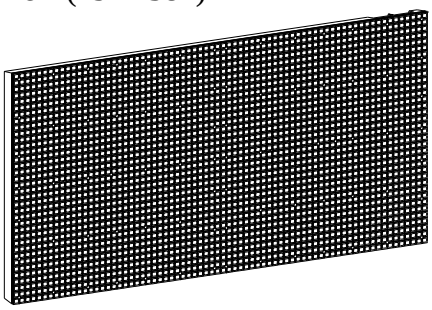
- IMPOSA Lite II tile
- IMPOSA Lite II display

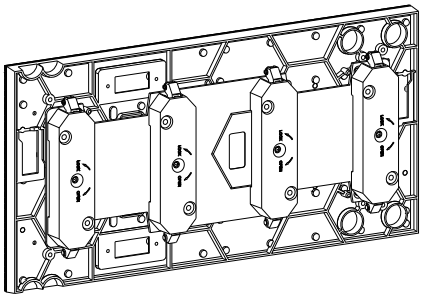
2.1 IMPOSA Lite II tile

Tile overview

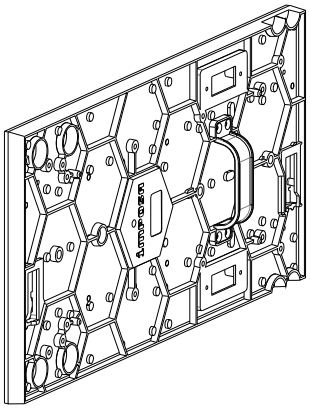
The front and back view of an IMPOSA Lite II tile

Tile A(192X384)



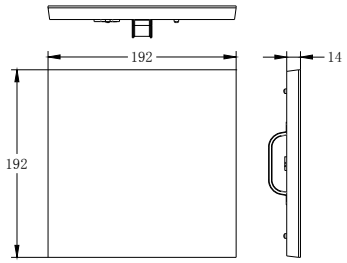


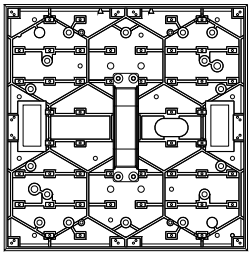
Back view of front-access tile



Back view of rear-access tile

Tile B(192X192)





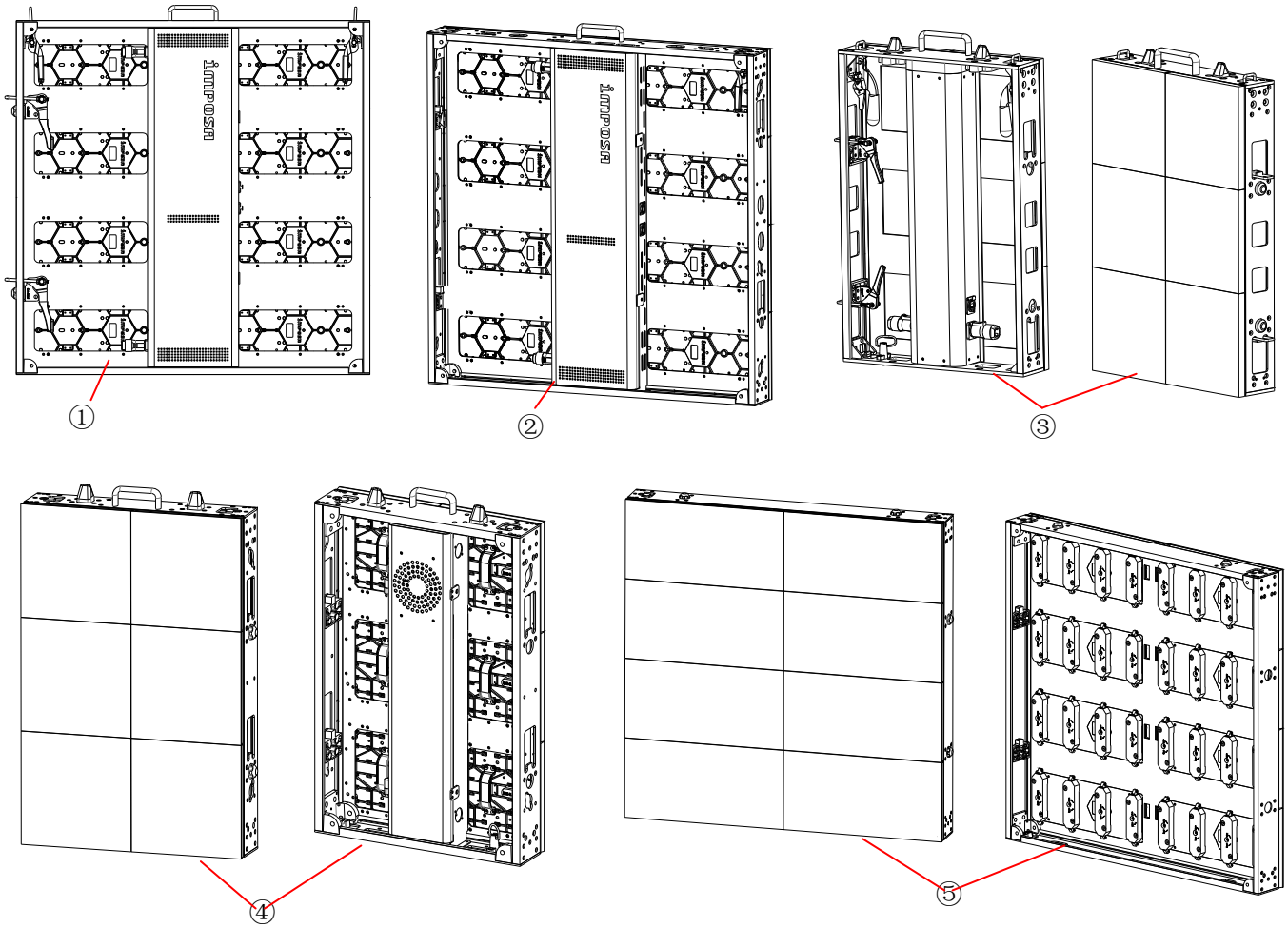
Specifications of iMPOSA Lite II

Model	LI2-1.7	LI2- 2	LI2- 3	LI2- 4	LI2-5.33	LI2- 6	LI2- 8	LI2-10.6	LI2- 12	LI2- 16
Pixel Pitch	1.7mm	2mm	3mm	4mm	5.33mm	6mm	8mm	10.6mm	12mm	16mm
Pixel Configuration	3 in 1 SMD									
Application	Indoor									
Model Information										
Resolution of Tile(HXW)	112 X112	96X96	64X64	48X48	36X72	32X64	24X48	18X36	16X32	12X24
Size of Tile(mm)(H1XW1)	192X192				192X384					
Cabinet Information										
Resolution of Cabinet(pixel) (H X W)	336X224	288X192	192X128	144X96	144X144	128X128	96X96	72X72	64X64	48X48
Size of Cabinet(mm)(HX WXD)	576X384X92				768X768X92					
Weight of Cabinet(KG)	8				18					

Display Information		
Power Consumption of Cabinet Max(W)	150	300
Brightness(cd/㎡)	2000	
Viewing Angle	120°/ 120°	
Grey Level	14 Bit	
Frame Frequency(Hz)	>60	
Refresh Frequency(Hz)	>400	
Brightness Control	100	
Nominal LED Working Life	Up to 100,000Hours	

2.2 Specifications of IMPOSA Lite II cabinet

According to various applications, such as front access, rear access, rental structure and so on, 5 different IMPOSA Lite II cabinets are developed.



Specifications of IMPOSA Lite II cabinet

	Dimension（mm）	Application	Remark
1	768X768	Rental installation	
2	768X768	Fixed installation and rear access	
3	576X384	Rental installation	Only for P2/P3/P4 displays
4	576X384	Fixed installation and rear access	Only for P2/P3/P4 displays
5	768X768	Fixed installation and front access	

3 Installation requirements

This chapter covers requirements for installation, power supply and the control system of an IMPOSA Lite II display.

Overview

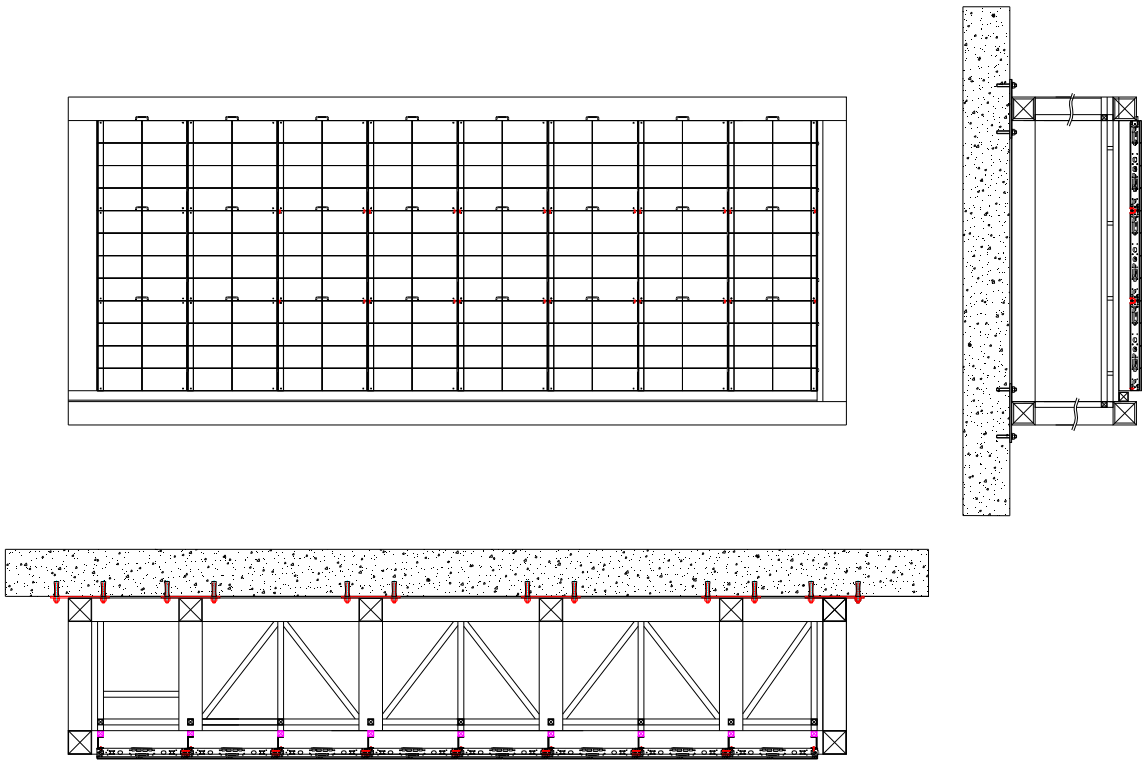
- Mechanical requirements
- Electrical requirements
- System requirements

3.1 Mechanical requirements

An IMPOSA Lite II display comes with its own structural frame which makes installation simple and easy. Besides, it requires a strong and reliable supporting frame at the back to hold the display firm. Wherever this supporting frame is to be installed, on the ground, onto the pole or on a wall, attention should be paid to the following few points:

1. The display should be installed in a place that allows a clear and complete view of the display.
2. The supporting frame has to be strong enough to prevent the display from tumbling.
3. The installation site must have the strength to withstand the total weight of the display plus its structural frames.
4. The IMPOSA Lite II display is meant for indoor use only. The ambient temperature, dust and ventilation, esp. that at the back of the display must be considered when one is choosing the installation site.

A typical way of mounting an IMPOSA Lite II display onto a wall:



3.2 Electrical requirements

Power requirements

- An IMPOSA Lite II display works on AC 200-240V, 50~60Hz. Each column of the display has an independent power supply circuit and can thus be powered by electricity from different phases.
- When the max. power consumption of an IMPOSA Lite II display is less than 3KW, the display can be powered by single-phase power supply circuits which include a live, neutral and ground wire. Each circuit is controlled by an independent air-break switch.
- But if the maximum consumption of the display is over 3KW, it should be powered by 3-phase power supply circuits c/w a live, neutral and ground wire. The 3-phase power distributes power to tiles of each column on an average level. A PSU (power supply unit) is used to control the power.
- The IMPOSA Lite II block can also be powered by AC100-125V, 50~60Hz power supplies. But this needs to be specified in the production order so that it can be pre-set before going out of factory.

Grounding

IMPOSA Lite II display shall be grounded at the installation site. If the existing power supply circuit cannot provide a good ground wire or does not even have one, it's a must to set or reset a reliable ground wire for the display. Good grounding will enable the display to work properly and can prevent it from being disturbed by surge.

3.3 System requirements for the Control software

Operation System Requirements

Take Windows as for example.

PC System requirements：

- CPU Pentium IV or equivalent, 1GHz
- 512Mb DDR RAM
- Free hard disk space 300MB
- Resolution 1024x768
- Windows XP Professional or Win7

Recommended PC System requirements：

- CPU Pentium IV, 2.4 GHz or above
- 2G DDR RAM
- Free hard disk space 100G
- Resolution 1920x1080
- Win7

4. Components of an IMPOSA Lite II display

This chapter continues to introduce other components that make up of an IMPOSA Lite II display.

Overview

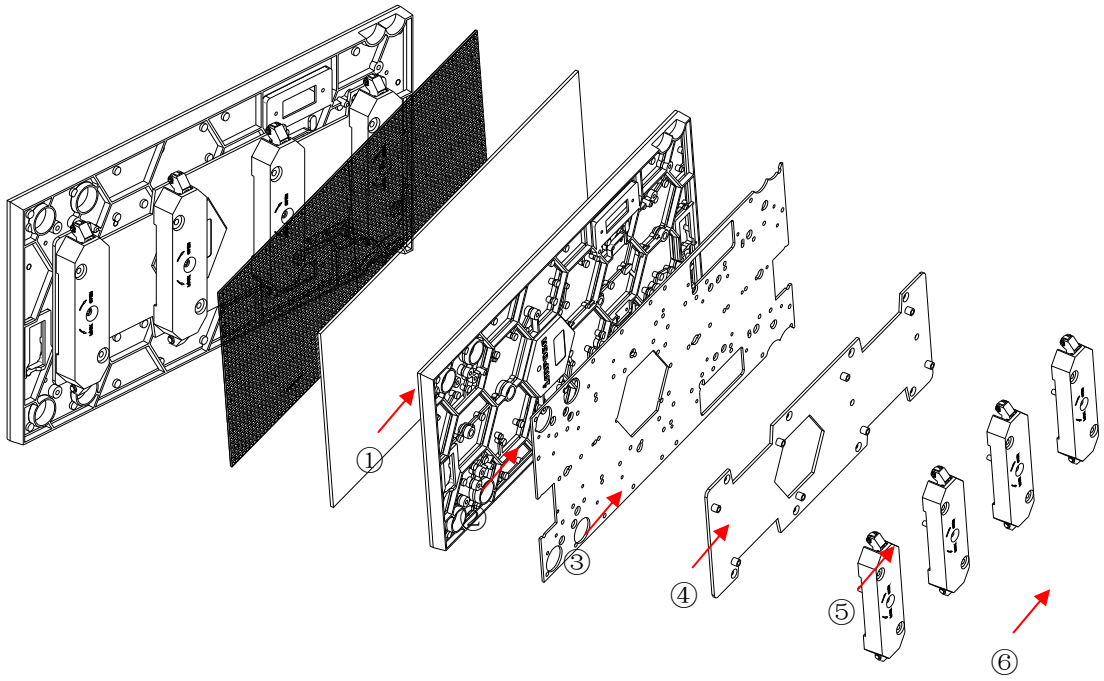
- IMPOSA Lite II tile
- Mechanical components
- Power Supply Unit (PSU)
- Logic Distribution Unit (LDU)
- Video Processor Unit (VPU)
- Cables
- Control software
- Others

4.1 IMPOSA Lite II tile

Introduction to IMPOSA Lite II tile

IMPOSA Lite II tile is the basic display unit of an IMPOSA Lite II display. A tile is composed of an LED display board, a mask, bottom cover, aluminum plate and some locks.

View of an IMPOSA Lite II front-access tile

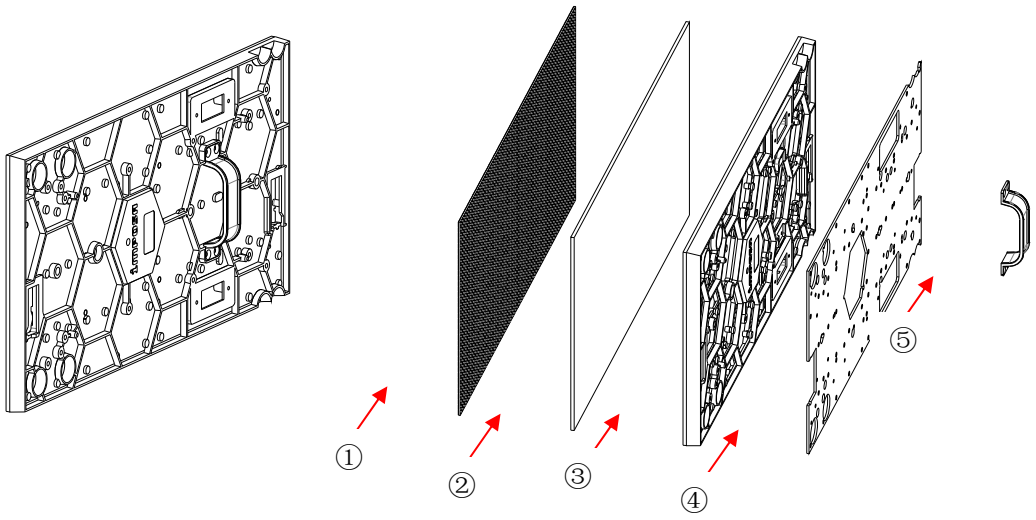


Parts and Part Numbers

	Parts	Part Numbers	Remark
1	Mask		
2	PCB		
3	Bottom cover		
4	Aluminum plate for bottom cover		
5	Aluminum plate for locks		
6	Lock		

There is a small difference between rear-access tile and front-access tile. Front-access tile is equipped with locks in the back side while rear-access tile is equipped with a handle.

View of an IMPOSA Lite II rear-access tile



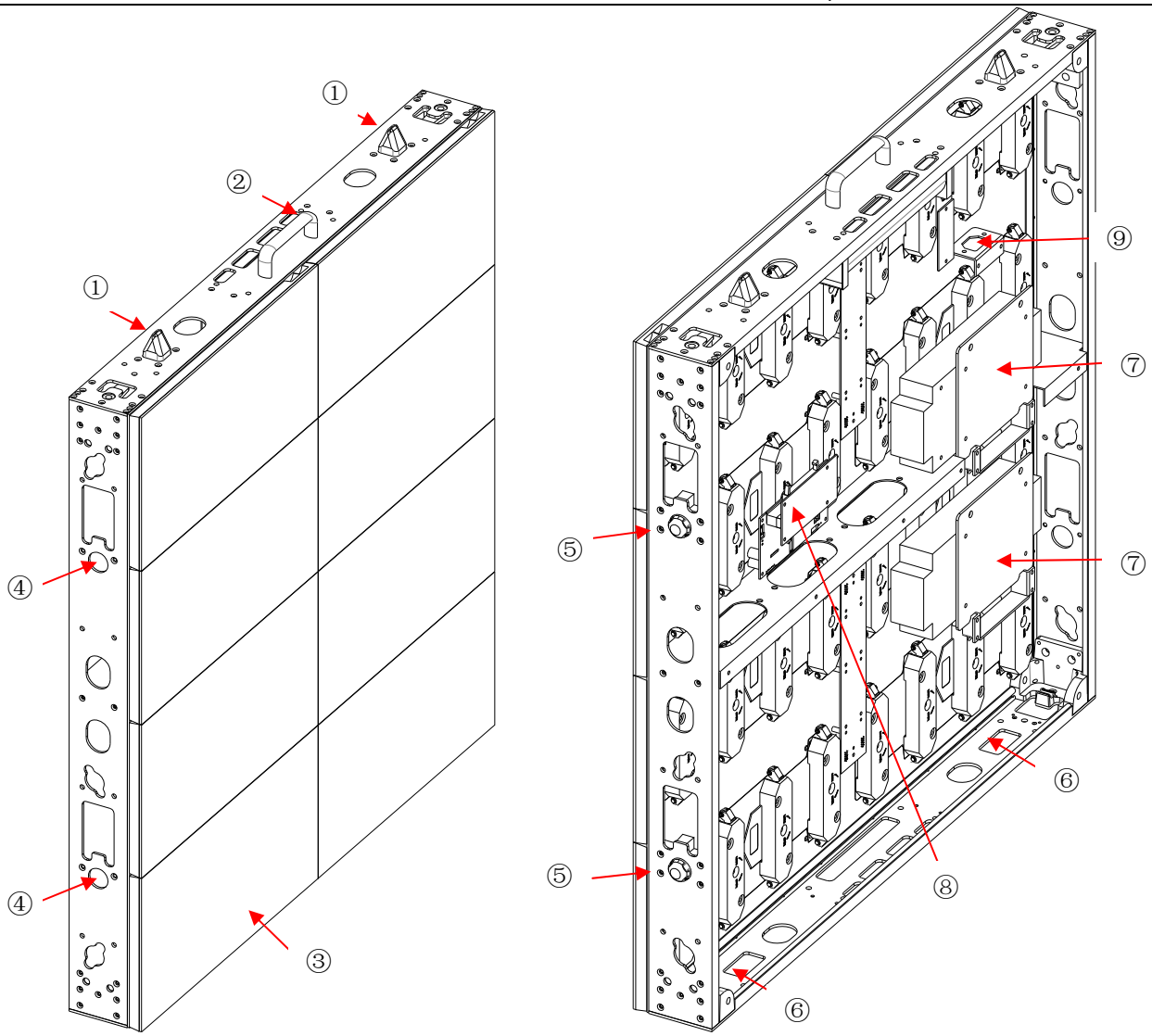
Parts and Part Numbers

	Parts	Part Numbers	Remark
1	Mask		
2	PCB		
3	Bottom cover		
4	Aluminum plate for bottom cover		
5	Handle		

4.2 Cabinet

According to various models and applications, Lite II cabinets are classified into 5 types, which are 768x768 front-access cabinet, 768x768 rear-access cabinet, 768x768 rental cabinet, 576x384 front-access cabinet and 576x384 rear-access cabinet.

