



HiHeat Hot Water Heat Pump

HIGH TEMPERATURE UNITS

Installation & Instruction Manual

ATHP120

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1. Preface

- 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.
- Read these operating and installation instructions carefully and keep them safe. Should the equipment change hands, pass these instructions to the subsequent owner. Pass them to the trained contractors for servicing purposes. Positioning, installation and commissioning must be carried out by trained personnel working in accordance with these operating and installation instructions.
- When the product is delivered to the users, please check whether there is any damage on the unit during transportation; If any please talk with the forwarder or the contractor.
- If the heat pump unit can just be installed a while later, please keep it free from damage, rust or abrasion by following methods.
 1. all the access like the water connections must be sealed correctly;
 2. the unit must be free from sunshine, and placed under 45°C;
 3. the unit must be free from heavy dust to avoid dirty on the evaporator;
 4. the unit must be placed free from chaos to avoid accident;
 5. please check the unit during stock.
- 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.
- The pictures and drawings in this manual are for your information only. The manufacturer has the right to change or improve the product when it is needed, without prior notification to the users of this device.




2. Safety Precaution

To prevent the user himself or others from personal and property damage and ensure correct and safe use of the unit, please read the important contents described in this Manual carefully. Read the text with full understanding of the following contents (marking and icon), and follow the following precautions.

2.1 Marking Description

Marking	Description
 Warning	Mis-operation (misuse) may cause death or serious injury.
 Caution	Mis-operation (misuse) may cause personal harm or material damage.



2.2 Icon Description



Marking	Description
	It indicates prohibition. Detailed prohibitions are represented by graphics or words in or near the icon.
	It indicates mandatory (execution). Detailed mandatory items are represented by graphics or words in or near the icon.
	It indicates caution (including warning). Detailed cautions are represented by graphics or words in or near the icon.




1. The above-mentioned harm in the Description refers to the harm that does not require hospitalization or long-term treatment, and refers to injuries, burns and electric shock in general.
2. The above-mentioned material damage refers to losses of property and materials.

2. Safety Precaution

2.3 Warning




Installation Warning	Description
 Entrust the professionals for installation	Please entrust the professionals for installation. The installation by others may cause installation imperfections, resulting in water leakage, electric shock or fire.
 Verify the ground wire	Verify whether the grounding is proper. Improper grounding may cause electric shock.





Use Warning	Description
 Prohibit	Do not put your fingers, sticks and other objects into the air outlet or the air inlet. Because the wind wheel operates at high speed inside, it may cause injury.
 Cut off the manual power	When abnormal conditions (burning smell) occur, immediately cut off the manual power switch to stop running and contact the dealer. Continuing abnormal conditions may cause electric shock or fire.

Moving and Repair Warning	Description
 Entrust	If it is necessary to move and re-install the air conditioning, entrust the dealer or professionals for implementation. Improper installation may cause electric shock, fire, injury, water leakage and other accidents.
 Entrust	For repair, entrust the dealer or professionals. Improper repair may cause fire, electrical shock, injury, water leakage and other accidents.
 Prohibit	It is prohibited to repair the unit by the user himself, otherwise electrical shock or fire may occur.

2.Safety Precautions

2.4 Caution

Installation precaution	 Verify the installation site	Do not install it in a place where flammable gas leak easily occurs. Once the flammable gas leaks and stays around the outdoor unit, this may cause a fire.
	 Verify the fixing means	Verify whether the installation base is solid. If the base is not solid, the outdoor unit may fall and then result in accidents.
	 Verify the leakage protection switch	Verify whether the leakage protection switch has been installed. If the leakage protection switch is not installed, this may cause electric shock or fire.

Use precautions	 Check the installation bench	For long-term use, check whether the installation bench is firm and intact. If installation bench is damaged or weak, the outdoor unit may fall, causing casualties.
	 Cut off the manual power switch	Stop the operation during cleaning, and cut off the manual power switch. If the machine does not stop operation, it may cause injury due to the wind wheel running at a high speed inside.
	 Prohibit	Use the appropriate fuse. If copper or iron wires are used, it may cause malfunction or fire.
	 Prohibit	Do not spray the combustible spray directly to the outdoor unit; otherwise, this may easily

3.Specification

3.1Performance Parameter List

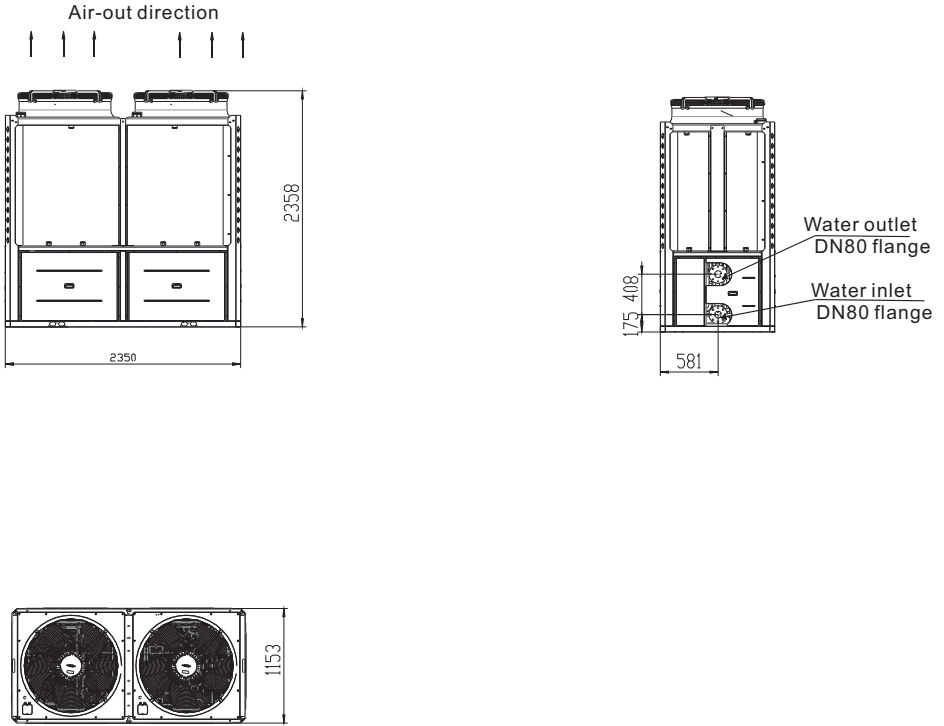
Unit Model			ATHP120
Recycled-heating	Heating Output	kW	135
	Power Input	kW	38.6
	Running Current	A	77.33
Power Supply			380-415V/3N~/50Hz
Compressor Quantity			4
Compressor Type			Scroll
Refrigerant Type			R134a
Fan Quantity			2
Fan power input	W		2250×2
Fan speed	RPM		720
Water pipe connection	mm		80
Unit dimension (L/W/H)	mm		(Subject to drawings of the heatpump)
Package size(L/W/H)	mm		(Subject to data on the package)
Net Weight	kg		Nameplate
Gross weight	kg		Package

Testing condition: ambient temperature DB/WB 20℃ /15℃ ;
outlet water 65℃ , inlet water (return) 15℃ ;

3.Specification

3.2 Outline Dimensional Drawing

Models: ATHP120



4. Unit Function Description

Heating capacity

The unit absorb energy from outside and release the heat according to the heat exchanger, if the environment temperature is low, the heating capacity will be attenuation.

