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INSTALLATION MANUAL AND USER MANUAL

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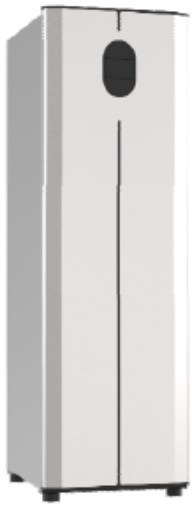
Propan R290 ECO FRIENDLY



MULTIFUNCTIONAL TANK AIWD HID 180

Serie

MULTIFUNCTIONAL TANK

Edition

12/25

Models

AIWD_HID_180

Warmlink APP

daitsu

ENGLISH

Installation Manual
MULTIFUNCTIONAL TANK

AIWD_HID_180

⚠ CAUTION

REFRIGERANT

This AIR-TO-WATER HYDROMODULE + TANK operates in combination with an outdoor unit containing refrigerant .

THIS PRODUCT MUST ONLY BE INSTALLED OR SERVICED BY QUALIFIED PERSONNEL.

Refer to National, State, Territory and local legislation, regulations, codes, installation & operation manuals, before the installation, maintenance and/or service of this product.

Required tools for Installation Works

1 Philips screw driver
2 Level gauge
3 Electric drill, hole core drill
4 Hexagonal wrench (4 mm)
5 Spanner
6 Pipe cutter
7 Reamer
8 Knife
9 Gas leak detector
10 Measuring tape
11 Thermometer
12 Megameter
13 Multimeter
14 Torque wrench
18 N•m (1.8 kgf•m)
55 N•m (5.5 kgf•m)
58.8 N•m (5.8 kgf•m)
65 N•m (6.5 kgf•m)
117.6 N•m (12.0 kgf•m)
15 Hand gloves

Explanation of symbols displayed on the indoor unit or outdoor unit.

 WARNING	This symbol shows that this equipment uses a flammable refrigerant with safety A3 group per ISO 817. If the refrigerant is leaked, together with an external ignition source, there is a possibility of fire / explosion.
 CAUTION	This symbol shows that the Installation Manual should be read carefully.
 CAUTION	This symbol shows that a service personnel should be handling this equipment with reference to the Installation Manual.
 CAUTION	This symbol shows that there is information included in the Operation Manual and/or Installation Manual.

SAFETY PRECAUTIONS

- Read the following “SAFETY PRECAUTIONS” carefully before installation of Air-To-Water Hydromodule + Tank (here after referred to as “Tank Unit”).
- Electrical works and water installation works must be done by licensed electrician and licensed water system installer respectively. Be sure to use the correct rating and main circuit for the model to be installed.
- The caution items stated here must be followed because these important contents are related to safety. The meaning of each indication used is as below. Incorrect installation due to ignorance or negligence of the instructions will cause harm or damage, and the seriousness is classified by the following indications.
- Please leave this installation manual with the unit after installation.

⚠ WARNING	This indication shows the possibility of causing death or serious injury.
⚠ CAUTION	This indication shows the possibility of causing injury or damage to properties only.

The items to be followed are classified by the symbols:

⃠	Symbol with white background denotes item that is PROHIBITED.
❗ ⏚	Symbol with dark background denotes item that must be carried out.

- Carry out test run to confirm that no abnormality occurs after the installation. Then, explain to user the operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating instructions for future reference.
- If there is any doubt about the installation procedure or operation, always contact the authorized dealer for advice and information.

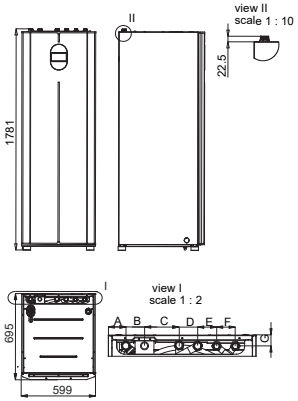
⚠ WARNING	
⃠	Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer. Any unfit method or using incompatible material may cause product damage, burst and serious injury.
⃠	Do not use unspecified cord, modified cord, joint cord or extension cord for power supply cord. Do not share the single outlet with other electrical appliances. Poor contact, poor insulation or over current will cause electrical shock or fire.
⃠	Do not tie up the power supply cord into a bundle by band. Abnormal temperature rise on power supply cord may happen.
⃠	Keep plastic bag (packaging material) away from small children, it may cling to nose and mouth and prevent breathing.
⃠	Do not purchase unauthorized electrical parts for installation, service, maintenance and etc.. They might cause electrical shock or fire.
⃠	Do not pierce or burn as the appliance is pressurized. Do not expose the appliance to heat, flame, sparks, or other sources of ignition. Else, it may explode and cause injury or death.

	Do not add or replace refrigerant other than specified type. It may cause product damage, burst and injury etc.
	Do not place containers with liquids on top of the Tank Unit. It may cause Tank Unit damage and/or fire could occurs if they leak or spill onto the Tank Unit.
	Do not use joint cable for Tank Unit / Outdoor Unit connection cable. Use specified Tank Unit / Outdoor Unit connection cable, refer to instruction 4 CONNECT THE CABLE TO THE TANK UNIT and connect tightly for Tank Unit / Outdoor Unit connection. Clamp the cable so that no external force will be acted on the terminal. If connection or fixing is not perfect, it will cause heat up or fire at the connection.
	For electrical work, follow the national regulation, legislation and this installation instructions. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in the electrical work, it will cause electrical shock or fire.
	For water circuit installation work, follow to relevant European and national regulations (including EN61770) and local plumbing and building regulation codes.
	Engage authorized dealer or specialist for installation. If installation done by the user is incorrect, it will cause water leakage, electrical shock or fire.
	Install at a strong and firm location which is able to withstand weight of the set. If the strength is not enough or installation is not properly done, the set will drop and cause injury.
	This equipment is strongly recommended to be installed with Residual Current Device (RCD) on-site according to the respective national wiring rules or country–specific safety measures in terms of residual current.
	Use the attached accessories parts and specified parts for installation. Otherwise, it will cause the set to fall, water leakage, fire or electrical shock.
	Only use the supplied or specified installation parts. Else, it may causes unit vibrate, fall, water leakage, electrical shock or fire.
	Select a location where in case of water leakage, the leakage will not cause damage to other properties.
	When installing electrical equipment at wooden building of metal lath or wire lath, in accordance with electrical facility standard, no electrical contact between equipment and building is allowed. Insulator must be installed in between.
	Any work carried out on the Tank Unit after removing any panels which is secured by screws, must be carried out under the supervision of authorized dealer and licensed installation contractor.
	This system is multi supply appliance. All circuits must be disconnected before accessing the unit terminals.
	For cold water supply has a backflow regulator, check valve or water meter with check valve, provisions for thermal expansion of water in the hot water system must be provided. Otherwise it will cause water leakage.
	The piping installation work must be flushed before Tank Unit is connected to remove contaminants. Contaminants may damage the Tank Unit components.
	This installation may be subjected to building regulation approval applicable to respective country that may require to notify the local authority before installation.
	The Tank Unit must be shipped and stored in upright condition and dry environment. It may laid on its back when being moved into the building.
	Work done to the Tank Unit after remove the front plate cover that secured by screws, must be carried out under the supervision of authorized dealer, licensed installation contractor, skilled person and instructed person.
	Be aware that refrigerants may not contain an odour.
	This equipment must be properly earthed. Earth line must not be connected to gas pipe, water pipe, earth of lightning rod and telephone. Otherwise, it may cause electrical shock in case of equipment breakdown or insulation breakdown.
	⚠ CAUTION
	Do not install the Tank Unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.
	Prevent liquid or vapor from entering sumps or sewers since vapor is heavier than air and may form suffocating atmospheres.
	Do not install this appliance in a laundry room or other high humidity location. This condition will cause rust and damage to the unit.
	Make sure the insulation of power supply cord does not contact hot part (i.e. water piping) to prevent from insulation failure (melt).
	Do not apply excessive force to water pipes that may damage the pipes. If water leakage occurs, it will cause flooding and damage to other properties.
	Do not transport the Tank Unit with water inside the unit. It may cause damage to the unit.
	Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.
	Select an installation location which is easy for maintenance. Incorrect installation, service or repair of this Tank Unit may increase the risk of rupture and this may result in loss damage or injury and/or property.
	Power supply connection to Tank Unit. • Power supply point should be in easily accessible place for power disconnection in case of emergency. • Must follow local national wiring standard, regulation and this installation instruction. • Strongly recommended to make permanent connection to a circuit breaker.
	Ensure the correct polarity is maintained throughout all wiring. Otherwise, it will cause electrical shock or fire.
	After installation, check the water leakage condition in connection area during test run. If leakage occurs, it will cause damage to other properties.
	If the Tank Unit not operates for long time, the water inside the Tank Unit should be drained.
	Installation work. It may need three or more people to carry out the installation work. The weight of Tank Unit might cause injury if carried by one person.

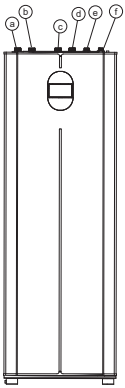
Attached accessories

No.	Accessory part	Qty.	No.	Accessory part	Qty.
1	Electrical wire	4	3	Drainpipe	1
2	Silicone ring	5	4	Silicone ring	10
	Washer			Connecting plate	
	Washer				

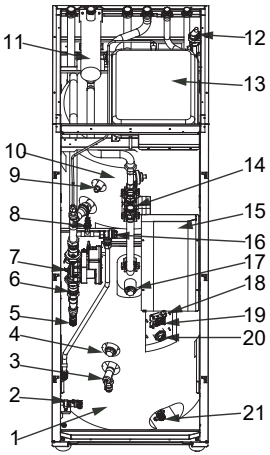
Dimension Diagram



Tube Position Diagram



Main Components Diagram



Tube Connector	Function	Connector Size
ⓐ	Water Outlet (To Outdoor Unit)	G 1"
ⓑ	Water Inlet (From Outdoor Unit)	G 1"
ⓒ	Zone 1 Water Outlet (To Space Heating/Cooling)	G 1"
ⓓ	Zone 1 Water Inlet (From Space Heating/Cooling)	G 1"
ⓔ	Cold Water Inlet (Domestic Hot Water Tank)	G3/4"
ⓕ	Hot Water Outlet (Domestic Hot Water Tank)	G3/4"

A	70.5
B	75
C	139.5
D	74.5
E	76.5
F	75.5
G	44.5

1	Pressure Relief Drain Port
2	Internal Coil Drain Port
3	Hot Water Tank Pressure Relief Valve
4	Magnesium Anode Rod
5	Heating Water Tank Drain Port
6	Ball Valve
7	Water Pump
8	Water Pressure Sensor
9	Heating Water Tank Temperature Sensor
10	Water Flow Sensor
11	Electric Heating
12	Automatic Air Vent Valve
13	Expansion Tank
14	Electromagnetic Three-Way Valve
15	Electric Control Box
16	Heating Water Tank Pressure Relief Valve
17	Magnesium Anode Rod
18	Hot Water Tank Temperature Sensor
19	Hot Water Tank Thermostat
20	Hot Water Tank Electric Heating
21	Hot Water Tank Drain Port

1 SELECT THE BEST LOCATION

Before choosing the installation site, obtain user approval.

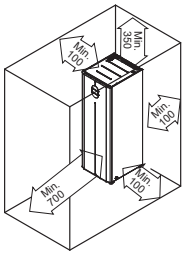
- ☐ Install the Tank Unit in indoors with frost free weather proof location only.
- ☐ Must install on a flat horizontal and solid hard surface.
- ☐ There should not be any heat source or steam near the Tank Unit.
- ☐ A place where air circulation in the room is good.
- ☐ A place where drainage can be easily done (e.g. Utility room).
- ☐ A place where Tank Unit's operation noise will not cause discomfort to the user.
- ☐ A place where Tank Unit is far from door way.
- ☐ A place where accessible for maintenance.
- ☐ Ensure to keep minimum distance of spaces as illustrated below from wall, ceiling, or other obstacles.
- ☐ A place where flammable gas leaking might not occur.
- ☐ Secure the Tank Unit to prevent it being knocked over accidentally or during earthquakes.

Please avoid installations which expose the Tank Unit to any of the following conditions:

- ☐ Extraordinary environment conditions; installation in frost or exposure to unfavorable weather conditions.
- ☐ Voltage input exceeding the specified voltage.

Required space for installation

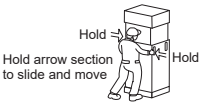
(Unit : mm)



Transport and Handling

- Be careful during transportating the unit so that it is not damaged by impact.
- Only remove the packaging material once it has reached desired installation location.
- It may need three or more people to carry out the installation work. The weight of Tank Unit might cause injury if carried by one person.

- The Tank Unit can be transported either in vertical or horizontal.
  - If it transported in horizontal, make sure Front of packaging material (printed with "FRONT") must facing upwards.
  - If it transported in vertical, use the hand holes on sides, slide and move to the desired location.



- Fix the Adjustable Feet 1 , if the Tank unit installed on a uneven surface.

