

Air To Water Heat Pump
(Indoor Unit)

STN Series

Installation Manual

Version 5.0

www.solaxpower.com

eManual in the QR code or at www.solaxpower.com

STATEMENT

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About This Manual

Scope of Validity

This manual is an integral part of indoor unit of air to water heat pump. It describes the assembly, installation, electrical connection, commissioning, maintenance and troubleshooting of the product. Please read it carefully before operating.

This manual is valid for the following indoor unit models:

- Control Unit

  STN1-C01

- Hydraulic Unit

  STN1-C02(9) | STN3-C02(9)

- Hydraulic Integrated Unit

  STN1-C03(9W3) | STN3-C03(9W3)

Model description



Item	Meaning	Description
1	Phase	"1": one phase "3": three phase
2	Category	"1": Control Unit "2": Hydraulic Unit "3": Hydraulic Integrated Unit
3	Electric heating	"9": It contains electric heating for pipelines. "9W3": It contains electric heating for pipelines and water tanks.

Target Group

The installation, wiring, commissioning and maintenance can only be performed by qualified personnel who:

- Are licensed and/or satisfy state and local regulations.
- Have good knowledge of this manual and other related documents.

Conventions

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

Symbol	Description
DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION!	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury, device damage, power generation loss or unanticipated results.
NOTICE!	Provides tips for the optimal operation of the product.

Change History

Version 5.0 (2025-12-14)

Updated "3.3 Additionally Required Materials"

Updated "9.2.4 Hydraulic Integrated Unit"

Updated "9.3 Connecting Other Components"

Version 4.0 (2025-12-10)

Updated "1 Safety"

Updated "3.1.1 Environment Requirement"

Updated "3.3 Additionally Required Materials" (Modified the recommended wire)

Updated "7.1 Roof Panel of Hydraulic Unit", "8.1 Roof Panel of Hydraulic Integrated Unit" (Added the pipe size)

Updated "7.2 Precautions", "8.2 Precautions" (Modified the anti-freezing protection warning)

Updated "7.7 Filling the Heat Pump, Hydraulic Unit and Heating System", "8.7 Filling the Heat Pump, Hydraulic Integrated Unit and Heating System" (Modified the exhaust valve)

Updated "8.6 Connecting to the Tap Water"

Updated "9.3.11 Wiring of Smart Grid"

Updated "13 Technical Data"

Version 3.0 (2025-10-20)

Updated "2.1 Appearance and Dimensions"

Updated "2.2.3 Hydraulic Integrated Unit"

Added "5 Transportation"

Added "7 Hydraulic Installation of Hydraulic Unit"

Updated "8 Hydraulic Installation of Hydraulic Integrated Unit"

Updated "9 Electrical Connection"

Updated "10.2 Test Run" (Added the instructions of device reset)

Updated "13 Technical Data"

Added "14 Appendix" (Added the description of main control board)

Version 2.0 (2025-07-16)

Updated "3.1 Selection of Installation Location"

Updated "4.1 Unpacking"

Updated "6 Unit Installation"

Added "8 Hydraulic Installation of Hydraulic Integrated Unit"

Updated "9.3.3 Wiring of Additional Pumps"

Updated "11.2 Troubleshooting for Error ID"

Updated "13 Technical Data"

Version 1.0 (2025-05-26)

Updated "2.2 Main Parts of Indoor Unit"

Updated "4.2 Accessories of Indoor Unit"

Updated "9 Electrical Connection"

Updated "13 Technical Data"

Version 0.0 (2025-03-31)

Initial release

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1 Safety

1.1 General Safety Instructions

The series heat pump has been meticulously designed and tested to comply with the relevant state and international safety standards. Nevertheless, like all electrical and electronic device, safety precautions must be observed and followed during the installation of the heat pump to minimize the risk of personal injury and ensure a safe installation.

Please carefully read, fully comprehend, and strictly adhere to the comprehensive instructions provided in the user manual and any other relevant regulations prior to the installation of the heat pump. This document does not replace and is not intended to replace any local, state, provincial, federal or national laws, regulations or codes applicable to the installation, electrical safety and use of the heat pump.

SolaX assumes no responsibility for any consequences resulting from the violation of the storage, transportation, installation and operation regulations outlined in this document. Such consequences include, but are not limited to:

- Heat pump damage caused by force majeure events, such as earthquakes, floods, thunderstorms, lightning, fire hazards, volcanic eruptions, and similar events.
- Heat pump damage due to human causes.
- Heat pump damage caused by strong vibrations from external factors before, during and after installation.
- Use or operation of the heat pump in violation of state and local policies or regulations.
- Failure to comply with the operation instructions and safety precautions provided with the product and in this document.
- Improper installation or use of the heat pump in unsuitable environmental or electrical conditions.
- Unauthorized modifications to the product or software.
- Heat pump damage occurring during transportation by the customer.
- Storage conditions that do not meet the requirements specified in this document.
- Installation and commissioning performed by unauthorized personnel who lack the necessary licenses or do not comply with state and local regulations.

⚠ WARNING!

- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

1.2 Safety Instructions for Installation

WARNING!

- For electrical work according to the installation manual, be sure to use professional tools. If the power supply capacity is insufficient, or the circuit is incomplete, it may cause fire or electric shock.
- The unit must have a grounding device. If the power supply has no grounding device, be sure not to connect the unit.

CAUTION!

- When installing, be sure to use the correct or specific materials. The use of substandard parts or materials may cause fire, electric shock, or machine fall, resulting in injury.
- For safe grounding installation, please read the installation instructions. Improper installation may cause fire, electric shock, machine fall, or water leakage, resulting in injury.
- Please do not attempt to move or repair the unit without authorization. Unreasonable movement or maintenance of the unit may cause water leakage, electric shock, or fire, resulting in injury. If you need to repair or maintain the unit, please call a professional technician.

1.3 Safety Instructions for Wiring

WARNING!

- Incorrect wiring can cause fire. Connect the power cable strictly according to the wiring diagram in the installation manual to avoid burning the unit or causing fire.

NOTICE!

- Use a specific wire and fix it to the terminal block. This connection prevents the pressure of the wire from being applied to the component.

1.4 Safety Instructions for Operation

WARNING!

- Do not clean the unit when the power supply is on.

WARNING!

- When there is an error or an odor, please do not continue to run the unit. Please turn off the power and stop running the unit. Otherwise it could cause an electric shock or a fire.

WARNING!

- If the power cable is damaged, it must be replaced by the manufacturer, an authorized service agent, or other qualified personnel to mitigate fire and electric shock risks.

CAUTION!

The following actions may cause fire or electric shock and are strictly prohibited:

- Do not plug or unplug the power cord during operation.
- Never operate the unit with wet hands.
- Keep heaters and other electrical appliances away from power cords.
- Do not pour water on the unit and prevent moisture from contacting electrical components.

CAUTION!

- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- The appliance shall be installed in accordance with national wiring regulations.

2 Product Overview

2.1 Appearance and Dimensions

Control Unit

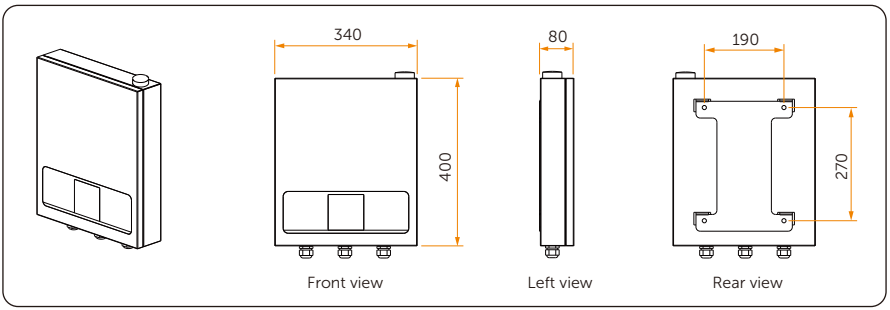


Figure 2-1 Dimensions of control unit (Unit: mm)

Hydraulic Unit

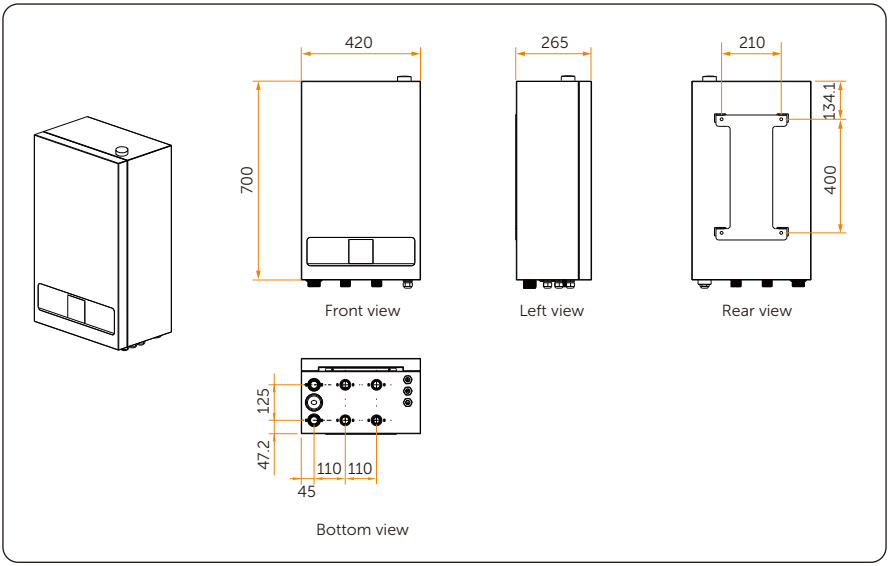


Figure 2-2 Dimensions of hydraulic unit (Unit: mm)

Hydraulic Integrated Unit

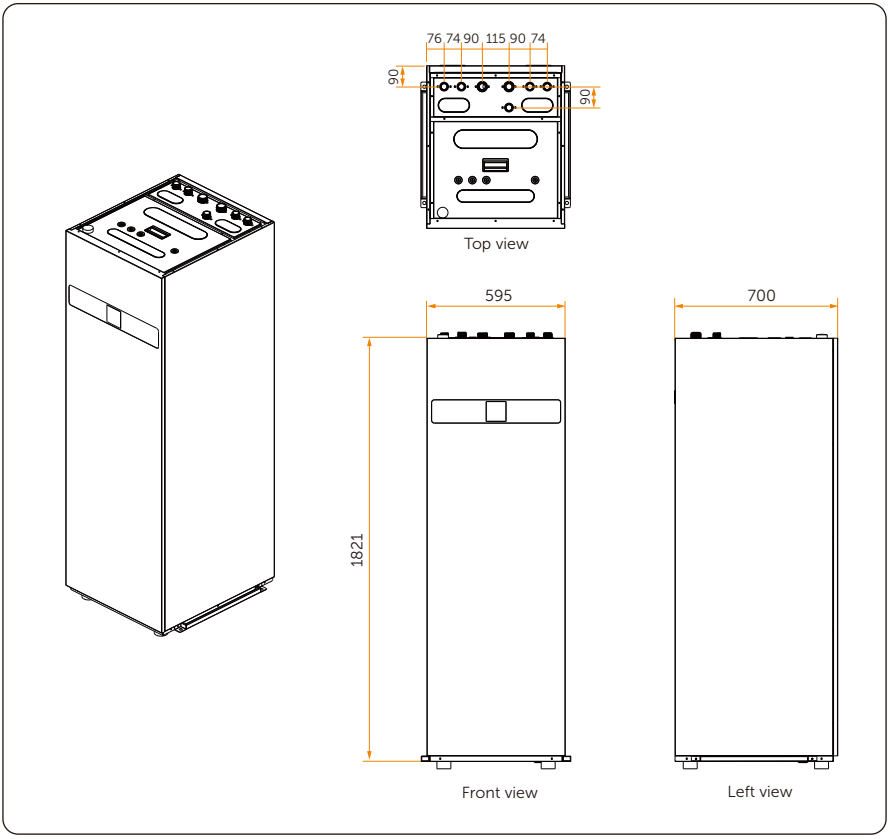
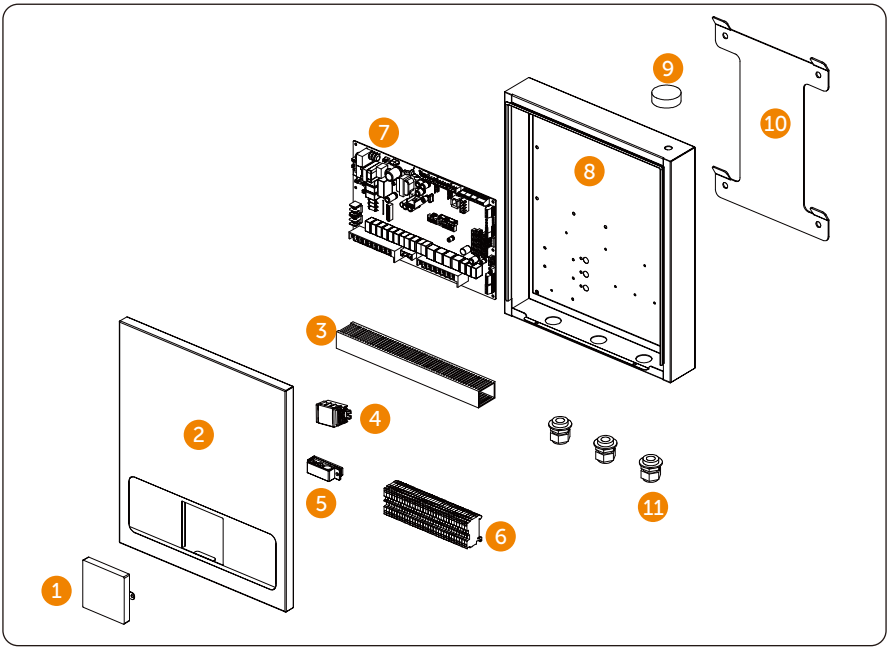


Figure 2-3 Dimensions of hydraulic integrated unit (Unit: mm)

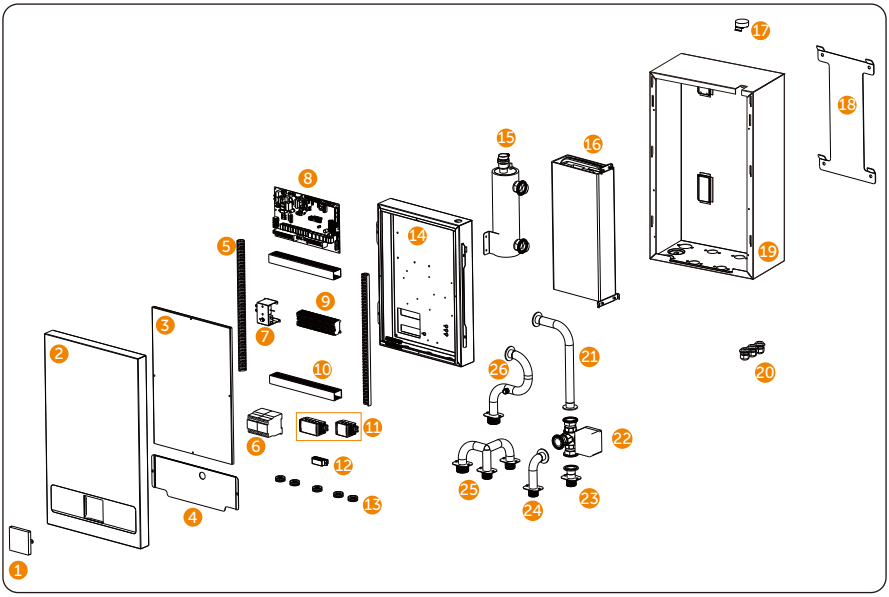
2.2 Main Parts of Indoor Unit

2.2.1 Control Unit



1	Wired controller	5	Cable clamp	9	Antenna
2	Plate component	6	Terminal block	10	Bracket
3	Square trunking	7	Main control board	11	PG joint
4	Three-position wiring socket	8	Box component		

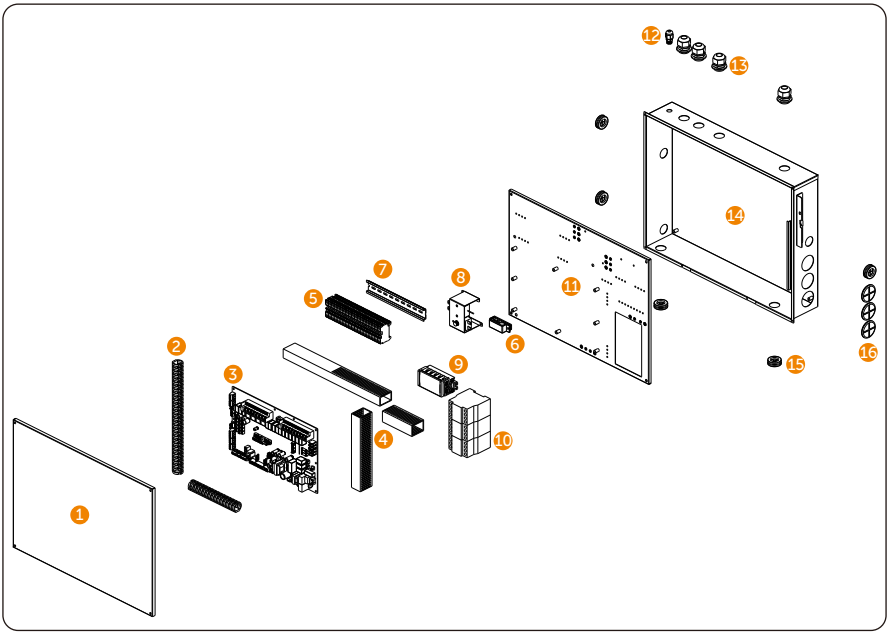
2.2.2 Hydraulic Unit



1	Wired controller	10	Square trunking	19	Box component
2	Front panel	11	Five-position wiring socket (for three phase) Three-position wiring socket (for one phase)	20	PG joint
3	Electrical box cover	12	Cable clamp	21	Electric heating outlet pipe
4	Baffle plate	13	Coil	22	Three-way solenoid valve
5	Circular trunking	14	Electrical box	23	Underfloor heating water outlet pipe
6	Contactor	15	Electric heating component	24	Domestic hot water outlet pipe
7	Temperature control switch	16	Expansion tank component	25	Three-way pipe
8	Main control board	17	Antenna	26	Electric heating inlet pipe
9	Terminal block	18	Bracket		

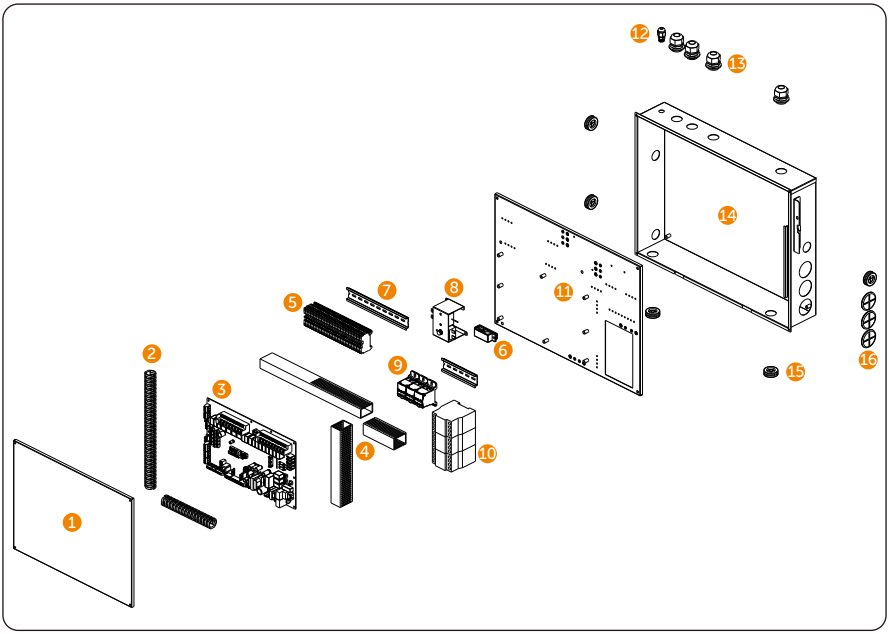
2.2.3 Hydraulic Integrated Unit

Main parts of Control Box (three phase)



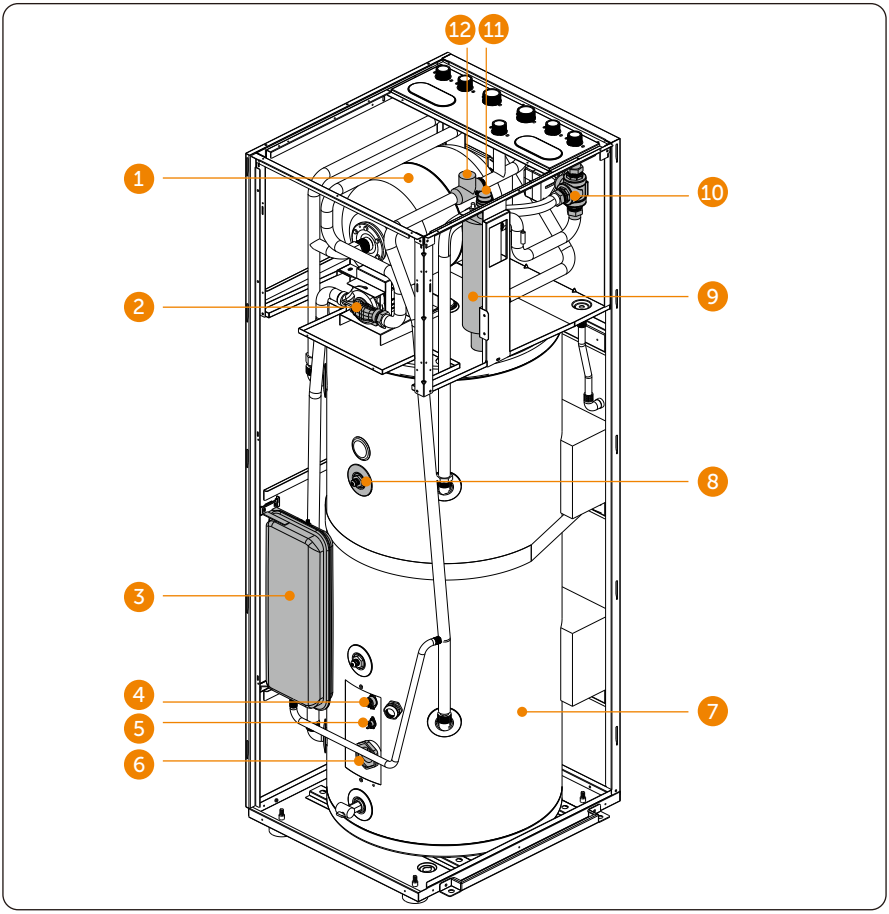
1	Electrical box cover	7	Guide rail	13	M25 joint
2	Circular trunking	8	Room thermostat (RT)	14	Electrical box
3	Main control board	9	Five-position wiring socket	15	φ25 coil
4	Square trunking	10	Contactor	16	φ40 coil
5	Terminal block	11	Fixing plate		
6	Cable clamp	12	PG7 joint		

Main parts of Control Box (one phase)



1	Electrical box cover	7	Guide rail	13	M25 joint
2	Circular trunking	8	Room thermostat (RT)	14	Electrical box
3	Main control board	9	Three-position wiring socket	15	φ25 coil
4	Square trunking	10	Contactor	16	φ40 coil
5	Terminal block	11	Fixing plate		
6	Cable clamp	12	PG7 joint		

Main parts of Hydraulic Integrated Unit



1	18L expansion tank (Used for DHW)	5	85°C thermostat	9	9 kW pipeline electric heating
2	Circulator pump	6	3 kW pipeline electric heating	10	Three-way solenoid valve
3	8L expansion tank (Used for heating system)	7	190L domestic hot water tank	11	Exhaust valve
4	95°C thermostat	8	DHW temperature sensor	12	Check valve

3 Preparation before Installation

3.1 Selection of Installation Location

3.1.1 Environment Requirement

WARNING!

