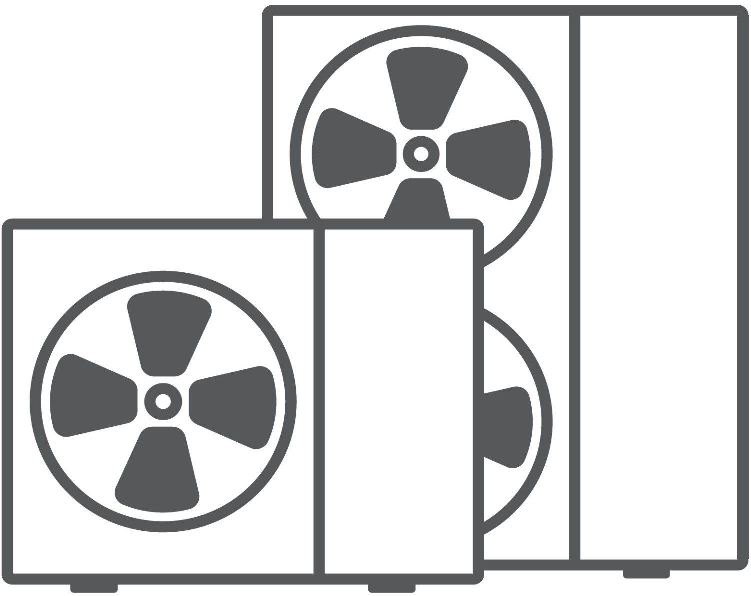
EN

USER MANUAL AND INSTALLATION GUIDE

DC INVERTER AIR TO WATER HEAT PUMP



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.

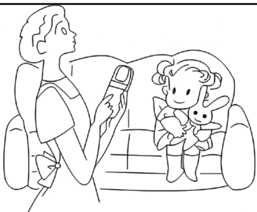
Contents

Part1. Before Use

1.1 Safety Precautions

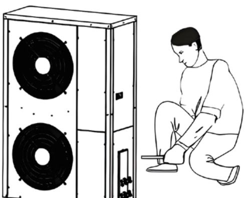
The precautions listed here are divided into the following types.They are quite important, so be sure to follow them carefully. Meanings of Warning, Caution and Prohibition symbols.

Warning | **Caution** | **Prohibition**

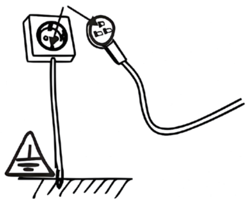


This appliance is not intended for use by persons, including children, with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been givensupervision or instruction concerning use of the appliance by a person responsible for their safety. Children should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

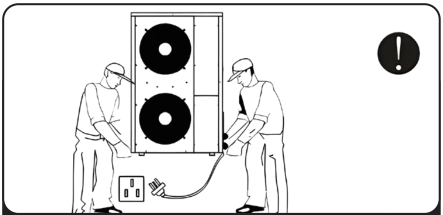
Be sure to read this manual before use.



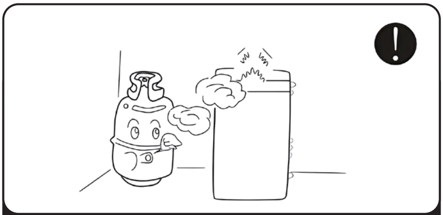
The installation, dismantlement and maintenance of the unit must be performed by qualified personnel. It is forbidden to do any changes to the structure of the unit. Otherwise injury of person or unit damage might happen.



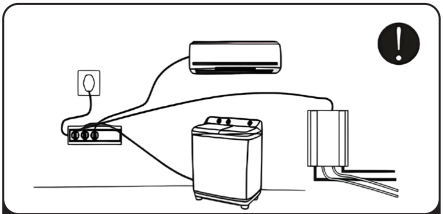
The power supply to the unit must be grounded.



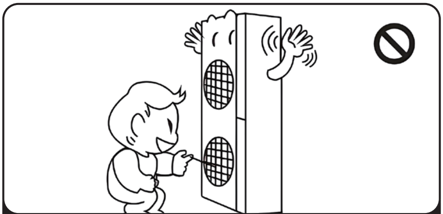
Make sure the power supply to the heat pump unit is off Before any operations are done on the unit. When the power cord gets looser or is damaged, always get a qualified person to fix it.



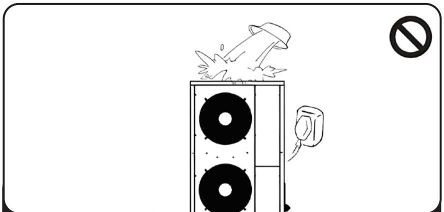
Keep the unit away from the combustible or corrosive environment.



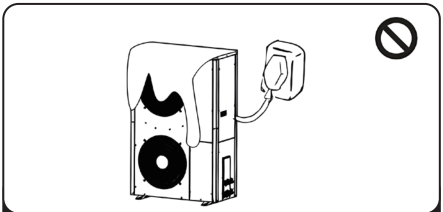
Use a dedicated socket for this unit, otherwise malfunction may occur.



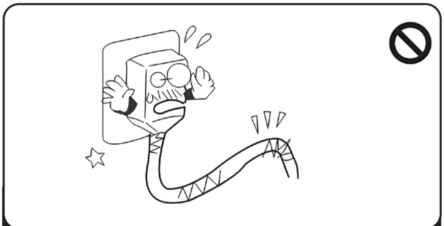
Do not touch the air outlet grill when fan motor is running.



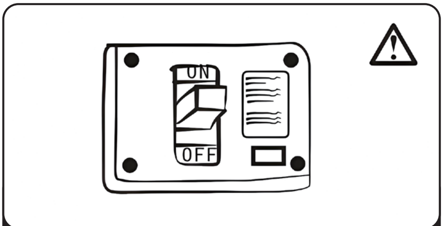
Water or any kind of liquid is strictly forbidden to be poured into the product, or may case creepage or breakdown of the product.



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.

Warning

● 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.

● The installation, dismantlement and 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 person or unit damage might happen.

● Make sure the power supply to the heat pump unit is off Before any operations are done on the unit.When the power cord gets looser or is damaged, always get a qualified person to fix it.

● Keep the unit away from the combustible or corrosive environment.

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

Caution

● 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.

Prohibition

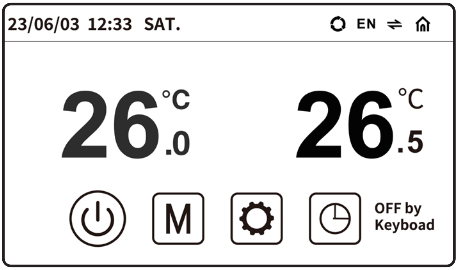
● It is mandatory to use a suitable circuit breaker for the heat pump and make sure the power supply to the heater corresponds to the specifications. Otherwise the unit might be damaged.

Caution: Risk of fire/
flammable materials

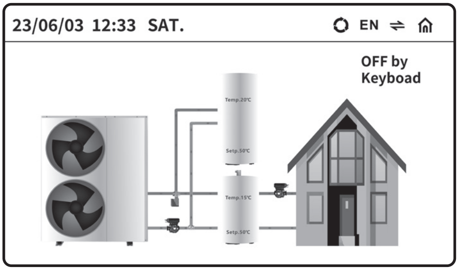
1.2. Use

1.2.1 Main Interface

Simple graph



Dynamic graph



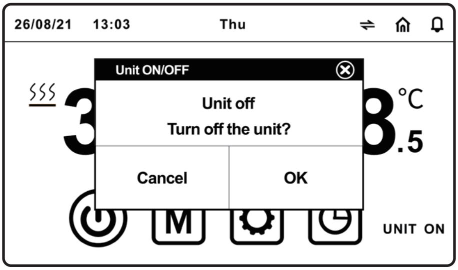
1.2.2 Definition of Buttons

icon	Meaning
12.0 °C	The current real-time cooling temperature display is in blue font; click to enter the user temperature setting.
30.0 °C	The current real-time heating temperature display is displayed in the orange font; click to enter the user temperature setting.
48.0 °C	The current real-time DHW temperature display is displayed in the red 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.
M	Mode setting key
SG++	Indicates entering the SG++ state
EN	Current language, click to select another language

1.2.3 Turn On/Off

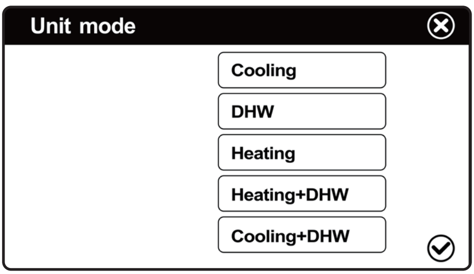
In OFF state, the switch key color is white, Press ⏻ , it displays a selection box, select confirm to ON.

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



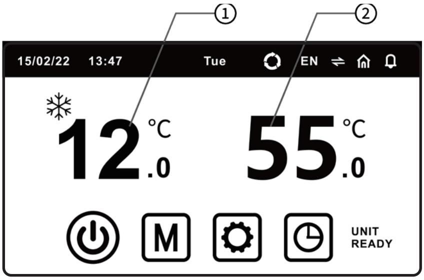
1.2.4 Mode Switching

Click [M] to set the unit mode. After selecting the required mode, click ✓ to confirm, and click ⊗ to Cancel and exit the page.

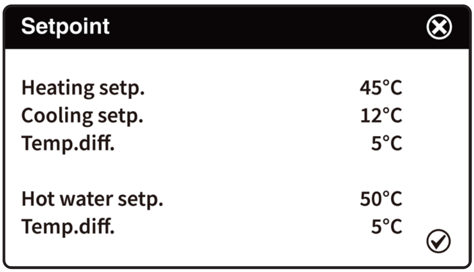


1.2.5 Temperature Setting

Click the ①② position of the real-time temperature to enter the temperature setting interface.