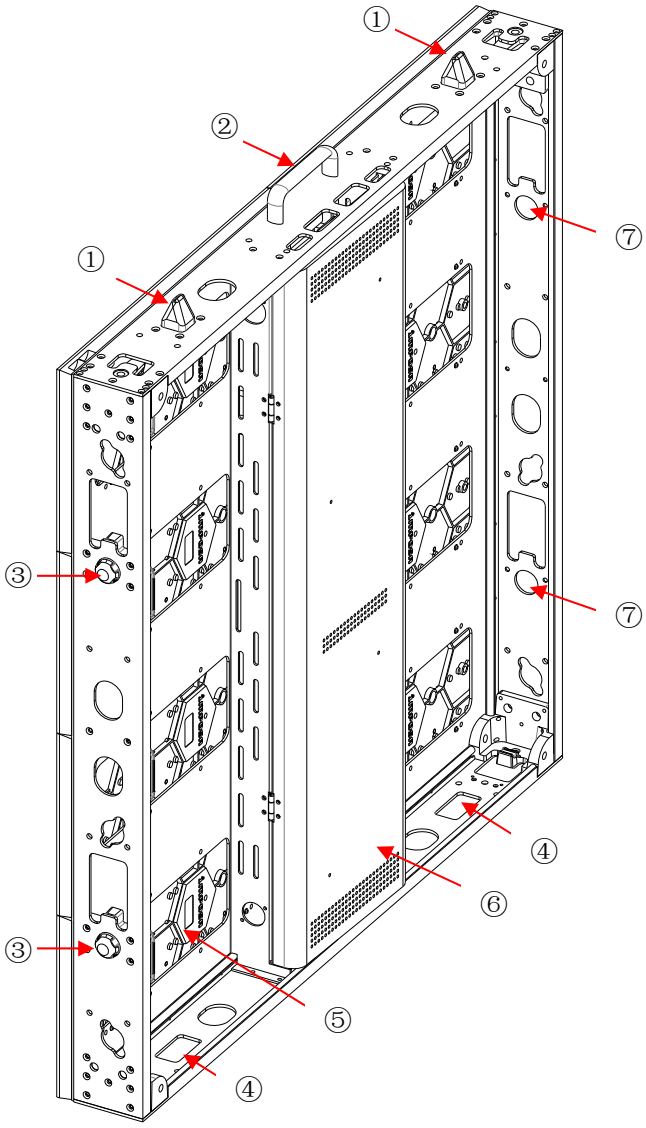
- 768X768 front-access cabinet



Parts and Part Numbers

	Parts	Part Numbers	Remark
1	Top positioning cone		
2	Handle		
3	Tile		
4	Connector for side positioning cone		
5	Connector for side positioning cone		
6	Connector for bottom positioning cone		
7	Power		
8	Main board of tile		
9	Power input		

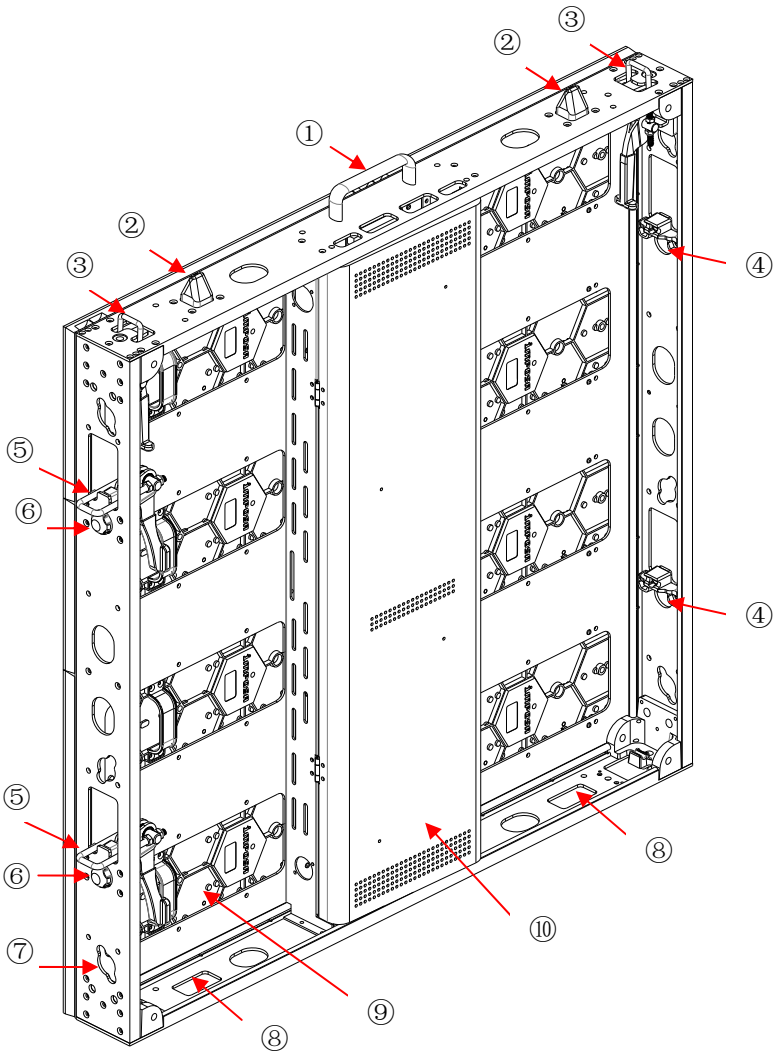
- 768X768 rear-access cabinet



Parts and Part Numbers

	Parts	Part Numbers	Remark
1	Top positioning cone		
2	Handle		
3	Side positioning cone		
4	Connector for bottom positioning cone		
5	Tile		
6	Control box		
7	Connector for side positioning cone		

- 768X768 rental cabinet



Parts and Part Numbers

	Parts	Part Numbers	Remark
1	Top positioning cone		
2	Handle		
3	Top toggle clamp		
4	Connector for side positioning cone		
5	Side toggle clamp		
6	Side positioning cone		
7	Connector for linking rod when the display is in seated installation		
8	Connector for bottom positioning cone		
9	Tile		
10	Control box		

4.3 Power Supply Unit (PSU)

PSU, short for Power Supply Unit, is the power control center for an IMPOSA Lite II display. Each output channel of the PSU controls one column of tiles of a display. The PSU is also inbuilt with a surge protector to prevent the display from being disturbed by lighting.

But if the power consumption of a display is not high, an air-break switch can be used in place of a PSU.

①

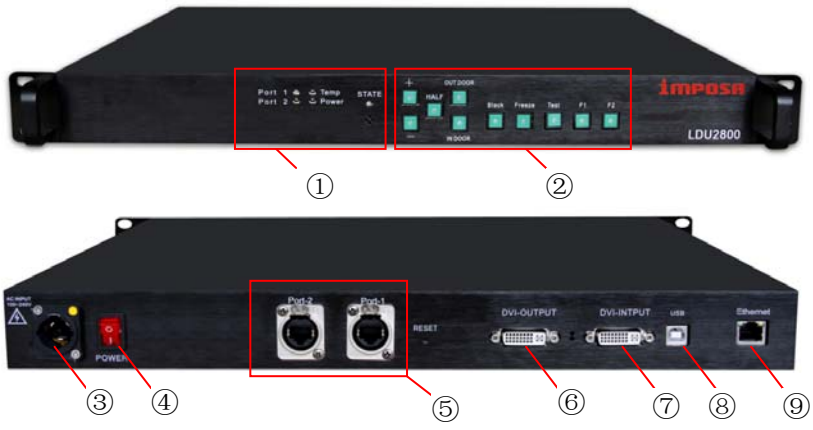
②

Parts and Part Numbers

	Parts	Part Numbers	Remark
1	PSU		
2	Air breaker		

4.4 Logic Distribution Unit (LDU2800)

LDU2800 is the central controller for the IMPOSA Lite II display. It mainly includes the control board QS5832.



Parts and Part Numbers

	Parts
1	State indicator
2	Operation buttons
3	Power input

4	Power switch
5	Signal input and output
6	DVI signal output
7	DVI signal input
8	USB interface
9	Ethernet interface

4.5 Cables

Signal cable between LDU and tile

Power cable between PSU and tile

Signal cable between cabinets

Network cable

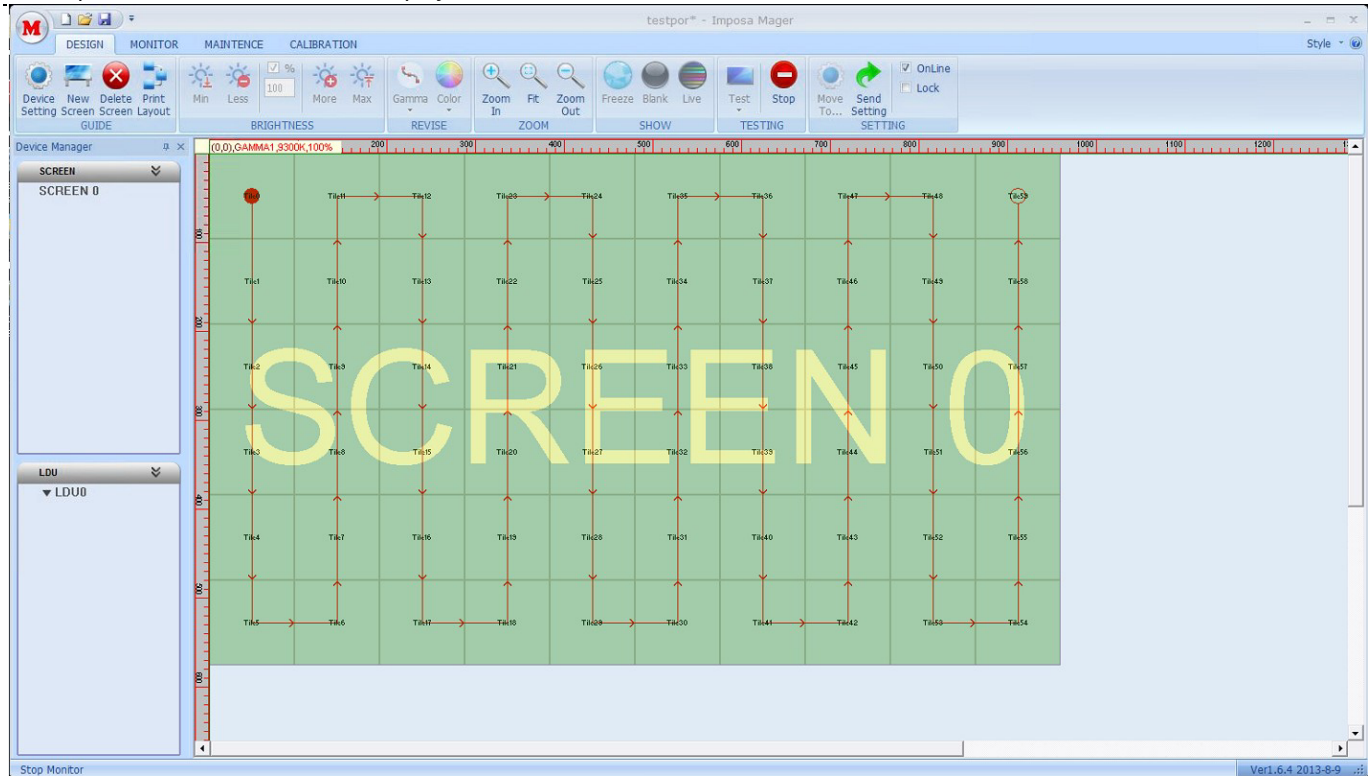
DVI cable

USB cable

4.6 Control software

Mager, the control software designed to work with LDU2800/LDU8000, is for configuring IMPOSA Lite II cabinets into a whole properly-working screen.

4.Components of an IMPOSA Lite display



TIPS: Please refer to Mager's user's manual for its detailed operation and functions.

5. Installation

This chapter describes the various installation methods of an IMPOSA Lite II display.
Overview

- Installation of front-access cabinets
- Installation of rear-access cabinets
- Installation of rental cabinets

5.1 Installation of front-access cabinet

Because the mounting holes of front-access cabinets are located in the bottom of tile, tiles must be removed before installing cabinets. Therefore, before installing the whole display, it's necessary to learn how to mount and dismount a tile.

5.1.1 Tile assembly and disassembly of front-access cabinet

Needed tools:

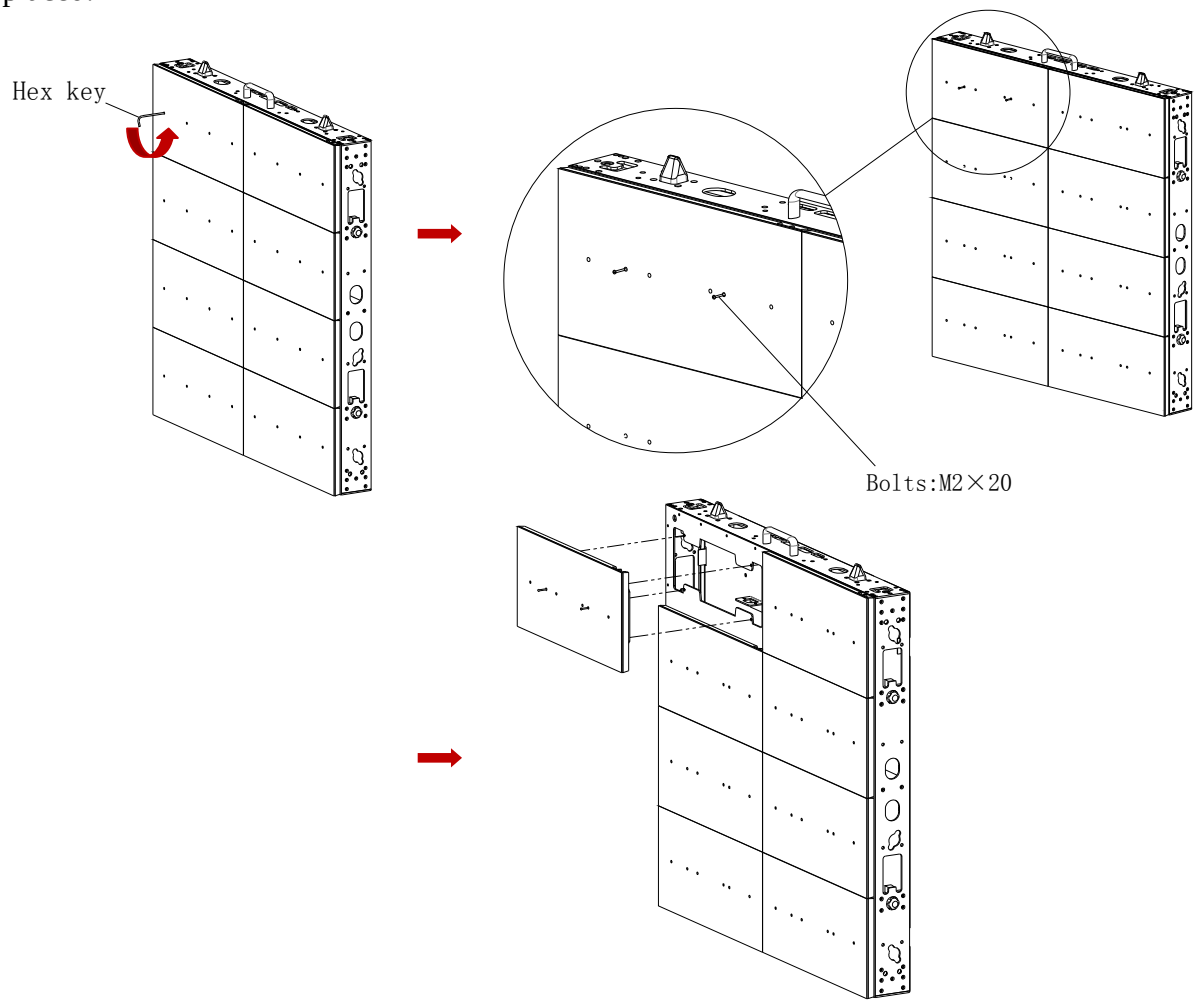
- Hex key

Needed components:

- M2X20 screws

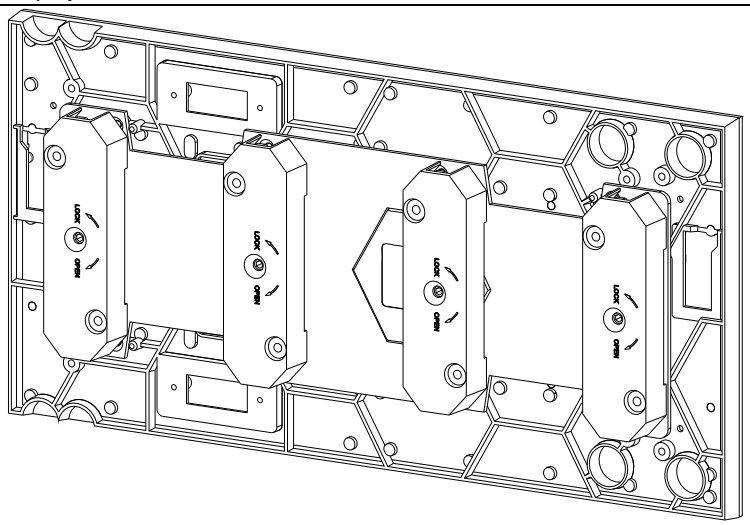
➢ Disassembly of front-access tile

Rotate the hex key anticlockwise to unlock the four locks on tile. Fasten the M2x20 screws, functioned as two handles, on the corresponding positions on the tile. And then take down the tile to be replaced.

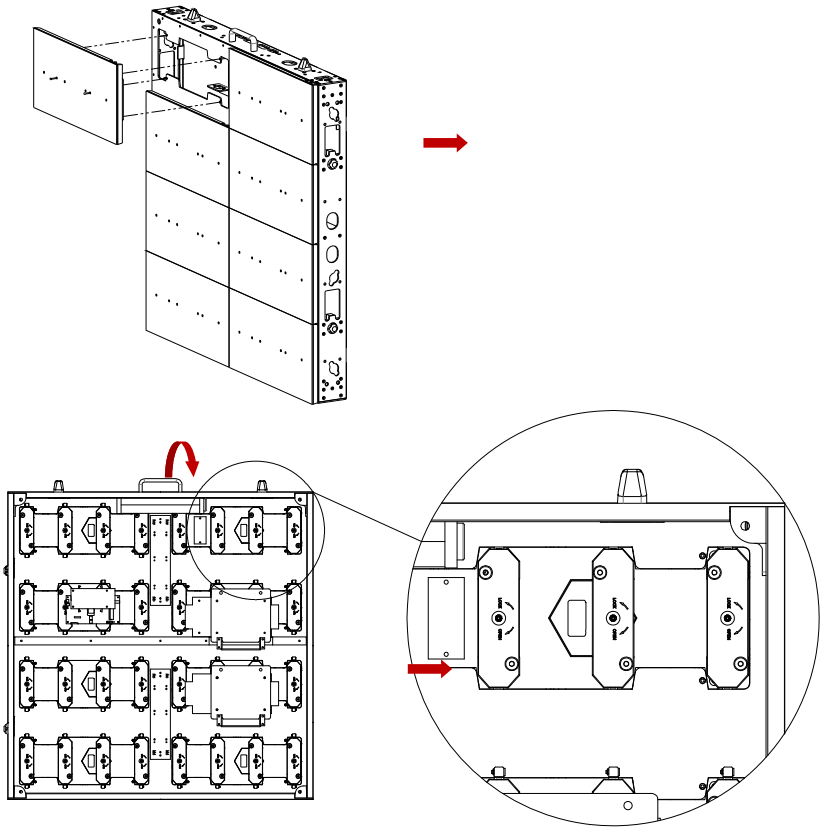


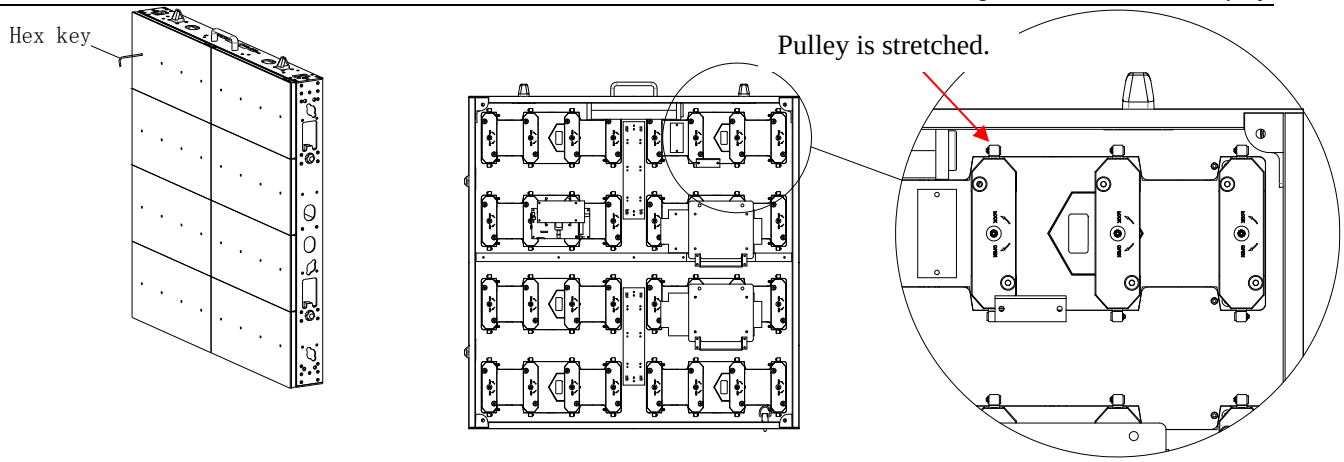
➢ Assembly of front-access tile

There are four locks on the back of each tile. Before installation, please make sure these four locks are open and pulleys are contracted.



Move the tile to the target installation position. Align the tile's positioning pillar with the cabinet's positioning holes. Push the tile to make it close to the cabinet, ensuring the four locks have entered into the cabinet. And then rotate the hex key clockwise to lock them and fix the tile.





5.1.2 Installation of front-access cabinet

Needed tools:

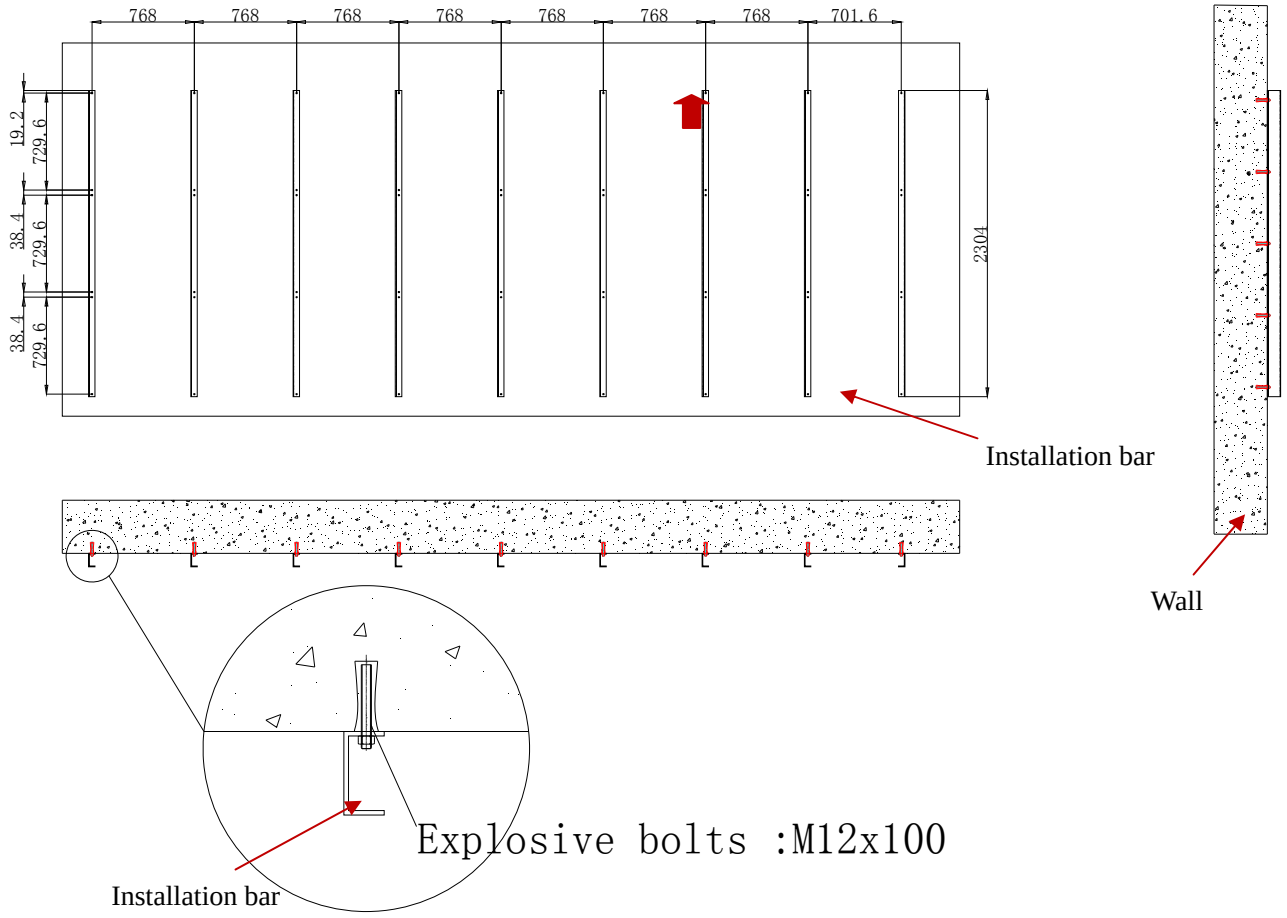
- Hex key

Needed components:

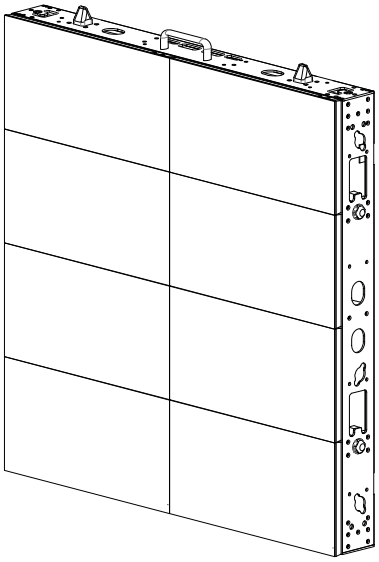
- M12×100 explosive bolts
- Installation bars (Take 2304x6144mm display as an example for introduction.)