- Contact with electrical components by pests or insects may cause malfunction, fire hazards, or electric shock.
- Installation in the following places may cause unit failure.
  - » Where the power supply voltage fluctuates seriously.
  - » Where flammable gases or materials are present.

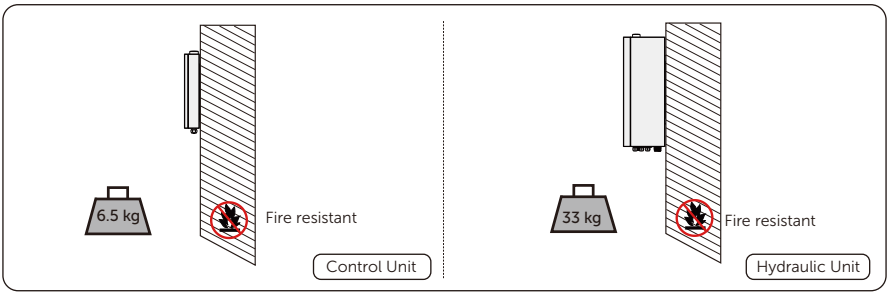
- Maintain clean surroundings free of debris and flammable materials.
- Install in well-ventilated indoor locations with minimum 30 cm clearance from walls.
- Ensure that the drainage at the installation site does not affect the surrounding area.
- The installation location should have enough space for pipe connection, electrical connection, commissioning and maintenance.
- The bracket of Control Unit or Hydraulic Unit should be installed on the wall that can bear its weight.

Table 3-1 Environment requirement

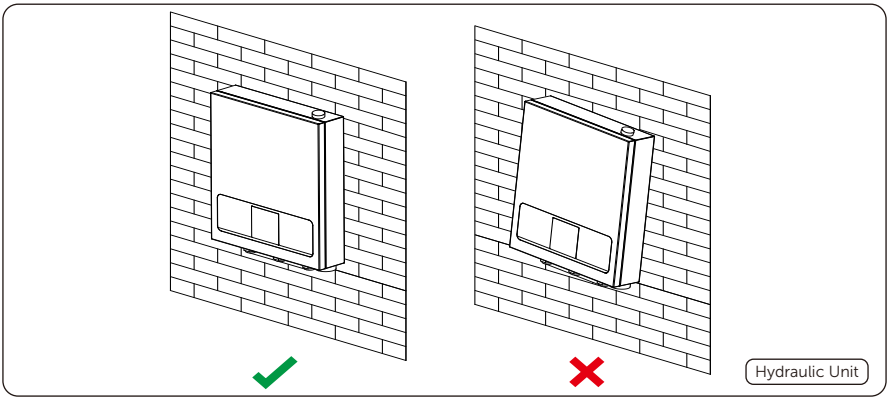
Model	Control Unit	Hydraulic Unit	Hydraulic Integrated Unit
Installation method	Wall mounting		Floor standing
Ambient temperature	5°C ~ 48°C		
Ambient humidity	0%-100%RH		

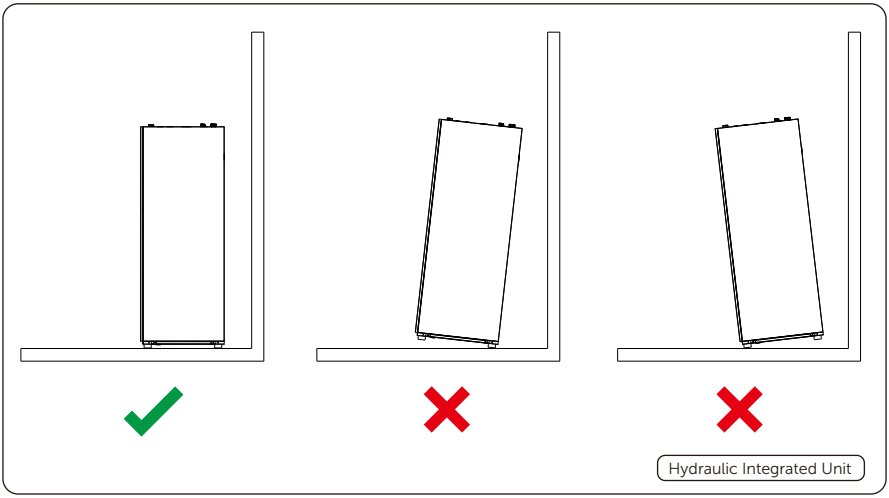
3.1.2 Installation Carrier Requirement

The installation carrier must be made of a non-flammable material, such as solid brick, concrete and be capable of supporting the weight of the indoor unit and suitable of the dimensions of the indoor unit. If the wall strength is not enough (such as wooden wall, the wall covered by a thick layer of decoration), it must be strengthened additionally.



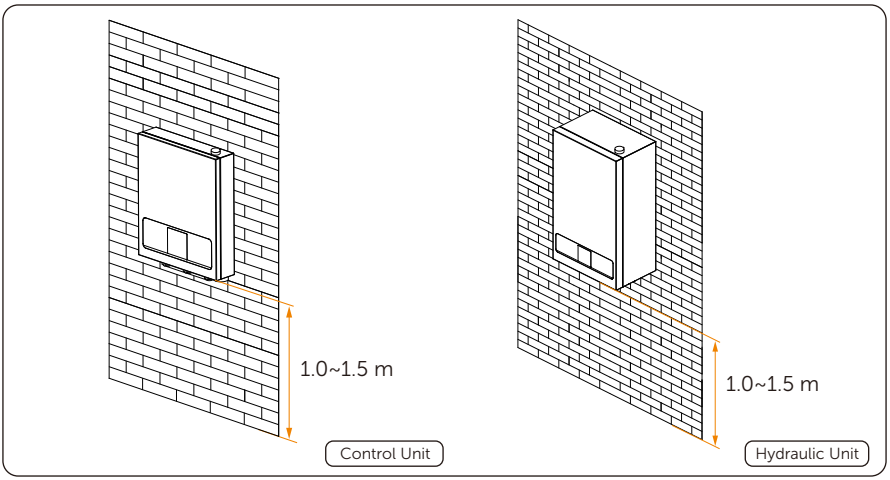
3.1.3 Angle Requirement

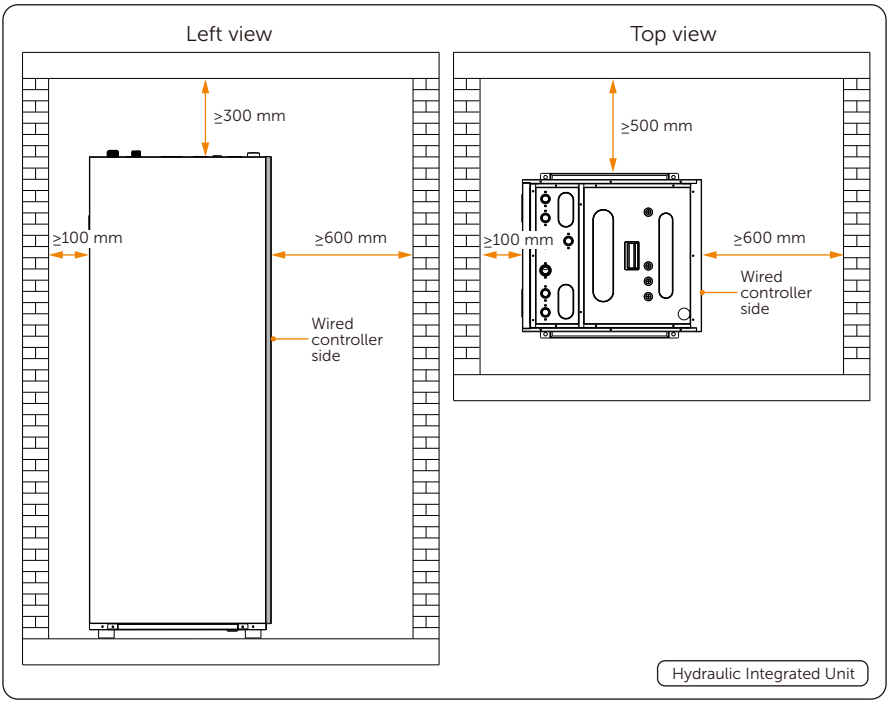




3.1.4 Clearance Requirement

The recommended installation clearance requirement are as follows. Please control the clearance around the unit according to the actual situation.

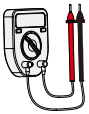


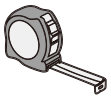


3.2 Tools Requirement

The following tools are recommended for installation. Additional auxiliary tools may be used as needed, provided they comply with applicable regional safety regulations.


Hammer drill

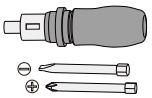

Multimeter

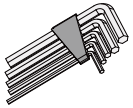

Measuring tape


Utility knife

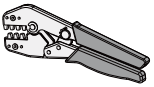

Marker

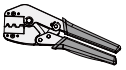

Spirit level


Torque screwdriver

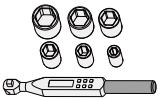

Allen key

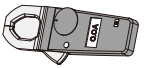

Wire stripper

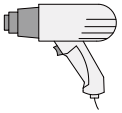

Crimping tool


Crimping tool for terminals


Crimping tool for RJ45

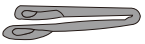

Torque wrench


Current clamp


Heat gun


Heat shrink tubing


Crane


Lifting rope

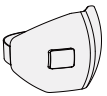

Ladder


Vacuum cleaner


Safety gloves


Safety boots

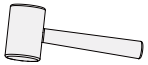

Safety goggles


Anti-dust mask


Pipe wrench


Spanner


PPR pipe cutter


Rubber mallet

3.3 Additionally Required Materials

Table 3-2 Additionally required materials

No.	Required material		Type	Conductor cross-section
1	Main power cable (three phase)		Five-core cable, voltage rating of 600 V, a temperature resistance of 105°C	Refer to "Table 3-3 Recommended wire"
2	Main power cable (one phase)		Three-core cable, voltage rating of 600 V, a temperature resistance of 105°C	

Operating Current and Wire Diameter

- Refer to the table below to select the wire diameter (minimum value) individually for each unit.
- The maximum allowable voltage deviation between phases is 2%.
- Select circuit breakers that have a contact separation of at least 3 mm in all poles for full disconnection.
- The required power cable material should be at least 60245 IEC 57.

Table 3-3 Recommended wire

Indoor unit	Power supply	Maximum circuit current (A)	Recommended circuit breaker (A)	Recommended wire size (mm^2)
STN1-C01	220-240 V 1N~ 50 Hz	0.1	10	(2 + PE) × (2.5)
STN1-C02(9)		13.1	20	(2 + PE) × (4)
		26.4	40	(2 + PE) × (6)
		39.5	60	(2 + PE) × (6)
STN1-C03(9W3)		26.4	40	(2 + PE) × (6)
		39.5	60	(2 + PE) × (6)
		52.3	80	(2 + PE) × (6)
STN3-C02(9)	380-415 V 3N~ 50 Hz	4.4	10	(4 + PE) × (4)
		8.7	16	(4 + PE) × (4)
		13.5	20	(4 + PE) × (4)
STN3-C03(9W3)		8.7	16	(4 + PE) × (4)
		13.5	20	(4 + PE) × (4)
		17.5	25	(4 + PE) × (4)

- For **STN1-C01**:
  - » Please select the power cable based on the power of the external load.
- For **STN1-C02(9)**:
  - » When **IBH_GEAR** is set to 1 (power: 3 kW), it is recommended to use (2 + PE) × (4) mm^2 power cable.
  - » When **IBH_GEAR** is set to 2/3 (power: 6/9 kW), it is recommended to use (2 + PE) × (6) mm^2 power cable.
- For **STN1-C03(9W3)**:
  - » When **IBH_GEAR** is set to 1/2/3 (power: 3/6/9 kW) and TBH is turned on, it is recommended to use (2 + PE) × (6) mm^2 power cable.
- For **STN3-C02(9)**:
  - » When **IBH_GEAR** is set to 1/2/3 (power: 3/6/9 kW), it is recommended to use (4 + PE) × (4) mm^2 power cable.
- For **STN3-C03(9W3)**:
  - » When **IBH_GEAR** is set to 1/2/3 (power: 3/6/9 kW) and TBH is turned on, it is recommended to use (4 + PE) × (4) mm^2 power cable.

⚠ WARNING!

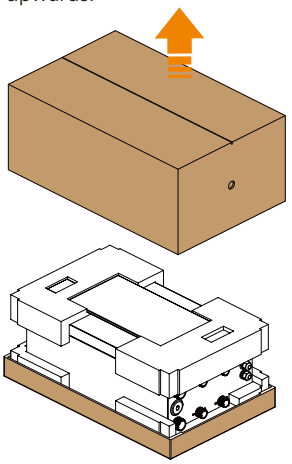
- The power supply for the indoor unit and outdoor unit is independent; the power cables for the indoor unit and outdoor unit should be used separately.
- SolaX will not be held responsible for any problems that occur if the power cable and circuit breaker are not selected as mentioned above.

4 Unpacking and Inspection

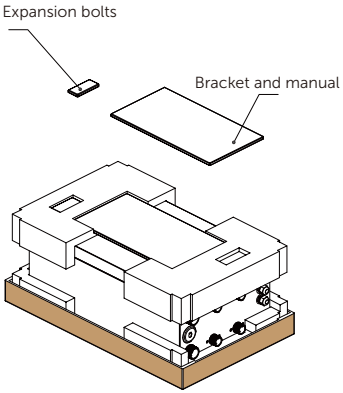
4.1 Unpacking

Hydraulic Unit

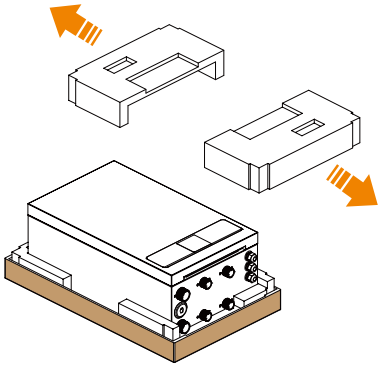
1 Remove the outer carton of indoor unit upwards.



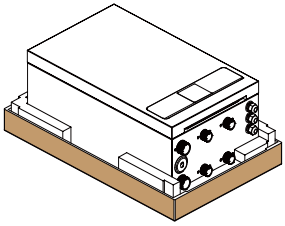
2 Take out two packing bags.



3 Remove the foam board from the unit.

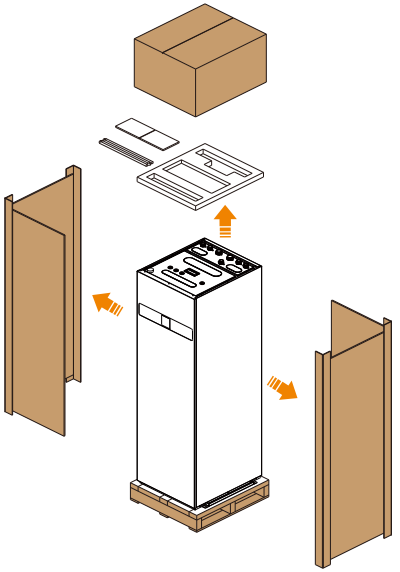


4 Complete the unpacking.

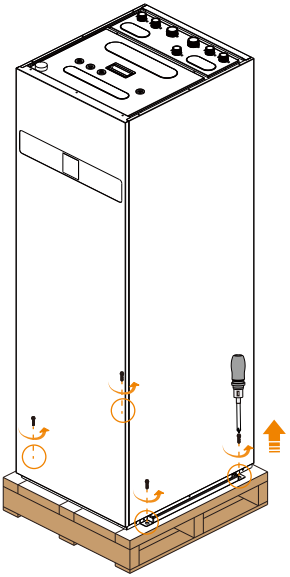


Hydraulic Integrated Unit

1 Remove the outer carton of indoor unit upwards, and take out the accessories.



2 Unscrew the four screws from the wooden base.



4.2 Accessories of Indoor Unit

Control Unit

Illustration	Name	Quantity	Remark
	Installation Manual	1 PC	For guiding installers to install the product correctly
	Operation Manual	1 PC	For guiding users to operate the wired controller
	Bracket	1 PC	For mounting the indoor unit on the wall
	Expansion bolts (M8*85)	4 PCS	For installing the bracket
	Cable tie	2 PCS	For bundling and securing cables or pipes

Hydraulic Unit

Illustration	Name	Quantity	Remark
	Installation Manual	1 PC	For guiding installers to install the product correctly
	Operation Manual	1 PC	For guiding users to operate the wired controller
	Bracket	1 PC	For mounting the indoor unit on the wall
	Expansion bolts (M8*85)	4 PCS	For installing the bracket
	Cable tie	2 PCS	For bundling and securing cables or pipes
	Drain joint (φ18.5)	1 PC	For drainage

Hydraulic Integrated Unit

Illustration	Name	Quantity	Remark
	Installation Manual	1 PC	For guiding installers to install the product correctly
	Operation Manual	1 PC	For guiding users to operate the wired controller
	Expansion bolts (M8*85)	4 PCS	For fixing the unit feet
	Cable tie	2 PCS	For bundling and securing cables or pipes
	Rubber block	4 PCS	For fixing the unit
	Drain joint	1 PC	For connecting the drain hole of the rear plate
	Drain hose	1 PC	For connecting the drain joint
	Throat band	1 PC	For fastening the connection point of drain joint and drain hose

5 Transportation

WARNING!

- Professional installers should assess the transportation route and installation site and use the reasonable transportation method.

- SolaX will not be held responsible for any damage to the device caused by improper transportation or by transportation after it has been installed.
- Observe the caution signs on the packaging of device before transportation.
- Pay attention to the weight of the indoor unit. Carry the indoor unit by the required number of personnel as specified by local regulations.
- Wear protective gloves when carrying the device by hand to prevent injuries.
- Hold the handles on the device or put your hands underneath the device to move or lift. Keep the device horizontal in case of falling down.

6 Unit Installation

6.1 Control Unit

Step 1: Locate and drill the holes with φ12 drill bit. The depth of holes should be 85 mm. Fix the bracket to the wall using four expansion bolts. Make sure the bracket is level with the ground.

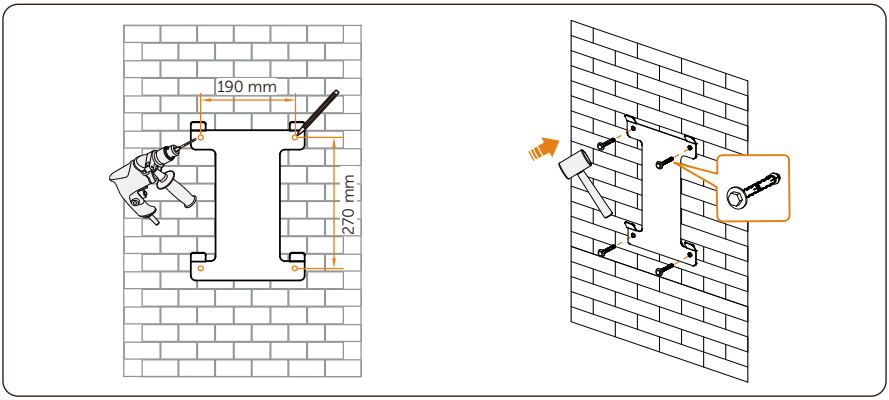


Figure 6-1 Securing the bracket

Step 2: Lift up the unit (recommended one person) and hang it onto the bracket. Make sure that the hanging holes of the unit are properly inserted into the four lugs of the bracket.

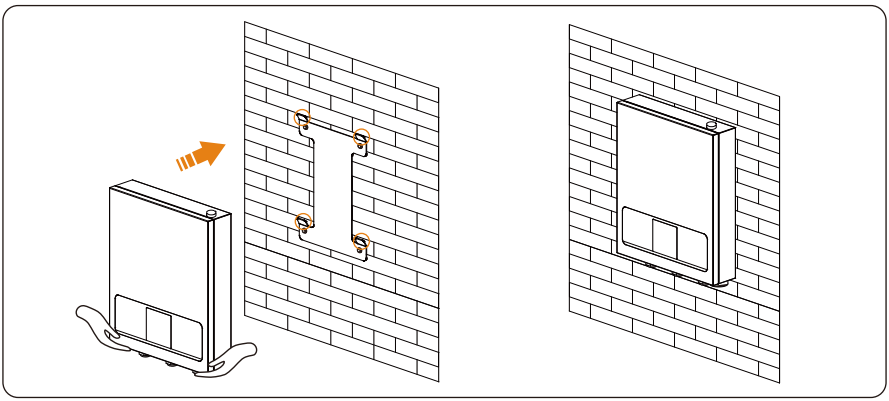


Figure 6-2 Hanging the unit

6.2 Hydraulic Unit

Step 1: Locate and drill the holes with φ12 drill bit. The depth of holes should be 85 mm. Fix the bracket to the wall using four expansion bolts. Make sure the bracket is level with the ground.

