

SAMSUNG

Outdoor Installation Guide

OHN

OH85N/(LH85OHNSKGB/**) / Tempered glass attachment guide included

OH85N-D(K)/(LH85OHNDKGB/**) / Tempered glass attachment guide included

OH85N/(LH85OHNSLGB/**)

2021. 05

Follow the instructions provided in this guide when installing the product.

Samsung will not provide warranty coverage for problems that may arise as a result of failure to follow the guide.

The color and shape of the product may vary. In addition, instructions in the installation guide may change without prior notice when necessary to improve the product.

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**OH85N/
(LH850HNSKGB/**)**

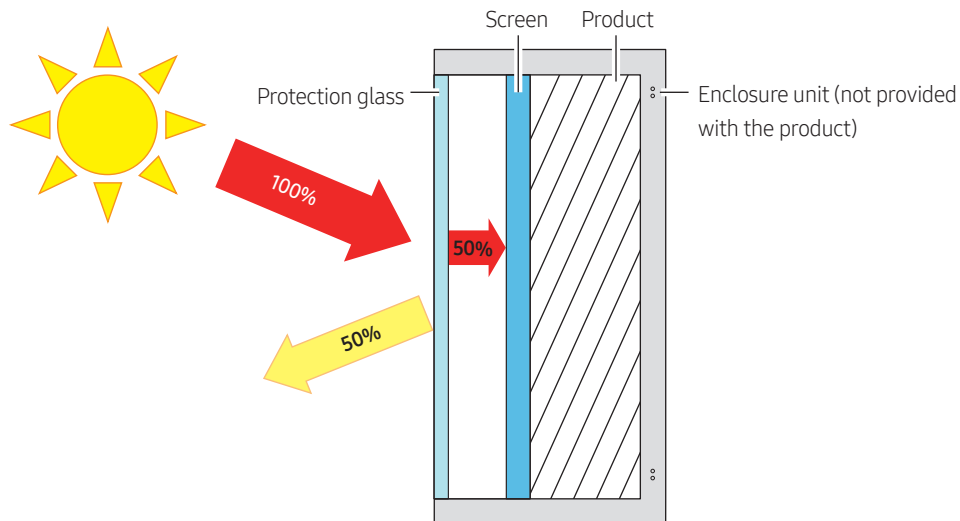
01 Prior to Installation

- Please contact our Global Tech Sales team for support through your local Presales team before installing the Kit Model.
- This model does not support double-sided display.

Protection glass: specifications and installation guide

This product does not have a protection glass on the panel front. Add a protection glass to the front side of the enclosure unit before use.

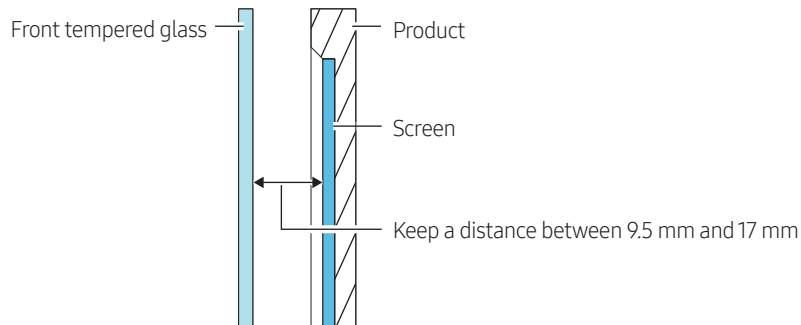
Specification of the protection glass



- To block direct sunlight at least 50%, you must use specially treated tempered glass. (Anti Reflection, UV 99% blocked, IR 80% or more blocked)

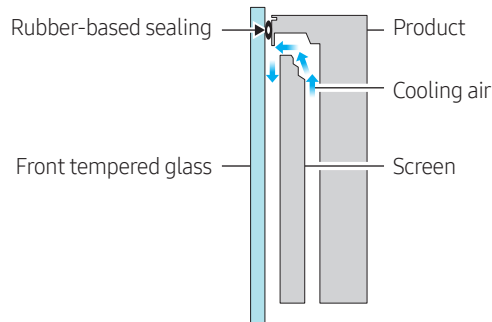
- The guide for OH85N/(LH85OHNSKGB/**) only applies when the product is used with an enclosure unit that has a protective glass added to the front side.

Installing the protection glass



Samsung guarantees the product's water and dust resistance performance (IP56). This guarantee, however, does not cover any issues resulted from the choice of non-recommended protection glass or installation method. (Examples: Issues caused by the ingress of dust or humidity from outside or due to insufficient insulation against solar heat, e.g., dust, dirt, wetness inside the protection glass)

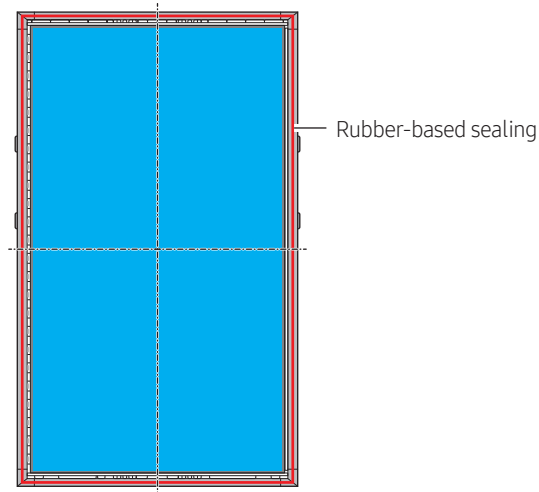
- Maintain 9.5 mm - 17 mm of clearance between the protection glass and LCD panel surface.



- To cool off the screen, it is necessary to completely block it from the outside with a tempered glass front. As shown in the figure, the cooled air inside flows from top to bottom to cool off the screen. Therefore, when designing the enclosure, it is important to ensure that internal air does not leak to the outside through the tempered front glass.

- The guide for OH85N/(LH85OHNSKGB/**) only applies when the product is used with an enclosure unit that has a protective glass added to the front side.

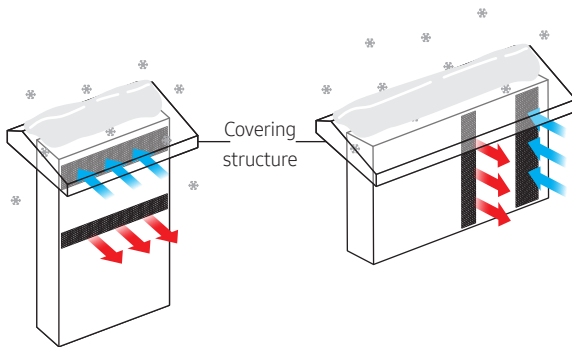
OH85N/(LH85OHNSKGB/**)



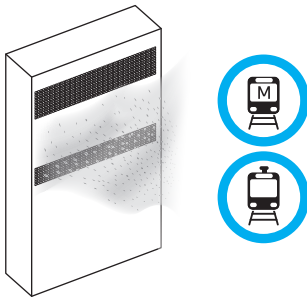
- OH85N and front protection glass must be in close contact with each other using a rubber-based sealing product.
- It should be installed so that internal air does not leak to the outside, and it should prevent external moisture and dust from penetrating the display.
- Consult with Samsung engineers for additional technical support.

- The guide for OH85N/(LH85OHNSKGB/**) only applies when the product is used with an enclosure unit that has a protective glass added to the front side.

Surrounding environment



- The airway into and out of the product can be blocked when the inlet (or outlet) is covered by a pile of frozen snow, dust, or tree leaves. Install a covering structure to avoid matters piling directly onto the inlet. Blocked ventilation due to snow or dust covering the inlet or outlet may cause a malfunction.



- The product can be used in a train or subway station.
The product is designed to keep out iron dust.

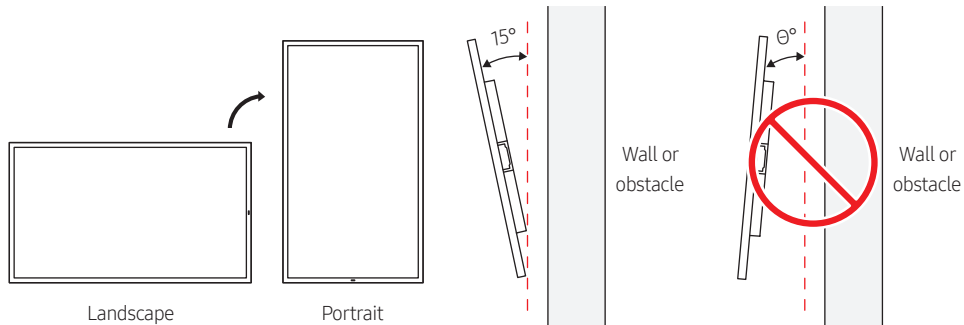


- When installed in beach area, make sure the display is placed where seawater cannot reach.
- Ensure the display unit installed location is within safe distance from the possible contact from rising seawater due to strong winds due to storm or other natural phenomenon.

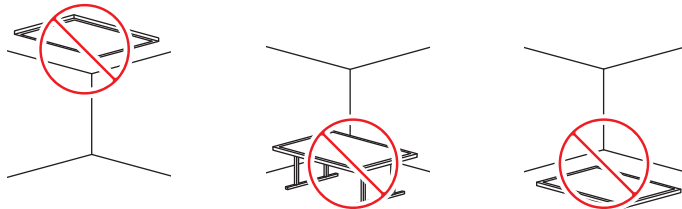
- The guide for OH85N/(LH85OHNSKGB/**) only applies when the product is used with an enclosure unit that has a protective glass added to the front side.

Rotation and tilt angle

- This product can be installed in Landscape or Portrait orientations.
- This product can be installed in a tilted position on a vertical wall or an obstacle, up to 15°.
- Contact Samsung Customer Service Centre for further details.



- Do not use this model installed on a ceiling, floor, or table.



Clearance for installation

Ensure to have the rear space for workers to access/clean the inlet/outlet/heat exchanger with cleaning tools.

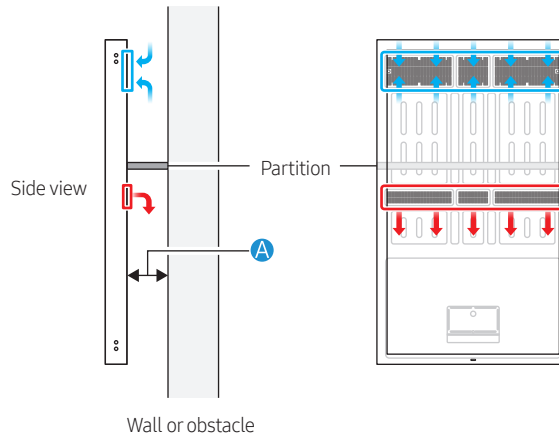
For details, see [Cleaning and cautions](#).

- The clearance for the installation below is the minimum distance for preventing malfunction due to overheat of the product.

Clearance for installing the product alone

When installing the product close to the wall, maintain the clearance (A) in order to secure air flow.

- Clearance from the wall (A)
 - Example 1) Atmospheric temperatures under 35 °C without direct sunlight: 60 mm or more
 - Example 2) Exposure to direct sunlight: 200 mm or more
- Remove any obstacles near the inlet and outlet that may affect air flow.
- Add partitions between the product and walls and make sure there is no gap between them to prevent discharged air from flowing back into the inlet.
- If the unit is subjected to excess heat due to an insufficient gap, this may cause a malfunction, which will not be covered by the warranty.

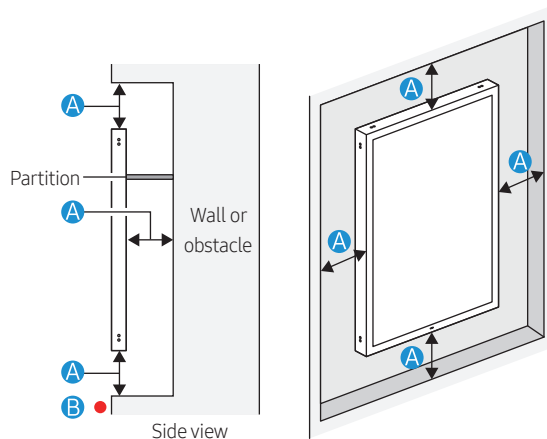


- The guide for OH85N/(LH85OHNSKGB/**) only applies when the product is used with an enclosure unit that has a protective glass added to the front side.

Clearance for built-in installation

When installing built-in to the wall, maintain the clearance (A) from the back, top, bottom, and sides of the product in order to secure air flow.

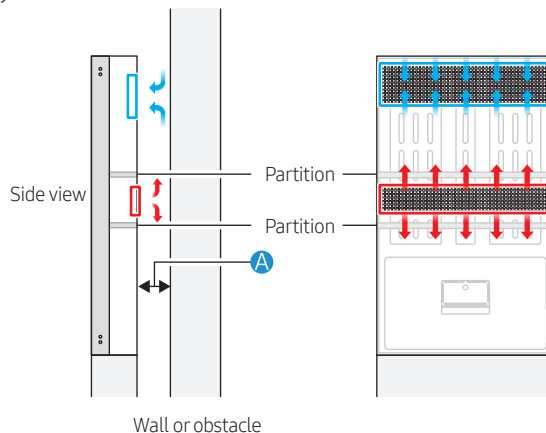
- Clearance from the wall (A)
 - Example 1) Atmospheric temperatures (B) under 35 °C without direct sunlight: 60 mm or more
 - Example 2) Exposure to direct sunlight: 200 mm or more
- Add partitions between the product and walls and make sure there is no gap between them to prevent discharged air from flowing back into the inlet.
- If the unit is subjected to excess heat due to an insufficient gap, this may cause a malfunction, which will not be covered by the warranty.



Clearance for installing with the enclosure unit

When installing an enclosure unit close to the wall, maintain the clearance in order to secure air flow. Consult your provider for detailed requirements before installing the product. Excessive heat due to the use of the enclosure unit with an obstacle or a wall may cause a malfunction or a problem with the product.

- Clearance (A): 200 mm or more
- Remove any obstacles near the inlet and outlet that may affect air flow.
- If the unit is subjected to excess heat due to an insufficient gap, this may cause a malfunction, which will not be covered by the warranty.

