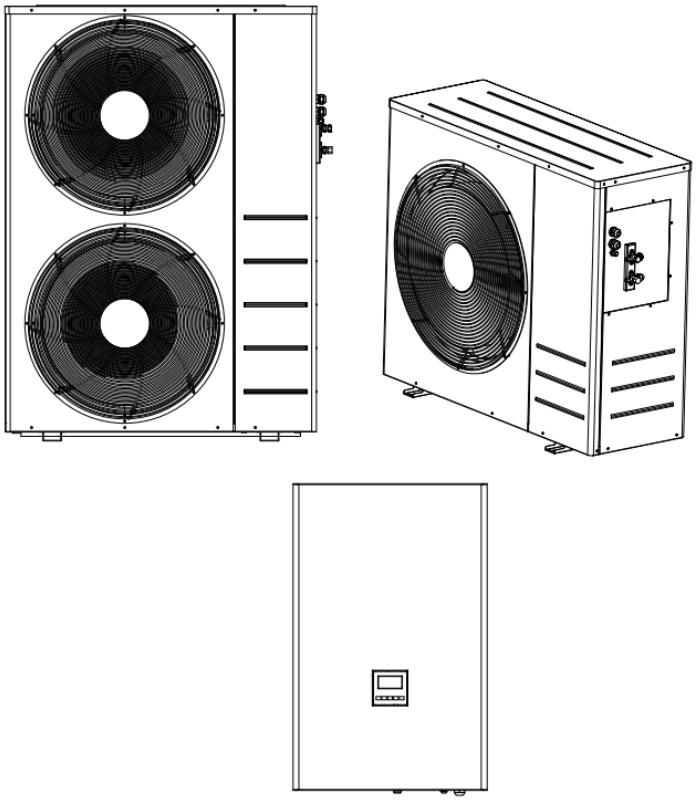
DC INVERTER AIR SOURCE HEAT PUMP - SPLIT TYPE -

INSTALLATION AND MAINTENANCE INSTRUCTIONS



MODEL:

VS90-DCS（220V）	VS90-DCS（380V）
VS120-DCS（220V）	VS120-DCS（380V）
VS150-DCS（220V）	VS150-DCS（380V）
VS180-DCS（220V）	VS180-DCS（380V）
VS220-DCS（220V）	VS220-DCS（380V）

CE

Please keep this instruction manual properly

Please read this manual carefully before installation or use

Catalog

1. General description

The manual and the unit are the customer property. Put back in the technical data bag and keep properly after completion.

Please read this manual carefully before installing and maintaining the air-conditioning units to ensure normal and reliable operation. Installation of the unit must be completed by the designated professionals. If the installation or maintenance is operated by unqualified personnel, or is not installed and operated as required by this manual, the manufacturer shall not be responsible for the resulting problems.

The manual seeks to cover the differences in the various units or all problems that may be encountered during the installation, but could not provide guidance on all possibilities in the installation. If the buyer wants to obtain further information or encounter special problems and fails to explain it thoroughly in this manual, please contact the company.

In this manual, "danger", "warning", "notice" tips are given appropriately, to ensure personal safety and normal operation of the unit, please read carefully and follow strictly.

⚠ Hazanger:

Before installation or maintenance, lock the unit power and cut-off switches to avoid casualties resulting from electric shock or contact with an operating part. All installation processes of air-conditioning units must comply with national, provincial and local regulations.

Warning:

a. Read the following tips before installing, using, and maintenance.

b. Installation, disassembly, and maintenance must be carried out by professionals following the instructions.

c. Gas leakage tests must be performed before and after installation.

1. Usage situation

a. It must be installed or removed by professional personnel, and unauthorized disassembly and modification are prohibited.

b. Do not set up obstacles before the air inlet and outlet of the heat pump.

2. Installation condition

a. This product must be kept away from any source of fire.

b. Installation must not be in an enclosed environment or indoors and must be well ventilated.

c. Full vacuum before welding, no welding on site, only by professional maintenance center professionals.

d. Air leakage must be stopped from installation, and the unit must return to the professional maintenance center.

3. Transportation and storage

a. Sealing is not allowed during transportation

b. Transport of goods at constant speed to avoid sudden acceleration or sudden braking and reduce cargo collision.

e. The device must be kept away from any source of fire.

f. The storage site must be bright, wide, open and well ventilated, requiring ventilation.

