

Display Cabinet

Installation Manual

Before operating the unit, please read this Installation Manual and the supplied Operating Instructions thoroughly and retain it for future reference.

ZRD-S12G
ZRD-S15G

警告

お客様が、このマニュアルに記載された設置や保守、点検、修理などを行うと感電や火災、人身事故につながる可能性があります。危険をさけるため、サービストレーニングを受けた技術者のみご使用ください。

WARNING

To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

WARNUNG

Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegebenen Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

AVERTISSEMENT

Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

警告

本機は電源スイッチを備えていません。

万一、異常が起きた際に、お客様が電源を切ることができるように、設置の際には、機器近くの固定配線内に専用遮断装置を設けるか、機器使用中に、容易に抜き差しできるコンセントに電源プラグを接続してください。

WARNING

This unit has no power switch.

When installing the unit, incorporate a readily accessible disconnect device in the fixed wiring, or connect the power cord to a socket-outlet which must be provided near the unit and easily accessible, so that the user can turn off the power in case a fault should occur.

AVERTISSEMENT

Lors de l'installation de l'appareil, incorporer un dispositif de coupure dans le câblage fixe ou brancher la fiche d'alimentation dans une prise murale facilement accessible proche de l'appareil. En cas de problème lors du fonctionnement de l'appareil, enclencher le dispositif de coupure d'alimentation ou débrancher la fiche d'alimentation.

WARNUNG

Dieses Gerät hat keinen Netzschalter.

Beim Einbau des Geräts ist daher im Festkabel ein leicht zugänglicher Unterbrecher einzufügen, oder das Netzkabel muß mit einer in der Nähe des Geräts befindlichen, leicht zugänglichen Wandsteckdose verbunden werden, damit sich bei einer Funktionsstörung die Stromversorgung zum Gerät jederzeit unterbrechen läßt.

安全のために、周辺機器を接続する際は、過大電圧を持つ可能性があるコネクタを以下のポートに接続しないでください。

・ DATA コネクター

上記のポートについては本書の指示に従ってください。

For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to the following port.

• DATA connector

Follow the instructions for the above port.

注意

本製品の最大消費電力は 98 W、設備容量は 110 VA です。

分電盤からの配電はこの数値を配慮して行ってください。怠ると、火災や感電の危険があります。

Caution

The maximum power consumption of this product is 98 W and power requirement for facility is 110 VA.

When distributing power from the circuit breaker, take this value into consideration. Failure to do so may result in a fire or electrical shock.

For kundene i Norge

Dette utstyret kan kobles til et IT-strømfordelingssystem.

医療機器への影響に関する注意

ディスプレイキャビネットは強力な磁石を使用しています。

設置、保守点検作業時に触れる面では磁束密度が 300 mT 以上となりえる場所があります。

除細動器、ペースメーカー、水頭症治療用圧可変式シャントなどの医療機器に重大な影響を与える恐れがあります。これらの医療機器をご使用の方を、設置や保守点検などの作業を行っている場所や、ディスプレイキャビネットを保管している場所に近づけないようにしてください。

映像酔い・ふらつきに関するご注意

表示コンテンツ、ディスプレイサイズ、視聴場所（距離）によっては、ふらつきや吐き気など映像酔いの症状が出る場合があります。

映像酔いの症状は視聴中や視聴直後より、ある程度時間が経ってからより強く出る場合もあります。

また映像の広い部分の同一方向への動きなどによってふらつきを誘発する場合もあり得るので、階段、エスカレーターや踊り場などふらついたりした場合に危険が想定される場所から見える場合や、こういった場所から見え方などを確認される場合は、注意してください。

Precautions regarding the effect on medical devices

The display cabinet uses strong magnets.

There are areas where the magnetic flux density is likely to be 300 mT or more on the surface that is touched during installation or maintenance work.

This may seriously affect medical devices such as defibrillators, pacemakers, and programmable shunt valves for hydrocephalus treatment.

Keep users of these medical devices away from areas where installation and maintenance work is being performed or where display cabinets are stored.

Precautions on visually induced motion sickness (VIMS) and postural instability

Depending on the displayed content, display size, and viewing location (distance), a viewer may experience VIMS symptoms such as postural instability or nausea.

The symptoms of VIMS may be severer after some time rather than during or immediately after viewing.

Furthermore, the movement in one direction in a wide part of the image may induce postural instability.

Pay close attention when the displayed image can be seen from stairs, escalators, landings, or other places that are considered dangerous when posture is unstable, or when how the display content looks is examined from such places.

Table of Contents

1. Installation Outline	6	3. Installation of Display Controller.....	45
1-1. System Configuration	6	4. Precautions on Design of Electric Equipment.....	46
1-1-1. Whole System	6	5. Connection	48
1-1-2. Example of Number of Display Cabinets and Resolution	7	5-1. Connection of Display Cabinet and Display Controller	48
1-1-3. Signal Format	7	6. Adjustments by Using Display Controller.....	49
1-2. Installation Flowchart	8		
1-3. Required Equipment/Tools	9		
1-4. Cautions on Installation, Operation, and Storage	11		
1-4-1. Display Cabinet	11		
1-4-2. Display Controller	12		
1-4-3. Back Frame	12		
1-4-4. Floor, Wall and Ceiling	13		
1-4-5. Work Space	13		
1-5. Installation Environment	14		
1-5-1. Design of Panel Cooling	14		
1-5-2. Electrical (Lighting) Construction	14		
1-6. Power Cord	15		
2. Installation of Display Cabinet.....	16		
2-1. Installation Flow	16		
2-2. Unpacking Method	18		
2-3. Installation Order	20		
2-4. Installation	21		
2-4-1. Preparation	21		
2-4-2. Required Equipment/Tools	21		
2-4-3. Installation of the 1st Display Cabinet	22		
2-4-4. Installation of the 2nd Display Cabinet	24		
2-4-5. Installation of the 3rd to 5th Display Cabinets	25		
2-4-6. Connection of Power Cord and Ethernet Cable	29		
2-4-7. Passing Cables on the Back Side	34		
2-4-8. Installation of LED Module	36		
2-5. Procedure After Assembling Screen	39		
2-6. Joint Correction in X Direction/ Y Direction	41		
2-7. Vertical Installation	41		
2-8. Installation to Ceiling	43		
2-9. How to Remove Pins	44		

Trademarks

Products or system names appearing in this document are trademarks or registered trademarks of their respective owners. Further, the ® or ™ symbols are not used in the text.

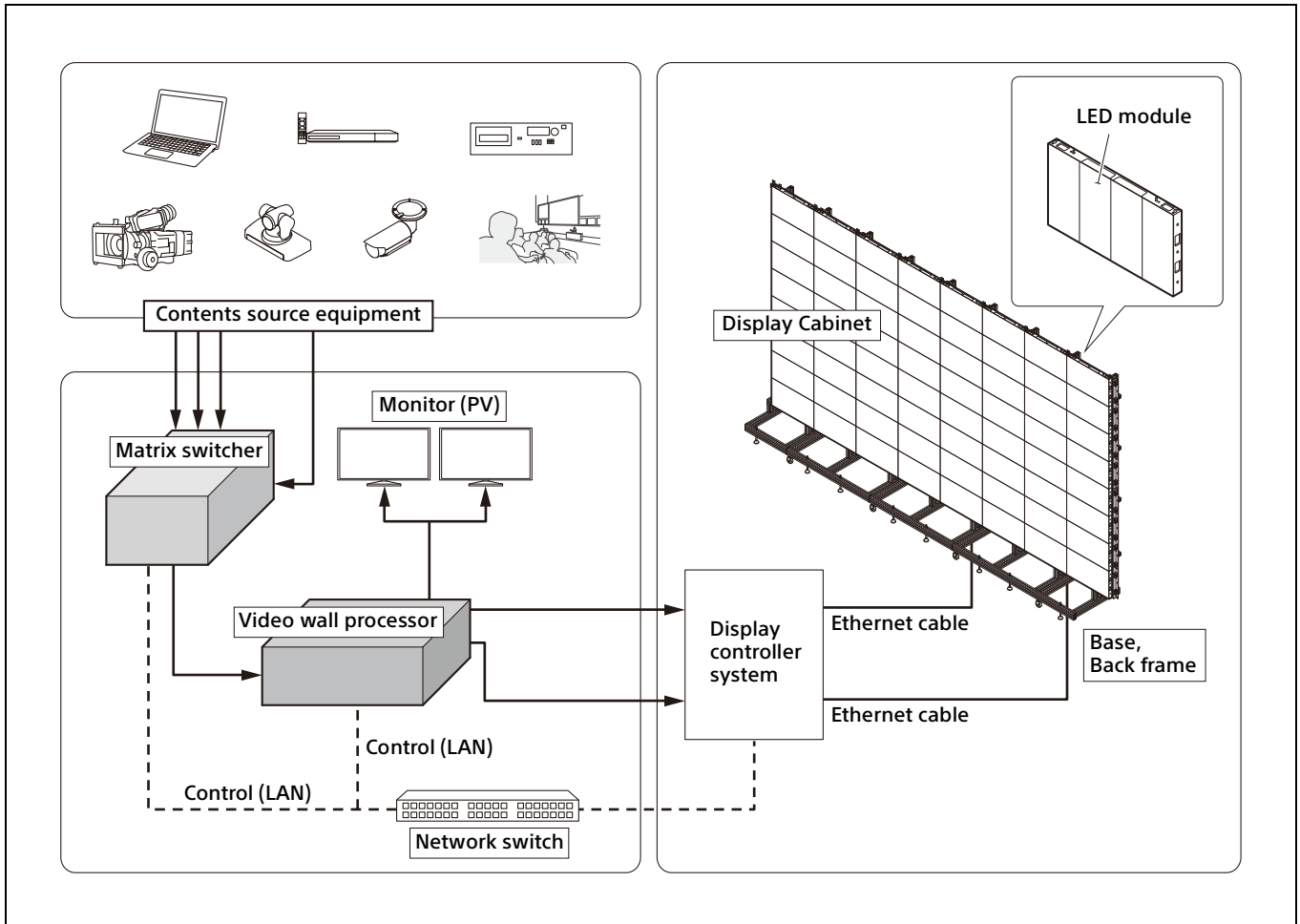
- Reproduction or duplication, in whole or part, of the operation manual supplied with the system without the authorization of the right holder is prohibited under copyright law.
- Note that the specifications of the system are subject to change for improvement without prior notice.

Section 1

Installation Outline

1-1. System Configuration

1-1-1. Whole System



Basic configuration of system

Considering the installation location or purpose, connect multiple Display Cabinets (this unit) to make a display cabinet screen. Signals of video contents input into the Display Controller (not supplied) are converted according to the screen size and then output to the Display Cabinets.

This unit supports the NovaStar Display Controller. Use this unit with a NovaStar Display Controller.

Daisy-chain connections can be configured between Display Cabinets using a power cord (not supplied) and an ethernet cable (not supplied). For the controller's maximum controllable connection numbers, the controller's control method and the used ethernet cable's specification, refer to the operating instructions of the display controller system you will be using.

1-1-2. Example of Number of Display Cabinets and Resolution

ZRD-S12G

- FHD: Number of display cabinets: 4×4 , Real resolution: 1920×1080
- 4K1K: Number of display cabinets: 8×4 , Real resolution: 3840×1080
- 4K: Number of display cabinets: 8×8 , Real resolution: 3840×2160

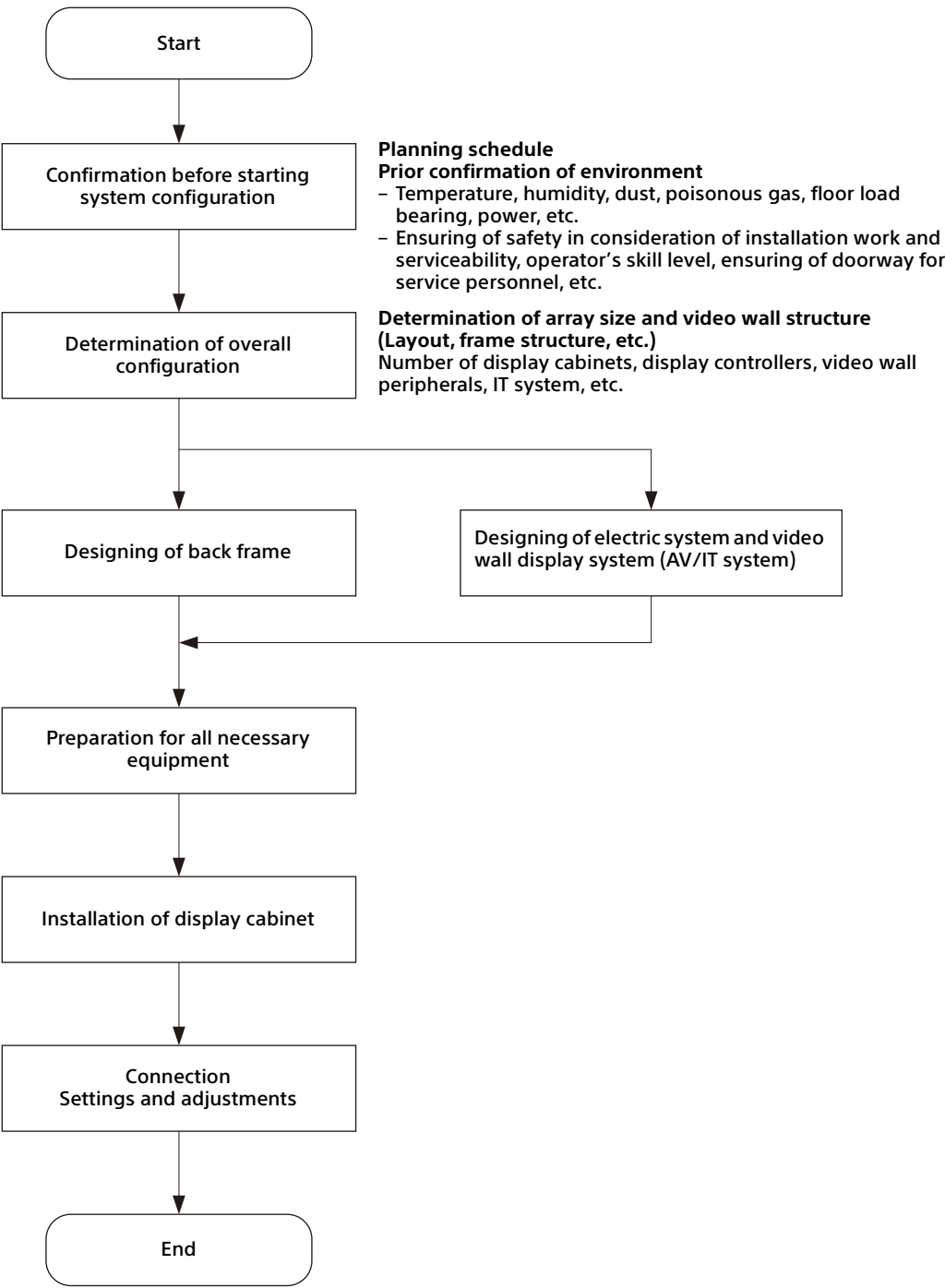
ZRD-S15G

- FHD: Number of display cabinets: 5×5 , Real resolution: 1920×1080
- 4K1K: Number of display cabinets: 10×5 , Real resolution: 3840×1080
- 4K: Number of display cabinets: 10×10 , Real resolution: 3840×2160

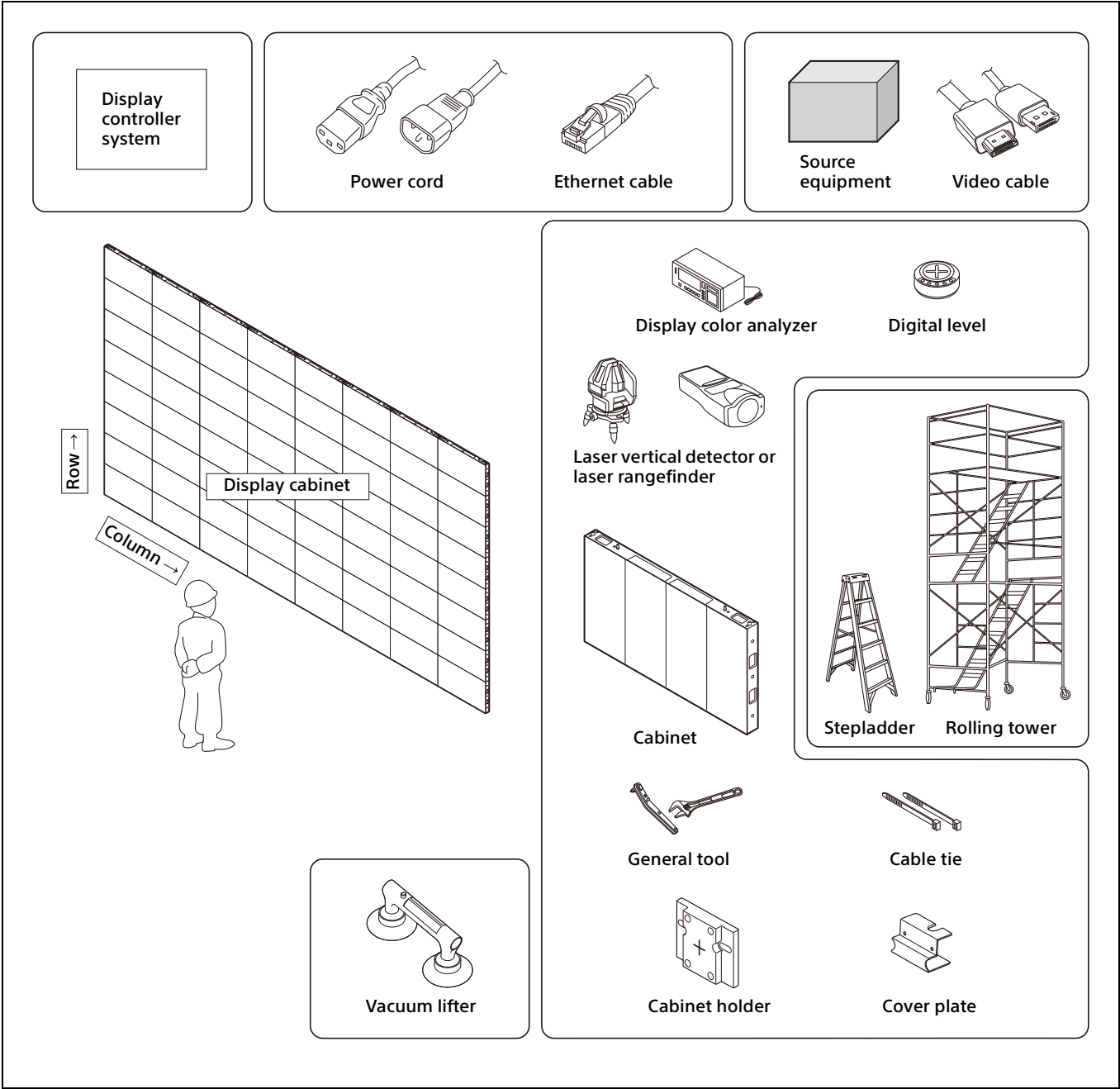
1-1-3. Signal Format

The signal format conforms to the specification of the display controller of NovaStar.

