



AIR-TO-WATER HEAT PUMP EVIPOWER

Installation & Owner's manual

Air-to-water heat pump

Model:

CH-HP15UIMPZM-H

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Preface

- In order to provide the customers with high quality, strong reliability and good versatility product, this heat pump is produced by strict design and manufacture standards. This manual includes all the necessary information about installation, debugging, discharging and maintenance. Please read this manual carefully before you open or maintain the unit.

The manufacture of this product will not be held responsible if someone is injured or the unit is damaged, as a result of improper installation, debugging, unnecessary maintenance which is not in line with this manual.

The unit must be installed by qualified personnel.

- It is vital that the below instructions are adhered to at all times to keep the warranty.
 - The unit can only be opened or repaired by qualified installer or an authorised dealer.
 - Maintenance and operation must be carried out according to the recommended time and frequency, as stated in this manual.
 - Use genuine standard spare parts only.

Failure to comply with these recommendations will invalidate the warranty.

- **Inverter air source water heat pump** is a kind of high efficiency, energy saving and environment friendly equipment, which is mainly used for house warming. It can work with any kind of indoor unit such fan coil, radiator, or floor heating pipe, by provide warm or hot water. One unit of monobloc heat pump can also work with several indoor units. The air source water heat pump unit is designed to have heat recovery by using super heater which can provide hot water for sanitary purpose.

This series of heat pump unit owns following features:

- 1 **Advanced controlling**
The PC microcomputer based controller is available for the users to review or set the running parameters of the heat pump. Centralized controlling system can control several units by PC.
- 2 **Nice appearance**
The heat pump is designed with beautiful looking. The monobloc one has the water pump included which is very easy for installation.
- 3 **Flexible installation**
The unit has smart structure with compact body, just simple outdoor installation is needed.
- 4 **Quiet running**
High quality and efficient compressor, fan and water pump is used to ensure the low noise level with insulation.
- 5 **Good heat exchange rate**
The heat pump unit use special designed heat exchanger to enhance whole efficiency.
- 6 **Large working range**
This series of heat pump is designed to work under different working conditions as low as -30 degrees for heating.

Safety Precaution

To prevent the users and others from the harm of this unit, and avoid damage on the unit or other property, and use the heat pump properly, please read this manual carefully and understand the following information correctly.

Mark Notes

Mark	Meaning
 WARNING	A wrong operation may lead to death or heavy injury on people.
 ATTENTION	A wrong operation may lead to harm on people or loss of material.

Icon notes

Icon	Meaning
	Prohibition. What is prohibited will be nearby this icon
	Compulsory implement. The listed action need to be taken.
	ATTENTION (include WARNING) Please pay attention to what is indicated.

Safety Precaution

Warning

Installation	Meaning
 Professional installer is required.	The heat pump must be installed by qualified personals, to avoid improper installation which can lead to water leakage, electrical shock or fire.
 Earthing is required	Please make sure that the unit and power connection have good earthing, otherwise may cause electrical shock.

Operation	Meaning
 PROHIBITION	DO NOT put fingers or others into the fans and evaporator of the unit, otherwise harm may be occurred.
 Shut off the power	When there is something wrong or strange smell, the power supply need to be shut off to stop the unit. Continue to run may cause electrical short or fire.

Move and repair	Meaning
 Entrust	When the heat pump need to be moved or installed again, please entrust dealer or qualified person to carry it out. Improper installation will lead to water leakage, electrical shock, injury or fire.
 Entrust	It is prohibited to repair the unit by the user himself, otherwise electrical shock or fire may be occur.
 Prohibit	When the heat pump need to be repaired, please entrust dealer or qualified person to carry it out. Improper movement or repair on the unit will lead to water leakage, electrical shock, injury or fire.



Do not use means to accelerate the defrosting process or to clean, Other than those recommended by the manufacturer.

The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater.)

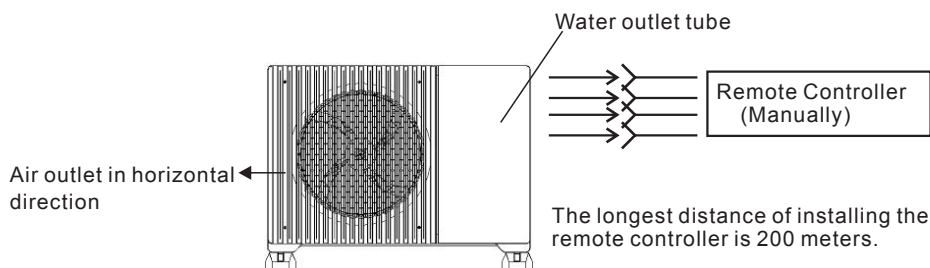
ATTENTION

Installation	Meaning
 Installation Place	The unit CANNOT be installed near the flammable gas. Once there is any leakage of the gas, fire can occur.
 Fix the unit	Make sure that the basement of the heat pump is strong enough, to avoid any decline or fall down of the unit
 Need circuit breaker	Make sure that there is circuit breaker for the unit, lack of circuit breaker can lead to electrical shock or fire.

Operation	Meaning
 Check the installation basement	Please check the installation basement in a period (one month), to avoid any decline or damage on the basement, which may hurt people or damage the unit
 Switch off the power	Please switch off the power for clean or maintenance.
 Prohibition	It is prohibited to use copper or iron as fuse. The right fuse must be fixed by electrician for the heat pump.
 Prohibition	It is prohibited to spray the flammable gas to the heat pump, as it may cause fire.

Specification

1. Appearance and structure of the heat pump



2. The data of unit

*** REFRIGERANT : R290

Model		CH-HP15UIMPZM-H
Power Supply	V/Ph/Hz	380/3/50
NOMINAL HEATING CAPACIY(A)	kW	12.00
NOMINAL POWER INPUT(A)	kW	2.52
NOMINAL HEATING CAPACIY(B)	kW	12.00
NOMINAL POWER INPUT(B)	kW	3.86
NOMINAL COOLING CAPACITY(C)	kW	11.21
NOMINAL POWER INPUT(C)	kW	3.01
Min/Max. Hot Water Capacity	kW/kW	4.2/18.3
Min/Max. Hot Water Power consumption	kW/kW	0.67/4.33
Rated Power Input	kW	9.35
Rated Current Input	A	19.2
Aux. heater	kW	N/A
Compressor Type/Quantity	-	Rotary/1
Fan Type/Quantity	-	DC/1
Nominal air flow	m ³ /h	4000
Fan Power Input	W	120
Sound pressure level (1m)	dB(A)	40
Condenser Type	-	Brazed plate heat exchanger
Rated flow rate	m ³ /h	2.06
Internal pressure drop @Rated flow	kPa	40
Water pump head @Rated flow	m	7.5

Specification

2. The data of unit

*** REFRIGERANT : R290

Water Pipe Connection	-	G1"
Refrigerant charge	kg	1.3
Max outlet heating water temperature	°C	75
Operating ambient temp. range (heating)	°C	-30~43
Operating ambient temp. range (DHW)	°C	-30~43
Operating ambient temp. range (cooling)	°C	0~43
Unit Net Dimensions (L/W/H)	mm	1438×1105×544
Unit Shipping Dimensions (L/W/H)	mm	see data on the package
Net Weight	kg	214
Shipping Weight	kg	see data on the package

