

WARMTH EVERY DAY

HYDROMAX

NEW GENERATION'S HEAT PUMP WATER HEATER

Heat Pump Water Heater

Installation and Using Instruction Manual

Available for Models: ARG-03H, ARG-05H, ARG-07H, ARG-10H, ARG-15H

Version: 11A-1

Instruction Manual

- Because products are continuously being improved, this booklet may describe features different from your product..
- Changes in product maynot be reflected in this booklet.

To ensure proper use of this appliance and your safety, please read the following instructions completely before using.

Please save this manual for your convenience of future reference.



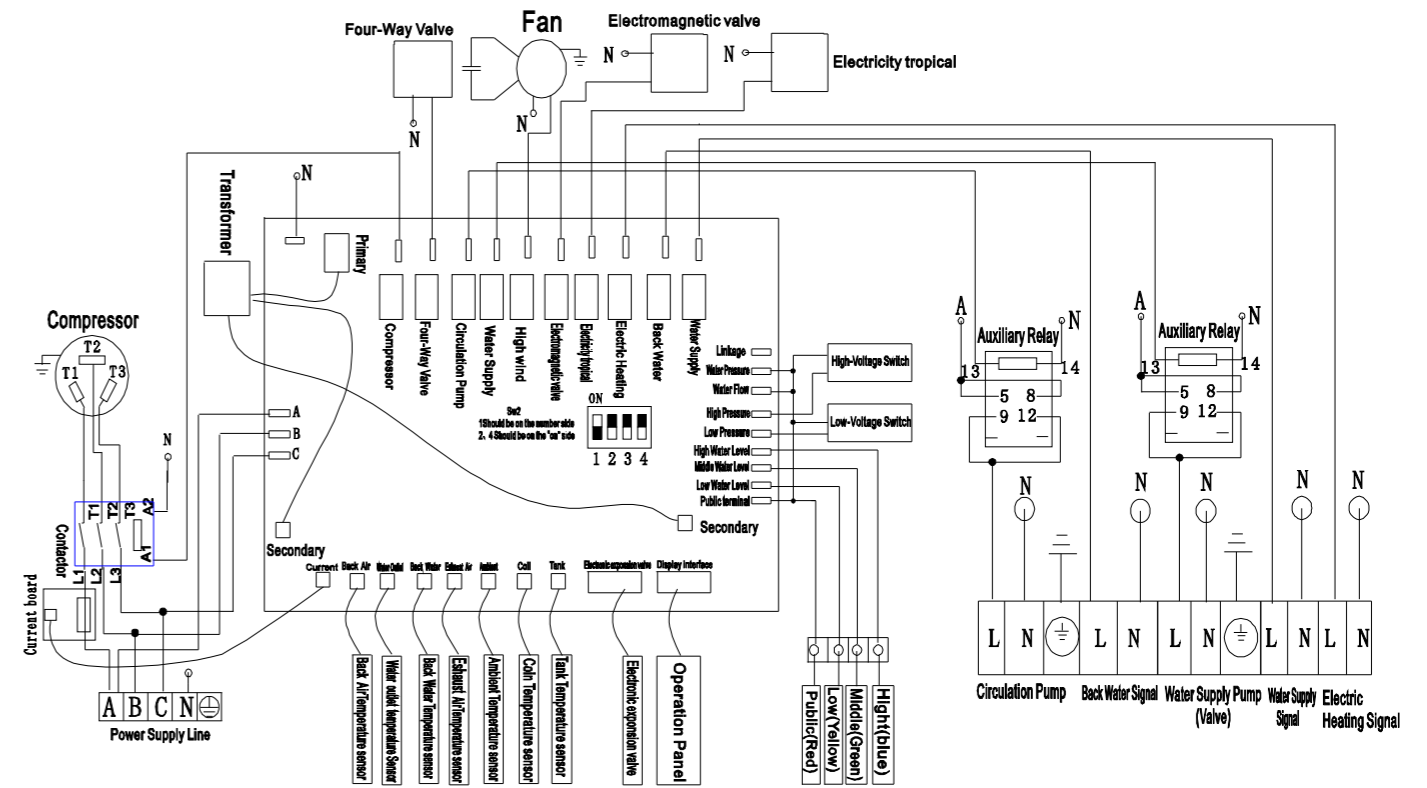
We sincerely thank you for choosing our Heat Pump Water Heater. Please read this installation manual carefully before using, in order to take full advantages of the Heat Pump's good quality. Please keep this manual properly for convenience of future checking. Thank you!

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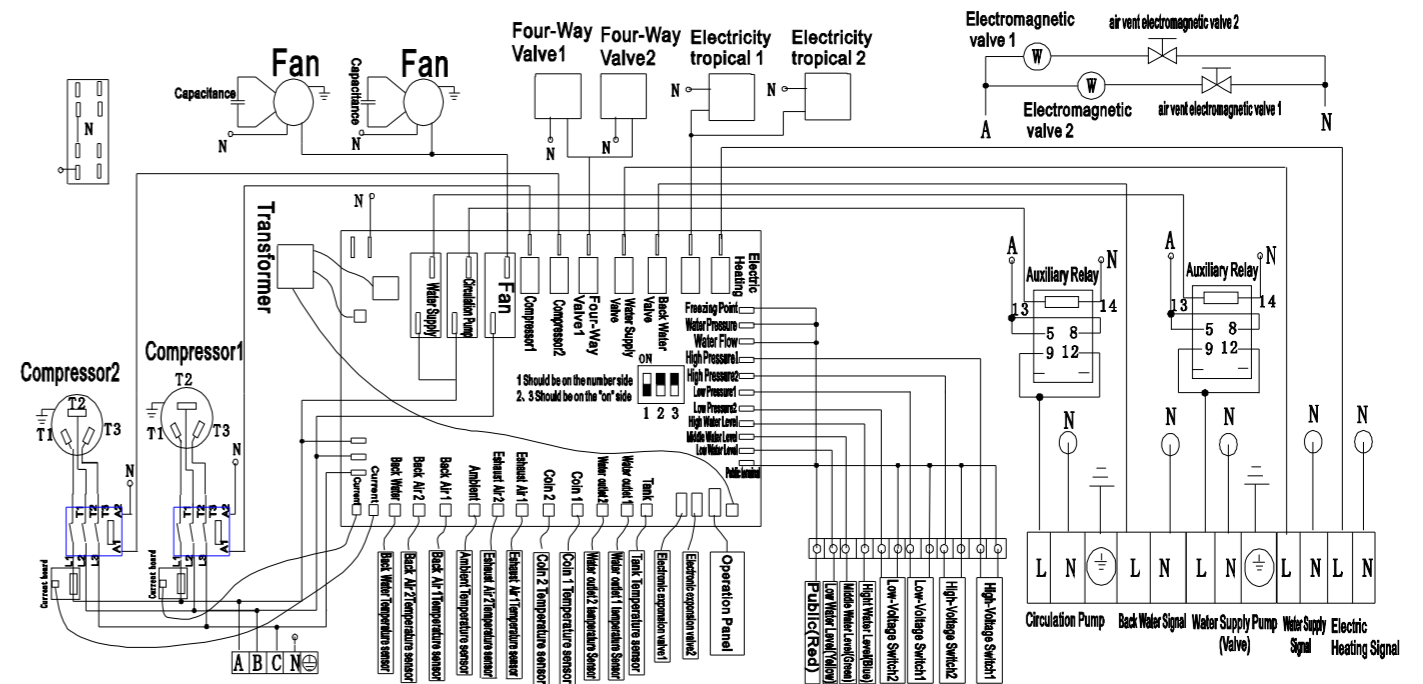
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ARG-07H, ARG-05H Circuit Diagram Single Compressor



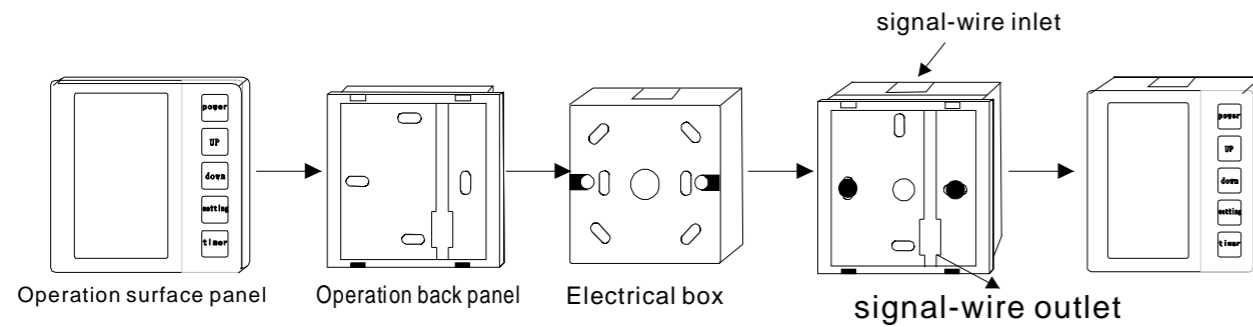
ARG-15, ARG-10H Circuit Diagram Double Compressor



The above electric diagram is for reference only, For installation, please see to the wiring diagram pasted on the unit.



