DALRADA
HOME

R32 DC Inverter Air To Water Heat Pumps

INSTALLATION & INSTRUCTION MANUAL

CONTENTS

Notice

1.1 Save this manual for future reference.

1.2 In order to use this product better and more safely, please read this manual carefully before installation and initial operation.

1.3 Children or persons with physical, sensory or mental disability should not play with nor operate this appliance.

1.4 This appliance must be install by qualified and experienced technicians/tradespeople. Improper installation of this appliance may cause damage and danger.

1.5 This appliance must be installed in accordance with North American Standard wiring regulations including an isolating
switch from the supply mains and grounded power supply consistent with the power requirements of this appliance.

1.6 The installation of this appliance must comply with the model's wiring chart in this manual and its power requirements as stated on the rating label on the side of the heat pump.

1.7 Do not install this appliance close to flammable or explosive materials, or naked flames.

1.8 A filter in the mains water supply inlet is recommended and should be checked/cleaned periodically.

1.9 Checking and cleaning of the evaporator fin coil is recommended for good air flow.

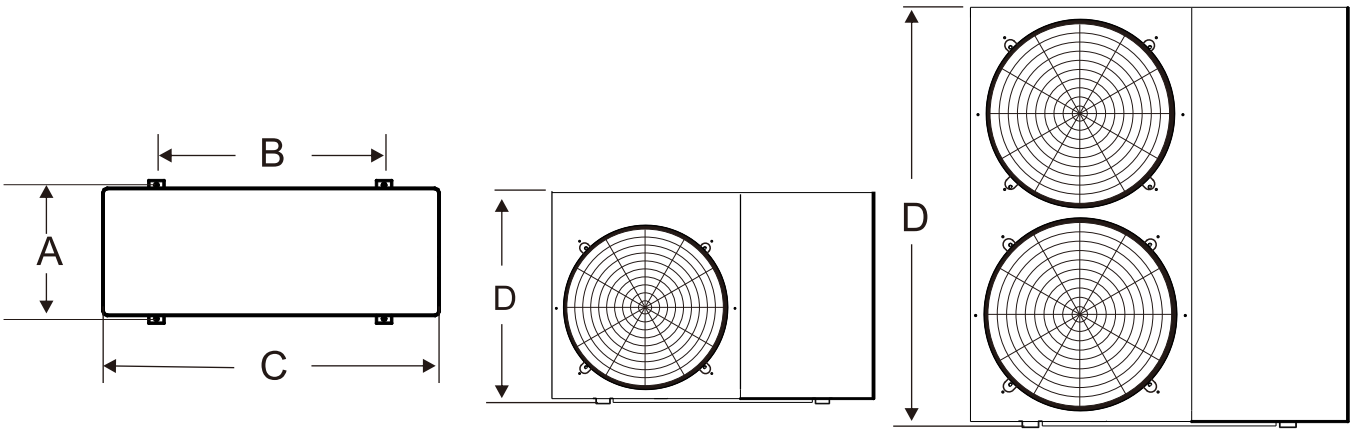
1.10 The battery should be removed from this appliance's controller at the end of its operating life and disposed of safely.

I.Specification

1.Parameter of multi-function air to water heat pump

AIR TO WATER HEAT PUMP			AIR TO WATER HEAT PUMP			AIR TO WATER HEAT PUMP		
MODEL		DH32-2F	MODEL		DH32-4F	MODEL		DH32-5.5F
RATED VOLTAGE/FREQUENCY		220~240V/60Hz	RATED VOLTAGE/FREQUENCY		220~240V/60Hz	RATED VOLTAGE/FREQUENCY		220~240V/60Hz
RATED HEATING CAPACITY		10.5kW/35827BTU/h	RATED HEATING CAPACITY		17.0kW/58000BTU/h	RATED HEATING CAPACITY		24.5kW/83597BTU/h
INPUT POWER		3.52kW	INPUT POWER		6.52kW	INPUT POWER		8.36kW
RATED COOLING CAPACITY		8.03kW/27400BTU/h	RATED COOLING CAPACITY		15.1kW/51523BTU/h	RATED COOLING CAPACITY		20.2kW/68925BTU/h
INPUT POWER		3.43kW	INPUT POWER		6.11kW	INPUT POWER		8.34kW
INPUT POWER	DB -4°F INLET 122°F	2.93kW	INPUT POWER	DB -4°F INLET 122°F	5.92kW	INPUT POWER	DB -4°F INLET 122°F	7.53kW
CURRENT		13.31A	CURRENT		26.92A	CURRENT		34.22A
INPUT POWER	DB 109.4°F INLET 68°F	2.52kW	INPUT POWER	DB 109.4°F INLET 68°F	4.12kW	INPUT POWER	DB 109.4°F INLET 68°F	6.32kW
CURRENT		11.45A	CURRENT		18.72A	CURRENT		28.72A
TOTAL LOAD		16.23A	TOTAL LOAD		29.67A	TOTAL LOAD		38.05A
FAN MOTOR RATING LOAD		0.29A	FAN MOTOR RATING LOAD		0.58A	FAN MOTOR RATING LOAD		0.58A
COMPRESSOR ROTOR LOAD		15.94A	COMPRESSOR ROTOR LOAD		29.09A	COMPRESSOR ROTOR LOAD		37.47A
MCA		29.41A	MCA		48.16A	MCA		58.72A
MOP		39.56A	MOP		65.84A	MOP		100.78A
WATER VOLUME		8.2GMP	WATER VOLUME		13.0GMP	WATER VOLUME		19.2GMP
WATER CONNECTION		1"	WATER CONNECTION		1"	WATER CONNECTION		1-1/4"
MAX.INPUT WATER TEMP.		122°F	MAX.INPUT WATER TEMP.		122°F	MAX.INPUT WATER TEMP.		122°F
REFRIGERATE/PROPER INPUT		R32/42.3OZ	REFRIGERATE/PROPER INPUT		R32/70.5OZ	REFRIGERATE/PROPER INPUT		R32/126.5OZ
NOISE		52dB(A)	NOISE		55dB(A)	NOISE		58dB(A)
OPERATION PRESSURE(LOW SIDE)		305PSIG	OPERATION PRESSURE(LOW SIDE)		305PSIG	OPERATION PRESSURE(LOW SIDE)		305PSIG
OPERATION PRESSURE(HIGH SIDE)		609PSIG	OPERATION PRESSURE(HIGH SIDE)		609PSIG	OPERATION PRESSURE(HIGH SIDE)		609PSIG
NET DIMENSION (L/M/H)		43.3" / 18.4"/ 33"	NET DIMENSION (L/M/H)		54.3" / 20" / 53.7"	UNIT DIMENSION (L/M/H)		47.6" / 20.8" / 57.3"
NET WEIGHT		125kg	NET WEIGHT		155kg	NET WEIGHT		183kg
FACTORY NUMBER		REFER TO BAR CODE	FACTORY NUMBER		REFER TO BAR CODE	FACTORY NUMBER		REFER TO BAR CODE
MANUFACTURED DATE		REFER TO BAR CODE	MANUFACTURED DATE		REFER TO BAR CODE	MANUFACTURED DATE		REFER TO BAR CODE
CAN BE USED OUTSIDE OF THE HOUSE			CAN BE USED OUTSIDE OF THE HOUSE			CAN BE USED OUTSIDE OF THE HOUSE		

2. Product appearance and installation dimension



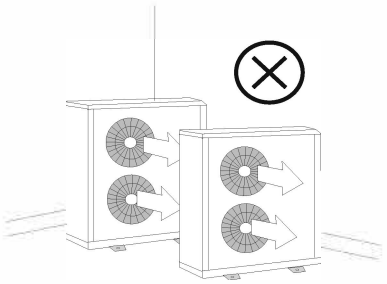
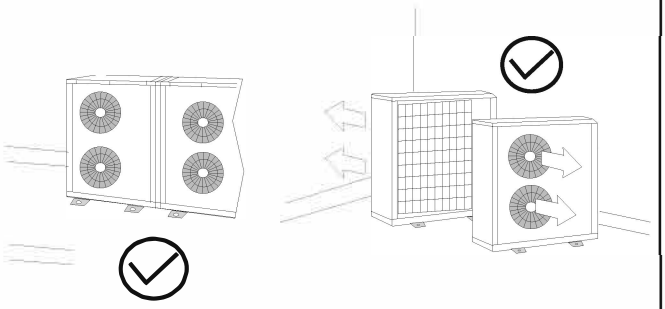
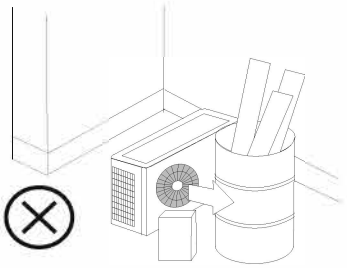
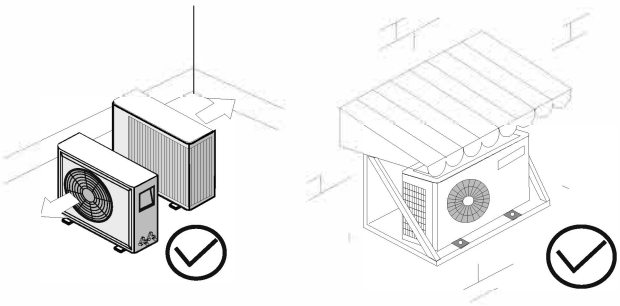
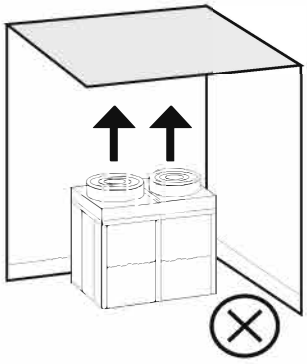
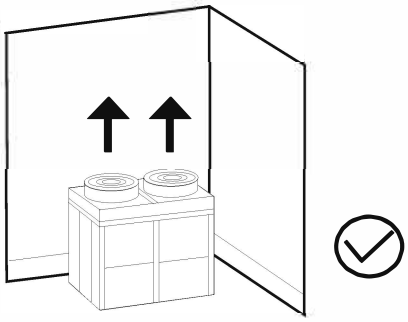
Units: mm / inch