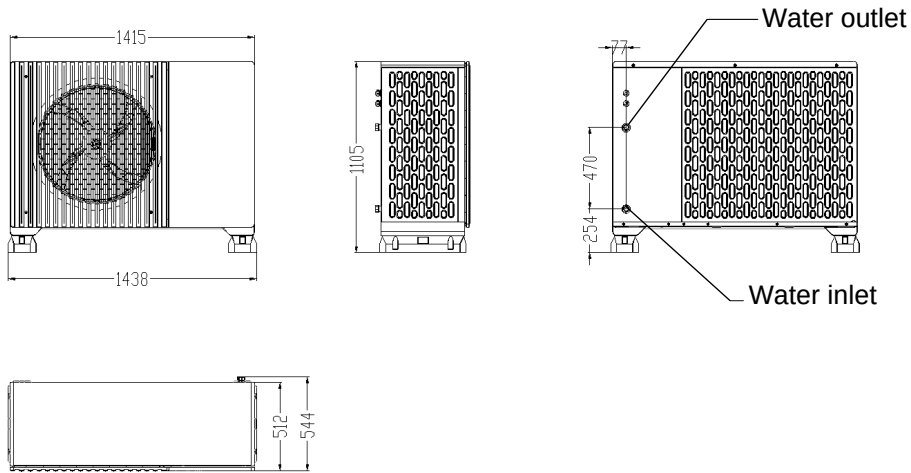
Note:

- 1)The heating performance data is tested by EN14511;
- 2)A: AMBIENT TEMP.(DB/WB): 7 °C/6°C,OUTLET WATER TEMP.35°C;
B: AMBIENT TEMP.(DB/WB): 7 °C/6°C,OUTLET WATER TEMP.55°C;
C: AMBIENT TEMP.(DB/WB): 35 °C/24°C,WATER TEMP.(IN/OUT):23°C/18°C
(CONDITION A AND CONDITION C ARE TESTED WITH WATER FLOW
2.06m3/h, CONDITION B IS 1.29m3/h.)
- 3)*According to IEC/EN 60335-1

Specification

3. Unit dimension

Models:CH-HP15UIIMPZM-H



Installation

Unit features

1. Plate heat exchanger

Use the Weyee efficient heat exchanger with small size and high efficiency.

2. Environmentally friendly refrigerant

Use the new generation of environmentally friendly refrigerant R290, which is harmless to the ozone sphere.

3. Heating in frigid environment.

Optimized designed unit can achieve the heating function normally even when the ambient temperature is -30°C .

4. Infusing refrigerant

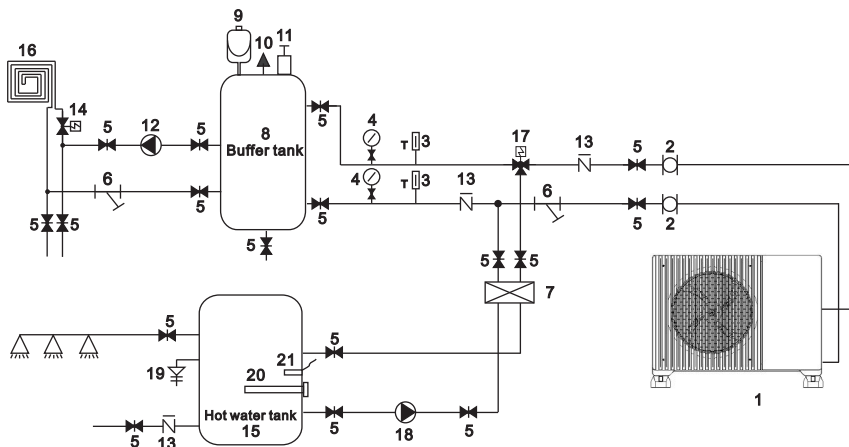
The Heat Pump are lack of refrigerant and full of High-pressure nitrogen instead when Ex-factory . Before operating ,remember follow Operation Manual infusing therefrigerant.

5. Installation Environment

The refrigerant R290 are flammable and explosive ,It's prohibit install in one environment which have operating or potential ignition sources .

1 Application of heat pump

1.1 House Heating/Cooling + Domestic Hot Water

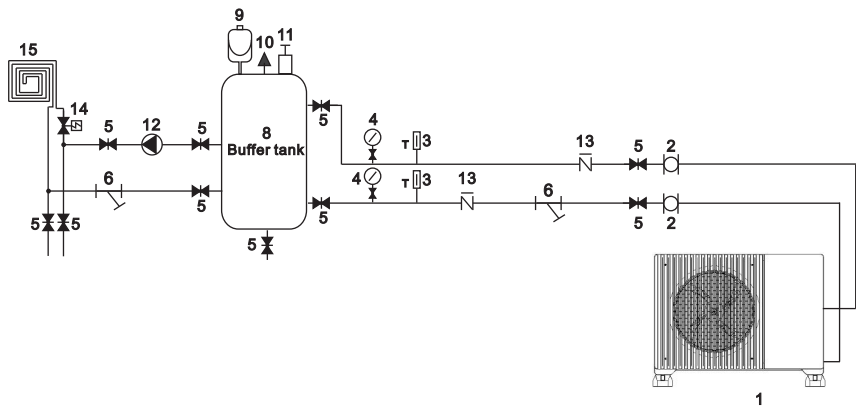


1	Heat pump	10	Relief valve	19	PT valve
2	Flexible pipe	11	Air vent valve	20	Electrical heater
3	Thermometer	12	Water pump for floor heating	21	Hot water sensor
4	Manometer	13	Check valve		
5	Shut-off valve	14	Floor heating valve		
6	Y type water filter	15	Hot water tank		
7	Plate heat exchanger	16	Floor heating pipe/fan coil unit		
8	Buffer tank	17	Hot water valve		
9	Expansion tank	18	Hot water pump		

Remark:Item 17, 18, 20, 21 can be connected with heat pump.

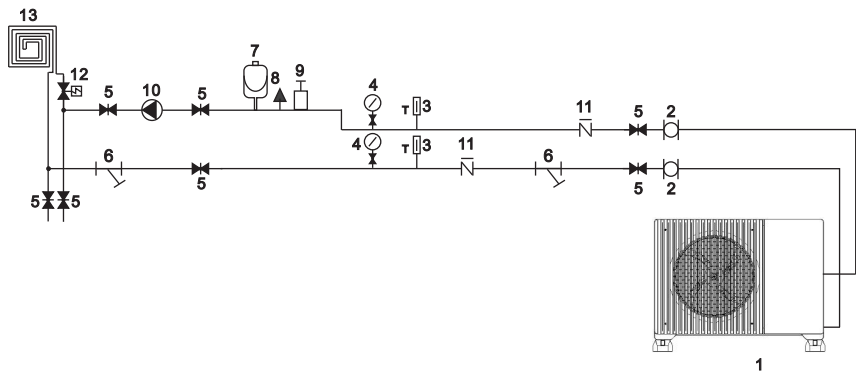
Installation

1.2 House Heating/Cooling (includes Buffer tank)



1	Heat pump	7	Plate heat exchanger	13	Check valve
2	Flexible pipe	8	Buffer tank	14	Floor heating valve
3	Thermometer	9	Expansion tank	15	Floor heating pipe/fan coil unit
4	Manometer	10	Relief valve		
5	Shut-off valve	11	Air vent valve		
6	Y type water filter	12	Water pump for floor heating		

