ecospring
HOT WATER SYSTEMS

INSTALLATION & OPERATION MANUAL

ALL-IN-ONE TYPE AIR SOURCE HEAT PUMP WATER HEATER

MODELS:
200 LITRE - ECOS200
270 LITRE - ECOS270

Thank you for purchasing our product. Please store this installation manual in a safe place and read it thoroughly before installing the heat pump.

Note: Product upgrades, specifications, or configurations may change without prior notice. For accurate information, please refer to the actual nameplate.

All images in this manual are provided for illustrative purposes only.

R290 ECO

Dear Customer,

Thank you for choosing EcoSpring!

This manual is designed to provide you with detailed information on the installation, operation, and maintenance of your heat pump water heater, as well as important safety guidelines.

We highly recommend that you carefully read this manual in its entirety before installing or using the heat pump. Please keep this manual in a safe place for future reference.

If the manual is damaged or misplaced, you can access it online at:
www.ecospring.co.nz

Thank you again for your support!

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SERVICE PLAN

The EcoSpring hot water system you have purchased requires annual servicing to not only extend the life of the system but keep the system performing as efficiently as possible. With proper maintenance, you'll ensure the best performance, cost savings and longevity of your EcoSpring hot water system.

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1. NOTE

1. 1.1 Safety instructions

2. This part provides quite important safe points for you and please operate it based on safety precautions.

DANGER - ANY OF THE FOLLOWING SITUATIONS MUST BE PROHIBITED, OTHERWISE IT MAY CAUSE SERIOUS PERSONAL INJURY AND EVEN POSE A DIRECT RISK OF DEATH.

3. It is strictly prohibited to install the unit without reading the installation & operating manual.
4. It is strictly prohibited to touch or modify the components inside the unit without authorization.
5. This appliance uses R290 which is colorless, odorless, and flammable, it is prohibited to inject other types of refrigerant.
6. It is strictly prohibited to connect the ground wire to neutral wire of the power supply, gas pipelines, water supply and drainage pipelines, lightning rods, telephone lines, etc.
7. It is strictly prohibited to pour water inside the appliance.
8. It is strictly prohibited to open the maintenance cover or wire box cover of the appliance without disconnecting the power.
9. It is strictly prohibited to install the appliance in areas with high levels of oil mist, flammable gases, salt mist, or toxic gases.
10. It is strictly prohibited to dismantle any permanent instructions, labels, or nameplates inside the appliance casing or various panels.

WARNING - ALL THE FOLLOWING SITUATIONS MUST BE STRICTLY FOLLOWED, OTHERWISE IT MAY CAUSE PERSONAL INJURY, AND EVEN LEAD TO THE RISK OF DEATH OR.

1. Before installation, it should be confirmed that the voltage of the power grid is the same as the voltage required by the appliance, and whether the carrying capacity of the wires and sockets meets the maximum power requirements.
2. Do not use insecticide, paint, hair gel or other combustible gases within 1m around the appliance.
3. When brazing, ensure that there are no combustible materials around. When using refrigerant, please wear gloves to prevent frostbite.
4. Please entrust dealer or professional personnel to install it; Installation personnel must have relevant professional knowledge and be able to install on their own. Improper operation can lead to water leakage, fire, electric shock, injury, etc.

5. Household electric must have a reliable ground connection. When connecting to the power supply, please follow the regulations of the local power company and confirm.

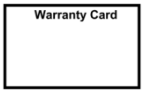
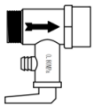
6. Ensure that other accessories purchased locally meet the usage requirements of our products.
7. The grounding must be reliable, kept dry, and prevent leakage. Please make sure to check if the wiring is in good condition. If the contacts are poor, it can cause the equipment to overheat, burn, and even cause personal injury accidents.
8. Ensure that the place on which the appliance is placed has sufficient strength, otherwise the machine may fall.
9 Please install the appliance in a place that can self-drain.
10. If the components of appliance are damaged, please perform professional repairs and use the special repair parts provided by the company.
11. When abnormal (burning odor) occurs, the manual power switch should be immediately cut off, the operation should be stopped, and the manufacturer's after-sales service department should be contacted. If abnormal work continues, it may cause electric shock.
12. If a fire occurs, the power should be cut off immediately.
13. Refrigerant leakage can cause difficulty breathing. If you discover a refrigerant leak, immediately turn off the main switch, extinguish any open flames, and contact your dealer.
14. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
15. The appliance shall be installed in accordance with national wiring regulations.
16. An all-pole disconnection device which has at least 3mm clearances in all poles, and have a leakage current that may exceed 10mA, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

ATTENTION - ALL THE FOLLOWING SITUATIONS MUST BE FOLLOWED, OTHERWISE IT MAY BE A DANGER OR UNSAFE SITUATION OF PERSONAL INJURY, PRODUCT DAMAGE, AND ECONOMIC DAMAGE:

1.2 Arrival inspection

After receiving the product, please follow the following steps to inspect the product upon arrival:

1. Check the outer package: Confirm that there is no damage, deformation, moisture or other phenomena on the outer packaging, and that the seal is intact and undamaged. If there are any issues, please do not open the package and contact your local dealer in a timely manner.
2. Check the product: After opening the package, check whether the product is intact and has any obvious physical damage. Also, verify that the product model, colour, quantity, etc. are consistent with the order. If there are any issues, please contact your local dealer in a timely manner.
3. Testing product functions: Conduct a simple test on the various functions of the product according to the instructions on the product manual to ensure that the product works properly. If there are any problems, please contact your local dealer in a timely manner.
4. Check accessories: Please confirm that all accessories are complete and free from any missing or damaged items according to the contents listed in the table below. If there are any issues, please contact your local dealer in a timely manner.

NO.	Name	Shape	Quantity
1	Installation & operation manual		1
2	Warranty Card		1
3	Hose Clamp		2
4	Hose		1
5	Drainage joint		1
6	Pressure & Temperature Relief Valve (PTRV)		1

1.3 Disclaimers

This product must be powered independently using copper-core power cords with a 4mm diameter. The unit requires a reliable grounding wire. The manufacturer is not responsible if the wiring does not meet the requirements and the unit cannot work properly.

1. When cleaning the unit, it is necessary to stop the unit and turn off the power switch; if the unit is powered on for cleaning, resulting in electric shock or personal injury, the manufacturer will not be responsible.
2. In winter or when the ambient temperature is below 2 °C, if the machine is stopped for a long time without use, please make sure to empty the water pipes and tanks to prevent water from freezing, expanding, damaging the pipes and tanks, and damaging the unit. If the unit is frozen or damaged due to power outage, or if the anti-freeze protection of the unit is stopped, the manufacturer will not be responsible.

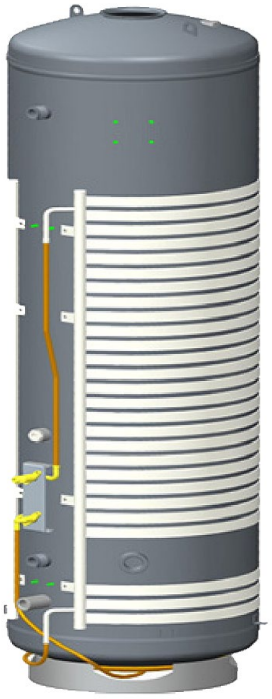
2 Product information

2.1 Product introduction

Air source heat pump is one of the best equipment to utilize new energy, it is also a new generation of hot water production equipment, following boiler, gas water heater, electric water heater, and solar water heater. Due to the increasingly tight energy supply, and the vigorous promotion of the “carbon reduction” policy, air source heat pump units have quickly been promoted in the market due to their many advantages such as high efficiency, energy conservation, environmental protection, and safety.

All in one heat pump for sanitary hot water:

1. It has complete isolation between water and electricity, for safety;
2. No fuel tubes and storage, no potential danger from oil leakage, fire, explosion, and so on;



3. No cross-contamination potential, the condenser coil is wrapped around the enamel lined steel tank, it is external coil, does not come in contact with water directly;
4. The maximum outlet temperature achieved by the heat pump is 60°C. The electric heating element can further raise the water temperature up to 70°C
5. Automatic start-up and shutdown, automatic defrosting by revising refrigerant cycle to save the extra operation;
6. Within the temperature range from -7 °C to 43 °C, the unit will not be affected by night, cloudy sky, rain even snow weather;

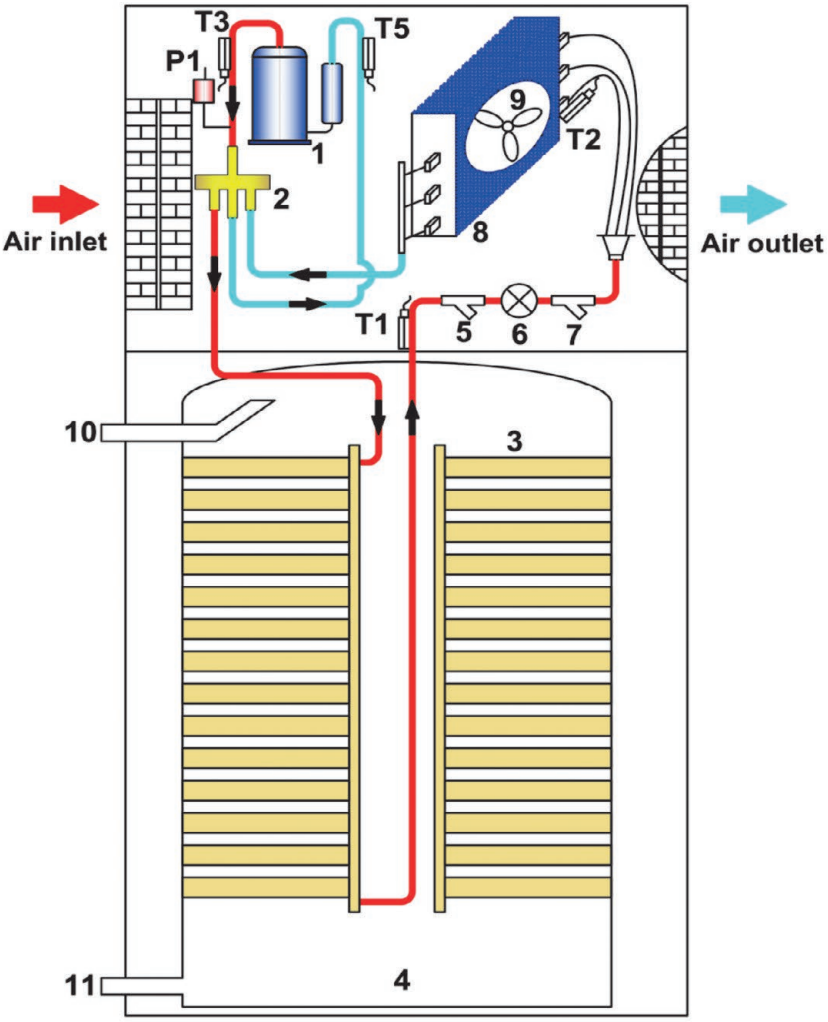
2.2 Operating principle

2.2.1 System composition

Air source heat pump water heater consists of compressor, water tank, evaporator, 4-way valve, heat exchanger micro-channel, EEV and so on.

2.2.2 System principle of air source heat pump water heater

NO.	Name
1	Compressor
2	4-way valve
3	Heat exchanger micro-channel
4	water tank
5	Filter 1
6	Electronic Expansion Valve
7	Filter 2
8	Evaporator
9	Fan
10	Hot water outlet
11	Cold water inlet
T1	Coil temp. sensor
T2	Ambient temp. sensor
T3	Exhaust temp.sensor
T5	Suction temp. sensor
P1	High-pressure sensor