1-2. Installation Flowchart



1-3. Required Equipment/Tools



Equipment/tools	Uses	Remarks
Display cabinet		
Display controller system		The devices required for the display cabinet system varies depending on the display controller to be used. Check the Operating Instructions, etc. of each display controller.
Power cord	For supplying power between display cabinet and outlet	Prepare it separately. (Refer to Section 1-6.)
Power cord	For supplying power between display cabinets	Prepare it separately. (Refer to Section 1-6.)
Ethernet cable	For connecting display cabinet and display controller	Prepare it separately. Use a shielded Ethernet cable.
Ethernet cable	For connecting display cabinets with each other	Prepare it separately. Use a shielded Ethernet cable.
Display color analyzer		Konica Minolta CA-310, CA-410 or equivalent
Digital level		Resolution: 1/10000
Laser rangefinder or laser vertical detector		• Two-axis type • Accuracy of right angle: $90^{\circ} \pm 1/5000$
Stepladder and rolling tower	For working in high places	
Source equipment		
Video cable		Use the cable compatible with the controller to be used.
Server rack	For rack mount of the display controllers	Commercial goods EIA standard 19-inch rack mount with 700 mm to 900 mm depth
RMM-10	Rack mounting bracket of the display controller	Sony product (available on request) For obtaining RMM-10, contact your local Sony Sales Office/Service Center.
Back frame		
Cable tie		Prepare cable ties with a size of up to 5 mm in width and 3 mm in thickness.

1-4. Cautions on Installation, Operation, and Storage

1-4-1. Display Cabinet

Common items

- Do not perform installation, operation, and storage in the operating environment where dew condensation occurs on the surface and internally.
- Do not perform installation, operation, and storage in a place subject to direct sunlight, high temperature, or excessive dust, or near poisonous gas.
- Do not place the display cabinet in a place where water may be splashed. If it should get wet, consult the service representative without turning on the power.
- If any abnormality or problem occurs or a foreign substance is put in the display cabinet, turn off the AC power (breaker) and consult the service representative without using the display cabinet.
- Do not give damage or shock to the cell (LED module board) of display cabinet.
Do not hit the edge of the LED module board against the base or other display cabinet. Otherwise, it may cause damage or malfunction of the LED module board.

Installation

- The display cabinet may be damaged by static electricity. Therefore, a worker must wear antistatic working clothes and antistatic gloves during operation.
- A worker must necessarily wear gloves to prevent an injury from occurring when transporting and installing the display cabinet.
- Use the power cord to connect between the display cabinets.
If not supplied, prepare the power cord applicable to the country or region in which the system is installed. (Refer to Section 1-6.)
- Connect the display cabinet to safety ground. Check that ground and power cord are connected securely. Use the 3-core power cord. The safety earth ground can be connected by using the 3-core power cord. Check that the safety earth ground and power cord are securely connected.
- Connect the safety ground to back frame.
- After stacking all display cabinets, cover the outermost edge with the protective materials.
- Install the net for preventing the falling of tools used in the installation and service work.
- Be sure to turn off the display cabinet when attaching or removing the LED module.
- Do not turn on the power while the dust is floating around the display cabinet. After removing the dust, turn on the power of the display cabinet.
- Be careful not to view the light of LED directly from near it when the display cabinet turns on.
- When assembling the display cabinet, block the opening of the cabinet of the outmost circumference with the cable cover.

Note

The safety standard requires blocking of the opening part. For details, contact your local Sony Sales Office/ Service Center.

Operation

- To clean the surface of the Display Cabinet, use an antistatic soft cloth with fibers that hardly come off. (Recommended cloth: savina MX wiping cloth or Belima X made by KB SEIREN, LTD.)
- If the surface is very dirty, contact your local Sony Sales Office/Service Center.
For the contamination of joint portion, use the anti-static air blaster that is commercially available.
- Do not moisten the surface of the LED module board.
- Use an anti-static brush to gently scrape off any foreign matter such as dust that has entered the gaps in the LED module board.



- The LED module board has sharp edges. To prevent an injury from occurring, take care that the customer does not directly touch an array.

Storage (when moving the display cabinet temporarily)

- Be sure to dry it before packing the display cabinet.
- Store display cabinet in a dry and well-ventilated place.
- When repacking the display cabinet, remove the dust on the surface of the display cabinet and attach a protection cover and protection plate.

1-4-2. Display Controller

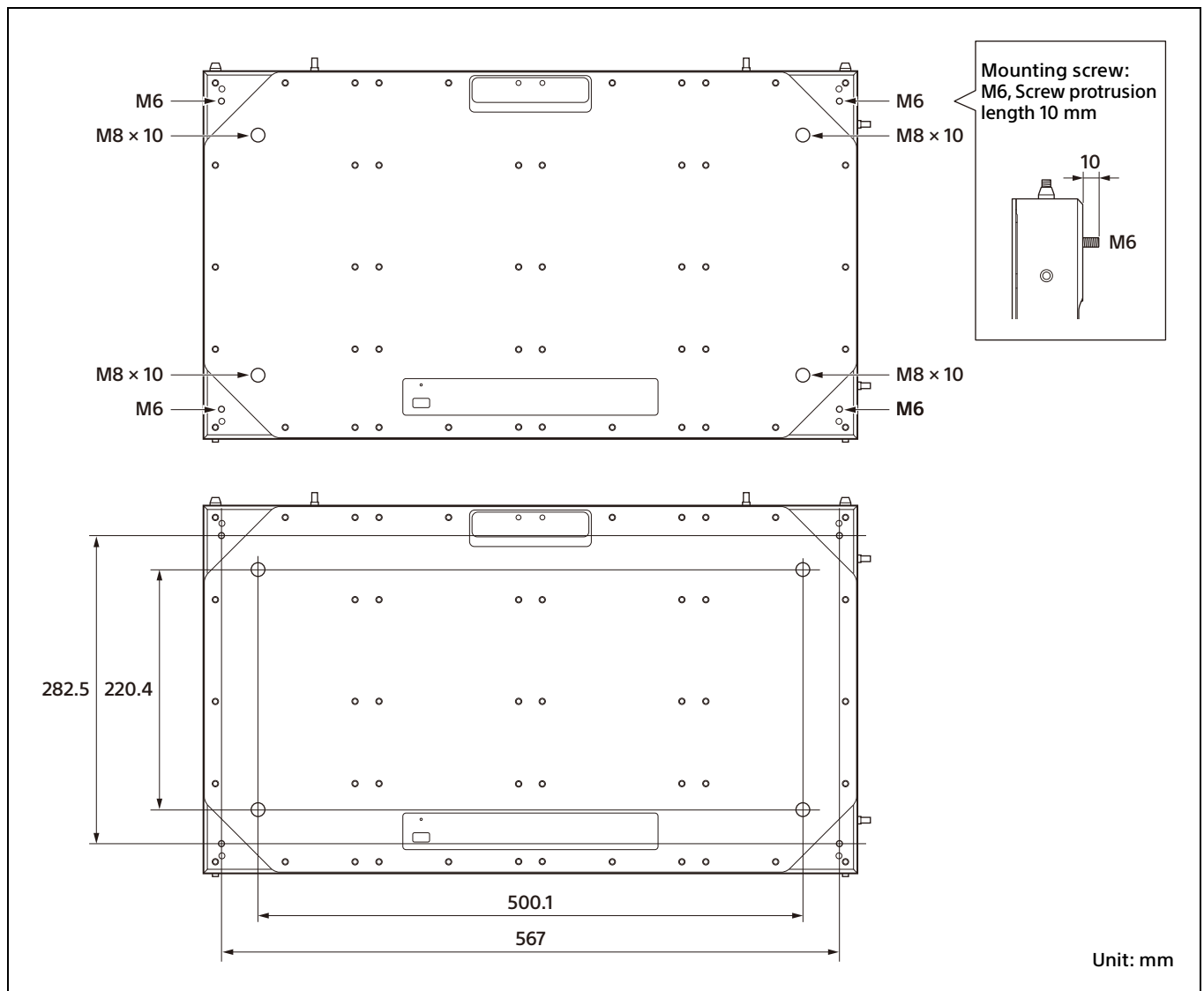
Refer to the specification of the compatible display controller.

1-4-3. Back Frame

- Design a back frame in consideration of possible safety measures.
- Design a back frame that has a horizontal/vertical adjustment mechanism so as to attach the back frame in high precision.
- It is recommended to connect the ground to back frame.
- Take necessary measures to prevent rust from occurring in all frame steel products.

1-4-4. Floor, Wall and Ceiling

Screw information



Withstand load of floor, wall and ceiling:

The floor, wall and ceiling should be strong enough to prevent the distortion or deformation when it is subjected to the following load.

Mass of display cabinet × number of display cabinets + total mass of base + total mass of back frame + mass of display controller × number of display controllers
(For the mass, refer to respective Operating Instructions.)

1-4-5. Work Space

- Design the rolling tower required for the installation and service work so that it does not interfere the maintenance of display cabinet.
- Provide sufficient space to install the rolling tower in front of the array in order to clean the surface of display cabinet.

1-5. Installation Environment

1-5-1. Design of Panel Cooling

Install air conditioner or air intake/heat exhaust fan to keep the operating temperature and humidity of the display cabinet and other devices within the specifications. Prevent moisture condensation. It is recommended to install the air conditioner for temperature control. It controls temperature more effectively than the air intake fan/exhaust fan.

On the array, there is a difference of temperature and humidity at the high place/at the low place or both sides/center. Control to keep the temperature and humidity within the specifications based on the display cabinet that has the highest temperature and humidity around the display cabinet. Usually, upper and center place of the array is the highest temperature and humidity.

Precautions when installing the air intake/heat exhaust fan

- It is recommended to install the air intake/heat exhaust fan in back of the array taking into consideration the noise of fan.
- In order to prevent the accumulation of dust around the array, attach the filter to the opening of air intake/heat exhaust fan that is suitable for the operating environment.

1-5-2. Electrical (Lighting) Construction

Take the following fully into consideration when performing electrical construction:

- Use the devices and materials with high reliability that meet the specifications in the country and region where the system is installed.
- Install the lighting for maintenance that meets the following requirements.
 - The work can be done safely in the array building.
 - There should be no light leak that causes damage to the display picture quality. The lighting inside of the array building should not leak from the gaps between the display cabinets.
Use a hand lamp for the fine visual work.
- Provide the outlet for maintenance in the array building in the location suitable for maintenance.

1-6. Power Cord

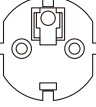
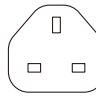
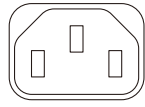
To get a power cord, please contact your local Sony Sales Office/Service Center.

WARNING

- Use the approved Power Cord (3-core mains lead)/Appliance Connector/Plug with earthing-contacts that conforms to the safety regulations of each country or each region if applicable.
- Use the Power Cord (3-core mains lead)/Appliance Connector/Plug conforming to the proper ratings (Voltage, Ampere).
- Never use an injured power cord.

3-conductor AC cable

Prepare an AC cable, based on the table below, which can be used in the relevant country and region. Use an AC cable whose safety standard was approved in the relevant country and region.

	USA/Canada		Continental Europe	UK, Ireland	Japan		MEA
Plug type	NEMA5-15P 	NEMA6-15P 		UK type 	PSE 	NEMA 6-15P 	UK type 
Connector type	3P IEC Connector (IEC60320 C13) 						
Cord type	SJT		CENELEC H05VV-F	CENELEC H05VV-F	(H) VCTF		CENELEC H05VV-F
Rating	10 A/125 V	10 A/250 V	10 A/250 V	10 A/250 V	10 A/125 V	10 A/250 V	10 A/250 V
Safety approval	UL/CSA		VDE or equivalent	BSI or equivalent	DENAN		BSI or equivalent
Cord length restriction	Min. 1.5 m Max. 2.4 m according to UL						

Section 2

Installation of Display Cabinet

2-1. Installation Flow

Before starting the installation

- Assemble all back frames.
- Fix the back frames with the anchors.
- Be sure to secure the installation space.