1.3 House Heating/Cooling (Not includes Buffer tank)



1	Heat pump	7	Expansion tank	13	Floor heating pipe/fan coil unit
2	Flexible pipe	8	Relief valve		
3	Thermometer	9	Air vent valve		
4	Manometer	10	Water pump for floor heating		
5	Shut-off valve	11	Check valve		
6	Y type water filter	12	Floor heating valve		

Installation

2 Choose a right heat pump unit

- 2.1 Based on the local climate condition, construction features and insulation level, calculate the required cooling(heating) capacity per square meter.
- 2.2 Conclude the total capacity which will be needed by the construction.
- 2.3 According to the total capacity needed, choose the right model by consulting the heat pump features as below:
 - Heat pump features
 - Cooling only unit: chilled water outlet temp. at 5-15℃, maximum ambient temp. at 43℃.
 - Heating and Cooling unit: for cooling chilled water outlet temp. at 5-15℃, maximum ambient temp. at 43℃. For heating, warm water inlet temp. at 40-50℃, minimum ambient temp. at -30℃
 - Unit application
 - Inverter air source water heat pump is used for house, office, hotel, and so forth, which need heating or cooling separately, with each area need to be controlled.

3 Installation place

- The unit can be installed on any place outdoor which can carry heavy machine such as terrace, housetop, ground and so on.
- The location must have good ventilation.
- The place is free from heat radiation and other fire flame.
- A pall is needed in winter to protect the heat pump from snow.
- There must be not obstacles near the air inlet and outlet of the heat pump.
- A place which is free from strong air blowing.
- There must be water channel around the heat pump to drain the condensing water .
- There must be enough space around the unit for maintenance.

4 Installation method

The heat pump can be installed onto the concrete basement by expansion screws, or onto a steel frame with rubber feet which can be placed on the ground or housetop. Make sure that the unit is placed horizontally.

5 Water loop connection

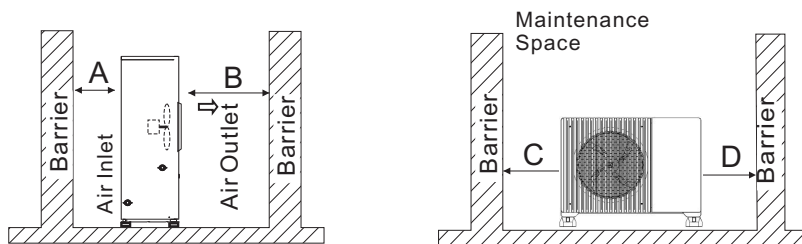
Please pay attention to below matters when the water pipe is connected:

- Try to reduce the resistance to the water from the piping.
- The piping must be clear and free from dirty and blocks. Water leakage test must be carried out to ensure there is no water leaking. And then the insulation can be made.
- Attention that the pipe must be tested by pressure separately. DO NOT test it together with the heat pump.
- There must be expansion tank on the top point of the water loop, and the water level in the tank must be at least 0.5 meter higher than the top point of the water loop.
- The flow switch is installed inside of the heat pump, check to ensure that the wiring and action of the switch is normal and controlled by the controller.
- Try to avoid air stayed inside of the water pipe, and there must be air vent on the top point of the water loop.
- There must be thermometer and pressure meter at the water inlet and outlet, for easy inspection during running.

6 Power supply connection

- Open the front panel, and open the power supply access.
- The power supply must go through the wire access and be connected to the power supply terminals in the controlling box. Then connect the 3-signal wire plugs of the wire controller and main controller.
- If the outside water pump is needed, please insert the power supply wire into the wire access also and connect to the water pump terminals.
- If an additional auxiliary heater is need to be controlled by the heat pump controller, the relay (or power) of the aux-heater must be connected to the relevant output of the controller.

7 Location of the unit



The picture shows the location of horizontal air outlet unit.



Attention

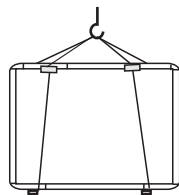
Requirements

A > 500mm ; B > 1500mm ;
C > 1000mm ; D > 500mm

Installation

8 Transit

When the unit need to be hung up during installation, a 8 meters cable is needed, and there must be soft material between the cable and the unit to prevent damage to the heat pump cabinet. (See picture 1)



Picture 1



WARNING

DO NOT touch the heat exchanger of the heat pump with fingers or other objects !

9 Trial Running

Inspection before trial running

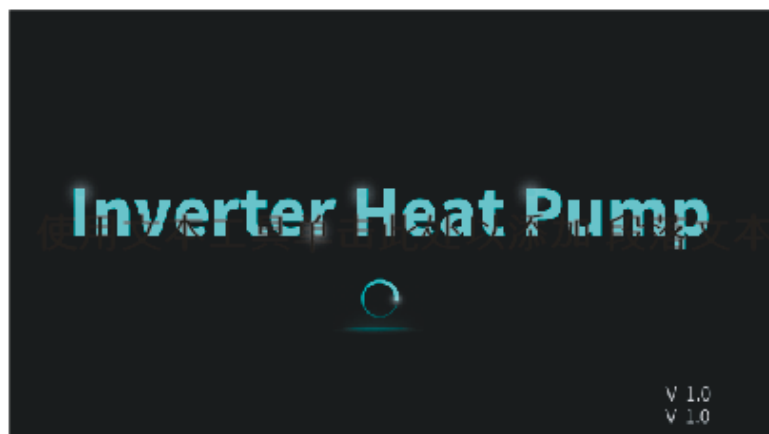
- Check the indoor unit, and make sure that the pipe connection is right and the relevant valves are open .
- Check the water loop, to ensure that the water inside of the expansion tank is enough, the water supply is good, the water loop is full of water and without any air. Also make sure there is good insulation for the water pipe.
- Check the electrical wiring. Make sure that the power voltage is normal, the screws are fastened, the wiring is made in line with the diagram, and the earthing is connected.
- Check the heat pump unit including all of the screws and parts of the heat pump to see if they are in good order. When power on, review the indicator on the controller to see if there is any failure indication. The gas gauge can be connected to the check valve to see the high pressure(or low pressure) of the system during trial running.

Trial running

- Start the heat pump by press "🔌" key on the controller. Check whether the water pump is running, if it runs normally there will be 0.2 MPa on the water pressure meter.
- When the water pump runs for 1 minutes, the compressor will start. Hear whether there is strange sound from the compressor. If abnormal sound occurs please stop the unit and check the compressor. If the compressor runs well please look for the pressure meter of the refrigerant.
- Then check whether the power input and running current is in line with the manual. If not please stop and check.
- Adjust the valves on the water loop, to make sure that the hot(cool) water supply to each door is good and meet the requirement of heating(or cooling).
- Review whether the outlet water temperature is stable.
- The parameters of the controller are set by the factory, it is not allowed to change then by user himself.

1.Main interface display and function

(1) Power on interface



(2) Starting up interface



Key function

Key number	Key name	Key function
①	Lock screen	Click this key to lock the screen. White represents not enabled, while red represents enabled
④	On and off	Click this key to switch ON or OFF Red represents ON, while grey represents OFF
⑤	Timer setting	Click this key to set the timer. White represents not enabled, while green represents enabled
⑮	Mode Key	Hot water mode, heating mode, cooling mode, hot water+heating mode or hot water+cooling mode can be selected by pressing this key.