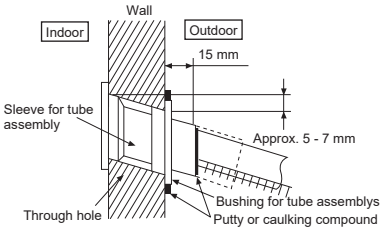
2 TO DRILL A HOLE IN THE WALL AND INSTALL A SLEEVE OF PIPING

1. Make a through hole. (Check pipe diameter and insulation thickness)
2. Insert the piping sleeve to the hole.
3. Fix the bushing to the sleeve.
4. Cut the sleeve until it extrudes about 15 mm from the wall.

⚠ CAUTION

When the wall is hollow, please be sure to use the sleeve for tube assembly to prevent dangers caused by mice biting the connection cable.

5. Finish by sealing the sleeve with putty or caulking compound at the final stage.

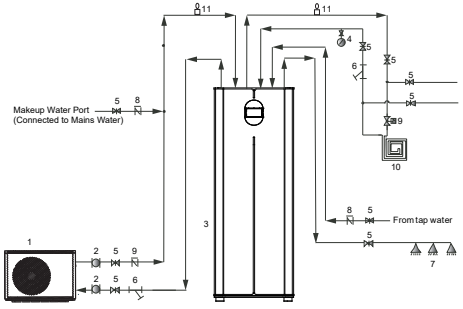


3 PIPING INSTALLATION

WATER QUALITY REQUIREMENT

Must use water that complies with European water quality standard 98/83 EC. The lifespan of the Tank Unit will be shorter if groundwater (include spring water and well water) is used.
The Tank Unit shall not be used with the tap water containing contaminants such as salt, acid, and other impurities which may corrode the tank and its component.

Typical Piping Installation

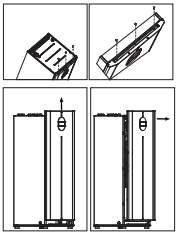


1	Heat pump	7	Domestic hot water
2	Flexible pipe	8	Check valve
3	Multi-fuction water tank	9	Floor heating valve
4	Manometer	10	Space heating / cooling
5	Shut-off valve	11	Air Vent Valve
6	Y type water filter		

Access to Internal Components

⚠ WARNING

This section is for authorized and licensed electrician/water system installer only. Work behind the front plate secured by screws must only be carried out under supervision of qualified contractor, installation engineer or service person.



⚠ CAUTION

Open or close the Front Plate carefully. The heavy Front Plate may injures the fingers.

*The remote control cable is connected to the front panel, so be careful when removing the panel.

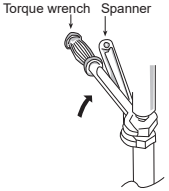
Open and Close Front Plate h

1. Remove the 3 mounting screws of Front Plate h .
2. Slide it upwards to unhook the Front Plate L hook.

Water Piping Installation

- Please engage a licensed water circuit installer to install this water circuit.
- This water circuit must comply with relevant European and national regulations (including EN61770), and local building regulation codes.
- Ensure the components installed in the water circuit could withstand water pressure during operation.
- Do not use worn out tube or detachable hose-set.
- Do not apply excessive force to pipes that may damage the pipes.
- Choose proper sealer which can withstand the pressures and temperatures of the system.
- Make sure to use two spanners to tighten the connection. Further tighten the nuts with torque wrench in specified torque as stated in the table.
- Cover the pipe end to prevent dirt and dust when inserting it through a wall.
- If non-brass metallic piping is used for installation, make sure to insulate the pipes to prevent galvanic corrosion.
- Do not connect galvanised pipes, this will cause galvanic corrosion.
- Use correct nut for all Tank Unit tube connections and clean all tubes with tap water before installation. See Tube Position Diagram for detail.

Tube Connector	Nut Size	Torque
ⓐ & ⓑ	RP 1"	88.2 N•m
ⓒ & ⓓ	RP 1"	88.2 N•m
ⓔ & ⓕ	RP ¾"	58.8 N•m



⚠ CAUTION

Do not overtighten, overtightening may cause water leakage.

- Make sure to insulate the water circuit pipes to prevent reduction of heating capacity.
- After installation, check the water leakage condition in connection area during test run.
- Failure to connect the tube appropriately might cause the Tank Unit malfunction.
- Protection From Frost:
  If the Tank Unit is being exposed to frost while power supply failure or pump operating failure, drain the system. When water is idle inside the system, freezing up is very likely to happen which could damage the system. Make sure the power supply is turned off before draining. Heater Assembly may be damaged under dry heating.
- Corrosion Resistance:
  Duplex stainless steel is naturally corrosion resistant to mains water supply. No specific maintenance is required to maintain this resistance. However, please note that Tank Unit is not guaranteed for use with a private water supply.
- It is recommended to use a tray (field supply) to collect water from the Tank Unit if water leakage occur.

Recommended piping installation sequence:
(a) → (c) → (e) → (f) → (b) → (d)

(A) Space Heating/Cooling Pipework

- Connect Tank Unit Tube Connector ⓒ to inlet connector of Zone 1 Panel/Floor heater.
- Connect Tank Unit Tube Connector ⓓ to outlet connector of Zone 1 Panel/Floor heater.
- Failure to connect the tube appropriately might cause the Tank Unit malfunction.

(B) Circulating Pipework

- Connect Tank unit Tube Connector ⓕ to outdoor unit inlet water socket.
- Connect Tank Unit Tube Connector ⓔ to Outdoor unit outlet water socket.
- Failure to connect results in an error stop the system.

(C) Domestic Hot Water Tank Pipework

- Must connect a faucet to Tank Unit Tube Connector j and main water supply, in order to supply water with appropriate temperature for shower or tap usage. Failure to do so might cause scalding.
- Failure to connect the tube appropriately might causing the Tank Unit malfunction.

(D) Drain Elbow and Hose Installation

- Use inner diameter 17 mm drain hose in the market, fix to Drain Elbow 2 .
- This hose must to be installed in a continuously downward direction and in a frost-free environment. Improper drain piping may cause water leakage hence damage the furnitures.
- If drain hose is long, use a metal support fixture along the way to eliminate the wavy pattern of drain tube.
- Do not insert this hose into sewage or drain pipe that may generate ammonia gas, sulphuric gas etc.
- If necessary, use hose clamp to further tighten the hose at drain hose connector to prevent leakage.
- Water will drip from this hose, therefore the outlet of this hose must be installed in an area where the outlet cannot become blocked.
- If drain hose is in the room (where dew may form), please increase the insulation by using POLY-E FOAM with thickness 6 mm or above.

(E) Domestic Hot Water Tank Discharge (Drain Tap) and Safety Relief Valve Pipework

- Safety Relief Valve 7bar (0.7MPa) incorporated in Domestic Hot Water Tank.
- Pipelines must be installed in a continuously downward direction at all times.
- Condensate accumulation and freezing must be prevented.The pipeline connected to
- the pressure relief drain shall not be closed; unobstructed drainage must be ensured.
- The outlet must be clearly visible and kept away from electrical components.

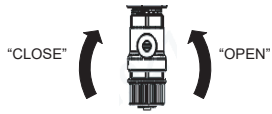
4 CHARGING AND DISCHARGING THE WATER

- Make sure all the piping installations are properly done before carry out below steps.

CHARGE THE WATER

For Domestic Hot Water Tank

1. Set the Domestic Hot Water Tank Discharge (Drain Tap) ⓖ to “CLOSE”.



Domestic Hot Water Tank Discharge (Drain Tap) ⓖ

2. Set all Tap / Shower “OPEN”.
3. Start filling water to the Domestic Hot Water Tank via Tube Connector .
   After 20~40min, water should flow out from Tap / Shower. Else, please contact your local authorized dealer.
4. Check and make sure no water leaking at the tube connecting points.
5. Set the Domestic Hot Water Tank Discharge (Drain Tap) ⓖ to “OPEN” for 10 seconds to release air from this pipeline. Then set it “CLOSE”.
6. Turn the Safety Relief Valve knob counterclockwise slightly and hold for 10 seconds to release air from this pipeline. Then recover the knob to original position.
7. Ensure Step 5 & 6 is carried out each time after charging water to Domestic Hot Water Tank.
8. To prevent back pressure from happening to the Safety Relief Valve , do turn the Safety Relief Valve knob counterclockwise.

Parameter Table

MODEL	AIWD_HID_180
RATED VOLTAGE/FREQUENCY	220-240V~/50Hz
MOISTURE RESISTANCE	IPX1
ELECTRICAL SHOCK PROOF	I
DHW ELECTRIC HEATER	2kW
ROOM HEATING ELECTRICAL HEATER	3kW
RATED POWER INPUT	6kW
RATED CURRENT INPUT	26A
MAX DHW TANK WATER PRESSURE	0.7MPa
DHW TANK VOLUME	180L
BUFFER TANK VOLUME	60L
TANK INNER MATERIAL	stainless steel
NET WEIGHT	137 kg
WATER CONNECTION FOR DHW	3/4inch
WATER CONNECTION FOR HEATING	1inch
WATER CONNECTION FOR HEAT PUMP	1inch

For Space Heating / Cooling

1. Start filling water (with pressure more than 1 bar (0.1MPa)) to the Space Heating /Cooling circuit via Tube Connector ⓐ.
2. Stop filling water if the free water flow through Pressure Relief Valve drain pipe. (Check the Outdoor Unit)
3. Turn ON the Tank Unit.
4. Remote control menu → Installer setup → Service setup → pump maximum speed → Turn on the pump.
5. Make sure Water Pump 4 is running.
6. Check and make sure no water leaking at the tube connecting points.

DISCHARGE THE WATER

For Domestic Hot Water Tank

1. Turn OFF power supply.
2. Set the Domestic Hot Water Tank Discharge (Drain Tap) to "OPEN".
3. Open Tap / Shower to allow air inlet.
4. Turn the Safety Relief Valve knob counterclockwise slightly and hold it until all air is released from this pipeline. Then recover the knob to original position after ensured the pipeline is emptied.
5. After discharge, set Domestic Hot Water Tank Discharge (Drain Tap) to "CLOSE".

5 RECONFIRMATION

⚠ WARNING

Be sure to switch off all power supply before performing each of the below checkings.

CHECK WATER PRESSURE

*(1 bar = 0.1MPa)

Water pressure should not lower than 0.5 bar (with inspects the Water Pressure from Remote Controller). If necessary add water into Tank Unit (via Tube Connector ⓐ).

6 INSTALLATION OF REMOTE CONTROLLER AS ROOM THERMOSTAT

- Remote Controller 1 mounted to the Tank Unit can be moved to the room and serve as Room Thermostat.

Installation Location

- Install at the height of 1 to 1.5 m from the floor (Location where average room temperature can be detected).
- Install vertically against the wall.
- Avoid the following locations for installation.
  1. By the window, etc. exposed to direct sunlight or direct air.

7 TEST RUN

1. Before test run, make sure below items have been checked:-
   a) Pipework are properly done.
   b) Electric cable connecting work are properly done.
   c) Tank Unit is filled up with water and trapped air is released.
   d) Please turn on the power supply after filling the tank until full.
2. Switch ON the power supply of the Tank Unit.
   Operation Instruction for operation of Remote Controller 1 .

Note:
- During winter, turn on the power supply and standby the unit for at least 15 minutes before test run.
  Allow sufficient time to warm up refrigerant and prevent wrong error code judgement.

3. For normal operation, Water Pressure reading should be in between 0.5 bar and 3 bar (0.05 MPa and 0.3 MPa). If necessary, adjust the Water Pump SPEED accordingly to obtain normal water pressure operating range. If adjust Water Pump SPEED cannot solve the problem, contact your local authorized dealer.

8 MAINTENANCE

- In order to ensure safety and optimal performance of the Tank Unit, seasonal inspections on the Tank Unit, functional check of RCCB/ELCB, field wiring and piping have to be carried out at regular intervals. This maintenance should be carried out by authorized dealer. Contact dealer for scheduled inspection.

Maintenance for Safety Relief Valve

- It is strongly recommended to operate the valve by turn the knob counter clockwise to ensure free water flow through discharge pipe at regular intervals to ensure it is not blocked and to remove lime deposit.

Stagnant water in Tank Unit should be drained if it is not going to be operated for more than 60 days.