3 minutes protection

When the unit stop, if you restart the unit or turn on the manual switch, the unit will not run in 3 minutes, it's the protection for the compressor.

Hight pressure protection

If the environment temperature is too high, the unit will stop running to protect the compressor.

Defrosting

Under the heating mode, the unit will defrost automatic to make sure the heating efficiency (it will last 2-10 minutes).

Working condition

In order to use the unit correctly, please run the unit at environment temperature -7°C - 43°C . The unit includes sophisticated electronic devices, prohibited to use water from lake, untreated river water and groundwater!

Power off

If the power supply is off, the unit will stop running. If the running unit is disturbed by lightning, car radio, power grid fluctuations please cut off the manual power switch, and then power on, press the on / off button.

leakage current protection

There is a leakage current action protection comes with the power supply wire.

Electric heating protection

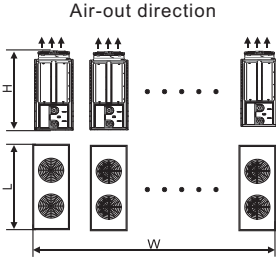
When the water temperature reach 94°C , electric heating fuse will melt off (cannot be restored).

5. Installation

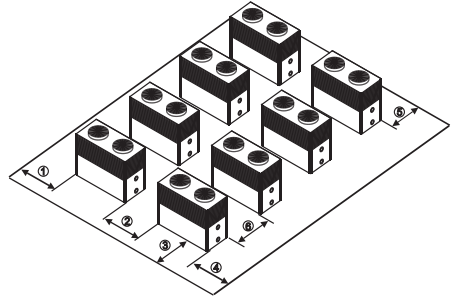
5.1 Installation Space

Dimensions

Outline Dimensional Drawing - Parallel Units



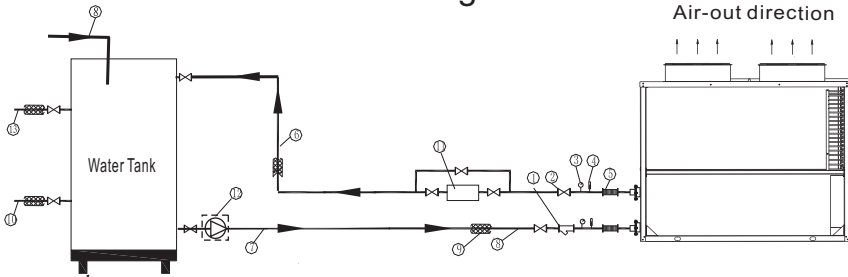
Schematic Diagram of Unit Installation Position



Parallel Mode	L(mm)	L(mm)	L(mm)
Double-connected unit	2350	3160	2500
Tripartite-connected	2350	5240	2500
Quadruple-connected	2350	7320	2500
Quintuplicate-connected unit	2350	9400	2500

1	Maintenance space above 1800mm
2	Unit spacing above 1500mm
3	Maintenance space above 1500mm
4	Maintenance space above 1500mm
5	Maintenance space above 1800mm
6	Maintenance space above 1000mm

5.2 Installation Schematic Diagram



1	Y-type filter	2	Shut-off valve
3	Thermometer (0-100°C)	4	Pressure gauge (0-1.0MPa)
5	Connecting hose	6	Hot Water Circulating Pipe
7	Hot Water Circulating Pipe	8	Water supply pipes
9	Thermal insulation	10	Hot Water Supply Pipe
11	Electric auxiliary heater	12	Hot Water Return Pipe
13	Water pump		

5. Installation

5.3 Model Selection

- (1) Make comprehensive consideration of the required refrigerating (heating) capacity per unit area according to climatic conditions, building use and heat preservation;
- (2) Calculate the total load according to the unit load and the total area;
- (3) Select the appropriate unit based on the total load and the application scope of the unit.
- (4) Application occasions:

5.4 Selection of the Installation Position

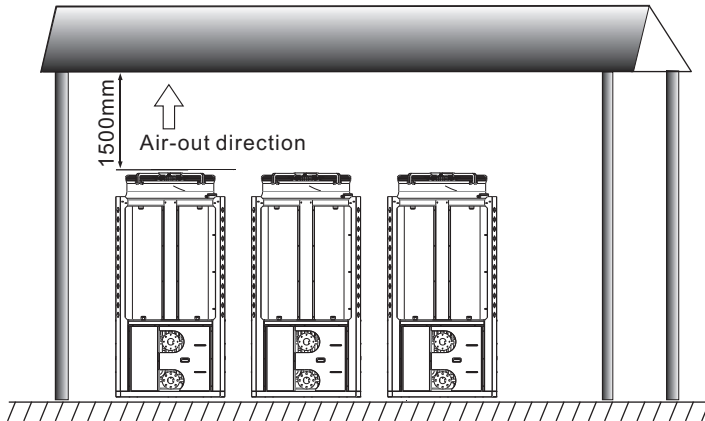
- The unit can be installed on balconies, roofs, floors, or any other places easy to install and reliable for load-bearing;
- Air circulated places;
- Places without thermal radiation or other heat sources;
- Install a snow shed in winter;
- Places without obstruction near the suction inlet or the exhaust outlet;
- Places where the exhaust outlet is free from heavy winds;
- Drainage channels shall be equipped around the machine to drain the condensed water;
- Enough space should be remained around the machine.

5. Installation

5.5 Installation Mode

- The unit is directly secured to the cement base with the expansion bolts.
- Use channel steel to make the installation base, place shockproof rubber pads on the ground or the roof, and ensure that the unit is placed levelly.

Figure 1 Installation Schematic Diagram of Snow Shed



Caution

To ensure the proper functioning of the unit in cold areas in winter, the snow shed must be installed during the engineering installation.

