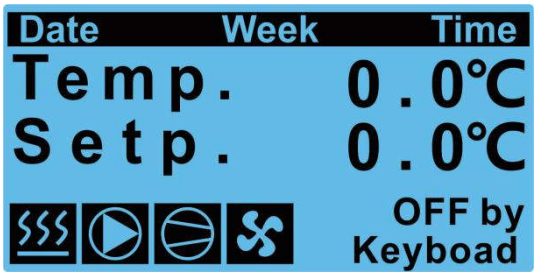
Function description of DC inverter heat pump

Main interface



The icon：

1， Heating mode

2， Pump

3， Compressor

4， Fan

5， Defrost

6， Cooling mode

7， Alarm

8， Exit Esc

9， Menu & Confirm

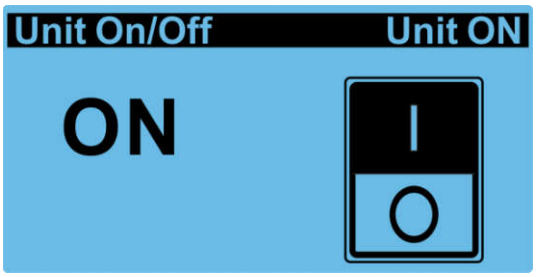
10， Select

11， Factory parameters Prg

Turn on/off

Press to access menu， press↑↓botton to select Unit On/Off, then press to confirm.

Press↑↓Botton to turn on/off， and press to confirm：

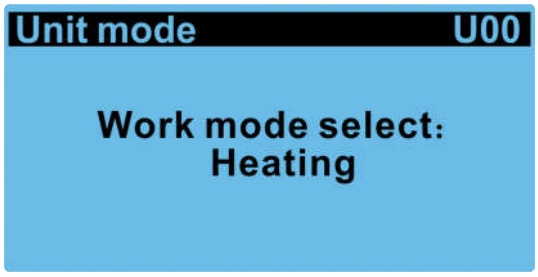


Mode switching（Heating， Cooling,Hot water,Hot water+cooling, Hot water+heat）

Press  to access menu，press↑↓botton to select User Mask，then press  to confirm.

Press↑↓Botton to switch mode， and press  to confirm, Egc. Mode switching&Temperature setting.

Attention：Only switch mode when the unit is turn off

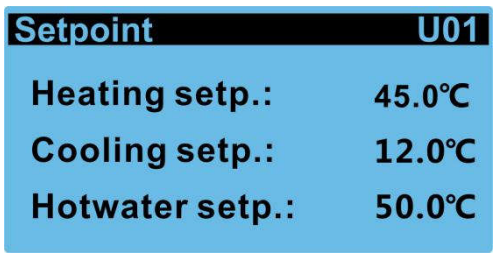


The setting temperature interface is as follows:

Heating setp: heating setting temperature

Cooling setp: cooling setting temperature

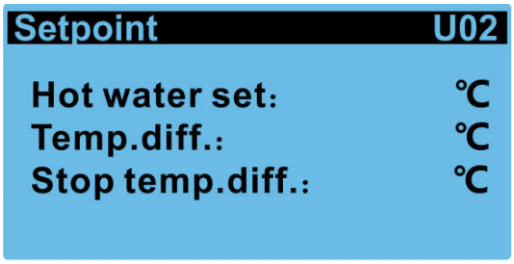
Hotwater setp: hot water setting temperature



Set Temp.diff and Stop temp. diff. of hot water

Temp.diff: The difference between the unit restart temperature and the set temperature after standby.

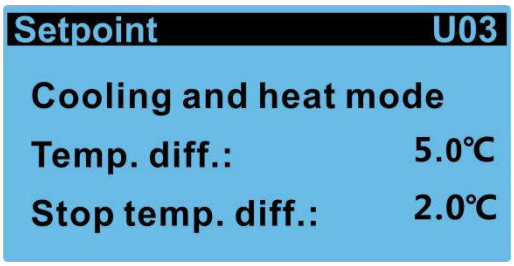
Stop temp.diff: The difference between the unit's shutdown temperature and the set temperature after reaching the setting temperature.



Set Temp.diff and Stop temp. diff. of heating and cooling

Temp.diff: The difference between the unit restart temperature and the set temperature after standby.

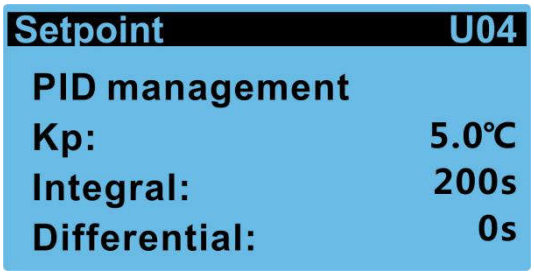
Stop temp.diff: The difference between the unit's shutdown temperature and the set temperature after reaching the setting temperature.



Set PID

Kp: The larger the value, the faster the heat pump adjustment speed (not recommended to adjust this parameter).

Integral and Differential: (not recommended to adjust this parameter).



Pump work:

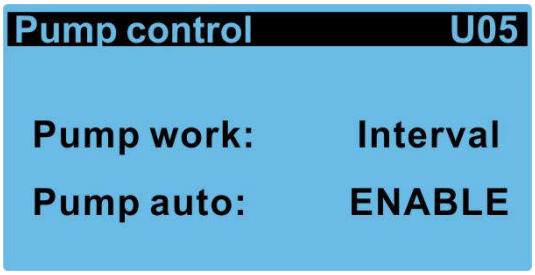
Normal - the water pump is always on during standby; Interval, the water pump is on every 3 minutes during standby;

Demand - the water pump stops during standby.

Pump auto:

ENABLE - the water pump is automatically turned on according to the temperature difference adjustment;

DISABLE - the water pump is automatically turned off according to the temperature difference adjustment.



Fan mode:

Low speed - economic mode, the heat pump can automatically output capacity as required according to the ambient temperature;

Nigt - night mode, the heat pump has low output capacity from 8 pm to 8 am, and high output at other times; Daytime, day mode, the compressor outputs according to the maximum capacity; Pressure, test mode, the heat pumpoutputs according to the test capacity.

Enable heater:

ALL - both floor heating and hot water mode enable electric heating; This mode electric heater must be installed on the main pipe.

Heating - only start electric heating in heating mode; This mode electric heater must be installed in the expansion water tank.

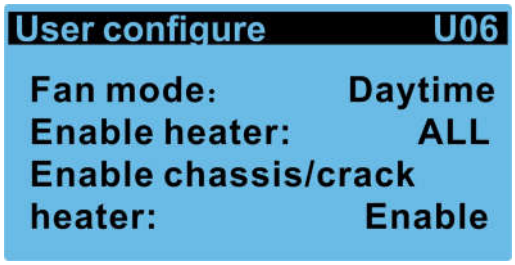
Hot water - only enable electric heating in hot water mode; This mode electric heater must be installed in the hot water tank.

Disable - disable electric heating.

Enable chassis/crack:

Enable - enable chassis electric heating/crankshaft electric heating;

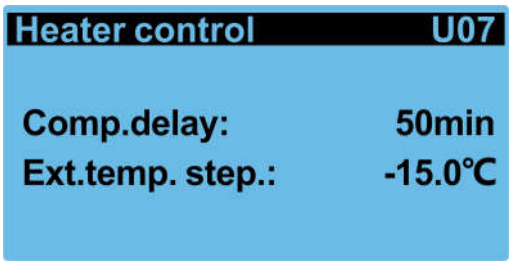
Disable - disable chassis electric heating/crankshaft electric heating.



Heater control:

Comp.delay: The delay time to start the electric heating after the compressor starts, the default is 50 minutes.

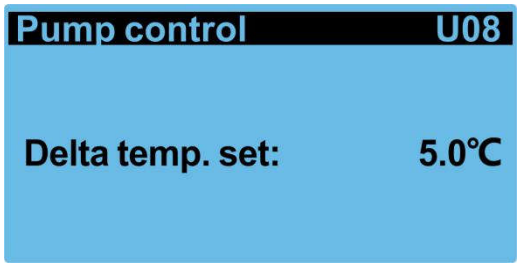
Ext.temp.setp: The maximum allowable ambient temperature for starting electric heating, the default is -15 degrees.



Delta temp.set:

Variable frequency water pump speed adjustment target value of temperature difference between inlet and outlet water: the default is 5 degrees;

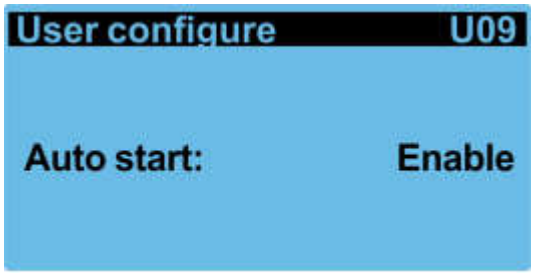
The output of the variable frequency water pump increases when the temperature difference between the inlet and outlet water is greater than 5 degrees, and the output of the variable frequency pump decreases when the temperature difference between the inlet and outlet water is less than 5 degrees.



Auto start:

Disable - after the heat pump is powered off, the heat pump will not automatically start;

Enable - the heat pump will automatically start after the heat pump is powered off



Enable Switch:

Disable - turn off the function of automatically switching the cooling/heating mode based on the ambient temperature;

Enable - turn on the automatic switching of the cooling/heating mode based on the ambient temperature.

AmbTemp Switch setp: Switch the ambient temperature setting point of the cooling/heating

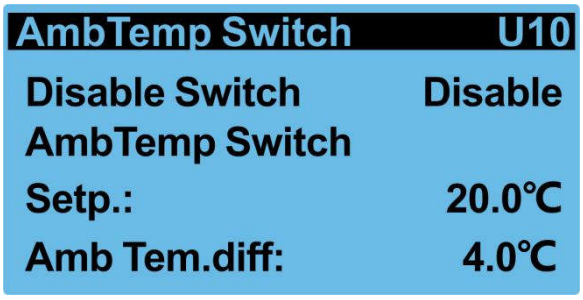
mode;

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

Amb Temp.diff: The difference between the ambient temperature switching mode and the set temperature.