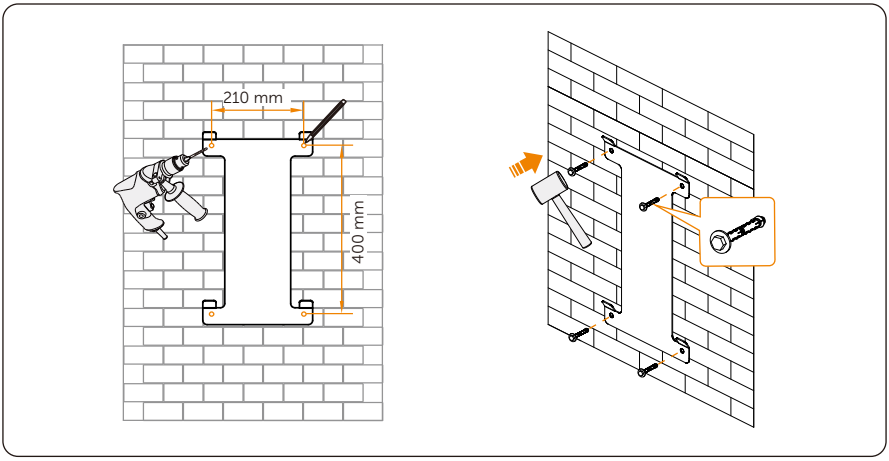


Figure 6-3 Securing the bracket

Step 2: Lift up the unit (recommended 2 persons) and hang it onto the bracket. Make sure that the hanging holes of the unit are properly inserted into the four lugs of the bracket.

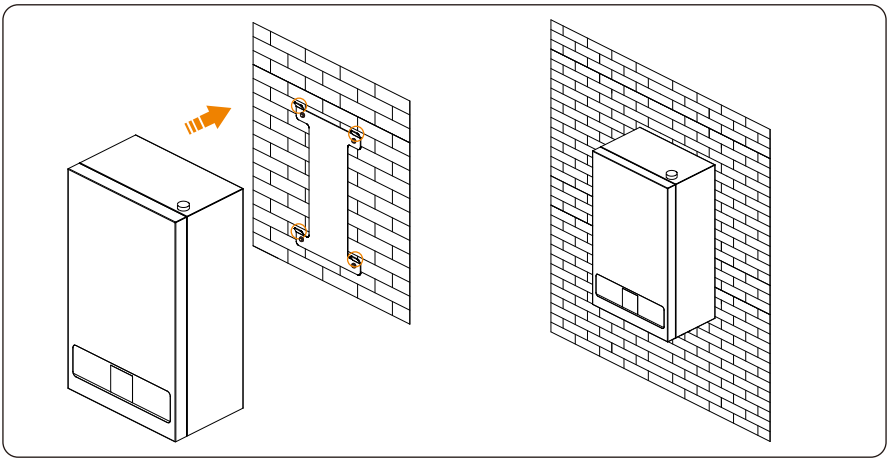


Figure 6-4 Hanging the unit

Step 3: Insert the drain joint from the accessory package into the drain hole and rotate it 90°. Then insert the rubber hose (16*2mm, provided by the user) into the drain joint.

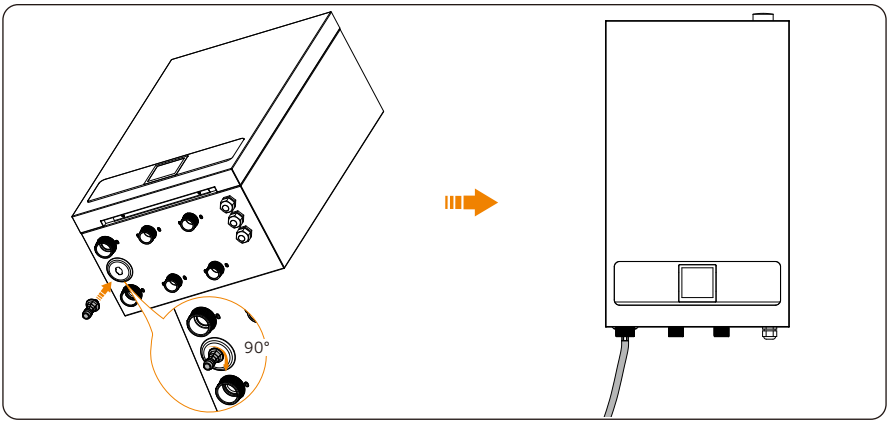


Figure 6-5 Installing the drain joint and drain hose

6.3 Hydraulic Integrated Unit

Step 1: Place the unit against the wall. (Refer to "3.1.4 Clearance Requirement")

Step 2: Pass the drain hose through the throat band. Connect the drain hose to the drain joint, and then tighten it into the drain hole in the rear panel.

Step 3: Fasten the throat band tightly to the connection point of the drain hose and the drain joint.

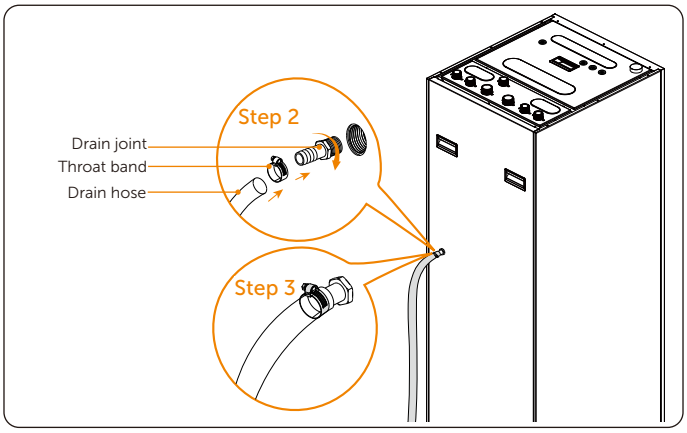


Figure 6-6 Installing the drain hose

Step 4: Lead the drain hose to the sewer.

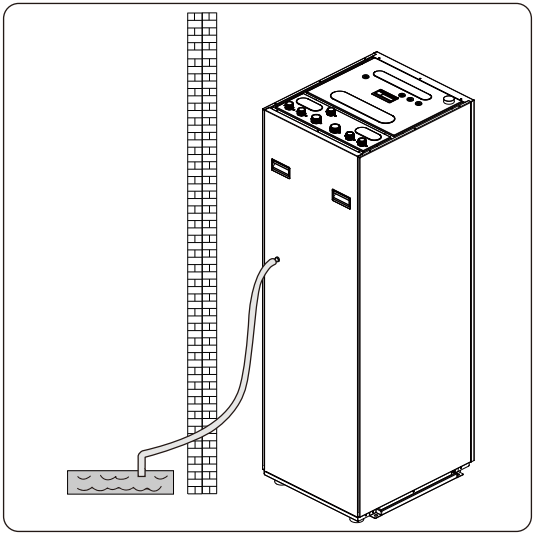


Figure 6-7 Leading the drain hose to the sewer

Step 5: (Optional) Adjust the rubber feet at the bottom of the unit until the unit is level.

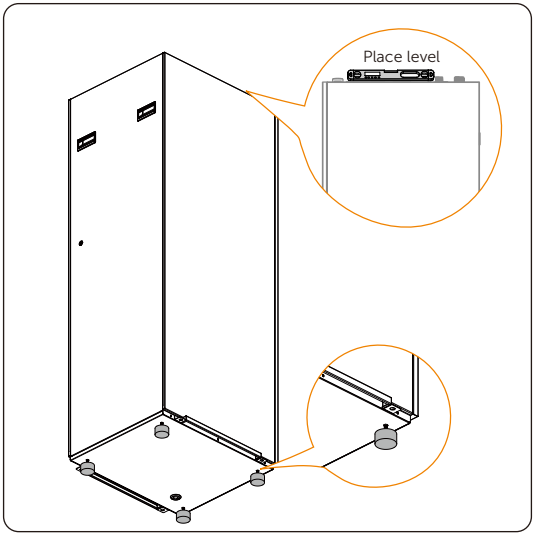


Figure 6-8 Leveling the unit

Step 6: Fix the unit.
(a) Locate and drill the holes with φ12 drill bit. The depth of holes should be 85 mm.
(b) Align the four holes at the bottom of the unit and place four rubber blocks. Then tighten the hexagon of expansion bolts into the holes.

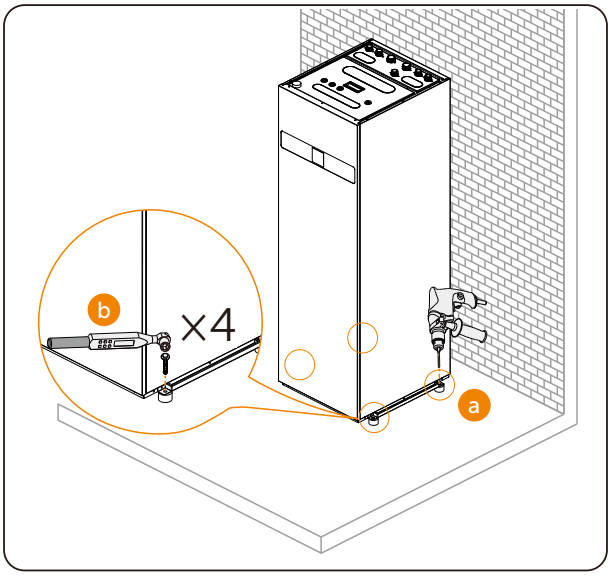


Figure 6-9 Fixing the unit

7 Hydraulic Installation of Hydraulic Unit

7.1 Roof Panel of Hydraulic Unit

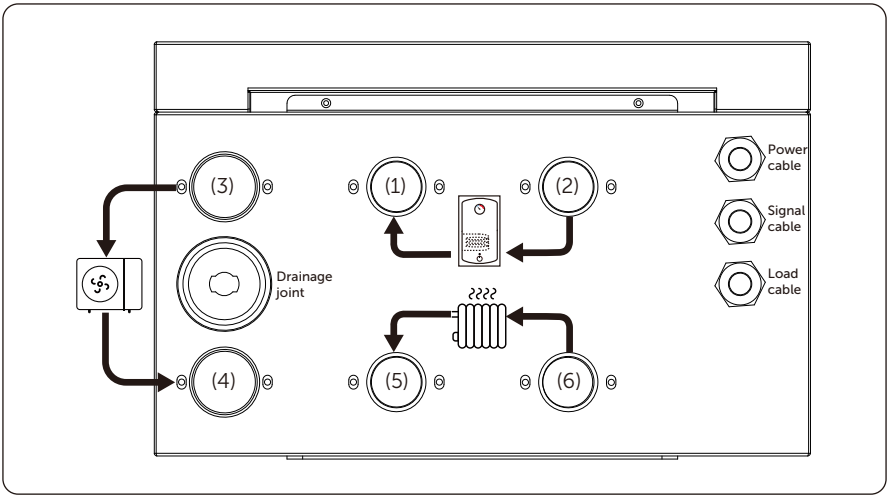


Table 7-1 Description of hydraulic unit roof panel

No.	Description	Remark
1	Input from the water tank	Female G1" according to IS0228-1 (parallel pipe threads)
2	Output to the water tank	Female G1" according to IS0228-1 (parallel pipe threads)
3	Output to the heat pump	Female G1-1/4" according to IS0228-1 (parallel pipe threads)
4	Input from the heat pump	Female G1-1/4" according to IS0228-1 (parallel pipe threads)
5	Input from the heating system	Female G1" according to IS0228-1 (parallel pipe threads)
6	Output to the heating system	Female G1" according to IS0228-1 (parallel pipe threads)

7.2 Precautions

Pipeline cleaning

WARNING!

Residue in the pipeline can damage the system.
- Metal/plastic filings and similar residue may get stuck in pumps, valves and heat exchangers.

- Keep foreign bodies from entering the pipeline.
- Do not leave pipe parts and connections directly on the ground.
- When removing burrs, make sure that no residue remains in the pipe.
- Before connecting the heat pump and indoor unit, rinse the pipe system to remove any foreign bodies.

Insulating material

WARNING!

Material damage due to UV radiation!
- The insulating layer may become brittle and crack due to ultraviolet radiation.

- Use UV-resistant and moisture-proof insulating materials.
- For outdoor pipes and connections, use insulating materials with a thickness of at least 19 mm.
- For pipes in buildings, use insulating materials with a thickness of at least 12 mm.
- All heat-conducting pipes must be provided with appropriate insulation materials according to applicable regulations.

Anti-freezing protection

WARNING!

Material damage due to frost!
- If there is a power outage, the water in the pipes may freeze and get damaged.
- Do not install the product in rooms prone to frost.

- Install a drainage valve to drain water and avoid the risk of pipeline frost exposure in the external environment.
- In cooling mode, all connections and pipelines must be insulated according to applicable standards to prevent condensation.

7.3 General Pipe Connection

Select the pipe size according to the following table.

- Avoid using joints on the heat exchange tubes to reduce pressure drop.
- Use **PPR** pipes or **stainless steel** pipes at all connections between the Hydraulic Unit and heat pump, heating system, and domestic water tank.
- Use materials (pipes and joints) from the same supplier to avoid leakage.

Table 7-2 Recommended thickness of the sealing material

Pipe length (m) between the unit and the terminal device	Minimum insulation thickness (mm)
<20	20
20~30	30
30~40	40
40~50	50

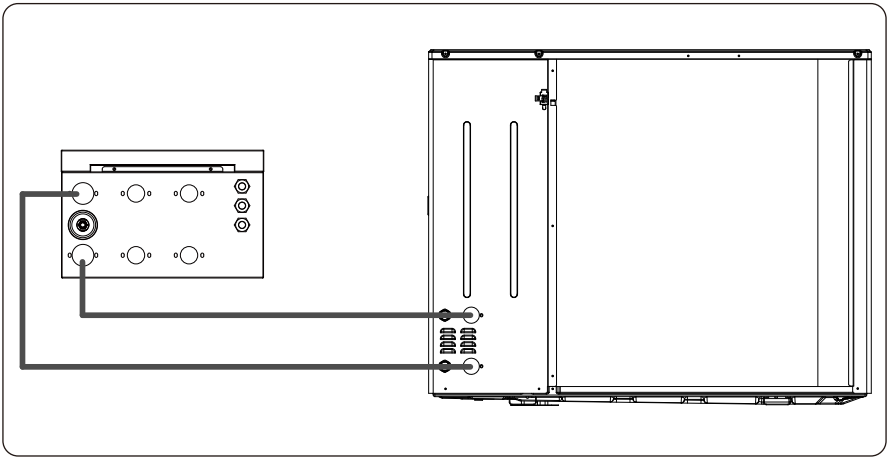


Figure 7-1 Connections between the heat pump and hydraulic unit

7.4 Connecting to the Heat Pump

Step 1: Connect from the outlet of the heat pump to the joint (4) of Hydraulic Unit (refer to "7.1 Roof Panel of Hydraulic Unit") with a pipe. Install an exhaust valve in this pipeline.

Step 2: Connect from the joint (3) of Hydraulic Unit (refer to "7.1 Roof Panel of Hydraulic Unit") to the water inlet of the heat pump with a pipe. Install a ball valve, a drain valve and a Y-type strainer in this pipeline.

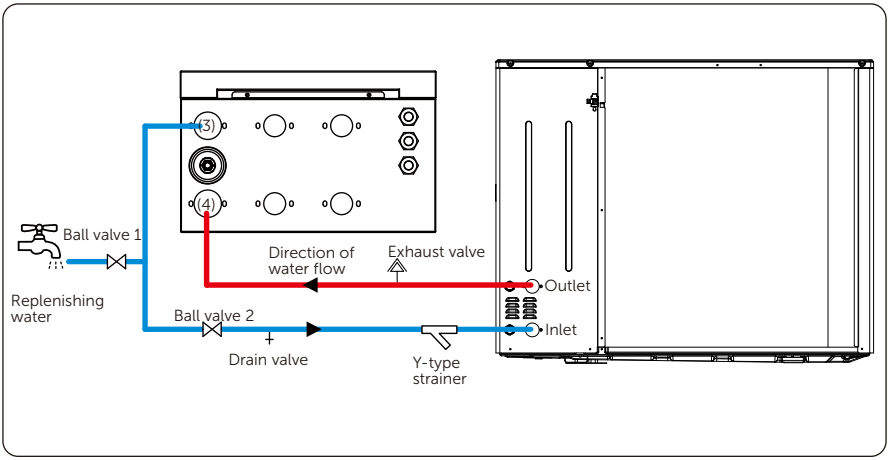


Figure 7-2 Connecting to the heat pump

NOTICE!

- When the heating system is short of water, please replenish the tap water.

7.5 Connecting to the Heating System

Step 1: Connect from the joint (6) of Hydraulic Unit to the heating system (such as underfloor heating, air duct) with a pipe. Install a ball valve and a drain valve in this pipeline.

Step 2: Connect from the heating system to the joint (5) of Hydraulic Unit with a pipe. Install a ball valve and a particle filter in this pipeline.

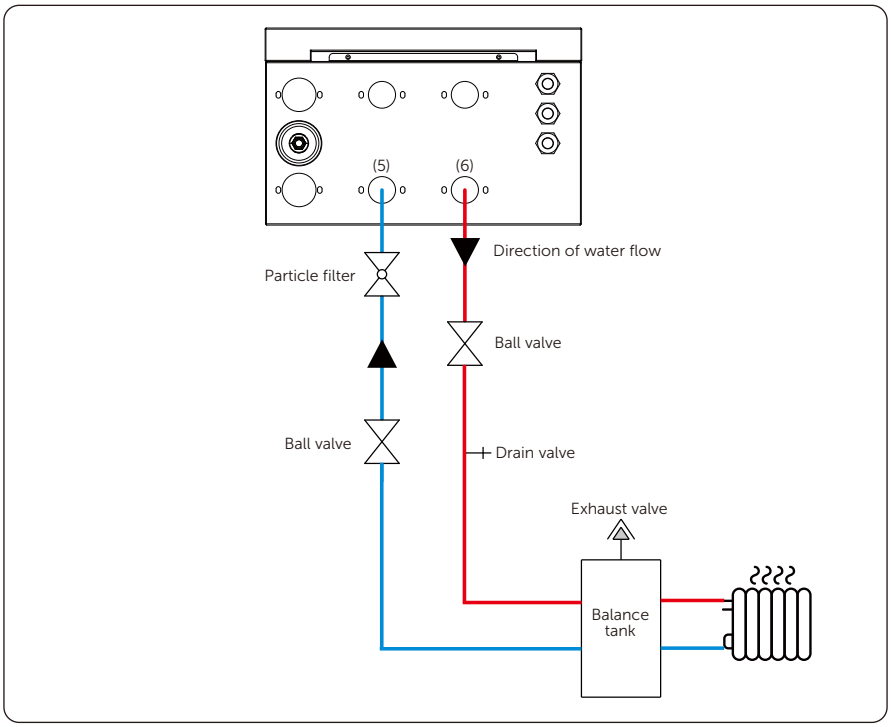


Figure 7-3 Connecting to the heating system

7.6 Connecting to the Tank Coil

Step 1: Connect from the water tank coil to the joint (1) of Hydraulic Unit with a pipe. Install the check valve in this pipeline.

Step 2: Connect from the joint (2) of Hydraulic Unit to the water tank coil with a pipe.

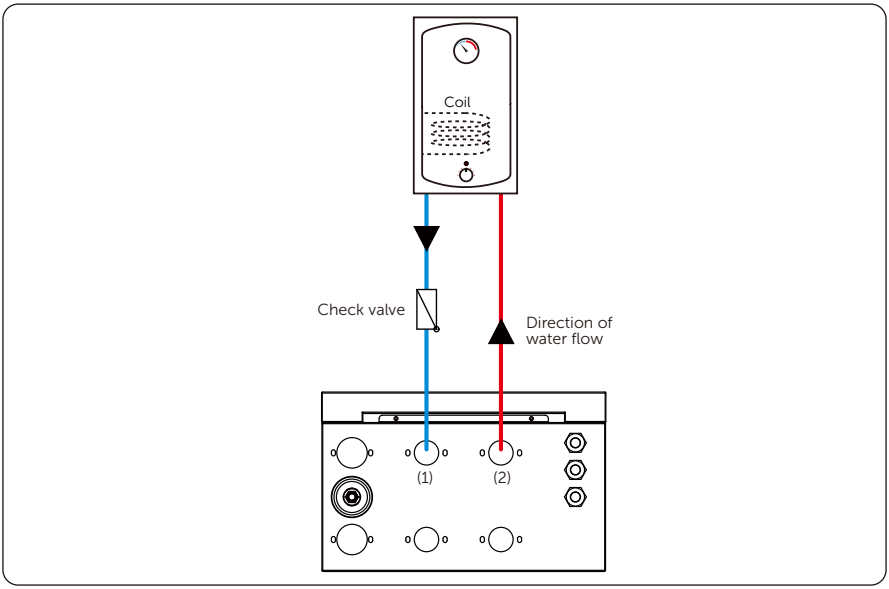


Figure 7-4 Connecting to the water tank coil

7.7 Filling the Heat Pump, Hydraulic Unit and Heating System

CAUTION!

- Before filling with water, please flush the water tank and the tap water system to prevent water pollution.

NOTICE!

- Before powering on the heating system, fill the DHW tank and heating system and establish the correct pressure.

NOTICE!

- Carefully vent the system when filling.

