27BDL9112L
27BDL9115L
27BDL9119L

V1.02

User Manual (English)

PHILIPS

SignageSolutions

Table of contents

1. Read this first

The latest User's Manual, Quick Start Guide and FAQ are available for download from the Philips website.

1.1 Warning & Symbols

Refer to the following graphic symbols to alert you to important information:
- Notes: useful information that help you get better use of the product.
- Cautions: notices describing actions that may damage your product.
- Warnings: instructions that must be followed. Failure to observe may damage your product.

1.2 Safety guidelines

⚠ Use of controls, adjustments or procedures other than those specified in this documentation may result in exposure to shock, electrical hazards and/or mechanical hazards.

Read and follow these instructions when connecting and using your LED display:

Operation

● Keep the LED display out of direct sunlight and away from stoves or any other heat sources.

● When positioning the LED display, make sure the power plug and outlet are easily accessible.

● Ensure the use of an approved power cable provided by Philips at all times. If your power cable is missing, please contact your local service center.

● Do not subject the display to severe vibration or high impact conditions during operation.

● Do not knock or drop the display during operation or transportation.

● In order to maintain the best performance of your display and ensure a longer lifetime, we strongly recommend using the display in a location that falls within the following temperature and humidity ranges.

   ■ Temperature: −20°C to 45°C (−4°F −113°F)

   ■ Humidity: 10% to 80% RH, non−condensing

⚠ Avoid rapid decrease in temperature when the relative humidity is high, as it increases the risk of condensation forming. (see Appendix B. Dew point VS. Relative Humidity on P. 36)

✎ If your display does not operate normally, having followed the instructions set out in this document, please contact a technician or your local service center.

Maintenance

● To protect your display from possible damage, do not put excessive pressure on the LED panel.

● Unplug the LED display if you are not going to use it for an extensive period of time.

● If a foreign substance or water gets in your display, turn the power off immediately and disconnect the power cable. Then remove the foreign substance or water, and send the unit to the maintenance center.

● Do not store the LED display in locations exposed to water, excessively moist environment, heat, direct sunlight or extreme cold.

Grounding

● The combination of multiple cabinets in an installation results in increased levels of leakage current.

● In order to avoid risk of electric shock due to high leakage current, proper grounding of the installation is required.

● Defeating the purpose of the grounding type plug will expose you to the risk of electric shock.

Electricity and Safety

● Do not use a damaged cable as it may result an electrical shock.

● Do not touch the power plug with wet hands as it may result an electrical shock.

● Do not use a loose power plug, an unsecure connection may cause a fire.

● Do not cut, bend, modify, place heavy objects, or step on the power cable.

● Do not use this display near heat sources or in the presence of flammable substances.

- To avoid electrical shock, use only supplied power cables and connect only to properly grounded wall outlets.

- Do not disconnect the power cable while the display is being used.

- Do not block or otherwise obstruct access to the power plug at the wall.

- Be extremely cautious when installing or moving this product.

- The display has been calibrated prior to shipment from the factory. Improper modifications will void your warranty.

- Improper installation of peripherals/accessories may cause damage to the product.

- Do not lift the cabinet by the power cable or any cable. If any cable disconnects, a product failure may result.

- Any attempt to disassemble the product and the accessories by unauthorized personnel may cause damage to the product or result in personal injury.

Personal protection

- Do not use the product for any application until you have read, understood, and know all the safety information contained in this user's guide. Operating the display without a proper awareness of safe use could lead to serious personal injury.

- Mind yourself while working with heavy loads and high voltage.

- Contact with high voltage may cause death or serious injury. Always disconnect power to the display cabinet or cabinets prior to servicing.

- All personnel at the LED Video Board installation site are required to have personal protection equipment (PPE) such as hard hats, safety glasses, gloves, harnesses, and other appropriate safety equipment.

Equipment protection

- This installation must be performed by authorized and qualified technical personnel only.

- Accredited safety officers must ensure the safety of the site, construction, assembly, connection, use, dismantling, transport etc.

● Assembly parts are designed for use only with Philips displays.

● LEDs use specific materials and manufacturing processing in order to achieve unique advantages. Do not modify and/or replicate any components.

● Ground the LED display screen before connecting the power source. Contacting displays that are not earth-grounded may cause death or serious injury.

● Structural & mounting components should be kept dry, clean, lubricated (only if recommended), coated properly, and maintained in a manner consistent with part design.

● LED products must be installed and operated in a manner to reply on its design and inspection a routine basis for security, wear, deformation, corrosion and any other circumstances that may affect the load handling capability of the part.

● We recommend inspections at regular intervals for all installations and increasing in frequency for more critical installations. A part is damaged which may cause a decrease in load capability. The part must be removed for service or replaced immediately.

● Always follow LED display screen installation instruction.

● Contact the support technical person if user has any question regarding the safety of an application. The manufacturer assumes no liability for incorrect, inadequate, irresponsible or unsafe assembly of systems.

1.3 Electrical requirements

Power system

● Power voltage must be in the range of the specification value.

● It is recommended to use a power distribution system (a power distribution system with a separate neutral and grounding conductor in order to avoid large ground current loops due to voltage differences in the neutral conductor.

● The total electrical installation should be protected by an appropriately rated disconnect switch, circuit breakers.

● The electrical installation must only be performed by a qualified electrician. Electrical connections must comply with all applicable national and local codes.

Cabling & Connection

- All internal cabling must be properly connected and seated.

- All power wiring must be from circuit breaker protected lines. Do not connect to an unprotect circuit.

- Do not route power and communication wires in the same conduit. Separate conduits must be run for communication wires and power wires. However, fiber optic wire may be run in the same conduit with power wires.

Grounding

- The LED display screen must be properly grounded according the applicable national and local codes.

- Properly grounding every display cabinet is necessary as it is essential to prevent shock, shock hazards, and fire hazards.

Lighting Strike Protection

- A LED display screen cabinet bonder to an earth ground aims to dissipate the high voltage and current from a lighting strike. The resistance of the grounding electrode must be as low as possible. However, damage can still occur to a LED display screen cabinet's electronic equipment from lighting voltage transients.

- Though some surge protection is incorporated into a LED display screen in order to protect the display from high voltage lighting transients, surge protectors need to be installed.

1.4 Cleaning

If the LED display/cabinet becomes dusty, use an air blower which can produce air flow to blow away dust.
Cautions when cleaning the display:

⚠ Do not use a wet cloth to clean the LED display.

⚠ Do not allow water or other liquid to enter the LED display.

⚠ Do not use tool that generate large amount of static electricity, such as a bristle brush.

The front of the LED display has been specially treated. Do not touch the surface of the LED display with fingernails or any hard object, otherwise the LED elements may fall off.

1.5 Storage

If you are not going to use it for an extensive period of time, unplug the display and keep the product in a dry and well-ventilated location.

2. Preparations

2.1 Unpacking

⚠ Warning:
To prevent damage to the LED panel, wear anti-static gloves before installing/touching the display.
After unpacking, do not place the display vertically on the floor, an accident such as fall may be caused.
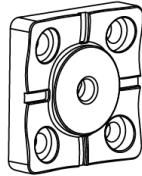
1. Use a pair of scissors to cut sealing tape on the cardboard box.
2. Carefully take the cabinet and accessories out of the cardboard box.
3. After opening the cardboard box, ensure that the contents are complete and in good condition.
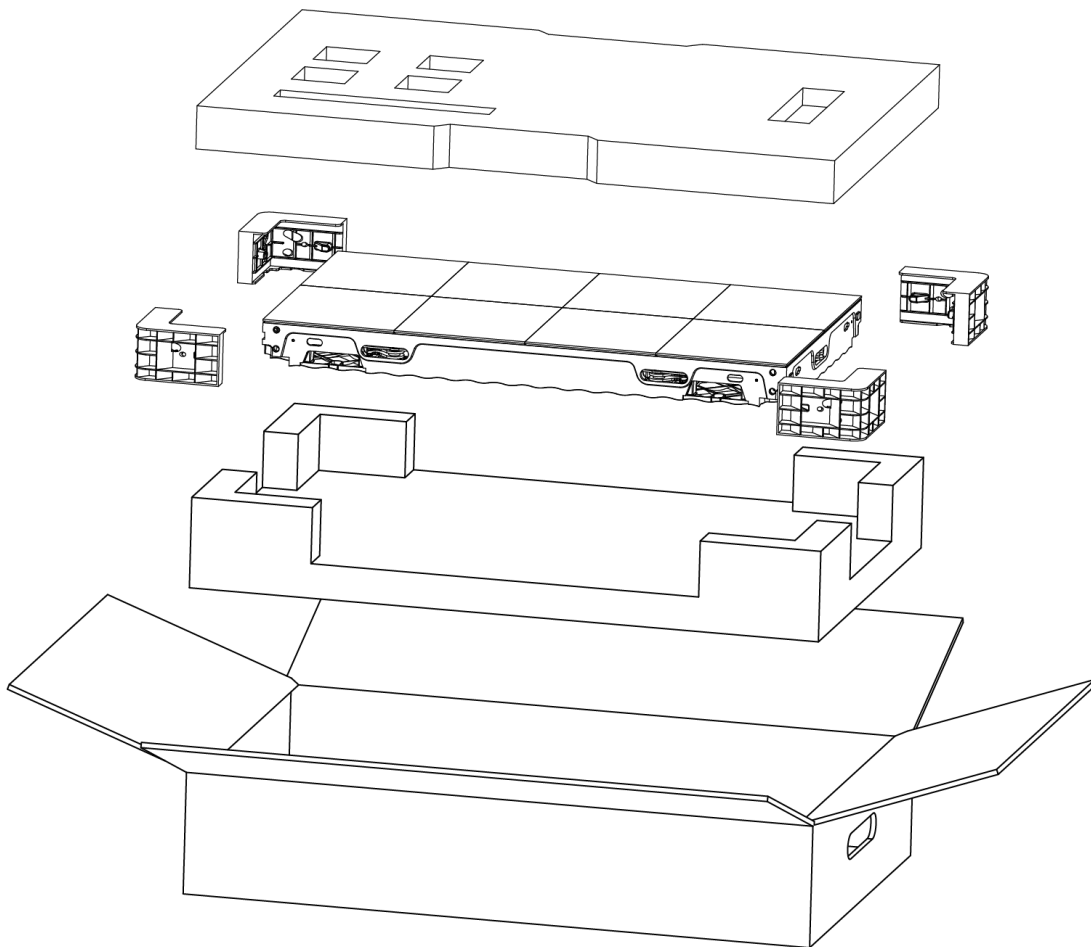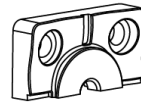
Please verify that you received the following items with your package content:
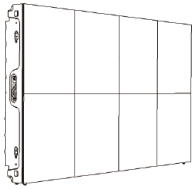
| LED cabinet: 1 pcs | Common connecting piece: 2 pcs | Side connecting piece: 1 pcs | Corner connecting piece: 1 pcs |
| Power cable (daisy chain): 1 pcs | LAN cable (RJ45, CAT-5): 5 pcs | Screw bolt: 4 pcs (M8*20) | Quick start guide: 1 pcs |
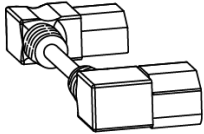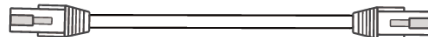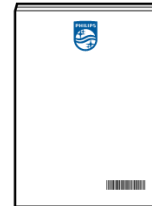
* Display design and accessories may differ from those illustrated above

2.2 Holding the cabinet

⚠ Warning:
To prevent damage to the LED, do NOT touch the edge of each LED module when holding the cabinet by hand.