Note:

- ② is home icon. This icon is shown by sliding the main interface.
- ③ is tank water temperature. The machine is in hot water mode when this icon is shown.
- ⑥ is outlet water temperature or room temperature. If H25=0, the outlet water temperature will be shown. If H25=1, the room temperature will be shown.
- ⑦ is Target Temperature of No.1 Unit.
- ⑧ is fault icon. This icon will flash when there is an error shown up, then the display will enter Failure record interface after tapping this icon.
- ⑨ is Defrosting icon. It will display in the defrosting process of the unit.
- ⑩ is timing mute icon which display only when activated.
- ⑪ is timing switch which displays only when activated.
- ⑫ is ambient temperature icon, show the current ambient temperature.
- ⑬ is system time.
- ⑭ is current mode.

Operation and Use

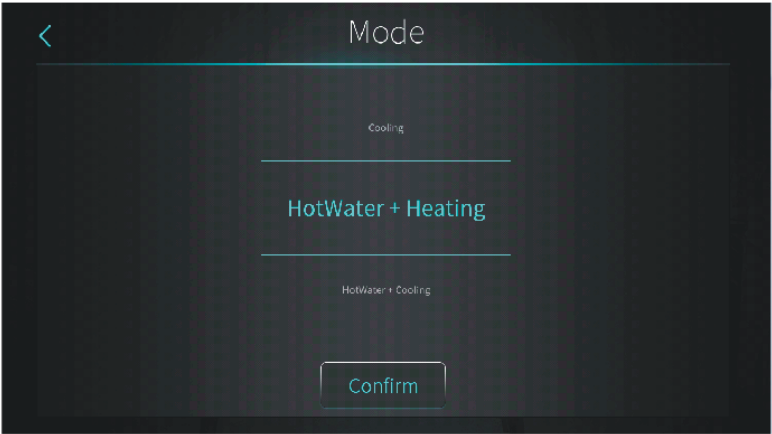
1.1 On and off

As the main interface shown.

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



1.2 Mode switch



Operation and Use

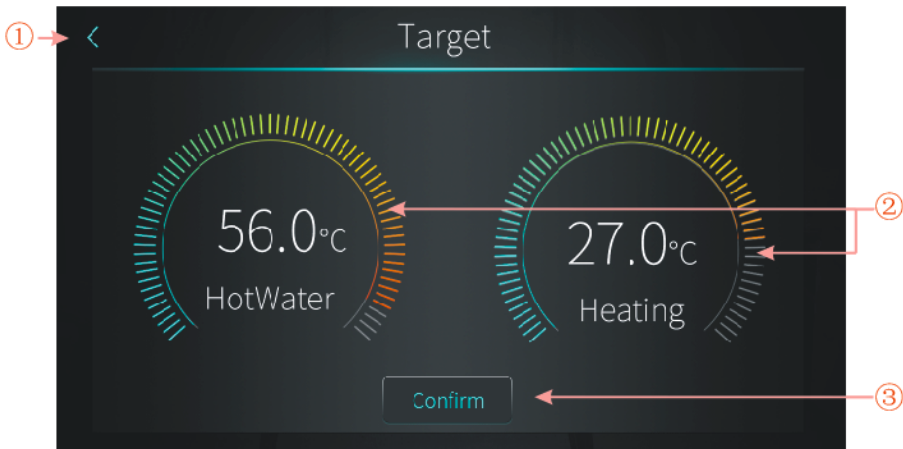
There are five modes can be selected after sliding the mode icon.

- (1) selecting hot water mode icon, then the display will change to this mode interface;
- (2) selecting heating mode icon, then the display will enter this mode interface;
- (3) selecting cooling mode icon, then the display will switch to this mode interface;
- (4) selecting hot water+heating mode icon, then the display will go into hot water+heating mode interface;
- (5) selecting hot water+cooling mode icon, then the display will come to hot water+cooling mode interface;

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

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

1.3 Setting of target temperature

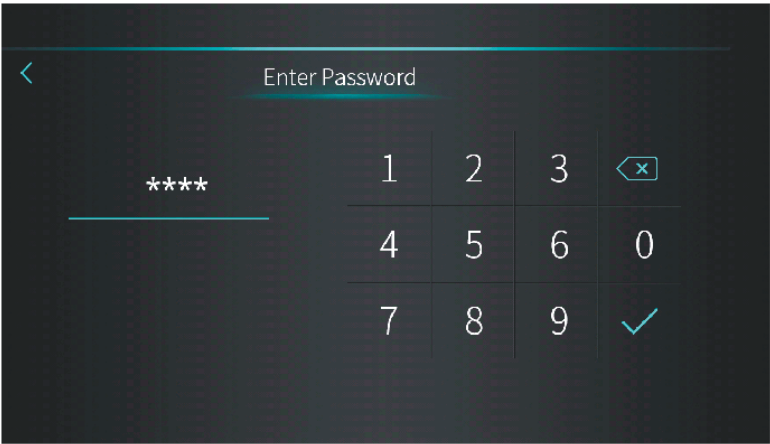


Take hot water + heating mode for example:

- (1) Tapping ①, the wire controller back to main interface;
- (2) Sliding ②, the target temperature can be adjusted in the clockwise or counterclockwise direction;
- (3) Tapping ③, the target temperature can be saved.

1.4 Unlock screen

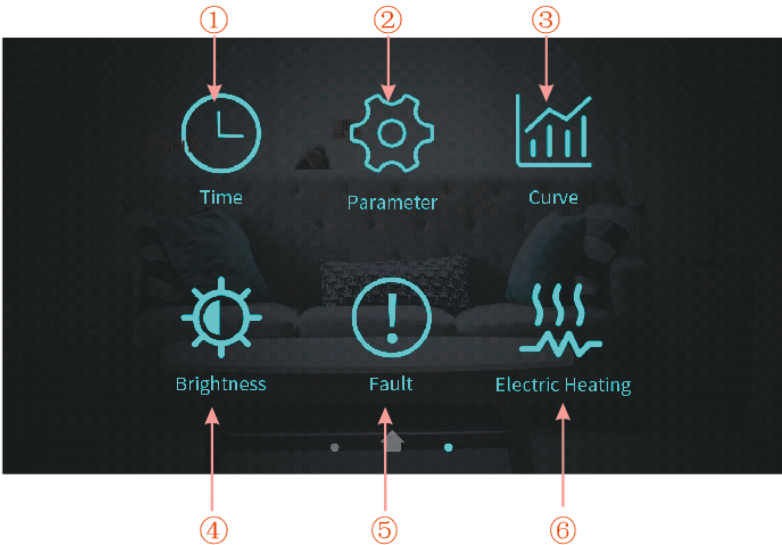
Click the lock screen key again while the screen has been locked, pop-up keyboard is shown as following:



Note:Input the password of 22 or 022, click the enter key and the screen will be unlocked.