Exhausting

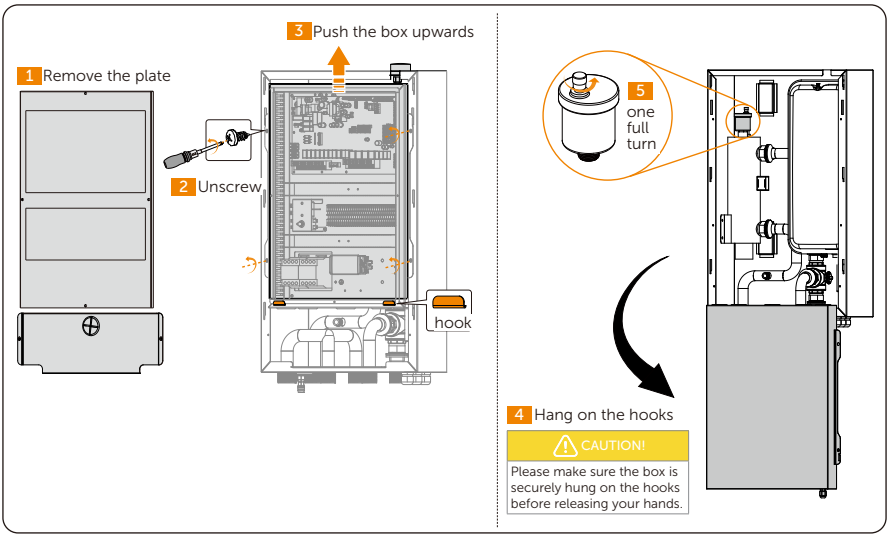
Step 1: Remove the cover plate of electrical box and the baffle.

Step 2: Unscrew the fixing screws of the electrical box.

Step 3: Push the box body upwards.

Step 4: Turn the electrical box upside down and hang it on the hooks.

Step 5: Turn the exhaust valve at least one full turn counterclockwise to release air from the system.



Procedures for filling water

Step 1: Turn off the power to the heat pump and Hydraulic Integrated Unit.

Step 2: Open all thermostatic valves in the heating system.

Step 3: Close the **Ball valve 4**, **Ball valve 5**, **Particle filter** and **Ball valve 6** on the outdoor unit side.

Step 4: Connect the drain hose to the **Drain valve 1** on the outdoor unit side.

Step 5: Open the **Ball valve 2** and fill water through the **Ball valve 1** until there are no more bubbles in the drain hose and water comes out steadily.

Step 6: Open the **Ball valve 6**.

Step 7: When water can come out steadily from **Drain valve 1**, close the **Ball valve 2** and **Ball valve 6**.

Step 8: Fill water through the **Ball valve 3** into the DHW tank. Close the tap water when only water is coming out of the **Showerhead**.

Step 9: Connect the drain hose to the **Drain valve 2**.

Step 10: Open the **Particle filter**, **Ball valve 4** and **Ball valve 5** to fill the heating system.

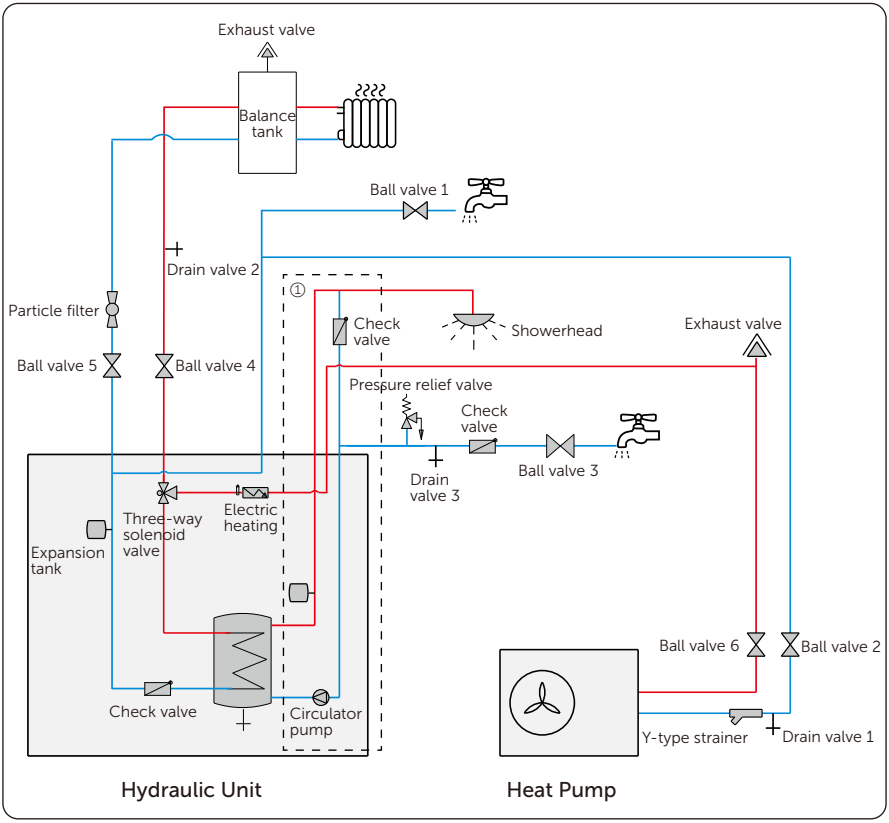
Step 11: Fill water until only water flows steadily out of the drain hose.

Step 12: Close the **Ball valve 4** on the heating system side and remove the hose.

Step 13: Turn the **Exhaust valve** at least one full turn counterclockwise, and close them when only water flows out.

Step 14: Continue filling until the pressure gauge shows the target pressure.

Step 15: Close the **Ball valve 5** on the heating system side.



① If the domestic hot water side is to meet the demand for hot water recirculation, the hot water outlet should be divided into a branch to the cold water inlet, and a check valve should be installed on this branch.

8 Hydraulic Installation of Hydraulic Integrated Unit

8.1 Roof Panel of Hydraulic Integrated Unit

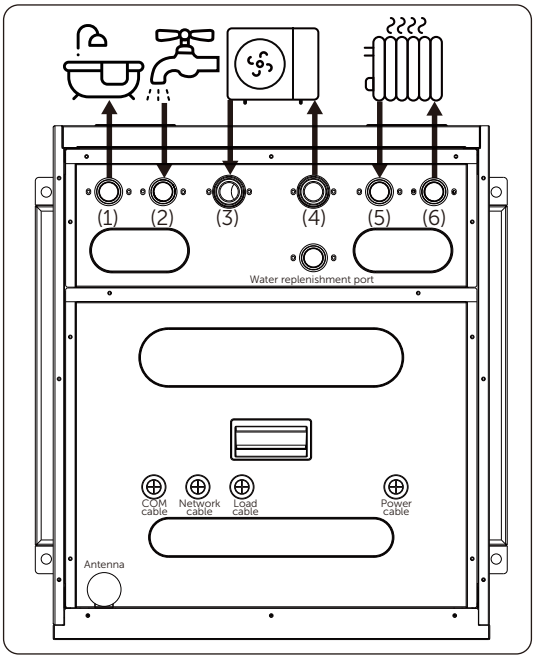


Table 8-1 Description of hydraulic integrated unit roof panel

No.	Description	Remark
1	Output to the domestic hot water (DHW)	Female G1" according to IS0228-1 (parallel pipe threads)
2	Input from the tap water	Female G1" according to IS0228-1 (parallel pipe threads)
3	Input from the heat pump	Female G1-1/4" according to IS0228-1 (parallel pipe threads)
4	Output to the heat pump	Female G1-1/4" according to IS0228-1 (parallel pipe threads)

5	Input from the heating system	Female G1" according to IS0228-1 (parallel pipe threads)
6	Output to the heating system	Female G1" according to IS0228-1 (parallel pipe threads)

8.2 Precautions

Pipeline cleaning

WARNING!

Residue in the pipeline can damage the system.
- Metal/plastic filings and similar residue may get stuck in pumps, valves and heat exchangers.

- Keep foreign bodies from entering the pipeline.
- Do not leave pipe parts and connections directly on the ground.
- When removing burrs, make sure that no residue remains in the pipe.
- Before connecting the heat pump and indoor unit, rinse the pipe system to remove any foreign bodies.

Insulating material

WARNING!

Material damage due to UV radiation!
- The insulating layer may become brittle and crack due to ultraviolet radiation.

- Use UV-resistant and moisture-proof insulating materials.
- For outdoor pipes and connections, use insulating materials with a thickness of at least 19 mm.
- For pipes in buildings, use insulating materials with a thickness of at least 12 mm.
- All heat-conducting pipes must be provided with appropriate insulation materials according to applicable regulations.

Anti-freezing protection

WARNING!

Material damage due to frost!
- If there is a power outage, the water in the pipes may freeze and get damaged.
- Do not install the product in rooms prone to frost.

- Install a drainage valve to drain water and avoid the risk of pipeline frost exposure in the external environment.

- In cooling mode, all connections and pipelines must be insulated according to applicable standards to prevent condensation.

8.3 General Pipe Connection

Select the pipe size according to the following table.

- Avoid using joints on the heat exchange tubes to reduce pressure drop.
- Use **PPR** pipes or **stainless steel** pipes at all connections between the Hydraulic Integrated Unit and heat pump, heating system, and domestic water tank.
- Use materials (pipes and joints) from the same supplier to avoid leakage.

Table 8-2 Recommended thickness of the sealing material

Pipe length (m) between the unit and the terminal device	Minimum insulation thickness (mm)
<20	20
20~30	30
30~40	40
40~50	50

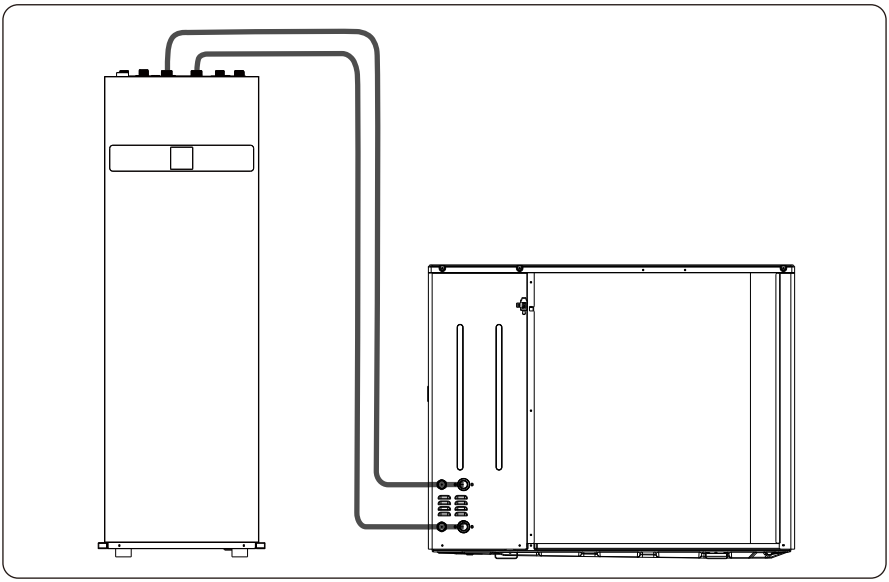


Figure 8-1 Connections between the heat pump and hydraulic integrated unit

8.4 Connecting to the Heat Pump

Step 1: Connect from the outlet of the heat pump to the joint (3) of Hydraulic Integrated Unit (refer to "8.1 Roof Panel of Hydraulic Integrated Unit") with a pipe. Install an exhaust valve in this pipeline.

Step 2: Connect from the joint (4) of Hydraulic Integrated Unit (refer to "8.1 Roof Panel of Hydraulic Integrated Unit") to the water inlet of the heat pump with a pipe. Install a ball valve, drain valve and Y-type strainer in this pipeline.

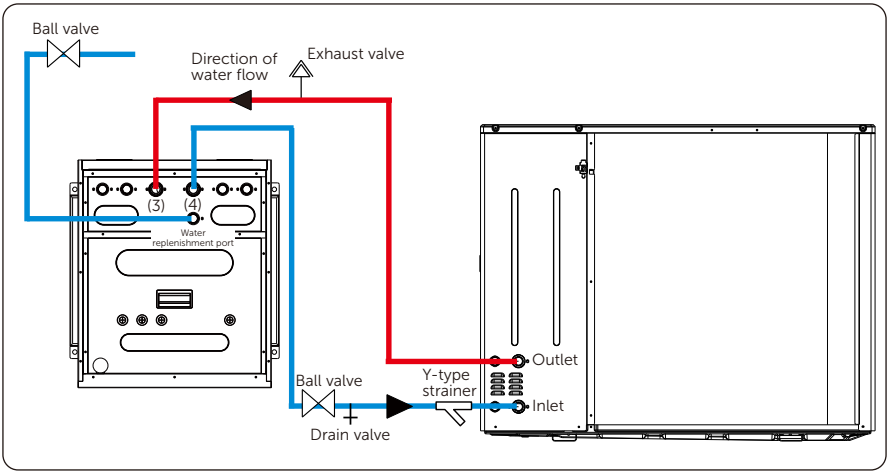


Figure 8-2 Connecting to the heat pump

NOTICE!

- When the heating system is short of water, please add water to the replenishing water hole.

8.5 Connecting to the Heating System

Step 1: Connect from the joint (6) of Hydraulic Integrated Unit to the heating system (such as underfloor heating, air duct) with a pipe. Install a ball valve and a drain valve in this pipeline.

Step 2: Connect from the heating system to the joint (5) of Hydraulic Integrated Unit with a pipe. Install a ball valve and a particle filter in this pipeline.

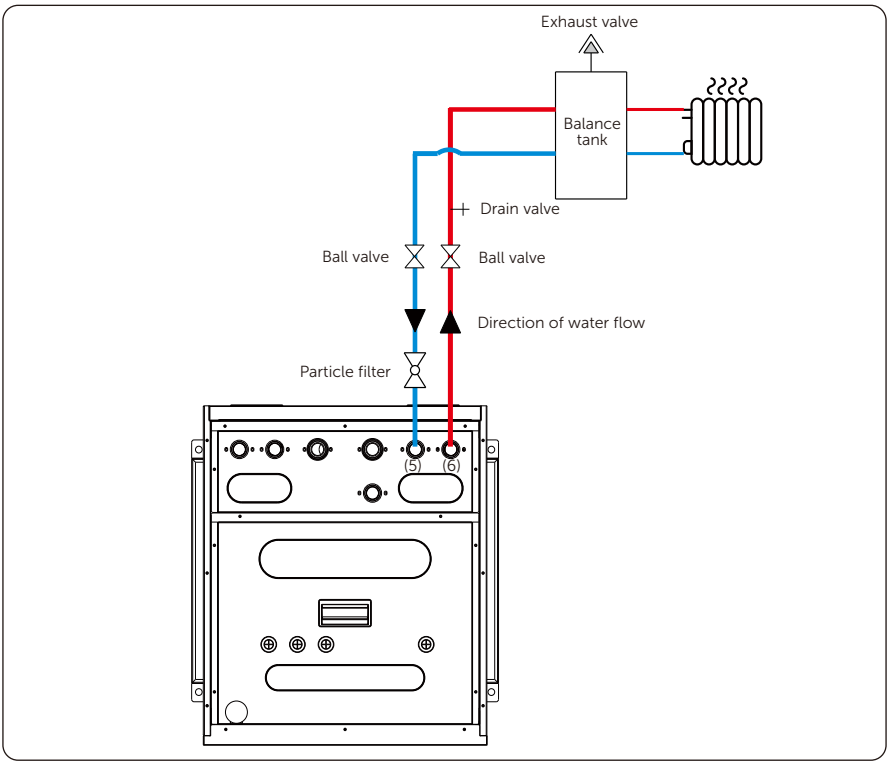


Figure 8-3 Connecting to the heating system

8.6 Connecting to the Tap Water

Step 1: Connect from the tap water to the joint (2) of Hydraulic Integrated Unit with a pipe. In this pipeline, install the ball valve, check valve, drain valve and pressure relief valve in sequence.

WARNING!

Risk of system damage

- Ensure that the pressure relief valve is in good condition and the outlet is not blocked or closed. Otherwise, excessive pressure occurs in the system.
- The pressure-relief device is to be operated regularly to remove lime deposits and to verify that it is not blocked.
- The water may drip from the discharge pipe of the pressure-relief device and that this pipe must be left open to the atmosphere.
- A discharge pipe connected to the pressure-relief device is to be installed in a continuously downward direction and in a frost-free environment.
- The recommended pressure relief device specification is 6 bar.

Step 2: Connect from the joint (1) of Hydraulic Integrated Unit to the DHW with a pipe.

WARNING!

Risk of scalding

- If the installation requires DHW temperature > 65°C, a temperature mixing device must be installed.

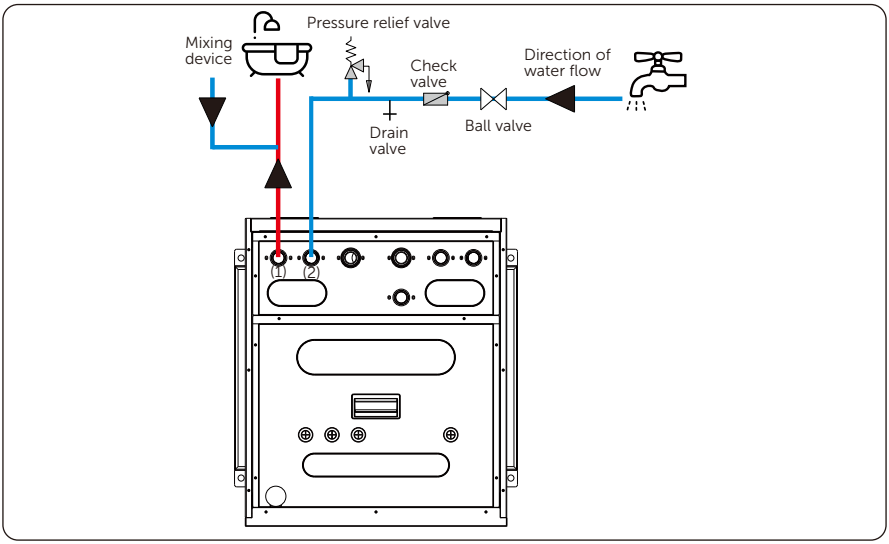


Figure 8-4 Connecting to the tap water and DHW

8.7 Filling the Heat Pump, Hydraulic Integrated Unit and Heating System

CAUTION!

- Before filling with water, please flush the water tank and the tap water system to prevent water pollution.

NOTICE!

- Before powering on the heating system, fill the DHW tank and heating system and establish the correct pressure.

NOTICE!

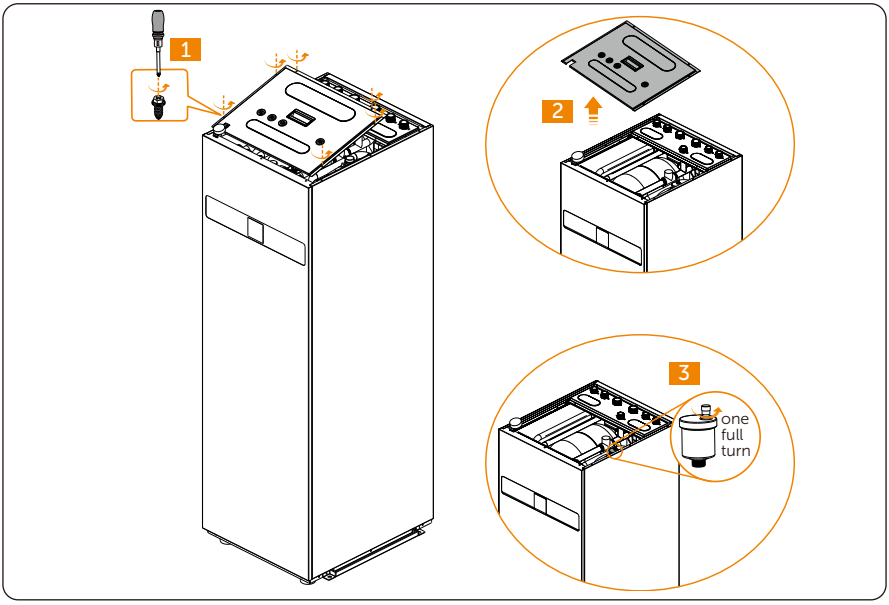
- Carefully vent the system when filling.

Exhausting

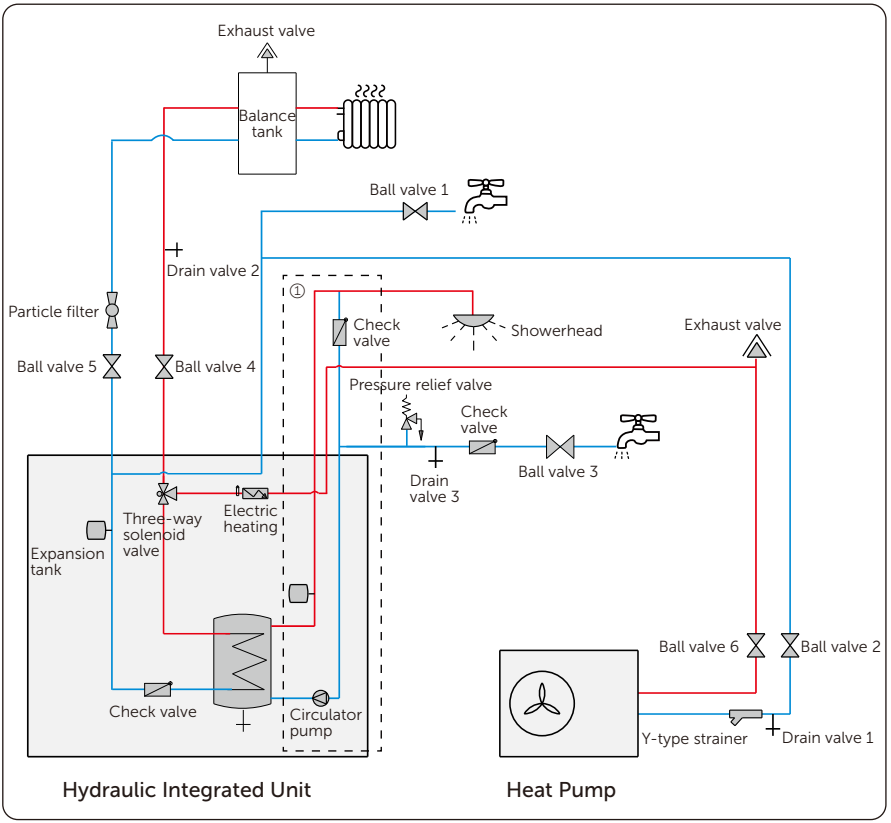
Step 1: Unscrew the screws on the top cover plate.

Step 2: Remove the top cover plate of the unit.

Step 3: Turn the exhaust valve at least one full turn counterclockwise to release air from the system.



Procedures for filling water



① If the domestic hot water side is to meet the demand for hot water recirculation, the hot water outlet should be divided into a branch to the cold water inlet, and a check valve should be installed on this branch.

