



MHP100KC-01

Inverter Heat Pump



Installation Manual



Warning

Thank you for choosing our product, we shall be more than glad to service you. For you to better operate this product and to prevent accidents due to misoperation, please read carefully this user manual before carrying out any installation or operation, also please pay special attention to the warning, prohibition and attention instructions. We are continuously supplementing and upgrading this user manual to better service for you!

If the instruction manual is damaged or lost, please check it <https://sprsunheatpump.com/>

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1、 Unit General Information

1.1 Appearances

Model	MHP100KC-01
Picture	

2、 product overview

2.1 Product Usage

This unit is a commercial (propane, GWP = 3) heat-pump system for space heating, cooling and domestic hot-water supply in buildings. It fully complies with EU regulations and is intended for commercial properties (e.g. hotels, office buildings, shopping centres, etc.).

2.2 Hazard Warnings

R290 Refrigerant Hazards



- Flammable (explosive limits 2.1 – 9.5 % v/v). Keep all ignition sources and open flames at least 1.5 m away.
- Installation may only be carried out by technicians holding EU-recognised qualifications (e.g. EN 378 certification).
- The installation area must be well ventilated; do not install in enclosed or confined spaces.



Environmental Requirements

- Location: outdoors in a well-ventilated area, away from heat sources (gas boilers, exhaust ducts, etc.).
- Ambient temperature: Operating range –25 °C to +45 °C; storage range –30 °C to +60 °C.
- Foundation: concrete pad rated $\geq 200 \text{ kg/m}^2$; level tolerance $\leq 2 \text{ mm}$ per metre.



Electrical Safety

- Must be protected by a residual-current device (RCD) with a trip current $\leq 30 \text{ mA}$.
- Protective earthing in accordance with EN 60364; maximum earth-fault loop impedance $\leq 4 \Omega$.



Personnel Qualifications

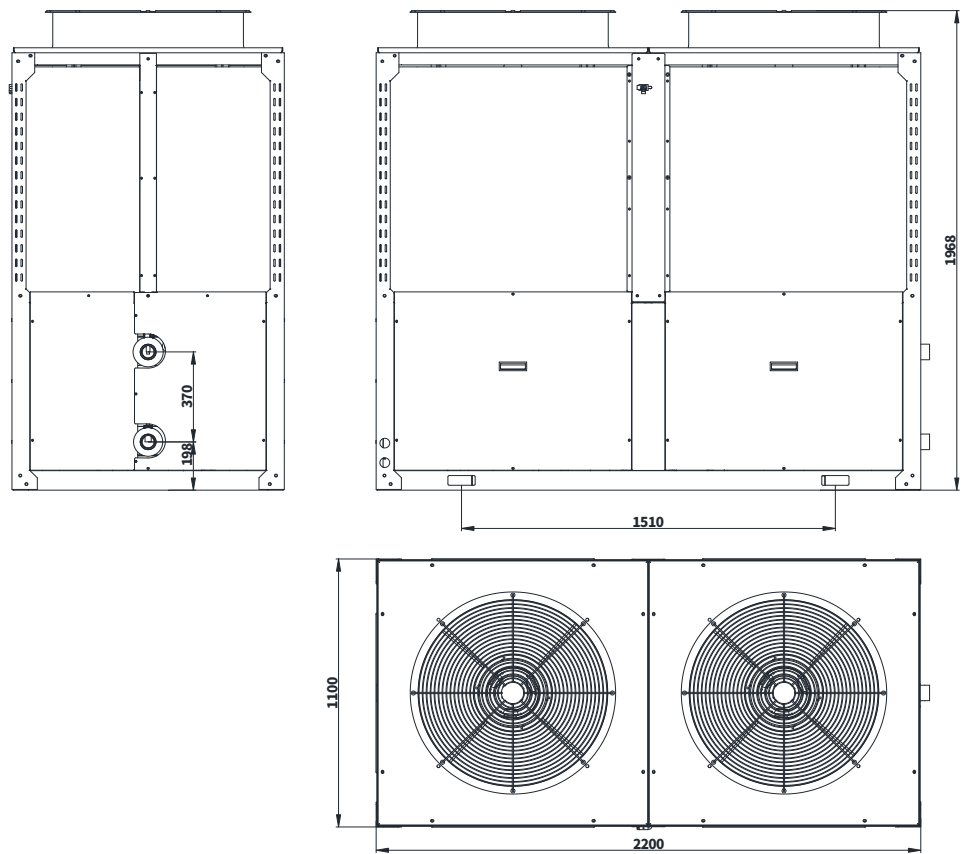
- Valid EU refrigeration handling certificate (e.g. F-gas Category 1 or 2).
- Electrical installation qualification compliant with EN 60364.



Unit Fastening

1. Position the unit on the prepared concrete foundation and fix it with M10–M12 anchor bolts (tightening torque 40 ± 5 N·m).
2. Verify the unit's level; adjust the anti-vibration pads so that any tilt does not exceed 1° .