3 Specification and performance

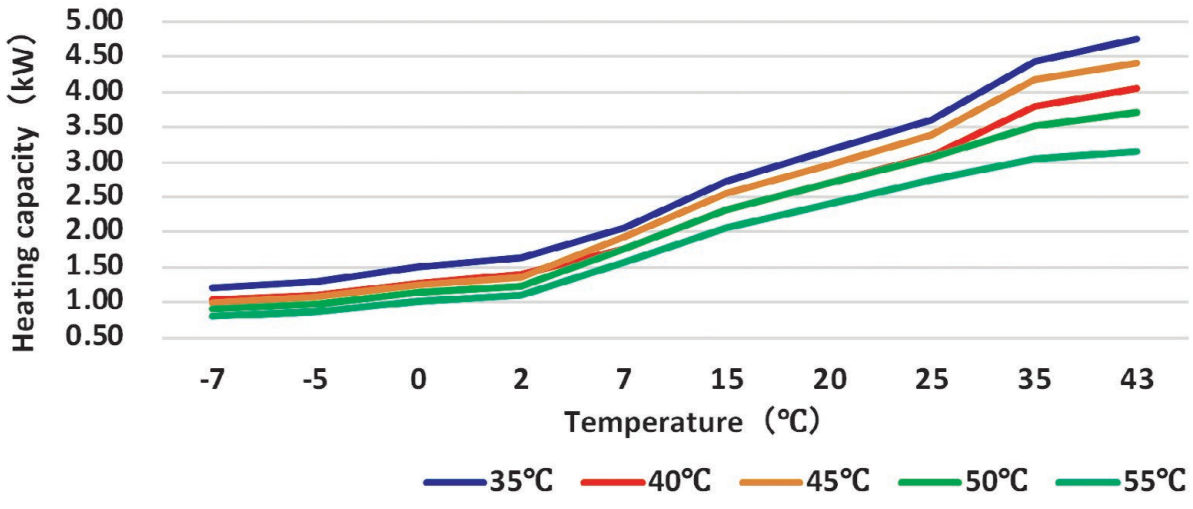
3.1 Specification parameter

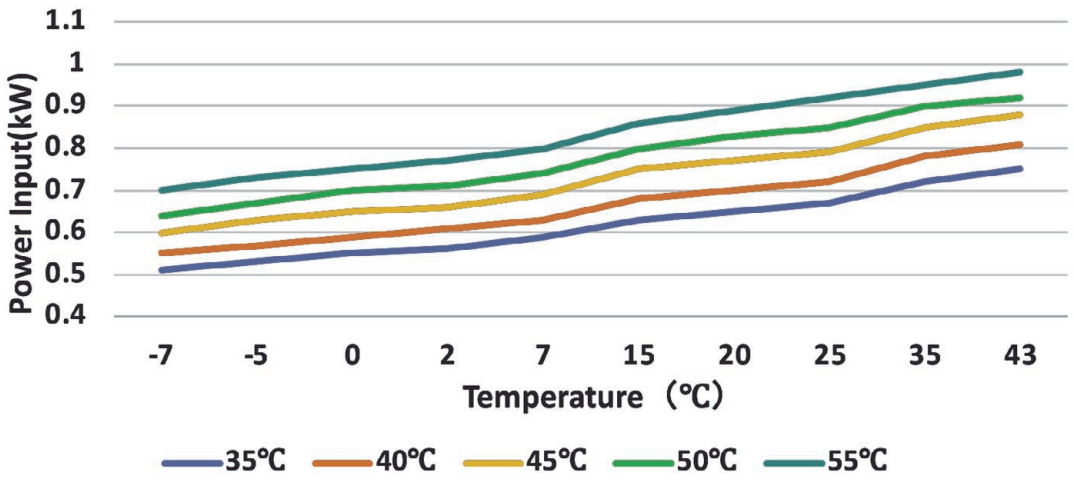
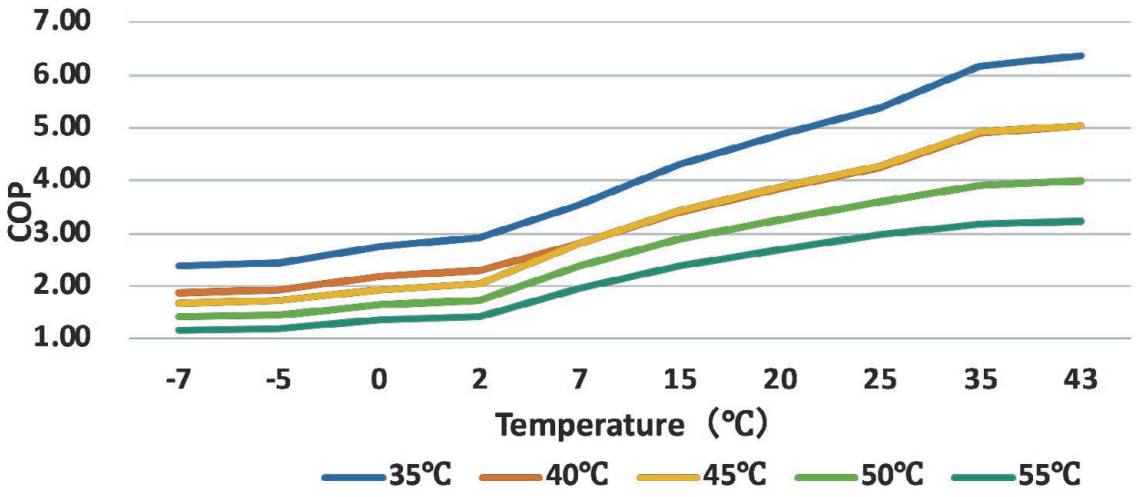
Model	ECOS200	ECOS270
Power supply	220V~240V/50HZ	220V~240V/50HZ
Rated Input Power (Heat pump)	1.2KW	1.2KW
Rated Input Current (Heat pump)	5.3A	5.3A
Rated Heating Capacity (Heat pump	2.78KW	2.78KW
Rated Input Power (Resistance)	1.8KW	1.8KW
Rated Input Current (Resistance)	7.5A	7.5A
Max Current (HP&Resistance)	14A	14A
Max Input Power (HP&Resistance)	3KW	3KW
Water tank volume	200L	270L
Recovery Rates (lires per hour)	60	60
COP (A 20/15, W 15-55)	4.15	4.15
Refrigerant	R290 (400g)	R290 (400g)
Compressor	GMCC/Rotary	GMCC/Rotary
Expansion valve	EEV	EEV
Fan	Axial	Axial
Ventilation	Horizontal discharge	Horizontal discharge
Heat exchanger	Microchannel /Wrap around tank	Microchannel /Wrap around tank
Inner tank material	Enamel	Enamel
Inner tank thickness	Dome 3.0mm /Wall 2.5mm	Dome 3.0mm /Wall 2.5mm
Inner tank type	Concave	Concave
Insulation /thickness	Polyurethane /40mm	Polyurethane /40mm
PTR valve	850KPA	850KPA
Rated Outlet Water Temperature	60°C	60°C
Max Outlet Water Temperature	75°C	75°C
Working range with element	-15°C~43°C	-15°C~43°C
Working range without element	-7°C~43°C	-7°C~43°C
IP Class	IPX4	IPX4
Electric Shock Proof	I	I
Unpacked Dimension (outdoor unit)	*620mm*1555mm	*620mm*1875mm
Packed Dimension (outdoor unit)	700*700*1655mm	700*700*1975mm
Net Weight	100KG	119KG
Gross Weight	114KG	128KG
Noise	43dBA	43dBA

Performance curve

Ambient Temperature (°C)											
Water Outlet Temperature (°C)		-7	-5	0	2	7	15	20	25	35	43
35	Heating Capacity (kW)	1.20	1.30	1.51	1.64	2.07	2.72	3.17	3.61	4.44	4.75
	Power Input (kW)	0.51	0.53	0.55	0.56	0.59	0.63	0.65	0.67	0.72	0.75
	COP	2.38	2.44	2.75	2.92	3.54	4.31	4.86	5.38	6.19	6.37
40	Heating Capacity (kW)	1.03	1.11	1.29	1.40	1.77	2.33	2.70	3.08	3.79	4.06
	Power Input (kW)	0.55	0.57	0.59	0.61	0.63	0.68	0.70	0.72	0.78	0.81
	COP	1.88	1.93	2.18	2.31	2.80	3.41	3.84	4.26	4.89	5.03
45	Heating Capacity (kW)	1.00	1.08	1.25	1.36	1.94	2.56	2.97	3.39	4.17	4.42
	Power Input(kW)	0.60	0.63	0.65	0.66	0.69	0.75	0.77	0.79	0.85	0.88
	COP	1.68	1.72	1.94	2.06	2.81	3.43	3.87	4.28	4.92	5.04
50	Heating Capacity (kW)	0.91	0.98	1.14	1.24	1.76	2.32	2.70	3.08	3.51	3.70
	Power Input (kW)	0.64	0.67	0.70	0.71	0.74	0.80	0.83	0.85	0.90	0.92
	COP	1.41	1.45	1.63	1.73	2.37	2.89	3.26	3.61	3.91	4.01
55	Heating Capacity (kW)	0.81	0.87	1.01	1.10	1.57	2.06	2.40	2.74	3.04	3.16
	Power Input (kW)	0.69	0.73	0.75	0.77	0.80	0.86	0.89	0.92	0.95	0.98
	COP	1.17	1.20	1.35	1.43	1.96	2.39	2.70	2.98	3.19	3.23

Heating Capacity Curve



Power Input Curve	
COP Curve	

4 General Information

4.1 Appearances

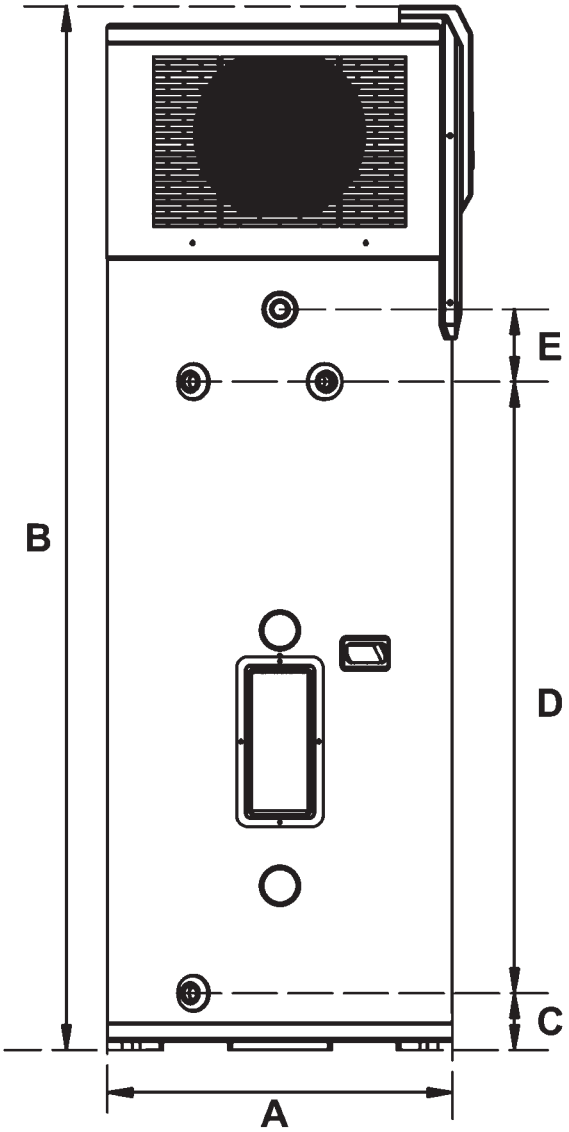
Front view

Side view

4.2 Dimension

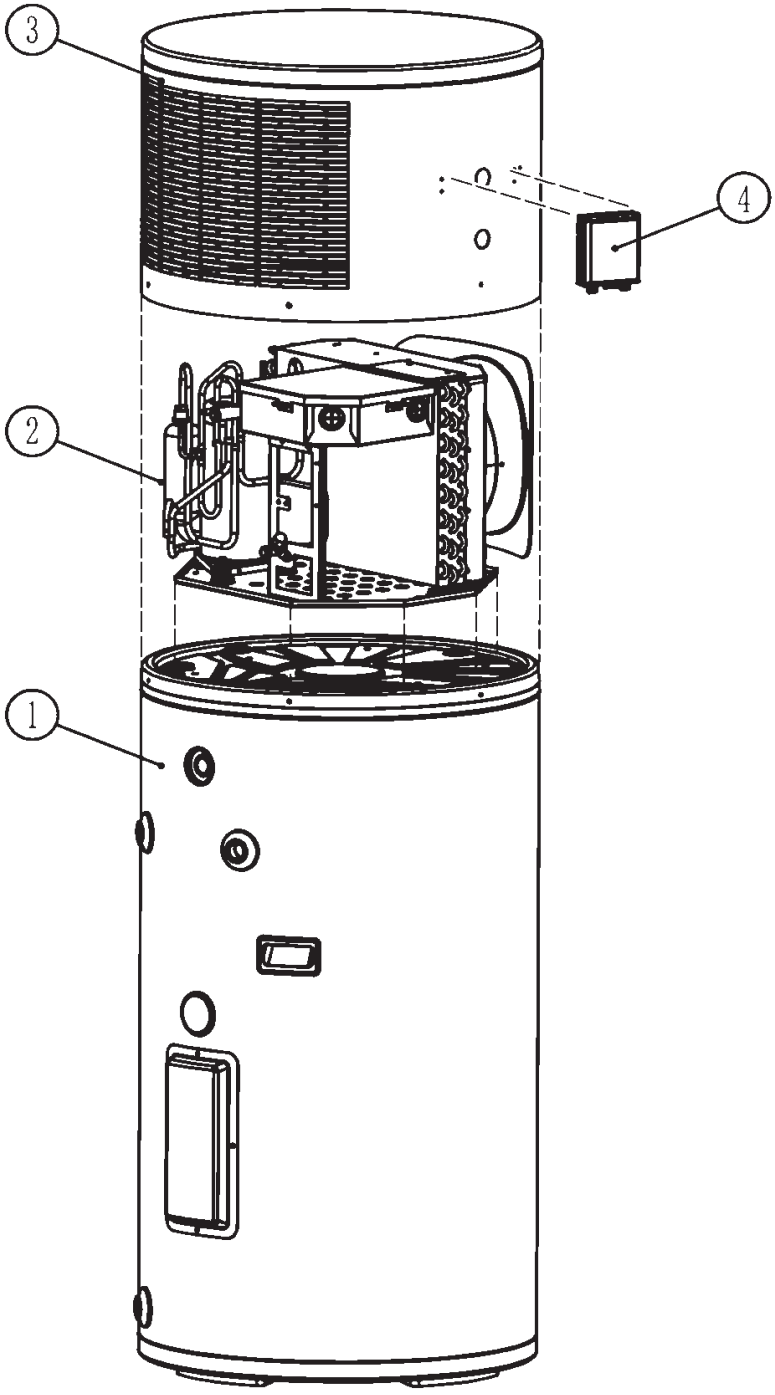
Unit: mm

Model	TY-200TD2	TY-270TD2
A	Ø620	Ø620
B	1510	1825
C	100	100
D	780	1100
E	130	130



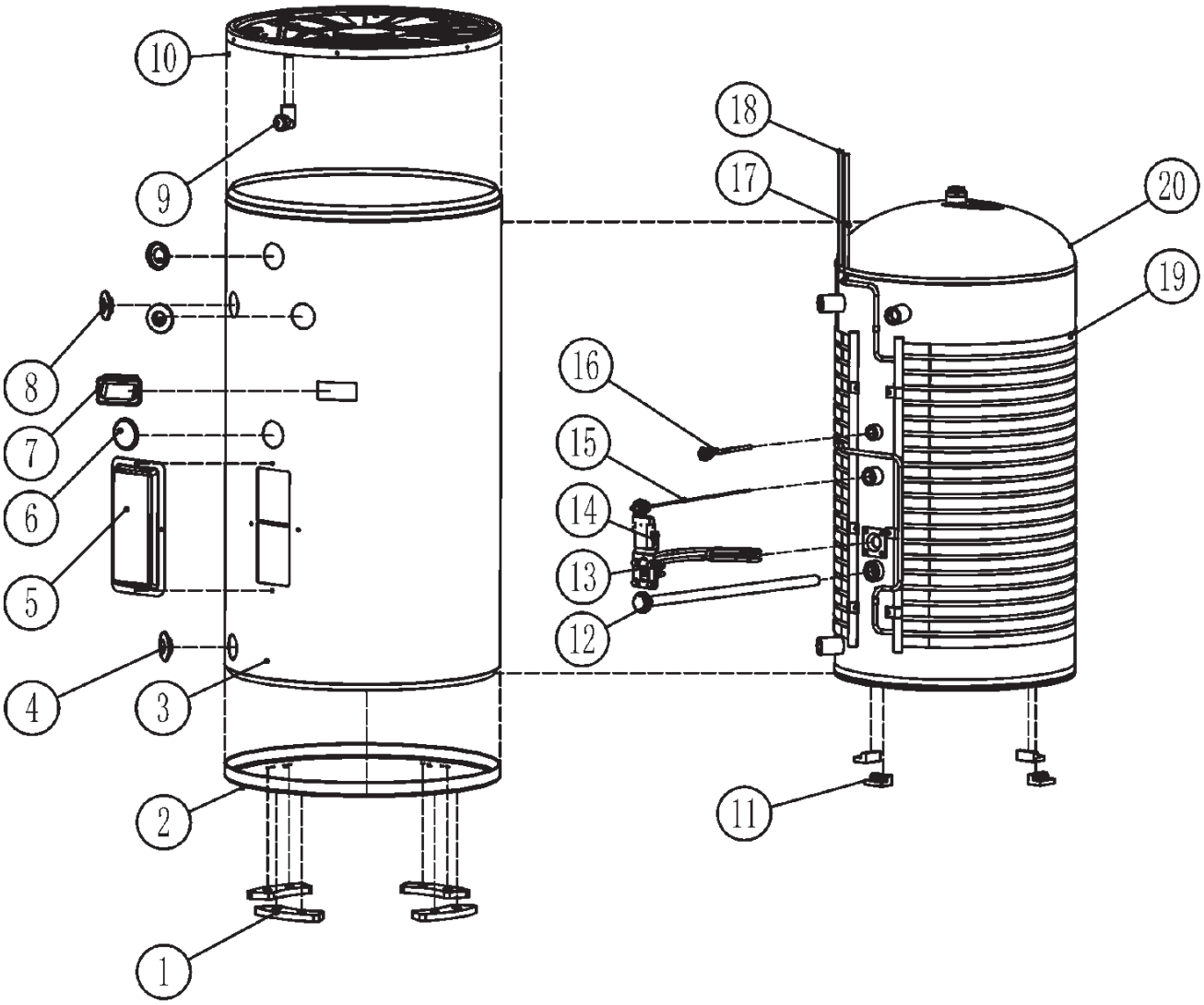
4.3 Exploded View

4.3.1 Appearance components



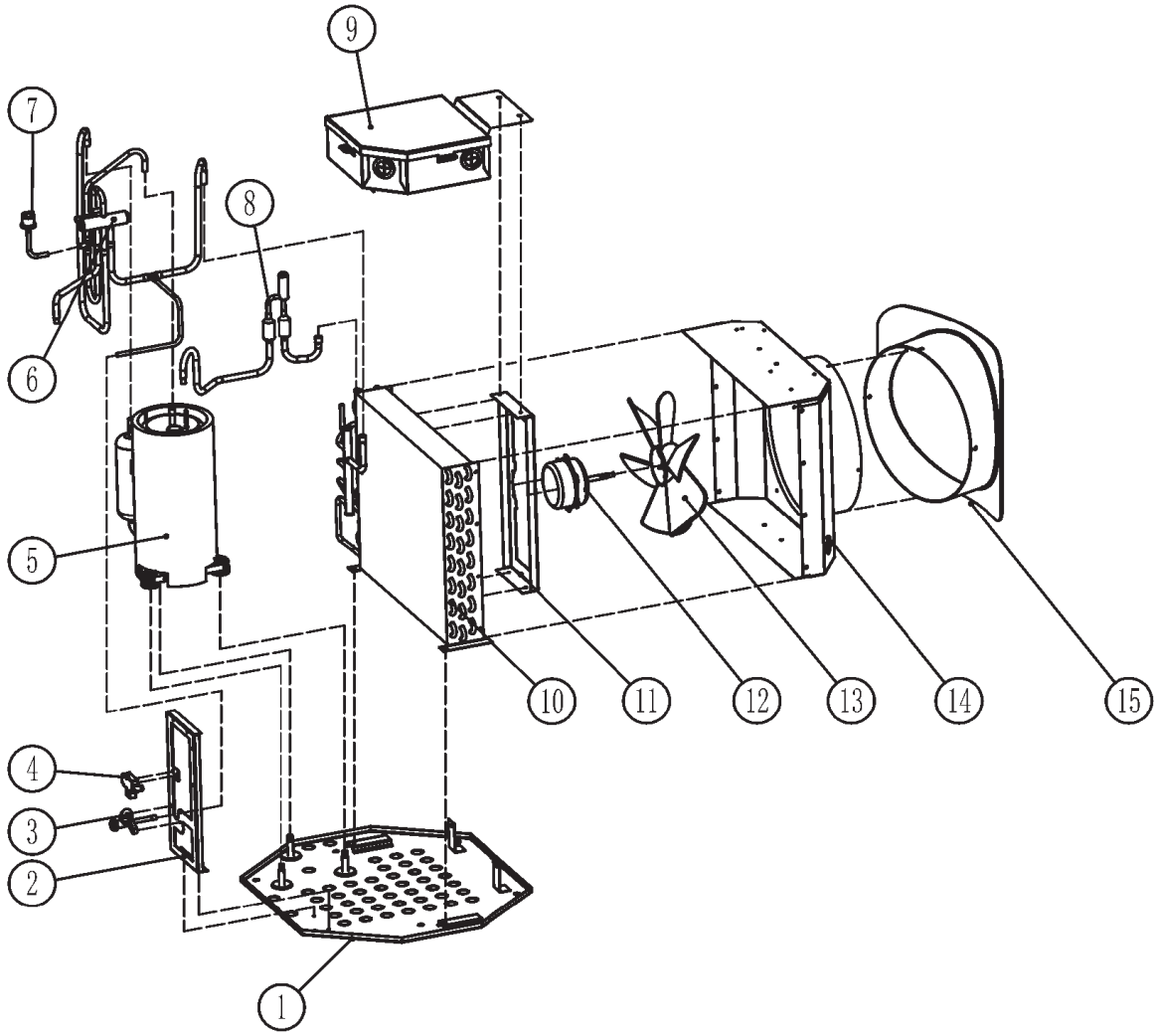
NO.	1	2	3	4
Name	Water tank components	Host components	Upper cover	Controller