Size	DH32-2F	DH32-4F	DH32-5.5F
A	410 / 16.1	478 / 18.8	510 / 20
B	720 / 28.3	825 / 32.4	870 / 34.2
C	1050 / 41.3	1160 / 45.6	1200 / 47.2
D	800 / 31.4	1365 / 53.7	1470 / 57.6

II. Installation

1. Heat Pump Outdoor Unit installation position

Install the heat pump outdoor unit with good air flow both into and out from the unit. Ensure there is sufficient space around the unit for maintenance and good operation, refer to the schematics and points below:

Wrong	Right
	
	
	

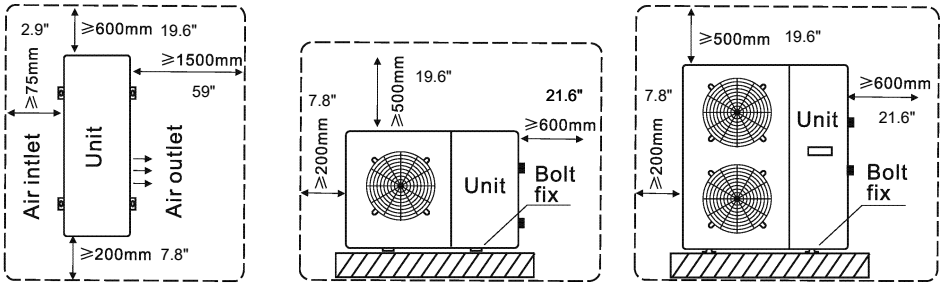
Notice:

. To get enough air for ventilation of the unit, the installation position should have good air flow.
2. The position should not reflect noise from the air outlet or transfer vibration.
3. Protection from direct sunlight is advisable.
4. The water from rain and defrosting can be discharged from the installation position.
5. The unit should be protected by an awning from snow in Alpine areas.
6. The discharged air should not blow into prevailing wind.
7. Do not face the air outlet directly at a neighbour's fence.
8. The position should not be affected by garbage, oil or flammable materials.
9. The installation position should not be affected by sea salt spray or sulphides near a thermal spring.

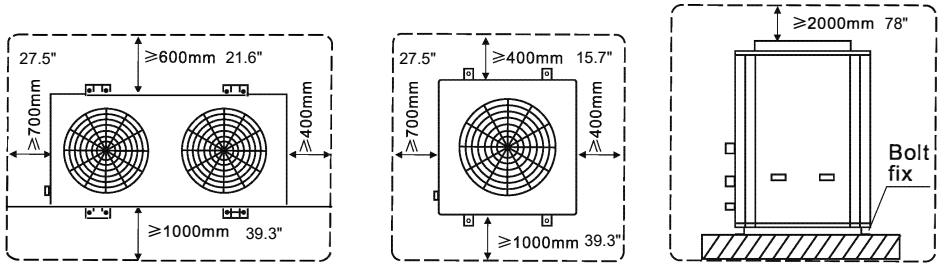
10.The unit can be installed on a balcony, roof or other convenient place if there is a suitable load bearing structure to support its weight.
11.The control panel should not be installed in a bathroom due to high humidity and moisture.
12.Leave enough space around the unit for good operation and servicing.
13.Consider installing rubber pads under the heat pump feet.
14.Use expansion bolts to fix the feet of the outdoor unit to the ground.
15.Ensure the condensate water from the heat pump is taken to a drain.

2. Installation requirement

A. Side fan type installation space requirements:



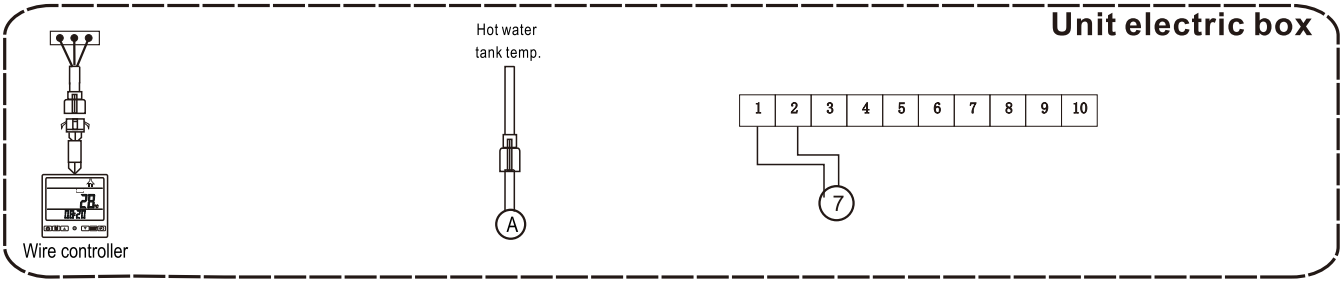
B. Top fan type installation space requirements:



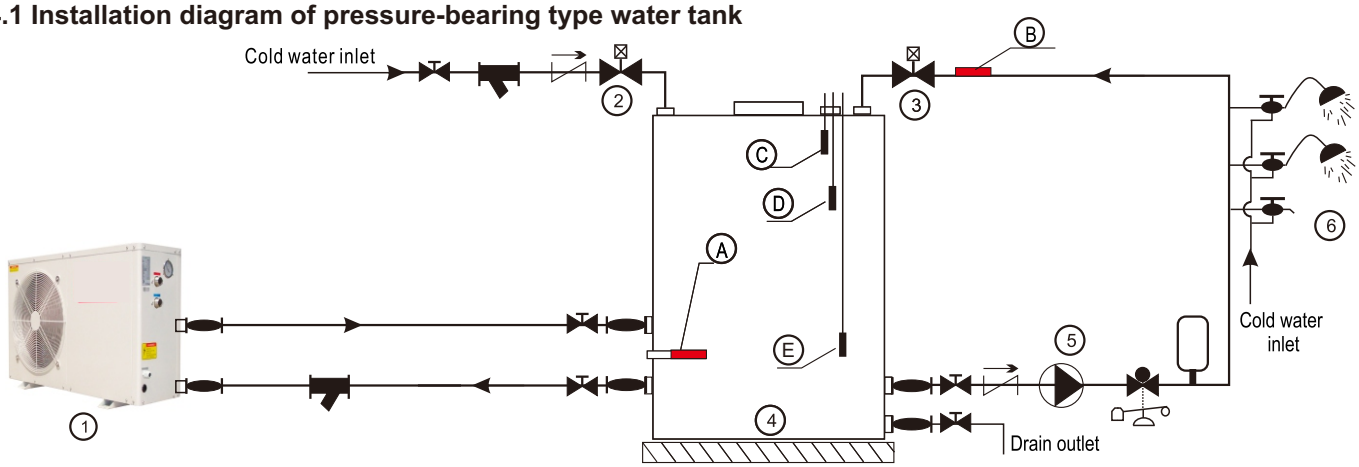
3. Domestic Hot Water (DHW) Storage Tank and Buffer Tank Installation

3.1.The DHW and Buffer tanks may be installed inside or outside.
3.2. Both tanks must stand vertically on a concrete plinth or firm structure that will support its weight when full of water and not lean or be prone to fall over during its service life.
3.3. The DHW tank should be installed in accordance with local or other relevant Government regulations. It is best to install the DHW tank as close as possible to the hot water outlet that has the greatest usage, such as the kitchen.
3.4. Some building codes require a seismic restraint. Consider using stainless steel bands to secure the tank against the wall.
3.5. When filling the DHW tank, open the hot water taps in the laundry and kitchen to purge air from the water lines.
3.6.When filling the Buffer Tank, use pure rain water with mould inhibitor, add Glycol if prone to freezing conditions, and water pH should ideally be at 7.0.
3.7. An expansion tank amd bleeder valve must be included in the hydronic closed loop to allow the heated water to expand and air to be easily purged from the system.

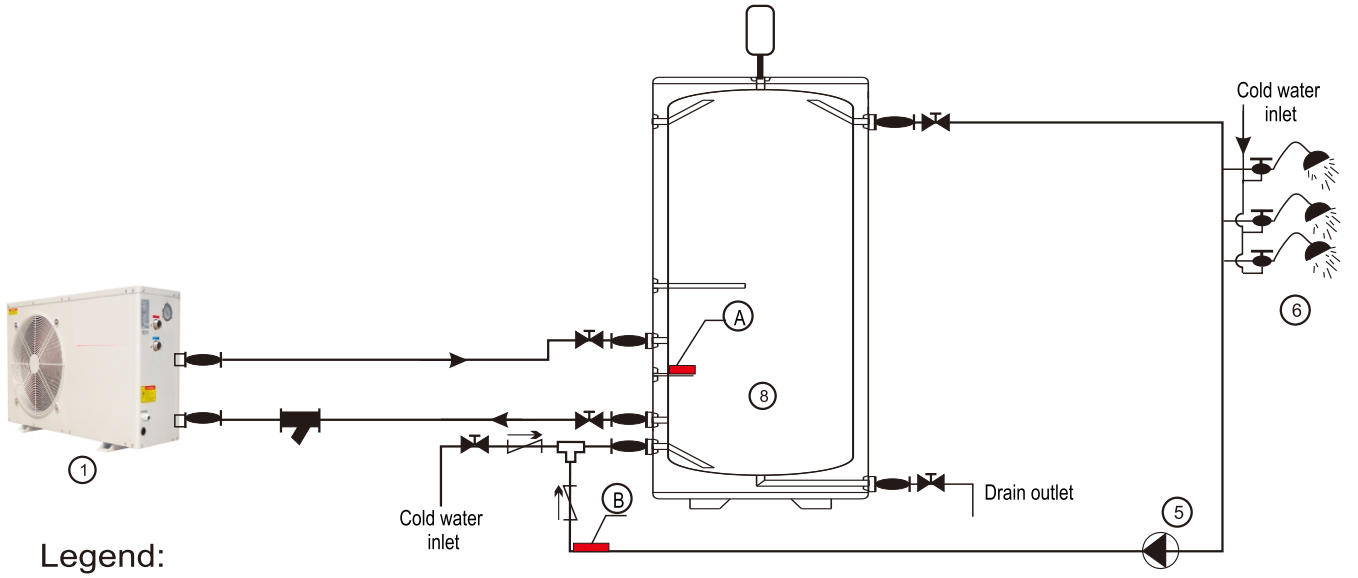
4. Water system installation schematic



4.1 Installation diagram of pressure-bearing type water tank



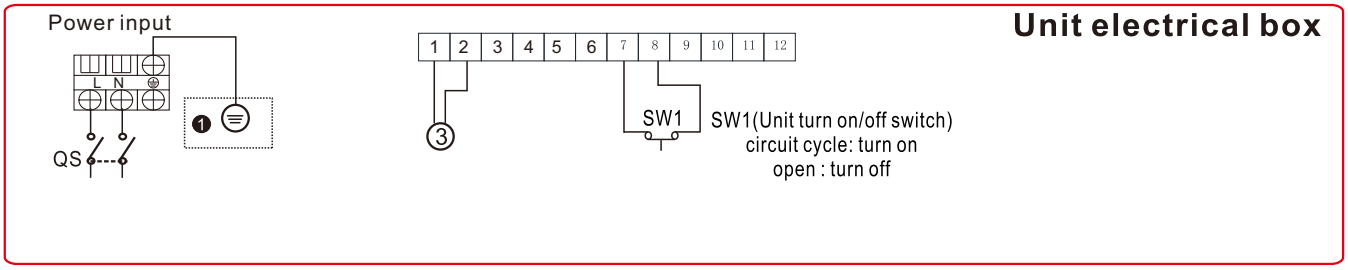
4.2 Installation diagram of pressure-bearing type water tank

