All In One Hot Water Heat Pump

OPERATING INSTRUCTION MANUAL

Before operating this product, please read the instructions carefully and save this manual for future use.

Version:1.1

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1. Safety Precautions

Important Notice

This guide provides installation and operation instructions for the all in one hot water heat pump. Consult the seller with any questions regarding this equipment.

Attention Installer: This guide contains important information about the installation, operation and safe use of this product. This information should be given to the owner and/or operator of this equipment after installation or left on or near the heat pump.

Attention User: This manual contains important information that will help you in operating and maintaining this heat pump. Please retain it for future reference.

WARNING - Before installing this product, read and follow all warning notices and instructions which are included. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage.

Codes and Standards

The all in one hot water heat pump must be installed in accordance with the local building and installation codes as per the utility or authority having jurisdiction. All local codes take precedence over national codes. In the absence of local codes, refer to the latest edition of the National Electric Code (NEC) in the local government Electric Code (CEC) for installation.

DANGER — Risk of electrical shock or electrocution.

The electrical supply to this product must be installed by a licensed or certified electrician in accordance with the National Electrical Code and all applicable local codes and ordinances. Improper installation will create an electrical hazard which could result in death or serious injury to heat pump users, installers, or others due to electrical shock, and may also cause damage to property. Read and follow the specific instructions inside this guide.

WARNING - To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

Consumer Information and Safety

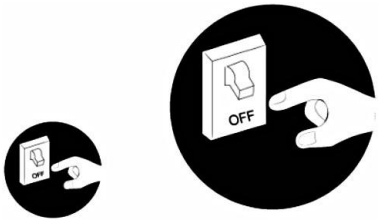
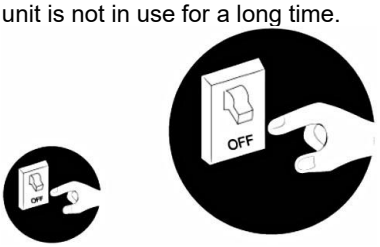
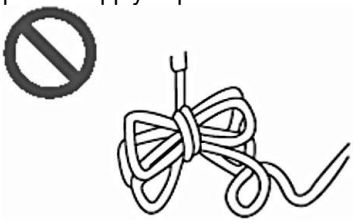
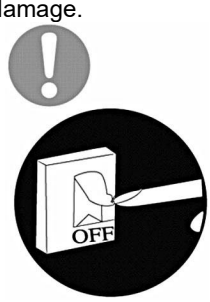
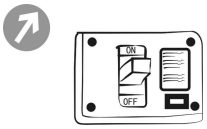
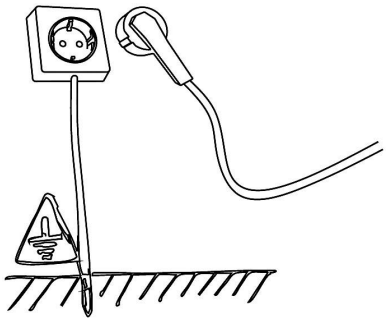
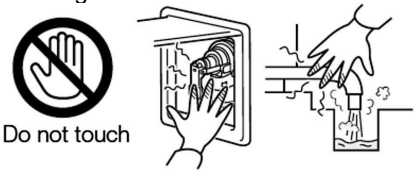
The all in one hot water heat pumps are designed and manufactured to provide years of safe and reliable service when installed, operated and maintained according to the information in this manual and the installation codes referred to in later sections. Throughout the manual, safety warnings and cautions are identified by the " " symbol. Be sure to read and comply with all of the warnings and cautions.

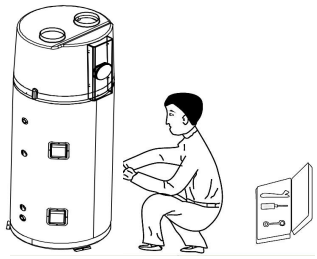
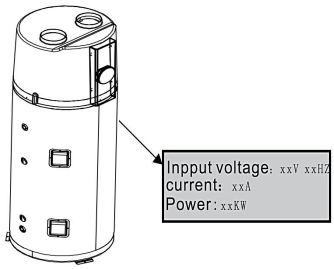
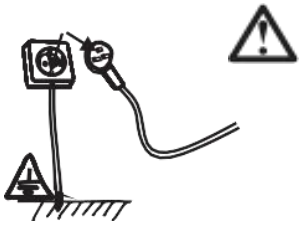
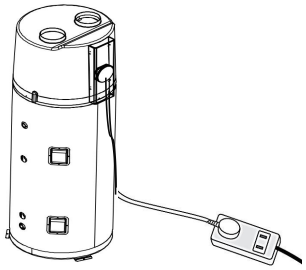
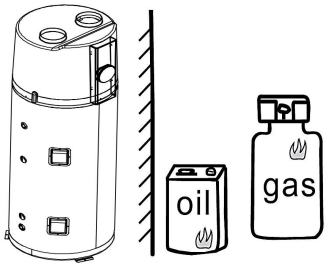
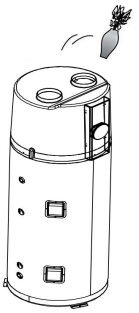
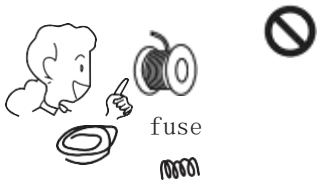
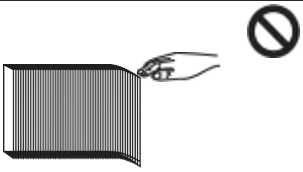
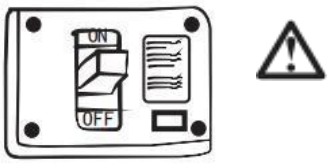
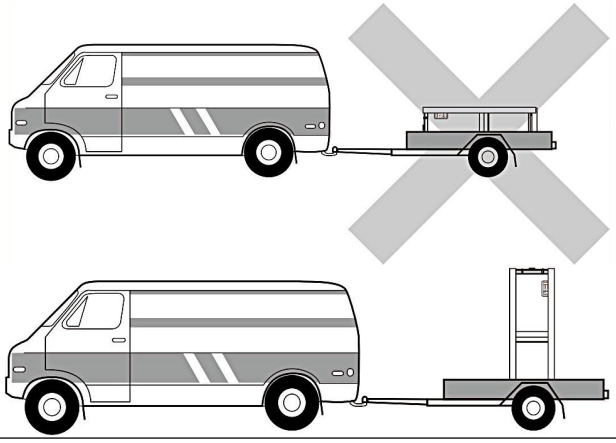
IMPORTANT

If heat pump is not running in the winter, it is necessary to keep power supply connected for Anti-freeze protection.
In cold weather (≤ 0°C), if heat pump is no longer needed, do drain out all the water inside the system.

Safety precautions

- Warning **- Suggestion** **- Prohibition**

Once abnormality like burning smell occurs, please cut off the power supply immediately and then contact with service center.  If the abnormality still exists, the unit may be damaged and electric shock or fire may result.	Be sure to pull out the power plug and drain the indoor unit and water tank when unit is not in use for a long time.  Otherwise, the accumulated dust may cause overheating fire or freeze of water tank or coaxial heater exchanger in winter.	Special circuit must be adopted for power supply to prevent fire.  Do not use octopus multipurpose plug or mobile terminal board for wire connection.
Before cleaning please cut off the power supply. Otherwise, it may cause electric shock or damage. 	Don't operate the unit with wet hand. Otherwise, it may cause electric shock. 	Never damage the electric wire or use the one which is not specified. Otherwise, it may cause Overheating or fire. 
The power supply must adopt special circuit with leakage switch and enough capacity. It is mandatory to use a suitable circuit-breaker for the heat pump and make sure the power supply to the heater corresponds to the specifications. Otherwise the unit might be damaged. 	The unit must be earthed to avoid any risks caused by insulation defects. 	Keep pressurized spray, gas holder and so on away from the unit above 1m. It may cause fire or explosion. 
Check the water temperature before supplying any hot water or taking a shower. Could result in being burnt. 	Do not touch the faucet while hot water is being supplied. Could result in being burnt by hot water 	Do not touch the relief valve, drainage pipe, drain outlet or drain elbow when inspecting the relief valve or while draining hot water. 

The installation , commissioning and maintenance of these units should be performed by qualified personnel having a good knowledge of standards and local regulations , as well as experience of this type of equipment. 	Ensure that the electrical supply corresponds to the plate before proceeding with the connection in accordance with the wiring diagram supplied. 	The power supply used for the unit must be grounded well. 
Please provide a dedicated power supply to the unit with proper breaker. 	Keep the unit away form any combustible or corrosive environment. 	Don't put anything on top of the heater, otherwise it may damage the unit or affect its performance. 
		
When the power cord is loose or damaged, please find a professional after-sales service for repair.	Please choose the correct fuse or circuit breaker as recommended. Steel wire or copper wire shall not replace a fuse or circuit breaker. Otherwise, it may cause damage.	Do not touch your fins with your fingers or you may be hurt.
		Main power cable 
Please select the appropriate circuit breaker specifications according to the rated current of the product.	Disposal of waste batteries (if any). Please treat it according to the local garbage classification standards.	It is recommended to install a leakage current protection device (RCD).
Transport and storage : Heat pump must be transported and stored upright and dry. It may however be carefully laid on its back when being moved into a building.		

WARNING!

1. Unqualified parties are not allowed to install the equipment by themselves, and a qualified installer is a must. The consequences (safety accidents and use effect) caused by Unqualified parties shall be borne by the users themselves.
2. Except for the guidance of professional personnel, non-professional party shall not remove the machine or machine parts without authorization, otherwise accidents or machine damage may occur.
3. Do not use towels, paint, gasoline, alcohol and other flammable items while near this machine, as this could cause a fire.
4. The main power switch of the unit should be placed in a place out of reach of children to prevent children from contacting the power switch and causing potential safety risks.
5. The unit shall adopt independent power switch to avoid sharing the same circuit with other electrical appliances, and choose the power circuit and circuit breaker (with leakage protection function) that matches the current to supply power to the unit.
6. The unit must be installed with a specified cross-section grounding wire. Do not connect the ground wire to the ground wire for gas lines, pipes, lightning lines or telephone. At the same time, it must be reliably grounded to avoid accidents.
7. Do not forcibly cut off the power supply when the unit is running to avoid accidents.
8. When the unit is not in use for a long time, please discharge the water in the pipe, close the water pipe valve, and disconnect the main power supply switch to avoid accidents.
9. The unit shall use a special power supply, and the power supply voltage shall meet the rated voltage standard.
10. When the power cord is damaged, it is necessary to use the power cord specified by the manufacturer and replaced by professional maintenance personnel.

Suggestion

1. Do not put your hand or foreign body into the air outlet, because the high-speed fan may endanger personal safety.
2. Lightning and other electromagnetic radiation sources may affect the device. If this happens, turn off the power supply and turn it on again.
3. When in use, make sure that the air in the pipe is completely discharged, and then open the replenishment valve to replenish water to the system.
4. Before operating the machine, read carefully about all the warnings and precautions.
5. "Warning" and "precautions" list various important safety-related matters, please strictly implement them.
6. The working environment of the unit should be far away from the fire source. In case of fire caused by line problems, immediately close the main switch and use a dry powder fire extinguisher to extinguish the fire.
7. Power supply must be cut off before repairing the unit.
8. It is forbidden to place objects on top of the device to avoid accidents caused by falling objects while the machine is running.

2. Working principle of Heat Pump

Refrigerant circuit

The refrigerant system consists of 4 main components:

Rotary type compressor, heat exchanger (condenser, refrigerant to water),

electronic expansion valve, evaporator (air to refrigerant).

