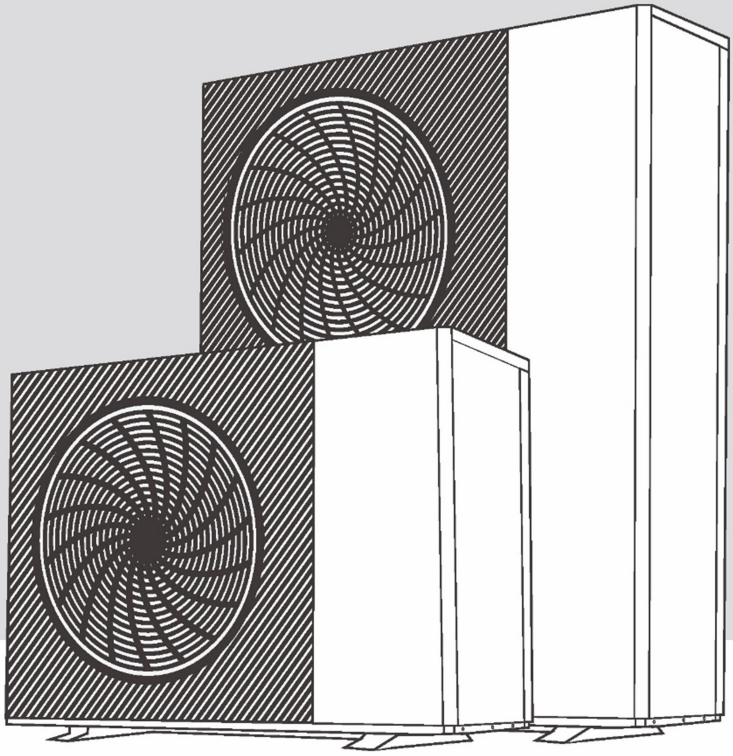
DC INVERTER HEAT PUMP

USER MANUAL

(English)

R290



(CAREL Controller)

Air to Water Heat Pump Heating+Cooling+DHW

IMPORTANT NOTE:

Thank you very much for purchasing our product. Before using your unit, please read this manual carefully and keep it for future reference.

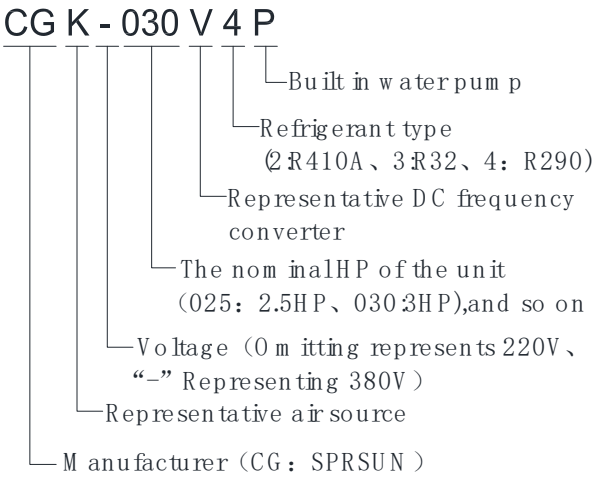
Woud Bosma Energieadvies bv

Uw partner in duurzame energie.

Heat Pump Pro

Contents

Product Naming Rules：



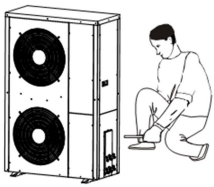
Part 1. Before Use

1. Attentions

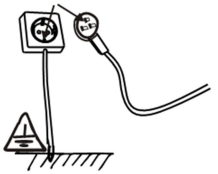
Warning Caution Prohibition

This appliance is not intended for use by persons, including children, with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be super vised to ensure that they do not play with the appliance.

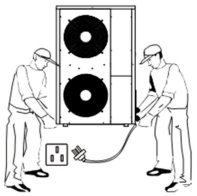
Be sure to read this manual before use.



Be sure to read this manual before use. The installation, dismantle mentand maintenance of the unit must be performed by qualified personnel. It is forbidden to do any changes to the structure of the unit. Otherwise injury of personor unit damage might happen.

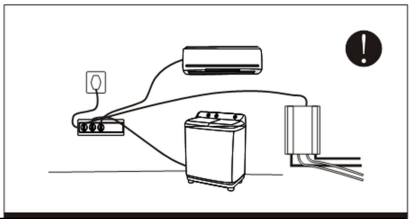


The power supply to the unit must be grounded.

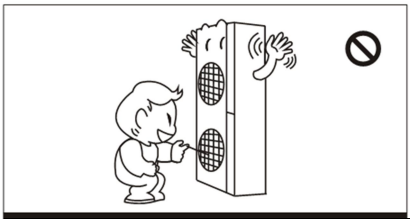


Make sure the power supply to the heat pump unit is of f
Before any operations are done on the unit.
When the power cord gets looser or is damaged, always g et

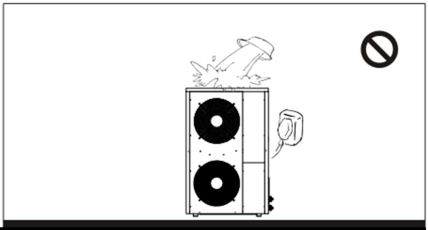
Keep the unit away from the combustible or corrosive environment.



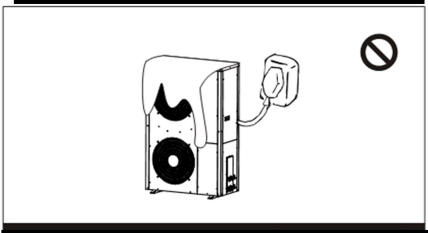
Use a dedicated socket for this unit, otherwise malfunction may occur.



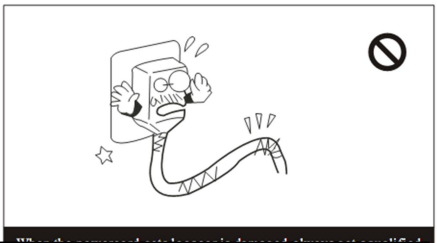
Do not touch the air outlet grill when fan motor is running.



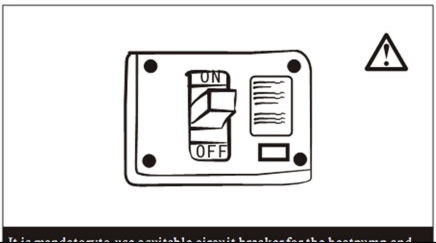
Water or any kind of liquid is strictly forbidden to be poured into the product, or may case creepage or breakdown of the product.



When running the unit, never cover clothes, plastic cloth or any other material that block ventilation on the product which will lead to low efficiency or even non-operation of this unit.



When the power cord gets loose or is damaged, always get a qualified person to fix it.



It is mandatory to use a suitable circuit breaker for the heat pump and make sure the power supply to the heater corresponds to the specifications. Otherwise the unit might be damaged.

2. Installation instructions

1.This appliance can be used by children aged from 8 years and above and persons with reduced physi- cal, sensory or mental capabilities or lack of experience and knowledge if they have been given super- vision or instruction concerning use of the appliance in a safe way and understand the hazards in- volved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

2.This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision

or instruction concerning use of the appliance by a person responsible for their safety.

3. Children should be supervised to ensure that they do not play with the appliance.

4. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

5.The appliance shall be installed in accordance with national wiring regulations.

6.An all-pole disconnection device which has at least 3mm clearances in all poles , and have a leakage current that may exceed 10mA, the residual current device (RCD) having a rated residual operating

current not exceeding 30mA, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

1. Transport of equipment containing flammable refrigerants Compliance with the transport regulations .

2. Marking of equipment using signs Compliance with local regulations

3. Disposal of equipment using flammable refrigerants

Compliance with national regulations .

4. Storage of equipment/appliances

The storage of equipment should be in accordance with the manufacturer's instructions.

5. Storage of packed (unsold) equipment

Storage package protection should be constructed such that mechanical damage to the equipment inside the package will not cause a leak of the refrigerant charge.

The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

6. Information on servicing

1) Checks to the area

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, the following precautions shall be complied with prior to conducting work on the system.

2) Work procedure

Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.

3) General work area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided. The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.

4) Checking for presence of refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

5) Presence of fire extinguisher

If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.

6) No ignition sources

No person carrying out work in relation to a refrigeration system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which flammable refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable

hazards or ignition risks. “No Smoking” signs shall be displayed.

7) Ventilated area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it

externally into the atmosphere.

8) Checks to the refrigeration equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt consult the manufacturer's technical department for assistance.

The following checks shall be applied to installations using flammable refrigerants:

– The charge size is in accordance with the room size within which the refrigerant containing parts are installed;

– The ventilation machinery and outlets are operating adequately and are not obstructed;

– If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;

– Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;

– Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

9) Checks to electrical devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution

shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

• That capacitors are discharged: this shall be done in a safe manner to avoid possibility

of sparking;

• That there no live electrical components and wiring are exposed while charging, recovering or purging the system;

• That there is continuity of earth bonding.

7. Repairs to sealed components

1) During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it isabsolutely necessary to have an electrical supply to equipment during servicing, then a permanently

operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

2) Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected.

This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.

Ensure that apparatus is mounted securely.

Ensure that seals or sealing materials have not degraded such that they no longer serve the purpose of preventing the ingress of flammable atmospheres.

Replacement parts shall be in accordance with the manufacturer’s specifications.

NOTE: The use of silicon sealant may inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

8. Repair to intrinsically safe components

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.

Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.

Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

9. Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

10. Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

11. Leak detection methods

The following leak detection methods are deemed acceptable for systems containing flammable refrigerants.

Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the

detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25 % maximum) is confirmed.

Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

If a leak is suspected, all naked flames shall be removed/ extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

12. Removal and evacuation

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:

- Remove refrigerant;
- Purge the circuit with inert gas;
- Evacuate;
- Purge again with inert gas;
- Open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders. The system shall be “flushed” with OFN to render the unit safe. This process may need to be repeated several times. Compressed air or oxygen shall not

be used for this task.

Flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe-work are to take place.

Ensure that the outlet for the vacuum pump is not close to any ignition sources and there is ventilation available.

13. Charging procedures In addition to conventional charging procedures, the following requirements shall be followed.

– Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.

– Cylinders shall be kept upright.

– Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.

– Label the system when charging is complete (if not already).

– Extreme care shall be taken not to overfill the refrigeration system.