5. Installation

5.6 Water Pipe Connection



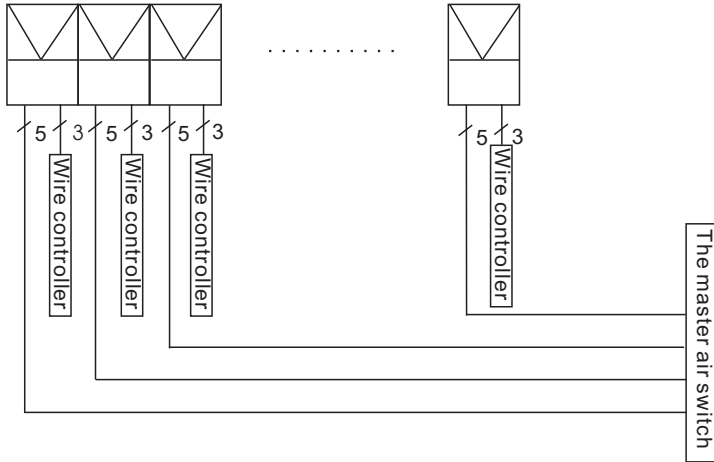
Note the following items during connection of water inlet and outlet pipes:

- Minimize the resistance of the water pipe outside the unit.
- The entire piping system should be clean and free of dirt and rust to prevent pipe clogging. Test for leakages after the pipes are installed to ensure that the entire piping system is free of leakage, and then coat with the insulating layer.
- The pipeline should be conducted with a pressure test separately, rather than together with the air conditioning main engine.
- An expansion water tank should be installed at the highest point of the water distribution pipeline, where the highest point of the water level in the expansion water tank is at least 0.5 meters higher than the water distribution pipe.
- Flexible joints should be used between the unit interface and the field piping to reduce the vibrations spread to both buildings and equipment. Both the pipe and the fittings must be independently supported, but should not be supported by the unit.
- The thermometer and the pressure gauge should be installed at the water inlet and outlet pipes of the unit to facilitate the inspection during operation.
- Drainage interfaces should be installed at all low positions of the water system (the unit has a drain port to facilitate drainage; interfaces will be added in other positions on site) so that the water in the system will be completely drained if it is not used in winter; automatic exhaust valves should be installed at all high positions so as to facilitate to exhaust the air from the pipeline. No insulation is provided for both the exhaust valves and the drain port for easy maintenance.

5.7 Electrical Wiring

- Open the panel, and open the power line hole
- Thread the power line through the hole and connect it to the power line terminal; and the three-core control line of the remote controller shall be plugged with the three-core signal line on the main board according to the wiring diagram.
- For an external water pump, thread the power line of the water pump through the hole and connect it to the water pump terminals.
- If it is necessary to automatically control the auxiliary heat source, connect the control output signal of the auxiliary heat source to the start switch of the auxiliary heat source.
- If it is necessary to automatically control mode of the air conditioning terminal, connect the mode control signal to the mode control switch on each indoor air conditioning terminal.

5.Installation



Model	Power cablee	Three-core signal line
ATHP120	$3 \times 2.5\text{mm}^2 + 2 \times 4\text{mm}^2$	$3 \times 0.5\text{mm}^2$

Notes:

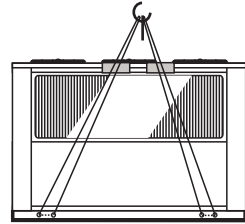
(1) The unit uses the three-phase power supply, and the cable specification in the table above refers to the cable specification of each phase.

(1) Both the neutral line and the ground line use the 4mm^2 cables, and both the three-core signal line and the defrosting coordination line use the 0.5mm^2 wires.

5. Installation

5.8 Moving

When lifting is needed, use four sling wires longer than 8m for lifting; during the lifting, use the special lifting hole (hook) on the unit base. Pads shall be provided at the contact between the housing and the sling to prevent the damage to the housing, as shown in Figure 2.



Picture 2



Warning

Do not touch the radiating fins behind the machine by hand or with other objects!


5.9 Trial Operation

5.9.1 Check prior to trial operation

- Check the piping system. Check whether the expansion water tank is filled with sufficient water and whether the water supply for supplement is normal. Check whether the entire piping system is full of water and whether the air is completely exhausted. Check whether all valves in the system are opened. Check whether the pipelines are well insulated.
- Check the power distribution system. Check whether all power supplies have normal voltage. Check whether screws of each power distribution part are locked, and whether the power is distributed to the circuit according to the distribution wiring diagram. Check whether the ground line is well connected.
- Check the water chilling unit. Check whether all fastening screws and screws on the mechanical parts of the unit are firm. Check whether there is any fault indication on the operation lights on the outdoor control main board. Connect the pressure gauge to the fluoridated inlet to detect the system pressure during operation.

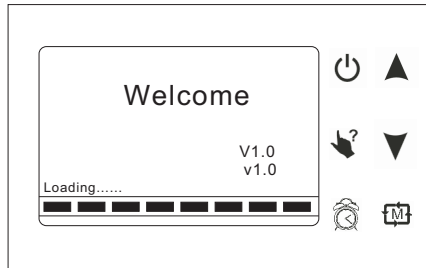
5. Installation







5.9.2 Trial Operation

- Turn on the machine with  on the remote controller, and then immediately check whether the water pump operates normally; if it is normal, observe the water flow switch and the water pressure gauge of the water system: when the water flow switch is in the ON state, the water pressure gauge shall show the water pressure of about 0.2MPa.
- After the water pump has operated for some time, the compressor will start. Judge whether there is any abnormal sound in the unit during operation with the sense of hearing; if there is any abnormal sound, immediately cut off the power and check the unit; if there is no abnormal sound, continue the operation and then note whether the pressure of the refrigerating system is normal.
- Check whether the input power and the current of the unit are consistent with the performance data list in the Manual; in case of non-compliance, stop the unit for check.
- Adjust the water supply valve in each room, so that the temperature of each room meets the use requirements.
- Observe whether the outlet water temperature is normal.
- Parameters of the remote controller have been set in the factory, and the user shall not adjust it without permission.

6.Usage

6.1 Function of wire controller



Button	Name	Function
	ON/OFF	Press this button to start up/shut off the unit, cancel current operation or back to upper interface.
	HELP	Press this button to check button function or system state.
	MODE	Press this button to confirm current operation.
	CLOCK	Press the button to set the clock, the timer on or timer off
	Up	Press this key to select the upward option or increase the parameter value.
	Down	Press this key to select the downward option or decrease the parameter value.