4.3.2 Water tank components



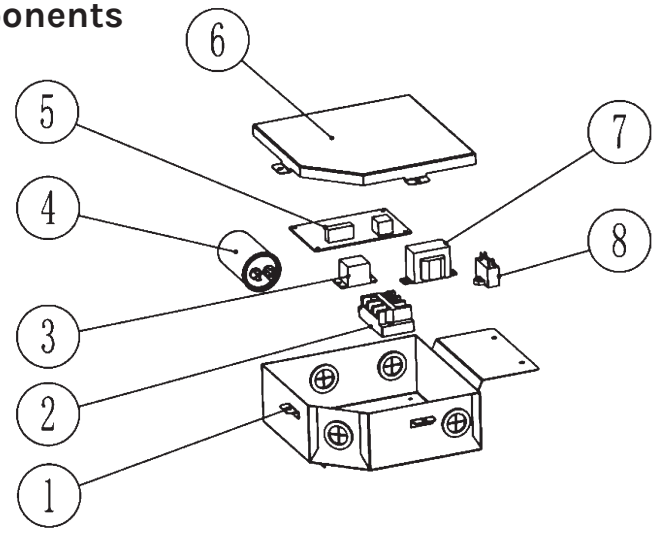
NO.	Name	NO.	Name	NO.	Name
1	Footing	8	Trim cover	15	Anode rod
2	Water tank bottom end cover	9	Condensate Water Drain Pipe	16	Temperature sensor Sleeve
3	Water tank outer sleeve	10	Water Pan	17	Microchannel intake pipe
4	Trim cover for inlet and outlet pipes	11	Fixed block	18	Microchannel liquid-out pipe
5	Protection cover for Electric heating	12	Magnesium rod	19	Microchannel
6	Trim cover	13	Electric heating	20	Liner
7	Handle	14	Electric heating thermostat		

4.3.3 Host components



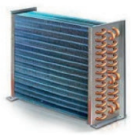
NO.	Name	NO.	Name	NO.	Name
1	Chassis	6	Four-way valve	11	Fan motor support
2	Electric control box support	7	High pressure switch	12	Fan motor
3	Filling stop valve	8	Electronic expansion valve	13	Fan
4	Temperature sensing fixing clip	9	Electrical components	14	Bellows
5	Compressor	10	Evaporator	15	Sealing cover for air outlet

4.3.4 Electrical components



NO.	Name	NO.	Name	NO.	Name
1	Electric control box	4	Compressor capacitance	7	Transformer
2	Terminal	5	Circuit board	8	Fan capacitance
3	Relay	6	Box cover		

4.4 Appearance of main components

NO.	Picture	Name	NO.	Picture	Name
1		Compressor	6		Pressure sensor
2		Evaporator	7		Pressure switch
3		EEV	8		Fan motor
4		4-way valve	9		Fan
5		Solenoid Valve	10		Maintenance valve

5 Installation requirements

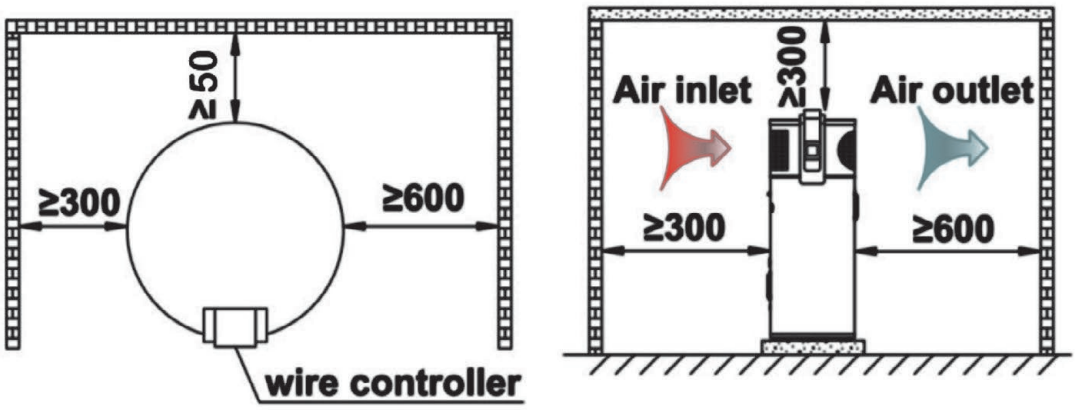
5.1 Installation location requirements

ATTENTION - INSTALLATION LOCATION REQUIREMENTS
IT IS RECOMMENDED THAT YOU INSTALL THIS UNIT OUTDOORS

1. When the appliance is installed on the ground, or other convenient places for installation, ensure that the installation site can withstand the weight of the unit during operation and the sum of the weight of maintenance personnel during unit maintenance, and the site needs to be leveled, so that the appliance can be stable and fixed without tilting.
2. Avoid installing this appliance indoors. If installed indoors, it may cause noise or indoor temperature changes which can influence comfort, please ensure preventive measures are taken in advance. The unit outputs cold air.
3. The installation location should be selected with good ventilation and smooth exhaust, do not install the unit in a contaminated or dusty area. If installed indoor, the appliance must be placed, operated, and stored in a room with an area of at least 15 m^3 and sufficient airflow into the room.
4. Ensure that the installation position of the device is oriented towards the area that is least sensitive to noise. Drainage devices must be installed near the appliance to ensure smooth drainage without accumulated water.
5. Do not install the appliance in a location where the wind energy generated by a monsoon can directly blow into the air outlet/inlet.
6. Do not approach strong electrical facilities and equipment such as fire sources and power stations; There should be no open flames or high temperature heat source facilities or equipment in the surrounding area.
7. The distance between the appliance and the area of petroleum, flammable, explosive, corrosive gases or products, or sulfur-containing compounds shall not be less than 3 meters.
8. Do not install the appliance near strong electromagnetic radiation.
9. Try to keep the appliance out of children's reach as much as possible.
10. The most frequently used hot water outlet point and appliance should be placed as close as possible to reduce heat loss.

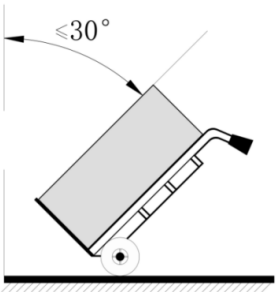
5.2 Installation space requirements

When there are obstacles around the appliance, the minimum distance between the appliance and the obstacles is as following.



5.3 Transport

Tips: Before transporting, please confirm again whether the model, number, name, colour, etc. are consistent with the order. And please have qualified dealers or designated professional technicians responsible for transporting, otherwise it may cause damage.



* Before unpacking, the appliance should be transported close to the installation site;
* When transporting the appliance, attention should be paid to maintaining verticality, and the inclination should not exceed 30^0, do not store the unit horizontally to prevent damage to compressor and other components;
* Prohibit storing any items on the appliance;
* Do not let your hands or other objects come into contact with the fan.
* Do not pierce or burn the appliance.
* Transport of equipment containing flammable refrigerants should be in compliance with the transport regulations.
* Disposal of equipment using flammable refrigerants should be in compliance with local regulations.
* The storage of appliance should be in accordance with the manufacturer's instructions.
* Storage package protection should be constructed such that mechanical damage to the appliance inside the package will not cause a leak of the refrigerant charge. The maximum number of pieces of appliance permitted to be stored together will be determined by local regulations.

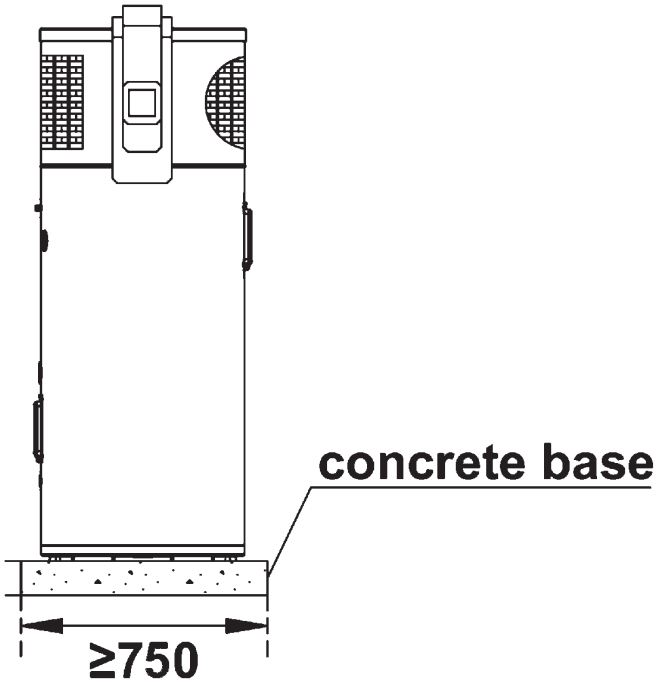
5.4 Installation and fixation

The appliance shall not be placed directly on the ground or on the main structure of the building, and additional equipment foundations shall be set up. Equipment foundations are generally divided into steel trough structures and concrete structures.

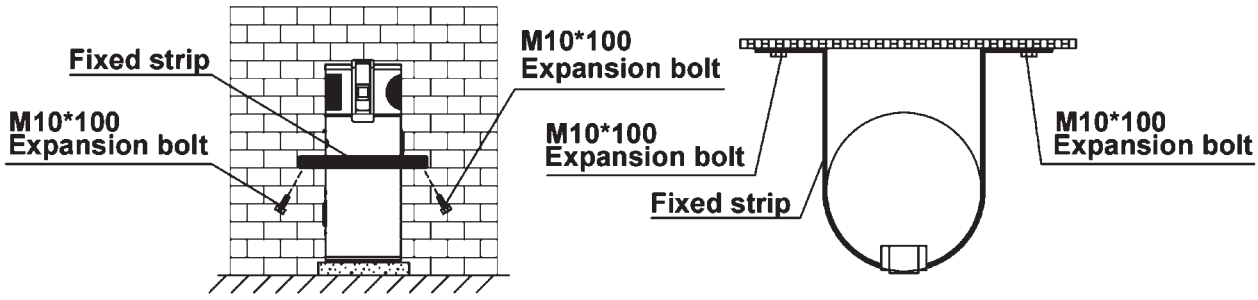
The substrate of the installation site must be level, have sufficient load bearing capacity, be of impervious material and designed to avoid ponding in accordance with AS/NZS 3500.4 and as acceptable to local authorities.

Take note of the units net weight and the additional weight of a full cylinder, i.e. 1 litre water equals 1kg.

A base with insufficient load bearing capacity is in danger of collapse. Also if the appliance is not level, there may be a risk of appliance damage.



Fix the appliance as follows:



Number of seismic restraints is determined by local regulations.

In the region which the temperature is below 0^{0}C, the heat pump must be installed indoor or other positions where it will not be frozen for purposes of protecting connection pipe.

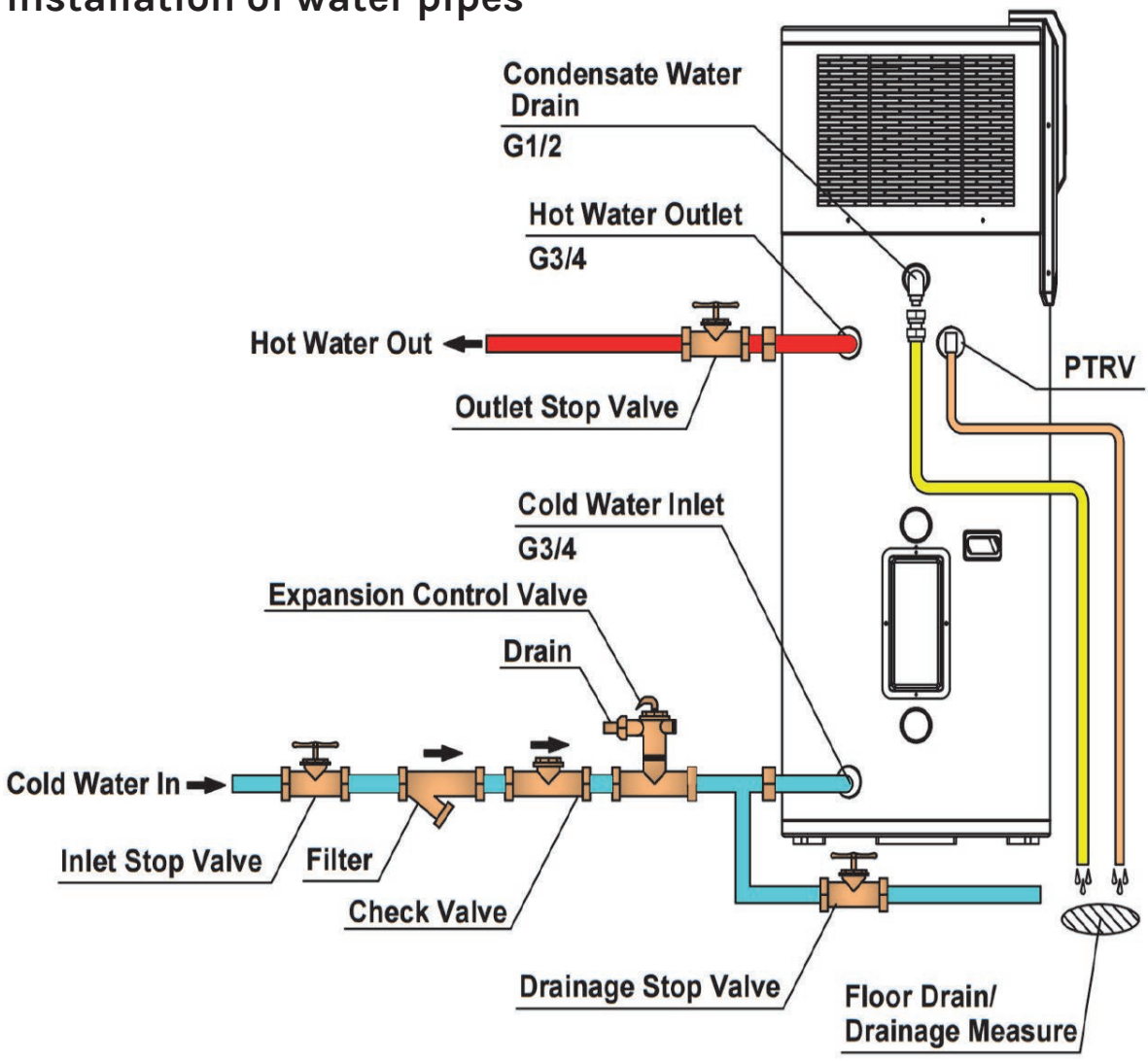
If used for those regions which the temperature is below 0^{0}C, suitable measures must be taken to protect pipes if the heat pump is installed outdoors.