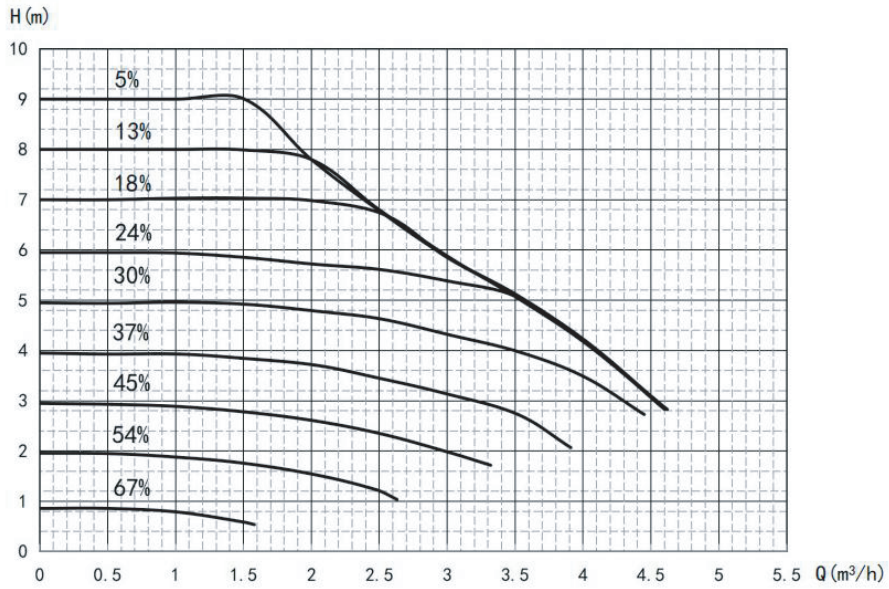
CHECK ITEMS

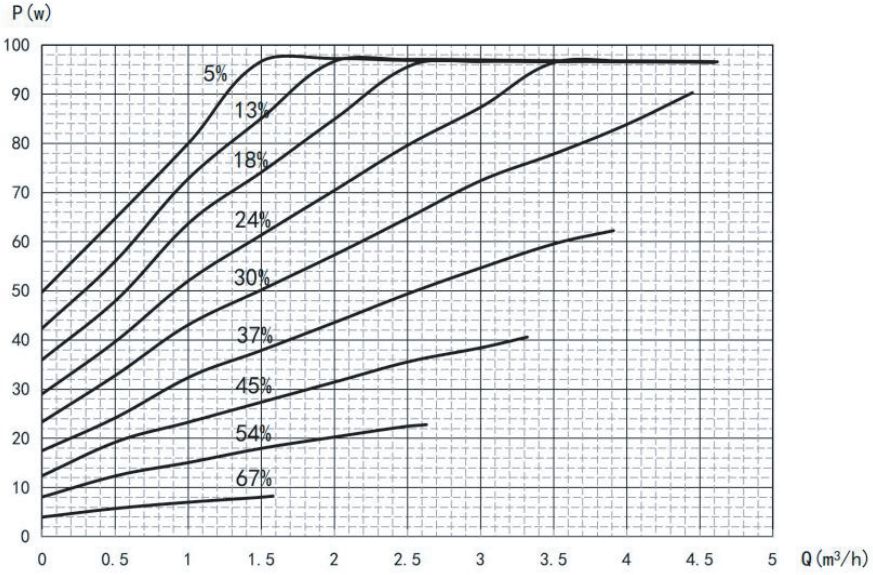
- ☐ Is the Tank Unit properly installed on the concrete floor?
- ☐ Is there any water leakage at water piping connections?
- ☐ Has the heat insulation been carried out at water piping connection?
- ☐ Is the Pressure Relief Valve operation normal?
- ☐ Is water pressure higher than 0.5 bar?
- ☐ Is the water drainage work properly done?
- ☐ Is the power supply voltage within the rated voltage range?

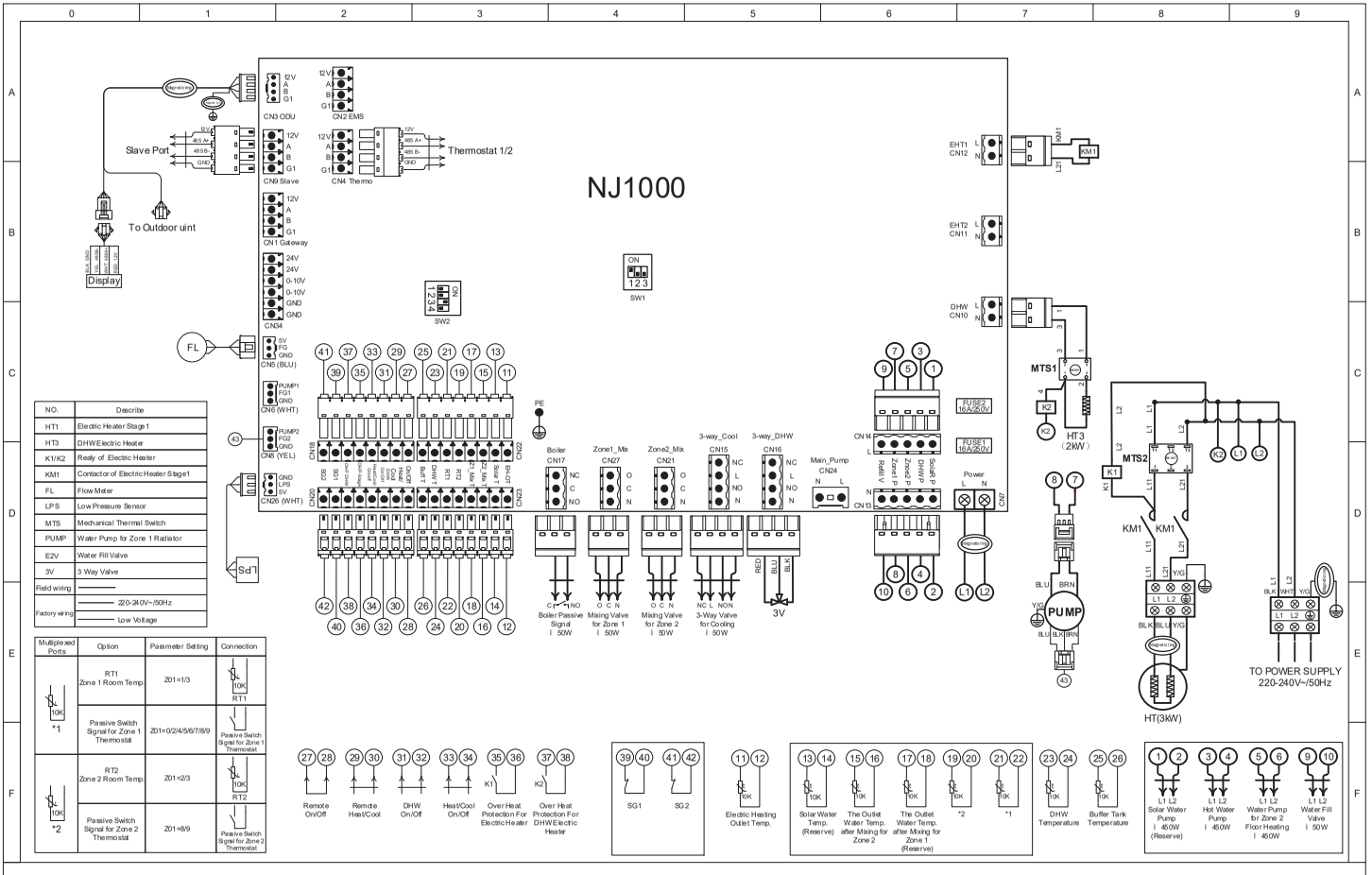
- ☐ Is the cables being clamped firmly by holder (clamper)?
- ☐ Is the earth wire connection properly done?

- ☐ Is the Remote Controller 1 LCD operation normal?
- ☐ Is there any abnormal sound?
- ☐ Is the heating operation normal?
- ☐ Is the Tank unit water leak free on test run?
- ☐ Is the Safety Relief Valve o knob turned for releasing air?

Pump Performance Curve







NO.	Describe
HT1	Electric Heater Stage1
HT3	DHW Electric Heater
K1/K2	Realy of Electric Heater
KM1	Contactor of Electric Heater Stage1
FL	Flow Meter
LPS	Low Pressure Sensor
MTS	Mechanical Thermal Switch
PUMP	Water Pump for Zone 1 Radiator
EZV	Water Fill Valve
3V	3 Way Valve
Field wiring	
	220-240V~/50Hz
Factory wiring	
	Low Voltage

Multiplexed Ports	Option	Parameter Setting	Connection
10K *1	RT1 Zone 1 Room Temp.	Z01=1/3	10K RT1
	Passive Switch Signal for Zone 1 Thermostat	Z01=0/2/4/5/6/7/8/9	Passive Switch Signal for Zone 1 Thermostat
10K *2	RT2 Zone 2 Room Temp.	Z01=2/3	10K RT2
	Passive Switch Signal for Zone 2 Thermostat	Z01=8/9	Passive Switch Signal for Zone 2 Thermostat

Remote On/Off | Remote Heat/Cool | DHW On/Off | Heat/Cool On/Off | Over Heat Protection For Electric Heater | Over Heat Protection For DHW Electric Heater

SG1 | SG2

Electric Heating Outlet Temp.

Solar Water Temp. (Reserve) | The Outlet Water Temp. after Mixing for Zone 2 | The Outlet Water Temp. after Mixing for Zone 1 (Reserve) | *2 | *1

DHW Temperature | Buffer Tank Temperature

L1 L2 Solar Water Pump I 450W (Reserve) | L1 L2 Hot Water Pump I 450W | L1 L2 Water Pump for Zone 2 Floor Heating I 450W | L1 L2 Water Fill Valve I 50W

Circuit Diagram:AIWD_HID_180

Installation

Inspection before trial running

Check the indoor unit and ensure pipe connections are correct and all relevant valves are open.
Check the water loop to confirm water supply is sufficient, flow is normal, the loop is completely filled with water, and free of air. Also ensure proper insulation of the water pipes.
Verify electrical wiring: confirm normal power voltage, securely fastened screws, wiring matches the diagram, and proper grounding is implemented.
Inspect the heat pump unit, including all screws and components, to ensure they are in good condition.
When powering on, check display indicators for any fault codes. The display may show system high or low pressure during the test run.

Trial running

Start the equipment by pressing the "  " key on the display.
Check whether the water pump is running.
When the water pump runs for 1 minute, the compressor will start. Listen for any strange sounds from the compressor. If abnormal sounds occur, stop the unit and check the compressor. If the compressor runs well, check the refrigerant pressure meter.
Then check whether the power input and running current are in line with the manual. If not, stop and check.
Adjust the valves on the water loop to ensure that the hot/cool water supply is good and meets the heating/cooling requirements.
Check whether the outlet water temperature is stable.
The controller parameters are factory-set and must not be changed by the user.

Operation and Use

1.Main interface display and function

Key	Function
①	Screen lock button: You can perform various operations on the display when the lock is open, but you cannot operate the display when the lock is closed. After locking the screen, press the screen lock button and enter the password to unlock the screen.
④	On/off button: when the button is displayed in blue, it means power on state, and it will turn to white as tapped and switch to power off state.
⑤	Target temperature setting button. When the button is tapped, the unit will enter the target temperature setting interface, allowing you to set the target temperature of the current mode.
17	Mode selection button. When the button is tapped, the unit will enter the mode selection interface, allowing you to set the mode. There are five modes : heating, cooling, hot water, hot water + cooling, hot water + heating.

Operation and Use

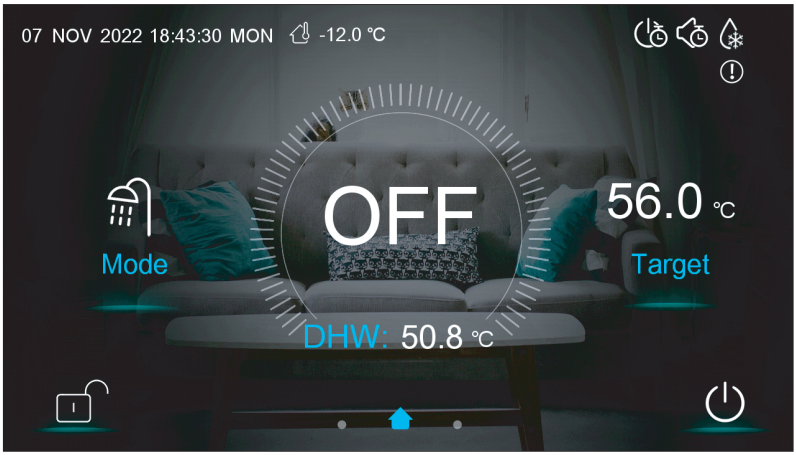
Icon	Function
②	Main interface icon: It indicates that the current page is the main interface.
③	DHW temperature: The unit is in DHW mode when this icon is shown, otherwise this icon is not shown.
⑥	Inlet temperature: Display the control temperature: Outlet, Room,Buffer Tank, Inlet
⑦	Target temperature: Display the current mode target temperature.
⑧	Fault icon: This icon will be displayed when the unit fails ,then the display will enter Failure record interface after tapping this icon
⑨	Defrosting icon: This icon will be displayed when the unit enters the defrosting function.
⑩	Mute timer icon: This icon will be displayed after the mute timer function is enabled.
⑪	Power on/off timer icon: This icon will be displayed after the power on/off timer function is enabled.
⑫	Mode&temp.&power timer icon: This icon will be displayed when enters this timer
⑬	SG Ready Icon: This icon will be displayed when enters SG Ready, SG Ready includes five modes: Solar Sleep Mode, Solar Low Mode, Solar Medium Mode, Solar High Mode, Normal Mode
⑭	Ambient temperature: Display the current ambient temperature.
⑮	System time: Display the current real-time time. The time can be changed as required.
⑯	Running mode icon: representing the unit is currently running in DHW+heating mode. There are five modes, namely: heating, cooling, hot water, DHW+ cooling, DHW + heating

Operation and Use

1.1 On and off

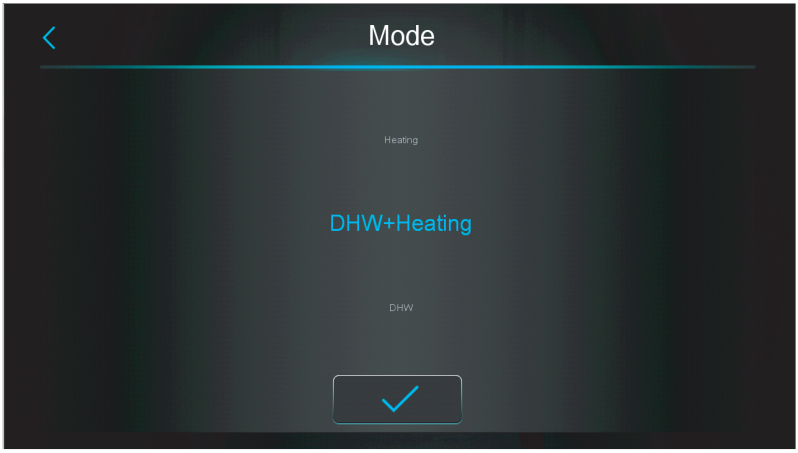
As the main interface shows

(1)In shutting down interface (on/off key is in white status), press on/off key can start up the machine.