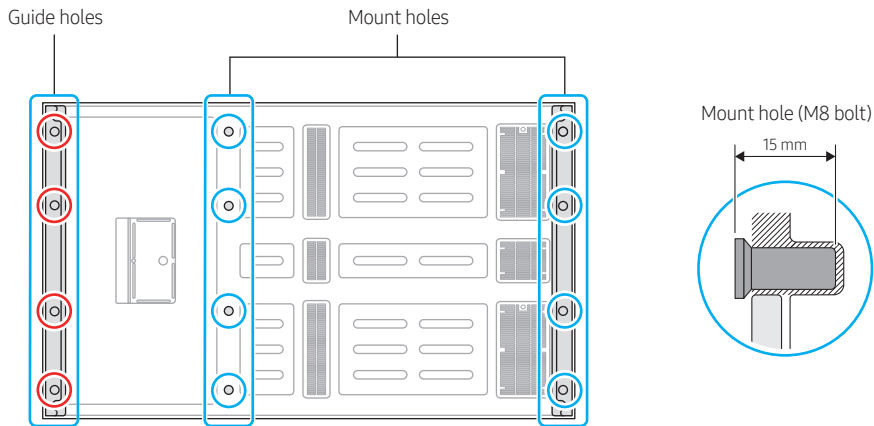


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Installing the wall-mount

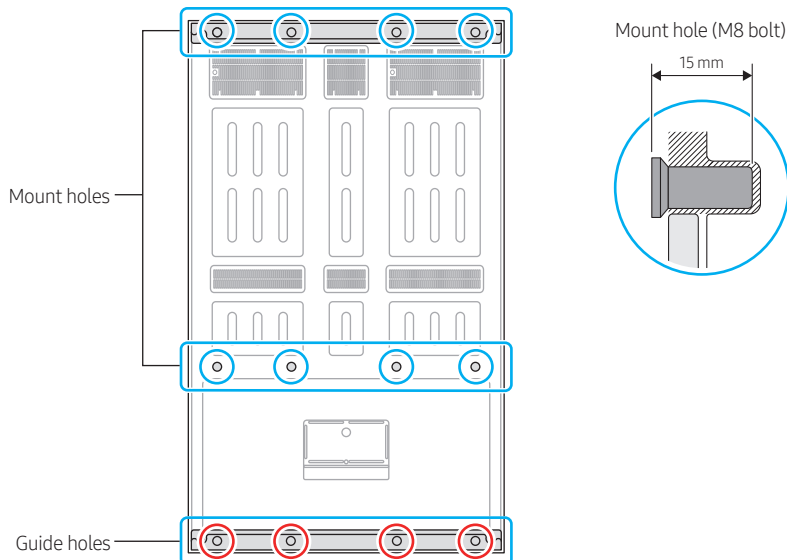
Landscape installation

- Do not use the 4 holes on the left as they are NOT mount holes.
 - Use M8 bolts in the 8 holes for mounting, 4 in the center and 4 on the right.
- Choose the length based on the mount thickness. The mount hole depth for this product is 15 mm (except the mount).
Use the M8 bolts that can be fastened into at least 10 mm out of the 15 mm holes after passing through the mount.
- M8 bolts are not included.



Portrait installation

- Do not use the 4 holes at the bottom as they are NOT mount holes.
 - Use M8 bolts in the 8 holes for mounting, 4 at the top and 4 in the center.
- Choose the length based on the mount thickness. The mount hole depth for this product is 15 mm (except the mount).
Use the M8 bolts that can be fastened into at least 10 mm out of the 15 mm holes after passing through the mount.
- M8 bolts are not included.



- The guide for OH85N/(LH85OHNSKGB/**) only applies when the product is used with an enclosure unit that has a protective glass added to the front side.

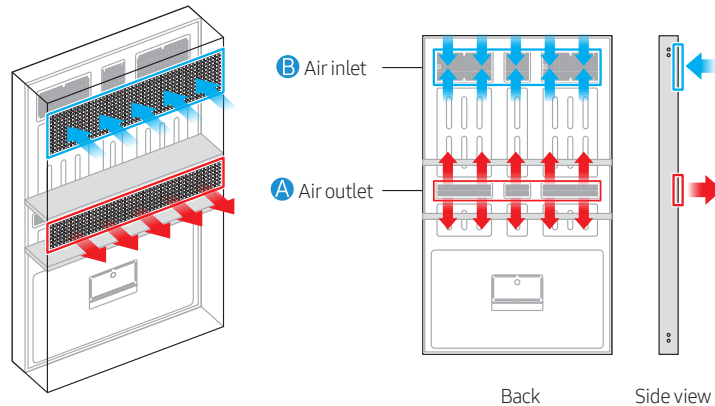
02 Enclosure unit design guide

- Contact our Tech Consulting team for support when you wish to use the product with an enclosure unit. The following provides a basic guide and information for designing an enclosure unit.

Air flow direction

This product uses cooling fans to take in outside air to lower the internal temperature and discharge the hot air.

- When installing the product, remove any obstacles near the air inlet and outlet that may affect air flow.

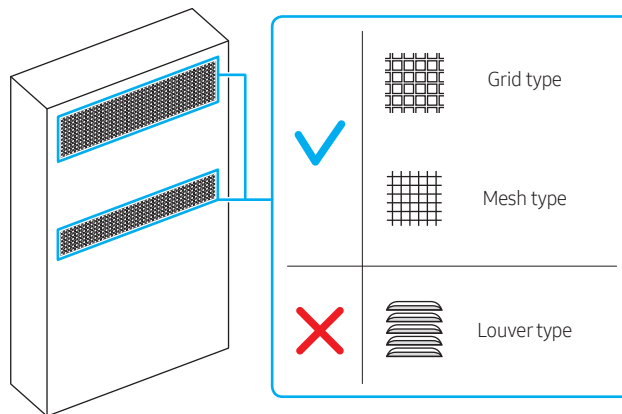


Inlet and outlet types

Ventilation opening ratio for air inlet and outlet should be minimum 70%

Air inlet and outlet should be grid or mesh types.

- Do not use the louver type as it has a limited intake size.

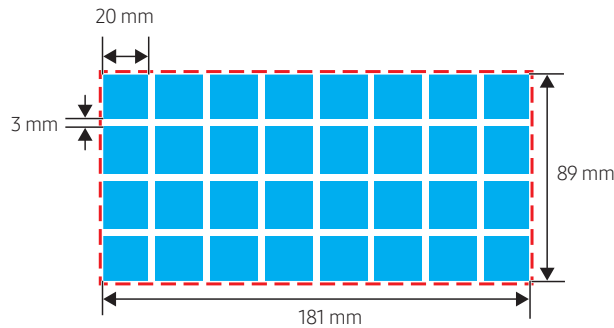


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Total open area of the ventilation holes and ratio

Follow the guide when combining the product with the enclosure unit.

- If the instructions provided in this guide are not observed, the cooling system may not work properly and may cause a malfunction, which will not be covered by warranty.
- Calculating Total open area of the ventilation and Ventilation opening ratio



Total Area of the Ventilation: $181 \times 89 = 16,109 \text{ mm}^2$



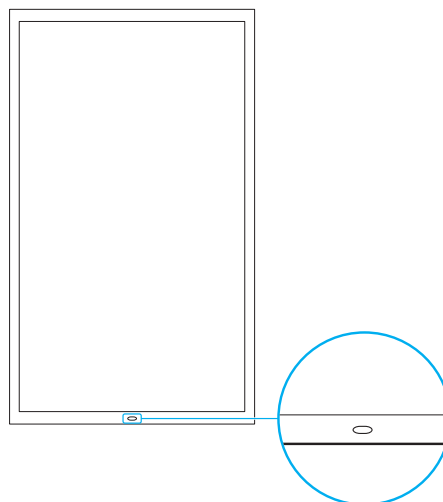
Total open area of Ventilation holes : $20 \times 20 \times 32 = 12,800 \text{ mm}^2$

$$\text{Ventilation opening ratio: } \frac{\text{Total open area of Ventilation holes}}{\text{Total Area of the Ventilation}} = \frac{12,800 \text{ mm}^2}{16,109 \text{ mm}^2} \times 100 = 79 \%$$

Precautions for enclosure unit designing

Consider the location of the IR Remote and Eco Sensor on your product when designing an enclosure unit.

- The sensor may not work or cause the screen to darken if the sensor is sufficiently exposed.



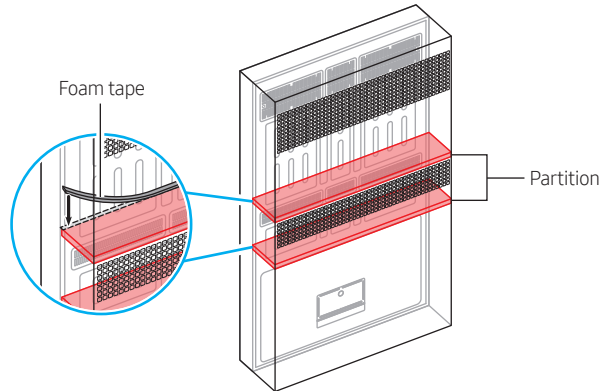
IR Remote Sensor/ Eco Sensor

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Enclosure unit partition design

Partition design guide

When using the product with an enclosure unit, add partitions between the inlet and outlet to keep air paths separated. Partitions should fit perfectly inside the enclosure unit, with no gap. If there is a gap, use a foam tape to fill it.



The structure of the enclosure must be designed to clean the inlet / outlet / heat exchanger regularly.

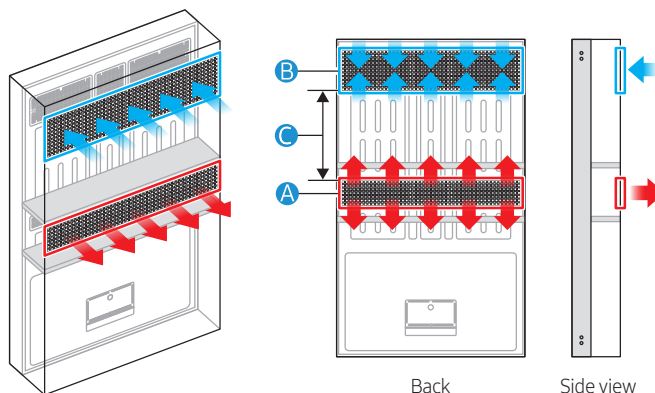
Ex) Add a door for workers to ensure access for cleaning with the tools.

For details, see [Cleaning and cautions](#).

Single enclosure unit

Design the enclosure unit according to the following specifications to keep discharged hot air from flowing back into the inlet.

- Air inlet (B)
 - Total open area of the ventilation holes: 63000 mm² or more
 - Ventilation opening ratio (% of total opening): 70 % or more
- Air outlet (A)
 - Total open area of the ventilation holes: 63000 mm² or more
 - Ventilation opening ratio (% of total opening): 70 % or more
- Design the locations of the enclosure unit inlet and outlet to match the locations of the product inlet and outlet.
- Ensure the minimum clearance between inlet and outlet of the enclosure (C).
 - Clearance (C): 380 mm or more

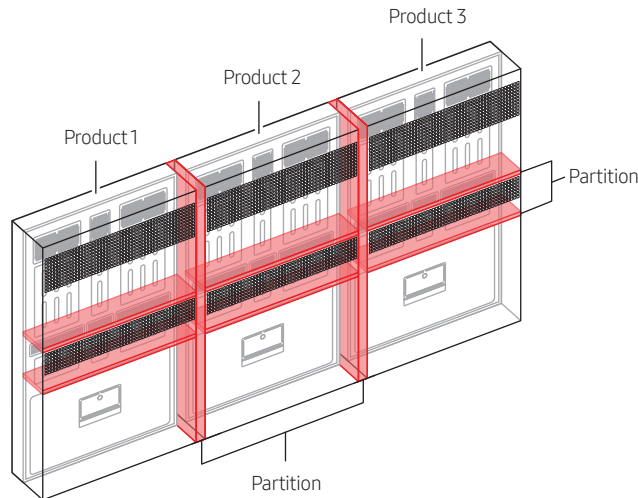


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1 x N one-side unit design

When designing the 1 x N one-side enclosure unit, add partitions between the products to keep the air paths separated.

- Refer to the 'Total open area of the ventilation holes and ratio'. ([page 15](#))
- Make sure there is no gap between the partitions and the enclosure unit.



Double-sided design

- Double-sided design is not supported.

To add devices such as a media player

If installing other devices such as a media player, use partitions to make sure they are installed separately from the product.

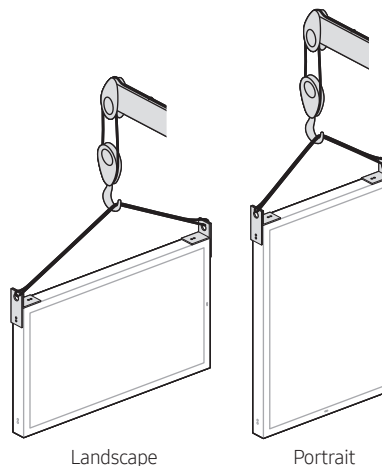
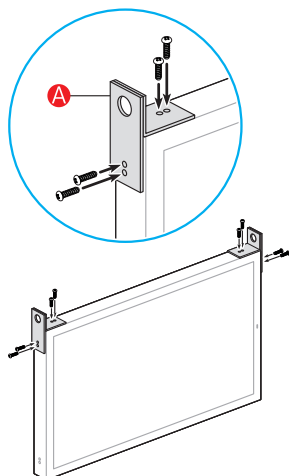
- Heat from other devices can increase the temperature inside the enclosure unit and cause a malfunction, which will not be covered by the warranty.
- Design to make sure there is no gap around the partitions due to cable connections.

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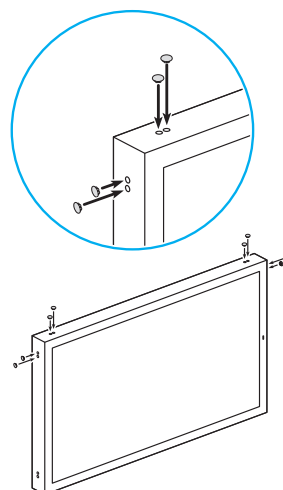
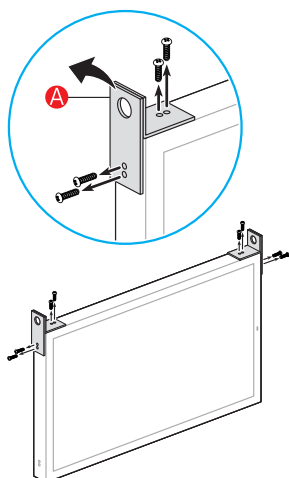
03 Handling guide

Moving by crane

1. To use a crane, attach Bracket-Hang (A) to the top and the sides of the product, and fasten the bolts.
 - To purchase the Bracket-Hang (A) and bolts (M8 x L23), contact your provider or Samsung.
2. Use the crane to move the product.



3. When the product has been brought to the installation site, unfasten and remove the Bracket-Hang (A) and bolts.
 - Cover-Caps for your product are found enclosed in the package.
4. Place Cover-Caps in the holes on the top and sides.



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04 Cleaning and cautions

Cleaning

Cleaning the protection glass

- Consult the manufacturer of the tempered glass for cleaning.

