ZĀNSKAR
PURE PERFORMANCE

Zanskar Commercial
Air Source Heat Pump

Installation and User's Guide

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

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IMPORTANT SAFETY PRECAUTIONS

Important Notice:

This guide provides installation and operation instructions for the Zanskar Commercial Air Source Heat Pump. Consult the seller with any questions regarding this equipment.

Attention Installer: This guide contains important information about the installation, operation and safe use of this product. This information should be given to the owner and/or operator of this equipment after installation or left on or near the heat pump.

Attention User: This manual contains important information that will help you in operating and maintaining this heat pump. Please retain it for future reference.

WARNING - Before installing this product, read and follow all warning notices and instructions which are included. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage.

Codes and Standards

The Zanskar Commercial Air Source Heat Pump must be installed in accordance with the local building and installation codes as per the utility or authority having jurisdiction. All local codes take precedence over national codes. In the absence of local codes, refer to the latest edition of the National Electric Code (NEC) in the local government Electric Code (CEC) for installation.

DANGER — Risk of electrical shock or electrocution.

The electrical supply to this product must be installed by a licensed or certified electrician in accordance with the National Electrical Code and all applicable local codes and ordinances. Improper installation will create an electrical hazard which could result in death or serious injury to pool or spa users, installers, or others due to electrical shock, and may also cause damage to property. Read and follow the specific instructions inside this guide.

WARNING - To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

Consumer Information and Safety

The Zanskar Commercial Air Source Heat Pumps are designed and manufactured to provide years of safe and reliable service when installed, operated and maintained according to the information in this manual and the installation codes referred to in later sections. Throughout the manual, safety warnings and cautions are identified by the " "symbol. Be sure to read and comply with all of the warnings and cautions.

Zanskar Heat Pump Energy Saving Tips

If you do not plan to use hot water for a prolonged period, then you might choose to turn the heat pump off or decrease the temperature setting of the control several degrees to minimize energy consumption.

We offer the following recommendations to help conserve energy and minimize the cost of operating your heat pump without sacrificing comfort.

1. A maximum water temperature of 60° C is recommended.
2. It is recommended to turn off the heat pump when ambient air temperature is less than -10° C or if on vacation for longer than a week.
3. To save energy, it is recommended that the heat pump is operated during daytime when the ambient temperature is higher.
4. Try to install the heat pump at the ventilated places indoor. If it must be installed outdoor, Where possible, shelter the heat pump from prevailing winds, rain and snow. Always use a shelter when practical, which will reduce the possibility of frosting and icing.

General Installation Information

1. Installation and service must be performed by a qualified installer or service agent, and must conform to all national, state, and local codes and/or safety regulations.
2. Zanskar Commercial Air Source Heat Pump is specifically designed for hot water supply & heating at any domestic and commercial places where need medium-temperature hot water, such as factory, textile printing factory, tobacco dry, paper dry, wooden dry, feature factory, heating supply, slaughterhouse, food factory sterilization and so on. Do not use it for any other applications.

Section 1
Introduction

Product Overview

Zanskar Commercial Air Source heat pumps transfer heat from the ambient air to water, providing high-temperature hot water up to 60°C. The unique high-temperature heat pump is widely used for house warming. With innovative & advanced technology, the direct-heating heat pump can operate very well at -10℃ ambient temperature with high output temperatures up to 60℃, which ensures the compatibility with normal sized radiator based systems without supplementation. Compared with traditional oil/LPG boilers, high-temperature heat pump produces up to 50% less CO_2 whilst saves 80% running cost.

Our heat pumps are not only highly efficient, but also easy and safe to operate.

General Features

1. Low running costs and high efficiency
   ·A high coefficient of performance (COP) of up to 5 results in lower running costs compared with traditional ASHP technology.
   ·No immersion heater supplement is required.
2. Reduced Capital Costs
   ·Simple installation
   ·Compatible with traditional radiator systems, eliminating the expense of installing under floor heating or changing to oversized radiators.
3. High Comfort Levels
   ·High storage temperature results in increased hot water availability.
4. No potential danger of any inflammable, gas poisoning, explosion, fire, electrical shock which are associated with other heating systems.
5. A digital controller is incorporated to maintain the desired water temperature.
6. Long-life and corrosion resistant composite cabinet stands up to severe climates.
7. compressor ensures outstanding performance, ultra-energy efficiency, durability and quiet operation.
8. Self-diagnostic control panel monitors and troubleshoots heat pump operations to ensure safe and reliable operation.
9. Intelligent digital controller with friendly user interface and blue LED back light.
10. Separate isolated electrical compartment prevents internal corrosion and extends heat pump life.
11. The heat pump can operate down to ambient air temperature of -10℃.

Section 2
Installation

The following general information describes how to install the Commercial air source heat pump.

Note: **Before installing this product, read and follow all warning notices and instructions. Only a qualified service person should install the heat pump.**

Materials needed for Installation

The following items are needed and are to be supplied by the installer for ***all*** heat pump installations:

1. Plumbing fittings.
2. Level surface for proper drainage.
3. Ensure that a suitable electrical supply line is provided. See the rating plate on the heat pump for electrical specifications. Please take a note of the specified current rating. No junction box is needed at the heat pump; Connections are made inside of the heat pump electrical compartment. Conduit may be attached directly to the heat pump jacket.
4. It is advised to use PVC conduit for the electrical supply line.
5. Use a booster pump for pumping water in case of low water pressure.
6. A filter on the water inlet is needed.
7. The plumbing should be insulated to reduce its heat loss.

Note: We recommend installing shut-off valves on the inlet and outlet water connections for ease of serviceability.