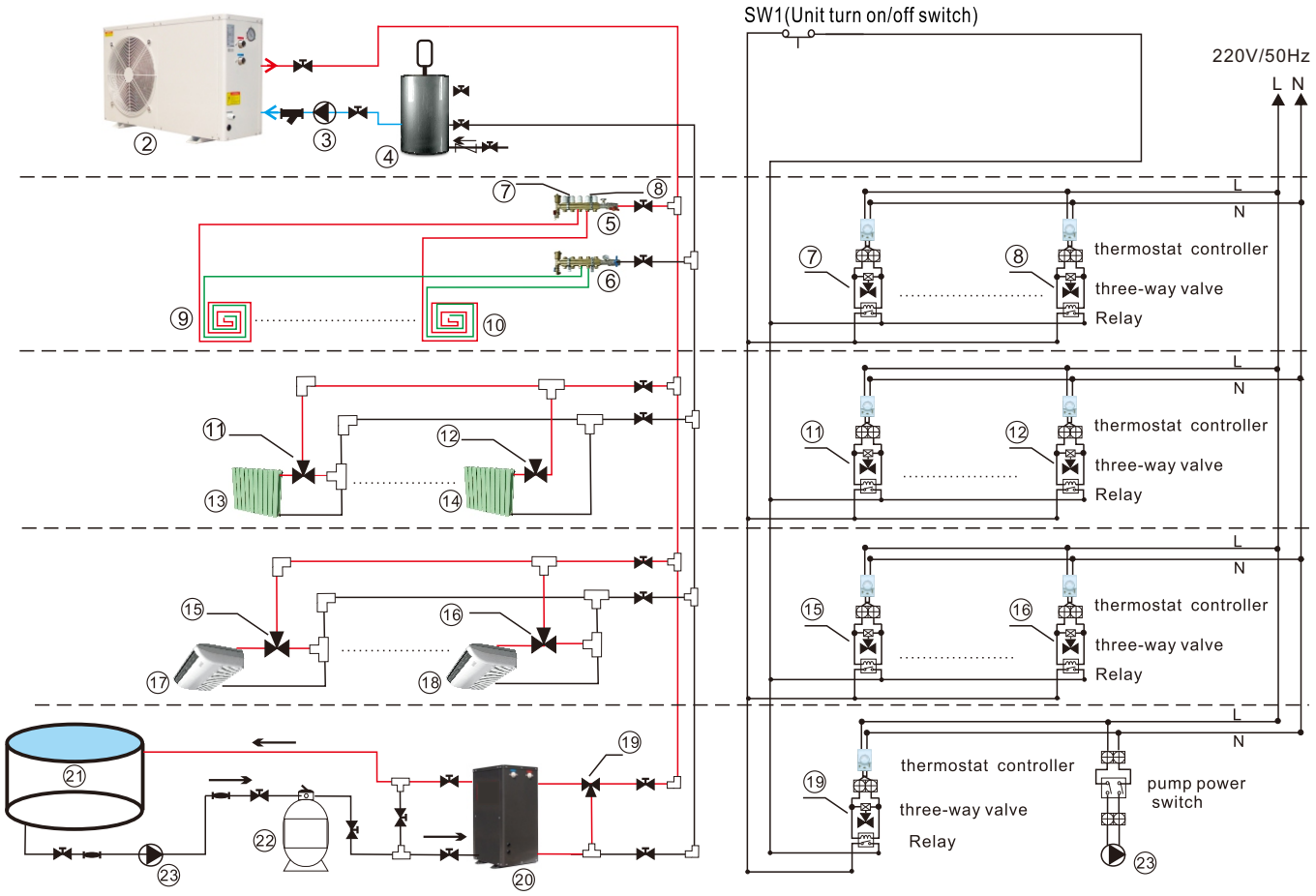


Legend:

Globe valves	Shower head	⑦ Hot water cycle pump
Electric driven two-way valve	① Unit	⑧ Pressure-bearing type water tank
Check valve	② Water filling valve	
Water pressure switch	③ Water supply return valve	Ⓐ Hot water tank temp.
Water temp. sensor	④ Open wide type hot water tank	Ⓑ Water supply return temp.
Expansion Tank	⑤ Water supply cycle pump	Ⓒ High water level
	⑥ Bath room	Ⓓ Low water level

4.3 Heating and cooling mode installation schematic

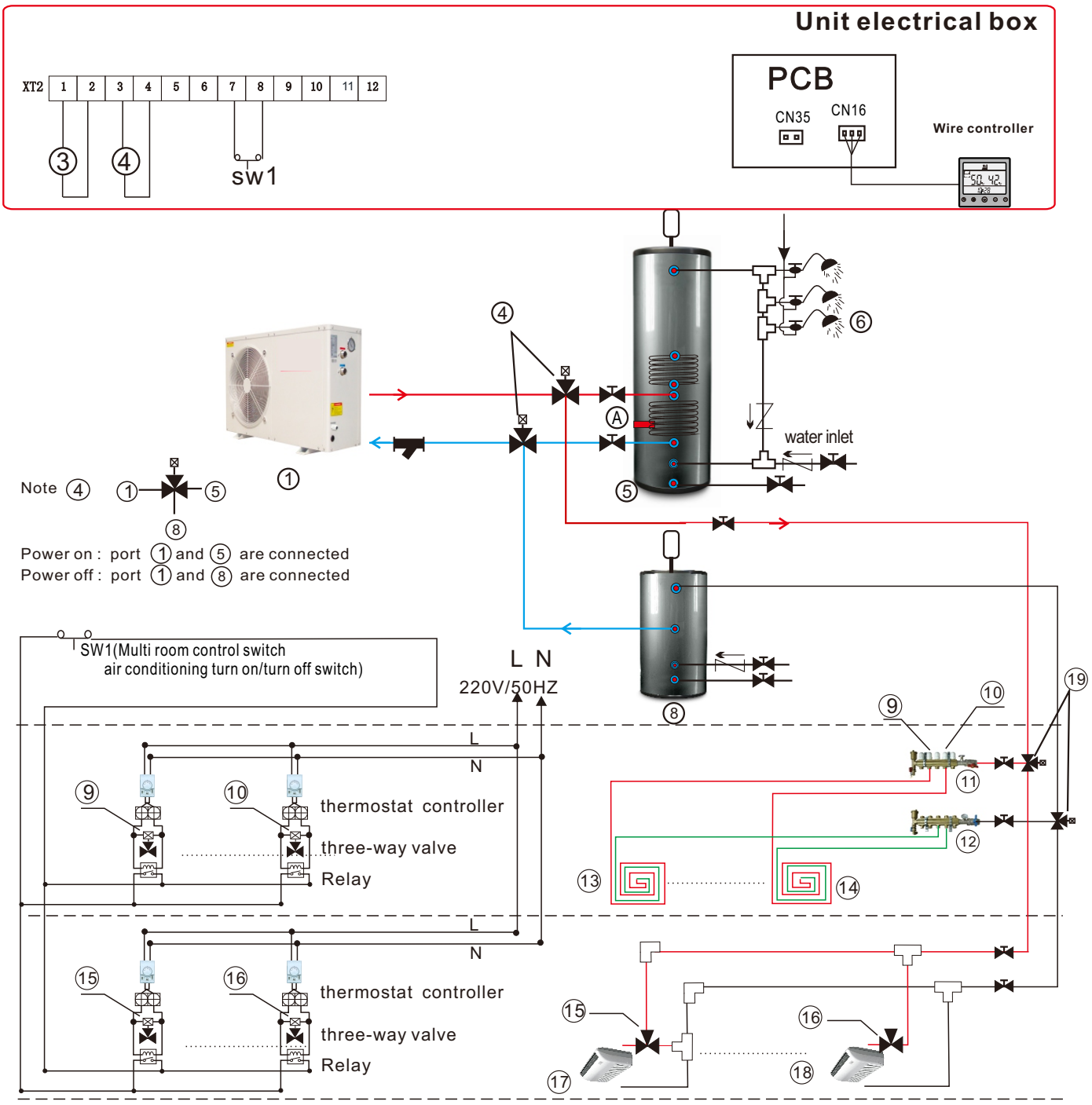




Legend:

- Flexible connectors
- Globe valves
- Electric three-way valve
- Check valve
- Thermostat
- Expansion Tank
- Water cycle pump
- ② Heat Pump Outdoor Unit
- ③ Hot water cycle pump
- ④ Buffer tank
- ⑤ Hydronic water flow manifold
- ⑥ Hydronic water return manifold
- ⑦ Electric actuator
- ⑧ Electric actuator
- ⑨ Room 1 floor heating
- ⑩ Room 2 floor heating
- ⑪ Room 3 electric three way valve
- ⑫ Room 4 electric three way valve
- ⑬ Room 3 Radiators
- ⑭ Room 4 Radiators
- ⑮ Room 5 electric three-way valve
- ⑯ Room 6 electric three-way valve
- ⑰ Room 5 fan coil
- ⑱ Room 6 fan coil
- ⑲ Swimming pool three-way valve
- ⑳ Water to water excharge
- ㉑ Swimming pool
- ㉒ Sand cylinder filter
- ㉓ Swimming pool side water cycle pump

4.4. Heating and cooling mode plus domestic hot water installation schematic



Legend:

- Flexible connectors
- Globe valves
- Electric three-way valve
- Check valve
- Thermostat
- Expansion Tank
- Water cycle pump
- ① Heat Pump Outdoor Unit
- ③ Hot water cycle pump
- ④ Hydronic system three way valve 1
- ⑤ Hot water storage tank
- ⑥ Bath room
- ⑦ Solar water cycle pump
- ⑧ Buffer tank
- ⑨ Room 1 electrothermal actuator
- ⑩ Room 2 electrothermal actuator
- ⑪ Hydronic water flow manifold
- ⑫ Hydronic water return manifold
- ⑬ Room 1 floor heating
- ⑭ Room 2 floor heating
- ⑮ Room 3 electric three way valve
- ⑯ Room 4 electric three way valve
- ⑰ Room 3 Radiators
- ⑱ Room 4 Radiators
- ⑲ Hydronic system three way valve 2
- Ⓐ Hot water tank temp.