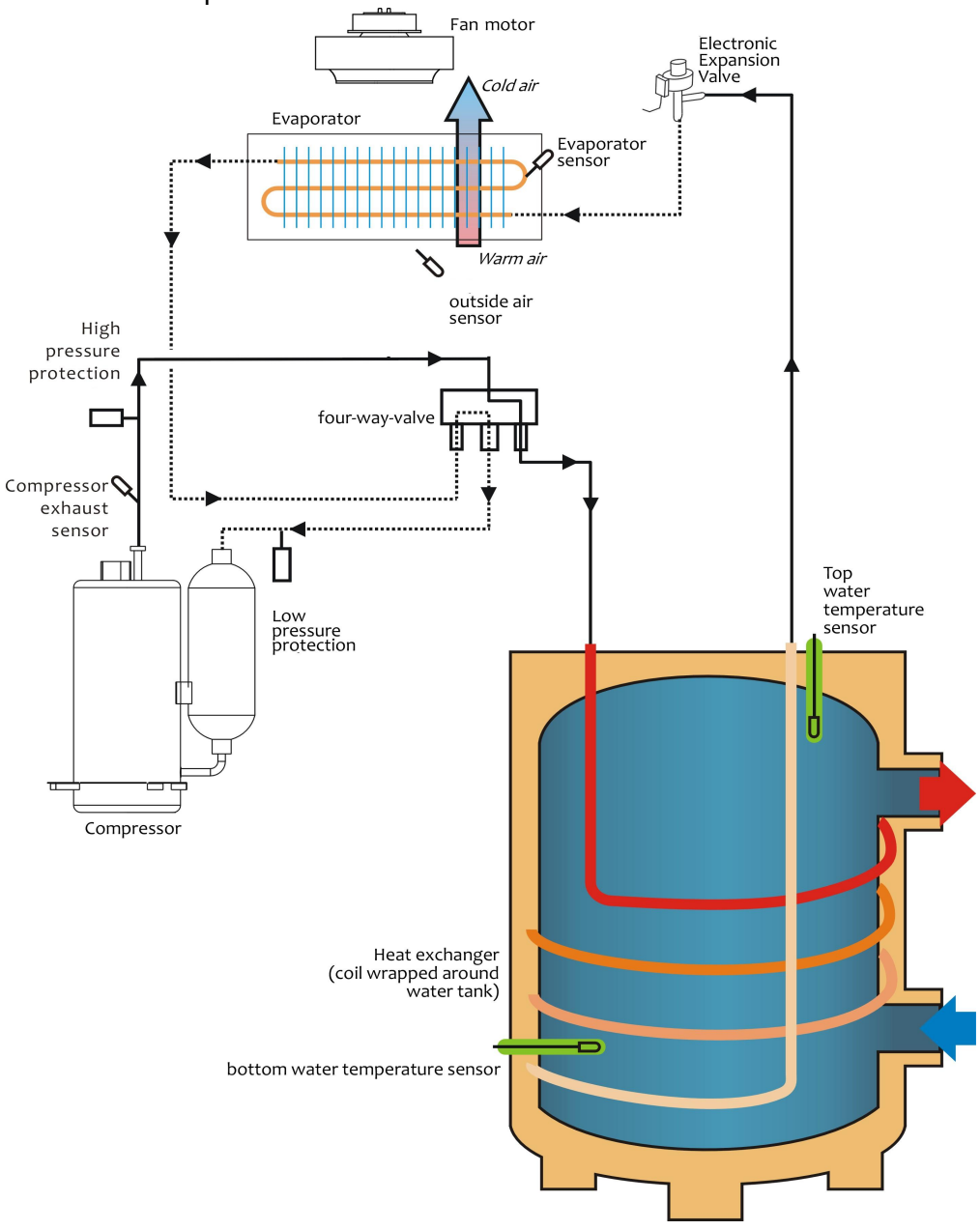
Heat pump can absorb the heating from air source. This makes the heat pump a very environmentally friendly and economically sound alternative for space heating.

* **Evaporator:** low temperature, low pressure refrigerant go through evaporator, to boil and turn from liquid to gas.

* **Compressor:** compressor absorb refrigerant, and compress to high temperature, high pressure status.

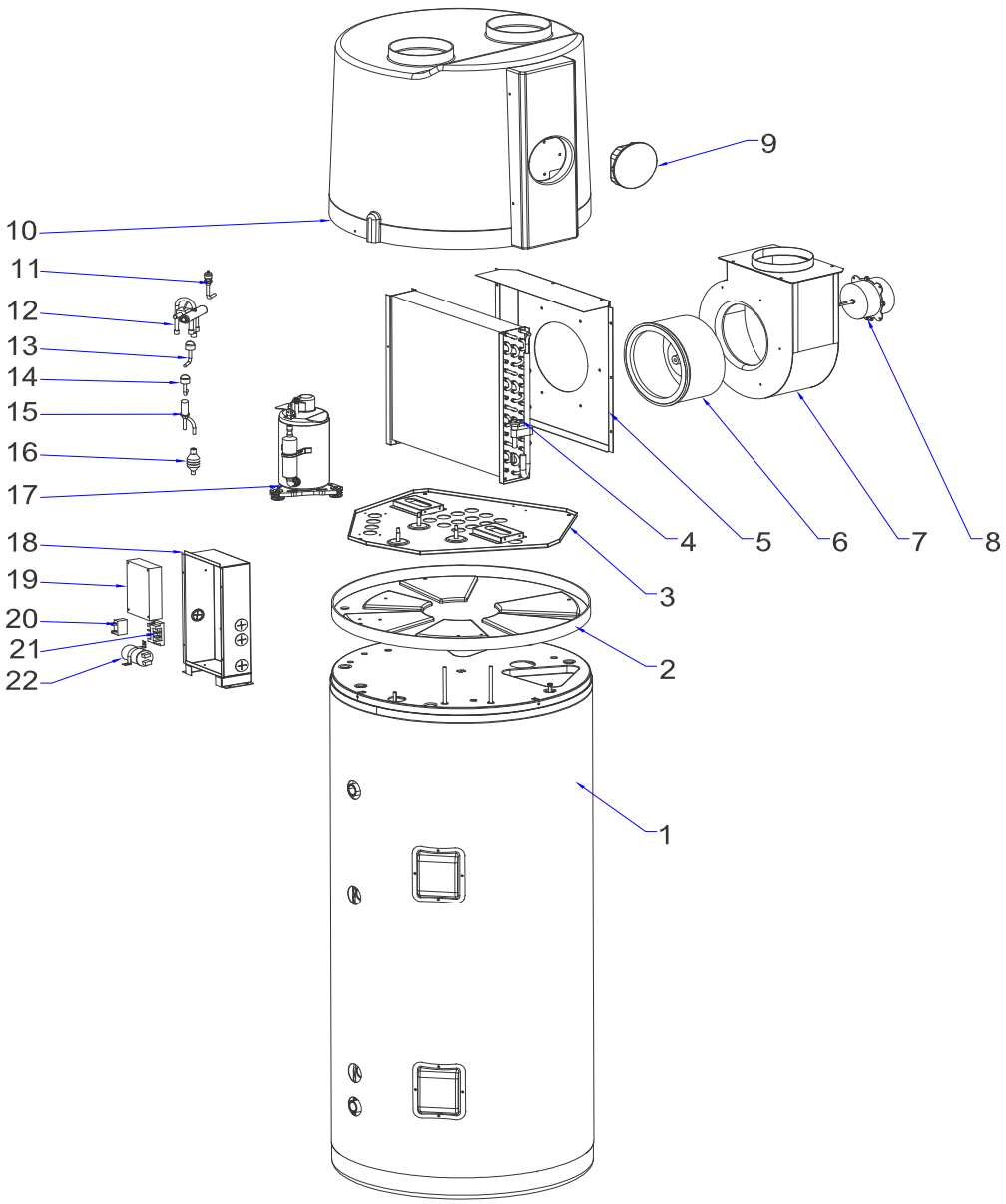
* **Condenser:** refrigerant release heat energy to heat exchanger. Refrigerant temperature reduces, and it returns from gas status to liquid status.The heat energy is absorbed by water, then the hot water is sent to indoor user's end through the water pressure.

* **EEV:** at last the refrigerant go through the electronic expansion valve, where its pressure is reduced, and then continues to the evaporator.



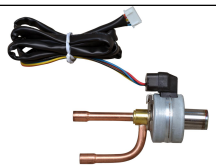
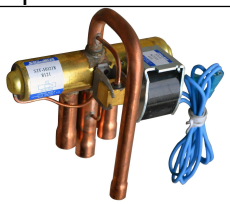
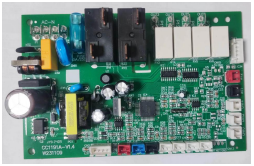
3. Explored view & Main components

3.1 Explored view



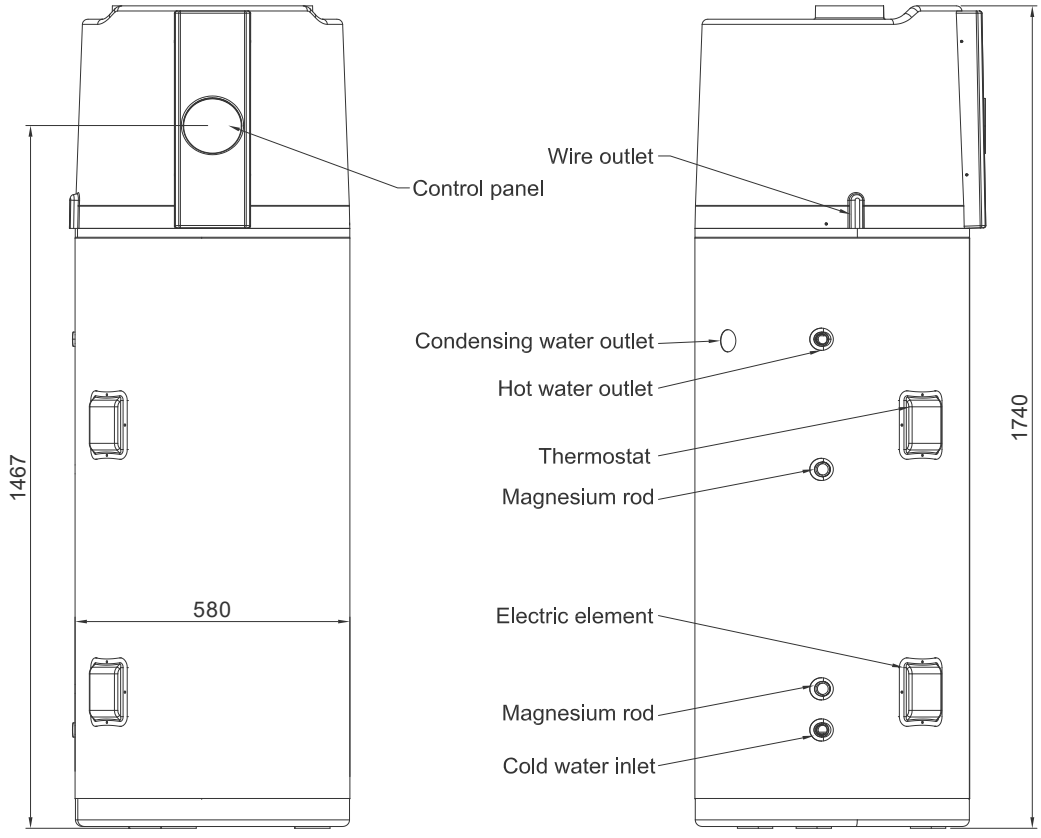
No.	Part name	No.	Part name
1	Water tank	12	Four way valve
2	Water collection tray	13	High pressure switch
3	Chassis	14	Low pressure switch
4	Evaporator	15	Electronic expansion valve
5	Air duct	16	Filter
6	Fan blade	17	Compressor
7	Fan casing	18	Electric box
8	Fan motor	19	Mainboard
9	Control panel	20	Capacitor
10	Outer cover	21	Terminal plate
11	Needle valve	22	Capacitor

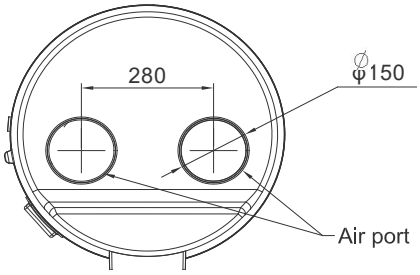
3.2 Main components

 17 compressor	 4 evaporator	 15 Electronic Expansion valve	 13 High pressure switch	 14 low pressure switch
 22 Compressor capacitor	 20 Motor capacitor	 12 four-way-valve	 19 main board	 9 Wire controller
 sensor	 Electrical heater	 Magnesium rod	 8 Fan motor	 6 Fan blade