Zanskar Air source heat pump water heater		
Product model	HSSHP11	HSSHP19
Heating Capacity(kW)	11	19
Input power (kW)	2.8	4.5
COP (Coefficient of Performance)	3.86	4.22
Rated current (A)	12.7	8.5
Max input power (kW)	4.2	6.8
Max current (A)	19	12.3
Rated outlet water temperature (℃)	55	55
Highest outlet water temperature(℃)	60	60
Power supply	220V/50Hz	380V/3N～/50Hz
Anti-electric shock Rate	Ⅰ	Ⅰ
IP Grade (Level of protection)	IPX4	IPX4
Refrigerant	R410A	
Operation Ambient Temp. (℃)	-7～43	
Production capacity (L/H)	232	408
Diameter of pipe (mm)	G3/4"（female thread）	G1"（female thread）
Water circulation （m^3/h）	1.86	3.27
Water pressure drop （kPa）	70	70
Noise (dB(A))	55	56
Net weight/Gross weight (kg)	75	135
Body size(W*D*H) (mm)	810×695×865	740×805×1165
Packing size(W*D*H) (mm)	870×755×1025	800×865×1325
Compressor Brand	Gree	Copeland
Condenser type	High efficiency tank heat exchanger	
Operating water temperature (℃)	9~60℃	
Testing condition: Inlet water temperature 15℃, Outlet water temperature 55℃, Dry bulb temperature 20℃, Wet bulb temperature15℃.		
Note: the parameters of some products are changed in the process of continuous optimization. Please refer to the actual products.		

Note:

The above design and specifications are subject to change without prior notice for product improvement.

Detailed specifications of the units please refer to name plate on the units,

Correct installation is required to ensure safe operation. The requirements for heat pumps include the following:

1. Dimensions for critical connections.
2. Field assembly (if required).
3. Appropriate site location and clearances.
4. Proper electrical wiring.
5. Adequate water flow.

This manual provides the information needed to meet these requirements. Review all application and installation procedures completely before continuing the installation.

Installation Location

⚠ CAUTION!

1. DO NOT install the heat pump near to hazardous materials and places

2. DO NOT install the heat pump under deep sloping roofs without gutters which will allow rain water, mixed with debris, to be forced through the unit.

3. Place the heat pump on a flat slightly pitched surface, such as concrete or fabricated slab. This will allow proper drainage of condensation and rain water from the base of the unit. If possible, the slab should be placed at the same level or slightly higher than the filter system/equipment.

Installation details

All criteria given in the following sections reflect minimum clearances. However, each installation must also be evaluated, taking into account the prevailing local conditions such as proximity and height of walls, and proximity to public access areas. The heat pump must be placed to provide clearances on all sides for maintenance and inspection.

1. The installation area must have good ventilation and the air inlet/outlet must not be hindered.
2. The installation area must have good drainage and be built on a solid foundation.
3. Do not install the unit in areas accumulated with pollutions like aggressive gas (chlorine or acidic), dust, sand and leaves etc.
4. For easier and better maintenance and troubleshooting, no obstacles around the unit should be closer than 500mm. And no obstructions within 2m, vertically, from the unit for air ventilation. (See Figure 1)

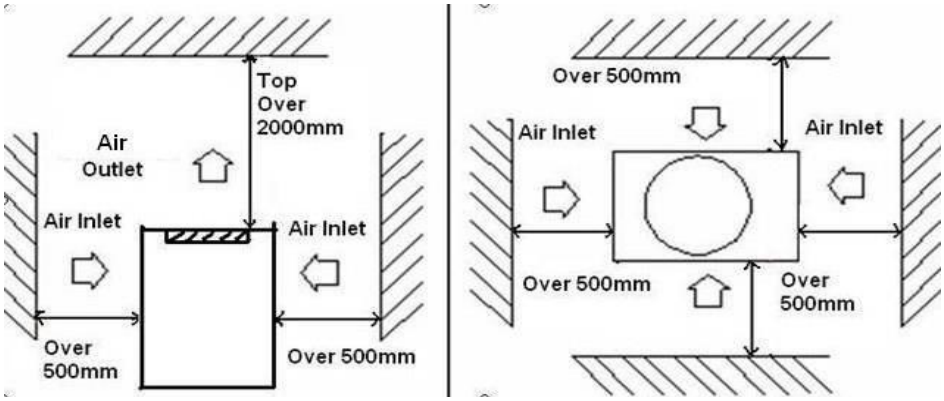


Figure 1

5. The heat pump must be installed with shockproof bushes to prevent vibration and/or imbalance.
6. Even though the controller is waterproof, care should be taken to avoid direct sunlight and high temperature. In addition, the heat pump should be placed to ensure quality viewing of the controller.
7. The plumbing pipes must be installed with proper support to prevent possible damage due to vibration.

Running water pressure should be kept over 196kpa. Otherwise, booster pump should be installed.

8. The acceptable operating voltage range should be within ±10% of the rated voltage. When heat pump units are installed in parallel, ensure that the voltage differences, between these units, are within ±2%.

 T h e heat pump unit must be grounded /earthed for safety purposes.

Drainage and Condensation

Condensation will occur from the evaporator when the unit is running and drain at a steady rate, depending upon ambient air temperature and humidity. The more humid the ambient conditions, the more condensation will occur. The bottom of the unit acts as a tray to catch rainwater and condensation. Keep the drain holes, located on the bottom pan of the unit base, clear from debris at all times.