Installation Steps:

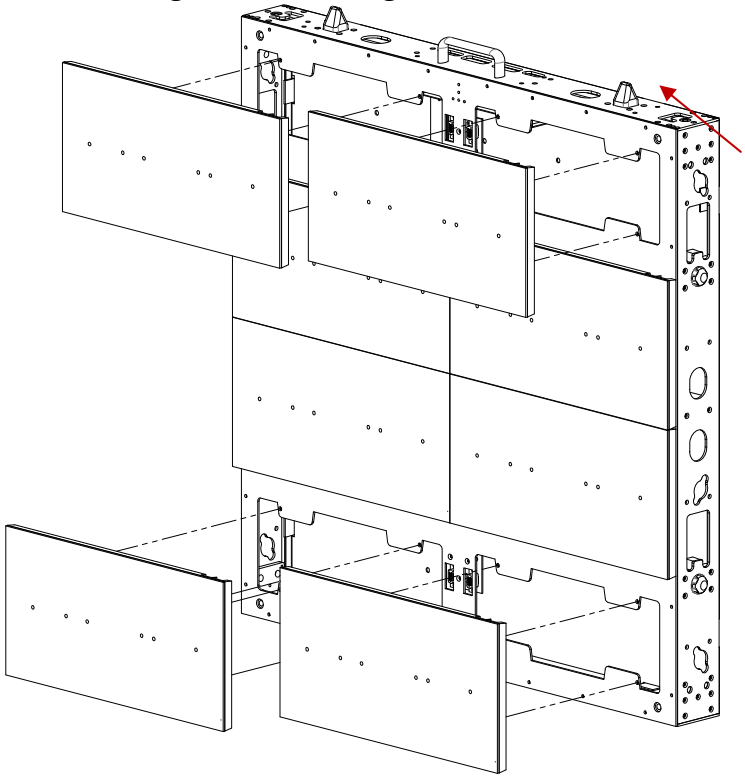
1 Install the M12x100 explosive bolts on the corresponding positions to fix the installation bars.



2、Take out the display from the packing boxes, during which please pay attention not to impact or rub the LED surface of cabinets.



3、To connect cabinets with the installation bars, please take down the four tiles in the corners. Procedure of mantling and dismantling tiles is introduced in the chapter of Replace tile.

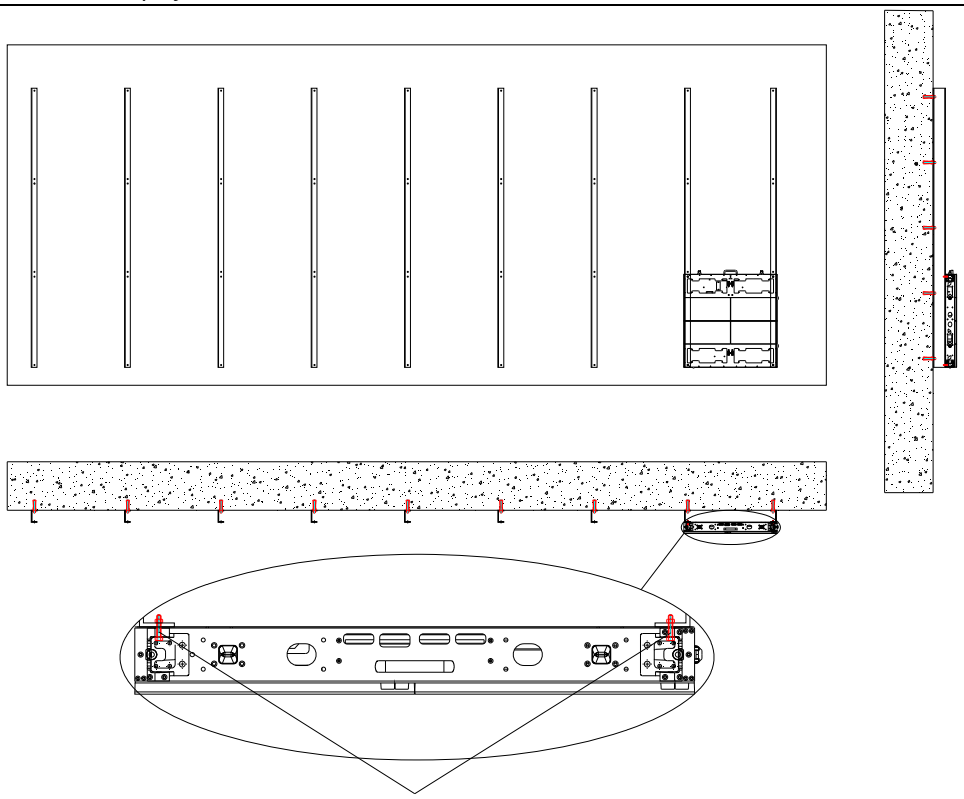


The purpose of removing tiles is to expose the four installation holes on the corners, which are used to fix the cabinet on frame.

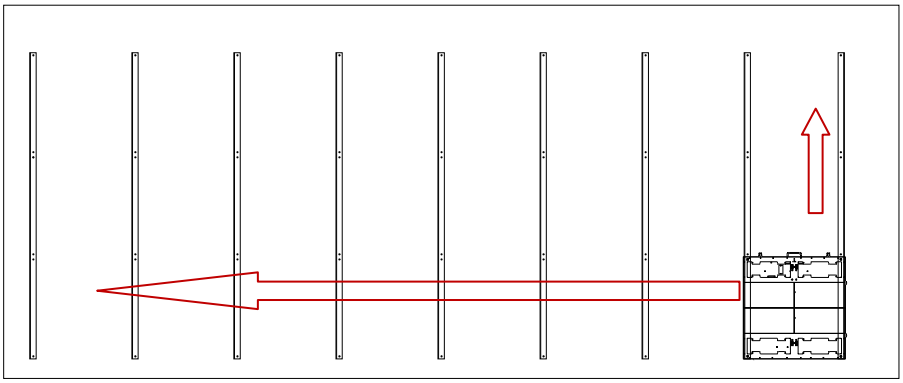
Note: Please place the dismantled tiles in sequence and well mark them so that the tiles can be put back to the original positions.

Before delivery, based on LED'S specific characteristics, each cabinet is equipped with certain tiles, so that a most satisfactory displaying effect is ensured. If the tiles are mixed up and aren't installed in the original position, the displaying effect will be terribly influenced.

4、Move the cabinet to the installation bars. Align the installation holes on the back of cabinet with the ones on the installation bars and fix the cabinet on the bottom left side of the supporting frame. (The figure below shows the front view of the first installed cabinet.)



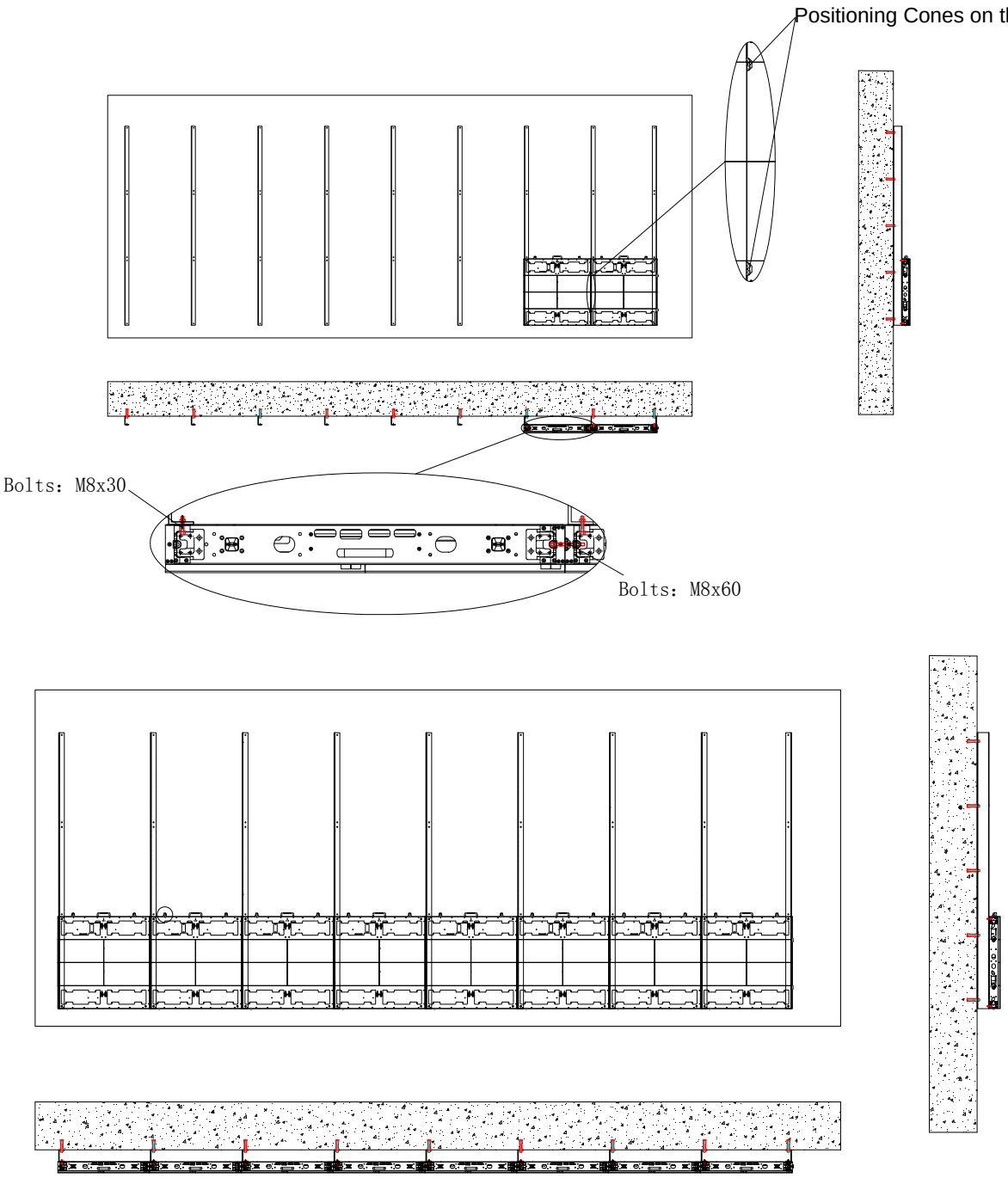
Bolts：M8x30



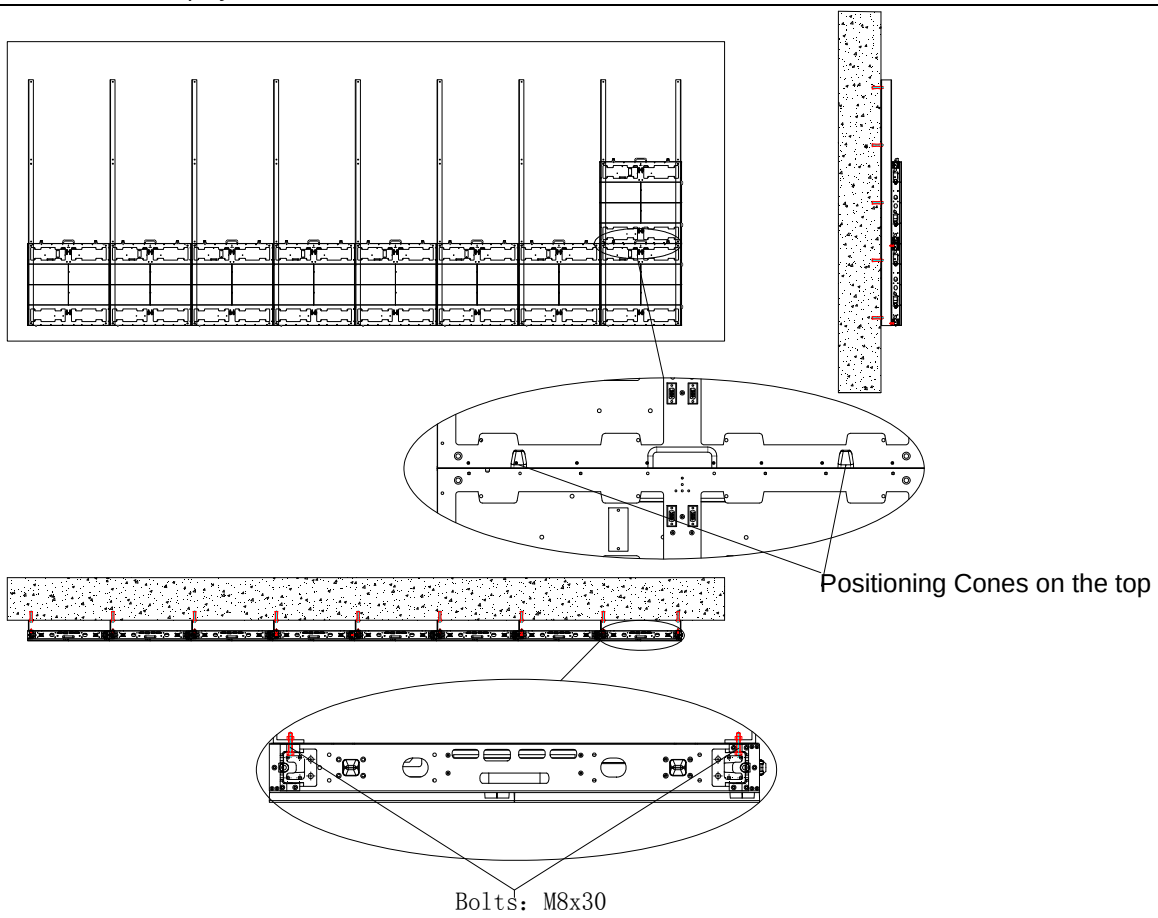
Note: Viewed from front, cabinets are installed from right to left and from bottom to up.

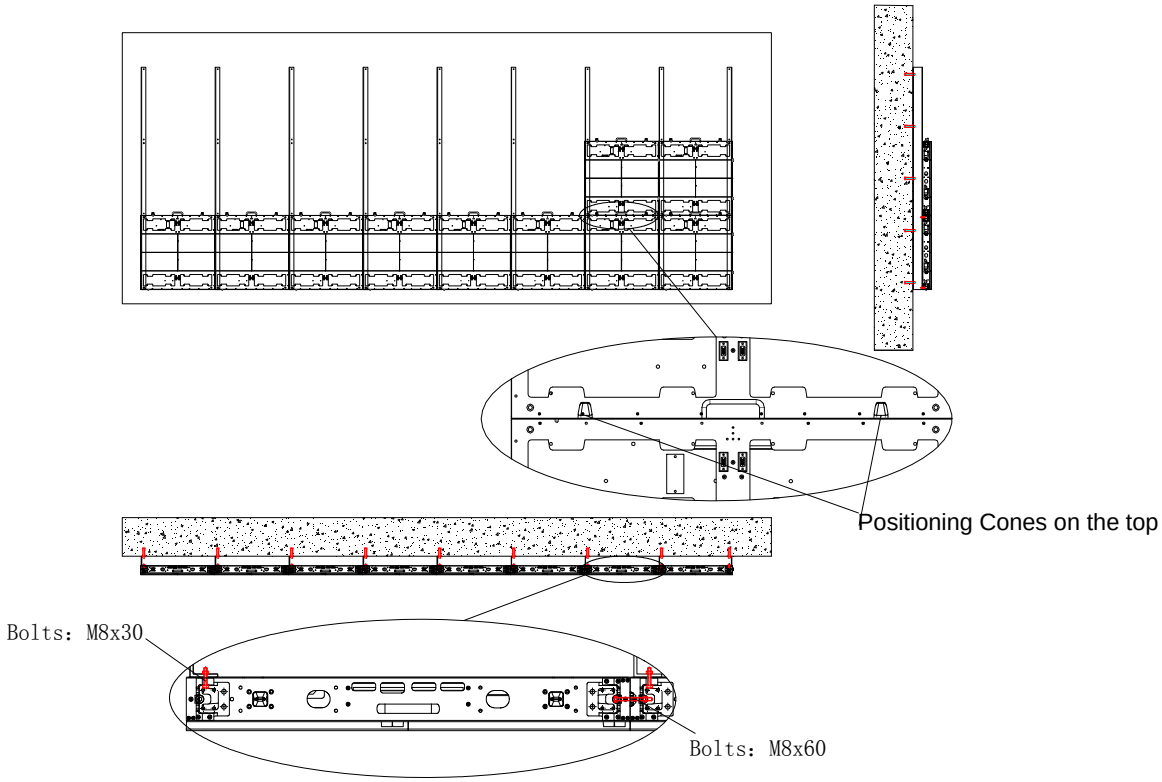
5、After the first cabinet is installed, start installing the second one. Well place the second cabinet with the side positioning cones of the first cabinet and then fix it on the installation bars with M8x30 bolts. Connect the two cabinets with M8x60 bolts, ensuring the compactness of cabinets.

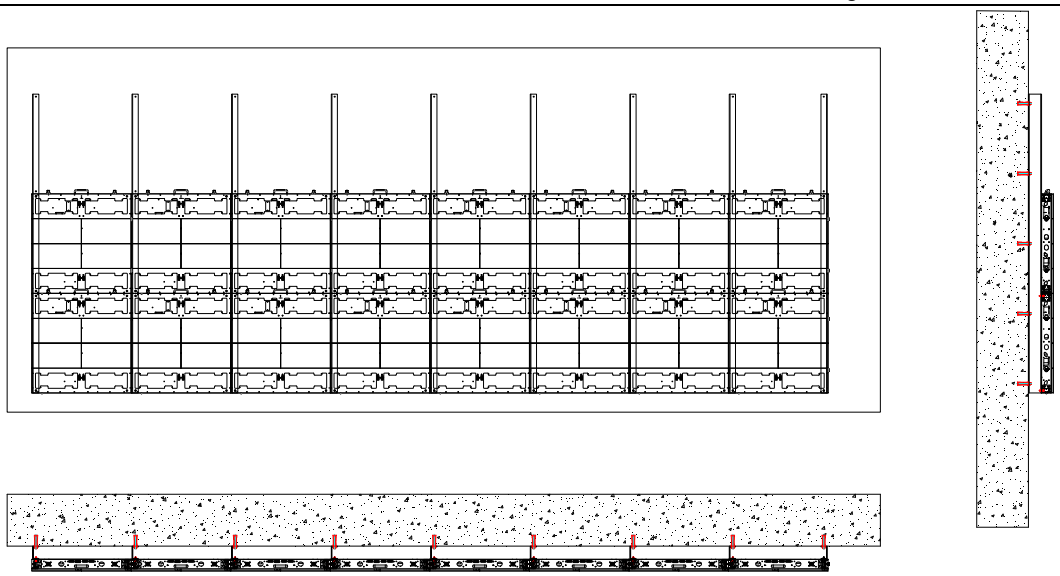
After making sure the two cabinets are in the same horizontal plane, install next cabinet in the same way until the installation of cabinets in the first row is finished.



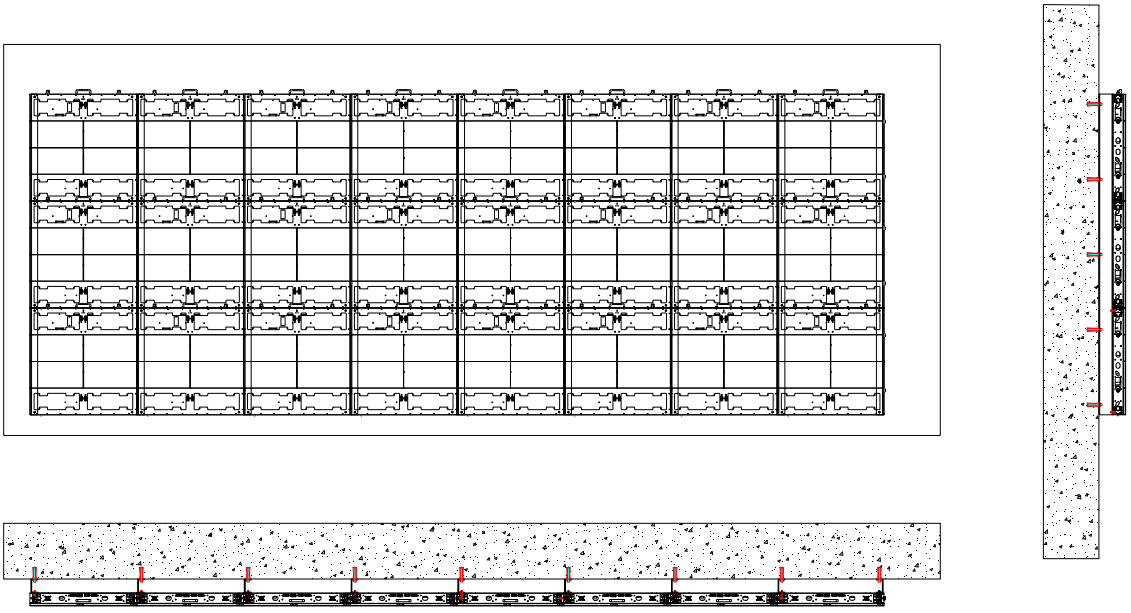
6、After the cabinets on the bottom are well installed, start installing cabinets on the second row. Place the cabinets according to the positioning cones on the top of the cabinets on the first row. And then fix the cabinets on the supporting frame according to the introduction above.