4.Specifications

4.1 Dimensions (in mm)



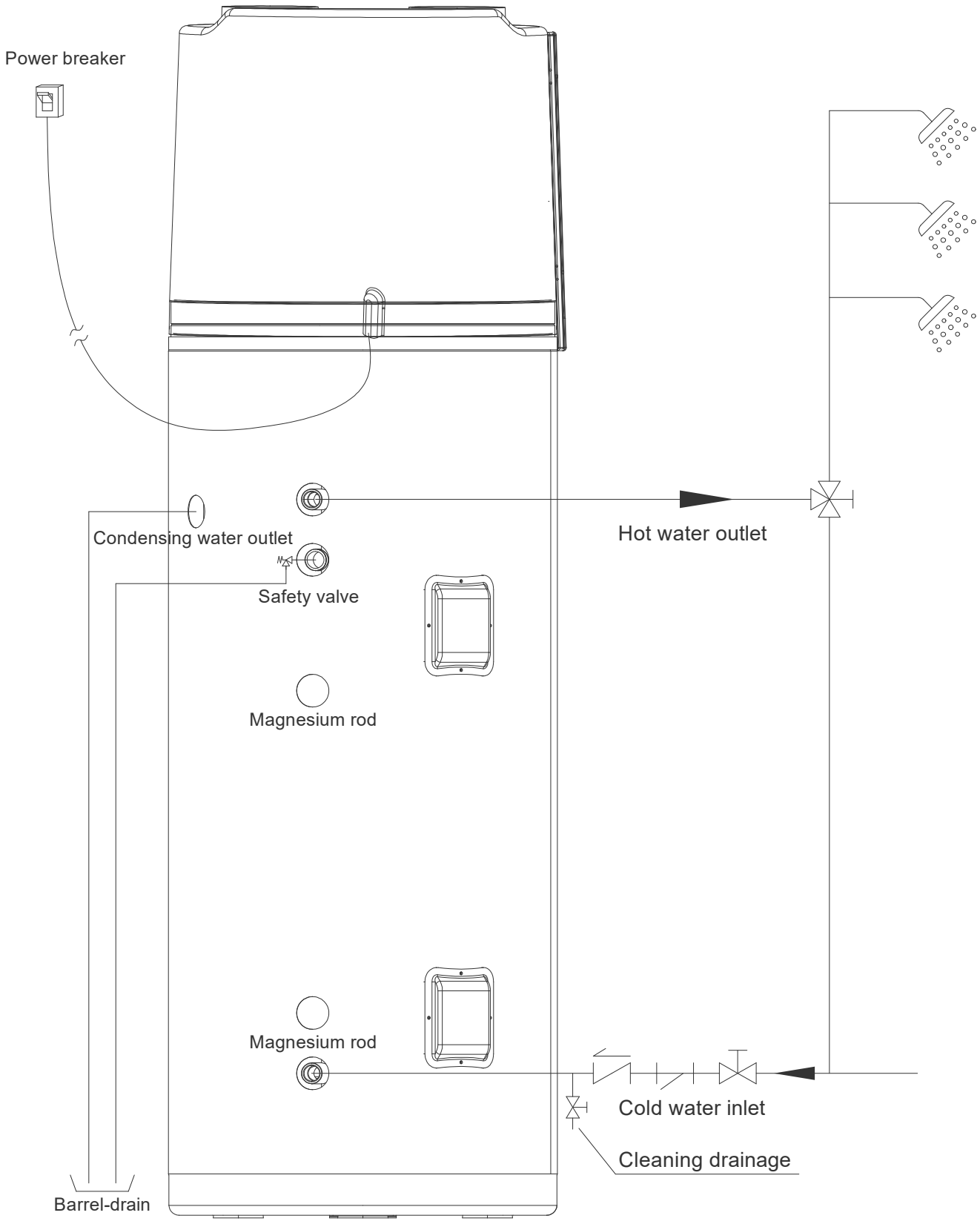


4.2 Product data

Model	PW005-KZJRS(A)/200L
Water tank volume (L)	200
Power Supply	220-240V/ 50Hz
Heating capacity (kW)	1.8
Rated Power (W)	433
Rated Current (A)	1.98
COP	4.16
Electric Heater Rated Power (W)	2000
Electric Heater Rated Current (A)	9.2
Max Input Power(W)	2700
Max Input Current(A)	12.4
Max water pressure(MPa)	0.8
Max exchanger working pressure(MPa)	3.2
Refrigerant	R290
Working temperature range (°C)	-7~43
Noise(dB)	43
Water pipes connector size	DN20
IP Grade (Level of protection)	IPX1
Net Weight (KG)	104
Gross Weight (KG)	120
Net Dimension(mm)	Φ580×1740
Package Dimension(mm)	660×660×1890
Testing condition:Water Temperature from 15 °C to 55 °C, Dry bulb temperature 20℃, Wet bulb temperature15℃.	
Note: the parameters of some products are changed in the process of continuous optimization. Please refer to the actual products.	

5. Installation

5.1 Installation diagram



5.2 Installation position

(1) Waste heat can be useful heat

Units can be installed near the kitchen, in the boiler-room or the garage, basically in every room which has a large number of waste-heat so that the unit has the higher energy efficiency even with very low outside temperatures during the winter.

(2) Hot water and dehumidification

Units can be placed in the laundry room or clothing room. When it produces hot water it lowers the temperature and dehumidifies the room as well. The advantages can be experienced particularly in the humid season.

(3) Flexible choice of intake air

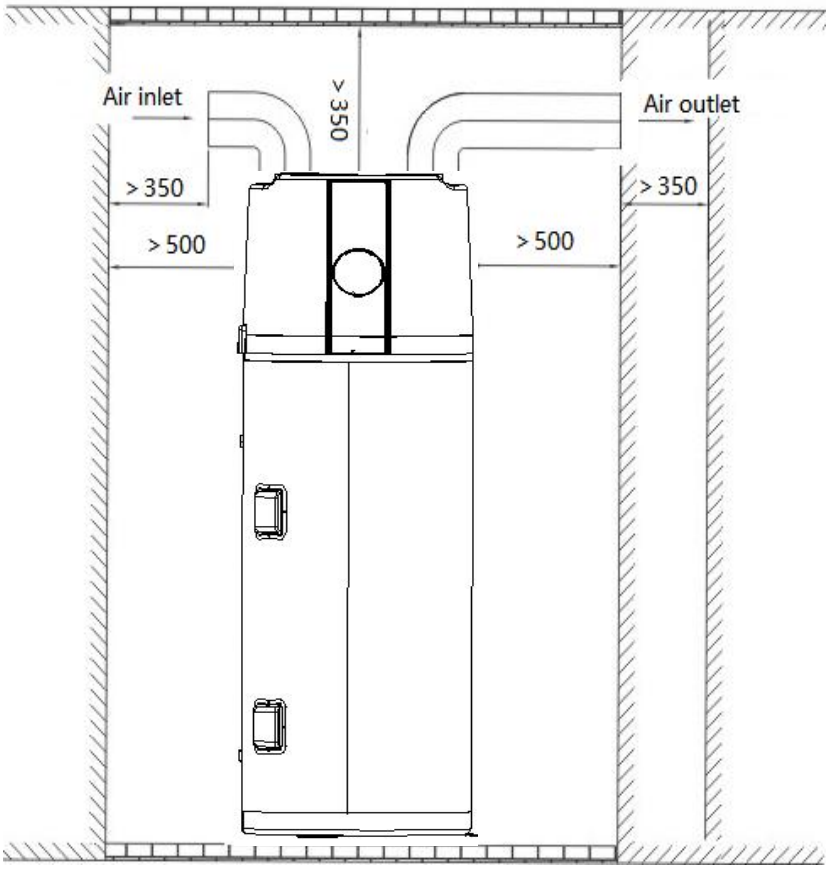
Units can be placed in the storage room as the low temperature keeps the food fresh. Also units can be placed in the gym, basement, etc. When it makes hot water, it cools the room and supplies the fresh air.

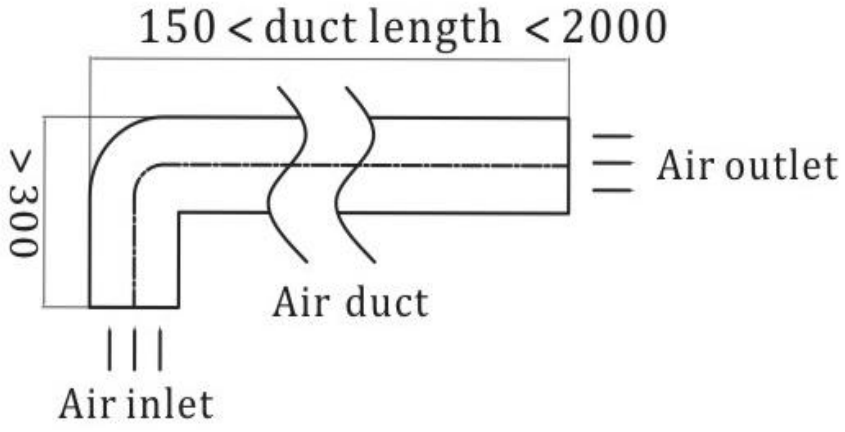
5.3 Installation precautions

(1)The unit must be located on a flat, solid, preferably cemented surface
(2) Don’t block air intake and air discharge way. These obstacles may cause performance deficiency or shutdown of the unit.

5.4 Installation of the air duct

(1)The inner diameter of the air duct should be 145-150mm. The air duct is preferable to use PVC material.
(2) It is recommended to install the air duct no longer than 2M. Otherwise the air path might have too much resistance.
(3) The air inlet and outlet duct should be free from rain.





5.5 Electric Wiring

Heat pump should power separately and the power voltage should be in line with rated voltage.

* The power supply circuit should be earthed, the power cord should be connected with the external earth line

and all the external earth cables are properly installed.

* The connection of the wiring should be carried out by professionals in accordance with the circuit diagram.

* Set up leakage protection devices in accordance with the requirements of the relevant national technical

standards.

* The power cord and the signal line should be laid neatly without cross-interference and there should be no

contact with the connection pipes or valves.

* Check whether all the connections are correct before powering the unit.

5.6 Filling the water heater

Fill the water heater by opening all hot water taps and opening the cold water inlet to allow the water heater to fill and air in the system to be expelled. Close each hot water tap, as the flow becomes free of air. Check all piping for leaks.

Check that water flows freely by gently open rating the lever on the Pressure Temperature Relief valve.

Power should not be turned on until the water heater is completely filled with water.

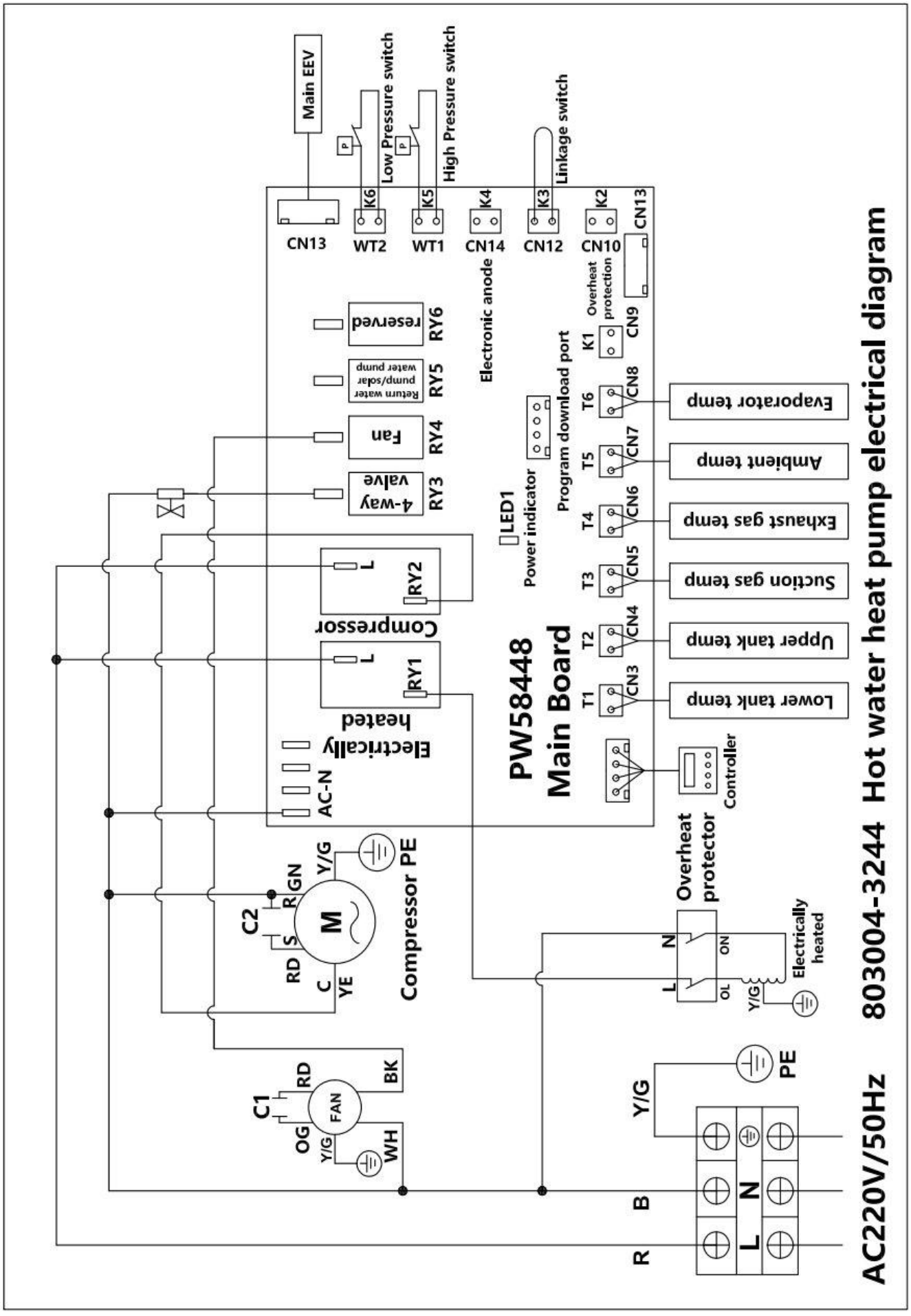
5.7 Examination before trial run

1. Check the water tank is filled with water, and open the water outlet tap till water flow out.
2. Check the water pressure is normal (0.15Mpa~0.7Mpa).
3. Check the air inlet or outlet is well connected; and the air outlet pipe heat insulation is completed.
4. Check the power supply voltage is normal, whether according with the nameplate requirement. (Range ± 10%).
5. Check whether the equipped parts are screwed /locked well.
6. Check whether the wiring are according with the Circuit diagram, and the earth-wire is connected.
7. Check whether the air inlet and outlet has been cleaned up and no obstacle.
8. Check whether the condensate drain pipe is connected well and no blockage.
9. After power-ON, check the control panel display is normal.