Zanskar Commercial air source heat pump Installation Diagram (See Figure 2)

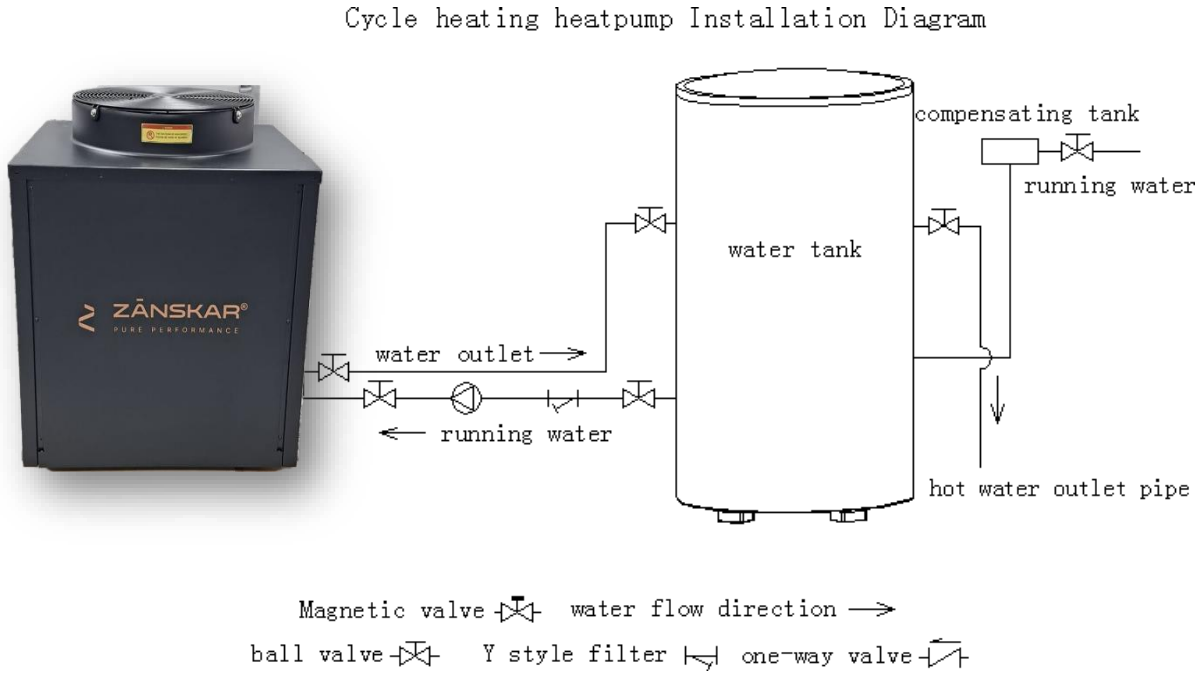


Figure 2

Water Connections

Water Connections at the Heat Pump

Quick Connect fittings are recommended to be installed on the water inlet and outlet connections. (See Figure 3)

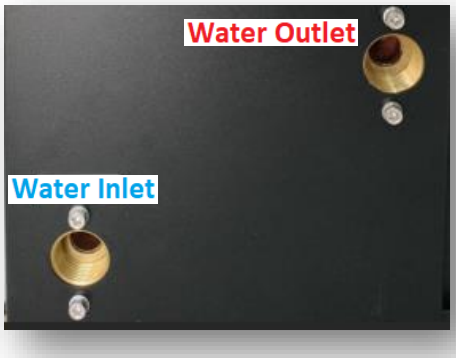


Figure 3

Tap water is plumbed to the inlet, located on the right side of the heat pump unit. Heated water flows through the outlet, located on the right side of the heat pump to the water tank.

It is recommended to use stainless steel and PVC/PPR pipes for the heat pump plumbing. The water inlet and outlet connection to the heat pump (40mm or threaded entry female) accepts stainless steel or PVC/PPR pipe fittings.

CAUTION — Make sure that flow requirements and tap water turnover rates can be maintained with the installation of additional heat pumps and plumbing restrictions.

Plumbing installation requirements

1. When water pressure exceeds 490Kpa, please use reducing valve to reduce the water pressure below 294Kpa.
2. Each part connected to unit needs to be connected with method of loose joint and installed with intermediate valve.
3. Ensure that all plumbing has been properly completed and then proceed to do a water leakage and pressure test.
4. All the pipelines and pipe fittings must be insulated to prevent heat loss.
5. Install a drain valve at the lowest point of the system to enable the system to be drained during freezing conditions (winterizing).
6. Install a check valve on the water outlet connection in order to prevent back siphoning when water pump stops.
7. In order to reduce the back pressure, the pipes should be installed horizontally
8. And minimize the elbows (90 degrees connections). If a higher flow rate is required, install a bypass valve

Electrical Connections

WARNING —Risk of electrical shock or electrocution.

Ensure that all high voltage circuits are disconnected before commencing heat pump installation. Contact with these circuits could result in death or serious injury to users, installers or others, due to electrical shock and may also cause damage to property.

CAUTION — Label all wires prior to disconnection when servicing the heat pump. Wiring errors can cause improper and dangerous operation. Check and ensure proper operation after servicing.

General Information

Wiring connections must be done according to the wiring diagram found on the inside of the heat pump access panel or see addendum A for reference.
The heat pump must be grounded / earthed. A ground lug is provided on the inside of the heat pump electrical compartment.

Power supply

1. If the supply voltage is too low or too high, it can cause damage and/or result in unstable operation of the heat pump unit, due to high in rush currents on start up.

2. The minimum starting voltage should be above 90% of rated voltage. The acceptable operating voltage range should be within ±10% of the rated voltage. When heat pump units are installed in parallel, ensure that the voltage difference, between these units, is within ±2% of each other. The voltage difference between phases of a three phase power supply should be within ±2%.
3. Ensure the cable specifications meet the correct requirements for the specific installation. The distance between the installation site and mains power supply will affect the cable thickness. Follow the local electrical standards to select the cables, circuit breakers and isolator breakers.