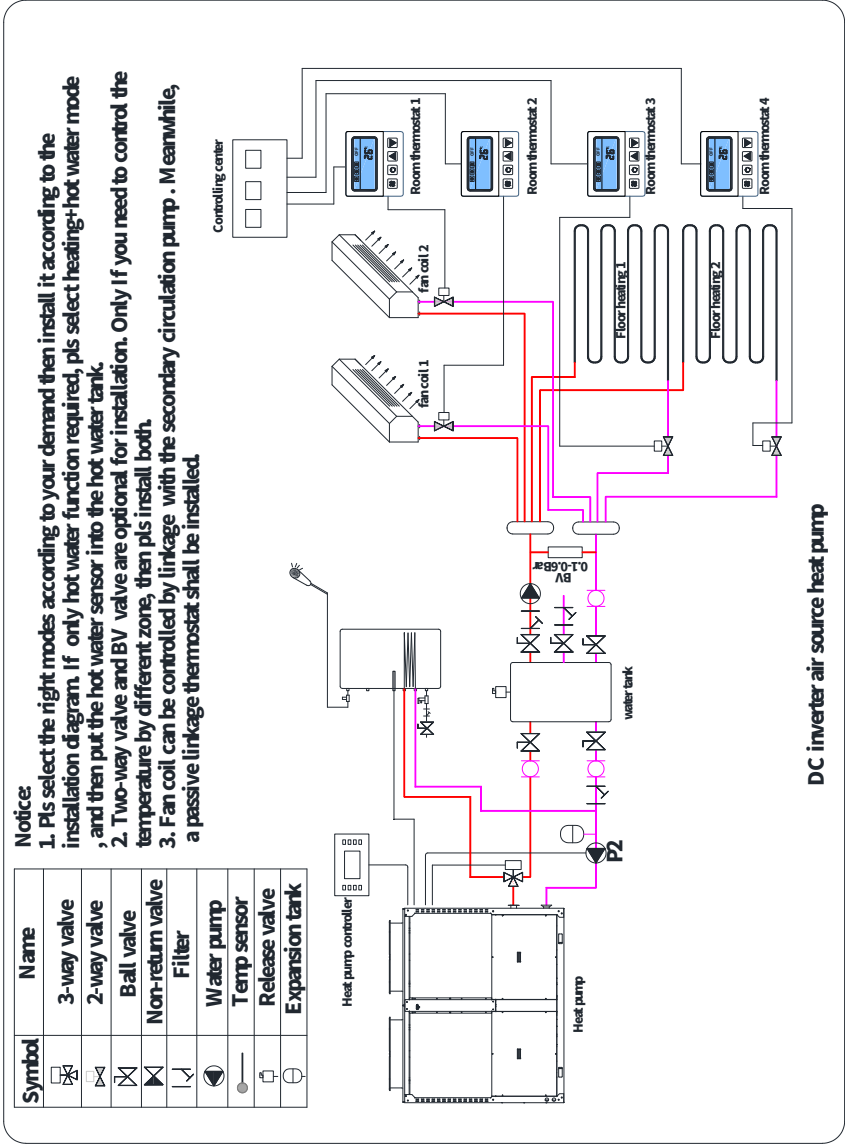
3、 Unit Dimension



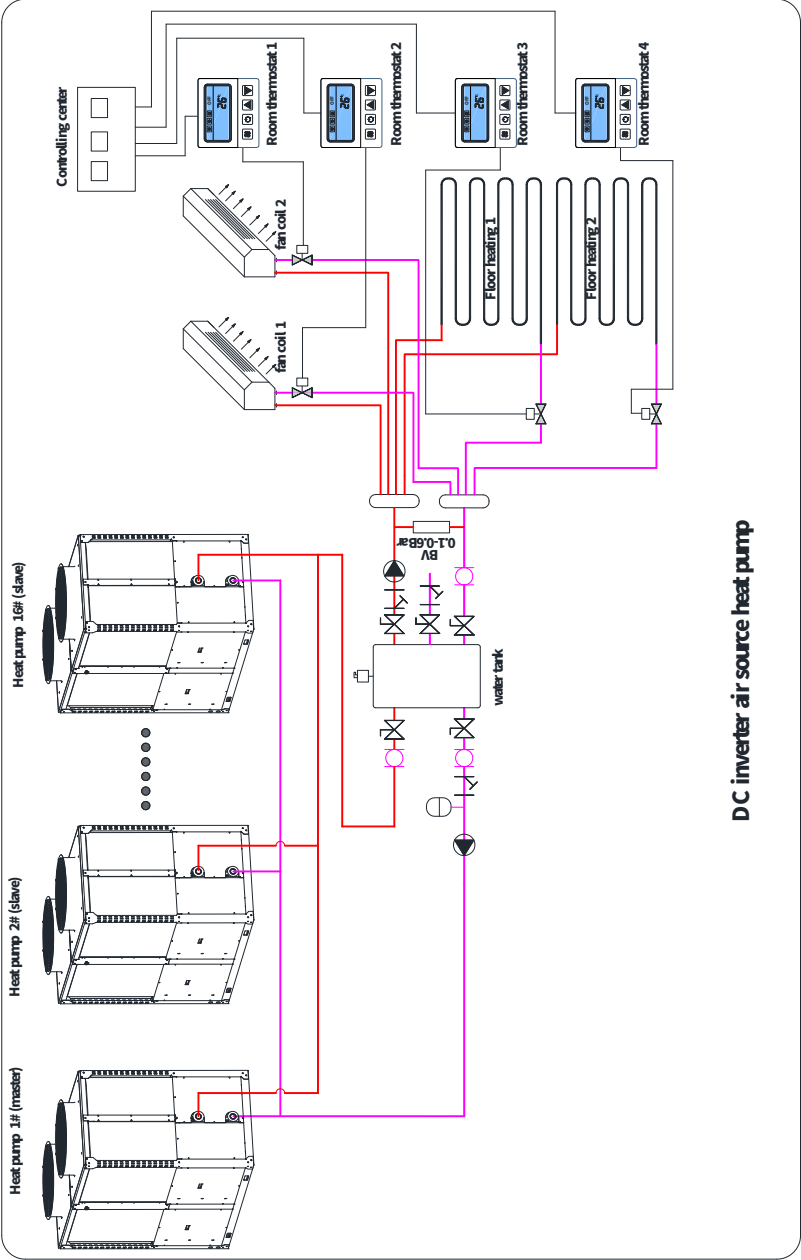
MHP100KC-01

4、 installation diagram

4.1 Secondary circulation system (Single unit)



Secondary circulation system (networking)



DC inverter air source heat pump

- 1) The heat pump must be installed in open space. Normally is installed on the roof of house.
- 2) The unit should be placed in dry and well-ventilated environment. If the environment is humid, electronic components may get corroded or short circuit.
- 3) Heat pump mustn't be installed in the environment where corrosive, volatile, or flammable liquid or gas exists.
- 4) Because of the noise is a little loud, please don't install the heat pump near bedroom or living room or meeting room.
- 5) Please install a shed for the heat pump, otherwise, rain water can reduce the lifetime of the shell, and snow may cover the air outlet.
- 6) Water drainage ditch should be set around the heat pump, when heat pump is working, there is condensing water flow down, or when defrosting, there are plenty of water flow down too.
- 7) Heat pump should far away from kitchen exhaust, because the finned tube is not easy to clean if there is oil on it.
- 8) Heat pump must be installed on flat concrete blocks or a raised concrete platform, or steel bracket. The bottom of the heat pump should be at least 50cm higher than ground, because rain water, snow may enter inside if the installation is on ground.

- 9) Between heat pump and basic or bracket, at least 4pcs anti-shock pads should be placed.
- 10) Before make basic or bracket, please check heat pump dimension.
- 11) Before fix heat pump on basic, please confirm heat pump direction according to project design.
- 12) Normally use expansion bolt to fix heat pump on concrete basic.
- 13) Make sure circulating water pipe must be $\geq \text{DN}25$ (or PPR32), and pipes must be insulated.
- 14) When install water temp sensor on pipe or in water tank, make sure temp sensor will not touch water directly, best through a sensor tube. Like below picture.

|

4.2. Installation site

- 4.2.1 The outdoor unit should be installed in a sunny and ventilated place to prevent the formation of a cold field due to poor ventilation or in a dark place, which affects the use of the unit;
- 4.2.2 The outdoor unit should not be installed in a place with too much dust to prevent the dust from adhering to the fin heat exchanger and affecting the heat exchange effect;
- 4.2.3 The outdoor unit should not be installed in places with corrosive gas to prevent the unit heat exchanger from being corroded and affecting the service life;
- 4.2.4 The outdoor unit should be equipped with anti-vibration pads and fixed firmly with expansion screws to prevent vibration, noise and displacement;
- 4.2.5 The outdoor unit should be installed in a place where it can be drained to prevent condensation and ice formation;
- 4.2.6 The outdoor unit should be placed according to the installation distance diagram, and there should be a bracket to prevent the short drainage distance from causing ice formation;
- 4.2.7 The indoor unit must be well-supported, installed on a wall, and the wall must be able to bear the weight;
- 4.2.8 The indoor unit should not be installed outdoors in direct sunlight or rain.

4.3. Installation considerations

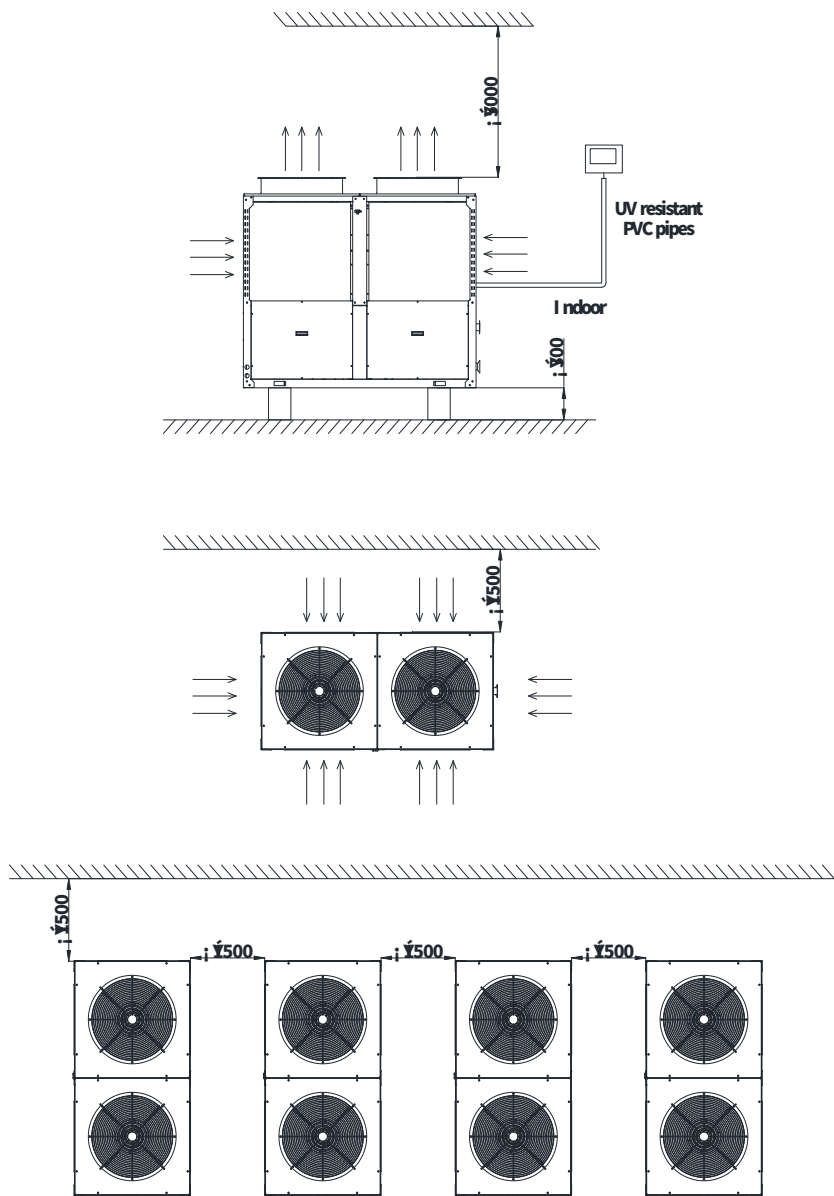
4.3.1 The copper pipe connecting the internal and external machines is 5 meters, and it cannot be lengthened without permission. If you need to lengthen, you need to contact the manufacturer;

4.3.2 When the connecting copper pipe is bent, do not crush the copper pipe, otherwise it will affect the normal operation of the unit;

4.3.3 After installation, use soapy water to detect leaks.

4.4. Outdoor unit installation

4.4.1 Outdoor unit installation distance requirements



4.4.2 The outdoor unit installation needs to be fixed on the bottom frame with expansion screws, and the bottom corner of the main unit needs to be installed with a cushion



Anti-shock pad

Concrete basic



Expansion bolt

4.5 Leak detection

Fill an empty bottle with the right amount of detergent solution and water, shake it, and pour it into all the connection ports to check whether there are bubbles emerging. If there are bubbles, it can be judged that the refrigerant is leaking. It needs to be tightened immediately until no bubbles come out.