5.8 Trial running

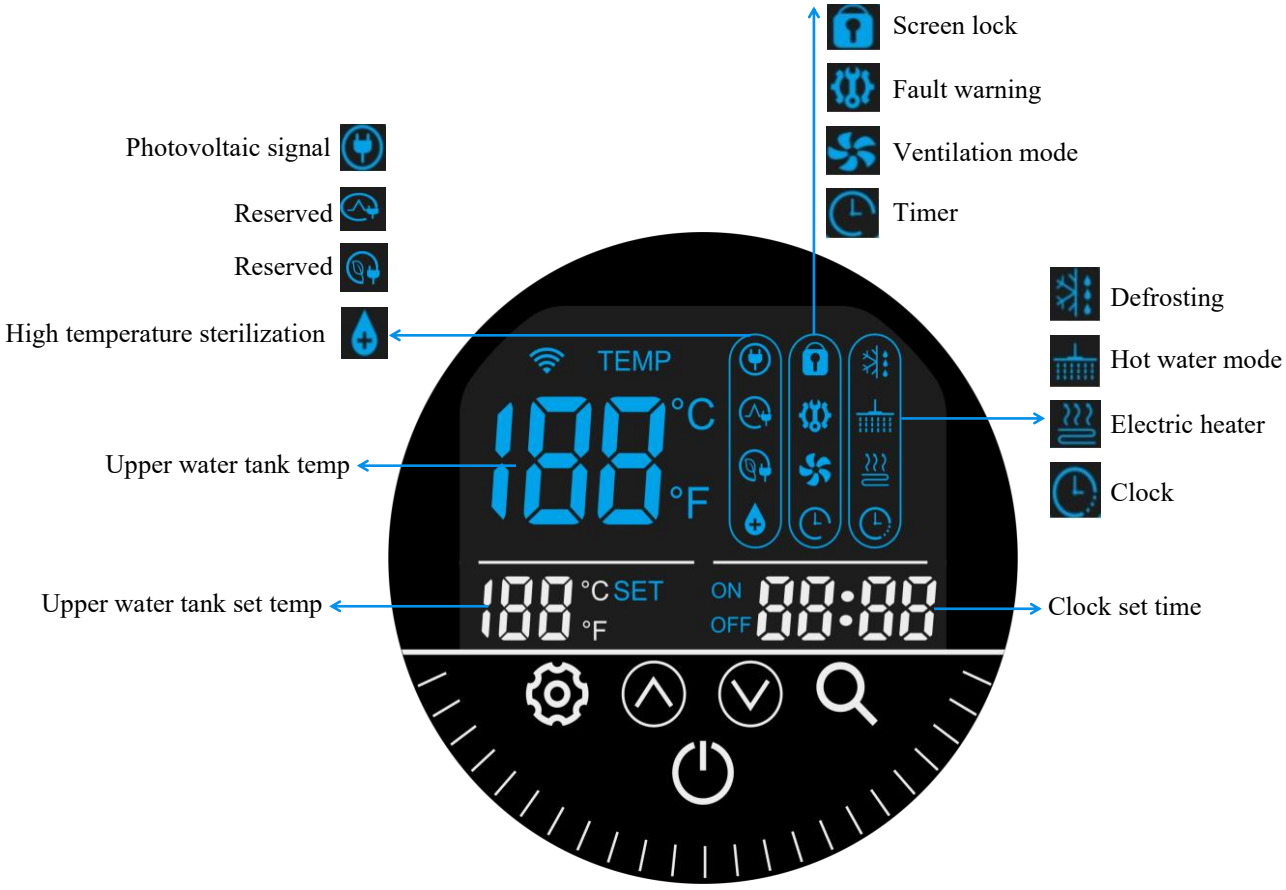
1. After the machine is running, to hear and determine whether there is abnormal sound or collision during operation, if there is abnormal sound, stop the unit immediately and check for it until there is no abnormal sound to continue operation.
2. For the first time power on, the compressor will have 3 minutes delay protection function.
3. Observe whether the drainage of condensate water is smooth, prevent the chassis stagnant or spill water.
4. For the first time discharge hot water or start the units after a long time closure, the water tap of outlet pipe may flow muddy water, this is a normal phenomenon, and continue to drain for a period of time can be cleared.
5. After stop operation for a long time, there may have condensation water hereabout the air outlet or pipe (especial in humidity weather), this is a normal phenomenon, use a dry washcloth to clean it or by air dry.
6. The advance setting parameters of the operation panel has been set at the factory, users no need to reset it, the maintenance person should be carefully set if needed.

6. Electrical Wiring Diagram



7.Control Panel Operation Instructions

7.1 Display interface

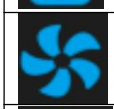


(1)After being powered on, it will display in full screen for 3 seconds before entering normal working mode;

(2)The shutdown status only displays the clock and the upper temperature of the water tank;

(3)When turned on, the main interface displays the clock, water tank setting temperature, upper water tank temperature, working mode, and timing status.

7.2 Display Icon

Icon	Meaning	Icon	Meaning
	Hot water mode		Defrosting
	Electric heater		Clock
	Screen lock		Fault warning
	Ventilation mode		Timer
	High temperature sterilization		Photovoltaic signal
	Reserved		Reserved

7.2.1 Definition of Buttons

Button	Name	Function
⏻	ON/OFF	✧ Long press this button for 3 seconds to switch on/off; ✧ Press this key in other interfaces to return to the main interface
∧ ∨	Up/Down	✧ When in hot water mode, press them directly on the main interface to manually adjust the set temp of the water tank; ✧ When pressing the electric heating button, pressing this button directly can manually adjust the set temperature of the hot water under the electric auxiliary heating; ✧ Combining the clock key, set clock and scheduled on/off time; ✧ Combining the settings key, you can query temperature, system parameters, and set system parameters.
⚙	Setting	✧ When the electric heating symbol appears, pressing this Button,the electric heating will delay to start according to parameter 3; ✧ In standby mode, press this button to start the electric heating when the electric heating symbol appears; ✧ Long press this button to enter and exit ventilation mode;
🔍	Query	✧ Pressing this button and combined with "up" and "down", can query temperatures and other parameters; ✧ In shutdown mode, directly operating this button for clock setting; ✧ Press and hold this button for 5 seconds to enter the timed on/off time setting.

7.3 Operation

7.3.1 Parameter Query and Settings

1. Query user parameters

In the startup state, press the " " key directly on the main interface to enter the parameter query state. At this time, press "Up and Down" to query the parameters of A to J, as shown below:

Code	Name	Range	Display value
A	Lower temperature of water tank	0～99℃	Actual measured value, if faulty, display P1
B	Upper temperature of water tank	0～99℃	Actual measured value, if faulty, display P2
C	Evaporator coil temp.	-15 ～ 99℃	Actual measured value, if faulty, display P3
D	Sunction gas temp.	-15 ～ 99℃	Actual measured value, if faulty, display P4
E	Ambient temp.	-15 ～ 99℃	Actual measured value, if faulty, display P5
F	Exhaust gas temp.	0~125℃	Actual measured value, if faulty, display P6
G	Electronic expansion valve opening	6～47	N*10
H	Actual operating target temperature	10 ～ 70℃	Calculate based on set temperature
J	Return water temperature/solar module temperature	0～99℃	Reserved

2. Engineering parameter query and setting: (can be set on/off, password: 22)

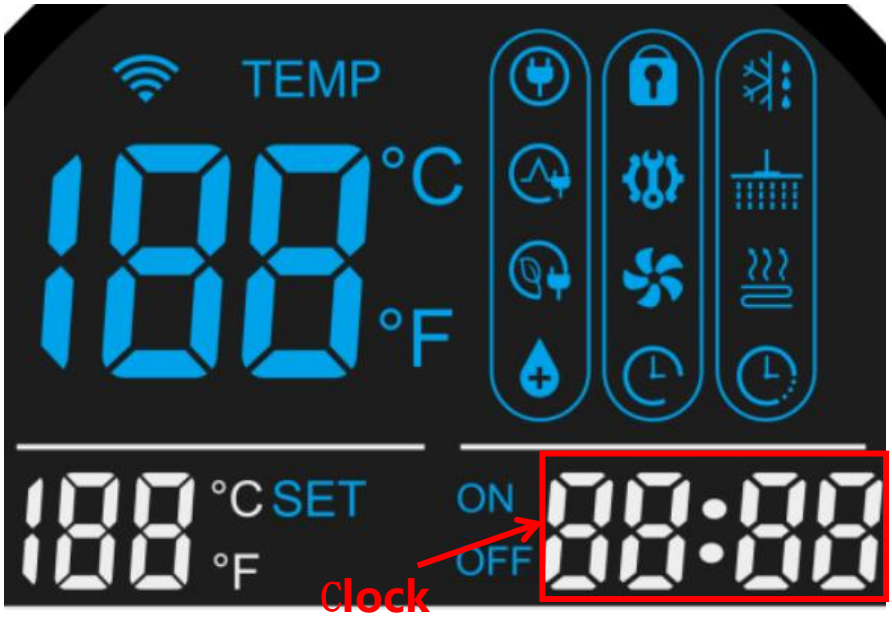
Press and hold the " " "+ " " " keys for 2S on the main interface to enter the password input mode. At this time, the water temperature zone (only 00 is displayed) will flash. At this time, press the " " key, the tens will flash. Press "Up" or "Down " to enter 2, then press the " " key again, the single digit will flash. Press "Up" or "Down " to enter 2, and after entering the correct password, press the " " key again to firm the password and enter the installer parameter query interface (if the password is incorrect, return to the main interface). The details are as follows:

Code	Definition	Adjustment range	Factory value	Password
0	Hot water setting temperature TS1	10～65℃	55℃	22
1	The difference between the set temperature and return water temperature of the hot water TS6	2～15℃	5℃	22
2	Hot water temperature with turning on electric auxiliary heating TS2	10～75℃	65℃	22
3	Auxiliary electric heating start delay time t1	0～90	6min	22
4	High temperature disinfection tempe TS3 when auxiliary electric heating is turned off (corresponding to the upper temp of the water tank T2)	50～70℃	70	22
5	High temperature disinfection time t2	0～90min	30min	22
13	High temperature disinfection start time	0:00～23:00	23:00	22
14 (Reserved)	Selection of water pump properties	0: No pump 1: Return water pump 2: Solar water pump	0	22
15 (Reserved)	Return water temperature setting	15～50℃	35℃	22