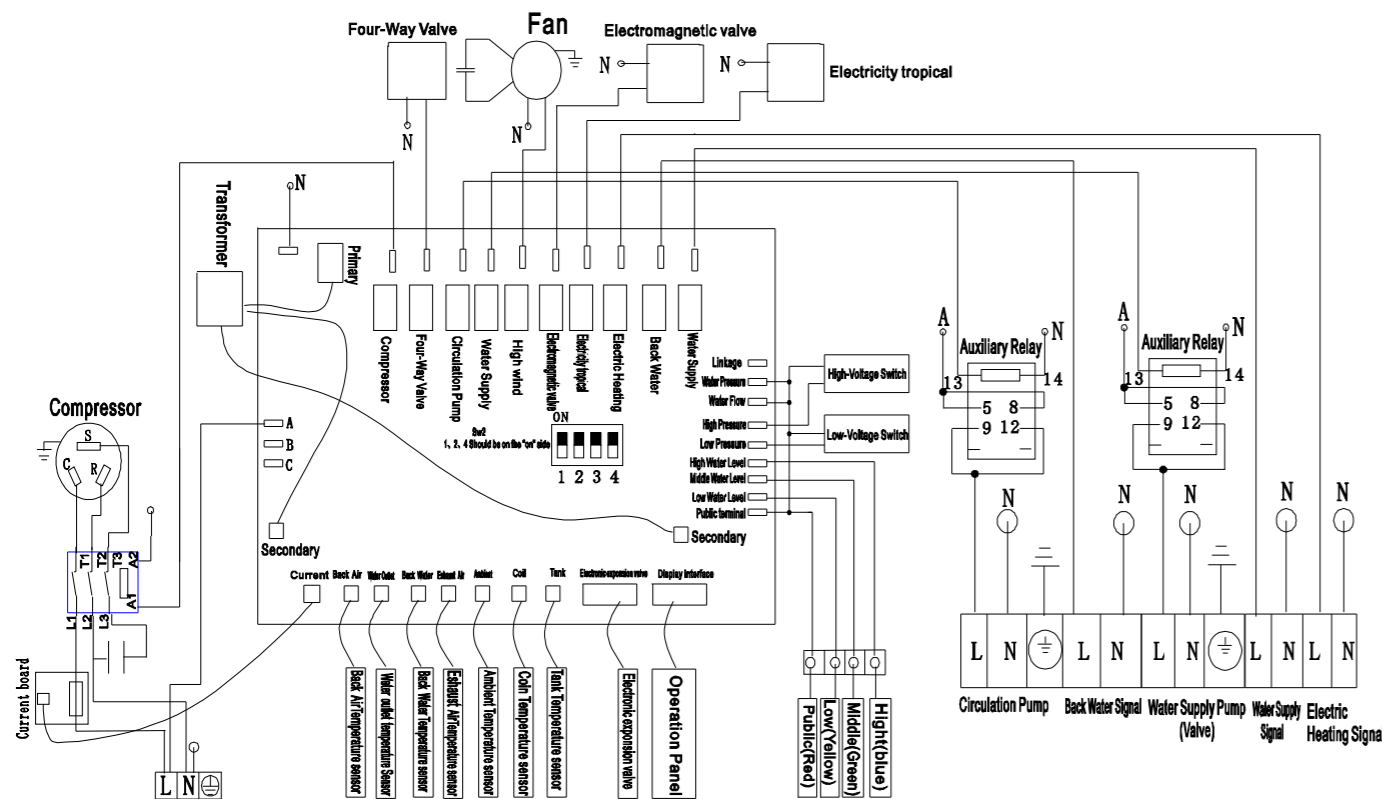
INSTALLATION OF CONTROLLER



Separate the surface panel and back panel of the controller's operation panel. (invert the controller to disassemble)
Secure the controller's back panel into the electrical box . Attention: Be sure to put in the signal-wire before you fix the back panel.
Put the operation panel back to original place after step 2, and fasten it before using.

ELECTRIC WIRING DIAGRAM

ARG-03H Circuit Diagram



To USERS

- Dear users: before installing and using this product, please read this manual carefully, otherwise may cause damage of the instruments or the operator's injury and property loss.
- As the constant progress of science and technology, our product series and specifications will be adjusted accordingly, so please pay close attention to the latest product information.
- While reading this manual, if you need any technological consultation, please contact with our company or local agent.
- Cautions:
 - Please meet the requirements for electric source capacity and electric power of water heater while installing the Air Source Heat Pump Water Heater . For requirements details please check the nameplate on machine or the installation instruction manual.
 - It is necessary to install an electric leakage protection device.
 - Electrical Grounding must be supplied congruent to national and local code, and it is prohibit using the machine without the electrical grounding. Please do not connect the grounding line to Zero line or running water pipe.
 - Refer to Electric Circuit Diagram for installing.
 - Please do not dismantle or repair the Air Source Heat Pump unit privately, for safety reasons.
 - Water temp above 52 may cause injured, please mix with some cold water before using .
 - Be careful not to insert any tools or sundries into the unit which could touch the fan and cause unit damage or injury. (Children are especially forbidden.).
 - Don't use the Air Source Heat Pump unit when without the grid or metal plate installed, in order to avoid any accident or default operation..
 - Please contact the Installation Agent immediately if the unit heating part inputs water. Heater can be reused only after fixing by technicians.
 - An unqualified technician is not permitted to adjust the switches, valves and controllers inside the unit.

PRODUCT INSTRUCTION

- Unit Characteristics
 - Safety and Reliability**
Air Source Heat Pump Water Heater does not consume electric to heat the water, the current and water are totally separated and has a very high safety quotient. The electric shocks, flammability, explosive possibility and other unsafe conditions which exist in electric water heaters or gas heaters don't exist in Air Source Heat Pumps.
 - High Efficiency and Energy Saving**
Air Source Heat Pump Water Heater extracts abundant free heat energy from air. The electric energy is only used to make the compressor to transfer heat from air to water. Hence to provide the same quantity of hot water, the Air Source Heat Pump only costs one-fourth as much electricity as the traditional water heaters, which can save quite a lot of electricity bills for users.
 - Green Energy and Earth-friendly**
Air Source Heat Pump Water Heater utilize three types of clean energy---- solar energy, air heat energy and electric energy---which initiate no harmful gases in the working process, and will not cause environmental pollution like oil, coal, gas and mines.
 - For 24 hours hot water supply**
Air Source Heat Pump Water Heater will not be affected by severe weather such as the overcast or rain. It can be used the whole day.
 - Durable Service Life**
The compressor, four way valves and other primary accessories of Air Source Heat Pump Water Heater are all international famous brand products which give a guarantee of the product quality, and prolong the lifespan of the water heater.
 - Simply Installed**
Our Air Source Heat Pump can be easily installed and doesn't have any limitation on the installation places. A well installed solar water heater will give you years of trouble free performance.



Wide Field of Applications

Air Source Heat Pump Water Heater has various different series of products, which can satisfy the heating or cooling demand of factories, fisheries, public swimming pools, bathing centers etc.

Multiple Safety Protection Devices and Functions

The unit includes compressor overload protection, overflow protection, overheating protection and 3 minutes prolonged starting machine protection, HV protection, low pressure protection, phase lack/converse protection, temperature sensor protection, and it has auto defrosting, clock and rated time on/off functions.

2. Components of the Heat Pump

Air Source Heat Pump unit is made up of fluorine system and electric control system two parts. The whole operation can be completed through the controll panel.

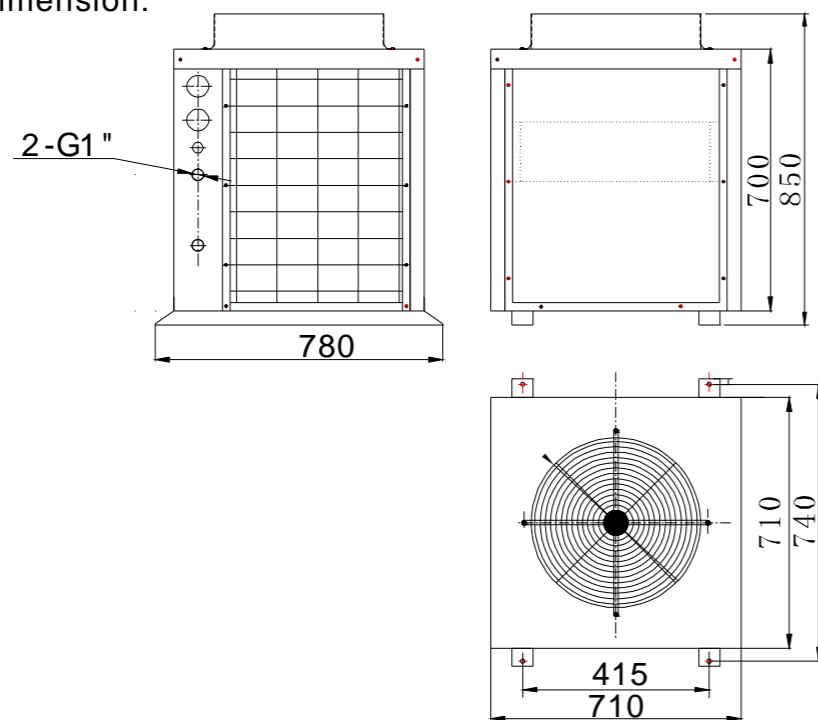
3. Air Source Heat Pump Technical Character Parameters

Remark: The above parameters apply to: dry-bulb temperature 20 ,wet bulb temperature 15 and outlet water temperature 75 .

OUTLINE DIMENSION & WORKING PRINCIPLE

1. All types units' dimension refer to the drawings below:

ARG-03H, units dimension:



Malfunction and solution:

If malfunction happens when using, users please contact with professional repairers. The following list is for reference of the repairing work.