Refer to the illustration below for the recommended manner of holding a cabinet.
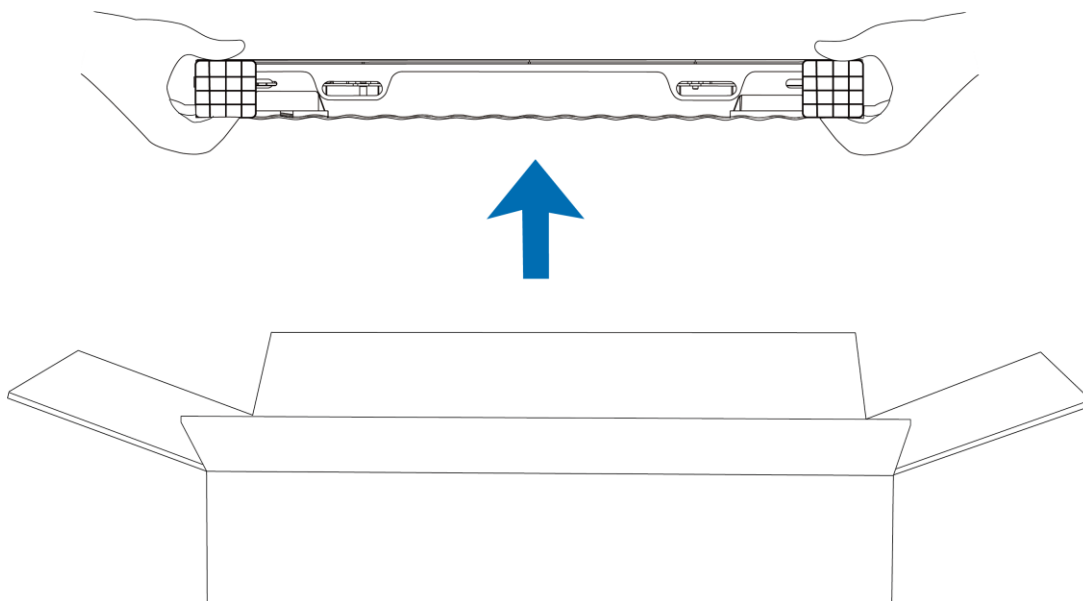
2.3 Removing the protective brackets

To remove the protective brackets, loosen two screws with a Phillips head screwdriver (not provided) from each corner of the cabinet.
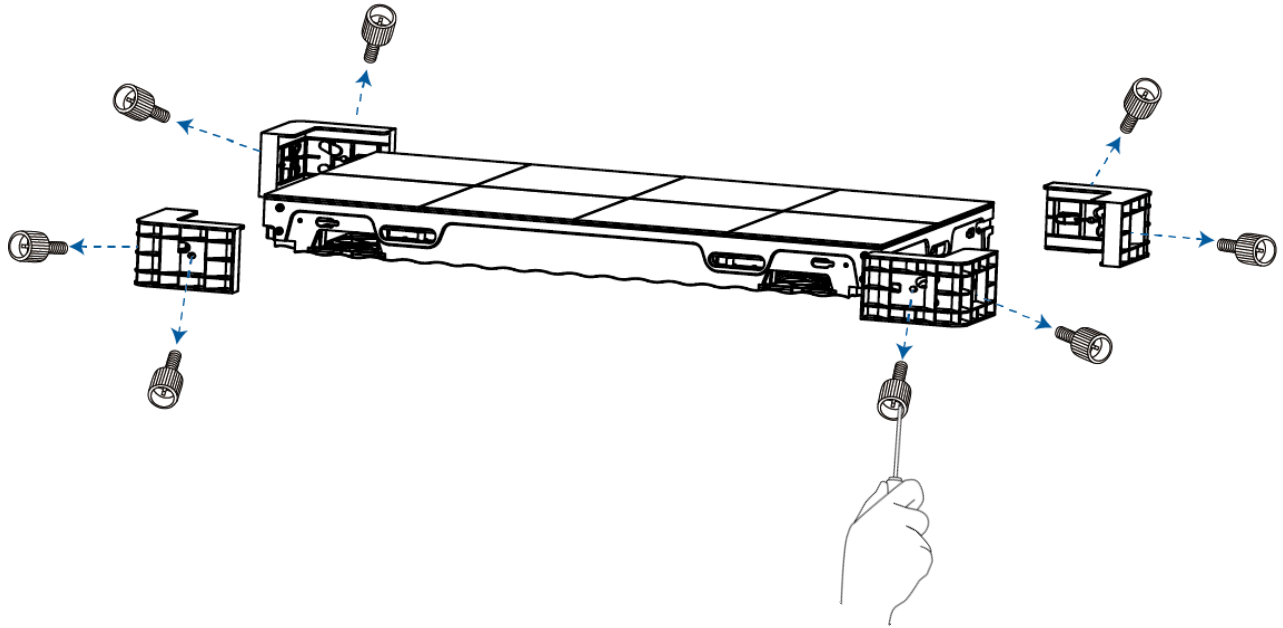
⚠ When removing the brackets, be careful so that the product does not fall over.

3. Product overview

3.1 Rear view
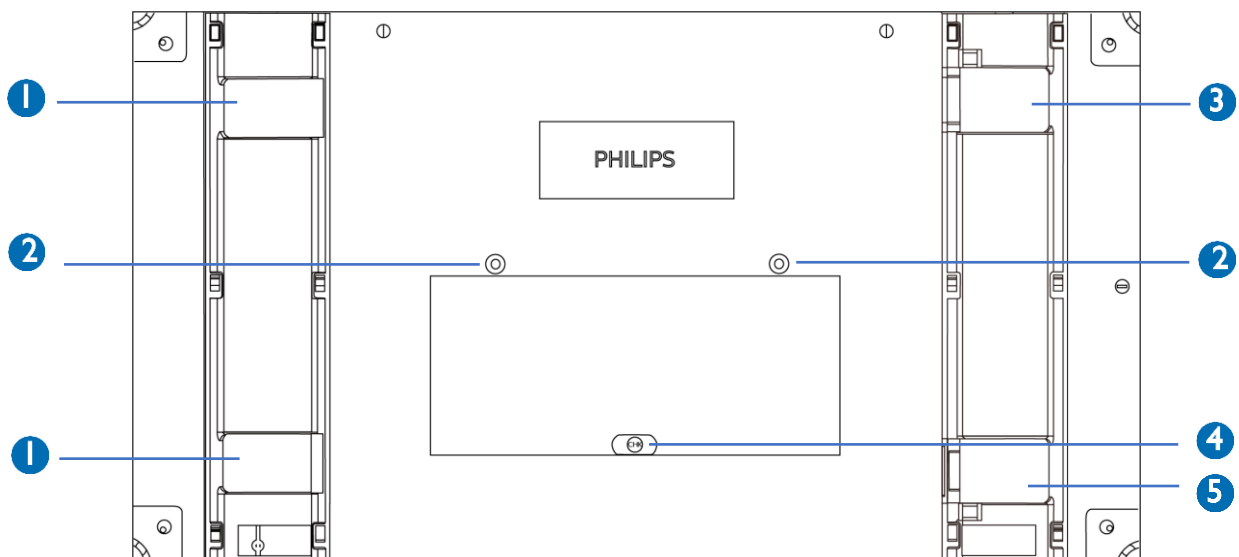
3.2 Side View
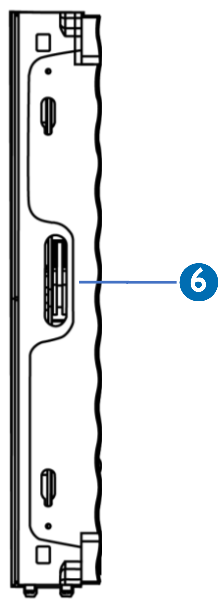
Left side   Right side

3.3 Top view
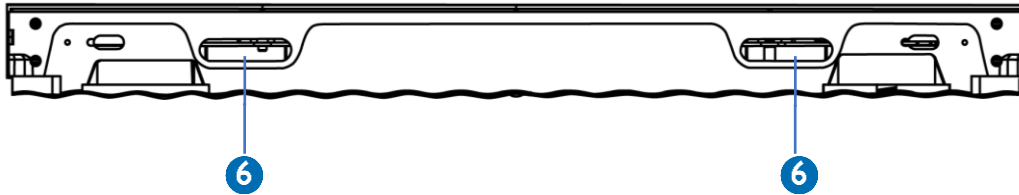
3.4 Bottom view

No.	Component
❶	Data connector (s)
❷	Signal indicator (see 5.3 Checking cabinet status on P. 33)
❸	Power Out connector
❹	CHK button (see 3.5 Testing the cabinet on P. 14)
❺	Power In connector
❻	Locking mechanism

⚠ The Data connector (❶) is an RJ45 connector, but it cannot be connected with a network switch or common computer networking device as it is not compatible.

3.5 Testing the cabinet

1. Power on the product by connecting the power cable from the cabinet to the power outlet.
2. Press the **CHK** button on the back of each cabinet to check if the product can operate normally.
3. Check whether each color is displayed normally on the screen from the front side of the display.
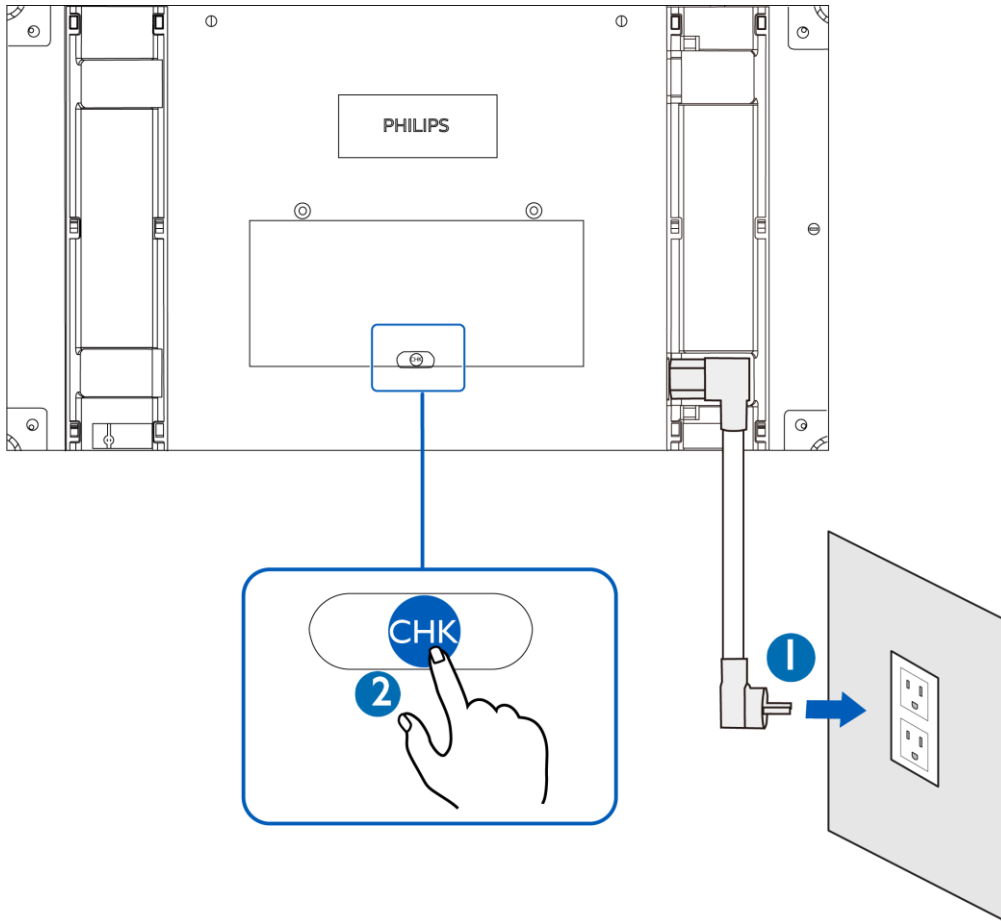
✎ To test the cabinet, a power cable that connects from the cabinet to the power outlet is required (but not provided).

4. Installation

⚠ Precautions when handling the cabinets:

● Do not drop or apply shock/vibration to the product. Strong impacts may damage the component inside.

● Only a qualified service technician should perform installation.

● Only use approved cabinets.

● Be careful not to damage the corners of the cabinet.

● Install the display in a well-ventilated area.

● After removing the protective brackets, do not place the display with the LED facing down, the LED display may become damaged.

● Always wear anti-static gloves when touching the display.

● Provide air conditioning around the LED display to allow heat dissipation away from the display.

● To maintain proper ventilation, keep clear space from the mounted displays to the wall. (Refer to the diagram below for the recommended distance between the LED display and wall). Installing the product in poorly ventilated spaces may damage the LED.