Set the temperature and hysteresis of each mode in the temperature setting interface.



Cooling setp.: Cooling stop temperature setting

Heating setp. : Heating stop temperature setting

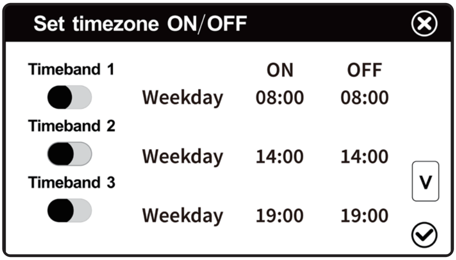
Temp. Diff. : when running heating/cooling mode,the difference between the unit's shutdown temperature and the set temperature after reaching the setting temperature.

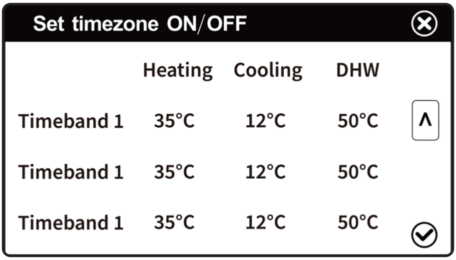
Hot water setp. : Hot water tank temperature stop temperature setting

Temp. Diff. : when running hot water mode,the difference between the unit's shutdown temperature and the set temperature after reaching the setting temperature.

1.2.6 Timer Setting

Press the button to pop up the timing control interface, and set the timing in the timing control interface.





Timing period is not enabled/enabled: the switch is left when not enabled, and the switch is right when enabled

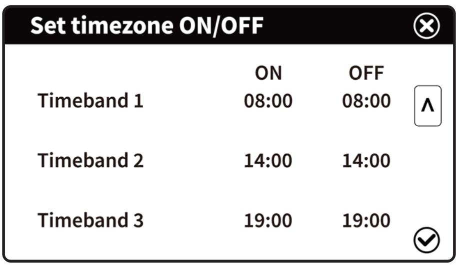
ON: Set for the timing power-on time.

OFF: Set for timing off time.

Timeband1/2/3, means that there are three timings that can be set, and each timing can set different hot water, heating and cooling temperatures.

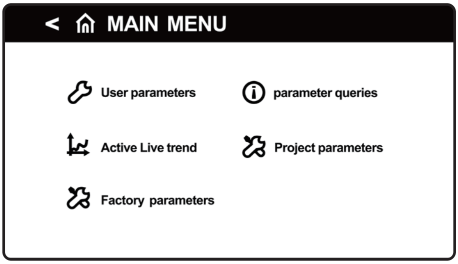
Timed Water Return

The water return function can only be used when an integral hydronic tank is connected. Set G23 to YES in the engineering parameters to turn on the water return function. Water return is only performed within the following three time periods.

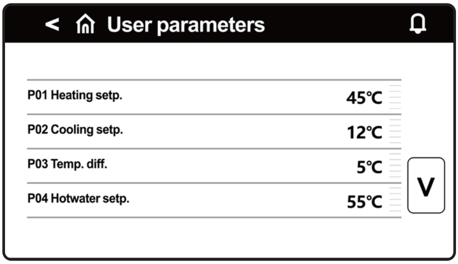


1.2.7 User Setting

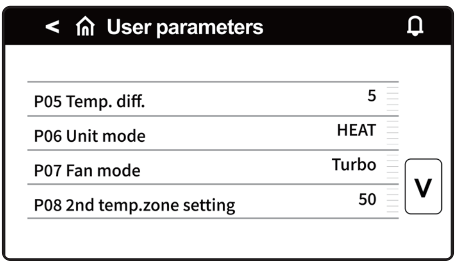
Press to “Main Menu” as below :

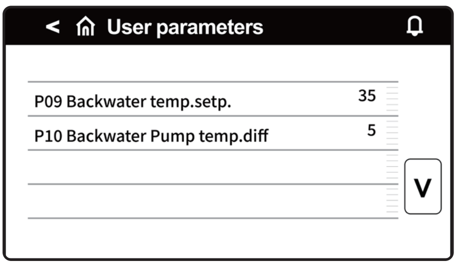


① User Parameters : Press User parameters for user parameter setting



- P01 Heating setp. : Heating shutdown temperature
- P02 Cooling setp. : Cooling shutdown temperature
- P03 Temp. Diff. : The difference between the unit's shutdown temperature and the setting temperature after reaching the setting temperature.
- P04 Hot water setp. : Hot water shutdown temperature.
- P05 Temp. Diff. : When the machine is operating hot water mode, the difference between the unit's shutdown temperature and the set temperature after reaching the setting temperature.





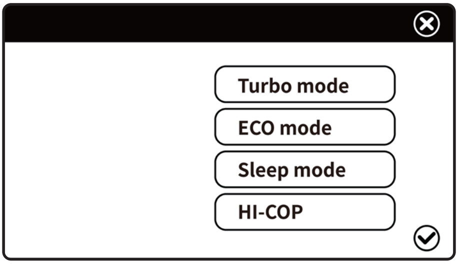
● P06 Unit mode: Modes choice of heat pumps.

● P07 Fan mode: Modes choice of fans. Turbo mode, ECO mode, Sleep mode and HI-COP mode are optional.

● P08 2nd temp.zone setting: Water outlet setting temperature in 2nd temp.zone

● P09 Backwater temp.setp.: Backwater setting temperature

● P10 Backwater pump temp.diff : Backwater pump differential temperature



-Turbo mode, the compressor outputs according to the maximum capacity.

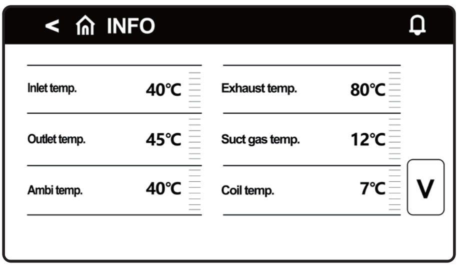
-ECO mode, the heat pump can automatically output capacity as required according to the ambient temperature.

-Sleep mode, the heat pump has low output capacity from 8 pm to 8 am, and high output at other times.

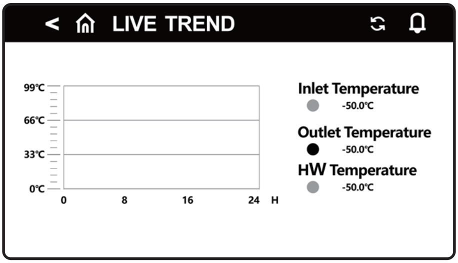
HI-COP mode, the heat pump outputs according to the test capacity.

② **Parameter query: Click** parameter queries **you can check the operating parameters.**

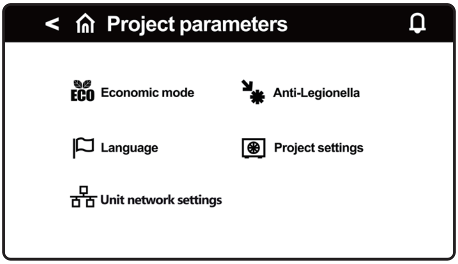
press or Users can view more unit operating parameter just as temperature , Suct. press, Disch.press , etc.



③ Press this Active Live trend can check the curves of heating temperature, outlet water temperature, and hot water tank temperature changing with running time.

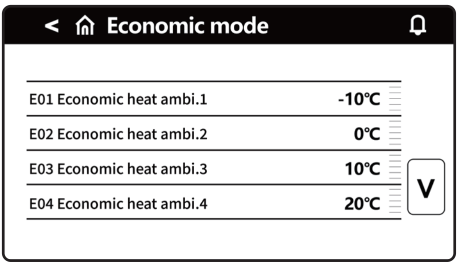


④ Engineering parameters: click here Project parameters and enter the password to set the engineering parameter. This password is only provide for the construction contractor, if needed, please contact our engineers, it can be operated after receiving our authorization.

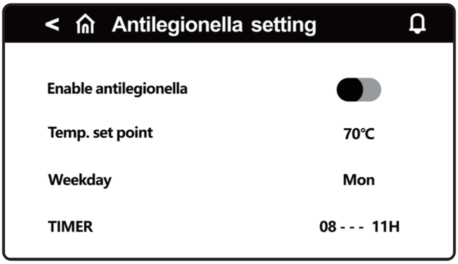


Click ECO Economic mode can enter the setting of relevant parameter on ECO mode as bellow.

press ∧ or ∨ Users can view more ECO mode about it.



Click Anti-Legionella can enter relevant parameter settings for high temperature sterilization mode.