Malfunction Condition	Possible reasons for the malfunction	Solutions
Unit doesn't work	Power Failure Power wire loose Control power fuses broken High and low pressure protection switch short-circuit AC circuit devices or circuit board failure	Disconnect the power switch, check the main circuit, power supply, voltage, whether there is electricity, or lack of phase Identify the causes and fixes Change new fuses Fix or change the switch Fix or change circuit board
Water pump is running but water doesn't circulate or water pump is too noisy.	Lacking water in Water systems Air in Water systems Some water valves closed Blocked or dirty filters	Inspect the water system, and replenish it Release the air Open water valve Remove blockage & wash filters
Heating capacity of the unit is not good	Refrigerant shortage Bad water system insulation Bad heat exchanger cooling Lack of water flow Filter blocked	Check leakage and replenish Check the heat preservation Wash air heat exchanger Clean or change filter Clean or change filter
Compressor doesn't work	Power supply failure Compressor contactor is damaged Loose wiring Compressor overheat protection High and low pressure protection switch short-circuit Water overheat protection Lack of water flow	Identify the causes and correct Change compressor contactor Identify the loose point and correct Check the exhaust temperature protection switch open circuit or not, to identify the reasons for overheating before using Fix or change the switch Reset the outlet water temp Wash filters and release air
Too much running noise of the compressor	Liquid refrigerant into the compressor Insufficient lubrication Compressor internal parts damaged	Check whether the expansion valve failure Add oil Change Compressor
Fan doesn't work	Fan screw loose Electrical burn Contactor damage	Tighten fan screw Change the fans Change contactor
Compressor is running but the unit doesn't produce heat	Refrigerant totally leaked Compressor Malfunction	Leakage check and add refrigerant change compressor
The compressor stops working immediately after turning on	Air in the system caused high pressure increases, which turns off the protection Switch Excessive refrigerant Abnormal power supply voltage or not enough diameter wire, excessive power supply circuits caused small starting current High and low pressure protection switch malfunction or air exhaust temp switch malfunction.	Vacuum and add refrigerant Discharge excess refrigerant Return to normal power supply Change switch
Lack of water flow	Lack of water flow Dirty or blocked filters	Check the water pump Wash the filter and release air
Exhaust pressure is too high	Excessive refrigerant Air in the system (Air-type non-condensable gas) Lack of water flow Excessive scale in condenser	Discharge excess refrigerant Discharge non-condensable gas Check water system and increase water flow Clean condenser
Inlet pressure is too low	Lack of refrigerant Circulating water temperature or the ambient temperature is too low Pressure drop through the heat exchanger	Filling amount of refrigerant After the water is back to the temperature, and then check the pressure Check expansion valve opening
Compressor/circulation pump is running but fan doesn't work	Fan motor malfunction Fan Capacitor Failure	Fix or change fan motor Change the Fan Capacitor in same model
Fuse melts after closing the switch or electric leakage switch trips	Compressor coil burnt or inter-turn short-circuit Compressor choked Electrical leakage	Change Compressor Change Compressor Check lines and electrical appliances

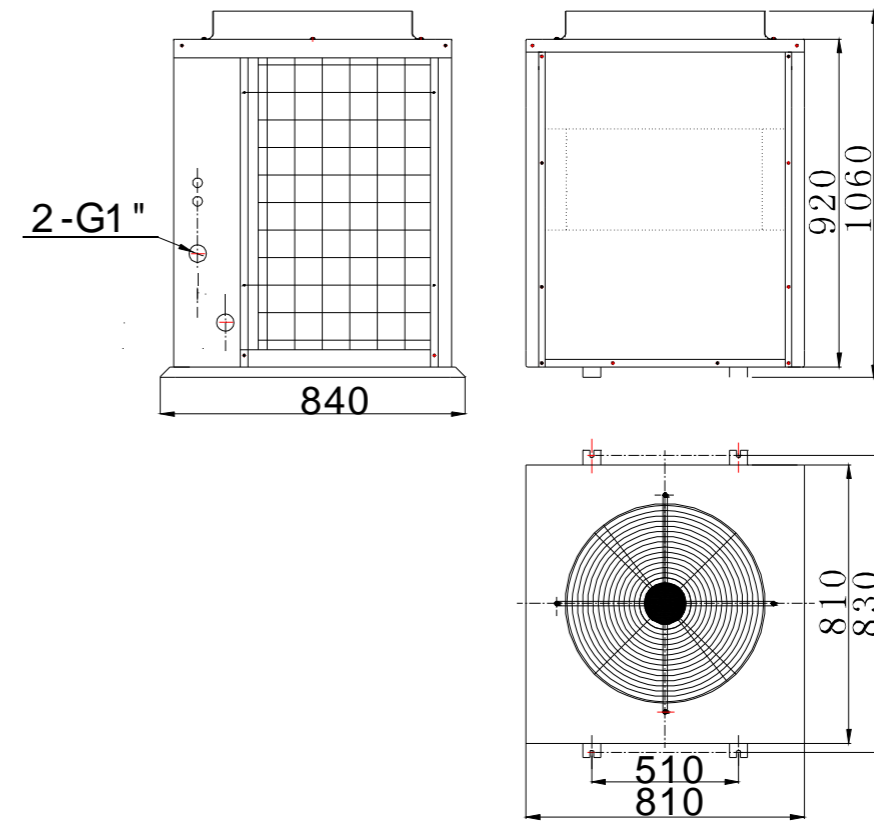


14	18E	Air exhaust temp sensor 1 malfunction	1.Sensor loose or falling off; 2.Sensor feeler open or close circuit; 3.Poor connection of sensor pin connector	1.Fasten the sensor; 2.Replace the sensor wire. 3.Pull the connector out and re-plug securely or replace the sensor;
15	19E	Air exhaust temp sensor 2 malfunction		
16	21E	Environment temp sensor malfunction		
17	22E	Back air temp sensor 1 malfunction		
18	25E	Water level sensor malfunction	1.Sensor loose or falling off; 2.High level startup, low level shutdown	1.Fasten the sensor; 2.Replace the sensor
19	27E	Water outlet sensor 1 malfunction	1. Sensor loose or falling off; 2. Sensor detector open or close circuit; 3. Poor connection of sensor pin connector	1.Fasten the sensor; 2.Replace the sensor 3.Pull out the contact pin and fasten it, or replace the sensor.
20	28E	Water outlet temp sensor 2 malfunction		
21	29E	Back air temp sensor 1 malfunction		
22	30E	Back air temp sensor 2 malfunction		
23	35E	Compressor 1 current protection	1.Compressor current is too large 2.System pressure is too high	1. Check the working voltage or replace compressor 2. Reduce the system pressure
24	36E	Compressor 2 current protection		

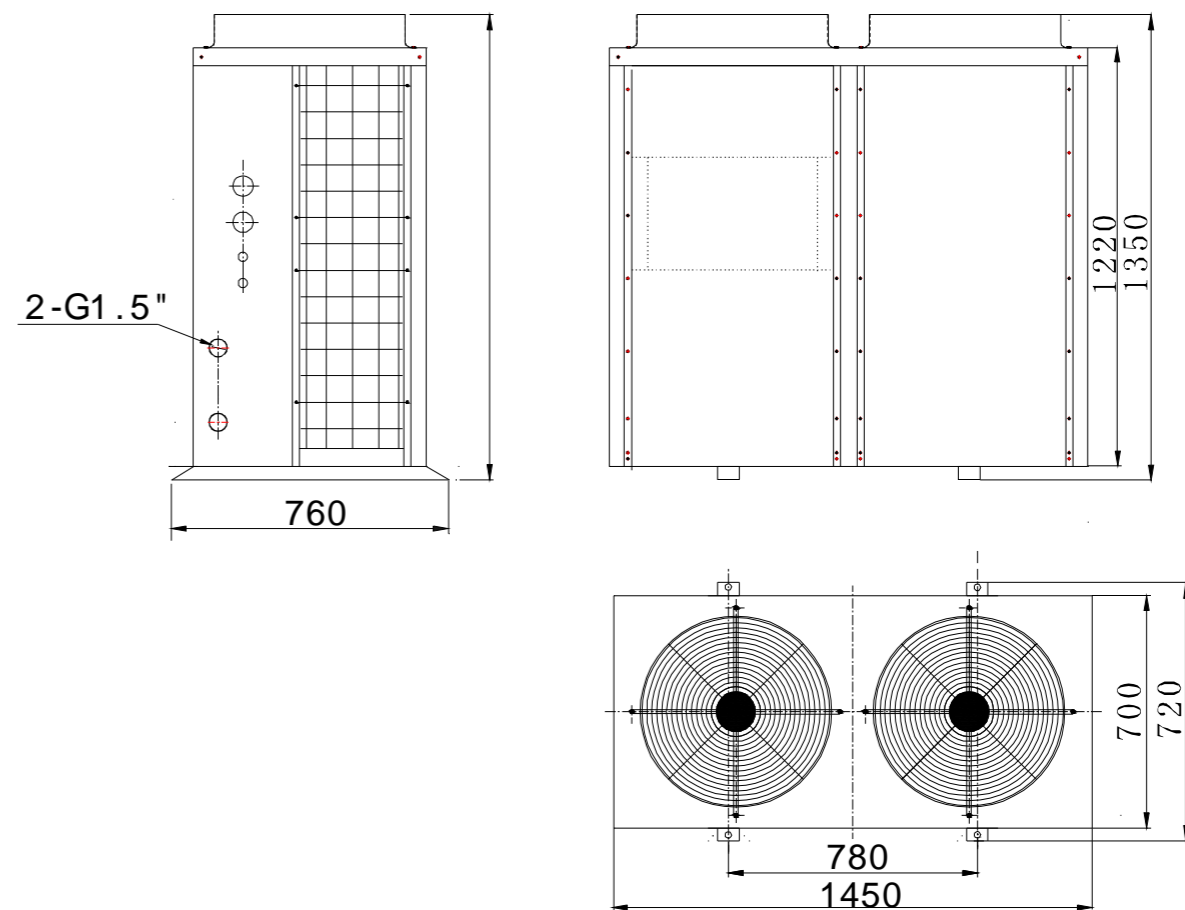
Remarks: The sensor detector parameter including water temp., environment, frost melting, air exhaust is : when Temp.= 25°, Resistance = 50K;
When Temp. > 25°, Resistance < 50K; When Temp. < 25°, Resistance > 50K.
If there is a big difference between the actual and theoretical resistance, the sensor need to be replaced.