Min. 500mm (ceiling)

Min. 60mm

Min. 60mm

Air vent area

Air vent area

Min.
60mm

Min.
60mm

Min.
60mm

Air vent area

Min. 60mm

Min. 60mm

Min. 300mm (floor)
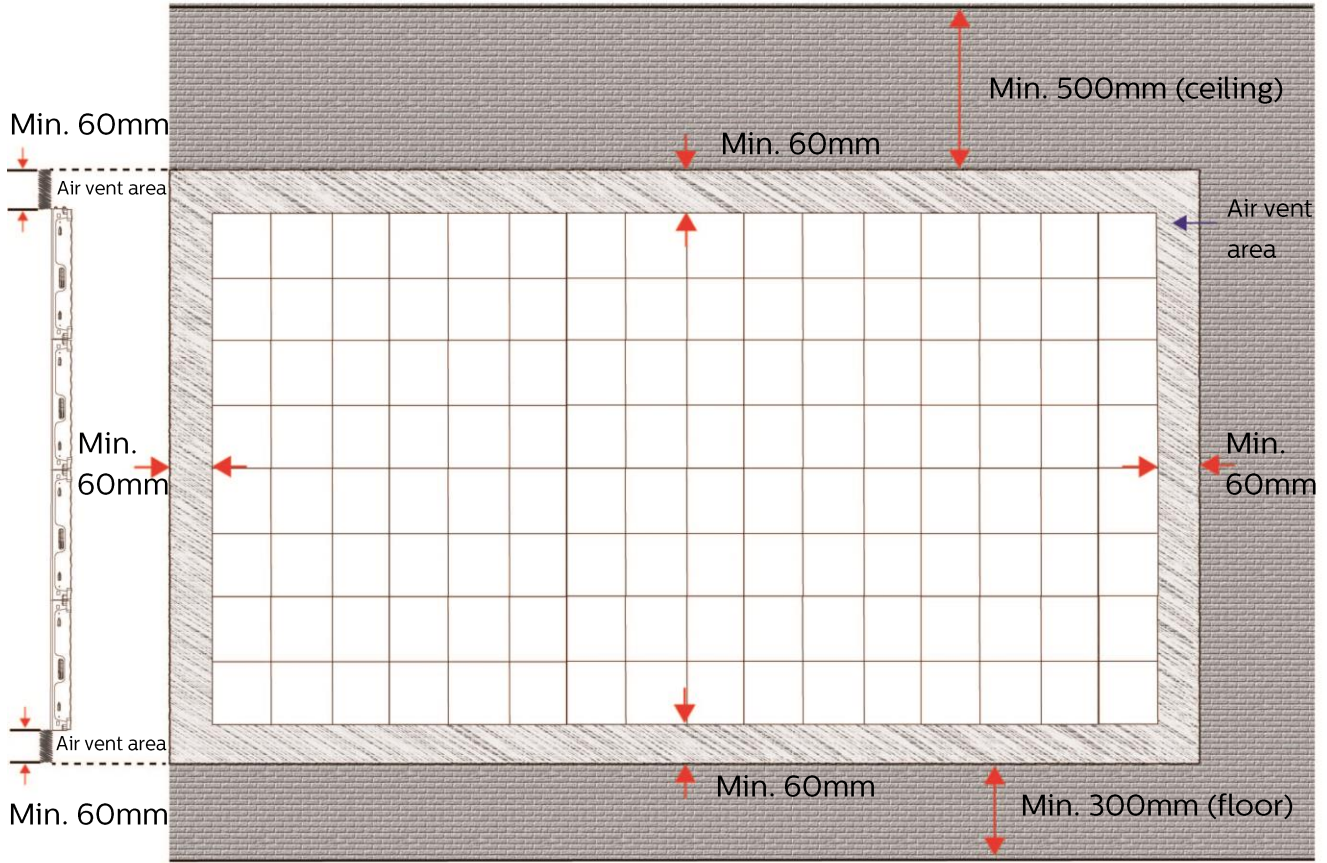
A wall mount kit (in some regions sold separately or available from third party vendors) allows you to mount the LED display on the wall. For detailed information on installing the wall mount, see the instructions provided with the wall mount.

To mount the cabinets, start from right to left, then bottom to top.
Wall mounting can only be performed from the rear side of cabinets. Installation order when looking from the rear side is shown below:

4	3
2	1

Example: 2 x 2 Array

Step 1.
❶ Insert the hex bolt into the center hole of the connecting plate.
❷ Insert the connecting plate with hex bolt into the mounting hole on the bracket.
❸ Tighten the hex bolt with a nut from the back of the mounting bracket.

✐ Be careful not to over tighten the nut as you may need to adjust the connecting plate again when it is fixed to the cabinet.
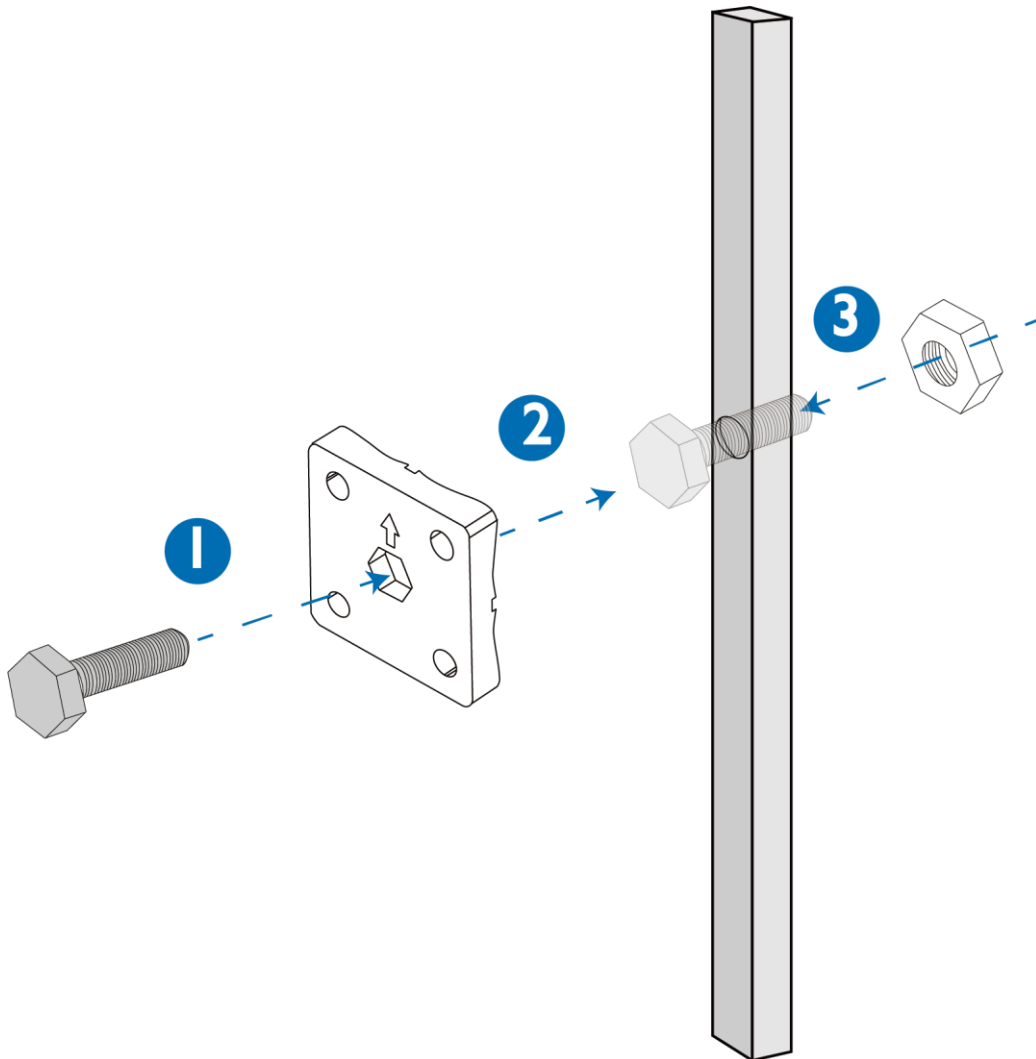
✐ The mounting interface should be strong enough to bear the weight of the display. Ensure that your wall mount bracket has the mounting holes accurately drilled at proper position.

Step 2. Install the first cabinet from the bottom right row.

❶ Screw one corner connecting plate onto the lower-right side of the cabinet.

❷ Screw one side connecting plate onto the top-right side of the cabinet.

❸ Mount another piece of side connecting plate to the lower-left side of the cabinet.

❹ Thread one M8 screw halfway onto the right hole of connecting plate. Do not tighten the screw yet, as this will cause unevenness of the connecting plate.
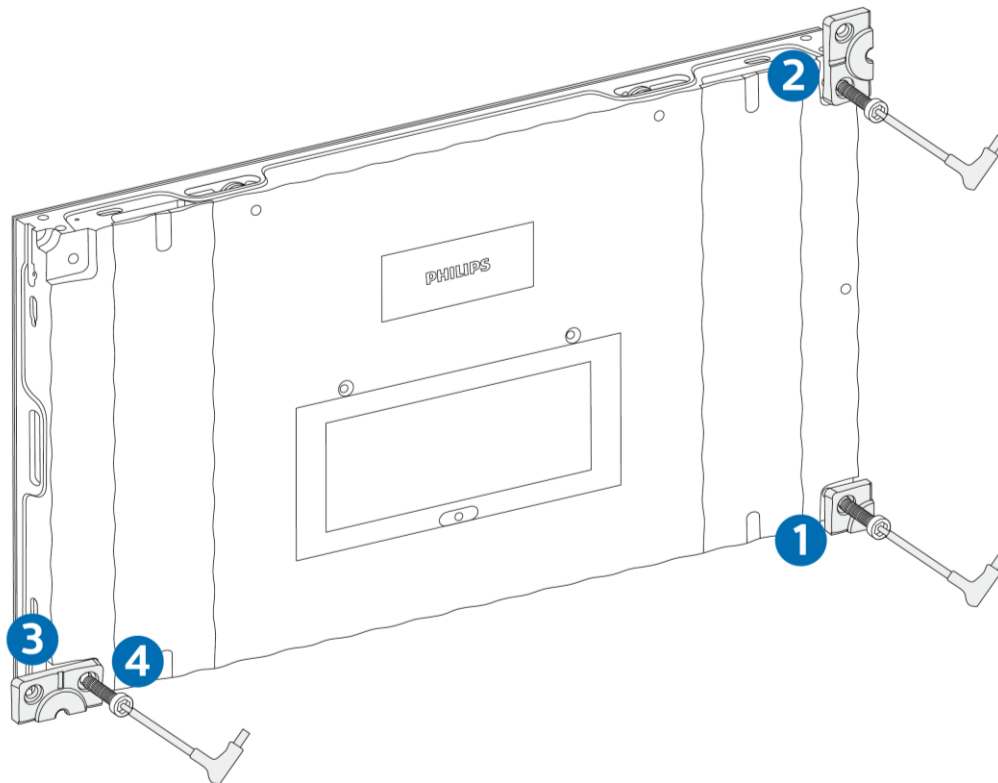
✎ Ensure that the flat side of the connecting plate is facing the cabinet.

✎ The tool used in this step is "T style inner hexagon wrench, size 6" which is an optional accessory. Refer to Appendix C. Optional Components/Accessories on P.37 for detailed information.

Step 3.
Align the top-left block of cabinet with the common connecting plate and move the cabinet to fit them together.