Enable antilegionella:Disable or enable sterilization function, right is enable ;

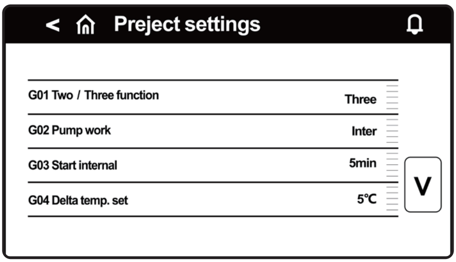
Temp. Set point: Sterilization temperature setting;

Weekday: Sterilization work days, once a week;

TIMER: Sterilization time point, once a week;

Press Language to enter the language selection interface;

Press Project settings to access the relevant settings of project parameters;

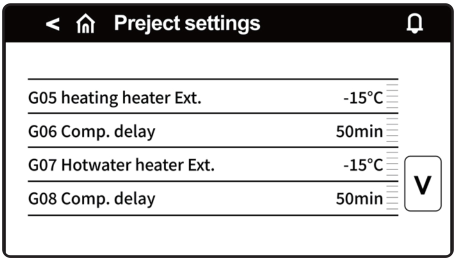


Two/Three function :Click "two" and "three" to select whether the current unit is double supply or triple supply;

DC Pump work：The working mode of the inverter water pump can be selected as demand, always on, intermittently on;

Start internal: The interval time for the start of the inverter water pump in intermittent mode;

Delta temp. set: The inverter water pump controls the current temperature difference between the incoming and outgoing water;

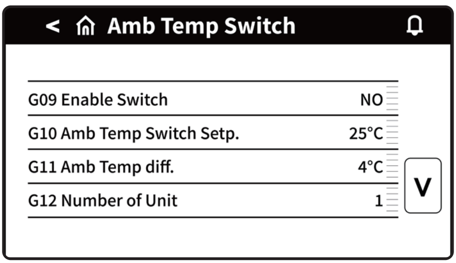


Heating heater Ext.: Start-up ambient temperature of heating electric heater；

Comp. Delay: heating electric heater start delay；

Hot water heater Ext.: Start-up ambient temperature of hot water electric heater；

Comp. Delay: Hot water electric heater start delay；



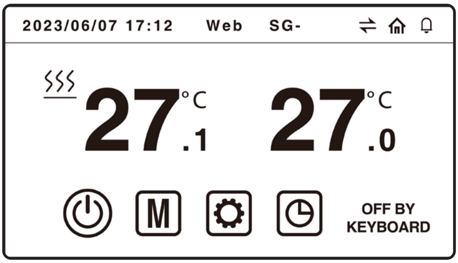
- Enable Switch:
  (With this function , the heat pump can do heating /cooling automatically based on the ambient temperature setting)
- Enable Switch -No : turn off the automatic cooling/heating mode which is based on the ambient temperature; Original setting is Disable before delivery .
- Enable Switch -Yes : turn on the automatic cooling/heating mode which is based on the ambient temperature.
- AmbTemp Switch Setp.: Switch the ambient temperature setting point of the cooling/ heating mode;
- when the ambient temperature is lower than the set point-hysteresis, the unit will automatically switch to heating or hot water + heating;
- when the ambient temperature is higher than the set point +In case of hysteresis, the unit will automatically switch to cooling or hot water+refrigeration;
- when the ambient temperature is higher than the set point-hysteresis and lower than the set point + hysteresis maintains the current mode
- AmbTemp.diff: The difference between the ambient temperature switching mode and the set temperature.
- Number of Unit: When the units are networked and the operating parameters of multiple units need to be queried, select the corresponding number of units

⑤ SG Ready Operating Instructio

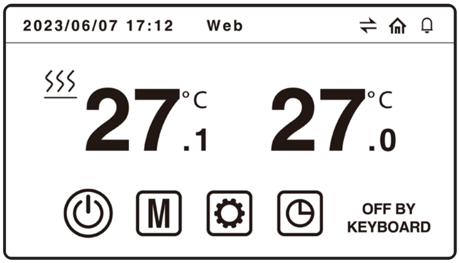
- **SG Operational Status Table:**

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

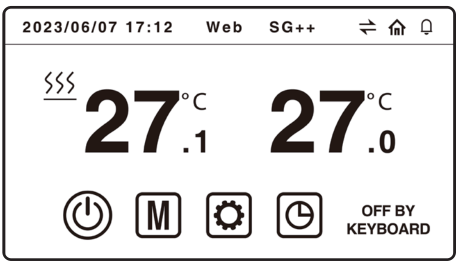
- The main screen is in the top bar and shows the current mode of operation of the unit:



Mode1 (SG-)



Mode2 (None)

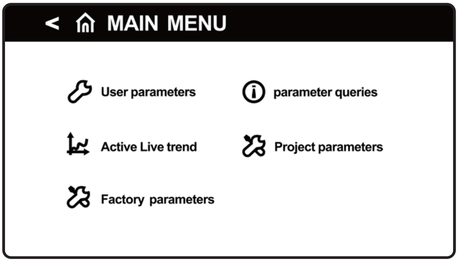


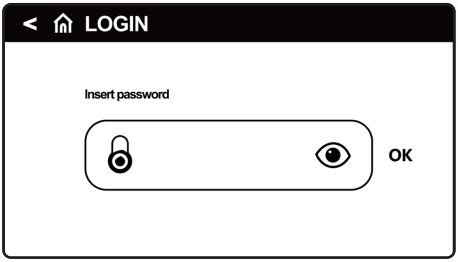
Mode3 (SG++)

SG Se tting Method:

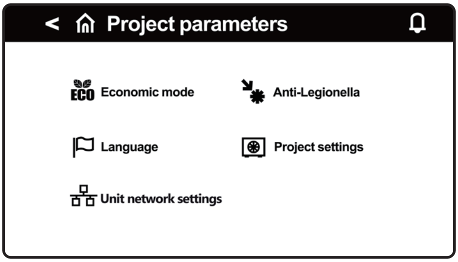
Turn On/Off SG Funtion

Press the button in the main screen and then press the Project parameters button to enter the project parameter password entry page as shown below:

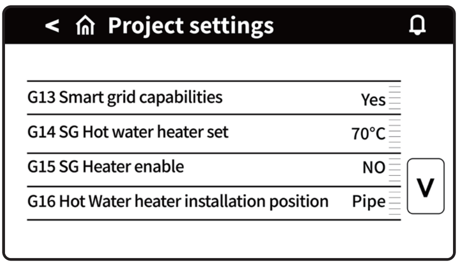




- On the above page, enter the password (0815) and click "OK" to enter the "Project parameters" page shown below.



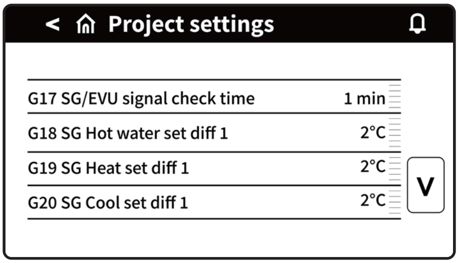
- After entering the project parameters page, click the " " button to enter the "Project settings" page, and use the " " button to page to the G13 parameters on the "Project settings" page, as shown below:



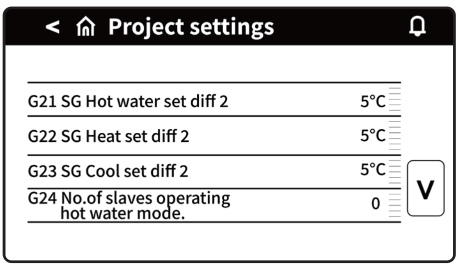
- G13 Smart grid capabilities:
  When set to "YES", the SG function operates, when set to "No", the SG function does not operate.
- Description of other parameters：
  G14 SG Hot water heater set：when entering mode 4, sets the stopping temperature after the hot water heater has been forced on.
  G15 SG Heater enable：when entering mode 4, does the hot water heater turn on. When set to "YES", the hot water heater is forced on and works together with the heat pump, when set to "NO", the hot water heater is not forced on.
  SG++ Hotwater temp.setting：when entering mode 4, the stopping temperature after forced opening of the hot water heater.
  G16 Hot water heater installation position: The position of the hot water heater should be selected according to the actual installation.

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

G17 SG/EVU signal check time: SG/EVU signal detection time, once every 60S.
G18/G19/G20 are only valid for the old SG READY standard; they are invalid for the new standard.



G21 SG Hot water set diff 2: 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.
G22 SG Heat set diff 2: 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.
G23 SG Cool set diff 2: when entering mode 4, cooling set a temperature correction value, set to 5 as an example, the final cooling set temperature = original set temperature - 5 when actually running.
G24 No. of slaves operating hot water mode.

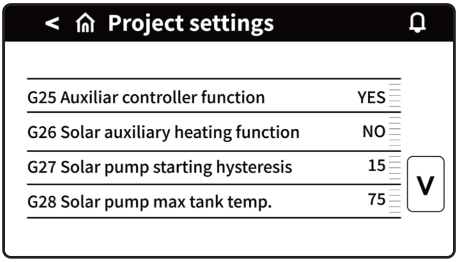


G25 Auxiliar controller function : Auxiliary controller function enabled. Please set to enable when connecting the integral hydronic tank.

G26 Solar auxiliary heating function :Solar auxiliary heating function enabled.

G27 Solar pump starting hysteresis: The return difference temperature of the solar pump. The solar temperature - the water tank temperature > this value, the solar pump is started.

G28 Solar pump max tank temp. : The highest temperature of the water tank during solar heating. The water tank temperature > this value, the solar pump stops running.



G29 Backwater function: Backwater Function Enabled.

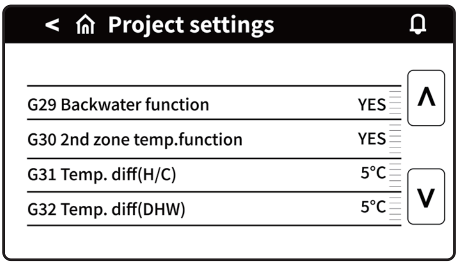
G30 2nd temp.zone function: 2nd temp.zone function Enabled.

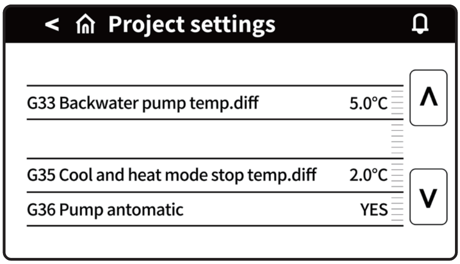
G31 Temp.diff(H/C): Heating/cooling mode differential temperature

G32 Temp.diff(DHW): DHW mode differential temperature

G33 Backwater pump temp diff: Backwater pump differential temperature

G34: The main screen displays the inlet temperature or outlet temperature





G35 Cool and heat mode stop temp.diff:

System Shutdown Conditions:

In Heating Mode: When the inlet water temperature ≥ Set Temperature + 2° C.