2. Setting interface display and function

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



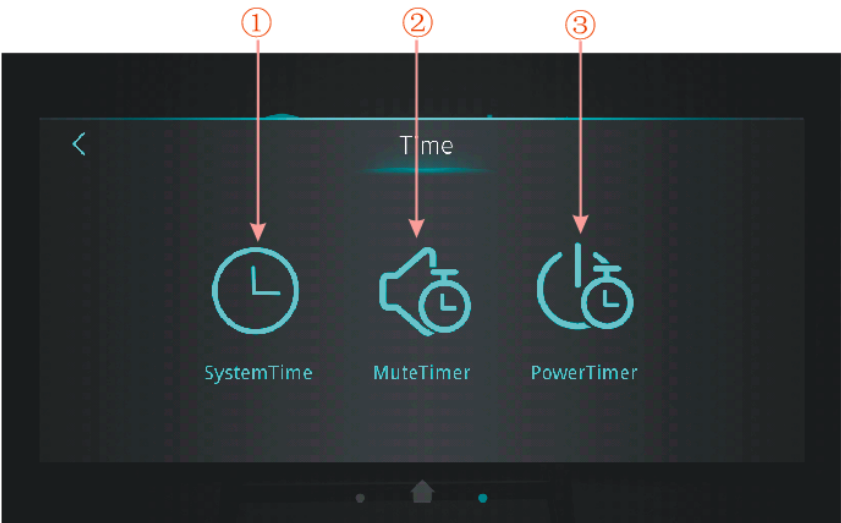
2.1 Buttons description

Key number	Key name	Key function
①	Time setting	Click this key to set the time function.
②	Factory parameter	Click the key and enter the password to enter the factory parameter settings and status parameters interface.
③	Curve key	Click this key to view the temperature curve.
④	Adjust brightness	Click this button to adjust screen brightness
⑤	Fault	Click to view fault history
⑥	One key electric heating	When activate electric heating function, the color of the icon will turn blue, otherwise it will turn white.

2.2 Time setting

In the setup interface:

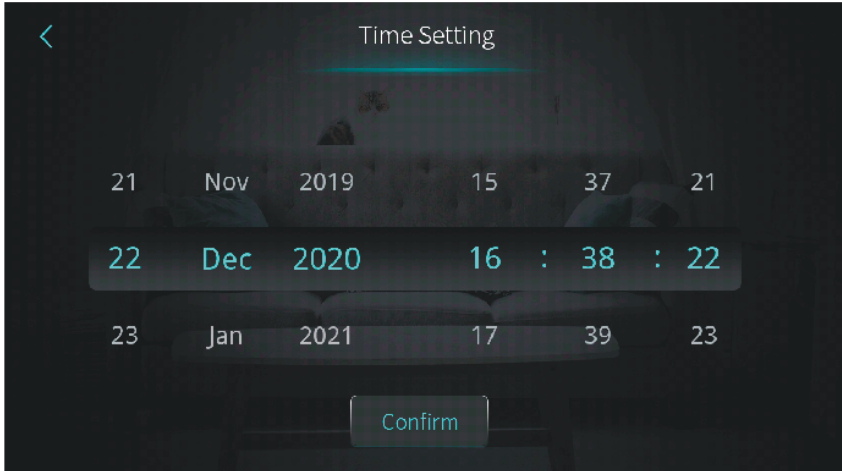
(1)Tapping the button①, then the interface display is shown as follows:



Operation and Use

2.2.1 System time setting

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

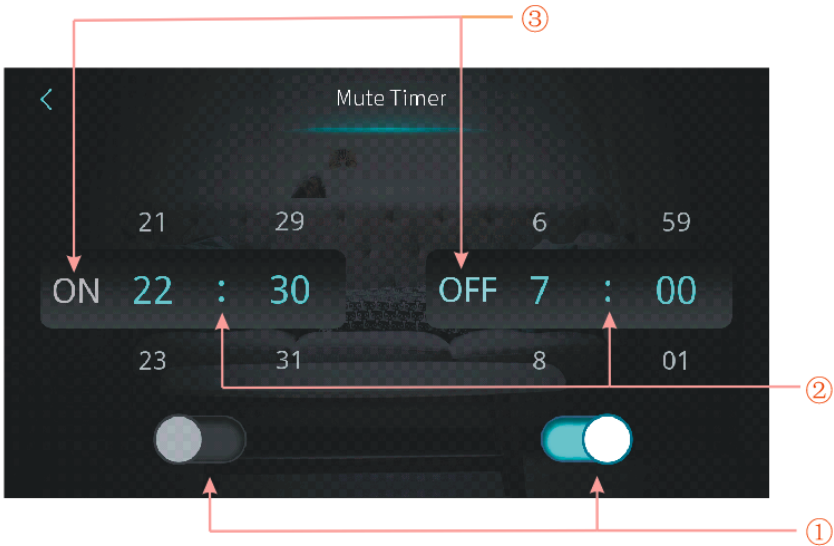


When entering the page of system time setting, the system time will be initialized to the time at the moment when the system time setting button is pressed, and you can adjust the time by sliding up and down.

Note: When the temperature unit is ?, the time format is displayed as: month-day-year hour: minute: second.

2.2.2 Mute Timer setting

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

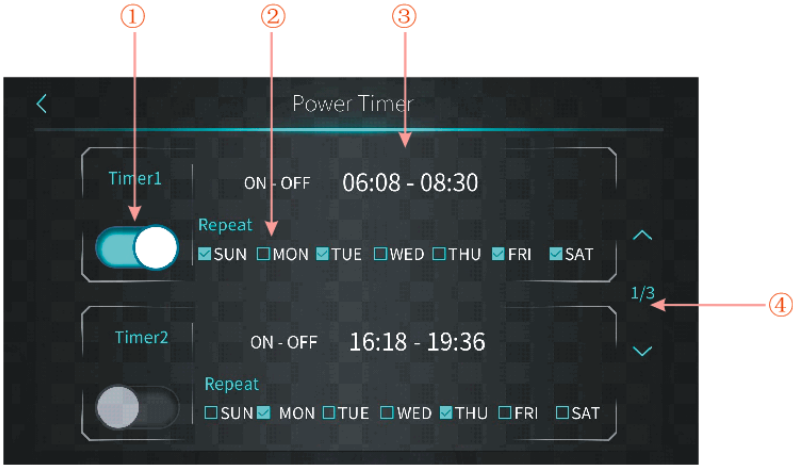


NO.	Name	Key color	Button function
①	Whether enable the mute timer on function	Enable: Blue ON Disable: Gray OFF	Click this key to enable or disable the mute timer on function
	Whether enable the mute timer off function	Enable: Blue ON Disable: Gray OFF	Click this key to enable or disable the mute timer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

Operation and Use

2.2.3 Power Timer setting

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

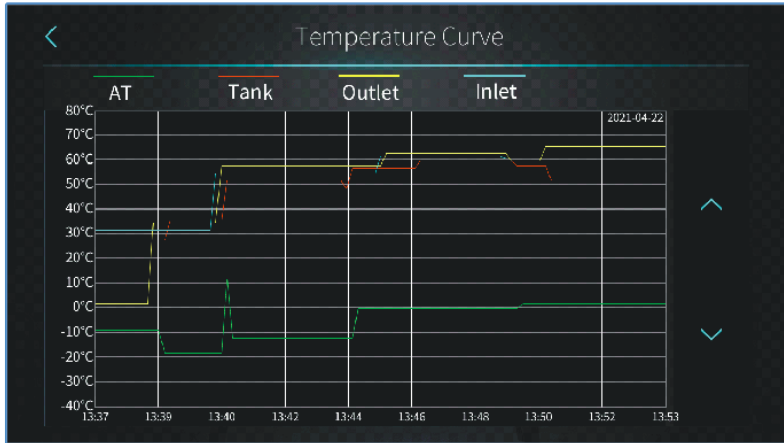


NO.	Name	Button function
①	ReturTiming switch function on	Click this key to return to the setup interface.
②	Week setting	Set the day of the week to activate the timing switch
③	Time period setting	Set the time to turn on and the time to turn off
④	Turn page	A total of 6 timing switch time periods can be set, which can be selected by turning the page