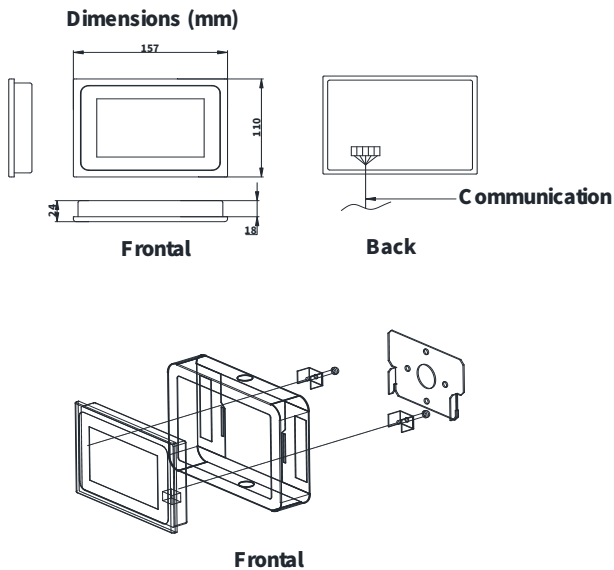
4.6 Water system pipeline connection

4.6.1 Use pipe connections with specifications greater than or equal to DN25, and the connection should be tightened to prevent water leakage;

4.6.2 If used for three functions of floor heating, cooling and hot water, a three-way valve needs to be installed;

4.6.3 Automatic exhaust valve shall be installed at the highest part of the water system and the top of the water tank.

4.6.4 Installation of wire controller



4.7 Line connection

4.7.1 When connecting the main power supply, please note that the wire diameter of the power cord must be greater than or equal to the recommended wire diameter, and must be reliably grounded.

4.7.2 The connection terminal of the water pump can be used as the power supply of the water pump. The water pump with the PWM signal needs to be connected to the signal line. Pay attention to distinguish the power line and the signal line of the pump, which can be distinguished according to the number of the connection line

4.7.3 Models with inside electric heater can be directly wired according to the mark.

4.7.4 Models with external electric heater need to select a suitable wire diameter according to the electric heating power. The electric heating terminal cannot be used directly as an electric heating power supply, but only as a control line. The main power supply needs to be equipped with an AC contactor according to the power size

4.7.5 The connection of the three-way valve is 2 live wire and 1 neutral wire, and the switching direction of the three-way valve must be accurately judged when wiring, otherwise it will damage the unit and render it unusable

- 4.7.6 The user hot water probe using the three functions of floor heating, cooling and hot water needs to be installed in the hot water tank.
- 4.7.7 Corresponding numbers of the inlet and outlet probe lines and the water flow switch connection line can be directly connected.

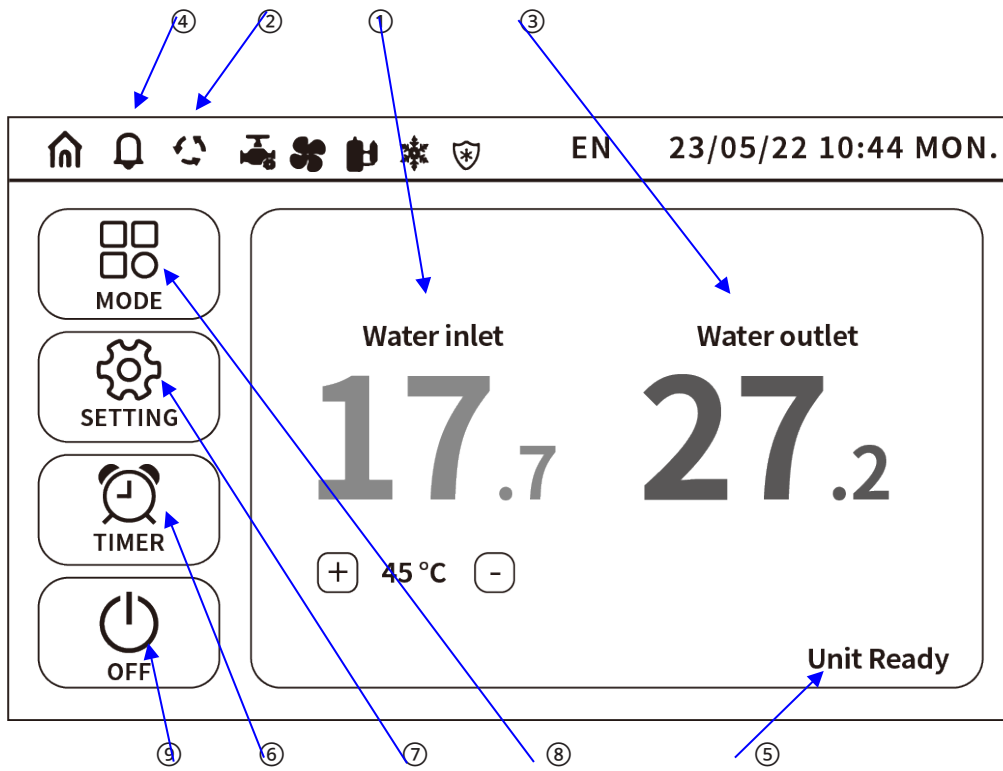
Power wire diameter selection & Wiring terminal diagram

Recommended power cable diameter:

Model	Line(mm ²)	Specification	Max. Current(A)
MHP100KC-01	16	AWG 6	62.8

5. Control panel usage

❖ 1. Main interface (simple graphic)



① Heating / Cooling temperature display □

^{inlet}
27.1 Displays the current cooling real-time temperature in blue fonts.

^{inlet}
17.7 Displays the current real-time heating temperature in orange font.

In the upper left corner of the temperature display, when  or  When the icon is red, it indicates that the unit is running the cooling or heating mode.

② Displays the fan mode of the current unit:  indicates day mode;

 indicates night mode;  indicates economic mode;  indicates test mode.

③ Outlet water temperature display:

^{WT}
27.2 Displays the current hot water temperature in red font. In the upper

left corner of the temperature display, when  When the icon is red, it indicates that the unit is running the hot water mode.

④ Click  to check the current fault alarms and historical fault alarms.

⑤ The display of heat pump status on the right below corner : The running status of heat pump is displayed here

⑥ Timing setting: Click  to enter into timing setting When the icon is red, it indicates that there is a set timer; when it is not colored, it indicates that there is no timer

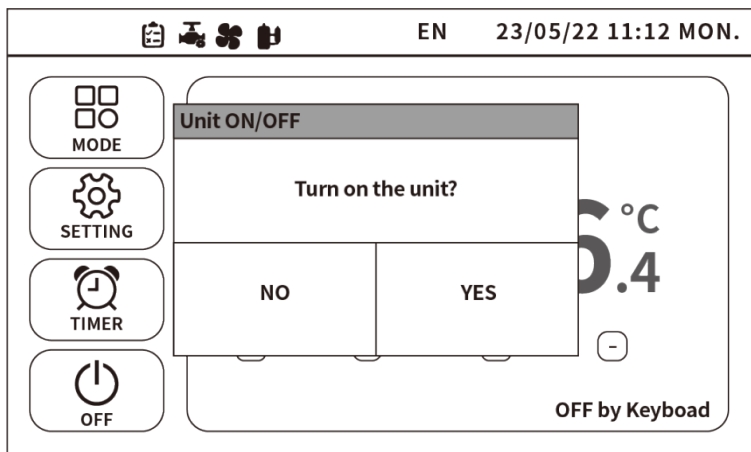
⑦ System parameter setting: Click  icon to enter the setting interface.