Positioning Cones on the top
Bolts：M8x30

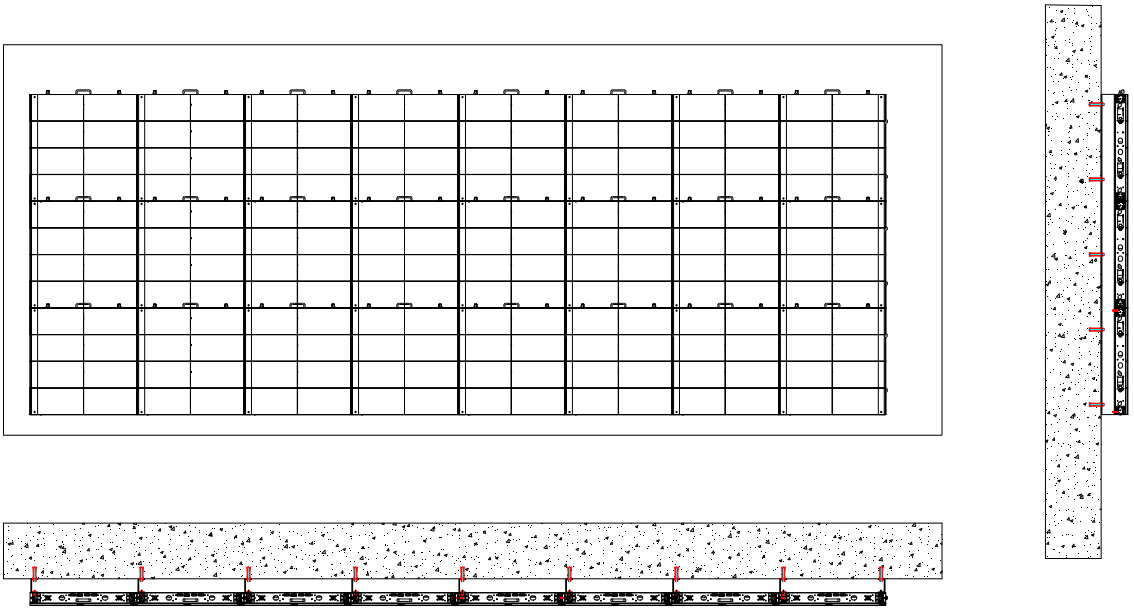

Positioning Cones on the top
Bolts：M8x30
Bolts：M8x60



7、Finish the installation of the rest cabinets by this same method.



8、When the cabinet installation is finished, put back the tiles that were disassembled.



Note: Connection of signal cables and power cables should be finished before putting back the tiles.

5.2 Installation of rear-access cabinet

Needed tools:

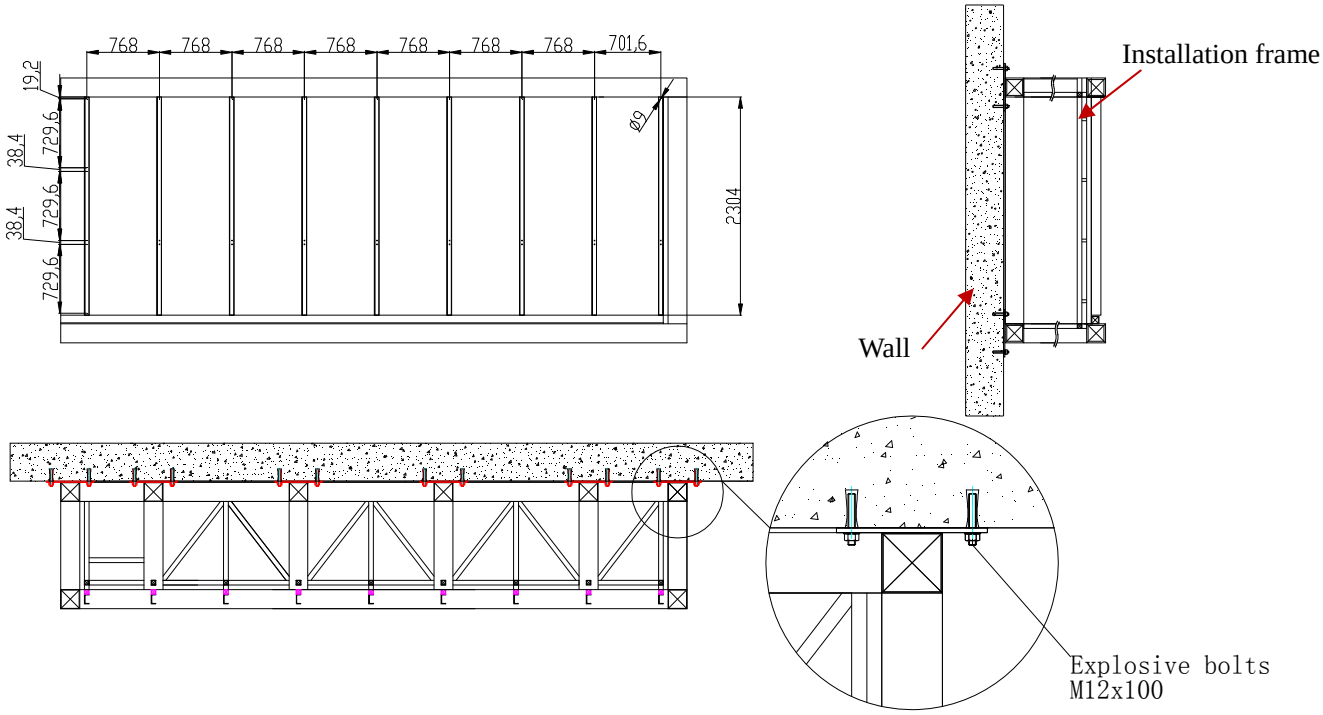
- Wrench

Needed components:

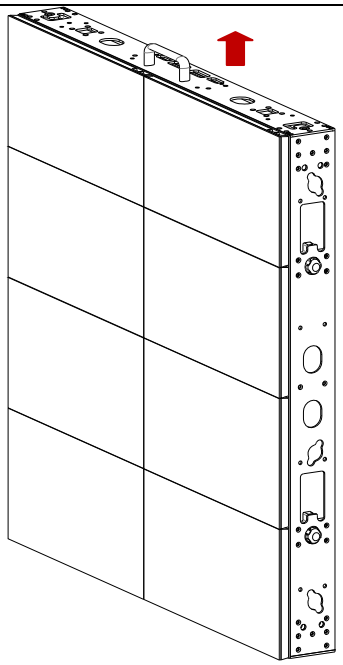
- M12×100 explosive bolts
- Supporting frame (Take 2304x6144mm display as an example for introduction.)

Installation Steps:

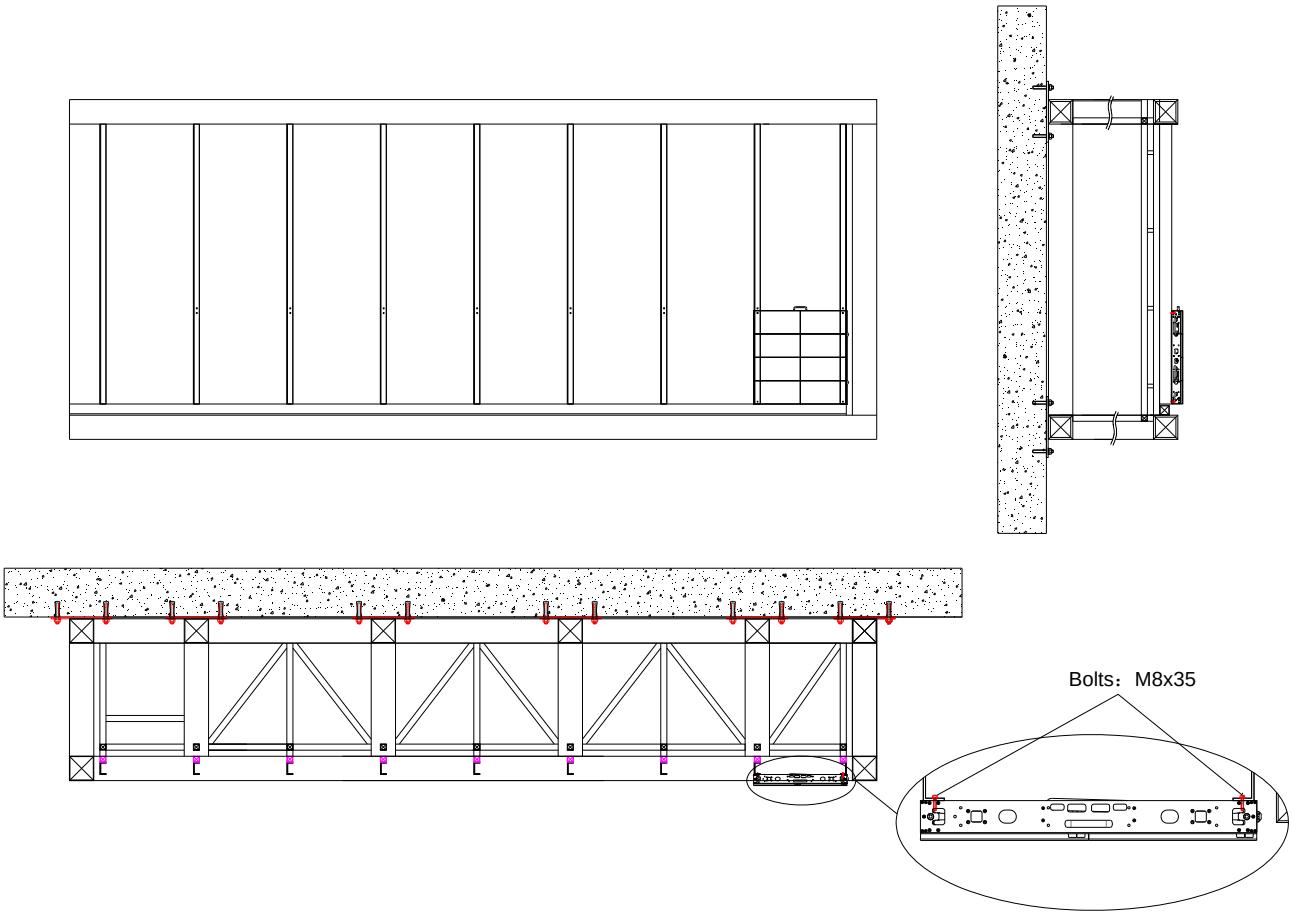
1、Install the M12x100 explosive bolts on corresponding positions to fix the installation frame.

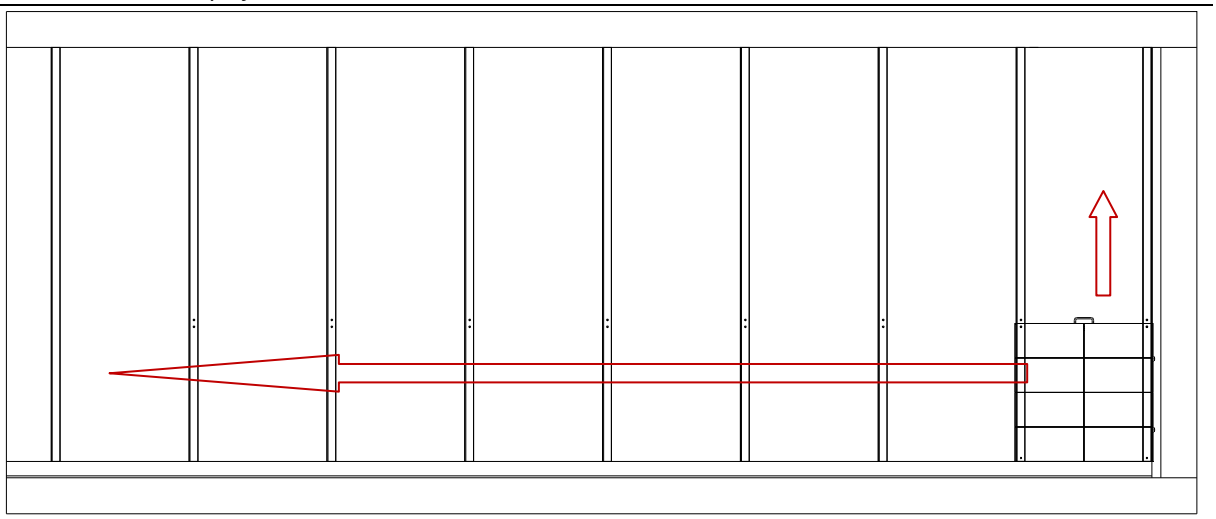


2、Take out the display from the packing boxes, during which please pay attention not to impact or rub the LED surface of cabinets.



4、Move the cabinet to the supporting frame. Align the installation holes on the back of cabinet with the ones on the installation bars and fix the cabinet on the bottom left side of the supporting frame. (The figure below shows the front view of the first installed cabinet.)

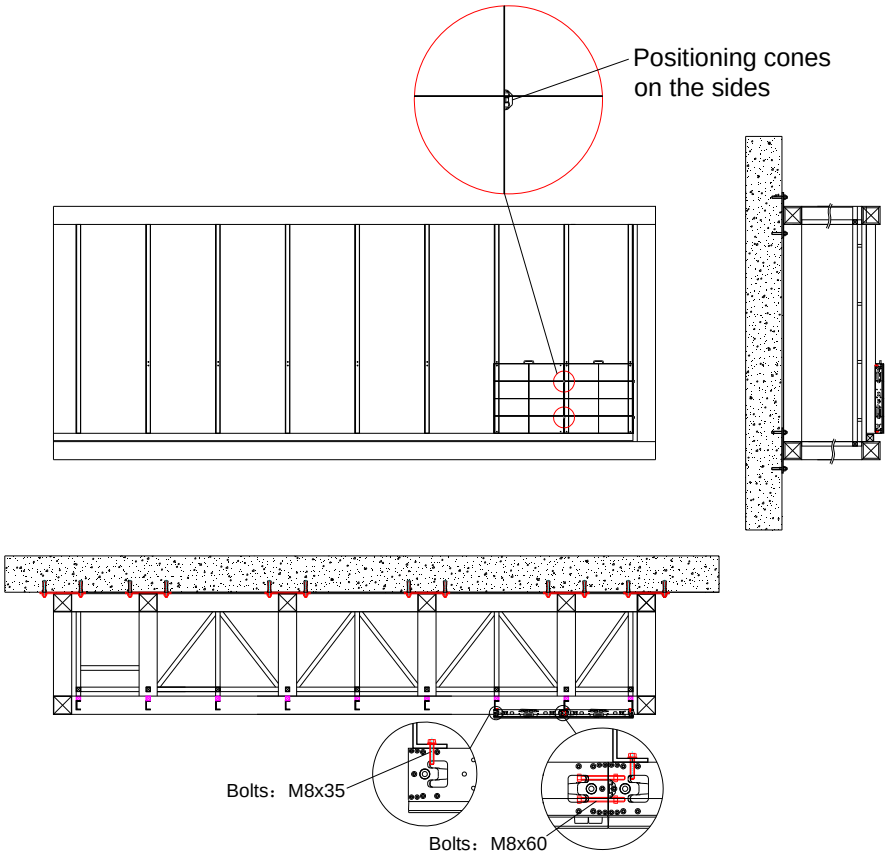


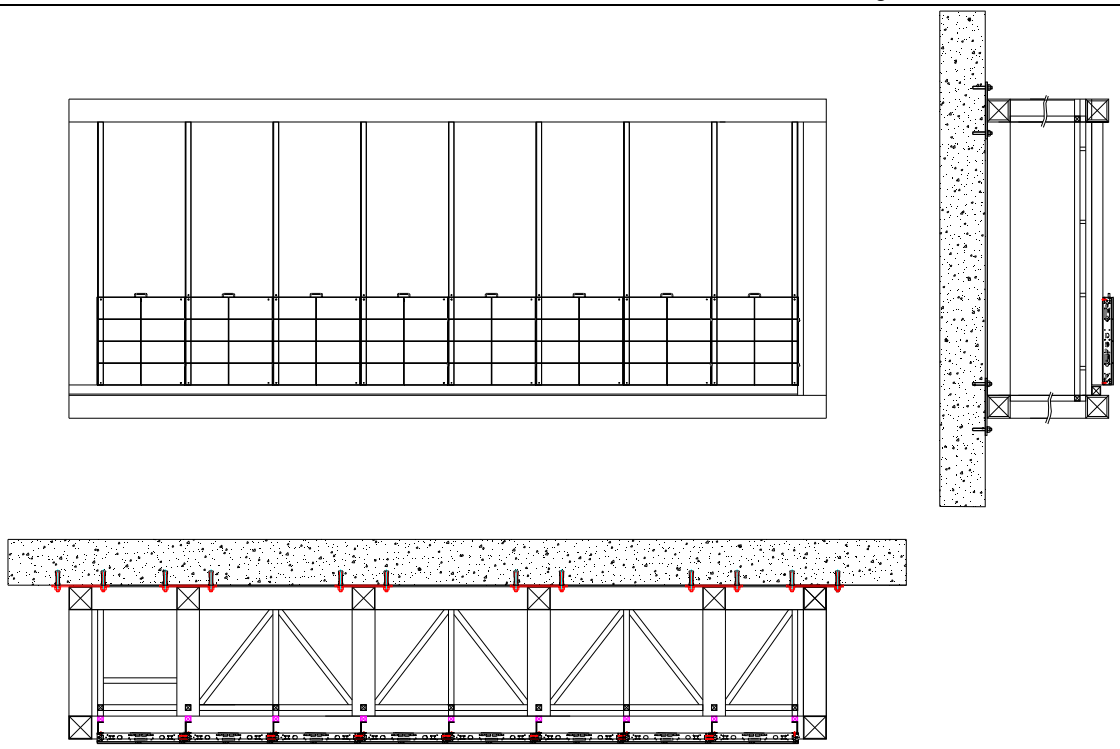


Note: Viewed from front, cabinets are installed from right to left and from bottom to up.

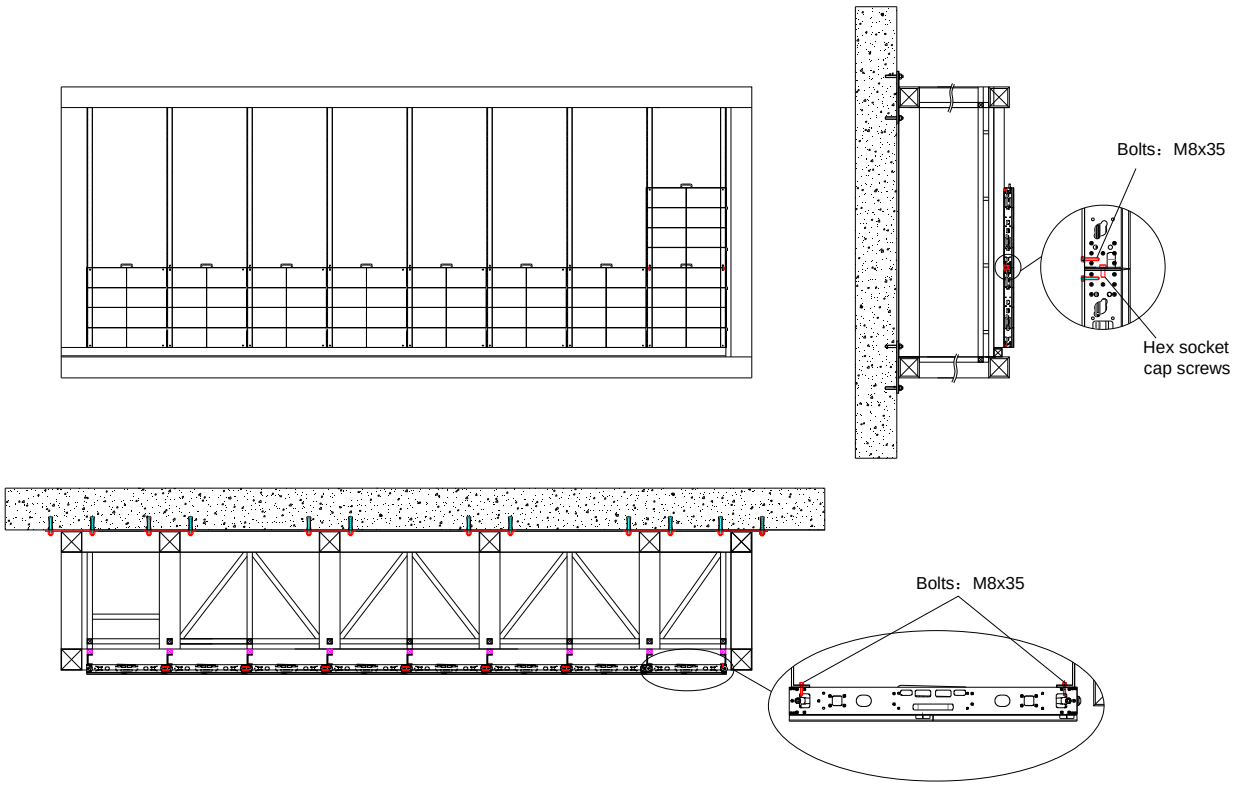
5、After the first cabinet is installed, start installing the second one. Well place the second cabinet with the side positioning cones of the first cabinet and then fix it on the installation bars with M8x30 bolts. Connect the two cabinets with M8x60 bolts, ensuring the compactness of cabinets.

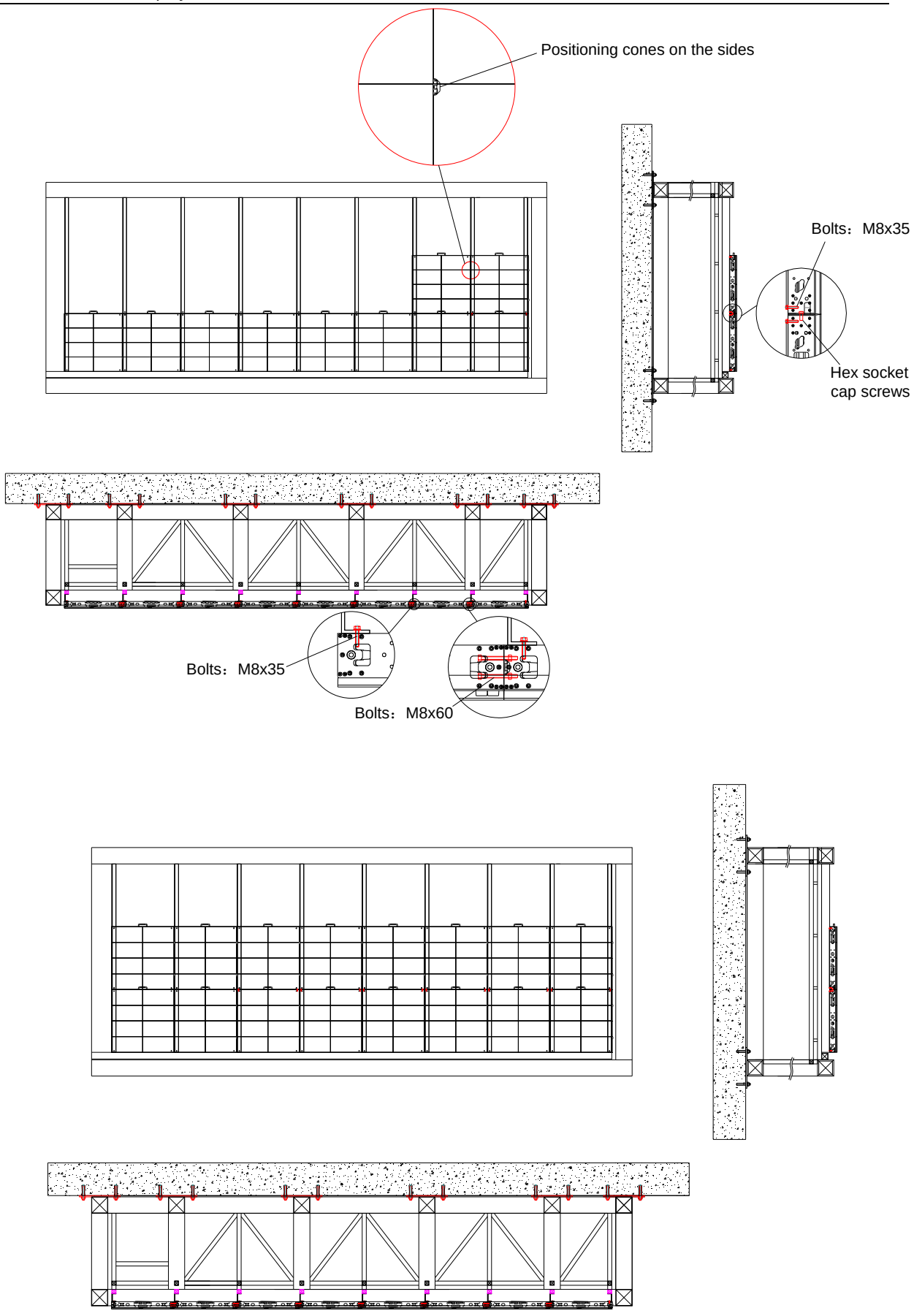
After making sure the two cabinets are in the same horizontal plane, install next cabinet in the same way until the installation of cabinets in the first row is finished.