In Cooling Mode: When the inlet water temperature ≤ Set Temperature - 2° C.

G36 Pump automatic: Circulating Pump Auto Mode: YES / NO

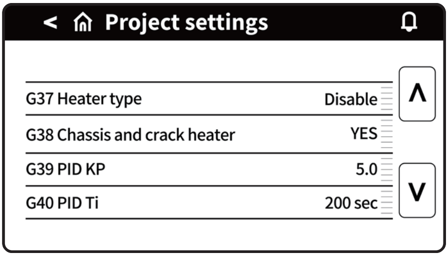
YES: Automatic speed control / NO: Manual speed control

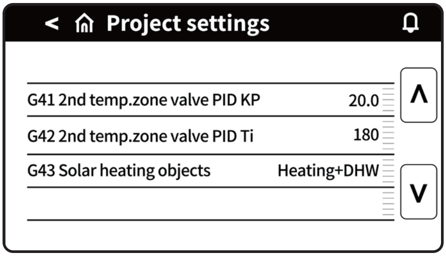
G37 Heater type：Electric Heat Type: Disabled, Standalone

G38 Chassis and crack heater：Turn On/Off the Crankcase Heater Belt

G39 PID KP：Proportional Gain (P) for PID Tuning:

G40 PID Ti：Integral Time (I) for PID Tuning:





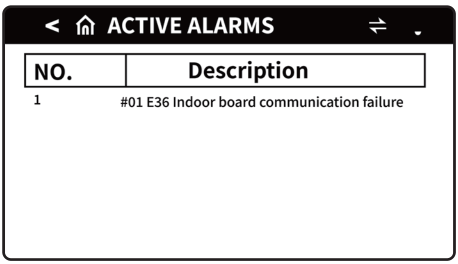
G41 2nd temp.zone valve PID KP：Zone 2 Proportional Valve PID Control, Proportional (P)

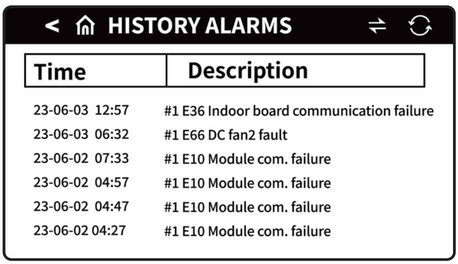
G42 2nd temp.zone valve PID Ti：Zone 2 Proportional Valve PID Control, Integral (I)

G43 Solar_Heating Object Setting：Solar Heating Target Selection

1.2.8 Current/Historical Alarm Query

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





Press to show a dialog box for whether to delete historical alarms, press "YES" to delete historical alarms, and press "NO" to cancel the operation.

Press to switch between current alarm and historical alarm.

Press to return to main menu.

Part2. Installation Instructions

2.1 Before Installation

- **Before Installation**

Be sure to confirm the model name and the serial number of the unit.

- **Handling**

Due to relatively large dimensions and heavy weight, the unit should only be handled using lifting tools with slings. The slings can be fitted into foreseen sleeves at the base frame that are made specifically for this purpose.

Caution

- There is flammable refrigerant in the unit and it should be installed in a well-ventilated site. If the unit is installed inside, an additional refrigerant detection device and ventilation equipment must be added in accordance with the standard EN378. Be sure to adopt adequate measures to prevent the unit from being used as a shelter by small animals.
- Small animals making contact with electrical parts can cause malfunction, smoke or fire. Please instruct the customer to keep the area around the unit clean.

2.2 Installation Site

Warning

- To avoid injury, do not touch the air inlet or aluminum fins of the unit.
  Do not use the grips in the fan grills to avoid damage.
- The unit is top heavy! Prevent the unit from falling due to improper inclination during handling.

2.3 Installation Precautions

- Select an installation site where the following conditions are satisfied and one that meets with your customer's approval.
  - Places that are well-ventilated.
  - Places where the unit does not disturb neighbors.
  - Safe places which can bear the unit's weight and vibration and where the unit can be installed at an even level.
  - Places where there is no possibility of flammable gas or product leak.
  - The equipment is not intended for use in a potentially explosive atmosphere.
  - Places where servicing space can be well ensured.
  - Places where the units' piping and wiring lengths come within the allowable ranges.
  - Places where water leaking from the unit cannot cause damage to the location (e.g. in case of a blocked drain pipe).
  - Places where rain can be avoided as much as possible.

Prohibition

Do not install the unit in places often used as a work space. In case of construction work (e.g. grinding etc.) where a lot of dust is created, the unit must be covered.

- Do not place any object or equipment on top of the unit (top plate).
- Do not climb, sit or stand on top of the unit.
- Be sure that sufficient precautions are taken in case of refrigerant leakage according to relevant local laws and regulations.
- Don’t install the unit near the sea or where there is corrosion gas.

- When installing the unit in a place exposed to strong wind, pay special attention to the following. Strong winds of 5 m/sec or more blowing against the unit's air outlet causes a short circuit (suction of discharge air), and this may have the following consequences:
  - Deterioration of the operational capacity.
  - Frequent frost acceleration in heating operation.
  - Disruption of operation due to rise of high pressure.
  - When a strong wind blows continuously on the front of the unit, the fan can start rotating very fast until it breaks.

2.4 Installation Requirements and Schematic Diagram

● 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.

● **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.

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

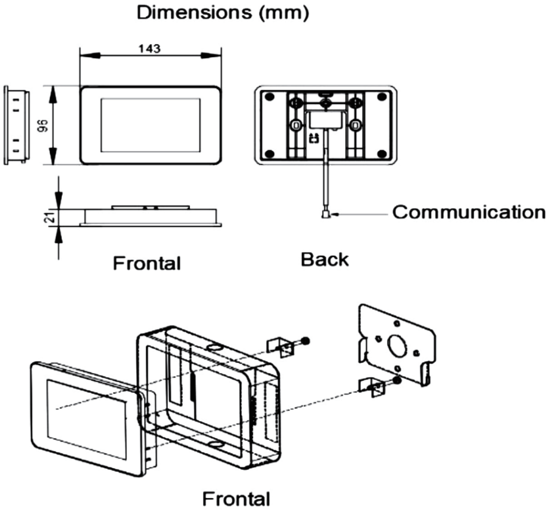
● **Do not open this terminal when powered on.**

-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.

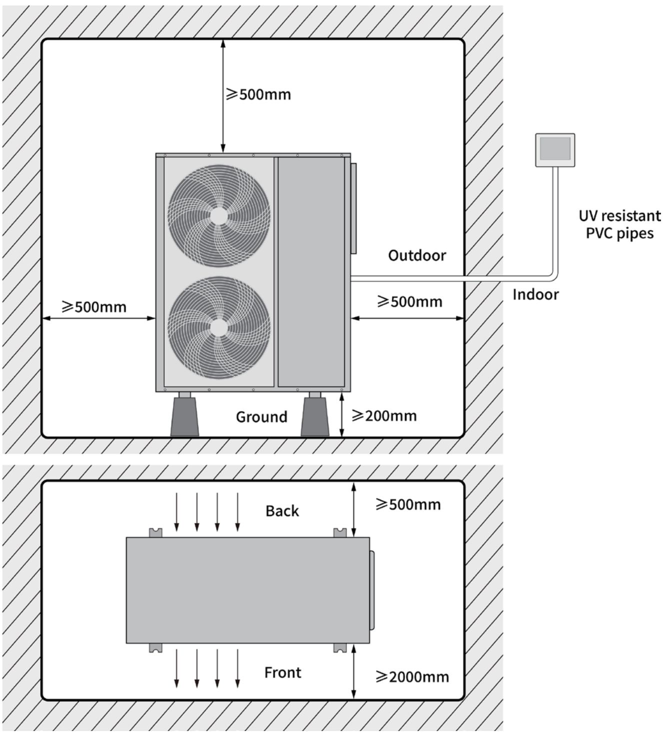
● **Avoid touching any live parts on the terminal.**

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

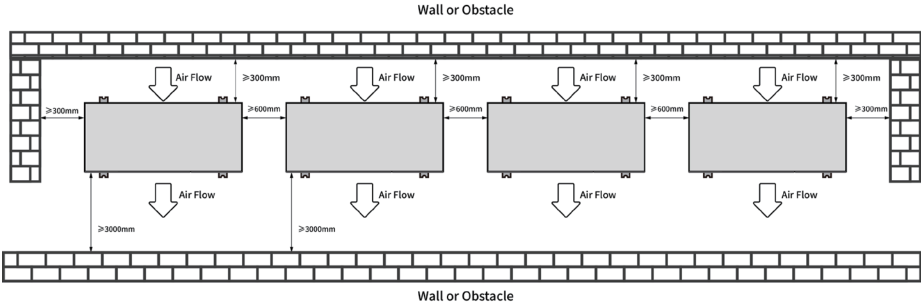
Overall Dimensions:



Common to all models:



Cascade Installation Requirements

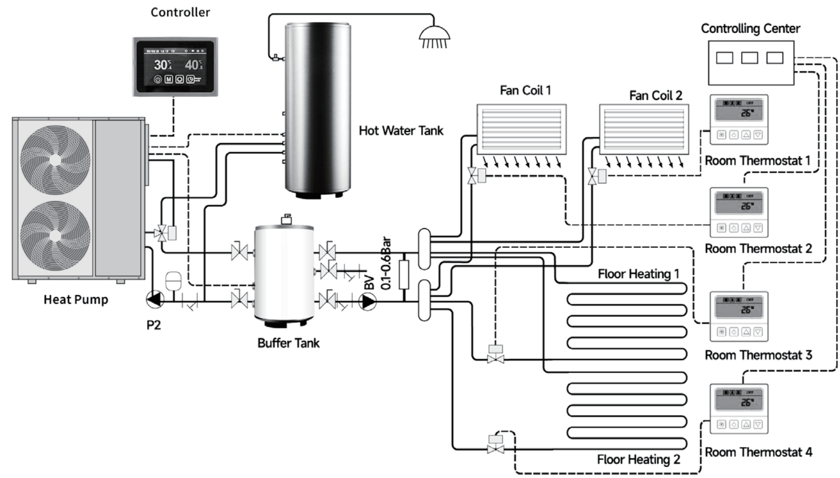


Secondary Circulation System

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 themostat shall be installed.
4. If the heat pump unit has a built-in pump, P2 in the schematic diagram does not need to be installed.