(2)In starting up interface (on/off key is in blue status), press on/off key can shut down the machine.

1.2 Mode switch



Operation and Use

There are five modes can be selected after sliding the mode icon .

(1) selecting DHW mode icon, then the display will change to this mode interface;

(2) selecting heating mode icon, then the display will change to this mode interface;

(3) selecting cooling mode icon, then the display will change to this mode interface;

(4) selecting DHW+heating mode icon, then the display will change to DHW+heating mode interface;

(5) selecting DHW+cooling mode icon, then the display will change to DHW+cooling mode interface;

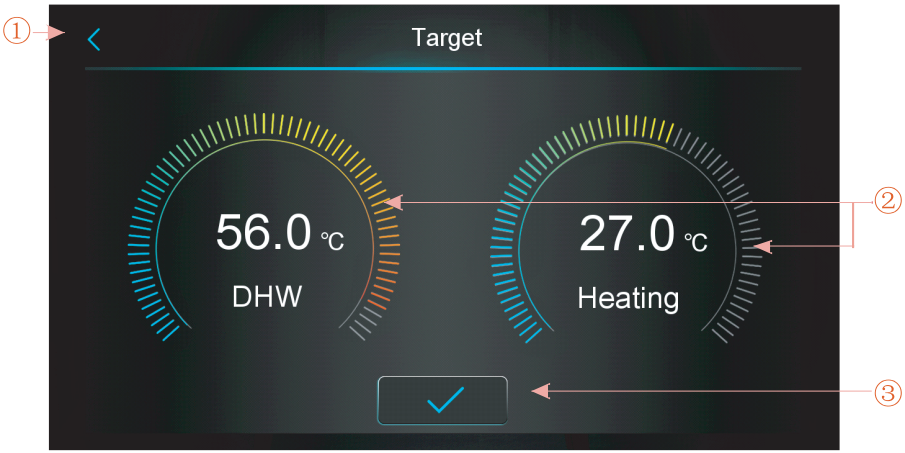
Note: a) If the machine model you purchased has no cooling function, the key of cooling mode will not be displayed.

b) If the machine model you purchased has no DHW function, the key of hot water mode function will not be displayed.

c) If the machine model you purchased has only DHW function, the mode interface only displays DHW icon.

1.3 Setting of target temperature

1.3.1 Disable zone control



Take DHW + heating mode for example:

(1)Tapping ①, the wire controller back to the main interface;

(2)Sliding ②, the target temperature can be adjusted in the clockwise or counterclock--wise direction. Minimum adjustment range is 0.5 ℃.

(3)Tapping ③, the target temperature can be saved.

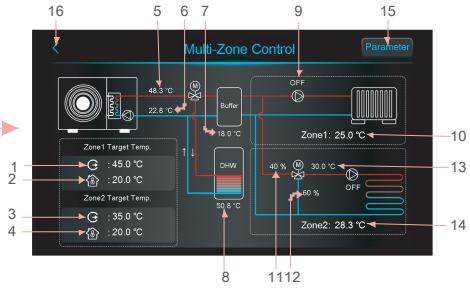
Note: When room temperature control, click the room temperature display in the main interface to enter the room target temperature setting page, and slide the adjustment to set the room target temperature.

Operation and Use

1.3.2 Enable zone control

1.3.2.1 Heating Mode Multi-Zone Control

When heating or DHW+heating mode, click “ ” to enter the multi-zone function interface:

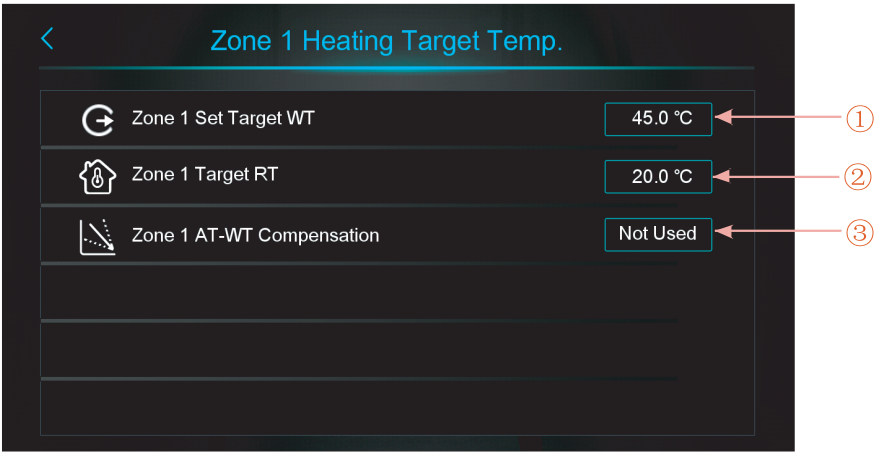


1	Display target outlet temperature in zone 1/target outlet water temperature after compensation
2	Display room target temperature in zone 1, when Z01=4/5/6/7/8/9,it displays “/”
3	Display target outlet temperature in zone 1/target outlet water temperature after compensation
4	Display room target temperature in zone 2, when Z01=4/5/6/7/8/9,it displays “/”
5	Display outlet water temperature
6	Display inlet water temperature
7	When H25=buffer tank control, display buffer tank temperature When H25≠buffer tank control, display --- , and Buffer will become “Not used”
8	Display Tank temperature
9	When zone 1 pump turns on, display “ON”, otherwise display “OFF”
10	Display zone 1 room temperature. When Z01=4/5/6/7/8/9, it means the unit is connected to the passive switch thermostat or room thermostat, and the unit will just receives the signal, when the thermostat asks the unit to turn on, then here will show Zone1: Start, otherwise, it will show Zone1:Stop.
11	Display the percentage of zone 2 mixing valve steps.
12	Display 100 - the percentage of zone 2 mixing valve steps
13	Display zone 2 mixing water temperature
14	Display zone 2 room temperature. When Z01=4/5/6/7/8/9, it means the unit is connected to the passive switch thermostat or room thermostat, and the unit will just receives the signal, when the thermostat asks the unit to turn on, then here will show Zone2: Start, otherwise, it will show Zone2:Stop.
15	After clicking, enter password, will enter the multi-zone function parameter list.
16	Click to return the main screen.

Operation and Use

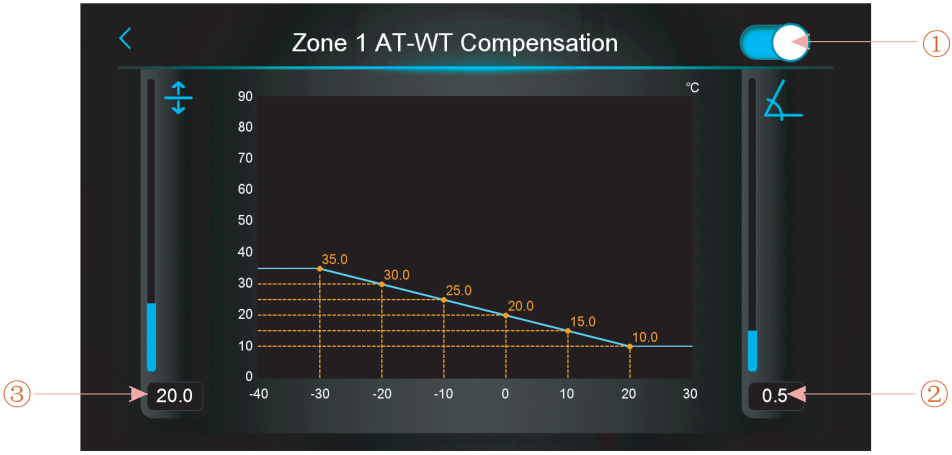
1）Zone 1 target temperature setting interface

Click “ 45.0 ℃ 20.0 ℃ ” to enter the target temperature in zone 1:



Number	Key name	Key function
①	Zone 1 Set Target WT	Click to set zone 1 target outlet water temperature
②	Zone 1 Target RT	Click to set zone 1 room target temperature, when Z01=4/5/6/7/8/9, it displays “/”
③	Zone 1 AT-WT Compensation	Click to enter the zone 1 weather compensation curve, When the zone 1 weather compensation is disable, it will display Not Used. Enable to display the compensated temperature. Enable condition:Z01=1/3/4/6/7/9 and Z16=1

Zone 1 weather compensation curve



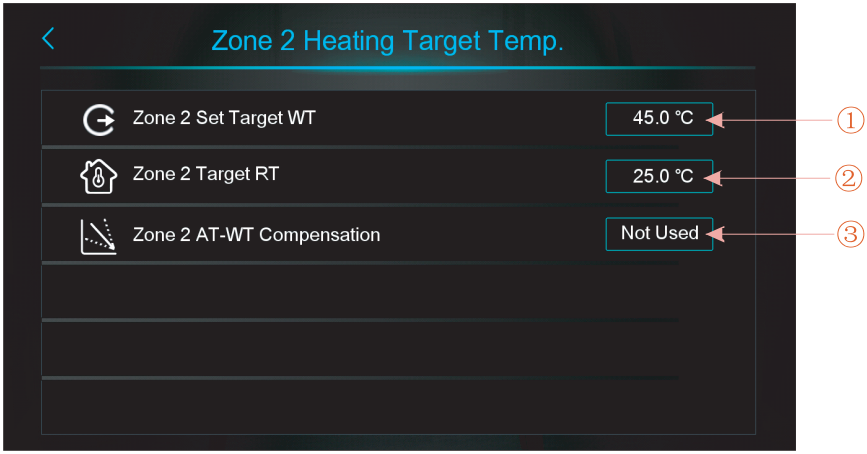
Operation and Use

Number	Key name	Key function
①	Enable key	Enable weather compensation button.
②	Slope	Set the slope by sliding up and down or clicking on the value
③	Offset	Set the offset by sliding up and down or clicking on the value

Celsius calculation formula: Compensated temp. = -Slope*Current AT + Offset
Fahrenheit calculation formula: Compensated Target = -Slope*(Current AT-32)+ Offset

2）Zone 2 target temperature setting interface

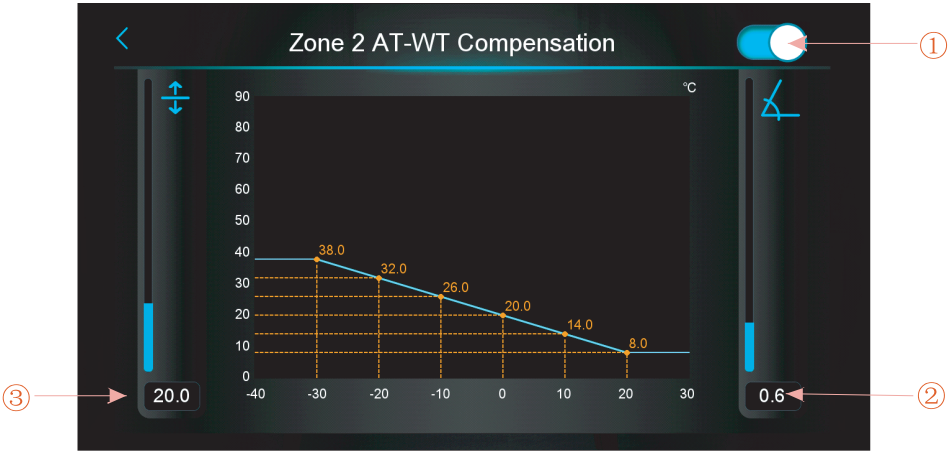
Click “ 35.0 ℃ 20.0 ℃ ” to enter the target temperature in zone 2:



Number	Key name	Key function
①	Zone 2 Set Target WT	Click to set the zone 2 target outlet water temperature
②	Zone 2 Target RT	Click to set the zone 2 room target temperature, when Z01=4/5/6/7/8/9, it displays “/”
③	Zone 2 AT-WT Compensation	Click to enter the zone 2 weather compensation curve, When the zone 2 weather compensation is disable, it will display Not Used. Enable to display the compensated temperature. Enable condition:Z01=2/3/5/6/8/9 and Z17=1

Operation and Use

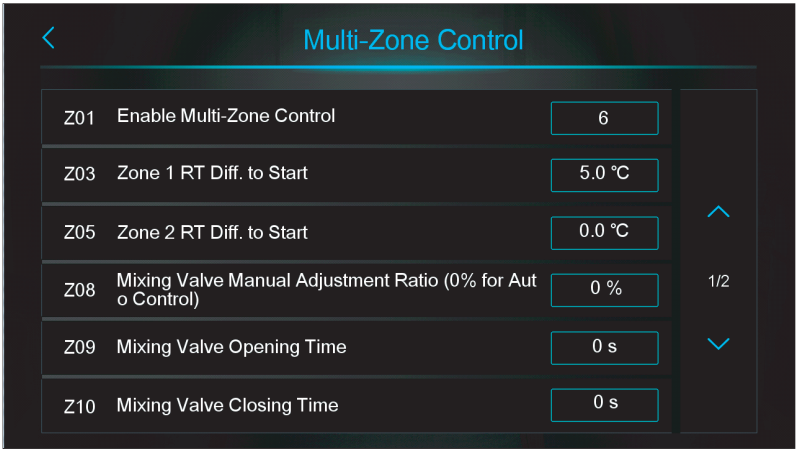
Zone 2 weather compensation curve



Number	Key name	Key function
①	Enable key	Enable weather compensation button.
②	Slope	Set the slope by sliding up and down or clicking on the value
③	Offset	Set the offset by sliding up and down or clicking on the value

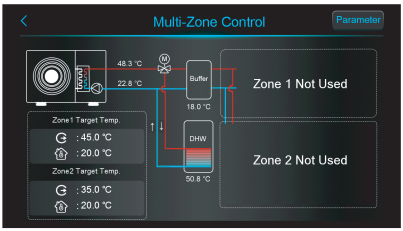
3）Zone control function parameters

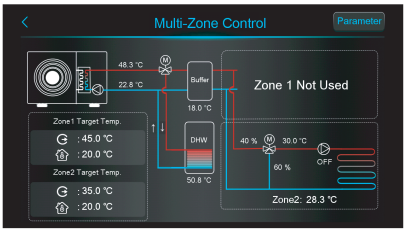
Click“ Parameter ”enter the password to enter the zone control function parameters

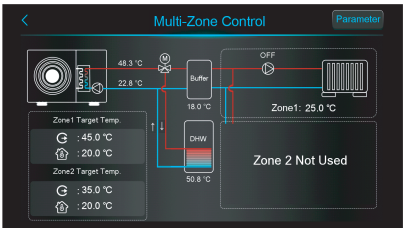


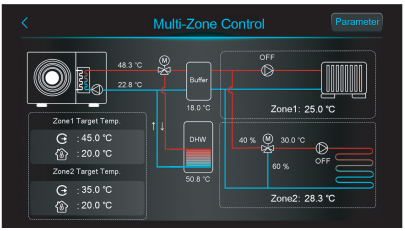
Operation and Use

A: Set Z01 to change the main zone control interface
When Z01=0, it means disable zone 1 and zone 2, display Not Used;
When Z01=2/5/8, it means disable Zone 1, Zone 1 will display Zone 1 Not Used;
When Z01=1/4/7, it means disable Zone 2, Zone 2 will display Zone 2 Not Used;
When Z01=3/6/9, it means enable Zone 1 and Zone 2.



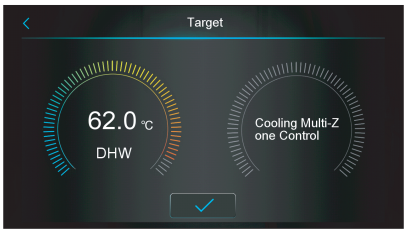


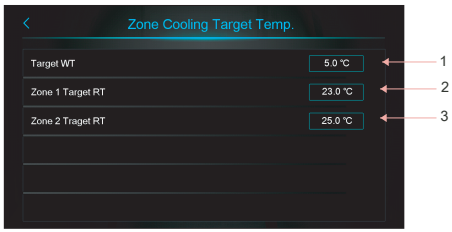




1.3.2.2 Cooling Multi-Zone Control

When cooling or DHW+cooling mode, click “ ” to enter the multi-zone function interface:



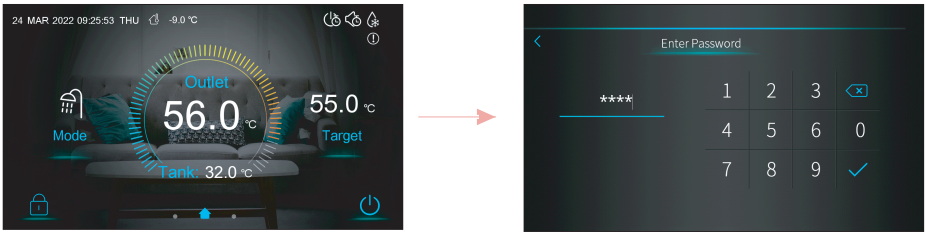


1	Click to set the cooling target temperature
2	Click to set the zone 1 room target temperature
3	Click to set the zone 2 room target temperature

Operation and Use

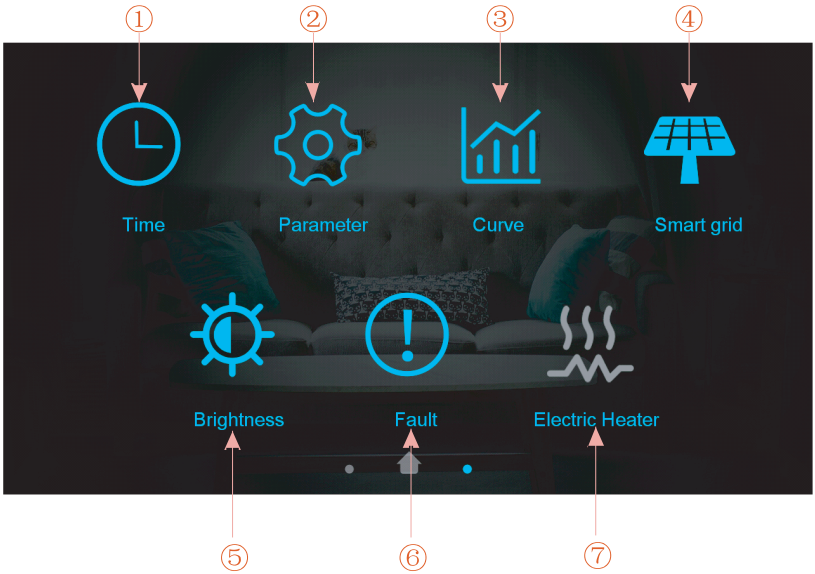
1.4 Unlock screen

After locking screen, click “ ”to pop up the following screen. Enter password to unlock.



2. Setting interface display and function

Swipe from right to left on the main interface to enter the function setting interface, and swipe from left to right on the function setting interface to return to the main interface. The function setting interface is shown in the figure below.



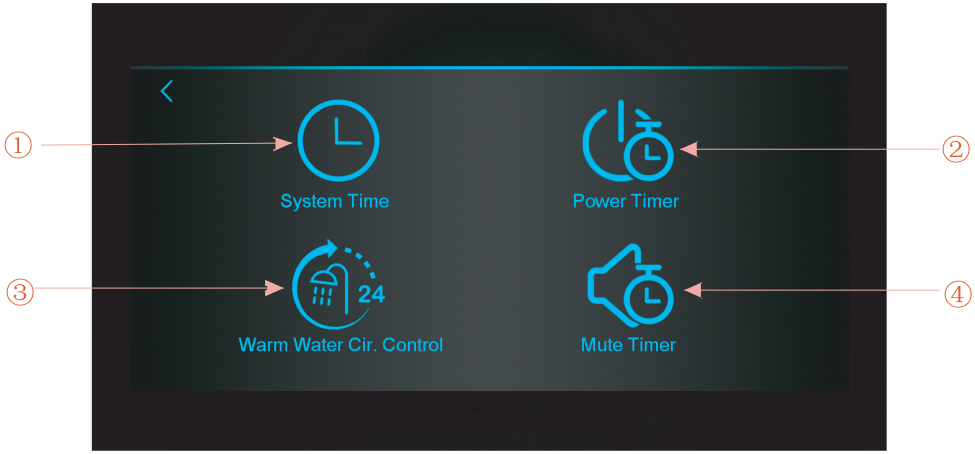
Operation and Use

Buttons description

Key number	Key name	Key function
①	Time setting	Click this key to set the time function.
②	Factory parameter	Click the key and enter the password to enter the factory parameter settings and status parameters interface.
③	Curve key	Click this key to view the temperature curve.
④	Smart grid	Click this key to Smart Grid
⑤	Adjust brightnes	Click this key to adjust screen brightness
⑥	Fault	Click to view fault history
⑦	Electric Heater	Click to turn on/off the electric heater

2.1 Time setting

In the setup interface, t apping the button, then the interface display is shown as follows:



Operation and Use

Key number	Key name	Key function
①	System Time	Click to set system time
②	Power Timer	Click to set timed switch on/off
③	Warm Water Cir. Control	Click to set warm water pump timed cycle, hide the icon when H40=0/2, show the icon when H40=1
④	Mute Timer	Click to set timed mute, hide the icon when H22=0, show the icon when H22=1

2.1.1 System time setting

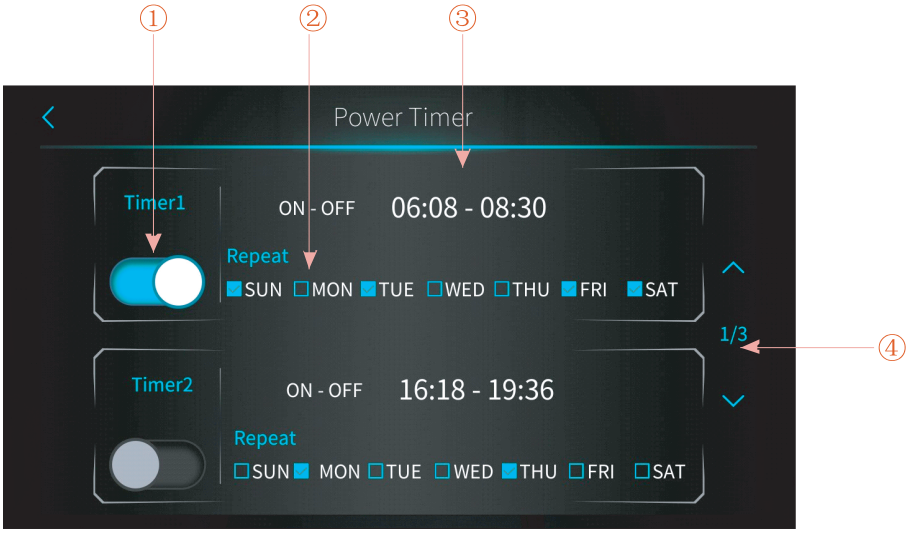
In the time setting interface, click ①nterface displays as follows:

When entering the page of system time setting, the system time will be initialized to the time at the moment when the system time setting button is pressed, and you can adjust the time by sliding up and down.
Note: When the temperature unit is ℉, the time format is displayed as: month-day-year hour: minute: second.