TimeZone/CLOCK

Press ↵ to access menu， press↑↓botton to select TimeZone/CLOCK , then press ↵ to confirm， Press↑↓Botton to change the setting, and press ↵ to confirm.

Timezone on off：

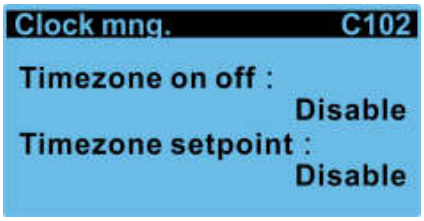
Enabl - Turn on the timer switch function, the unit can be set to switch on and off time for one week after it is switched on;

Disabl - Turn off the timer switch function.

Timezone setpoint：

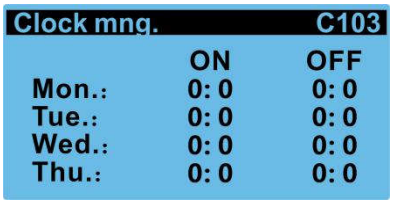
Enabl - Turn on the timer temperature setting function, the unit can set different temperatures in four time periods of a day after it is turned on;

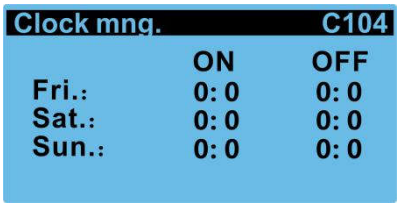
Disabl - Turn off the timer setting temperature function.



Timezone on off

Timing setting interface, under ON is the power-on time, and under OFF is the off-time.

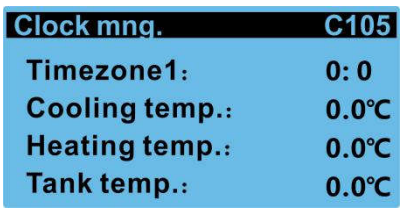


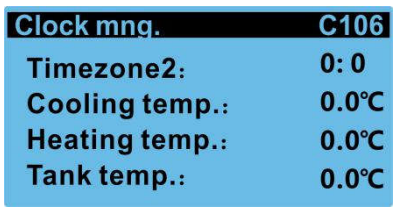


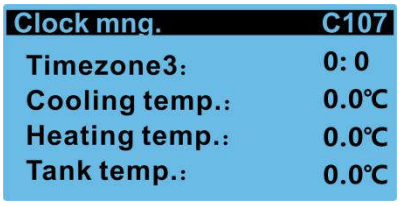
Timezone setpoint Timing setting temperature interface;

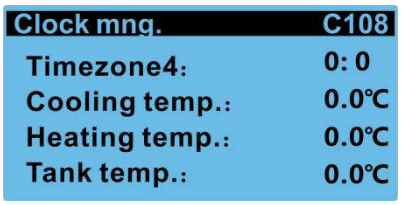
Timezone1 is the start time of the first time period, **Timezong2** is the cut-off time of the first time period and the start time of the second time period, and so on.

Cooling temp、Heating temp、Tank temp Set the temperature for cooling, heating, and hot water for the corresponding time period



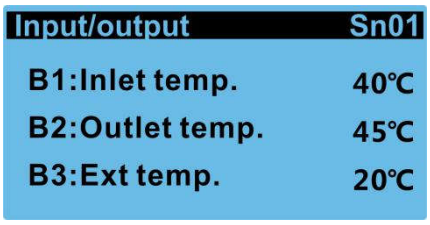


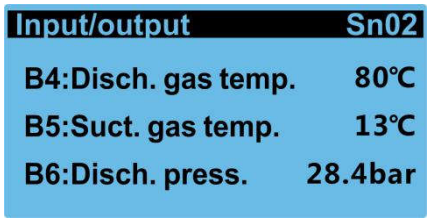

Clock mng. C107
Timezone3: 0: 0
Cooling temp.: 0.0℃
Heating temp.: 0.0℃
Tank temp.: 0.0℃

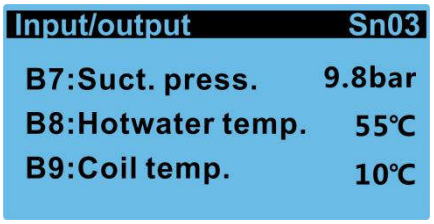

Clock mng. C108
Timezone4: 0: 0
Cooling temp.: 0.0℃
Heating temp.: 0.0℃
Tank temp.: 0.0℃

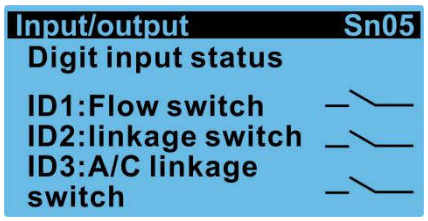
Input/Output

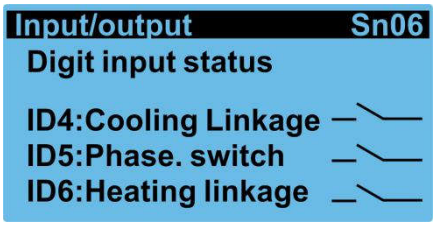
Press ↵ to access menu， press↑↓botton to select I/O mask, then press ↵ to confirm，Press↑↓Botton to see the I/O， E.gc Water temperature/ Pressure/Frequency and so on.

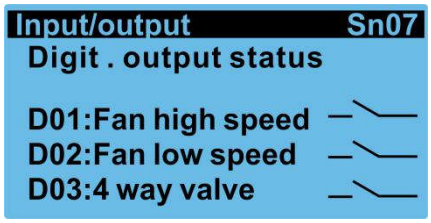


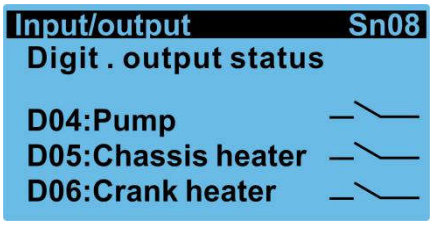


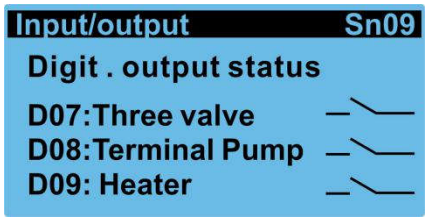


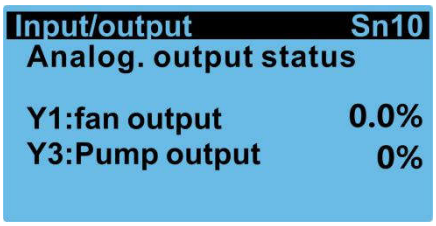










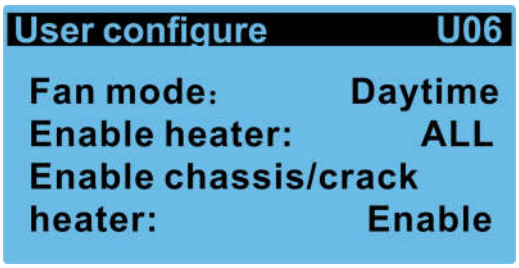


五. Choice of economic model:

Day mode: According to the ambient temperature and load demand, the compressor runs at the maximum frequency, and the fan runs at the maximum speed;

Night mode: In night mode, during the period from 20:00 to 8:00 of the real-time clock, the maximum speed of the fan must not exceed 500 rpm, and the maximum speed of the compressor must not exceed 50 Hz. These two parameters are adjustable, and the other time periods are operated in day mode;

Low speed mode: different ambient temperatures and different modes correspond to different maximum compressor speeds, and at the same time correspond to different set temperatures.
Pressure mode: This mode is the test mode for factory testing.

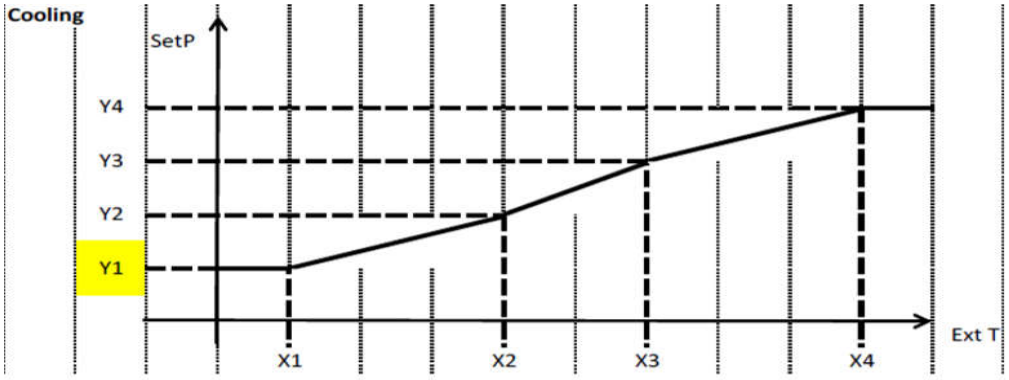


The following is the corresponding relationship between ambient temperature, water temperature and frequency in low-speed mode:

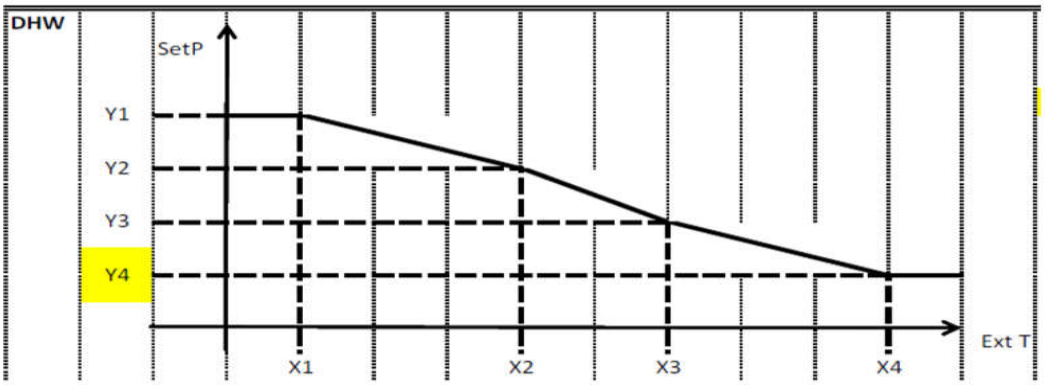
	Ambient temp	Compressor maximum frequency (rps)
Heating/Hot water	9<AmbTemp	50
	4<AmbTemp<=9	60
	-3< AmbTemp <=4	60
	-9<AmbTemp<=-3	65
	-15<AmbTemp<=-9	65
	AmbTemp<=-15	70
Cooling	38<AmbTemp	65
	33<AmbTemp<=38	65
	30<AmbTemp<=33	60
	26<AmbTemp<=30	60
	AmbTemp<=26	55

	Ambient temp		Water temperature set point	
Heating	X1	-10	Y1	45
	X2	0	Y2	40
	X3	10	Y3	35
	X4	20	Y4	30
Cooling	X1	20	Y1	15
	X2	25	Y2	15
	X3	30	Y3	12
	X4	35	Y4	12
Hot water	X1	0	Y1	50
	X2	10	Y2	50
	X3	20	Y3	45
	X4	30	Y4	45

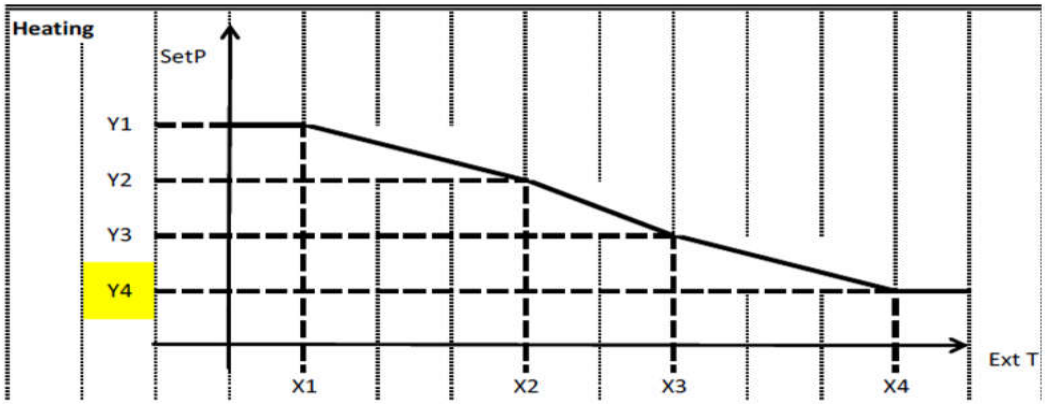
The cooling mode setting temperature corresponds to the ambient temperature graph



The hot water mode setting temperature corresponds to the ambient temperature map

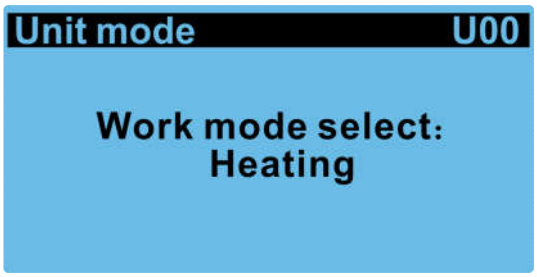


The corresponding ambient temperature map of the heating mode setting temperature

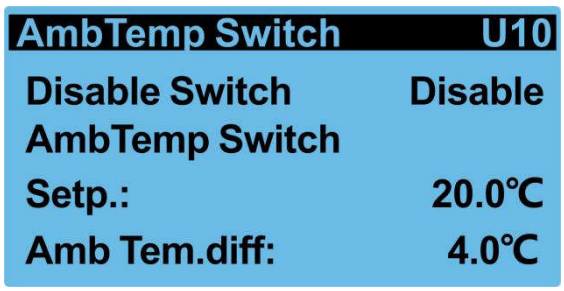


Mode switching method

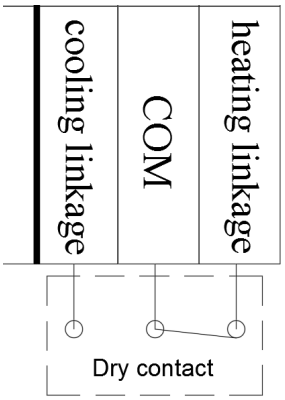
Switch the mode directly through user parameters



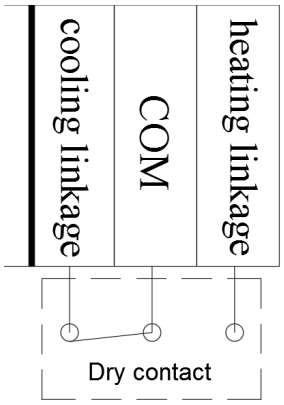
Switch the mode through the heating and cooling linkage, this function needs to disable the automatic switching mode function first, and set Enable Switch to Disable



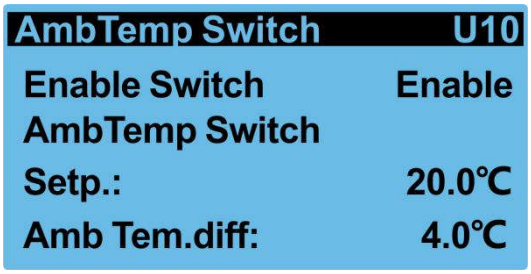
When the heating linkage is connected to the common terminal, it will switch to heating or hot water + heating mode, and it cannot be switched to other modes if it is always connected.



If the refrigeration linkage is connected to the common terminal, it will switch to cooling or hot water + cooling mode. If it is always connected, it cannot be switched to other modes.



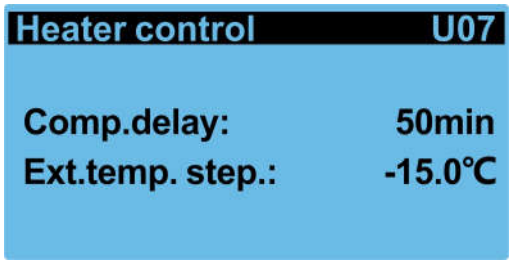
To automatically switch the mode by setting the ambient temperature, you must first enable the automatic cooling and heating function, and set the Enable Switch to Enable

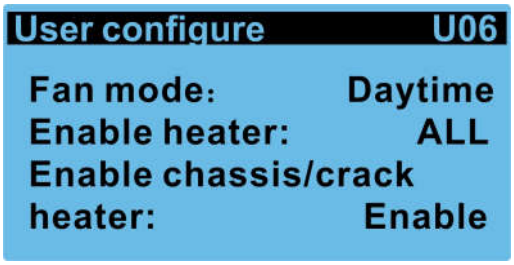


Enable the ambient temperature set point switching mode function, the unit will automatically switch to heating or hot water + heating if the ambient temperature is lower than the set value, and the unit will automatically switch to cooling or hot water + cooling if the ambient temperature is higher than the set value. It can be switched to hot water + heating or hot water + cooling only after the triple supply with hot water mode is enabled. The hysteresis can be set, and the unit mode remains unchanged within the range of ambient temperature-hysteresis and ambient temperature + hysteresis.

Electric heater control

Electric heater can be defined as air-conditioning electric heater, hot water electric heater, disabled, and shared. Different options will be activated in different modes, and disabled will not be activated.





Electric heater opening conditions:

1. The electric heating start delay time is reached. This time is the time from when the compressor is turned on to the electric heater starts. By default, the compressor can be turned on for 50 minutes before electric heating is started;
2. The ambient temperature reaches the set electric heating start-up ambient temperature, the default is -15 degrees;
3. The host has heating requirements.

In addition, when the host fails, the electric heating without water flow protection will also start

Electric heater exit conditions:

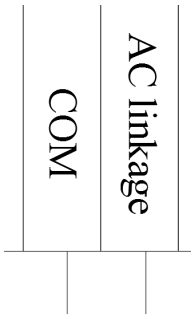
1. Water flow failure
2. The ambient temperature exceeds the set electric heater start ambient temperature
3. The hot water temperature reaches the set temperature, and the host has no demand.

Adaptive output function

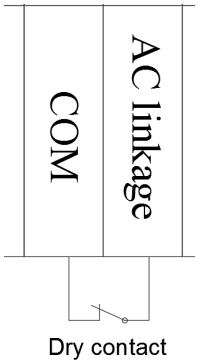
The host will automatically match the output of the heating capacity according to the end demand, and automatically adjust the compressor speed in the case of small flow, so that the unit can meet different load requirements. In heating or cooling mode, when the temperature difference between the inlet and outlet water exceeds 10 degrees, the compressor will reduce the frequency and the output of the main engine will be reduced to prevent the temperature difference from being too large.

Nine, air conditioning linkage function

The air conditioner linkage contact is a dry contact. If the dry contact is disconnected, the air conditioner will shut down: if the current mode is hot water + heating or hot water + cooling, the host will only stay in hot water mode and will not switch to heating or cooling Mode; if it is currently in hot water mode, it has no effect; if it is in cooling or heating mode, the host has been in standby mode, and will not turn on even if the temperature is not reached. The end pump is disconnected.



The dry contact is turned on, the air conditioner can be turned on, all modes can be turned on and off normally, and the end pump is turned on.