5. Installation of indoor heating and cooling equipment

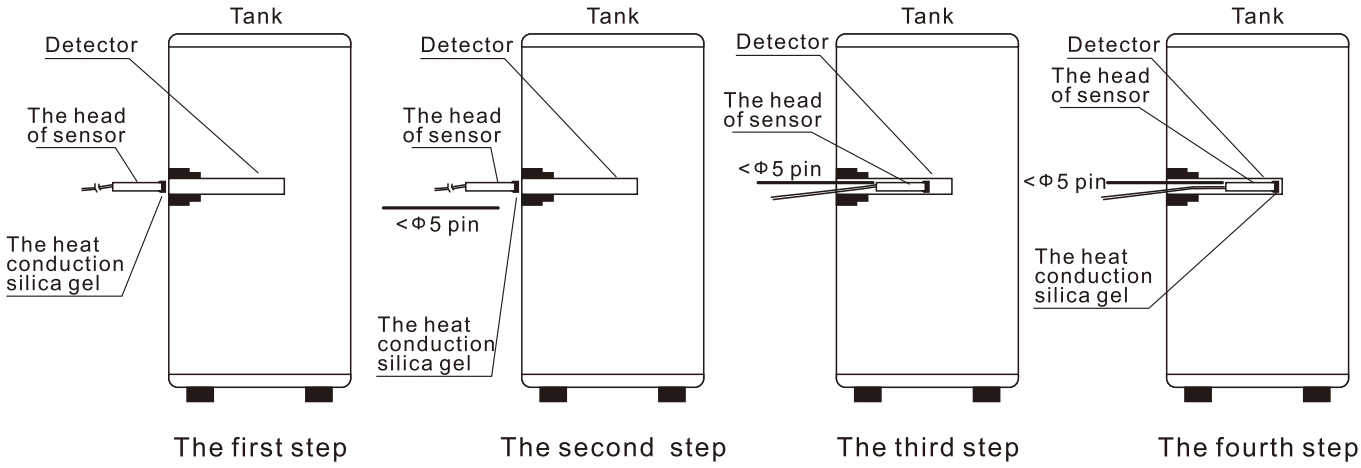
5.1 Indoor heating and cooling equipment such as fan coils, radiator heating or floor heating, should be installed in accordance with relevant regulatory requirements including North American Standard,engineering design drawings, and the manufacturer's installation instructions.
5.2 Use soft connectors to connect the outdoor unit and indoor heating and cooling equipment.
5.3 Install condensate water drain pipes to the indoor fan coil units with smooth drainage lines for the condensate water to flow easily.

6. Electrical wiring

6.1 The heat pump outdoor unit should be installed in accordance with electrical regulations and North American Standard.
6.2 The power cable of the outdoor unit must support the maximum starting current requirements.
6.3 The outdoor unit power supply circuit must have a grounding wire, which should connect with a reliable and effective external ground wire.
6.4 Wiring must be installed by qualified technicians with reference to the circuit diagram.
6.5 The layout of power lines and signal lines should be neat, rational and strong with weak lines separated so they cannot interfere with each other.
6.6 When power lines and control lines are parallel, the wires must be placed inside an insulating tube, with appropriate distance between the lines.
6.7 For electrical connection of the outdoor unit, take the following wiring through the wiring hole set into the electrical box, then connect to the appropriate terminals in the electrical box according to wiring diagram:

· Power line
· Remote control three core lines
· Electric heater power line
· Solar circulating water pump control power line
· Water tank electrical boost element
· Temperature sensing line
· Solar collector temperature sensor line
· Terminal equipment
· Outdoor unit lines

7. Installation of the temperature detector

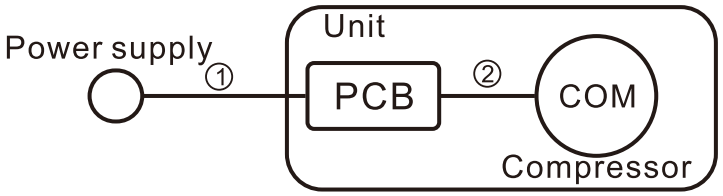


The first step The second step The third step The fourth step

7.1 Firstly, daub heat conductive silicone onto the front of the temperature sensor, then insert it
into the temperature detector.
7.2 Next, push the temperature sensor with the pin through to the end of the temperature detector, then mark the level of the pin on the temperature detector.
7.3 Next, pull the pin out and check that the position of mark is at the same level as the inletof the temperature detector and check whether the sensor is inserted into the pipe terminal.
7.4 Finally, seal the inlet of the temperature detector with silicone, and keep the inlet of the temperature detector upright for about an hour.

8. Electrical Wire Selection

8.1 We recommend the following wiring specification to avoid difficulty in starting the compressor from the initial voltage drop.



8.2. Size Table of Electrical Wire

Starting current (A)	The wiring specifications (mm²)						
	Mark①(Heat resistance temperature above 60℃) 140°F						Mark②(Heat resistance temperature above 120℃) 248°F
	within 5m	Within 10m	Within 15m	Within 20m	Within 30m	Within 50m	Within 1m
Below 20	2.0	2.0	2.0	3.5	5.5	8.0	2.0
Below 30	↑	↑	3.5	5.5	↑	14.0	↑
Below 40	↑	3.5	5.5	↑	8.0	↑	↑
Below 50	↑	↑	↑	8.0	14.0	22.0	↑
Below 60	↑	5.5	↑	↑	↑	↑	↑
Below 70	3.5	↑	8.0	14.0	↑	↑	3.5
Below 80	↑	↑	↑	↑	22.0	30.0	↑
Below 90	↑	↑	14.0	↑	↑	↑	↑
Below 100	↑	8.0	↑	↑	↑	38.0	↑
Below 110	↑	↑	↑	↑	↑	↑	↑
Below 120	5.5	↑	↑	22.0	30.0	↑	↑
Below 140	↑	14.0	↑	↑	↑	50.0	5.5
Below 160	↑	↑	22.0	↑	↑	↑	↑
Below 180	↑	↑	↑	↑	38.0	60.0	8.0
Below 200	8.0	↑	↑	30.0	↑	↑	↑
Below 220	↑	↑	↑	↑	50.0	80.0	↑
Below 240	↑	↑	↑	↑	↑	↑	14.0
	within 196.8"	within 393.7"	within 590.5"	within 787.4"	within 1181.1"	within 1968.5"	within 39.4"

Power supply installation condition: The touching space of breaker should be more than 3mm, use copper wire only. within 0.1"

8.3 Grounding caution

The internal motor protector does not protect the compressor against all possible conditions. Please be sure that the system is properly earthed when installed in the field.

8.4 Warning:

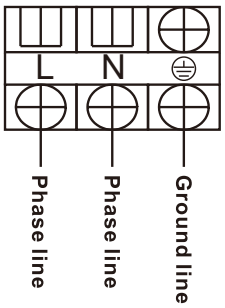
To avoid fire, electric shock and other accidents, only use power supply voltage indicated on the label.

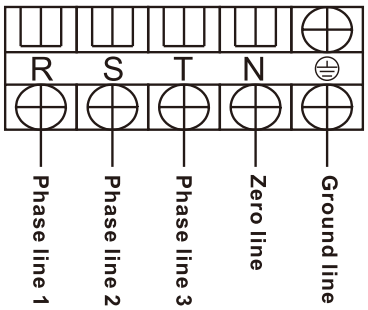
8.5.To protect the power lines, they should be fixed appropriately so that they cannot become damaged and people cannot trip over them. Pay particular attention to the positioning and operation of electrical plugs, which should be easily plugged into the socket.

8.6.Do not overload wall plugs or the power cable line. Overloading may cause fire or electric shock.

8.7.Check to ensure your electrical socket is appropriate for the power load and is properly grounded.

8.8.Specification table of power wiring:





Mode	Host Power	Phase line	Null	Ground line	Max.line length	Signal line	Tem. sensor assistance line	Max.line length
DH32-2F	220V/1PH/60Hz	12awg	12awg	12awg	590"	22awg	22awg	1968.5"
DH32-4F		10 awg	10 awg	10awg	590"	22awg	22awg	1968.5"
DH32-5.5F		10awg	10awg	10awg	590"	22awg	22awg	1968.5"

Note:

1.Used PVC insulated copper wire for the above wiring

2.If your installation requires longer wiring than specified in the table above, contact your installer or Siddons.

9. Trial operation by qualified installer

9.1 Pre-start-up checks:

· Check the whole pipe system. Ensure the water volume in the system is full and the air is exhausted completely. Check whether the water valves are open throughout the system.

· Check the thermal insulation of the pipe work, make sure relevant pipes are appropriately lagged.

· Check the power supply and distribution system. Check whether the power supply voltage is normal, the power distribution accessory screws are tight, supply power complies with the wiring diagram and outdoor unit specifications and the wiring is properly grounded.