Prior to recharging the system it shall be pressure tested with OFN. The system shall be leak tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

14. Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended

good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

a) Become familiar with the equipment and its operation.

b) Isolate system electrically.

c) Before attempting the procedure ensure that:

• Mechanical handling equipment is available, if required, for handling refrigerant cylinders;

• All personal protective equipment is available and being used correctly;

• The recovery process is supervised at all times by a competent person;

• Recovery equipment and cylinders conform to the appropriate standards.

d) Pump down refrigerant system, if possible.

e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.

f) Make sure that cylinder is situated on the scales before recovery takes place.

g) Start the recovery machine and operate in accordance with manufacturer's instructions.

h) Do not overfill cylinders. (No more than 80 % volume liquid charge).

i) Do not exceed the maximum working pressure of the cylinder, even temporarily.

j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.

k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

15. Labelling

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

16. Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the

correct recovery cylinder, and the relevant Waste Transfer Note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.
If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

3. **Heat pump installation and wiring**

(1) Heat pump parameters

Model	**CGK030 V4P**	**CGK04 0V4P**	**CGK05 0V4P**	**CGK060 V4P**	**CGK-030 V4P**	**CGK-04 0V4P**	**CGK-05 0V4P**	**CGK-06 0V4P**
Power Supply	220-240V~/50~60Hz				380-420V~/50~60Hz			
*Heating Capacity Min./Max.	4.14/9kW	5.06/11kW	6.9/15kW	8.28/18kW	4.14/9kW	5.06/11kW	6.9/15kW	8.28/18kW
*Heating Input Power Min./Max.	0.79/2.17kW	0.95/2.63kW	1.31/3.7kW	1.49/4.37kW	0.79/2.17kW	0.95/2.63kW	1.31/3.7kW	1.49/4.37kW
*Heating COP Min./Max.	4.14/5.26W/W	4.18/5.31W/W	4.06/5.28W/W	4.12/5.56W/W	4.14/5.26W/W	4.18/5.31W/W	4.06/5.28W/W	4.12/5.56W/W
Cooling Capacity Min./Max.	3.13/6.8kW	3.5/7.6kW	4.88/10.6kW	5.13/11.15kW	6.8/6.8kW	3.5/7.6kW	4.88/10.6kW	5.13/11.15kW
Cooling Input Power Min./Max.	0.91/2.72kW	1.01/3.04kW	1.55/4.42kW	1.68/5.27kW	0.91/2.72kW	1.01/3.04kW	1.55/4.42kW	1.68/5.27kW
Rated. Input Power/Current	4.36kW/20.86A	5.05kW/24.16A	6.8kW/32.54A	7.83kW/37.48A	4.31kW/9.09A	5.05kW/10.66A	6.8kW/14.35A	7.83kW/16.53A
Starting current	＜3A							
Water Flow	1.5m³/h	1.9m³/h	2.6m³/h	3.1m³/h	1.5m³/h	1.9m³/h	2.6m³/h	3.1m³/h
Low/High side operation pressure	0.4/3.2MPa							
Operating ambient temperature	-25~45℃							
Water Pressure Drop	20KPa	21KPa	23KPa	25KPa	20KPa	21KPa	23KPa	25KPa
Max Water Pressure	1.0MPa							
Shock Proof Grade&WaterProof Level	I/IPX4							
Water Pipe Connection	DN25							
Net Dimension(L×D×H)	1110*475*810	1110*475*960	1110*475*1355	1110*475*1355	1110*475*810	1110*475*960	1110*475*1355	1110*475*1355

1*Heating working condition: Dry bulb temperature 7℃， Wet bulb temperature 6℃ Inlet water temperature 30℃,Outlet water temperature 35℃

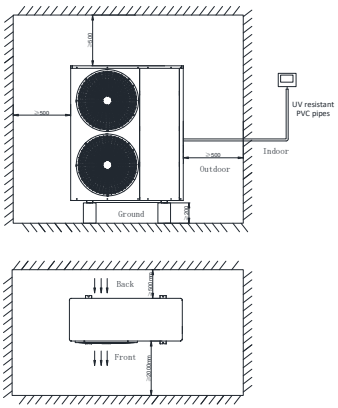
2*Heating working condition: Dry bulb temperature 7℃， Wet bulb temperature 6℃ Inlet water temperature 50℃,Outlet water temperature 55℃

Attention:

There may be changes in the parameters, please refer to the nameplate for accuracy.

(2) Heat pump installation location and attentions

* Heat pump is not allowed to be installed in the place where combustible gas may leaks.
* Heat pump is not allowed to be installed in the place where there is oil or corrosion gas released.
* Heat pump should be installed in a open space, and good ventilating.
* Heat pump each side to wall or barrel should be keep certain distance, air outlet to barrel distance should ≥2m, air inlet distance to wall or barrel≥0.5m, bottom distance to ground ≥0.2m, other side distance should be enough for installation or repairing.
* Heat pump should be installed on concrete basic or steel bracket, and anti-shock pad should be put between heat pump and basic or bracket. Then use expansion bolt to fix heat pump on bracket.
* Water drainage pipe and ditch should be set around heat pump and water pipes and water tank. When testing or repairing, maybe need drain plenty of water, and when heat pump is working, there are some condensed water flow down.



Common to all models

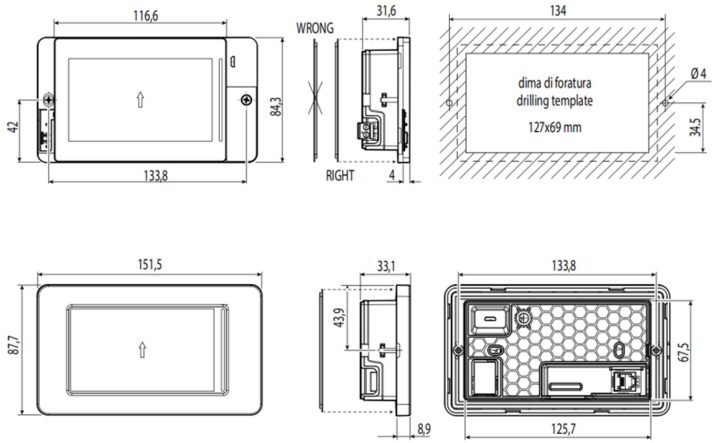
Location guidance on not installing unit adjacent to a bedroom or living room due to noise and vibration

1) The heat pump must be installed in open space. Normally is installed on the roof of house.
2) The unit should be placed in dry and well-ventilated environment. If the environment is humid, electronic components may get corroded or short circuit.
3) Heat pump mustn't be installed in the environment where corrosive, volatile, or flammable liquid or gas exists.
4) Because of the noise is a little loud, please don't install the heat pump near bedroom or living room or meeting room.
5) The bottom of the heat pump should be at least 200mm higher than ground, because rain water, snow may enter inside if the installation is on ground. Heat pump can be installed on concrete basic or steel support.
6) Please install a shed for the heat pump, otherwise, rain water can reduce the lifetime of the shell, and snow may cover the air outlet.
7) Water drainage ditch should be set around the heat pump, when heat pump is working, there is condensing water flow down, or when defrosting, there are plenty of water flow down too.
8) Heat pump should far away from kitchen exhaust, because the finned tube is not easy to clean if there is oil on it.
9) Keep away from adjacent doors and windows as far as

possible to prevent vibration and noise from affecting the normal life and work of neighbors.

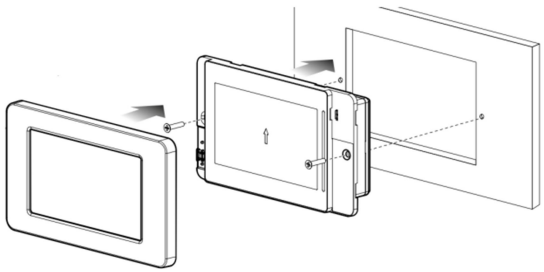
10) Installation of wire controller

Overall dimensions：



Installation and assembly

Frontale



To ensure correct installation, please contact qualified installation personnel.

Do not install the terminal in an environment with the following characteristics:

The relative humidity is higher than the value specified in the technical specifications;

Having strong vibrations or impacts;

• Exposed to environments with erosion and pollution (such as sulfur and ammonia gases, salt mist, smoke) to prevent corrosion and/or oxidation;

• Environments with strong magnetic and/or radio frequency interference (therefore, do not install near the transmitting antenna);

Expose to direct sunlight.

The room temperature fluctuates greatly and rapidly;

• The presence of explosives or combustible gas mixtures.

The following requirements must be met:

Only use shielded wires for Ethernet and RS485 communication networks, and install them in UV resistant PVC pipes;

If voltage outside of calibration is used, it may seriously damage the system;

Use cable heads suitable for the corresponding terminals. Loosen each screw and insert the cable head, then tighten the screws. exercise

After completing the work, gently pull the cable to check if it is fixed properly;

Do not open this terminal when powered on;

Low temperature operation may cause a significant decrease in display screen reaction speed. This phenomenon is considered normal and not

Will be identified as a fault;

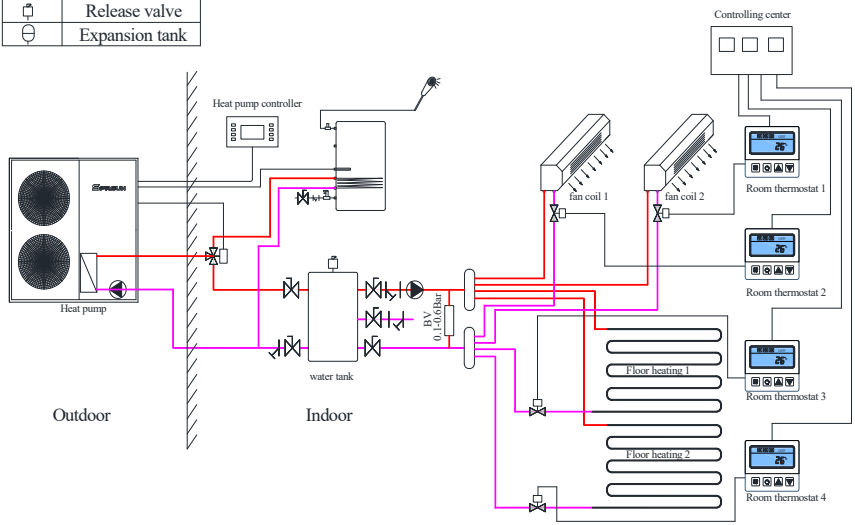
• Avoid touching any live parts on the terminal;

Ensure accurate cable fixation and avoid contact with live parts to prevent accidental disconnection of the terminal.

Secondary circulation system

Symbol	Name
	3-way valve
	2-way valve
	Ball valve
	Non-return valve
	Filter
	Water pump
	Temp sensor
	Release valve
	Expansion tank

Notice:
1. Pls select the right modes according to your demand then install it according to the installation diagram. If only hot water function required, pls select heating+hot water mode , and then put the hot water sensor into the hot water tank.
2. Two-way valve and BV valve are optional for installation. Only If you need to control the temperature by different zone, then pls install both.
3. Fan coil can be controlled by linkage with the secondary circulation pump . Meanwhile, a passive linkage thermostat shall be installed.



SPRSUN DC inverter air source heat pump

Tips for installation related to the water pipe part:

- Install a valve at the highest point of each water circulations for releasing air from water system.
- A Y-shape filter is very important in front of circulating water pump of heat pump.
- If more pieces' heat pump installed in one water pipe system, the connection of these heat pumps can't be in series, only can be in parallel or independent.

A hot water tank with heat exchanger coils is required in the installation drawing, and The coils are sized to match the following manufacturer's calibrated sizes; if not, please get in touch with a technical engineer；

The management specifications of the heat exchange plate will directly affect the heat transfer of the system, if there is insufficient heat exchange, the heating will not be possible, resulting in increased electricity consumption for the heat pump, serious high-pressure alarms in the system, and even shortening the lifespan of the unit.