Operation and Use

2.1.2 Power Timer setting

In the time setting interface, click ② interface displays as follows:

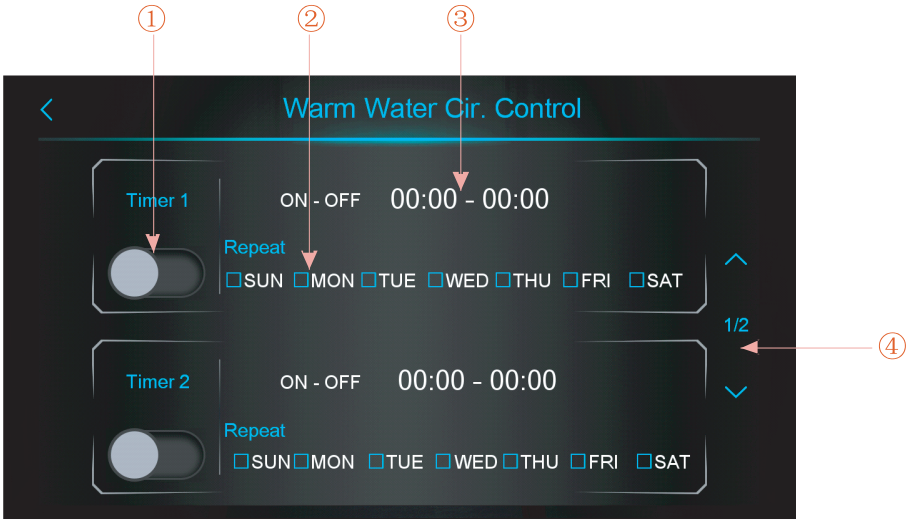


NO.	Name	Button function
①	Timing switch function on	Clicking the button, when the font color is blue, the timing switch is on
②	Week setting	Set the day of the week to activate the timing switch
③	Time period setting	Set the time to turn on and the time to turn off
④	Turn page	A total of 6 timing switch time periods can be set, which can be selected by turning the page

Operation and Use

2.1.3 Warm Water Cir. Control

In the time setting interface, click ③interface displays as follows:



NO.	Name	Button function
①	Timing switch function on	Clicking the button, when the font color is blue, the timing switch is on
②	Week setting	Set the day of the week to activate the timing switch
③	Time period setting	Set the time to turn on and the time to turn off
④	Turn page	A total of 3 timing switch time periods can be set, which can be selected by turning the page

Operation and Use

2.1.4 Mute Timer setting

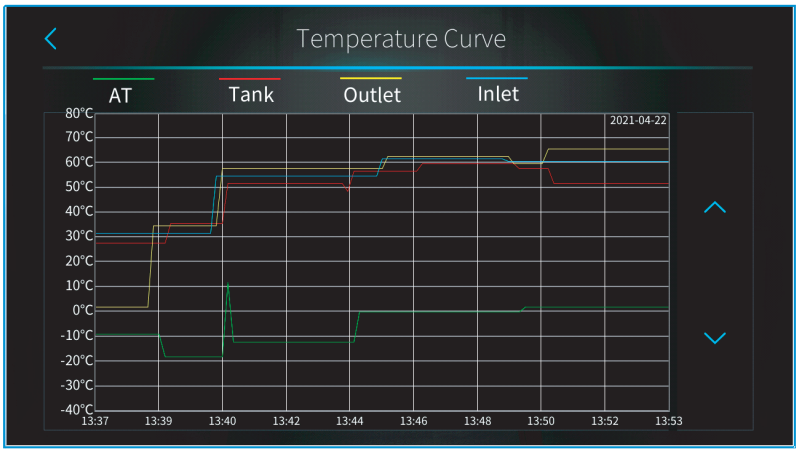
In the time setting interface, click ④interface displays as follows:

NO.	Name	Key color	Button function
①	Whether enable the mute timer on function	Enable: Blue Disable: Gray	Click this key to enable or disable the mute timer on function
	Whether enable the mute timer off function	Enable: Blue Disable: Gray	Click this key to enable or disable the mute timer off function
②	The mute timer on setting point		select from 0:00-23:59
	The mute timer off setting point		select from 0:00-23:59
③	The status of mute timer on	Enable: Blue Disable: Gray	The status of mute timer on is shown
	The status of mute timer off	Enable: Blue Disable: Gray	The status of mute timer on is shown

Operation and Use

2.2 Temperature Curve

In the setup interface, t apping the button, then the interface display is shown as follows:



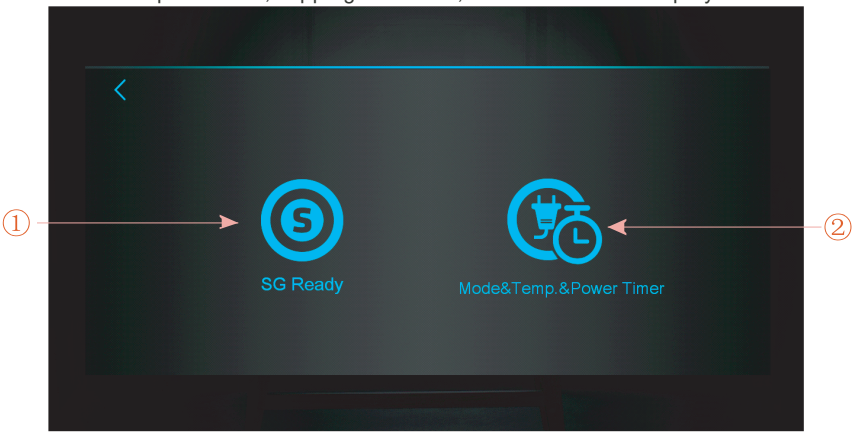
Note:

1) This curve function records the water inlet temperature 、water outlet temperature 、tank water temperature and ambient temperature;
2) Temperature data is collected and saved every five minutes. Timekeeping is made from the latest data saving, if the power is disrupted when the time is less than five minutes, the data during such period will not be saved;
3) Only curve for power-on status is recorded, and that for power-off will not be saved;
4) The value of the abscissa indicates the time from the point on the curve to the current time point.The rightmost point on the first page is the latest temperature record;
5) Temperature curve record is provided with power-down memory function.

Operation and Use

2.3 Smart Grid

In the setup interface, t apping the button, then the interface display is shown as follows:

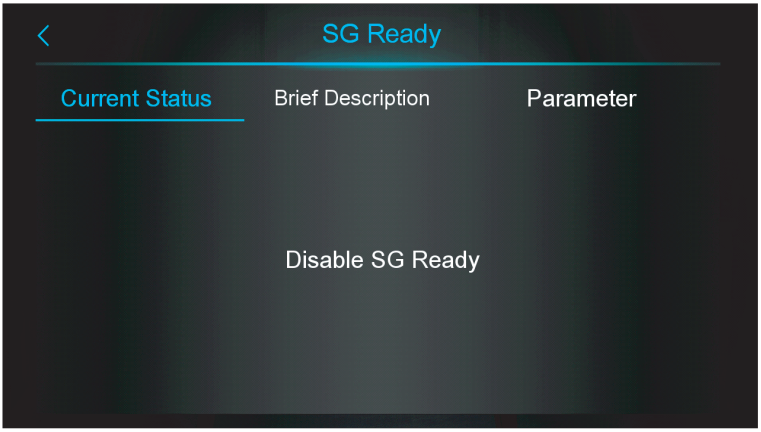


Key number	Key name	Key function
①	SG Ready	Click to enter SG Ready
②	Mode&Temp.& Power Timer	Click to enter Mode&Temp.&Power Timer

2.3.1 SG Ready Function

2.3.1.1 Disable SG Ready

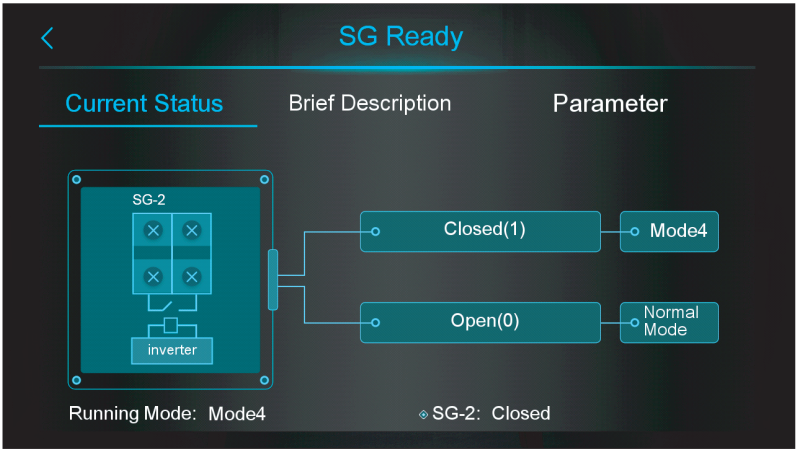
When the Smart Grid Ready mode is not yet set, the interface will display:



Operation and Use

2.3.1.2 Smart Grid Ready=1

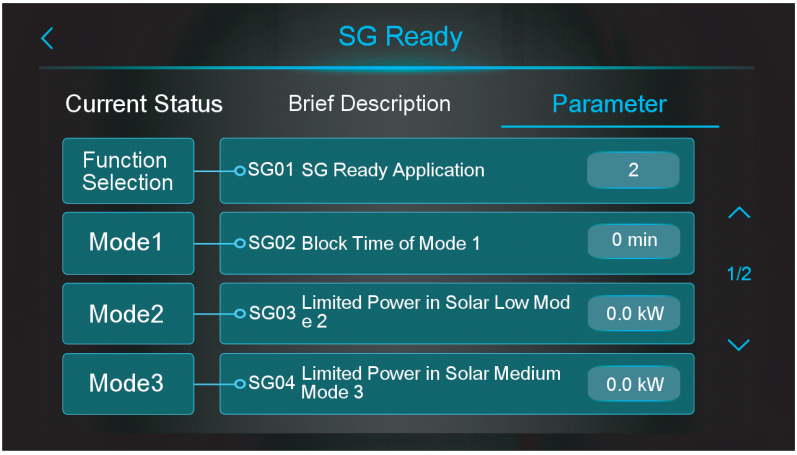
When using one dry contact, the interface will display:



Click “Brief Description”to enter the function description screen:

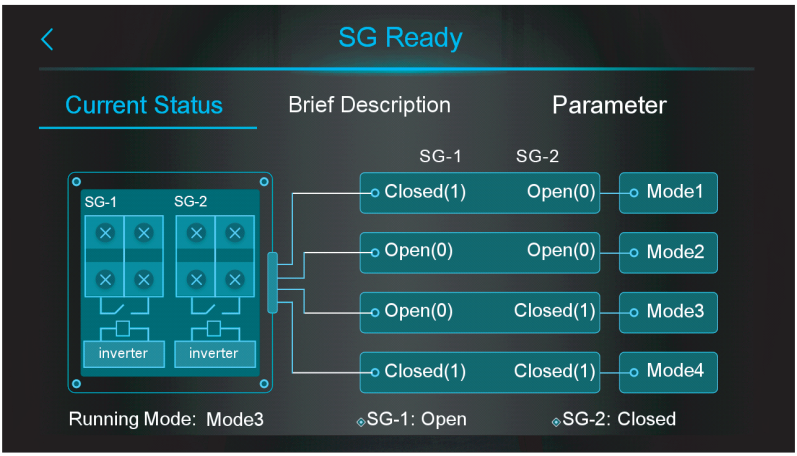
Operation and Use

Click "Parameter" and enter the password to enter the parameter setting screen:



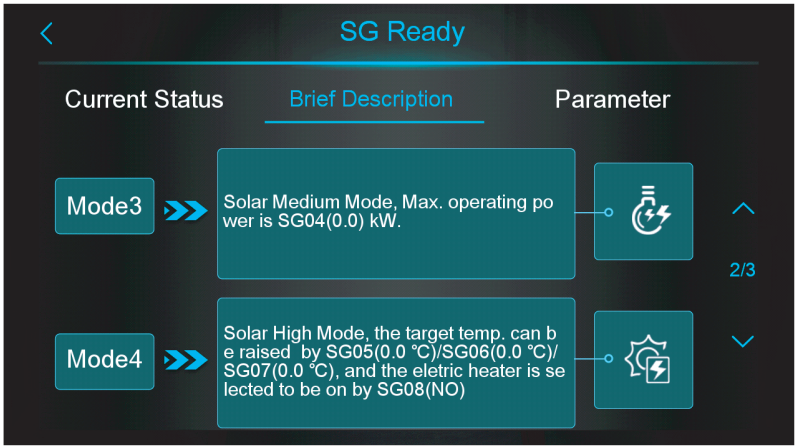
2.3.1.2 Smart Grid Ready=2

When using two dry contacts , the interface will display:

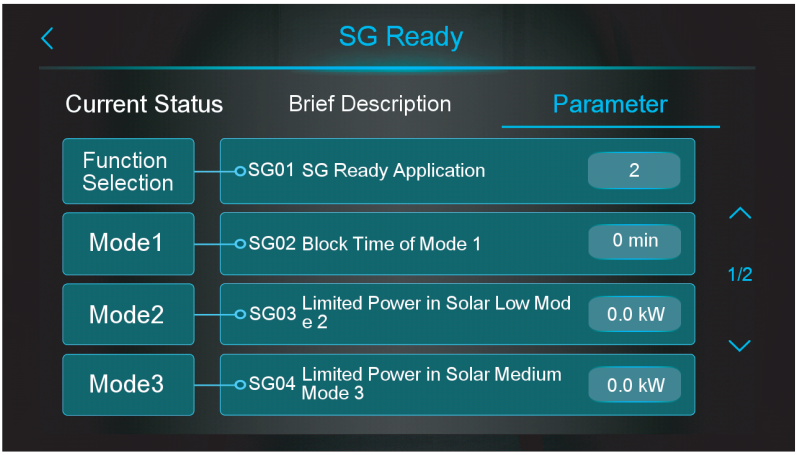


Operation and Use

Click “Brief Description”to enter the function description screen:



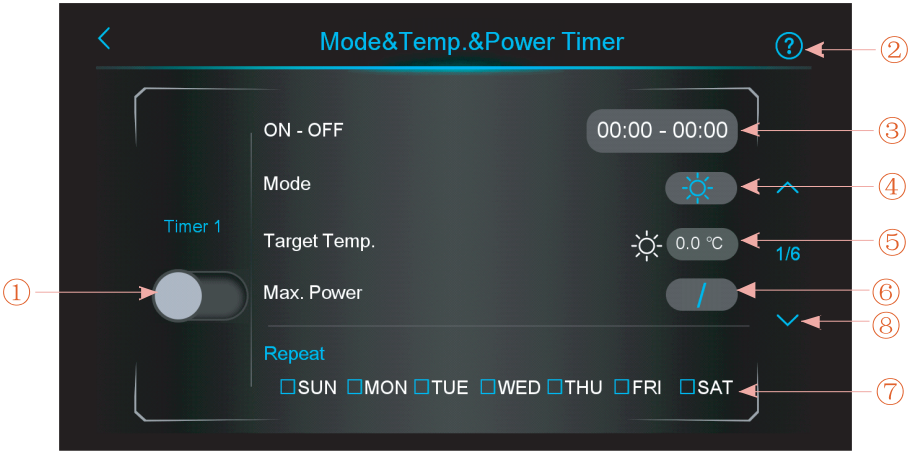
Click "Parameter" and enter the password to enter the parameter setting screen:



Operation and Use

2.3.2 Mode&Temp.&Power Timer

Click “  ” to enter the Mode&Temp.&Power Timer screen:

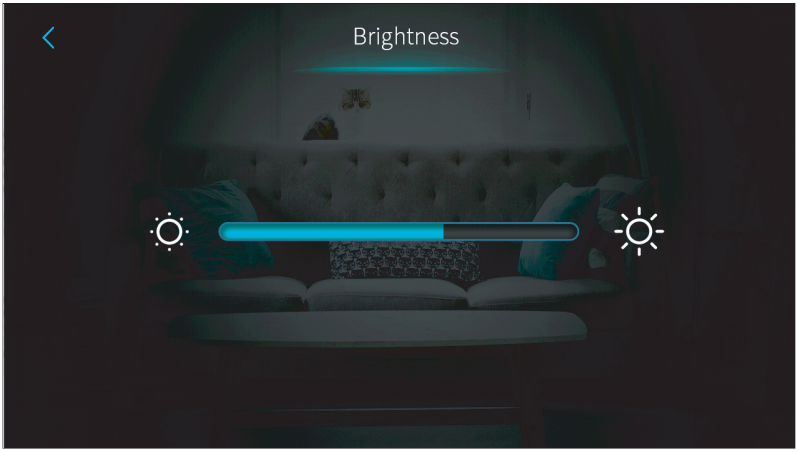


NO.	Name	Button function
①	Enable key	Enable the timer,when the font color is blue, the timing switch is on
②	Function Description	Click to enter the function introduction
③	Time setting	Set timer time
④	Mode	Set target mode, If you don’t need to control mode, please choose “/”
⑤	Target Temp.	Set target temperature
⑥	Max. Power	Set power limitation, Setting range 0.0~99.9KW. If you don’t need to limite the power, please set “Max. Power” to 0.
⑦	Week setting	Set timer date
⑧	Turn page	A total of 6 timing switch time periods can be set, which can be selected by turning the page

Operation and Use

2.4 Color Display Calibration

In the setup interface, t apping the button, then the interface display is shown as follows:



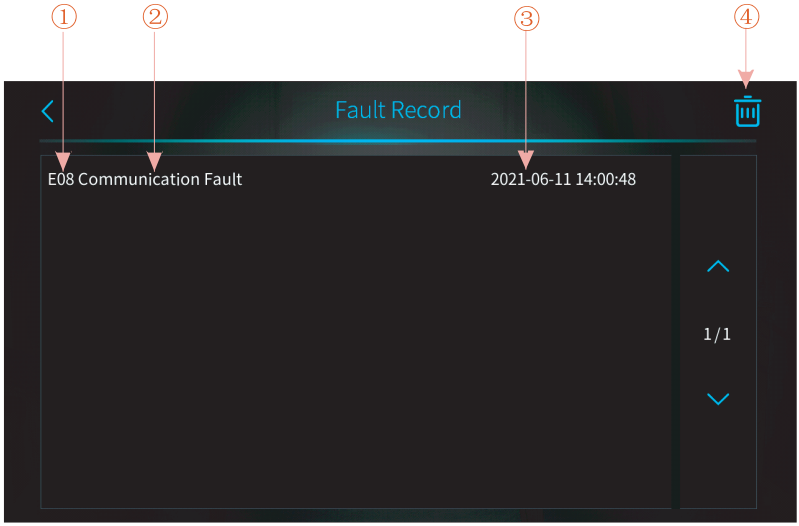
Note:

1) The middle display bar can be dragged or clicked to adjust the brightness of the screen, with power-down memory.
2) Press the back key to return to the previous level and save the brightness setting value.
3) The screen has the function of automatic on and off, if there is no operation for 30s, the screen will enter the half-time screen state.
4) If there is no operation for another 5 minutes, the screen will enter the screen state.

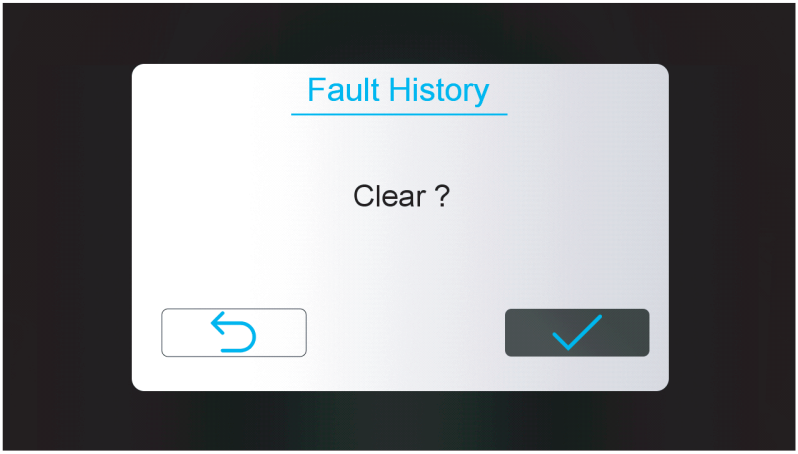
Operation and Use

2.5.Fault interface display and function

In the setup interface, tapping the button, then the interface display is shown as follows:



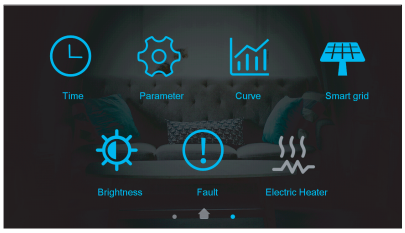
①:Fault code ②:Fault name
③:Occurrence time of the fault: Day and month hour:minute:second
Note:If the current temperature is ℉,occurrence time of the fault:
Month and day hour: minute: second
④:Click this key to clear all fault records, enter the date of the day into the OK screen.

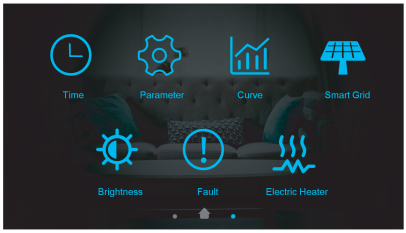


Operation and Use

2.6 Electric Heater

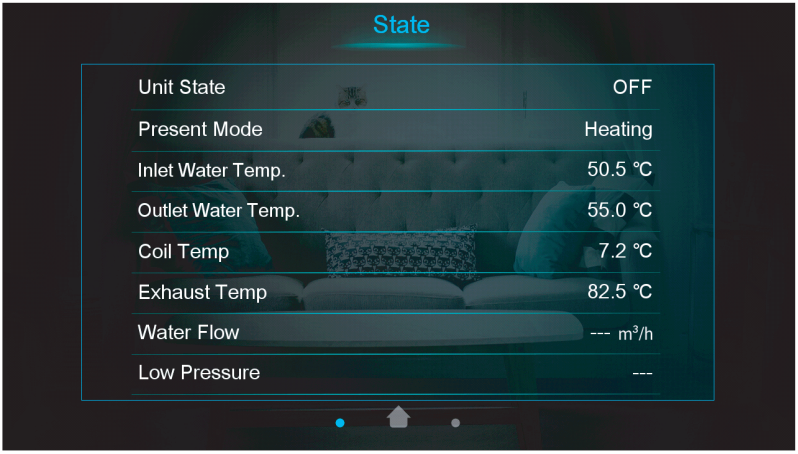
In the setup interface, t apping the button, One-click to turn electric heater on or off.
On is bright, off is grey.
Note: When electric heating is not enabled, the icon is hidden.





3.Status interface display

Swipe from left to right on the main screen to enter the main status screen. Swipe from right to left on the main status screen to return to the main screen interface. The main status screen displays the main status parameters.



Operation and Use

4.Parameter list and breakdown table

4.1 Electronic control fault table

Can be judged according to the remote controller failure code and troubleshooting.

Protect/fault	Fault display	Reason	Elimination methods
Inlet Water Temp. Sensor Fault	P01	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Outlet Water Temp. Sensor Fault	P02	The temp. sensor is broken or short circuit	Check or change the temp. sensor
DHW Tank Sensor Fault	P03	The temp. sensor is broken or short circuit	Check or change the temp. sensor
AT Sensor Fault	P04	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Suction Temp. Sensor Fault	P17	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Heating Returning Water Temp. Sensor Fault	P013	The temp. sensor is broken or short circuit	Check or change the temp. sensor
DHW Returning Water Temp. Sensor Fault	P018	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Heating Leaving Water Temp. Sensor Fault	P023	The temp. sensor is broken or short circuit	Check or change the temp. sensor
DHW Leaving Water Temp. Sensor Fault	P028	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Room Temp. Sensor Fault	P42	The temp. sensor is broken or short circuit	Check or change the temp. sensor
EVI Inlet Sensor Fault	P101	The temp. sensor is broken or short circuit	Check or change the temp. sensor
EVI Outlet Sensor Fault	P102	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Distributor Tube Temp. Sensor Fault	P152	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Coil Temp. Sensor Fault	P153	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Exhaust Temp. Sensor Fault	P181	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Overhigh Exhaust Temp.	P182	The compressor is overload	Check whether the system of the compressor running normally
Anti-freezing Temp. Sensor Fault	P191	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Mix Tube Outlet Water Temp. Sensor Fault	P02a	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Buffer Tank Temp. Sensor Fault	P03a	The sensor is broken or short circuit	Check or change the temp. sensor
Pressure Sensor Fault	PP11	The pressure sensor is broken or short circuit	Check or change the pressure sensor or pressure
High Pressure Sensor Fault	PP12	The pressure sensor is broken or short circuit	Check or change the pressure sensor or pressure
Low AT Protection	TP	The ambient temp. is low	Check the ambient temp value
No Cooling at Low AT Protection	TC	The temp. sensor is incorrectly--detected or the temp.sensor is lower--than the set value A30	Check or change the temp. sensor
Electric Heater Overheat Fault	E04	The electric-heaterprotection switch is broken	Check whether the electric heater runs at the temperature above 150℃ for a long time
Excess Temp. Diff. Between Inlet & outlet	E06	Water flow is not enough and low differential pressure	Check the pipe water flow and whether water system is jammed or not
Communication Fault	E08	Communication failure between wire controller and mainboard	Check the wire connection between remote wire controller and main board

Operation and Use

Protect/fault	Fault display	Reason	Elimination methods
Primary Anti-freezing Fault	E19	The ambient temp. is low	Check the ambient temp value
Secondary Anti-freezing Fault	E29	The ambient temp. is low	Check the ambient temp value
Insufficient Defrosting Water Flow Alarm	E030	The unit flow rate is less than the minimum flow value of the unit.	Check or change waterway systems to provideunit flow
Flow Switch Fault	E032	No water/little water in water system	Check the pipe water flow and water pump
Overhigh Outlet Water Temp.	E065	No water/little water in water system	Check the pipe water flow and water pump
Low Outlet Water Temp. Temp. Fault	E071	No water/little water in water system	Check the pipe water flow and water pump
Fan Motor 1 and PCB Communication Fault	E081	Speed control module and main board communication fail	Check the communication connection
Fan Motor 2 and PCB Communication Fault	E082	Speed control module and main board communication fail	Check the communication connection
Display and PCB Communication Fault	E084	The wire controller software is not match the mainboard software	Check thewire control software number and the mainboard software number
Communication Fault with Hydraulic Module	E08c	Hydraulic Module and mainboard communication fail	Check the communication connection
HP Fault	E11	The high-pressure switch is broken	Check the pressure switch and cold circuit
LP Fault	E12	The low-pressure switch is broken	Check the pressure switch and cold circuit
Anti-freezing Fault	E171	Use side water system temp. is low	1. Check the water temp. or change the temp. sensor 2. Check the pipe water flow and whether water system is jammed or not
Fan Motor1 Fault	F031	1. Motor is in locked-rotor state 2. The wire connection between DC-fan motor module and fan motor is in bad contact	1. Change a new fan motor 2. Check the wire connection and make sure they are in good contact
Fan Motor2 Fault	F032	1. Motor is in locked-rotor state 2. The wire connection between DC-fan motor module and fan motor is in bad contact	1. Change a new fan motor 2. Check the wire connection and make sure they are in good contact
Zone 1 Room Temp. Sensor Fault	P105	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Zone 2 Room Temp. Sensor Fault	P106	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Zone 2 Mixing Temp. Sensor Fault	P107	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Abnormal Adjustment of Mixing Valve	E122	1. Mixing Valve is incorrectly connected; 2. Mixing Valve is damaged;	1. Plug and unplug terminals; 1. Replace the Mixing Valve;
Zone 1 Thermostat Communication Fault	E08g	1. Thermostat not connected 2. Thermostat failure 3. Wrong parameter setting	1. Check the wiring connection between the thermostat and the unit 2. Replace the thermostat 3. Check the parameters
Zone 2 Thermostat Communication Fault	E08h	1. Thermostat not connected 2. Thermostat failure 3. Wrong parameter setting	1. Check the wiring connection between the thermostat and the unit 2. Replace the thermostat 3. Check the parameters
Low Water Flow Protection	E035	Water flow is too low	Increased water flow