4. Service Notice

a. If maintenance or scrapping is required, contact a nearby authorized service center

b. Qualification requires all operators handling gas to receive valid certification issued by

professional agencies.

c. When repairing or filling gas, strictly follow the manufacturer. Refer to the Technical Service Manual.

5. **Type of reminder**

⚠ This heat pump has power off memory and the heat pump will automatically restart after the power is restored.

5.1 Heat pumps can only be used for heating. It can not be used to heat other flammable or cloudy liquids.

5.2 Heat pump in storage or movement of transport should be in a vertical upward position, can not be caused by tilt.

5.3 Do not set up obstacles before the air outlet of the heat pump.

5.4 Do not put anything in the inlet and outlet, or the efficiency of the heat pump will be reduced or even stopped.

5.5 Do not use or store flammable gases or liquids such as diluents, paint and fuel to avoid fire.

5.6 If any abnormal situation occurs, such as: abnormal noise, odor, smoke, and electric leakage phenomenon, turn off the main power supply immediately, and contact the local dealer. Don't try to repair the heat pump yourself.

5.7 The main power switch shall be beyond the child contact.

5.8 Please cut off the power supply during a thunderstorm.

⚠Warning:

1, Please do not use unqualified refrigerant, refrigerant replacement or refrigerant additives, incorrect use methods or the use of unqualified refrigerant, refrigerant substitute or refrigerant additives will cause unit damage and various safety hazards, please choose qualified refrigerant or call the service hotline to purchase qualified refrigerant. R32 is a flammable and explosive refrigerant. All technicians operating the refrigerant must be qualified and must be familiar with and strictly comply with the relevant technical requirements and laws and regulations concerning the use, treatment, recycling and recycling of the refrigerant.

2, When the environmental temperature is lower than 5℃ unit for a long time or power failure, the water in the unit and pipeline must be cut off. When the environmental temperature is lower than 5℃ unit, the unit is in power supply state, and the circulating pump must be interlocked with the host to automatically control the pump operation and heat operation for the water system automatic freezing protection, in order to prevent the unit and water pipeline from freezing due to water freezing in the water system pipeline.

2. Safety precautions

Read all safety precautions in detail before operating the unit.

Various safety-related matters are listed in the "safety precautions", and in order to avoid electric shock or fire

and other possible injuries, the following rules should be kept in mind and strictly observed:

✧ It must have a leakage circuit breaker installed.

✧Users should not try to install themselves, if improper installation, may cause water leakage, electric shock, fire, etc.

✧Ground wire —— grounding wire must be installed not connected to gas pipe, tap pipe, lightning rod, etc. If the grounding wire is improperly installed, it is easy to cause an electric shock accident.

✧The unit must have a good foundation platform before installation to ensure the smooth operation of the unit.

✧Use the specified accessories and request installation, technical services to the manufacturer or authorized dealer.

✧The main controller must adopt the same power supply system as the unit.

✧The control data cable shall be isolated from the power supply cable to prevent interference.

✧Do not insert your fingers or something into the air outlet, air inlet to avoid injury or damage to the unit. The fan operates at high speed, very dangerous, and should be particularly careful of children.

✧Do not damage the power cord, can not unplug or insert the power plug to switch the unit.

✧Do not flush the unit directly with water, otherwise it is easy to cause electric shock or other accidents.

✧Ensure smooth air conditioning.

✧Do not switch the machine frequently, the unit may be damaged by frequent startup.

✧When the unit is not running for a long time and not running in winter, the water in the system must be drained and the power must be turned off.

✧When the unit does not operate for a short time in winter, the unit must be in the power supply state to ensure that the unit can automatically prevent freezing.

✧For again after a long shutdown, the unit must be preup for 8 h

✧User should not try to repair itself. If improper repair, the unit can fail or burn out. For local repair needs, please contact the local branch or authorized repair provider.

⚠Note:

When filling or adding refrigerant, the filling quantity and type must be subject to the unit nameplate. Wrong refrigerant filling may lead to unit failure or various safety hazards.

Corrosive gases such as acid, alkali and salt mist can cause damage to the unit housing, lines or electrical elements, and the unit must be installed away from these places.