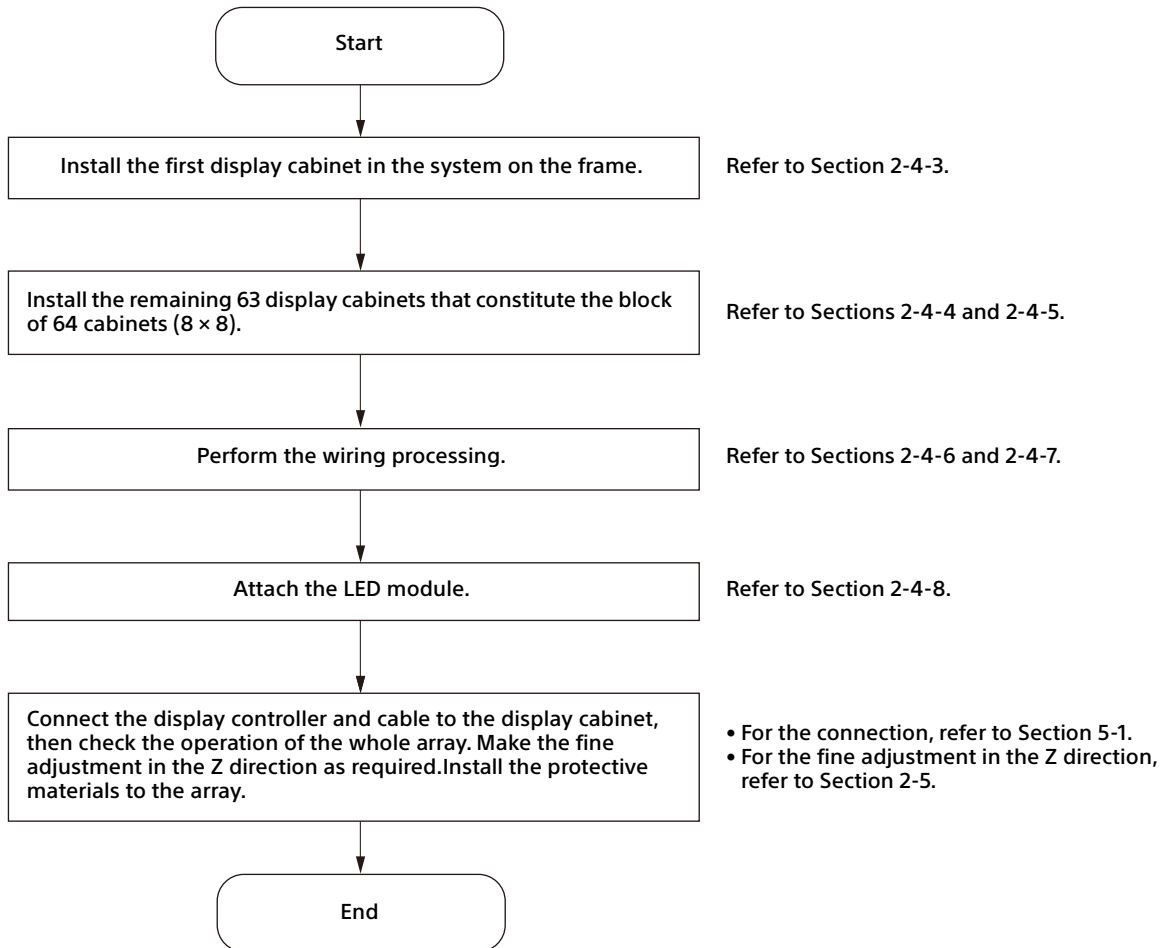
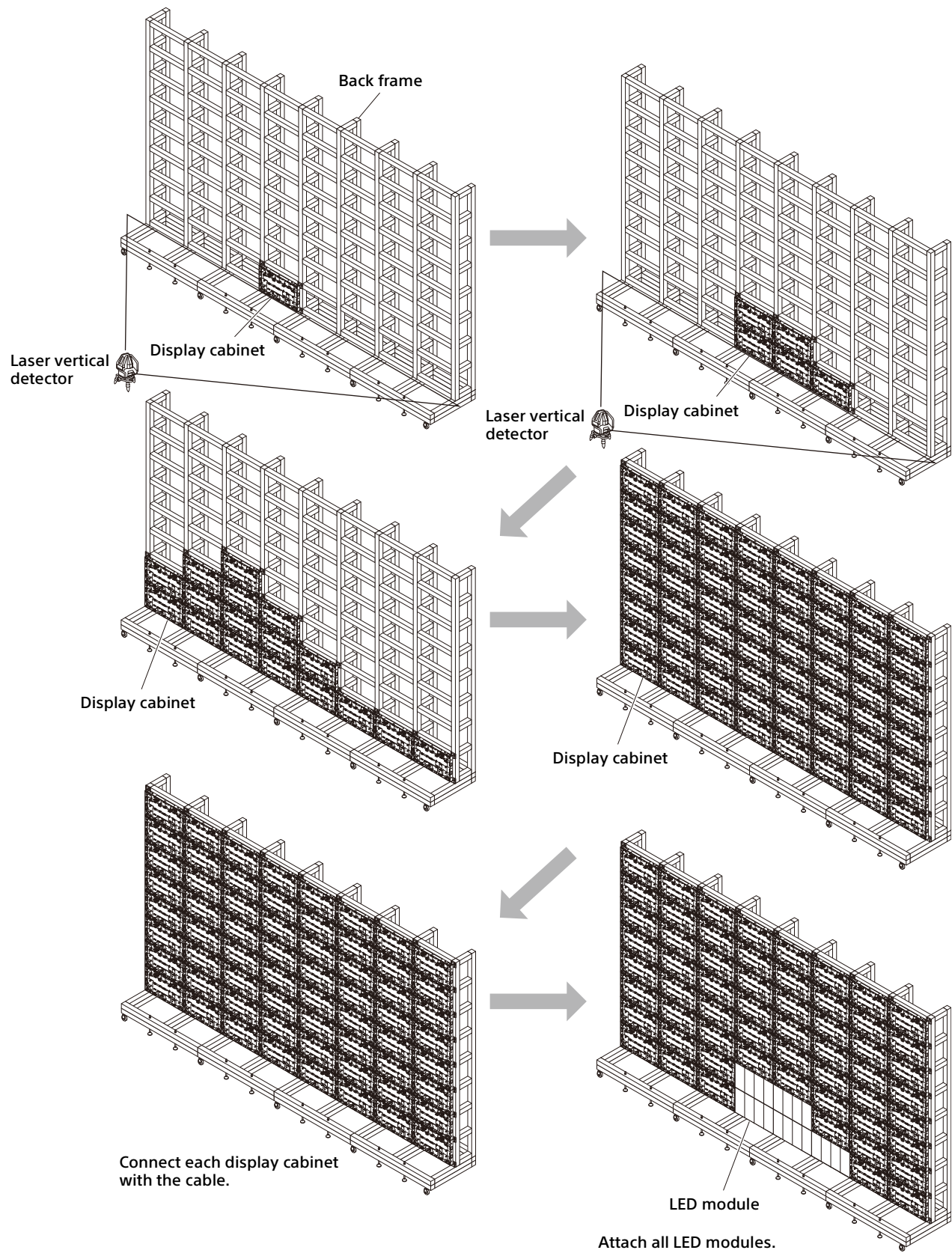


Image of installation flow

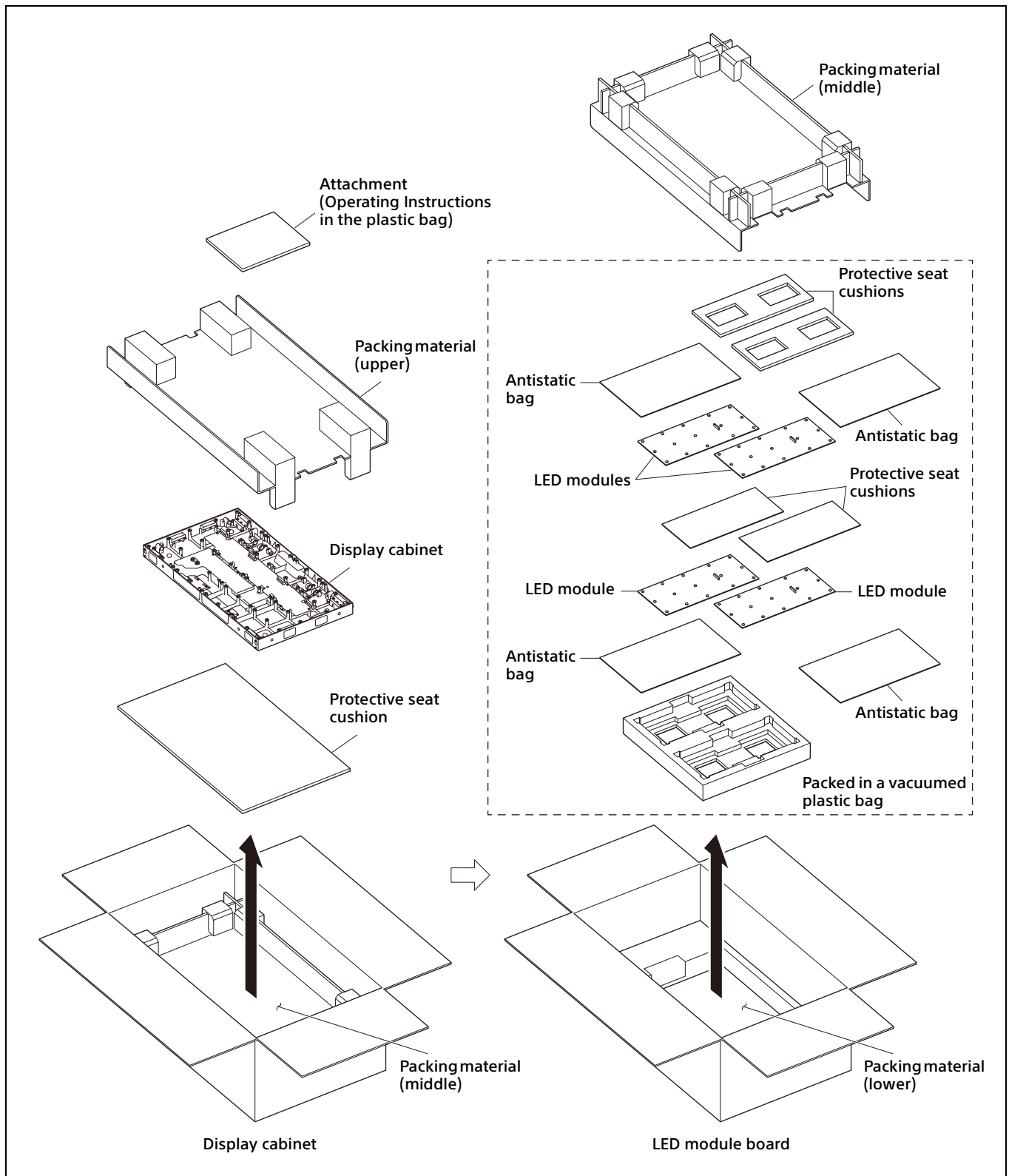


2-2. Unpacking Method

1. Display cabinet
 - (1) Open the lid of the box and take out the packing material (upper).
 - (2) Take out the display cabinet.
 - (3) Take out the protective seat cushion.
2. LED module
 - (1) Take out the packing material (middle).
 - (2) Remove the buffer material and take out the LED module.

Note

Use the display cabinet and LED module as combined in the package.
Installation positions of the LED module are specified. The combination and position No. can be checked on the sticker. For details, refer to Section 2-4-8.

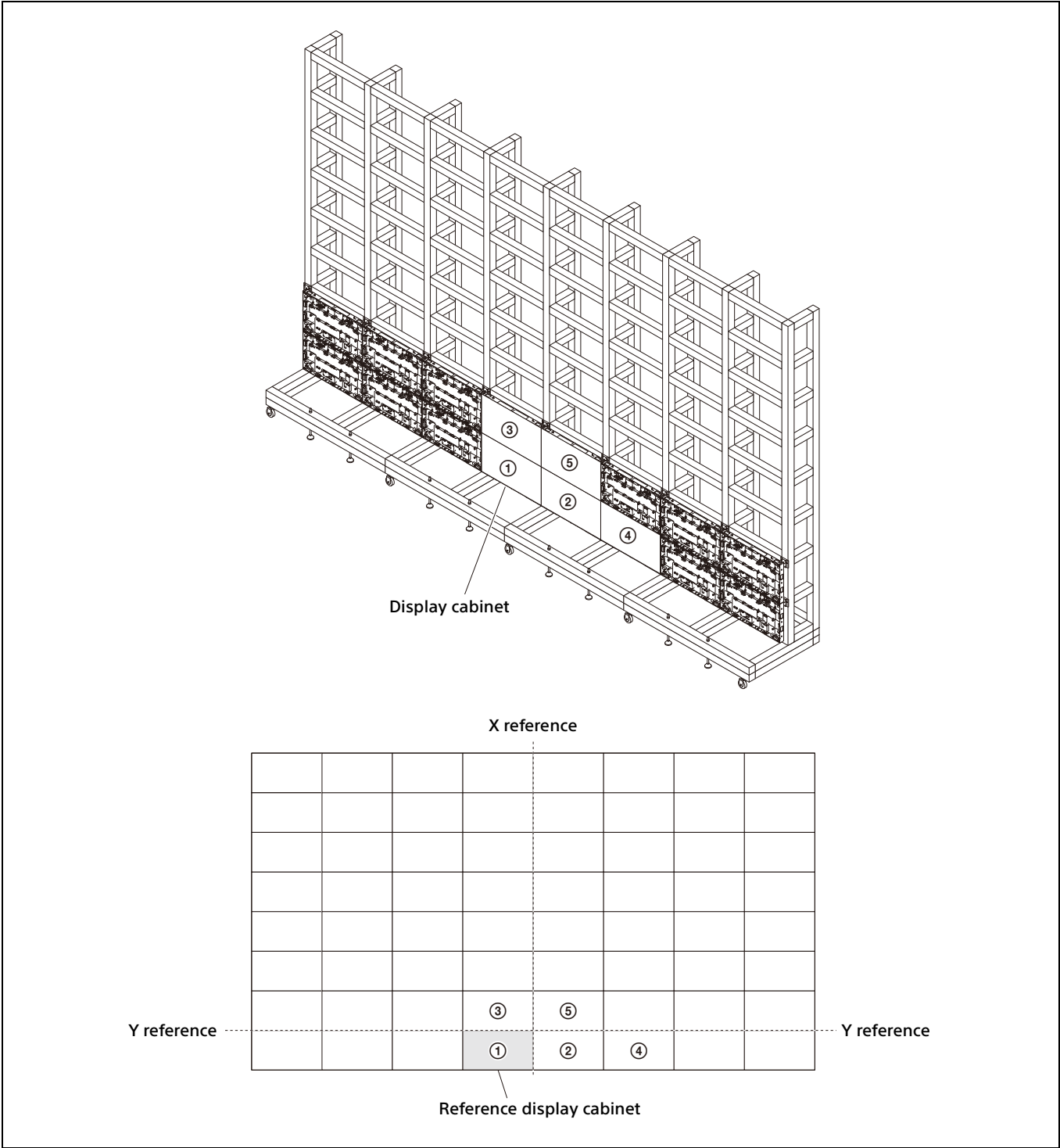


Tip

External dimensions of the carton: W 486 mm × D 807 mm × H 270 mm
Weight of the carton: 10 kg

2-3. Installation Order

1. Attach the reference display cabinet to the center of the bottom in the installation area.
2. Mount the display cabinets "2" to "5" in numerical order.
3. In the same way, mount the display cabinet of the next block aligning the Y reference and X reference.



2-4. Installation

2-4-1. Preparation

1. Assemble all back frames.
Fix the back frames to the floor, wall and ceiling with the anchors.

2-4-2. Required Equipment/Tools

For details on each tool, refer to "1-3. Required Equipment/Tools".
Prepare the general tools such as screwdriver and hexagon wrench.

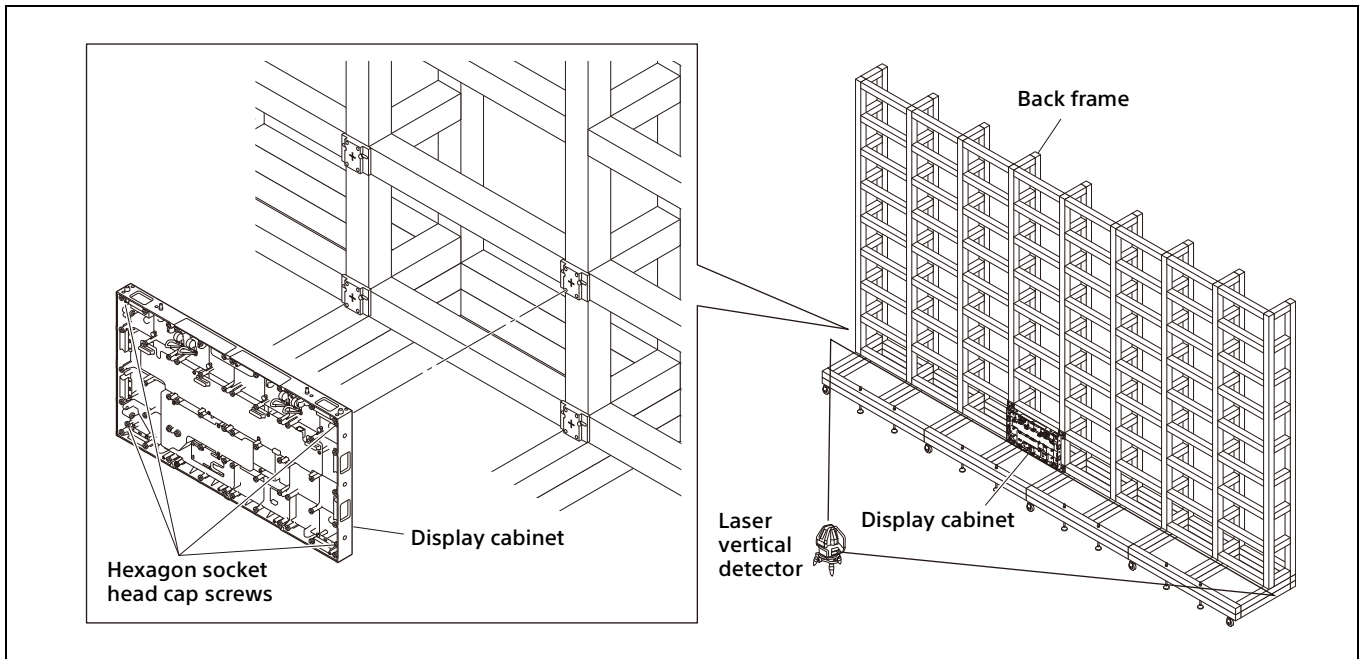
Equipment/tools	No. of pcs	Uses
Frame	–	
Digital level	1	For checking the inclination between display unit and back frame
Socket wrench (for hexagonal width across flats: 10 mm)	–	For tightening the mounting screw, adjusting the magnetic screw (when accessing the front side)
Phillips screwdriver (#2)	–	For attaching/detaching the cover
Hexagon wrench (bit width across flats: 4 mm)	–	For tightening the mounting screw, removing the positioning pin for the top surface
Hexagon wrench (bit width across flats: 3 mm)	–	For adjusting the X/Y/Z positions of the cabinet
Hexagon wrench (bit width across flats: 2.5 mm)	–	For adjusting the magnetic screw (when accessing the back side)
Laser vertical detector	–	For checking the level when installing the cabinet
Plastic hammer	–	For adjusting the Z step of cabinet

2-4-3. Installation of the 1st Display Cabinet

1. Attach the display cabinet to the bottom center of the frame to be installed.
 - (1) This display cabinet is used as reference. Therefore, attach it with the accurate horizontal reference using the laser vertical detector, etc.
 - (2) Tighten the four hexagon socket head cap screws to secure the display cabinet.

Note

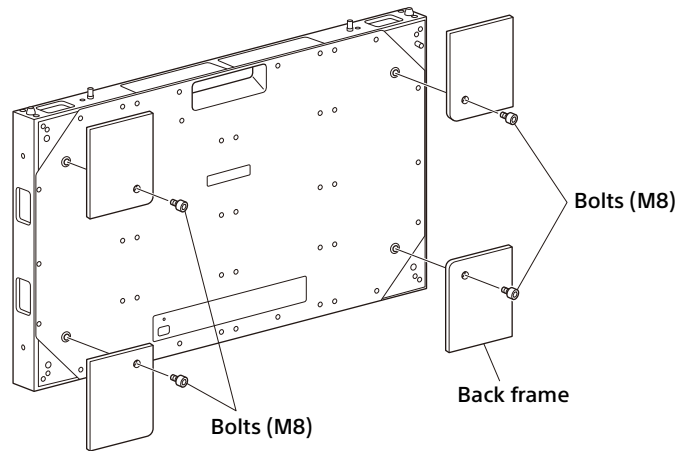
- When there is any defect in the hexagon socket head cap screws of the display cabinet, be sure to replace it.
- When passing cables through the back side of the display cabinet, open the opening before attaching the display cabinet to the frame. (For details, refer to Section 2-4-7.)
Depending on the installation situation, it may be difficult to open the opening after attaching the display cabinet.