Grounding and Over Current Protection

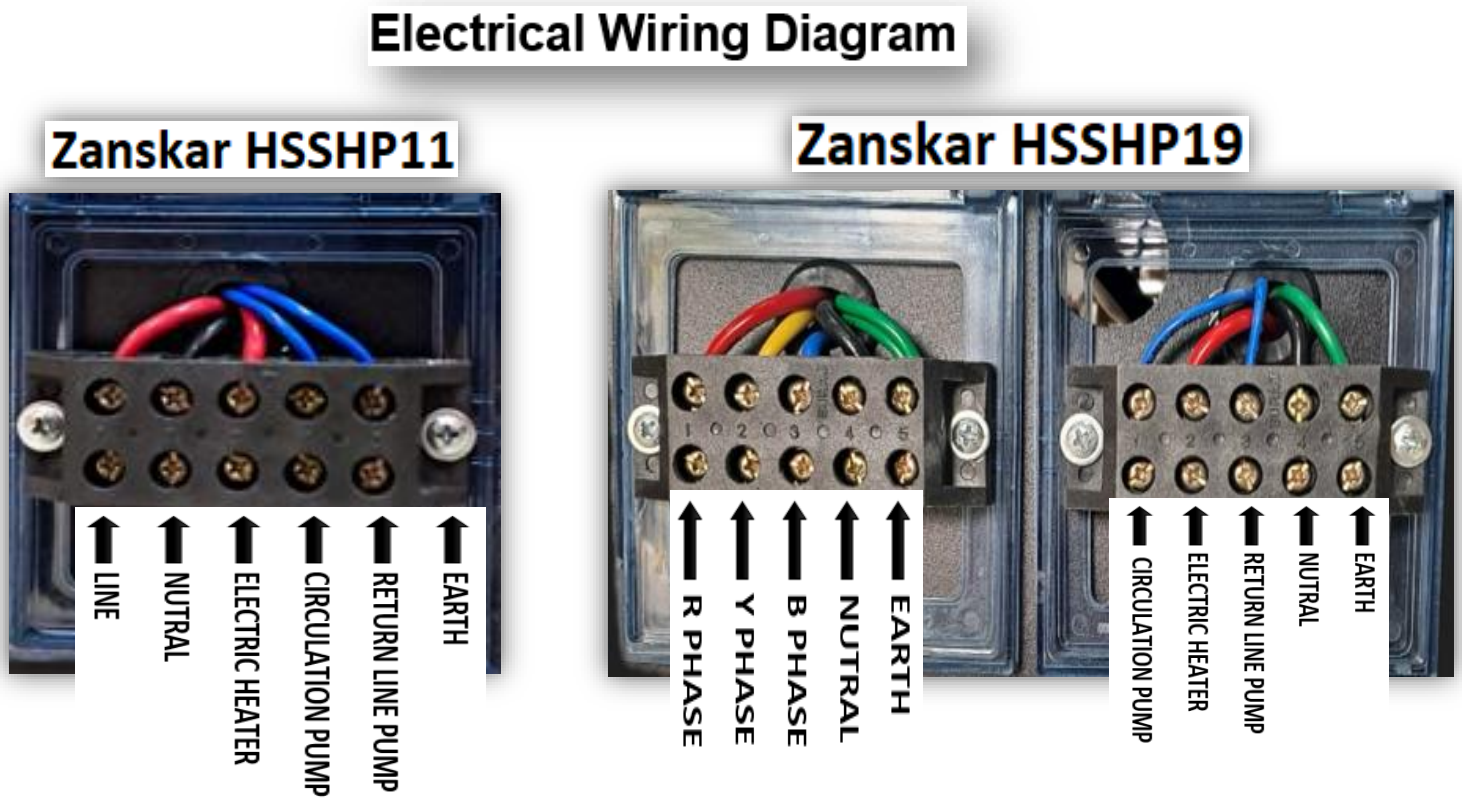
In order to prevent electrical shock in case of leakage from unit, install the heat pump according to local electrical standard.

1. Do not interrupt the voltage supply to the heat pump frequently as this may result a shorter life expectance of the heat pump.
2. When installing over current protection, ensure that the correct current rating is met for this specific installation.
3. The Compressor, fan coil unit and heat pump water pump all have AC-contactor and thermo relay protection. Therefore, in the process of installation and debugging, firstly measure each of the aforementioned components' current, and then adjust the current protection range of the thermo relays.

Controller PC board Settings

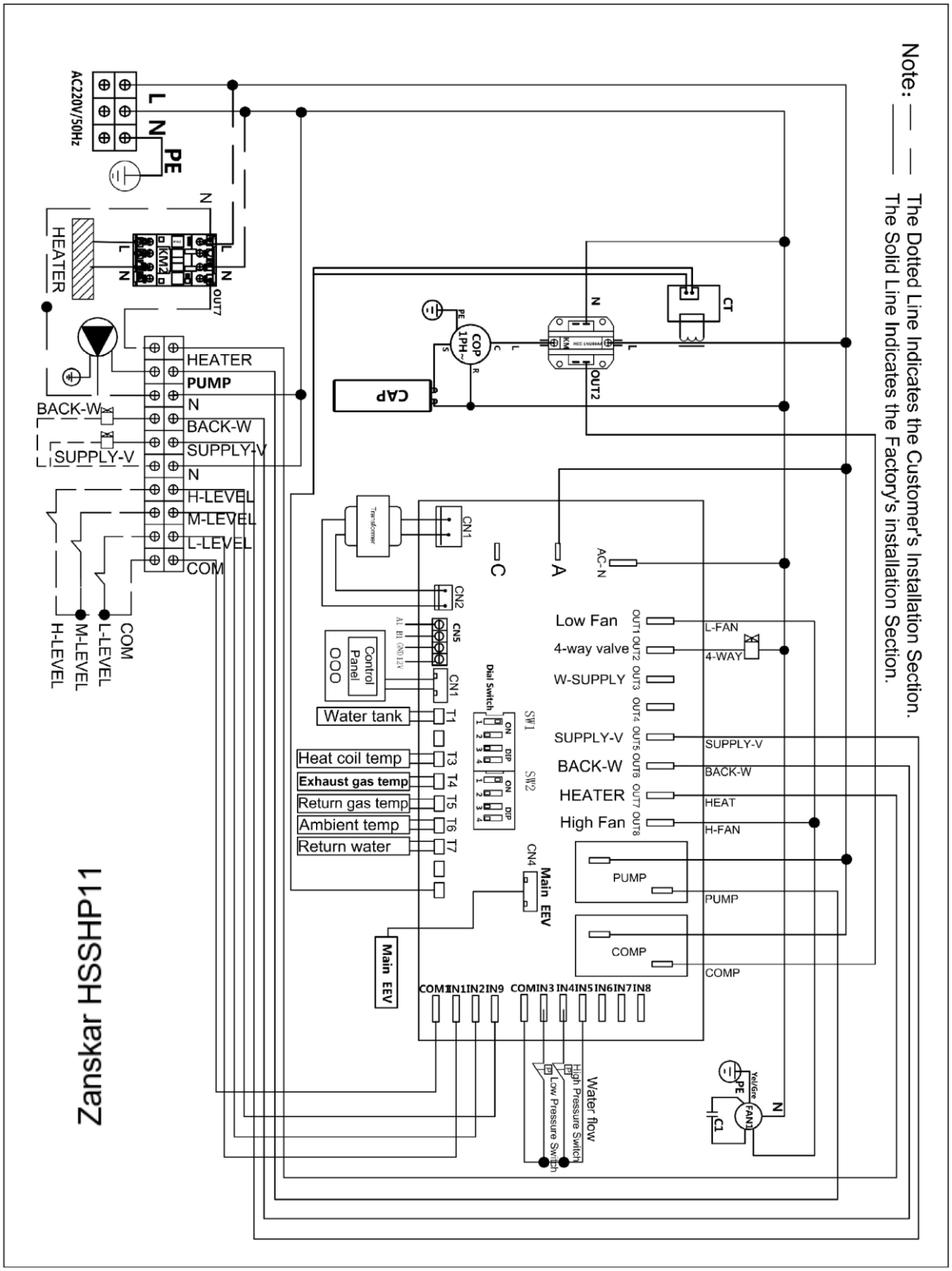
The Controller PCB has a pin selectable toggle switch which must be set according to the specific installation requirement.