DC inverter air source heat pump

Caution

- Ground the unit.
- Grounding resistance should be according to local laws and regulations.
- Do not connect the ground wire to gas or water pipes, lightning conductors or telephone ground wires.
- Incomplete grounding may cause electric shocks.
  - Gas pipes：Fire or an explosion might occur if the gas leaks.
  - Water pipes：Hard vinyl tubes are not effective grounds.
  - Lightning conductors or telephone ground wires: Electrical threshold may rise abnormally if struck by a lightning bolt.
- Install the power wire at least 3 feet (1 meter) away from televisions or radios to prevent interference or noise. (Depending on the radio waves, a distance of 3 feet (1 meter) may not be sufficient to eliminate the noise.)
- Do not wash the unit. This may cause electric shocks or fire. The appliance must be installed in accordance with national wiring regulations. 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.
- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person.
- The appliance shall be installed in accordance with national wiring regulations.
- When installing multiple air conditioners in a centralized manner, please confirm the load balance of the three-phase power supply, and multiple units are prevented from being assembled into the same phase of the three-phase power supply.
- Do not install the unit in the following places:
  - Where there is mist of mineral oil, oil spray or vapors. Plastic parts may deteriorate, and cause them to come loose or water to leak.
  - Where corrosive gases (such as sulfurous acid gas) are produced. Where corrosion of copper pipes or soldered parts may cause refrigerant to leak.
  - Where there is machinery which emits electromagnetic waves. Electromagnetic waves can disturb the control system and cause equipment malfunction.

- Where flammable gases may leak, where carbon fiber or ignitable dust is suspended in the air or where volatile flammables such as paint thinner or gasoline are handled. These types of gases might cause a fire.
- Where the air contains high levels of salt such as near the ocean.
- Where voltage fluctuates a lot, such as in factories.
- In vehicles or vessels.
- Where acidic or alkaline vapors are present.

- DISPOSAL: Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary. Do not dispose of electrical appliances as municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substance can leak into the ground water and get into the food chain, damaging your health and well-being.
- 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 access.
- Before installation, check whether the user's power supply meets the electrical installation requirements of unit (including reliable grounding, leakage, and wire diameter electrical load, etc.). If the electrical installation requirements of the product are not met, the installation of the product is prohibited until the product is rectified.
- This appliance can be used by children 8 years old and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they are supervised or given instruction on using the unit in a safe manner and understand the hazards involved. Children should not play with the unit. Cleaning and user maintenance should not be done by children without supervision.
- Children should be supervised to ensure that they do not play with the appliance.
- Confirm the safety of the installation area (walls, floors, etc.) without hidden dangers such as water, electricity, and gas, before wiring/pipes.
- Product installation should be fixed firmly. Take reinforcement measures, when necessary.

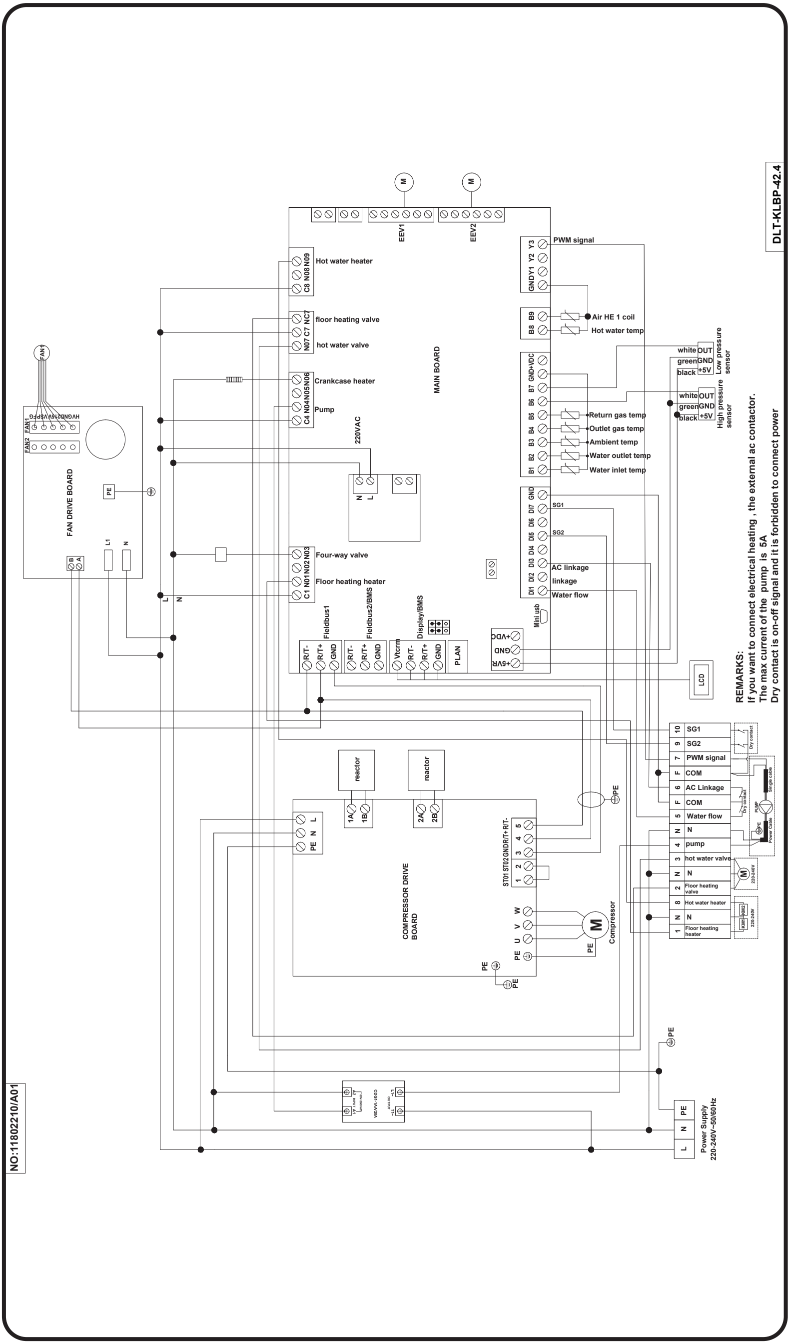
2.5 Water Pipe Part

- 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.

schematic diagram of threaded heat exchange coils

Model	Recommended Specification and Length of Heat Exchange Coil for Hot Water Tank
CGK015V3L	304 Stainless steel bellows, DN32*6000mm；
CGK025V3L/CGK-025V3L	304 Stainless steel bellows, DN32*10000mm；
CGK030V3L/CGK-030V3L CGK030V4P/CGK-030V4P	304 Stainless steel bellows, DN32*10000mm；
CGK040V3L/CGK-040V3L CGK040V4P/CGK-040V4P	304 Stainless steel bellows, DN32*10000mm；
CGK050V3L/CGK-050V3L CGK050V4P/CGK-050V4P	304 Stainless steel bellows, DN32*15000mm；
CGK060V3L/CGK-060V3L CGK060V4P/CGK-060V4P	304 Stainless steel bellows, DN32*15000mm；
CGK-080V3L	304 Stainless steel bellows, 2*DN32*10000mm；