（Schematic diagram of threaded heat exchange coils）

Model	Recommended specification and length of heat exchange coil for hot water tank
CGK030V4P/CGK-030V4P	304 Stainless steel bellows，DN32*10000mm；
CGK040V4P/CGK-040V4P	304 Stainless steel bellows，DN32*10000mm；
CGK050V4P/CGK-050V4P	304 Stainless steel bellows，DN32*15000mm；
CGK060V4P/CGK-060V4P	304 Stainless steel bellows，DN32*15000mm；

Pre-start up

① Checking before pre-start up

● Check if the water pipe is connected well and if there is any leakage. The water supply valve is open.

● Make sure the water flow is enough and meet the demand of the heat pump selected and water flow smoothly without air. In cold area, pls make sure that the water flow is without freezing

● Check if the power cable is connected well and properly grounded.

● Check if fan blade is blocked by the fixing plate of fan blade and fan blade protecting grill.

● Check if the tank has been filled with water or enough water volume that can meet the demand of heat pump running.

●The water outlet of the heat pump needs to install an automatic air ex haust valve

so that the water system can be discharged to the outside when there is gas.

⚠ **If everything above is OK, the unit can start up. If any of them fails, please improve it.**

② Pre-start up

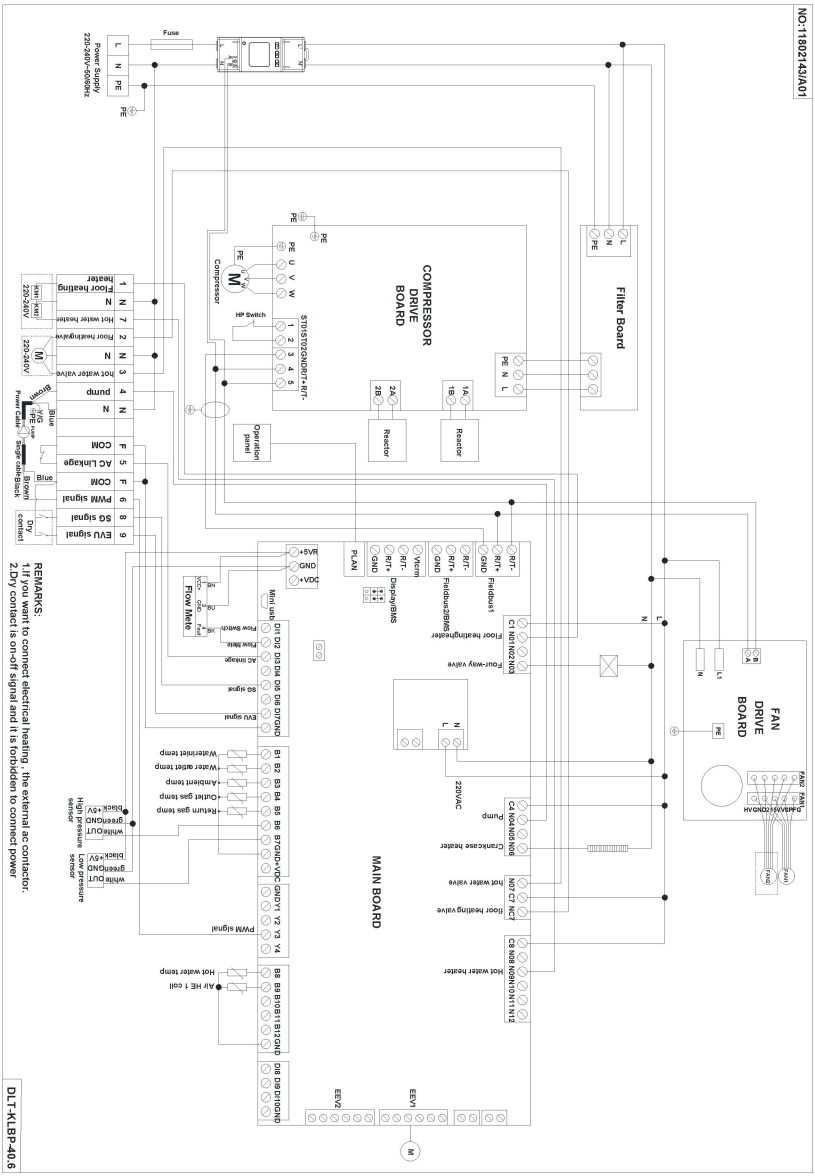
● After check completely and confirm no problem for installation, the unit can be power to start up.

● After connect power supply, heat pump delay 3mins to start. Check carefully is there is some abnormal noise or vibration or if the working current is normal or if water temp increasing is normal.

● After the unit is working properly for 10 minutes without any problem, then the pre-start up is usefully completed. If not, pls refer to Service and Maintenance

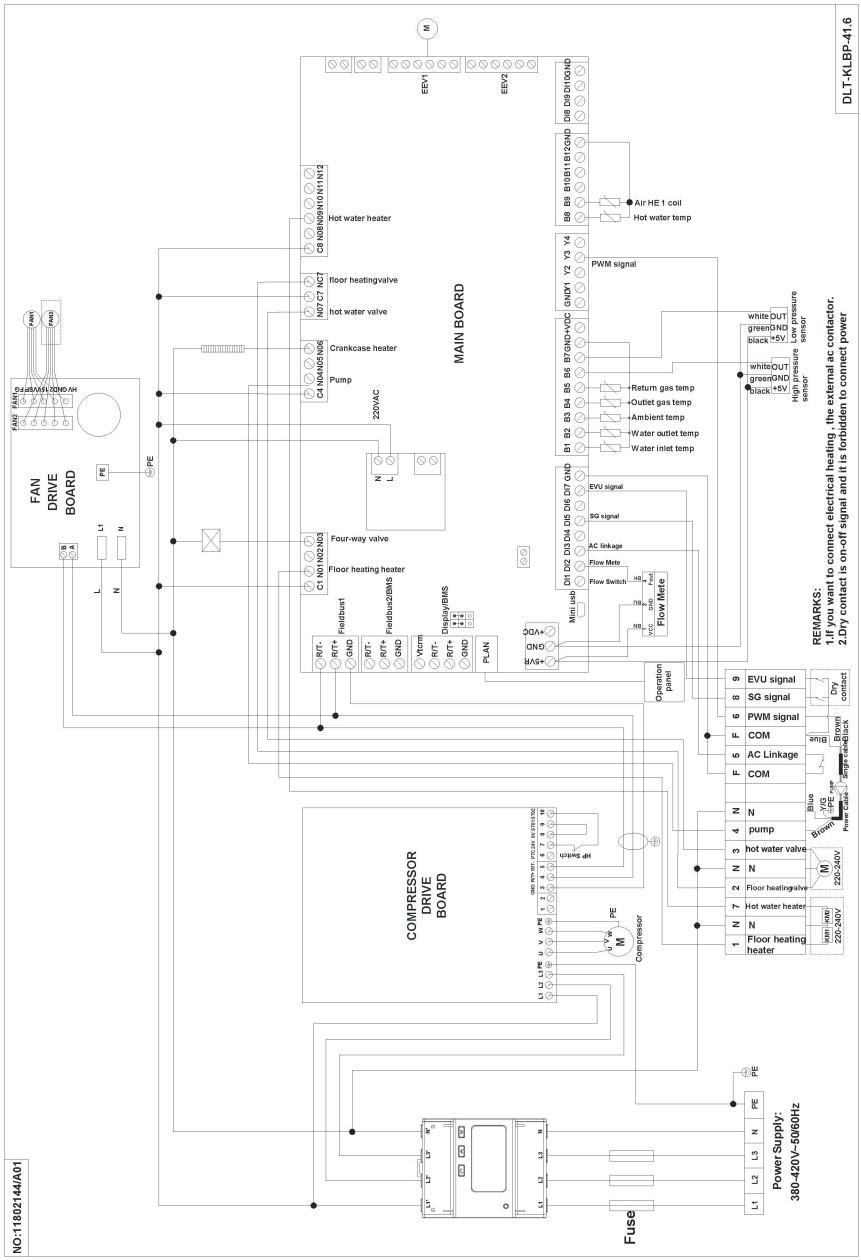
Chapter to solve the problem.

4.Wiring diagram



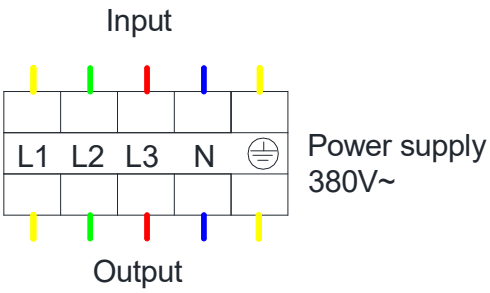
Voltage: 220V-240V/50Hz

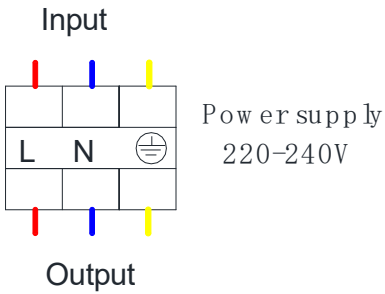
Wiring diaram



Voltage:380V-420V/3N~/50Hz

Power line diameter selection



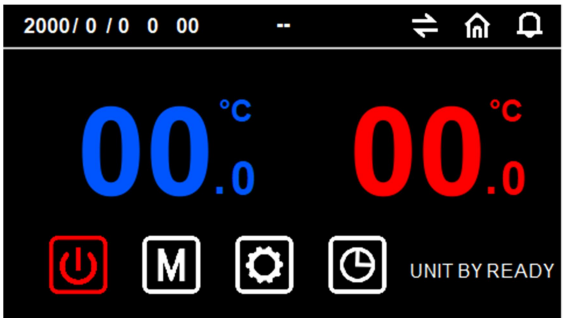


Model	Line(mm^2)	Max. Current(A)	Model	Line(mm^2)	Max. Current(A)
CGK-030V4P	2.5	9.09	CGK030V4P	4	20.86
CGK-040V4P	2.5	10.66	CGK040V4P	6	24.16
CGK-050V4P	4	14.35	CGK050V4P	6	32.54
CGK-060V4P	4	16.53	CGK060V4P	6	37.48

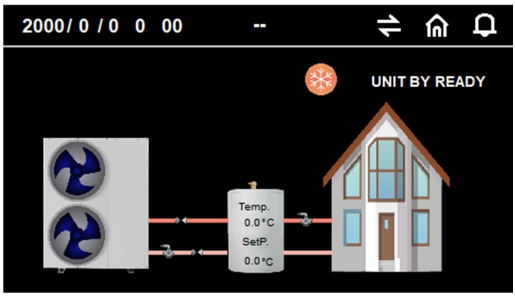
Part 2. Use

1. Main interface (simple graphic)

Simple graph



Dynamic graph



2. Definition of Buttons

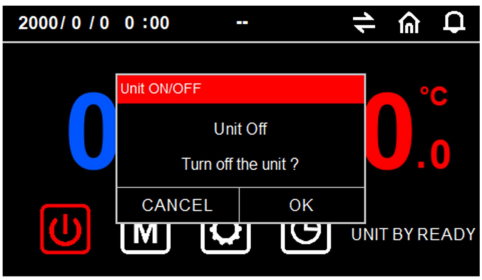
icon	Meaning
	The current real-time cooling temperature display is in blue font; click to enter the user temperature setting.
	The current real-time heating temperature display is displayed in the orange font; click to enter the user temperature setting.
	The current real-time heating temperature display is displayed in the orange font; click to enter the user temperature setting.