6.Usage

6.2 Usage of wire controller

6.2.1 The way to use

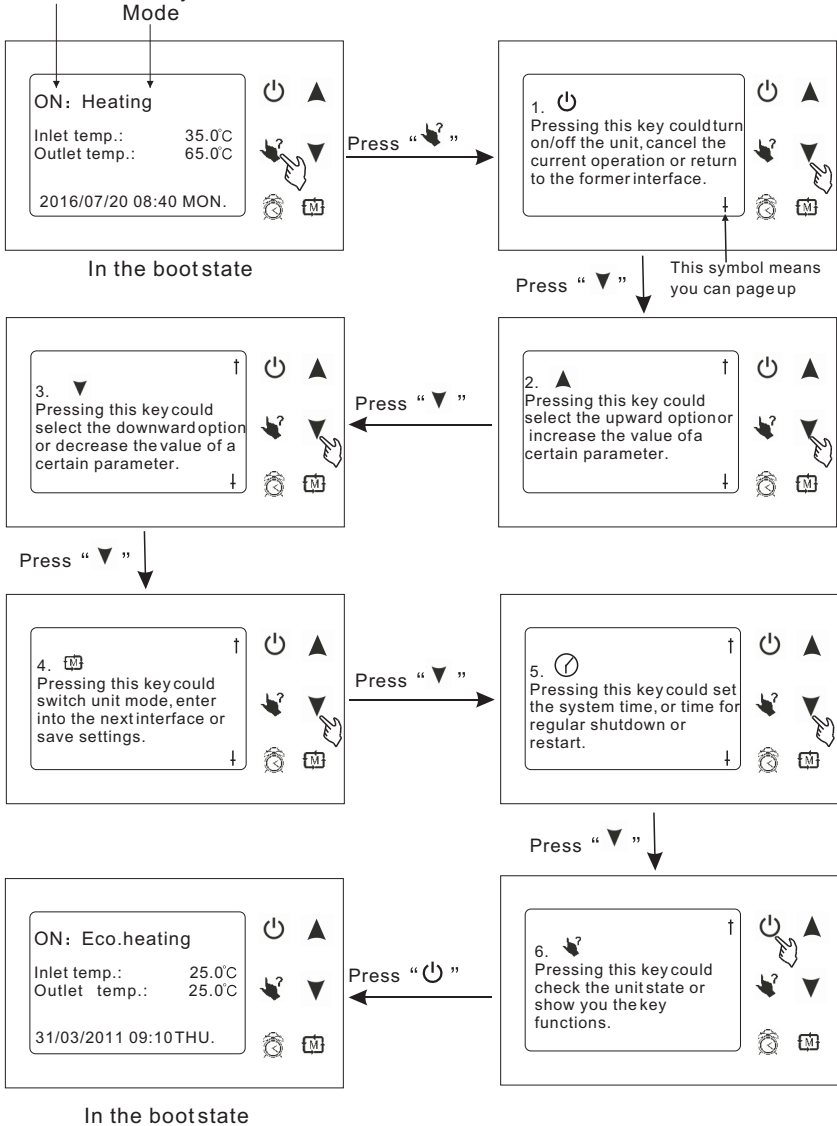
You can use “?” at any interface, it will show relevant button function of current interface.

You can press “⏻” to exit the “help” interface.

For example:

Press “?” at main interface, system will show all button function; Press “?” at clock interface, system will show “▲”、“▼”、“🕒” and “⏻” button function.

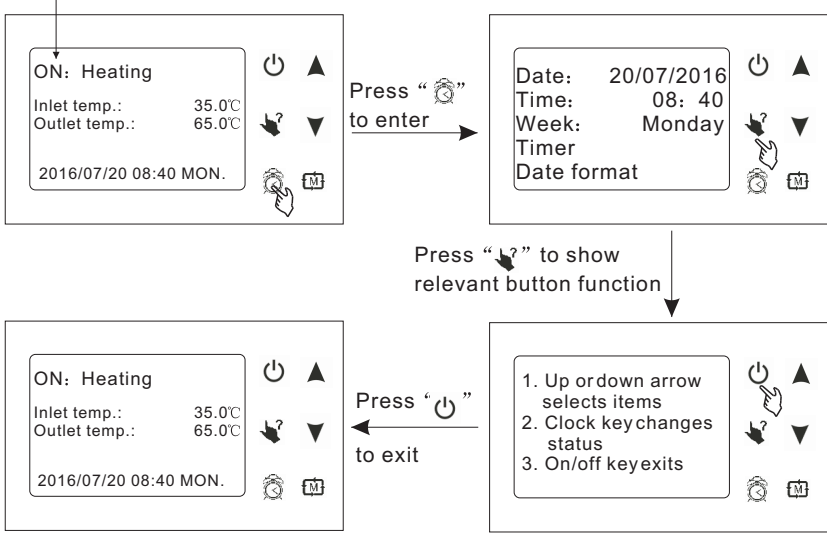
Both are OK when system show ON or OFF



6. Usage

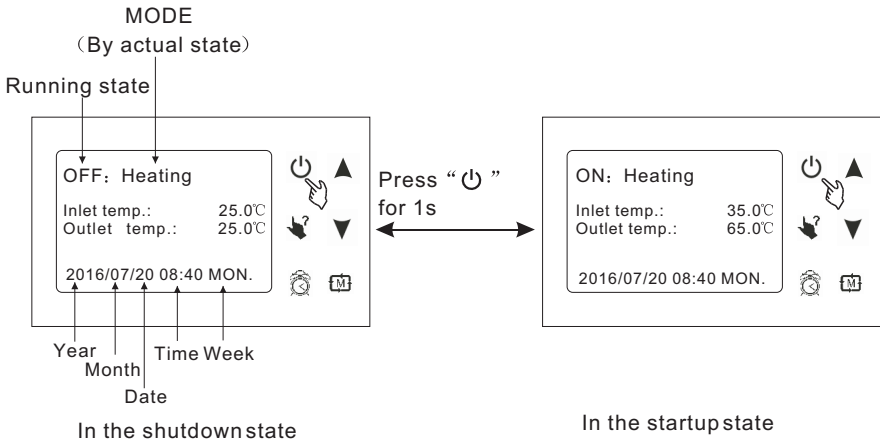
Press “↵” at clock interface, the screen shows as follow:

Both are OK when system shows ON or OFF



6.2.2 Starting up and shutting down

Press “🔌” in the shutdown state for 1s to start up the system;
 Press “🔌” in the startup state for 1s to shut down the system.
 For example:

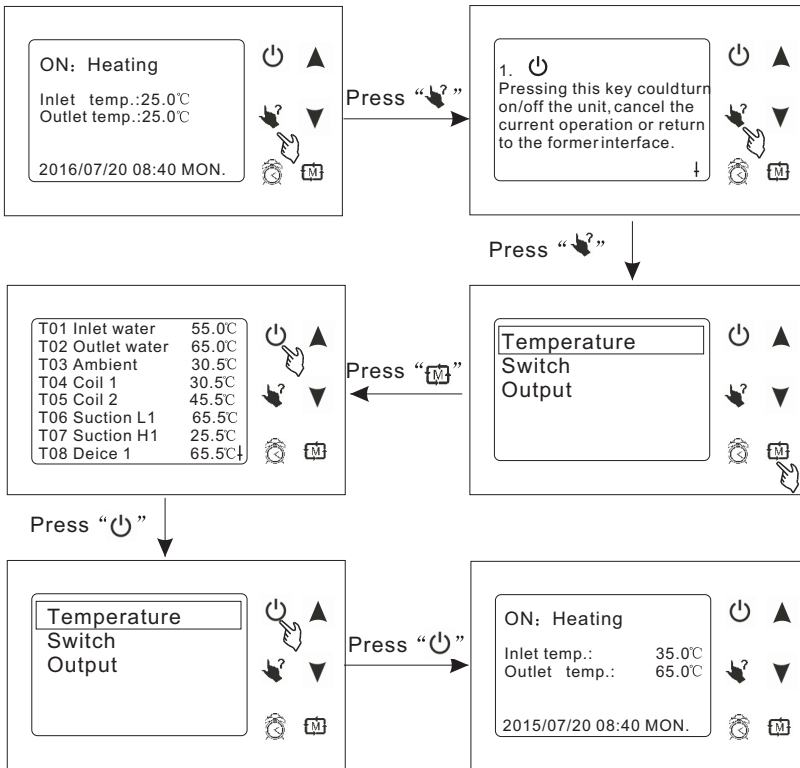


6.Usage

6.2.3 The operation of system state



At any interface, you can enter system working state by pressing “↵?” twice, press “▲” (pageup) or “▼” (pagedown) to select the needing parameter, press “⏏” to enter, and press “⏏” to exit.