16 (Reserved)	Starting temperature difference of return water pump	1-15℃	2℃	22
17 (Reserved)	Starting temperature difference of solar water pump	5-20℃	5℃	22
18 (Reserved)	Closing temperature difference of solar water pump	1-4℃	2℃	22
19	Under low-temperature conditions, auxiliary electric heating replaces heat pumps	0: Electric heating does not replace heat pump 1: Electric heating replacing heat pump	1	22
20	Electric heating start during defrosting	0: Electric heating does not start during defrosting 1: Electric heating start during defrosting	0	22
21	High temperature sterilization cycle	1-30 days	7	22
24	Low pressure switch detects ambient temperature	-10~25	-5	22
29	Heat pump set temperature control	0: TS1=actual value 1: TS1=manual value	1	22
30	Automatic temperature compensation	-10-10℃	-10℃	22
32	Electric heating state after reaching the target temperature	0: Stop 1: Start	1	22
33	Temperature difference during electric heating startup	1-10℃	3℃	22
35	Switch port application	0: Remote switch 1: Photovoltaic linkage switch	0	22

7.3.2 Clock setting

In the shutdown state, press the "🔍" key directly on the main interface to enter the clock setting state. At this time, the hour bit will flash. Press "Up" "Down" to modify the hour time; After setting the hour position, press the "🔍" button again, and the minute position will flash. Press "Up" "Down" to modify the minute time; After setting the minutes, press the "🔍" button again to exit the clock setting and save the set time. Press the "⏻" button can also confirm and return to the main interface;



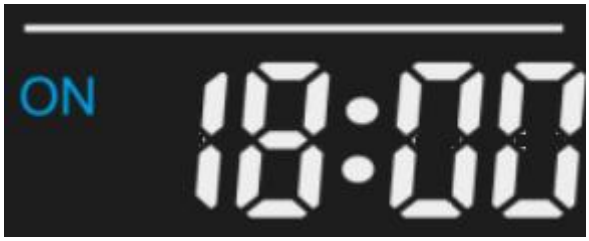
Note: If the control panel does not operate for 10 seconds, it will automatically save the set time and return to the main interface;

7.3.3 Timer ON/OFF setting

Timer ON setting

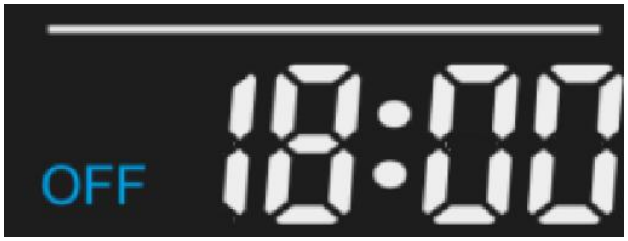
In the shutdown state, press and hold the " 🔍 " button for 5S to enter the timed startup time setting state. At this time, the "ON" symbol and hour bit will flash. Press "Up or Down" to modify the timed startup hour time; Press the " 🔍 " button again, and the timed on minute position will flash. Press "Up or Down" to modify the timed on minute time;

After setting the scheduled startup time, press the " 🔍 " button again to enter the scheduled shutdown time setting;



Timer OFF setting

At this time, the "OFF" symbol and hour bit flash, and the timed shutdown time setting is similar to the timed startup time setting; After setting the timer off time, press the " 🔍 " button again to exit the timer setting and save the settings. Press the "⏻" button can also save and return to the main interface;



Cancel timer

In the timing setting interface, press the "⚙" key to cancel the timing;

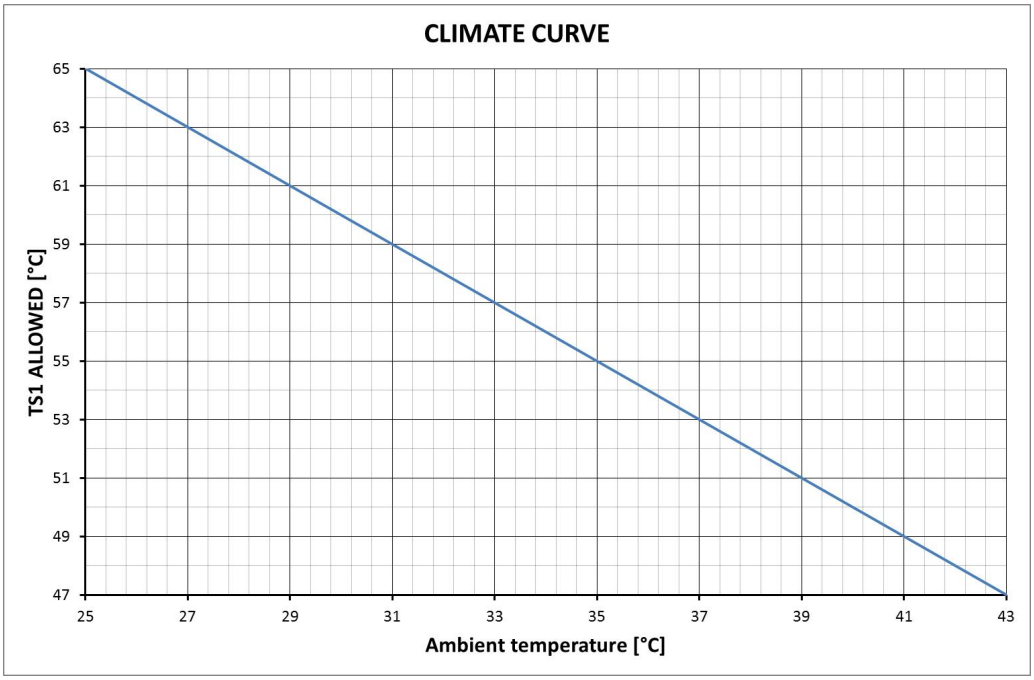
Note: If the controller does not operate for 10S, it will automatically save the set time and return to the main interface.

7.3.4 Automatic temperature control

The target temp is automatically adjusted according to the ambient temp: parameter 35 is set to 0 to select the remote switch, parameter 29 is set to 0 to enable the automatic temp adjustment function, and the target temp is automatically adjusted according to the ambient temp.

The adjustment formula is:

Ts target temperature=90 ℃ - ambient temperature+compensation temperature (parameter 30, default value -10)



- ✧ When the calculated value Ts ＞ set value, the heat pump operates according to the set value;
- ✧ The main interface displays the actual operating target temperature TS1, and users can view the actual operating target temp of the heat pump in real time.

7.3.5 High temperature disinfection

1) Electric heating is automatically turned on every 7 days (parameter 21) at the set time of 23:00 (parameter 13);

2) When the temperature of the upper part of the water tank is ≥ 70 ℃ (parameter 04), the electric heating stops. When the temperature of the upper part of the water tank is ≤ 68 ℃ (parameter 04-2 ℃), the electric heating starts;

3) Maintain the temperature of the lower part of the water tank between TS3-2 and TS3 for 30 minutes (parameter 05), then exit the program, reset the timer to zero and start timing again, entering the next week's timing;

Note: When the disinfection program runs for more than 3 hours, it will be forcibly exited; When parameter 5=0, the high-temperature disinfection function is invalid.

7.3.6 Remote switch/photovoltaic linkage switch

1 When parameter 35=0, the switch on/off port is controlled by remote signal:

The switch on/off port is short circuited, and the unit is allowed to start. If it is disconnected, it is not allowed to start and a P7 fault code is reported;

2 When parameter 35=1, the switch on/off is linked to the photovoltaic system:

1) When parameter 29=0 and the switch port is closed:

If TS1 manually<TS1 target, then TS1 manually and automatically adjusts to TS1 target temperature;

2) When parameter 29=1 and the switch port is closed:

If TS1 is manually<65 ℃, then TS1 will be manually and automatically adjusted to 65 ℃;

When the switch port is disconnected, TS1 manually sets the temperature back to the original manual set value;

7.3.7 Lock and Unlock

Press the "Up" + "Down" keys simultaneously for 5 seconds to enter the key board lock state, and press and hold them again for 5 seconds to exit the state.

7.3.8 Forced Defrosting

1) When turned on, press and hold the "Up" + "⚙" keys for 5 seconds simultaneously to enter the forced defrosting mode;

2) When the evaporator coil temperature>13 ℃ or the defrosting time reaches 6 minutes, exit the forced defrosting.

7.3.9 Temperature unit switching (can be set in on/off mode)

Press the "⚙" + "∨" keys simultaneously for 5 seconds before entering the "℃" to "℉" mode.

Press the "⚙" + "∨" keys again for 5 seconds before entering the "℉" to "℃" mode.

7.3.10Parameter factory settings recovery

1) Parameter recovery password: 88;

2) On the control panel main interface, press and hold the " " key+ " " key for 2 seconds to enter the password input state. Combined with the "Up and Down" key, enter "88 "(the password input method is the same as the engineering parameter setting password input method), press the " " key, the buzzer will sound twice and exit the password input state to return to the main interface. All system parameters will be restored to their default values.

8. Error Codes and Troubleshooting

8.1 Error Codes and Troubleshooting

- ✧ If there's error in the heat pumps, the error code and error definition will be displayed in the main interface, and saved the record in FAULTY column inside the SETTING interface.
- ✧ The following Common Error Codes will be displayed on the controller panel:

Error Code	Name	Description	Solution suggestion
P1	Water tank lower temp. sensor fault	Stop compressor	Check if the temperature sensor probe is connected properly; Check if the temperature sensor probe is damaged.
P2	Water tank upper temp. sensor fault		
P3	Evaporator coil temp. sensor fault		
P4	Suction gas temp. sensor fault		
P5	Ambient temp. sensor fault		
P6	Exhaust gas temp. sensor fault		
P7	Remote switch disconnected		Check if the corresponding input point of the switch is closed.
P8 (Reserved)	User's end water temp. is too high protection	The wired controller only reports faults and does not affect other functions	Check if the return water/solar temp. sensor is connected properly and if the temp. probe is functioning properly.
P9 (Reserved)	Return water/solar temp. Sensor fault	Stop compressor	Check if the temperature sensor probe is connected properly; Check if the temperature sensor probe is damaged.
E1	High pressure protection	1.Throttling device opening too small or blocked 2.The condenser is dirty or blocked with debris 3.Insufficient condensing air volume or fan malfunction 4.Charging too much refrigerant	1.Check the throttling device 2.Clean the condenser system 3.Check for abnormalities in the fan 4.Recharge correct refrigerant

E2	Low pressure protection	1.Dirty and clogged evaporator fins 2.Refrigerant leakage 3.Low voltage pressure malfunction	1.Cleaning evaporator fins 2.Find the leakage point and weld it properly before recharging with refrigerant 3.Check the low-pressure switch and replace it if there is a malfunction
E4	High exhaust temperature protection	1. Refrigerant leakage 2. System dirt and blockage 3. Insufficient refrigeration oil in the compressor 4. Exhaust temperature sensor probe resistance malfunction	1. Recharge refrigerant 2. Replace the filter 3. Replenish compressor refrigeration oil 4. Replace the exhaust sensor probe
Defrost indicator	Enter defrosting mode	The control panel displays defrosting signs	/
E8	Communication failure between mainboard and control panel	1.Damaged motherboard and panel 2.Poor communication wire contact 3.Damaged communication wire	1.Replace the mainboard or wire controller 2.Reconnect the communication cable 3.Replace communication cable
E6 (Reserved)	Electronic anode	The wired controller only reports faults and does not affect other functions	Check if the corresponding input point is disconnected and reconnect

8.2 Owner Inspection

We recommend that inspections on heat pumps are done frequently, especially after abnormal weather conditions. The following basic guidelines are suggested for your inspection:

1. Make sure the front of the unit is accessible for future service.
2. Keep the top and surrounding areas of the heat pump clear of all debris.
3. Keep all plants and shrubs trimmed and away from the heat pump especially the area above the fan.
4. Keep lawn sprinklers from spraying on the heat pump to prevent corrosion and damage.
5. Ensure that the ground wire is always properly connected.
6. The filter must be maintained on a regular basis in order to ensure clean and healthy water to protect the heat pump from damaging.
7. Keep inspecting power and electrical components' wiring to make sure their normal operation.
8. All the safety protection devices have been set up; please refrain from changing these settings. If any changes are needed, please contact the authorized installer/agent.
9. If the heat pump is installed under roof without a gutter, ensure that all measures are taken to prevent excessive water from flooding the unit.
10. Do not use this heat pump if any electrical part has been in contact with water. Contact an authorized installer/agent.
11. If the increase of power consumption is not due to colder weather, please consult with the local authorized installer/agent.
12. Please turn off the heat pump and disconnect it from the mains power supply, when not in use for a prolonged period of time.

8.3 Common Faults and Debugging

Use the following troubleshooting information to resolve issues/problems with your heat pump.

WARNING — RISK OF ELECTRICAL SHOCK OR ELECTROCUTION.