Antifreeze function

The antifreeze function can only be activated conditionally when the unit is shut down. If the user starts the unit during this process, the antifreeze function must be executed first.
After meeting the antifreeze interval of the unit, the default is 30 minutes (settable),

1. If the current ambient temperature is less than 2 degrees, and (inlet water temperature or outlet water temperature) is lower than 12 degrees, it will enter the first level of antifreeze. If the ambient temperature probe fails, the default ambient temperature condition is established. If the water inlet probe fails, the default water intake If the condition is established, if the water outlet probe fails, the default water outlet condition is established, enter the first level antifreeze, and the first level antifreeze can run for 5 minutes

2. The current ambient temperature is less than 2 degrees, the inlet water temperature or the outlet water temperature is less than 4 degrees, and the secondary antifreeze is entered. If the ambient temperature probe fails, the default ambient temperature condition is established. If the water inlet probe fails, the default water inlet condition is not established. If the water outlet probe fails, the default water outlet condition is not established, and the secondary antifreeze cannot be entered.

3. Antifreeze exit conditions, if the temperature of the inlet and outlet water is greater than 15 degrees, or the ambient temperature is greater than 4 degrees, exit the antifreeze.

4. The unit with hot water mode, during the antifreeze process, once the water pump is turned on, the three-way valve is periodically switched on and off (30s on and 30s off) to allow the water in the entire water system to flow.

5. For the unit with hot water mode, when the temperature reaches the standby state during normal operation of the unit, if the ambient temperature is lower than an antifreeze set value (you can use the above shutdown time antifreeze set value), if the water pump selects always If it is running, it is judged that if the two water systems (heating/water tank) exceed a set time and there is no demand for 3 hours by default (settable), the action of switching the three-energy valve for 30 seconds and then returning is performed once. Wait another 3 hours and cut again. If the water pump has selected the periodic operation mode as required, the action of switching the three-energy valve for 30 seconds and then returning is performed every time the water pump is turned on regularly. If the ambient temperature is not lower than the antifreeze setting value, the above functions are invalid.

6. For the unit with hot water mode, during the normal operation of the unit, it only runs in one mode. If the ambient temperature is lower than an antifreeze setting value (you can use the above shutdown time antifreeze setting value), when it reaches the above setting For a fixed time (such as 3 hours), the action of switching the three-energy valve for 30 seconds and then returning is performed once. Note that this time is not suitable to be too long, because it may involve the speed regulation of the compressor or even shutdown response, because the time is

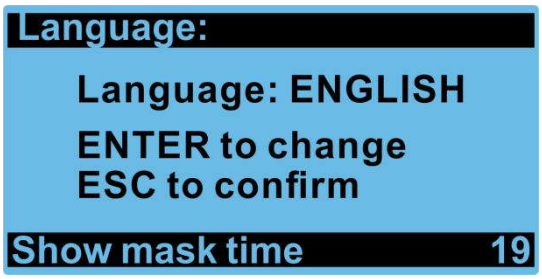
too long and the compressor is just at a high speed, which will cause high pressure or high water temperature protection. If the ambient temperature is not lower than the antifreeze setting value, the above functions are invalid.

7. If the start-up command has been issued during the antifreeze or when the antifreeze has just exited, the unit will enter the unit preparation state after the antifreeze is finished, and the unit can be turned on after 3 minutes (to avoid the compressor start (after the minimum start time is not met), the exit antifreeze Condition, so give 3 minutes to stop the crew).

8. If the compressor and water pump cannot be turned on due to an alarm, the water pump will start for 3 minutes after the default 60 minutes (settable) when the unit fails and cannot be turned on.

Change language

Enter the password to enter the other parameter page, find the language interface, press  to switch language, after selecting the language, directly press ESC to exit. After switching between Chinese and other languages, it will automatically exit to the main interface.



Master-Slave Connection

The connection between master and slave

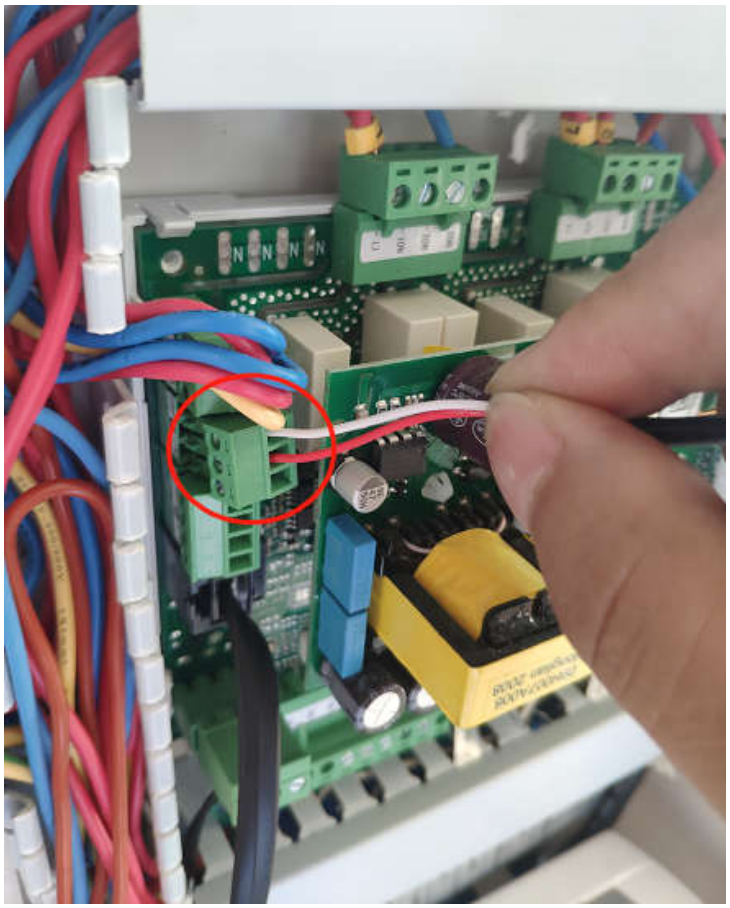
1. Conditions required for module connection

Multiple signal lines

Multiple DC inverter units

2. Communication connection between master and slave：

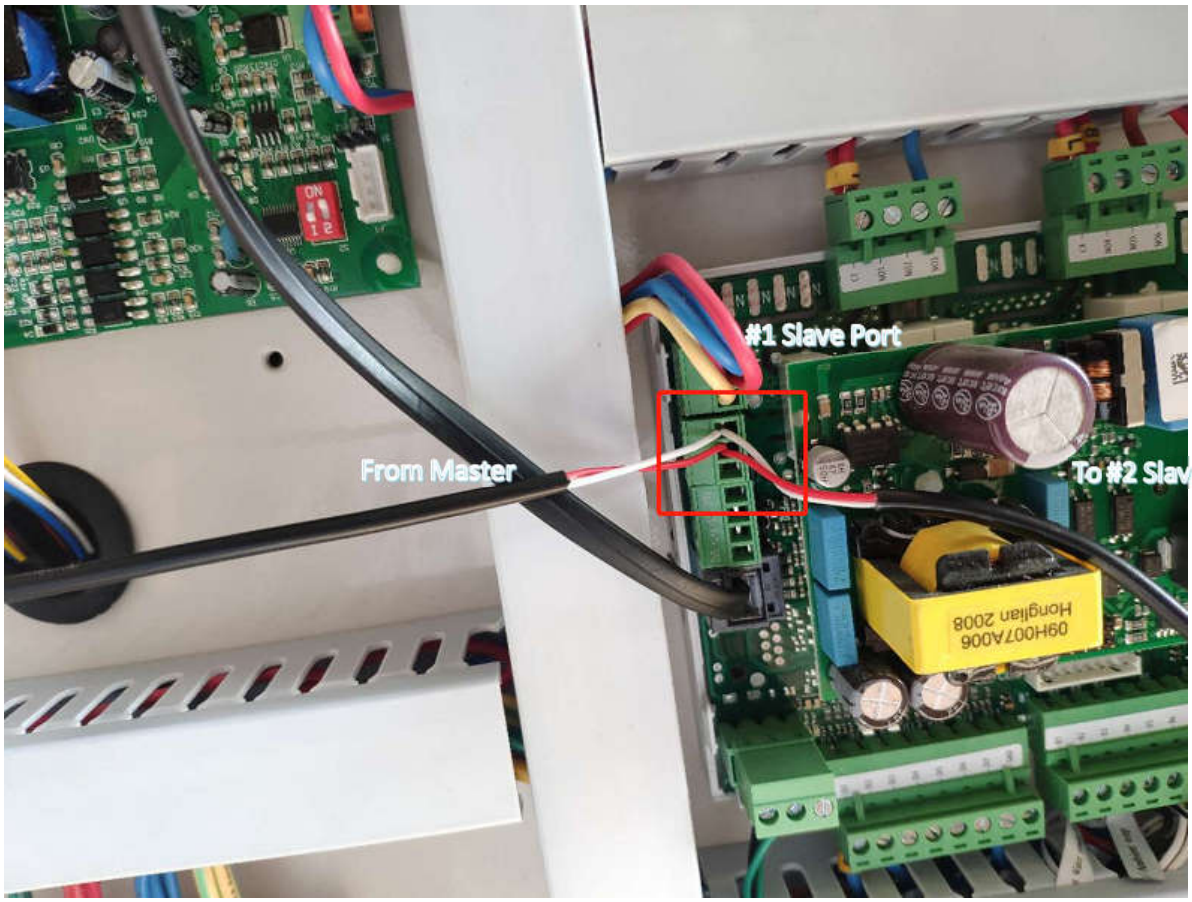
- Remove the port circled in red, at the corresponding position of the motherboard;
- Connect the signal wire as shown in the figure, and then reinsert it back.



3. Connection diagram 1# slave

- Connect the other end of the master signal line to the same position of the 1# slave.