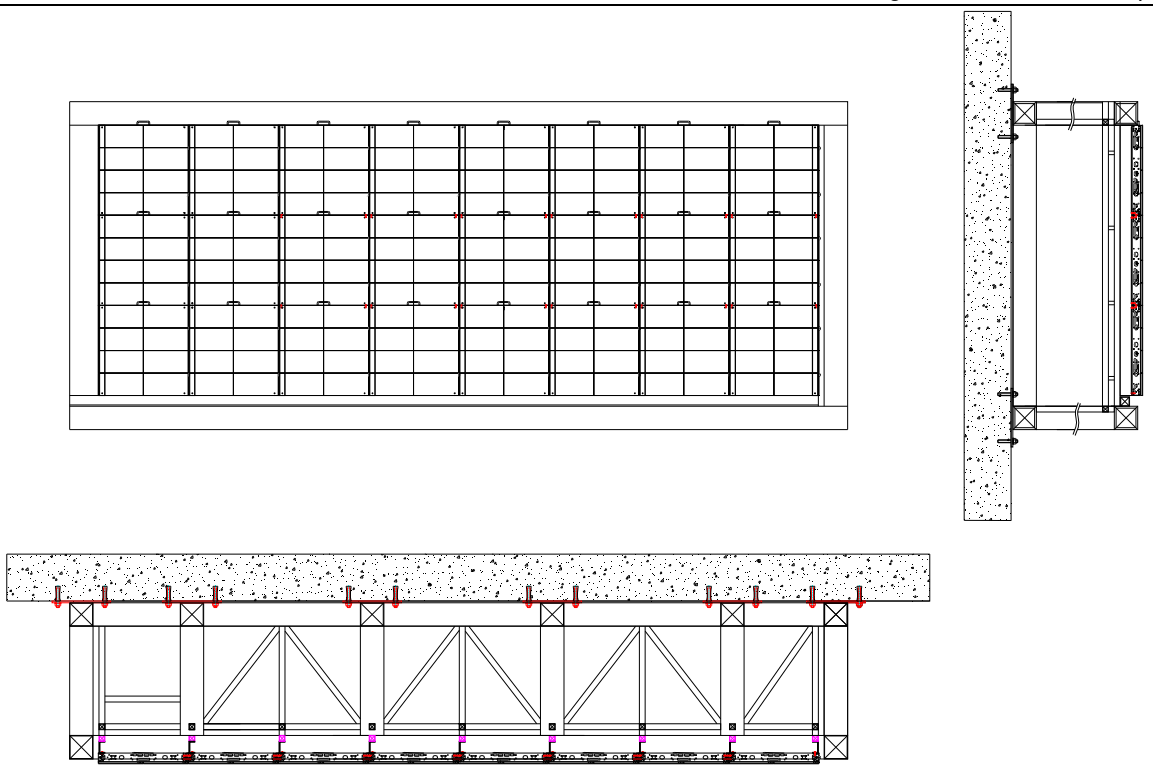


6、After the cabinets on the bottom are well installed, start installing cabinets on the second row. Align the installation holes of cabinet's bottom corner brace with the ones of top corner brace of cabinets in the first row. Connect cabinets vertically with M8 hex screws and then fix the second-row cabinets on the supporting frame according to the introduction above.





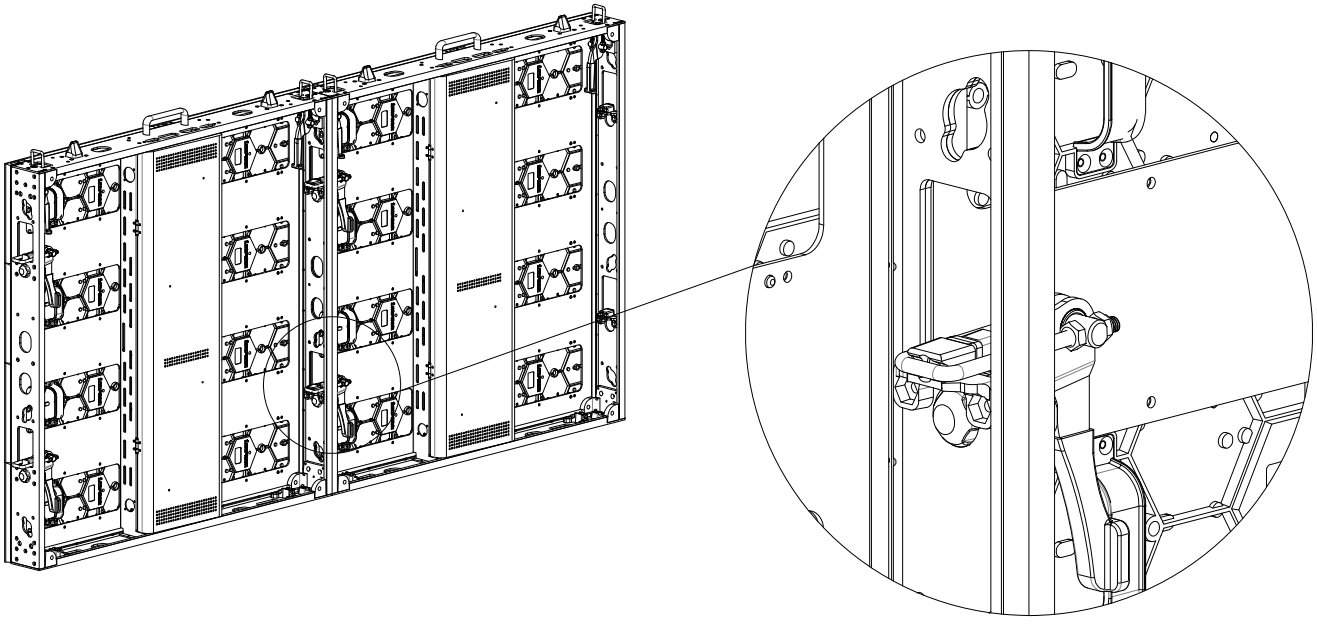
7、Finish the installation of the rest cabinets by this same method.



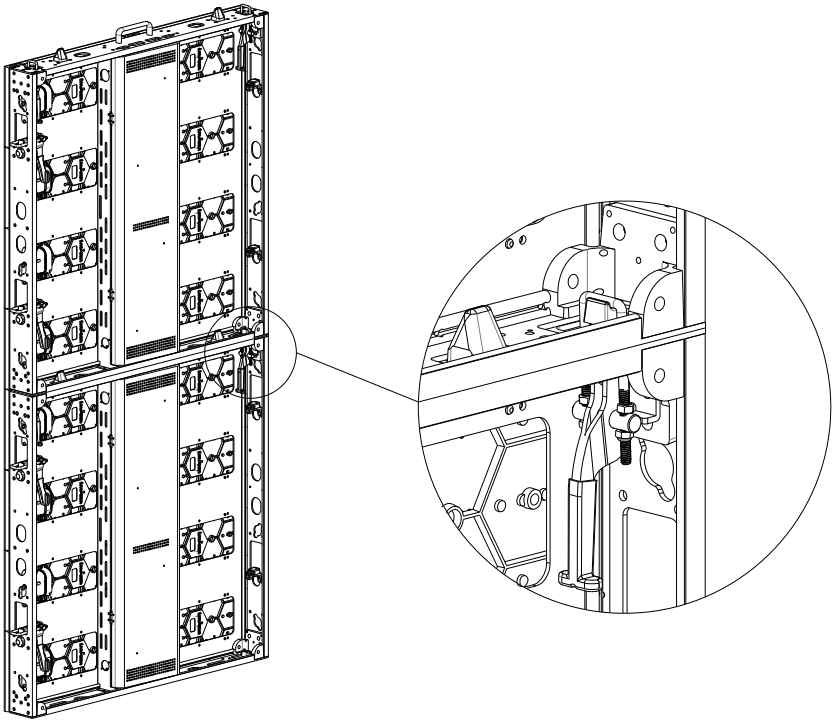
5.3 Installation of rental cabinet

5.3.1 Connection of rental cabinets

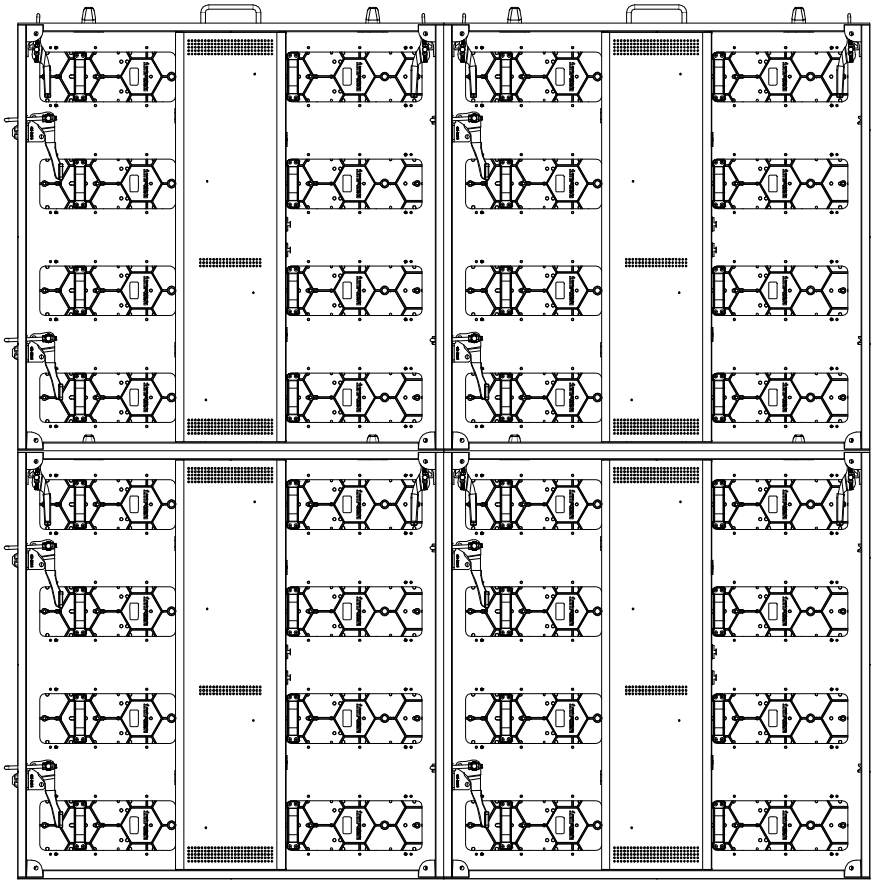
- When connecting two cabinets horizontally, please align the side positioning cones and then fasten them with toggle clamps, as shown in figure below.



- When connecting two cabinets vertically, the top cabinet must be directed at the top positioning cones of the cabinet below. Fix the cabinets with toggle clamps, as shown in figure below.



- The way to connect cabinets both horizontally and vertically is the combination of the two methods above, as shown in figure below.



5.3.2 Installation of rental cabinet---hoisting installation

Hoisting installation means IMPOSA Lite II rental cabinets should be hoisted in order to install them. Take cabinets of 2 rows and 4 columns as an example for introduction.

Needed tools:

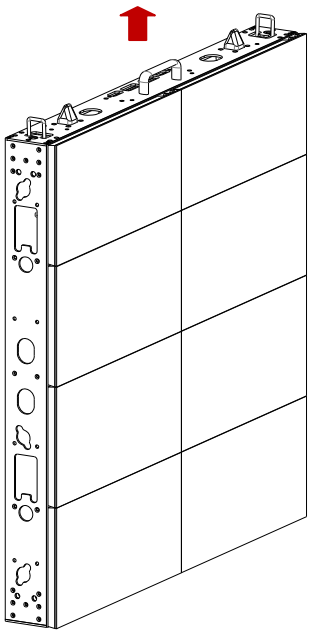
- Hoisting device
- Hoisting beam

Needed components:

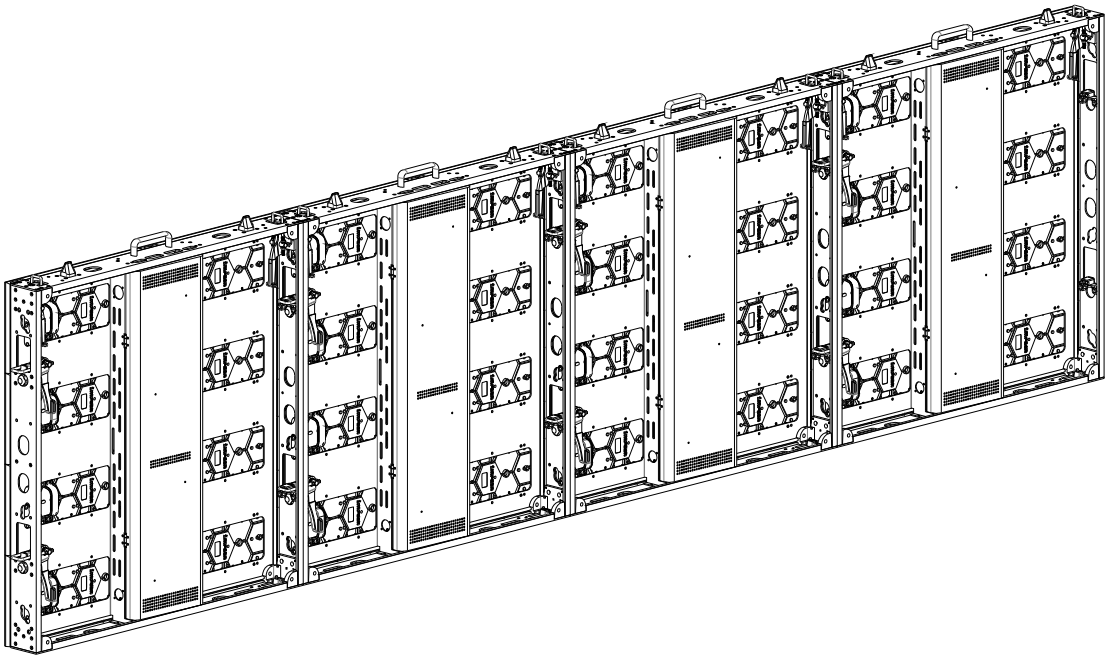
- Cabinets

Installation Steps:

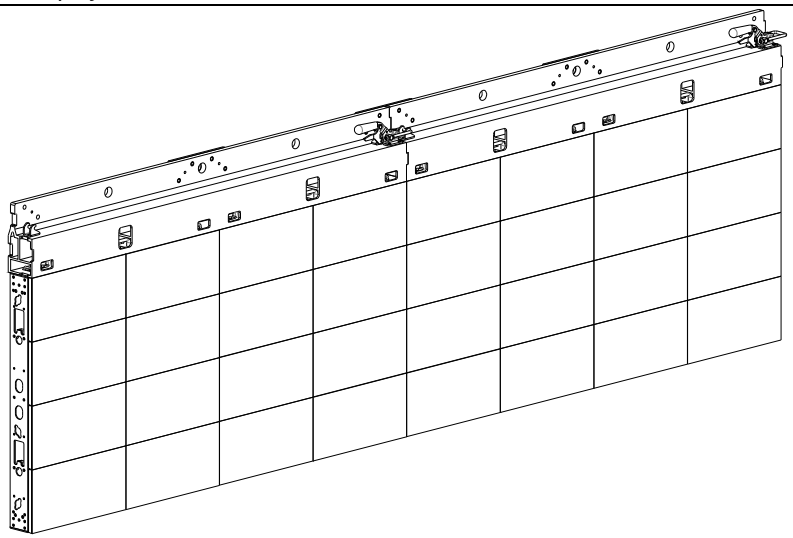
1、Take out the display from the packing boxes, during which please pay attention not to impact or rub the LED surface of cabinets.



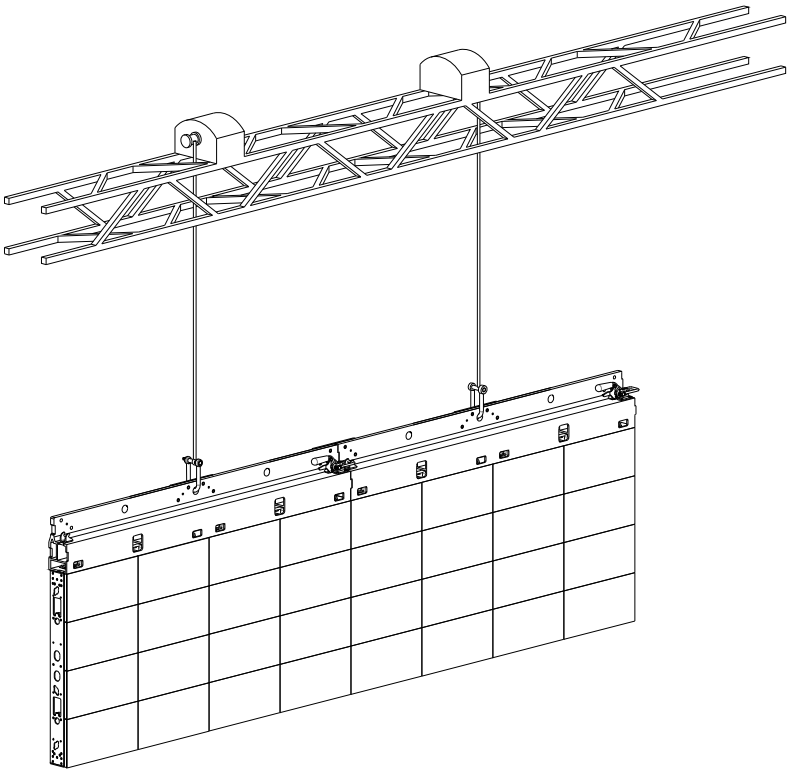
2、Connect cabinets according to introduction above.



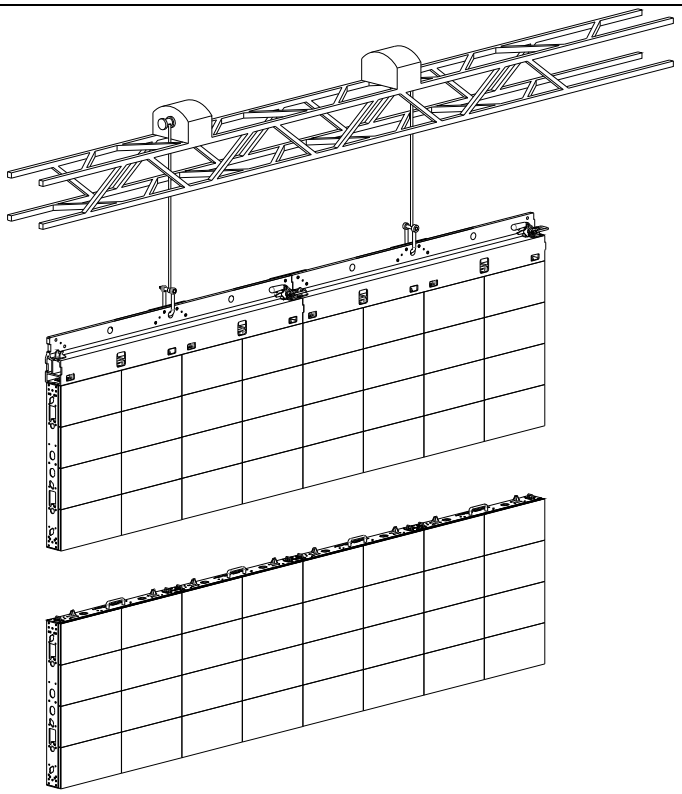
3、When the installation of first-row cabinets is finished, place the hoisting beam.



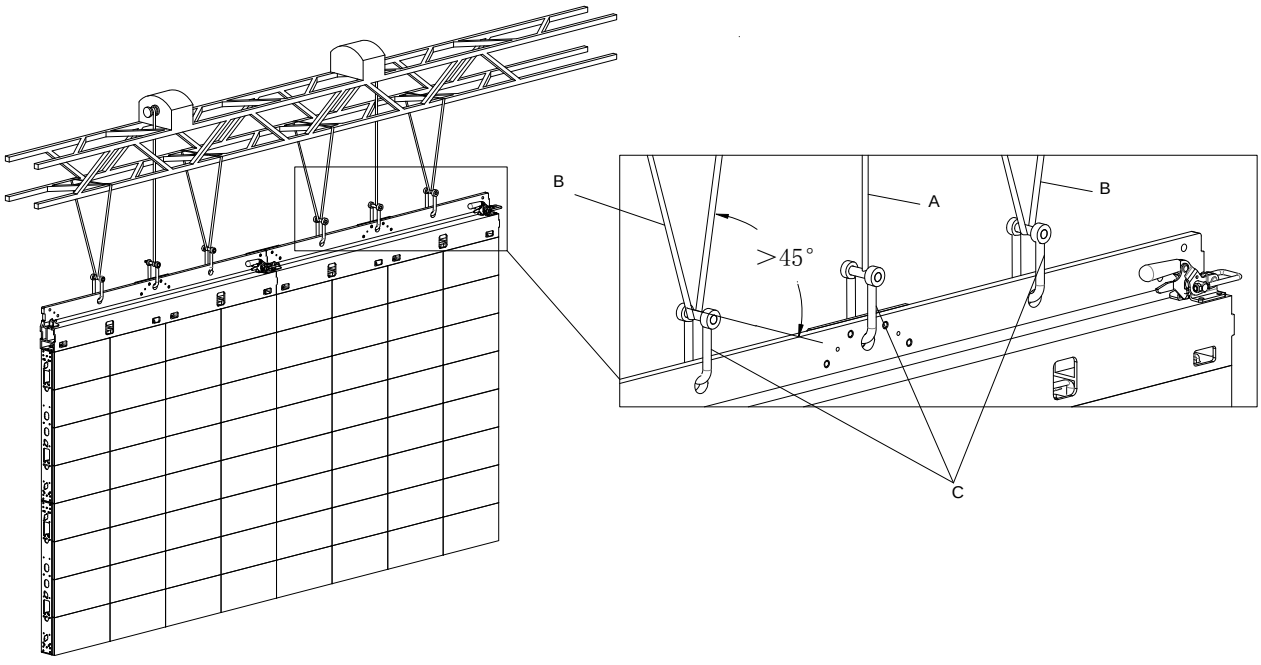
4、Use the hoisting device to lift the connected cabinets.