Ensure that all high voltage circuits are disconnected before commencing heat pump installation. Contact with these circuits could result in death or serious injury to users, installers or others, due to electrical shock and may also cause damage to property.

DO NOT opens any part of the heat pump as this may result to electrocution.

1. Keep your hands and hair clear of the fan blades to avoid injury.
2. If you are not familiar with your heater:

a) **DO NOT** attempt to adjust or service the unit without consulting your authorized installer/agent.

b) **PLEASE** read the complete Installation and/or User's Guide before attempting to operate service or adjust the heater.

IMPORTANT: Turn off the mains power supply to the heat pump prior to attempting service or repair.

Common Faults and Debugging

◎The user must hire the professional maintenance staff to fix if the unit has any problems during working. The maintenance staff might refer to the chart to debug.

Fault	Possible Reasons	Solutions
The heat pump is not running	1. Power failure **2.** Loose wiring 3. blown fuse **4.** Low pressure is too low	**1.** Turn off the power supply switch and check the power supply condition **2.** Find out the cause and repair it **3.** Replace the fuse **4.** Test the voltage and the current
The water circulation pump is working but no water circulation or high noise of the water pump	**1.** Lack of water in the system **2.** There is air in the water system **3.** These valves are not all open **4.** The water filter is very dirty and blocked	**1.** Check the system supplement device, and complete the system **2.** Exhaust the air in the water system 3. Open the water supply system valve **4.** Clean the water filter
Low heating capacity	**1.** Lack of refrigerant **2.** Poor thermal insulation of the water system; **3.** Dry filter is blocked **4.** The air heat exchanger has poor heat dissipation **5.** Water is insufficient	**1.** Leakage detection and charge sufficient refrigerant **2.** Strengthen the thermal insulation of the water supply system **3.** Replace dry filter 4. Clean the air heat exchanger **5.** Clean the filter

The compressor does not work	**1.** Power supply failure **2.** Compressor contactor is damaged; **3.** The wiring is loose **4.** Compressor overheat protection 5. Water outlet temperature is too high **6.** Water flow is insufficient **7.** Compressor overload protector has tripping operation	**1.** Find out the cause, and solve the power supply failure problem **2.** Replace the compressor contactor **3.** Find out the loose point and repair it **4.** Check the unit pressure and the exhaust temperature. **5.** Reset the water temperature **6.** Clean the water filter and exhaust the air from the system **7.** Check the running current and check if the overload protector is damaged
The compressor operating noise is too high	**1.** The liquid refrigerant enters into the compressor **2.** Internal parts of the compressor are damaged **3.** Power voltage is too low	**1.** Check if the expansion valve has failure 2. Replace the compressor 3. Check the power voltage
The fan does not work	**1.** The fastening screw of the fan motor is loose **2.** The fan motor is damaged **3.** Contractor is damaged	**1.** Fix the screw **2.** Replace fan motor **3.** Replace the contractor
The compressor is working, but the heat pump does not provide heating	**1.** All the refrigerant leaks completely **2.** Compressor failure **3.** Compressor reversal	**1.** Check the leakage and fill with refrigerant **2.** Replace the compressor **3.** Exchange the phase sequence of the compressor
Low water flow protection	**1.** Insufficient water flow in the system **2.** Failure of water flow switch failure	**1.** Clean the water filter system and exhaust the air from the system **2.** Check and replace the water flow switch

9. Maintenance and service

1. The inlet water filter needs to be cleaned once per 3 months. At the same time, we suggest draining all the storage water and repeatedly wash for 2-3 times to remove the dirt and sediment.
2. To clean the evaporator, use a hard nylon brush to clean it or the dustproof filter-net. Be careful not to damage the copper tube. If there has compressed air, use a high pressure air tube to clean the evaporator. This need to be done once per 6 months.
3. When clean the water tank or evaporator must turn off the machine and power supply.
4. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person.

Maintenance by a qualified professional

To protect the performance of your appliance for many years to come, it must be checked by a professional every 2 years.

* Switch off the electric power supply (circuit breaker, fuses, etc.).

* Drain the tank: close the cold water inlet (isolating valve), open a hot water tap, set the safety valve to the drain position.
* Remove top plastic cover:
* Disconnect the wires from the terminals of the thermostat.
* Remove the heating assembly.
* Remove any scaling that is deposited in the shape of sludge or a film on the floor of the tank and thoroughly clean the ducts of the heating elements and the thermostat. Do not scratch or strike the scaling on the walls, or you might damage the coating. Any residue can be removed using a water and dust vacuum cleaner.
* Clean the interior of the sheath to remove any scaling.
* remove magnesium rod.
* Install the heating assembly with a new seal. Tighten the nuts gradually to a reasonable torque. Alternately
tighten nuts that are opposite one another.
* Fill the water to heat pump, with a hot water tap open. When water reaches the hot water tap, the tank is full.
* Check the seal for leaks and then install the thermostat and its support and connect the electric power supply.
* On the following day, check the seal again for leaks and slightly tighten the bolts, if necessary.
* Check the electric connections.
* Check that the temperature sensor is properly positioned in the pocket near the electric backup. The sensor must be fully inserted in the pocket.

Evaporator

* Check that the evaporator and the fan are clean once a year. If these parts are soiled, the performance of the heat pump will be diminished.
* To access the evaporator, remove the cover by unclipping it with a screwdriver. The left half-shell can also be removed in cases of difficult access.
* If necessary, clean the evaporator and the fan with a soft brush. Brush the evaporator very carefully to avoid damaging the vanes. If the vanes are folded, straighten them using a suitable comb.

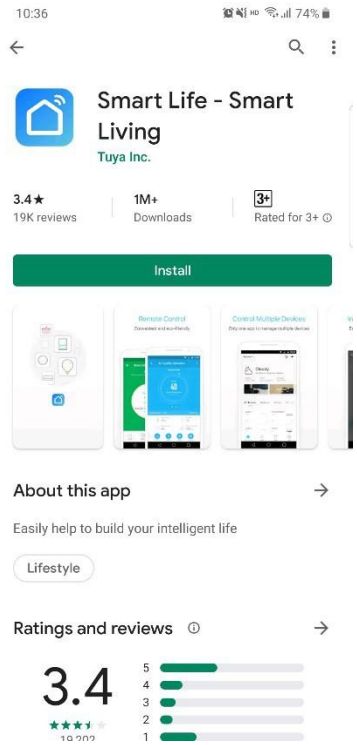
Condensate evacuation tube

Check that the condensate evacuation tube is clean. Local pollution by dust can result in deposits in the condensate catch tray. These deposits may block the condensate evacuation tube, resulting in the excessive accumulation of water in the tray, which can cause malfunctions.

10.WiFi connection and configuration

10.1 APP Download

1) In the Google Play Store or Apple App Store, search for Smart Life and then download and install ;



2) Use your browser to scan the QR code below (both Android and Apple systems are acceptable);

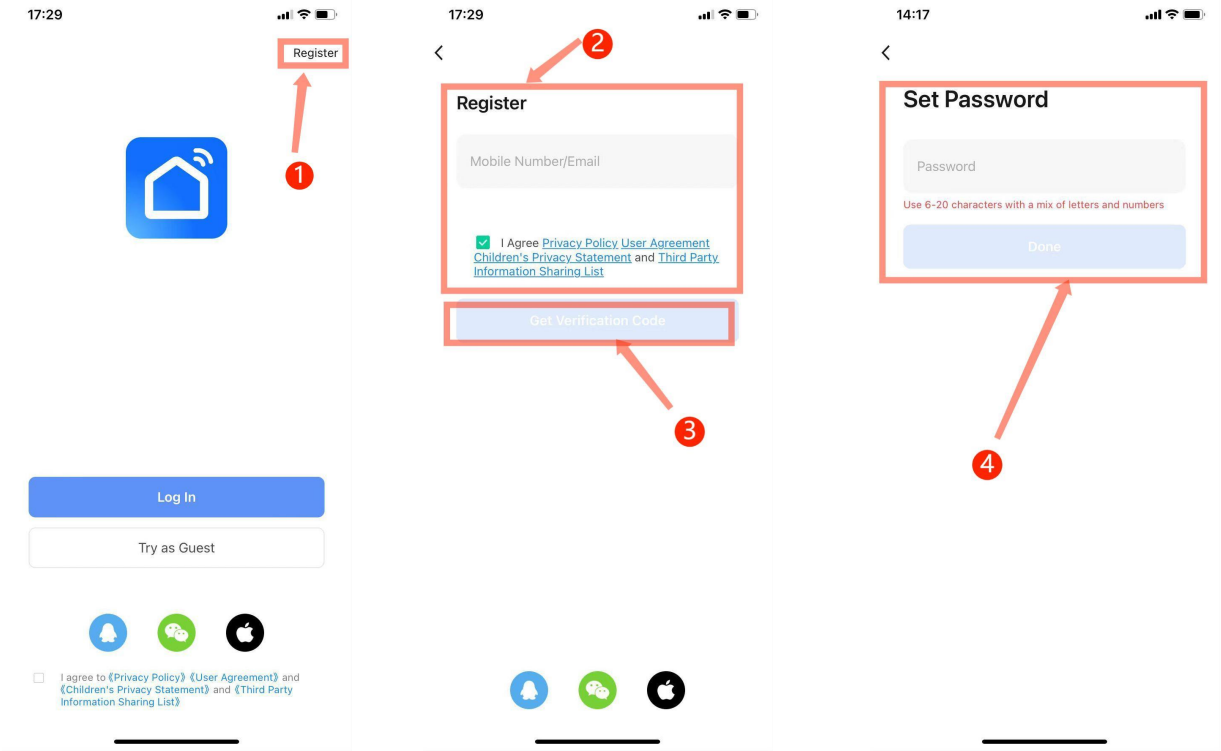
10.2 Software Startup

After the installation is complete, click the desktop " " icon to start the software.

Smart Life

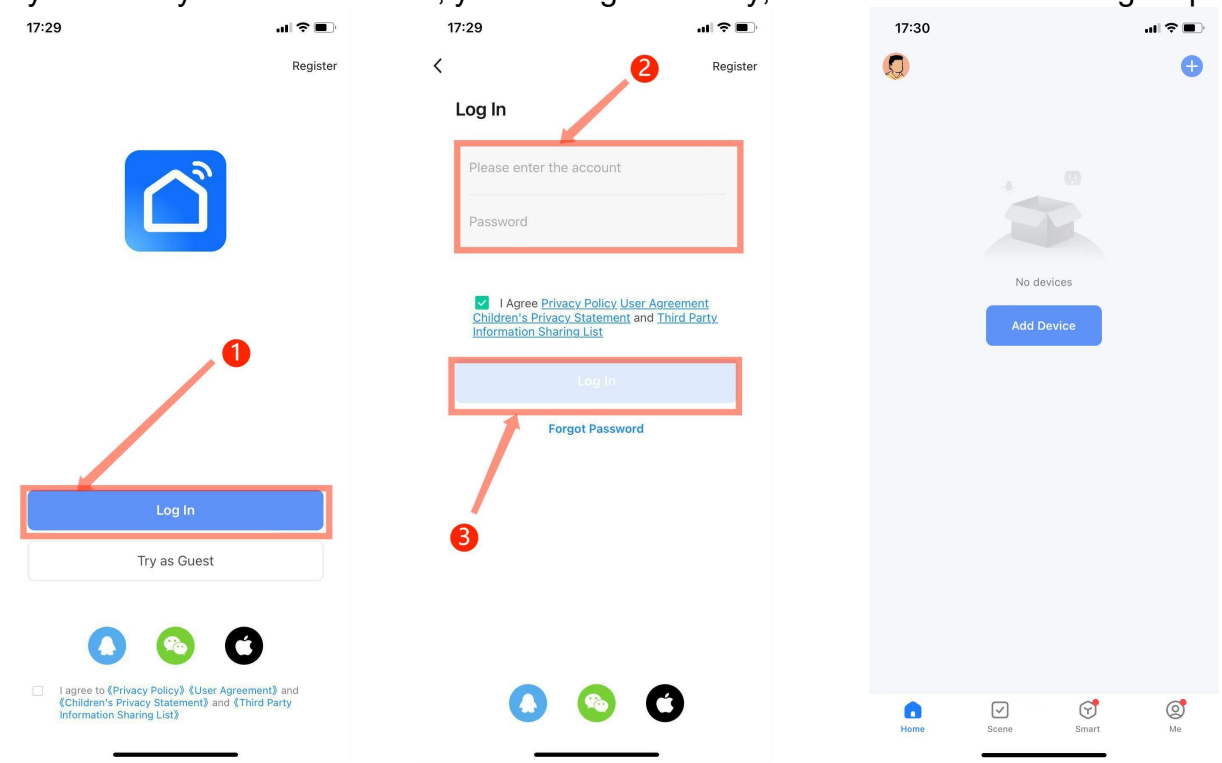
10.3 Software Registration and Configuration