For example:

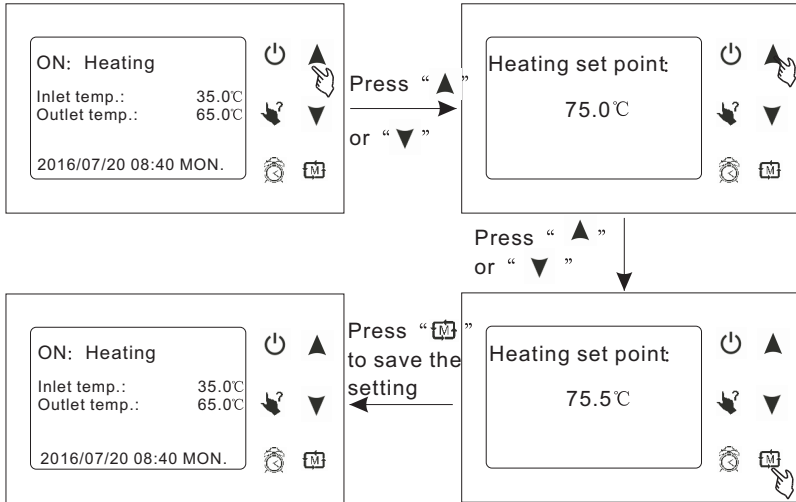


6.Usage





6.2.4 The operation of parameter

At main interface, press “▲” or “▼” to enter parameter setting interface, press “▲” (increasing) or “▼” (decreasing) can change parameter value, press “” to save the setting and exit. Press “” can not save the setting but exit. (You can refer to parameter table to set relevant temperature.)

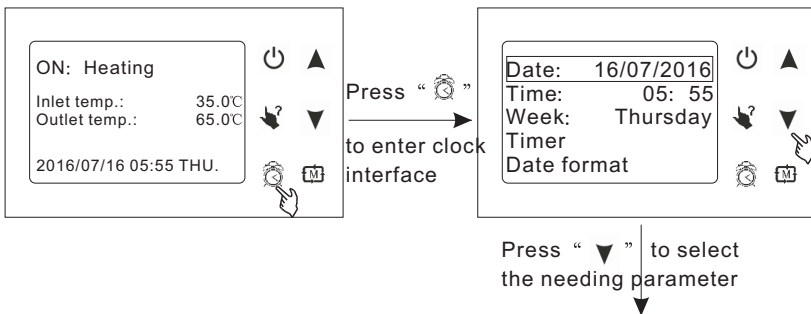
For example:



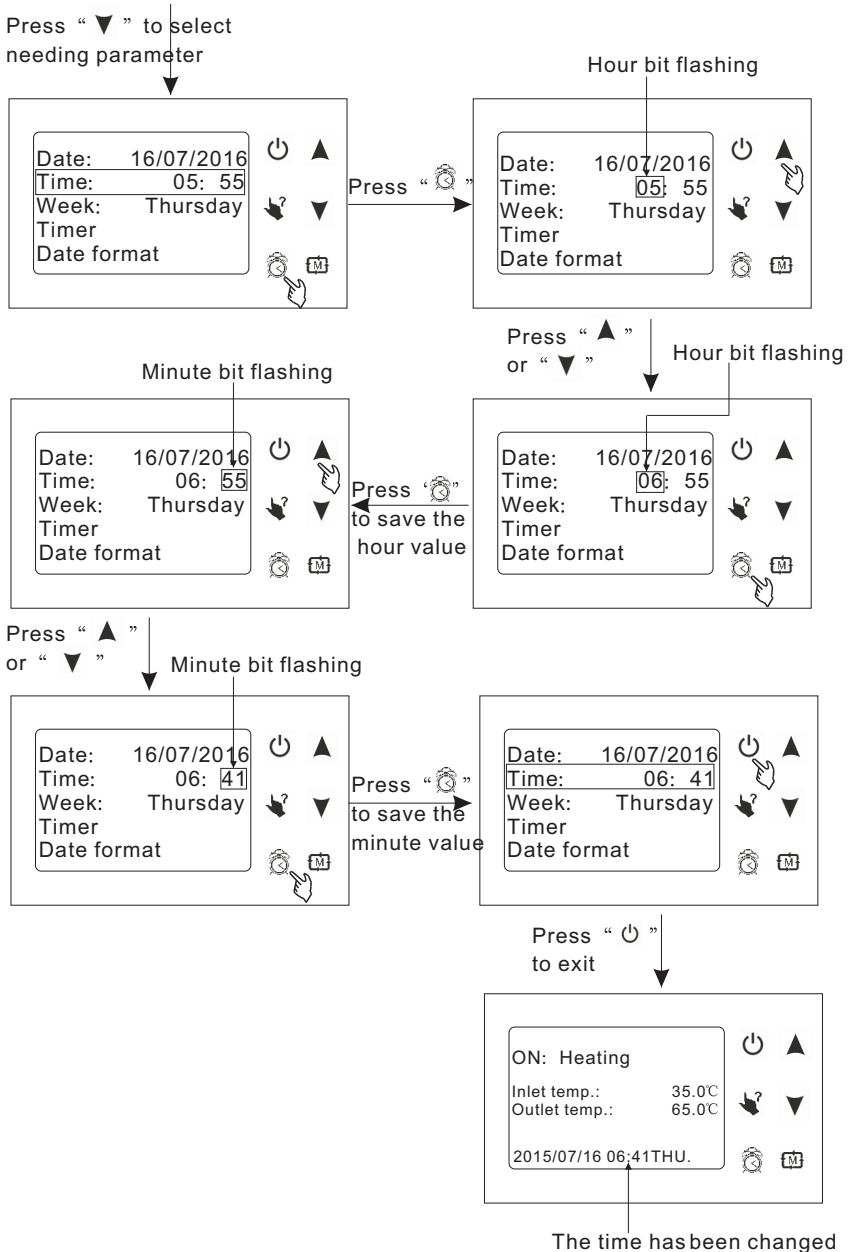
6.2.5 The operation of clock

At main interface, press “” to enter clock setting interface, select the needing parameter and press “”, at this time, parameter value flashing, press “▲” (increasing) or “▼” (Decreasing) can change parameter value, then press “” to save, press “” can cancel the setting or back to the main interface. (“timer setting” refer to timer operation)

For example:



6.Usage

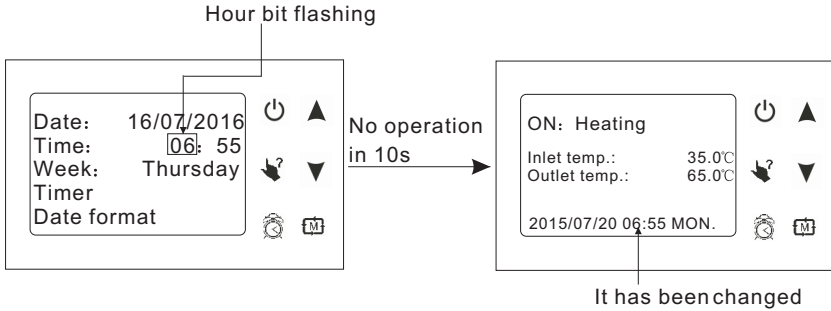


Tips: The setting of date and week is the same with clock;

If there is no operation in 10s, system will remember parameter setting automatic and back to the main interface.,

As follow :

6.Usage



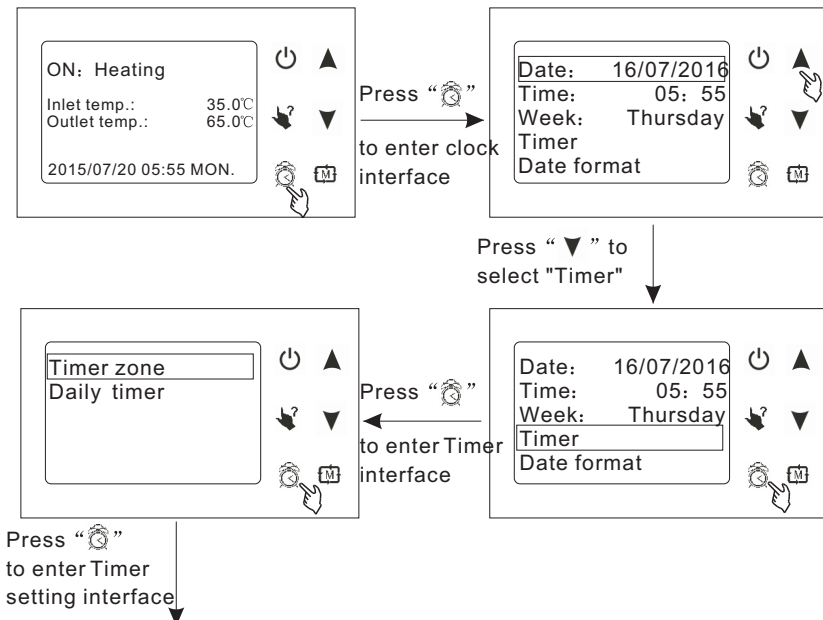
6.2.6 The operation of timer

You can set four timer on and timer off according to you needing.

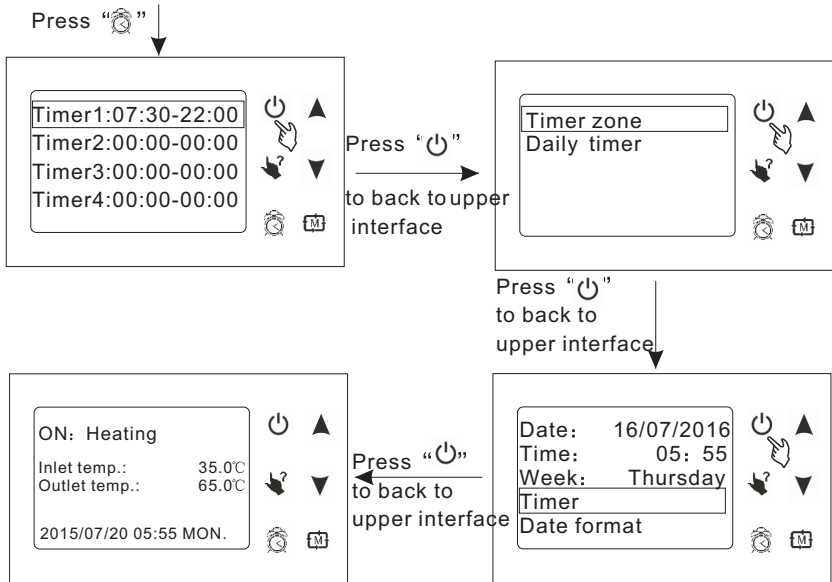
At main interface, press “🕒” to enter timer setting, press “▼” to select “Timer”, then press “🕒” to enter timer setting interface, (timer setting: you can set four timer on and timer off, and the time you set can from Monday to Sunday.) , the operation is the same with clock setting.

For example:

A. Timersetting

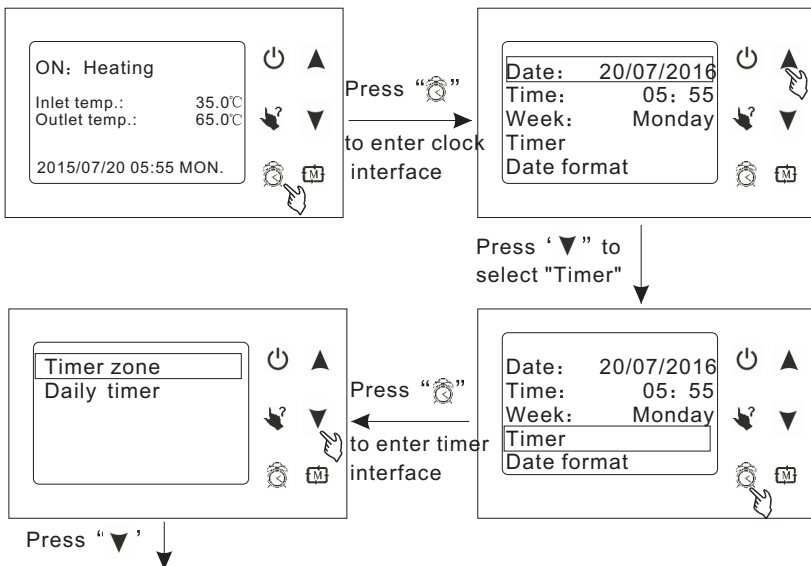


6.Usage

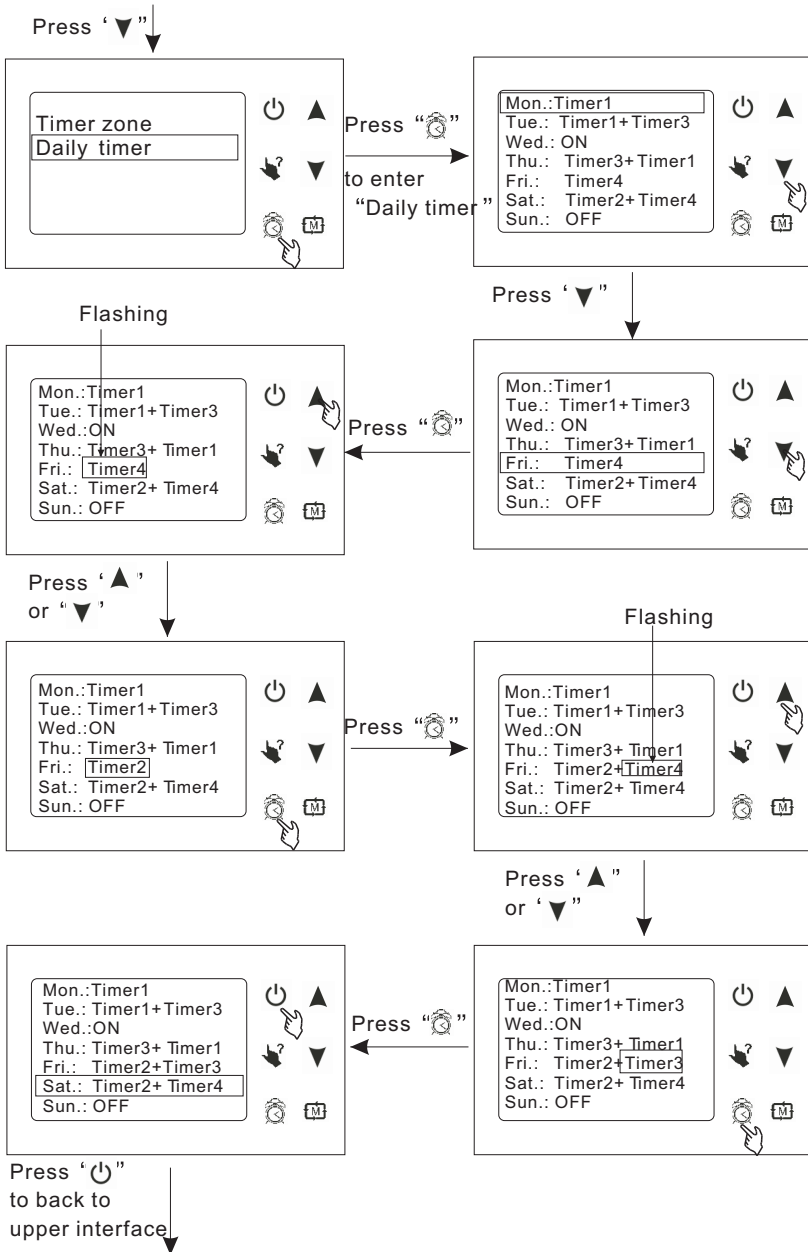


- Tips: 1) The operation of Timer2, Timer3, Timer4 is the same with Timer1;
 2) Timer1:07:30-22:00 means system starts up at 7:30, and shutdown at 22:00 automatically;
 3) If there is no operation in 10s, system will memory parameter setting automatically.

B. The operation of daily timer

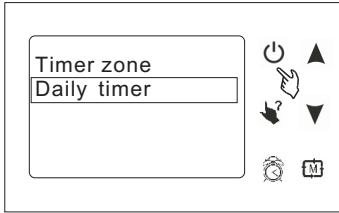


6. Usage

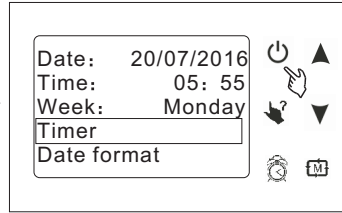


6.Usage

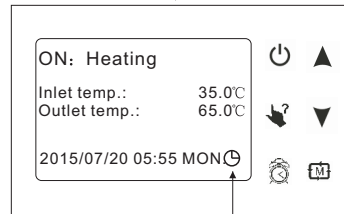
Press "⏻"
to back to upper
interface



Press "⏻"
to back to
upper
interface



Press "⏻"
to back to upper
interface



If "⏻" has been shown, it means
timer on/off has been set

Tips: The Timer operations of Monday, Tuesday, Wednesday, Thursday, Saturday, Sunday is the same with Friday.

Monday: OFF : means Monday Timer hasn't been set, and the running state is the same with Sunday at 24:00, for example, if system is running at 24:00 on Sunday, then it will be running the whole day on Monday, and vice versa;

Wednesday: ON : means system will be running the whole day on Wednesday

Thursday: OFF : means system will be off the whole day on Thursday;

Saturday: Timer1+Timer2 : means the time to startup and to shut down is according to Timer1 and Timer2.

If there is no operation in 10s, system will memory the parameter setting automatically and back to main interface.

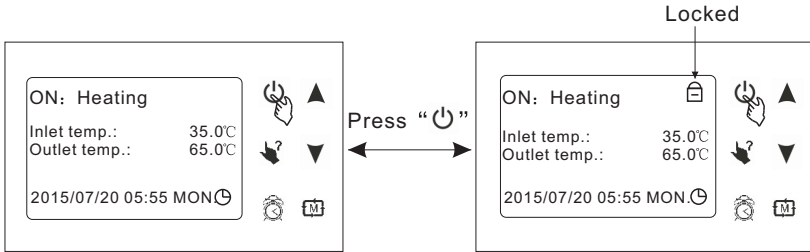
6. Usage

6.2.7 Keyboard lock

To avoid mis-operations, please lock the controller after parameter setting.

At the main interface, pressing “⏻” for 5 seconds, the keyboard will be locked.

When the keyboard is locked, pressing “⏻” for 5 seconds, the keyboard will be unlocked.



NOTES:

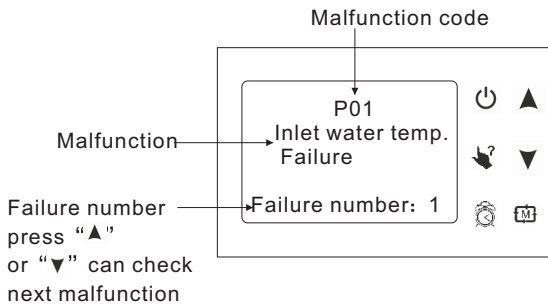
When the units is in alarming state, the key lock can be removed automatically.

6.2.8 Malfunction display

There will be malfunction code showing on the controller screen when relative malfunction occurs.

You can refer to the malfunction table to find out the failure cause and solution.

For example:



Parameter table

Meaning	Default	Remarks
Set-point of heating target temp.	70°C	Ajustable

7. Maintenance and inspection

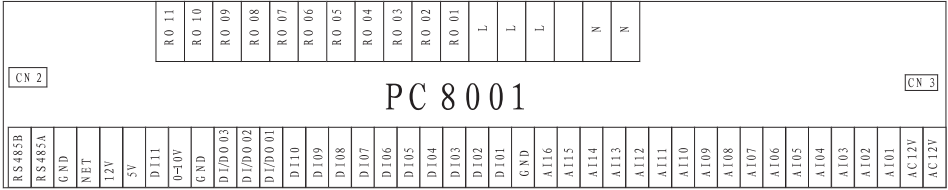
7.1 Malfunction table

You can refer to the malfunction table to find out the failure cause and solution.