Step 4. Place the second cabinet.
❶ Screw one corner connecting plates onto the lower-left side of the cabinet.
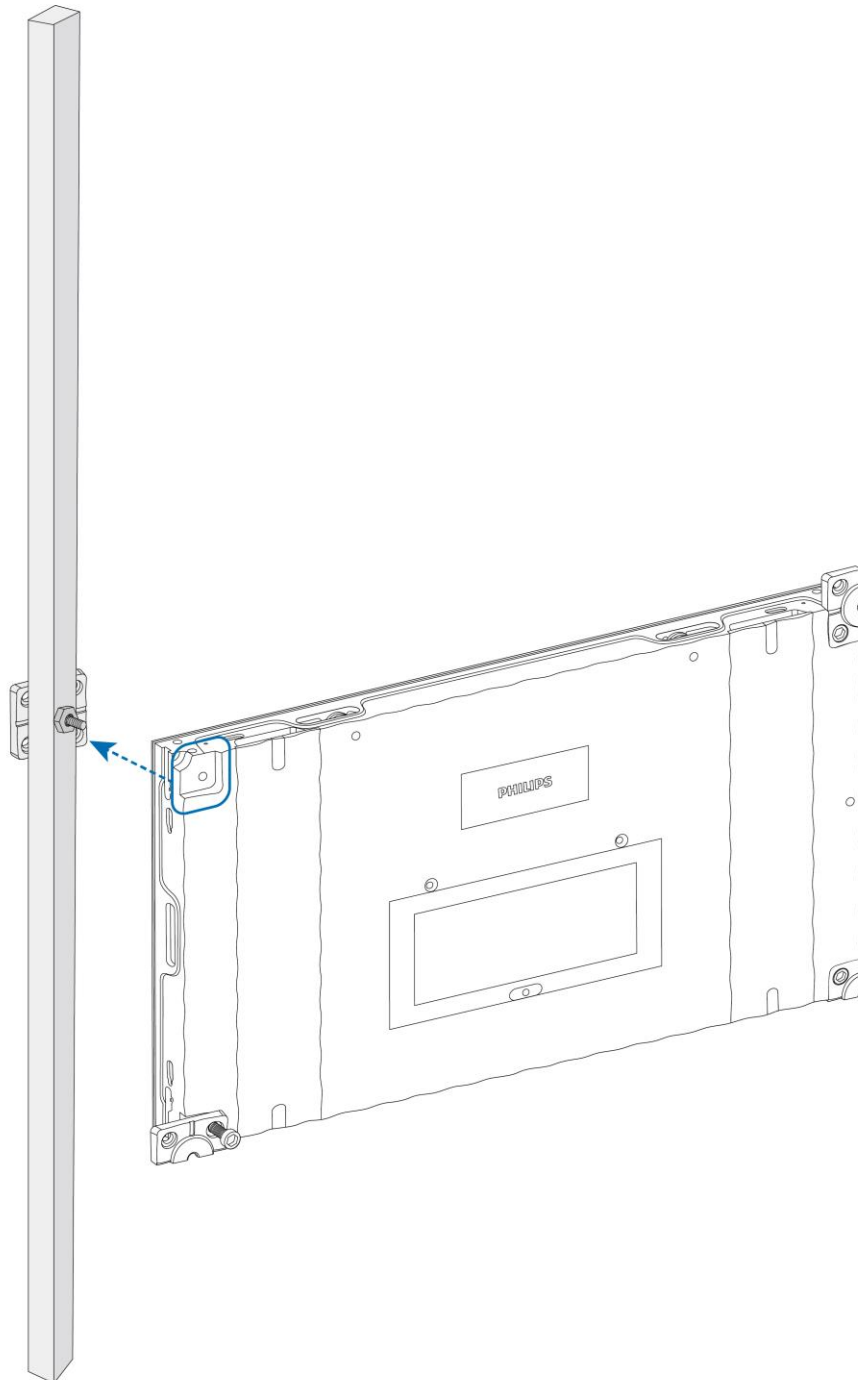❷ Screw one side connecting plate onto the top-left side of the cabinet.
❸ Move this cabinet next to the first cabinet.
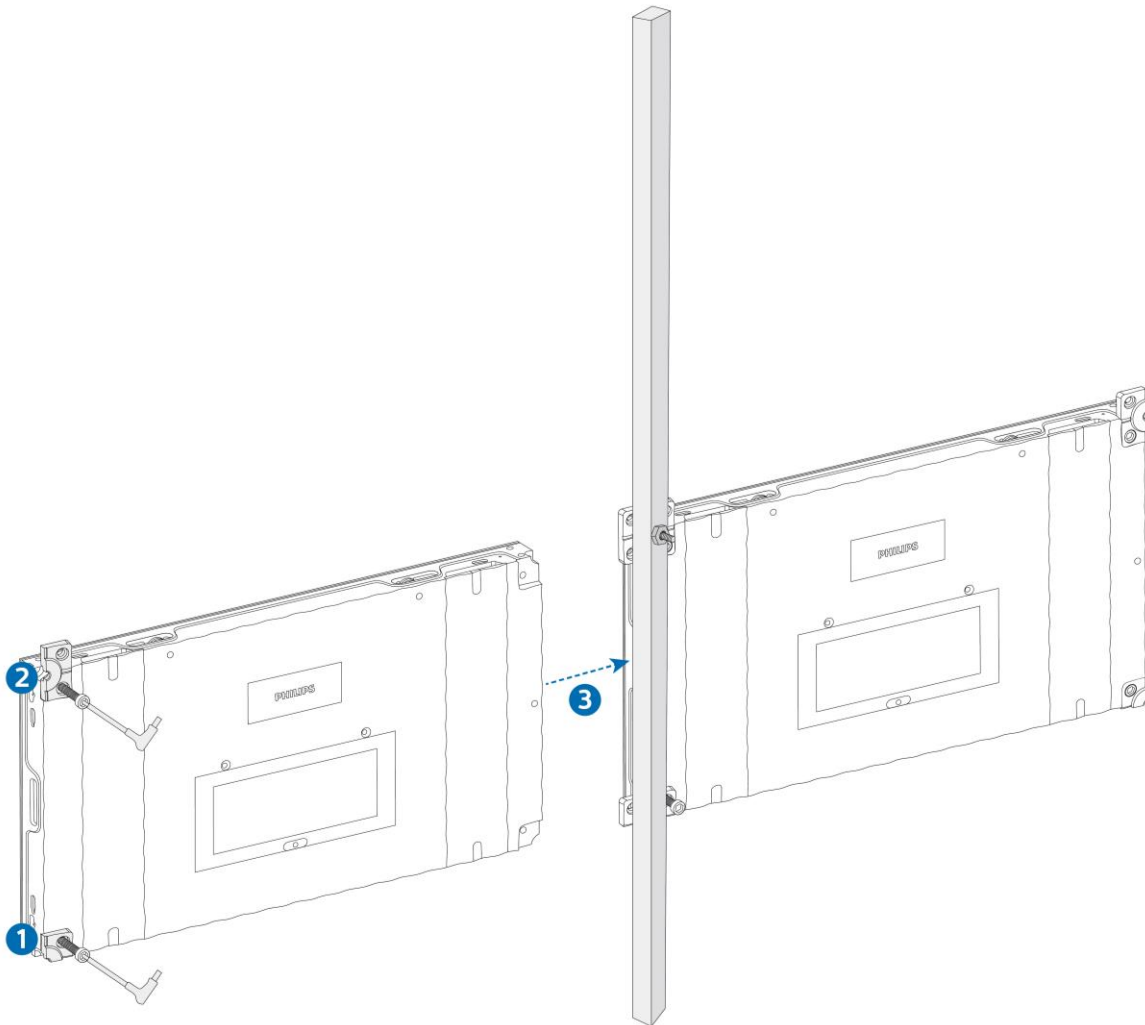
✎ The tool used in this step is "T style inner hexagon wrench, size 6" which is an optional accessory. Refer to Appendix C. Optional Components/Accessories on P.37 for detailed information.

Step 5. Connect the second cabinet to the first one.

1. Insert the tip of an Allen Hex key into the hole located on the right side of the second cabinet.
2. Rotate the hex key clockwise until the locking mechanism connects to the first cabinet.
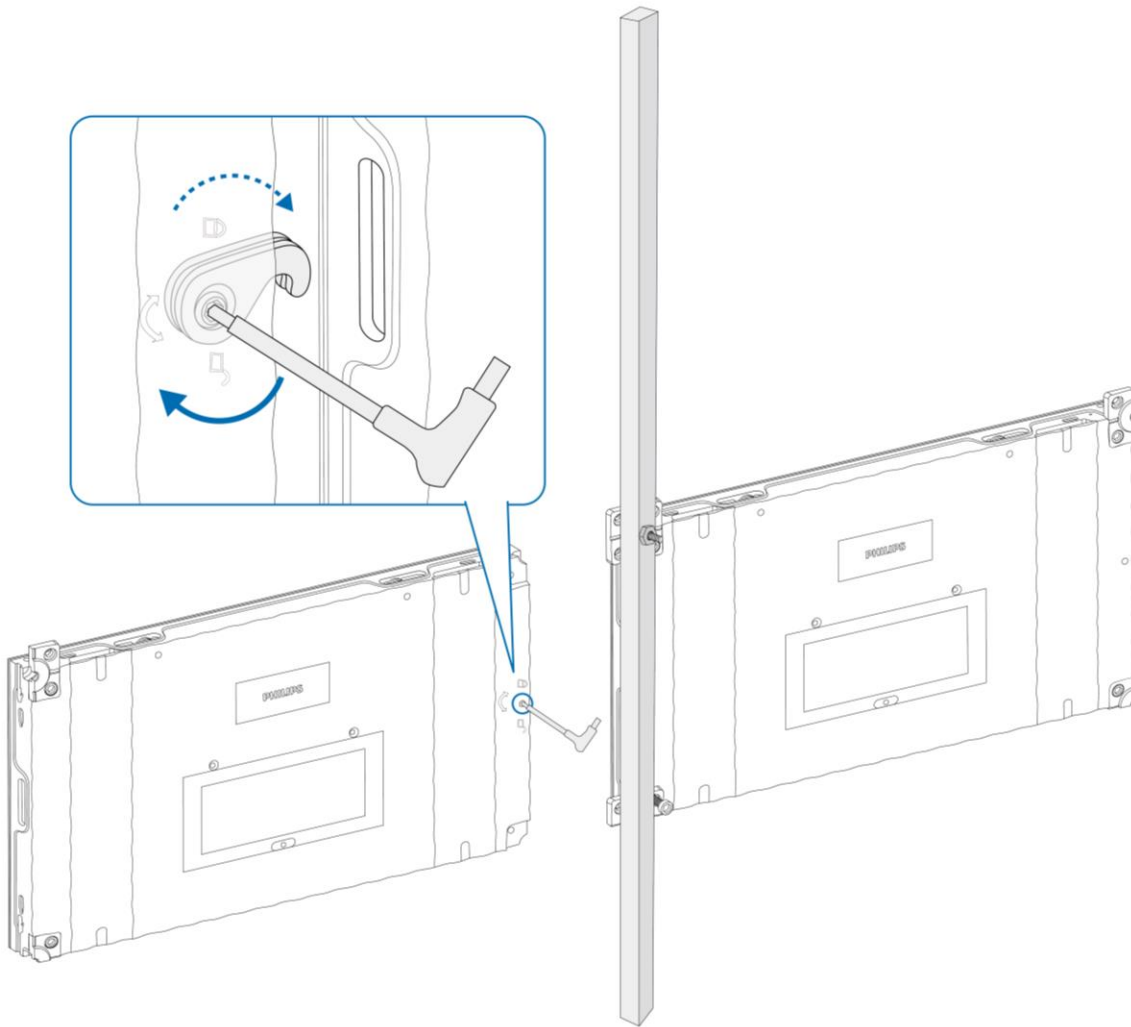
✎   The tool used in this step is "T style inner hexagon wrench with cabinet protection, size 5" which is an optional accessory. Refer to Appendix C. Optional Components/Accessories on P.37 for detailed information.

Step 6. Secure the common and side connecting plates to cabinets.
1. Use two M8 screws to tighten the lower part of common connecting plate to the cabinets.
2. Screw the side connecting plate to the lower part of cabinets.
Follow the screw fastening order illustrated below.
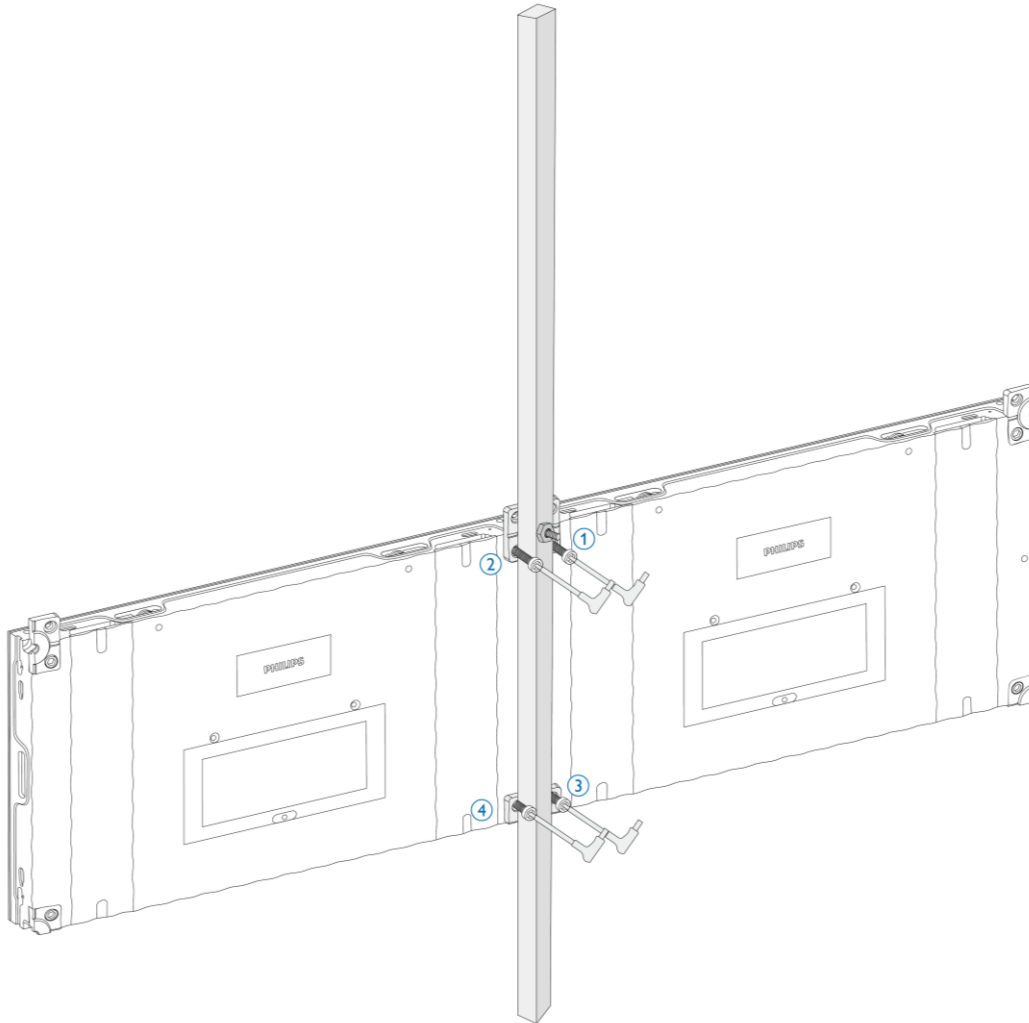
✎   The tool used in this step is "T style inner hexagon wrench, size 6" which is an optional accessory. Refer to Appendix C. Optional Components/Accessories on P.37 for detailed information.

Step 7. Place the third cabinet.

❶ Screw one corner connecting plate onto the top-right side of the cabinet.