⑧ Mode setting: Click  icon to enter the mode setting interface.

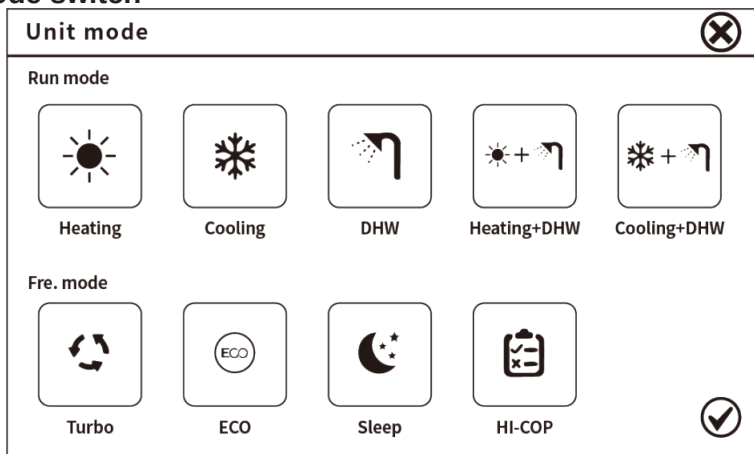
⑨ Power on and off: Click  icon to operate the power on and off. shows red when it is turned on, and shows white when it is turned off.

❖ 2. Turn ON/OFF

- Click  to set the unit on/off. It shows red when it is turned on, and shows white when it is turned off.



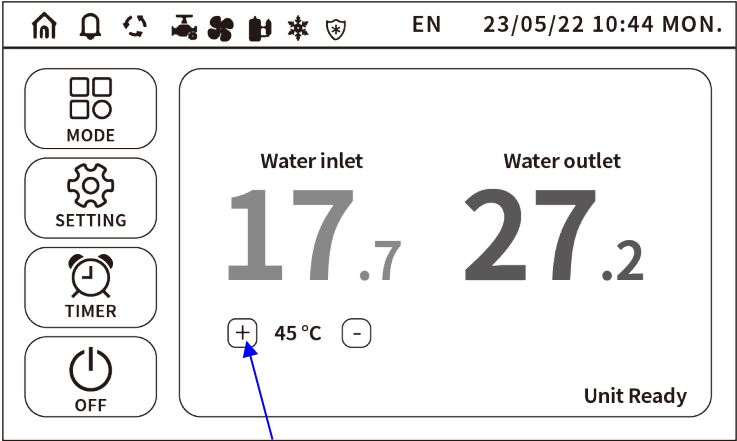
❖ 3. Mode switch



- Click  to set the unit mode. After selecting the required mode, click  to confirm, and click  to Cancel and exit the page.

❖ 4. Temperature setting

- Click the ① :“+” or “-” to set the heating or cooling temperature.



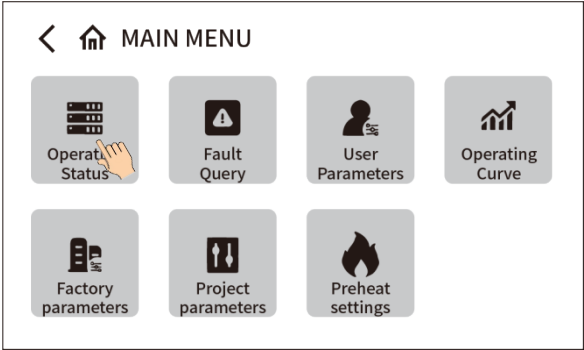
①

❖ 5. Parameter query



Operating

- Click **Status** , Enter the "Slave device select" page, and select the unit number you want to query on the page to enter the status query page of this unit :



< 🏠 Slave device select		
1# Unit		2# Unit 
4# Unit 	5# Unit 	6# Unit 
7# Unit 	8# Unit 	9# Unit 
10# Unit 	11# Unit 	12# Unit 
13# Unit 	14# Unit 	15# Unit 
16# Unit 		



When a single unit is running, the 1# Unit icon is to the right  , click 1# unit to query the operating parameters of the 1# unit; if there is a linkage network, you can click 2#, 3#...16# to query the operating parameters of the corresponding unit, and the software version number. If the unit icon is displayed  , the unit is not connected.

< 🏠 INFO			
Inlet temp.	27.3 °C	#1Exhaust temp.	55 °C
Outlet temp.	29.0 °C	#1Suct gas temp.	18.5 °C
Ambi temp.	-5.0 °C	#1Coil temp.	16.5 °C

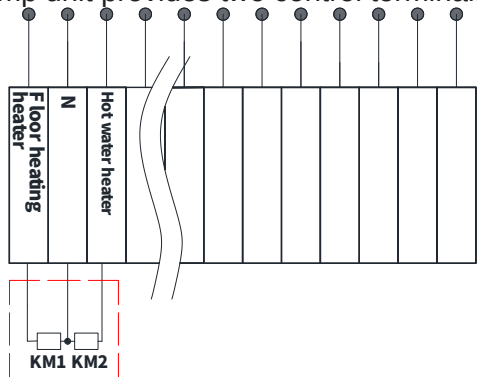


Press the up and down arrows to scroll through pages and view other parameters

6.Installation and use of electric heating

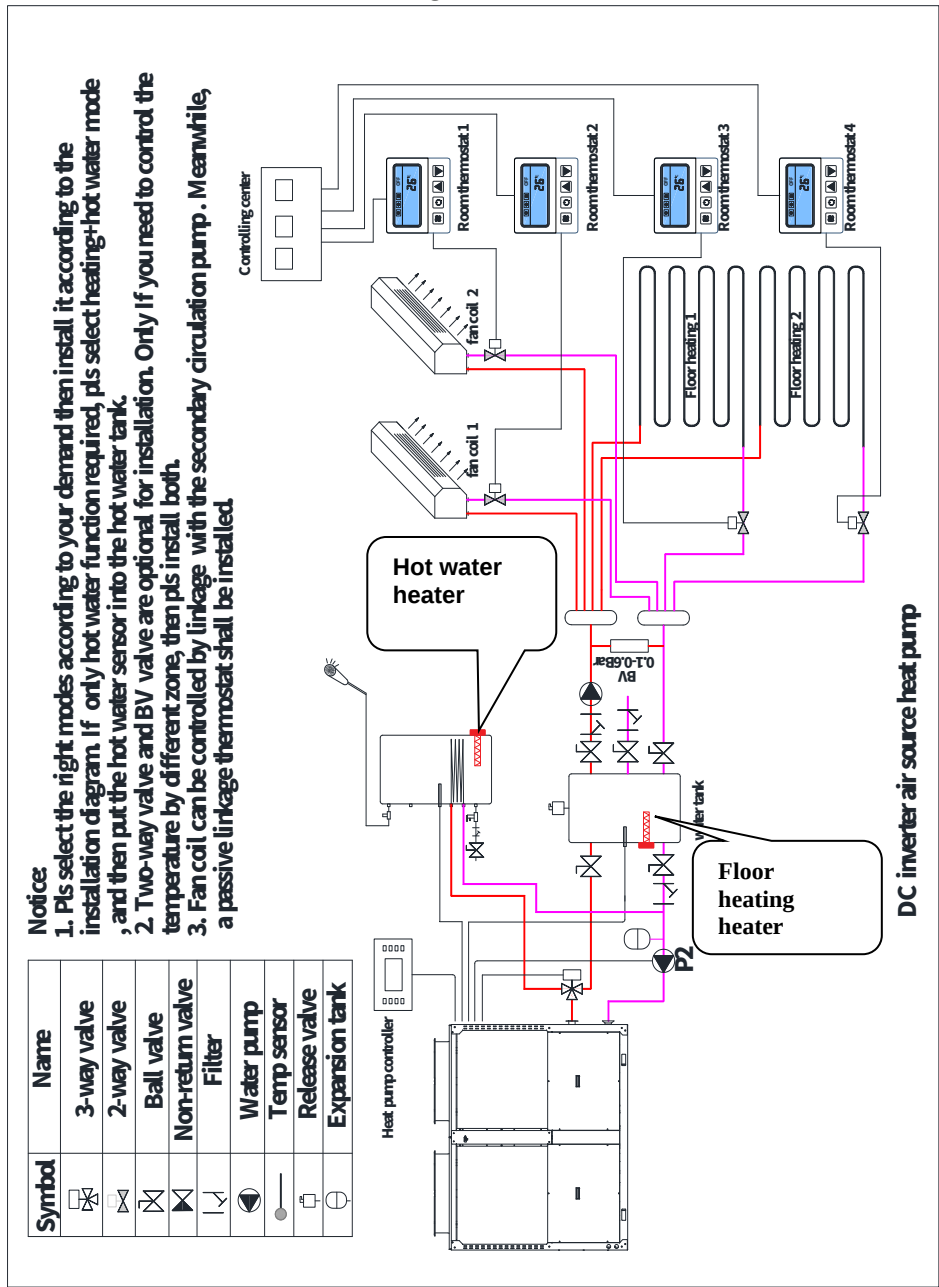
6.1Electrical Connections

The heat-pump unit provides two control terminals, as shown below:



Floor-Heating Circuit: powers the electric heater installed in the buffer tank.
Domestic-Hot-Water (DHW) Circuit: powers the electric heater installed in the domestic hot-water tank.