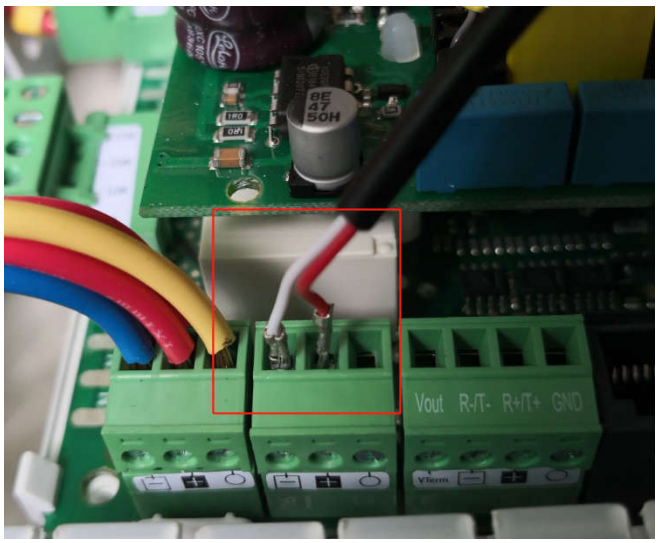
If there are multiple slaves, please connect them to the following devices in sequence according to the following figure. The maximum support is 9.



Noted:

When connecting the signal line, pay attention to the position of the red and white lines. - The red line end is connected to the “+” of the Master main control board and the other end is connected to the “+” of the Slave main control board;

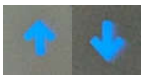
- The white line end is connected to the “-” of the Master main control board and the other end is connected to the “-” of the Slave main control board;



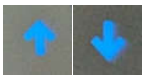
Parameter configuration of master and slave

1. The parameter configuration steps of the master are as follows:

Step 1: Press 

, use  to adjust the password to【0815】, then press  to enter the internal parameters.

Step 2: Press  to switch to [Other parameters], then press  to enter internal parameters.

Step 3: Press  to switch to the [Communication Settings] page, press  to enter the parameter modification state, and press  to start.

Step 4: Switch to page OT27 , set “participate in the rotation” of slave 1#, 2#... to [Yes] to enable the slave.

Step 5: After adjusting the master parameters, adjust the slave parameters.

Note: If the "participate in rotation" of slave is adjusted to "no", the slave will not be activated.

2. The parameter configuration steps of the auxiliary heat pump as the following:

Step 1：Press Prg button，through button to adjust the password to【0815】，then press button，enter internal parameters.

Step 2：Press to switch【other parameters of the configuration】，then press button to enter internal parameters.

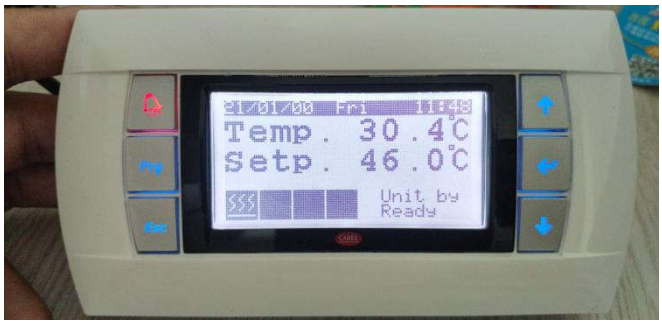
Step 3 ：Press button to switch【communication settings】page ，press button to enter 【modify parameter status】 ，through to change the enable network to 【Yes】 ，Change the set unit category to 【auxiliary heat pump】 ，The address of the first auxiliary heat pump is changed to【1】 ，the address of the second auxiliary heat pump is changed to【2】 ，by analogy ，after modification, press to confirm.

Step 4 ：Switch the slave to the power-on page and set it to power on.

Step 5 ：After the operation, power off the entire unit for 60 seconds, and then power on again, the operation is complete .

Note: The difference between salve is only the address . From the first to the ninth, the addresses are 1 to 9. One master can connect up to nine slaves.

The problems that may occur during the connection process



After previous steps, cascade connection is done . You can test by changing the working mode , setting water temp in the Master controller , if 1# Slave controller can be adjusted accordingly , then it means cascade connection is correct.

If can’t adjusted accordingly , or with error alarms such as (master unit is off) , please check :

1. If line connection is correct ?

2. If the parameters for the Master heat pump , Slave heat pump are both correct ?

3. If it restart after lack of electricity .

Defrost

Defrost entry conditions:

1. The ambient temperature is lower than the set temperature for entering the defrost, the default is 15 degrees, and the defrosting is allowed only when the ambient temperature is lower than 15 degrees.
2. The coil temperature is lower than the set temperature for entering the defrost, the default is -1 degree, and the defrosting is allowed only when the coil temperature is lower than -1 degree.
3. The difference between the defrosting ambient temperature and the coil temperature is greater than the set temperature, the default is 5 degrees, and the coil temperature is lower than the ambient temperature by more than 5 degrees before entering the defrost
4. The defrost interval time exceeds the set value, the default is 45 minutes, the last defrost time exceeds 45 minutes before the next defrost is allowed

Defrost exit conditions:

1. The coil temperature is greater than the exit defrost setting temperature, the default is 15 degrees
2. The defrosting time is greater than the maximum defrosting time, the default is 8 minutes

If the defrosting is not clean, you need to force the defrosting, you can temporarily adjust the entry conditions, change the setting value of the difference between the defrosting ambient temperature and the coil temperature to 1, and set the defrosting interval to 5-10 minutes, so The unit will enter the defrost soon, and the above two parameters will be changed back to the default values after the standby group is defrosted.

WIFI module connection and APP instruction manual

WIFI module connection：

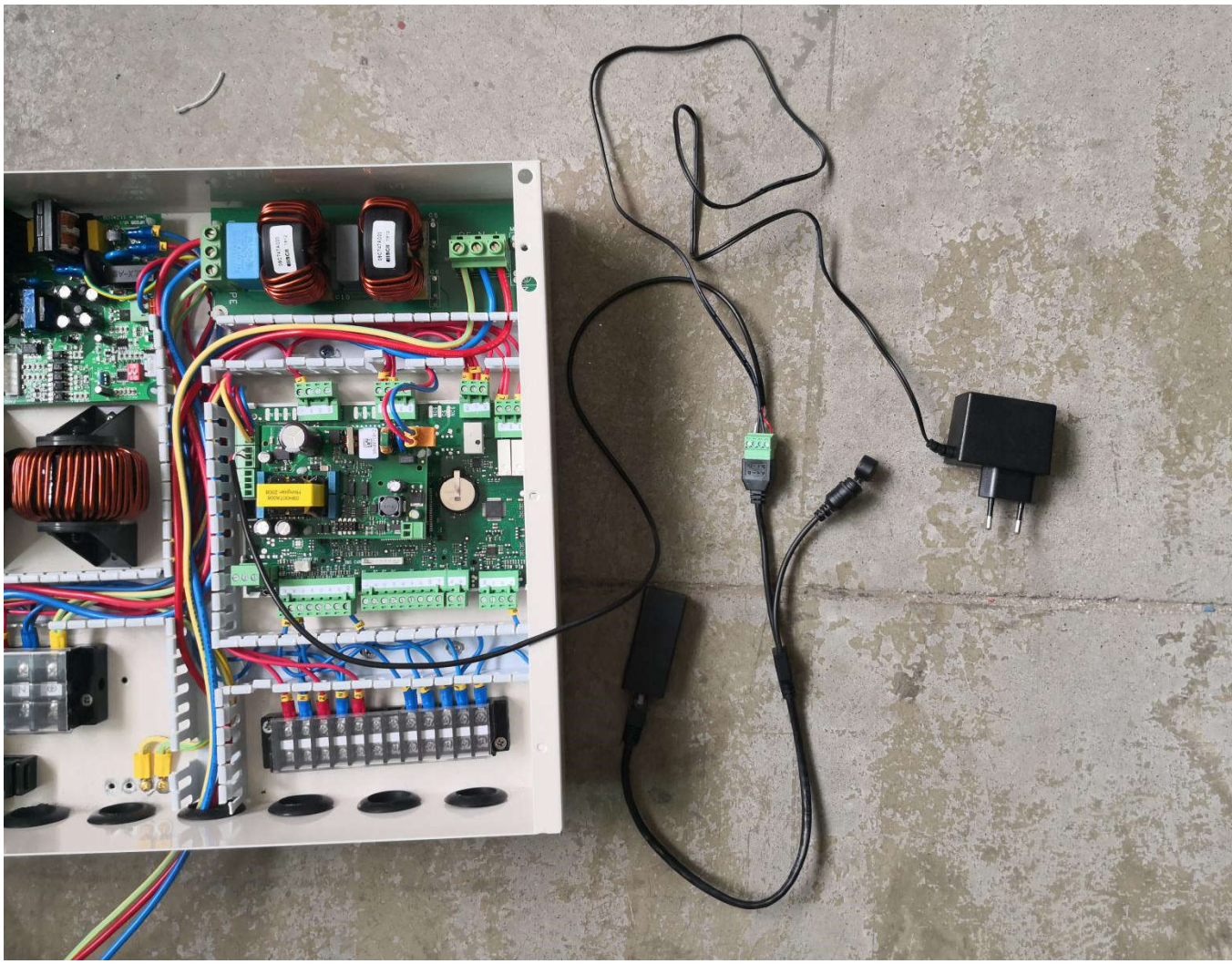
1、Accessories required for module connection