❷ Align the lower-left block of the cabinet with the top-right corner of common connecting plate and move the cabinet to fit them together.
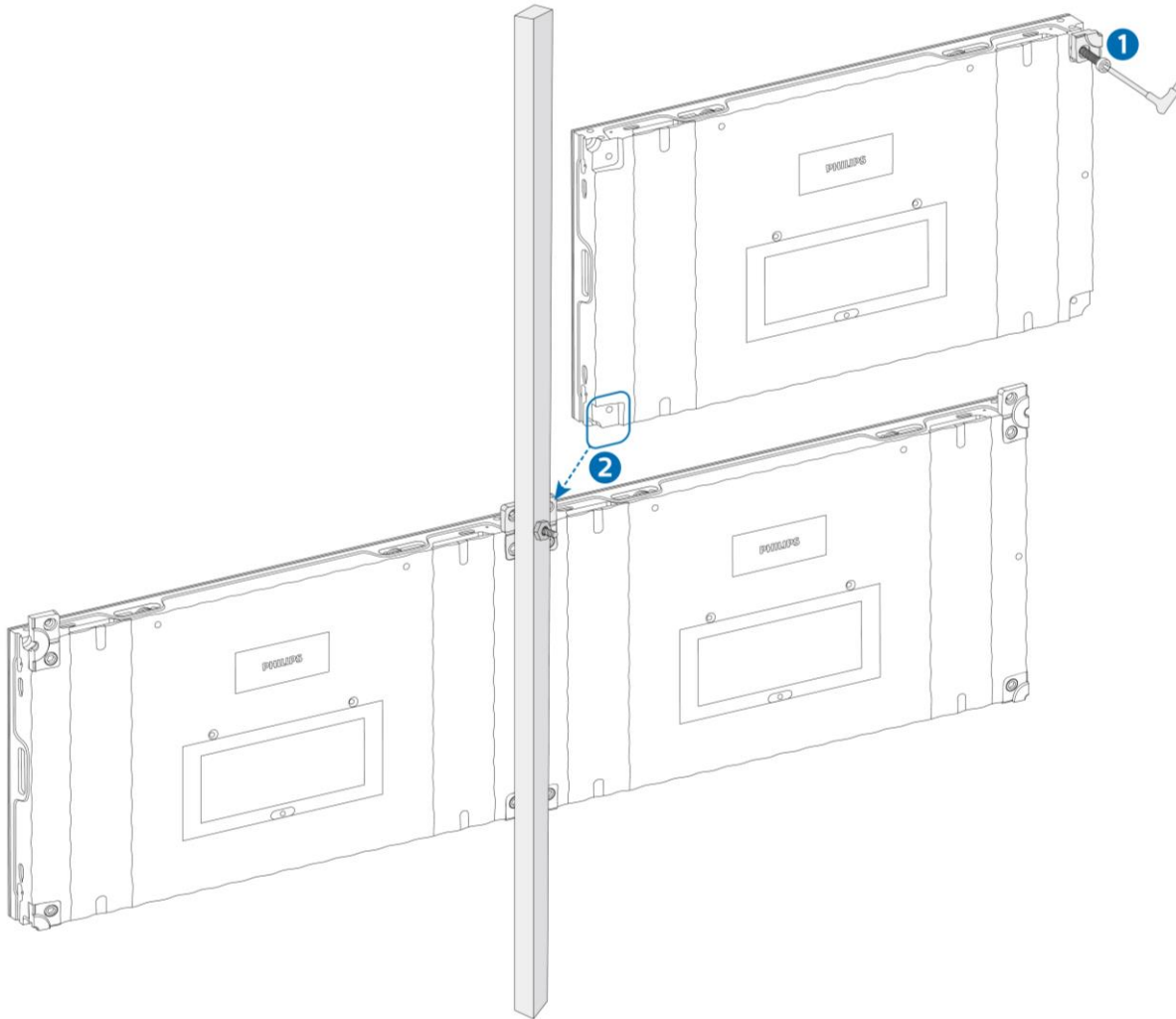
✎ The tool used in this step is "T style inner hexagon wrench, size 6" which is an optional accessory. Refer to Appendix C. Optional Components/Accessories on P.37 for detailed information.

Step 8. Fix the left side of the third cabinet.

❶ Fix the side connecting plate onto the bottom-right side of the third cabinet.

❷ Thread one M8 screw halfway onto the right hole of the side connecting plate. Do not tighten the screws yet, as this will cause unevenness of the connecting plate.

❸ Thread one M8 screw halfway onto the right hole of the common connecting plate. Do not tighten the screws yet, as this will cause unevenness of the connecting plate.

✎ The tool used in this step is "T style inner hexagon wrench, size 6" which is an optional accessory. Refer to Appendix C. Optional Components/Accessories on P.37 for detailed information.

Step 9. Connect the first cabinet to the third one.
1. Insert the tip of an Allen Hex key into the holes located on the top side of the first cabinet.
2. Rotate the hex key clockwise/counterclockwise (see the mark printed on the cabinet) until the locking mechanism connects the first cabinet to the third one.
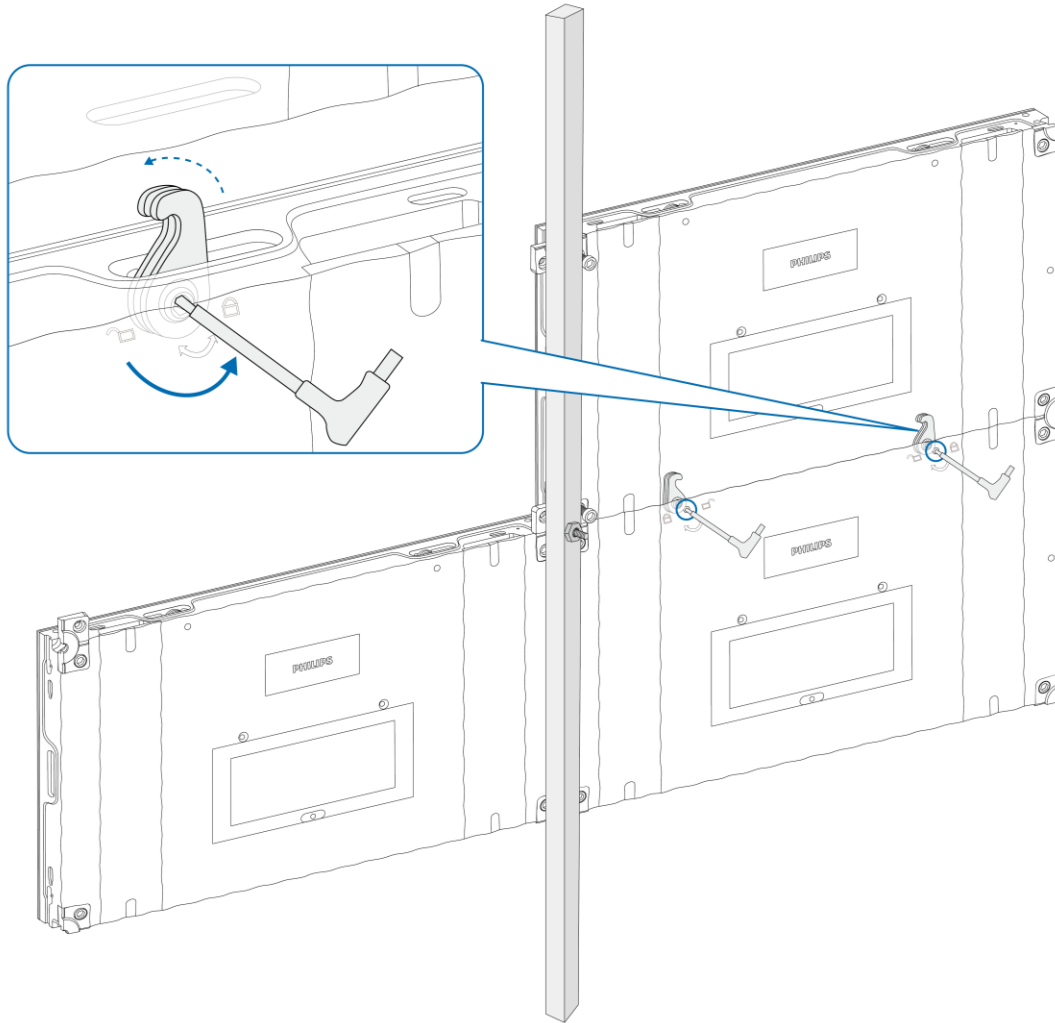
✎ The tool used in this step is "T style inner hexagon wrench with cabinet protection, size 5" which is an optional accessory. Refer to Appendix C. Optional Components/Accessories on P.37 for detailed information.

Step 10. Place the fourth cabinet.

❶ Screw one corner connecting plate onto the top-left side of the cabinet.

❷ Align the lower-right block of the cabinet with the top-left corner of common connecting plate and move the cabinet to fit them together.

🖉 The tool used in this step is "T style inner hexagon wrench, size 6" which is an optional accessory. Refer to Appendix C. Optional Components/Accessories on P.37 for detailed information.
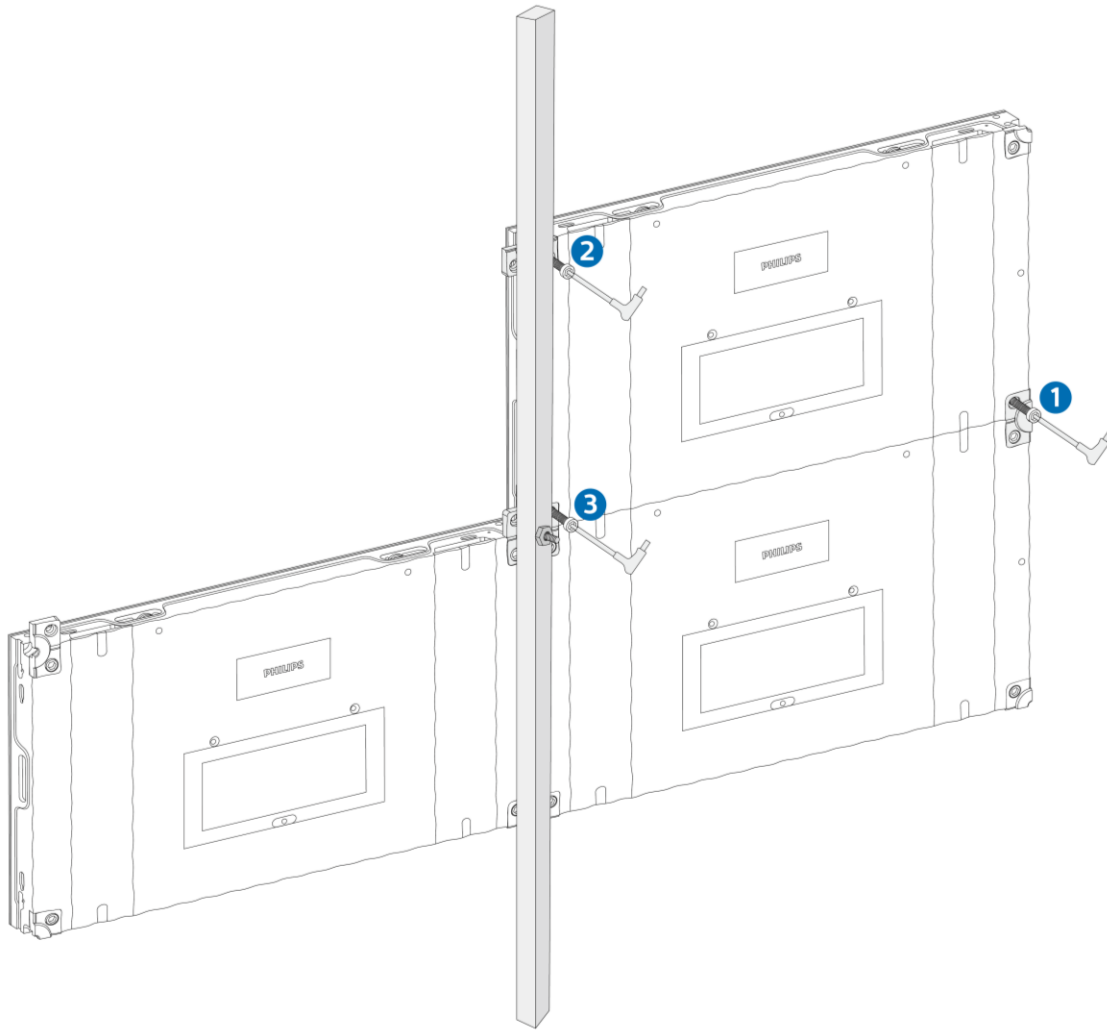
Step 11. Connect the fourth cabinet.

❶ ❷ Insert the tip of an Allen Hex key into the holes located on the top side of the second cabinet.

   Turn the hex key clockwise/counterclockwise (see the mark printed on the cabinet) until the locking mechanism connects the second cabinet to the fourth one.

❸ Insert the tip of an Allen Hex key into the holes located on the right side of the fourth cabinet.