2.6 Wiring Diagram



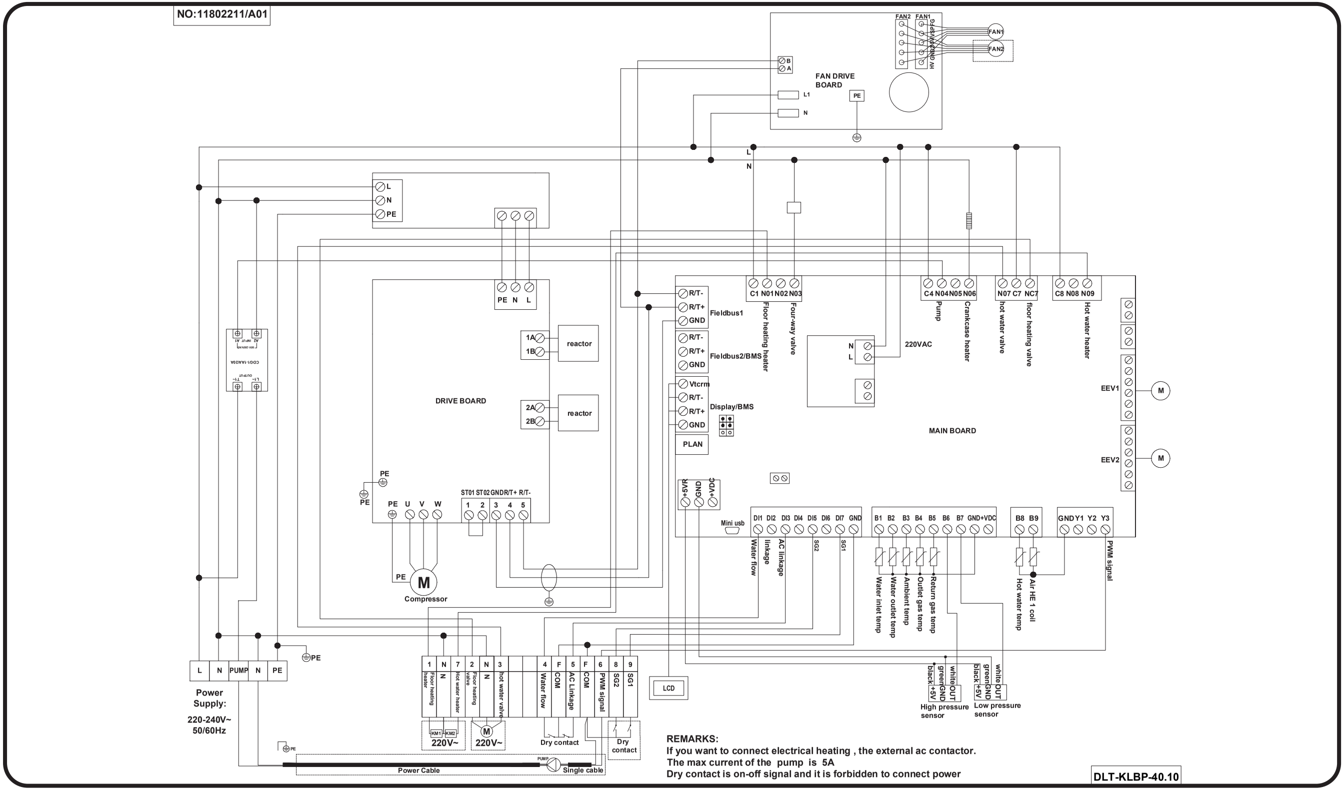
Voltage: 220V-240V/50Hz

For CGK015V3L

The wiring diagram is based on the actual wiring.

Voltage: 220V-240V/50Hz

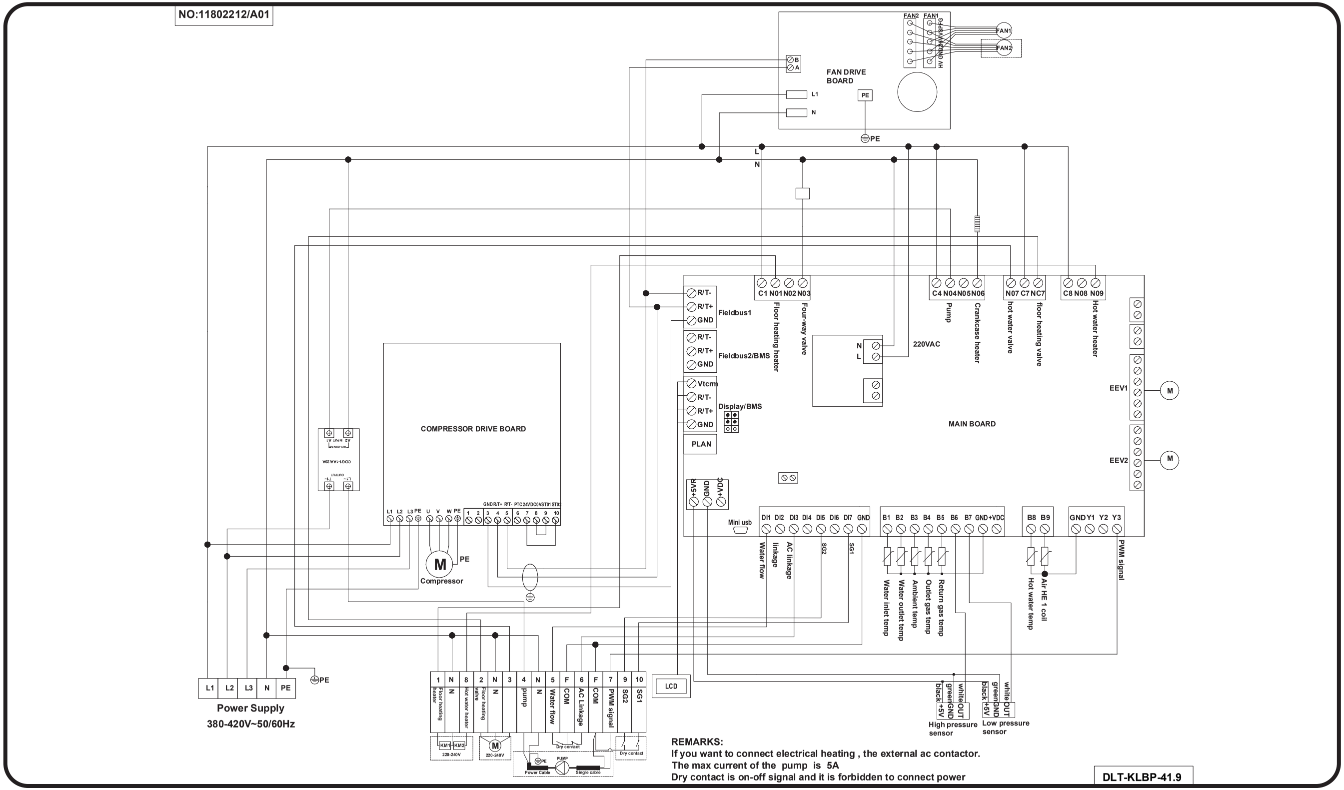
For CGK025V3L/CGK030V3L/CGK040V3L/CGK050V3L/CGK060V3L



The wiring diagram is based on the actual wiring.

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

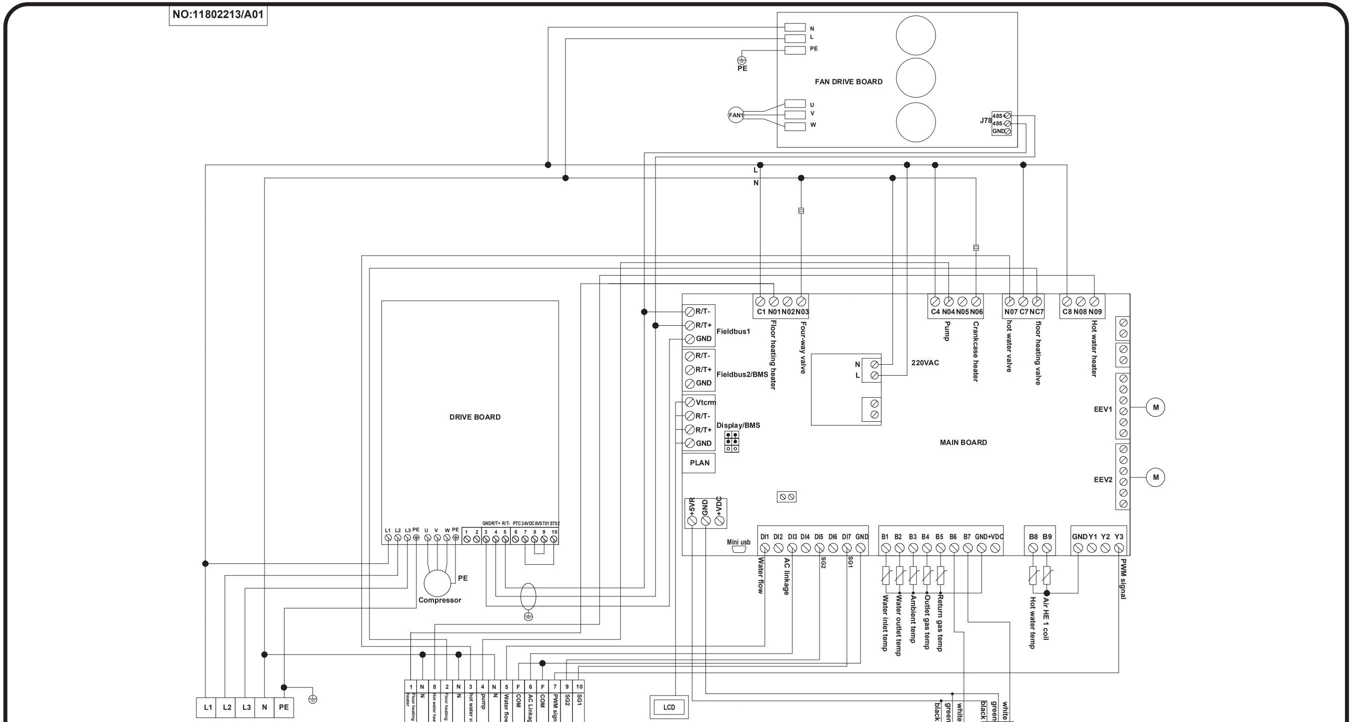
For CGK-025V3L/CGK-030V3L/CGK-040V3L/CGK-050V3L/CGK-060V3L//CGK-080V3L



The wiring diagram is based on the actual wiring.