NOTE:
Before any changes are made to the pin settings, ensure that the mains supply power is OFF at the circuit breaker or physically disconnected from the mains supply.

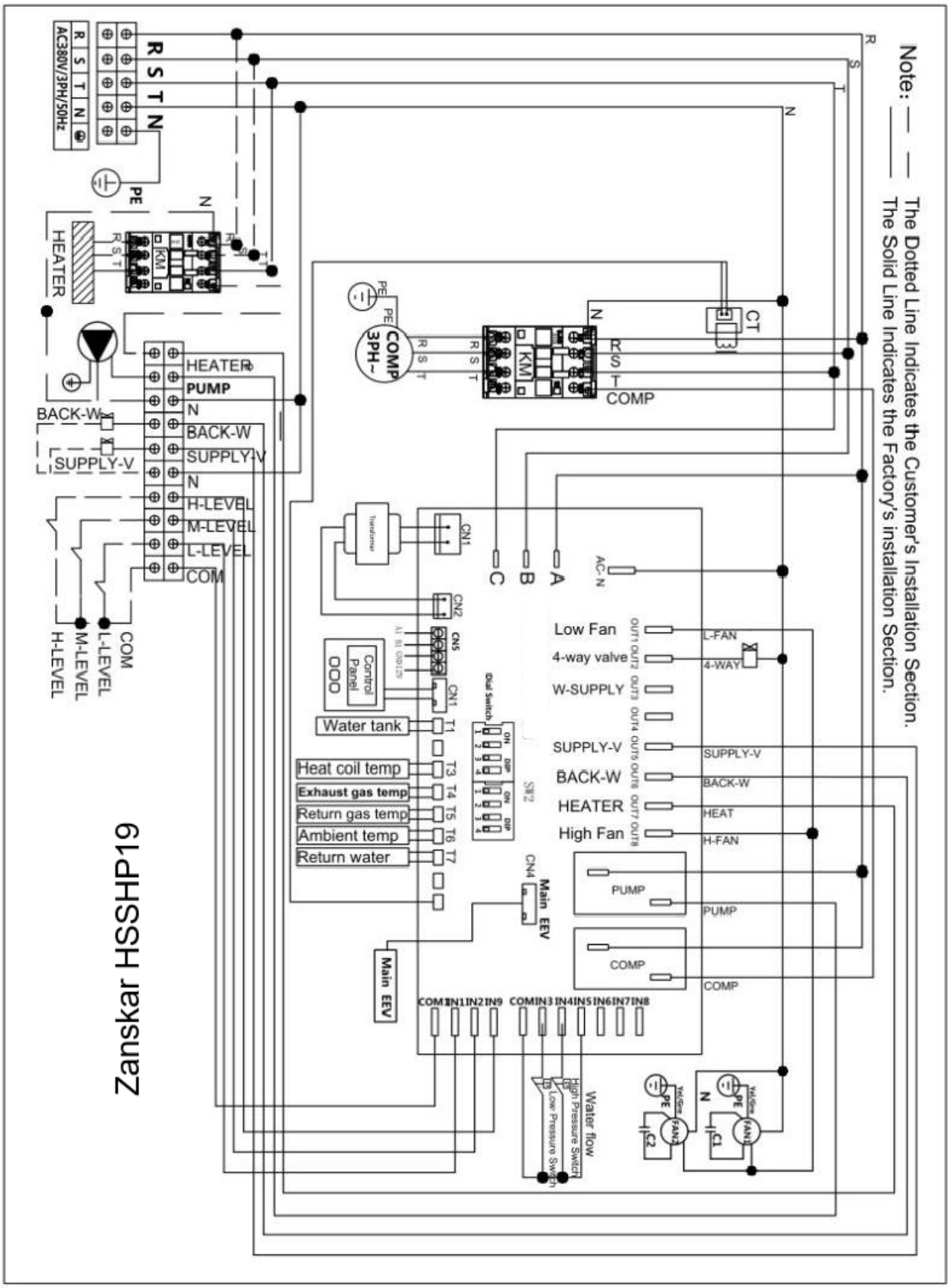


Electrical Wiring Diagram

Zanskar HSSHP11

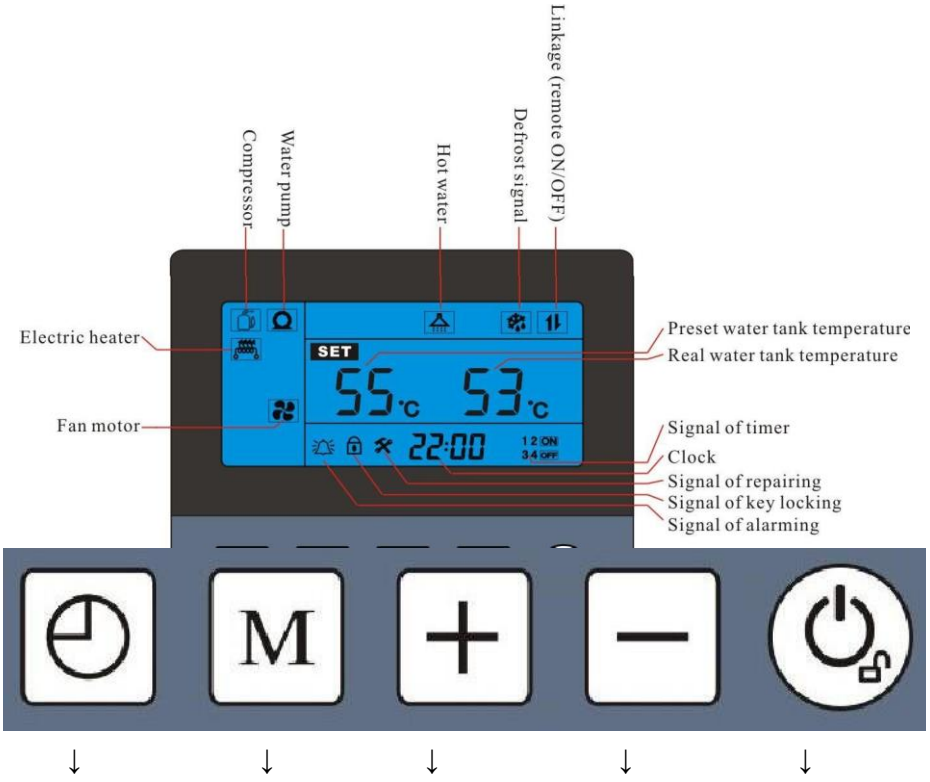


Zanskar HSSHP19



Section 3
Operating Heat Pump

1. Control Panel



“Power” button

(2)1.1 Under unlock state, press this button for 1second, can turn on and turn off heat pump.

(2)1.2 Under other state, press this button, can return main interface.

(2)1.3 Under locking state, press this button for 5 seconds, can unlock buttons.

“M” button

Under main interface, press “M” button, can query the working status parameters

1. Operation

2.1 Unlock

In the button lock state, the touch buttons are locked, and touching any button is invalid. Button unlock: When the screen is locked, press and hold "" for 5 seconds to unlock the screen"", and after the buzzer beeps once, unlock the buttons (when there is no button operation for about 60 seconds, the buttons will be automatically

locked ,display the button lock symbol).

2.2 Power on/off the Machine

In the unlock state, long press "⏻" for 1 second to switch on/off. In other setting states, press "⏻" to return to the main interface.

2.3 Mode and Temperature Setting

This machine is a hot water machine with only hot water mode. When the hot water mode is turned on, the "  " icon will be displayed at the top of the screen.

Temperature setting: touch the "+" button with your finger, the "SET" symbol will start to flash and display the set temperature, and then touch the "+" button with your finger, the set temperature will increase. Touch the "−" button with your finger, the symbol of "SET" starts to flash and the set temperature is displayed, and then touch the "−" button with your finger to decrease the set temperature. Temperature setting range: hot water mode: 12 degrees C - 55 degrees C.

2.4 Forced Defrosting

In the power-on state, long press the "−" button for 5 seconds to enter the forced defrosting, long press the " ⏻ " button to completely exit the forced defrosting after shutting down, or the defrosting time reaches the set time to exit the forced defrosting.