Tip

Use a socket wrench (for hexagonal width across flats: 10 mm) or hexagon wrench (bit width across flats: 4 mm) to tighten hexagon socket head cap screws.

Instead of using hexagon socket head cap screws supplied with the cabinet, you can attach the cabinet to the frame using the four screw holes (M8 × 10) on the back of the cabinet. Bolts (M8) are required separately.



2-4-4. Installation of the 2nd Display Cabinet

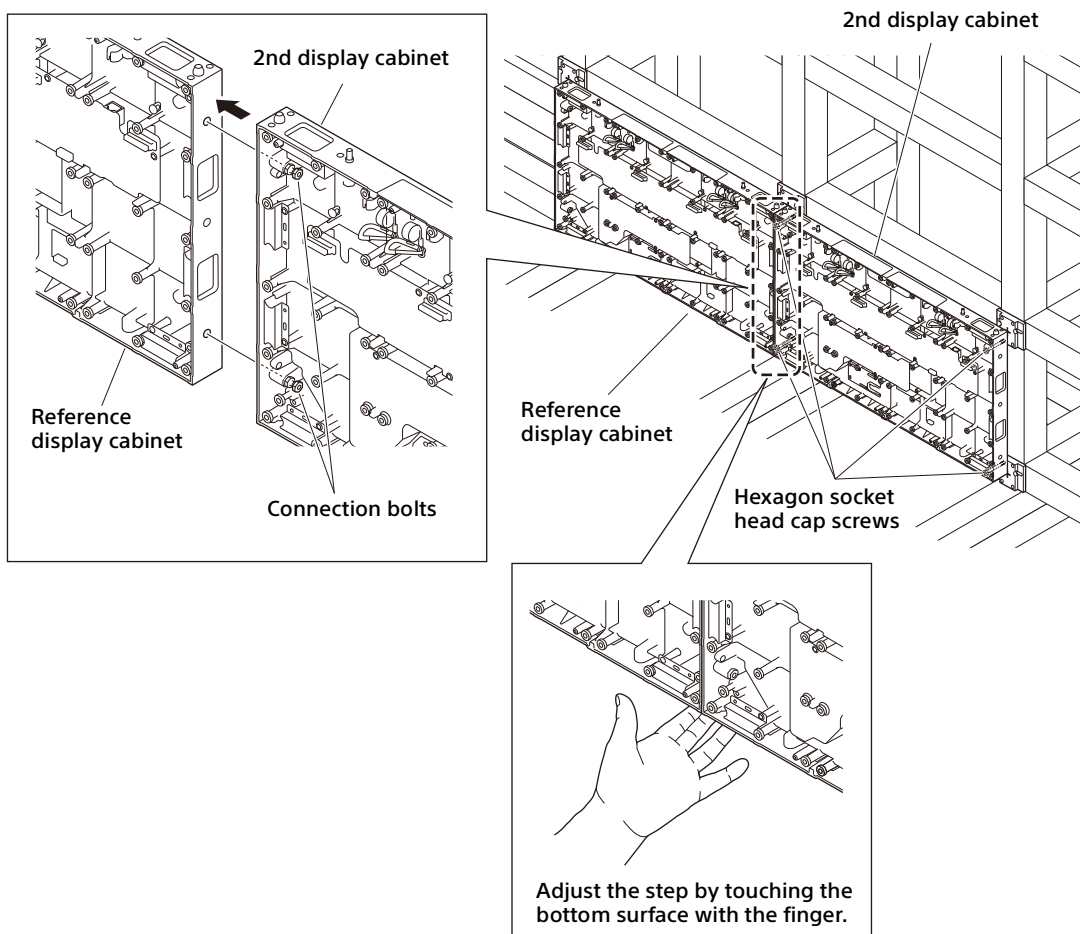
1. Attach the 2nd display cabinet.
 - (1) Install the 2nd display cabinet on the right side of the reference display cabinet.
 - (2) Align the connection bolts with the holes of the receiving side, then tighten the two connection bolts to secure the display cabinets.
 - (3) Tighten the four hexagon socket head cap screws to secure the display cabinet to the frame.

Note

Before securing the display cabinet, adjust the step by touching the bottom surface with the finger, then tighten the bolts.

Tip

A socket wrench with a ratchet is useful to tighten screws when securing the cabinets.

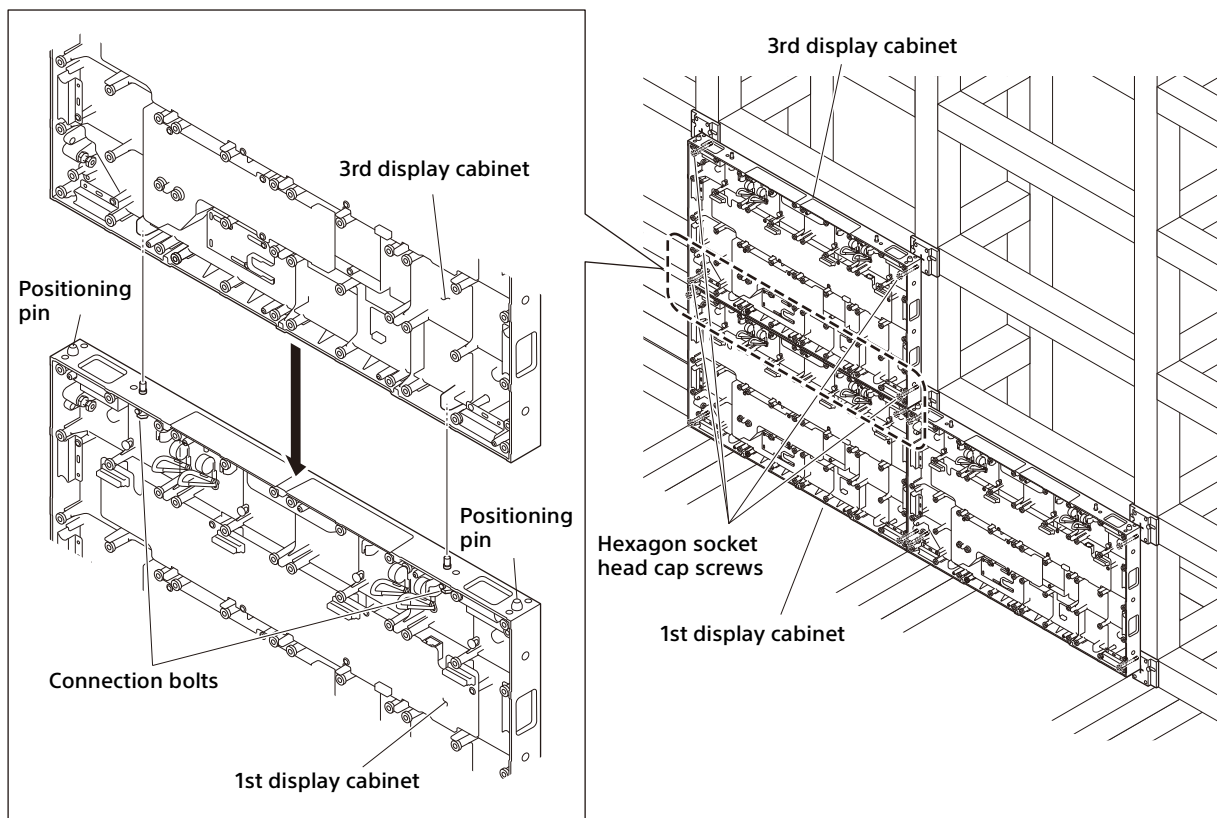


2-4-5. Installation of the 3rd to 5th Display Cabinets

1. Attach the 3rd display cabinet.
 - (1) Install the 3rd display cabinet on the 1st display cabinet by aligning the positioning pins.
 - (2) Align the connection bolts with the holes of the receiving side, then tighten the two connection bolts to secure the display cabinets.
 - (3) Tighten the four hexagon socket head cap screws to secure the display cabinet to the frame.

Note

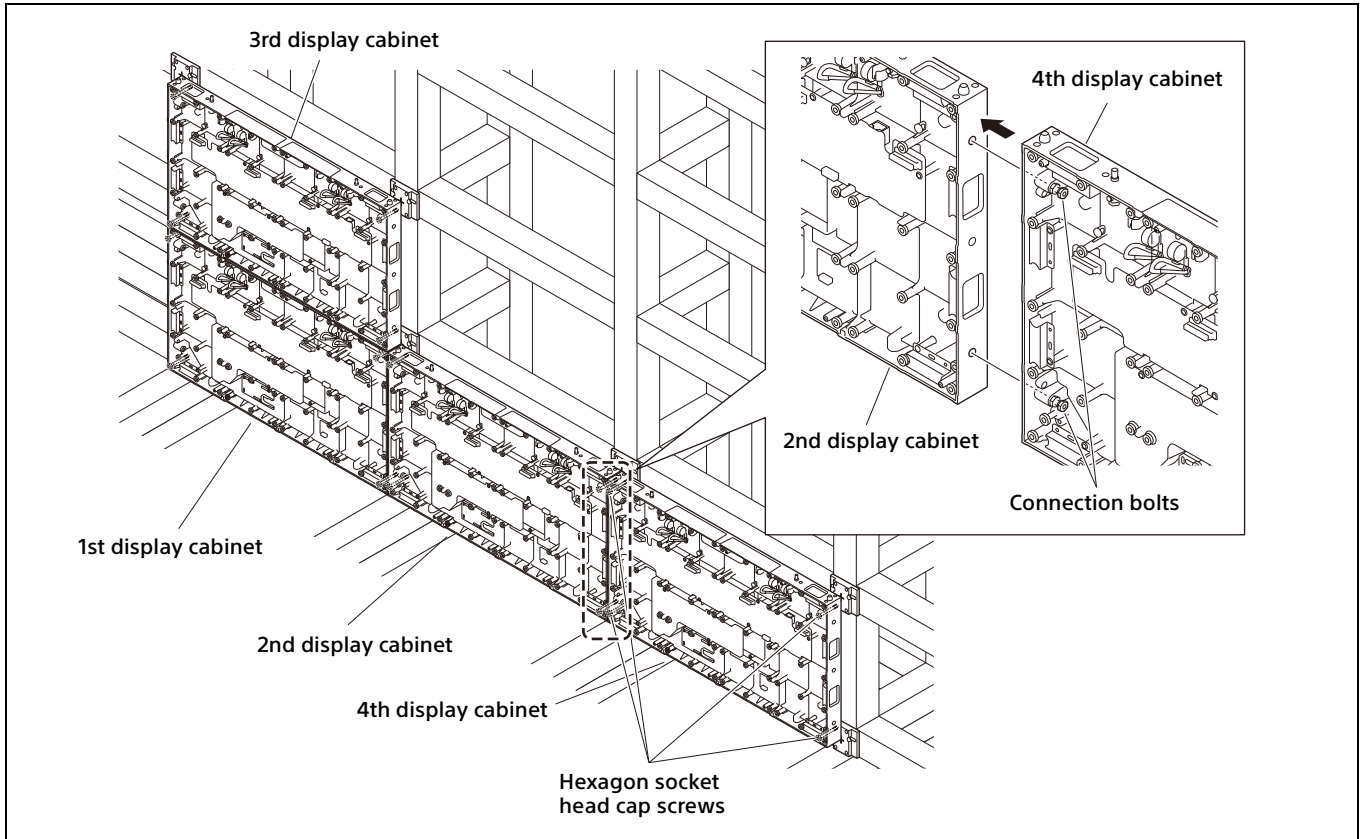
- When the connection bolts cannot be tightened securely, adjust the position of the display cabinet and tighten them again.
- Before securing the display cabinet, adjust the step by touching the connection surface with the finger, then tighten the bolts.



2. Attach the 4th display cabinet.
 - (1) Install the 4th display cabinet on the right side of the 2nd display cabinet.
It can be attached in the same procedure as the 2nd display cabinet

Note

When the connection bolts cannot be tightened securely, adjust the position of the display cabinet and tighten them again.