6.2 Installation Location Diagram:



6.3Parameter Settings



Click “ ” on the home page to enter the main menu, and click “parameters” to enter the project parameters menu. Enter the password for engineering



Project



parameters (0816) , then click “ ” enter“ parameter setting”, Press the up or down arrow to page through and enter other settings.

Project settings

G01 Two / Three function

Three

G02 Pump work

Inter

G03 Start internal

5 min

G04 Delta temp. set

5 °C

Project settings

G05 heating heater Ext.

-15 °C

G06 Comp. delay

50min

G07 Hotwater heater Ext.

-15 °C

G08 Comp. delay

50min

G01	Two/Three function	Click "two" and "three" to select whether the current unit is double supply or triple supply;
G02	DC Pump work	The working mode of the inverter water pump can be selected as demand, always on, intermittently on
G03	Start internal	The interval time for the start of the inverter water pump in intermittent mode; Delta temp. set: The

		inverter water pump controls the current temperature difference between the incoming and outgoing water;
G04	Delta temp. set	The inverter water pump controls the current temperature difference between the incoming and outgoing water;
G05	Heating heater Ext.	Start-up ambient temperature of heating electric heater: heating electric heater start delay
G06	Comp. Delay	Heating heater electric heater start delay;
G07	Hot water heater Ext internal	Start-up ambient temperature of hot water electric heater; Comp. Delay: Hot water electric heater start delay
G08	Comp. Delay	Hot water electric heater start delay;



Project settings

G09 Enable Switch

NO



G10 Amb Temp Switch Setp.

25 °C



G11 Amb Temp diff.

4 °C



G09	Enable Switch	(With this function , the heat pump can do heating /cooling automatically based on the ambient temperature setting) Enable Switch -No : turn off the automatic
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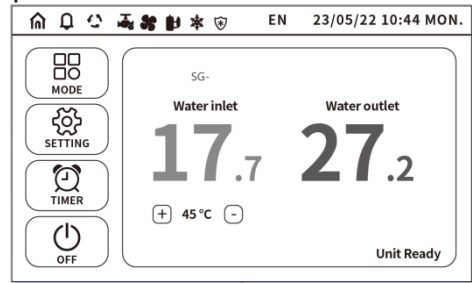
		cooling/heating mode which is based on the ambient temperature; Original setting is Disable before delivery . Enable Switch -Yes : turn on the automatic cooling/heating mode which is based on the ambient temperature.
G10	Amb Temp Switch Setp	Switch the ambient temperature setting point of the cooling/ heating mode; ● when the ambient temperature is lower than the set point-hysteresis, the unit will automatically switch to heating or hot water + heating; ● when the ambient temperature is higher than the set point +In case of hysteresis, the unit will automatically switch to cooling or hot water +refrigeration; ● when the ambient temperature is higher than the set point-hysteresis and lower than the set point + hysteresis maintains the current mode
G11	Amb Temp. diff	The difference between the ambient temperature switching mode and the set temperature.

6.4 SG Ready Operating Instruction

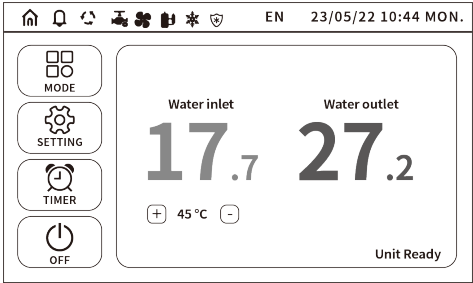
● SG Operational Status Table:

Signal status		Screen Display	Operation Mode	Status Description
SG2	SG1			
OFF	ON	SG-	Mode 1	Insufficient energy, the heat pump is forced to shut down, and the antifreeze can operate normally.
ON	ON			
OFF	OFF	NULL	Mode 2	The heat pump is running normally.
ON	OFF	SG++	Mode 3	The energy is cheap, the heat pump adjusts the hot water temperature setting value to the highest temperature of the system operation, the electric heating is turned on, and the heating/cooling is turned after the temperature is met.

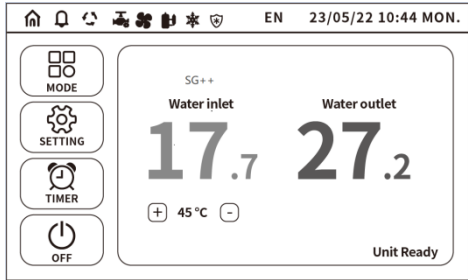
- The main screen is in the top bar and shows the current mode of operation of the unit



Mode1 SG-



Mode2 None



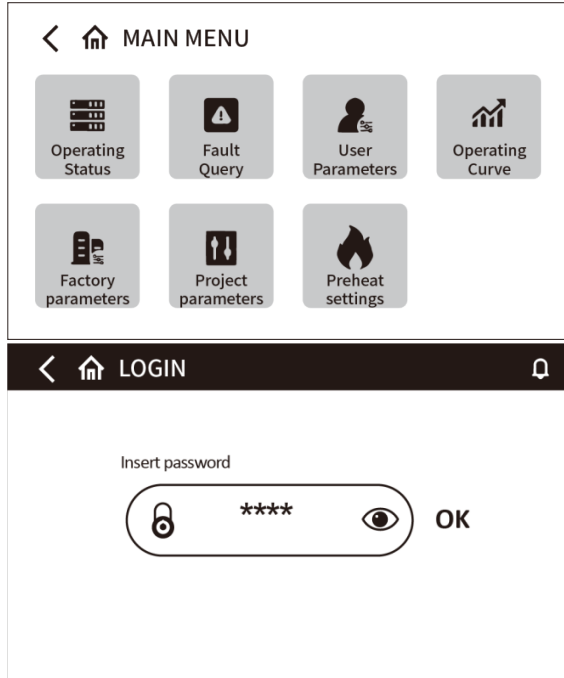
Mode3 SG++

- SG Setting Method:

Turn On/Off SG Function

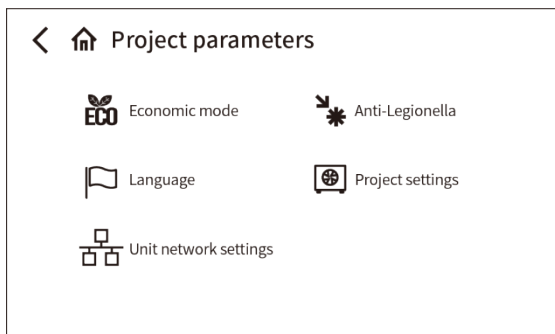
Press the  button in the main screen and then press 

Project parameters button to enter the project parameter password entry page as shown below:

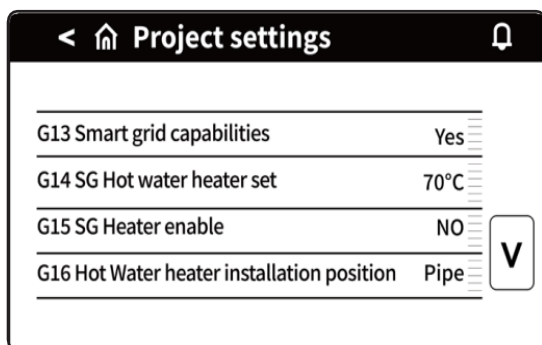


The screenshot shows a 'MAIN MENU' screen with a dark header bar containing a back arrow, a home icon, and the text 'MAIN MENU'. Below the header, there are seven buttons arranged in two rows. The first row contains 'Operating Status', 'Fault Query', 'User Parameters', and 'Operating Curve'. The second row contains 'Factory parameters', 'Project parameters', and 'Preheat settings'. The 'Project parameters' button is highlighted with a red border.

- On the above page, enter the password (0816) and click "OK" to enter the "Project parameters" page shown below.