1）Users without an account can click the "Register" function on the login page to apply: Register ⟶ Enter your mobile phone number, agree to the agreement ⟶ Get verification code ⟶ Enter verification code ⟶ Set password ⟶ Complete, as shown in the following sequence;

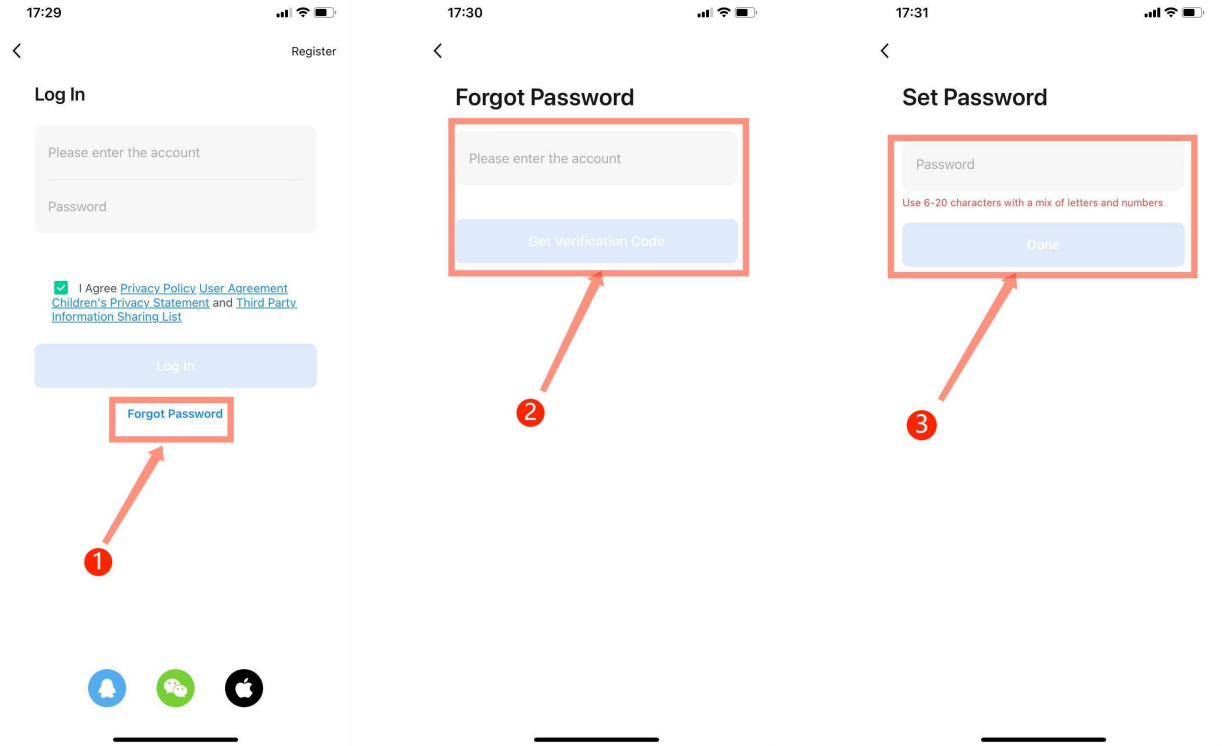


10.4 Login

1) If you already have an account, you can log in directly, as shown in the following sequence;



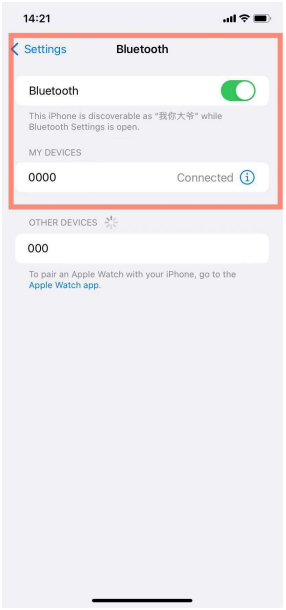
2）If you forget your password, click Forgot to log in to retrieve it , select " Forgot Password " ⟶ enter your account and verification code ⟶ set a new password ⟶ complete:

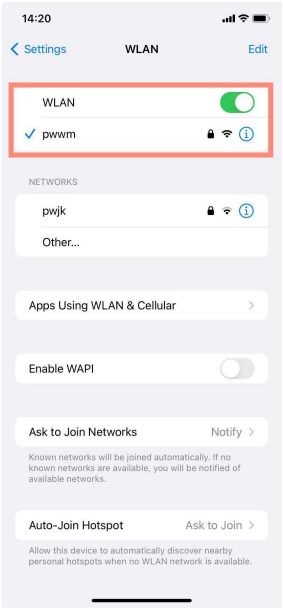


10.5 WIFI network configuration steps

1) Step 1: Manually enter the smart network configuration mode: Press and hold the " ⏻" and " ∧" keys for 5 seconds to enter the pairing state. The " " icon in the upper left corner flashes quickly. After successful pairing, the icon stays on. If pairing is unsuccessful or has not been paired, the icon will not be displayed after 3 minutes, and the network configuration state will be exited. The " " icon stops flashing, and the WIFI module will no longer be paired. To re-pair, press and hold the " ⏻" and " ∧" keys for 5 seconds;

2) Step 2: Turn on the Bluetooth and WIFI functions of your phone and connect to the WIFI hotspot. The WIFI hotspot must be able to connect to the Internet normally, as shown in the figure: Connect to the WIFI hotspot "pwwm;

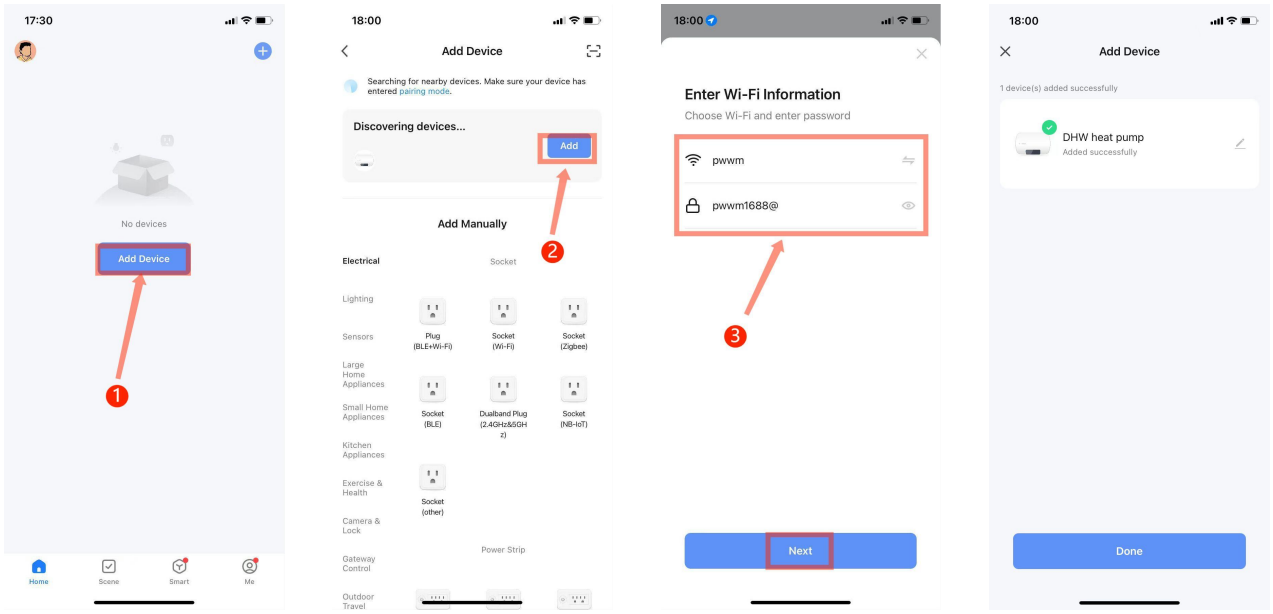




3) Step 3:

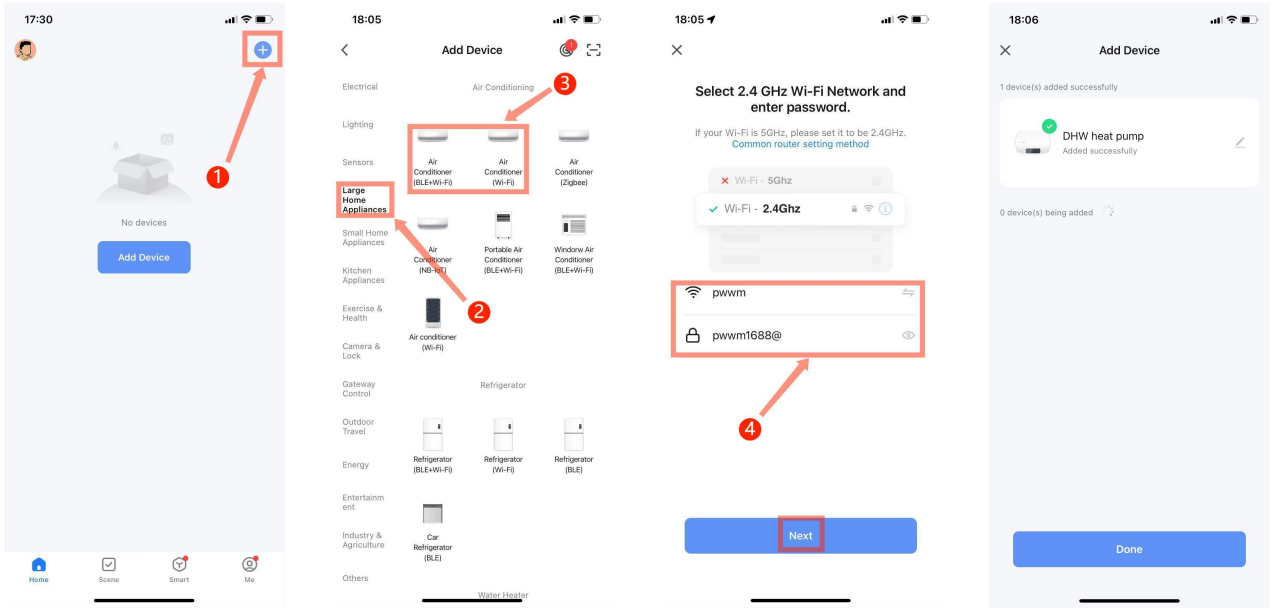
Add device solution 1:

Open the "Smart Life" APP, log in to the main interface, click "Add Device" and select " Add " ⟶ enter WiFi information ⟶ Complete;



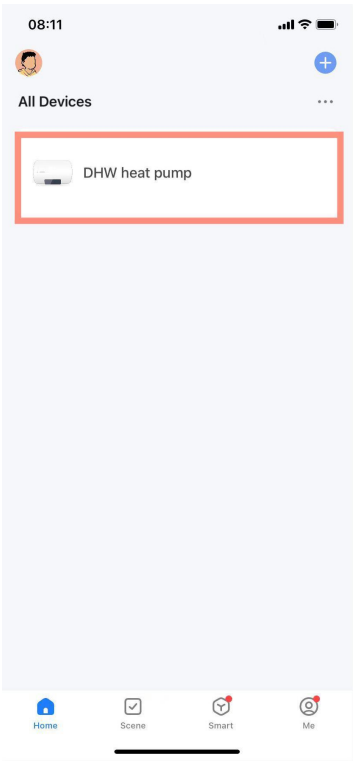
Add device solution 2:

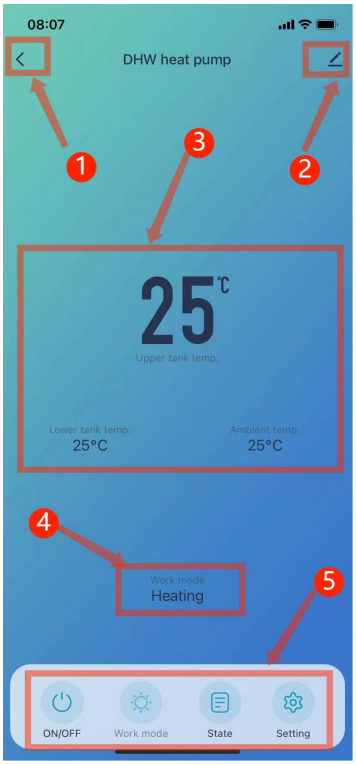
Open the "Smart Life" APP, log in to the main interface, click "+" in the upper right corner, enter the device type selection, select " Large Home Appliances " → Select " Water Heater " → Enter WiFi information → Complete ;



10.6 Functional Operation

1) After the device is successfully bound, click on the "DHW heat pump" (device name, editable) operation page in the "Smart Life" main interface.