	Cooling
	Heating
	Hot water
	On/off, red is on-state, and white is off-state.
	Switch dynamic/static interface.
	Alarm
	Timing, red means there is currently a timing, and white font means there is currently no timing.
	Mode setting key
	Indicates entering the SG++ state

3. Turn on/off

In OFF state, the switch key color is white, Press  , it displays a selection box, select confirm to ON.

In OFF state, the switch key color is red, press  , it displays a selection box, select confirm to OFF.



4.Mode switching

press M, it displays a selection box, From mode, you can choose one of mode for “heating” “Cooling”, “Hot water”, “Hot water +cooling” and “Hot water +heat”, and switch to working mode.

Fan mode can be chosen from “FAN MODE”:

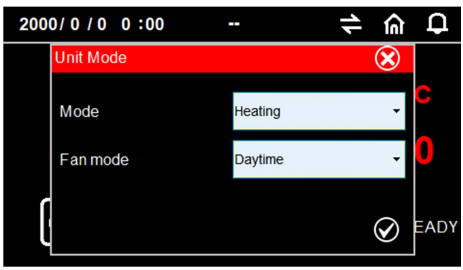
Eco mode - economic mode, the heat pump can automatically output capacity as required according to the ambient temperature;

Night - 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 pump outputs according to the test capacity.

Attention： Only switch mode when the unit is turn off.



5. Temperature setting:

Click on any current temperature and a selection box will display:

Cooling setp: cooling setting temperature

Heating setp: heating setting temperature

Hot water setp: hot water setting temperature

6. TimeZone/CLOCK

Press  , it displays a selection box,

Timezone on off：

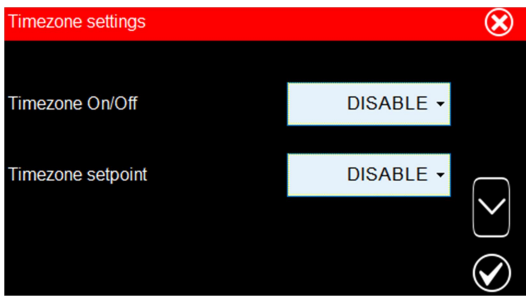
Enable - Turn on the timer switch function, the unit can be set to switch on and off time for one week after it is switched on;

Disable - Turn off the timer switch function.

Timezone setpoint：

Enable - 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;

Disable - Turn off the timer setting temperature function.

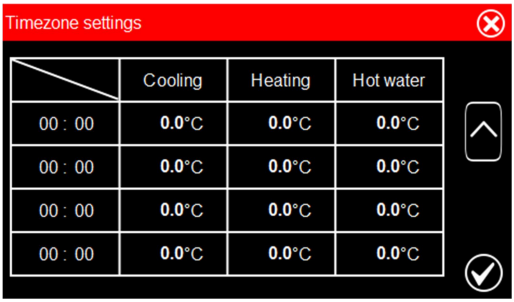


Timezone on off

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

Timezone setpoint

Timing setting temperature interface， when the timed change of setpoint function is enabled, this page sets the temperature setpoint in different modes for four time zones, and the unit will set the temperature according to this setpoint during operation;

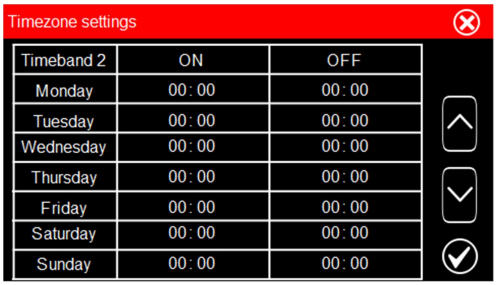


Timezone on off: When this function is enabled, the following page allows the setting of the switch on and off times for each weekday to the unit;

Timezone1 is the start time of the first time period;

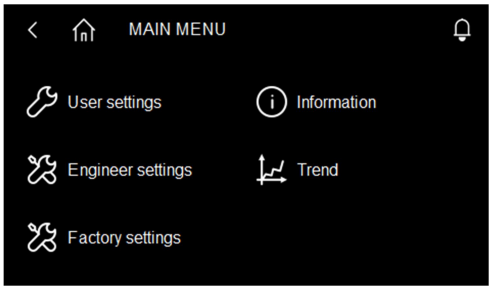
Timezong2 is the cut-off time of the first time period and the start time of the second time period, and so on.

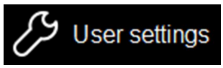
Cooling temp, Heating temp, Tank temp Set the temperature for cooling, heating, and hot water for the corresponding time period.

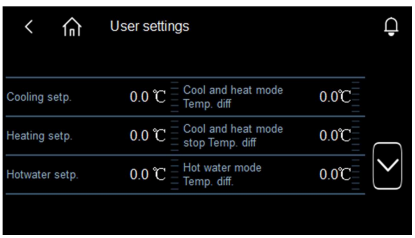


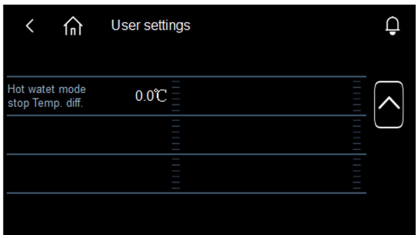
7. User settings

Press  to access menu, the specific functions are described in detail below：



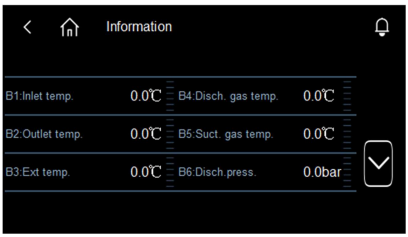
Press  to access “User settings”, Users can set the target temperature and startup return difference for each mode.

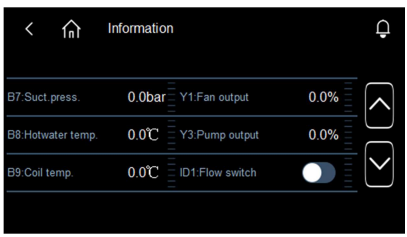


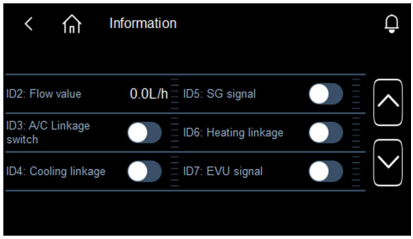


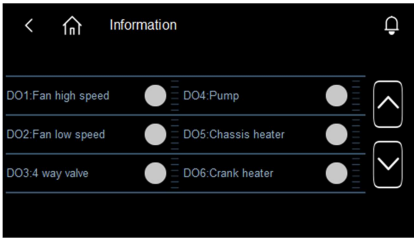
8. Information

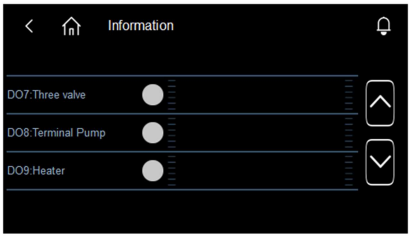
Press  to information, users can view unit temperature information, input and output information, etc.

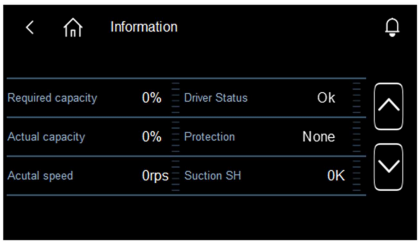


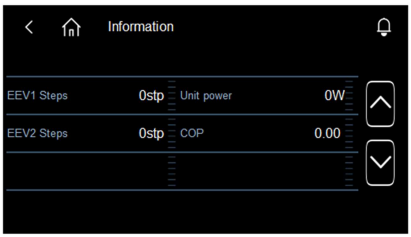


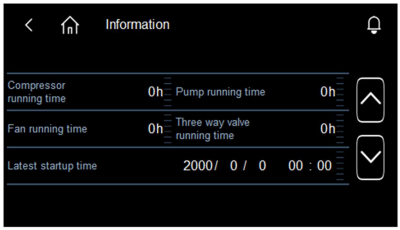


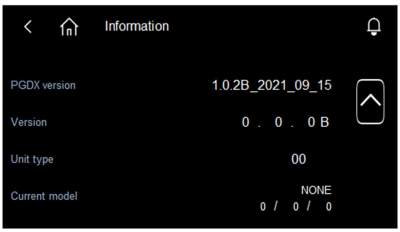








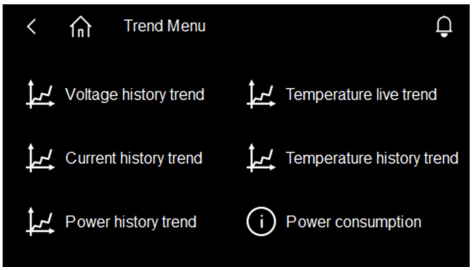


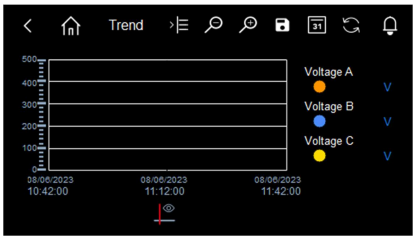


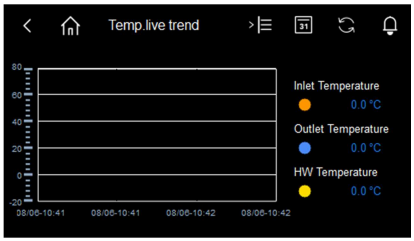
Note: High-precision sensors detect flow value and Unit power, and the error range is ≤1%. The COP value may deviate due to the installation position of the water temperature sensor or the insulation condition and is for reference only;

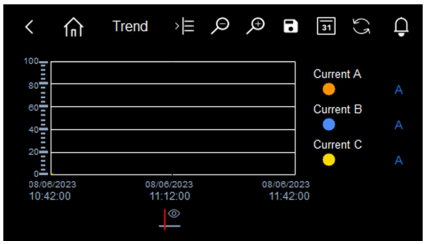
9.Trend

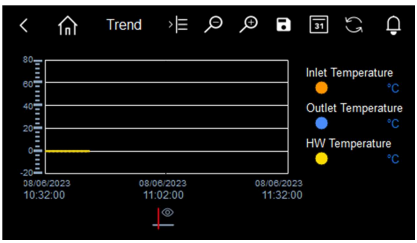
The curve menu is used to display the temperature, voltage, current, and power curves of the unit, as well as the cumulative electricity consumption of the unit.