ARG-05H, unit dimension:



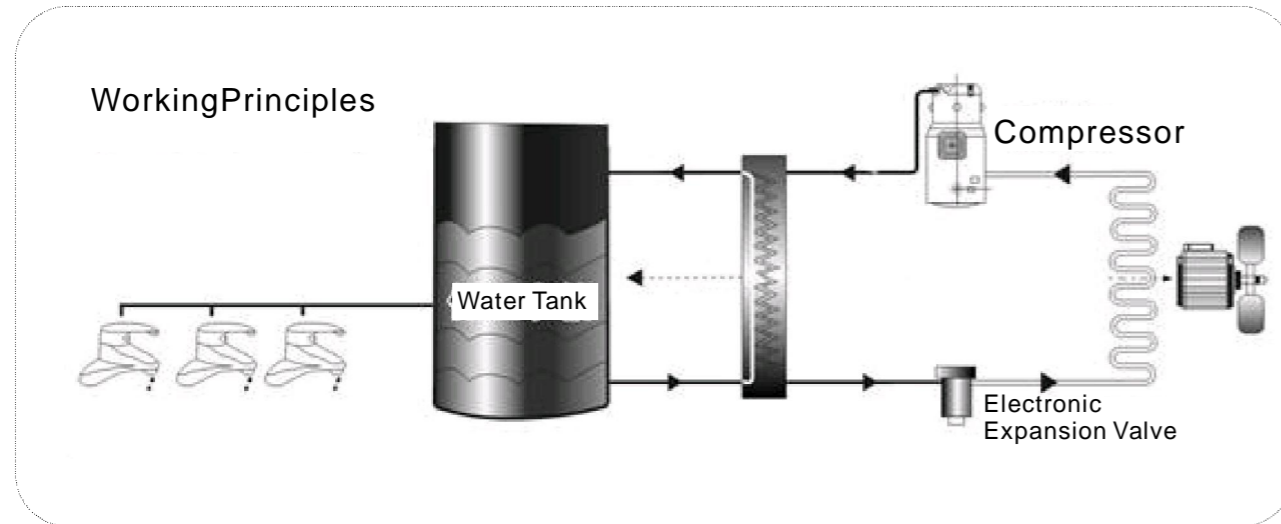
ARG-10H unit dimension:





2. Working Principles

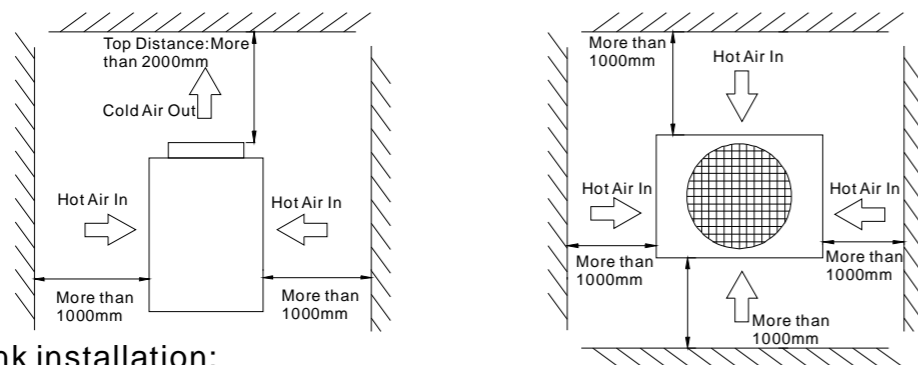
Compressor absorbs low temperature and low pressure refrigeration gas from evaporator, it condenses the refrigerant and changes it into high temperature and high pressure gas, the high temperature and high pressure gas exchange heat energy with water in the condenser and become low temperature liquid there by releasing lots of heat energy, water absorbs the heat energy and its temperature keeps rising. After the pressure being reduced by expand valve, the high pressure and low temperature liquid absorbs hot energy from the surrounding air through the fan in the expander and becomes low pressure gas, and then it will be absorbed into the compressor again to condense. The hot water will then be produced by such a circle.



INSTALLATION AND PIPELINE CONNECTION

1. Site Location and requirements.

- 1.1 In order for the unit to operate efficiently, good ventilation of the proposed location for the unit is required. (As schematic)
- 1.2 This water heater's fixing base must be braced, anchored, or strapped to avoid failing or moving, to ensure the flat location while installed. The system must be easy to discharge the condensed water.
- 1.3 Areas where are contaminated, corrosive, dusty or near to flammable products are not suitable for water heater installation.



2. Water tank installation:

Water tank needs to be located in ambient temperature above 0 °C area. The installation base should be secured (propose to use concrete structure or steel bracket). Areas which are contaminated or corrosive are not suitable.

3. Electric Parts Installation Requirements

In strict accordance with the electrical wiring diagram to connect the phase line, the zero line, ground, and other cables. Weak signal line and strong signal lines can not be set in



Related error code cause and the solution, see the below table (dual system):

S/N	Error code	Name	Caused by	solutions
1	01E	Error phase	Wrong Phase sequence	Please make sure three-phase wire is installed according to the route map and exchange optional two firewires, and confirm if there is voltage in each phase and check the power supply.
2	02E	Phase shortage	Firewire doesn't have voltage output	
3	03E	Water flow switch malfunction	1. water flow is too small; 2. Water flow switch malfunction	1. Clean the tube filter, clear or replace the circulating water pump; 2. replace water flow switch;
4	05E	High-voltage switch 1 malfunction	1. Too much refrigerant; 2. Over voltage malfunction; 3. High-voltage switch malfunction; 4. System is blocked by dirt or ice; 5. Circulation water flow is too small;	1. Clear the extra refrigerant; 2. Check if the water temperature is too hot or expanding valve is damaged; 3. Replace the high-voltage switch; 4. Replace filter; 5. Clean the tube filter, clear or replace the circulating water pump;
5	06E	Low-voltage switch 1 malfunction	1. Fluorine over leakage; 2. System is blocked by dirt or ice; 3. low-voltage switch malfunction;	1. Recheck and inject fluorine; 2. Replace filter; 3. Replace low-voltage switch;
6	07E	High-voltage 2 switch malfunction	1. Too much refrigerant; 2. Over voltage wrong display; 3. High-voltage switch malfunction; 4. Blocked by dirty material or ice in the system; 5. Very little water flow;	1. To clear the extra refrigerant; 2. Check if the water temperature is too hot or expanding valve is damaged or not; 3. Replace the high-voltage switch; 4. Replace filter; 5. Clean the tube filter, clear or replace the circuit water pump;
7	08E	Low-voltage 2 switch malfunction	1. Fluorine over leakage; 2. The system is blocked by dirt or ice; 3. Low-voltage switch malfunction	1. Recheck and inject fluorine; 2. Replace filter; 3. Replace low-voltage switch;
8	09E	Tele-communication error	1. Loose connection of wire; 2. Wire break; 3. No signal output;	1. Pull it out and re-plug securely; 2. Check the wire break and make it well connected; 3. Replace a wire;
9	12E	Air vent temp. 1 too high	1. Poor oil return in system 1 or oil shortage; 2. fluorine leak;	1. Replace vapor-fluid Separators or add refrigeration Oil; 2. Check and inject fluorine.
10	13E	Air vent temp. 2 too high	1. Poor oil return in system 2 or oil shortage; 2. Fluorine leak;	1. Replace vapor-fluid Separators or add refrigeration Oil; 2. Check and inject fluorine.
11	15E	Water tank temp sensor malfunction	1. Sensor loose or falling off; 2. Sensor feeler open or close circuit; 3. Poor connection of sensor pin connector	1. Fasten the sensor; 2. Replace the sensor wire. 3. Pull the connector out and re-plug securely or replace the sensor;
12	16E	Defrosting temp sensor 1 malfunction		
13	17E	Defrosting temp sensor 2 malfunction		



4	05E	High-voltage switch malfunction	<ol style="list-style-type: none"> 1. Too much refrigerant; 2. Over voltage malfunction; 3. High-voltage switch malfunction; 4. System is blocked by dirt or ice; 5. Circulation water flow is too small; 	<ol style="list-style-type: none"> 1. Clear the extra refrigerant; 2. Check if the water temperature is too hot or expanding valve is damaged; 3. Replace the high-voltage switch; 4. Replace filter; 5. Clean the tube filter, clear or replace the circulating water pump;
5	06E	Low-voltage switch malfunction	<ol style="list-style-type: none"> 1. Fluorine over leakage; 2. System is blocked by dirt or ice; 3. low-voltage switch malfunction; 	<ol style="list-style-type: none"> 1. Recheck and inject fluorine; 2. Replace filter; 3. Replace low-voltage switch;
6	09E	Tele-communication error	<ol style="list-style-type: none"> 1. Loose connection of wire; 2. Wire break; 3. No signal output; 	<ol style="list-style-type: none"> 1. Pull it out and re-plug securely; 2. Check the wire break and make it well connected; 3. replace a wire;
7	12E	Air vent temp. too high	<ol style="list-style-type: none"> 1. Poor oil return; 2. fluorine leak; 	<ol style="list-style-type: none"> 1. Replace vapor-fluid Separators or refrigeration Oil;
8	15E	Water tank temp sensor malfunction	<ol style="list-style-type: none"> 1. Sensor loose or falling off; 2. Sensor detector open or short circuit; 3. Poor connection of sensor pin connector 	<ol style="list-style-type: none"> 1. Fasten the sensor; 2. Replace the sensor wire. 3. Pull the connector out and re-plug securely;
9	16E	Defrosting temp sensor malfunction		
10	18E	Air vent temp sensor malfunction		
11	21E	Environment temp sensor malfunction		
12	22E	Back water temp sensor malfunction		
13	25E	Water level sensor malfunction	<ol style="list-style-type: none"> 1. Sensor loose or falling off; 2. High level startup, low level shutdown 	<ol style="list-style-type: none"> 1. Fasten the sensor; 2. Replace the sensor
14	27E	Water outlet temp sensor malfunction	<ol style="list-style-type: none"> 1. Sensor loose or falling off; 2. Sensor detector open or close circuit; 3. Poor connection of sensor pin connector 	<ol style="list-style-type: none"> 1. Fasten the sensor; 2. Replace the sensor 3. Pull out the contact pin and fasten it, or replace the sensor.
15	29E	Back air temp sensor malfunction		
16	35E	Compressor current protection	<ol style="list-style-type: none"> 1. Compressor current is too large 2. System pressure is too high 	<ol style="list-style-type: none"> 1. Check the working voltage or replace compressor 2. Reduce the system pressure