The circulating water pump of the water system must be interlocked with the main control board of the unit, otherwise, commissioning and acceptance shall not be allowed, and the Company shall not bear any responsibility for accidents such as freezing of the water side heat exchanger.

⚠Warning:

Check the water quality and must meet the water quality standards listed in the table below.

Project	Standard value	
	Cycle water (below 20℃)	Circulating water (below 60℃, above 20℃)
PH value (25℃)	6.8～8.0	7.0～8.0
Contivity (25℃) (ms/cm)	＜40	＜30
Chlorine ion (25℃) (mg cl-/L)	＜50	＜50
Sulfate Ion (mg S042-/L)	＜50	＜50
Acid Consumption (PH4.8) (mg Caco3/L)	＜50	＜50
Total hardness (mg Caco3/L)	＜70	＜70
Calcium-ion hardness (mg Caco3/L)	＜50	＜50
Ionic silica (mg Sio2/L)	＜30	＜30
Iron (mg Fe/L)	＜1.0	＜1.0
Residual chlorine (mg Cl/L)	＜1.0	＜1.0
Ammonium Ion (mg NH4 + / L)	＜0.3	＜0.25
Residual carbonated carbonate (mg CO2 / L)	＜4.0	＜0.4

Operating temperature range

Project	Standard
Relative temperature	<90%, not condensation
Line controller use environment	-15℃～46℃
Temperature and humidity range of the unit operating environment	Refrigeration 15℃ ~48℃ Heat Making-30℃ ~43℃
Unit water outlet temperature control range	Refrigeration 5℃ ~25℃ heat making 30℃ ~55℃
Unit return water temperature control range	Refrigeration 10℃ ~30℃ Heat Manufacturing 20℃ ~50℃

Note:

(1) The unit is controlled by the temperature of return water;

(2) All parameter data are obtained in the laboratory, and there will be deviation due to the influence of installation position during actual use;

(3) For applications lower than -25℃, please consult our after-sales technical personnel.

3. Product Overview

3.1 Product introduction

The low temperature air source frequency conversion heat pump (cold water) unit is realized according to the principle of the second law of thermodynamics, which circulates through the working medium refrigerant in the unit, heating or cooling the water in the system, and the water as the carrier. By entering a

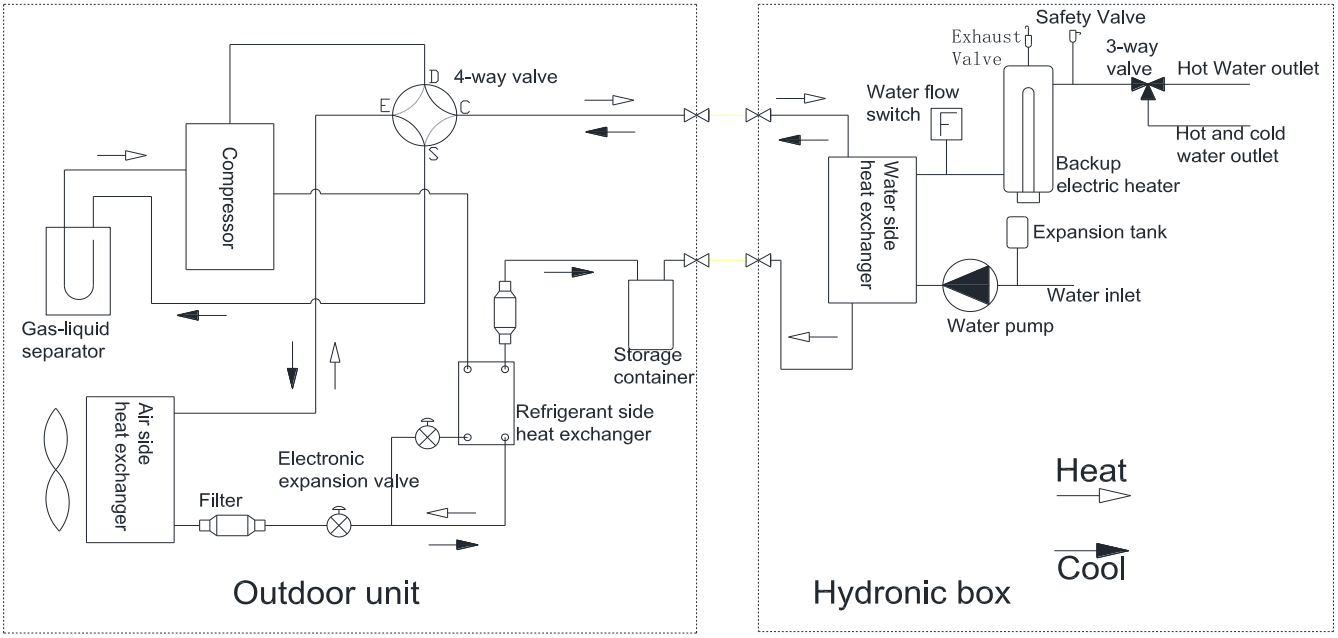
small amount of energy (such as electricity), the summer cooling absorbs the heat from the indoor to release the heat into the air through the carrier, while the carrier gets cooling, realizing the indoor cooling and dehumidification requirements. During winter heating, the system absorbs heat from the air and releases the heat to the room through the carrier.