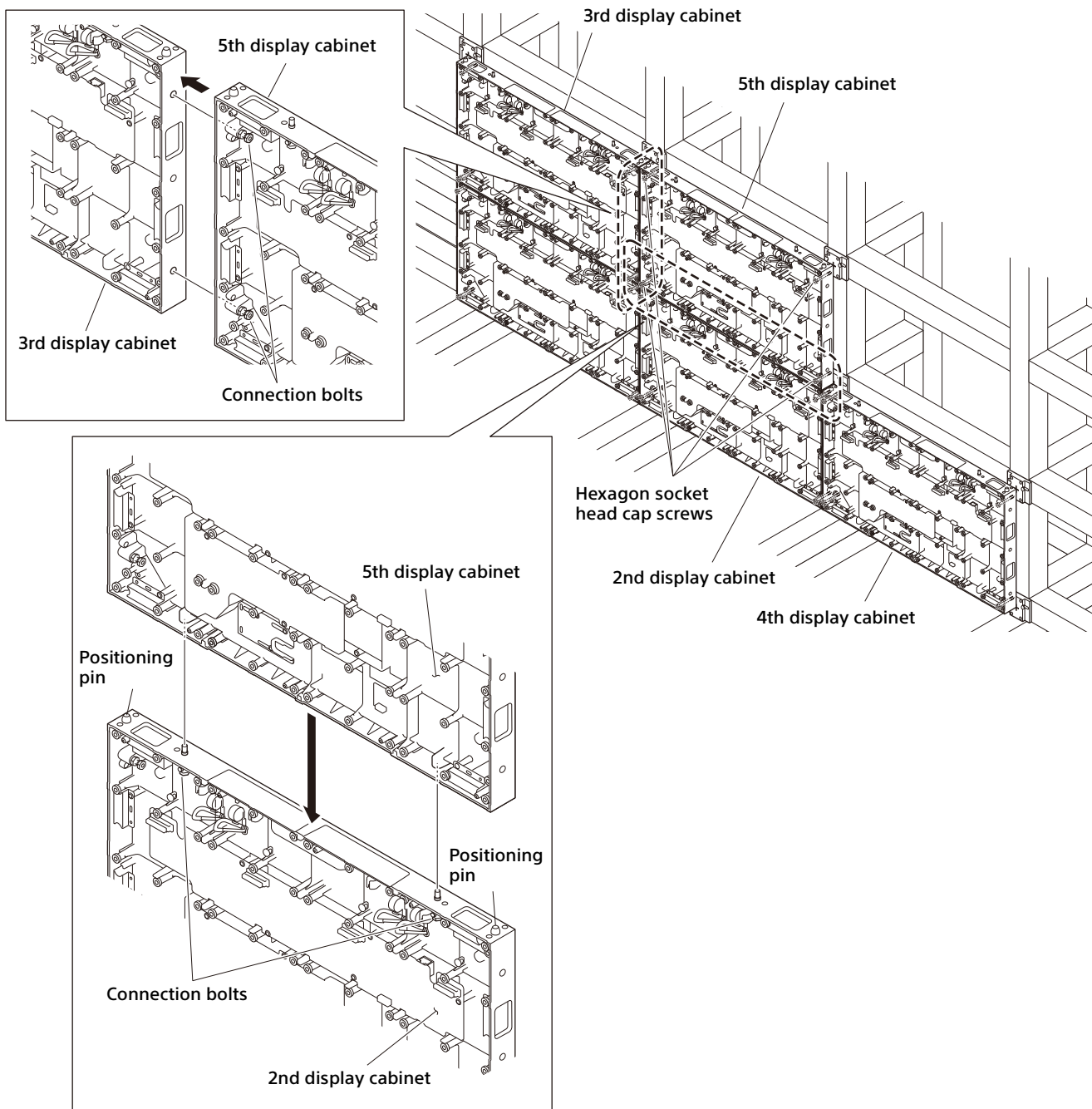


3. Attach the 5th display cabinet.

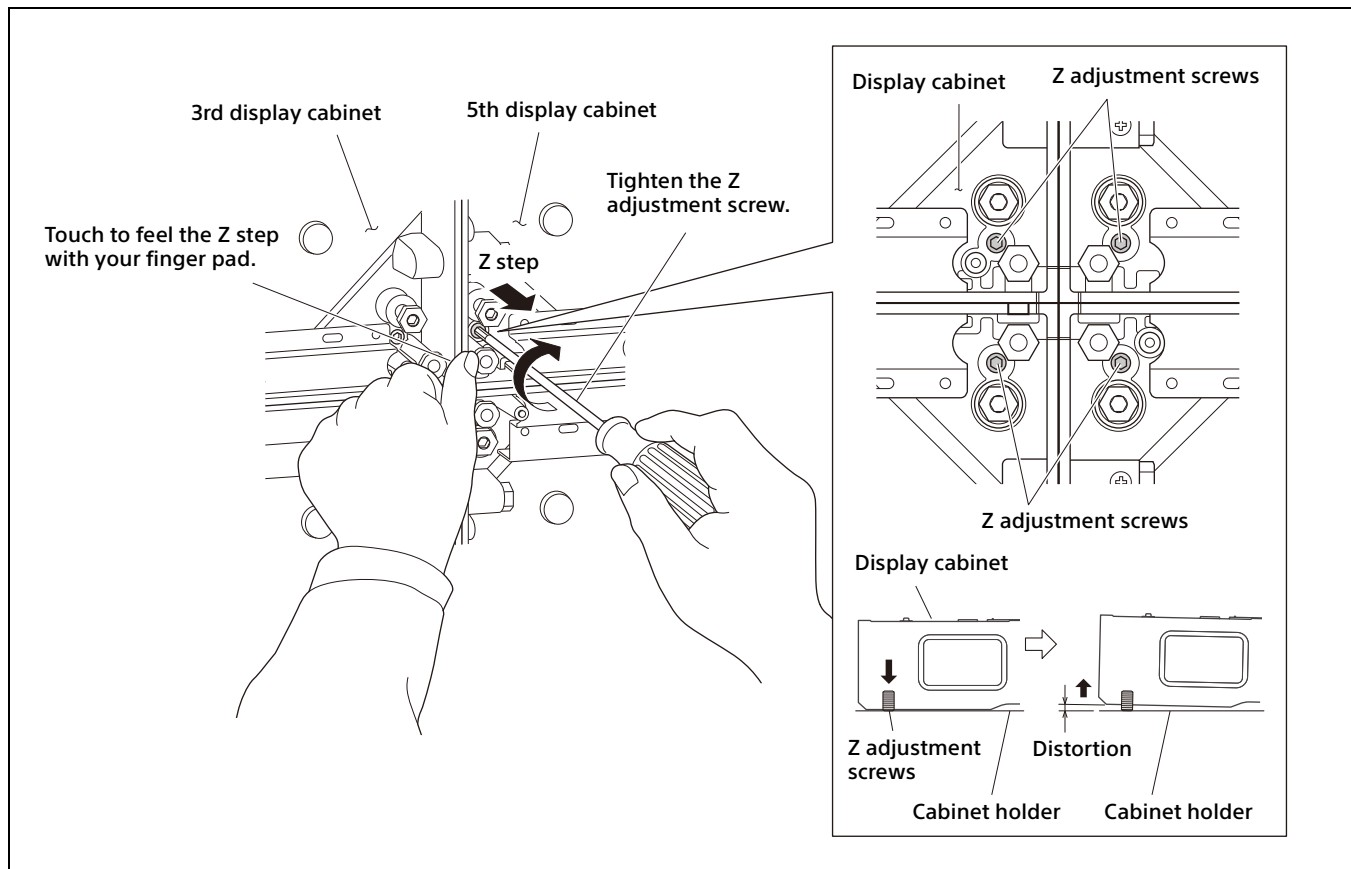
- (1) Align the positioning pins with the top of the 2nd display cabinet and the right side of the 3rd display cabinet, then install the 5th display cabinet.
- (2) Align the connection bolts with the holes of the receiving side, then tighten the four connection bolts to secure the display cabinets.
- (3) Tighten the four hexagon socket head cap screws to secure the display cabinet to the frame.

Note

When the connection bolts cannot be tightened securely, adjust the position of the display cabinet and tighten them again.



4. Perform the check and adjustment in the Z direction as required.
- (1) Touch the surface between the adjacent display cabinets to check the Z step.
 - (2) Tighten the cabinet Z adjustment screw of the lower display cabinet.
 - (3) Push the Z adjustment screw against the cabinet holder and pull it to the front utilizing the distortion of the display cabinet.



Tip

Use a Hexagon wrench bit (width across flats: 3 mm) to tighten the Z adjustment screw.

5. Attach the 6th and later display cabinets in the same procedure as the 2nd to 5th display cabinets.

2-4-6. Connection of Power Cord and Ethernet Cable

Note

- In this unit, the connection work cannot be performed from the back side. Connect the cables before attaching the LED module.
- Connect only the DATA connector of the corresponding display controller system and cabinet to the unit's DATA connector.

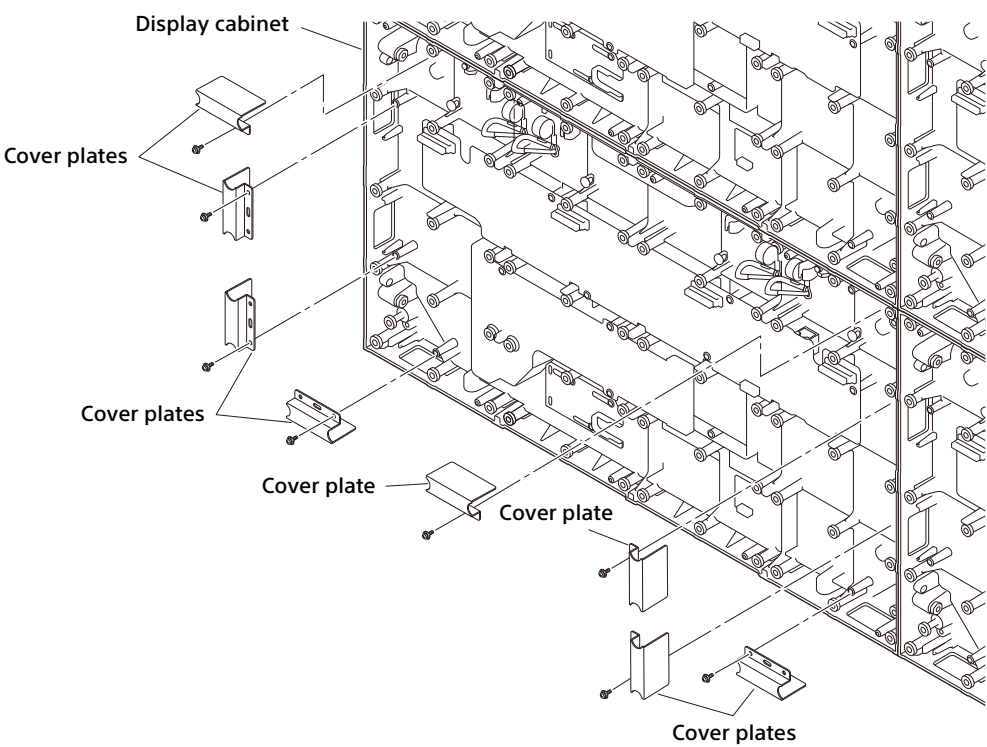
Parts required for connection

- Power cord (connection for circuit breaker and display cabinet)
- Power cord (connection between display cabinets)
- Ethernet cable (connection for display controller and display cabinet):
Check the specification of the NovaStar controller system before using the shielded Ethernet cable.
- Ethernet cable (connection between display cabinets):
Use shielded Ethernet cables.

1. Remove the cover plates of the portions through which the cables are passed.

Note

Remove the cover plates only in the place where the cable is passed.

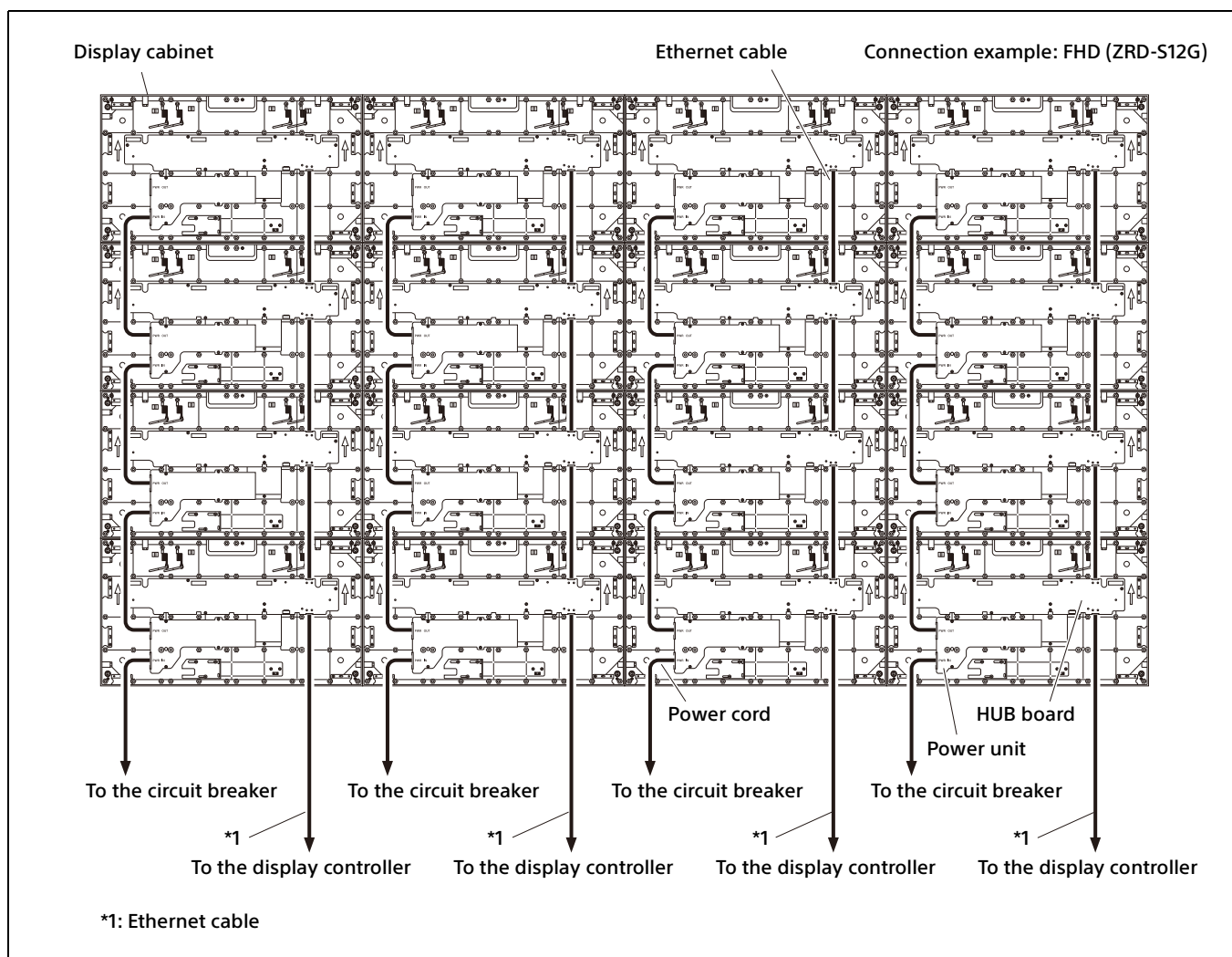


	Description	Type
	PLATE,COVER	Closed type

2. Connect the power cord to the destination PWR IN connector from the PWR OUT connector of the cabinet.

Tip

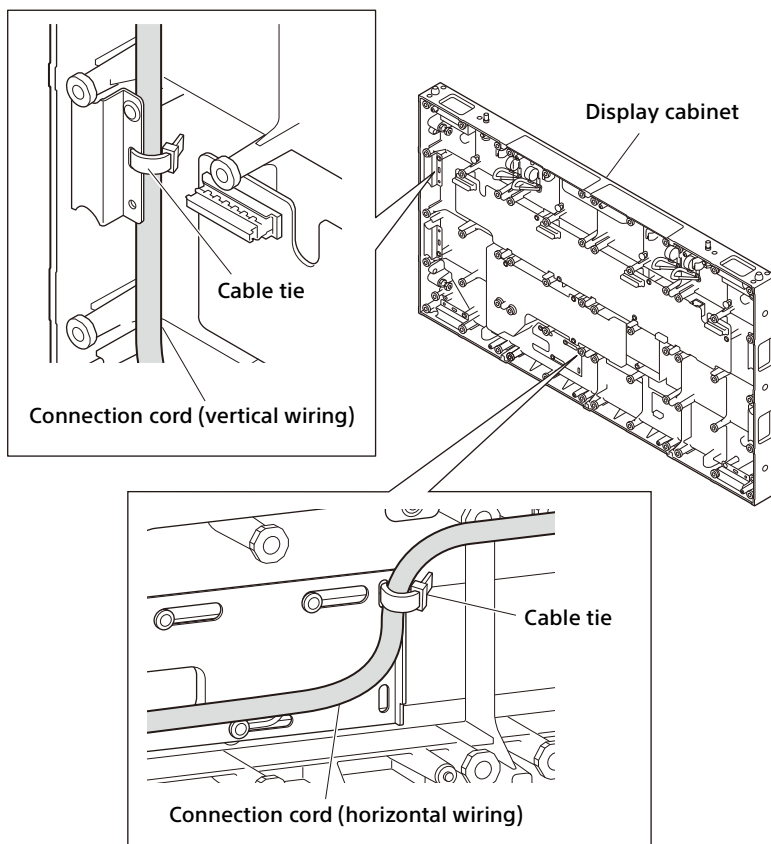
- When connecting the power cord, also place the circuit breaker. (Refer to Section 4.)
 - Connect the power cord from the circuit breaker to the connection destination, the PWR IN connector of the display cabinet.
3. Connect as follows.
- Connect the ethernet cable to the destination DATA connector from the DATA connector of the HUB board.
 - Connect the ethernet cable from the output connector of the display controller to the connection destination, the DATA connector of the display cabinet.



4. Secure the cables whose extra length is adjusted with the cover.

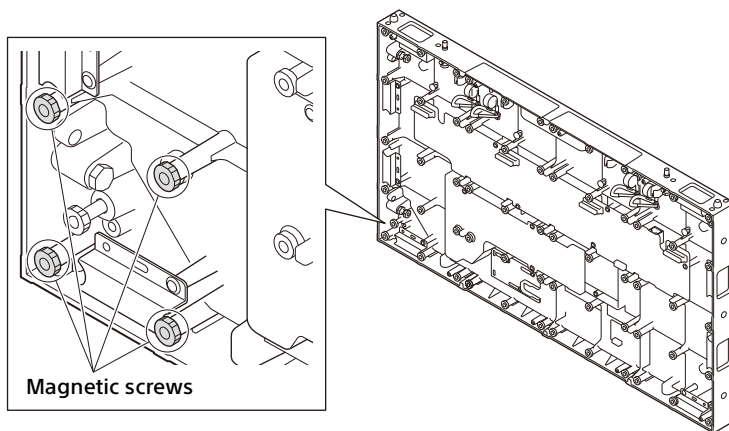
Tip

- The deflection of cord and cable can be adjusted furthermore by tying it using cable tie.
- Prepare the cable tie in advance.

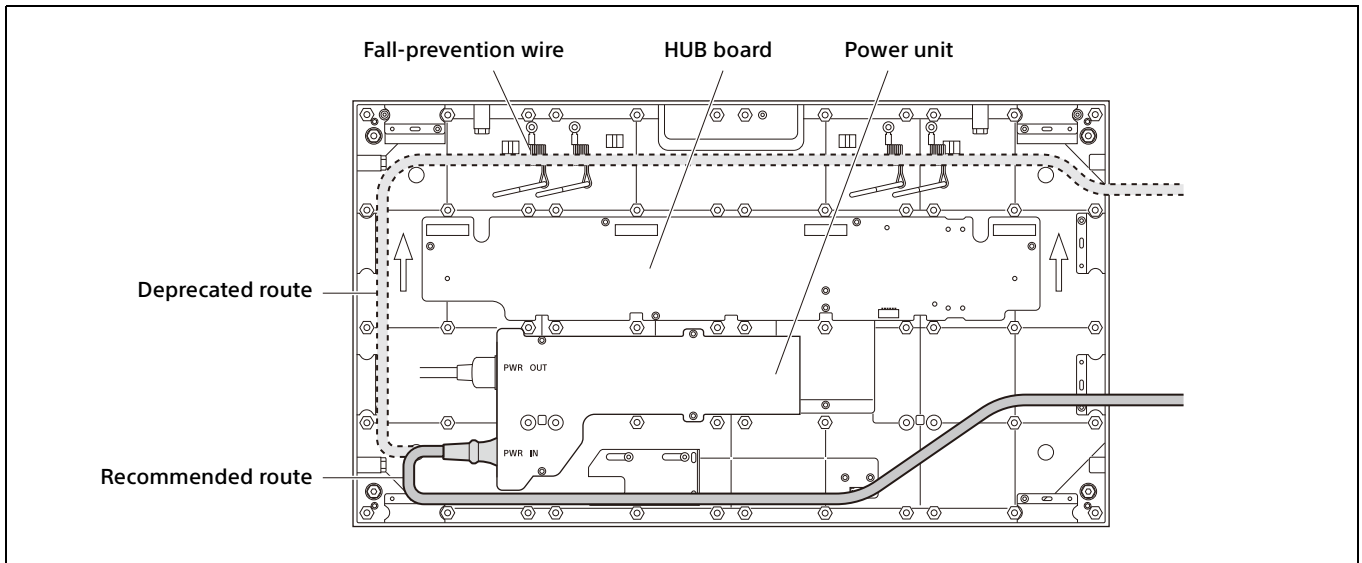


Note

- Make sure that the wiring is not far over the position of the magnetic screws.