2.3 Temperature Curve

In the setup interface:

Tapping operating mode button④, then the interface display is shown as follows:



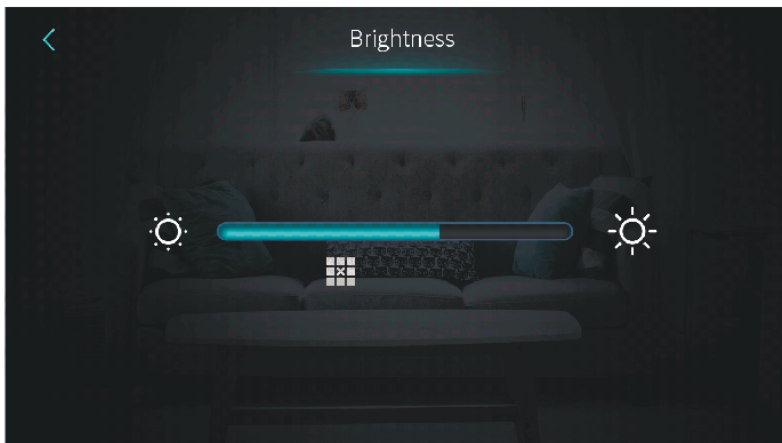
Note:

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

2.4 Color Display Calibration

In the setting interface:

Tapping operating mode button⑤, then the interface display is shown as follows:



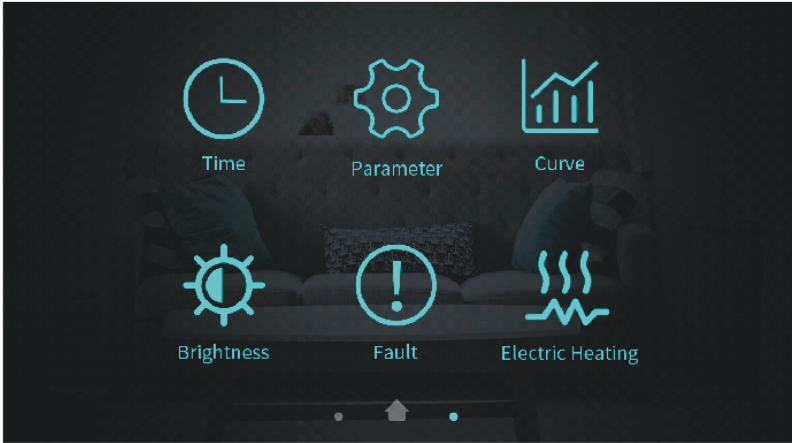
Note:

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

2.5 Electric Heating

In the setup interface:

Tapping operating mode button ⑥, then the interface display is shown as follows:

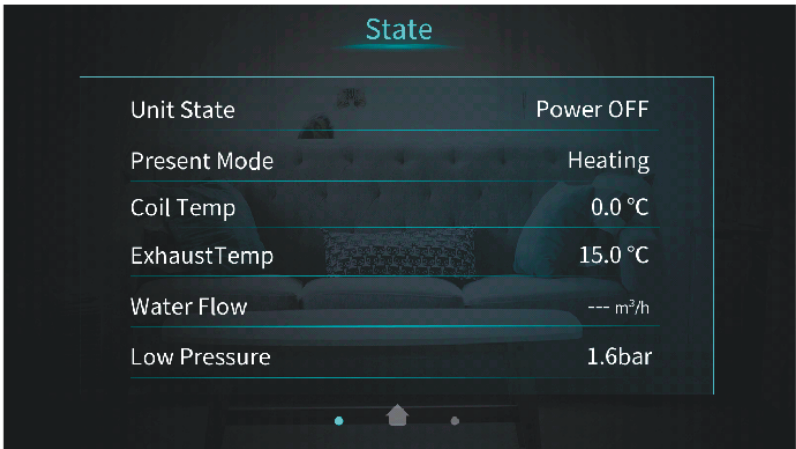


Note:

If you enter one-key electric heating, the icon is blue, otherwise it is gray.

3. Status interface display

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



4. Fault interface display and function

Click the fault icon on the main interface and the interface display is as follows:



①: Fault code

②: Fault name

③: Click this key to clear all fault records.

Note: The clear password is the system date displayed by the line controller,
e.g. 2023-09-19, the password is 19

Operation and Use

2.Parameter list and breakdown table

2.1 Electronic control fault table

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

Protect/fault	Fault display	Reason	Elimination methods
Standby	Non		
Normal boot	Non		
Inlet Temp Sensor Fault	P01	The temp. Sensor is broken or short circuit	Check or change the temp. sensor
Outlet Temp Sensor Fault	P02	The temp. Sensor is broken or short circuit	Check or change the temp. sensor
Water Tank Temp Sensor	P03	The temp. Sensor is broken or short circuit	Check or change the temp. sensor
AT Sensor Fault	P04	The temp. Sensor is broken or short circuit	Check or change the temp. sensor
Room Temp Sensor Fault	P42	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Syst1:Suction temp Sensor	P17	The temp. Sensor is broken or short circuit	Check or change the temp. sensor
Syst1:Inlet Sensor(EVI)	P101	The temp. Sensor is broken or short circuit	Check or change the temp. sensor
Syst1:Outlet Sensor(EVI)	P102	The temp. Sensor is broken or short circuit	Check or change the temp. sensor
Syst1:Coil temp Sensor	P153	The temp. Sensor is broken or short circuit	Check or change the temp. sensor
Syst1:Exhaust temp Sensor	P181	The temp. Sensor is broken or short circuit	Check or change the temp. sensor
Syst1: Exhaust Overtemp	P182	The compressor is overload	Check whether the system of the compressor running normally
Syst1: Pressure Sensor Fault	PP11	The pressure Sensor is broken or short circuit	Check or change the pressure Sensor or pressure
Low AT Protection	TP	The ambient temp. is low	Check the ambient temp value
Aux Superheat Protection	E04	The electric-heater protection switch is broken	Check to see whether the electric heater has been running under the temperature over 150 for a long time
Communication Fault	E08	Communication failure between wire controller and main board	Check the wire connection between remote wire controller and main board
Syst1:HP Protection	E11	The high-pressure switch is broken	Check the pressure switch and cold circuit
Syst1:LP Protection	E12	The low-pressure switch is broken	Check the pressure switch and cold circuit
Prim Anti-freezing Prot	E19	The ambient temp. is low	Check the ambient temp value
Secondary Anti-freezing Prot	E29	The ambient temp. is low	Check the ambient temp value
Flow Switch Protection	E032	No water/little water in water system	Check the pipe water flow and water pump
Communication Fault (speed control module1)	E081	Speed control module and main board communication fail	Check the communication connection
Syst1:Antifreeze	E171	Use side water system temp. is low	1.Check the water temp. or change the temp. Sensor 2.Check the pipe water flow and whether water system is jammed or not
Fan Motor 1 Fault	F031	1. Motor is in locked-rotor state 2.The wire connection between DC-fan motor module and fan motor is in bad contact	1.Change a new fan motor 2.Check the wire connection and make sure they are in good contact
Fan Motor 2 Fault	F032	1. Motor is in locked-rotor state 2.The wire connection between DC-fan motor module and fan motor is in bad contact	1. Change a new fan motor 2.Check the wire connection and make sure they are in good contact