6 Installation of water pipe

6.1 Selection of water pipe material

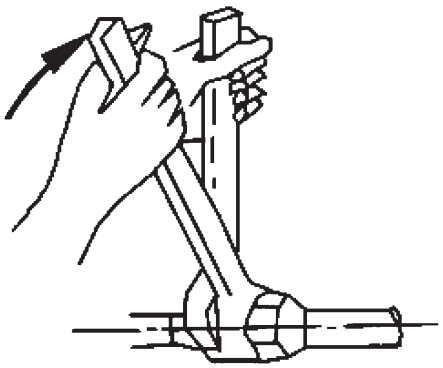
It is recommended to use PPR, which should be heat-resistant and have a pressure bearing capacity that meets local technical requirements. The size of the inlet and outlet interfaces of this unit is G3/4, internal thread.

6.2 Installation of water pipes



ATTENTION- WHEN WATER INLET PRESSURE IS BELOW 0.15MPA, A BOOSTER PUMP TO BE INSTALLED TO CONNECT WITH INLET WATER PIPE FOR PURPOSE OF OBTAINING LARGER WATER CAPACITY; WHEN INLET PRESSURE IS GREATER 0.50MPA, THE RELIEF VALVE TO BE INSTALLED TO CONNECT WITH INLET WATER PIPE FOR PURPOSE OF KEEPING YOUR WATER TANK INTO A LONG-TERM WORKING STATE.

1. When connecting the inlet and outlet pipes, use two pipe wrenches to adjust the pipes to ensure that they are not twisted.
2. The system transmission and distribution pipelines and component connections should comply with the following regulations:
   1) The bending radius of plastic pipes should not be less than 8 times the outer diameter of the pipeline, and the bending radius of composite pipes should not be less than 5 times the outer diameter of the pipeline;
   2) The slope of pipeline laying should be 3 %, Equipment or valve with exhaust function should be installed at the highest point.



3. The connection between pipelines, equipment, and valves should comply with the following regulations:
   1) The connectors should use specialized connectors that are suitable for the pipes;
   2) When using plastic pipe hot melt connection, the working temperature of the hot melt connection should meet the technical requirements of the pipe material;
   3) The outer surface of the hot melt connection socket and the inner surface of the socket should be scraped with a small diameter of 0.2mm. The oxygen blocking layer of the oxygen blocking pipe must be scraped during hot melt connection;
   4) The allowable error in concentricity after hot melt connection should be 2%, and the misalignment at the interface should be less than 10% of the wall thickness;
   5) The hot melt device should use a digital temperature dial, and the temperature should be executed according to the regulations of the pipe manufacturer;
   6) Insulation measures should be taken between plastic pipes and composite pipes and metal supports and hangers, and direct contact should not be allowed. Non-metal pads or sleeves should be added between pipes and supports, and the spacing between supports and hangers should meet the design requirements. When there are no requirements, the maximum spacing between plastic pipes and composite pipe supports should comply with the provisions of table:
   7) The connection between system pipelines, valves, and metal connectors should be of the clamp type, sliding type, or sleeve type.

Diameter(mm)	20	25	32	40	50
Horizontal maximum spacing(mm)	300	350	400	500	600
Vertical maximum spacing(mm)	900	1000	1100	1300	1600

4. During the installation process of all winter engineering projects, it is strictly prohibited to inject water into the system before the unit has no normal anti freezing protection ability to prevent freezing and damage to water pipelines and end equipment. The residual water in the pipelines and equipment during the hydrostatic test must be blown clean with compressed air.
5. The system drain valve should be installed at the lowest point of the system pipeline. In cold regions, it is advisable to consider automatic drainage function. When the main engine is powered off, it can automatically empty the water in the system to prevent the system pipeline from freezing and cracking.
6. The system shall be installed with automatic water refill valve, and the highest point shall be installed with automatic exhaust valve.
7. To conveniently maintain the unit, the outlet pipe of the unit needs to be installed with a pressure gauge.
8. Connect the drainage hose to the unit drainage outlet, and connect the end of the drainage hose to the floor drain or a drainable place.
9. The water quality flowing into the hot and cold-water system must meet the following requirements. If it cannot meet the requirements, softening treatment is required:

Type	Unit	Standard	Type	Unit	Standard
PH (25°C)	/	7.5~8.0	Dissolved oxygen	mg/L	0
Turbidity	NTU	≤3	Organic phosphorus	mg/L	0
Conductivity (25°C)	μS/cm	≤200	Sulfate	mg/L	≤50
Chloride ions	mg/L	≤50	Acid consumption	mg/L	≤50
Iron ions	mg/L	≤0.3	Sulfide ions	mg/L	0
Calcium hardness	mg/L	≤200	Ammonium ions	mg/L	0
Total alkalinity	mg/L	≤200	Silica	mg/L	≤30

6.3 Insulation of water pipe

1. The transmission and distribution pipelines should adopt insulation measures and comply with the following regulations:
   1) The material and thickness of the insulation layer should be executed according to the construction drawings;
   2) When using non-closed cell materials, a protective layer should be placed on the outer surface;
   3) Measures should be taken to prevent “hot bridges” or “cold bridges” at the locations where pipelines pass through walls or floors;
   4) If not specified in the drawings, the minimum insulation layer thickness for pipe and equipment can be selected according to the table.

Heat-insulating material		Flexible foam rubber		
Indoor	Diameter	≤DN20	DN25~DN40	≤DN50
	The minimum insulation layer thickness for pipe(mm)	25	28	32

2. Insulation materials and their products should provide product quality inspection reports and factory certificates, and their specifications, performance, and other technical indicators should comply with relevant technical standards and design documents.

6.4 Pressure testing, anti-corrosion, and flushing

6.4.1 Pressure testing

System water pressure test:

After the system installation is completed, a water pressure test should be conducted before the pipeline insulation.

1. Before the experiment, the pipeline should be fixed, the joints should be exposed, and water distribution equipment should not be connected;
2. The pressure gauge is installed at the lowest point of the test pipe section, with a pressure accuracy of 0.01Mpa;
3. Slowly fill the pipeline with water from the lowest point of the pipe section, fully eliminate the air inside the pipeline, and conduct a water tightness test;
4. It is recommended to use a manual pump for pressure increase. The pressure increase time should not be less than 10 minutes;

5. The pressure test should meet the following requirements:

(1) Steam and hot water heating systems should be subjected to a water pressure test at the top of the system working pressure plus 0.1MPa, and the test pressure at the top of the system should not be less than 0.3MPa;

(2) High temperature hot water heating system, the test pressure should be the working pressure at the top of the system plus 0.4MPa;

(3) The heating system using plastic pipes and composite pipes should undergo a water pressure test at the working pressure of the system vertex plus 0.2 MPa, and the test pressure at the system vertex should not be less than 0.4 MPa.

6. Inspection method:

(1) The heating system using steel pipes and composite pipes should have a pressure drop of no more than 0.02MPa within 10 minutes under the test pressure. After the pressure drops to the working pressure, it should be checked and there should be no seepage or leakage;

(2) The heating system using plastic pipes should have a pressure drop of no more than 0.05MPa within 1 hour under the test pressure, then reduce the pressure to 1.15 times the working pressure, stabilize for 2 hours, and the pressure drop should not exceed 0.03MPa. At the same time, there should be no seepage or leakage at all connections;

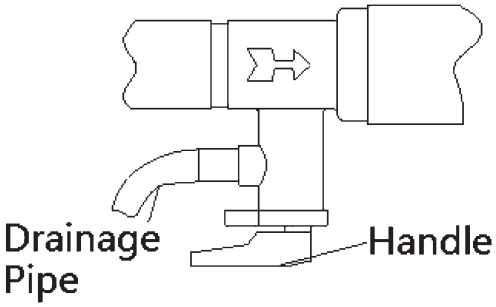
(3) Allow additional pressures twice in 30mins to increase to the test pressure.

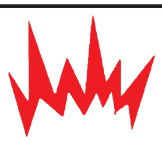
6.4.2 Flushing

After the pressure test is qualified, the system should be flushed and the filter and dirt remover should be cleaned until the discharged water is free of impurities such as sediment and iron filings, and the water colour is not turbid, which is considered qualified.

6.5 PTR valve

The valve Rated capacity: 850kPa; 10kW: Set temperature: 93~99°C. The relief valve needs to be pulled one time every six months for purpose of taking calcium carbonate out and ensuring no obstacle, outlet temperature of drainage port may be high, please be careful; Measures must be taken to prevent drainage pipe from freezing in low temperatures. The relief valve must be installed so that the drain line is facing downwards at all times with the discharge point remaining open to the atmosphere.

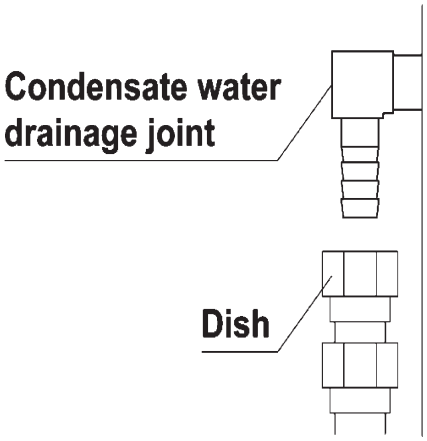




Explosion Danger

- **DO NOT HOLD DOWN THE HANDLE OF SAFETY VALVE**
- **DO NOT KNOCK DOWN SAFETY VALVE**
- **DO NOT PLUG THE DRAINAGE PORT**
- **EXCRETION PIPE MUST BE CONNECTED WITH AN OPEN DRAINAGE PORT**

6.6 Condensate Water Drain



The process of heat extraction from atmosphere through evaporator coils results in the production of water in the form of condensation. More humid environments will produce higher rates of condensation. To collect this water by-product a Condensate Tray is located on top of the water storage tank. Overflow from this tray runs out through the Condensate Drain.

The system comes with a pre-installed condensate drain connection joint. Drainage of condensate from joint to nearest storm water to be done by the collection into an open dish and drained via copper piping.

If not drained properly, the condensate line will produce algae and moss growth.

The Condensate line should be free of kinks and as the water is gravity fed, should only be running down to ensure the free flow of water.

ATTENTION- A PVC TUBE IS SUPPLIED WHICH CAN BE USED TO BRIDGE THE AIR GAP BETWEEN THE CONDENSATE ELBOW AND DISHES. THE PVC TUBE CAN ALSO BE USED TO DRAIN CONDENSATE DIRECTLY FROM CONDENSATE ELBOW TO A STORM WATER DRAINAGE POINT, IF COPPER DRAINAGE IS NOT REQUIRED BY LOCAL COUNCIL REGULATIONS.

WARNING: CONNECTING ANY PRESSURIZED LINE TO THE CONDENSATE WITHOUT AN GAP WILL VOID WARRANTIES.

7 Installation of electrical

ATTENTION:

WARNING

This unit is required reliable earthing before usage,otherwise might cause death or injury

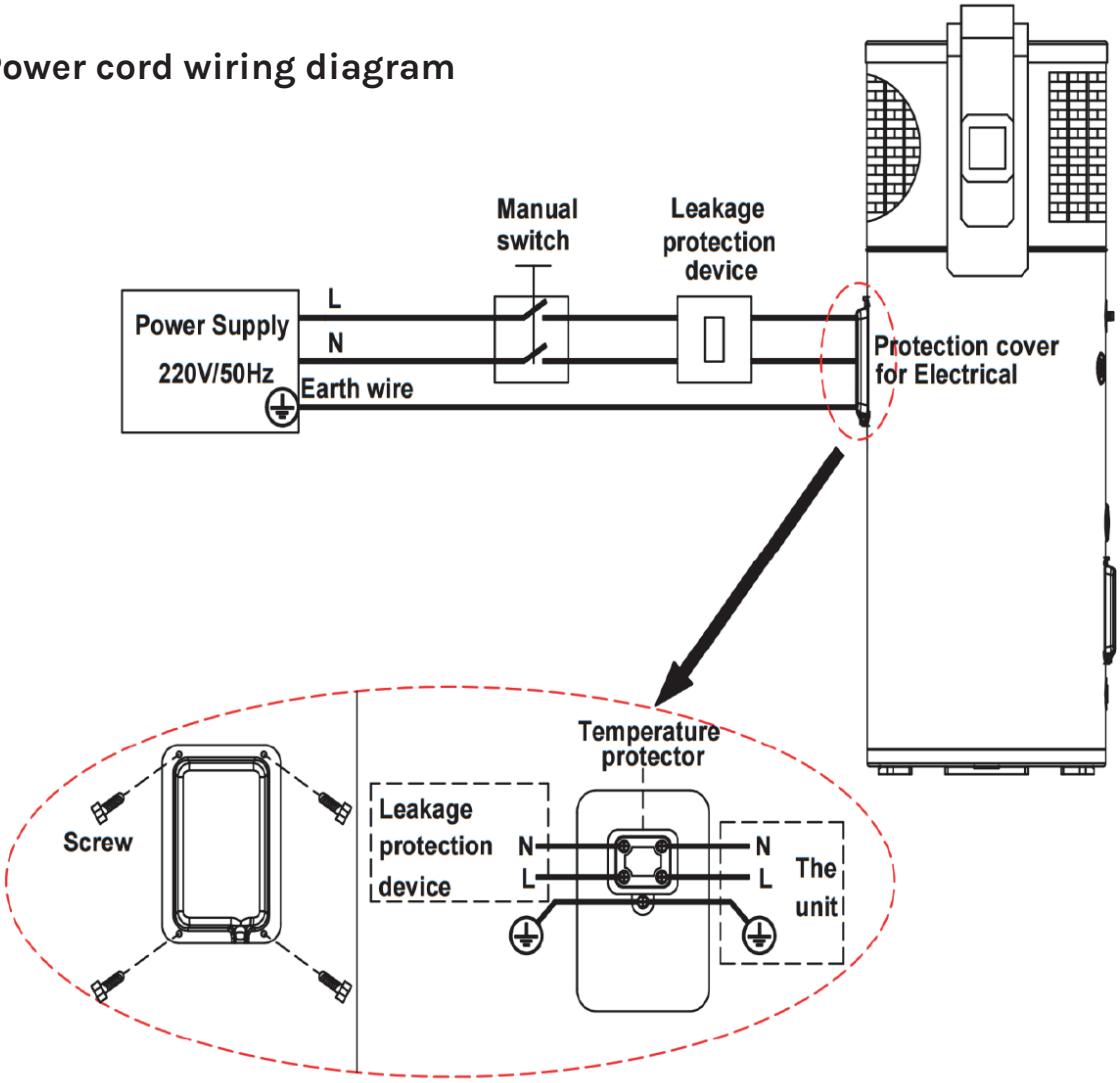
1. The appliance should use a dedicated power supply, and the power supply voltage should meet the rated requirements.
2. The power supply circuit of the appliance must have a ground wire, and the ground wire must be reliably connected to the external ground wire, and the external ground wire is effective.
3. The wiring construction must be carried out by professional installers according to the diagram.
4. According to the requirements of relevant national electrical equipment technical standards, install leakage protection devices
5. The arrangement of power and signal lines should be neatly and reasonably arranged, not interfering with each other. The minimum distance should be maintained, and the distance between each other should exceed 25 millimeters. At the same time, do not come into contact with the connecting pipe and valve body
6. If power cord is damaged, in order to avoid danger, it must be replaced by professionals from the manufacturer, its maintenance department, or similar departments.
7. Some of the connecting wires inside the appliance have been installed in the factory. Installer only need to connect the power line and the signal line. At the same time, check whether the connected wires are connected correctly and are not damaged or detached.
8. After all wiring construction is completed, the power can only be connected after careful inspection without any errors.