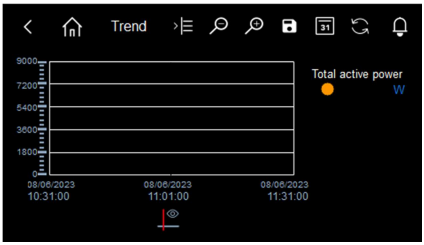


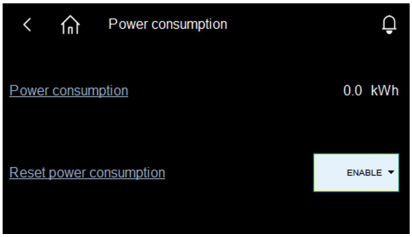


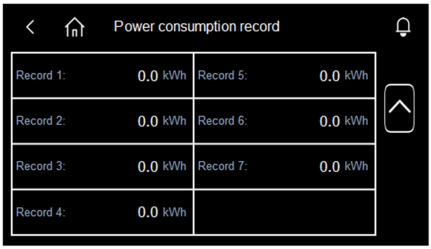










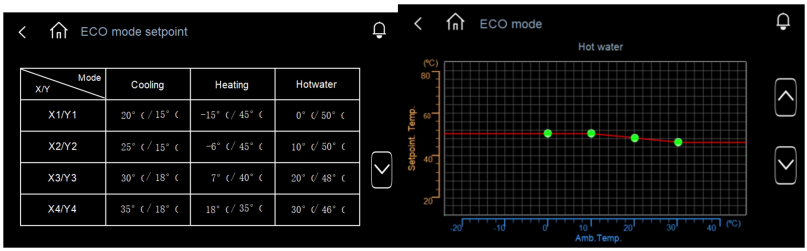


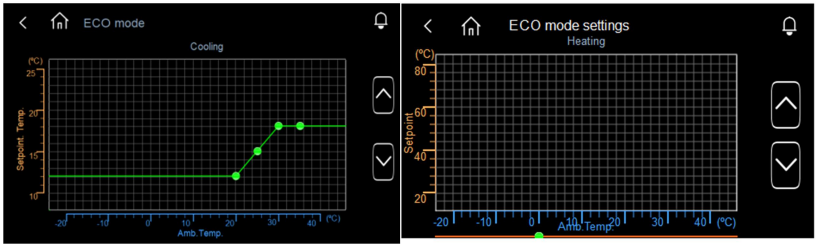
10. Engineer settings

Entering the engineering parameters, you can set some installation engineering functions. Please note that this function is open to engineering personnel. To enter this menu, you need to enter a password. Please contact your local engineer;

10.1.ECO mode settings:

Used to set the ambient temperature and set temperature points in economic mode, and can be set in multiple ways through tables or curves.





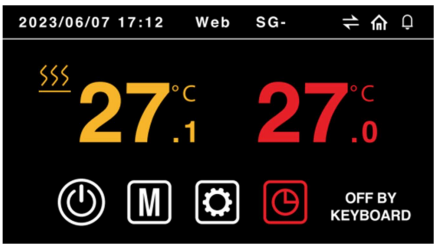
10.2 SG Ready

You can access some functional settings of the smart grid, please note that this feature is currently only applicable in Germany.

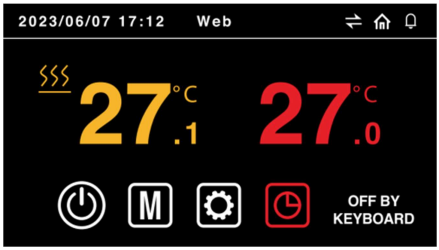
The following is an introduction to several states when using the smart grid function.

State	Grid signal （SG)	Power supply signal （EVU)	Operating status	Run instructions
1	OFF	ON	SG-	Insufficient energy, the heat pump is forced to shut down, and the antifreeze can operate normally.
2	OFF	OFF	None	The heat pump is running normally.
3	ON	OFF	SG+	Automatically set the hot water to the highest temperature, the electric heating is turned off by default (can be set), store as much energy as possible, and switch to heating or cooling after meeting the requirements.
4	ON	ON	SG++	The energy is cheap, the heat pump adjusts the hot water temperature setting value to the highest temperature of the system operation, the electric heating is turned on, and the heating/cooling is turned after the temperature is met.

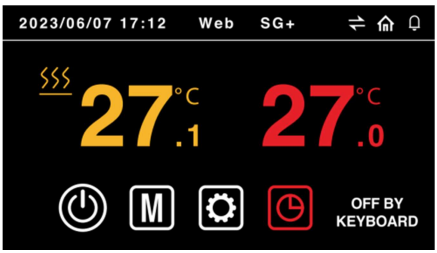
When the smart grid is running, the Home screen displays as follows in different states：



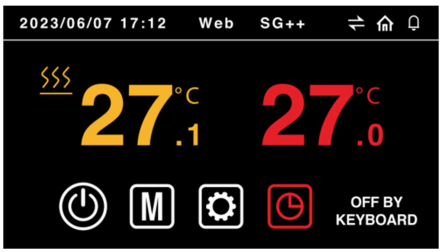
Mode1（SG-）



Mode 2（None）



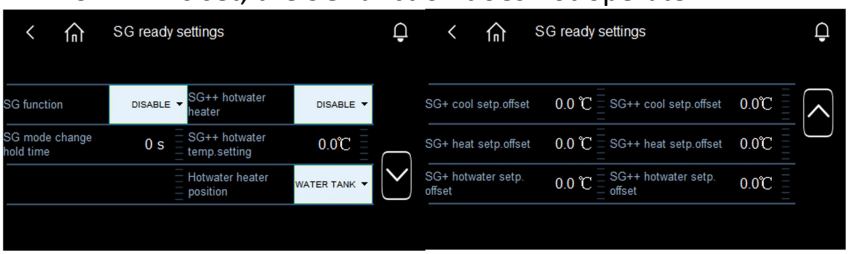
Mode 3（SG+）



Mode 4（SG++）

SG function parameter settings：

When "ENALBE" is set, the SG function operates, when "DISABLE" is set, the SG function does not operate.



SG mode change hold time：SG/EVU signal detection time, once every 60S.

SG++ hotwater heater：when entering mode 4, does the hot water heater turn on. When set to "ENABLE", the hot water heater is forced on and works together with the heat pump, when set to "DISABLE", the hot water heater is not forced on.

SG++ Hotwater temp.setting：when entering mode 4, the stopping temperature after forced opening of the hot water heater.

Hotwater heater position: Hot water heater installation position selection, according to the actual installation.

Tips：

When the SG function is set to "ENALBE", it is recommended to install the hot water heater in the tank and to set this option to "WATER TANK" so that the system will switch to heating or cooling mode when the hot water mode reaches the set temperature. If the hot water heater is installed in the pipe and "Pipe" is selected, the system will not switch to heating or cooling mode immediately when the hot water mode reaches the set temperature, but only when the tank temperature is higher than "SG++ Hotwater temp.setting " before switching to heating or cooling mode.

If electric heating is installed in a pipeline, this parameter must not be set to "TANK" but should be set to "PIPE". The instructions must be strictly followed during the installation process, otherwise serious consequences will occur.

SG+ Cooling setpoint offset：when entering mode 3, cooling set a temperature correction value, set to 2 as an example, the final cooling set temperature = original set temperature - 2 when actually running

SG+ Heating setpoint offset ： when entering mode 3, heating

set a temperature correction value, set to 2 as an example, the final heating set temperature = original set temperature + 2 when actually running

SG+ Hotwater setpoint offset：when entering mode 3, hot water set a temperature correction value, set to 2 as an example, the final hot water set temperature = original set temperature + 2 when actually running

SG++ Cooling setpoint offset: when entering mode 4, cooling set a temperature correction value, set to 5 as an example, the final cooling set temperature = original set temperature - 5 when actually running.

SG++ Heating setpoint offset: when entering mode 4, heating set a temperature correction value, set to 5 as an example, the final heating set temperature = original set temperature + 5 when actually running.

SG++ Hotwater setpoint offset: when entering mode 4, hot water set a temperature correction value, set to 5 as an example, the final hot water set temperature = original set temperature + 5 when actually running.

Anti-legionella settings: click on this to access the antilegionella function page.

Anti-Legionella function: to enable/disable this function, which is disabled by factory default;

Anti-Legionella Temp.setp.: to set the antilegionella stopping temperature;

Weekday of running Antileg.: to set up antilegionella working days；

Timeband of running Antileg.: to set the antilegionella

schedule;

10.3.Language: Language selection is available

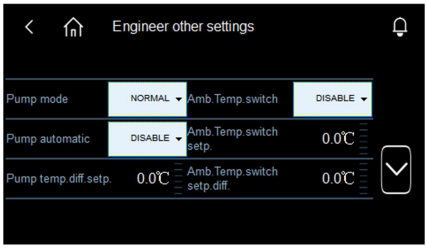
10.4.Date and time：Used to set system time.

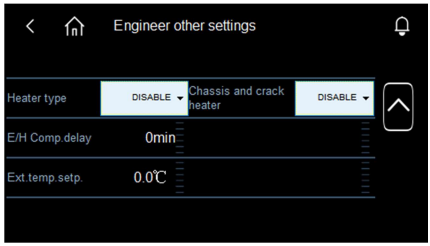
10.5.Factory settings

Factory parameters, changing this parameter will have an impact on the operation of the unit, so entering this menu requires a password. Nonprofessionals are not allowed to modify this parameter. If modification is necessary, please contact factory technical personnel for guidance.

10.6.Engineer other settings:

Used to set other engineering parameters, such as water pump operation mode, electric auxiliary heat switch, etc.





When “Normal “is selected, the pump will remain switched on during standby;

When “Demand” is selected, the pump is switched on and off at the same time as the heat pump during standby;

When “Interval” is selected, the pump will run intermittently during standby, running for 3 minutes for every 3 minutes stop;

Pump Auto: setting the DC pump is whether enabled or not, the pump will not regulate the rotational speed when disabled;

Pump Delta temp.set: Setting the temperature difference of the inverter water temperature, i.e., when the unit works, it will adjust the pump speed according to the target temperature of 5 Celsius.

Enable_AmbTemp Switch: setting to enable/disable the ambient temperature changing mode function;

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.

Independent：When adjusting to this mode, the hot water and electricity heating and heating electricity heating will have two separate relay outputs;

Note：

The default factory setting for electric heating mode of the heat pump is "Independent".

If the installation position is in a water tank, the electric heater must be installed inside the water tank and cannot be installed on the pipe. It is recommended that the engineering parameters change the "Hot water heater position" parameter to "TANK";

If you use pipe electric heating, you need to install the electric heater between the heat pump and the three-way valve, and set the electric heating mode to "ALL", so that the electric heating can heat in both heating mode and hot water mode;

When the mode is set to "Heating", electric heating only starts in heating mode;When the mode is set to "Hot water", electric heating only starts in hot water mode. In addition, you need to enter the engineering parameters and change the parameter of "Hot water heater position" to "PIPE';

The instructions must be strictly followed during the installation process, otherwise serious consequences will occur.