Malfunction	Display	Reason	Resolution
Power on			
Normal working			
Inlet temp. Sensor failure	P01	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Outlet temp. Sensor failure	P02	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Ambient temp. Failure	P04	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
System 1/2/3/4 Coil temp. Failure	P15(system1), P25(system2) P35(system3), P45(system4)	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
System 1/2/3/4 absorb Temp. Failure	P17(system1), P27(system2) P37(system3), P47(system4)	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
System 1/2/3/4 anti-freeze Temp. Failure	P19(system1), P29(system2) P39(system3), P49(system4)	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Using side system 1/2/3/4 Anti-freeze temp. Failure	P191(system1), P291(system2) P391(system3), P491(system4)	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
System 1/2/3/4 coil inlet Temp. Failure	P151(system1), P251(system2) P351(system3), P451(system4)	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
System 1/2/3/4 high Pressure protection	E11(system1), E21(system2) E31(system3), E41(system4)	The high-pressure switch is broken	Check the pressure switch and cold circuit
System 1/2/3/4 low Pressure protection	E12(system1), E22(system2) E32(system3), E42(system4)	The low-pressure switch is broken	Check the pressure switch and cold circuit
Water flow failure	E03	No water/little water in water system	Check the pipe water flow and water pump
Electric-heater Overheat protection	E04	Electrical-heat is over heat	Check or change electrical-heat
Water inlet and outlet Temp. Too big	E06	Water flow is not enough and low differential pressure	Check the pipe water flow and whether water system is jammed or not
System 1/2/3/4 anti-freeze Protection	E06	Water flow is not enough and low differential pressure	Check the pipe water flow and whether water system is jammed or not
System 1/2/3/4 source side Anti-freeze protection	E17(system1), E27(system2) E37(system3), E47(system4)	Water flow is not enough	Check the pipe water flow and whether water system is jammed or not
System 1/2/3/4 using side Anti-freeze protection	E171(system1), E271(system2) E371(system3), E471(system4)	Water flow is not enough	Check the pipe water flow and whether water system is jammed or not
Anti-freeze protect level 1	E19	The ambient temp. is low	/
Anti-freeze protect level 2	E29	The ambient temp. is low	/
System protection	E05	The protection system is failure	Check each protection point of the system
Communication failure	E08	Communication failure between wire controller and main board	Check the wire connection between remote wire controller and main board

8.Appendix

8.1 Connection of PCB illustration

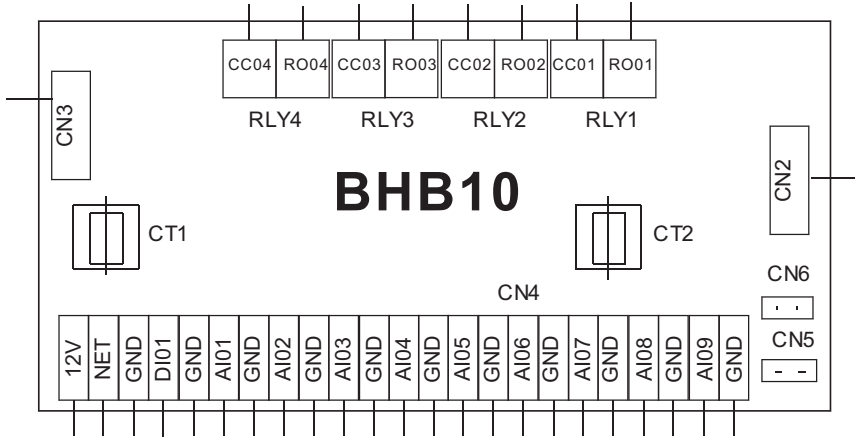


Connections explanation:

NO.	Symbol	Meaning	NO.	Symbol	Meaning
1	L	Live line	27	DI11	System protection signal
2	N	Null line	28	AI 01	Water input temperature input
3	RO 01	Compressor 1 output(220VAC)	29	AI 02	Water output temperature output
4	RO 02	Compressor 2 output(220VAC)	30	AI 03	System 1 fan coil temperature input
5	RO 03	Compressor 3 output(220VAC)	31	AI 04	System 2 fan coil temperature input
6	RO 04	Compressor 4 output(220VAC)	32	AI 05	System 3 fan coil temperature input
7	RO 05	High speed /souce pump output(220VAC)	33	AI 06	System 4 fan coil temperature input
8	RO 06	Low speed output (220VAC)	34	AI 07	Ambient temperature input
9	RO 07	Water pump output(220VAC)	35	AI 08	System 1 antifreeze temperature input
10	RO 08	4-way valve output(220VAC)	36	AI 09	System 2 antifreeze temperature input
11	RO 09	Electric heater output(250VAC)	37	AI 10	System 3 antifreeze temperature input
12	RO 10	Spray valve output(220VAC)	38	AI 11	System 4 antifreeze temperature input
13	RO 11	Alarm system output(220VAC)	39	AI 12	System 1 suction temperature input
14	DI/DO 1	Emergency switch output	40	AI 13	System 2 suction temperature input
15	DI/DO 2	Mode indicator output	41	AI 14	System 3 suction temperature input
16	DI/DO 3	Emergency switch input	42	AI 15	System 4 suction temperature input
17	DI 01	System 1 high pressure protection input	43	AI 16	No use
18	DI 02	System 2 high pressure protection input	44	GND	Connecting to the remote controller
19	DI 03	System 3 high pressure protection input	45	NET	
20	DI 04	System 4 high pressure protection input	46	12V	
21	DI 05	System 1 low pressure protection input	47	RS485A	485 connection
22	DI 06	System 2 low pressure protection input	48	RS485B	
23	DI 07	System 3 low pressure protection input	49	AC12V	12V power input
24	DI 08	System 4 low pressure protection input	50	AC12V	
25	DI 09	Water flow switch protection input	51	CN2	System 1 electric expansion valve output
26	DI 10	Electric heater overload protection input	52	CN3	System 2 electric expansion valve output

8.Appendix

. Connection of PCB illustration



Connections explanation:

No.	Symbol	Meaning
1	RO01	System1 mangtic valve outlet (220-230VAC)
2	RO02	System2 mangtic valve outlet (220-230VAC)
3	RO03	System1 alert outlet (220-230VAC)
4	RO04	System2 alert outlet (220-230VAC)
5	CC01	System1 mangtic valve inlet (220-230VAC)
6	CC02	System2 mangtic valve inlet (220-230VAC)
7	CC03	System1 alert inlet (220-230VAC)
8	CC04	System2 alert inlet (220-230VAC)
9	NET GND 12V	Wire controller
10	DI01 GND	Mode/communication
11	AI01 GND	System 1 anti-freeze temp.(input)
12	AI02 GND	System 2 anti-freeze temp.(input)
13	AI03 GND	System 1 economizer inlet temp.failure(input)
14	AI04 GND	System 1 economizer outlet temp.failure(input)
15	AI05 GND	System 2 economizer inlet temp.failure(input)
16	AI06 GND	System 2 economizer outlet temp.failure(input)
17	AI07 GND	System 1 exhaust temp.(input)
18	AI08 GND	System 2 exhaust temp.(input)
19	AI09 GND	Ambient temp.(input)

8. Appendix

8.2 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 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.

8.3 Appendix 9

(1) Caution & Warning

1. The unit can only be repaired by qualified installer centre personnel or an authorised dealer. (for Europe market)
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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 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.

8. Appendix

(2) Cable specification

1. Single phase unit

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

(2) Three phase unit

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

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

Note: _____