7.1 Connection of power cord and signal line

7.1.1 Specifications of power cord

Item Model	Power supply	Minimum wire diameter (mm2)			Manual switch(A)		Leakage protection device	Circuit breaker
		Size (continuous length ≤30m)		Ground wire	Capacity	Fuse		Rated current
ECOS200 ECOS270	220V/50Hz	14AWG	2.5	≥φ1.0mm	≥20	20	Below 30mA 0.1sec	≥20A

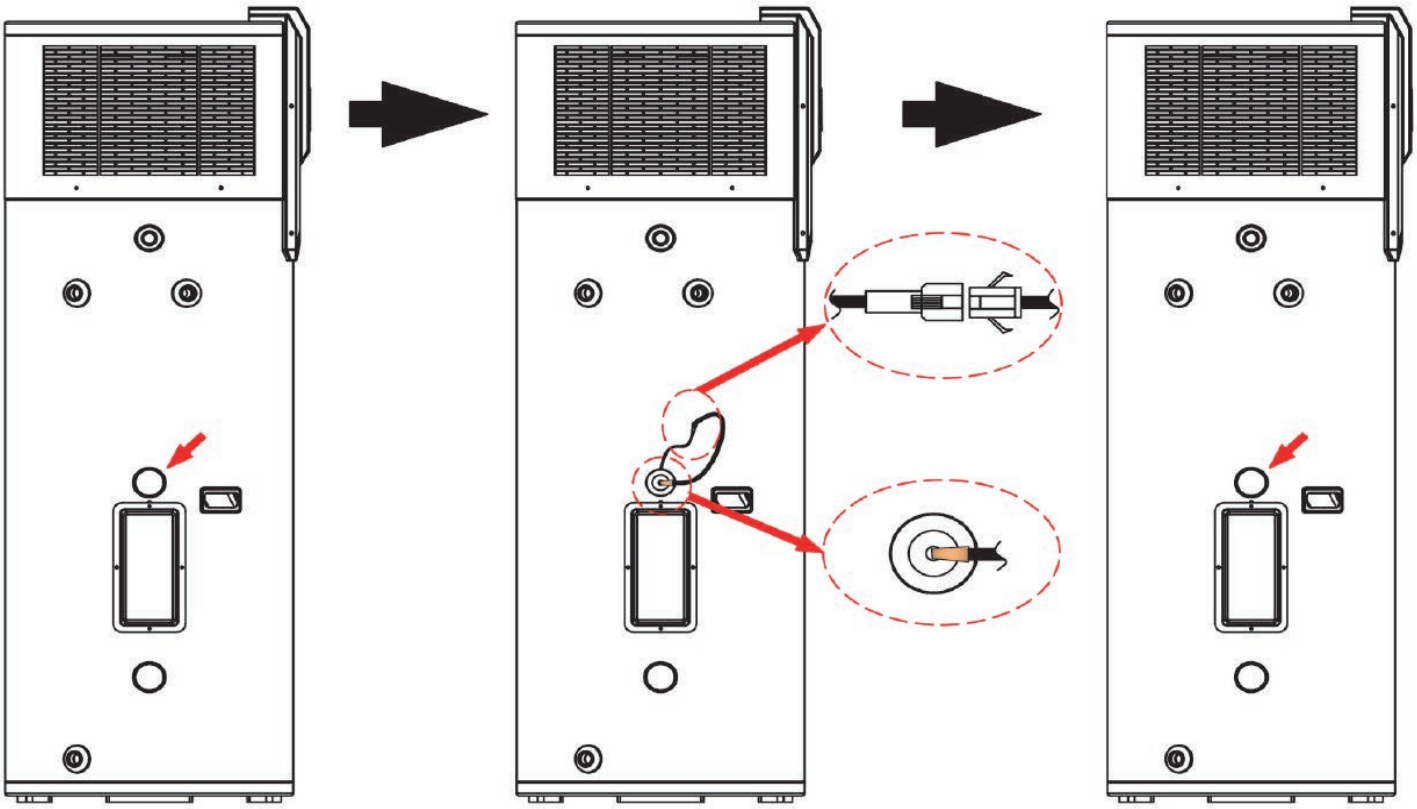
7.1.2 Power cord wiring diagram



IF LEAKAGE PROTECTION DEVICE IS USED (RCD), IT SHOULD BE 100MA RATED. UNIT SHOULD BE INSTALLED IN COMPLIANCE WITH CURRENT ELECTRICAL REGULATIONS AND BY A QUALIFIED ELECTRICIAN

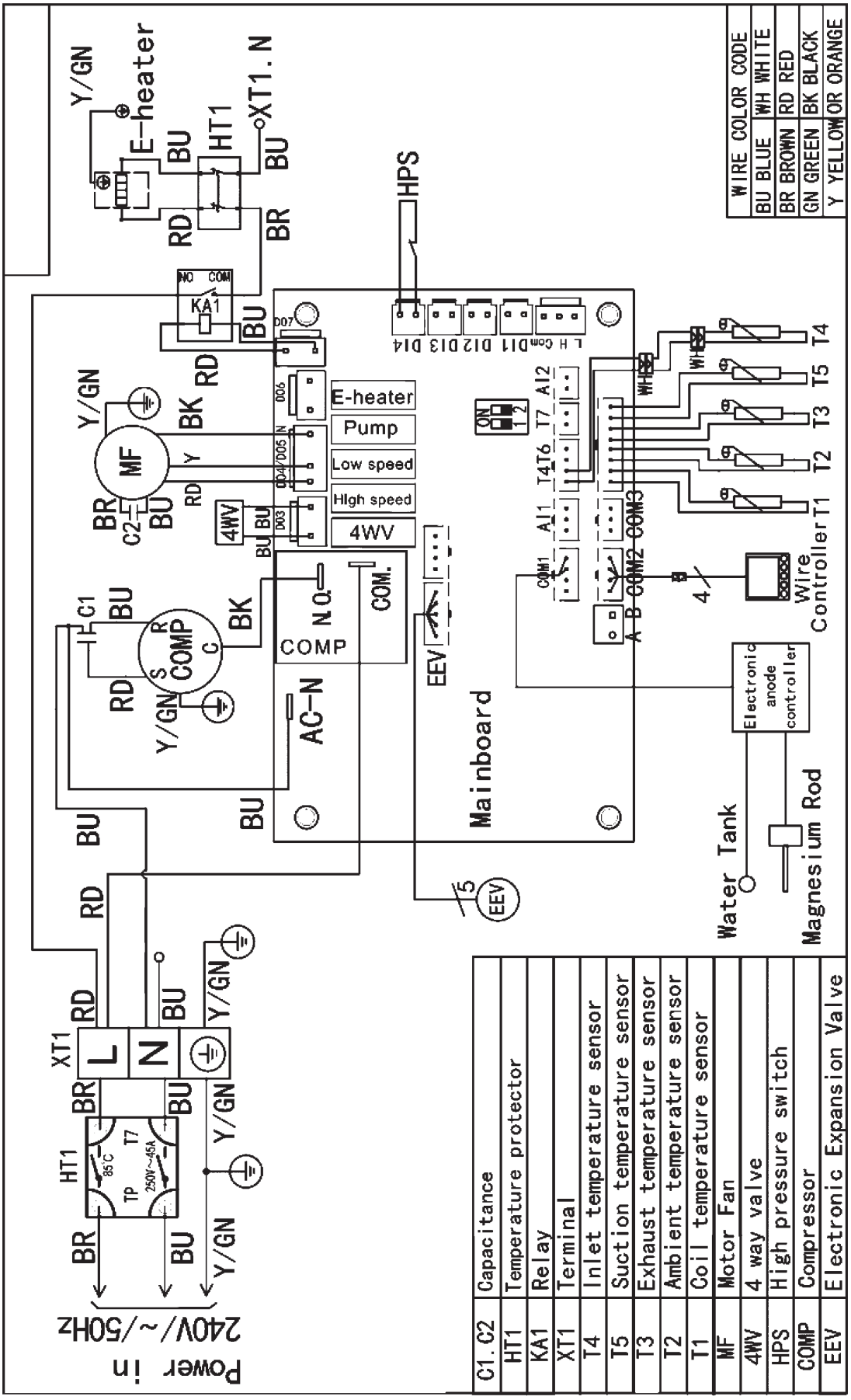
Remove the four screws on the protection cover for electrical, then installed the wires as shown in the above diagram.

7.1.3 Signal line wiring diagram



1. Remove the trim cover for temperature sensor sleeve.
2. Pull out the built-in signal line, and connect it to the signal line of temperature sensor in the attachment.
3. Insert the temperature sensor to the temperature sensor sleeve.
4. Organize the signal lines, then cover the trim cover.

7.2 Electrical wiring schematic



8 Controller

8.1 Controller Functions

After entering the system, the following page will be displayed. After 3 seconds, if the communication is normal, the normal page will be displayed. If the communication fails, the display will remain.

There will be a "**beep**" sound when touching. If there is no touch operation for 2 minutes, the screen will automatically turn off. You can wake it up by clicking the screen.

Ambient Temperature: 20℃ represents the ambient temperature is 20°C.

Defrosting: When the unit enters defrosting will display. When the refrigerant recovery is running, the display will flash.

Silent Mode: When the unit enters silent mode will display.

Timing Function: When the clock function is enabled will display.

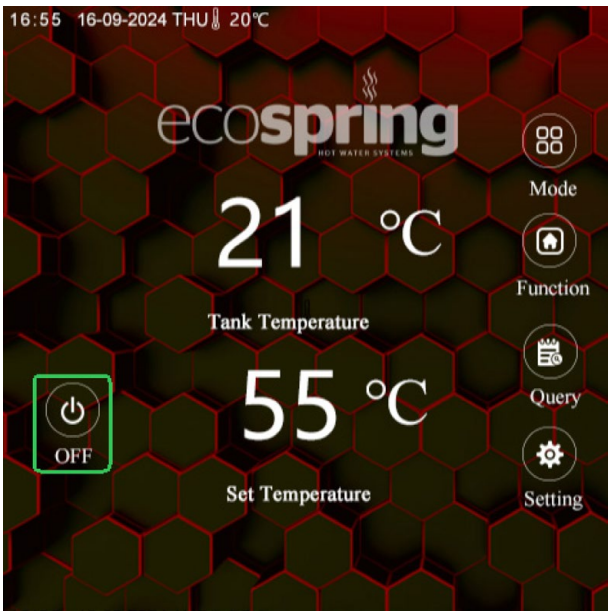
Water Circulation: When the return valve is activated will display. When the return valve is not activated and the return timer is set, the display will flash.

Electric Heating: When the electric heating is started will display. When the electric heating is not started and the quick heating function is turned on, 1Hz flashing display. When the electric heating is not started and the sterilization function is turned on 0.5Hz flashing display.

Compressor Display: When the compressor starts will display.
Fan Motor: When the fan starts will display.

WIFi: When the machine connects to WIFI successfully will display.

Fault Display: When there is a unit failure will display: Click this icon to enter the real-time fault/fault record view. The icon will go out when the fault is eliminated. Click the icon to enter the fault query page: A maximum of 20 real-time faults and 50 historical faults can be displayed.

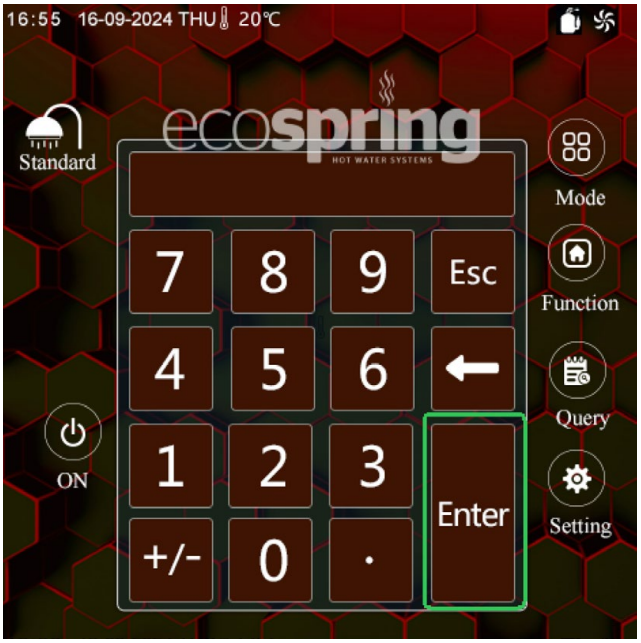


Mode/On&Off: When the device is powered on, the mode icon is displayed on the upper left corner of the main interface. Standard

The power-on icon is displayed in the lower left corner ON.

When shutting down, the lower left corner displays OFF.

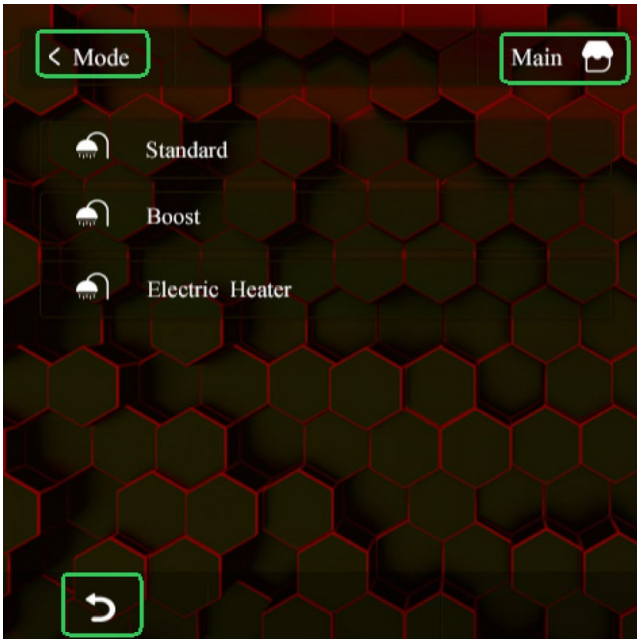
Mode 8.1.2



Standard	**Standard**	**Heat Pump Only:** Set Range: 15-60°C
Boost	**Boost**	**Heat Pump and Electric Heater:** Set Range: 15-75°C
Electric	**Electric Heater**	**Electric Heater Only:** Set Range: 15-75°C

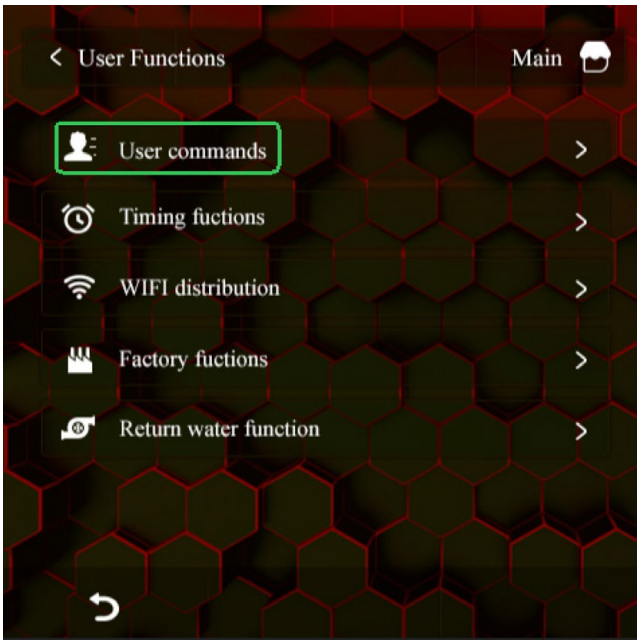
Temperature Setting 8.1.3

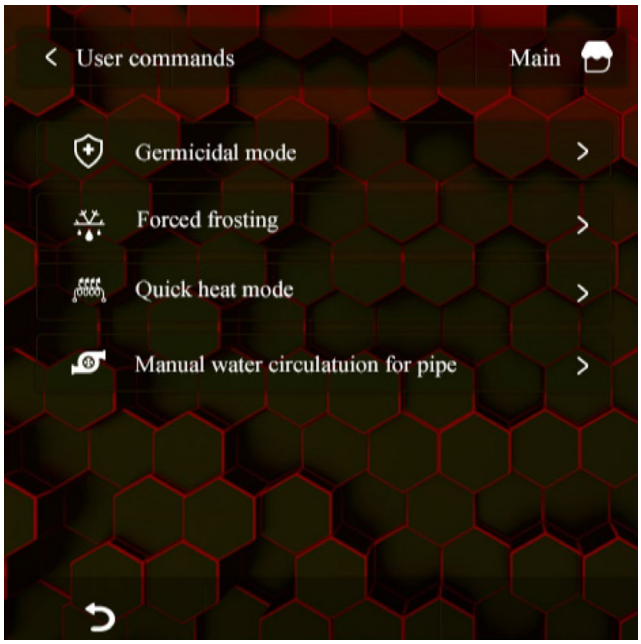
When the screen is on, click to set the temperature value to pop up the keyboard, enter the temperature, and press "Enter" to save.