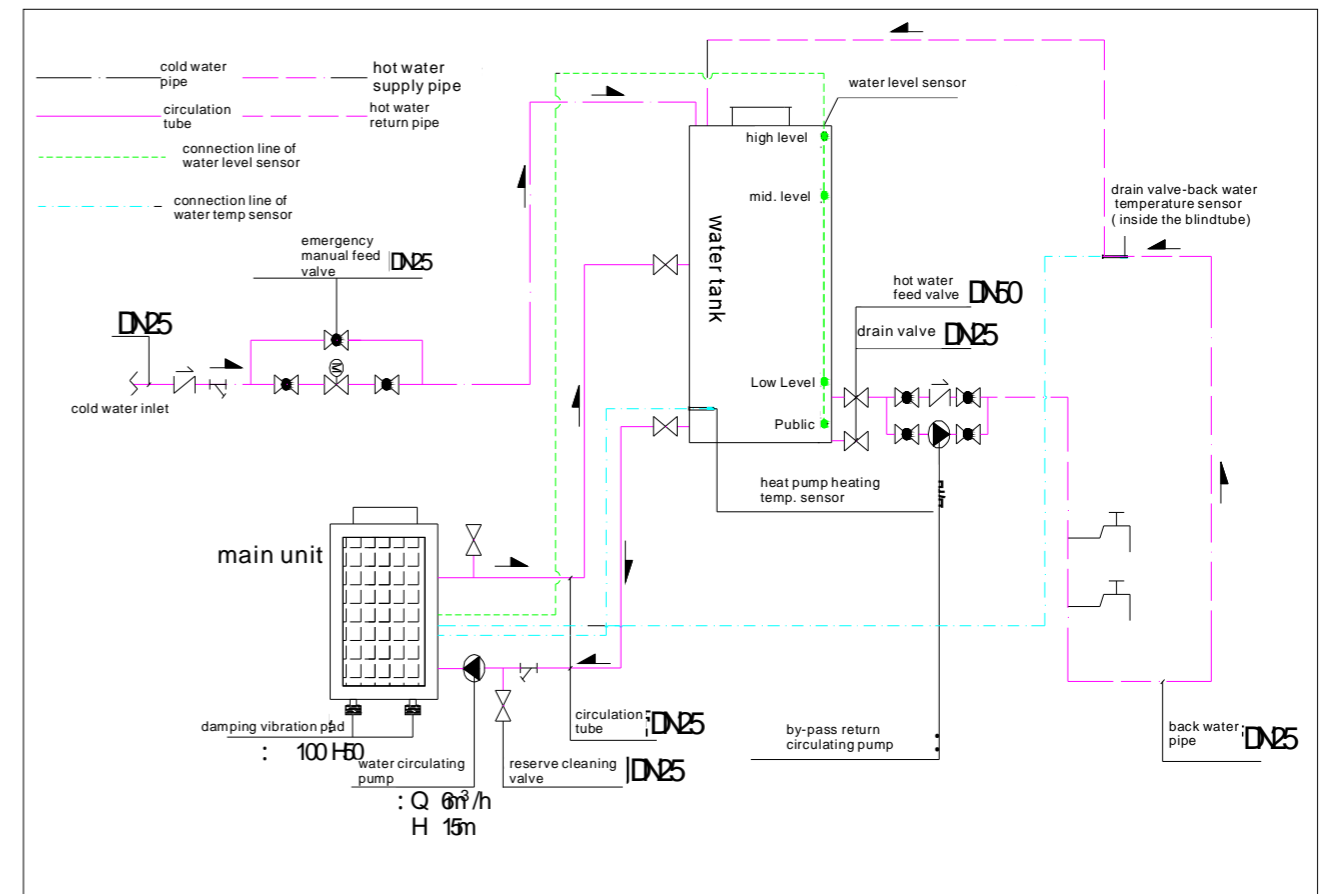


the same insulated pipe, power wire size must meet the load requirements and a reliable ground and leakage protection devices are needed.

4. Pipeline connection

- 4.1 The install system configuration should cohere with the pipe size drawing which including specifications and should meet the construction standards in accordance with the corresponding construction. Plumbing installation should be smooth vertical and horizontal, piping layout should be reasonable, to minimize bending; reducing the resistance to loss of water systems.
- 4.2 Avoid leakage from the pipeline connection and other system joint units.
- 4.3 After finish the installation between water supply pipe, heat pump unit and the water tank, water pressure testing is required. Drain and clean the system. If the system pressure and leakage testing pass, pipeline insulation should be made afterwards.

5. Connection schematic of electric wire and pipeline:



6. The way to drain the pipeline:

Open the emergency manual feed valve first, then close it after the inside liquid level is higher than the lower circulation port and water inlet. Open the air vent valve on water pump till water overflows and close the air vent valve.

Notice:

1. Air in the pump pipeline system must be expelled in the first-time use or after system maintenance.
2. Water in circulation system and heat exchanger should be drained out to prevent frost crack when the ambient temperature is below 0 and at the same time power system is power off.
3. If the unit have electric heating function, the power supply for electric heater should be controlled by AC contactor. The electrical heating signal on the control panel is just for the AC contactor. The AC contactor should be connected by user.



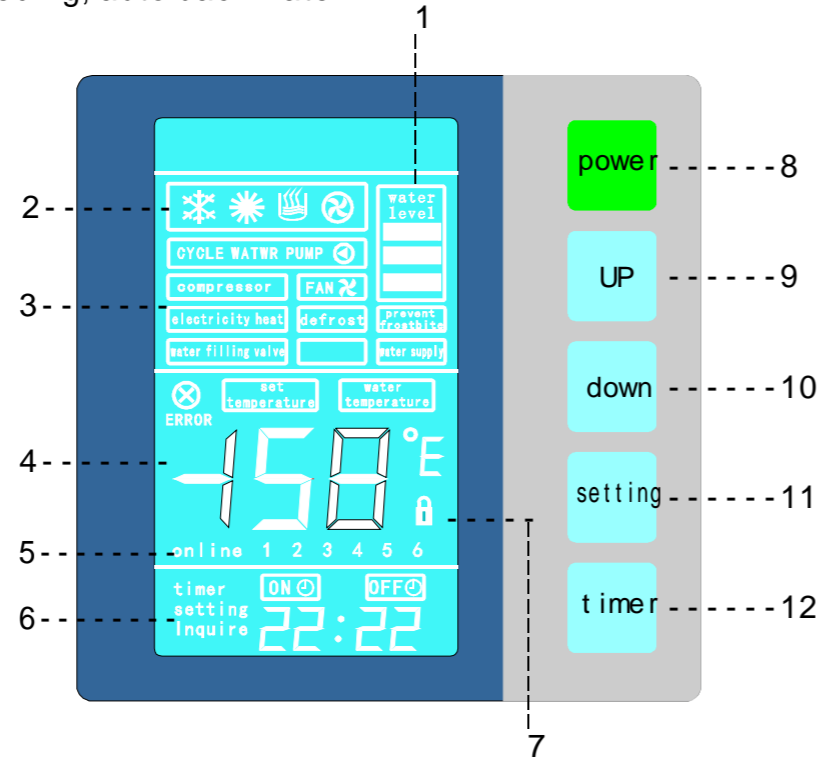
- If the unit have water supply function, the power supply for water supply pump should be controlled by AC contactor. The water supply signal on the control panel is just for the AC contactor. The AC contactor should be connected by user.

APPLICATION INSTRUCTION

- Unit introduction
 - Basic components of the unit are: Non-pressure water tank, circulation pump, feed valve and water level sensor
 - The unit runs automatically: Timing heating, timing water supply(or all-day heating and water supply), auto water feeding, auto back water.

2. Display Description:

- Water level display
- Operation mode display
- Output state display
- Water temperature, check temperature, malfunction code, parameter display
- Online display
- Timing display, the time display
- Keyboard lock/unlock



3. Keyboard instruction

- (power): unit unlock, turn on/off
- (up): increase (setting parameters of the functions)
- (down): decrease (setting parameters of the functions)
- (setting): searching and function setting
- (timer): Clock and timer switch setting

4. Operation Instruction

When the unit is power on, there will be one buzzer, screen backlight is displaying, the keyboard is locked, no button is valid.

Unlock button

Press "Power" button for 3 seconds, after a sound "beep" the background lights up, the keyboard is unlocked and the lock symbol disappear (non-operation for 60 seconds, keyboard will be locked automatically, the lock symbol appear)

Turn on/off

Connect to the electric power supply, press "Power" button, to turn the system on/off. When setting the timer on / off, the setting will be valid only when the power is on.