Signal line　　Power supply　　Cable

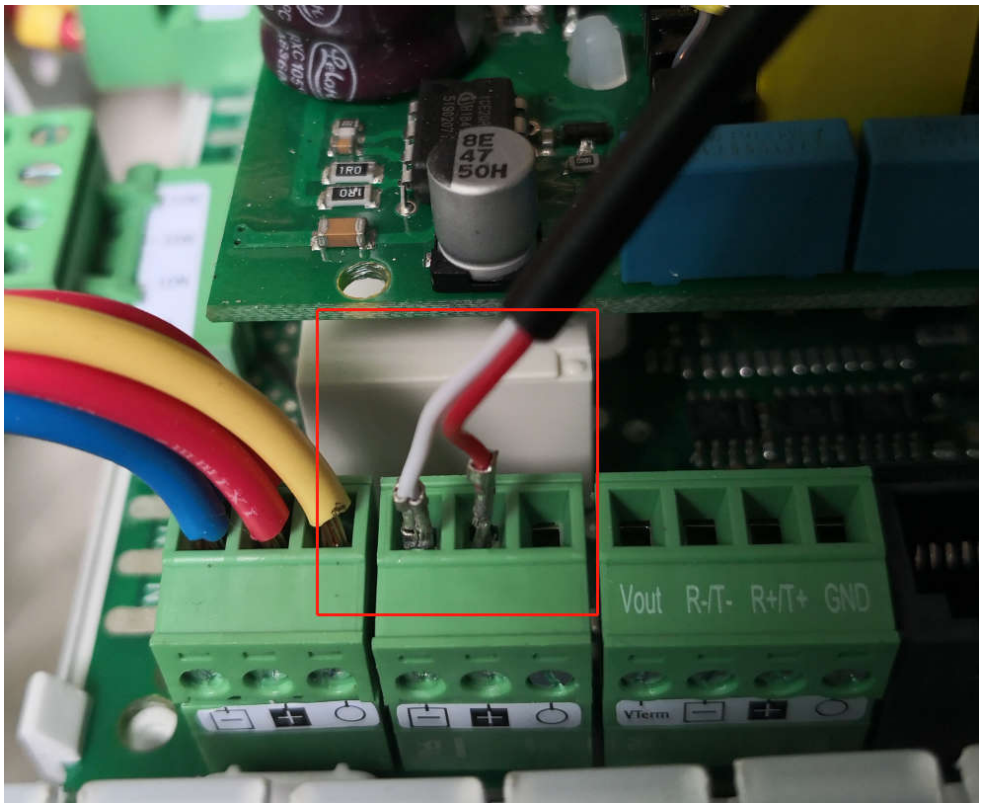
WIFI module

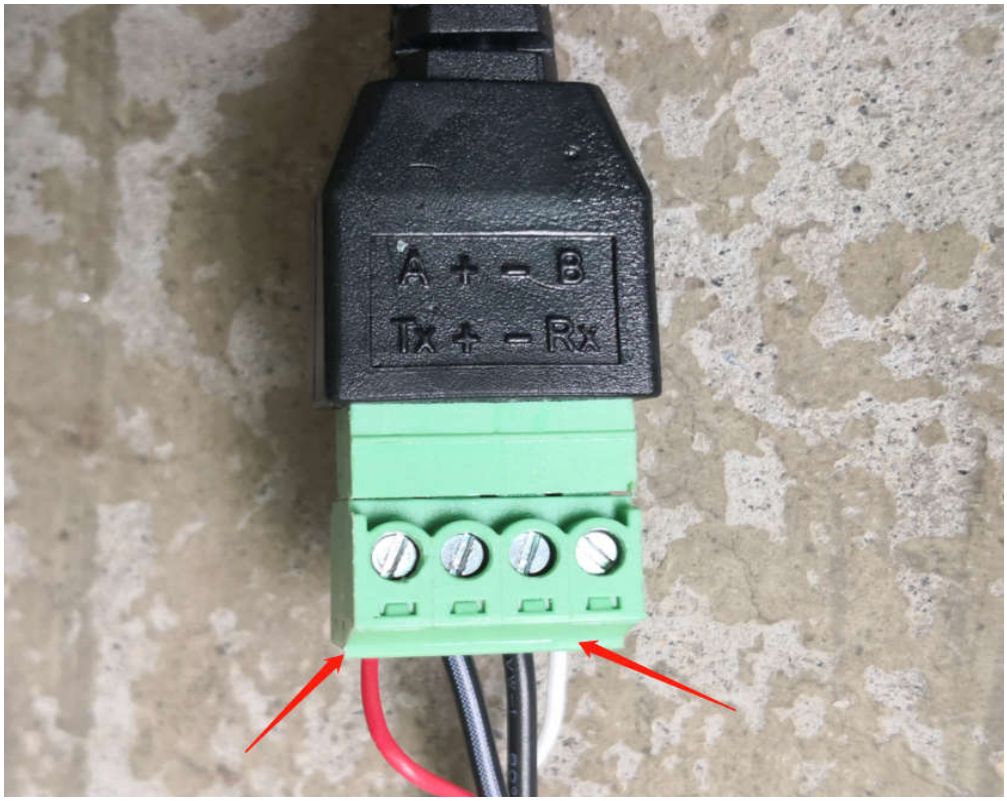



2、Connection diagram

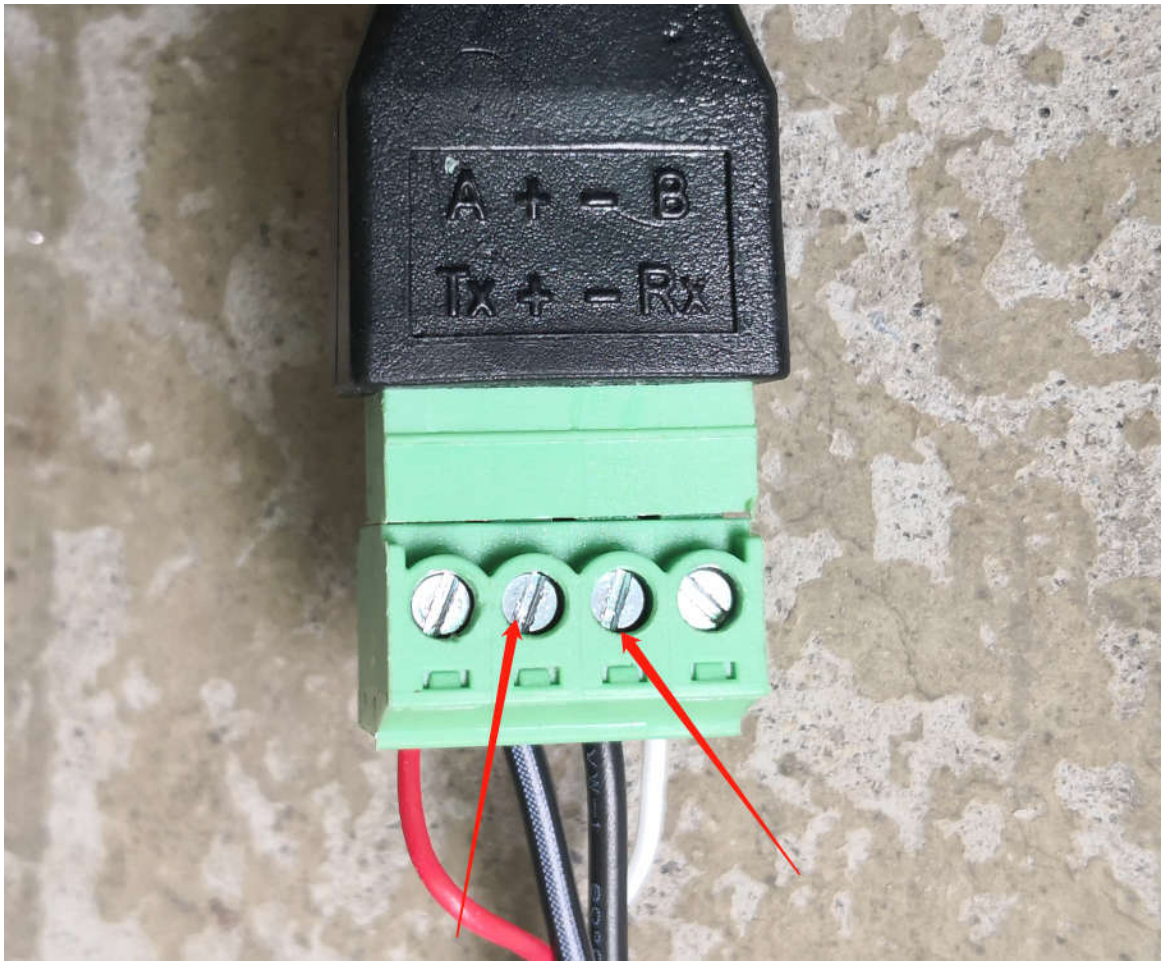


Noted: When connecting the signal cable, pay attention to the position of the red line and the white line. The red end is connected to the A of the connection line and the other end is connected to the + of the main control board; the white end is connected to the connection line B and the other end is connected to the-of the main control board. If the connection is reversed, communication is not possible.





The power plug is connected to a 230V power supply. The black and white line of the power cord is connected to the + of the connection line, and the black line is connected to the-of the connection line. If the connection is reversed, the module cannot supply power.

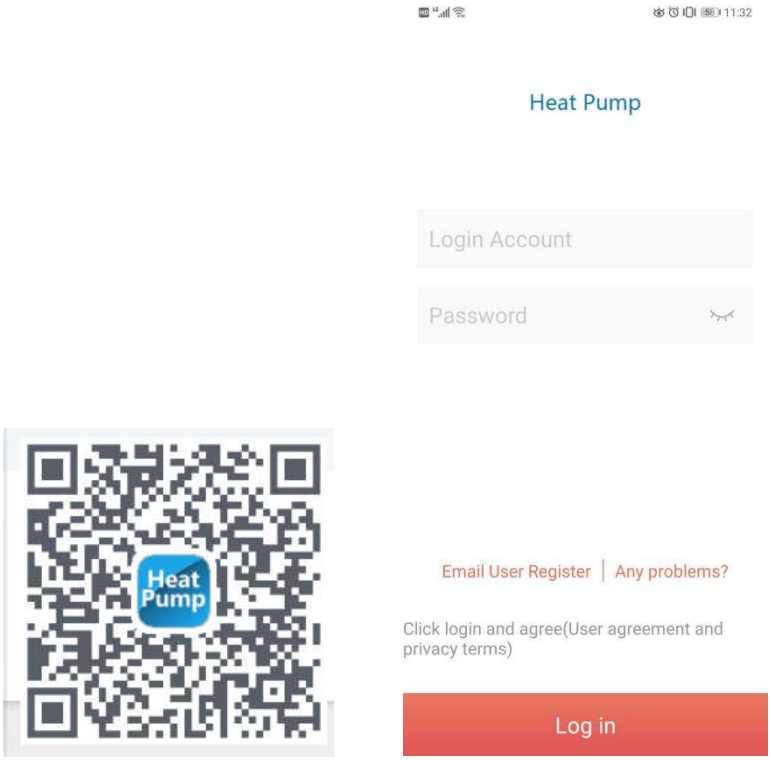

A + - B
Tx + - Rx

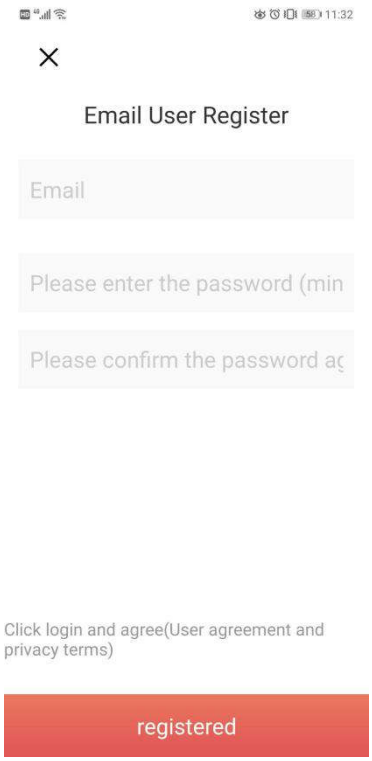
APP add equipment:

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

Step 1: Register

After downloading the APP, enter the APP landing page. Click the new user to register with the mobile phone number or email. After successful registration, enter the user name and password and click to log in. (App download needs to scan the QR code below, and then choose to open in the browser to download)



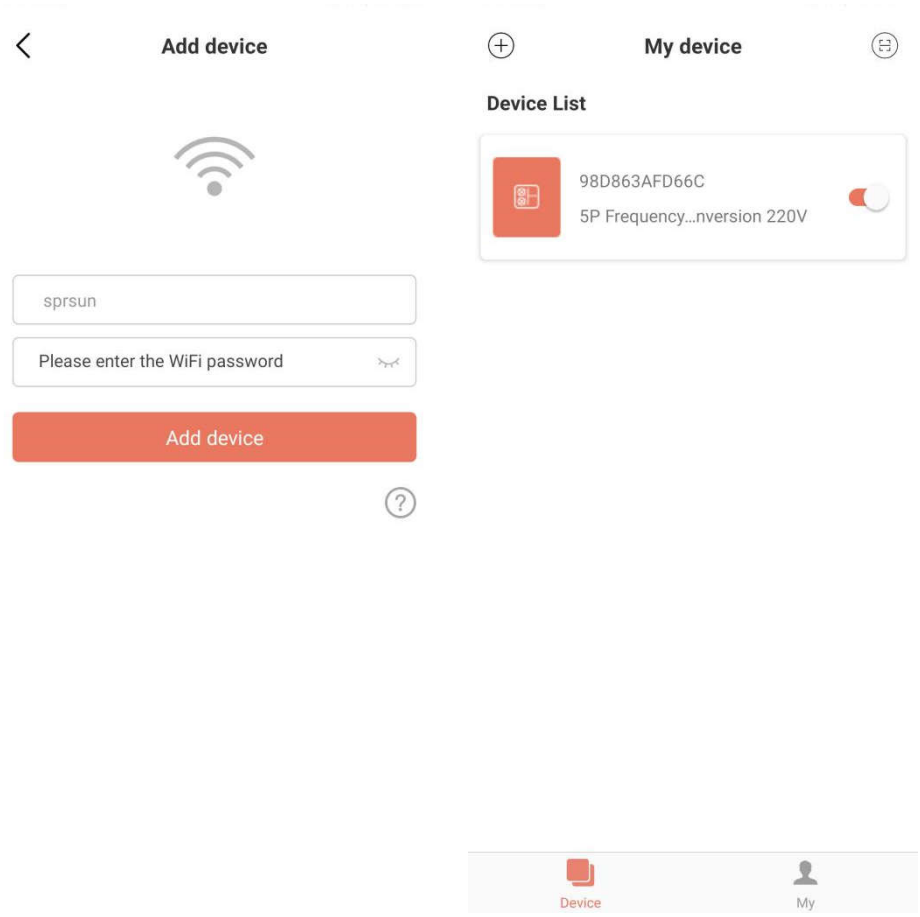


The second step:

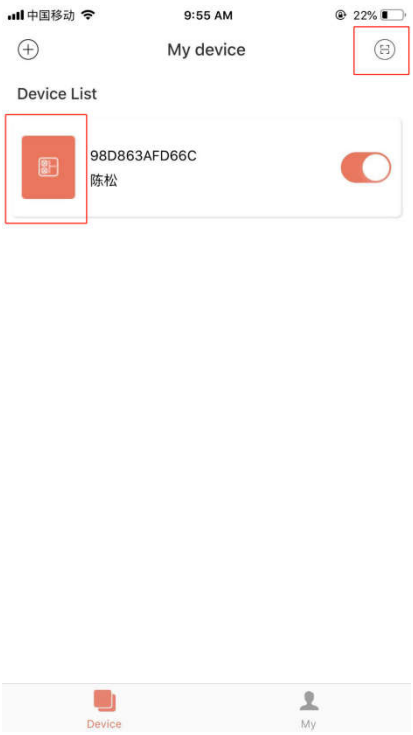
1. Add devices on the LAN

Modules that have not been connected to the network require the LAN to add devices.

After entering my device, click the icon ⊕ in the upper left corner to enter the add device page, the above box will display the name of the WIFI currently connected to the phone, enter the WIFI password, first gently press the raised button of the connection line, and then click add device, Until it shows that the connection is successful, then click the arrow, you can see the currently connected APP is displayed in the list.

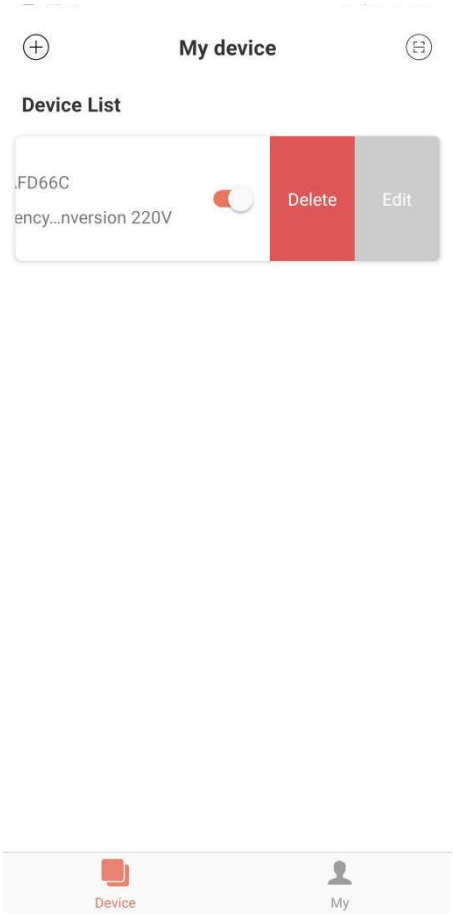


3. Scan code to add device: For modules that have been bound to APP, you can scan code to add device. If the module has been connected to the network, the module will automatically connect to the network after power-on. And for module has been bound, you can click the icon on the far left of the APP device list to display the QR code of the module. If other people want to bind the module, just click the icon  directly and scan the QR code to bind.



Explanation

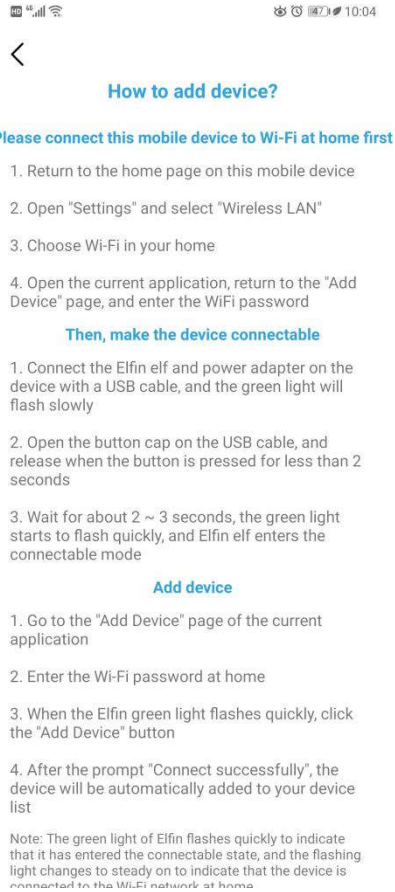
1) The device list displays the device associated with this user, and shows the device's online and offline status. When the device is offline, the device icon is gray, and the device is online color.
2) The switch on the right side of each device row indicates whether the device is currently turned on.
3) The user can disassociate with the device or modify the device name. When swiping to the left, the delete and edit buttons appear on the right side of the device row. Click Edit to modify the device name, and click Delete to disassociate the device, as shown below:



4) When adding a device to the local area network, the App will connect the device to the local area network through the local area network WiFi connected to the mobile phone. If you want to connect the device to the specified WiFi, please select the WiFi in the wireless LAN set in the mobile phone before returning to this page.
5) The App must follow the privacy and safe use of mobile phones, so before entering this page to add a device, the App will ask the user if they agree to access the user's location. If it is not allowed, the App will not be able to complete the LAN addition of the device.
6) 6) The WiFi icon on the page shows the name of the local area network WiFi connected to the mobile phone. In the input box under the WiFi name, the user needs to fill in the WiFi connection password. The user can click on the eye icon to confirm that the password is filled in correctly.
7) Short press the module's network distribution case, and confirm whether the device has entered the connectable state. The device's connection indicator flashes at a high speed to indicate that it has entered the network ready state), and then click the add device button, and the App will automatically add and Bind the device. Click the question mark icon in the lower right corner of the password input box, you can see detailed help instructions
8) The process of adding a device includes the connection and adding process of the device. The connection process refers to the device connecting to the local area network, and the addition process refers to adding the device to the user's device list. After the device is successfully added, the user can use the device. The process