· Check the air cooled water chiller. Make sure all screws are tight. Check that the signal indicator light (green) of the outdoor unit control panel is illuminated normally and the fault indicating lamp (red) is illuminated.

· Connect pressure gauges to the suction Schrader valves in preparation for checking the refrigerant pressure during operation. Disconnect them when testing is satisfactory.

9.2 Trial operation

· Press on/off on the remote controller, the water pump and fan should start immediately. The compressor should start shortly after. Observe and determine if there is any abnormal sound during operation. Stop to check the unit if there is abnormal sound. The outdoor unit should continue to run only when there is no abnormal sound.

· Check whether the cooling system pressure is normal.

· Check whether the input power and current of the unit are within the parameters set out in this manual. If not, stop the outdoor unit and check it.

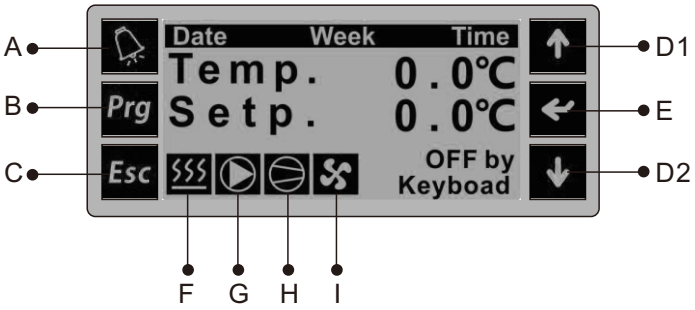
· Observe whether the outlet water temperature is normal.

9.3 The parameters of the remote controller have been pre-set at the factory. We recommend that you leave these parameters as set.

III. USE

1. The user interface and function shows as below

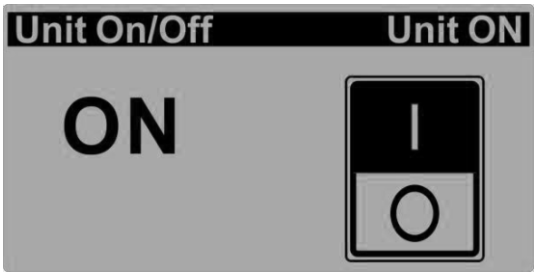
symbol	icon	instructions
A		Alarm icon
B	Prg	Factory parameters icon
C	Esc	Exit icon
D		Select icon
E		Menu & Confirm icon
F		Heating mode icon
G		Pump icon
H		Compressor icon
K		Fan icon
M		Defrost
N		Cooling mode



2. Use of wire controller

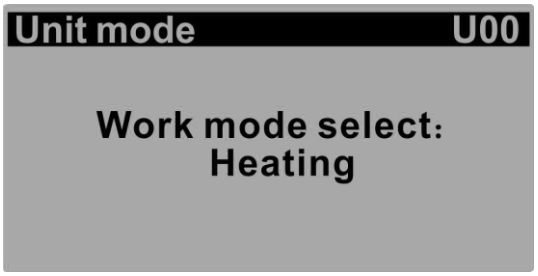
2.1 Turn on/turn off the unit

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,

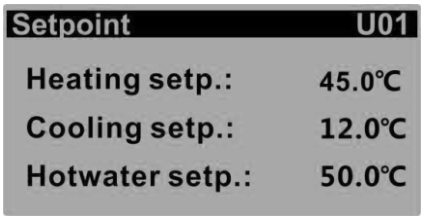


2.3 Mode switching (Heating,Cooling,Hot water,Hot water&Cooling,Hot water&Heat)

Press to access menu，press botton to select User Mask，then press to confirm.
Press Botton to switch mode ,and press confirm, Egc. Mode switching&Temperature setting.
Attention：Only switch mode when the unit is turn off



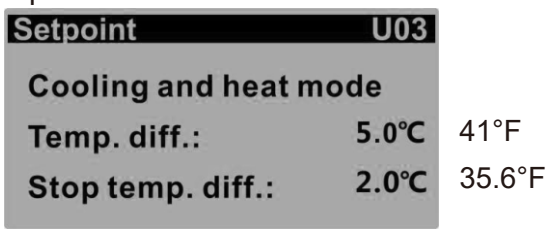
2.3 Modify the set temperature



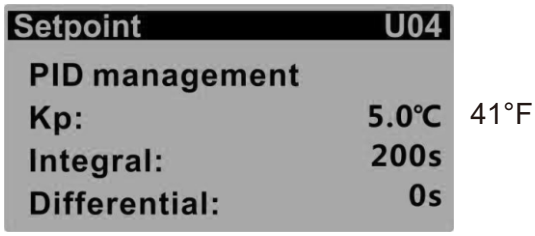
2.3.1 The setting temperature interface is as follows:
Heating setp: heating setting temperature
Cooling setp: cooling setting temperature
Hotwater setp: hot water setting temperature

2.3.2 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.

2.3.3 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.



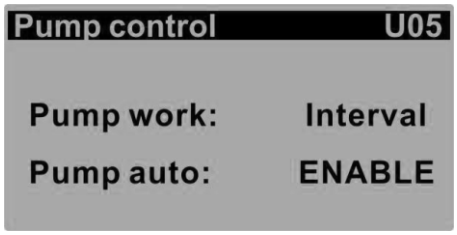
2.3.4 Set PID
Kp: The larger the value, the faster the heat pump adjustment speed (not recommended to adjust this parameter).
Integral and Differential: (not recommended to adjust this parameter).



2.4 Pump control

2.4.1 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.

2.4.2 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.



2.5 User configure

2.5.1 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.

2.5.2 Enable heater:

ALL - both floor heating and hot water mode enable electric heating;

Heating - only start electric heating in heating mode;

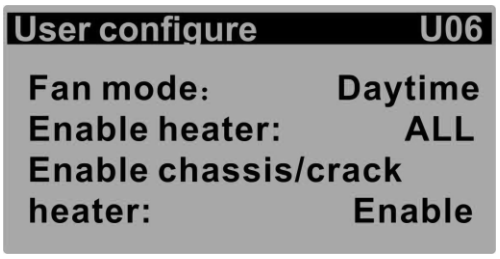
Hot water - only enable electric heating in hot water mode;

Disable - disable electric heating.

2.5.3 Enable chassis/crack:

Enable - enable chassis electric heating/crankshaft electric heating;

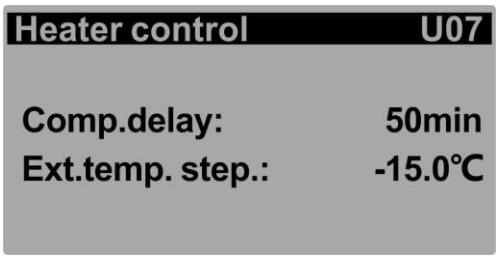
Disable - disable chassis electric heating/crankshaft electric heating.



2.6 Heater control

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

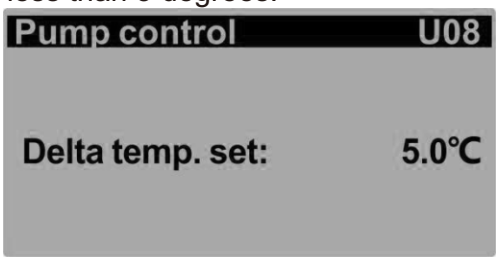
Ext.temp.setp: The maximum allowable ambient temperature for starting electric heating, the default is -15 degrees.



2.7 Delta temp.set:

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

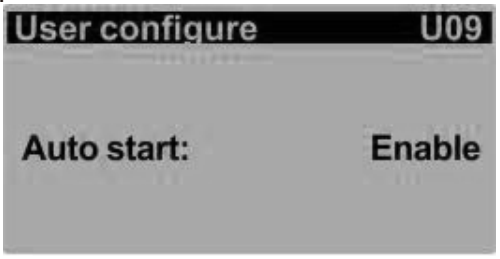
The output of the variable frequency water pump increases when the temperature difference between the inlet and outlet water is greater than 5 degrees, and the output of the variable frequency pump decreases when the temperature difference between the inlet and outlet water is less than 5 degrees.



2.8 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



2.9 Ambient switch (auto change heating or cooling mode switch)

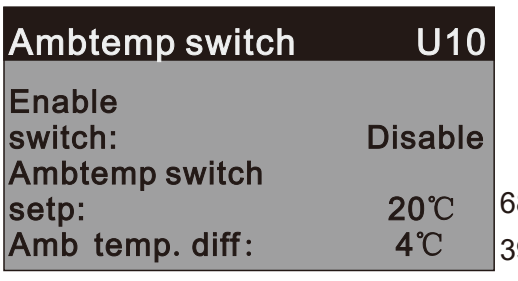
Enable switch:

Disable - turn off the auto change heating or cooling mode function

Enable - urn on the auto change heating or cooling mode function

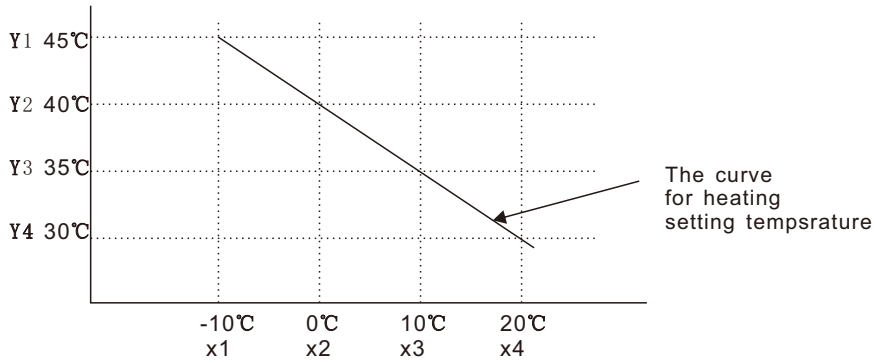
A: When the ambient temperature is high than the "Ambtemp switch setp: 68°F" the unit is run cooling mode

B: When the ambient temperature is low than the "Ambtemp switch setp: 68°F" the unit is run heating mode



2.10 ECO. mode -Heat set compensation

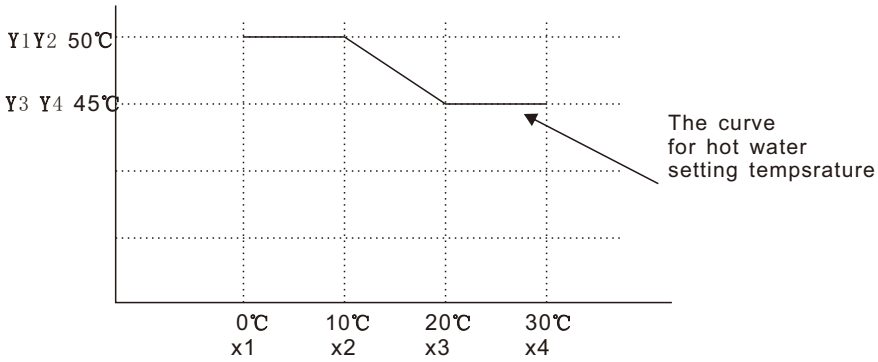
Enable switch:
Disable - turn off the Eco curve mode for heat setting temp.
Enable - turn on the Eco curve mode for heat setting temp.