Enable chassis/crack heater:

E/H Comp.delay: setting the electric heating start-up delay;

Ext. Temp.setp.: setting the start-up ambient temperature for electric heating;

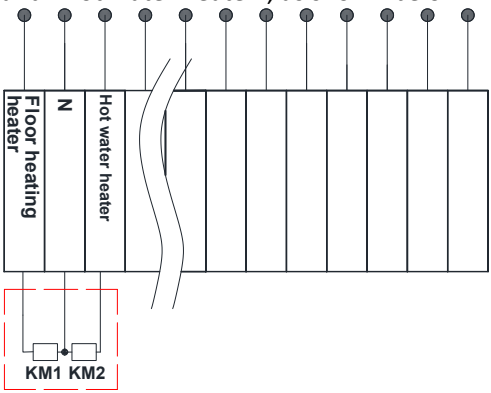
10.7.High temperature sterilization function:

Enable antileg: Set whether to enable sterilization function.
Temp. Setp.: Set the target water temperature for sterilization function.
TIMER： Set the working day and time period for sterilization time;
After the sterilization function is enabled, it will be sterilized every week according to the set time period. After reaching the target temperature, it will exit. If the target temperature cannot be reached within the time period, it will also exit;

11.Installation and use of electric heating

11.1 Wiring

The heat pump unit provides control interfaces for "Floor heating heater" and "Hot water heater", as shown below:



“Floor heating heater”: control the electric heating installed in the buffer tank;

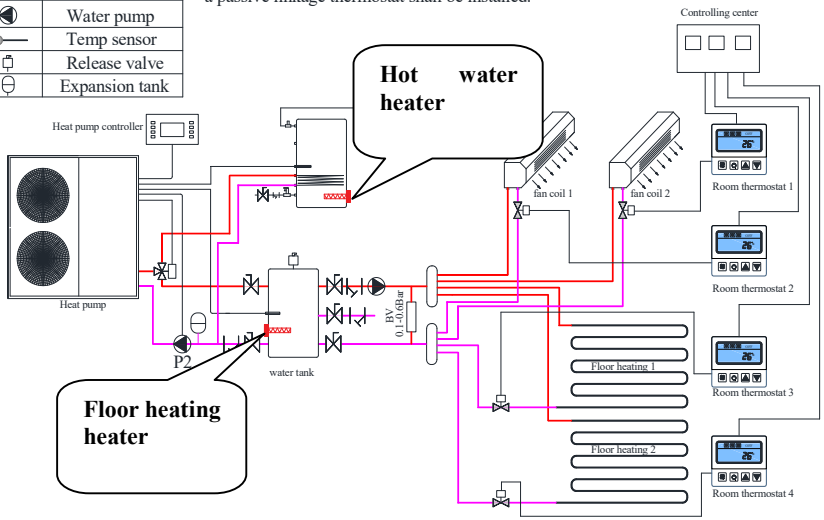
“Hot water heater”: control the electric heating installed in the hot water tank;

11.2 Installation location diagram:

Symbol	Name
	3-way valve
	2-way valve
	Ball valve
	Non-return valve
	Filter
	Water pump
	Temp sensor
	Release valve
	Expansion tank

Notice:

1. Pls select the right modes according to your demand then install it according to the installation diagram. If only hot water function required, pls select heating+hot water mode , and then put the hot water sensor into the hot water tank.
2. Two-way valve and BV valve are optional for installation. Only If you need to control the temperature by different zone, then pls install both.
3. Fan coil can be controlled by linkage with the secondary circulation pump . Meanwhile, a passive linkage thermostat shall be installed.



DC inverter air source heat pump

Notice:

If you intend to add antifreeze to the heating system, ensure that the liquid is non-corrosive to copper and stainless steel. Corrosive liquids may damage the heat exchanger, leading to irreversible harm to the heat pump, or causing the heat pump to be directly scrapped;

Three-way valve selection:

1：The interface size of the three-way valve cannot be smaller than the main pipe;

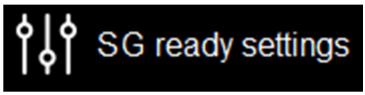
2：Adopt the three-way valve of three-wire two-control ；

3：Action switching period＜15 seconds；

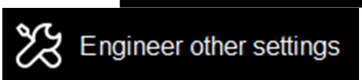
11.3 parameter settings

Click  to enter the main menu, and click

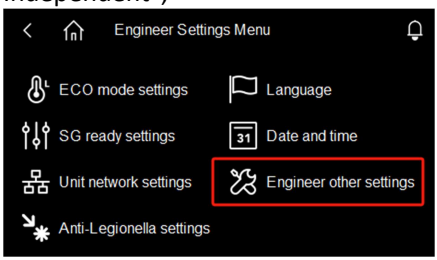
, then enter the parameter password to enter the parameter menu.

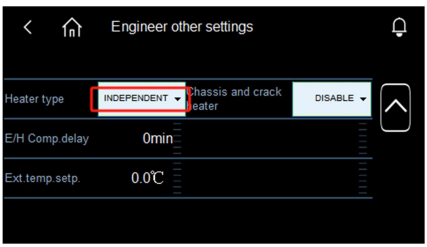
Click 

to change the installation position of the hot water heater to "WATER TANK"

2、Click 

, and set "Heater type" to "Independent";





Installation method three: use with the Heat Pump Kit and install an

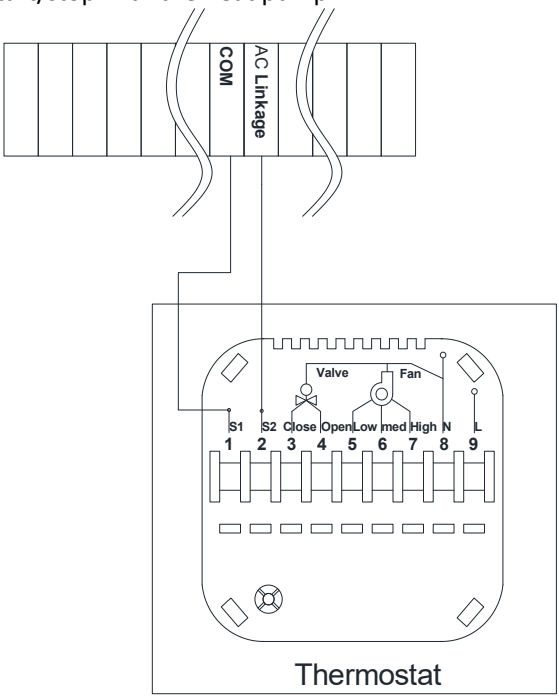
additional hot water heater for the water tank, as follows:

Note:

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

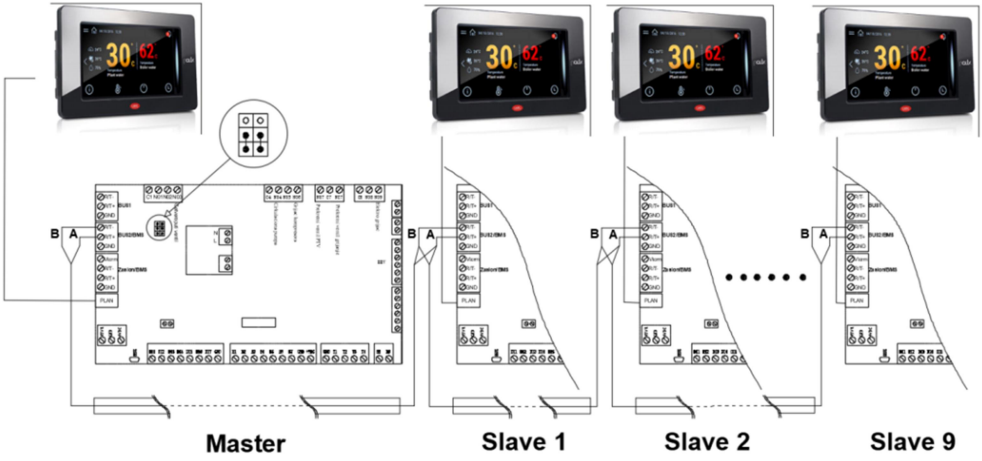
12.Heat pump connected to temperature controller for use

When the control terminals of "Linkage" and "COM" in the heat pump are disconnected, the cooling or heating operation will stop immediately. When they are connected and the unit meets the startup conditions, the machine will start. Therefore, by connecting the dry contact signal of the thermostat's start/stop to the "Linkage" and "COM" of the heat pump, it can achieve linked start/stop with the heat pump.



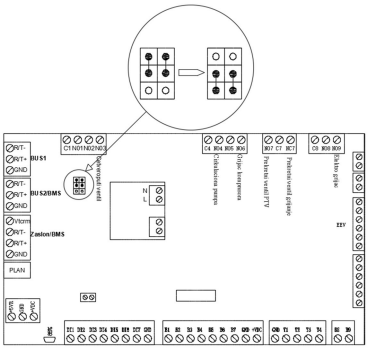
13.Installation and use of series networking function：

13.1 Wiring between heat pumps



13.2. The host needs a jumper：

Jumper the port of the host PCB, as shown in the figure below; the identification of the host, as shown in the figure below：



Slave does not need jumpers；

Press the 

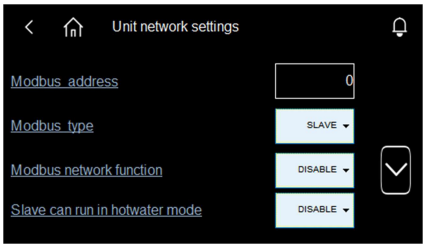
Installation and use of series networking function

Each machine has a serial number, and it is necessary to set an address for each machine. If the setting is wrong, the heat pump unit will not operate normally. The specific operation is as follows：

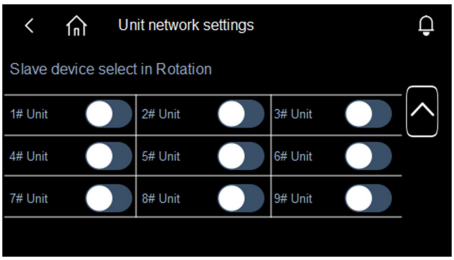
Enable network: When connecting to a network, both the host and the slave need to enable this function  ;

Modbus address: used to set the slave serial number, the master can be any value, when the slave is set to “1”, it means the unit is “slave number 1”, and so on, the maximum value is 9;

Modbus master/slave: setting the unit as a master or slave;



Slave device select in Rot.: this page is for setting the slave whether to enable,  is not enabled, the slaves will not switch on at this time.  is enabled, the slaves will switch on at this time；



Notice：

1. After setting the network parameters, the master and all slaves need to be re-powered, and the power-off time needs to be at least 30S；

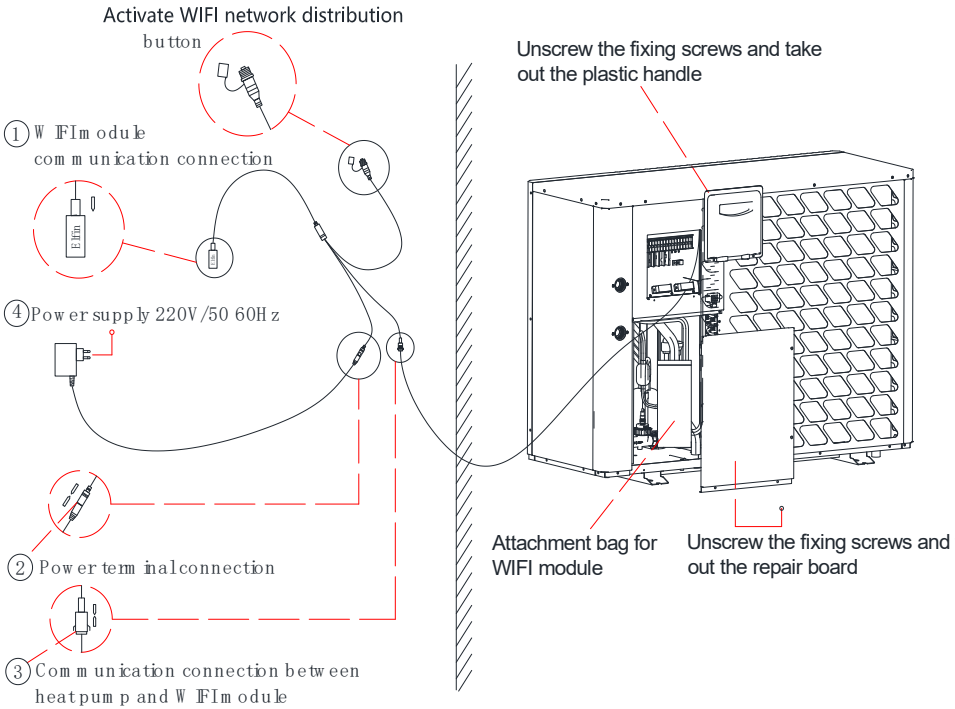
2. After re-power on, the slave needs to use the built-in control panel to start up；