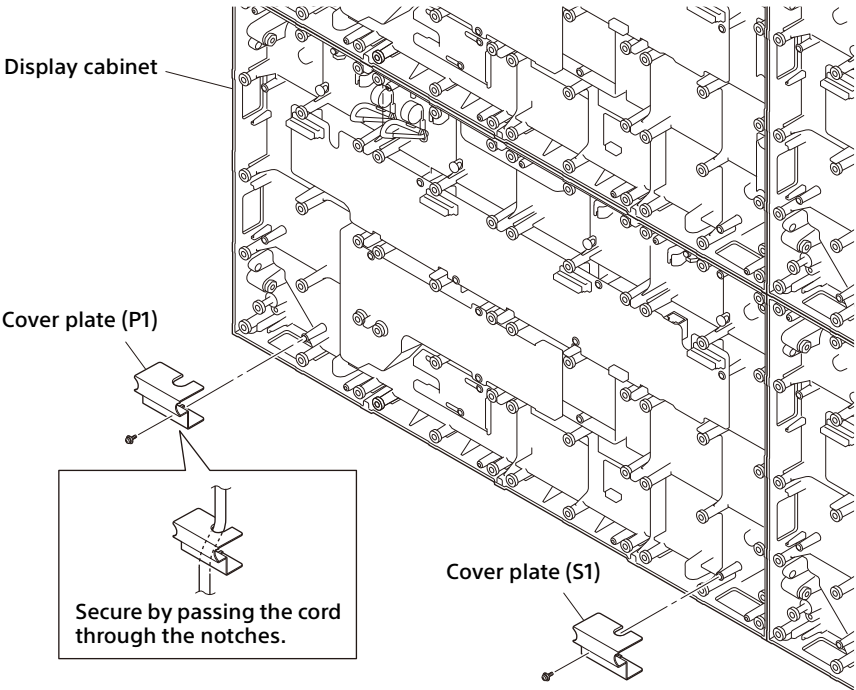
- When wiring between the left and right cabinets, it is recommended to pass cords and cables under the power unit and HUB board. When passing cords and cables above the power unit and HUB board, pass them under the fall-prevention wire. In this case, make sure that the wire does not interfere severely with the LED module by running onto cords and cables.



5. Attach the cover plates appropriate for the cables to the cable openings on the outermost periphery of the display cabinet.

Note

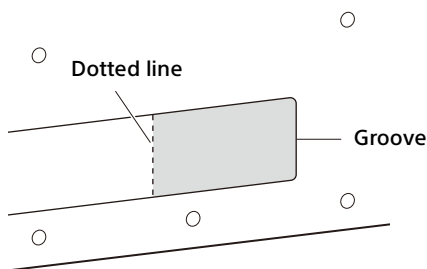
This unit is attached with a closed typed cover plates at the factory default. Attach the appropriate cover plate if necessary.



	Description	Parts No.	Type
	PLATE,COVER(S1)	5-076-449-01	1 cable for ethernet cable
	PLATE,COVER(S3)	5-076-450-01	3 cables for ethernet cable
	PLATE,COVER(P1)	5-076-451-01	1 cord for power cord
	PLATE,COVER(P3)	5-076-452-01	3 cords for power cord

2-4-7. Passing Cables on the Back Side

1. Peel a part of the seal on the back side.
 - (1) Put your nail into the groove to peel a part of the seal (name plate).
 - (2) Cut off the peeled seal along the dotted line.

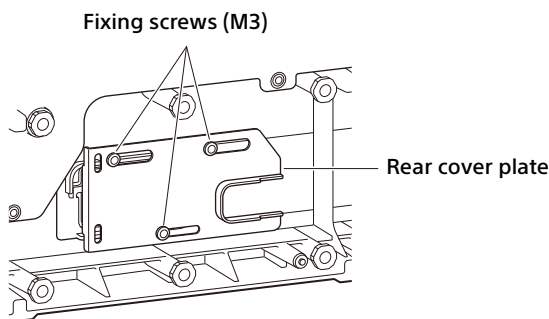


Tip

The seal can easily be cut off by holding the remaining seal.

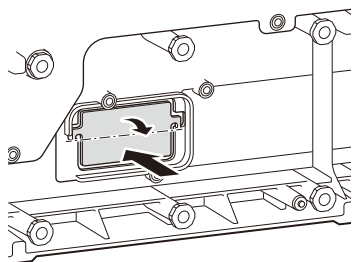
2. Remove the rear cover plate.

Remove three fixing screws (M3) to detach the rear cover plate from the cabinet.

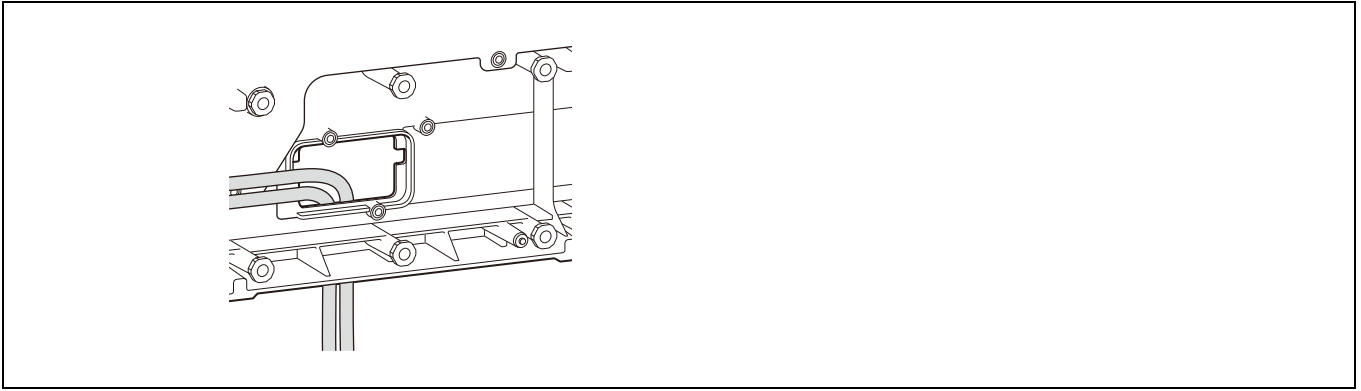


3. Open the opening for cables on the cabinet.

Push the lid of the opening (lower part than the joint) and fold the joint to open the opening.
It is also possible to open it with a tool such as a flat-head screwdriver.
Make sure there are no people around when working. The removed lid may cause injury.



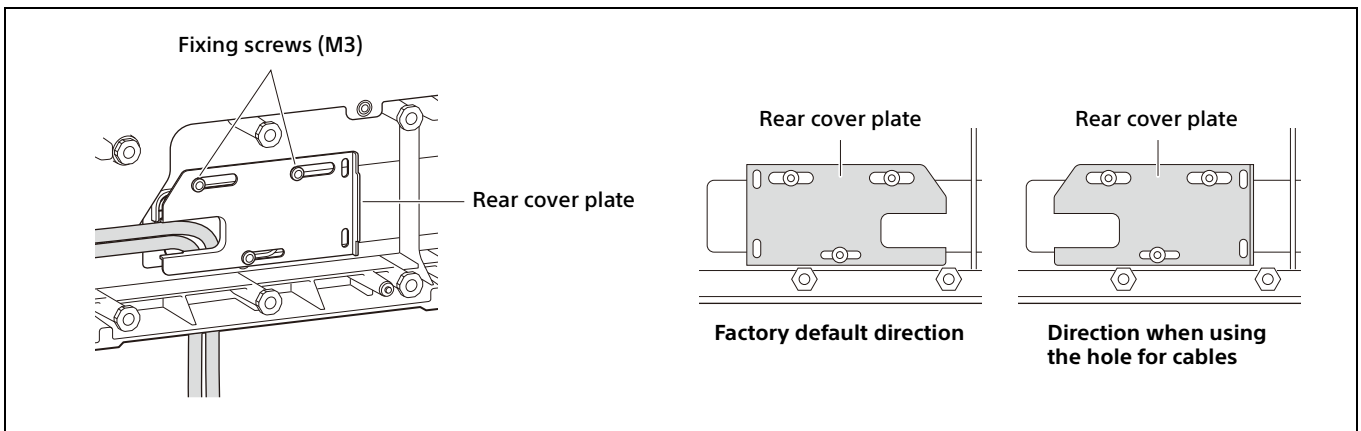
4. Pass cables through the opening.



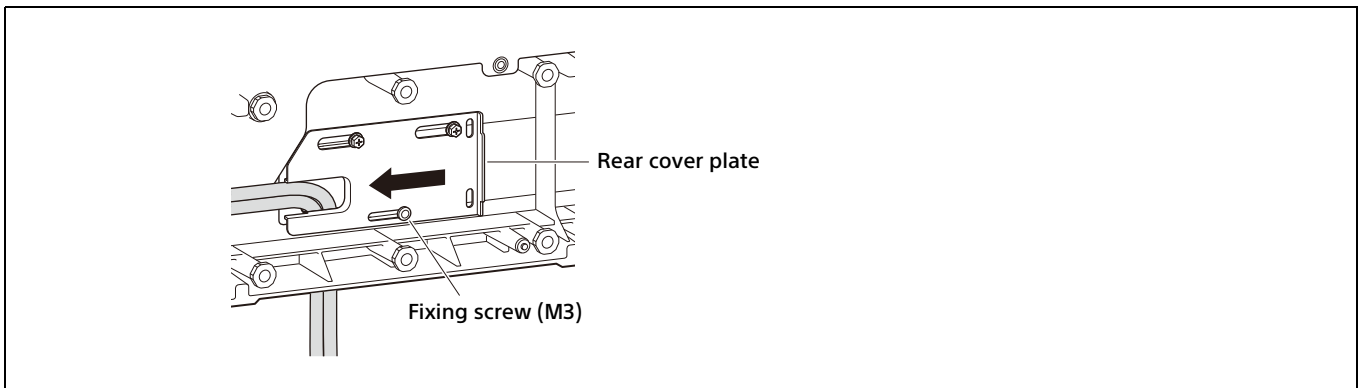
5. Attach the rear cover plate.
Attach the rear cover plate to the cabinet and tighten the two fixing screws (M3).

Note

For the front and rear sides of the rear cover plate, follow the illustration below.



6. Adjust the gap in the opening.
Slide the rear cover plate to the arrow direction, and adjust the gap between cables and the opening.
Tighten the last fixing screw (M3) to secure the rear cover plate position.



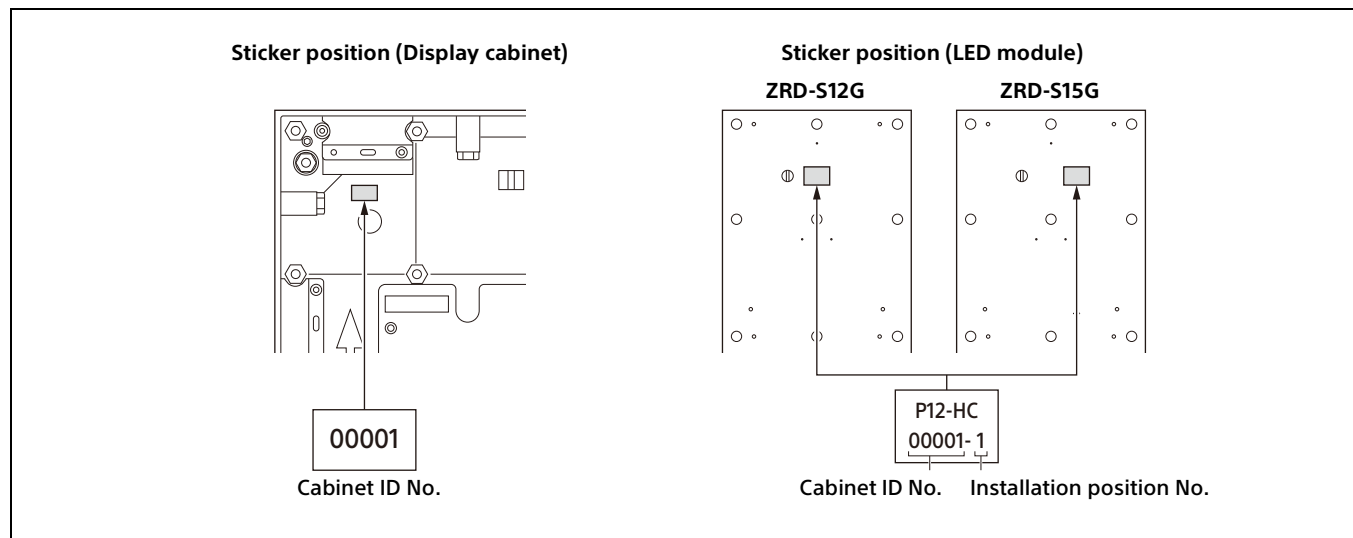
Note

Make sure that cables are not caught tightly by the rear cover plate and there is no stress on the cables.

2-4-8. Installation of LED Module

Note

- When handling the LED module, wear gloves to avoid touching the display surface with bare hands.
 - The LED module may be damaged by static electricity. Workers must wear antistatic working clothes and antistatic gloves when installing the LED module.
 - Be sure to turn off the display cabinet when attaching or removing the LED module. The LED module may be damaged if attaching or removing the LED module while the display cabinet is turned on.
1. Check the cabinet ID No. and the LED module installation position No. with the sticker information of the display cabinet and LED module.

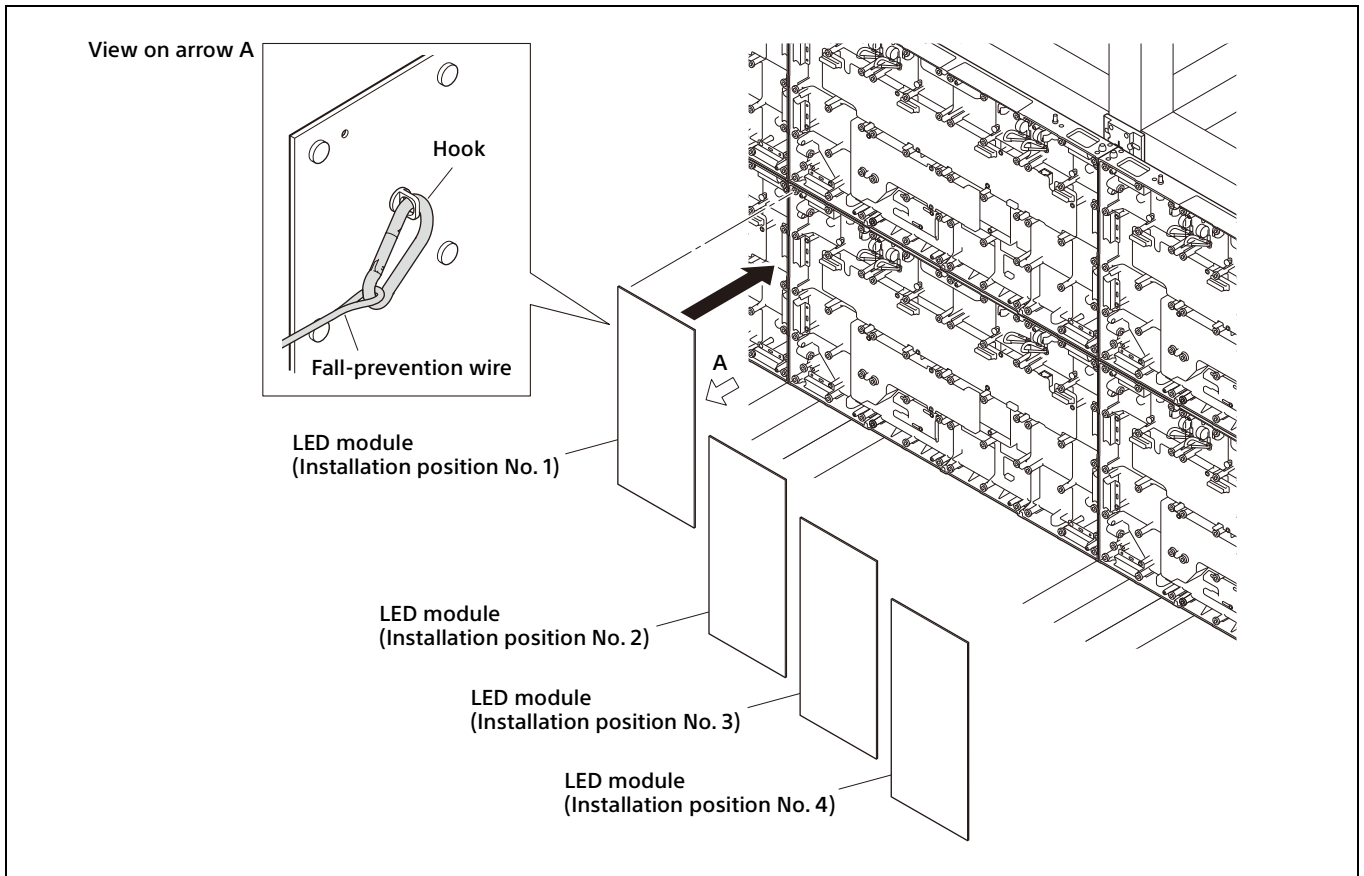


Note

Make sure that the cabinet ID No. of the display cabinet and the installing LED module match. The LED module must be attached as illustrated below so that the installation position numbers of the LED module are arranged as No. 1, 2, 3 and 4 from left to right on the front display.

Tip

The display cabinet and LED module combination as well as the LED module installation positions do not have to match the sticker information for the unit to work. However, it is recommended to follow the sticker information for maintenance management.