- Regularly check the working conditions of different parts of the unit, check if there is dirty oil at the pipe ties and charging valves and confirm that there is no leakage of the refrigeration.
- Please keep all debris and sundries away from the surroundings of the unit in order not to jam the inlet and outlet wind vents. The surroundings of the unit should be kept dry and clean and well ventilated.
- If the unit is to be closed for a long time, please pull out the water in the pipes and cut off the electric power and put the protection cover on it. The entire system should be checked again before being turned on the next time.
- When the unit malfunctions, please check it with the "Unit Protection and Troubleshooting" to identify the causes and call the local agent to repair.
- Choosing 50 ~60 concentration 15% hot phosphoric acid fluid to clean the Open the self-contained circulation pump to clean it for 3 hours, then 3 times washed by running water. (when setup the pipeline, please install a 3-way valve, and block one way for connecting to the running water at cleaning). Do not use corrosive liquids to clean the machine.
- Water tank need to do the scale removal after using for a while. (usually half a year, or according to the local water quality)

PRETECTION FUNCTION AND SOLUTION OF GENERAL MALFUNCTIONS

- Compressor: three minutes time-delay protection, 3 minutes for unit start-up or turn off, one minute to run the unit for the first power-on.
- High voltage pressure protection: The indicator light will give an alarm when pressure fault occurs, the compressor restart to work when pressure resumes. The controller will lock the error when the pressure fault occurs again, then the compressor can not start up any more. It can start to work as long as the error is cleared and the power is on.
- Low voltage pressure protection: No inspection for low voltage switch during frost melting time, and 5 minutes delay inspection for heating and starting-up. The indicator light will give an alarm when pressure fault occurs, the compressor restart will work when pressure resumes. The controller will lock the error when the pressure fault occurs again, then the compressor can not start up any more. It can begin working as soon as the error is cleared and the power is on.
- Three phase protection: Three-phase inspection function will generate as long as the code switch picks number. If phase misses or phase fault occurs in power-on time, all output will be closed and protected and the code error will be displayed. The power needs to be on again after the error is cleared.
- Sensor error protection: System will stop running when there is malfunction on the sensor.
- Auto anti-freezing: To prevent frost splitting of water tube and pump in Winter, the unit have auto anti-freezing funtion, when ambient temperature is lower than 5 , Compressor stops for more than 30 minutes; c. Circulating water pump runs 30sec.

Related error code cause and the solution, see the below table (single system):

S/N	Error code	Name	Caused by	Solutions
1	01E	Error phase	Wrong Phase sequence	Please make sure three-phase wire is installed according to the route map and exchange optional two firewires, and confirm if there is voltage in each phase and check the power supply.
2	02E	Phase shortage	Firewire doesn't have voltage output	
3	03E	Water flow switch malfunction	1. water flow is too small; 2. Water flow switch malfunction	1. Clean the tube filter, clear or replace the circulating water pump; 2. replace water flow switch;



3. Running

3.1 Conditions for compressor to start-up

Water temperature in water tank a setting temp - water return temperature difference, heating system on;

3.2 Conditions for compressor to turn off:

When the tank's water temperature reaches to the setting temp, compressor turn off.

3.3 Defrosting:

3.3.1 Conditions for starting defrosting:

The accumulative running time of compressor h1 (defrosting cycle value).

The compressor has kept running for more than 6 minutes.

The temperature of coil h2 (Temperature to enter defrosting)

3.3.2 Defrosting process:

Single compressor system: The compressor system will come into defrosting process if it is satisfied with all the above , , three conditions.

The defrosting signal on the LCD display lights from the beginning to the end of defrosting.

Dual compressor system: Both of the compressor systems will come into defrosting process if either of them is satisfied with all the , , three conditions.

The defrosting signal on the LCD display lights from the beginning to the end of defrosting.

Defrosting process: when defrosting, the evaporator fan and compressor stop for 60 seconds, then the electromagnetic valve connected to the power supply operates, then after 60 seconds, the compressor starts running.

3.3.3 Conditions for exiting defrosting:

Defrosting time h3 (Rated time of defrosting)

Temperature of outdoor tubes h4 (Temperature to exit defrosting)

Single compressor system: The system will exit defrosting when it satisfies either of the above conditions

Dual compressor system: The system will exit defrosting when it satisfies either of the above conditions. The two systems must exist together.

Exit defrosting conditions:

The compressor stops, after 60 seconds the four-way valve stops connecting to the power supply, 5 seconds later, the compressor and evaporator fan restart producing heat .

MAINTENANCE

Air Source Heat Pump is a highly automatically operating instrument. It requires users to check the unit conditions regularly. If you can keep maintaining and taking good care of the unit in the long run, the reliability and service life will be improved greatly.

1. The water filter installed out of the unit should be cleaned regularly to keep the water in the system clean and avoid unit damage and jam because of the dirty filter.

2. Users attention when using and maintaining the unit: the entire safety and protection device have been set well before leaving factory, so please do not adjust it privately.

3. Regularly check the electric source and the wire connections of the electric and gas systems of the unit and see if they are firm enough; check if there is any abnormal performance of the electric elements, and repair or change it in time if there is any problem.

4. Usually check whether the gravity feed water of the water system, the liquid level controller and the exhaust device are working well to avoid air coming into system which may lead to a reduced water circulation flow and impact the heating amount and reliable modulus of the unit.

5. Check if the water pump and water way valves are working as normal and confirm if there is no leakage of the water pipes and joints.

6. Please keep the surroundings of the unit dry, clean and well ventilated. Regularly (1-2 months) clean the Airside Heat Exchanger to get good functioning of heat exchanging.

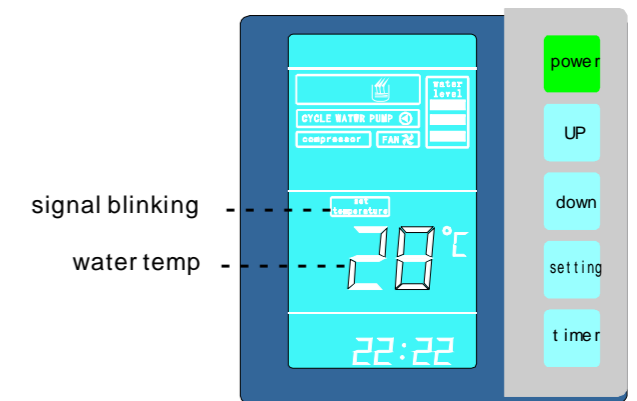


● Water temperature setting

Press "UP" then

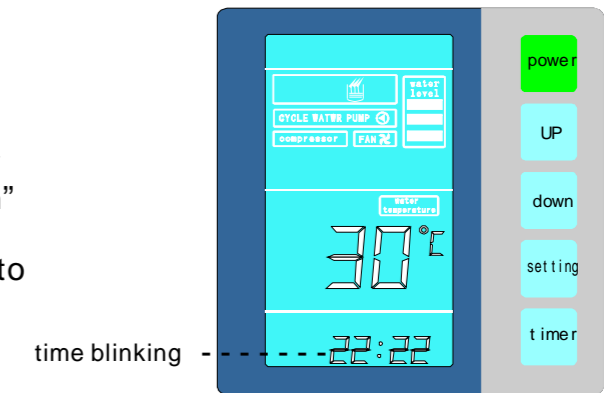
"SET TEMPERATURE" blinks, showing the current temp of the water—press "UP" and "DOWN" button to adjust the water temperature value.

(Temperature range: 20C—80C)



● Time setting

In the power-on state without timing setting, press the "Timer" button for 8 seconds, enter time setting status after the Beep sound. Press "UP" and "Down" to adjust Hour, then press "Timer" to go to Minute, and press "UP" and "Down" to adjust Minute.

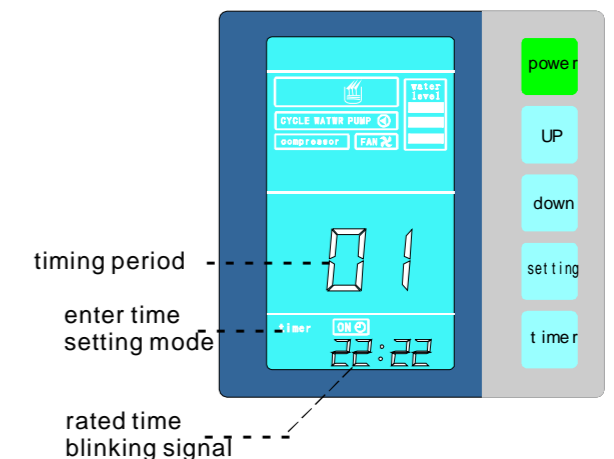


● Timing power on/off setting

Press "TIMER" to set timing power ON/OFF. Two periods can be set.

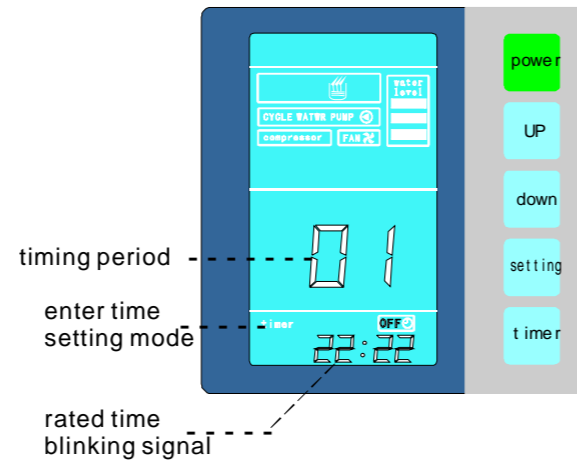
Turn ON setting

When water temp display area showing "01", it is for the first period. Time area displays "ON", and "Hour" blinks, press "UP" and "Down" to adjust "hour" for the first period. Press "timer" again, "minute" blinks, press "UP" and "Down" to adjust "minutes" for the first period.