3. At this time, when the temperature set point, real-time temperature value, and unit mode of the master and slave machines are consistent, it means that the networking is successful；

Part 3. WIFI module networking manual

3.1 Installation of WIFI Module:

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

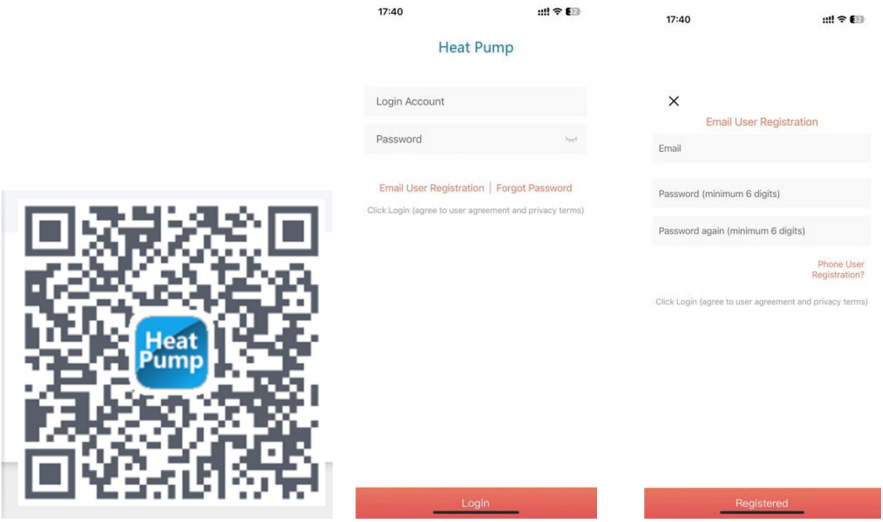


3.2. Connection of WIFI module

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

Step 1: Register

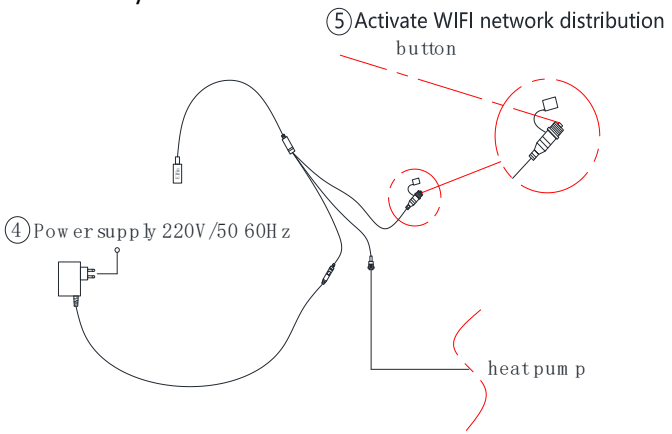
Download the APP and enter the login page. Click New User Registration to register with your phone number or email. After successful registration, enter your username and password to log in. (To download the APP, you need to scan the QR code below and then choose to open it in the browser to download)



Step 2:

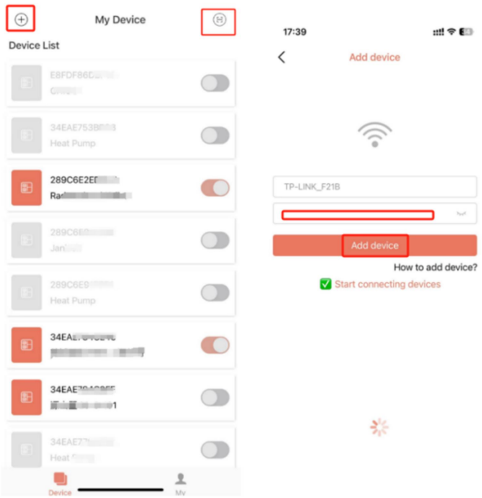
1、Add device to LAN

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



After entering My Device, click " ⊕ " in the upper left corner to enter the Add device page. The name of the WIFI currently connected to your phone will be displayed in the box above. Enter the WIFI password and gently press the raised button on the connection cable ⑤ (picture above). Note that pressing the button takes less than 2 seconds, wait for about 2~3 seconds, the

green light of the WiFi module starts to flash quickly, and the WiFi adapter enters pairing mode;
Click “Add device” until the connection is successful. Then click the arrow to see the currently connected APP displayed in the list.



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

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

3.3 Device Homepage

3.4 Explanation

1) Click a device in the device list to enter this page.

2) The background color of the bubble indicates the current operating state of the device:

a. Gray indicates that the device is in the shutdown state, at this time,

you can change the working mode, set the mode temperature, set the timing, or you can press the key to switch on and off.

b. Multicolor indicates that the device is turned on, each working mode

corresponds to a different color, orange indicates heating mode, red indicates hot water mode, and blue indicates cooling mode。

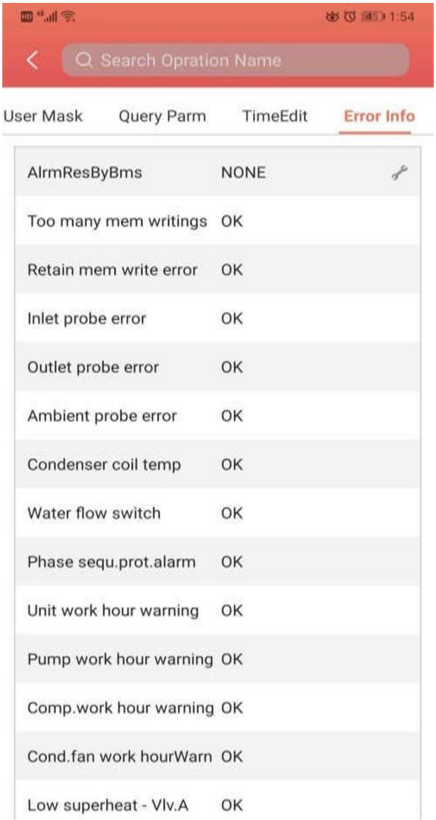
c. When the device is in the power-on state, you can set the mode temperature, set the timer, press the key to switch on and off, but you cannot set the working mode (that is, the working mode can only be set when the device is off)

3) The bubble shows the current temperature of the device.

4) Below the bubble is the set temperature of the device in the current operating mode.

5) Set the temperature is about 45℃, Press button, each click adds or subtracts the current setting value to the device.

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

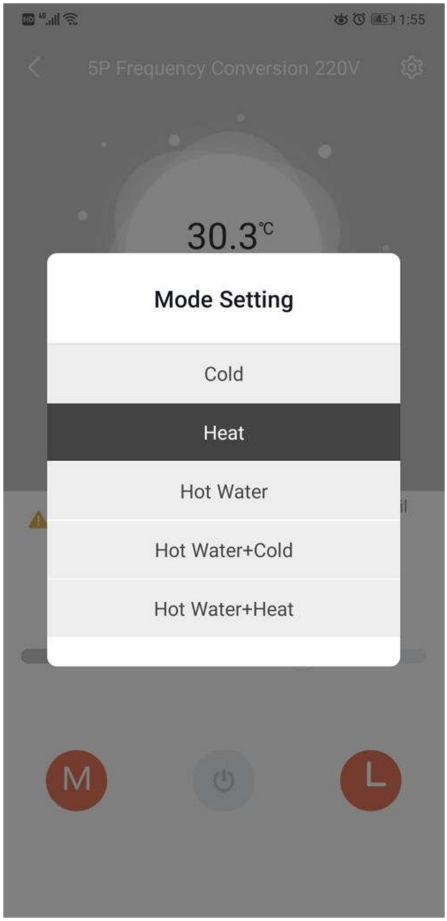


7) Immediately below the fault alarm area, display the current working mode, heat pump, fan and compressor in sequence (corresponding blue icon when it is on, but not displayed when it is off).

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.

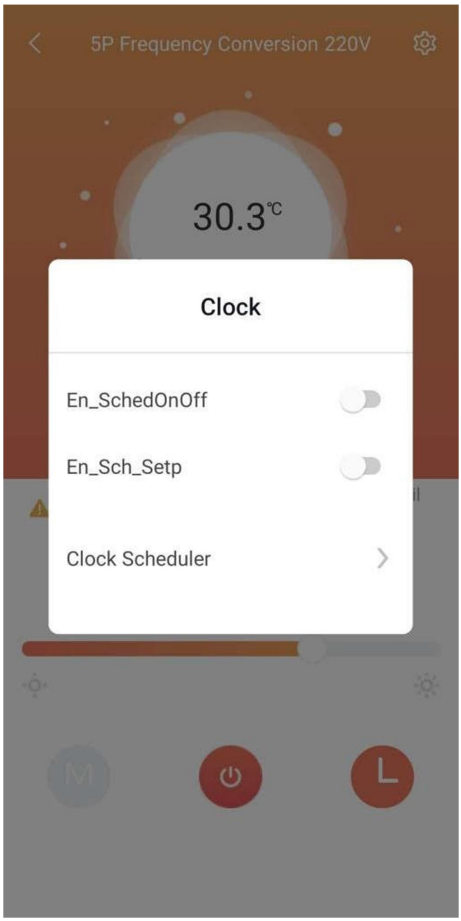
9) The bottom three buttons are in order from left to right: working mode, device switching machine and device timing. When the current background is color, the working mode button cannot be clicked.

10) 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:



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

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

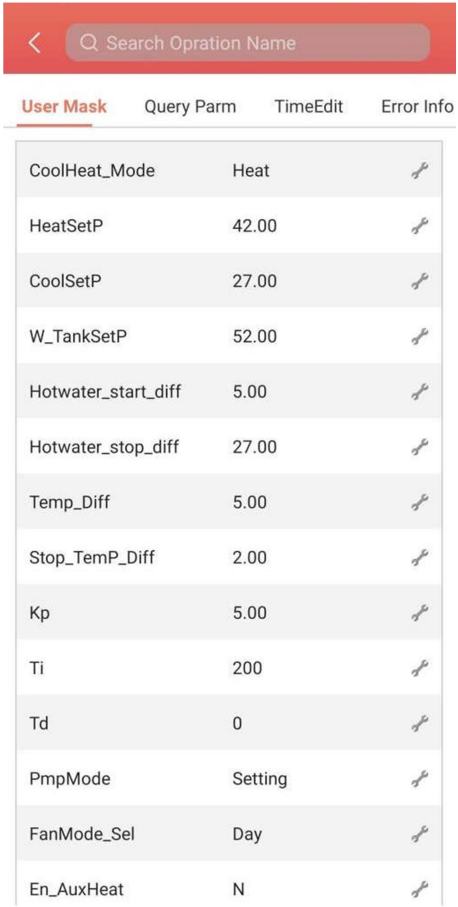


3. 5Detailed information of the units

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 parameters, factory settings, manual control, query parameters, time edit, error info.