Function 8.41.

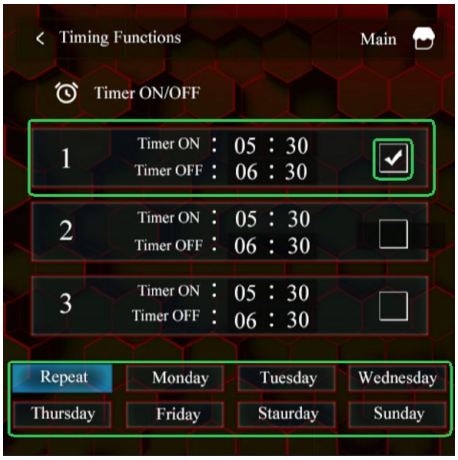
From top to bottom, they are high temperature sterilization, forced defrosting, manual quick heating, and manual water return (this unit does not have this function);
Click the corresponding button to start/stop the corresponding function.

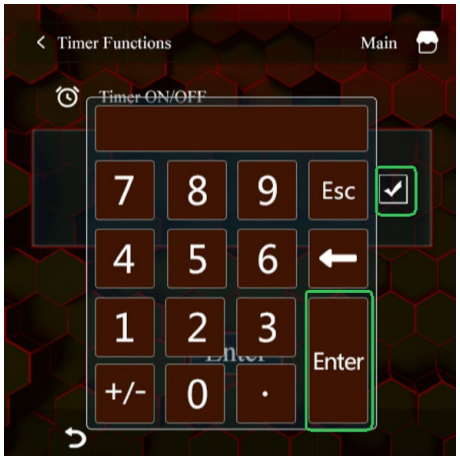




Timing control 8.1.5

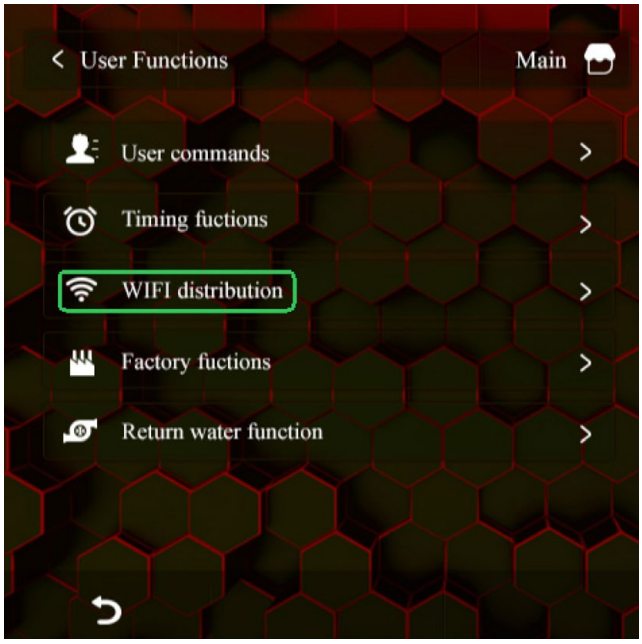
If you want to enable weekly timing, click any button from Monday to Sunday to select it.
To enable daily timing, click Repeat. Click a time period to enter the time setting for that time period, enter the time using the keyboard, and click the Enable button ☑. You can start/stop this timing.
After setting, press "Enter" to save.

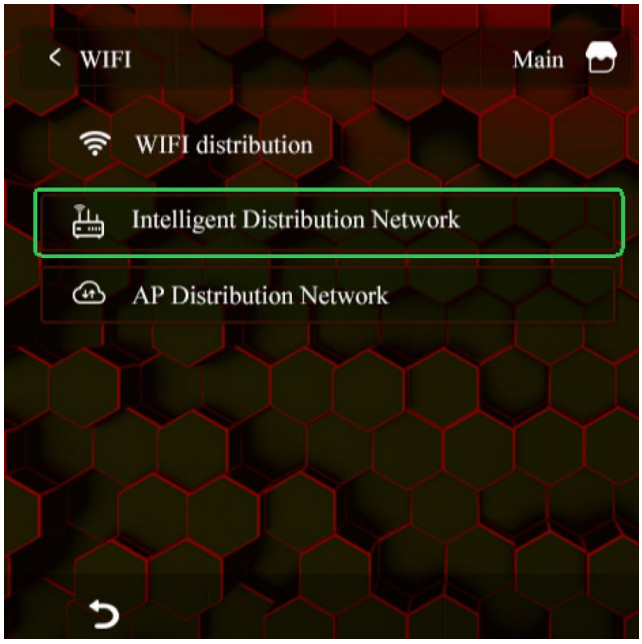




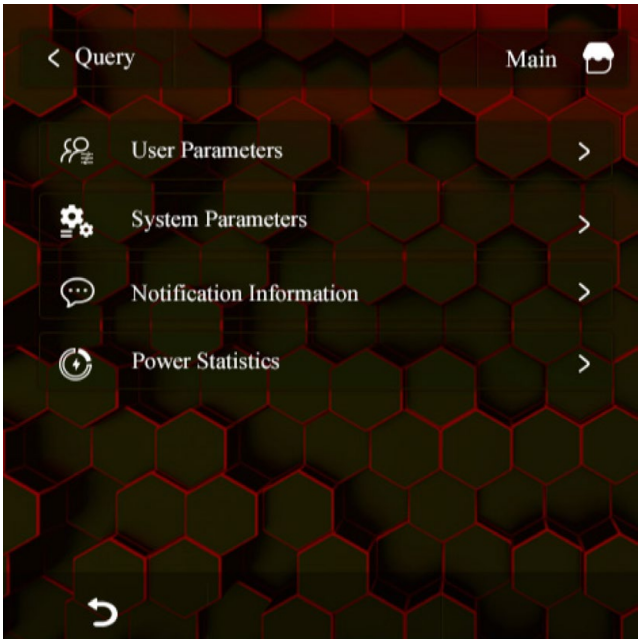
WiFi Distribution Network 8.1.6

Click to enter the corresponding WIFI network configuration mode
(Intelligent Distribution mode is recommended).





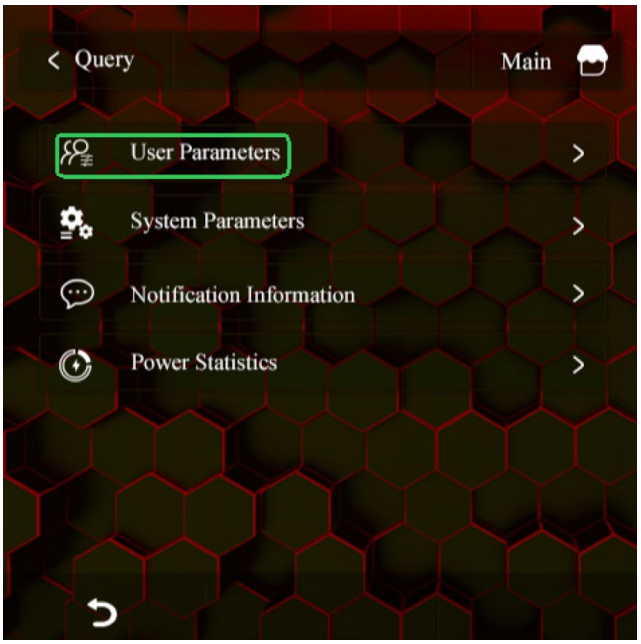
User Parameters 8.1.7

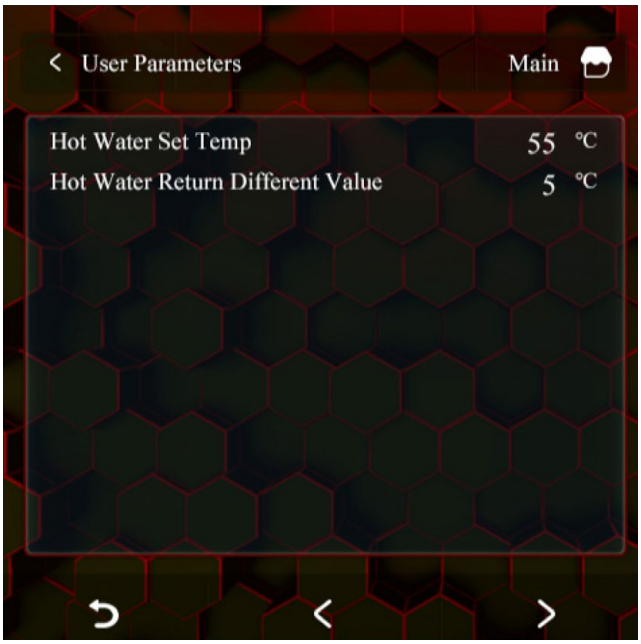


With the screen on, press  . Enter the query page.

Press 

. Enter user parameters to view.



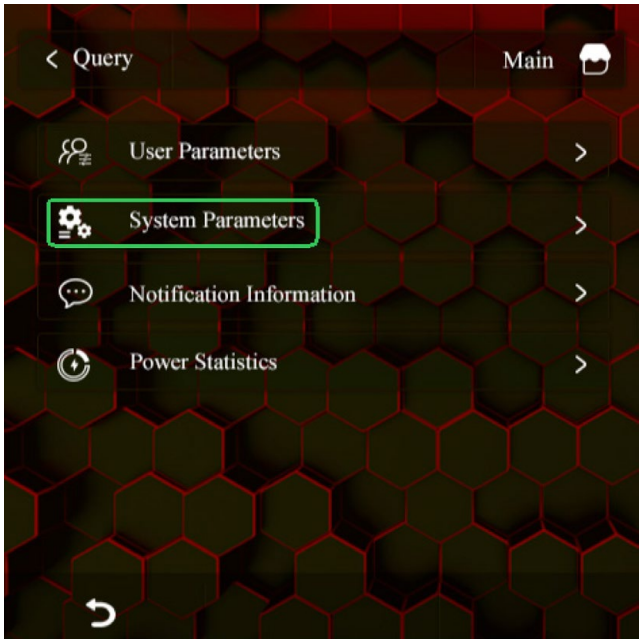


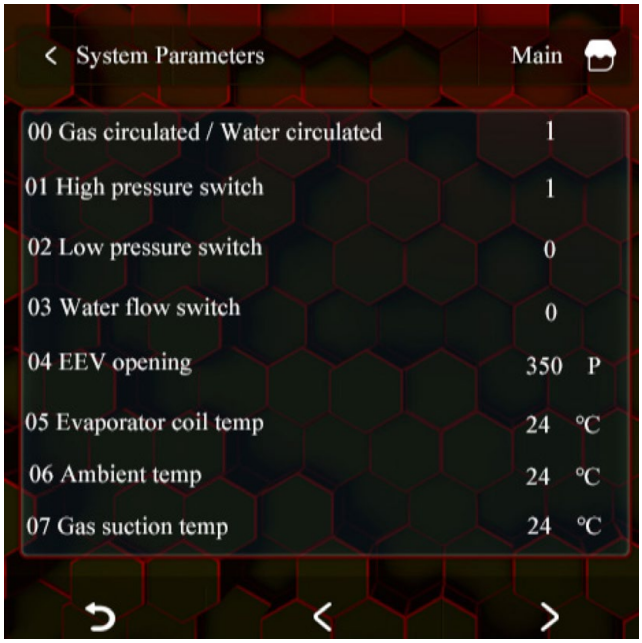
System Parameters 8.1.8

With the screen on, press  Enter the query page.

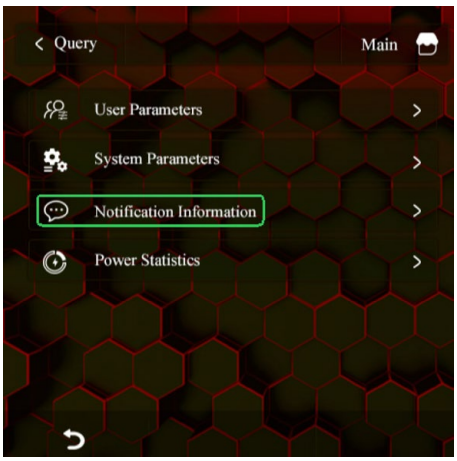
Press 

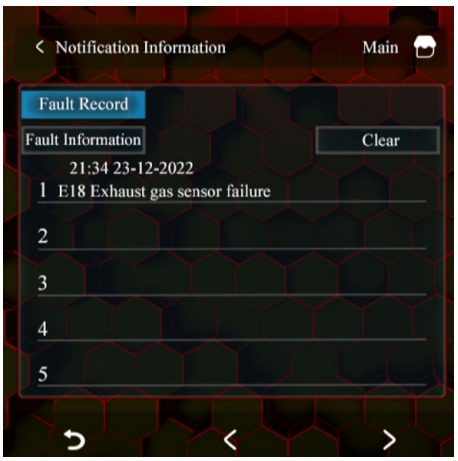
Enter the system parameters to view.





Fault Query 8.1.9





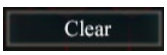
With the screen on, press  Enter the query page and click 

.

Press 

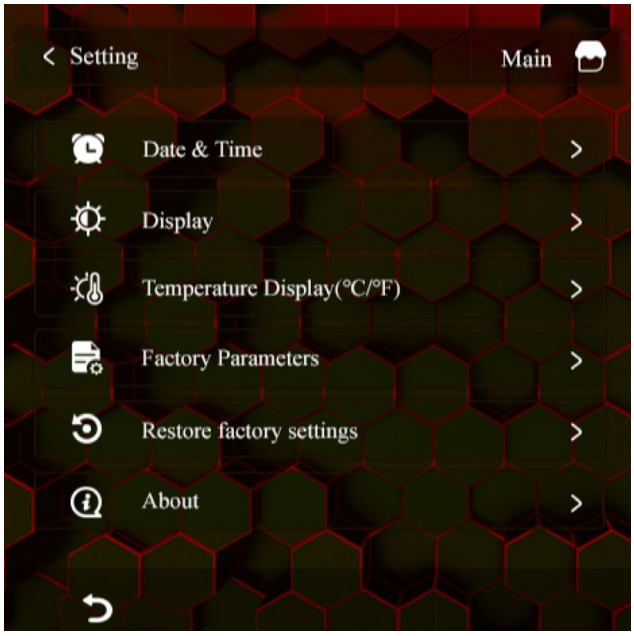
. To view historical faults, click 

.

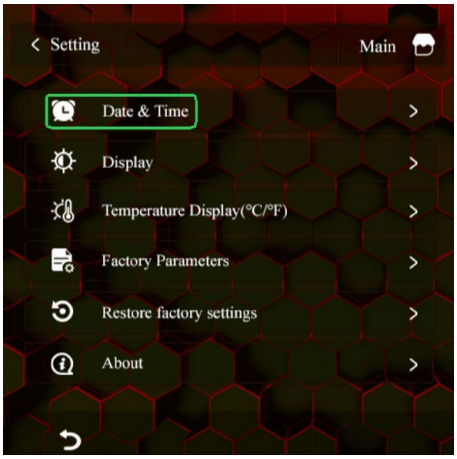
To view the current fault, click 

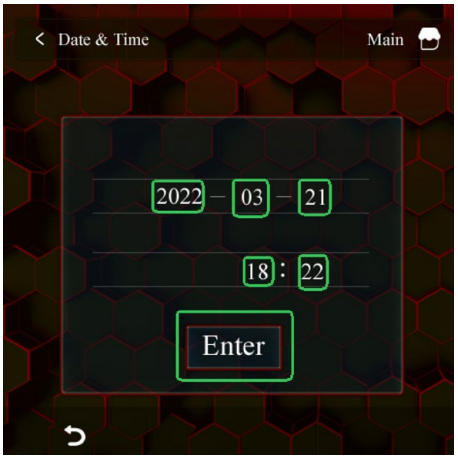
Clear history faults:

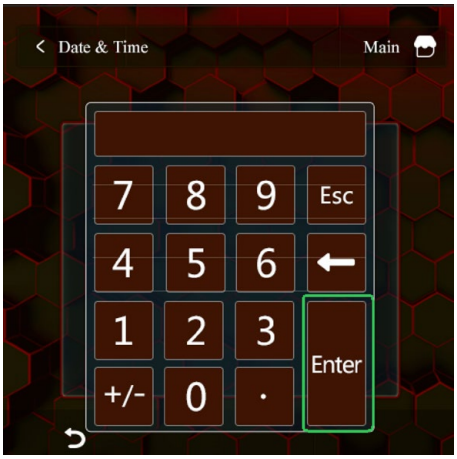
Setting 8.2.1



Date & Time 8.2.2







With the screen on, press  . Go to the settings page. Press 

. Enter the time setting page.