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

For CGK-100V3L

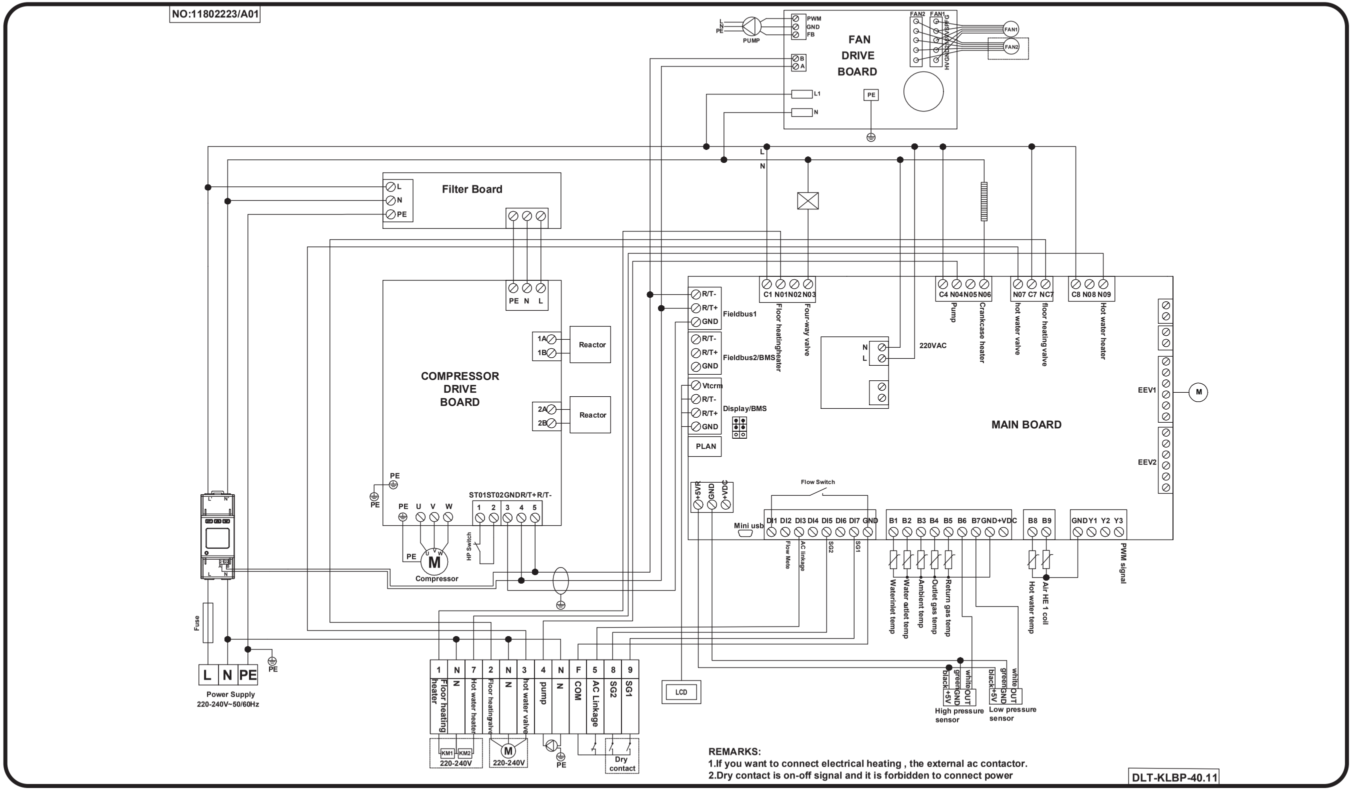


REMARKS:
If you want to connect electrical heating and pump , the external ac contactor.
The max current of the pump is 5A
Dry contact is on-off signal and it is forbidden to connect power

The wiring diagram is based on the actual wiring.

Voltage: 220V-240V/50Hz

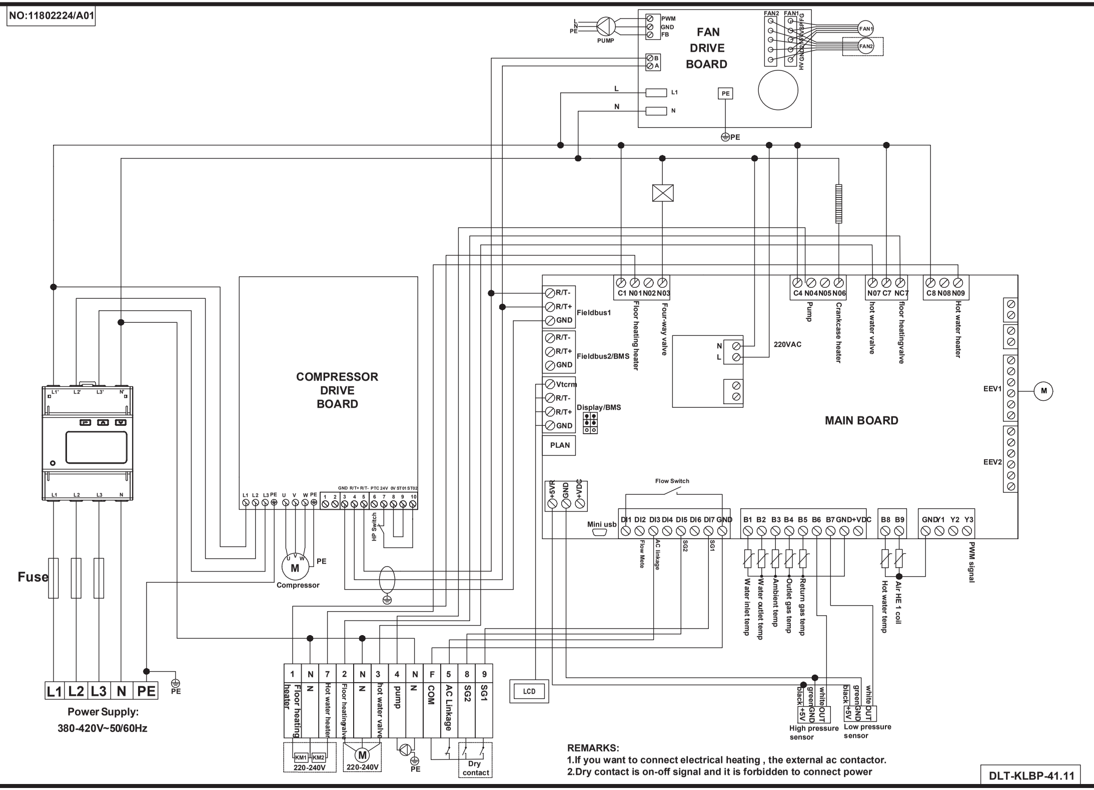
For CGK030V4P/CGK040V4P/CGK050V4P/CGK060V4P



The wiring diagram is based on the actual wiring.

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

For CGK-030V4P/CGK-040V4P/CGK-050V4P/CGK-060V4P



REMARKS:

1.If you want to connect electrical heating , the external ac contactor.

2.Dry contact is on-off signal and it is forbidden to connect power

The wiring diagram is based on the actual wiring.

2.7 Power Line Diameter Selection

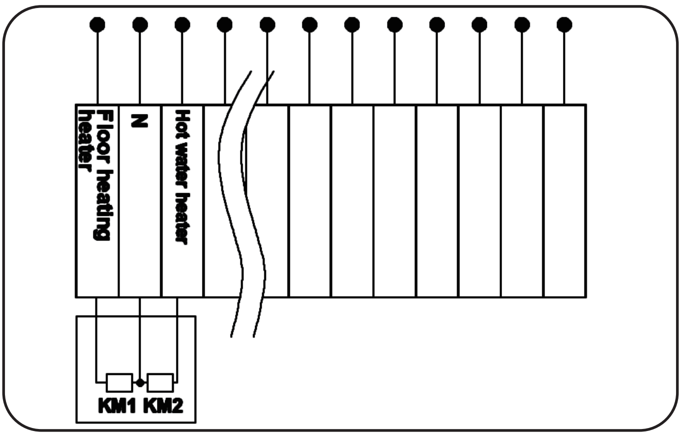
Model	Line (mm2)	Max. Current(A)	Model	Line (mm2)	Max. Current(A)
CGK015V3L	2.5	9.68	CGK025V3L	1.5	6.53
CGK025V3L	4	14.79	CGK-030V3L/ CGK-030V4P	2.5	8.31
CGK030V3L/ CGK030V4P	4	18.88	CGK-040V3L/ CGK-040V4P	2.5	10.83
CGK040V3L/ CGK040V4P	6	24.6	CGK-050V3L/ CGK-050V4P	4	13.28
CGK050V3L/ CGK050V4P	6	30.17	CGK-060V3L/ CGK-060V4P	4	14.94
CGK060V3L/ CGK060V4P	6	33.94	CGK-080V3L	4	21.35

*The specific selection depends on the current corresponding to the actual model.

2.8 Installation and Use of Electric Heating

2.8.1 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;

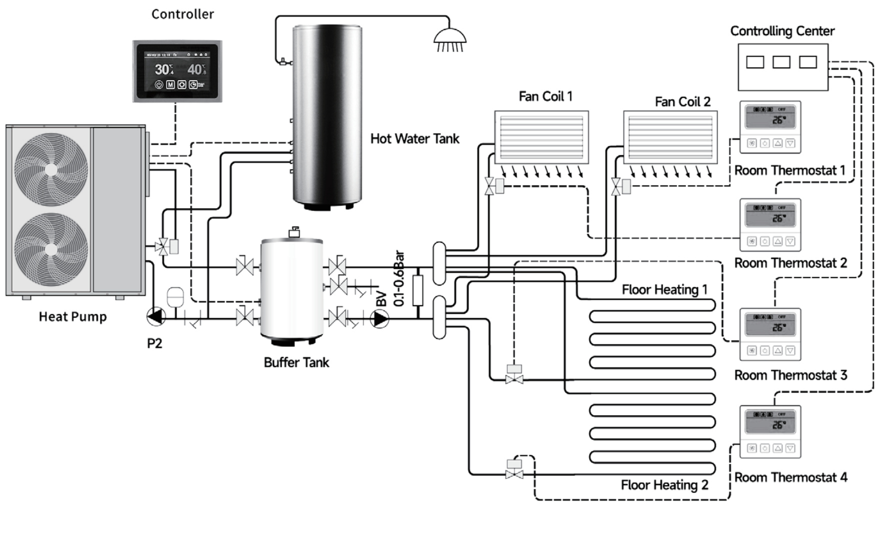
“Hot water heater” : control the electric heating installed in the hot water tank;

2.8.2 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 themostat shall be installed.
4. If the heat pump unit has a built-in pump, P2 in the schematic diagram does not need to be installed.