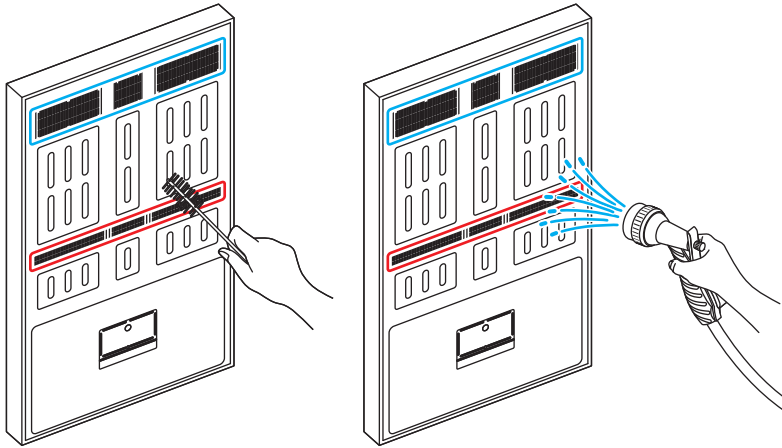


- The guide for OH85N/(LH85OHNSKGB/**) only applies when the product is used with an enclosure unit that has a protective glass added to the front side.

Cleaning the inlet and outlet

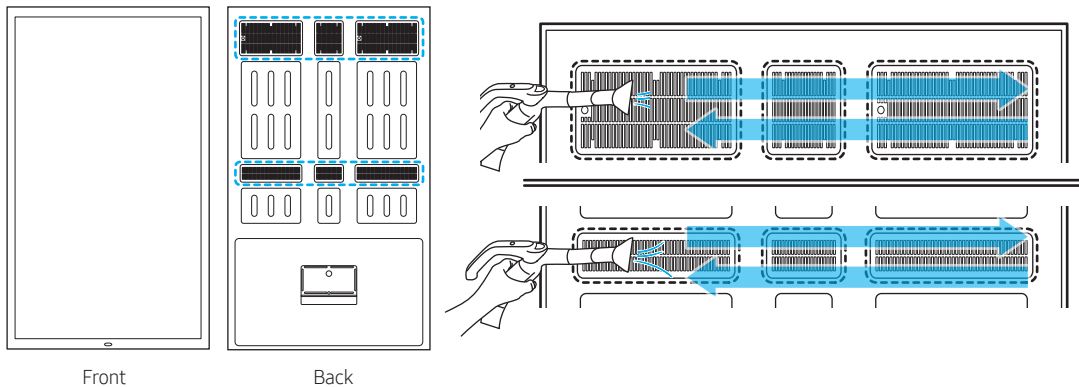
Use a brush to remove any debris from the inlet and outlet opening.

- To remove tough stains, wipe using a cloth with a small amount of ethanol based cleaner.
- If washing with water, keep the pressure below 0.5 bar.



Check once every 6 months and clean the inlet and outlet if they are covered/blocked by dust and other materials (more than 20 %).

- Remove power before cleaning. Use an industrial-grade vacuum cleaner (vacuum degree 2600 - 3000 mm H2O).

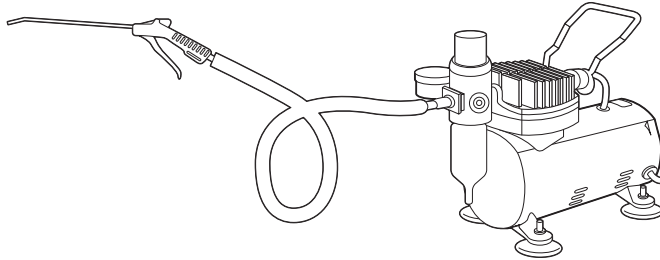


Heat Exchanger cleaning/Maintenance

Recommended tools / equipment

To clean the display properly, only use the tools / equipment that meet recommendations below.

- High-pressure compressor airgun (pressure: 5,000 mmH₂O or higher)



Cleaning and maintenance cycle of the heat exchanger

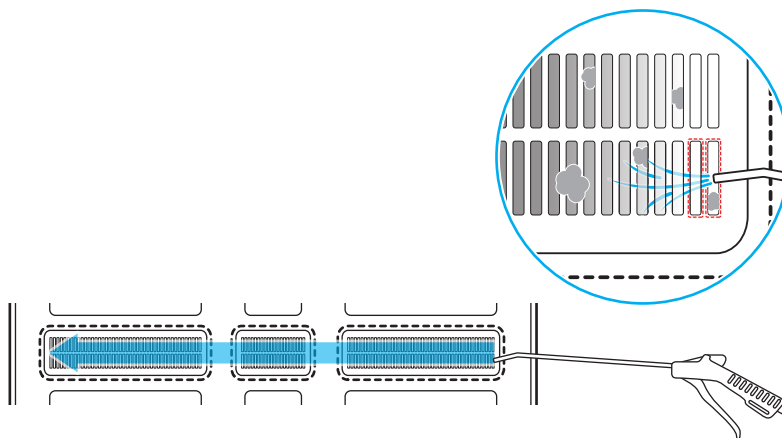
Samsung outdoor display needs regular cleaning and maintenance on heat exchange. Failure to comply with the guide may cause the product to malfunction, which voids the product warranty.

For the cleaning cycle, follow the instructions below.

- It is recommended to clean the display at least once every 3 months following the provided cleaning guide.
- At dusty areas such as bus stops or subway stations, it is recommended to clean the display every month.
- Samsung outdoor display is designed to be cool down mostly with air ventilation. Check if the cooling fan of the display operates properly on every visit for inspection.

How to clean the heat exchanger

- Turn off the display and disconnect the power cable.
- As shown below, use the airgun to clean the dust, which is attached to the fins of the heat exchanger, by injecting high-pressure air(5 bar or higher) in the rear of the outlet of OH85N.
- Inject high-pressure air for more than 5 seconds between the fins of the heat exchanger closely.

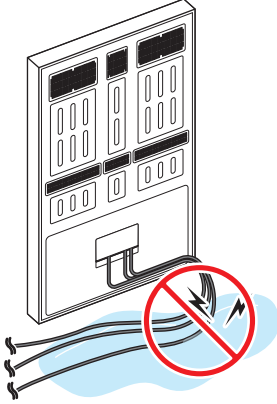


- Turn on the display when completed.
- When the display turns on, check if it operates properly.
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Precautions

Cautions when routing cables

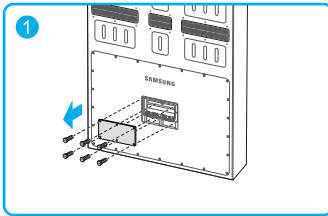
- Route cables connected to the product in a manner that keeps them away from water.



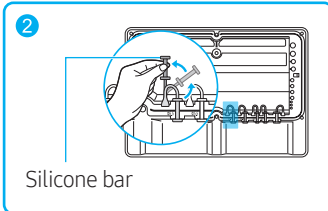
- The guide for OH85N/(LH85OHNSKGB/**) only applies when the product is used with an enclosure unit that has a protective glass added to the front side.

Before connecting cables

- The color and the appearance may differ depending on the product, and specifications are subject to change without prior notice to improve the performance.



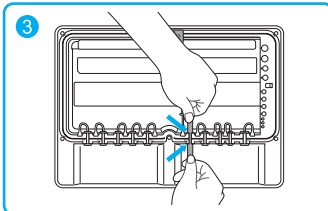
Unfasten the screws, then remove the cover.



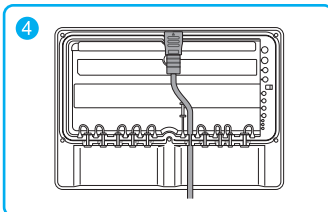
Remove the appropriate silicone bar for the thickness of the cable to connect.

Different hole sizes and corresponding cable thickness for each

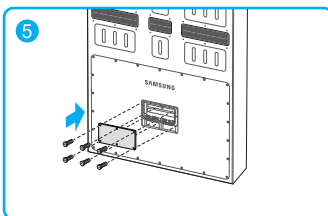
- 7 Ø x 1: Insert the 7 Ø cable
- 5.5 Ø x 6: Insert the 5.5 Ø cable
- 3 Ø x 2: Insert the 3 Ø cable
- 8.5 Ø x 1: Insert the 8.5 Ø cable



Insert the appropriate cable into the hole from which the silicone bar was removed.



The cable should be connected as shown.



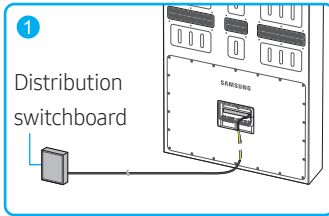
Close the cover, then fasten the screws.

- After all the cables are connected, make sure to close the cover and fasten the screws to ensure it is watertight.
- Recommended torque: 10 - 12 kgf.cm

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Connecting the power cable

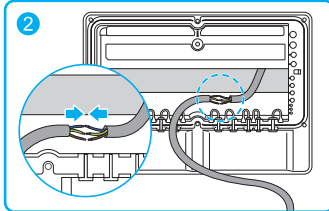
- The color and the appearance may differ depending on the product, and specifications are subject to change without prior notice to improve the performance.



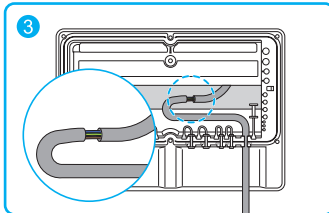
Distribution switchboard

Make sure that you have a 8.5 mm diameter waterproof power cable that can withstand 1800 W or higher.

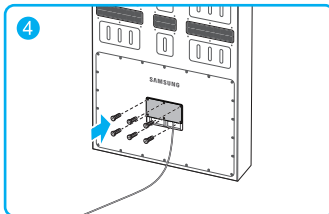
- The power cable must be connected to a 20 A or higher amperage circuit.



Connect the two power cables by soldering and insulate the area.



Place the soldered (connected) part of the cable inside the product.




















Place the back cover and fasten the screws.

Different power cable colors by country

When connecting an external power cable, be sure to match the colors of its wires with those of the 3 wires inside the product's power cable. The meaning (Neutral, Live or Ground) of each wire color of the external power cable may differ depending on the country.

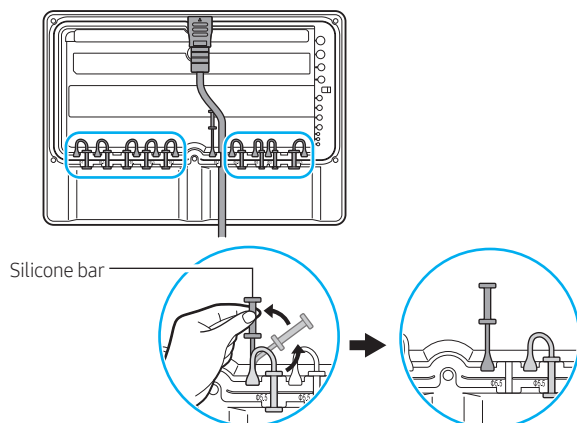
- Be sure to refer to the following table to correctly connect wires by the same meaning:

Neutral	Live	Ground	Region
Blue 	Brown 	Green/yellow 	Others
White 	Black 	Green  or green/yellow 	America
Blue 	Brown 	Green/yellow 	Europe
Black 	Red 	Green/yellow 	India
White 	Black 	Green  or green/yellow 	Taiwan & Japan

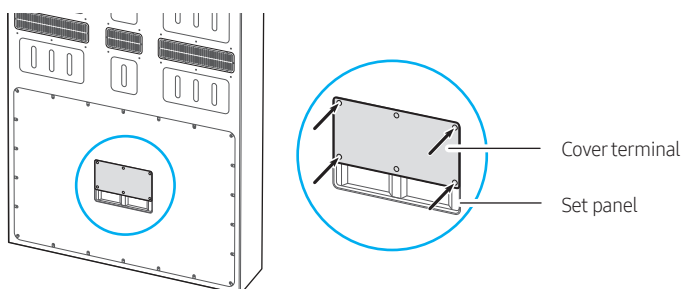
- The guide for OH85N/(LH85OHNSKGB/**) only applies when the product is used with an enclosure unit that has a protective glass added to the front side.

Cautions when connecting cables

- Remove the appropriate silicon bar before connecting cables.
 - 7 Ø hole: For inserting 7-7.5 Ø cables
 - 5.5 Ø hole: For inserting 5.5-6 Ø cables
 - 3 Ø hole: For inserting 3-3.5 Ø cables
- Do not remove silicon bars where there is no cable connection. This will lessen the protection of your product against water and may result in a malfunction due to water damage, which will not be covered by the warranty.



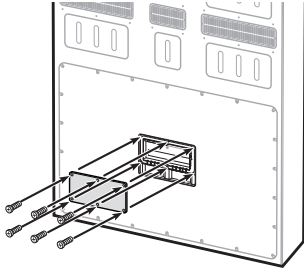
- After complete cabling, ensure that there is no gap between the set panel and the cover terminal.
- A gap may allow water damage and product malfunction.



- The guide for OH85N/(LH85OHNSKGB/**) only applies when the product is used with an enclosure unit that has a protective glass added to the front side.

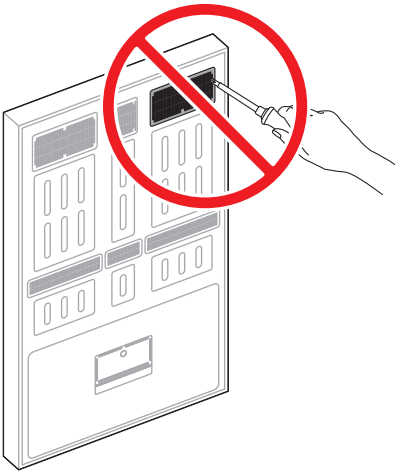
OH85N/(LH85OHNSKGB/**)

- After all the cables are connected, make sure to close the cover and fasten the screws to ensure it is watertight.



Cautions when replacing parts

- This product is designed to resist water and dust. Do not disassemble the product.
- If disassembly is necessary due to a malfunction, contact the service center.



- The guide for OH85N/(LH85OHNSKGB/**) only applies when the product is used with an enclosure unit that has a protective glass added to the front side.

**OH85N-D(K)/
(LH850HNDKGB/**)**

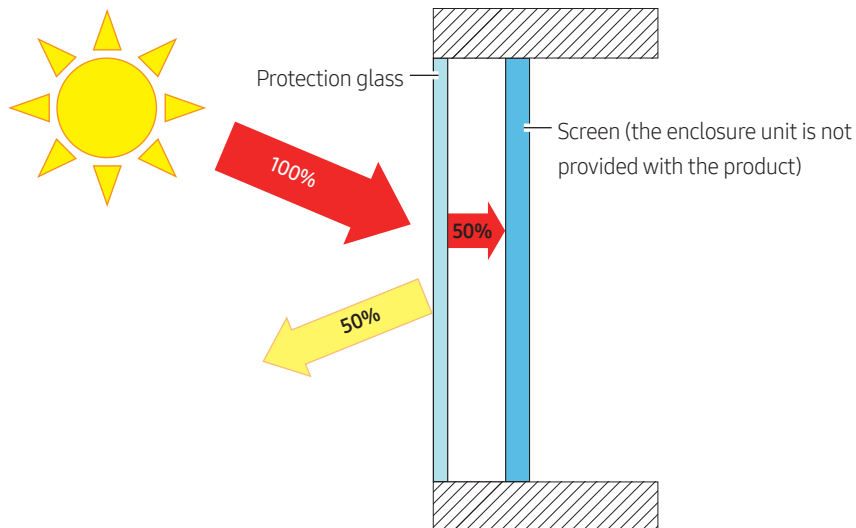
05 Prior to Installation

- Please contact our Global Tech Sales team for support through your local Presales team before installing the Kit Model.
- This product can be installed in Portrait orientation, but not in Landscape.