Note: Only when the coil temperature is lower than the defrosting exit temperature, can the forced defrosting can be entered.

2.5 Clock Setting

In the main interface, press the "🕒" button for 5 seconds to enter the real-time clock setting interface. In the real-time clock interface, press the "🕒" button, the number of hour will flash, and press the "+" or "−" button at this time, then you can set the hour of the real-time clock. Then touch the "🕒" button with your finger to adjust the "minute" of the clock, and then touch the "🕒" button with your finger to complete the setting and exit the setting mode. In the real-time clock setting interface, press the "⏻" button to confirm the current real-time clock setting value and return to the main interface.

2.6 Timer Setting

On the main interface, press the "🕒" button to enter the setting interface of the timer.

At this time, press the "+" button or "-" button to set the timer group, 1, 2, 3, 4, water supply, totally 5 timer.

When the timer 1 is flashing regularly, press the "🕒" button to enter the setting interface of the scheduled start-up time's hour for the timer 1, the number of the scheduled start-up time's hour flashes, press the "+" or "-" key at this time, you can set the hour for timer 1's start-up.

After setting the hour of the scheduled start-up, press the "🕒" button again, and the number of the scheduled start-up time's minute flashes. At this time, press the "+" button or "-" button to set timer 1's minute.

After setting the timer 1's minute of start-up, press the "🕒" button again to enter the timer 1's shutdown hour setting, the setting method is the same as above.

After setting the timer's shutdown time, press the "🕒" button again to confirm the current timer's on/off time, enter the setting of timer 2's on/off, the setting is consistent with timer 1, and return to the main interface.

In the timer setting interface, long press the "🕒" button for 5 seconds to cancel the timer on/off of the current timer.

In the timer interface, if there is no button operation for 30 seconds, confirm the current set timer time and return to the main interface. (memory when power off after timer)

In the timer interface, press the "⏲" button to confirm the current set timer time and return to the main interface.

The other timers are the same as the timer 1's setting.