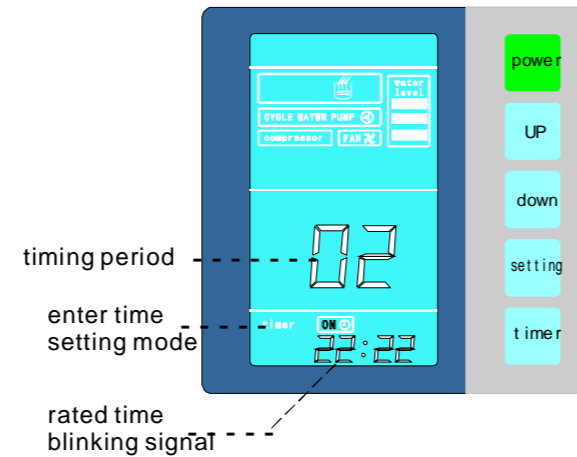




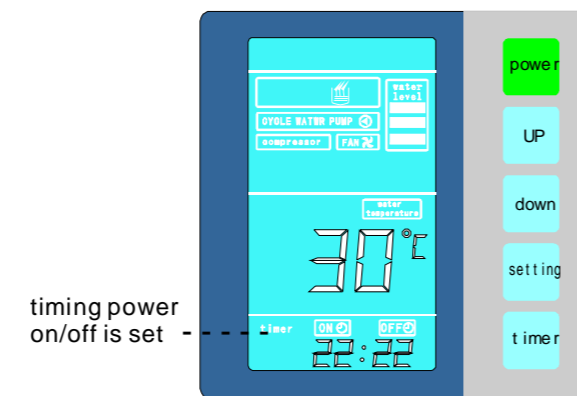
Turn OFF setting
After finishing step 1, press "TIMER" key again, time area displays "OFF", and "Hour" blinks, press "UP" and "Down" to adjust "hour" for the first period. Press "timer" again, "minute" blinks, press "UP" and "Down" to adjust "minutes" for the first period.



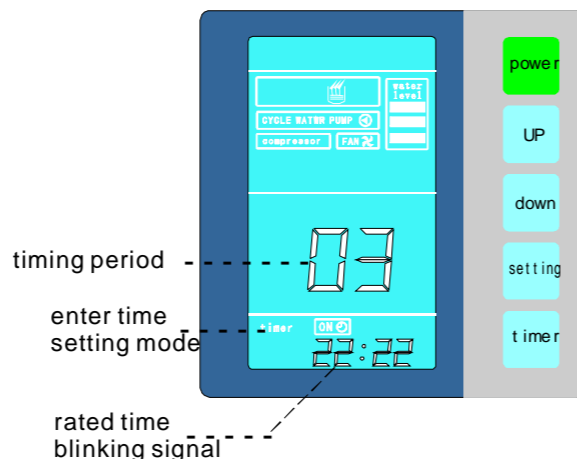
Note: For the second period time setting, press "timer" till water temp display area showing "02", the setting operation is same as the first period.



After all timing setting is finished, the timing cutline will be shown in the time area.



● **Timing water supply**
Step1) Two periods of timing water supply can be set. Press "TIMER" continuously till the water temp display area showing "03" for the first period of timing water supply setting. Time area displays "ON", and "Hour" blinks, press "UP" and "Down" to adjust "hour" for the first period. Press "timer" again, "minute" blinks, press "UP" and "Down" to adjust "minutes" for the first period.



2. Model: ARG-10S

No.	Code	Meaning	Remarks
1	A1	Coil temperature1	Corresponding measurement points of compressor 1 defrosting temperature
2	A2	Return air temperature 1	Corresponding Compressor 1 return-air temperature detection point
3	A3	Exhaust gas temperature 1	Corresponding compressor 1 discharge temperature detection point
4	A4	Ambient temperature	Outdoor air temperature detection point
5	A5	Water outlet temperature 1	Water outlet 1 temperature detection point
6	A6	Water return temperature	Control the Water return temperature
7	A8	System 1 current	Compressor 1 running current
8	A9	Expansion valve opening Angle 1	Immediate expansion valve opening for system 1
9	b1	Coil temperature2	Corresponding measurement points of compressor 2 defrosting temperature
10	b2	Return air temperature 2	Corresponding Compressor 2 return-air temperature detection point
11	b3	Exhaust gas temperature 2	Corresponding compressor 2 discharge temperature detection point
12	b5	Water outlet temperature 2	Water outlet 2 temperature detection point
13	b8	System 2 current	Compressor 2 running current
14	b9	Expansion valve opening Angle 2	Immediate expansion valve opening for system 2
15	Er	Malfunction code	Code related to malfunction

Remark: If there are other parameters for the unit but not included above, which is no need to be set.

DEBUGGING AND RUNNING

1. Preparation Before Debugging

1.1 Checking-up of the Air Source Heat Pump unit.

Check to assure that the appearance of the unit and the inner pipe system are not damaged in the transportation process.
Check if there is air in the water pipes of the unit. If yes, please remove all the air through the vent valve on the water tubes and vent valves on the water pump.
Check to assure that the blades of the fan do not touch the fixed panel or the protection net of the fan.

1.2 Checking the electric supply system.

Check if the power supply source accords with the power source required in this manual and the nameplate on the unit.
Check if all the electric power supply and control lines are connected properly and confirm that the lines are connected according to the diagram and the grounding is reliable and the heads of all the lines are firm enough.

1.3 Check the pipeline system

Confirm that the system pipe, mamometer, valves, and other instruments are correctly installed.
Confirm that the valves in the system are open or closed properly.
Check if the insulation system is in a good condition.

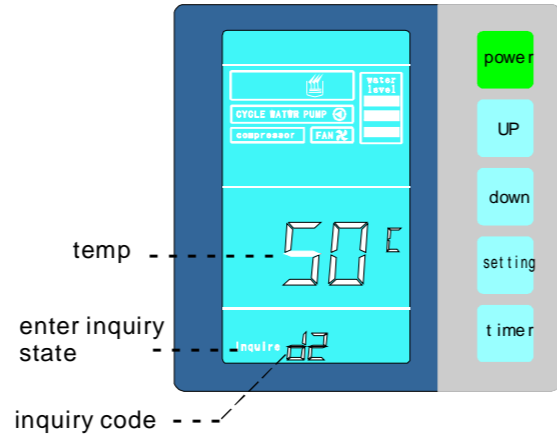
2. Commissioning

- 2.1 The test running of the unit must be operated by a professional engineer !
- 2.2 After taking full examination of the whole system, if all parts are confirmed to be according to installation requirements, test running of the entire unit can be done.
- 2.3 The unit will turn on automatically 1 minutes later after connecting to thsse electric source and turning on the Heat Pump.
- 2.4 Check if the unit is running in accord with the requirements. Users can use the Air Source Heat Pump after testing properly for at least 8 hours.



Parameter query

In normal working state, press "setting" button to query the unit operating data. The parameter code is showed in the time displaying area, while the value is showed in the temp displaying area. Press "setting" again to choose next query code.



Model ARG-03H .ARG-05H : Every time press "setting ", the inquiry code will change from A1 to A9, ER. Press one more time to quit.
 Model ARG-10H : Every time press "setting ", the inquiry code will change from A1 to A9, ER. Press again and the inquiry code will change from B1 to B9. Press "setting" one more time to exit.

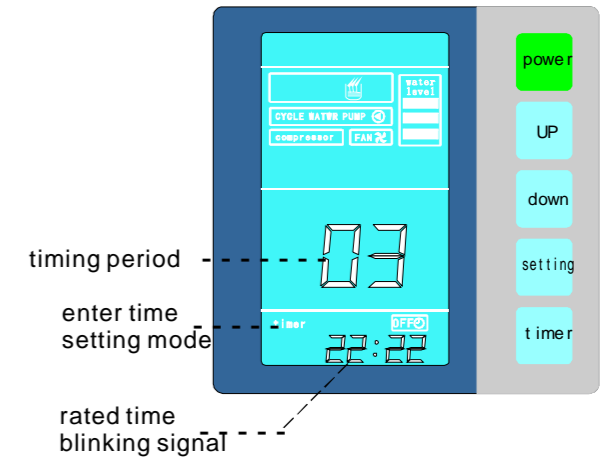
Relevant Code and Signification:

1. Model: ARG-03H .ARG-05H

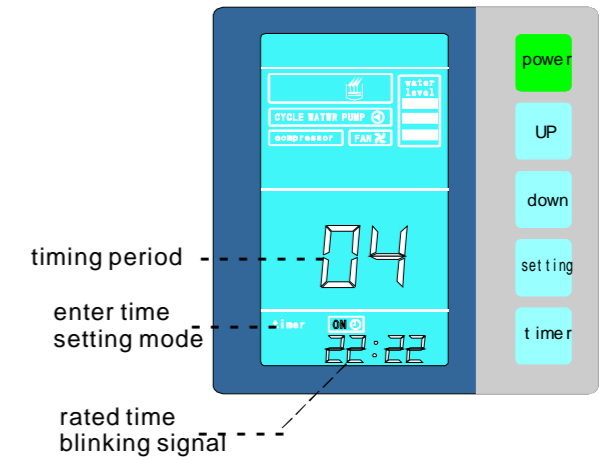
No.	Code number	Meaning	Remarks
1	A1	Coil temperature	Corresponding measurement points of compressor defrosting temperature
2	A2	Return air temperature	Corresponding Compressor return-air temperature detection point
3	A3	Exhaust gas temperature	Corresponding compressor discharge temperature detection point
4	A4	Ambient temperature	Outdoor air temperature detection point
5	A5	Water outlet temperature	Water outlet temperature detection point
6	A6	Water return temperature	Control the Water return temperature
7	A8	System current	Compressor running current
8	A9	Expansion valve opening 1	Immediate expansion valve opening
9	Er	Malfunction code	Code related to malfunction



After finishing step 1, press "TIMER" key again, time area displays "OFF", and "Hour" blinks, press "UP" and "Down" to adjust "hour" for the first period. Press "timer" again, "minute" blinks, press "UP" and "Down" to adjust "minutes" for the first period.