Operation and Use

Protect/fault	Fault display	Reason	Elimination methods
Excess Water Temp Diff Prot.	E06	Water flow is not enough and low differential pressure	Check the pipe water flow and whether water system is jammed or not
Communication Fault with Hydraulic Module	E08c	Hydraulic Module and main board communication fail	Check the communication connection
Compressor Overcurrent Shutdown Fault	E051	The compressor is overload	Check whether the system of the compressor running normally
Outlet Water Overtemp.	E065	No water/little water in water system	Check the pipe water flow and water pump
Outlet Water Lowtemp.	E071	No water/little water in water system	Check the pipe water flow and water pump
Communication Fault (speed control module2)	E082	Speed control module and main board communication fail	Check the communication connection
The Wire Controller Does Not Match The Mainboard	E084	The wire controller software is not match the mainboard software	Check the wire control software number and the mainboard software number
Fan Motor1 Overload Prot	E103	The fan motor is overload	Check whether the fan motor running normally
Fan Motor2 Overload Prot	E203	The fan motor is overload	Check whether the fan motor running normally
Outlet Water Temp Sensor Fault of Water mixer	P02a	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Inlet Water Temp Sensor Fault of Air-Conditioning	P013	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Inlet Water Temp Sensor Fault of Hot Water	P018	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Outlet Water Temp Sensor Fault of Air-Conditioning	P023	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Outlet Water Temp Sensor Fault of Hot Water	P028	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Distributor Tube Temp Sensor Fault	P152	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Syst1:Antifreeze Sensor1	P191	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor

2.2 Parameter list

Meaning	Default	Remarks
Cooling target temperature set point	12°C	Adjustable
Heating the target temperature set point	40°C	Adjustable
Hot water target temperature set point	55°C	Adjustable

Frequency conversion board fault table:

Protect/fault	Fault display	Reason	Elimination methods
IPM Overcurrent Shutdown Fault	F00	IPM Input current is large	Check and adjust the current measurement
Compressor Activation Failure	F01	Lack of phase, step or drive hardware damage	Check the measuring voltage check frequency conversion board hardware
PFC Fault	F03	The PFC circuit protection	Check the PFC switch tube short circuit or not
DC Bus Overload	F05	DC bus voltage>DC bus Overload-voltage protection value	Check the input voltage measurement
DC Bus Underload	F06	DC bus voltage<DC bus Underload-voltage protection value	Check the input voltage measurement
AC Input Underload	F07	The input voltage is low, causing the input current is low	Check the input voltage measurement
AC Input Overload	F08	The input voltage is too high, more than outage protection current RMS	Check the input voltage measurement
Input voltage Sample Fault	F09	The input voltage sampling fault	Check and adjust the current measurement
Comm. Err DSP-PFC	F10	DSP and PFC connect fault	Check the communication connection
Communication Fault (DSP)	F11	DSP and Inverter board communication failure	Check the communication connection
Communication Fault (Inverter Board)	F12	Frequency conversion board and main board communication failure	Check the communication connection
IPM Overheat Stop	F13	The IPM module is overheat	Check and adjust the current measurement
Compressor Overcurrent Shutdown Fault	E051	The compressor is overload	Check whether the system of the compressor running normally
Input voltage Lacking Phase	F15	The input voltage lost phase	Check and measure the voltage adjustment
Weak Magnetic Warn	F16	Compressor magnetic force is not enough	Check and adjust the current measurement
Sensor Fault of Module/ Radiator	F17	The transducer is overheat	Check and adjust the current measurement
IPM Current Sample Fault	F18	IPM sampling electricity is fault	Check and adjust the current measurement
IGBT Power Device Overheat Alarm	F20	The IGBT is overheat	Check and adjust the current measurement
AC Input OverCurrent Alarm	F22	Input current is too large	Check and adjust the current measurement
EEPROM Error Warn	F23	MCU error	Check whether the chip is damaged Replace the chip

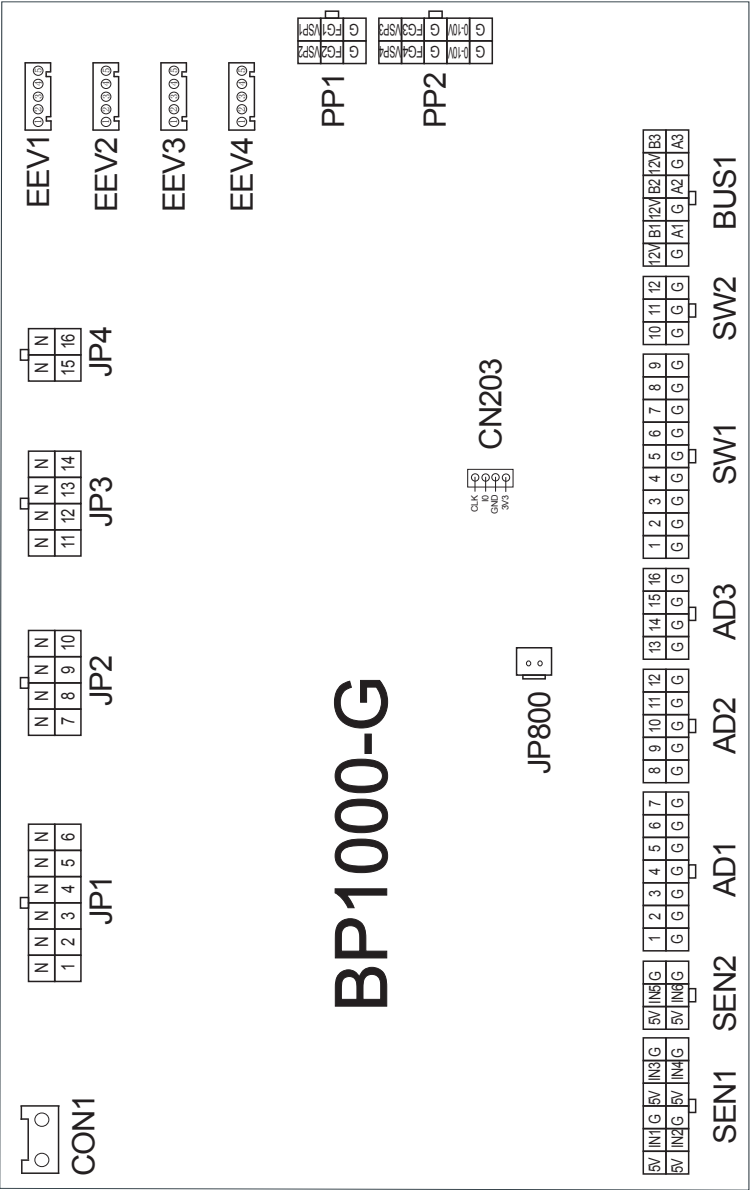
Protect/fault	Fault display	Reason	Elimination methods
Destroyed EEPROM Activation Ban Alarm	F24	MCU error	Check whether the chip is damaged Replace the chip
V15V Over/Undervoltage Fault	F25	The V15V is overload or undervoltage	Check the V15V input voltage in range 13.5v~16.5v or not
IGBT Power Device Overheat Fault	F26	The IGBT is overheat	Check and adjust the current measurement
Compressor Current Frequency Reduction Alarm	F33	The Compressor Current Frequency Reduction	Check and adjust the current measurement