Remarks: Timer 1 and 2 are timer on/off, timer 3 and 4 are timer replenishment on/off, and timer 5 is timer for water supply on/off.

2.7 Parameter Query

Under main interface,press "M" button to enter heat pump working parameter query; press "+" or "−" "button to query each parameter.

2.7.1 The Query Code List as below:

For Single System and Dual System:

Query Code	Description	Temp. Range
A1	Evaporator coil temp for system 1	-31℃~99℃
A2	Suction gas temperature for system 1	-31℃~99℃
A3	Exhaust gas temperature for system 1	0℃~125℃
A4	Ambient temperature	-31℃~99℃
A5	Outlet water temperature	-31℃~99℃
A6	Return water temperature	-31℃~99℃
A7	Reserved	
A8	Compressor current for system 1	
A9	Expansion valve opening for system 1	Step = display value * 2
A10	Heat exchanger gas out pipe temperature for system 1	-31℃~99℃
b1	Evaporator coil temp for system 2 (Not available for single-system)	-31℃~99℃
b2	Suction gas temperature for system 2 (Not available for single-system)	-31℃~99℃
b3	Exhaust gas temperature for system 2 (Not available for single-system)	0℃~125℃
b8	Compressor current for system 2 (Not available for single-system)	
b9	Expansion valve opening for system 2 (Not available for single-system)	Step = display value * 2
b10	Heat exchanger gas out pipe temperature for system 2 (Not available for single-system)	-31℃~99℃
E1	History error code	
E2	History error code	
E3	History error code	

E4	History error code	
E5	History error code	
E6	History error code	

For Four Systems:

Query Code	Description	Accuracy	Temp. Range
o 1	Water tank temp.	0.1℃	**-40**℃**~99**℃
o 2	AC inlet water temp	0.1℃	**-40**℃**~99**℃
o 3	Outlet water temp.	0.1℃	**-40**℃**~99**℃
o 4	Ambient temp.	0.1℃	**-40**℃**~99**℃
o 5	AC outlet water temp	0.1℃	**-40**℃**~99**℃
o 6	User return water	1℃	**-40**℃**~99**℃
o 7	Reserved	5V	
A 1	Exhaust gas temp. for system 1	1℃	**0**℃**~125**℃
A 2	Evaporator coil temp. for system 1	1℃	**-40**℃**~99**℃
A 3	Suction gas temp. for system 1	1℃	**-40**℃**~99**℃
A 4	Temperature after throttling for system 1	1℃	**-40**℃**~99**℃
A5	Reserved		
A6	Reserved		
A 7	Compressor current for system 1	1A	
A 8	Main EEV opening for system 1	Adjustment accuracy 2P	**Steps is displayed**
A 9	Assistant EEV opening for system 1	Adjustment accuracy 2P	**Steps is displayed**
b 1	Exhaust gas temp. for system 2	1℃	**0**℃**~125**℃
b 2	Evaporator coil temp. for system 2	1℃	**-40**℃**~99**℃
b 3	Suction gas temp. for system 2	1℃	**-40**℃**~99**℃
b 4	Temperature after throttling for system 2	1℃	**-40**℃**~99**℃
b5	Reserved		
B6	Reserved		
b 7	Compressor current for system 2	1A	
b 8	Main EEV opening for system 2	Adjustment accuracy 2P	**Steps is displayed**
b 9	Assistant EEV opening for system 2	Adjustment accuracy 2P	**Steps is displayed**
c 1	Exhaust gas temp. for system 3	1℃	**0**℃**~125**℃
c 2	Evaporator coil temp. for system 3	1℃	**-40**℃**~99**℃
c 3	Suction gas temp. for system 3	1℃	**-40**℃**~99**℃
c 4	Temperature after throttling for system 3	1℃	**-40**℃**~99**℃
c 5	Reserved		
c 6	Reserved		
c 7	Compressor current for system 3	1A	
c 8	Main EEV opening for system 3	Adjustment accuracy 2P	**Steps is displayed**

c 9	Assistant EEV opening for system 3	Adjustment accuracy 2P	**Steps is displayed**
d 1	Exhaust gas temp. for system 4	1℃	**0**℃**~125**℃
d 2	Evaporator coil temp. for system 4	1℃	**-40**℃**~99**℃
d 3	Suction gas temp. for system 4	1℃	**-40**℃**~99**℃
d 4	Temperature after throttling for system 4	1℃	**-40**℃**~99**℃
d 5	Reserved		
d 6	Reserved		
d 7	Compressor current for system 4	1A	
d 8	Main EEV opening for system 4	Adjustment accuracy 2P	**Steps is displayed**
d 9	Assistant EEV opening for system 4	Adjustment accuracy 2P	**Steps is displayed**
E1	History error code		
E2	History error code		
E3	History error code		
E4	History error code		
E5	History error code		
E6	History error code		

2.7.2 User Parameter Query and Setting:

- User parameter query and setting (can be set no matter on and off)
- In the main interface, long press the "M" button for 3 seconds to enter the user parameter query interface. Press the "+" button or "-" button to query each parameter.
- In the user parameter query interface, press the "M" button to enter the current user parameter setting interface, at this time press the "+" or "-" button to modify the current user parameter value, and then press the "M" key to return query status.
- In the user parameter query or user parameter setting interface, if there is no button operation for 30 seconds, it will automatically exit the user parameter query interface or user parameter setting interface and return to the main interface. Press the switch button to return to the main interface.