Operation and Use

Frequency conversion board fault table:

Protect/fault	Fault display	Reason	Elimination methods
IPM Overcurrent Fault	F00	IPM Input current is large	Check and adjust the current measurement
Comp. Driver Fault	F01	Lack of phase, step or drive hardware damage	Check the measuring voltage check frequency conversion board hardware
Pre-Charge Failure	F03	The PFC circuit protection	Check the PFC switch tube short circuit or not
DC Power Bus Overvoltage Fault	F05	DC bus voltage>Dc bus Overload-voltage protection value	Check the input voltage measurement
DC Power Bus Undervoltage	F06	DC bus voltage<Dc bus Underload-voltage protection value	Check the input voltage measurement
AC Power Undervoltage Fault	F07	The input voltage is low, causing the input current is low	Check the input voltage measurement
AC Power Overcurrent Fault	F08	The input voltage is too high, more than outage protection current RMS	Check the input voltage measurement
Input Power Voltage Sampling Fault	F09	The input voltage sampling fault	Check andadjust the current measurement
DSP and PFC Communication Fault	F12	DSP and PFC connect fault	Check the communication connection
DSP and Comp. Driver Communication Fault	F11	DSP and Inverter board communication failure	Check the communication connection
Comp. Driver and PCB Communication Fault	F151	DSP and Mainboard communication failure	Check the communication connection
IPM Overheat Fault	F13	The IPM module is overheat	Check and adjust the current measurement
Comp. Overcurrent Fault	E051	The compressor is overload	Check whether the system of the compressor running normally
Input Power Lacking Phase Fault	F15	The input voltage lost phase	Check and measure the voltage adjustment
IPM Current Sampling Fault	F18	IPM sampling electricity is fault	Check and adjust the current measurement
Comp. Driver Temp. Sensor Fault	F17	The transducer is overheat	Check and adjust the current measurement
IGBT Power Device Overheat Alarm	F20	The IGBT is overheat	Check and adjust the current measurement
Comp. Weak Magnetic Alarm	F16	Compressor magnetic force is not enough	Check and adjust the current measurement
AC Input Current Frequency Decrease Alarm	F22	Inputcurrent is toolarge	Check and adjust the current measurement
EEPROM Alarm	F23	MCU error	Check whether the chip is damaged Replace the chip
Destroyed EEPROM & No Activated Fault	F24	MCU error	Check whether the chip is damaged Replace the chip
Input Power Current Sampling Fault	F25	The V15V is overload or undervoltage	Check the V15V input voltage in range 13.5V~16.5V or not
IGBT Overheat Fault	F26	The IGBT is overheat	Check and adjust the current measurement
Comp. Current Frequency Decrease Alarm	F33	The compressor current frequency reduction	Check and adjust the current measurement
AC Power Overvoltage Fault	F10	Input voltage>Input Overload--voltage protection value	Check whether the input voltage is higher than 265V
Compressor Lacking Phase Fault	F14	The compressor lost phase	Check whether compressor cables are connected properly and reliably
EEPROM Fault	F29	Failed to read the memory chip	Check the frequency conversion board
Overspeed Fault	F21	The compressor is running abnormally	Check whether the compressor cable is nor--mal and whether the compressor is blocked

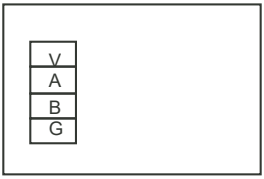
Protect/fault	Fault display	Reason	Elimination methods
Driver (Fan)Temp.Sensor Fault	F120	The temp. sensor is broken or short circuit	Check or change the temp. sensor
Driver (Fan)IPM Overheat Fault	F106	The fan IPM drive plate has poor heat dissipation	Check heat dissipation conditions
Driver (Fan) External Overcurrent Fault	F105	The fan IPMhardware running current is too large	Check whether the fan is blocked
Driver (Fan) Power Lacking Phase Fault	F101	The fan lost phase	Check whether fan cables are connected properly and reliably
Driver (Fan) Current Sampling Fault	F112	Fan sampling electricity is fault	Check whether the fan drive plate is abnormal
Driver (Fan) Start Fault	F102	The fan fails to start	Check whether the fan is blocked
Driver (Fan) Internal Overcurrent Fault	F113	The fan software running current is too large	Check whether the fan is blocked
Driver (Fan) overspeed Fault	F109	The fan speed is too high	Check whether the fan drive board is abnormal

4.2 Parameter list

Meaning	Default	Remarks
Cooling target temperature set point	12℃	Adjustable
Heating the target temperature set point	45℃	Adjustable
Hot water target temperature set point	55℃	Adjustable

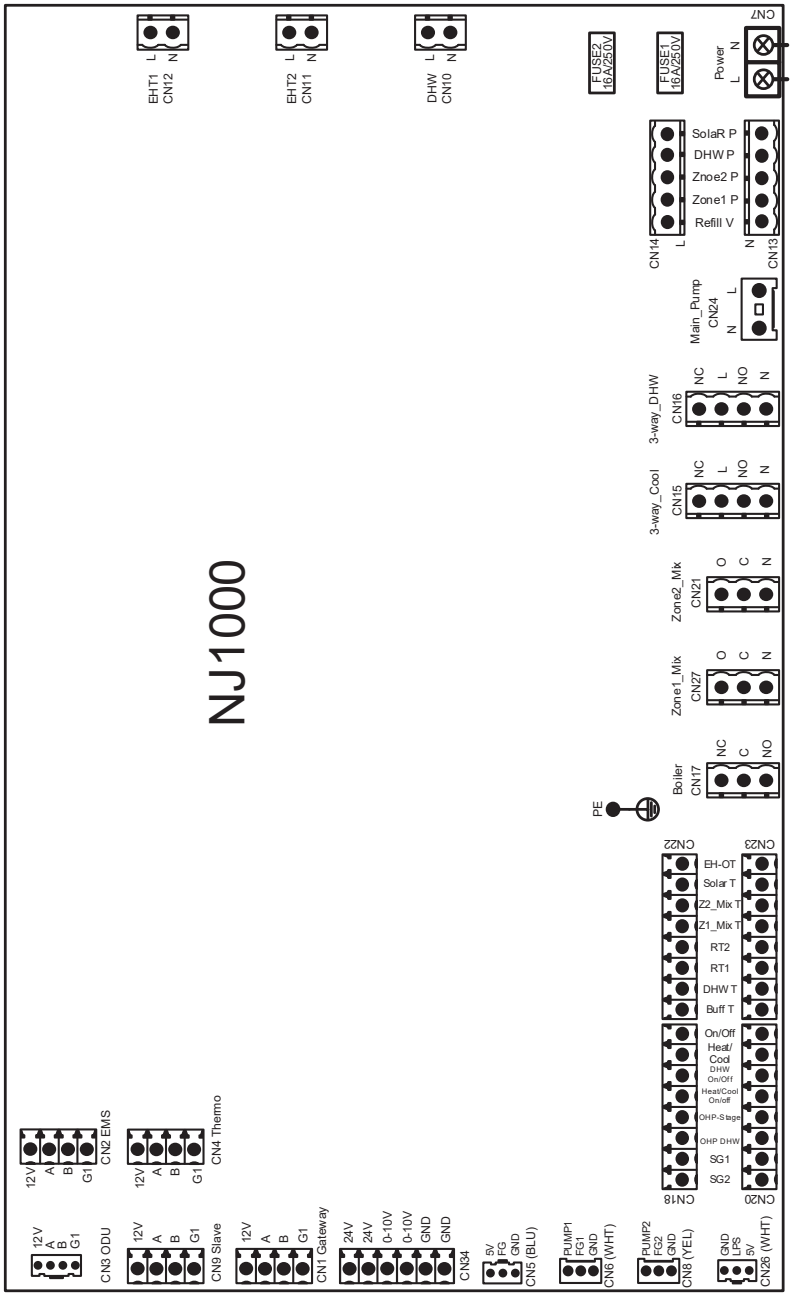
5. Interface diagram

5.1 Wire control interface diagram and definition



Sign	Meaning
V	12V（power +)
A	485A
B	485B
G	GND(power-)

5.2 Controller interface diagram and definition



Appendix

Appendix 1、Caution & Warning

1. The unit can only be repaired by qualified installer centre personnel or an authorised dealer.（for Europe market）
2. This appliance is not intended for use by persons (including children) with reduced physical sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.（for Europe market）
   Children should be supervised to ensure that they do not play with the appliance.
3. Please make sure that the unit and power connection have good earthing, otherwise may cause electrical shock.
4. If the supply cord is damaged, it must be replaced by the manufacturer or our service agentor similarly qualified person in order to avoid a hazard.
5. Directive 2002/96/EC (WEEE):
   The symbol depicting a crossed-out waste bin that is underneath the appliance indicates that this product, at the end of its useful life, must be handled separately from domestic waste, must be taken to a recycling centre for electric and electronic devices or handed
   back to the dealer when purchasing an equivalent appliance.
6. Directive 2002/95/EC (RoHs): This product is compliant with directive 2002/95/EC (RoHs) concerning restrictions for the use of harmful substances in electric and electronic devices.
7. The unit CANNOT be installed near the flammable gas. Once there is any leakage of the gas, fire can be occur.
8. Make sure that there is circuit breaker for the unit, lack of circuit breaker can lead to electrical shock or fire.
9. The heat pump located inside the unit is equipped with an over-load protection system. It does not allow for the unit to start for at least 3 minutes from a previous stoppage.
10. The unit can only be repaired by the qualified personnel of an installer center or an authorized dealer.（for North America market）

11. Installation must be performed in accordance with the NEC/CEC by authorized person only.
(for North America market)
12. USE SUPPLY WIRES SUITABLE FOR 75℃.
13. Caution: Single wall heat exchanger, not suitable for potable water connection.

Appendix 2、Cable specification

1. Single phase unit

Nameplate maximum current	Phase line	Earth line	MCB	Creepage protector	Signal line
No more than 10A	2×1.5mm^2	1.5mm^2	20A	30mA less than 0.1 sec	n×0.5mm^2
10~16A	2×2.5mm^2	2.5mm^2	32A	30mA less than 0.1 sec	
16~25A	2×4mm^2	4mm^2	40A	30mA less than 0.1 sec	
25~32A	2×6mm^2	6mm^2	40A	30mA less than 0.1 sec	
32~40A	2×10mm^2	10mm^2	63A	30mA less than 0.1 sec	
40~63A	2×16mm^2	16mm^2	80A	30mA less than 0.1 sec	
63~75A	2×25mm^2	25mm^2	100A	30mA less than 0.1 sec	
75~101A	2×25mm^2	25mm^2	125A	30mA less than 0.1 sec	
101~123A	2×35mm^2	35mm^2	160A	30mA less than 0.1 sec	
123~148A	2×50mm^2	50mm^2	225A	30mA less than 0.1 sec	
148~186A	2×70mm^2	70mm^2	250A	30mA less than 0.1 sec	
186~224A	2×95mm^2	95mm^2	280A	30mA less than 0.1 sec	

2. Three phase unit

Nameplate maximum current	Phase line	Earth line	MCB	Creepage protector	Signal line
No more than 10A	3×1.5mm^2	1.5mm^2	20A	30mA less than 0.1 sec	n×0.5mm^2
10~16A	3×2.5mm^2	2.5mm^2	32A	30mA less than 0.1 sec	
16~25A	3×4mm^2	4mm^2	40A	30mA less than 0.1 sec	
25~32A	3×6mm^2	6mm^2	40A	30mA less than 0.1 sec	
32~40A	3×10mm^2	10mm^2	63A	30mA less than 0.1 sec	
40~63A	3×16mm^2	16mm^2	80A	30mA less than 0.1 sec	
63~75A	3×25mm^2	25mm^2	100A	30mA less than 0.1 sec	
75~101A	3×25mm^2	25mm^2	125A	30mA less than 0.1 sec	
101~123A	3×35mm^2	35mm^2	160A	30mA less than 0.1 sec	
123~148A	3×50mm^2	50mm^2	225A	30mA less than 0.1 sec	
148~186A	3×70mm^2	70mm^2	250A	30mA less than 0.1 sec	
186~224A	3×95mm^2	95mm^2	280A	30mA less than 0.1 sec	

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