Eco.mode -Heat set compensation			U12
			dissble
mb Temp		Step.	
x1: -10℃	14°F	Y1: 45℃	113°F
x2: 0℃	32°F	Y2: 40℃	104°F
x3: 10℃	50°F	Y3: 35℃	95°F
x4: 20℃	68°F	Y4: 30℃	86°F

2.11 ECO. mode -Hot water set compensation

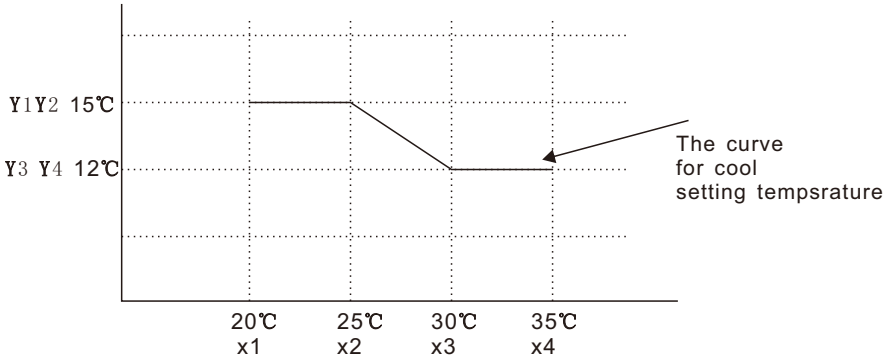
Enable switch:
Disable - turn off the Eco curve mode for hot water setting temp.
Enable - turn on the Eco curve mode for hot water setting temp.



Eco.mode -Hot water set compensation			U13
			dissble
mb Temp		Step.	
x1: 0℃	32°F	Y1: 50℃	122°F
x2: 10℃	50°F	Y2: 50℃	122°F
x3: 20℃	68°F	Y3: 45℃	113°F
x4: 30℃	86°F	Y4: 45℃	113°F

2.12 ECO. mode -Cooling set compensation

Enable switch:
Disable - turn off the Eco curve mode for cool setting temp.
Enable - turn on the Eco curve mode for cool setting temp.



Eco.mode -Cool set compensation			
			dissble
mb Temp		Step.	
x1: 20℃	68°F	Y1: 15℃	59°F
x2: 25℃	77°F	Y2: 15℃	59°F
x3: 30℃	86°F	Y3: 12℃	53.6°F
x4: 35℃	95°F	Y4: 12℃	53.6°F

2.13 Anti-legionella function

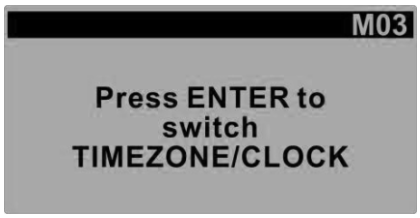
Anti-legionella set enable antileg:

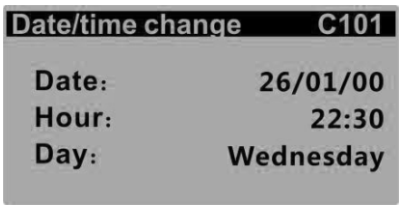
YES: turn on the Anti-legionella function
NO: turn off the Anti-legionella function

Anti-legionella set	
Enable antileg.:	NO
Temp.setp	149°F
Timer	MON
	08:00--11:00 AM

2.14 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.



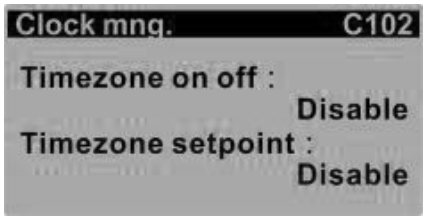


2.15 Timezone on off:

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.

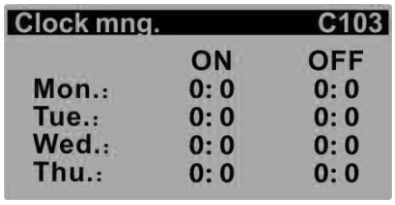
2.16 Timezone setpoint:

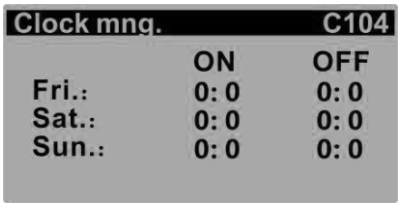
Enabl - Turn on the timer temperature setting function, the unit can set different temperatures in four time periods of a day after it is turned on;
Disabl - Turn off the timer setting temperature function.



2.17 Timezone on off:

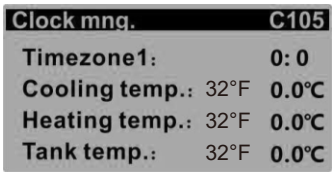
Timing setting interface, under ON is the power-on time, and under OFF is the off-time.

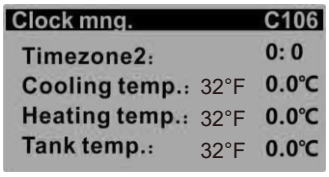


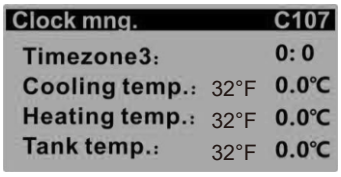


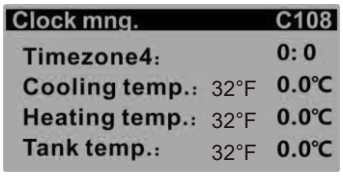
2.18 Timezone setpoint:Timing setting temperature interface

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.



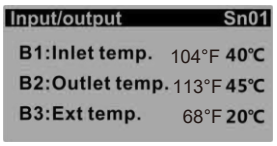


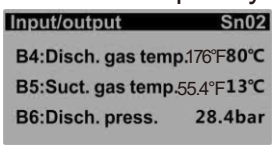


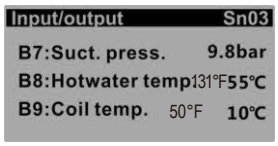


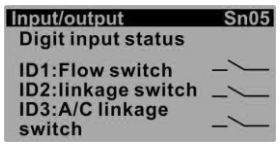
2.19 Input/Output

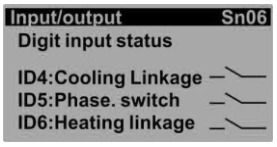
Press ↵ to access menu,press ↑ ↓ botton to select I/O mask, then press ↵ to confirm,Press ↑ ↓ Botton to see the I/O E.gc Water temperature/ Pressure/Frequency and so on.

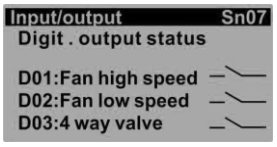


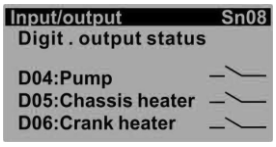


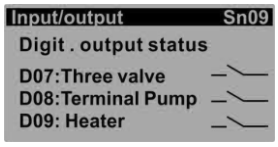


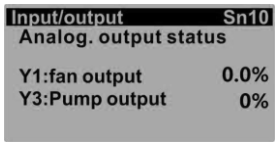












Ⅳ. WIFI remote control

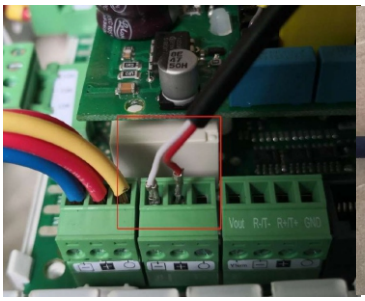
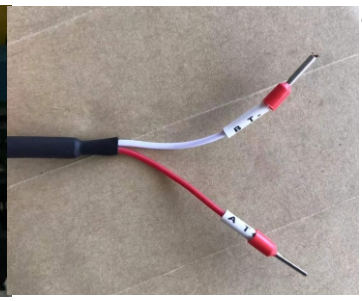
1.Hardware installation & connection:

1.1 The wifi adapter kit is shipped inside the unit for the heat pump and has the following components

Signal line | Power supply | Cable | WIFI module




The signal cable has 2 wires: one red and one white.

On the **control board** of the Heat Pump outdoor unit:

1- Connect the **white** wire of the signal line to the Minus (**-**) port .
2- Connect the **red** wire of the signal line to the Plus (**+**) port.

On the **Green Plug** of the WIFI Cable:

1- Connect the **white** wire of the signal line to the **B** port.
2- Connect the **red** wire of the signal line to the **A** port.
3- Connect the **Black/Whit**e wire of the Power Supply Adapter to the **plus (+)** port.
4- Connect the **Black** wire of the Power Supply Adapter to **the minus (-)** port.
5- Connect the power supply adapter to a 230V power supply plug.

Please strictly follow the above wires connection instructions or else WIFI module will not work.

When connected the WIFI module should look like in the below picture.