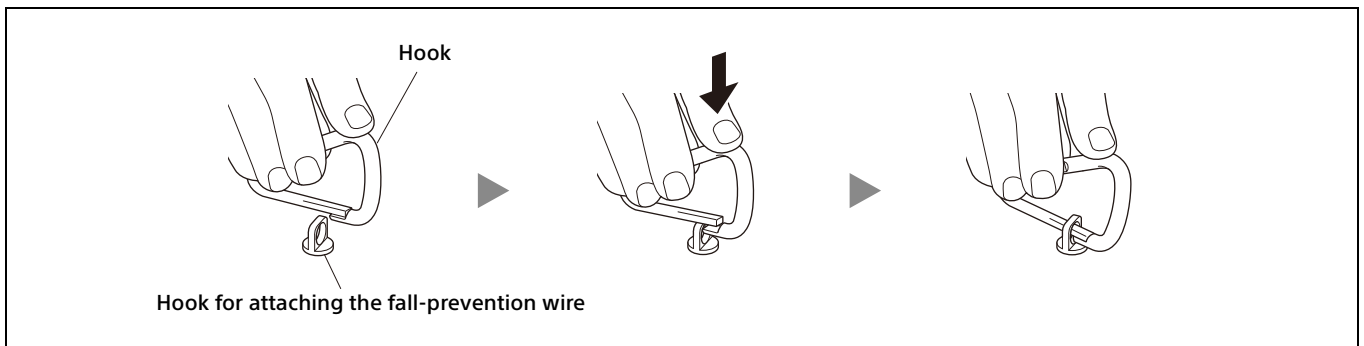
2. Attach the hook of the fall-prevention wire to the backside of the LED module to be installed in the display cabinet.

Note

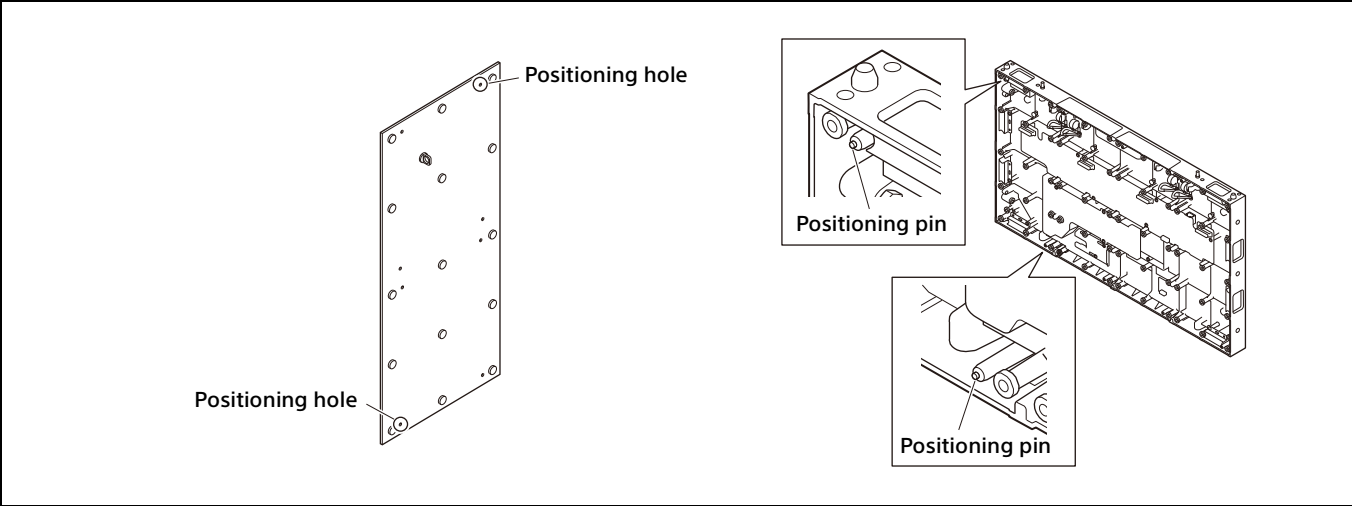
- When attaching the LED module, be sure to attach the fall-prevention wire.
- Be careful not to apply excessive load to the fall-prevention wire.

Tip

Hold the hook as illustrated. The fall-prevention wire can be attached easily by pushing the hook to the hook for attaching the fall-prevention wire.

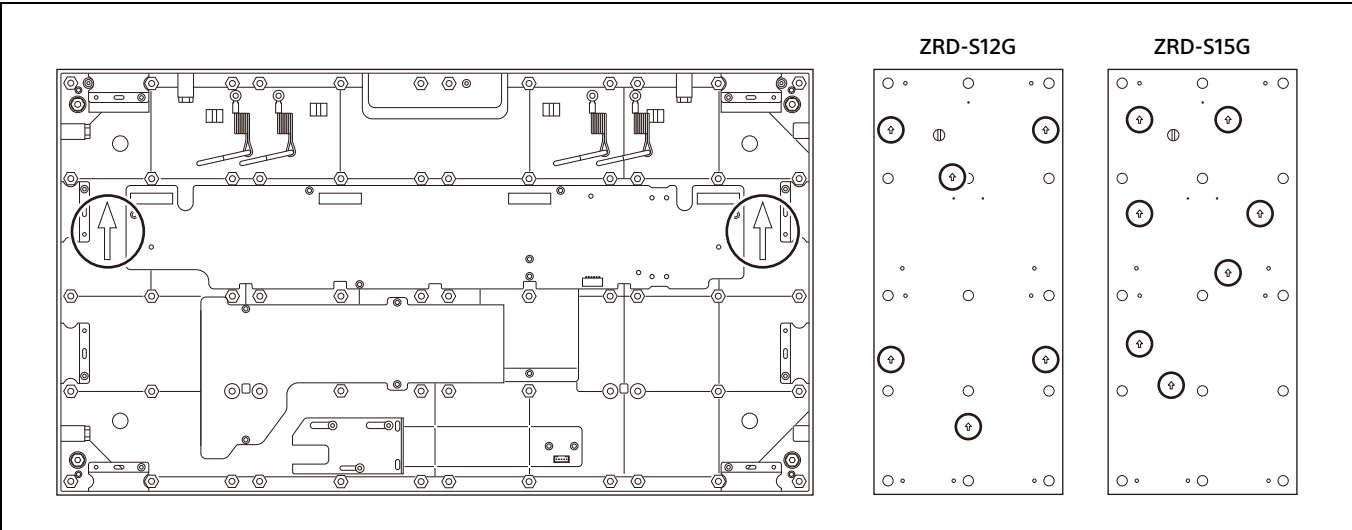


3. Attach the LED module by aligning the positioning holes to the positioning pins. (Same procedure for the second and following modules)



Note

Align the direction of the arrows on the cabinet and module.



2-5. Procedure After Assembling Screen

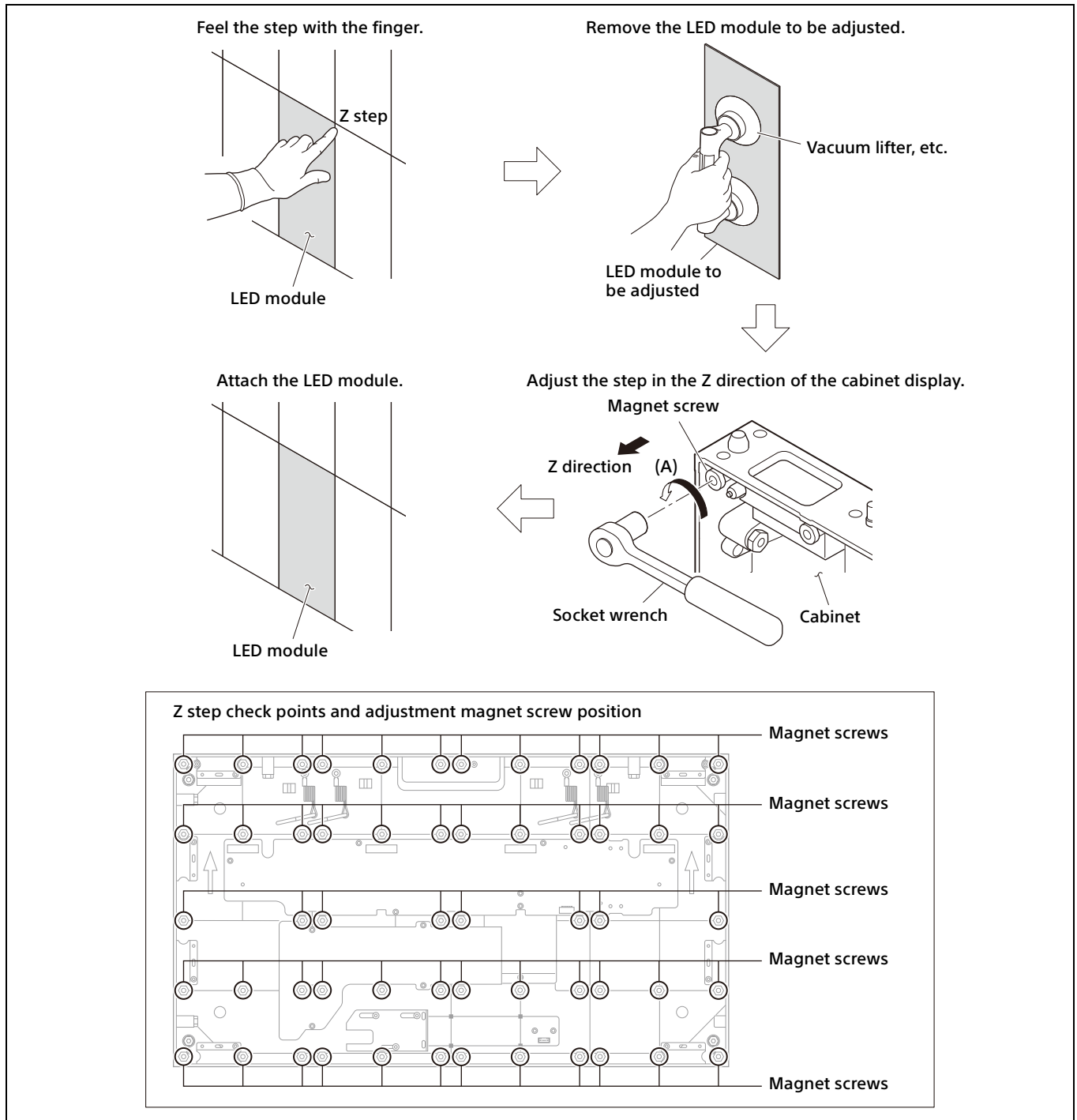
After assembling all display cabinets, check the screen.

If there is any display cabinet with remarkable step in the Z direction in the joint, perform the fine adjustment in the Z direction.

- Socket wrench (for hexagonal width across flats: 10 mm)
- Thin rubber gloves (capable of feeling the step with the fingertip.)

Note

Be careful not to apply excessive load to the fall-prevention wire.



Tip

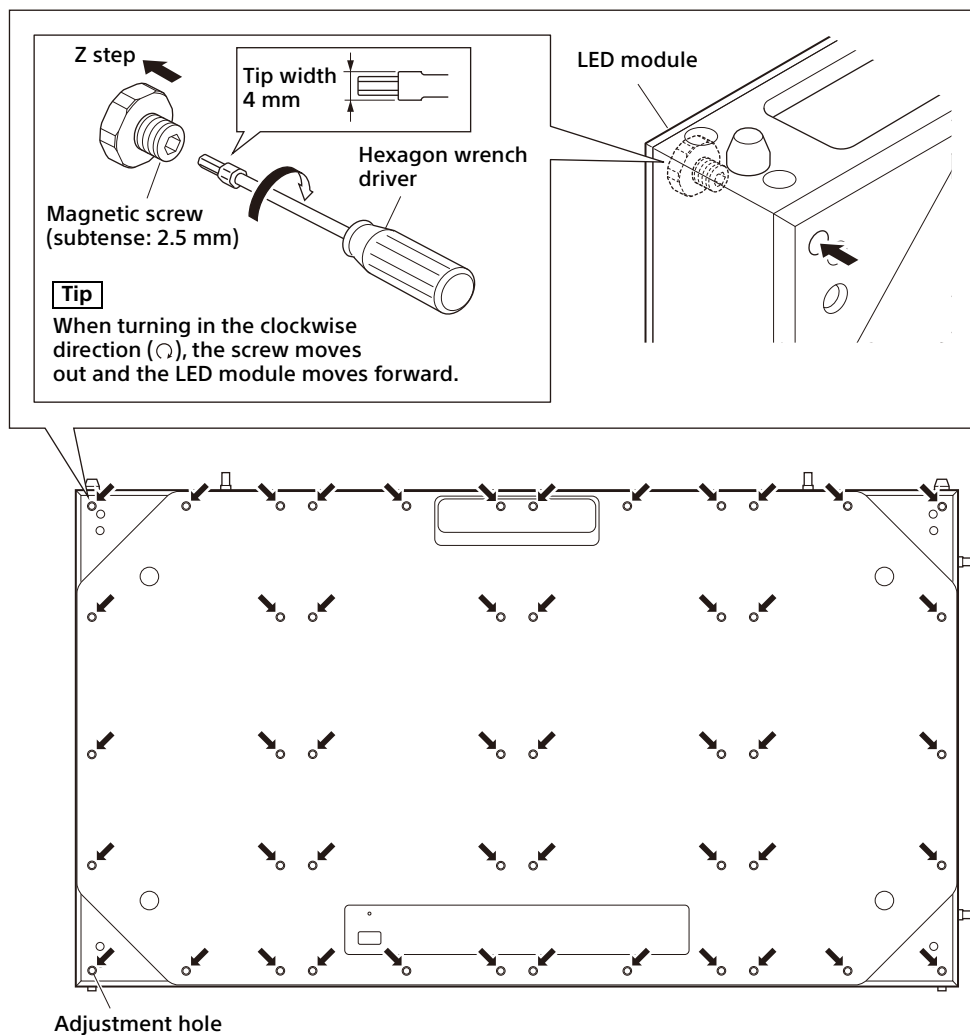
In the Z step adjustment, the magnet position is changed by about 0.8 mm for one turn. Be careful not to turn too much.

Tip

The adjustment can be performed from backside using the hexagon wrench driver (width across flats: 2.5 mm). In this case, the desorption of the LED module is not required.

(Use the hexagon wrench driver with the tip width of 4 mm or less and thin shaft type.)

If the magnetic screw is too tight to turn when adjusting from the back, use the socket wrench from the front to loosen the magnetic screw once.



2-6. Joint Correction in X Direction/Y Direction

If some joints in the X direction/Y direction are not smooth, correct them using the correction function of the controller.

For correction steps, refer to the controller's Operating Instructions.

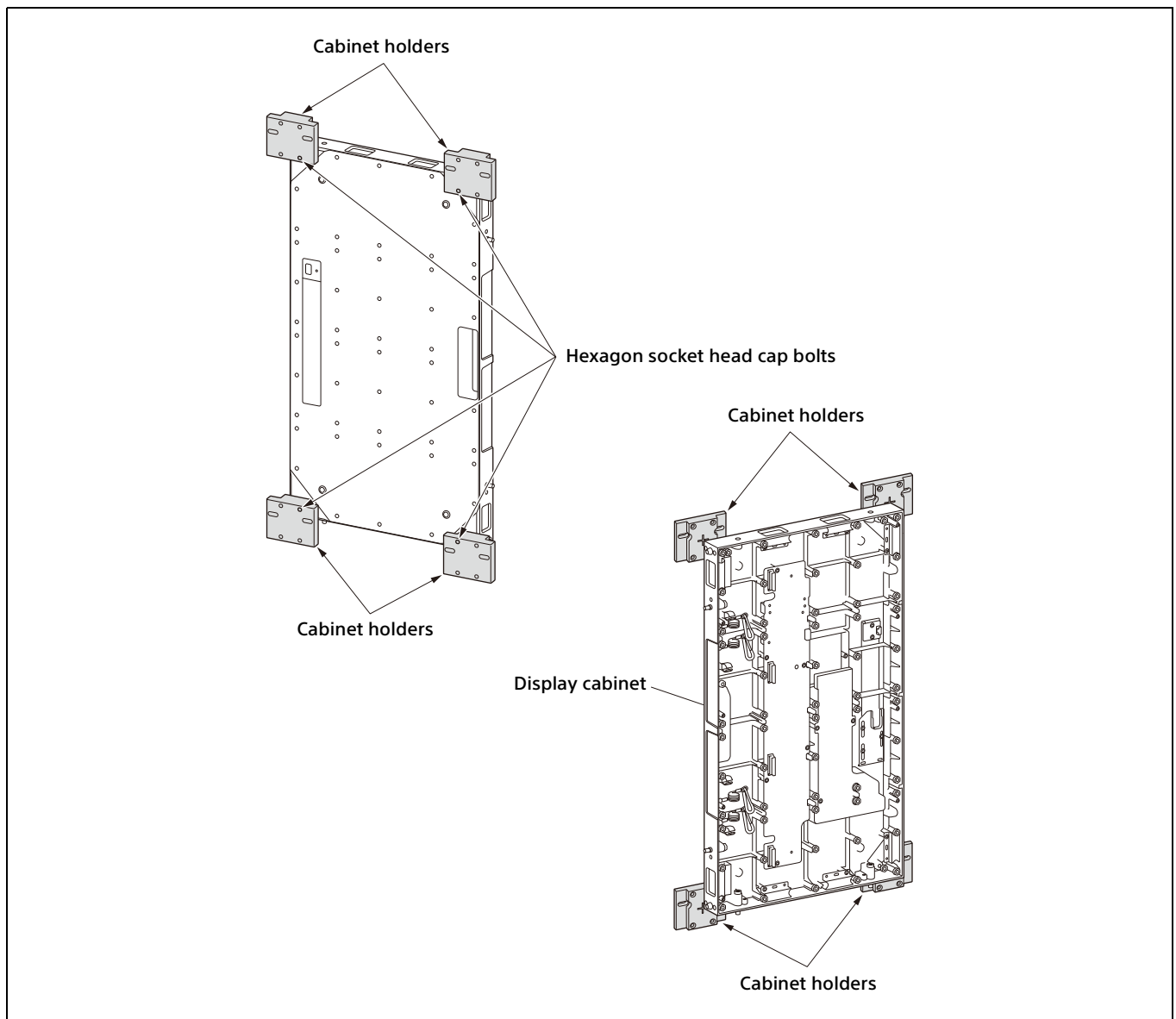
2-7. Vertical Installation

The display cabinet can also be rotated 90 degrees to the left or right so that it is installed vertically. It is attached to the frame using the cabinet holders.