- After entering the project parameters page, click the " " button to enter the "Project settings" page, and use the " " button to page to the G13 parameters on the "Project settings" page, as shown below:



G13	Smart grid capabilities	When set to "YES", the SG function operates, when set to "No", the SG function does not operate. ● Description of other parameters
G14	SG Hot water heater set	when entering mode 3, sets the stopping temperature after the hot water heater has been forced on.
G15	SG Heater enable	when entering mode 3, does the hot water heater turn on. When set to "YES", the hot water heater is forced on and works together with the heat pump, when set to "NO", the hot water heater is not forced on SG++ Hot water temp. setting: when entering mode 3, the stopping temperature after forced opening of the hot

		water heater.
G16	Hot water heater installation position	The position of the hot water heater should be selected according to the actual installation.
G17	SG/EVU signal check time:	SG/EVU signal detection time, once every 60S.

G16 Hot water heater installation position: Set to "TANK" (because the hot water heater is installed independently in the water tank);

Note: The hot water tank probe must be installed in the blind leg of the water tank and inserted into the bottom of the blind leg (the depth of the blind leg is generally 100~200mm) to detect the temperature of the water tank and control the electric heater; the external electric heater must be grounded and have overheating protection to prevent drying out situation occurs. If improper installation, unreasonable parameter settings, etc., or improper operation cause combustion, fire, or even casualties and other related safety accidents, the company will not be held responsible;

Tips:

When the G13 Smart grid capabilities is set to "YES", it is recommended to install the hot water heater in the tank and to set this option to "TANK" so that the system will switch to heating or cooling mode when the hot water mode reaches the set temperature, and the hot water heater will be continued to turn on until the hot water temperature is higher than "G14 SG Hot water heater set", the hot water heater stops. If the hot water heater is installed in the pipe and "Pipe" is selected, the system will switch to heating or cooling mode when the hot water mode reaches the set temperature, but the hot water temperature can not heat up to "G14 SG Hot water heater set" because the hot water heater is installed in the pipe.

◀



Project settings

5°C

5°C

5°C



<



Project settings

YES =

NO —

15 =

75 =



G21	SG Hot water set diff 2	when entering mode 3, hot water set a temperature correction value, set to 5 as an example, the final hot water set temperature = original set temperature + 5 when actually running.
G22	SG Heat set diff 2	when entering mode 3, heating set a temperature correction value, set to 5 as an example, the final heating set temperature = original set temperature + 5 when actually running.
G23	SG Cool set diff 2	when entering mode 4, cooling set a temperature correction value, set to 5 as an example, the final cooling set temperature = original set temperature - 5 when actually running.
G25	Auxiliary controller function	Auxiliary controller function enabled. Please set to enable when connecting the integral hydronic tank.
G26	Solar auxiliary heating function	Solar auxiliary heating function enabled.
G27	Solar pump starting hysteresis	The return difference temperature of the solar pump. The solar temperature - the water tank temperature $\geq$ this value, the solar pump is started.
G28	Solar pump max tank temp	The highest temperature of the water tank during solar heating. The water tank temperature $\geq$ this value, the solar pump stops running.



Project settings

G29 Backwater function

YES



G30 2nd zone temp.function

YES



G31 Temp. diff(H/C)

5°C



G32 Temp. diff(DHW)

5°C



Project settings

G33 Backwater pump temp.diff

5 °C

G34 Temp. display

Inlet temp.

G35 Solar heating objects

Heating+DHW

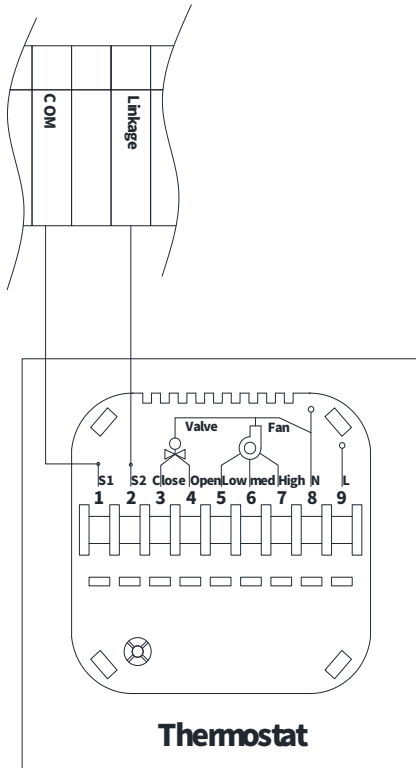
consumption reset

Fault reset

G29	Backwater function	Backwater Function Enabled
G30	2nd temp.zone function	2nd temp.zone function Enabled.
G31	Temp.diff(H/C)	Heating/cooling mode differential temperature
G32	Temp.diff(DHW)	DHW mode differential temperature
G33	Backwater pump temp diff	Backwater pump differential temperature
G34	Temp.display	Main interface temperature display settings
G35	Solar Heating objects	Solar heating object setting

7. Connect to temperature controller for use

When the heat pump's "Linkage" and "COM" control terminals are open (disconnected), the unit will immediately cease all cooling or heating operation. When those terminals are closed (connected), and all start-up conditions are met, the heat pump will start.

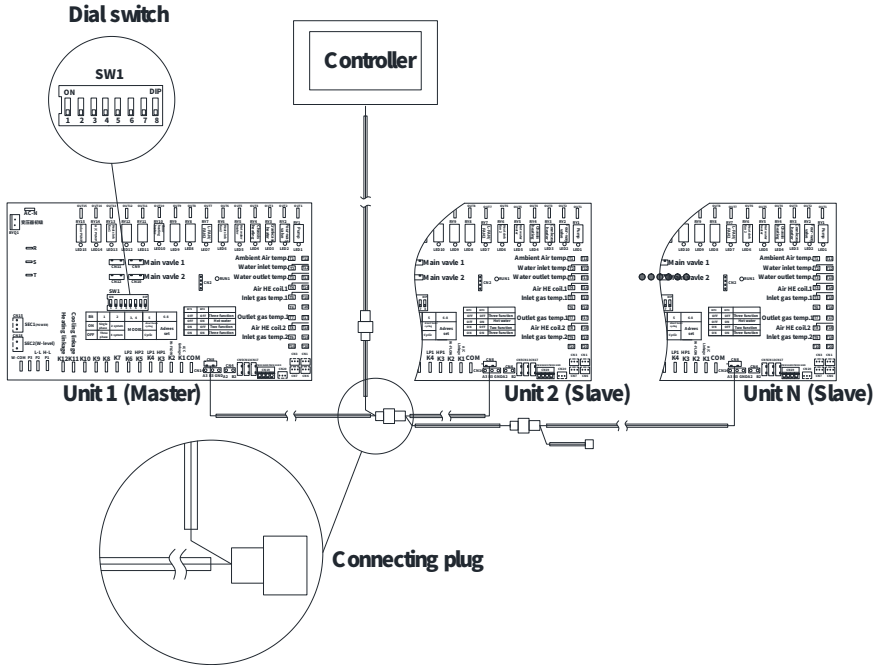


By wiring your thermostat's dry-contact on/off signal to the heat pump's "Linkage" and "COM" terminals, you can achieve synchronized start/stop control between the thermostat and the heat pump.

8. Used for serial networking

8.1 Open each unit's electrical enclosure and find the communication port shown below. Connect the units together as

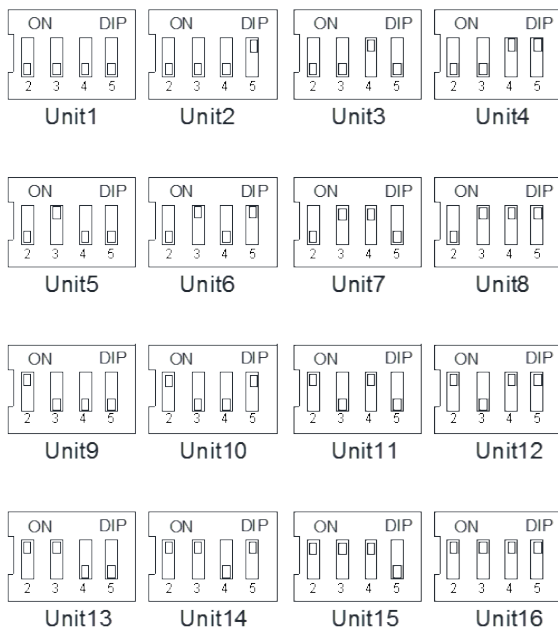
illustrated:



8.2 Set Each Unit's Address

Every unit on the network must have a unique address from 1 to 16. Designate the “master” unit as 1. Assign the remaining “slave” units sequential addresses (2, 3, 4 ... n), up to a maximum of 16.

Use the DIP switch block SW1 on the main control board to set each unit's address, as shown here:



SW1

Note: If two units share the same address, communication will fail.