①-Return: Return to the main page;

②-More: You can change the device name, select the device installation location, check the network status, add shared users, create a device group, view device information, etc.;

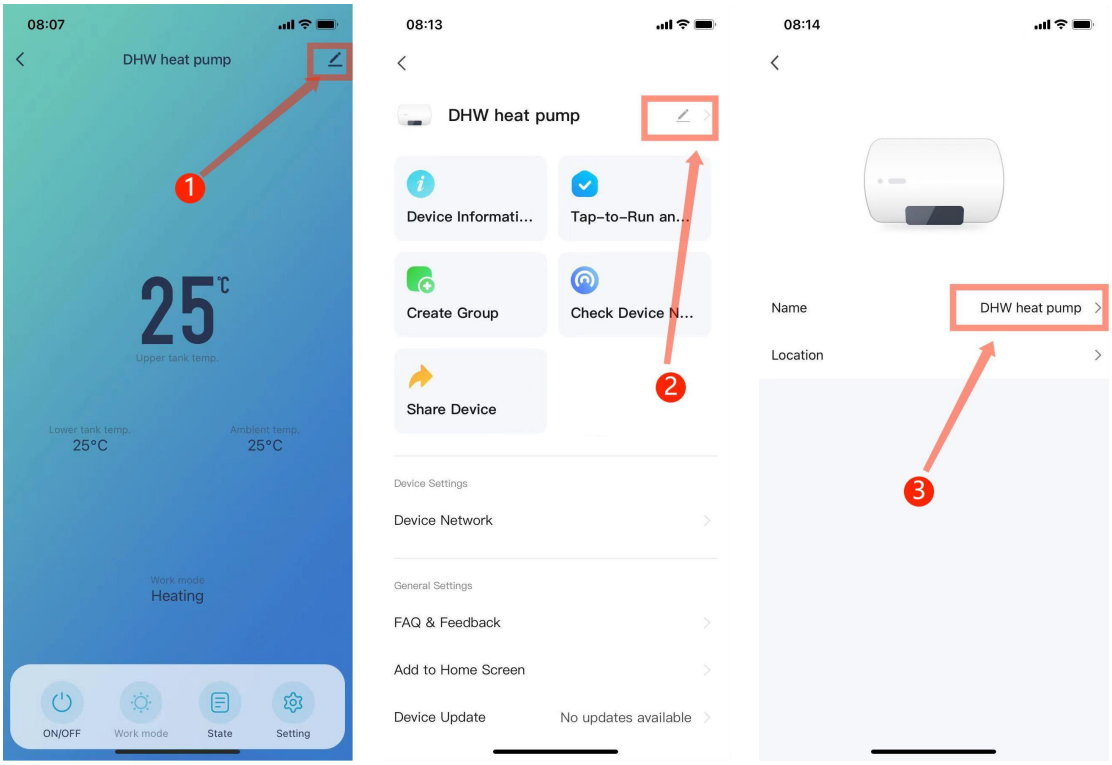
③-Temperature: water tank temperature, ambient temperature;

④-Current mode;

⑤-Power on/off settings, operation mode, parameter status, settings

2) Modify the device name:

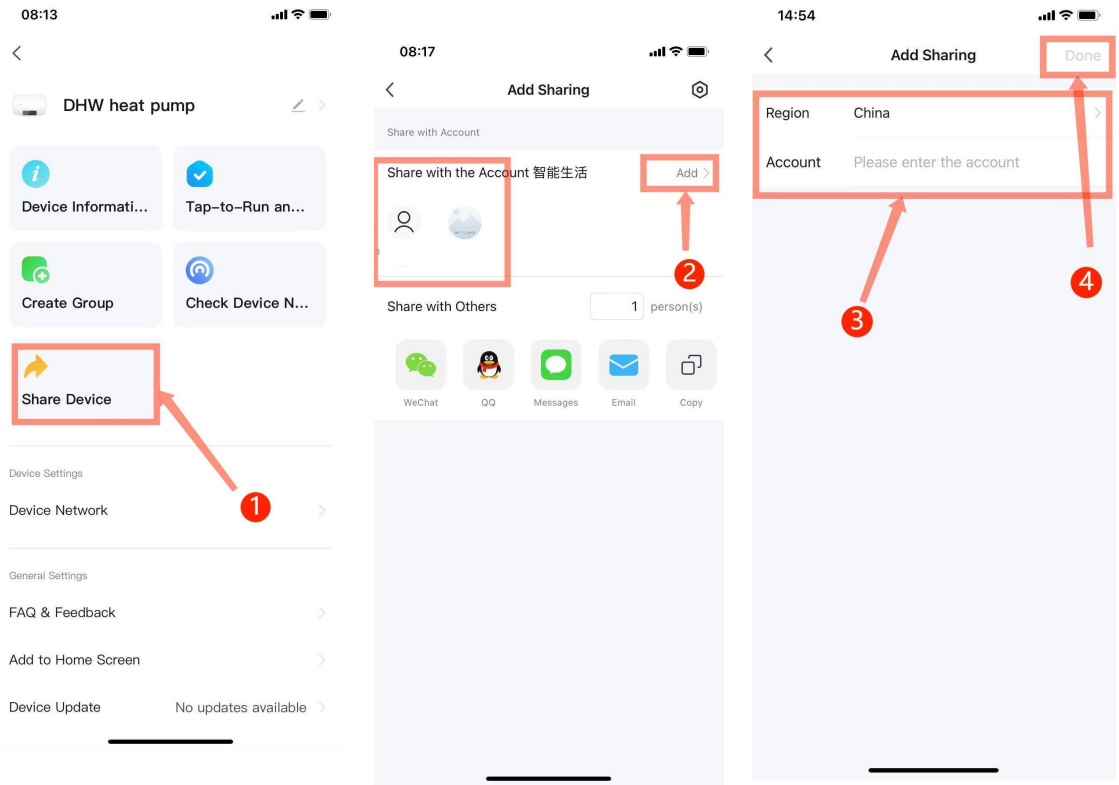
" More " in the order shown below to enter "Device Details" and click "Device Name" to rename the device.



3) Device Sharing

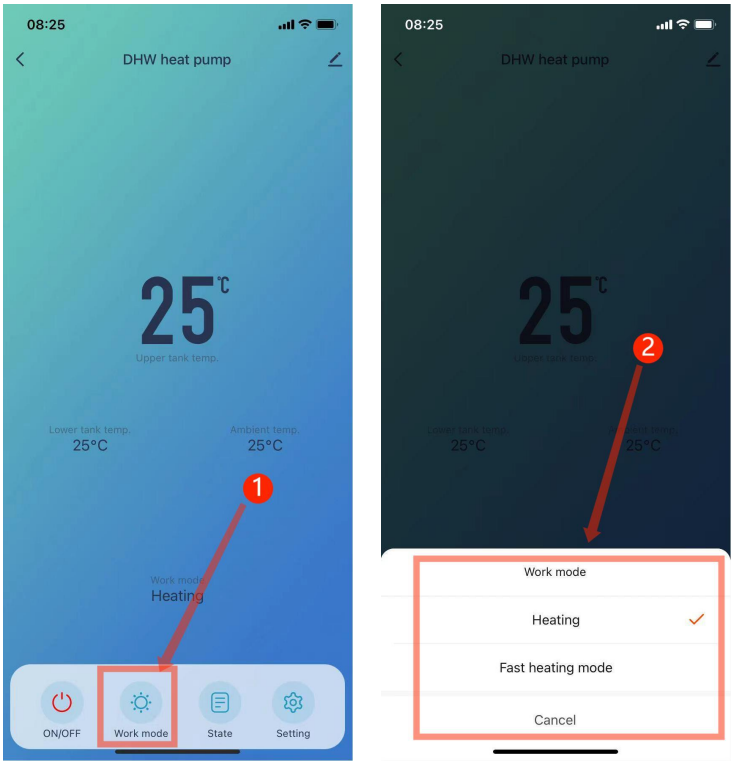
To share a bound device, the sharer follows the following steps: click "More" ⟶ "Shared Device" ⟶ "Add" ⟶ enter the account of the person being shared with, click "Finish", and the newly added account of the person being shared will be displayed in the list of successful sharing ;

If you need to delete the person you are sharing with, long press the selected user, the deletion interface will pop up, click "Delete" ;



10.7 Mode Settings

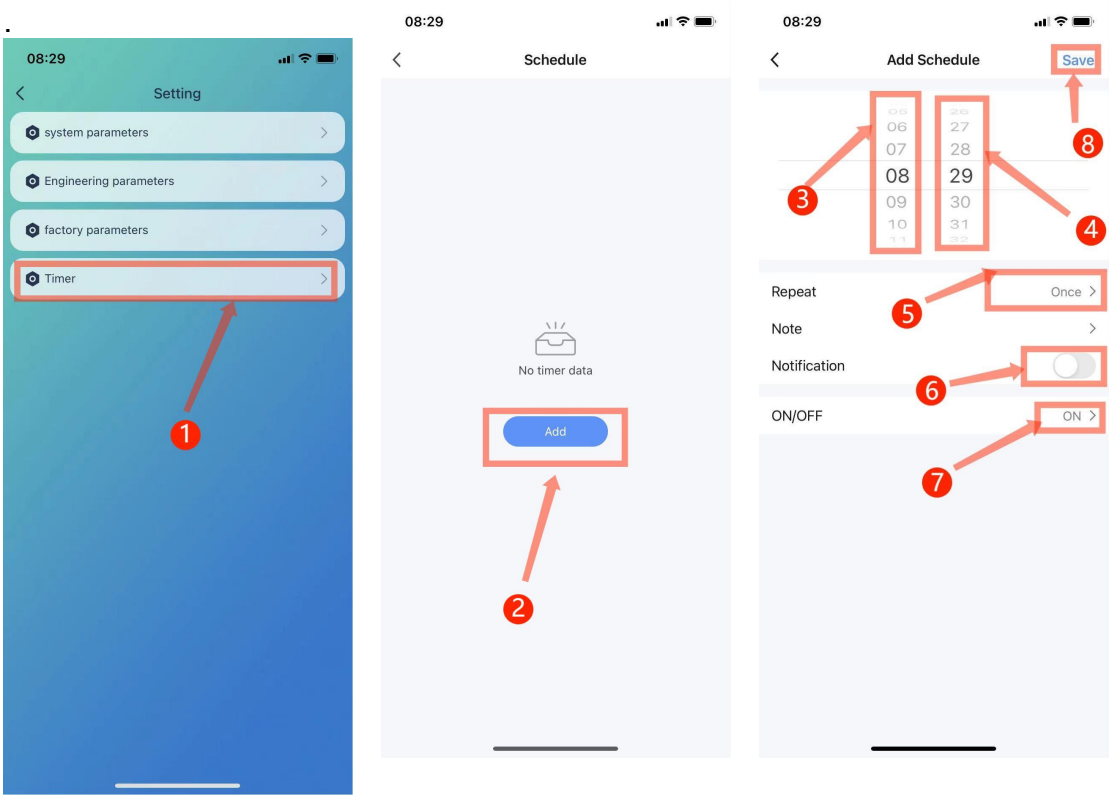
When the device is powered on, click " " on the main interface to switch modes. The mode selection interface will pop up as shown below. Click the mode you want to select.



10.8 Timing settings

Click " " on the main interface of the device operation to enter the "Settings" menu, find "Schedule" to enter the schedule setting interface, select "Add" ⟶ adjust "Clock" ⟶ "Minutes" according to the situation ⟶ Select the days to execute ⟶ Execute notification ⟶ Select "Turn on" or "Turn off" as shown below, and click Add Schedule;

If you want to delete a timer, press and hold the timer item and swipe left to pop up the "Delete" icon. Click it to delete.



10.9 Device Removal

On the main interface, click "  " in the upper right corner to enter the device details interface. Click "Remove Device" at the bottom of the device details interface, and the wired controller will enter the intelligent network configuration mode. The "  " icon will not flash, and the network configuration can be re-established within 3 minutes. If more than 3 minutes pass, the network configuration will be exited. The specific operations are as shown in the following sequence;