Restore factory settings 8.2.3

With the screen on, press  . Go to the settings page and click 

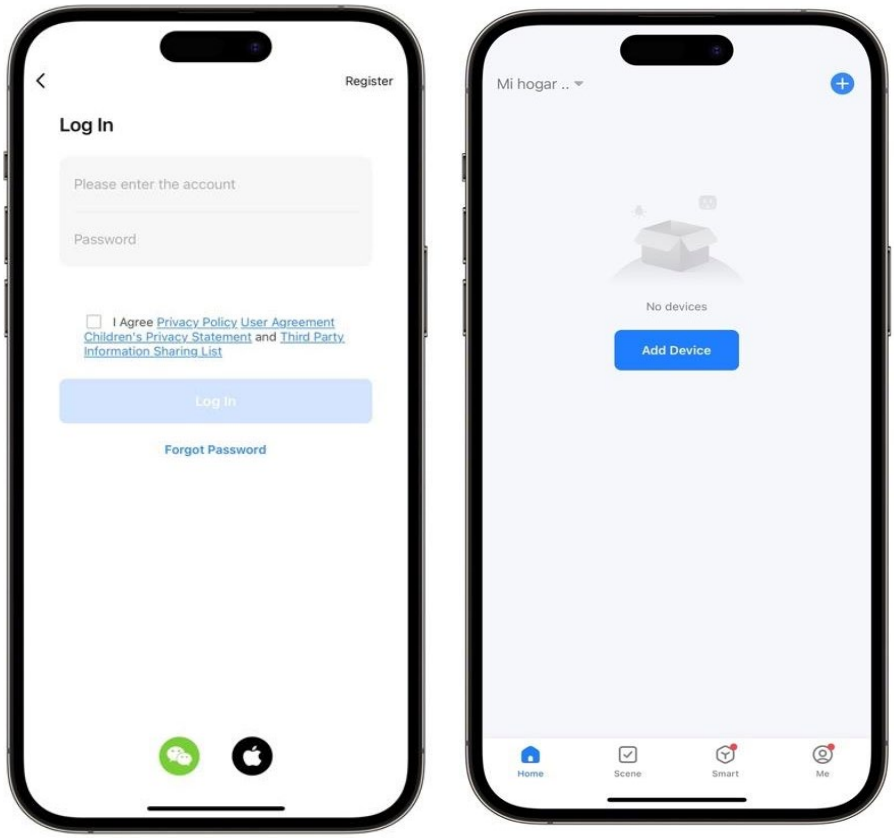
.
Enter the factory reset page, then click  . To restore the factory settings. Click  to exit.

8.3 Wi-Fi Setting

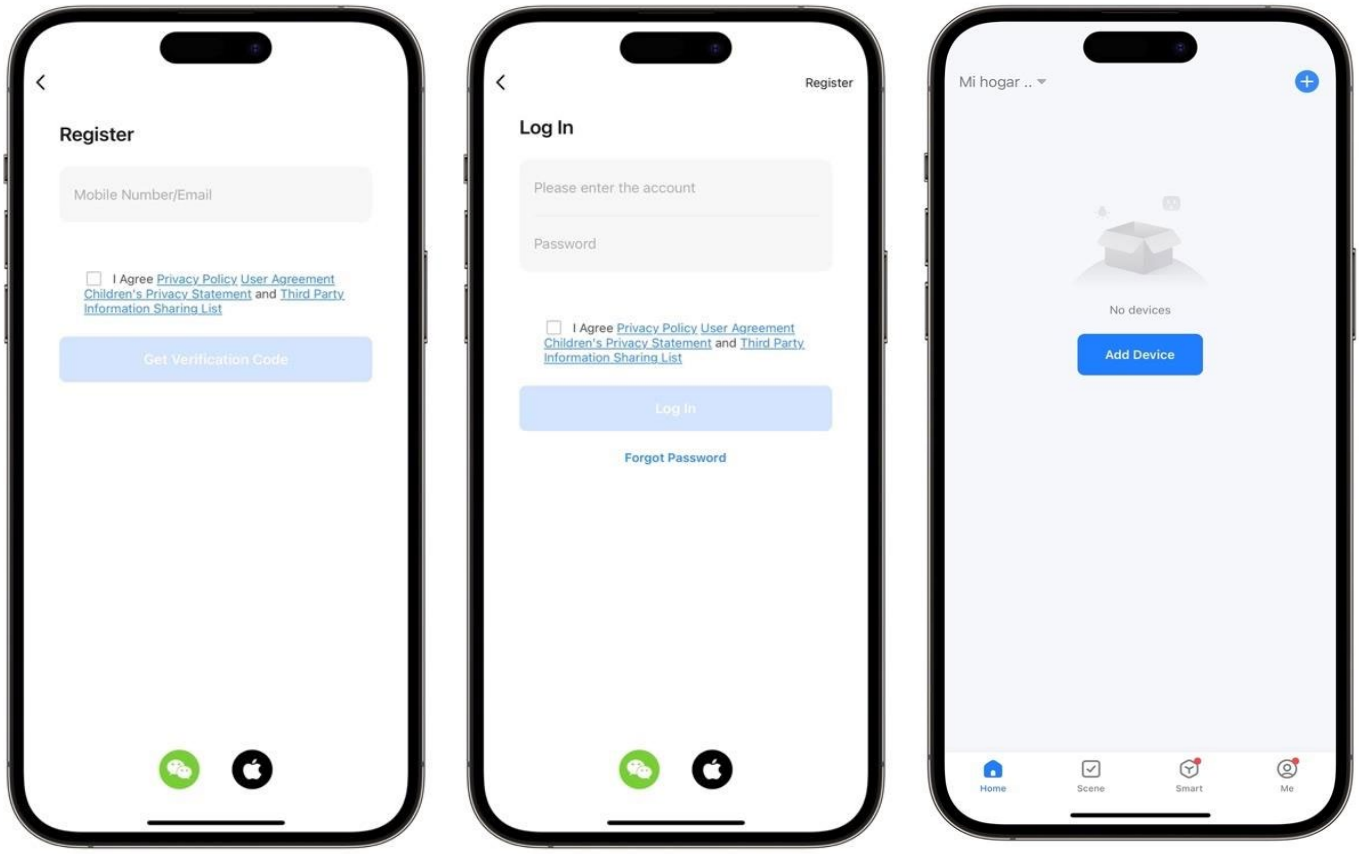
The heat pump supports remote control by mobile phone. You need to download the APP in the app store and register an account to perform network distribution operations. The heat pump supports smart distribution network and AP distribution network. Under normal circumstances, it is recommended to use smart distribution network connection.

1. Search "Smart Life" in the App Store or scan the following QR code with your mobile phone to download.

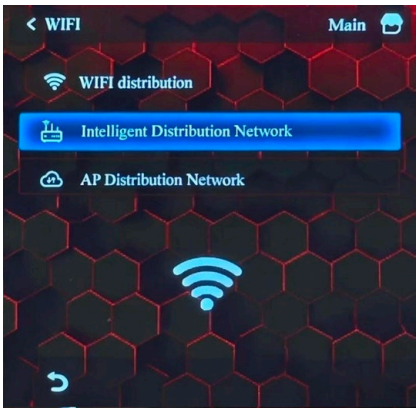
2. Enter your account number and password to enter the APP main page.



3. If you log in for the first time, you need to register an account. After registration is completed, enter your account password to enter the APP main page.



Manual Intelligent Distribution Network



- Wake up the panel by tapping it
- Go to :Function"
- Go to "Wifi Distribution"
- Select "Intelligent Distribution Network"
- If the above does not work after Steps 1 & 2 below, try selecting "AP Distribution Network"

Step 1

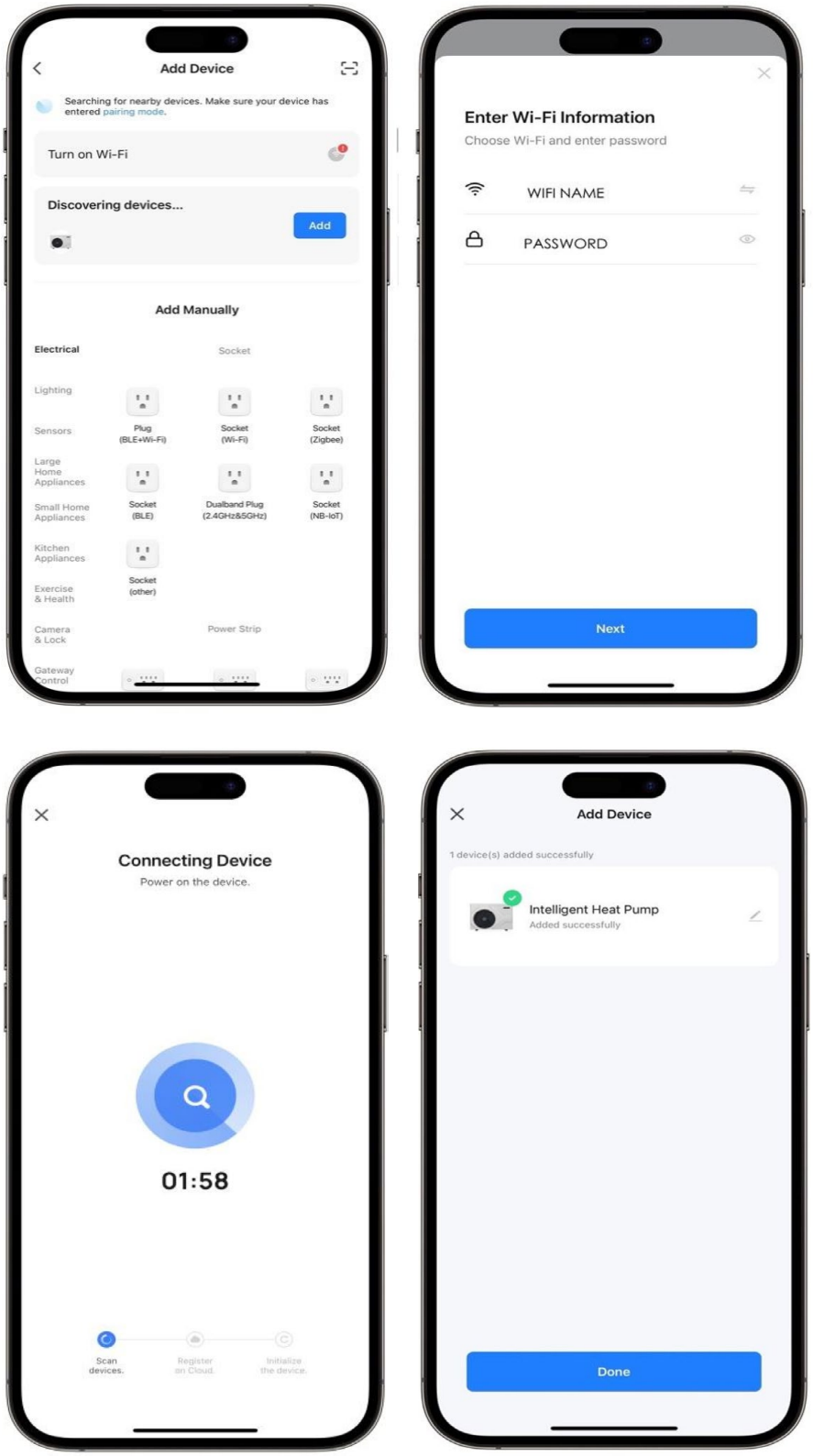
Open the "Smart Life" APP, login to the main interface, click the "lift" icon in the upper right corner to add devices or "Add Device" in the interface, enter the device type selection, and select "Smart Heat Pump (Wi-Fi)" in the "Main Appliance" device, enter the add device interface.

Step 2

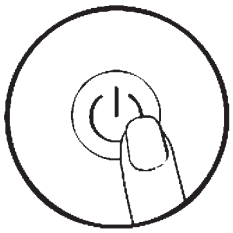
Select Smart Heat Pump (Wi-Fi) and enter into the Wi-Fi connection interface, enter the Wi-Fi password that the phone has been connected to (must be the same as the Wi-Fi connection to the phone), click Next, and confirm that the line controller has selected the intelligent distribution mode, " " icon is fast-flashing, click Confirm that the indicator is flashing, then start adding devices directly, click the "lift" icon to add devices. Note: The icon flashes slowly when the Wi-Fi module is connected to the Wi-Fi hotspot.

Step 3

The system prompts “Add Device Successfully” and then the network is successfully distributed. Click on the icon in this interface to change the device name, select the device installation location (living room, main bedroom), and click Finish to enter the main interface of device operation.



Manual AP Distribution Network



In the unlocked state go to function, select WiFi distribution then select AP Distribution network.

WiFi signal flashes. Enter distribution network status.

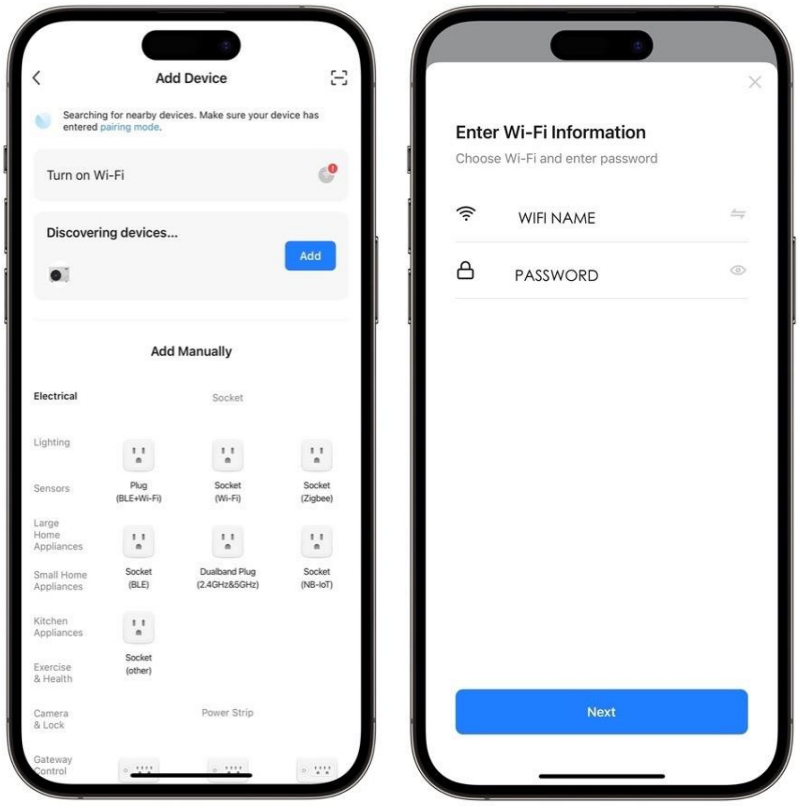
Step 1 and Step 2: Be consistent with the Intelligent Mode.