8.3 Configure the Total Number of Units

On the touchscreen home screen, tap  , Enter the Main Menu.



Project

Select parameters, then enter the engineering-password to unlock parameter editing. Continue to click "Unit network settings" to enter the online settings menu, and press the key to find U09 Number of unit, which is set to 1 by default, indicating a standalone unit, 2 – 16 for multi-unit setups (e.g. enter 4 for four units, up to a maximum of 16). In this example (three units), set to 3.

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Unit network settings

U09 Number of Unit

1

U10 No. of slaves operating hot water mode

0

⬆

8.4 Power On and Verify Networking

After completing all previous steps, power up the units to begin commissioning. If the network is configured correctly, the status circle next to each unit ID will illuminate green, as shown below. Tap any unit number to view that unit's operating parameters.

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Slave device select

1# Unit		2# Unit		3# Unit	
4# Unit		5# Unit		6# Unit	
7# Unit		8# Unit		9# Unit	
10# Unit		11# Unit		12# Unit	
13# Unit		14# Unit		15# Unit	
16# Unit					

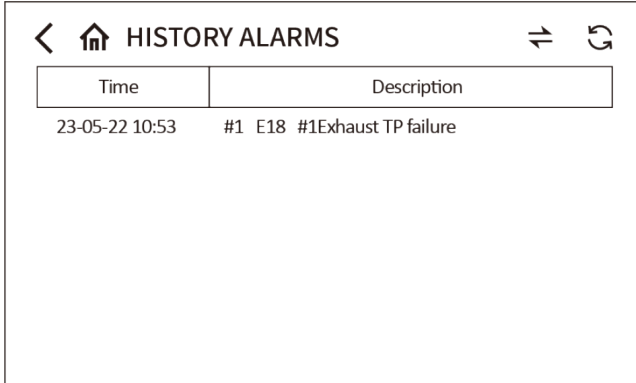
If networking fails, review Steps 1, 2, and 3 for wiring errors, duplicate unit addresses, or incorrect parameter settings.

9.5 When multiple units are linked, you can choose how many slave units also heat domestic hot water in Hot-Water Mode. Adjust parameter U10 “No. of Slaves Operating Hot-Water Mode” (default = 0):

- 0 → no slaves heat hot water (master only);
- 1 → only 1 slave will run hot water mode;
- 2 → 2 slaves join, and so on, up to a maximum of 15.

9.Current/historical alarm query

-  The flashing icon in the upper right corner indicates that there is an alarm. Press this icon to pop up the current alarm interface.



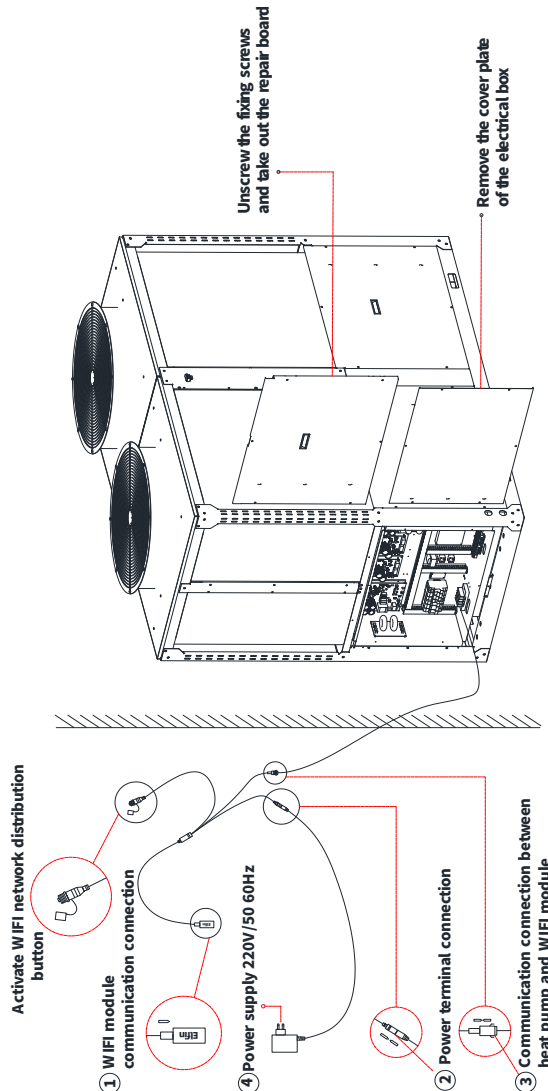
HISTORY ALARMS	
Time	Description
23-05-22 10:53	#1 E18 #1Exhaust TP failure

- Press  to show a dialog box for whether to delete historical alarms, press "YES" to delete historical alarms, and press "NO" to cancel the operation.
- Press  to switch between current alarm and historical alarm.
- Press  to return to main menu.

10. WIFI module networking manual

10.1 Installation of WIFI Module:

Open the plastic handle on the back of the unit to find the communication line of the WIFI module. Open the rear lower maintenance panel to find the accessory bag of the WIFI module, and then connect it according to ①②③ as shown below.

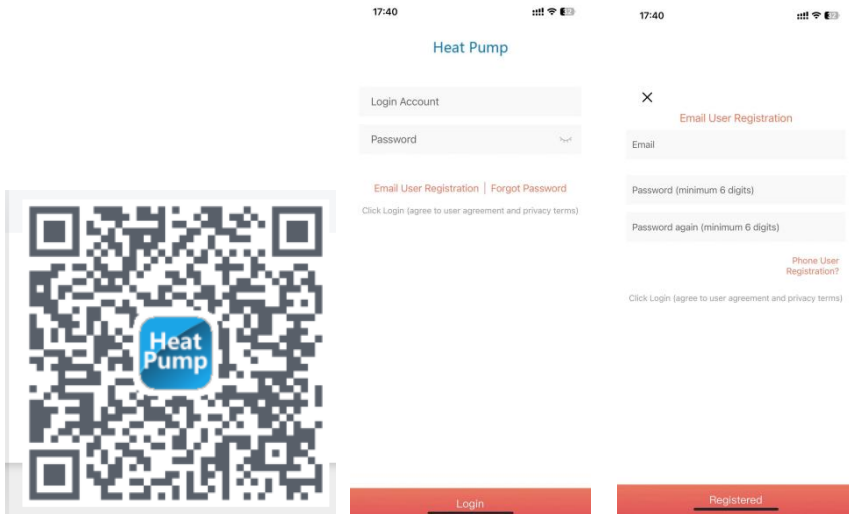


10.2 Connection of WIFI module

1、When used for the first time, the WIFI module needs to be equipped with a network. The steps to configure the network are as follows:

Step 1: Register

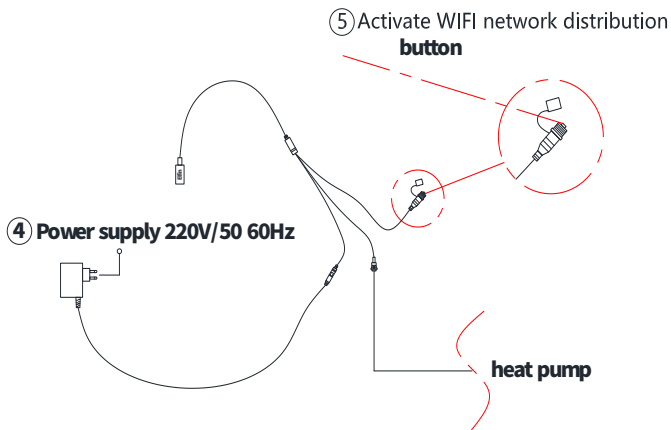
Download the APP and enter the login page. Click New User Registration to register with your phone number or email. After successful registration, enter your username and password to log in. (To download the APP, you need to scan the QR code below and then choose to open it in the browser to download)



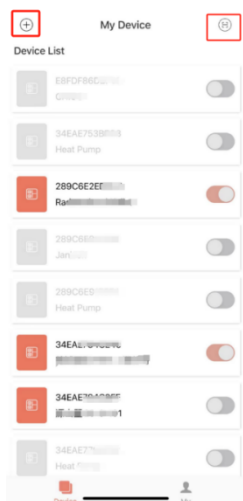
Step 2:

1、Add device to LAN

For modules that have not been connected to the network, you need to add equipment to the LAN. Connect the power supply ④ of the heat pump and WIFI module to the indoor 220V power plug. The green light of the module will flash slowly.