   Turn the hex key clockwise until the locking mechanism connects the fourth cabinet to the third one.
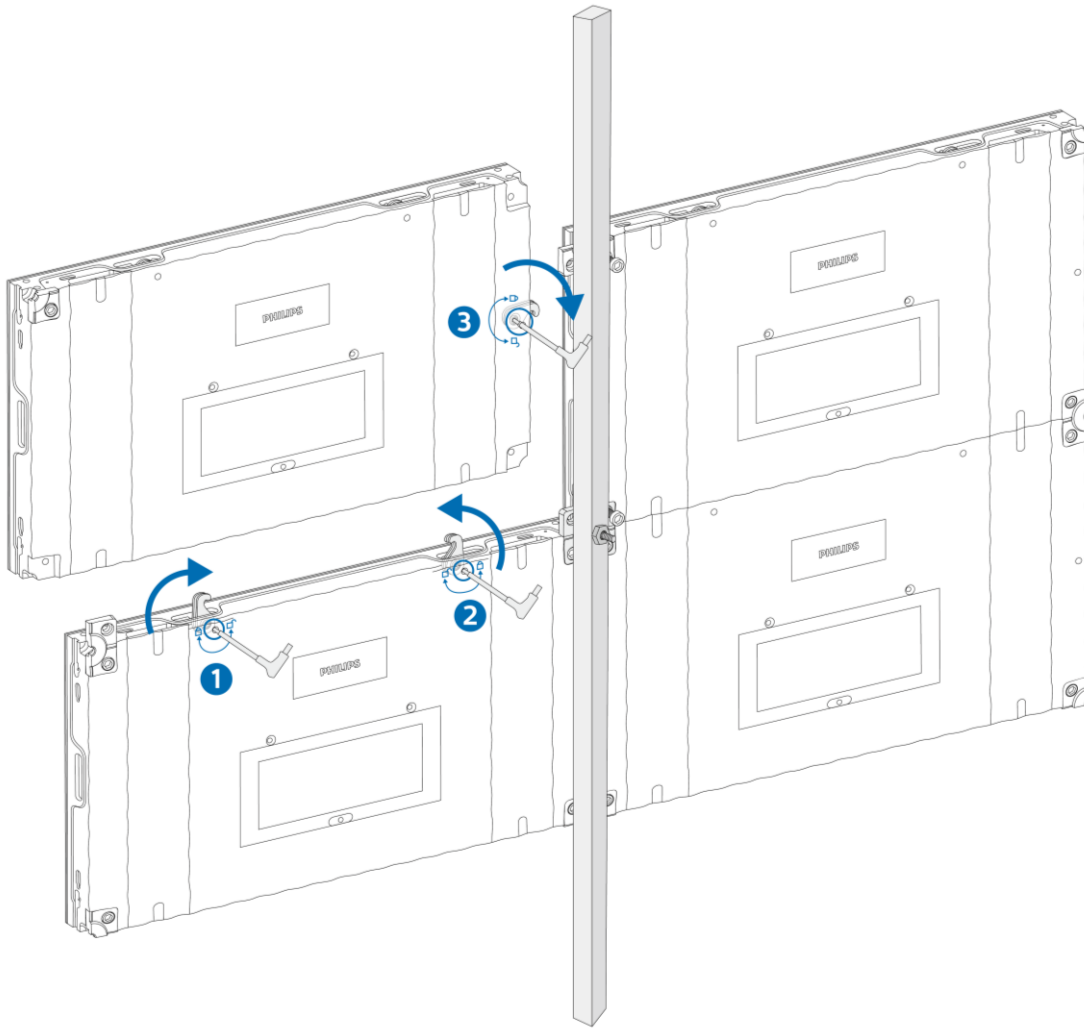
   The tool used in this step is "T style inner hexagon wrench with cabinet protection, size 5" which is an optional accessory. Refer to Appendix C. Optional Components/Accessories on P.37 for detailed information.

Step 12.
Firmly tighten the screws to fix the common connecting plate and the side connecting plates.
Follow the screw fastening order illustrated below.
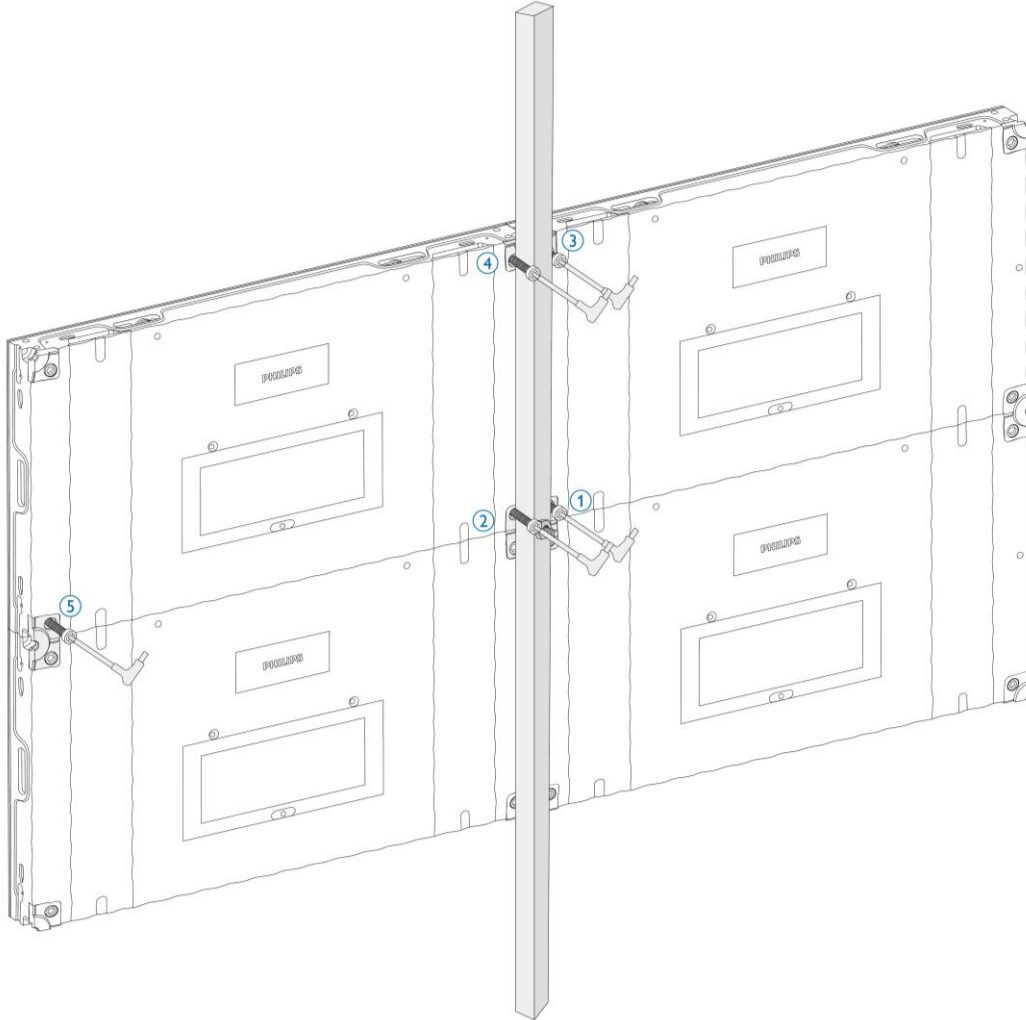
- 🖉 The tool used in this step is "T style inner hexagon wrench, size 6" which is an optional accessory. Refer to Appendix C. Optional Components/Accessories on P.37 for detailed information.
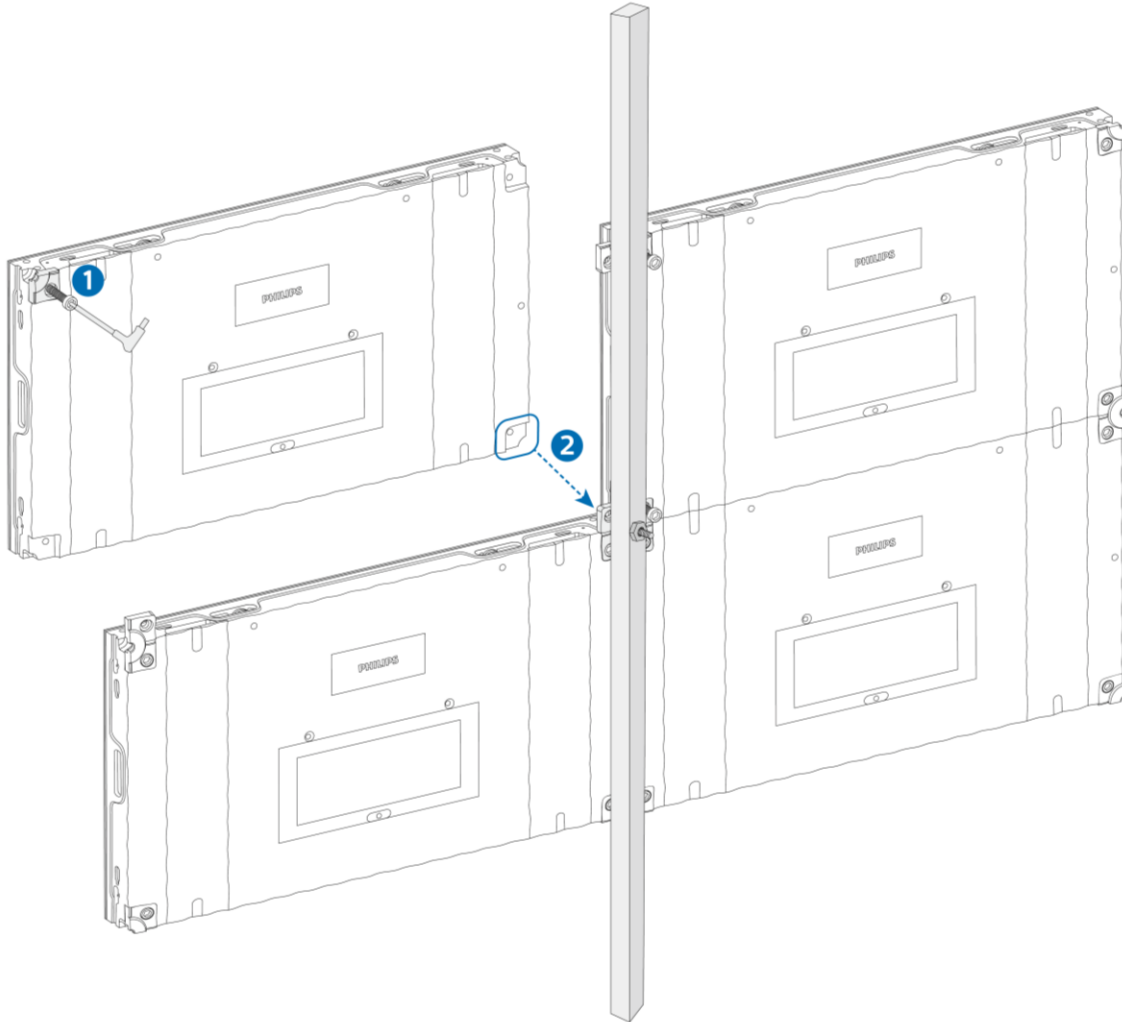
Step 13.

Now, the installation of 2 x 2 display is complete. Repeat this step to mount the additional cabinet if necessary.
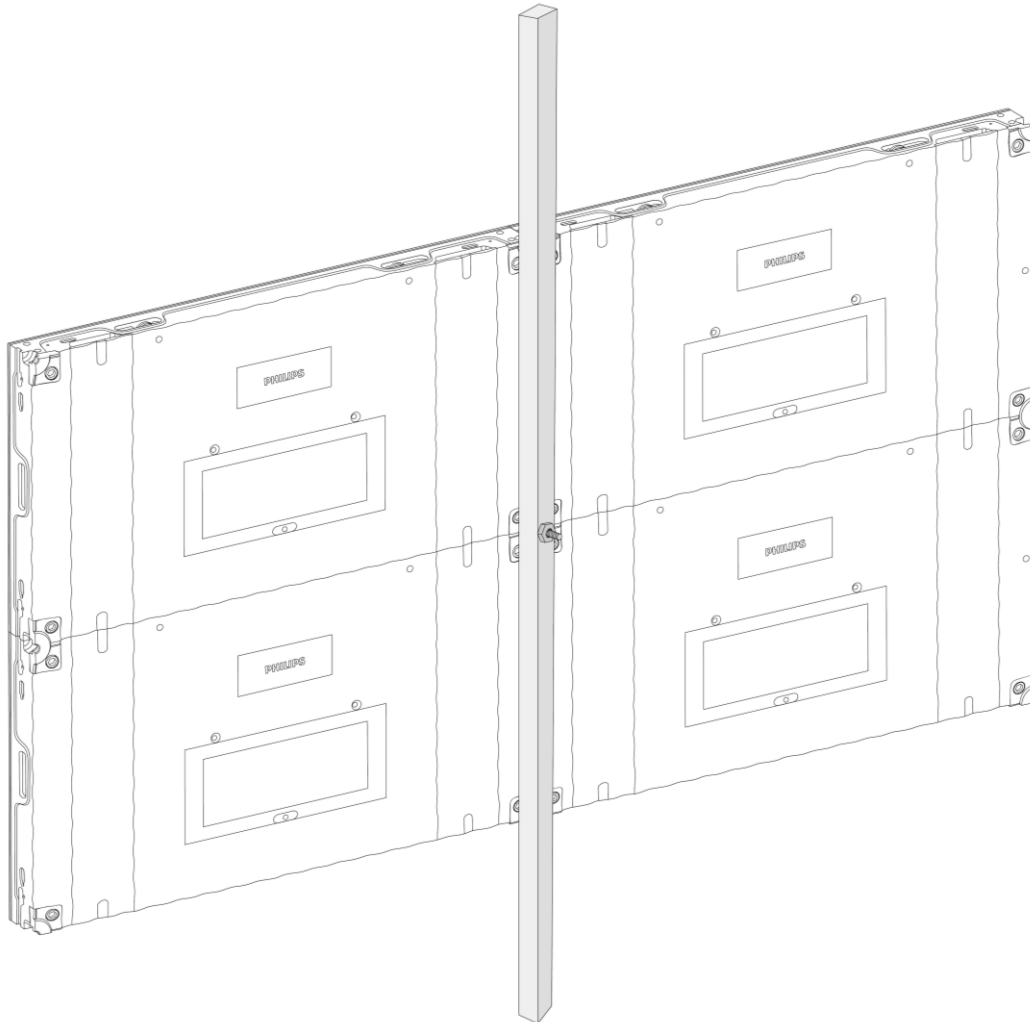
5. Connection