Step 1: Turn off the power to the heat pump and Hydraulic Integrated Unit.

Step 2: Open all thermostatic valves in the heating system.

Step 3: Close the **Ball valve 4**, **Ball valve 5**, **Particle filter** and **Ball valve 6** on the outdoor unit side.

Step 4: Connect the drain hose to the **Drain valve 1** on the outdoor unit side.

Step 5: Open the **Ball valve 2** and fill water through the **Ball valve 1** until there are no more bubbles in the drain hose and water comes out steadily.

Step 6: Open the **Ball valve 6**.

NOTICE!

- After the three-way solenoid valve turns, if the **Drain valve 1** stably discharges water, it is considered that the water has been filled up.

Step 7: When water can come out steadily from **Drain valve 1**, close the **Ball valve 2** and **Ball valve 6**.

Step 8: Fill water through the **Ball valve 3** into the DHW tank. Close the tap water when only water is coming out of the **Showerhead**.

Step 9: Connect the drain hose to the **Drain valve 2**.

Step 10: Open the **Particle filter**, **Ball valve 4** and **Ball valve 5** to fill the heating system.

Step 11: Fill water until only water flows steadily out of the drain hose.

Step 12: Close the **Ball valve 4** on the heating system side and remove the hose.

Step 13: Open the **Exhaust valve** and close them when only water flows out.

Step 14: Continue filling until the pressure gauge shows the target pressure.

Step 15: Close the **Ball valve 5** on the heating system side.

NOTICE!

- **Drain valve 3** is used for emptying the water tank during cleaning. It is recommended to install it outdoors; if installed indoors, drainage needs to be taken into consideration.

9 Electrical Connection

WARNING!

- All wiring and component installation work should be done by licensed electricians who complies with the laws and regulations of the country in which the unit is installed.

WARNING!

- Wiring must comply with the requirements of the relevant national technical standards for electrical equipment.

WARNING!

- Turn off the power when wiring.

WARNING!

- Wiring should be performed in strict accordance with the wiring diagram and instructions.

WARNING!

- The unit should use a separate dedicated power supply with a power supply voltage and frequency that meets the rated specifications.

WARNING!

- Always install a grounding cable! Do not connect the grounding wire to a public pipe, lightning arrester, or the mounting bracket of the outdoor unit. An unreliable ground cable or grounding point may cause electric shock.

WARNING!

- Use the correct specification cables to supply power to the unit.

WARNING!

- Power and signal cables should be reasonably arranged, not interfering with each other, and not coming into contact with the connecting piping or valve.

WARNING!

- All cables connected to the unit should avoid rainwater seeping into the interior of the unit to prevent electrical leakage.

WARNING!

- All power supplies to the equipment must be switched on and off manually. Ensure that the voltage at the equipment circuit nodes is fully discharged when the switch is disconnected.

WARNING!

- The fuse or manual switch of the power supply shall match the working voltage and current of the unit.

WARNING!

- Power cables not connected to the control box should not pass through the control box. Failure to do so may cause the unit to malfunction.

9.1 Opening the Cover Plate

9.1.1 Hydraulic Unit

Step 1: Unscrew the two screws at the bottom of the cover plate.

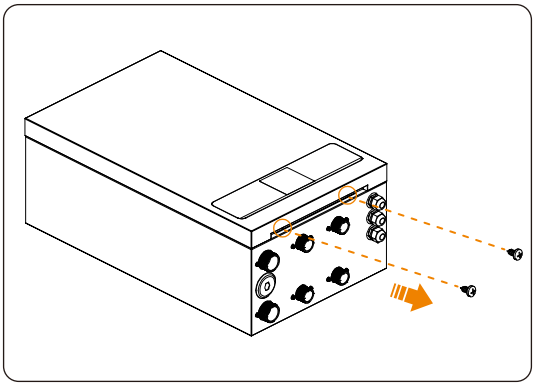


Figure 9-1 Unscrewing the screws from cover plate

Step 2: Remove the cover plate of the unit.

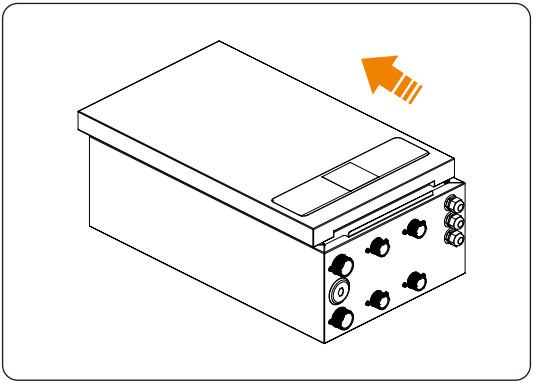


Figure 9-2 Removing the cover plate

Step 3: Unscrew the six screws of the electrical box cover and the baffle plate, and remove the electrical box cover and the baffle plate.

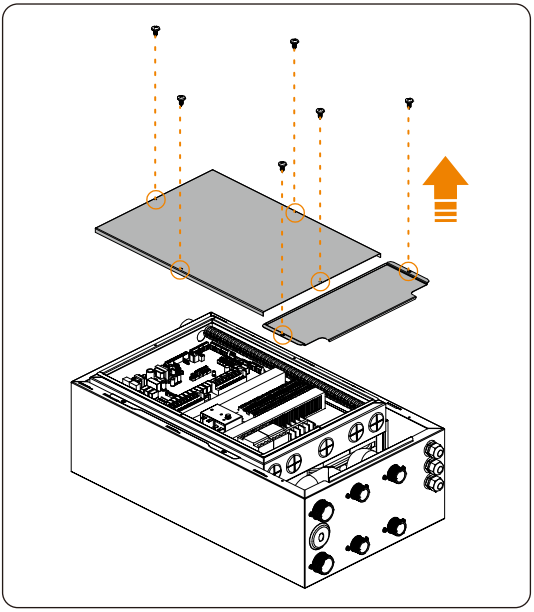


Figure 9-3 Unscrewing the screws from the cover plate

9.1.2 Hydraulic Integrated Unit

Step 1: Unscrew the five screws at the bottom and top of the cover plate.

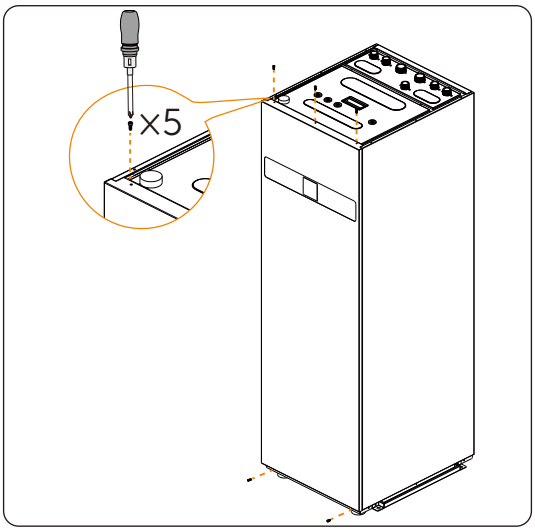


Figure 9-4 Unscrewing the screws from cover plate

Step 2: Unplug the connection plug of the communication cable, then remove the front cover plate of the unit.

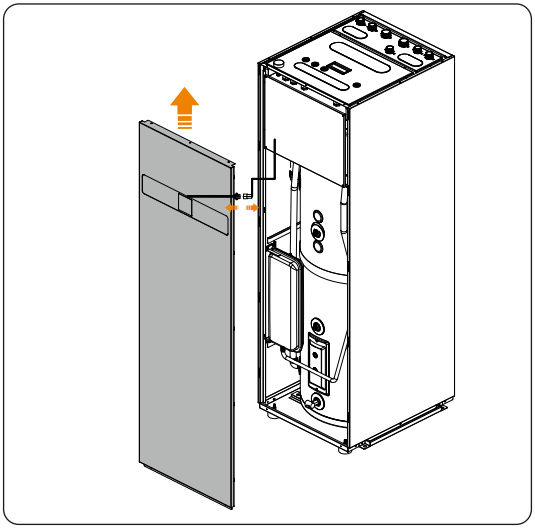


Figure 9-5 Removing the front cover plate

Step 3: Unscrew the four screws of the electric box cover plate, and remove the cover plate.

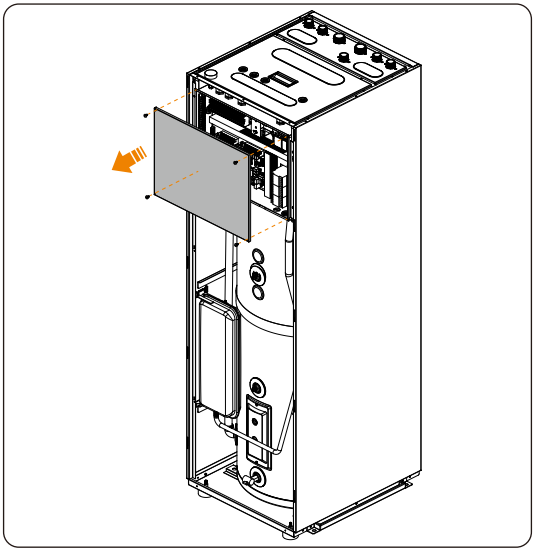


Figure 9-6 Unscrewing the screws from the cover plate

Step 4: Unscrew the screws and remove the top cover plate of the unit.

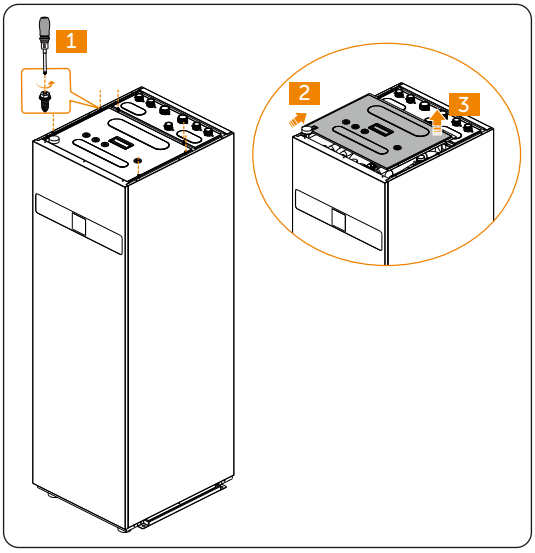


Figure 9-7 Removing the top cover plate

9.2 Connecting the Power Supply

9.2.1 Precautions

For connection of the unit to a power supply terminal, the terminal should be a circular wiring terminal with an insulation casing.

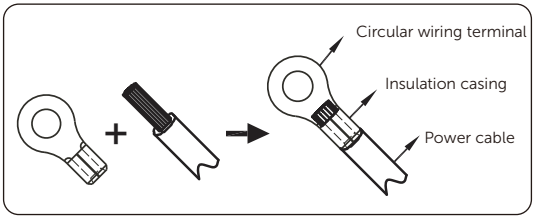


Figure 9-8 Wiring terminal

Observe the following instructions:

- Use a power cable that conforms to the specifications and connect the power cable firmly. Apply a proper tightening torque to prevent the cord from being accidentally pulled out by an external force.
- Do not connect two power cables with different diameters to the same power supply terminal. Otherwise, the cables may overheat due to loose wiring.

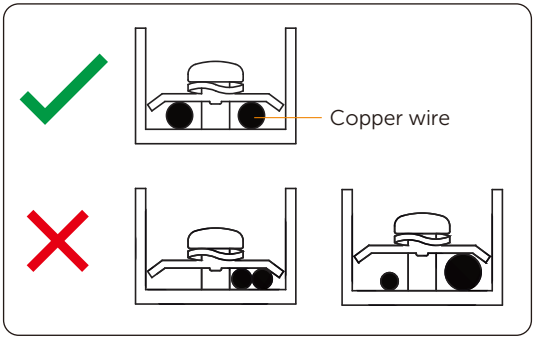


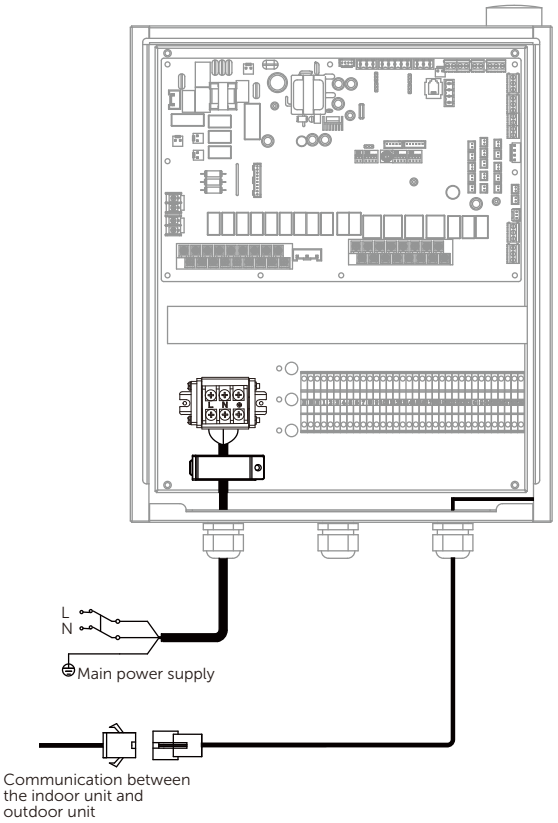
Figure 9-9 Proper power wiring connection

Table 9-3 Tightening torques

Item	Tightening torque (N·m)
M4 (power terminal, electric control board terminal)	1.2 to 1.4
M4 (earthing)	1.2 to 1.4
M5 (power terminal, electric control board terminal)	2.0 to 2.5
M5 (earthing)	2.0 to 2.5

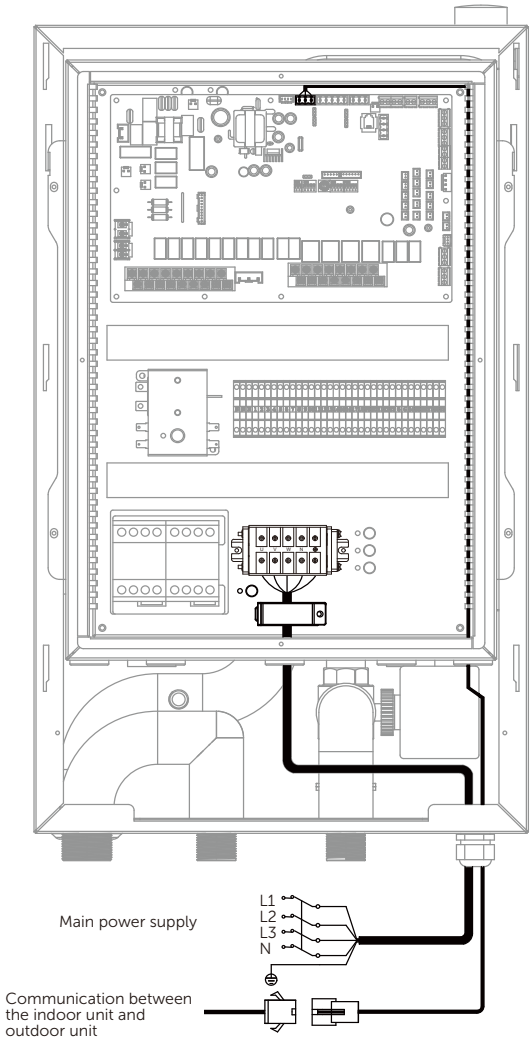
9.2.2 Control Unit

One phase



9.2.3 Hydraulic Unit

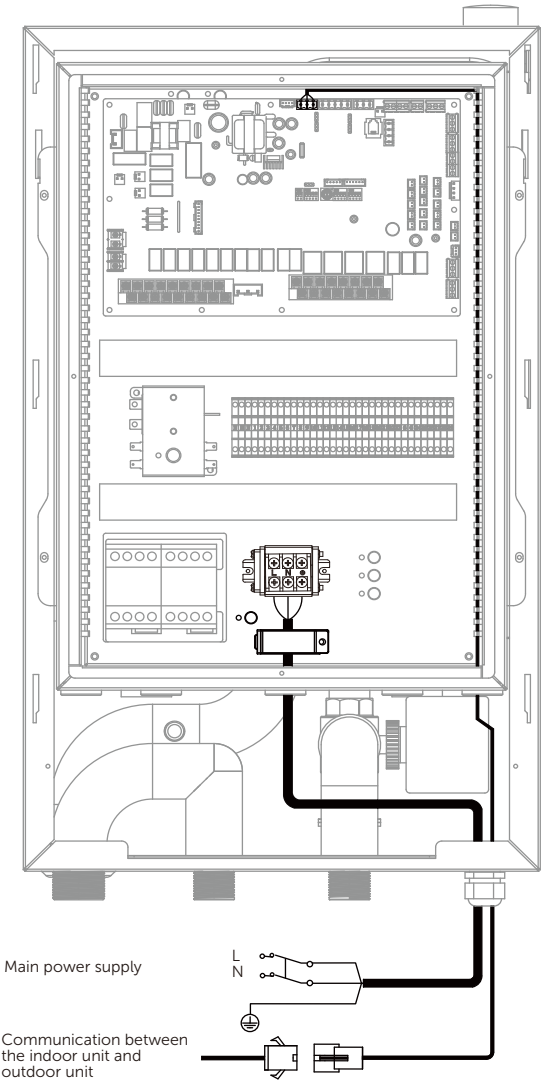
Three phase



WARNING!

- The cables for strong current and weak current cannot run through the same hole. Please refer to "7.1 Roof Panel of Hydraulic Unit".

One phase

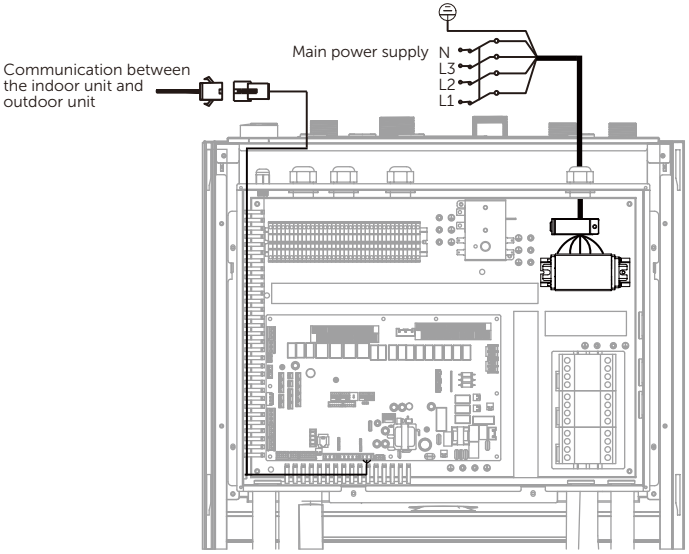


WARNING!

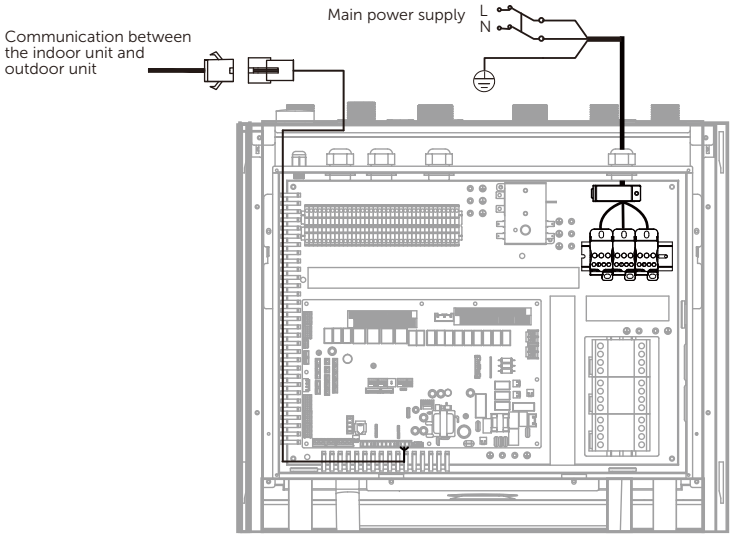
- The cables for strong current and weak current cannot run through the same hole. Please refer to "7.1 Roof Panel of Hydraulic Unit".

9.2.4 Hydraulic Integrated Unit

Three phase



One phase



9.3 Connecting Other Components

NOTICE!

- The part is introduced with the Hydraulic Unit as example. The wiring principle of the Control Unit and Hydraulic Integrated Unit is similar to that of Hydraulic Unit.

The port provides the control signal to the load. Two kinds of control signal ports:

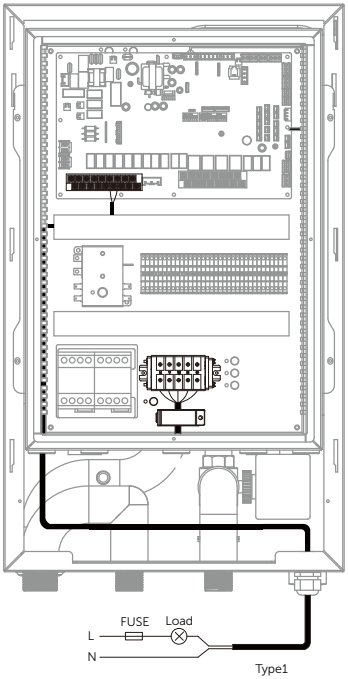
Type 1: Dry contactor without voltage.

Type 2: Signal with 220-240 V 1N~ 50 Hz or 380-415 V 3N~ 50 Hz voltage.

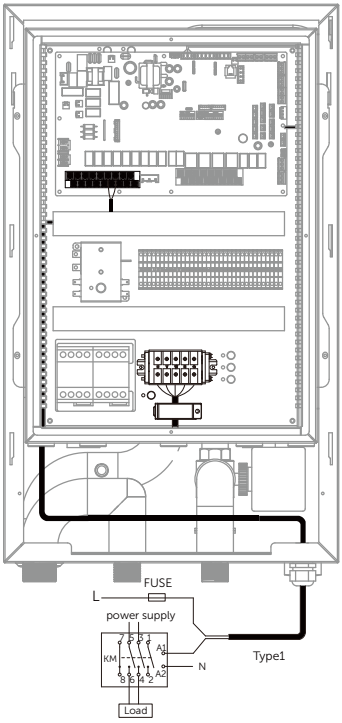
NOTICE!