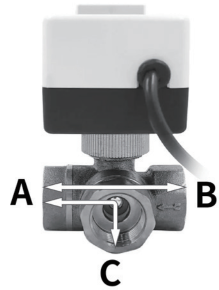


DC inverter air source heat pump

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;

2.8.3 Three-way Valve Selection:



- The interface size of the three-way valve cannot be smaller than the main pipe.
- Adopt the three-way valve of three-wire two-control.
- Action switching period ＜ 15 seconds；

2.9 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 exhaust 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.*

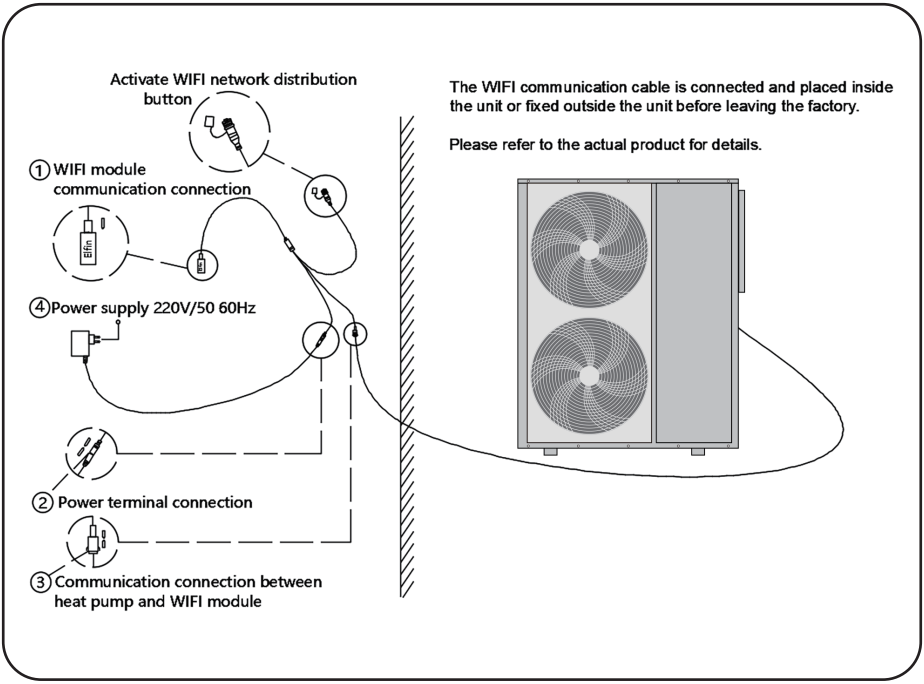
② Pre-start Up

- 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.

Part 3. WIFI Module Networking Manual
(For Models with WiFi)

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.



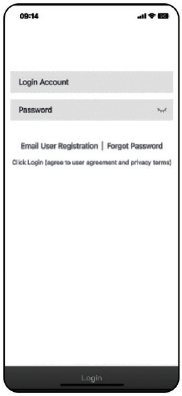
3.2 Connection of WIFI Module

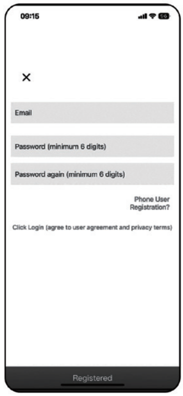
When used for the first time, the WIFI module needs to be equipped with a network. The steps to configure the network are as follows:

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)

iOS App: Search for "Heat Pump Pro" in the Apple Store to download.
Android App: Search for "Heat Pump" in the Google Play Store or scan the QR code below to download.

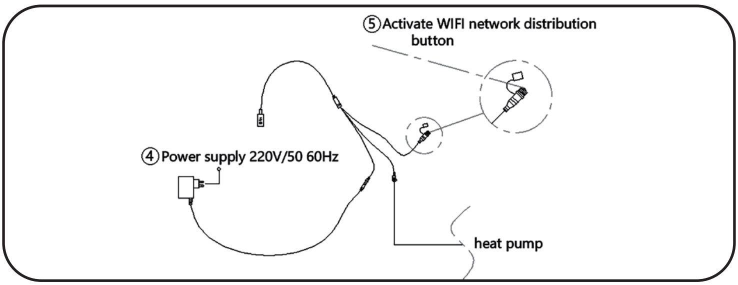




Step 2:

- **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.

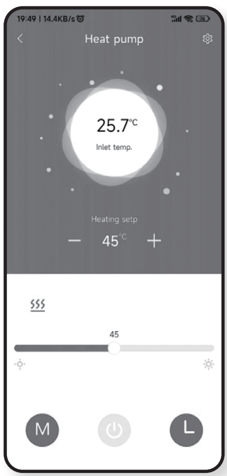


After entering My Device, click “⊕” in the upper left corner to enter the Add device page. The name of the WIFI currently connected to your phone will be displayed in the box above. Enter the WIFI password and gently press the raised button on the connection cable ⑤ (picture above). Note that pressing 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.

● 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

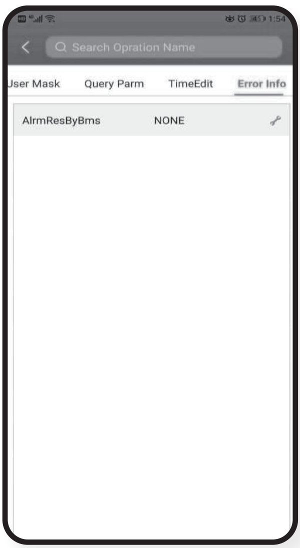
1. Click a device in the device list to enter this page.
2. The background color of the bubble indicates the current operating state of the device:

● 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.

● Multi-color 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.

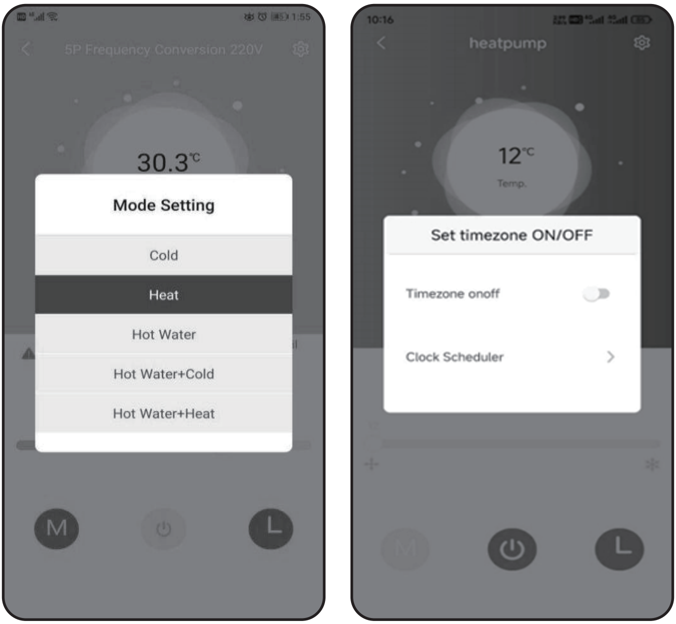
● When the device is in the power-on state, you can set the mode temperature, set the timer, press the key to switch on and off, but you cannot set the working mode (that is, the working mode can only be set when the device is off)

3. The bubble shows the current temperature of the device.
4. Below the bubble is the set temperature of the device in the current operating mode.
5. Set the temperature is about 45°C , Press button, each click adds or subtracts the current setting value to the device.
6. Below the setting temperature is the Fault and Alert. When the device starts to alarm, the specific Alert reason will be displayed next to the yellow warning icon. In case of device Fault and Alert, the Fault and Alert content will be displayed on the right side of this area. Click this area to jump to the detailed Error Information.



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 beloww



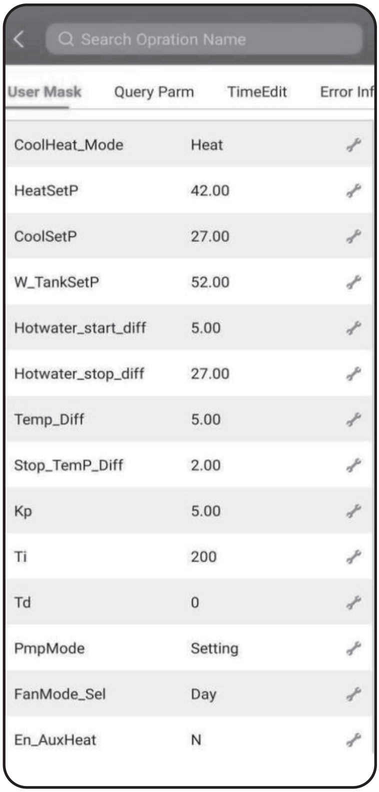
- Click "on/off" and set "on/off" command to the device.
- Click the device Timer to see the Timer Settings menu. Click the Clock Schedule to set the device Timer function.

3.5 Detailed Information of the Units

Note:

Click this Main Interface menu on the upper right corner to enter this setting page.

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.



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

Part 4. Maintenance and Repairing

Maintenance Tips

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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

5.1 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 discharge 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
AL175	Max antileg time alarm
AL176	Low ambient temp alarm
AL177	Electric meter offline
AL178	Heater overheat alarm
AL179	Aux controller alarm: Too many mem writings
AL180	Aux controller alarm: Retain mem write error
AL181	Aux controller alarm: Return temp. error
AL182	Aux controller alarm: 2nd zone temp. error
AL183	Aux controller alarm: Hotwater temp. error
AL184	Aux controller alarm: Solar temp. error
AL185	Aux controller alarm: Aux controller offline
AL186	Low evap temp alarm

5.2 Other problem and repairing

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