Protection glass: specifications and installation guide

This product does not have a protection glass on the panel front. Add a protection glass to the front side of the enclosure unit before use.

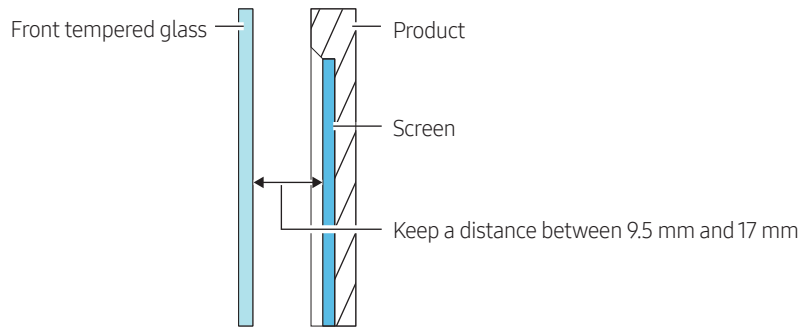
Specification of the protection glass



- To block direct sunlight at least 50%, you must use specially treated tempered glass. (Anti Reflection, UV 99% blocked, IR 80% or more blocked)

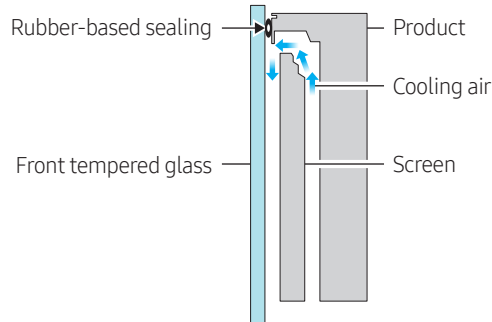
- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

Installing the protection glass



Samsung guarantees the product's water and dust resistance performance (IP56). This guarantee, however, does not cover any issues resulted from the choice of non-recommended protection glass or installation method. (Examples: Issues caused by the ingress of dust or humidity from outside or due to insufficient insulation against solar heat, e.g., dust, dirt, wetness inside the protection glass)

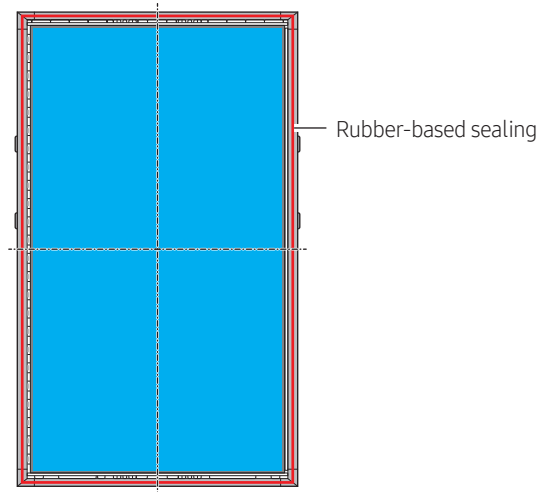
- Maintain 9.5 mm - 17 mm of clearance between the protection glass and LCD panel surface.



- To cool off the screen, it is necessary to completely block it from the outside with a tempered glass front. As shown in the figure, the cooled air inside flows from top to bottom to cool off the screen. Therefore, when designing the enclosure, it is important to ensure that internal air does not leak to the outside through the tempered front glass.

- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

OH85N-D(K)/(LH85OHNDKGB/**)

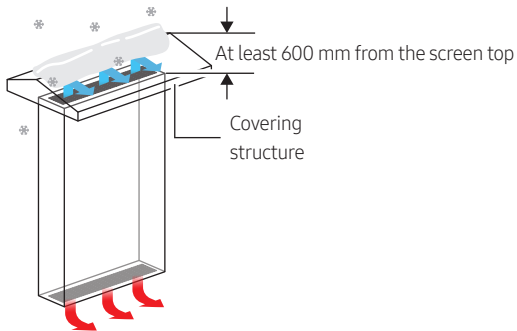


- OH85N and front protection glass must be in close contact with each other using a rubber-based sealing product.
- It should be installed so that internal air does not leak to the outside, and it should prevent external moisture and dust from penetrating the display.
- Consult with Samsung engineers for additional technical support.

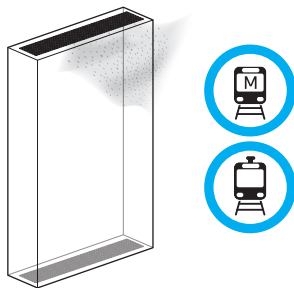
- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

Surrounding environment

Ensure to have the top space for workers to access/clean the inlet/outlet/heat exchanger and to insert cleaning jig.
For details, see [Cleaning and cautions](#).



- The airway into and out of the product can be blocked when the inlet (or outlet) is covered by a pile of frozen snow, dust, or tree leaves. Install a covering structure to avoid matters piling directly onto the inlet. Blocked ventilation due to snow or dust covering the inlet or outlet may cause a malfunction.



- The product can be used in a train or subway station.
The product is designed to keep out iron dust.

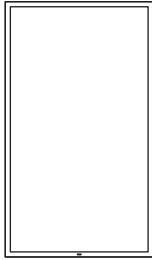


- When installed in beach area, make sure the display is placed where seawater cannot reach.
- Ensure the display unit installed location is within safe distance from the possible contact from rising seawater due to strong winds due to storm or other natural phenomenon.

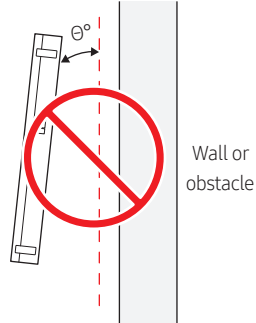
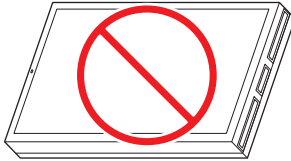
- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

Rotation and tilt angle

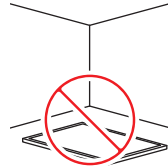
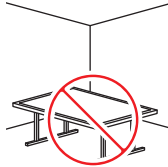
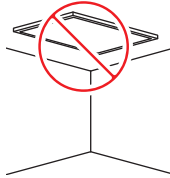
- This product can be installed in Portrait orientation, but not in Landscape.
- Contact Samsung Customer Service Centre for further details.



Portrait



- Do not use this model installed on a ceiling, floor, or table.



- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

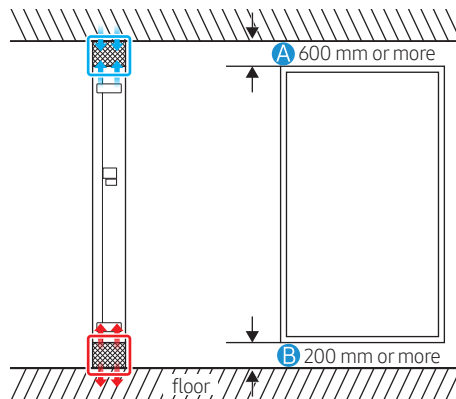
Clearance for installation

Ensure to have the top space for workers to access/clean the inlet/outlet/heat exchanger and to insert cleaning jig.
For details, see [Cleaning and cautions](#).

Clearance for installation

When installing the product, maintain the clearances (A) and (B) in order to secure air flow.

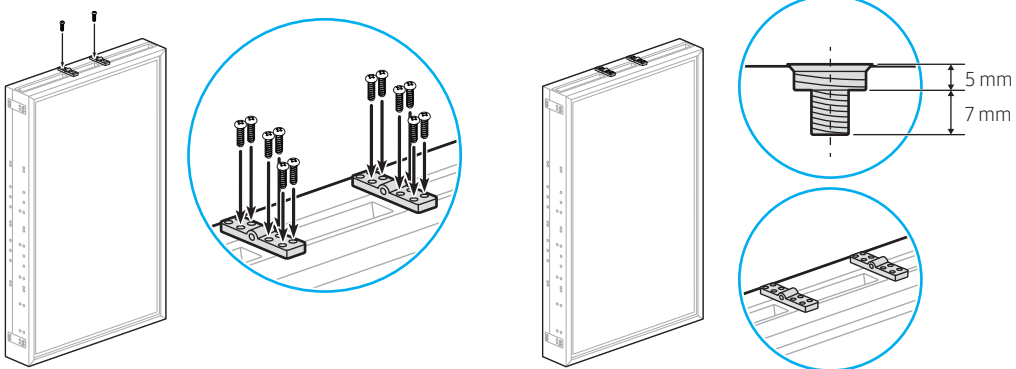
- Top clearance (A)
 - 600 mm or more
- Bottom clearance (B)
 - Clearance from the floor: 200 mm or more
- Remove any obstacles near the inlet and outlet that may affect air flow.
- If the unit is subjected to excess heat due to an insufficient gap, this may cause a malfunction, which will not be covered by the warranty.



Hinge installation guide

Refer to the image below when installing the Hinge.

- Use sets of 6 dedicated M8 bolts for Hinge installation.
- To purchase the hinge and M8 bolts (M8 x L23), contact your retailer or Samsung customer support.



- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

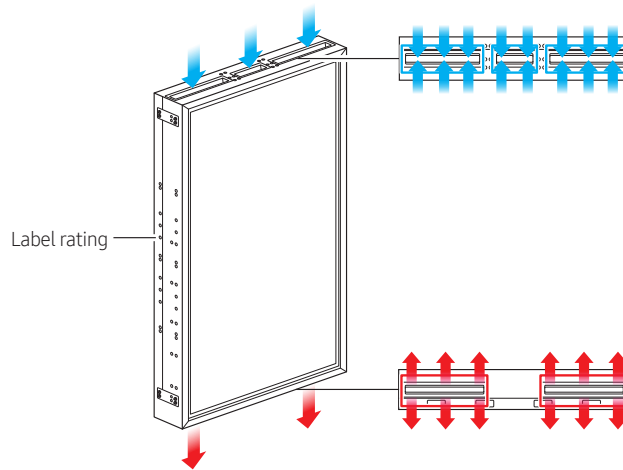
06 Enclosure unit design guide

- Contact our Tech Consulting team for support when you wish to use the product with an enclosure unit. The following provides a basic guide and information for designing an enclosure unit.

Air flow direction

This product uses cooling fans to take in outside air to lower the internal temperature and discharge the hot air.

- When installing the product, remove any obstacles near the air inlet and outlet that may affect air flow.

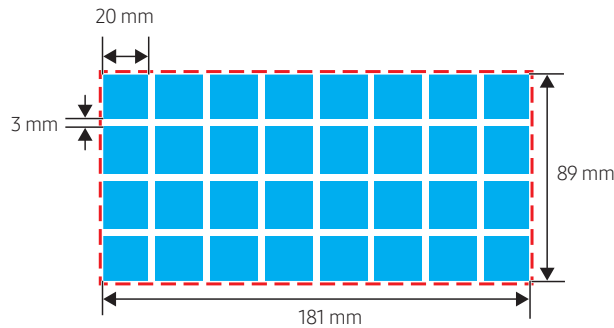


- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

Total open area of the ventilation holes and ratio

Follow the guide when combining the product with the enclosure unit.

- If the instructions provided in this guide are not observed, the cooling system may not work properly and may cause a malfunction, which will not be covered by warranty.
- Calculating Total open area of the ventilation and Ventilation opening ratio



Total Area of the Ventilation: $181 \times 89 = 16,109 \text{ mm}^2$



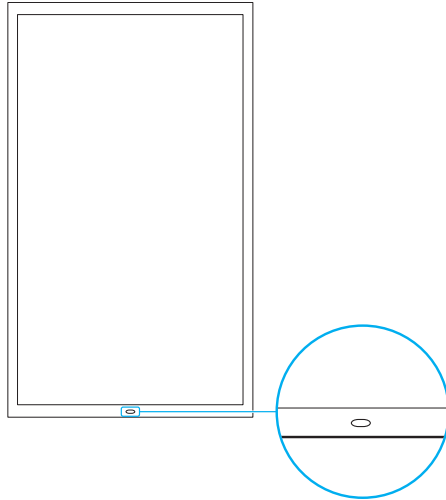
Total open area of Ventilation holes : $20 \times 20 \times 32 = 12,800 \text{ mm}^2$

$$\text{Ventilation opening ratio: } \frac{\text{Total open area of Ventilation holes}}{\text{Total Area of the Ventilation}} = \frac{12,800 \text{ mm}^2}{16,109 \text{ mm}^2} \times 100 = 79 \%$$

- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

Precautions for enclosure unit designing

- Consider the location of the IR Remote and Eco Sensor on your product when designing an enclosure unit.
- The sensor may not work or cause the screen to darken if the sensor is sufficiently exposed.



IR Remote Sensor/ Eco Sensor

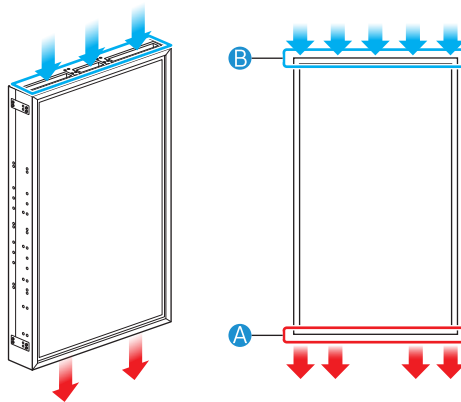
- Ensure to have the top space for workers to access/clean the inlet/outlet/heat exchanger and to insert cleaning jig.
- For details, see [Cleaning and cautions](#).

- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

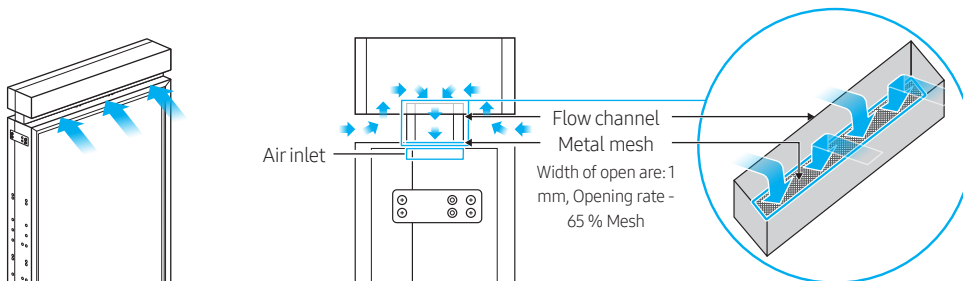
Single enclosure unit

Design the enclosure unit according to the following specifications to keep discharged hot air from flowing back into the inlet.

- Air inlet (B)
 - Open area of enclosure ventilation holes: 100,000 mm² or more.
 - The enclosure must apply metal mesh on the top of the inlet to protect impurities such as fallen leaves or lint. Must clean regularly. Cleaning instructions and cautions (page 40)
 - Recommendation for metal mesh: Width of open area = 1.0 mm or so / Opening rate - 65 % or more.
 - The flow channel must be designed to be curved to prevent inflow of pebbles or etc. (Refer to the image below)
 - Air outlet (A)
 - Open area of enclosure ventilation holes: 80,000 mm or more
 - Ventilation opening ratio (% of total opening): 70 % or more
- Design the locations of the enclosure unit inlet and outlet to match the locations of the product inlet and outlet.



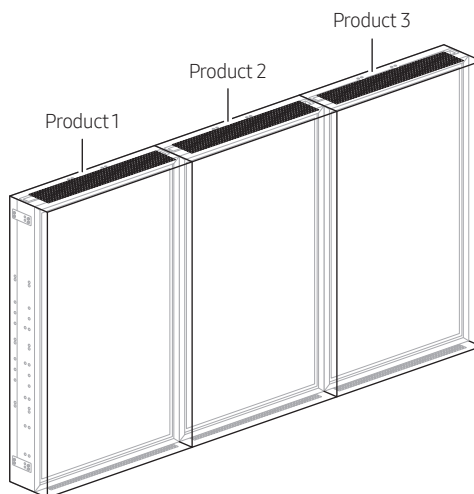
- In case of adding a flow channel and metal mesh to the inlet of the enclosure



- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

1 x N one-side unit design

- Refer to the 'Total open area of the ventilation holes and ratio'. ([page 35](#))

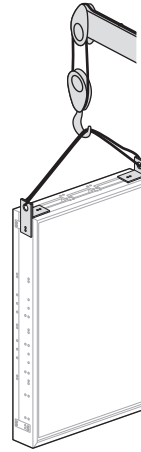
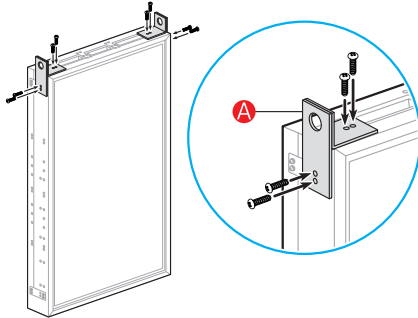


- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

07 Handling guide

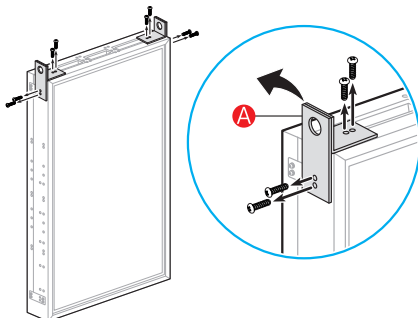
Moving by crane

1. To use a crane, attach Bracket-Hang (A) to the top and the sides of the product, and fasten the bolts.
 2. Use the crane to move the product.
- To purchase the Bracket-Hang (A) and bolts (M8 x L23), contact your provider or Samsung.



Portrait

3. When the product has been brought to the installation site, unfasten and remove the Bracket-Hang (A) and bolts.



- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

08 Cleaning and cautions

Cleaning

Cleaning the protection glass

- Consult the manufacturer of the tempered glass for cleaning.



Cleaning the metal mesh of the inlet

- The metal mesh must be cleaned every month regularly.

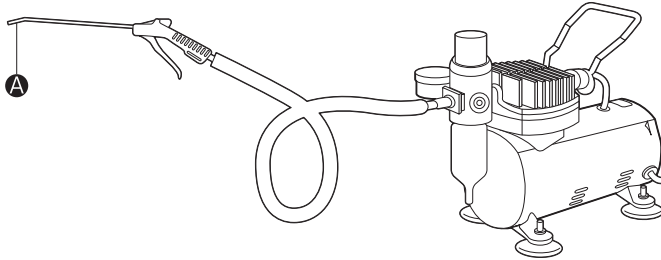
- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

Maintenance of the heat exchanger

Recommended tools / equipment

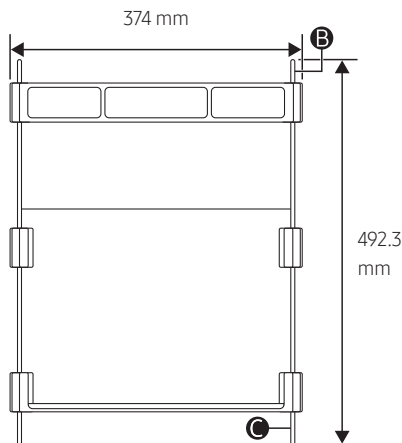
To clean the display properly, only use the tools / equipment that meet recommendations below.

- High-pressure compressor airgun (pressure: 5.000 mmH₂O or higher)

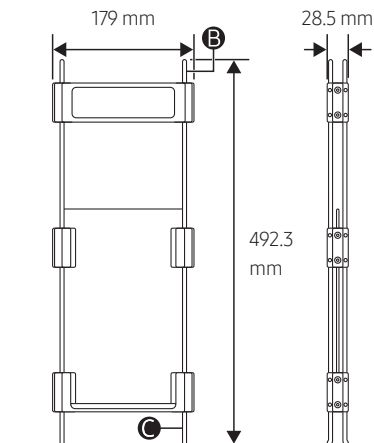


- Tools (cleaning jig)
 - To clean both small and large heat exchangers, you need two types of cleaning jigs.
 - Samsung provides the set of jigs to inject air inside as shown below.
 - Use tube(ex) rubber to connect the outlet air (A) from the high-pressure compressor with the inlet air (B) from the jig to maintain the outlet air (C) from high-pressure jig at 5 bar or higher.

Cleaning jig (for the large heat exchanger)



Cleaning jig (for the small heat exchanger)



※ External diameter of jig nozzle = 6.0 Φ

- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

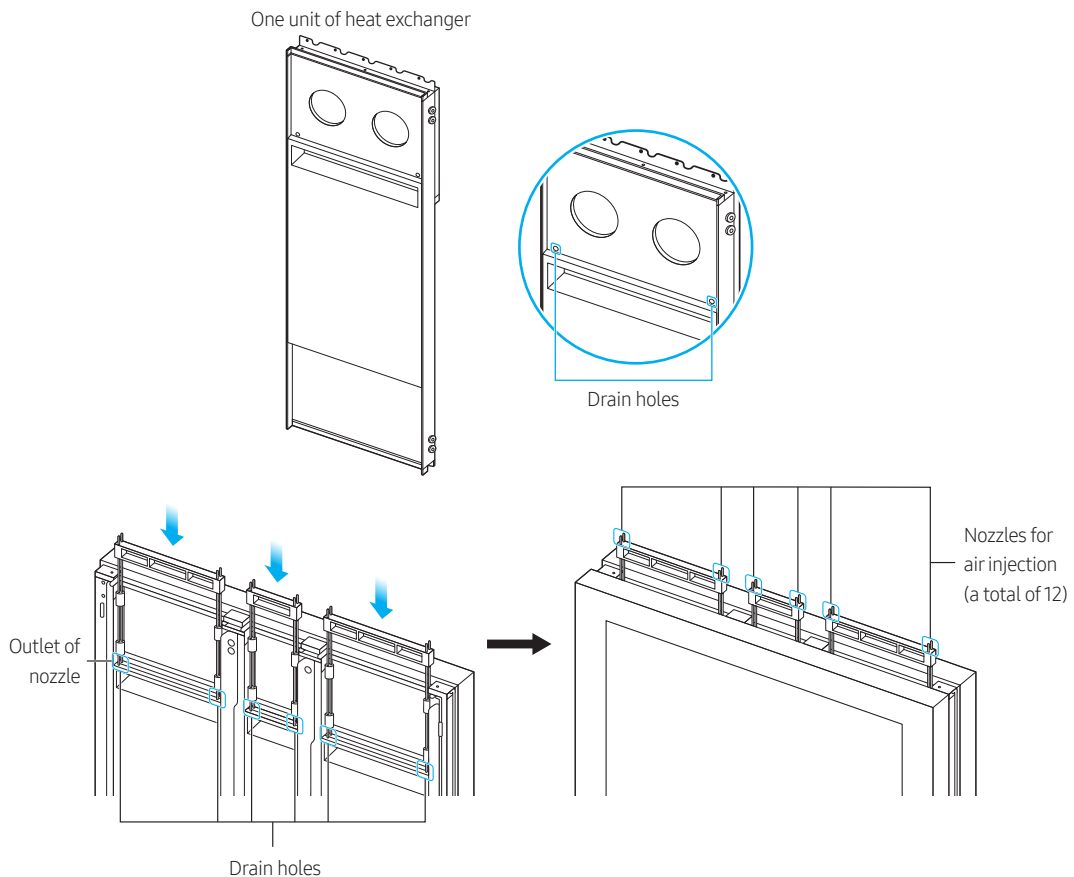
Cleaning and maintenance cycle of the heat exchanger

Samsung outdoor display needs regular cleaning and maintenance on heat exchange. Failure to comply with the guide may cause the product to malfunction, which voids the product warranty.

- It is recommended to clean the display at least once every 3 months following the provided cleaning guide.
- At dusty areas such as bus stops or subway stations, it is recommended to clean the display every month.
- The Samsung outdoor display is designed to be cool down mostly with air ventilation. Check if the cooling fan of the display operates properly on every visit for inspection.

How to clean the heat exchanger

- Turn off the display and disconnect the power cable.



- For cleaning the heat exchanger, insert the jig into the upper inlet of the display down to the bottom.
- The nozzles are positioned right in front of the drain holes.

- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

OH85N-D(K)/(LH85OHNDKGB/**)

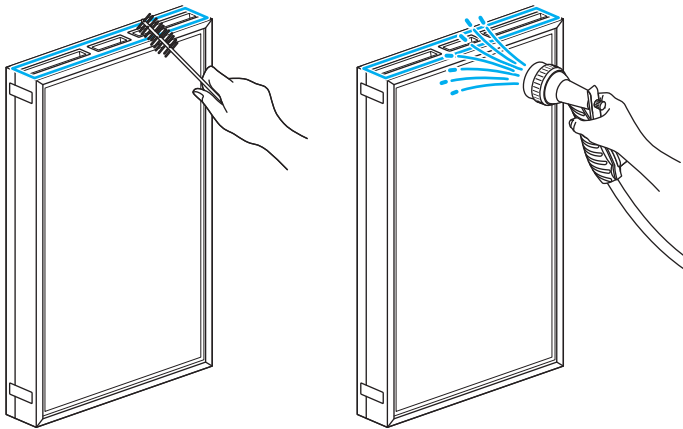
- Inject high-pressure air (5 bar or higher) into the heat exchanger through the jig nozzles to blow off the impurities on the fins of the heat exchanger.
- Each cleaning jig has 4 nozzles. High-pressure air needs to be injected to a total of 12 nozzles(1 set).
- To keep the air pressure at 5 bar from the inlet to the outlet of the nozzle, airgun needs to be directly connected to the nozzle seamlessly.
- For cleaning HEX regularly, ensure to have the enough top space of the heat exchanger for the jig to be inserted to the inlet holes on the top.

If you have any problem after cleaning the HEX by following the guide, contact a local Samsung service center for technical assistance.

Cleaning the inlet and outlet

Use a brush to remove any debris from the inlet and outlet opening.

- To remove tough stains, wipe using a cloth with a small amount of ethanol based cleaner.
- If washing with water, keep the pressure below 0.5 bar.

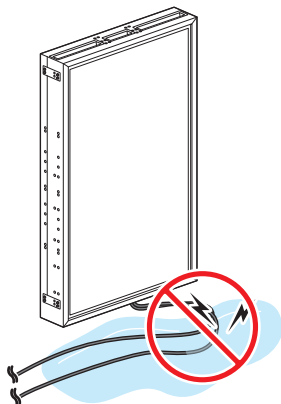


- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

Precautions

Cautions when routing cables

- Route cables connected to the product in a manner that keeps them away from water.

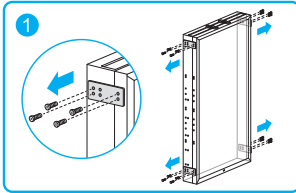


- Route cables away from the inlet and outlet.

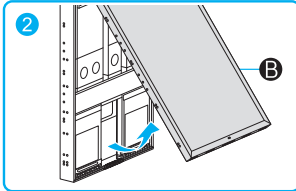
- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

Before connecting cables

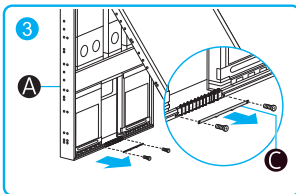
- The color and the appearance may differ depending on the product, and specifications are subject to change without prior notice to improve the performance.



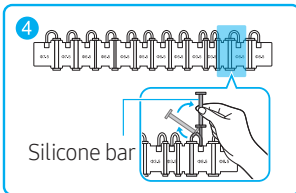
Remove screws from the brackets on both sides of the product.



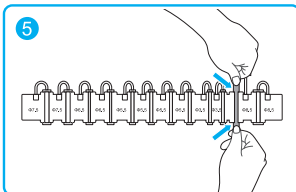
Open the auxiliary display (B).



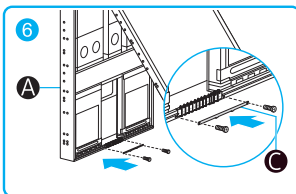
Remove the cable staple (C) at the bottom of the main display (A).



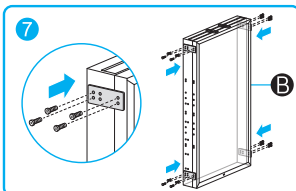
Remove the appropriate silicone bar for the thickness of the cable to connect.



Insert the appropriate cable into the hole from which the silicone bar was removed.



Once all cables are connected, place the cable staple (C) back to the bottom of the main display (A).

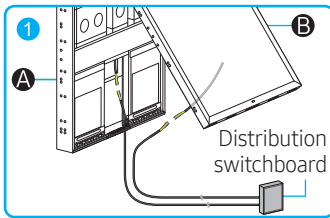


Close the auxiliary display (B) completely, then fasten the brackets on both sides of the product.

- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

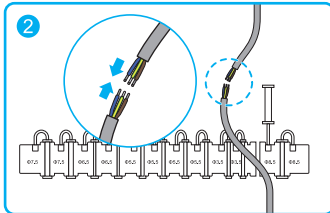
Connecting the power cable

- The color and the appearance may differ depending on the product, and specifications are subject to change without prior notice to improve the performance.

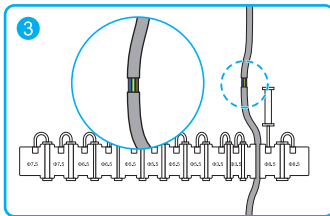


Make sure that you have a 8.5 mm diameter waterproof power cable that can withstand 1800 W or higher.

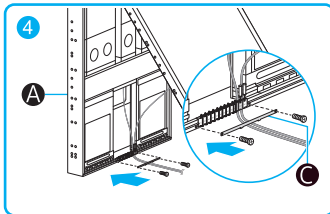
- The power cables from the main display (A) and the auxiliary display (B) should be connected to 40 A (20 A x 2) or higher amperage circuits.



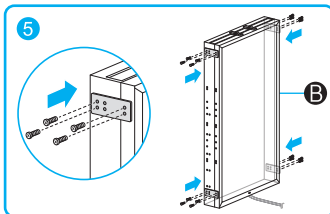
Connect the two power cables by soldering and insulate the area.



Place the soldered (connected) part of the cable inside the product.



Once all cables are connected, place the cable staple (C) back to the bottom of the main display (A).




















Close the auxiliary display (B) completely, then fasten the brackets on both sides of the product.

Different power cable colors by country

When connecting an external power cable, be sure to match the colors of its wires with those of the 3 wires inside the product's power cable. The meaning (Neutral, Live or Ground) of each wire color of the external power cable may differ depending on the country.

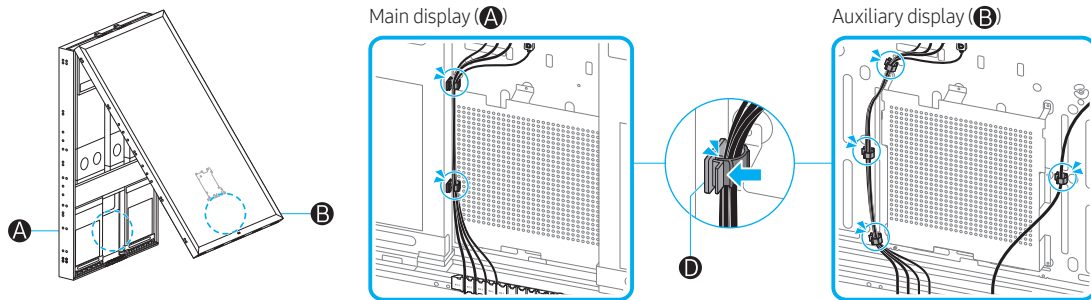
- Be sure to refer to the following table to correctly connect wires by the same meaning:

Neutral	Live	Ground	Region
Blue 	Brown 	Green/yellow 	Others
White 	Black 	Green  or green/yellow 	America
Blue 	Brown 	Green/yellow 	Europe
Black 	Red 	Green/yellow 	India
White 	Black 	Green  or green/yellow 	Taiwan & Japan

- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

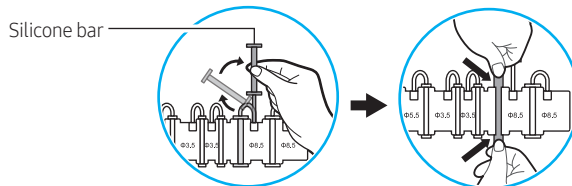
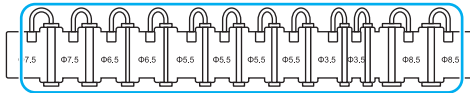
Wiring

- Use the enclosed clampers (D) to securely organize cables as shown in the below images.



Cautions when connecting cables

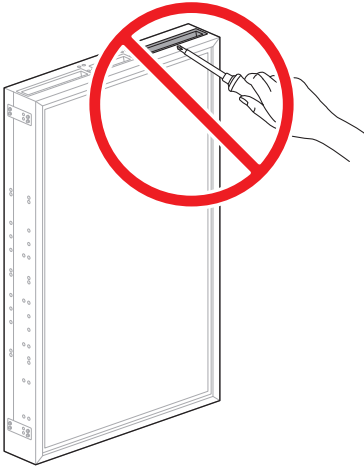
- Remove the appropriate silicon bar before connecting cables.
 - 7 Ø hole: For inserting 7-7.5 Ø cables
 - 5.5 Ø hole: For inserting 5.5-6 Ø cables
 - 3 Ø hole: For inserting 3-3.5 Ø cables
- Do not remove silicon bars where there is no cable connection. This will lessen the protection of your product against water and may result in a malfunction due to water damage, which will not be covered by the warranty.



- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

Cautions when replacing parts

- This product is designed to resist water and dust. Do not disassemble the product.
- If disassembly is necessary due to a malfunction, contact the service center.

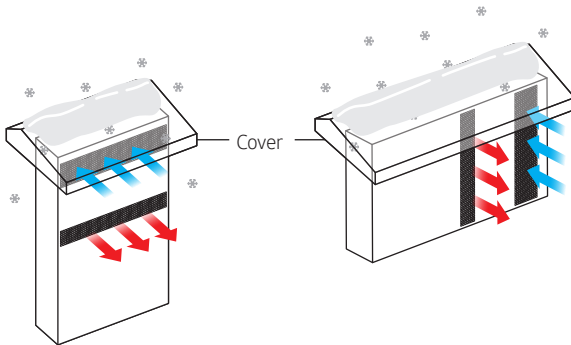


- The guide for OH85N-D(K)/(LH85OHNDKGB/**) only applies when the product is used with an enclosure that has a protective glass added to the front side.

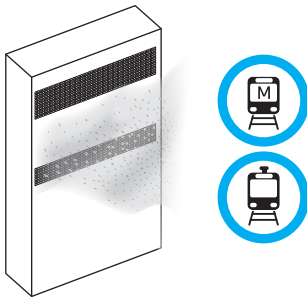
**OH85N/
(LH850HNSLGB/**)**

09 Prior to Installation

Surrounding environment



- The airway into and out of the product can be blocked when the inlet (or outlet) is covered by a pile of frozen snow, dust, or tree leaves. Install a cover to avoid snow piling directly onto the inlet. Blocked ventilation due to snow or dust covering the inlet or outlet may cause a malfunction.



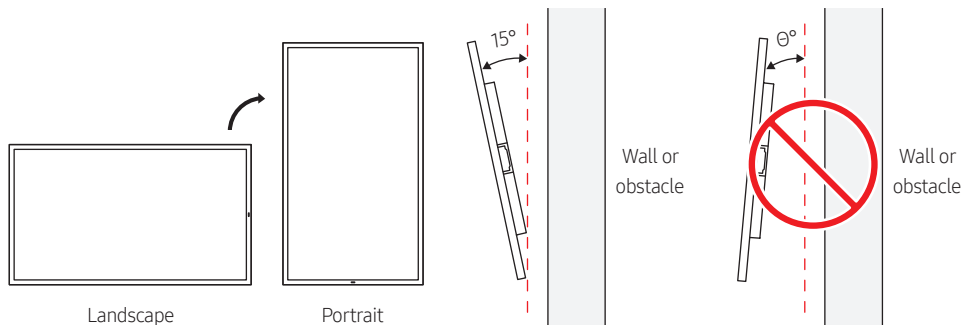
- The product can be used in a train or subway station.
The product is designed to keep out iron dust.



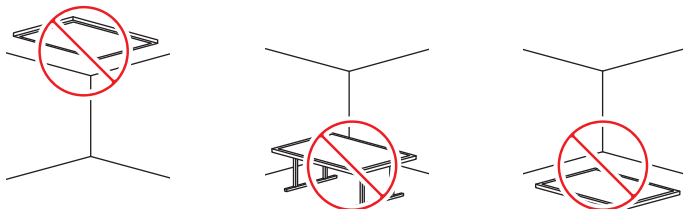
- When installed in beach area, make sure the display is placed where seawater cannot reach.
- Ensure the display unit installed location is within safe distance from the possible contact from rising seawater due to strong winds due to storm or other natural phenomenon.

Rotation and tilt angle

- This product can be installed in Landscape or Portrait orientations.
- This product can be installed in a tilted position on a vertical wall or an obstacle, up to 15°.
- Contact Samsung Customer Service Centre for further details.



- Do not use this model installed on a ceiling, floor, or table.



Clearance for installation

Ensure to have the rear space for workers to access/clean the inlet/outlet/heat exchanger with cleaning tools.

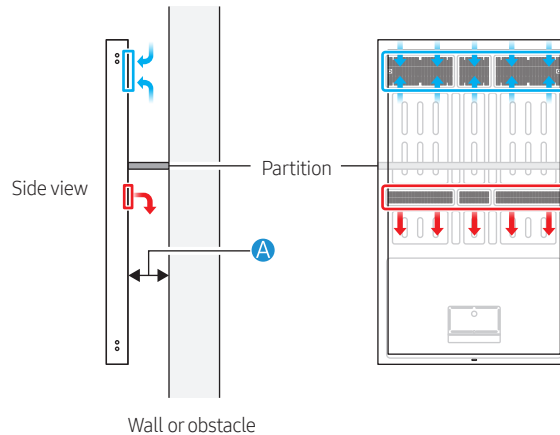
For details, see [Cleaning and cautions](#).

- The clearance for the installation below is the minimum distance for preventing malfunction due to overheat of the product.

Clearance for installing the product alone

When installing the product close to the wall, maintain the clearance (A) in order to secure air flow.

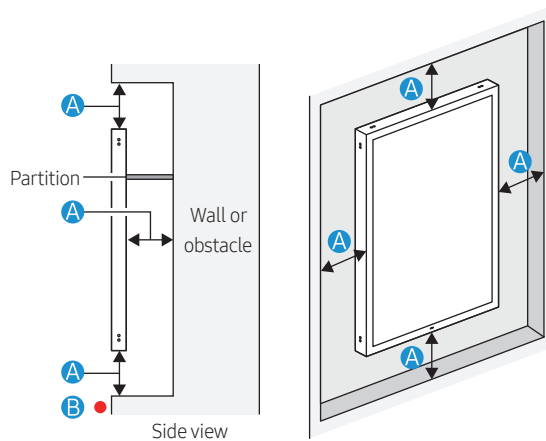
- Clearance from the wall (A)
 - Example 1) Atmospheric temperatures under 35 °C without direct sunlight: 60 mm or more
 - Example 2) Exposure to direct sunlight: 200 mm or more
- Remove any obstacles near the inlet and outlet that may affect air flow.
- Add partitions between the product and walls and make sure there is no gap between them to prevent discharged air from flowing back into the inlet.
- If the unit is subjected to excess heat due to an insufficient gap, this may cause a malfunction, which will not be covered by the warranty.



Clearance for built-in installation

When installing built-in to the wall, maintain the clearance (A) from the back, top, bottom, and sides of the product in order to secure air flow.

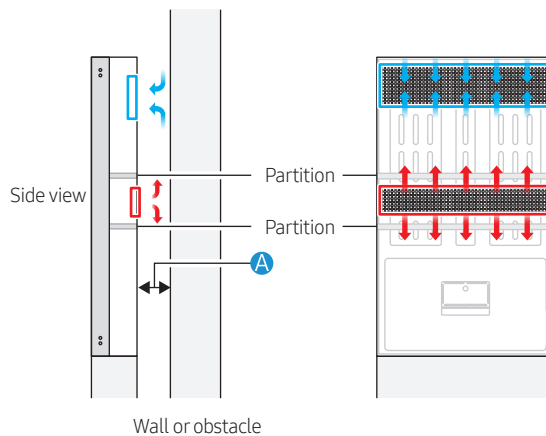
- Clearance from the wall (A)
 - Example 1) Atmospheric temperatures (B) under 35 °C without direct sunlight: 60 mm or more
 - Example 2) Exposure to direct sunlight: 200 mm or more
- Add partitions between the product and walls and make sure there is no gap between them to prevent discharged air from flowing back into the inlet.
- If the unit is subjected to excess heat due to an insufficient gap, this may cause a malfunction, which will not be covered by the warranty.



Clearance for installing with the enclosure unit

When installing an enclosure unit close to the wall, maintain the clearance in order to secure air flow. Consult your provider for detailed requirements before installing the product. Excessive heat due to the use of the enclosure unit with an obstacle or a wall may cause a malfunction or a problem with the product.

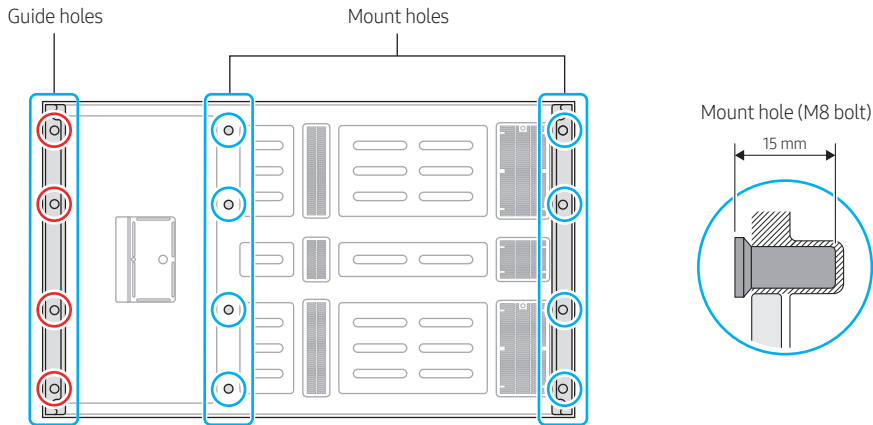
- Clearance (A): 200 mm or more
- Remove any obstacles near the inlet and outlet that may affect air flow.
- If the unit is subjected to excess heat due to an insufficient gap, this may cause a malfunction, which will not be covered by the warranty.