3.2 System principle

3.2.1 system composition

Low-temperature air source variable frequency heat pump (cold water) unit generally has DC frequency conversion compressor, high-efficiency condenser, evaporator, throttling device, reversing valve, economizer and other parts.

3.2.2 System Schematics



3.3 Product advantages

● DC frequency conversion technology: full DC frequency conversion compressor, low consumption energy saving, long life, efficient heat heating;

● Low temperature strong heat technology: to ensure that the machine-12℃ low temperature effluent reaches 60℃, to meet the heating needs of radiator, floor heating, air disk and other end heating;

● low voltage startup technology: low frequency start, small current, small impact on power grid; stable start, meet low voltage 165V in unstable areas.

● antifreeze protection technology: a variety of anti-freezing mechanisms are adopted to detect the changes of environmental temperature and effluent temperature in real time to avoid the freezing and cracking of the heat exchanger. Ensure the stable and reliable operation of the unit in winter;

● ultra-wide temperature range; flexible for harsh environments, thermal production without attenuation in-20℃, and stable and reliable operation in-25℃.

4. Product performance parameter table

4.1 Specifications

4.1.1 Outdoor Unit

Complete model		VS90-DCS	VS120-DCS	VS150-DCS	VS180-DCS	VS220-DCS
External model number		VS90-DCS-FW	VS120-DCS-FW	VS150-DCS-FW	VS180-DCS-FW	VS220-DCS-FW
Power Supply	/	220V-240V～50Hz/1Ph				
Heating Condition-Ambient Temp.(DB/WB):7/6℃，Water Temp.(In/Out):30/35℃						
Heating Capacity Range	kW	3.7～8.5	3.7～10.7	5.2～14.6	5.2～17.4	7.0～21.2
Heating Power Input Range	kW	0.67～1.91	0.67～2.40	0.94～3.28	0.94～3.95	1.27～4.75
COP		5.55～4.45	5.55～4.46	5.56～4.45	5.56～4.41	5.52～4.46
Hot Water Condition-Ambient Temp.(DB/WB):20/15℃，Water Temp.(In/Out):15/55℃						
Heating Capacity Range	kW	4.0～12.0	5.0～15.0	6.0～18.0	7.0～21.0	8.0～24.0
Heating Power Input Range	kW	0.83～2.89	1.05～3.65	1.24～4.30	1.47～5.08	1.66～5.78
COP		4.80～4.15	4.76～4.11	4.83～4.18	4.77～4.13	4.82～4.17
Cooling Condition-Ambient Temp.(DB/WB):35/24℃，Water Temp.(In/Out):12/7℃						
Cooling Capacity Range	kW	2.3～6.5	2.3～8.0	3.2～11.0	3.2～13.0	4.5～15.0
Cooling Power Input Range	kW	0.65～2.45	0.65～3.04	0.90～4.10	0.90～4.96	1.25～5.68
EER		3.53～2.65	3.53～2.63	3.55～2.68	3.55～2.62	3.6～2.64
ErP Level（35℃）	/	A+++	A+++	A+++	A+++	A+++
ErP Level（55℃）	/	A++	A++	A++	A++	A++
SCOP（35℃）	/	4.81	4.82	4.82	4.80	4.81
SCOP（55℃）	/	3.35	3.40	3.42	3.40	3.41
Water Flow	m^3	1.1	1.4	1.9	2.2	2.6
Refrigerant/Proper Input	kg	R32/1.5kg	R32/1.6kg	R32/2.0kg	R32/2.1kg	R32/2.8kg
Sound Pressure At Rated Flow (1m)	dB(A)	42	43	45	46	47
Sound Power LevelEN12102 (35℃)	dB(A)	57	59	60	61	62
Cabinet Type	/	Galvanized sheet+ABS				
Compressor Brand	/	Panasonic				
Fan Motor Type	/	DC motor				
Operating Ambient Temperature	℃	-25～43				
Water Connection	inch	1	1	1	1	1
Refrigerant circuit		Liquid Dia(OD):φ9.52 / Gas Dia(OD):φ15.88				
Net weight	kg	65	70	90	105	115
Unit Dimensions(L/W/H)	mm	945×440×750		1145×440×950		1055×440×1400
Shipping Dimensions(L/W/H)	mm	990×450×900		1195×450×1100		1100×450×1550
The above data is for reference only;specific data is subject to the product nameplate.						