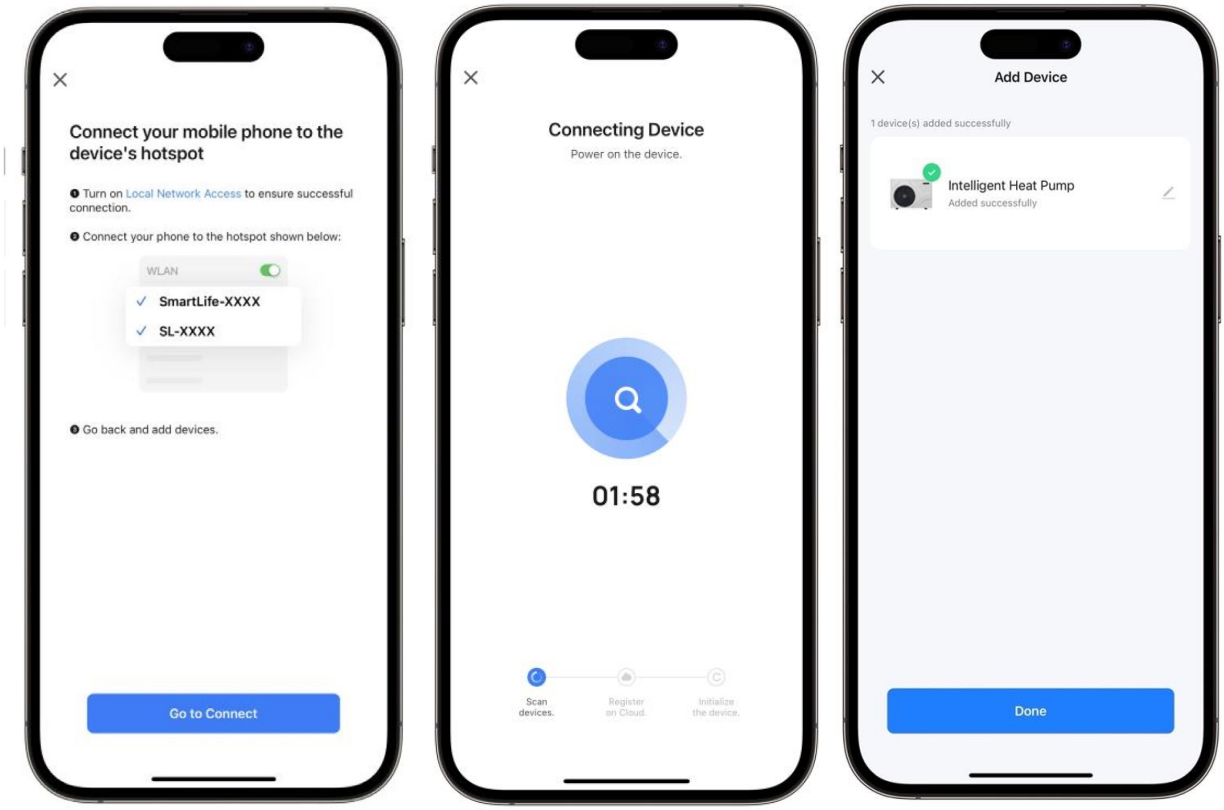
Step 3

Select innovative heat pump (Wi-Fi) after entering into the Wi-Fi connection interface, enter the phone has been connected to the (Wi-Fi) password (must be consistent with the Wi-Fi connection to the phone), click next, confirm that the line controller has selected AP distribution mode, an icon in the slow flashing state " ", click "Confirm that the indicator is in slow flashing," then connect the phone Wi-Fi to the device hotspot (as shown below), confirm that the connection hotspot is correct to continue to the next step then directly begin to connect the device interface, find the device "registers to the cloud" device initialization is complete.

Note: When the wire Wi-Fi module is connected to the Wi-Fi hotspot, the icon " " slows flashing.

Step 4 The same as the Intelligent Mode.





8.4 Software Function Operation

1. A device is automatically bound to a virtual gateway. The “My Home Heat Pump” (device name, which can be changed) operation page is displayed. Buy a ticket to enter the device operation page of “My Home Heat Pump” by clicking on “My Home Heat Pump” in the “All Devices” screen of smart Life.
2. Modify device name and modify device location information. Click “Name” to rename the device name and “Location” to alter the device location.

8.5 Device Sharing

Share bound devices in the following sequence:

1) After successful sharing, the list is added to display the shared person.
2) Long-press the selected user, and the deletion interface will pop up, click “Delete”.
3) User interface operations are as follows:
4) Enter the account of the shared user and click “Finish” to display the newly shared history in the list of successful sharing.
5) The interface of the shared person is as follows. The shared device received is displayed. Click in to operate and control the device.

8.6 Fault code and solution

Error code	Error description	Possible causes
E05	High gas pressure protection	Water flow restriction/Water pump is faulty/Dirty heat exchanger/Heat pump setpoint set too high/Water pressure too low/High pressure switch broken or connection is faulty
E06	Low gas pressure protection	Refrigerant system leak/Defrosting function is disabled/Low pressure switch broken or connection is faulty
E09	Communication failure	Display cable connection faulty/Strong magnetic field/PCB is faulty
E12	Discharge gas temperature too high	Heat exchangers dirty or gas leak
E15	Tank temperature sensor failure	Sensor failure/Connection is faulty
E16	Evaporator coil temperature sensor failure	Sensor failure/Connection is faulty
E18	Discharge gas temperature sensor failure	Sensor failure/Connection is faulty
E21	Ambient temperature sensor failure	Sensor failure/Connection is faulty
E22	Return water temperature sensor failure	Sensor failure/Connection is faulty
E23	Outlet water temperature too low protection	Heat pump freeze protection/Faulty 4-way valve
E27	Water outlet temperature sensor failure	Sensor failure/Connection is faulty
E29	Suction temperature sensor failure	Sensor failure/Connection is faulty
E32	Outlet water temperature too high protection	Target temperature set too high/Insufficient water flow

9. Test operational

9.1 Note

Attention:

1. **The trial operation needs to ensure that the entire system is filled with water and air is removed.**
2. **Only after confirming that all valves are in the correct on /off state can trial operation be carried out.**
3. **Trial operation can only be carried out after electrical safety inspection.**
4. **Absolute prohibition of forced operation.**

9.2 Confirmation items before test operational

In order to avoid accidents and dangers during trial operation and ensure safety and reliability during trial operation, it is necessary to confirm the following items before trial

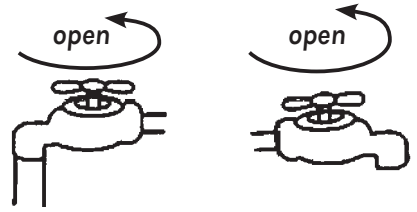
Type	Inspection Content	Yes or No
Installation of appliance	Is the appearance intact and free of scratches	
	Is the installation space meet the requirements	
	Does the foundation specifications meet the requirements	
	Does the air inlet and outlet meet the requirements	
	Are rain, sun, snow, and strong wind protection measures implemented	
Installation of water pipe	Is the pipeline well sealed and leak free after water injection	
	Is the pipeline cleaned and free of impurities	
	Are drainage measures in place and ensure smooth drainage	
	Is the pipeline insulation complete	
	Is the air inside the pipe completely discharged	
	Is the pipeline valve in the correct open/ closed state	
	Is an air vent installed at the highest point & other high points of the pipeline	
	Is a drainage valve installed at the lowest point of the pipeline	
Installation of electrical	Does the power supply meet the requirements of the unit	
	Can the leakage protector effectively operate	
	Is the ground wire correctly connected	
	Is the wiring specifications correct	
	Is the power wiring intact and undamaged	

9.3 Test operational

After passing the inspection according to the above list, please operate in the following order:

1. Feeding water: when using the appliance for the first time (or reusing it after the tank is emptied), before connecting the appliance to power, please make sure the tank is full of water. Water feeding method is as per below picture.

Open the cold-water inlet valve and hot water outlet valve



Feeding water

When there is water flowing out from the outlet, the tank is full with water. Close the hot water outlet valve and the water feeding are finished.

Operation without water in water tank may result in the damage of auxiliary E-heater. Due to such damage, manufacturer will not be liable for any damages caused by this issue.

2. Connect the appliance to power. Then the screen will turn on, which shows that the unit is connected to power.

Control the operation of the appliance with a wire controller and check the following items according to the manual: (If there is a fault, please troubleshoot it according to the fault and its cause explained in the manual).

Type	Inspection Content	Yes or No
The operation of the appliance	Is the wire controller working properly	
	Are the function keys of the wire controller working properly	
	Is the indicator light working properly	
	Is there any abnormal vibration or sound in the unit	
	Does it work properly in each mode	
The operation of the water system	Is the drainage normal	
	Is the outlet water temperature normal	
	Is there any water leakage in the pipeline	
	Is the air vent on the pipeline venting properly	
The operation of the electrical system	Does the power supply meet the requirements of the unit	
	Is the ground wire connected securely	

9.4 Operational requirements

Attention:
1. The trial operation of the unit must be carried out by professional technical personnel to avoid danger or damage to the unit.

9.5 Operation related instructions

9.5.1 Defrosting during heating operation

During heating operation, the main unit may experience frosting. In order to improve heating efficiency, automatic defrosting operation is carried out (about 2-10 minutes).

9.5.2 Regarding power outages

(1) If there is a power outage during operation, stop all operations.
(2) After a power outage, the unit will automatically detect the water level and temperature of the water tank, automatically start the unit or standby, without the need for manual startup.
(3) In case of accidental operation caused by lightning or radio during operation, please cut off the manual power switch, turn it on again, and press the ON/OFF button again.

9.5.3 Regarding leakage current action protectors

(1) The unit itself has a leakage protection switch. When there is no power outage but the unit cannot operate, please check the leakage protection switch. If this will not reset, please check with electrician for an electrical fault.

9.5.4 Regarding the power-off memory function

Before each power outage, the line controller automatically remembers the on/off status of the unit. After powering on again, the line controller will send a signal to the unit according to the memory state before powering off, ensure that the unit can still operate according to the user's original setting after abnormal power outage and recovery.

10. Maintenance and solution

10.1 Maintenance

1. All safety protection devices inside the unit are set before the product leaves the factory. Please do not adjust or remove them on your own to avoid damage to the unit.
2. Do not stack debris on the unit, and keep the surroundings dry, clean, and well ventilated.
3. Regularly clean the filters in the water system to avoid blockage that may cause unit protection or damage, and regularly check whether the water system's water replenishment device is functioning properly.
4. When the winter ambient temperature is below zero degrees Celsius, it is strictly prohibited to cut off the power supply, otherwise the anti-freezing protection of the unit will fail.
5. When the unit is not in use for a long time, water should be drained from the unit and pipeline system, including the water tank.
6. If the hot water system is not used for two weeks or more, a quantity of highly flammable hydrogen gas may accumulate in the water heater. To dissipate this gas safely, it is recommended that a hot tap be turned on for several minutes or until the discharge of gas ceases. Use a sink, basin, or bath outlet, but not a dishwasher, clothes washer, or other appliance. During this procedure, there must be no smoking, open flame, or any electrical appliance operating nearby. If hydrogen is discharged through the tap, it will probably make an unusual sound as with air escaping.
7. Do not manually start or stop the unit frequently, and do not manually close the manual regulating valve of the water system while the unit is running.
8. Regularly inspect the working condition of various components of the unit, and also inspect the internal pipeline joints of the unit.
9. When the unit malfunctions and the user is unable to solve it, please contact us in a timely manner so that someone can be sent for repair in a timely manner.
10. Attention should be paid to drainage: if not used for a long time in winter or if there is a power outage for a long time, the water in the water system must be drained completely; Before draining, ensure that the unit is powered off while in standby mode, open the water system drain valve, and at the same time, open the unit drain valve.
11. Each device has been matched with one anode rod, and the anode rod will be slowly consumed during the process of protecting inner tank and extending use life. Under some water circumstances, the anode may be quickly corroded and used up. Checking annually and if the anode is used up, have it replaced by a qualified service technician.

10.2 Information for service personnel

1. Checks to the area
   Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. For repair to the refrigerating system, the following precautions shall be complied prior to conducting work on the system.
2. Work procedure
   Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.
3. General work area
   All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided. The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.
4. Checking for presence of refrigerant
   The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. On-sparking, adequately sealed or intrinsically safe.
5. Presence of fire extinguisher
   If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.
6. No ignition sources
   No person carrying out work in relation to a refrigeration system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which flammable refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.
7. Ventilated area
   Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it extremally into the atmosphere.
8. Checks to the refrigeration equipment
   Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer’s maintenance and service guidelines shall be followed. lf in doubt consult the manufacturer’s technical department for assistance.
   The following checks shall be applied to installations using flammable refrigerants:
   —The charge size is in accordance with the room size within which the refrigerant containing parts are installed;
   —The ventilation machinery and outlets are operating adequately and are not obstructed;
   —If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
   —Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;

—Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

9. Checks to electrical devices
   Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

*That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;

*That there no live electrical components and wiring are exposed while charging, recovering or purging the system;

*That there is continuity of ground bonding.

10.3 Repairs to sealed components

1. During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.
2. Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc. Ensure that apparatus is mounted securely. Ensure that seals or sealing materials have not degraded such that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications. NOTE: The use of silicon sealant may inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

10.4 Repair to intrinsically safe components

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating. Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

10.5 Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

10.6 Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

10.7 Leak detection methods

The following leak detection methods are deemed acceptable for systems containing flammable refrigerants. Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25 % maximum) is confirmed.

Error	Reason	Approach
The outlet water is cold; The screen is dark	1. The plug is not plugged properly 2. The temperature controller is on the lowest temperature control state; 3. The temperature controller is damaged 4. The circuit board of the indicator lamp is damaged	1. Plug in properly. 2. Set the temperature of the controller in higher state. 3. Inform the service department
No water out from the hot water outlet	1. The tap water is cut off 2. The water pressure is too low 3. The tap water inlet valve is closed	1. Waiting for the restore of the tap water. 2.Wait and use when the water pressure is raised 3. Open the tap water inlet valve
Water leakage	Bad tightness in the connecting points between pipes.	Improve the tightness of the connecting points

11. Warranty Certificate

HEAT PUMP WATER HEATER WARRANTY CERTIFICATE

Parex Industries Limited ("Parex") warrants that it will make good without charge, by repair or replacement with a reasonable equivalent product or refund the purchase price paid, at Parex discretion, any defect in a product comprising part of the hot water system supplied by it arising during the warranty period for that product, subject to the conditions below. The warranty period for each product comprising the system will be as follows.

Product	Warranty Period
ECOS200	5 years
ECOS270	5 years

Any claim under the warranty shall be subject to the following conditions:

1. Product has been purchased from Parex nominated merchants/retailers.
2. The Product Warranty is subject to the unit being Serviced in accordance with the owners manual recommendations.
3. To make a warranty claim the product name, product model, DOP, serial number, customer details and fault must be provided to Parex.
4. The warranty period commences from the date of purchase of the product.
5. The warranty only applies where the product has been installed and used for normal domestic purposes.
6. Parex has determined that the claim is a genuine product defect and is not caused by:
   a. Any work carried out on the product by someone other than an authorised installer or distributor or service agent.
   b. Accidental or deliberate damage caused to the product by any person or event.
   c. Unstable, overloading or non-standard electrical supply.
   d. Incorrect installation
   e. Continued operation of the product after it is known to be defective.
   f. The fitting of parts/valves or accessories etc. to the product not supplied or approved of by Parex.
   g. Misuse of the product or the system of which it forms part other than in accordance with the User's Manual.
   h. Damage caused by corrosion because the anode has not been changed in accordance with the owner's manual.
   i. Damage caused by corrosion through exposure to salt or sulphur in the air at high risk locations. E.g. On the coast or in Rotorua.

This Warranty does not include:

1. Transportation cost of repaired or replacement parts.
2. Environmental damage from storms, floods, hail, snow, frost, salt air, sea side or earthquake and others.
3. Cleaning and maintenance service.
4. External or labour costs or equipment costs (e.g. Cranes and lifting devices) required for repairs.
5. Any costs incurred because of the appliance being installed in a restricted, unsafe or difficult to access location.
6. Travel costs of service agents that exceed 30 kilometres.

PAREX expressly excludes any other liability to the purchaser of its system or the products including indirect or consequential loss or loss of profit except to the extent set out in the warranty (or to the extent that such liability may not be excluded pursuant to the Consumer Guarantees Act 1993).
New Zealand consumer law: The rights under this warranty are in addition to any rights and remedies you may have under the Consumer Guarantees Act 1993, and nothing in this warranty limits your rights under the Act.

TRANSFERABILITY
If the building in which the products have been installed is sold, the new owner receives the balance of the period between the original installation date and warranty expired date.

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ecospring
HOT WATER SYSTEMS

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