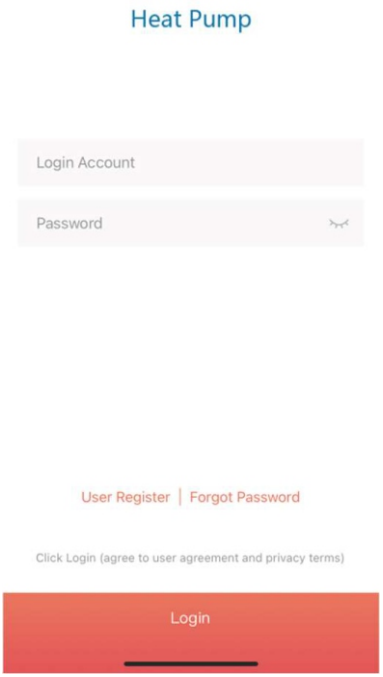
2.Application download and setup:

Heat Pump application is called **Heat Pump Mate** and is available for Apple and Android devices.

Go to the application stores of your smart phone and download the **Heat Pump Mate** App.

After downloading Heat Pump's application look for the application icon on your smartphone screen and click on it.

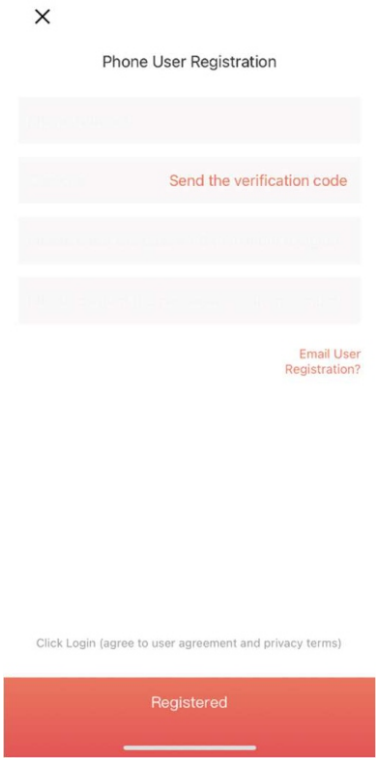
Register your device as shown below:



When logging in for the first time, you will need to create an account. You could do so by clicking on **User Register** icon.

Once clicked the screen on the right will appear, where you have the option of either registering by phone or by email.

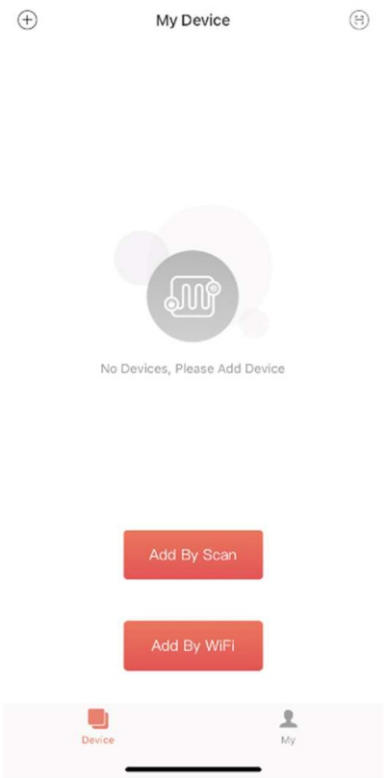
We do recommend email registration.



To register by phone, please enter your phone number and click on Send the verification code. Once code is received enter it below and go the next screen.

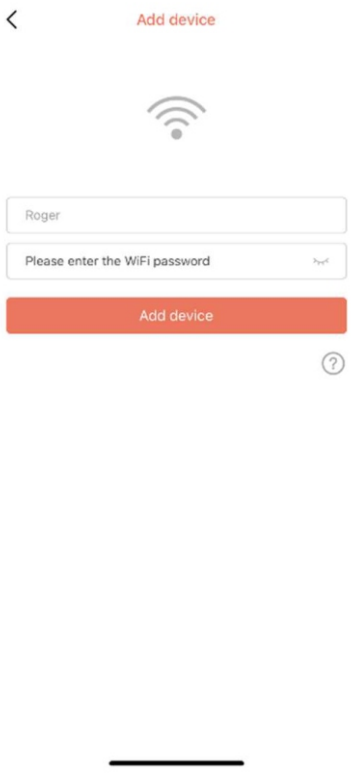
For email registration click on **Email User Registration?**

Once **Email User Registration?** is clicked, the below screen will appear

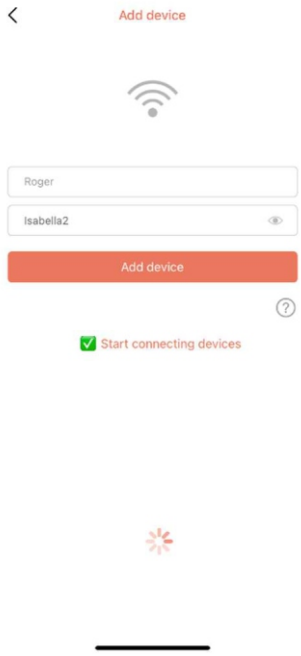


To add the heat pump, you could either click on **Add by WIFI** or **Add by Scan:**

Simply scan the barcode on your heat pump



Choose your WIFI network from the list and enter the password below.



How to add device?

Please connect this mobile device to home Wi-Fi first

1. Return to the home page on this mobile device

2. Open "Settings" and select "Wireless LAN"

3. Choose home Wi-Fi

4. Open the current application, return to the "Add Device" page, allow app to access your location, and enter the WiFi password

Then, make the device visible

1. Connect the Heat Pump WiFi adapter to plug and the green light will flash slowly

2. Open the button cap on the Wifi adaptor cable, Press button for less than 2 seconds

3. Wait for about 2 ~ 3 seconds, the green light on the WiFi adaptor starts to flash quickly, and Wifi adaptor enters the Pairing mode

Add device

1. Go to the "Add Device" page of the current application

2. Enter the home Wi-Fi password

3. When the WiFi adaptor green light flashes quickly, click the "Add Device" button

4. After the prompt "Pairing successful", the device will be automatically added to your device list

Note: The green light of Wifi adpaptor flashes quickly to indicate that it has entered the pairing mode, and the flashing light changes to steady on to indicate that the device is connected to the home Wi-Fi network.

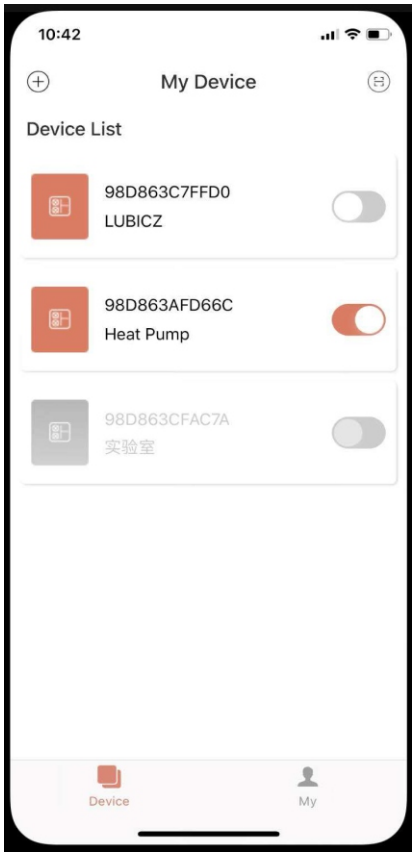
To pair the application with heat pump WIFI adapter,
Simply open the button's black cap as shown below

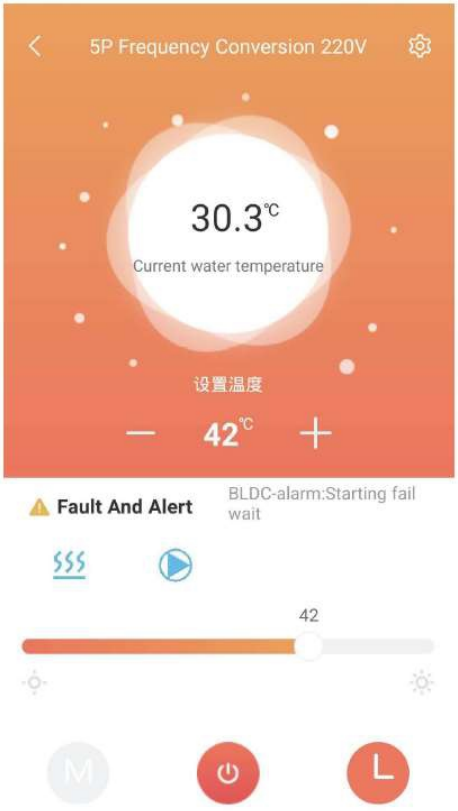
And gently press the button for 2-3 seconds as described on the left instructions.

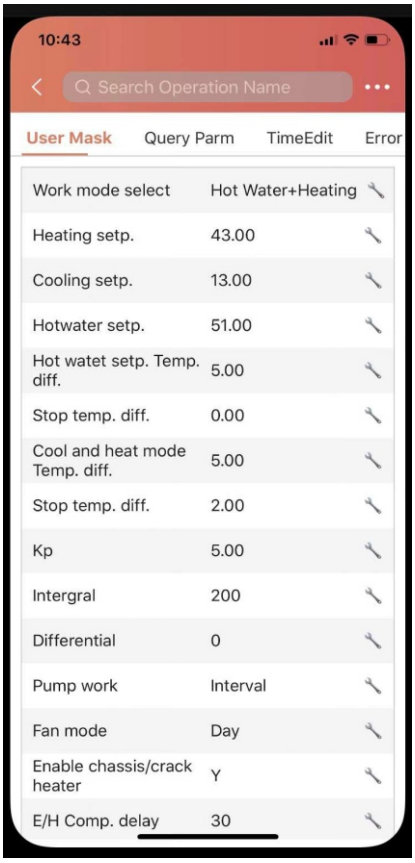
You could connect more than one heat pump to the app. Simply click on add device and repeat the above steps again.