The installation procedure is the same as the normal installation procedure. (Refer to Section 2-4-3.)

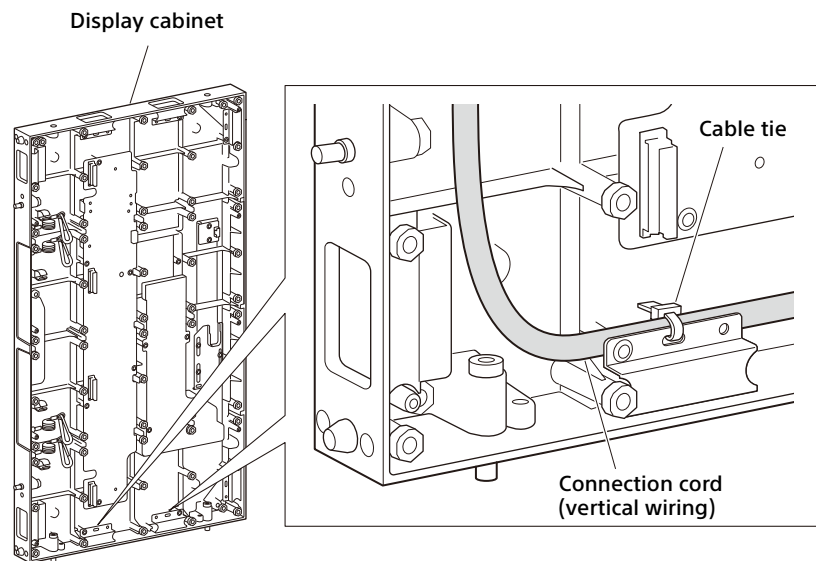
Note

When passing cables through the back side of the display cabinet, it is necessary to install the display cabinet so that the opening is not blocked with the frame.



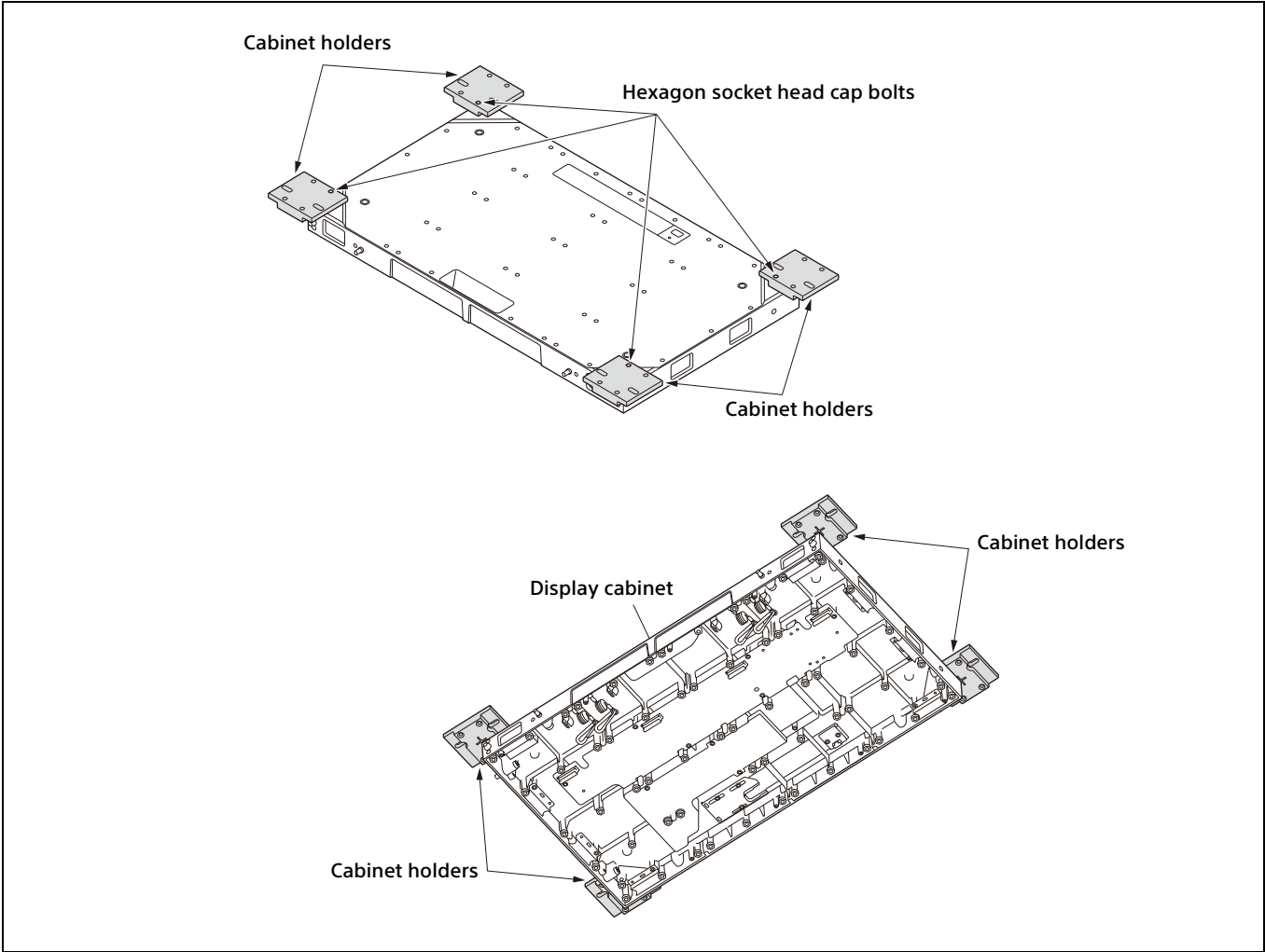
Note

- When installing the display cabinet vertically with the AC inlet facing downward, secure the power cord with the cable tie to prevent it from coming off.
- Prepare the cable tie in advance.



2-8. Installation to Ceiling

Attach the display cabinet to the ceiling frame using the cabinet holder.
The installation method is the same as the usual installation method. (Refer to Section 2-4-3.)

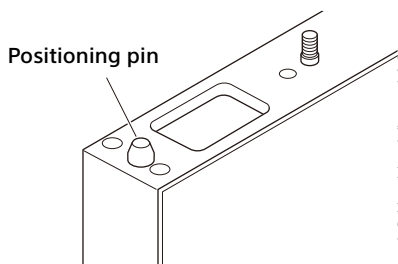


2-9. How to Remove Pins

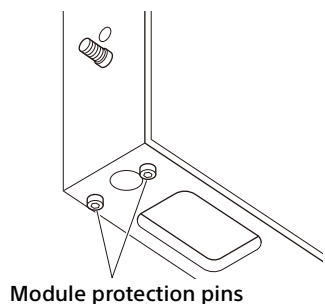
The display cabinet positioning pin and module protection pins can be removed depending on the application.

Removal procedure

If you need to cover display cabinet with a trim kit, please use this information.



Turn counterclockwise (↺) with the hexagon wrench (width across flats: 4 mm).



Turn counterclockwise (↺) with the hexagon wrench (width across flats: 2.5 mm).

Section 3

Installation of Display Controller

Refer to the Operating Instructions of the display controller to be used, etc.

Section 4

Precautions on Design of Electric Equipment

The equipment design of this system is performed by the qualified engineer.

Design the electric equipment according to the design criteria based on the laws of a country and a region in which the system is installed.

The construction of power system equipment shall conform to the ordinances and standard of the relevant country and region. Observe the local laws and ordinances.

System power specifications

Design the capacity of power for the whole system in consideration of the power load of a display cabinet.

- Power specifications per one display cabinet

Power consumption (Max.): 98 W

Power requirement for facility: 110 VA

Inrush current: 80 A (240 VAC)

Reference values:

Peak current rise time: approx. 2 ms,

time to converge to rated current: approx. 10 ms or less.

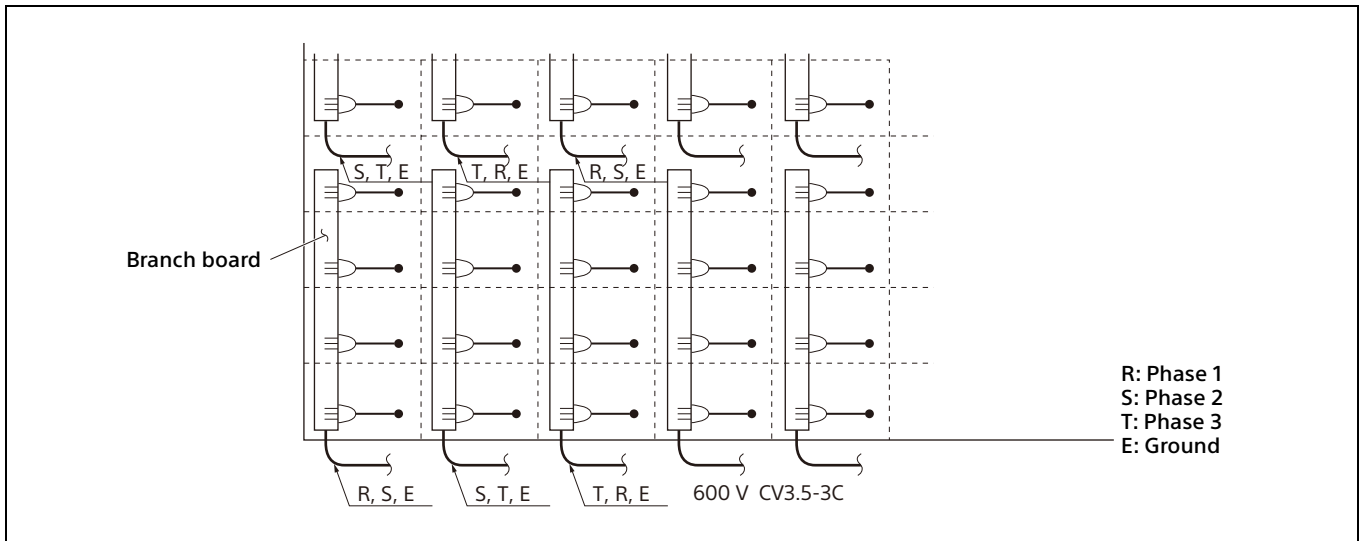
Leakage current: 1 mA (240 VAC)

- Power capacity required

Power requirement for facility per one display cabinet × Number of display cabinets

Three-phase power supply

- Use a three-phase power supply.
- The three-phase AC power supply is recommended for the key force of the cabinet.
When using the single-phase power supply for the small-scale installation, it is recommended to use it in the single-phase 200 V system (including 220 V, 240 V, etc.).
- Design the power connection so that the power is evenly supplied to the three-phases. Also, be sure to ground the grounding wire.
An example of connection is given as reference. Perform the design in consideration of the laws and regulations of a country and a region in which the system is installed, and the three-phase power balance.
- If devices connected to the three-phase power system and the single-phase power system coexist, insulate the earth using the optical cable, etc. to get a single-point grounding for each phase.
- When it is required to use the video source devices including the display controller in a single-phase power supply, insulate the earth using the optical cable, etc. for the signal connection between the single-phase and three-phase to get a single-point grounding for each phase.



Circuit breaker and branch board

- Install MCB (Molded case Circuit Breaker) having a sufficient current capacity in the circuit breaker in order to control the inrush current into the display cabinet.
- Install MCB having a sufficient current capacity in the branch board which connects the power supply of display cabinet.
- Place the branch board near the display cabinet so that you can confirm the output waveforms.

Precautions during Operation

When you turn on the power after installation or touch the surface of the LED module, static electricity may occur, which may cause the image to not display properly.

If this occurs, switch the signal source on the display controller.

If switching the signal source does not improve the symptoms, turn the AC power OFF and then ON again.

When turning off the power

① Turn off the power of video source equipment. → ② Turn off the power of display controller. → ③ Turn off the power of display cabinet.

Note

- When you turn the AC power of the display cabinet OFF and then ON again, wait for 1 minute or more before turning it ON.
- Do not turn off the power of the display cabinet while the system is starting up.

Others

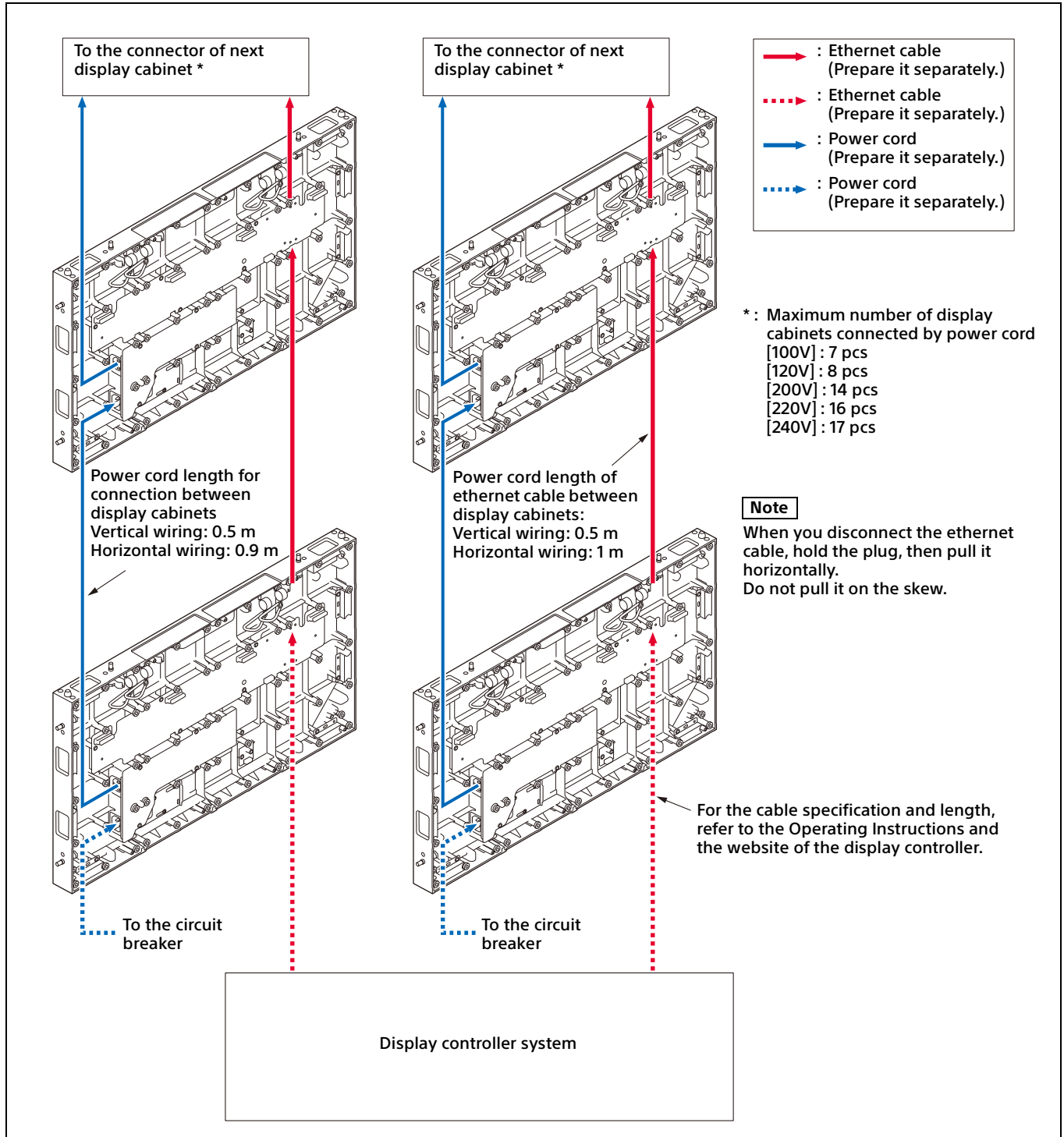
Do not cover the power socket of the display cabinet. The connecting portion of the power socket should be visually checked.

Section 5 Connection

5-1. Connection of Display Cabinet and Display Controller

Tip

For the maximum number of display cabinets that can be controlled by the controller, refer to the controller's Operating Instructions or website.



Section 6

Adjustments by Using Display Controller

Refer to the Operating Instructions of the display controller to be used, etc.

Note

Use the Display Controller with the calibration setting enabled.

When used with calibration disabled, the image quality may be affected due to changes or unevenness in color.