3) User with user rights, only can check part of the functions: User mask, query parameters, Time Edit, alarms.

3.6 User setting parameter:

Parameter Name		Initial Value
Unit mode		Heating
Heating setp.		45℃
Cooling setp.		12℃
Hotwater setp.		50℃
Temp. diff.		5℃
Stop temp. diff.		0℃
Cool and heat mode Temp. diff.		5℃
Stop temp. diff.		2℃
Kp		5℃
Integral		200s
Differential		0s
Pump work		Interval
Pump Auto		Enable
Fan model		Daytime
Enable heater		Enable
Enable chassic/crack heater		Enable
Heater control-Comp. delay		50min
Heater control-Ext.temp.setp.		-15℃
Pump control	Delta temp. set.	5℃
Auto start		Enable

Part 4. Maintenance and repairing

Maintenance Tips

a. The heat pump unit is a highly automated equipment. The unit status check is carried out regularly during use. If the unit can be maintained and maintained for a long time and effectively, the unit's operational reliability and service life will be unexpectedly improved.

b. Users should pay attention to the use and maintenance of this unit: all safety protection devices in the unit are set before leaving the factory, do not adjust by yourself;

c. Always check whether the power supply and electrical system wiring of the unit is firm, whether the electrical components are malfunctioning, and if necessary, repair and replace them in time;

d. Always check the water system's hydration, the water tank safety valve, the liquid level controller and the exhaust device to work properly, so as to avoid the air circulation into the system and reduce the water circulation, thus affecting the unit's heating capacity and unit operation reliability;

e. The unit should be kept clean and dry and well ventilated. Regularly clean (1-2 months) air-side heat exchangers to maintain good heat transfer;

f. Always check the operation of each component of the unit, check the oil pipe at the pipe joint and the gas valve, and ensure that the refrigerant of the unit is not leaking;

g. Do not stack any debris around the unit to avoid blocking the air inlet and outlet. The unit should be clean and dry and well ventilated.

h. If the downtime is long, the water in the unit piping should be drained, and the power supply should be cut off and the protective cover should be placed. When running again, check the system thoroughly before starting up;

i. If the unit fails and the user cannot solve the problem, please

inform the company's special maintenance department in order to send someone to repair it in time;

j. The main unit condenser cleaning, the company recommends using a 50 ° C concentration of 15% hot oxalic acid to clean the condenser, start the host with a circulating water pump for 20 minutes, and finally rinse with tap water 3 times. (It is recommended to reserve a three-way interface when installing the pipe and seal one interface with a wire plug) in case of cleaning. Do not wash the condenser with a corrosive cleaning solution. The water tank needs to be removed after a period of use (usually two months, depending on local water quality)；

Part 5. Error input and protection alarm

AL001	Too many mem writings
AL002	Retain mem write error
AL003	Inlet probe error
AL004	Outlet probe error
AL005	Ambient probe error
AL006	Condenser coil temp
AL007	Water flow switch
AL008	Phase sequ.prot.alarm
AL009	Unit work hour warning
AL010	Pump work hour warning
AL011	Comp.work hour warning
AL012	Cond.fan work hourWarn
AL013	Low superheat - Vlv.A
AL014	Low superheat - Vlv.B
AL015	LOP - Vlv.A
AL016	LOP - Vlv.B
AL017	MOP - Vlv.A
AL018	MOP - Vlv.B
AL019	Motor error - Vlv.A
AL020	Motor error - Vlv.B
AL021	Low suct.temp. - Vlv.A
AL022	Low suct.temp. - Vlv.B
AL023	High condens.temp.EVD
AL024	Probe S1 error EVD
AL025	Probe S2 error EVD
AL026	Probe S3 error EVD
AL027	Probe S4 error EVD
AL028	Battery discharge EVD

AL029	EEPROM alarm EVD
AL030	Incomplete closing EVD
AL031	Emergency closing EVD
AL032	FW not compatible EVD
AL033	Config. error EVD
AL034	EVD Driver offline
AL035	BLDC-alarm:High startup DeltaP
AL036	BLDC-alarm:Compressor shut off
AL037	BLDC-alarm:Out of Envelope
AL038	BLDC-alarm:Starting fail wait
AL039	BLDC-alarm:Starting fail exceeded
AL040	BLDC-alarm:Low delta pressure
AL041	BLDC-alarm:High discarge gas temp
AL042	Envelope-alarm:High compressor ratio
AL043	Envelope-alarm:High discharge press.
AL044	Envelope-alarm:High current
AL045	Envelope-alarm:High suction pressure
AL046	Envelope-alarm:Low compressor ratio
AL047	Envelope-alarm:Low pressure diff.
AL048	Envelope-alarm:Low discharge pressure
AL049	Envelope-alarm:Low suction pressure
AL050	Envelope-alarm:High discharge temp.
AL051	Power+ alarm:01-Overcurrent
AL052	Power+ alarm:02-Motor overload
AL053	Power+ alarm:03-DCbus overvoltage
AL054	Power+ alarm:04-DCbus undervoltage
AL055	Power+ alarm:05-Drive overtemp.
AL056	Power+ alarm:06-Drive undertemp.
AL057	Power+ alarm:07-Overcurrent HW
AL058	Power+ alarm:08-Motor overtemp.
AL059	Power+ alarm:09-IGBT module error
AL060	Power+ alarm:10-CPU error

AL061	Power+ alarm:11-Parameter default
AL062	Power+ alarm:12-DCbus ripple
AL063	Power+ alarm:13-Data comm. Fault
AL064	Power+ alarm:14-Thermistor fault
AL065	Power+ alarm:15-Autotuning fault
AL066	Power+ alarm:16-Drive disabled
AL067	Power+ alarm:17-Motor phase fault
AL068	Power+ alarm:18-Internal fan fault
AL069	Power+ alarm:19-Speed fault
AL070	Power+ alarm:20-PFC module error
AL071	Power+ alarm:21-PFC overvoltage
AL072	Power+ alarm:22-PFC undervoltage
AL073	Power+ alarm:23-STO DetectionError
AL074	Power+ alarm:24-STO DetectionError
AL075	Power+ alarm:25-Ground fault
AL076	Power+ alarm:26-Internal error 1
AL077	Power+ alarm:27-Internal error 2
AL078	Power+ alarm:28-Drive overload
AL079	Power+ alarm:29-uC safety fault
AL080	Power+ alarm:98-Unexpected restart
AL081	Power+ alarm:99-Unexpected stop
AL082	Power+ safety alarm:01-Current meas.fault
AL083	Power+ safety alarm:02-Current unbalanced
AL084	Power+ safety alarm:03-Over current
AL085	Power+ safety alarm:04-STO alarm
AL086	Power+ safety alarm:05-STO hardware alarm
AL087	Power+ safety alarm:06-PowerSupply missing
AL088	Power+ safety alarm:07-HW fault cmd.buffer
AL089	Power+ safety alarm:08-HW fault heater c.
AL090	Power+ safety alarm:09-Data comm. Fault
AL091	Power+ safety alarm:10-Compr. stall detect
AL092	Power+ safety alarm:11-DCbus over current

AL093	Power+ safety alarm:12-HWF DCbus current
AL094	Power+ safety alarm:13-DCbus voltage
AL095	Power+ safety alarm:14-HWF DCbus voltage
AL096	Power+ safety alarm:15-Input voltage
AL097	Power+ safety alarm:16-HWF input voltage
AL098	Power+ safety alarm:17-DCbus power alarm
AL099	Power+ safety alarm:18-HWF power mismatch
AL100	Power+ safety alarm:19-NTC over temp.
AL101	Power+ safety alarm:20-NTC under temp.
AL102	Power+ safety alarm:21-NTC fault
AL103	Power+ safety alarm:22-HWF sync fault
AL104	Power+ safety alarm:23-Invalid parameter
AL105	Power+ safety alarm:24-FW fault
AL106	Power+ safety alarm:25-HW fault
AL107	Power+ safety alarm:26-reseved
AL108	Power+ safety alarm:27-reseved
AL109	Power+ safety alarm:28-reseved
AL110	Power+ safety alarm:29-reseved
AL111	Power+ safety alarm:30-reseved
AL112	Power+ safety alarm:31-reseved
AL113	Power+ safety alarm:32-reseved
AL114	Power+ alarm:Power+ offline
AL115	EEV alarm:Low superheat
AL116	EEV alarm:LOP
AL117	EEV alarm:MOP
AL118	EEV alarm:High condens.temp.
AL119	EEV alarm:Low suction temp.
AL120	EEV alarm:Motor error
AL121	EEV alarm:Self Tuning
AL122	EEV alarm:Emergency closing
AL123	EEV alarm:Temperature delta
AL124	EEV alarm:Pressure delta

AL125	EEV alarm:Param.range error
AL126	EEV alarm:ServicePosit% err
AL127	EEV alarm:ValveID pin error
AL128	Low press alarm
AL129	High press alarm
AL130	Disc.temp.probe error
AL131	Suct.temp.probe error
AL132	Disc.press.probe error
AL133	Suct.press.probe error
AL134	Tank temp.probe error
AL135	EVI SuctT.probe error
AL136	EVI SuctP.probe error
AL137	Flow switch alarm
AL138	High temp. alarm
AL139	Low temp. alarm
AL140	Temp.delta alarm
AL141	EVI alarm:Param.range error
AL142	EVI alarm:Low superheat
AL143	EVI alarm:LOP
AL144	EVI alarm:MOP
AL145	EVI alarm:High condens.temp.
AL146	EVI alarm:Low suction temp.
AL147	EVI alarm:Motor error
AL148	EVI alarm:Self Tuning
AL149	EVI alarm:Emergency closing
AL150	EVI alarm:ServicePosit% err
AL151	EVI alarm:ValveID pin error
AL152	Supply power error
AL153	Fan1 fault
AL154	Fan2 fault
AL155	Fans Offline
AL165	Slave1 Offline

AL166	Master Offline
AL167	Slave2 Offline
AL168	Slave3 Offline
AL169	Slave4 Offline
AL170	Slave5 Offline
AL171	Slave6 Offline
AL172	Slave7 Offline
AL173	Slave8 Offline
AL174	Slave9 Offline

Other problem and repairing

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

Part 6. Warranty Card

Warranty card

Product model：　　Bar code：

Buyer		Address	
Invoice No.		Date	
Repair date	Repair record		Repairer

Items of warranty:

1. Warranty terms:_____; Within warranty, any problem because of quality, please contact us for support.

2. When repair needed, please show the warranty card and invoice of order or other proof.

3. We don't afford the problem that is caused by re-fitment or adding other function by user.

4. Warranty card and invoice or other purchasing proof will be invalid if alerted.

5. Please keep the warranty card and invoice or other purchasing proofs well, we will need these for service purpose.

6. We will not provide free warranty for below conditions:

(1) without proof;

(2) errors caused by re-fitment or not correct operating;

(3) damage caused by not professional people operating;

(4) faulty by moving or falling;

(5) faulty caused by natural disaster;

(6) After the power failure, the water in the pipeline of the unit was not discharged, which caused the unit to freeze.

CERTIFICATE

Product Model: _____

_____

Bar code: _____

_____

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