After entering My Device, click “” in the upper left corner to enter the Add device page. The name of the WIFI currently connected to your phone will be displayed in the box above. Enter the WIFI password and gently press the raised button on the connection cable ⑤ (picture above). Note that pressing the button takes less than 2 seconds, wait for about 2~3 seconds, the green light of the WiFi module starts to flash quickly, and the WiFi adapter enters pairing mode; Click “Add device” until the connection is successful. Then click the arrow to see the currently connected APP displayed in the list.

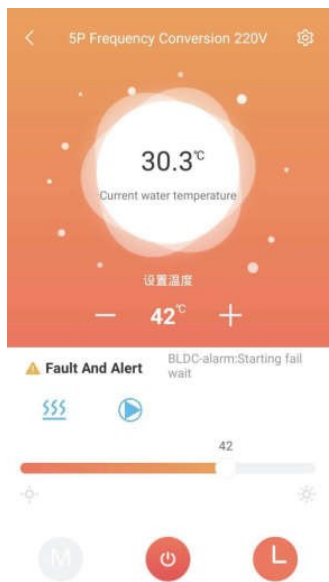


2. Scan the QR code to add a device: For modules that have been bound to the APP, you can scan the QR code to add a device. If the module is connected to the network, the module will automatically connect to the Internet after powering on. For modules that have been bound to the APP, click the icon on the far left of the APP device list to display the binding QR code of this module. If others



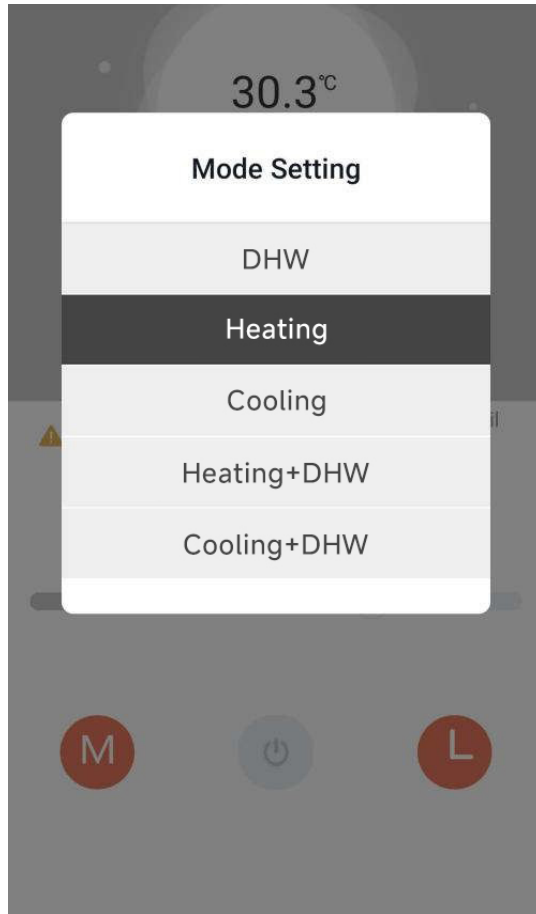
want to bind the module, they can click “ ” directly and scan the QR code to bind the module.

10.3 Device Homepage



10.4 Explanation

- 1) Click a device in the device list to enter this page.
- 2) The background color of the bubble indicates the current operating state of the device:
 - a  Gray indicates that the device is in the shutdown state, at this time, you can change the working mode, set the mode temperature, set the timing, or you can press the key to switch on and off.
 - b  Multicolor indicates that the device is turned on, each working mode corresponds to a different color, orange indicates heating mode, red indicates hot water mode, and blue indicates cooling mode.
 - c  When the device is in the power-on state, you can set the mode temperature, set the timer, press the key to switch on and off, but you cannot set the working mode (that is, the working mode can only be set when the device is off)
- 3) The bubble shows the current temperature of the device.
- 4) Below the bubble is the set temperature of the device in the current operating mode.
- 5) Set the temperature is about 45°C, Press button, each click adds or subtracts the current setting value to the device.
- 6) Below the setting temperature is the Fault and Alert. When the device starts to alarm, the specific Alert reason will be displayed next to the yellow warning icon. In case of device Fault and Alert, the Fault and Alert content will be displayed on the right side of this area. Click this area to jump to the detailed Error Information.



- a. Click "on/off" and set "on/off" command to the device.
- b. Click the device Timer to see the Timer Settings menu. Click the Clock Schedule to set the device Timer function. The diagram below:

12.Maintenance and repairing

1、 Error input and protection alarm

Error code	Error description
Er 01	Lack of phase
Er 03	Water flow failure
Er 04	Antifreeze in winter
Er 05	High pressure fault
Er 09	Communication failure
Er 10	Communication failure of frequency conversion module (alarm when communication between outer board and drive board is disconnected)
Er 11	Time Limit Out
Er 12	Exhaust temp too high protection
Er 14	Water tank temperature sensor fault
Er 15	Water inlet temperature sensor fault
Er 16	Evaporator coil temperature sensor fault
Er 18	Exhaust temperature fault
Er 20	Abnormal protection of frequency conversion module
Er 21	Ambient temperature sensor fault
Er 23	Cooling outlet water temperature supercooling protection
Er 26	Heat sink temperature fault
Er 27	Outlet water temperature sensor fault
Er 28	Backwater TP failure
Er 29	Return gas temperature sensor fault
Er 30	Indoor outlet temp. 2 failure
Er 32	Heating too high outlet water temperature protection
Er 33	Coil temperature too high
Er 34	The temperature of frequency conversion module is too high
Er 35	Indoor outlet temp. 1 failure
Er 36	Indoor board communication failure
Er 42	Cooling coil temperature sensor failure
Er 44	Air temp too low
Er 62	Inlet temperature fault of economizer
Er 63	Outlet temperature failure of economizer
Er 64	DC fan 1 fault

Er 66	DC fan 2 fault
Er 67	Low pressure switch failure
Er 68	High pressure switch failure
Er 69	Too low pressure protection
Er 70	Too high pressure protection
Er 79	#2Module com. failure
Er 80	#2Abnormal protection of frequency conversion module
Er 81	#2Exhaust TP failure
Er 82	#2Return TP failure
Er 83	#2Low press sensor failure
Er 84	#2High press sensor failure
Er 85	#2Too high pressure protect
Er 86	#2Too low pressure protect
Er 87	#2Cooling evaporator temp. too low
Er 88	#2Exhaust TP too high
Er 89	#2Coil temp too high
Er 90	#2High press switch fault
Er 91	#2Low press switch fault
Er 92	#2Coil TP failure
Er 93	Refrigerant sensor malfunction
Er 94	R290 high protection
Er 95	Fan 1 com. failure
Er 96	Fan 2 com. failure

E20 and E80 faults will simultaneously display the following fault sequence numbers, with the fault codes switching every 3 seconds

E20_1 E80_1	IPM over current
E20_2 E80_2	Comp. lost synchronism
E20_4 E80_4	Reserve
E20_8 E80_8	Comp. lost phase
E20_16 E80_16	DC voltage low
E20_32 E80_32	DC voltage high
E20_64 E80_64	Heatsink temp high
E20_128 E80_128	Heatsink TP failure
E20_257 E80_257	Module com. failure
E20_258 E80_258	AC lost phase
E20_260 E80_260	AC over current
E20_264 E80_264	AC input voltage low
E20_272 E80_272	High pressure fault
E20_288 E80_288	IPM temp too high
E20_320 E80_320	Comp peak current high
E20_384 E80_384	PFC temp high

2、 Other problem and repairing

No	Error	Possible reason	Method
1	Heat pump doesn't run	1. Power supply cable is loose 2. The fuse of power supply is fused.	1. Cut off the power supply to check and repair. 2. Change the fuse.
2	Heating capacity is too small	1. Refrigerant is not enough 2. Water system insulating is not good 3. Air heat exchanger is dirty 4. Water heat exchanger scaled	1. Check leakage and repair and refill gas 2. Improve the insulation 3. Clean air heat exchanger 4. Clean water heat exchanger
3	Compressor doesn't run	1. Power supply has error 2. Cable connecting is loose 3. Compressor is overheat	1. Check reason and solve 2. Check loose and repair 3. Check reason and repair
4	Compressor noise is loud	1. Expansion valve damaged lead to liquid entering compressor 2. The internal parts of compressor damaged 3. Compressor lack of oil	1. Change expansion valve 2. Change compressor 3. Compensate oil for compressor
5	Fan motor doesn't run	1. Fan blade fixing screw is loose 2. Fan motor damaged 3. Fan motor capacitance damaged	1. Tight the screw 2. Change fan motor 3. Change the capacitance

6	Compressor run, but not heat	1. There is not refrigerant at all 2. Compressor damaged	1. Check leakage and repair 2. Change compressor
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