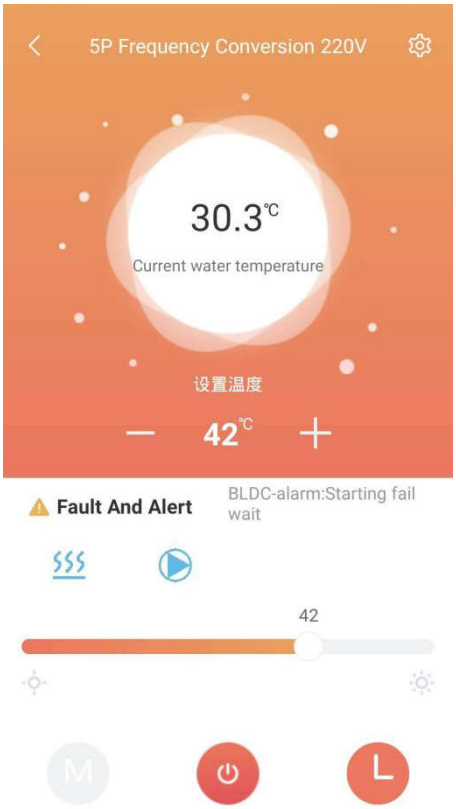
information for adding a device is as follows:

- Start connecting devices.
- The device connection succeeds or fails.
- Start adding devices.
- The device is successfully added or failed.



Use of APP

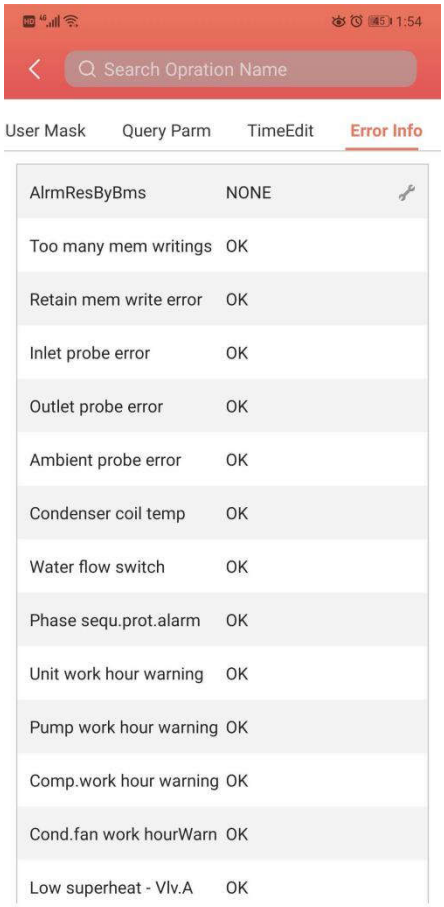
1.1. Device Homepage



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 can not 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 ＋, －button， Each click adds or subtracts the current setting value to the device.

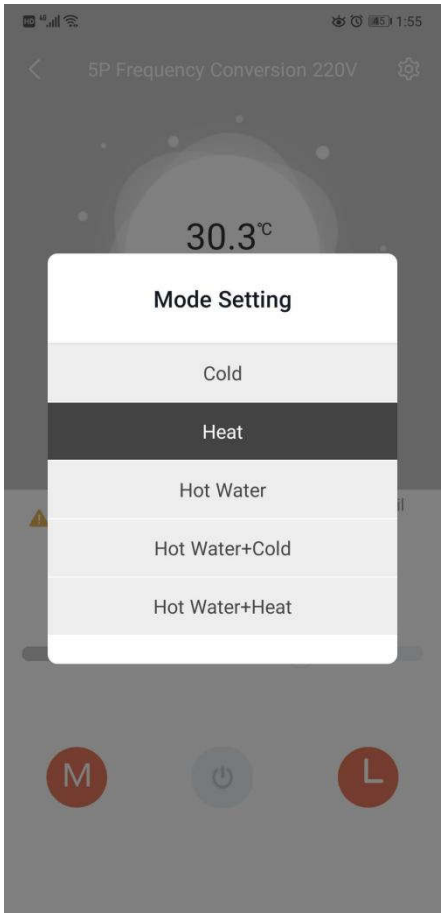
6) Below the setting temperature is the Fault And Alert. When the device starts to alarm, the specific Alert reason will be displayed next to the yellow warning icon. In case of device Fault And Alert, the Fault And Alert content will be displayed on the right side of this area. Click this area to jump to the detailed Error Information.

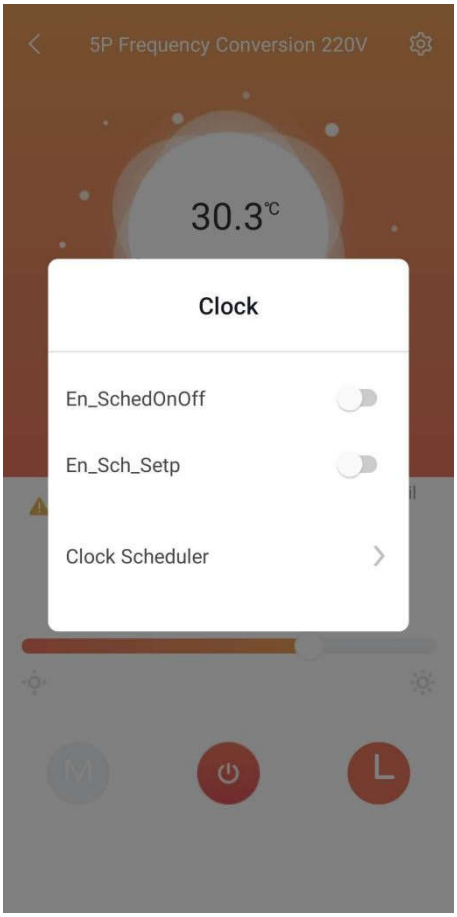


7) Immediately below the fault alarm area, display the current working mode, heat pump, fan and compressor in sequence (corresponding blue icon when it is on, but not displayed when it is off).
8) The slide bar below is used to set the temperature in the current mode.

Slide the slider left and right to set the allowable temperature in the current working mode.

9) The bottom three buttons are in order from left to right: working mode, device switching machine and device timing. When the current background is color, the working mode button cannot be clicked.
   a. Click Work Mode to see the mode selection menu, and you can set the working mode of the device (black is the current setting mode of the device). The diagram as below：





b. Click "on/off" and set "on/off" command to the device.

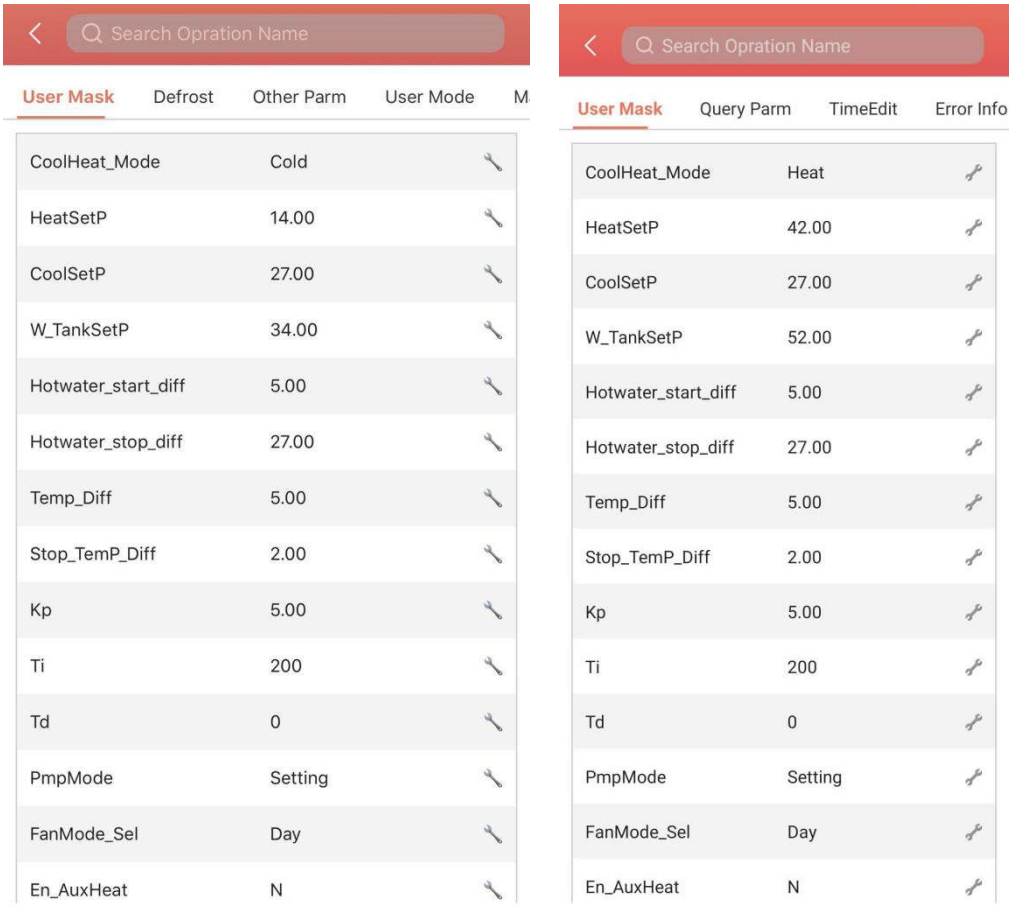
c. Click the device Timer to see the Timer Settings menu. Click the Clock Schedule to set the device Timer function. The diagram below:

Detailed information of the units

Note :1) Click this Main Interface menu on the upper right corner to enter this setting page.

2) Users with manufacturer rights can check all the functions , including :

User mask, defrost , other parm, factory settings, manual control , query parm, time edit, error info



3) User with user rights , only can check part of the functions :User mask, query parm, TimeEdit , alarms