5、Finish the installation of the rest cabinets by this same method.



6 Lift the display to the target height. Taking safety into consideration, the hoisting beam must be equipped with steel chain so that accidental slip can be avoided.



A: Hoisting chain
B: Steel chain
C: U-shape buckle

Note:
1、The angle between steel chain and hoisting beam should be at least 45°.
2、Each hoisting beam must be equipped with steel chain and stress points must be evenly distributed.

6. Cabling of an IMPOSA Lite II display

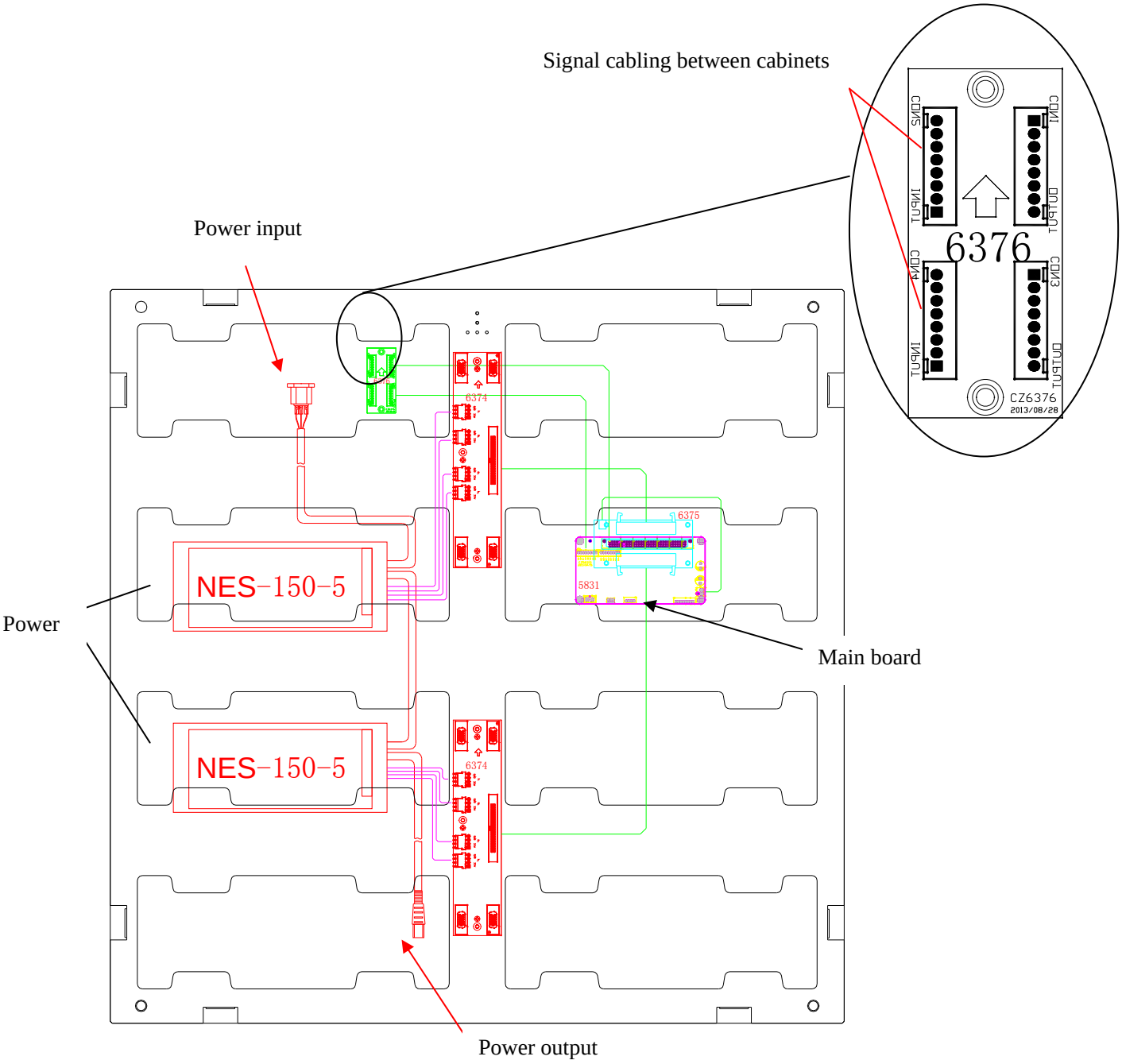
This chapter covers the system cabling of an IMPOSA Lite II display. Cabling methods are various based on different types of cabinets, which are divided into cabling of front-access cabinets and cabling of rear-access cabinets.

Overview

- Cabling of front-access cabinets
- Cabling of rear-access cabinets
- System cabling

6.1 Cabling of front-access cabinets

6.1.1 Internal cabling of front-access cabinets

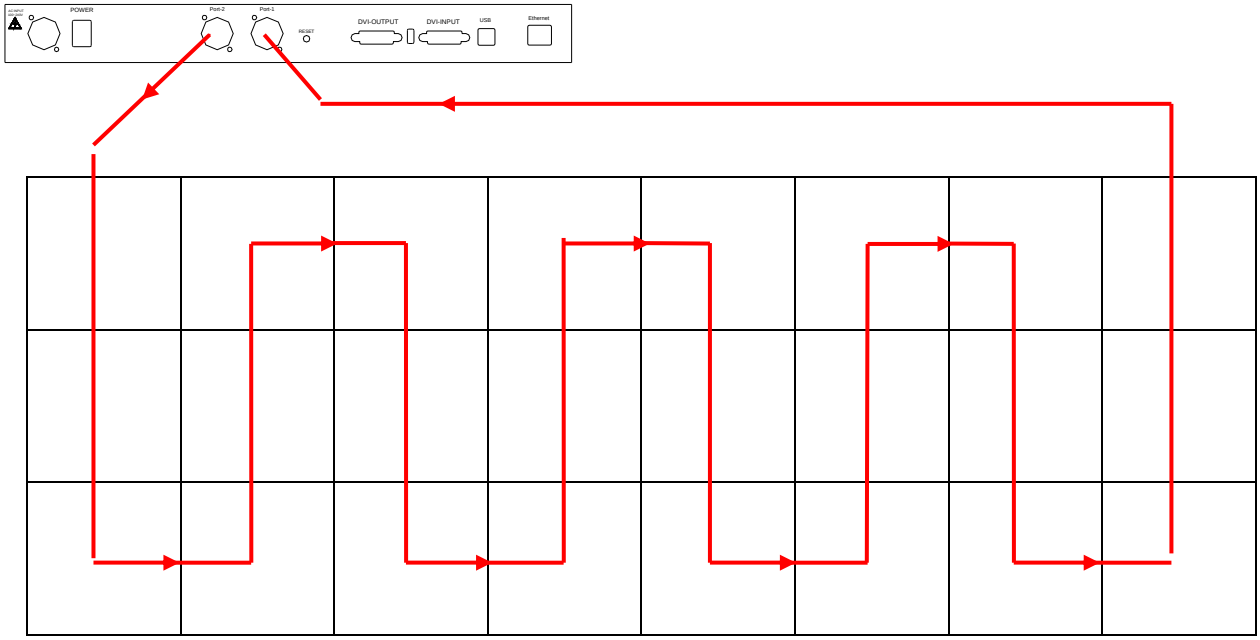


6.1.2 Power and signal cabling between cabinets

Lite II cabinets adopt end-to-end connection for signal cabling. Generally, there are two connections, vertical cabling and horizontal cabling.

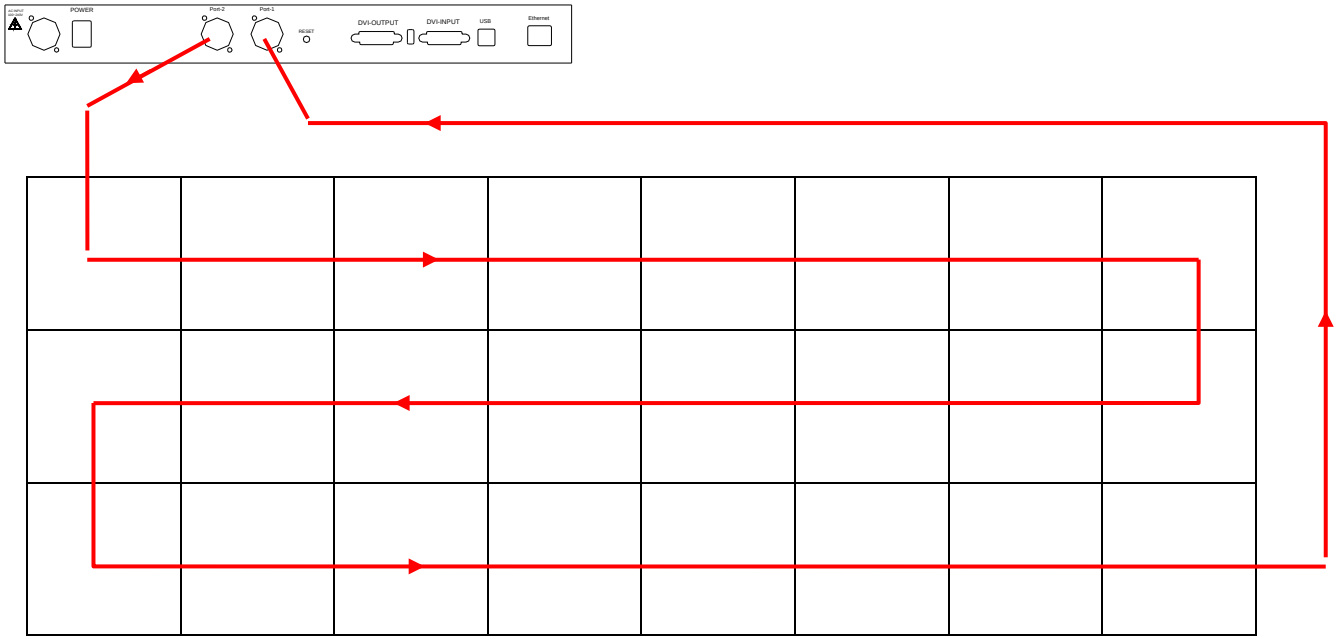
Vertical signal cabling:

LDU2800



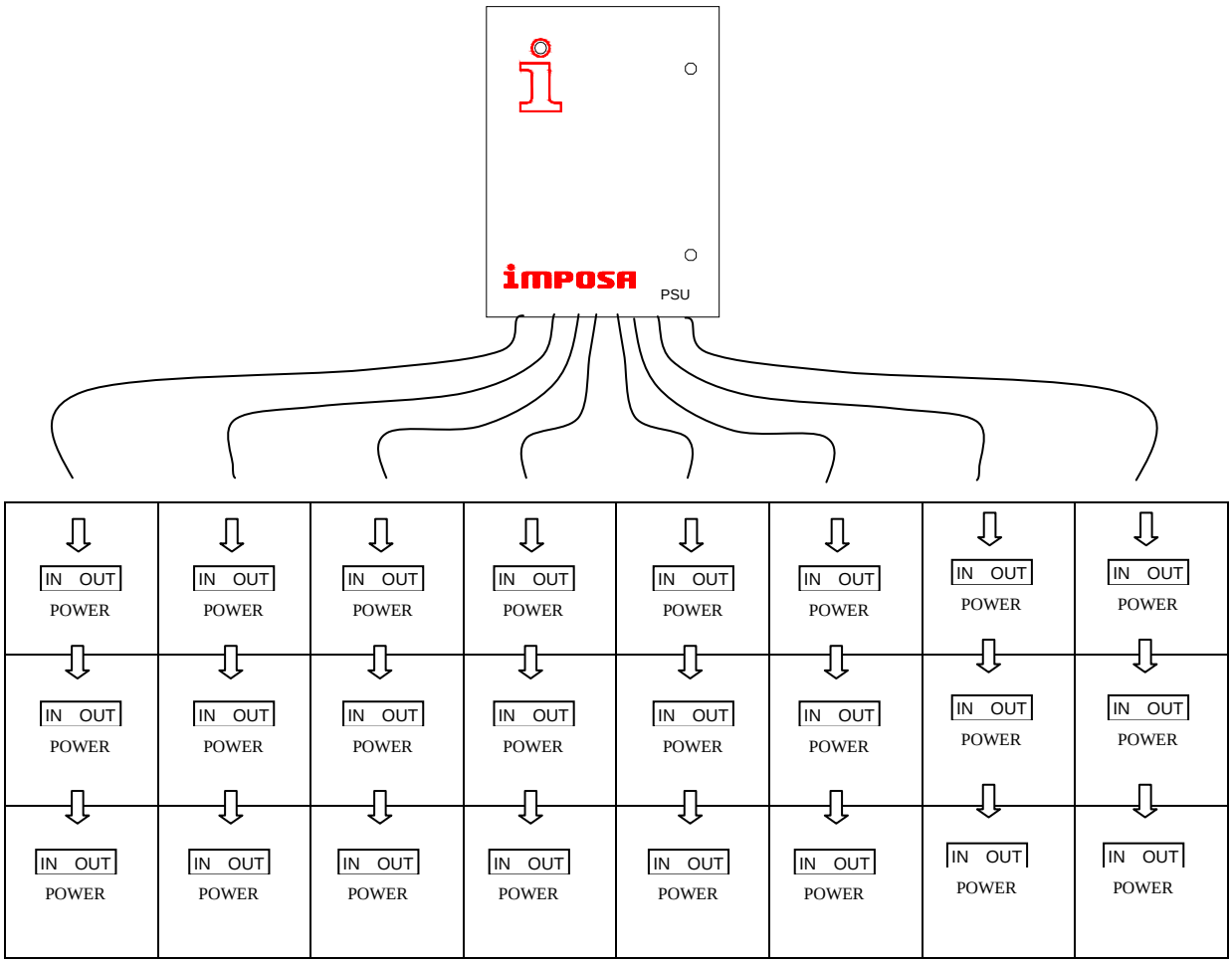
Horizontal signal cabling:

LDU2800

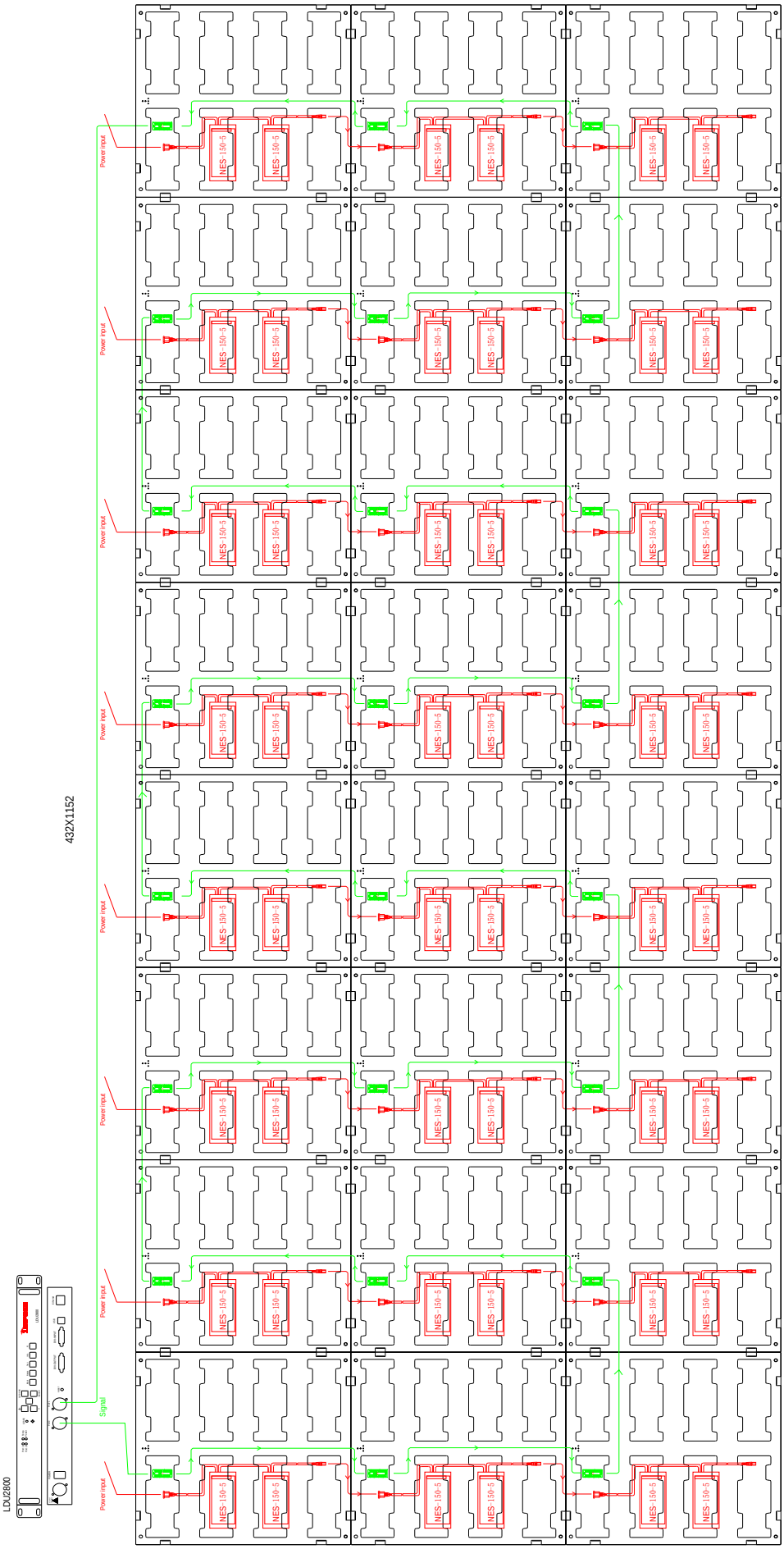


Power cabling

Power cables can only be connected from top to bottom. When doing the cabling, please pay attention that, the maximum power consumption of one cabinet is 300W and the total t power consumption of cabinets connected can't exceed the power consumption of the connecting cable.



Taking the display with 432X1152 resolution as an example, its signal and power cabling is shown in figure above.

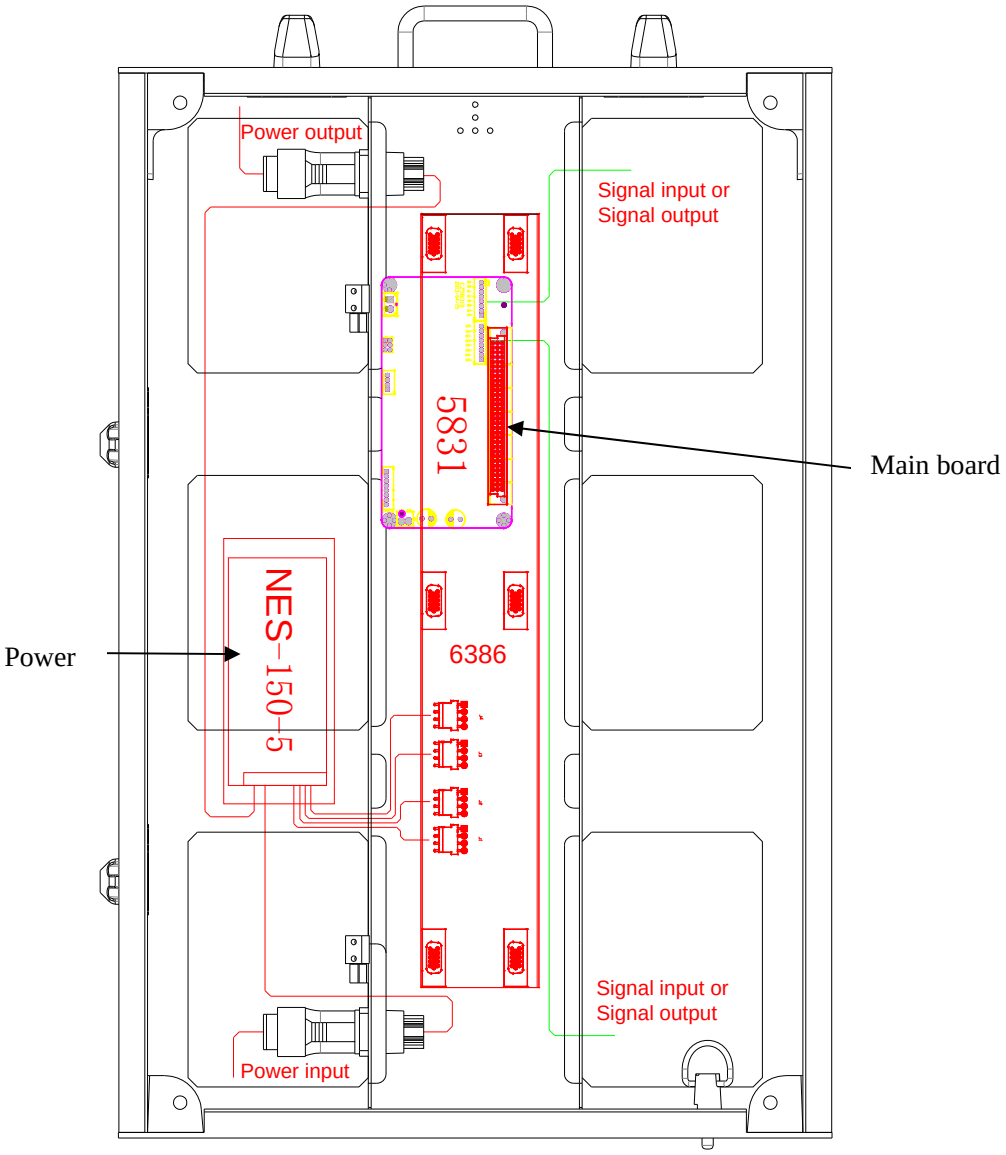

LDU2800
Power input
Signal
NES-150-5
432X1152

6.2 Cabling of rear-access cabinets

Cabling of 576X384 rear-access cabinets is taken as an example for introduction. Cabling of rental cabinets is same as that of rear-access cabinets.

6.2.1 Internal cabinet cabling

The internal cabling of 576X384 rear-access cabinet is shown in figure below.