Installing the wall-mount

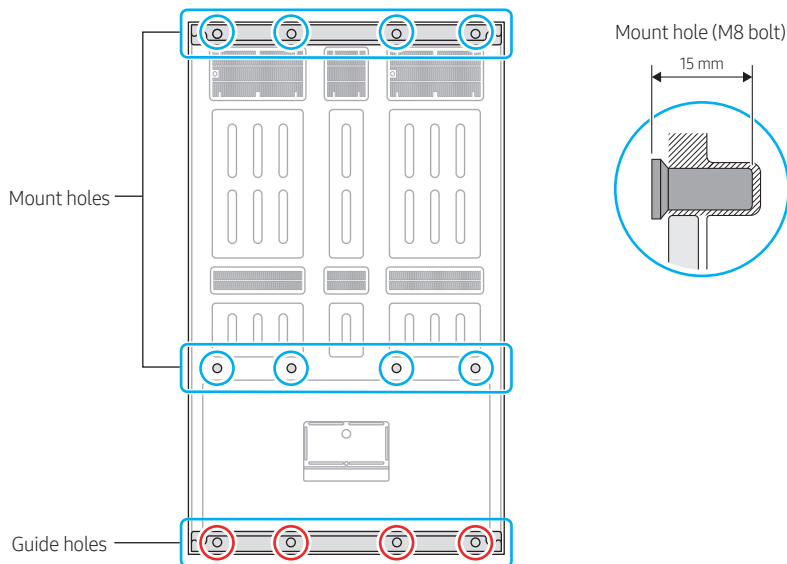
Landscape installation

- Do not use the 4 holes on the left as they are NOT mount holes.
- Use M8 bolts in the 8 holes for mounting, 4 in the center and 4 on the right.
Choose the length based on the mount thickness. The mount hole depth for this product is 15 mm (except the mount). Use the M8 bolts that can be fastened into at least 10 mm out of the 15 mm holes after passing through the mount.
- M8 bolts are not included.



Portrait installation

- Do not use the 4 holes at the bottom as they are NOT mount holes.
- Use M8 bolts in the 8 holes for mounting, 4 at the top and 4 in the center.
Choose the length based on the mount thickness. The mount hole depth for this product is 15 mm (except the mount). Use the M8 bolts that can be fastened into at least 10 mm out of the 15 mm holes after passing through the mount.
- M8 bolts are not included.



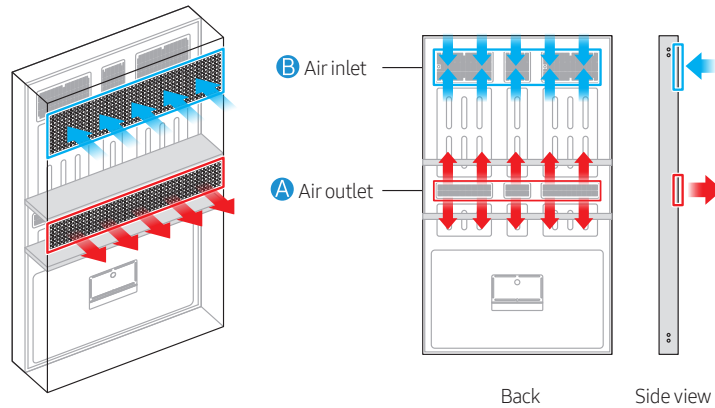
10 Enclosure unit design guide

- Contact our Tech Consulting team for support when you wish to use the product with an enclosure unit. The following provides a basic guide and information for designing an enclosure unit.

Air flow direction

This product uses cooling fans to take in outside air to lower the internal temperature and discharge the hot air.

- When installing the product, remove any obstacles near the air inlet and outlet that may affect air flow.

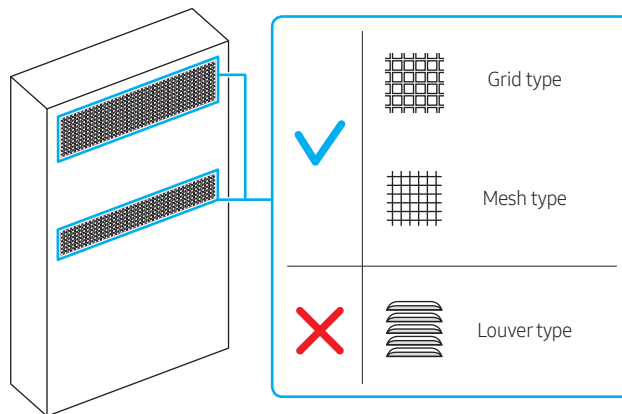


Inlet and outlet types

Ventilation opening ratio for air inlet and outlet should be minimum 70%

Air inlet and outlet should be grid or mesh types.

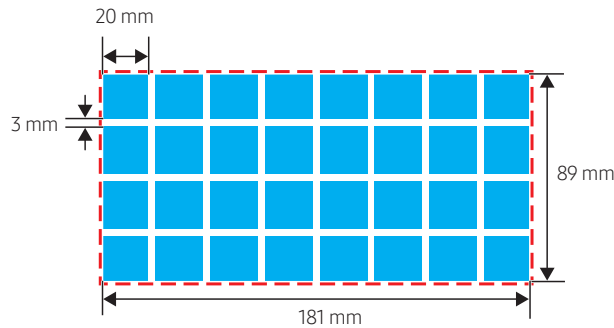
- Do not use the louver type as it has a limited intake size.



Total open area of the ventilation holes and ratio

Follow the guide when combining the product with the enclosure unit.

- If the instructions provided in this guide are not observed, the cooling system may not work properly and may cause a malfunction, which will not be covered by warranty.
- Calculating Total open area of the ventilation and Ventilation opening ratio



Total Area of the Ventilation: $181 \times 89 = 16,109 \text{ mm}^2$



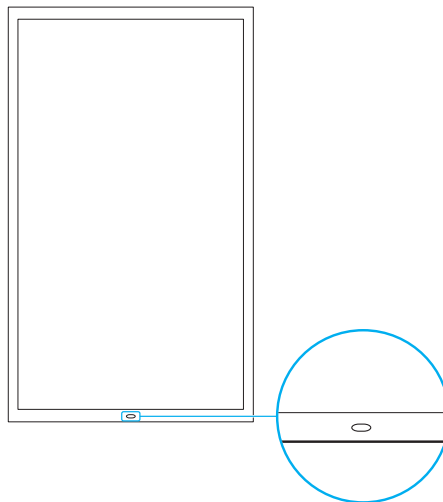
Total open area of Ventilation holes : $20 \times 20 \times 32 = 12,800 \text{ mm}^2$

$$\text{Ventilation opening ratio: } \frac{\text{Total open area of Ventilation holes}}{\text{Total Area of the Ventilation}} = \frac{12,800 \text{ mm}^2}{16,109 \text{ mm}^2} \times 100 = 79 \%$$

Precautions for enclosure unit designing

Consider the location of the IR Remote and Eco Sensor on your product when designing an enclosure unit.

- The sensor may not work or cause the screen to darken if the sensor is sufficiently exposed.

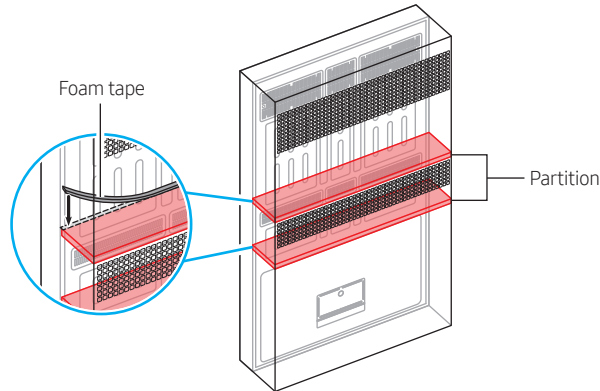


IR Remote Sensor/ Eco Sensor

Enclosure unit partition design

Partition design guide

When using the product with an enclosure unit, add partitions between the inlet and outlet to keep air paths separated. Partitions should fit perfectly inside the enclosure unit, with no gap. If there is a gap, use a foam tape to fill it.



The structure of the enclosure must be designed to clean the inlet / outlet / heat exchanger regularly.

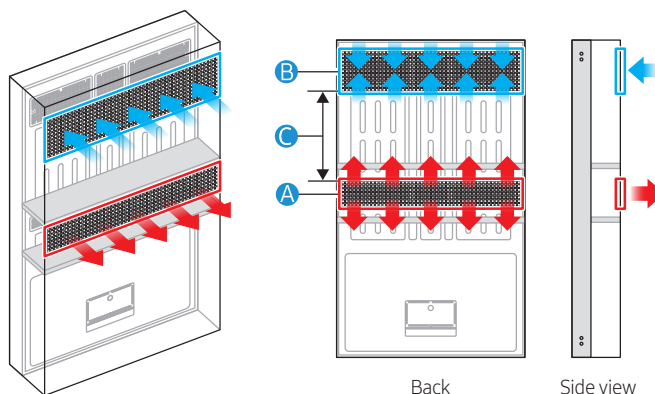
Ex) Add a door for workers to ensure access for cleaning with the tools.

For details, see [Cleaning and cautions](#).

Single enclosure unit

Design the enclosure unit according to the following specifications to keep discharged hot air from flowing back into the inlet.

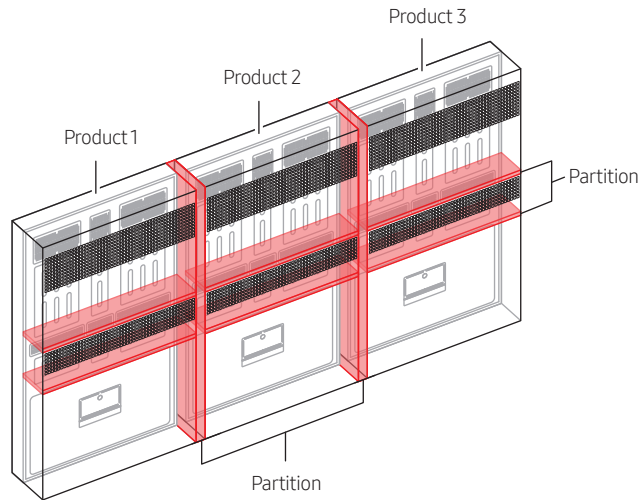
- Air inlet (B)
 - Total open area of the ventilation holes: 63000 mm² or more
 - Ventilation opening ratio (% of total opening): 70 % or more
- Air outlet (A)
 - Total open area of the ventilation holes: 63000 mm² or more
 - Ventilation opening ratio (% of total opening): 70 % or more
- Design the locations of the enclosure unit inlet and outlet to match the locations of the product inlet and outlet.
- Ensure the minimum clearance between inlet and outlet of the enclosure (C).
- Clearance (C): 380 mm or more



1 x N one-side unit design

When designing the 1 x N one-side enclosure unit, add partitions between the products to keep the air paths separated.

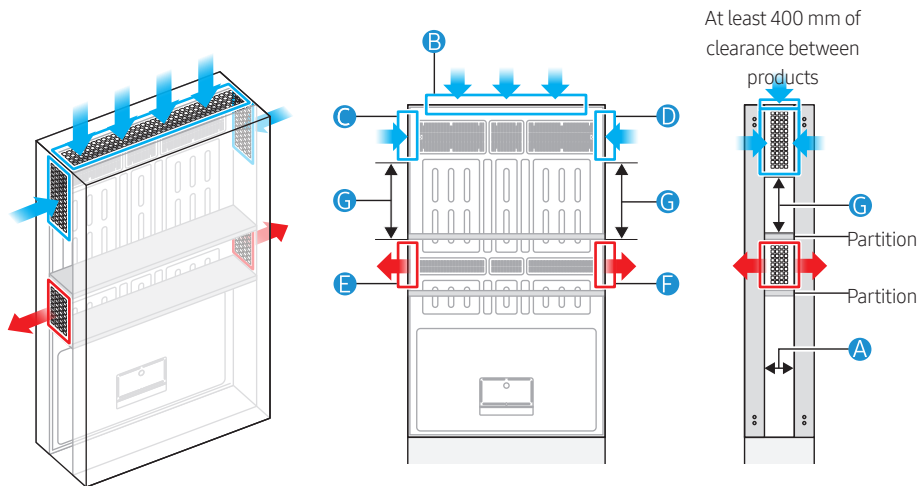
- Refer to the 'Total open area of the ventilation holes and ratio'. ([page 56](#))
- Make sure there is no gap between the partitions and the enclosure unit.



Double-sided enclosure unit

Design the enclosure unit to keep discharged hot air from flowing back into the inlet.

- Clearance (A): 400 mm or more
- Air inlet (B + C + D)
Total open area of the ventilation holes: 126000 mm² or more
Ventilation opening ratio (% of total opening): 70 % or more
- Air outlet (E + F)
Total open area of the ventilation holes: 126000 mm² or more
Ventilation opening ratio (% of total opening): 70 % or more
- When designing double-sided enclosure units, position the inlet on the top or to the side.
- Outlets of the enclosure unit should be on the side.
- Add partitions without any gap (as shown in the image below) to completely separate the inlet and outlet.
- Secure at least 400 mm of clearance between two products.
- The structure of the enclosure must be designed to clean the inlet / outlet / heat exchanger regularly.
Ex) Add a door for workers to ensure access for cleaning with the tools.
For details, see [Cleaning and cautions](#).
- Ensure the minimum clearance between inlet and outlet of the enclosure (G).
Clearance (G): 380 mm



To add devices such as a media player

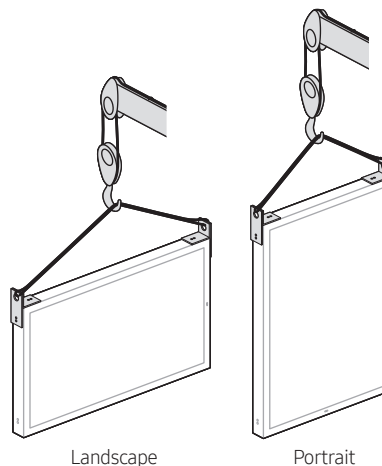
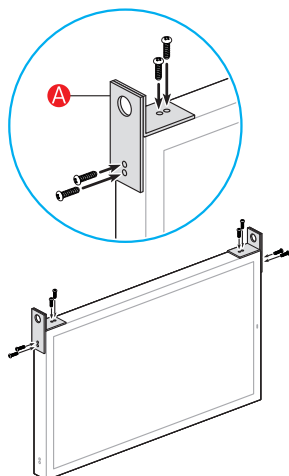
If installing other devices such as a media player, use partitions to make sure they are installed separately from the product.

- Heat from other devices can increase the temperature inside the enclosure unit and cause a malfunction, which will not be covered by the warranty.
- Design to make sure there is no gap around the partitions due to cable connections.

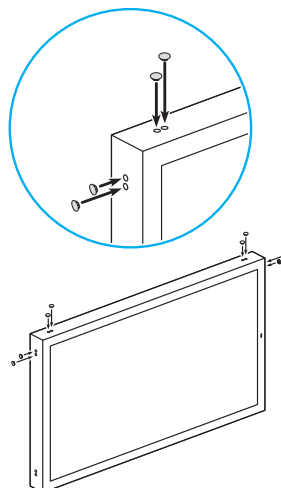
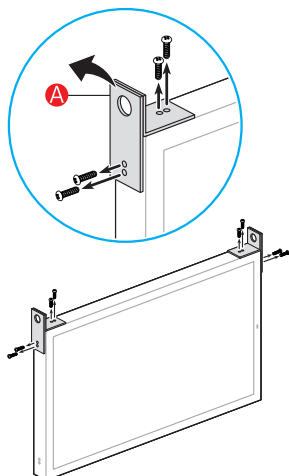
11 Handling guide

Moving by crane

1. To use a crane, attach Bracket-Hang (A) to the top and the sides of the product, and fasten the bolts.
 - To purchase the Bracket-Hang (A) and bolts (M8 x L23), contact your provider or Samsung.
2. Use the crane to move the product.