- If the current of load < 0.2 A, the load can be connected to the port directly. If the load current ≥ 0.2 A, it is necessary to connect the AC contactor to the load.
- Illustrations below are for three phase units. The principle is the same for one phase units.
- Illustrations below are based on units with a backup heater.

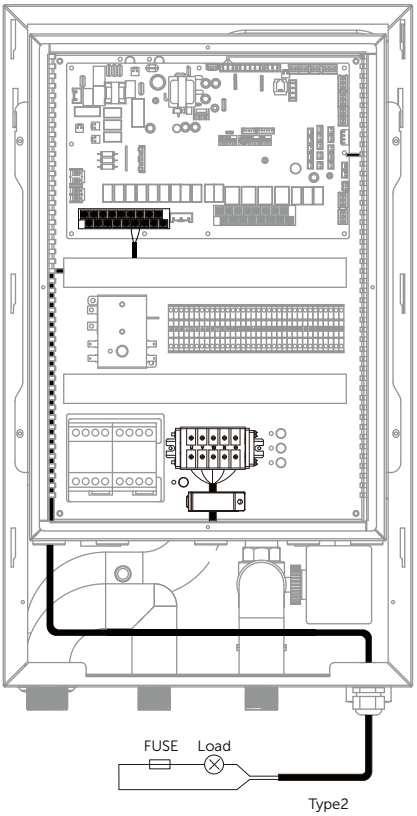
Low Power Load (Type 1)



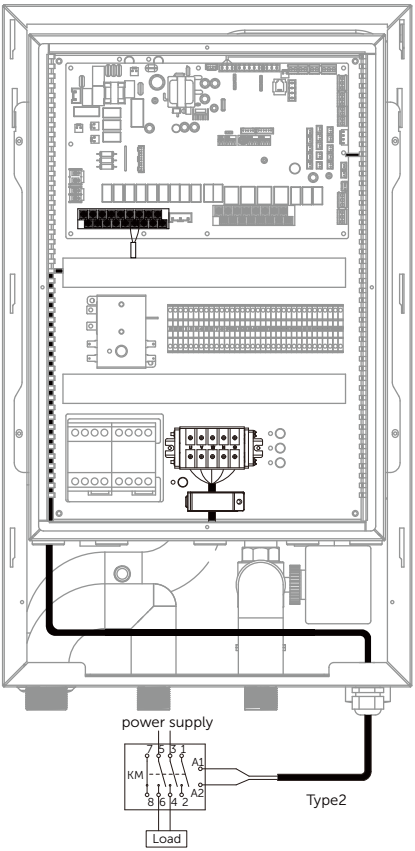
High Power Load (Type 1)



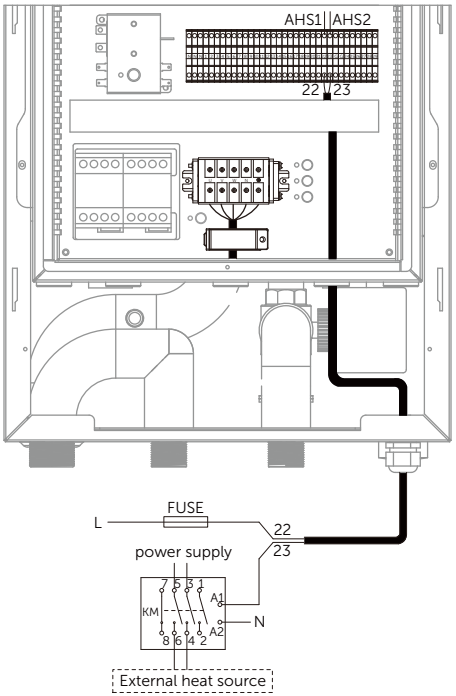
Low Power Load (Type 2)



High Power Load (Type 2)



9.3.1 Wiring of Additional Heat Source (AHS)



NOTICE!

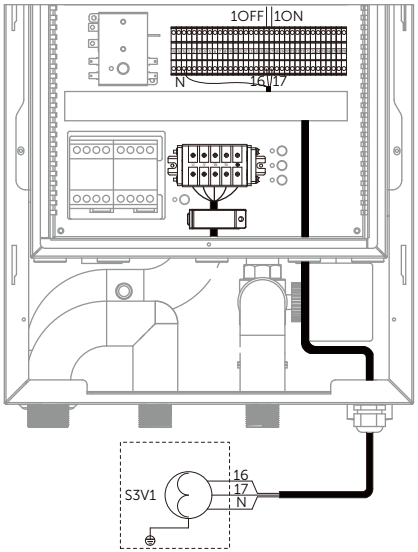
- This part only applies to basic units (without a backup heater). For customized units (with a backup heater), the hydraulic module should not be connected to any Additional heat source as there is an interval backup heater in the unit.
- In some cases (such as SG READY or X-HUB function), the hot water target temperature will be executed according to the maximum water temperature.

Voltage	220-240 V AC
Maximum running current (A)	0.2
Minimum wire size (mm^2)	0.75
Control port signal type	Type 1

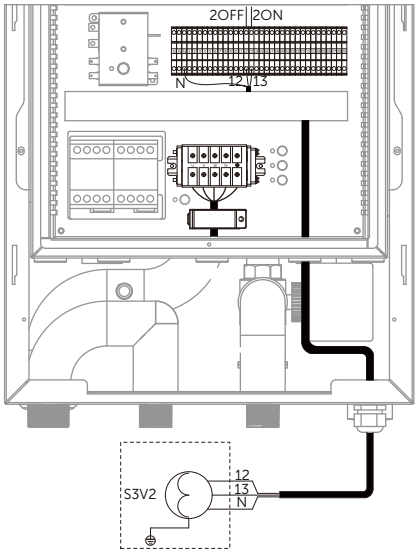
9.3.2 Wiring of 3-Way Valves

For the installation location of S3V1, S3V2, S3V3 and S3V4, please refer to the chapter "Typical applications" in *Outdoor Unit Installation Manual*.

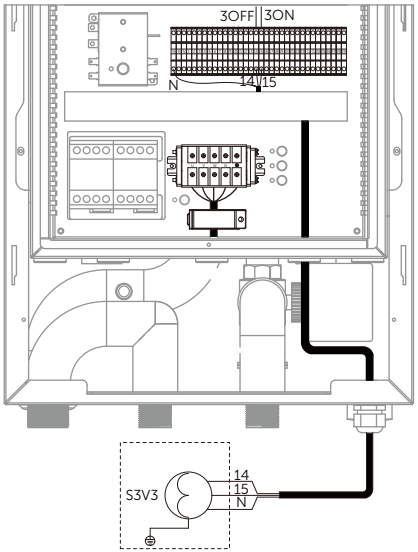
S3V1



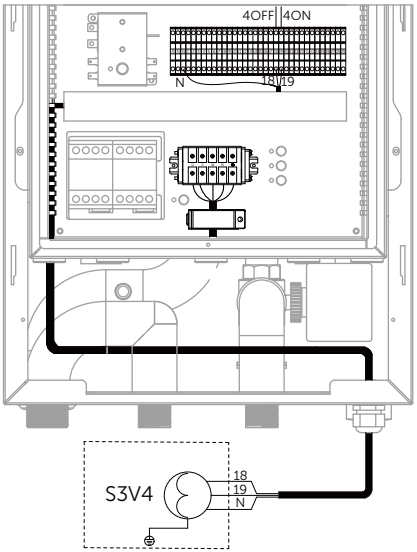
S3V2



S3V3



S3V4



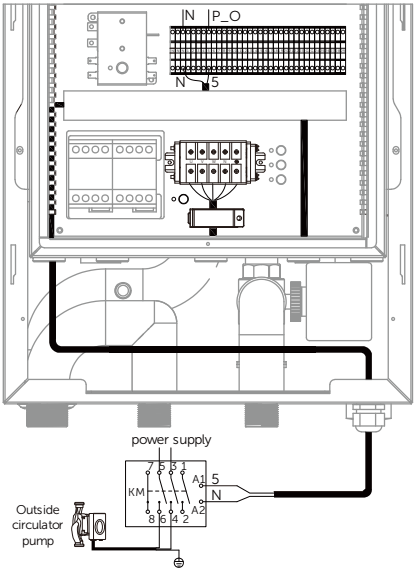
NOTICE!

- N is for the neutral conductor.

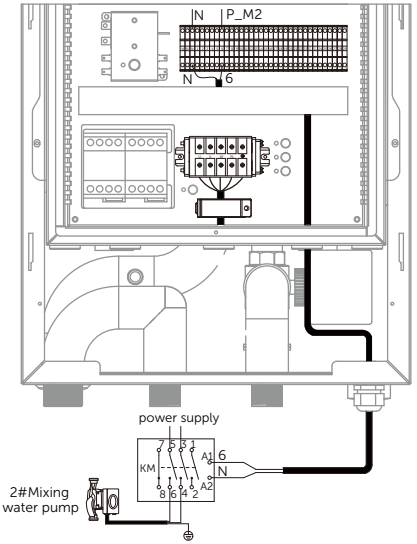
Voltage	220-240 V AC
Maximum running current (A)	0.2
Minimum wire size (mm^2)	0.75
Control port signal type	Type 2

9.3.3 Wiring of Additional Pumps

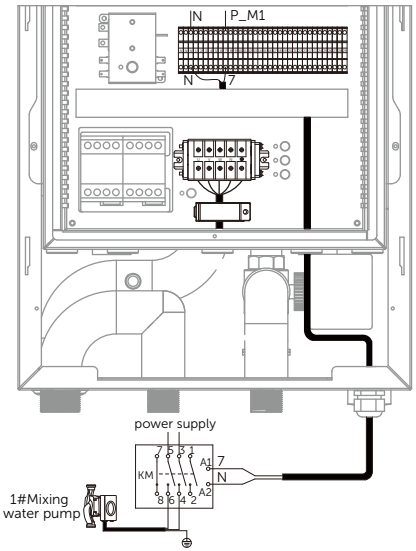
Outside circulator pump (P_O)



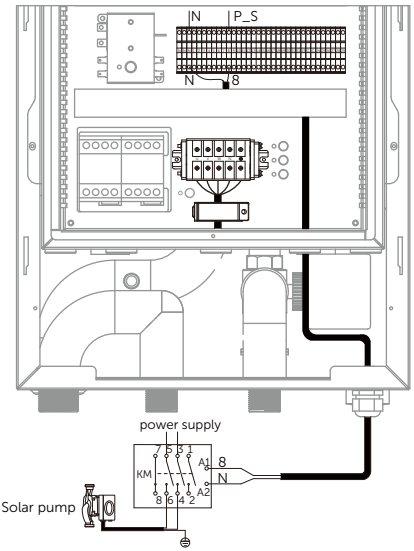
B2 Mixing pump (P_M2)



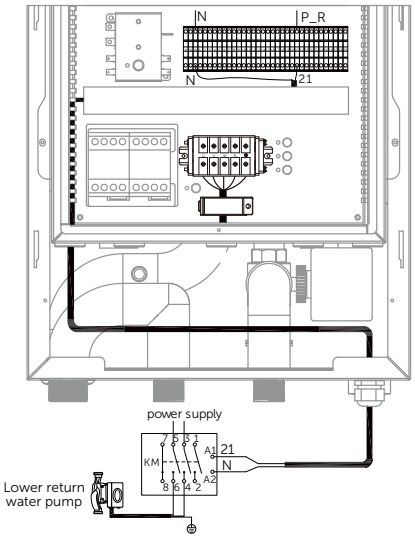
B1 Mixing pump (P_M1)



Solar water pump (P_S)

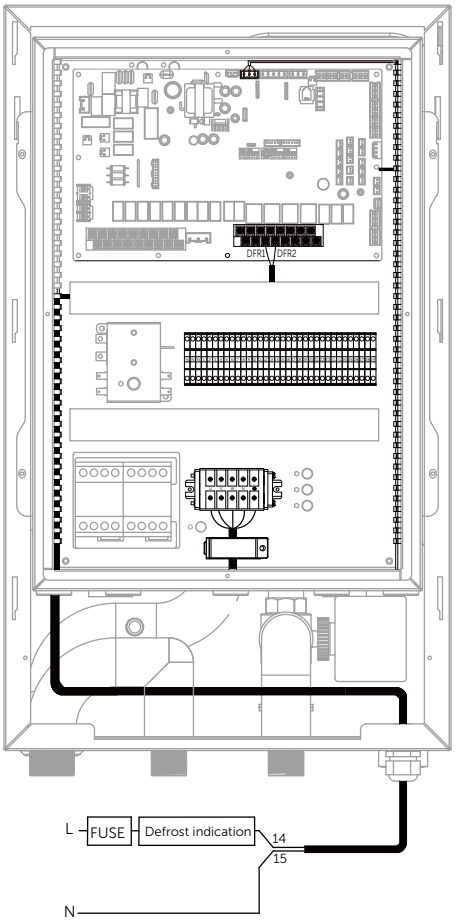


Lower return water pump (P_R)



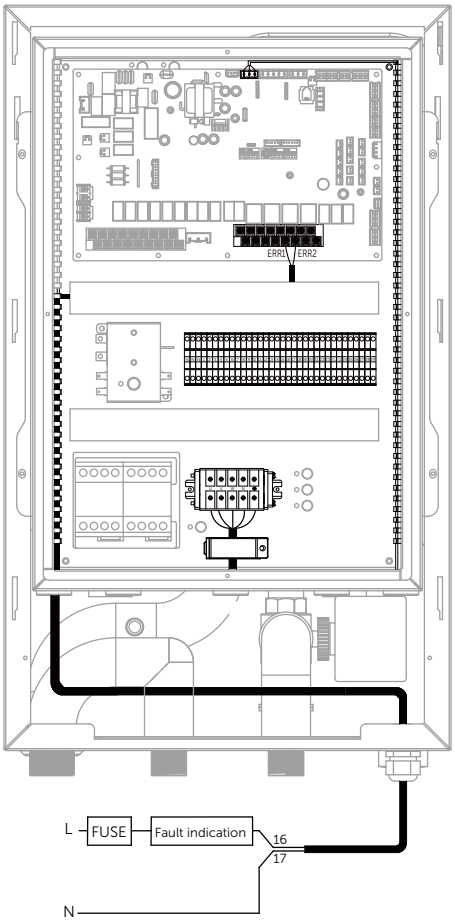
Voltage	220-240 V AC
Maximum running current (A)	0.2
Minimum wire size (mm^2)	0.75
Control port signal type	Type 2

9.3.4 Wiring of Defrost Indication



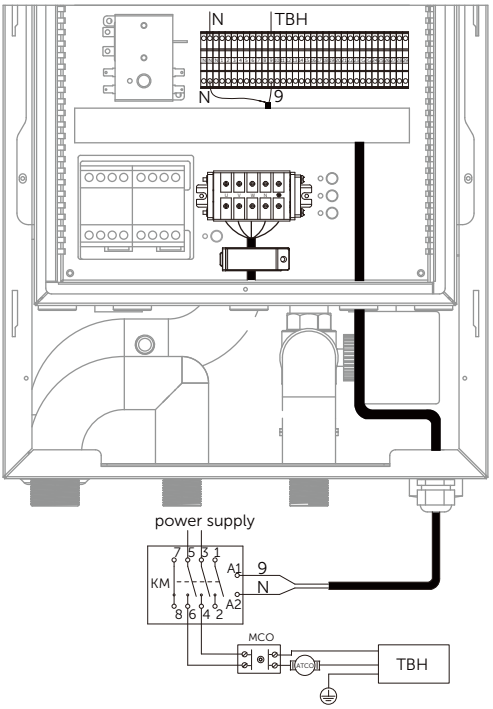
Voltage	220-240 V AC
Maximum running current (A)	0.2
Minimum wire size (mm^2)	0.75
Control port signal type	Type 1

9.3.5 Wiring of Fault Indication



Voltage	220-240 V AC
Maximum running current (A)	0.2
Minimum wire size (mm^2)	0.75
Control port signal type	Type 1

9.3.6 Wiring of Tank Booster Heater (TBH)



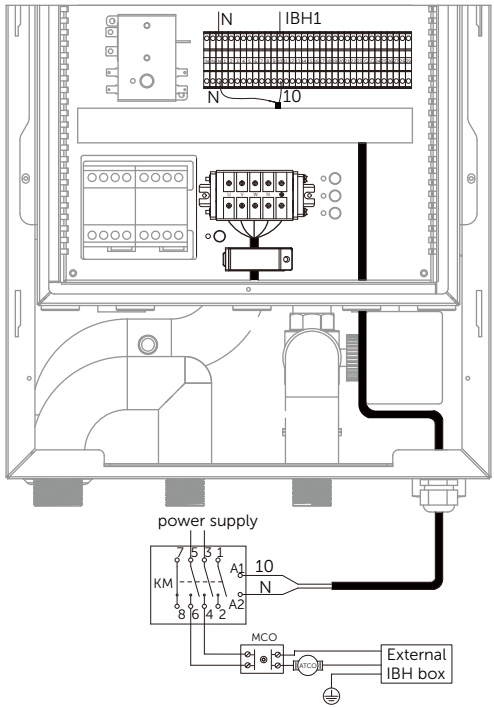
NOTICE!

- MCO: Manual reset thermal protector
- ATC: Auto reset thermal protector

Voltage	220-240 V AC
Maximum running current (A)	0.2
Minimum wire size (mm^2)	0.75
Control port signal type	Type 2

9.3.7 Wiring of External IBH Box

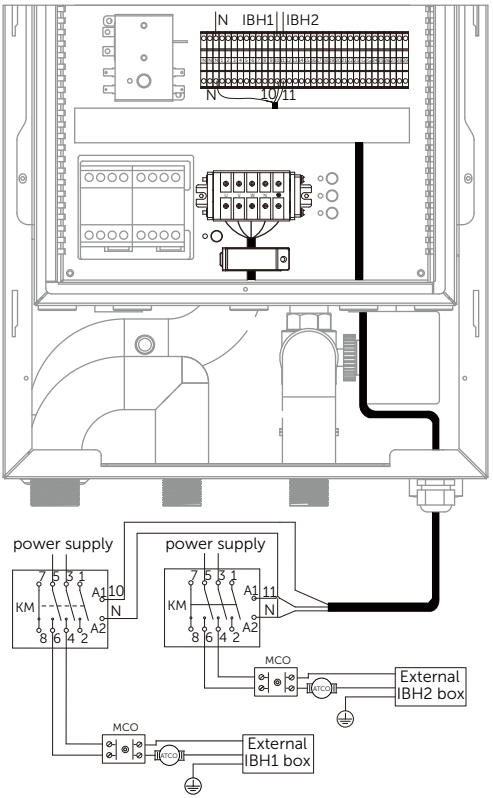
For one-step control IBH



NOTICE!

- MCO: For the Reset Switch, when the button pops up, press it to reset.

For two/three-step control IBH



Voltage	220-240 V AC
Maximum running current (A)	0.2
Minimum wire size (mm^2)	0.75
Control port signal type	Type 2

Gear output

The IBH can be configured by **SW1**. Under different configurations, the output actions of IBH1 and IBH2 are as follows.

- When **SW1** is set to **00**, IBH1 and IBH2 remain off.
- When **SW1** is set to **01**:

Requirement	IBH1	IBH2
Off	Off	Off
On	On	Off

- When **SW1** is set to **10**:

Requirement	IBH1	IBH2
Off	Off	Off
On	Off	On

- When **SW1** is set to **11**, the gear can be set by the parameter **IBH_GEAR**.
  - » **IBH_GEAR=1:**

Gear position	IBH1	IBH2
Gear 0	Off	Off
Gear 1	On	On

  - » **IBH_GEAR=2:**

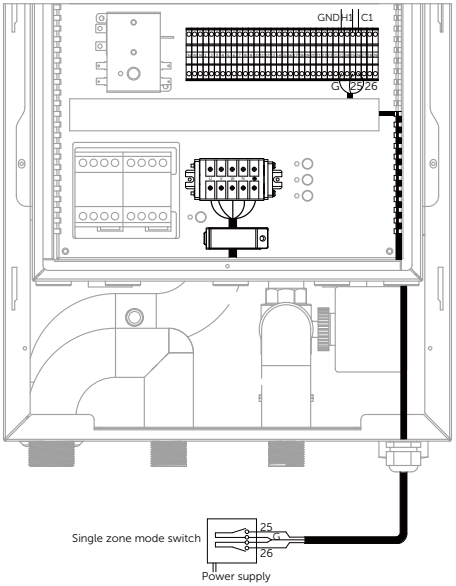
Gear position	IBH1	IBH2
Gear 0	Off	Off
Gear 1	On	Off
Gear 2	On	On

  - » **IBH_GEAR=3:**

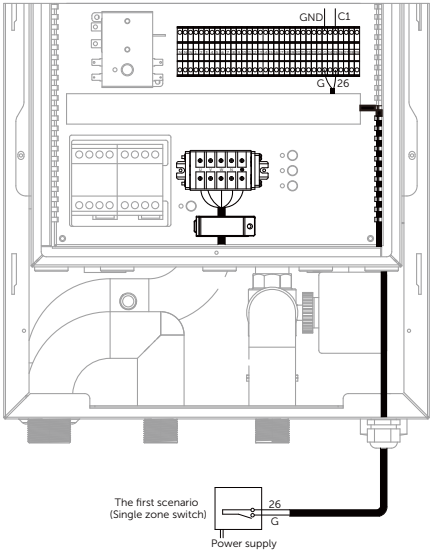
Gear position	IBH1	IBH2
Gear 0	Off	Off
Gear 1	On	Off
Gear 2	Off	On
Gear 3	On	On

9.3.8 Wiring of Room Thermostat (RT)

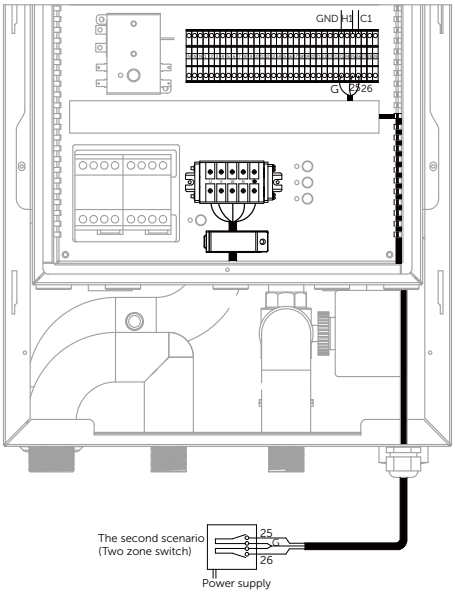
Single zone mode switch



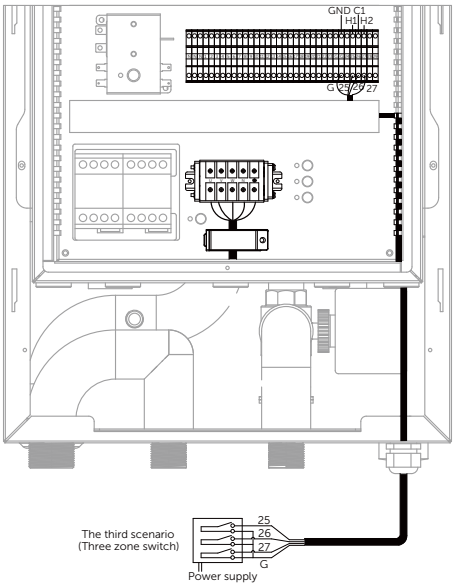
Single zone switch



Two zone switch



Three zone switch



The wiring of room thermostat can be connected in four ways (as described in the figures above) and the specific connection method depends on the application.