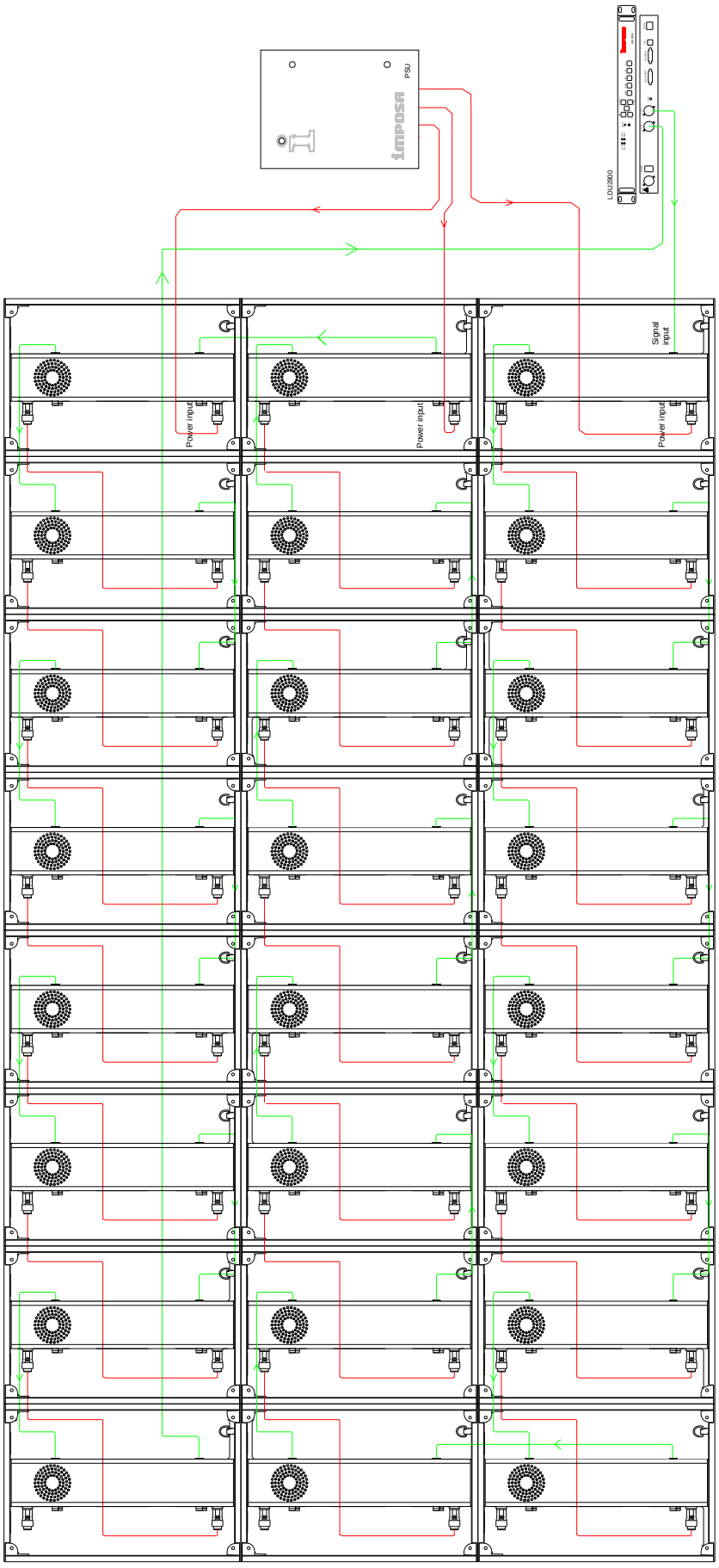


6.2.2 Power and signal cabling between cabinets

Cabinets with front and rear access enjoy the same signal cabling, which can be both vertical and horizontal. The only difference is that the signal cables of front-access cabinet are inside the cabinet, while the signal cables of rear-access cabinets are at the back of cabinets.

The power cabling difference between front-access and rear-access cabinets is that, power is input from the top of cabinet for front-access cabinet while from the bottom of cabinet for rear-access cabinet. When doing the cabling, please also pay attention that the total t power consumption of cabinets connected can’t exceed the power consumption of the connecting cable.

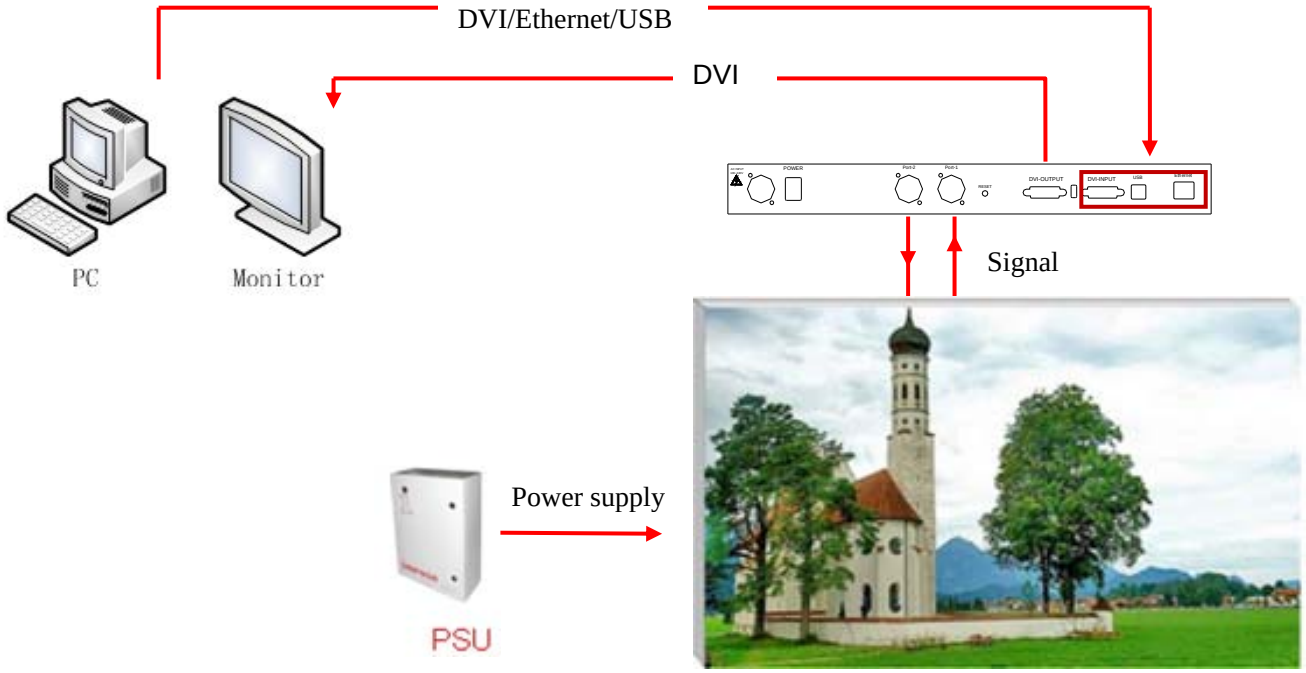
Taking the display with 384X640 resolution as an example, the power and signal cabling is shown in figure below.



Rear view (system wiring)

6.3 System cabling

Example of an on-line IMPOSA Lite II display



7. Maintenance

Maintenance methods are various based on different cabinet types, which are divided into maintenance for front-access cabinet and maintenance for rear-access cabinet.

Overview

- Maintenance for front-access cabinet
- Maintenance for rear-access cabinet

7.1 Maintenance for front-access cabinet

7.1.1 Replace tile

For replacing tiles, please refer to introduction in Chapter Five.

7.1.2 Replace power

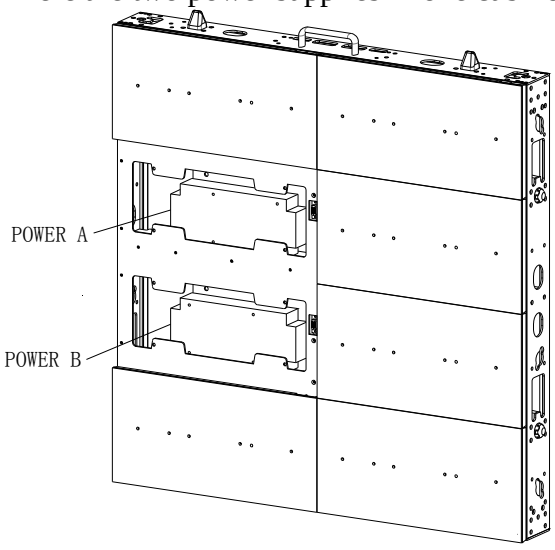
Needed tools:

- Hex key
- Cross head screw driver

Needed components:

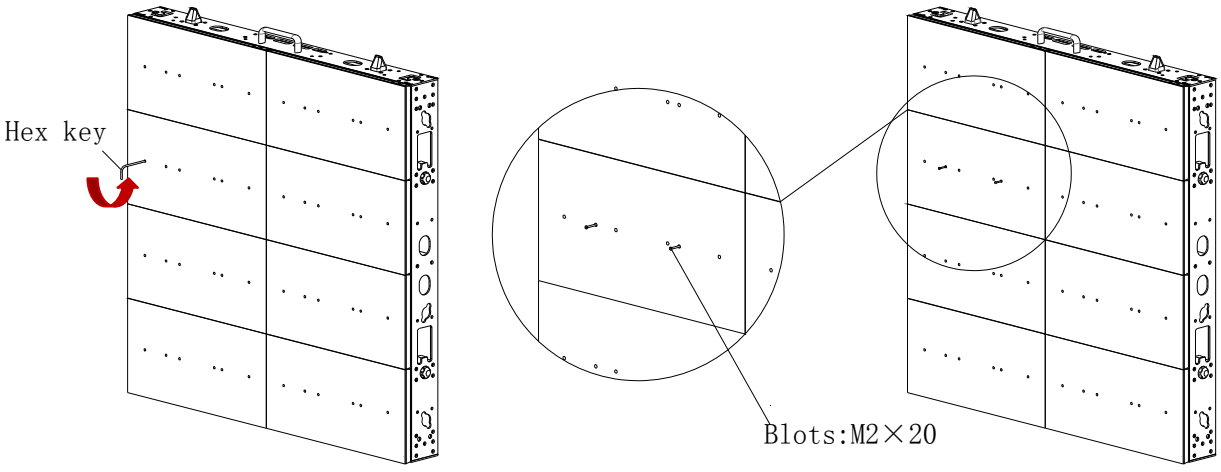
- M2X20 screws
- Power

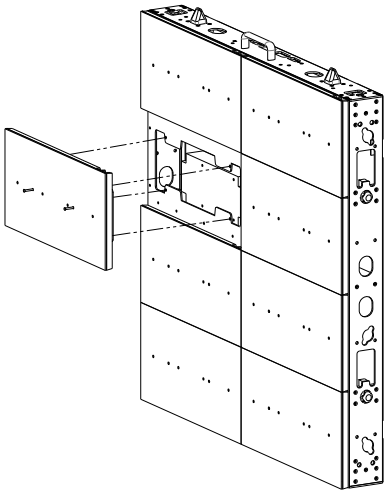
There are two power supplies in one cabinet and their position is as the figure below shows.



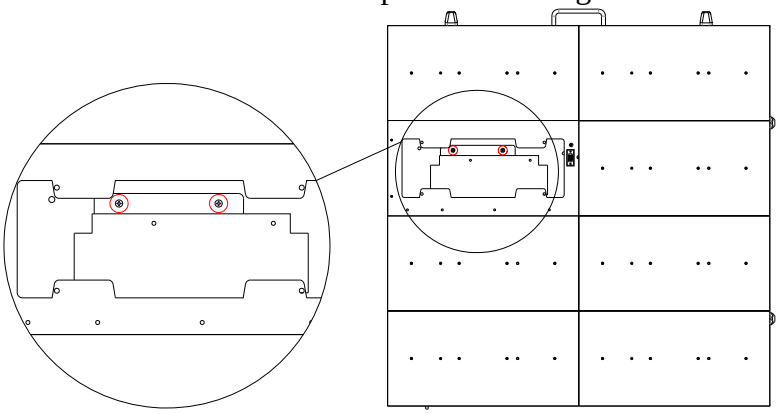
The replacing steps are same for both the power supplies. Taking replacement of Power A as an example, the replacing steps are as below.

1. Disassemble the tiles in the front of Power A.

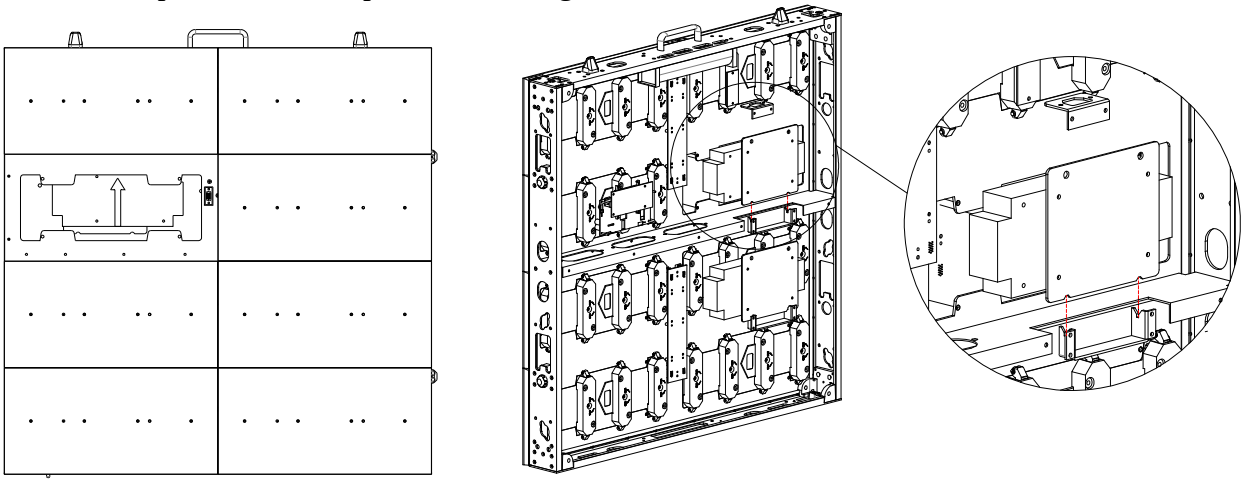




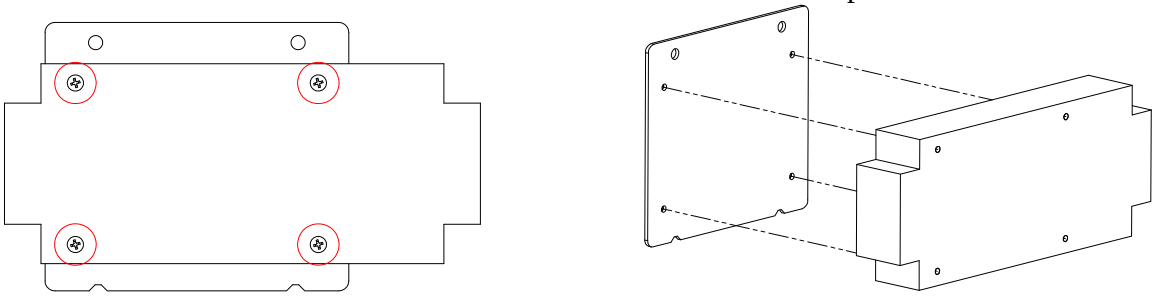
2. Unload the two screws in the power mounting base.



3. Pull out the power from the power mounting base.



4. Unload the four screws on the installation board to take down the power.



5、Assemble the new power according to the reverse steps.

7.1.3 Replace main board

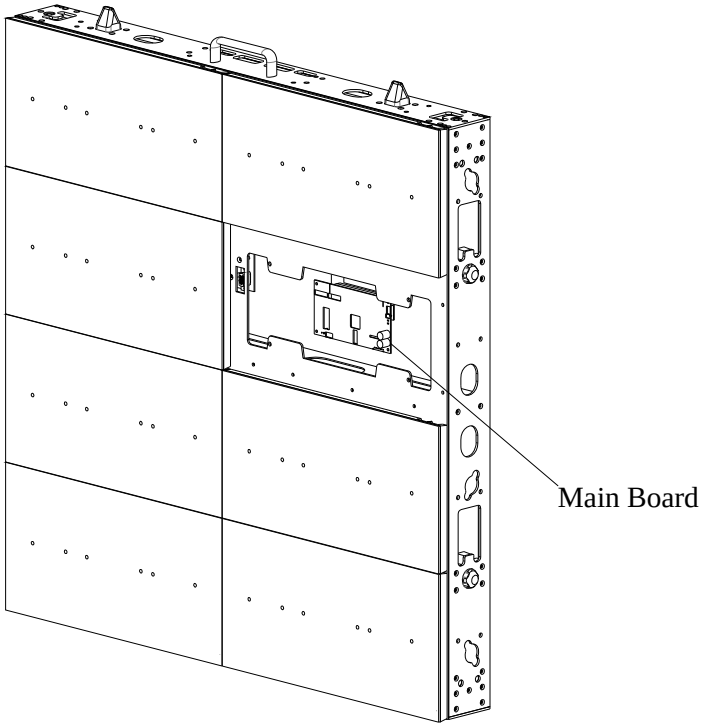
Needed tools:

- Hex key
- Cross head screw driver

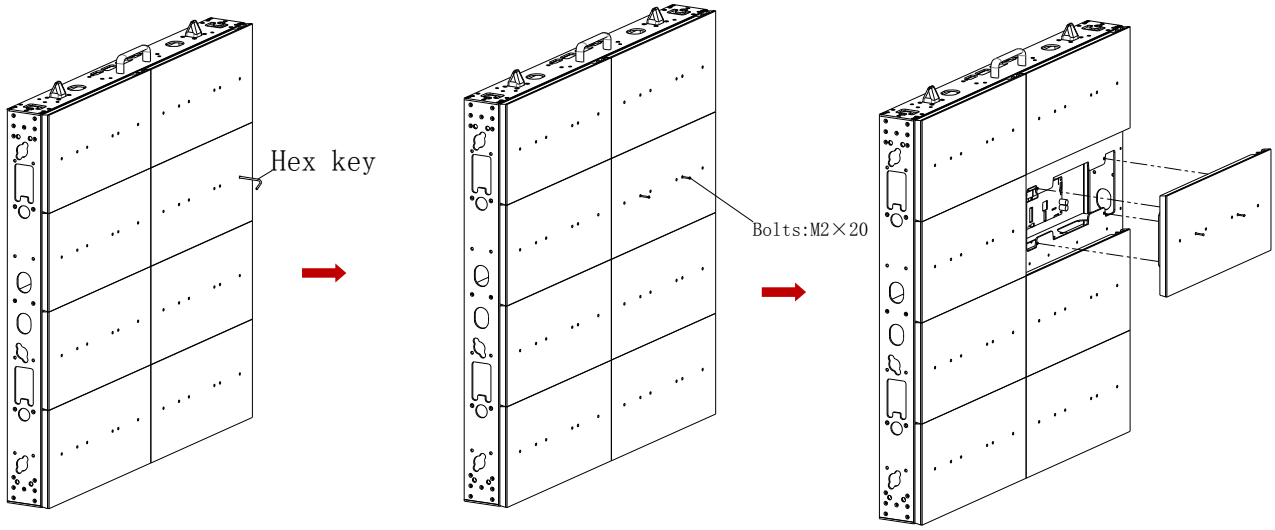
Needed components:

- M2X20 screws
- Main board

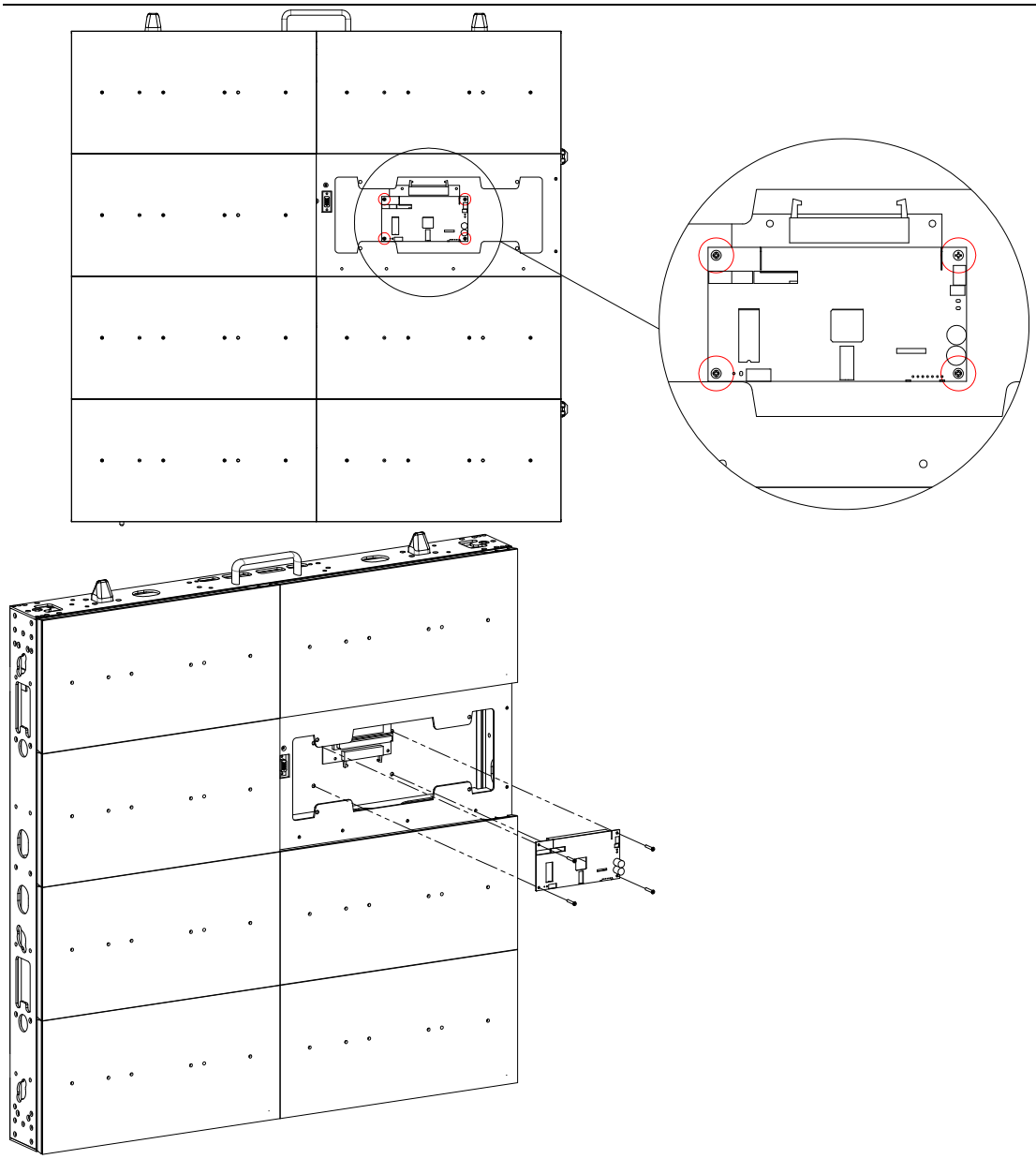
Position of the main board is shown as below.