Note: For the second period time setting, press "timer" till water temp display area showing "04", the setting operation is same as the first period.

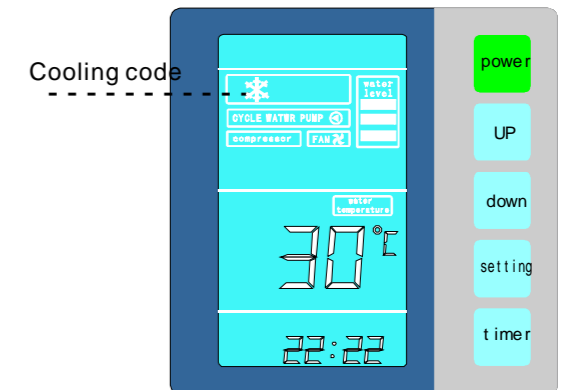


- **Cancel Timing power on/off or water supply:**
Press "timer" for 3 seconds, after a beep sound the timing function will be canceled.

Notes:

1. If the unit is without power supply for a long period, the time and timing power on/off setting may be invalid. The unit should be set again.
2. The timing power on/off time should be set correctly, since the unit can be work only in correct time.

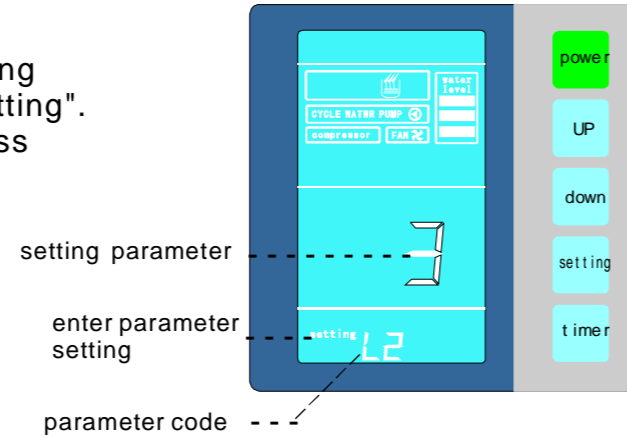
- **Cooling function:**
Press UP button for 8 seconds, a beep will sound, system is changed to cooling mode, the cooling code appears. Press UP button for 8 seconds again, a beep will sound, system is changed back to heating mode, the heating code appears.



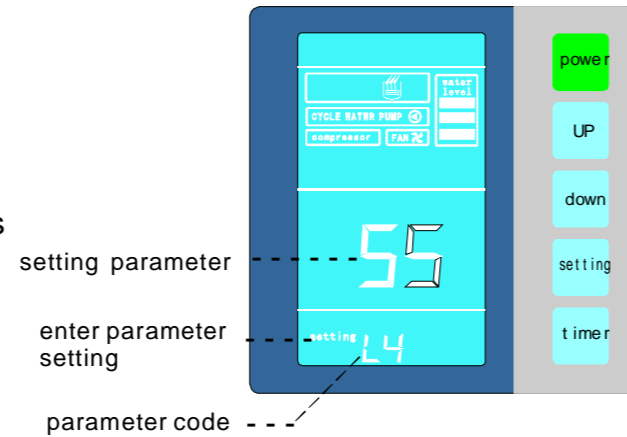
- **Parameter Setting**
Press "Setting" to set the back water temperature difference and defrosting parameters. The unit must be power on when adjusting parameters. Press "Setting" for 3 seconds till hearing a beep sound. The parameter code is showed in the time displaying area, while the value is showed in the temp displaying area. Press "setting" again to choose next parameter. After 10 seconds without operation, the parameter setting will quit automatically.



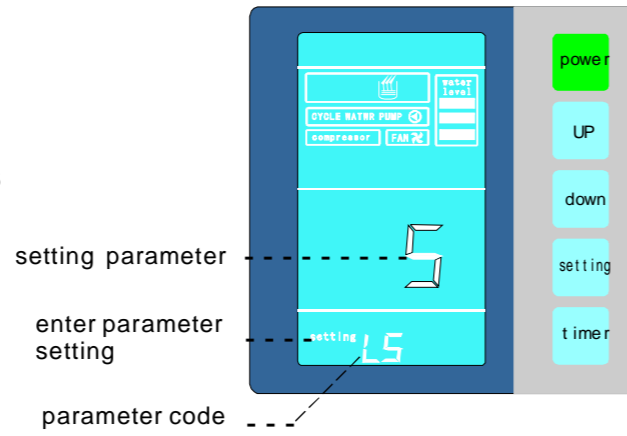
Back water difference temperature setting
Enter the parameter settings, press "setting".
When the clock display shows "L2", press "down" or "up" to adjust the parameters



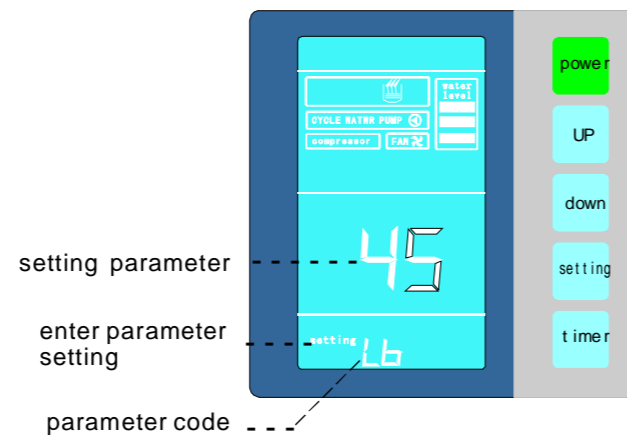
Water temp high limitation setting
Enter the parameter settings, press "setting". When the clock display shows "L4", press "down" or "up" to adjust the parameters



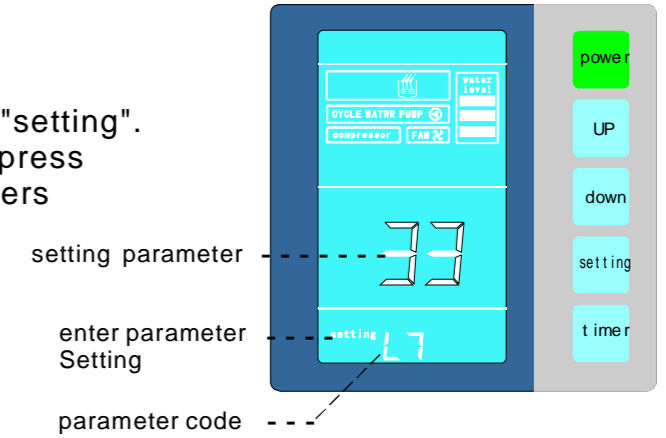
Electric heating setting
Enter the parameter settings, press "setting". When the clock display shows "L5", press "down" or "up" to adjust the parameters.



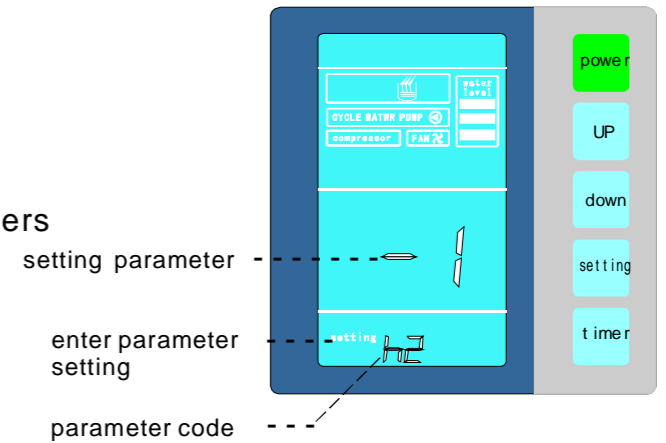
Back water temp setting
Enter the parameter settings, press "setting". When the clock display shows "L6", press "down" or "up" to adjust the parameters.



Feed water setting
Enter the parameter settings, press "setting".
When the clock display shows "L7", press "down" or "up" to adjust the parameters



Defrosting setting
Enter the parameter settings, press "setting". When the clock display shows "h1" "h2" "h3" "h4", press "down" or "up" to adjust the parameters



Factory Default Parameters: (For normal requirements, the unit is no need to be set)

NO.	Code	Name	Range	Initial value
1	L2	Back water difference temperature	3 - 18	5
2	L4	Maximum water outlet temperature	30 - 80	75
3	L5	Electric boosting	0 - 35	5
4	L6	Back water setting	10 - 60	40
5	L7	Water replenishing setting	5 - 55	45
6	L8	Current set	0-30 A	15 A
7	h1	Defrosting cycle	20 - 99Minutes	35Minutes
8	h2	Temperature to enter defrosting	0 - (- 15)	- 1
9	h3	Defrosting time	5 - 20Minutes	10Minutes
10	h4	Temperature to exit defrosting	1 - 40	26
11	P1	Expansion valve adjustment cycle	20 - 180S	60S
12	P2	Overheat	- 8 - 15	0
13	P3	Permissible exhaust gas temperature	70 - 135	115
14	P4	Expansion valve opening when Defrosting	6 - 55	32
15	P5	Minimum opening of expansion valve	6 - 30	20
16	P6	Overheating compensation	0 - 12	0

Remark: If there are other parameters for the unit but not included above, which is no need to be set.