The related parameters are as follows:

Single and Dual System

Parameter Code	Description	Adjustment Range	Default
L2	Compressor restart and set temperature difference setting	2℃～18℃	5℃
L3	Heating set temperature	5℃～parameter F1	55℃
L4	Cooling set temperature	8℃～35℃	12℃
L5	Ambient temperature to allow electric heating to turn on	-15℃～35℃	0℃
L6	Return water temperature	20℃～80℃	30℃
L7	Allowable water replenishment temperature	20℃～80℃	48℃(20℃ is not affected by water temperature)

Four System

Parameter Code	Description	Adjustment Range	Default	Accuracy
L0	Hot water hysteresis	2℃～18℃	5℃	Precision 1℃
L1	Hot water set temperature	20℃～parameter F1℃	50℃	Precision

				0.5℃
L2	Cooling hysteresis	2℃～18℃	5℃	Precision 1℃
L3	Cooling set temperature	10℃～32℃	12℃	Precision 0.5℃
L4	Heating hysteresis	2℃～18℃	5℃	Precision 1℃
L5	Heating set temperature	12℃～F1℃	45℃	Precision 0.5℃
L6	Ambient temperature to allow electric heating to turn on	-30℃～35℃	0℃	Precision 1℃
L7	User return water temperature setting temperature	20℃～80℃	30℃	Precision 1℃
L8	Allowable water replenishment temperature	20℃～80℃	48℃(20℃ is not affected by water temperature)	Precision 1℃

2.8 Manual Electric Heating:

Long press "" timer button + on/off button "" for 3 seconds to turn on/off electric heating manually.

2.9 Clear Historical Errors:

In the historical fault query interface, long press the "" button + "M" key for 5 seconds to clear the previously stored historical errors.

2.10 Parameter Factory Setting Recovery:

In the shutdown state, press and hold the button"-" + "" button for 5S, the parameters will be restored to factory settings.

3. Controller Error Code

Single and Dual System

Error code	Dual system fault description	Error code	Dual system fault description
Er 01	Phase failure	**Er 21**	Ambient temp sensor failure
Er 02	Phase stagger	**Er 22**	Return water sensor failure
Er 03	Use side water flow failure	**Er 23**	Cooling too cold protection
Er 04	Winter antifreeze protection	**Er 25**	Water level switch failure
Er 05	High pressure 1 protection	**Er 27**	Outlet water sensor failure
Er 06	Low pressure 1 protection	**Er 29**	Suction gas 1 sensor failure
Er 07	High pressure 2 protection	**Er 30**	Suction gas 2 sensor failure
Er 08	Low pressure 2 protection	**Er 31**	Water pressure switch failure
Er 09	Communication failure	**Er 35**	Compressor 1 current protection
Er 11	Limited time lock	**Er 36**	Compressor 2 current protection
Er 12	Exhaust gas 1 overheat protection	**Er 37**	Use side inlet and outlet water temperature difference too big protection
Er 13	Exhaust gas 2 overheat protection	**Er 44**	Ambient temperature too low protection
Er 15	Water tank/water inlet sensor failure	**Er 45**	Heat exchanger gas out pipe 1 sensor failure
Er 16	Evaporator coil 1 sensor failure	**Er 46**	Heat exchanger gas out pipe 2 sensor failure
Er 17	Evaporator coil 2 sensor failure	**Er 47**	Antifreeze low pressure protection 1
Er 18	Exhaust gas 1 sensor failure	**Er 48**	Antifreeze low pressure protection 2
Er 19	Exhaust gas 2 sensor failure		

Four System

Error code	Fault description	Error code	Fault description
Er 01	Phase failure	**Er33**	AC outlet water temperature failure
Er 02	Phase stagger	**Er34**	AC cooling overcooling protection
Er 03	Hot water side water flow failure	**Er36**	High pressure 3 protection
Er 04	AC side water flow failure	**Er37**	High pressure 4 protection

Er 05	High pressure 1 protection	**Er38**	Low pressure 3 protection
Er 06	Low pressure 1 protection	**Er39**	Low pressure 4 protection
Er 07	High pressure 2 protection	**Er40**	Exhaust gas 3 overheat protection
Er 08	Low pressure 2 protection	**Er41**	Exhaust gas 4 overheat protection
Er 09	communication fail	**Er42**	Temperature 3 failure after throttling
Er 10	Water tank sensor failure	**Er43**	Temperature 4 failure after throttling
Er 11	Limited time lock	**Er44**	Evaporator coil 3 sensor failure
Er 12	Exhaust gas 1 overheat protection	**Er45**	Evaporator coil 4 sensor failure
Er 13	Exhaust gas 2 overheat protection	**Er46**	Exhaust gas 3 sensor failure
Er 14	Temperature 1 failure after throttling	**Er47**	Exhaust gas 4 sensor failure
Er 15	Temperature 2 failure after throttling	**Er48**	Suction gas 3 sensor failure
Er 16	Evaporator coil 1 sensor failure	**Er49**	Suction gas 4 sensor failure
Er 17	Evaporator coil 2 sensor failure	**Er50**	Economizer inlet 3 sensor failure
Er 18	Exhaust gas 1 sensor failure	**Er51**	Economizer inlet 4 sensor failure
Er 19	Exhaust gas 2 sensor failure	**Er52**	Economizer outlet 3 sensor failure
Er 20	Ambient temp sensor failure	**Er53**	Economizer outlet 4 sensor failure
Er 21	AC inlet water sensor failure	**Er54**	Compressor 3 current protection
Er 22	Outlet water sensor failure	**Er55**	Compressor 4 current protection
Er 23	Suction gas 1 sensor failure	**Er56**	Fan motor overload protection
Er 24	Suction gas 2 sensor failure	**Er57**	User water return sensor failure
Er 25	Economizer inlet sensor failure	**Er58**	Defrosting outlet water temp too low protection
Er 26	Economizer inlet 2 sensor failure	**Er59**	Too high voltage protection
Er 27	Economizer outlet sensor failure	**Er60**	Too low voltage protection
Er 28	Economizer outlet 2 sensor failure	**Er88**	Expansion board communication failure
Er 29	Compressor 1 current protection		
Er 30	Compressor 2 current protection	Hot water symbol flashes	Hot water side antifreeze
Er 31	Water level switch failure	Heating symbol flashes	AC side antifreeze
Er 32	Ambient temperature too low protection		

Note: When there is protection for fault, the error code will be displayed and flash with alarm