When **RT_CTRL** is set to "**ZoneA.Mode.SW** (Single zone mode switch)":

- When C1 signal is closed, zone A turns on the cooling mode.
- When C1 signal is disconnected and H signal is closed, zone A turns on the heating mode.
- When both C1 signal and H signal are disconnected, zone A turns off the RT control function.

When **RT_CTRL** is set to "**ZONE.A.SWITCH** (Single zone switch)":

- When C1 signal is closed, zone A turns on the RT control function.
- When C1 signal is disconnected, zone A turns off the RT control function.

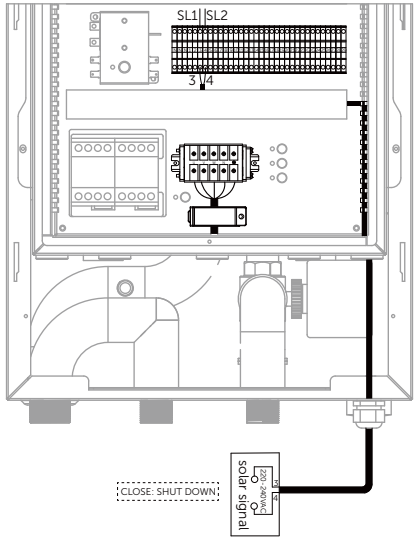
When **RT_CTRL** is set to "**2 ZONE.SWITCH** (Two zone switch)":

- When C1 signal is closed, zone A turns on the RT control function.
- When C1 signal is disconnected, zone A turns off the RT control function.
- When the air conditioning area is heating mode:
  - » When H1 signal is closed, zone B1 turns on the RT control function.
  - » When H1 signal is disconnected, zone B1 turns off the RT control function.

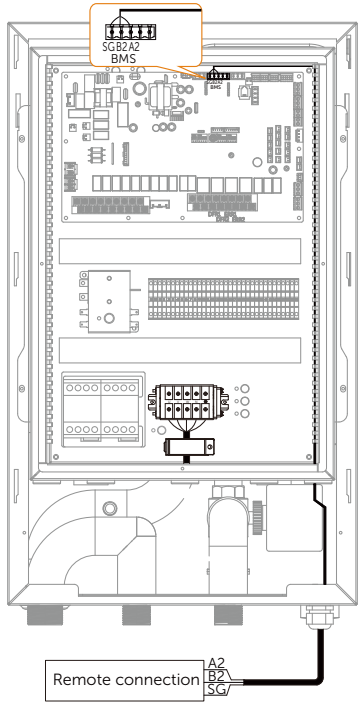
When **RT_CTRL** is set to "**3 ZONE.SWITCH** (Three zone switch)":

- When C1 signal is closed, zone A turns on the RT control function.
- When C1 signal is disconnected, zone A turns off the RT control function.
- When the air conditioning area is heating mode:
  - » When H1 signal is closed, zone B1 turns on the RT control function.
  - » When H1 signal is disconnected, zone B1 turns off the RT control function.
  - » When H2 signal is closed, zone B2 turns on the RT control function.
  - » When H2 signal is disconnected, zone B2 turns off the RT control function.

9.3.9 Wiring of Solar Energy Input Signal

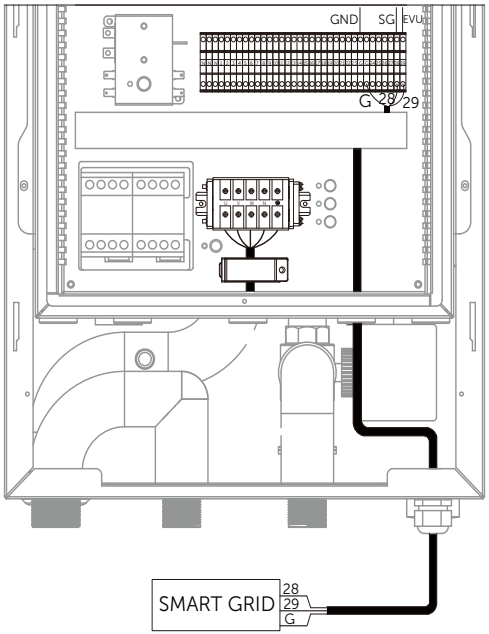


9.3.10 Wiring of Remote Shutdown



9.3.11 Wiring of Smart Grid

The unit has a smart grid feature, and there are two ports on the main control board to connect SG signals and EVU signals as below.



Regular configuration

Smart grid status	EVU (SG1) signal	SG (SG2) signal	Smart grid instruction
Smart grid status 1	1	0	Smart grid instruction 1
Smart grid status 2	0	0	Smart grid instruction 2
Smart grid status 3	0	1	Smart grid instruction 3
Smart grid status 4	1	1	Smart grid instruction 4

Smart grid status 1

- If the **smart grid status 1** is not in for 10 consecutive minutes and the **smart grid instruction 1** is detected for 10 consecutive minutes, it will enter **smart grid status 1**:
- After entering the **smart grid status 1**, the unit is forced to shut down.

Smart grid status 2

- If the **smart grid status 2** is not in for 1 consecutive minutes and the **smart grid instruction 2** is detected for 1 consecutive minutes, it will enter **smart grid status 2**.

- After entering the **smart grid status 2**:
  - When [**POWER_MODE]** is set to "AUTO", the unit is forced to run in "ECO" mode;
  - Forced to turned off the hot water mode;
  - **TBH** remains off;
  - The STERILIZATION function is invalid;
  - The maximum operating time of unit for cooling (or heating) is **[ECO_RUN_TIME]**.

Smart grid status 3

- If the **smart grid status 3** is not in for 10 consecutive minutes and the **smart grid instruction 3** is detected for 10 consecutive minutes, it will enter **smart grid status 3**.
- After entering the **smart grid status 3**:
  - When **[POWER_MODE]** is set to "AUTO", the unit is forced to run in "STRONG" mode.
  - If the hot water is turned on and the unit is running in hot water mode:
    - » The unit is forced to give priority to hot water;
    - » **TBH** operates as follows:
      - » **THWt hot water temp.** < **[HOT_Water_TEMP_SET]** -2°C, turn on **TBH**.
      - » **THWt hot water temp.** ≥ **[HOT_Water_TEMP_SET]** +3°C, turn off **TBH**.

Smart grid status 4

- If the **smart grid status 4** is not in for 10 consecutive minutes and the **smart grid instruction 4** is detected for 10 consecutive minutes, it will enter **smart grid status 4**.
- After entering the **smart grid status 4**:
  - When **[POWER_MODE]** is set to "AUTO", the unit is forced to run in "STRONG" mode.
  - If **[HOT_WATER]** is set to "ON":
    - » The unit is forced to give priority to hot water;
    - » The hot water adjustable target temperature is set to 70°C automatically.
    - » If **[TBH]** is set to "ON", **TBH** operates as follows:
      - » **THWt hot water temp.** < 69°C, turn on **TBH**.
      - » **THWt hot water temp.** ≥ 70°C, turn off **TBH**.

Configuration 1

Smart grid status	EVU (SG1) signal	SG (SG2) signal	Smart grid instruction
Smart grid status 1	1	0	Smart grid instruction 1
Smart grid status 2	0	0	Smart grid instruction 2
Smart grid status 3	0	1	Smart grid instruction 3
Smart grid status 4	1	1	Smart grid instruction 4

Smart grid status 1

- If the **smart grid status 1** is not in for 10 consecutive minutes and the **smart grid instruction 1** is detected for 10 consecutive minutes, it will enter **smart grid status 1**.
- After entering the **smart grid status 1**:
  - The unit operates normally.
  - When **[POWER_MODE]** is set to "AUTO", the unit is forced to run in "STANDARD" mode.

Smart grid status 2

- If the **smart grid status 2** is not in for 1 consecutive minutes and the **smart grid instruction 2** is detected for 1 consecutive minutes, it will enter **smart grid status 2**.
- After entering the **smart grid status 2**:
  - When **[POWER_MODE]** is set to "AUTO", the unit is forced to run in "ECO" mode;
  - Forced to turned off the hot water mode;
  - **TBH** remains off;
  - The **STERILIZATION** function is invalid;
  - The maximum operating time of unit for cooling (or heating) is **[ECO_RUN_TIME]**.

Smart grid status 3

- If the **smart grid status 3** is not in for 10 consecutive minutes and the **smart grid instruction 3** is detected for 10 consecutive minutes, it will enter **smart grid status 3**.
- After entering the **smart grid status 3**:
  - When [**POWER_MODE]** is set to "AUTO", the unit is forced to run in "STRONG" mode.
  - If the hot water is turned on and the unit is running in hot water mode:
    - » The unit is forced to give priority to hot water;
    - » **TBH** operates as follows:
      - » **THWt hot water temp.** < **[HOT_Water_TEMP_SET]** -2°C, turn on **TBH**.
      - » **THWt hot water temp.** ≥ **[HOT_Water_TEMP_SET]** +3°C, turn off **TBH**.

Smart grid status 4

- If the **smart grid status 4** is not in for 10 consecutive minutes and the **smart grid instruction 4** is detected for 10 consecutive minutes, it will enter **smart grid status 4**.
- After entering the **smart grid status 4**:

- When **[POWER_MODE]** is set to "AUTO", the unit is forced to run in "STRONG" mode.
- If **[HOT_WATER]** is set to "ON":
  - » The unit is forced to give priority to hot water;
  - » The hot water adjustable target temperature is set to 70°C automatically.
  - » If **[TBH]** is set to "ON", **TBH** operates as follows:
    - » **THWt hot water temp.** < 69°C, turn on **TBH**.
    - » **THWt hot water temp.** ≥ 70°C, turn off **TBH**.

Configuration 2

Smart grid status	EVU (SG1) signal	SG (SG2) signal	Smart grid instruction
Smart grid status 1	1	0	Smart grid instruction 1
Smart grid status 2	0	0	Smart grid instruction 2
Smart grid status 3	0	1	Smart grid instruction 3
Smart grid status 4	1	1	Smart grid instruction 4

Smart grid status 1

- If the **smart grid status 1** is not in for 10 consecutive minutes and the **smart grid instruction 1** is detected for 10 consecutive minutes, it will enter **smart grid status 1**.
- After entering the **smart grid status 1**:
  - If **[Max. Smart Grid Lock Time]** is not "0":
    - » During the **[Max. Smart Grid Lock Time]**, when there is no antifreeze demand, compressor off, turn off **IBH**, **AHS** and **TBH**.
    - » Exceeding the [**Max. Smart Grid Lock Time]**, the compressor is allowed to be loaded, but the **IBH**, **AHS** and **TBH** remain closed.
  - Otherwise:
    - » When there is no antifreeze demand, compressor off, turn off **IBH**, **AHS** and **TBH**.

Smart grid status 2

- If the **smart grid status 2** is not in for 1 consecutive minutes and the **smart grid instruction 2** is detected for 1 consecutive minutes, it will enter **smart grid status 2**.
- After entering the **smart grid status 2**, the unit execute the following logic:
  - When **[POWER_MODE]** is set to "AUTO", the unit is forced to run in "ECO" mode.
  - The unit operates normally.

Smart grid status 3

- If the **smart grid status 3** is not in for 10 consecutive minutes and the **smart grid instruction 3** is detected for 10 consecutive minutes, it will enter **smart grid status 3**.
- After entering the **smart grid status 3**:
  - When **[POWER_MODE]** is set to "AUTO", the unit is forced to run in "STRONG"

mode;

- The unit is forced to give priority to hot water;
- **TBH** and **IBH** operate as follows.
  - » If **[TBH]** is set to "ON", when the hot water is turned on:
    - » **THWt hot water temp.** < **[HOT_WATER_TEMP_SET]** -2°C, turn on **TBH**.
    - » **THWt hot water temp.** ≥ **[HOT_WATER_TEMP_SET]** +3°C, turn off **TBH**.
  - » Otherwise, when the hot water is turned on and the unit is running in hot water mode:
    - » **THWt hot water temp.** < **[HOT_WATER_TEMP_SET]** - **[HW_dT]**, turn on **IBH**.
    - » **THWt hot water temp.** ≥ **[HOT_WATER_TEMP_SET]**, turn off **IBH**.

Smart grid status 4

- If the **smart grid status 4** is not in for 10 consecutive minutes and the **smart grid instruction 4** is detected for 10 consecutive minutes, it will enter **smart grid status 4**.
- After entering the **smart grid status 4**:
  - When **[POWER_MODE]** is set to "AUTO", the unit is forced to run in "STRONG" mode;
  - The unit is forced to give priority to hot water;
  - **TBH** and **IBH** operate as follows:

» If **[TBH]** is set to "ON":

- » The hot water adjustable target temperature is automatically set to MAX (70°C, user set upper limit).
- » If hot water is turned on:
  - » **THWt hot water temp.** < MAX (70°C, user set upper limit) -1°C, turn on **TBH**.
  - » **THWt hot water temp.** ≥ MAX (70°C, user set upper limit), turn off **TBH**.

» Otherwise:

- » The hot water adjustable target temperature is automatically set to MAX (60°C, user set upper limit).
- » If hot water is turned on and the unit is running in hot water mode:
  - » **THWt hot water temp.** < MAX (60°C, user set upper limit) -1°C, turn on **IBH**.
  - » **THWt hot water temp.** ≥ MAX (60°C, user set upper limit), turn off **IBH**.

Configuration 3

Apart from the meaning of the pins, the other logic of Configuration 3 is the same as Configuration 2.

Configuration 4

This configuration is not yet available.

Configuration 5

Smart grid status	EVU (SG1) signal	SG (SG2) signal	Smart grid instruction
Smart grid status 1	1	0	Smart grid instruction 1
Smart grid status 2	0	0	Smart grid instruction 2
Smart grid status 3	0	1	Smart grid instruction 3
Smart grid status 4	1	1	Smart grid instruction 4

Smart grid status 1

- If the **smart grid status 1** is not in for 5 consecutive seconds and the **smart grid instruction 1** is detected for 5 consecutive seconds, it will enter **smart grid status 1**.
- After entering the **smart grid status 1**:
  - If **[Max. Smart Grid Lock Time]** is not "0":
    - » During the **[Max. Smart Grid Lock Time]**, when there is no antifreeze demand, compressor off, turn off **IBH**, **AHS** and **TBH**.
    - » Exceeding the [**Max. Smart Grid Lock Time]**, the compressor is allowed to be loaded, but the **IBH**, **AHS** and **TBH** remain closed.
  - Otherwise:
    - » When there is no antifreeze demand, compressor off, turn off **IBH**, **AHS** and **TBH**.

Smart grid status 2

- If the **smart grid status 2** is not in for 5 consecutive seconds and the **smart grid instruction 2** is detected for 5 consecutive seconds, it will enter **smart grid status 2**.
- After entering the **smart grid status 2**, the unit execute the following logic:
  - When **[POWER_MODE]** is set to "AUTO", the unit is forced to run in "ECO" mode.
  - The unit operates normally.

Smart grid status 3

- If the **smart grid status 3** is not in for 5 consecutive seconds and the **smart grid instruction 3** is detected for 5 consecutive seconds, it will enter **smart grid status 3**.
- After entering the **smart grid status 3**:
  - When **[POWER_MODE]** is set to "AUTO", the unit is forced to run in "STRONG" mode;
  - The unit is forced to give priority to hot water;
  - **TBH** and **IBH** operate as follows:

» When the hot water is turned on:

» If **[TBH]** is set to "ON":

» The hot water adjustable target temperature is automatically set to MAX. **[HOT_WATER_TEMP_SET]**.

» If the hot water has been turned on:

» **THWt hot water temp.** < MAX.**[HOT_WATER_TEMP_SET]** -1°C,

turn on **TBH**.

» **THWt hot water temp.** ≥ MAX.**[HOT_WATER_TEMP_SET]**, turn off **TBH**.

» Otherwise:

» The hot water adjustable target temperature is automatically set to MAX. **[HOT_WATER_TEMP_SET]**.

» If the hot water has been turned on and the unit is running in hot water mode:

» **THWt hot water temp.** < MAX.**[HOT_WATER_TEMP_SET]** - 1°C, turn on **IBH**.

» **THWt hot water temp.** ≥ MAX.**[HOT_WATER_TEMP_SET]**, turn off **IBH**.

» When the unit is running in heating mode:

» "IBH control temperature" < "Frequency modulation target temperature" - **[IBH_ON_dT]**, turn on IBH.

» "IBH control temperature" ≥ "Frequency modulation target temperature", turn off IBH.

» When all of the following conditions are met, TBH or IBH can be turned on:

» After activation, the "unit operating power" will not exceed the "unit power limit". (The "unit power limit" consists of **[Tank_Heat_P]**, **[IBH1 POWER]**, **[IBH2 POWER]**.)

» The compressor frequency needs to reach the upper limit of the operating condition.

Smart grid status 4

- If the **smart grid status 4** is not in for 5 consecutive seconds and the **smart grid instruction 4** is detected for 5 consecutive seconds, it will enter **smart grid status 4**.
- After entering the **smart grid status 4**:

» The action is the same as that in smart grid state 3, except for the conditions for turning on TBH or IBH, it does not include "the compressor frequency needs to reach the upper limit of the operating condition".

Configuration 6

Smart grid status	EVU (SG1) signal	SG (SG2) signal	Smart grid instruction
Smart grid status 1	1	0/1	Smart grid instruction 1
Smart grid status 2	0	0	Smart grid instruction 2
Smart grid status 3	0	1	Smart grid instruction 3

Smart grid status 1

- If it is not in **smart grid state 1** for 5 consecutive seconds and **smart grid instruction 1** is detected for 5 consecutive seconds, it enters **smart grid state 1**.
- After entering the **smart grid status 1**:

- If **[Turn off the electric heating for hot water]** is set to "ON", **IBH**, **AHS** and **TBH** shall remain off when there is no need for anti-freezing.

Smart grid status 2

- If it is not in **smart grid state 2** for 5 consecutive seconds and **smart grid instruction 2** is detected for 5 consecutive seconds, it enters **smart grid state 2**.
- After entering the **smart grid status 2**:
  - The unit operates normally in accordance with the **[POWER_MODE]**.

Smart grid status 3

- If it is not in **smart grid state 3** for 5 consecutive seconds and **smart grid instruction 3** is detected for 5 consecutive seconds, it enters **smart grid state 3**.
- After entering the **smart grid status 2**:
  - When **[POWER_MODE]** is set to "AUTO", the unit is forced to run in "STRONG" mode;
  - The unit is forced to give priority to hot water;
  - **TBH** and **IBH** operate as follows:

» If **[TBH]** is set to "ON":

» The hot water adjustable target temperature is automatically set to MAX (70°C, user set upper limit).

» If hot water is turned on:

» **THWt hot water temp.** < MAX (70°C, user set upper limit) -1°C, turn on **TBH**.

» **THWt hot water temp.** ≥ MAX (70°C, user set upper limit), turn off **TBH**.

» Otherwise:

» The hot water adjustable target temperature is automatically set to MAX (60°C, user set upper limit).

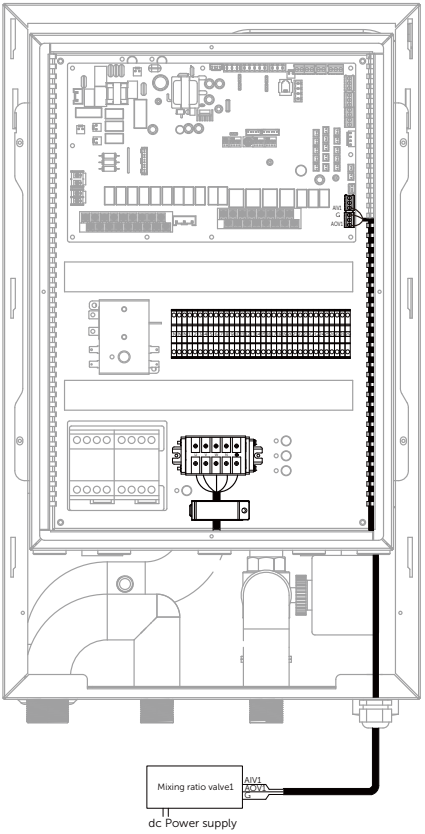
» If hot water is turned on and the unit is running in hot water mode:

» **THWt hot water temp.** < MAX (60°C, user set upper limit) -1°C, turn on **IBH**.

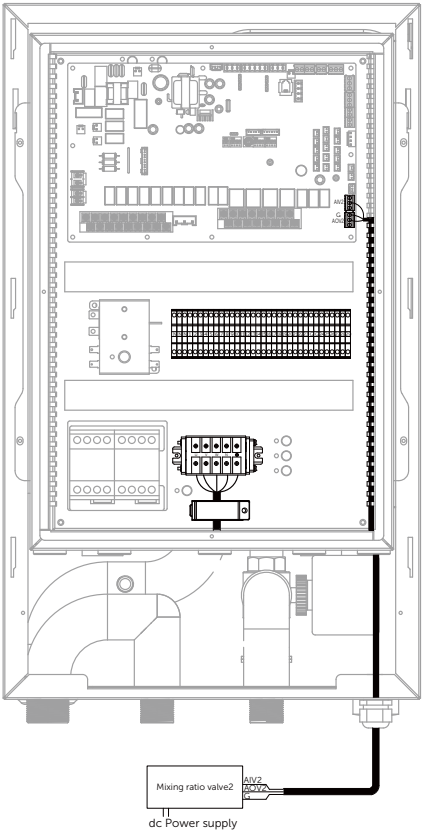
» **THWt hot water temp.** ≥ MAX (60°C, user set upper limit), turn off **IBH**.