3. When the product has been brought to the installation site, unfasten and remove the Bracket-Hang (A) and bolts.
 - Cover-Caps for your product are found enclosed in the package.
4. Place Cover-Caps in the holes on the top and sides.

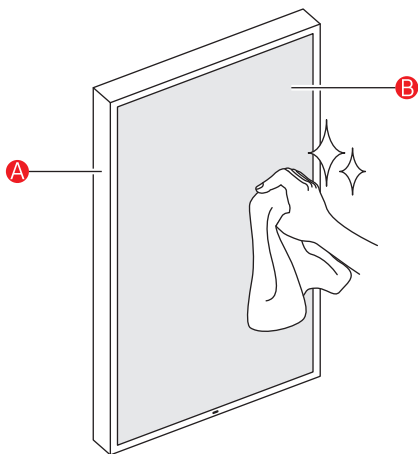


12 Cleaning and cautions

Cleaning

Cleaning the protection glass

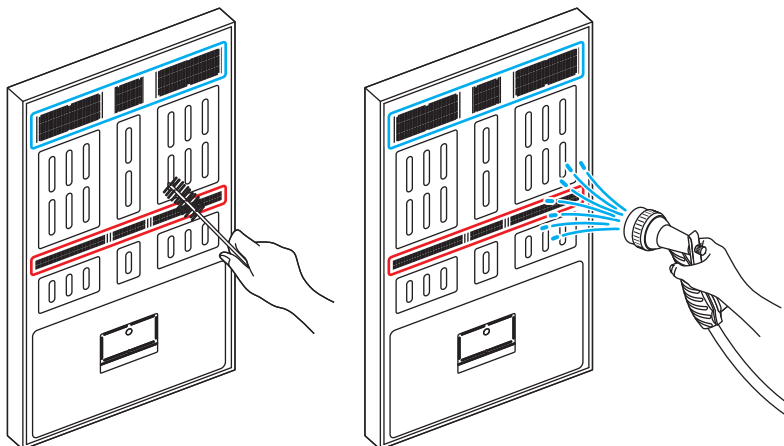
- **A** (Excluding Magic-Glass): Use a clean, soft cloth dampened with water to wipe off the surface.
- **B** (Magic-Glass): Use a clean, soft cloth dampened with water or glass cleaner to wipe off the surface on a regular basis (cleaning cycle: less than a month) For dirt that cannot be removed, use an ethanol based cleaner. After a rain, use a clean, soft cloth to wipe off rain drops or dirt from the glass.



Cleaning the inlet and outlet

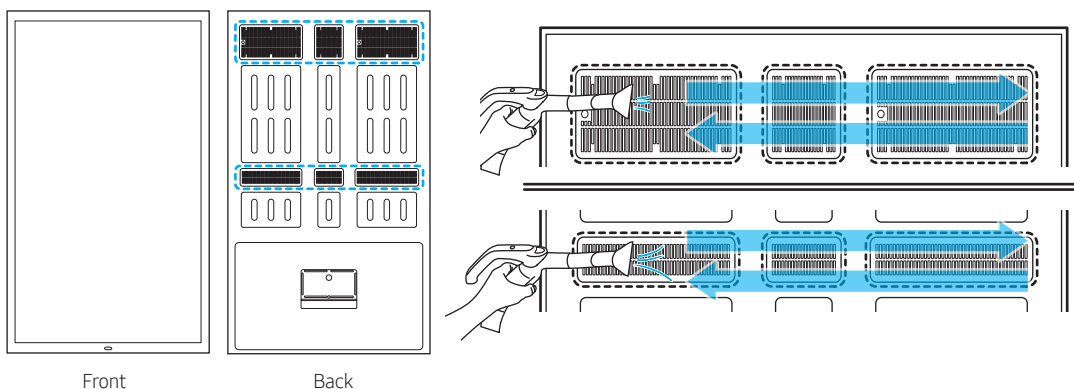
Use a brush to remove any debris from the inlet and outlet opening.

- To remove tough stains, wipe using a cloth with a small amount of ethanol based cleaner.
- If washing with water, keep the pressure below 0.5 bar.



Check once every 6 months and clean the inlet and outlet if they are covered/blocked by dust and other materials (more than 20 %).

- Remove power before cleaning. Use an industrial-grade vacuum cleaner (vacuum degree 2600 - 3000 mm H2O).

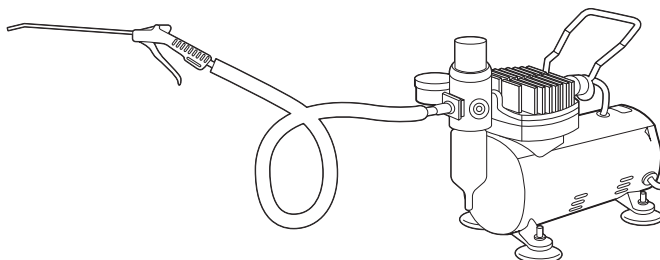


Heat Exchanger cleaning/Maintenance

Recommended tools / equipment

To clean the display properly, only use the tools / equipment that meet recommendations below.

- High-pressure compressor airgun (pressure: 5,000 mmH₂O or higher)



Cleaning and maintenance cycle of the heat exchanger

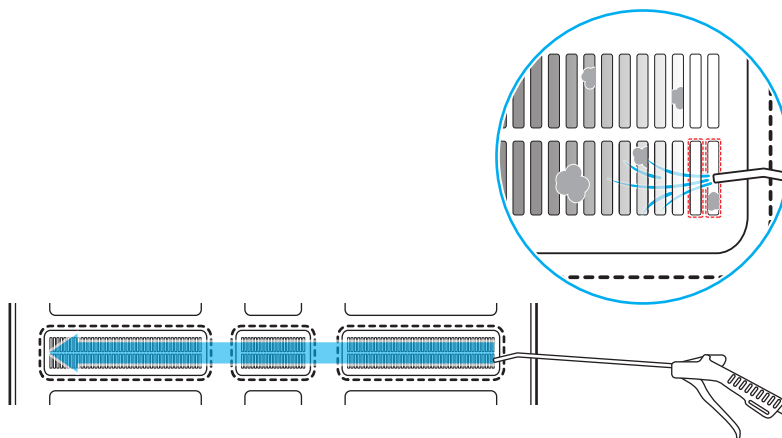
Samsung outdoor display needs regular cleaning and maintenance on heat exchange. Failure to comply with the guide may cause the product to malfunction, which voids the product warranty.

For the cleaning cycle, follow the instructions below.

- It is recommended to clean the display at least once every 3 months following the provided cleaning guide.
- At dusty areas such as bus stops or subway stations, it is recommended to clean the display every month.
- The Samsung outdoor display is designed to be cool down mostly with air ventilation. Check if the cooling fan of the display operates properly on every visit for inspection.

How to clean the heat exchanger

- Turn off the display and disconnect the power cable.
- As shown below, use the airgun to clean the dust, which is attached to the fins of the heat exchanger, by injecting high-pressure air(5 bar or higher) in the rear of the outlet of OH85N.
- Inject high-pressure air for more than 5 seconds between the fins of the heat exchanger closely.

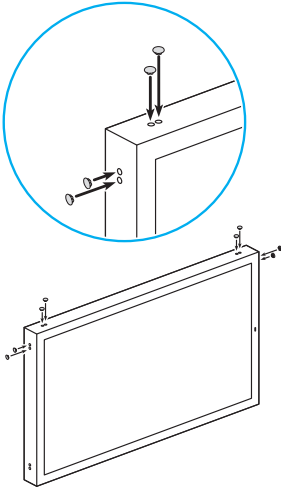


- Turn on the display when completed.
- When the display turns on, check if it operates properly.

Precautions

Precautions regarding the Cover-Cap

- Place Cover-Caps in the holes on the top and sides.
 - Cover-Caps for your product are found enclosed in the package.



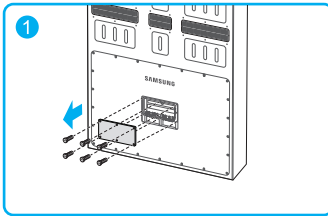
Cautions when routing cables

- Route cables connected to the product in a manner that keeps them away from water.

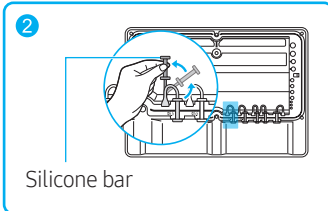


Before connecting cables

- The color and the appearance may differ depending on the product, and specifications are subject to change without prior notice to improve the performance.



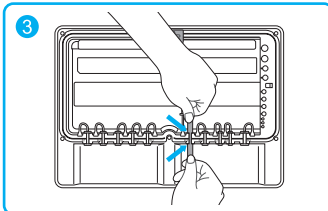
Unfasten the screws, then remove the cover.



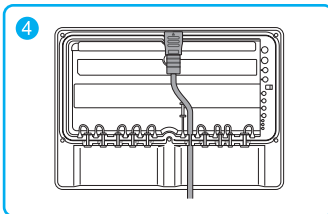
Remove the appropriate silicone bar for the thickness of the cable to connect.

Different hole sizes and corresponding cable thickness for each

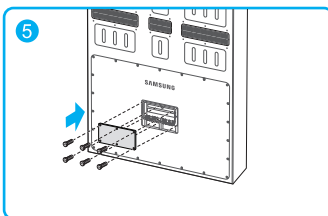
- 7 Ø x 1: Insert the 7 Ø cable
- 5.5 Ø x 6: Insert the 5.5 Ø cable
- 3 Ø x 2: Insert the 3 Ø cable
- 8.5 Ø x 1: Insert the 8.5 Ø cable



Insert the appropriate cable into the hole from which the silicone bar was removed.



The cable should be connected as shown.

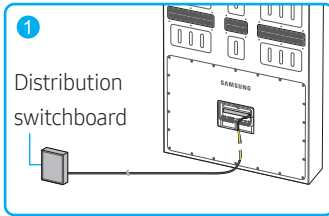


Close the cover, then fasten the screws.

- After all the cables are connected, make sure to close the cover and fasten the screws to ensure it is watertight.
- Recommended torque: 10 - 12 kgf.cm

Connecting the power cable

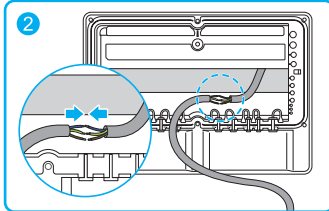
- The color and the appearance may differ depending on the product, and specifications are subject to change without prior notice to improve the performance.



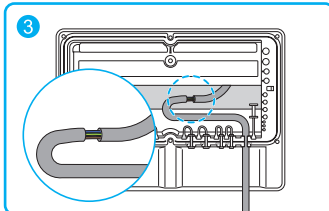
Distribution switchboard

Make sure that you have a 8.5 mm diameter waterproof power cable that can withstand 1800 W or higher.

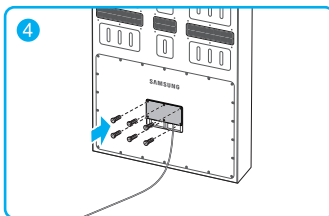
- The power cable must be connected to a 20 A or higher amperage circuit.



Connect the two power cables by soldering and insulate the area.



Place the soldered (connected) part of the cable inside the product.




















Place the back cover and fasten the screws.

Different power cable colors by country

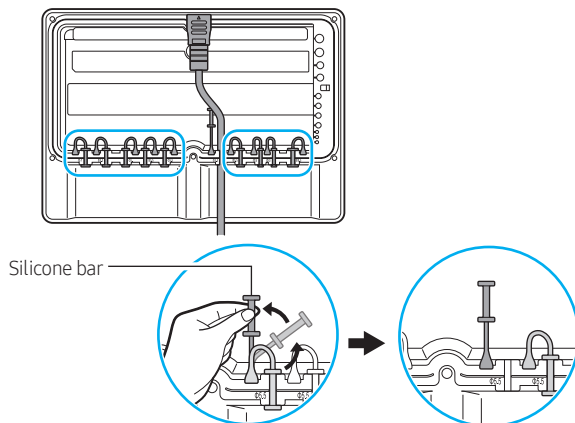
When connecting an external power cable, be sure to match the colors of its wires with those of the 3 wires inside the product's power cable. The meaning (Neutral, Live or Ground) of each wire color of the external power cable may differ depending on the country.

- Be sure to refer to the following table to correctly connect wires by the same meaning:

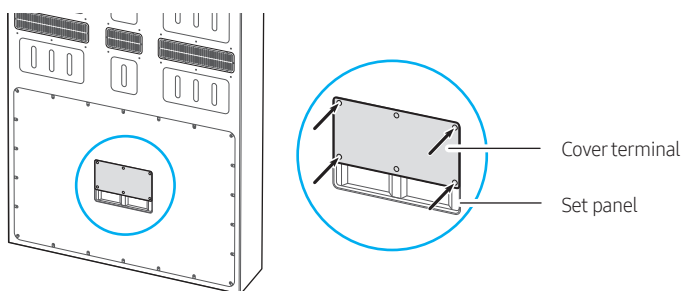
Neutral	Live	Ground	Region
Blue 	Brown 	Green/yellow 	Others
White 	Black 	Green  or green/yellow 	America
Blue 	Brown 	Green/yellow 	Europe
Black 	Red 	Green/yellow 	India
White 	Black 	Green  or green/yellow 	Taiwan & Japan

Cautions when connecting cables

- Remove the appropriate silicon bar before connecting cables.
 - 7 Ø hole: For inserting 7-7.5 Ø cables
 - 5.5 Ø hole: For inserting 5.5-6 Ø cables
 - 3 Ø hole: For inserting 3-3.5 Ø cables
- Do not remove silicon bars where there is no cable connection. This will lessen the protection of your product against water and may result in a malfunction due to water damage, which will not be covered by the warranty.

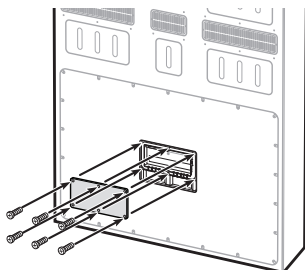


- After complete cabling, ensure that there is no gap between the set panel and the cover terminal.
- A gap may allow water damage and product malfunction.



OH85N/(LH85OHNSLGB/**)

- After all the cables are connected, make sure to close the cover and fasten the screws to ensure it is watertight.



Cautions when replacing parts

- This product is designed to resist water and dust. Do not disassemble the product.
- If disassembly is necessary due to a malfunction, contact the service center.