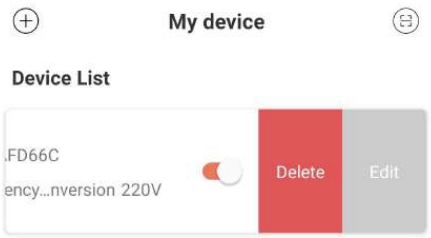
3.Device list windows:

- The device list displays the device (Heat Pumps) 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.
- The switch on the right side of each device row indicates whether the device is currently turned on.
- The user can disconnect 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 disconnect the device and delete it from the application, as shown below:









4.Application usage guide:

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 +, — button , each click adds or subtracts 1 to the set point value to the device.
6. Below the bottom left, of set point temperature window, is the Fault and Alert. When the device starts to alarm, the specific Alert.
7. Fault or alarm's reason will be displayed next to the yellow warning icon. In case of device Fault or Alert, the Fault and Alert content will be displayed in the bottom right of the set point temperature window. Click this area to jump to the details of the Error.

V.Maintenance and repair

1. Note

1.1 Check whether the exhaust equipment is normal. Avoid cutting of the water supply and or air entering into the system, or it will influence the performance and reliability of the unit. The water filter should be cleaned regularly. Keep the water clean in case of any damage to the unit due to filter's dirty and jam.
1.2 Keep the unit environment dry, clean and well ventilation. Clean the side air exchanger regularly(once per1-2 months) in order to maintain high exchange efficiency and save energy.
1.3 Usually check the performance of all the parts in the unit. Check whether the working pressure of the refrigerant system is normal. Repair and change the parts timely if there's any abnormality.
1.4 Usually check whether the wiring of the power and electric system is tightened and or electric parts perform abnormally or smells. Repair and change the parts timely if there's any abnormality.
1.5 Care the unit if the unit stops for a long time. Discharge all the water in the pump and throughout the pipe route in case breakdown to the water pump and pipe caused by frost and freeze. Discharge the water from the water pump and tube exchange Button drain. Check the unit thoroughly and flood water into the system before the unit power on again.
1.6 To check the operation of every process in the unit, the operation pressure of the refrigerant system. You should maintain or change it in time.
1.7 To check the power supply and cable connection usually, there is abnormal action or bad smell about the electrical component. If there is, please maintain or change it in time.

2. Debugging And Running

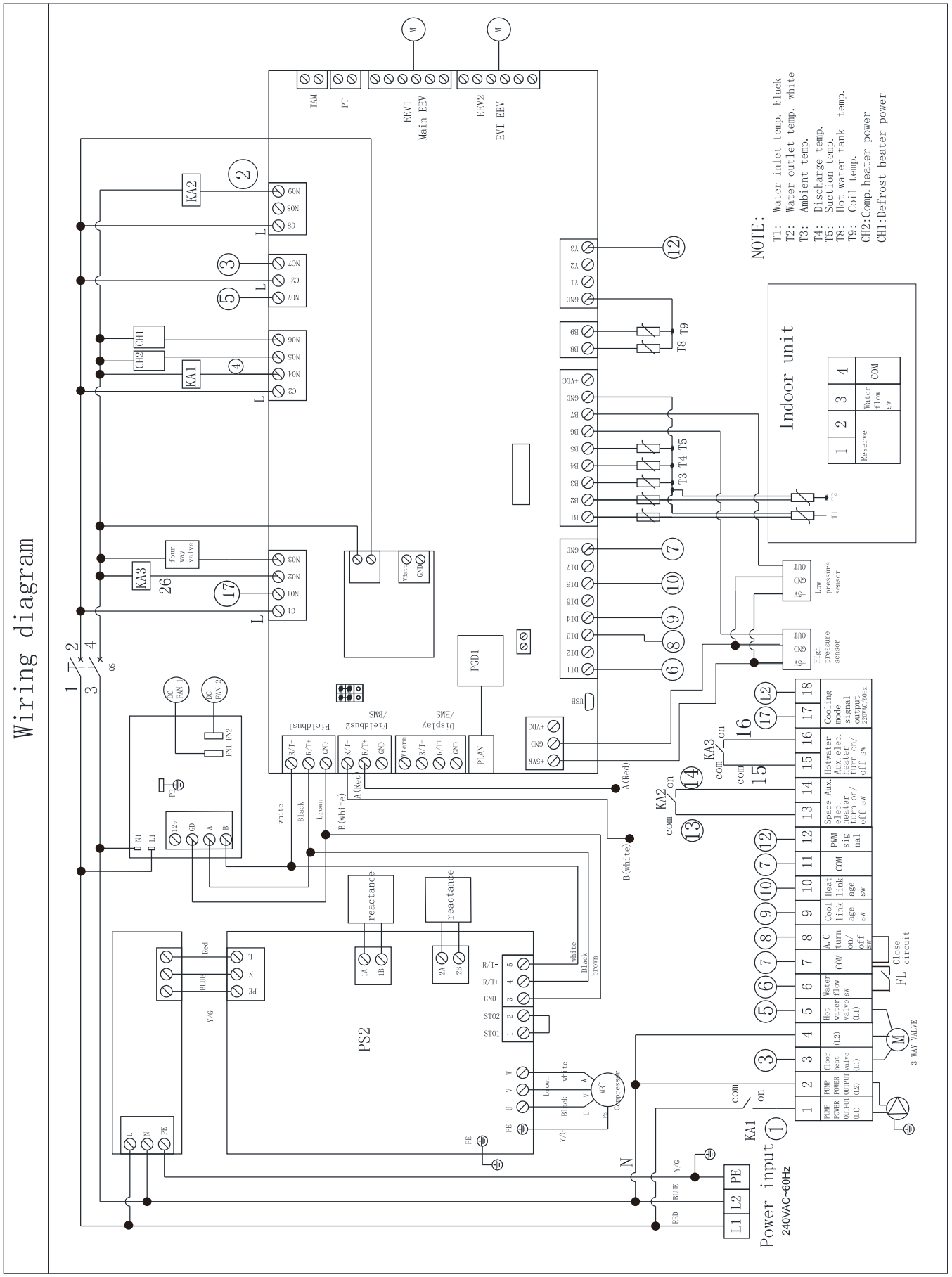
1.Preparation Before Debugging
1.1 Checking-up of the Air Source Heat Pump unit.
A. Check to assure that the appearance of the unit and the inner pipe system are not damaged in the transportation process.
B. Check if there is air in the water pipes of the unit. If yes, please remove all the air through the vent valve on the water tubes and vent valves on the water pump.
C. Check to assure that the blades of the fan do not touch the fixed panel or the protection net of the fan.
1.2 Checking the electric supply system.
A. Check if the power supply source accords with the power source required in this manual and the nameplate on the unit.
B. Check if all the electric power supply and control lines are connected properly and confirm that the lines are connected according to the diagram and the grounding is reliable and the heads of all the lines are firm enough.
1.3 Check the pipeline system
A. Confirm that the system pipe, manometer, valves, and other instruments are correctly installed.
B. Confirm that the valves in the system are open or closed properly.
C. Check if the insulation system is in a good condition.
2. Commissioning
2.1 The test running of the unit must be operated by a professional engineer !
2.2 After taking full examination of the whole system, if all parts are confirmed to be according to installation requirements, test running of the entire unit can be done.
2.3 The unit will turn on automatically 1 minutes later after connecting to the electric source and turning on the Heat Pump.
2.4 Check if the unit is running in accord with the requirements. Users can use the Air Source Heat Pump after testing properly for at least 8 hours.

3.Determine and solve malfunction by below table:

Malfunction	Reason	Solution
The unit can't run	1.Power failures 2. The unit wire loses 3. The unit power fuse burns out.	1. Shut down and check the power 2.Check the reason and repair 3.Check and change the power fuse
The water pump can run but can't circulate and is noisy	1. The water system is lack of water 2. There's air in the system. 3. The water system valve doesn't open entirely 4. The water filter is dirty and jam	1.Check the water supplement equipment and supply water into the system. 2.Exhaust the air from the water system 3.Clean the water filter or exhaust the air from system 4.Clean the water filter
The cooling capacity is too low and the compressor works continuously without pause.	1. Refrigerant is insufficient 2. Thermal insulation of the water system is poor 3. Thermal discharge of the exchange is poor 4. Water flow volume is insufficient	1.Check the leakage and add refrigerant 2.Enhance the thermal insulation of the pipe route 3.Clean the exchanger and improve the condensation condition 4. Clean the water filter
The compressor exhausted pressure is too high	1.Too much refrigerant 2.Thermal discharge of the exchange is poor	1. Discharge surplus refrigerant 2. Clean the exchanger and improve the condensation condition
The compressor suction pressure is too low	1. Refrigerant is insufficient 2. The filter and or capillary tube jam 3. Water flow volume is insufficient 4. Capillary tube of expansion valve sensor bulb breakdown	1.Check the leakage and add refrigerant 2.Change the capillary tube or filter 3.Clean the exchanger and improve the condensation condition 4.Change the expansion valve
The compressor suction pressure is too low	1. Refrigerant is insufficient 2. The filter and or capillary tube jam 3. Water flow volume is insufficient 4. Capillary tube of expansion valve sensor bulb breakdown	1.Check the leakage and add refrigerant 2.Change the capillary tube or filter 3.Clean the exchanger and improve the condensation condition 4.Change the expansion valve
Compressor can't work	1. Power failure 2. Compressor Control damaged 3. Wire loses 4. Compressor overload protection 5. Return water temperature setting incorrect 6. Water flow volume is insufficient	1.Check the power and solve the malfunction 2.Change Control 3.Check loose reason and repair 4. Compressor overload protection 5. Reset the return water temperature 6. Clean the water filer and exhaust the air from the system
Compressor noisy	1.Refrigerant enter into the compressor 2.Compressor damaged	1.Check the reason and solve the malfunction 2.Change the compressor
Fan can't work	1 Fan relay damaged 2.Motor is burnt out	1. Change the fan relay 2. Change the fan motor
The compressor run but no refrigeration	1. The refrigerant leak out 2. Plate exchanger freezes 3. Compressor failure	1.Check the leakage and add refrigerant 2.Check the reason and change the plate exchanger 3.Change the compressor
Low water temperature protection to the unit	1.Water flow volume is insufficient 2.Temperature Control setting is too low	1.Clean the water filter and exhaust the air from the system 2.Re-set
Few water flow volume protection to the unit	1.Water flow volume is insufficient 2.Flow switch	1.Clean the water filter and exhaust the air from the system 2.Change the flow switch

VI. Wiring diagram

1.1 Mode of DH32-2F DH32-4F DH32-5.5F



DC INVERTER
AIR TO WATER HEAT PUMP