5.1 Opening the cable covers

1. Press and push the rear cable covers.
2. Slide the cable covers up and away from the cabinet.
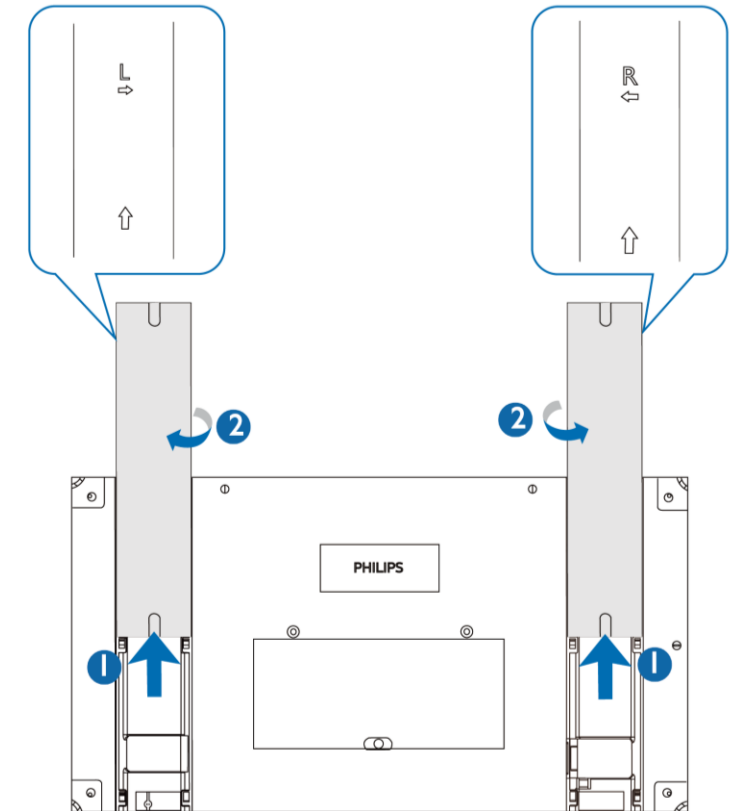
5.2 Connecting the signal and power cables

LAN cable

Power cable (daisy chain)

LAN cable

Power cable (daisy chain)

LED display controller   *
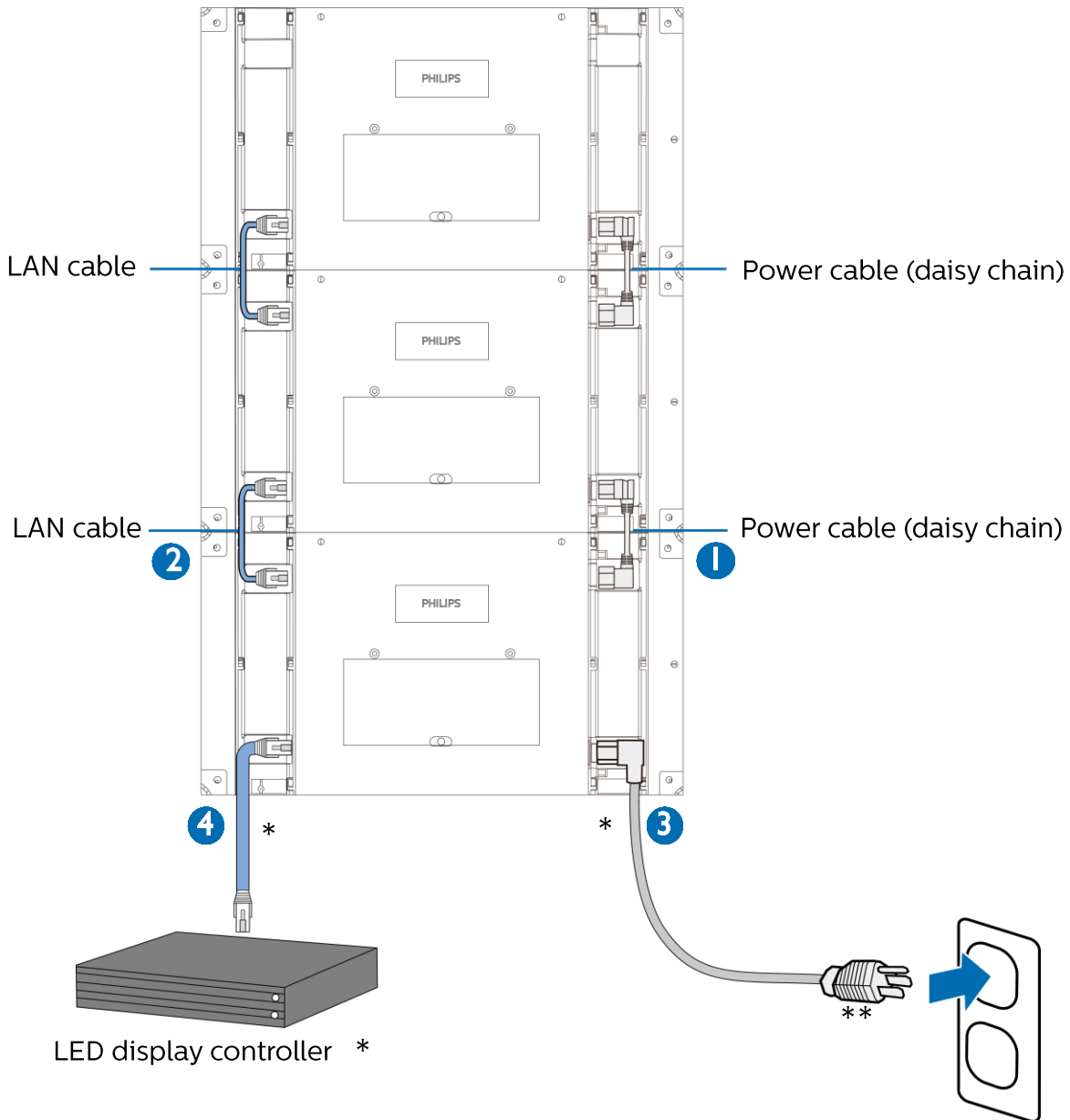
* Optional accessories
** Power plug types vary by country/region.

⚠ Cautions
Connection is allowed up to 4 cabinets when the 110 VAC power supply is used.
Connection is allowed up to 8 cabinets when the 220 VAC power supply is used.
Max. daisy chain cable current rating: 10 Amp

Turn off the power of all devices first before connecting cables.
1. Connect the power cable from the "**Power Out**" port of the first cabinet to the "**Power In**" port of the second cabinet. (see ❶)
2. Connect the signal cable from the Data port of the first cabinet to Data port of the second cabinet for video signal transmission. (see ❷)
3. Connect the power cable from the "**Power In**" port of the first cabinet to the power outlet. (see ❸)
4. Connect one end of the data cable of the first cabinet to the LED display controller. (see ❹)
5. Repeating steps 2~3 enables the daisy chain connection.

   🖉   Once the cables are wired properly, place the rear cable covers back.

5.3 Checking cabinet status

The signal indicator on the back of the cabinet behaves in the following lighting patterns. A blue and blinking LED indicates that the power is being transmitted, whereas a green blinking LED indicates that the signal is being transmitted.

Description	Left indicator	Right indicator
Single receiving card	Blinks between blue and green ● ● ● ●	Blinks between blue and green ● ● ● ●

To switch off blinking LED, you can disable the light on the back of the cabinet by the Novastar software.
Please follow the instructions below to disable the indicator light:
NovaLCT –> Receiving card tab / Performance Settings / Additional Function
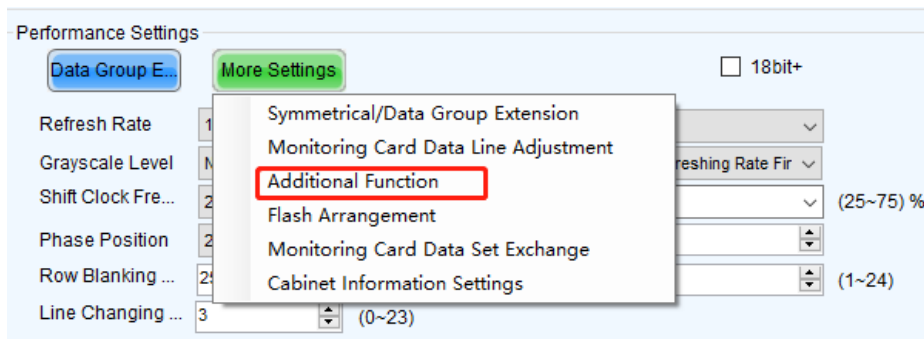
Indicator Light of Receiving Card > select "**Close**".
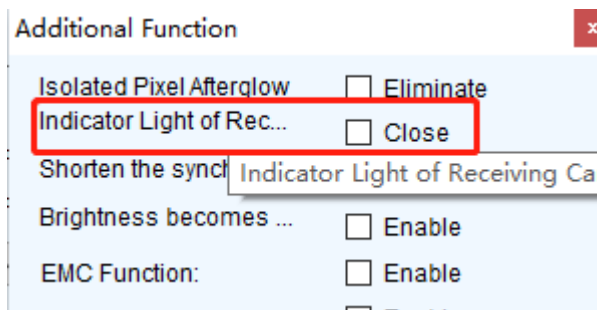
6. Using the LED display controller

The LED display controller is a device served for managing any type of video and data sources for any screen configuration. Visit Novastar website to learn more about Novastar's LED display controller and select the one that suit your needs according to the resolution and screen configuration of your display.
https://www.novastar.tech/product/
To download the Novastar software and user's guide, click on the following link:
https://www.novastar.tech/download/download-controller/

Appendices

Appendix A. Troubleshooting

Frequently asked questions and common problems that may occur while using the system are explained in this section. Observe the following table containing a list of symptoms and the actions to take to solve the problems.
If a problem persists after performing the following actions, contact technical support.

Symptom	Possible cause and corrective action
No picture is displayed	● The power cable is disconnected. 　> Re-connect the power cable. ● The signal cable is disconnected. 　> Re-connect the signal cable. ● The main switch on the power distribution box is off. 　> Make sure the power distribution box is switched on. ● The LED display controller is off. 　> Inspect whether the power connection is correct and the switch has been turned on. 　> Inspect whether the LED display controller output has signal and shows blank screen. 　> Check whether the mode and parameter of screen configuration are correct. 　> Check whether there is image input in input channel and whether it is correctly displayed.
The module is blinking	> Check the cable connection between the cabinet and power distribution box, and ensure the connection is secure.
The module cannot light up	> Check the cable connection between the cabinet and power distribution box, and ensure the connection is secure.

Appendix B. Dew point VS. Relative Humidity

The table below explains the relationship between temperature/relative humidity and dew point.

Celsius (˚C)	-20	-20	-20	-20	-20	-20	-20	-20
Relative Humidity (%)	10	20	30	40	50	60	70	80
Dew point (˚C)	-43.87	-37.24	-33.15	-30.15	-27.76	-25.77	-24.06	-22.56
Celsius (˚C)	-10	-10	-10	-10	-10	-10	-10	-10
Relative Humidity (%)	10	20	30	40	50	60	70	80
Dew point (˚C)	-35.94	-28.76	-24.32	-21.06	-18.46	-16.30	-14.43	-12.79
Celsius (˚C)	0	0	0	0	0	0	0	0
Relative Humidity (%)	10	20	30	40	50	60	70	80
Dew point (˚C)	-28.08	-20.33	-15.54	-12.01	-9.19	-6.84	-4.82	-3.03
Celsius (˚C)	10	10	10	10	10	10	10	10
Relative Humidity (%)	10	20	30	40	50	60	70	80
Dew point (˚C)	-20.29	-11.96	-6.80	-2.99	0.04	2.58	4.77	6.70
Celsius (˚C)	25	25	25	25	25	25	25	25
Relative Humidity (%)	10	20	30	40	50	60	70	80
Dew point (˚C)	-8.75	0.47	6.22	10.46	13.85	16.69	19.14	21.30
Celsius (˚C)	35	35	35	35	35	35	35	35
Relative Humidity (%)	10	20	30	40	50	60	70	80
Dew point (˚C)	-1.15	8.7	14.84	19.39	23.02	26.07	28.70	31.03
Celsius (˚C)	45	45	45	45	45	45	45	45
Relative Humidity (%)	10	20	30	40	50	60	70	80
Dew point (˚C)	6.38	16.87	23.42	28.28	32.17	35.43	38.25	40.74

Appendix C. Optional Components/Accessories

If you need to purchase the components or accessories listed below, please contact your local service center for support.