9.3.12 Wiring of Mixing Ratio Valve

Mixing ratio valve 1



Mixing ratio valve 2



10 Commissioning

10.1 Checking before Test Run

CAUTION!

- The unit must be reliably grounded!

Table 10-1 Checklist

Item	YES	NO
Check the leakage protection is effective	☐	☐
Check the ground cable is correctly connected and ground terminal is tightened	☐	☐
Check the safety protection devices (such as fuses) meets the requirements	☐	☐
Check the voltage and frequency of the power supply are the same as the rated voltage and frequency on the unit nameplate	☐	☐
Check all cables and circuit connectors are tightened and fastening screws are not loose	☐	☐
Check the power cable meets the requirements	☐	☐
Check the switch meets the requirements	☐	☐
Check the electrical components are not damaged	☐	☐
Check the system electrical circuits have no open or short circuits	☐	☐
Check the connection of the wired controller meets the requirements	☐	☐

10.2 Test Run

WARNING!

- Do not start the heat pump without filling water, it may cause damage to the system.

Control the unit operation with the wired controller and check the following items.

- The switch on the wired controller is normal.
- The function buttons on the wired controller are normal.
- The wired controller does not report errors.

NOTICE!

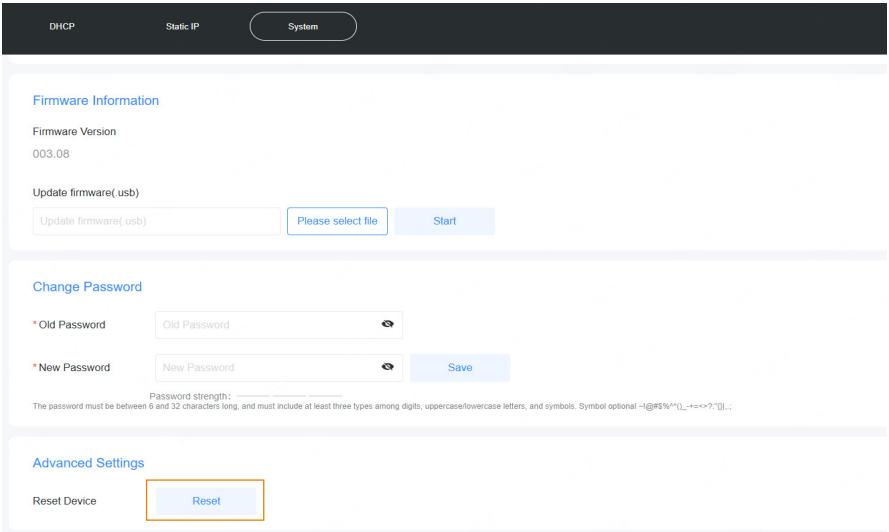
- When restarting the unit after power-off, the unit is equipped with a protection function and the compressor starts with a 3-minute delay.
- During the winter, the unit is strictly prohibited from power failure to ensure the normal operation of the anti-freezing function of the unit.

Reset device

Step 1: Connect to the Wi-Fi hotspot (named "Wifi_"+ device SN).

Step 2: Use a browser to visit https://192.168.10.10 and log in (**username**: "admin"; initial **password**: "device SN of Indoor Unit", e.g., B02XXXXXXXXXX).

Step 3: At the bottom of the **System** page, click **Reset** and then click **Confirm** to reset. After a successful reset, the router password, local login password, static IP information will be restored to factory settings.



11 Troubleshooting

11.1 Error ID

NOTICE!

- 0#: Master board
- 1#~7#: Slave board

Fault	0# board	1# board	2# board	3# board	4# board	5# board	6# board	7# board
Compressor low pressure alarm	97	193	289	385	481	577	673	769
Compressor high pressure alarm	98	194	290	386	482	578	674	770
Fin temp probe error	101	197	293	389	485	581	677	773
Exhaust temp probe error	102	198	294	390	486	582	678	774
Exhaust temp error	103	199	295	391	487	583	679	775
J5 pressure sensor error	104	200	296	392	488	584	680	776
J6 pressure sensor error	105	201	297	393	489	585	681	777
RRSs low pressure error	106	202	298	394	490	586	682	778
PRSd high pressure error	107	203	299	395	491	587	683	779
TS suction temp error	108	204	300	396	492	588	684	780
EVAP in temp error	109	205	301	397	493	589	685	781
TS low suction temp error	110	206	302	398	494	590	686	782
Defrost error	111	207	303	399	495	591	687	783
Suction and discharge temp difference error	112	208	304	400	496	592	688	784

Fault	0# board	1# board	2# board	3# board	4# board	5# board	6# board	7# board
Low evaporating temp error	113	209	305	401	497	593	689	785
TA restrict COMPf from turning on	115	211	307	403	499	595	691	787
Low TWin1 plate heat exchanger inlet water temp error	116	212	308	404	500	596	692	788
High TWin1 plate heat exchanger inlet water temp error	117	213	309	405	501	597	693	789
FANf1 fan motor speed error 1	118	214	310	406	502	598	694	790
FANf2 fan motor speed error 2	119	215	311	407	503	599	695	791
Inverter module communication error	124	220	316	412	508	604	700	796
Inverter module error	125	221	317	413	509	605	701	797
Compressor model setting	126	222	318	414	510	606	702	798
TECO1 temp. error	127	223	319	415	511	607	703	799
TECO2 temp. error	128	224	320	416	512	608	704	800
TRFgas sensor error	129	225	321	417	513	609	705	801
TRFliq sensor error	130	226	322	418	514	610	706	802
High evaporating temp error	131	227	323	419	515	611	707	803
Ambient temp error	161	257	353	449	545	641	737	833
Communication error	162	258	354	450	546	642	738	834
EEPROM error	163	259	355	451	547	643	739	835
IBH overload	164	260	356	452	548	644	740	836
Overload	165	261	357	453	549	645	741	837

Fault	0# board	1# board	2# board	3# board	4# board	5# board	6# board	7# board
Low plate heat exchanger outlet water temp error	166	262	358	454	550	646	742	838
High plate heat exchanger outlet water temp error	167	263	359	455	551	647	743	839
Plate heat exchanger outlet water temp sensor error	168	264	360	456	552	648	744	840
Water flow error	169	265	361	457	553	649	745	841
Lack-phase protection	170	266	362	458	554	650	746	842
Plate heat exchanger inlet water temp sensor error	171	267	363	459	555	651	747	843
TWout2 water temp error	172	268	364	460	556	652	748	844
Fault-phase protection	173	269	365	461	557	653	749	845
TWout1_TWin1_ DIFF_LARGE	174	270	366	462	558	654	750	846
TWout1_TWin1_ DIFF_ERR	175	271	367	463	559	655	751	847
PUMPf warning	176	272	368	464	560	656	752	848
Communication error	177	273	369	465	561	657	753	849
IDU and ODU communication error	178	274	370	466	562	658	754	850
Protocol version mismatch	179	275	371	467	563	659	755	851
Water pump failure	180	276	372	468	564	660	756	852
Mac model setting error	181	277	373	469	565	661	757	853

Fault	0# board	1# board	2# board	3# board	4# board	5# board	6# board	7# board
R290 sensor error	182	278	374	470	566	662	758	854
R290 leak error	183	279	375	471	567	663	759	855
Flow sensor error	184	280	376	472	568	664	760	856
Mac set error	185	281	377	473	569	665	761	857

11.2 Troubleshooting for Error ID

Error code	Diagnosis and solution
10	Check the following items: • Whether there is any problem with the wiring of tank electric heating • Whether the tank electric heating is faulty • Whether the set temperature has been reached • Whether other components of the circuit are faulty
12	Check the following items: • Whether there is any problem with the wiring of DHW temperature sensor • Whether the temperature sensor is faulty • Whether other components of the circuit are faulty
14	Check the following items: • Whether there is any problem with the wiring of the system total outlet water temperature sensor • Whether the temperature sensor is faulty • Whether the set temperature has been reached • Whether other components of the circuit are faulty
84	Check the following items: • Whether there is any problem with the wiring of the air conditioner total outlet water temperature sensor • Whether the temperature sensor is faulty • Whether the set temperature has been reached • Whether other components of the circuit are faulty
97	Check the following items: • Whether the input status of the low pressure signal of compressor is normal • Whether there is any leakage of refrigerant

Error code	Diagnosis and solution
98	Check the following items: • Whether the input status of the low pressure signal of compressor is normal • Whether the compressor is running normally • Whether the unit is well ventilated • Whether the ambient temperature is too high • Whether the condenser heat dissipation is good • Whether the system is blocked • Whether the refrigerant charge is too much
102	Check the following items: • Whether the input status of the temperature signal is normal • Whether the refrigerant flow rate is stable • Whether the system load changes frequently • Whether there is any problem with the temperature sensor
104	Check the following items: • Whether the input status of the pressure transmission signal is normal • Whether the refrigerant characteristics are affected • Whether the oil circulation is normal • Whether the pipeline is blocked • Whether the system vibration and shock are too large
111	Check the following items: • Whether the ambient humidity is high • Whether the temperature is low • Whether the refrigerant charge is insufficient • Whether the wind speed is too low • Whether the sensor failure leads to wrong judgment and defrosting • Whether the defrosting parameter setting is reasonable • Whether the defrosting method is reasonable.
112	Check the following items: • Whether the refrigerant charge is abnormal • Whether the refrigerant leaks • Whether the evaporator or condenser is faulty • Whether the compressor is abnormal • Whether there is any mixing of air in the system • Whether there is any problem with the throttling device
116/117	Check the following items: • Whether the pipeline is blocked • Whether the plate heat exchanger is leaking • Whether the water flow rate is abnormal • Whether the temperature of hot-side medium is abnormal • Whether the temperature of cold side medium is abnormal

Error code	Diagnosis and solution
118	Check the following items: • Whether there is electrical faults • Whether there is control system fault • Whether the fan impeller or fan shaft is faulty • Whether the air circulation is not smooth • Whether the ambient temperature is too high or too low
125	Check the following items: • Whether the driver board is faulty • Whether there is a large external interference • Whether the parameter setting is improper
162	Check the following items: • Whether the wiring connection is right • Whether the communication module is faulty • Whether there is a large electromagnetic interference • Whether there is a problem with the software
163	Check the following items: • Whether the EEPROM chip is damaged • Whether the circuit is connected incorrectly • Whether the software is incompatible • Whether there is any error in data writing
164	Check the following items: • Whether there is any problem of IBH wiring • Whether the IBH is faulty • Whether the set temperature has been reached • Whether other components of the circuit are faulty
169	Check the following items: • Whether the pipeline is blocked • Whether the pump is faulty • Whether there is air in the system • Whether the water level is too low
170	Check the following items: • Whether the power supply is connected incorrectly • Whether the electrical equipment is faulty
173	Check the following items: • Whether the power supply is faulty • Whether the external circuit changes
178	Check the following items: • Whether the wiring connection is right • Whether the communication module is faulty • Whether there is a large electromagnetic interference • Whether there is a problem with the software or parameter setting • Whether there is a problem with the voltage

Error code	Diagnosis and solution
182	Check the following items: • Whether the circuit is faulty • Whether the sensor is faulty • Whether other parts of the refrigeration system are faulty
183	Check the following items: • Whether the software reports incorrect information • Whether sensors are damaged • Whether pipe connections are not tight • Whether pipes are broken • Whether components of the unit are damaged

NOTICE!

- Only some of the error codes are given here for troubleshooting, if there are other types of errors, please contact technical support.

12 Maintenance

By user

Items	Check notes	Maintenance interval
General	Clean around the indoor unit	Once a month
	Clean the piping around the indoor unit	Once a month

By installer

Items	Check notes	Maintenance interval
General	Check if all the parts are in the proper position	Once a year
Water loop	Check for leaks in the water loop	Once a year
	Check that the backup heater is well insulated	Once a year
	Check that the water pressure reducing valve in the DHW water loop is working properly	Once a year
	Check that the TBH in the DHW water tank is clean and in good condition	Once a year
Electrics	Check that the 3-way valve is switching well	Once a year
	Check whether the temperature sensor is normal	Once a year
	Check whether all kinds of water pumps work properly	At all times if problems arise
	Check whether the communication cable of the indoor unit is working properly	At all times if problems arise
	Check whether the wired controller is working properly	At all times if problems arise
	Check the appearance of the power transformer and isolation transformer, and check the output voltage	Once a year
	Check whether the control board, drive board, display board, sensors are aged or not	Once a year
	Check and fasten the input and output plugs of control board, including the connection between driver board and control board, and the connection between control board and sensors	Once a year

Items	Check notes	Maintenance interval
Electrics	Check whether the contact suction of the contactor has arc and burn marks, and whether the suction is flexible	Once a year
	Check whether the wiring terminal is correctly connected to the control board	Once a year
	Check the output connections between the control board and each contactor, the input connections of the fan capacitor, high and low voltage switches, etc. **Note:** Focus on the plug terminals (such as high and low pressure switches and electronic expansion valves). If they are loose or in poor contact, please replace them immediately.	Once a year
	Check electrical components such as control panels that are prone to problems	Once a year
	Check the specifications and aging condition of the power cable, and replace the cable if necessary	Once a year
	Check whether other wiring is normal	Once a year
	Check whether the external heat source is working properly	Once a year

13 Technical Data

Control Unit

Model	STN1-C01
Power supply	220-240 V 1N~ 50 Hz
Rated current	0.1 A
User interface	4 inch high-resolution touch panel
Communication	WiFi / Ethernet / RS485
Installation	Wall mounting
Dimensions (W×H×D)	340 × 400 × 80 mm
Weight	6.5 kg

Hydraulic Unit

Model		STN1-C02(9)	STN3-C02(9)
Power supply		220-240 V 1N~ 50 Hz	380-415 V 3N~ 50 Hz
Rated current		39.5 A	13.5 A
User interface		4 inch high-resolution touch panel	
Communication		WiFi / Ethernet / RS485	
Backup heater	Capacity combination	3.0 kW + 6.0 kW	
	Power supply	220-240 V 1N~ 50 Hz	380-415 V 3N~ 50 Hz
	Rated running current	39.5 A	13.5 A
Expansion tank size		8 L	
Piping connections (water)		(G1")/(G1-1/4")*	
Recommended circuit breaker		63 A	20 A
Installation		Wall mounting	
Net dimensions (W×H×D)		420 × 700 × 265 mm	
Net weight		33 kg	
Operation range (water side)	Heating	Maximum 80°C	
	Cooling	Minimum 5°C	

*G1 connects to indoor water pipe, G1-1/4 connects to outdoor unit water outlet.

Hydraulic Integrated Unit

Model		STN1-C03(9W3)	STN3-C03(9W3)
Power supply		220-240 V 1N~ 50 Hz	380-415 V 3N~ 50 Hz
Rated current		39.2 A	13.1 A
User interface		4 inch high-resolution touch panel	
Communication		WiFi / Ethernet / RS485	
Backup heater	Capacity combination	3.0 kW + 6.0 kW	
	Power supply	220-240 V 1N~ 50 Hz	380-415 V 3N~ 50 Hz
	Rated running current	39.2 A	13.1 A
Expansion tank size		18 L + 8 L	
DHW tank size		190 L	
Piping connections (water)		(G1")/(G1-1/4")*	
Recommended circuit breaker		63 A	20 A
Installation		Floor standing	
Net dimensions (W×H×D)		595 × 700 × 1875 mm	
Net weight		186 kg	
Operation range (water side)	Heating	Maximum 80°C	
	Cooling	Minimum 5°C	

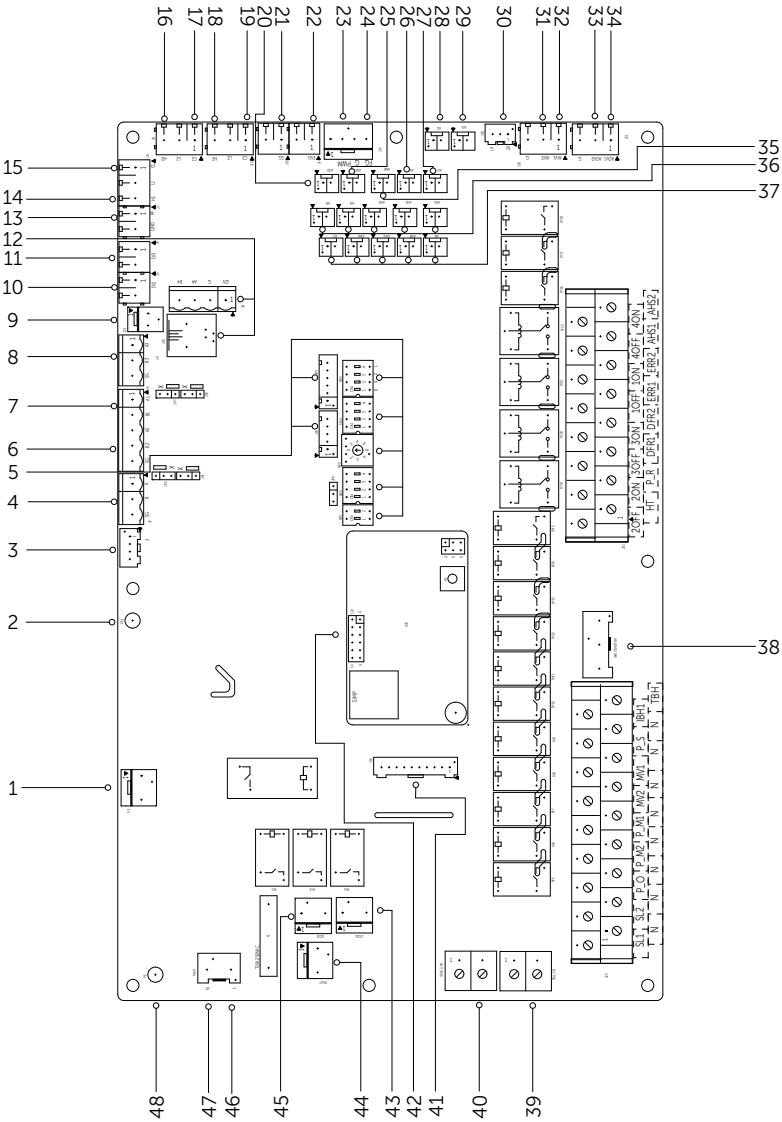
*G1 connects to indoor water pipe, G1-1/4 connects to outdoor unit water outlet.

Fuse on PCB

PCB name	Main control board
Model name	50CT(P)-100H250V / 50CT-100H250V
Working voltage [V]	250
Working current [A]	10

14 Appendix

Description of main control board



No.	Terminal	Code	Name	Remark
1	P_F	L, N	Power supply for PUMPf	230 V
2	PE1		Grounding wire of the main board of the indoor unit	
3	J1		Communication cable between the indoor unit and outdoor unit	• J1 and J2 cannot be used simultaneously, only one terminal can be used; • A and B represent 485A and 485B respectively
4	J2	SG, A, B	Communication cable between the indoor unit and outdoor unit	
5	SW1.1		IBH setting	
	SW2.1		Three-phase electrical detection	
	SW2.2-2.4		Standby	
	SW3		Module address	
	SW4.1-4.2		Standby	
	SW4.3-4.4		Model	
6	J3	A2, B2, SG	BMS	PCS, third-party networking, remote monitoring
7		A1, B1, SG	Cascade	Cascade refers to the working mechanism in which multiple units are connected through hierarchical relationships
8	J4		Reserved	
9	DI1		Water flow switch	
10	J5		Wired controller switch	
11	J6		Standby	
12	J10	12V, G, A4, B4	Display screen	J10 and J11 cannot be used simultaneously, only one terminal can be used
	J11	12V, G, A4, B4		
13	J7	PF	Standby	
14	J8	H1	Weak current customization 2	0-5 VDC
15	J8	C1	Weak current customization 1	0-5 VDC

No.	Terminal	Code	Name	Remark
16	J9	H2	Weak current customization 3	0-5 VDC
17	J9	C2	Standby	
18	J12	H3	Standby	
19	J12	C3	Standby	
20	AI10		Standby	
21	J13	SG	SG grid signal (low voltage)	0-5 VDC
22	J14	EVU	EVU power supply signal (low voltage)	0-5 VDC
23	J15	PWM	PUMPf control	
24	J15	FG	PUMPf feedback	
25	AI6C		※ B1 mixing water temperature	
26	AI3		※ Temperature of the upper part of the balance tank	
27	AI2		※ Temperature at the bottom of the balance tank	
28	AI1		Standby	
29	AI0		※ B2 mixing water temperature	
30	J18	5V+, signal, G	Flow meter	0-5 VDC
31	AIV2		B2 proportional mixing valve feedback	
32	AIV1		B1 proportional mixing valve feedback	
33	AOV2		B2 proportional mixing valve control	
34	AOV1		B1 proportional mixing valve control	
35	AI6B		※ DHW temperature	
36	AI5A		Temperature on the refrigerant liquid side	
	AI5C		Total water flow temperature	
	AI5E		Return water temperature of the plate heat exchanger	
	AI8		Standby	
	AI9		Standby	

No.	Terminal	Code	Name	Remark
37	AI4		※ Solar temperature	
	AI5B		Temperature on the refrigerant gas side	
	AI5D		Outlet water temperature of the plate heat exchanger	
	AI6A		System total water flow temperature	
	AI7		Standby	
38	IBH1/IBH2/ TBH		IBH1 / IBH2 / TBH	
39	TBH-FB		TBH feedback	AC230V
40	IBH1/2-FB		IBH1 / IBH2 feedback	AC230V
41	J16		Expansion board port	
42	U35		WiFi module port	
43	D014		Anti-freezing electric heating tape	AC230V
44	POUT		AC230V output	AC230V
45	D015		Standby	
46	PWR	L	AC230V live wire	Power supply for the main board of the indoor unit
47	PWR	N	AC230V neutral wire	
48	PE		Grounding wire of the main board of the indoor unit	

Correct disposal of this product

This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.



Warranty Registration

Please visit the website: https://www.solaxcloud.com/user-center/ to complete the warranty registration. For more detailed warranty terms, please visit SolaX official website: www.solaxpower.com.

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