1. Dismantle the tile in the front of the main board.



2. Unload the four screws on main board to take out the main board.



7.2 Maintenance of rear-access cabinets

7.2.1 Replace tile

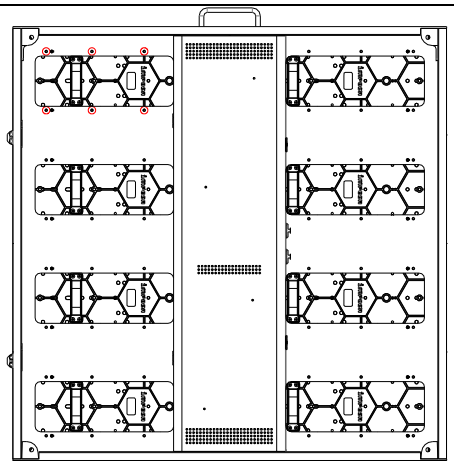
Needed tools:

- Cross head screw driver

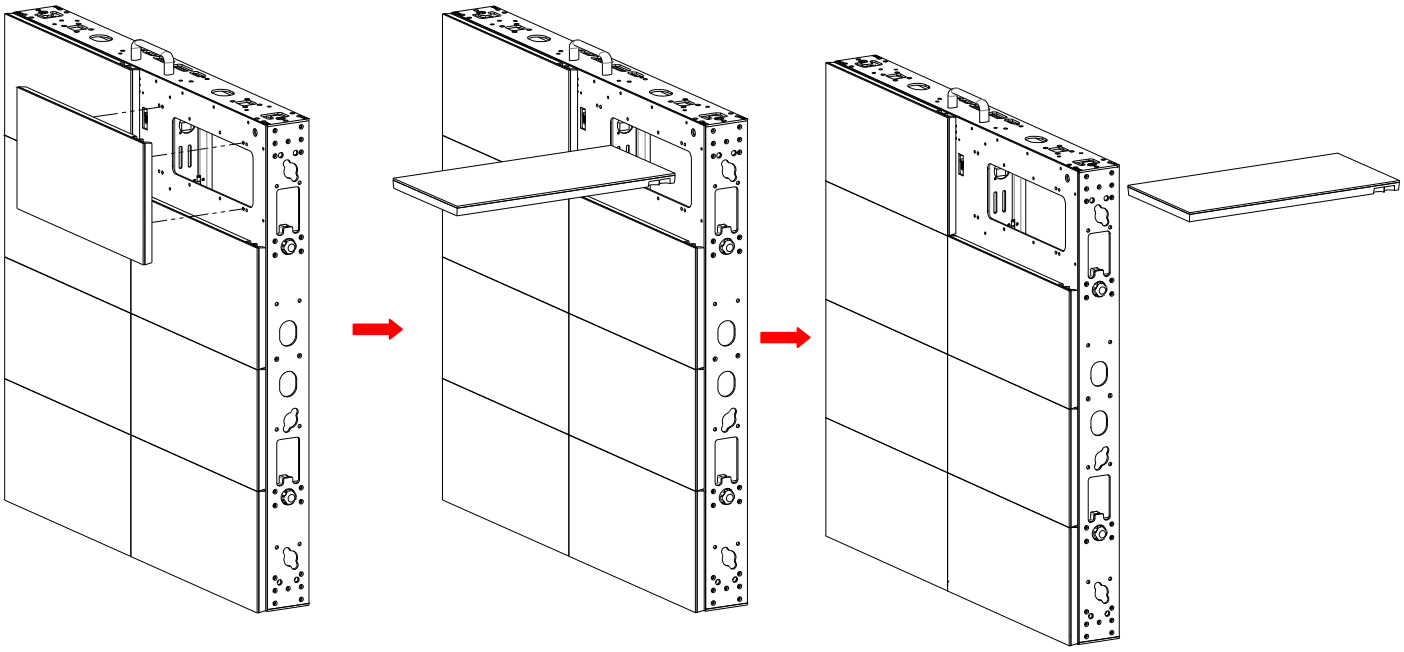
Needed components:

- LITE II tiles

1、Unload the six screws on tile with cross head screw driver.



2、Hold the handle and push the tile forward. Rotate the tile until it’s in horizontal position and then take it out backward.



3. Assemble the new tile according to the reverse steps.

7.2.2 Replace power

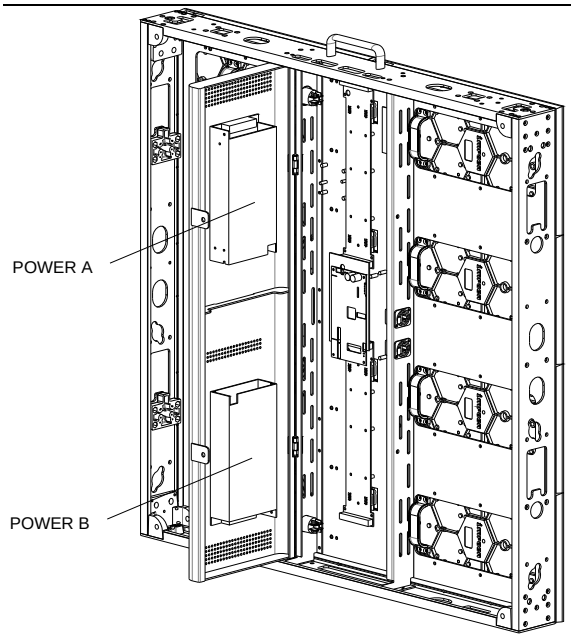
Needed tools:

- Cross head screw driver

Needed components:

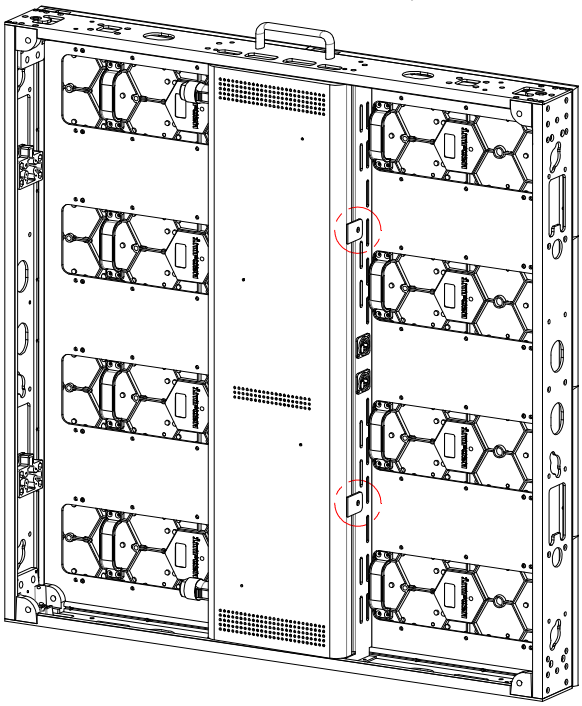
- Power

There are two power supplies in one cabinet and their position is as the figure below shows.

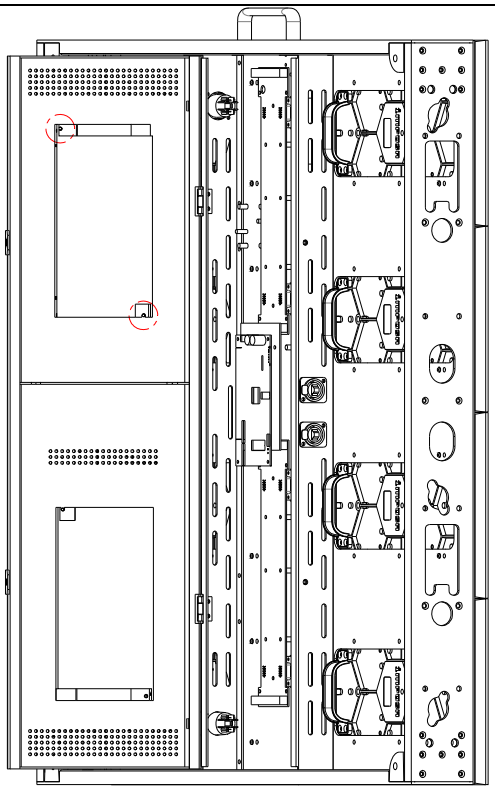


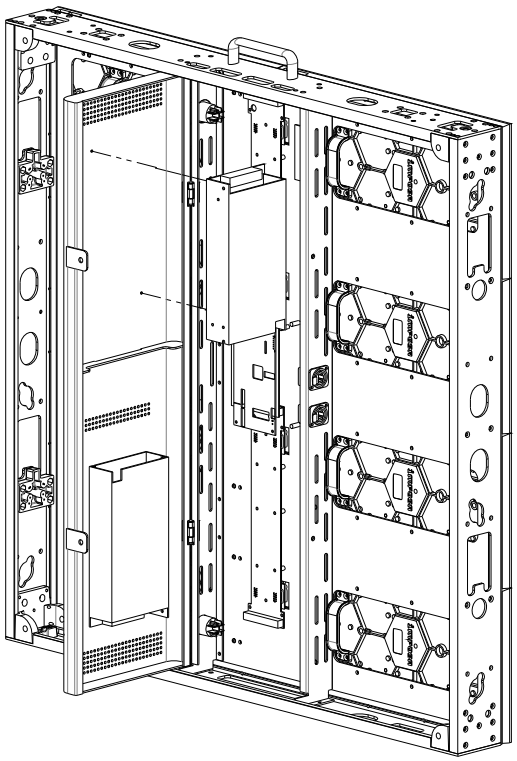
The replacing steps are same for both the power supplies. Taking replacement of Power A as an example, the replacing steps are as below.

1. Unload the screws on back cover, as shown in figure below.



2. Unload the screws on power and take out the power.





3. Install new power.

7.2.3 Replace main board

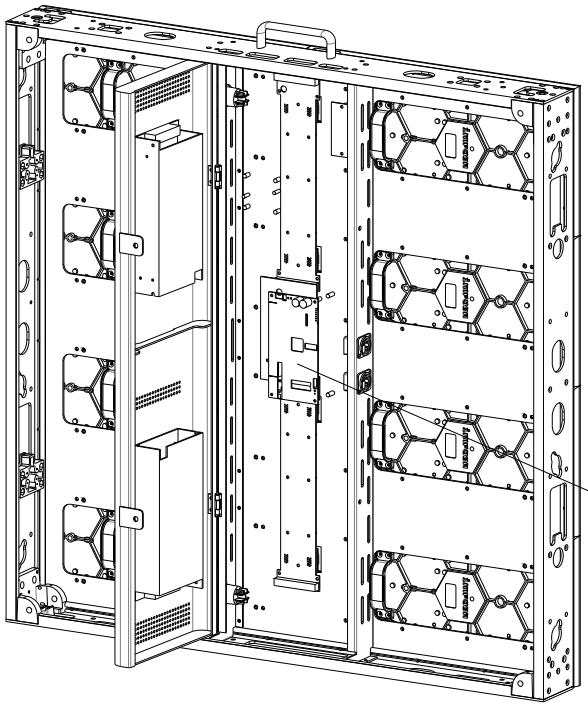
Needed tools:

- Cross head screw driver

Needed components:

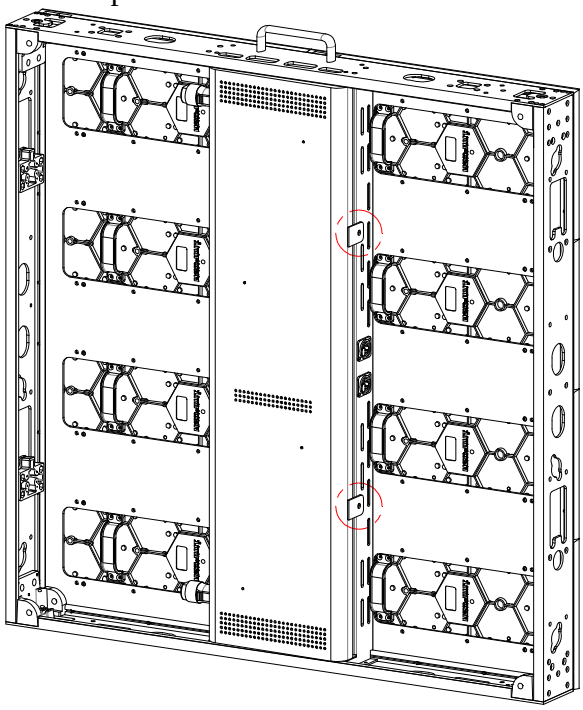
- Main board

Position of main board is shown as below.

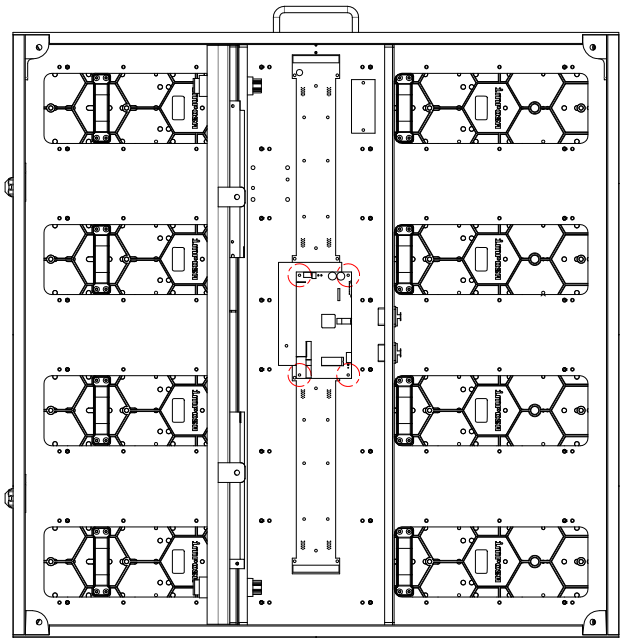


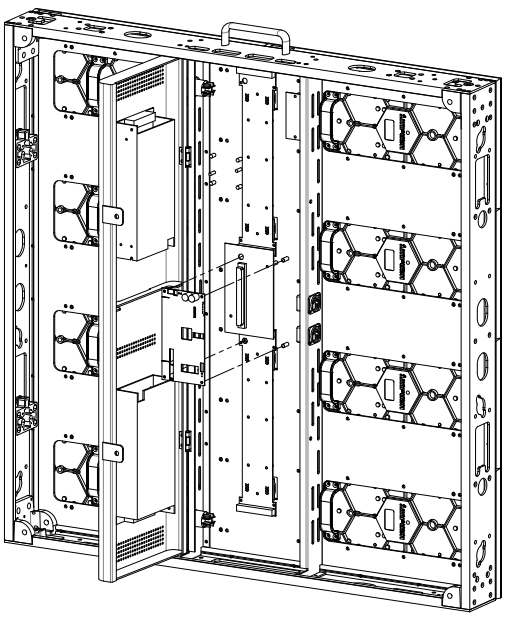
Installation steps:

1. Unload screws and open back cover.



2. Unload the four screws on main board and then take out the main board.





8. Trouble shooting

This chapter introduces some possible trouble symptoms and their remedial treatment to the IMPOSA Lite II display.

TIPS: If a problem is seen on an LED display and its cause is hard to diagnose, please write down a description of the symptom as detailed as possible, take some pictures and report to the Manufacturer for help.

CAUTION: Before any operation on the PCB or any wire connection is carried out, all power supplies to the LED display MUST be completely disconnected. When doing wire connection, please make sure all wires have been connected properly and securely.

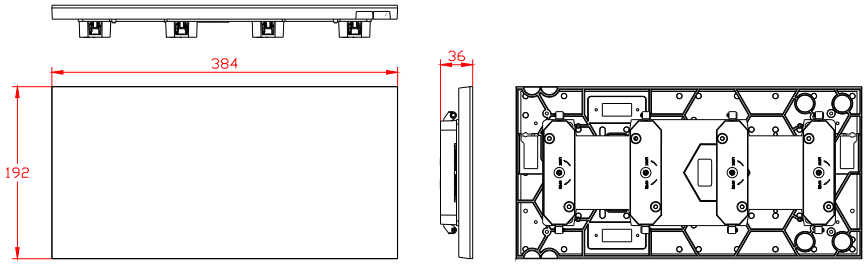
Symptom	Check items	Solutions
The whole screen is not displaying	There is no power into the screen	Power on
	DVI cable is not connected	Connect the DVI cable
	The signal cable between LDU2800 and IMPOSA Lite II cabinet is not connected	Connect the signal cable between them
	The control board indicator of IMPOSA Lite II cabinet flashes slowly	Check the connector of network cable or replace the network cable
	Computer screen protection system	Cancel the computer screen protection system and hibernation
	The displaying area is all black	Show display content
The whole screen keeps showing random contents	The LDU8000 program does not match	Upgrade the LDU8000 program
	The first IMPOSA Lite II cabinet control board failure	Replace the control board
	All the IMPOSA Lite II cabinet control board program is not correct	Upgrade the program
	The control board doesn't have brightness data	Close the pixel calibration mode
The cabinet is not displaying	There is no power into the cabinet	Power on

	The power cable is not connected well	Make sure the power cable is connected well
	The cabinet signal cable is not connected	Connect the cabinet signal cable
	The signal connector failure	Replace left power box
	No power output	Replace right power box
	the control card at the bottom of the control box failure	Replace
	Control box cable accessories failure	Replace
The cabinet keeps showing random contents	Control board program is not correct	Upgrade the program
	Control board failure	Replace the control board
The LED tile is not displaying or keeps showing random contents	Control board failure	Replace the control board
	LED tile failure	Replace
	The D-shape connector is not connected well	Make sure the D-shape connector is connected well
	The control board current gain is not correct	Re-write the current gain data or replace the control board with current gain data
One unit shows a different color	The control board does not have brightness data	Re-write the brightness data
	control board failure	Replace the control board
Some LEDs are dead	The LEDs are broken	Replace the LED tile

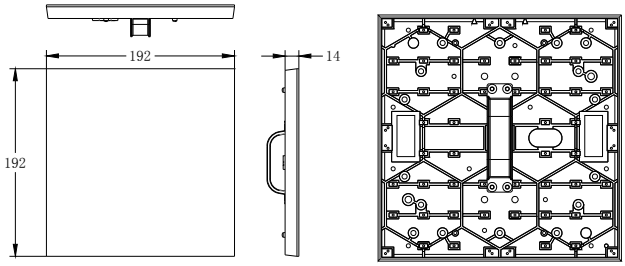
9. Dimension

9.1 Tile dimension

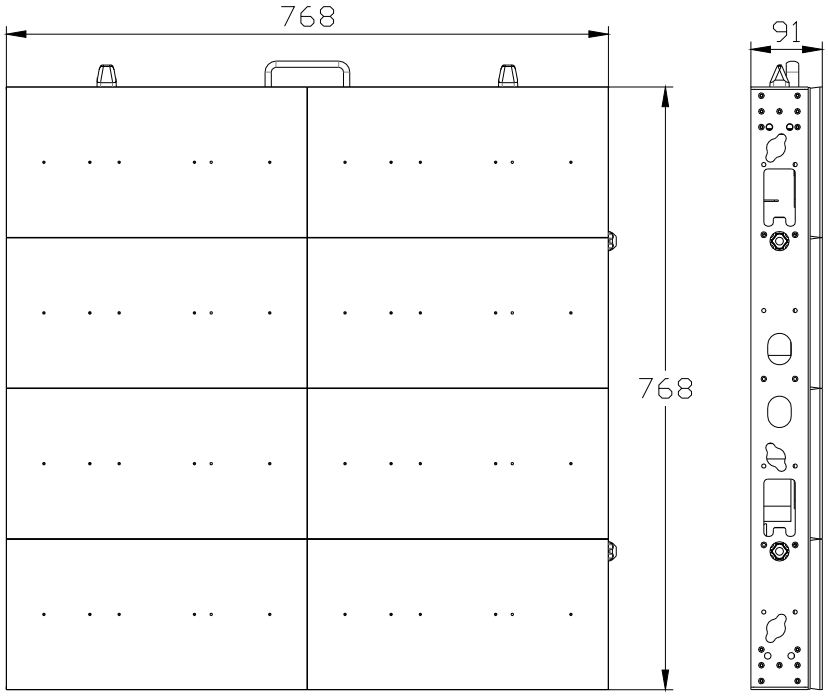
Tile A

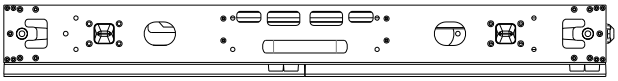


Tile B

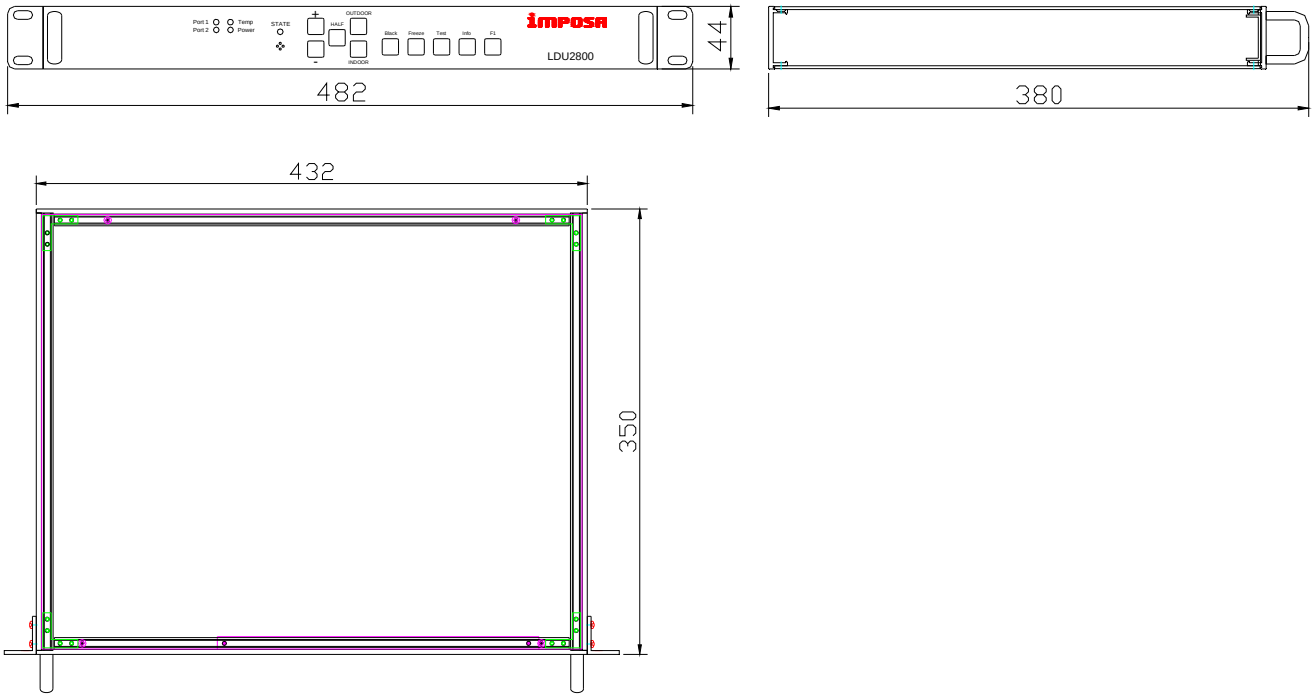


9.2 Cabinet dimension

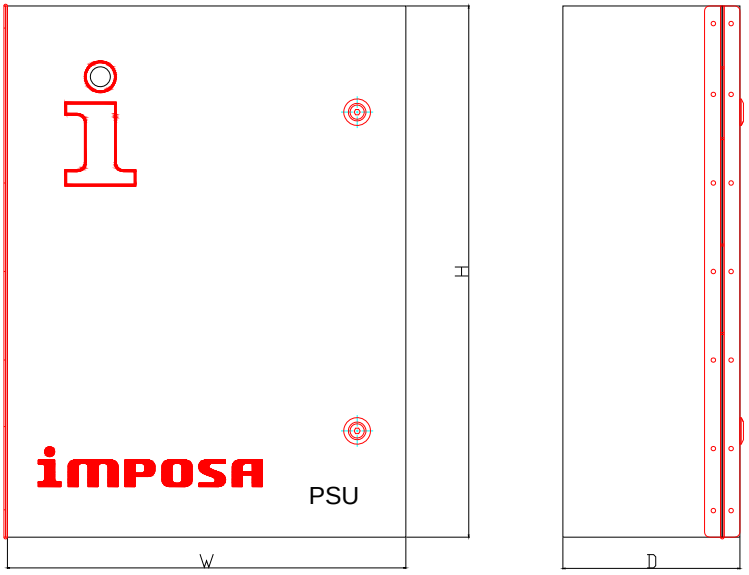




9.3 LDU2800 dimension



9.4 PSU dimension



PSU specifications

Model	Power consumption	Dimension(mm)
PSU10	10KW	450X350X120
PSU25	25KW	600X450X120
PSU40	40KW	600X450X120