3. Interface diagram

3.1 Wire control interface diagram and definition

<table><tr><td>V</td></tr><tr><td>R</td></tr><tr><td>T</td></tr><tr><td>A</td></tr><tr><td>B</td></tr><tr><td>G</td></tr></table>	V	R	T	A	B	G	Sign	Meaning
	V							
	R							
	T							
	A							
	B							
	G							
V	12V (power +)							
R	No use							
T	No use							
A	485A							
B	485B							
G	GND(power-)							

3.2 Controller interface diagram and definition



Operation and Use

Main board of the input and output interface instructions below

Number	Sign	Meaning
01	AD1-1	Water input temperature
02	AD1-2	Water output temperature
03	AD1-3	Ambient temperature
04	AD1-4	Coil temperature
05	AD1-5	Suction temperature
06	AD1-6	Antifreeze temperature
07	AD1-7	Outlet coil temperature
08	AD2-8	EVI inlet temperature
09	AD2-9	EVI outlet temperature
10	AD2-10	Room Temp. /Buffer Tank Temp
11	AD2-11	Water tank temperature
12	AD2-12	Exhaust temperature
13	AD3-13	Reserved
14	AD3-14	Reserved
15	AD3-15	Reserved
16	AD3-16	Reserved
17	SW1-1	The high-preesure of system switch
18	SW1-2	The low-preesure of system switch
19	SW1-3	Water flow switch
20	SW1-4	Electric heater overload protection
21	SW1-5	Emergency input
22	SW1-6	AC mode switch
23	SW1-7	AC switch
24	SW1-8	DHW On/Off
25	SW1-9	Reserved
26	SW2-10	Reserved
27	SW2-11	Reserved
28	SW2-12	Reserved
29	CON1	220V input
30	JP1-1	Circulating water pump
31	JP1-2	Hot water three-way valve
32	JP1-3	Electrical heating level 1
33	JP1-4	Electrical heating level 2
34	JP1-5	DHW Electric Heater
35	JP1-6	DHW circulating pump
36	JP2-7	Compressor
37	JP2-8	Alarm output
38	JP2-9	Fan high speed
39	JP2-10	Fan low speed
40	JP3-11	4-way valve
41	JP3-12	2-way valve
42	JP3-13	Crankshaft heating belt output

43	JP3-14	Chassis heater output
44	JP4-15	Reserved
45	JP4-16	Reserved
46	EEV1	Electronic expansion valve
47	EEV2	Electronic expansion valve of EVI
48	EEV3	Reserved
49	EEV4	Reserved
50	PP1-1	Speed regulation of water pump 1
51	PP1-2	Reserved
52	PP2	Reserved
53	CN203	Programming interface
54	JP800	12V output
55	SEN1-1	Low-pressure sensor
56	SEN1-2	High-pressure sensor
57	SEN1-3	Current Transformer 1
58	SEN1-4	Current Transformer 2
59	SEN2	Current Transformer 3
60	BUS1-3	DTU
61	BUS1-2	Centralized control communication port
62	BUS1-1	5 inch color display/DC fan speed regulation module/Frequency conversion board/Calibration tooling

Note:

PP1-1 represents VSP1, FG1, GND on the PP1 terminal;
PP1-2 represents VSP2, FG2, GND on the PP1 terminal;
SEN1-1 represents 5V1, IN1, GND on the SEN1 terminal;
SEN1-2 represents 5V2, IN2, GND on the SEN1 terminal;
SEN1-3 represents 5V3, IN3, GND on the SEN1 terminal;
SEN1-4 represents 5V4, IN4, GND on the SEN1 terminal;
BUS1-1 represents +12V, 485_A1, 485_B1, GND on the BUS1 terminal;
BUS1-2 represents +12V, 485_A2, 485_B2, GND on the BUS1 terminal;
BUS1-3 represents +12V, 485_A3, 485_B3, GND on the BUS1 terminal.

Appendix 1、Caution & Warning

1. The unit can only be repaired by qualified installer centre personnel or an authorised dealer. (for Europe market)
2. This appliance is not intended for use by persons (including children) with reduced physical sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. (for Europe market)
Children should be supervised to ensure that they do not play with the appliance.
3. Please make sure that the unit and power connection have good earthing, otherwise may cause electrical shock.
4. If the supply cord is damaged, it must be replaced by the manufacturer or our service agent or similarly qualified person in order to avoid a hazard.
5. Directive 2002/96/EC (WEEE):
The symbol depicting a crossed-out waste bin that is underneath the appliance indicates that this product, at the end of its useful life, must be handled separately from domestic waste, must be taken to a recycling centre for electric and electronic devices or handed back to the dealer when purchasing an equivalent appliance.
6. Directive 2002/95/EC (RoHS): This product is compliant with directive 2002/95/EC (RoHS) concerning restrictions for the use of harmful substances in electric and electronic devices.
7. The unit CANNOT be installed near the flammable gas. Once there is any leakage of the gas , fire can be occur.
8. Make sure that there is circuit breaker for the unit, lack of circuit breaker can lead to electrical shock or fire.
9. The heat pump located inside the unit is equipped with an over-load protection system. It does not allow for the unit to start for at least 3 minutes from a previous stoppage.
10. The unit can only be repaired by the qualified personnel of an installer center or an authorized dealer. (for North America market)
11. Installation must be performed in accordance with the NEC/CEC by authorized person only. (for North America market)
12. USE SUPPLY WIRES SUITABLE FOR 75°C.
13. Caution: Single wall heat exchanger, not suitable for potable water connection.

Appendix

Appendix 2、Cable specification

1. Single phase unit

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

2. Three phase unit

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

When the unit will be installed at outdoor, please use the cable which can against UV.

Appendix

Appendix 3. Water quality requirements

1. Corrosion resistance of stainless steel and brazed materials in tap water at room temperature

Attention: + : Good corrosion resistance under normal conditions

0 : There may be corrosion problems

- : Not recommended

			Plate material			Brazing material		
Moisture	Concentration	Time limit	AISI 304	AISI 316	254 SMO	Cuprum	Nickel	SS
Alkalinity (HCO ₃)	<70 70-300 >300	24h	+	+	+	0 + 0/+	+	+
Sulfate (So ₄ ²⁻)	<70 70-300 >300	unlimited	+	+	+	+	+	+
HCO ₃ ⁻ /SO ₄ ²⁻	>1.0 <1.0	unlimited	+	+	+	+	+	+
Electrical conductivity	<10 10-500 >500	unlimited	+	+	+	0 + 0	+	+
pH	<6.0 6.0-7.5 7.5-9 >9	24h	0 + + +	0 + + +	0 + + +	0 0 + 0	+	0 + + +
Ammonium (NH ₄ ⁺)	<2 2-20 >20	24h	+	+	+	+	+	+
Chloride (Cl ⁻)	<10 100-200 200-300 >300	unlimited	+	+	+	+	+	+