CTN	Commercial description
CRD19112/00	LED module, 9112-series, P1.266mm SMD1010 Gold
CRD19115/00	LED module, 9115-series, P1.583mm SMD1010 Gold
CRD19119/00	LED module, 9119-series, P1.9mm SMD1515 Gold
CRD19212/00	LED module, 9212-series, P1.266mm SMD1010 Gold
CRD19215/00	LED module, 9215-series, P1.583mm SMD1010 Gold
CRD19219/00	LED module, 9219-series, P1.9mm SMD1010 Gold
CRD20001/00	LED Display Controller Novastar MCTRL300 (EU)
CRD20001/17	LED Display Controller Novastar MCTRL300 (US)
CRD20001/05	LED Display Controller Novastar MCTRL300 (HK)
CRD20001/75	LED Display Controller Novastar MCTRL300 (CN/AUS)
CRD20001/67	LED Display Controller Novastar MCTRL600 (THAI)
CRD20002/00	LED Display Controller Novastar MCTRL600 (EU)
CRD20002/17	LED Display Controller Novastar MCTRL600 (US)
CRD20002/05	LED Display Controller Novastar MCTRL600 (HK)
CRD20002/75	LED Display Controller Novastar MCTRL600 (CN/AUS)
CRD20002/67	LED Display Controller Novastar MCTRL600 (THAI)
CRD20003/00	LED Display Controller Novastar MCTRL660 (EU)
CRD20003/17	LED Display Controller Novastar MCTRL660 (US)
CRD20003/05	LED Display Controller Novastar MCTRL660 (HK)
CRD20003/75	LED Display Controller Novastar MCTRL660 (CN/AUS)
CRD20003/67	LED Display Controller Novastar MCTRL660 (THAI)
CRD20004/00	LED Display Controller Novastar MCTRL660PRO (EU)
CRD20004/17	LED Display Controller Novastar MCTRL660PRO (US)
CRD20004/05	LED Display Controller Novastar MCTRL660PRO (HK)
CRD20004/75	LED Display Controller Novastar MCTRL660PRO (CN/AUS)
CRD20004/67	LED Display Controller Novastar MCTRL660PRO (THAI)
CRD20005/00	LED Display Controller Novastar VX4U (EU)
CRD20005/17	LED Display Controller Novastar VX4U (US)
CRD20005/05	LED Display Controller Novastar VX4U (HK)
CRD20005/75	LED Display Controller Novastar VX4U (CN/AUS)
CRD20005/67	LED Display Controller Novastar VX4U (THAI)
CRD20006/00	LED Display Controller Novastar VX6S (EU)
CRD20006/17	LED Display Controller Novastar VX6S (US)
CRD20006/05	LED Display Controller Novastar VX6S (HK)

CRD20006/75	LED Display Controller Novastar VX6S (CN/AUS)
CRD20006/67	LED Display Controller Novastar VX6S (THAI)
CRD20007/00	LED Display Controller Novastar MCTRLR5 (EU)
CRD20007/17	LED Display Controller Novastar MCTRLR5 (US)
CRD20007/05	LED Display Controller Novastar MCTRLR5 (HK)
CRD20007/75	LED Display Controller Novastar MCTRLR5 (CN/AUS)
CRD20007/67	LED Display Controller Novastar MCTRLR5 (THAI)
CRD20008/00	LED Display Controller Novastar MCTRL4K (EU)
CRD20008/17	LED Display Controller Novastar MCTRL4K (US)
CRD20008/05	LED Display Controller Novastar MCTRL4K (HK)
CRD20008/75	LED Display Controller Novastar MCTRL4K (CN/AUS)
CRD20008/67	LED Display Controller Novastar MCTRL4K (THAI)
CRD20009/00	LED Display Controller Novastar TB3 (EU)
CRD20009/17	LED Display Controller Novastar TB3 (US)
CRD20009/05	LED Display Controller Novastar TB3 (HK)
CRD20009/75	LED Display Controller Novastar TB3 (CN/AUS)
CRD20009/67	LED Display Controller Novastar TB3 (THAI)
CRD20010/00	LED Display Controller Novastar TB6 (EU)
CRD20010/17	LED Display Controller Novastar TB6 (US)
CRD20010/05	LED Display Controller Novastar TB6 (HK)
CRD20010/75	LED Display Controller Novastar TB6 (CN/AUS)
CRD20010/67	LED Display Controller Novastar TB6 (THAI)
CRD20011/00	LED Display Controller Novastar TB8 (EU)
CRD20011/17	LED Display Controller Novastar TB8 (US)
CRD20011/05	LED Display Controller Novastar TB8 (HK)
CRD20011/75	LED Display Controller Novastar TB8 (CN/AUS)
CRD20011/67	LED Display Controller Novastar TB8 (THAI)
BZ110099/00	Power input cable, Schuko EU/IND to C13 (3*1.5mm wires, 10M, black)
BZ110099/05	Power input cable, UK/HK to C13 (3*1.5mm wires, 10M, black)
BZ110099/17	Power input cable, US/TWN to C13 (3*1.5mm wires, 10M, black)
BZ110099/75	Power input cable, AUS to C13 (3*1.5mm wires, 10M, black)
BZ110099/67	Power input cable, THAI to C13 (3*1.5mm wires, 10M, black)
BZ110094/05	Power input cable, UK/HK to C13 (3*1.5mm wires, 1.8M, black)
BZ110098/00	Signal input cable (RJ45, CAT5, 10m, black)
BZ110097/00	Signal input cable (RJ45, CAT5, 90cm, black)
BZ110096/00	Power loop through cable (C13-C14, 25cm, black)
BZ110094/00	Power loop through cable (C13-C14, 130cm, black)
BZ110095/00	Signal input cable (RJ45, CAT5, 25cm, black)
BM109000/00	Front Service Tool 9x00-series
BM199001/00	Antistatic gloves set
BM199002/00	T style inner hexagon wrench with cabinet protection, size 5

BM199003/00	T style inner hexagon wrench, size 6
BM199004/00	USB Flashdrive incl. manual EDFU, QSG, CAD, calibration and config data
BM199009/00	Starterkit 9000-series (Front service tool, gloves set, T-Hex 5, T-Hex 6)
BM009112/00	Wall mount kit, 9x00-series, 9x12 FHD (incl.EFK w/Metal border, Philips logo)
BM009115/00	Wall mount kit, 9x00-series, 9x15 FHD (incl.EFK w/Metal border, Philips logo)
BM009119/00	Wall mount kit, 9x00-series, 9x19 FHD (incl.EFK w/Metal border, Philips logo)
EFK009112/00	Edge Finishing Kit, 9x00-series, FHD 9x12 (Metal border, Philips logo)
EFK009115/00	Edge Finishing Kit, 9x00-series, FHD 9x15 (Metal border, Philips logo)
EFK009119/00	Edge Finishing Kit, 9x00-series, FHD 9x19 (Metal border, Philips logo)
EFK049112/00	Edge Finishing Kit, 9x00-series, UHD 9x12 (Metal border, Philips logo)
EFK049115/00	Edge Finishing Kit, 9x00-series, UHD 9x15 (Metal border, Philips logo)
EFK049119/00	Edge Finishing Kit, 9x00-series, UHD 9x19 (Metal border, Philips logo)
EFK109002/00	Horizontal Metal border (2 cabinet length) 1216x25x60mm (LxWxD)
EFK109001/00	Horizontal Metal border (1 cabinet length) 608x25x60mm (LxWxD)
EFK209003/00	Vertical Metal border (3 cabinet height) 1026x25x60mm (LxWxD)
EFK209002/00	Vertical Metal border (2 cabinet height) 684x25x60mm (LxWxD)
EFK309000/00	Corner Metal border 60x25x60mm (LxWxD)
EFK309001/00	Connector for border 35x22x20.5mm (LxWxD)
EFK300000/00	Philips Logo Plate
EFK309002/00	M3 minus screw with limit M3*4+ψ6*4 black
EFK309003/00	M4 plus screw M4*8 black
BZ209000/00	Power supply, 9x00-series, GW-ESP190WV4.2
BZ309000/00	HUB board - 9x00-series
CRD20085/00	Novastar Receiving card, Armor Series, A5S
CRD20087/00	Novastar Receiving card, Armor Series, A7S
BM909000/00	Common connecting plate, 9x00-series
BM909001/00	Left Right connecting plate, 9x00-series
BM909003/00	Corner connecting plate, 9x00-series
27BDL9112L/00	LED panel, 9112-series, P1.266mm SMD1010 Gold
27BDL9115L/00	LED panel, 9115-series, P1.583mm SMD1010 Gold
27BDL9119L/00	LED panel, 9119-series, P1.9mm SMD1515 Gold
27BDL9212L/00	LED panel, 9212-series, P1.266mm SMD1010 Gold
27BDL9215L/00	LED panel, 9215-series, P1.583mm SMD1010 Gold
27BDL9219L/00	LED panel, 9219-series, P1.9mm SMD1010 Gold
110BDL9112L/00	LED Display Kit FHD 110" 1.2mm pixel pitch, 110BDL9112L
137BDL9115L/00	LED Display Kit FHD 137" 1.5mm pixel pitch, 137BDL9115L
165BDL9119L/00	LED Display Kit FHD 165" 1.9mm pixel pitch, 165BDL9119L
220BDL9112L/00	LED Display Kit UHD 220" 1.2mm pixel pitch, 220BDL9112L

| 275BDL9115L/00 | LED Display Kit UHD 275" 1.5mm pixel pitch, 275BDL9115L |
| 330BDL9119L/00 | LED Display Kit UHD 330" 1.9mm pixel pitch, 330BDL9119L |

Appendix D. Technical Specifications

Picture/Display	
Brightness before calibration	900 nits
Brightness after calibration	800 nits
Colour Temperature default	6500±500 K
Colour Temperature adjust range	4000~9500 K (by software)
Viewing Angle (H / V)	160 / 160 degree
Brightness Uniformity	>=97%
Contrast ratio (typical)	>=3000:1
Calibration (Brightness/Colour)	Supported
Refresh rate (Hz)	1920~3840
Frame Frequency (Hz)	50 & 60
Aspect ratio	16:9
Picture enhancement	Wide Colour Gamut display
Placement	Landscape
Usage	24/7 hrs, Indoor
Convenience	
Signal Control Loop Through	RJ45
Ease of installation	Guide pins, Light weight, Locking mechanism for cabinet
Power loop through	For 220 V environments: 8 cabinets or less For 110V environments: 4 cabinets or less
Operating conditions	
Temperature range (operation)	–20~45 °C
Temperature range (storage)	–20~50 °C
Humidity range (operation) [RH]	10~80%
Humidity range (storage) [RH]	10~85%
Power	
Max Power consumption (W)	<=160 W (27BDL9112L) <=160 W (27BDL9115L) <=110 W (27BDL9119L)
Consumption (typical)	<=54 W (27BDL9112L) <=53 W (27BDL9115L) <=36 W (27BDL9119L)

Input Voltage	AC100~240V (50 and 60Hz)
BTU Value m2	2624 BTU/m2 (27BDL9112L) 2624 BTU/m2 (27BDL9115L) 1804 BTU/m2 (27BDL9119L)
Miscellaneous	
Warranty	3 years
Regulatory approvals	FCC SDOC, Part 15, EMC Class B, EN55032, EN55035, EN61000-3-2, EN61000-3-3, IEC/UL60950, IEC/UL62368, IEC62471, RoHS
Cabinet	
Cabinet Size (mm)	608 × 342 × 55
Cabinet Diagonal (inch)	27.5
Cabinet Resolution (W x H)	480 x 270 (27BDL9112L) 384 x 216 (27BDL9115L) 320 x 180 (27BDL9119L)
Weight (KG)	7.5 kg
Cabinet pixels (Dot)	129,600 (27BDL9112L) 82,944 (27BDL9115L) 57,600 (27BDL9119L)
Cabinet Area (m2)	0.2079
Power connector	In/Out (C14/C13)
Data connector	RJ45
Cabinet Construction	Die-Casting Aluminum
Receiving card Quantity	A7S (27BDL9112L): 2 pcs A5S (27BDL9115L): 2 pcs A5S (27BDL9119L): 1 pcs
Receiving card Spec	A7S (27BDL9112L) A5S (27BDL9115L) A5S (27BDL9119L)
Receiving card Brand	Novastar
Module	
LED type	SMD 1010 Gold wire (27BDL9112L) SMD 1010 Gold wire (27BDL9115L) SMD 1515 Gold wire (27BDL9119L)
Pixel constitution	1R1G1B
LED Lifetime (Hrs, half bright)	100,000
Pixel Pitch (mm)	1.266/1.583/1.9
Module Size (WxHxD in mm)	152 x 171 x 10

Module Resolution (WxH pixels)	120 x 135 (27BDL9112L) 96 x 108 (27BDL9115L) 80 x 90 (27BDL9119L)
Accessories	
Power loop through cable	1 pcs
LAN cable (RJ45, CAT–5)	1 pcs
Common connecting piece	4 pcs
Screw bolt	4 pcs (M8*20) (Inner Hexagon Screw)
Quick Start Guide	1 pcs