Complete model		VS90-DCS(380V)	VS120-DCS (380V)	VS150-DCS(380V)	VS180-DCS (380V)	VS220-DCS (380V)
External model number		VS90-DCS(380V)-FW	VS120-DCS-(380V)FW	VS150-DCS(380V)-FW	VS180-DCS (380V)-FW	VS220-DCS (380V)-FW
Power Supply	/	380V-420V～50Hz/3Ph				
Heating Condition-Ambient Temp.(DB/WB):7/6℃，Water Temp.(In/Out):30/35℃						
Heating Capacity Range	kW	3.7～8.5	3.7～10.7	5.2～14.6	5.2～17.4	7.0～21.2
Heating Power Input Range	kW	0.67～1.91	0.67～2.40	0.94～3.28	0.94～3.95	1.27～4.75

COP		5.55～4.45	5.55～4.46	5.56～4.45	5.56～4.41	5.52～4.46
Hot Water Condition-Ambient Temp.(DB/WB):20/15℃，Water Temp.(In/Out):15/55℃						
Heating Capacity Range	kW	4.0～12.0	5.0～15.0	6.0～18.0	7.0～21.0	8.0～24.0
Heating Power Input Range	kW	0.83～2.89	1.05～3.65	1.24～4.30	1.47～5.08	1.66～5.78
COP		4.80～4.15	4.76～4.11	4.83～4.18	4.77～4.13	4.82～4.17
Cooling Condition-Ambient Temp.(DB/WB):35/24℃，Water Temp.(In/Out):12/7℃						
Cooling Capacity Range	kW	2.3～6.5	2.3～8.0	3.2～11.0	3.2～13.0	4.5～15.0
Cooling Power Input Range	kW	0.65～2.45	0.65～3.04	0.90～4.10	0.90～4.96	1.25～5.68
EER		3.53～2.65	3.53～2.63	3.55～2.68	3.55～2.62	3.6～2.64
ErP Level（35℃）	/	A+++	A+++	A+++	A+++	A+++
ErP Level（55℃）	/	A+	A+	A+	A+	A+
SCOP（35℃）	/	4.81	4.82	4.82	4.80	4.81
SCOP（55℃）	/	3.35	3.40	3.42	3.40	3.41
Water Flow	m³	1.1	1.4	1.9	2.2	2.6
Refrigerant/Proper Input	kg	R32/1.5kg	R32/1.6kg	R32/2.0kg	R32/2.1kg	R32/2.8kg
Sound Pressure At Rated Flow (1m)	dB(A)	42	43	45	46	47
Sound Power LevelEN12102 (35℃)	dB(A)	57	59	60	61	62
Cabinet Type	/	Galvanized sheet+ABS				
Compressor Brand	/	Panasonic				
Fan Motor Type	/	DC motor				
Operating Ambient Temperature	℃	-25～43				
Water Connection	inch	1	1	1	1	1
Refrigerant circuit		Liquid Dia(OD):φ9.52 / Gas Dia(OD):φ15.88				
Net weight	kg	65	70	90	105	115
Unit Dimensions(L/W/H)	mm	945×440×755		1145×440×950		1055×440×1400
Shipping Dimensions(L/W/H)	mm	990×450×900		1195×450×1100		1100×450×1550
The above data is for reference only;specific data is subject to the product nameplate.						

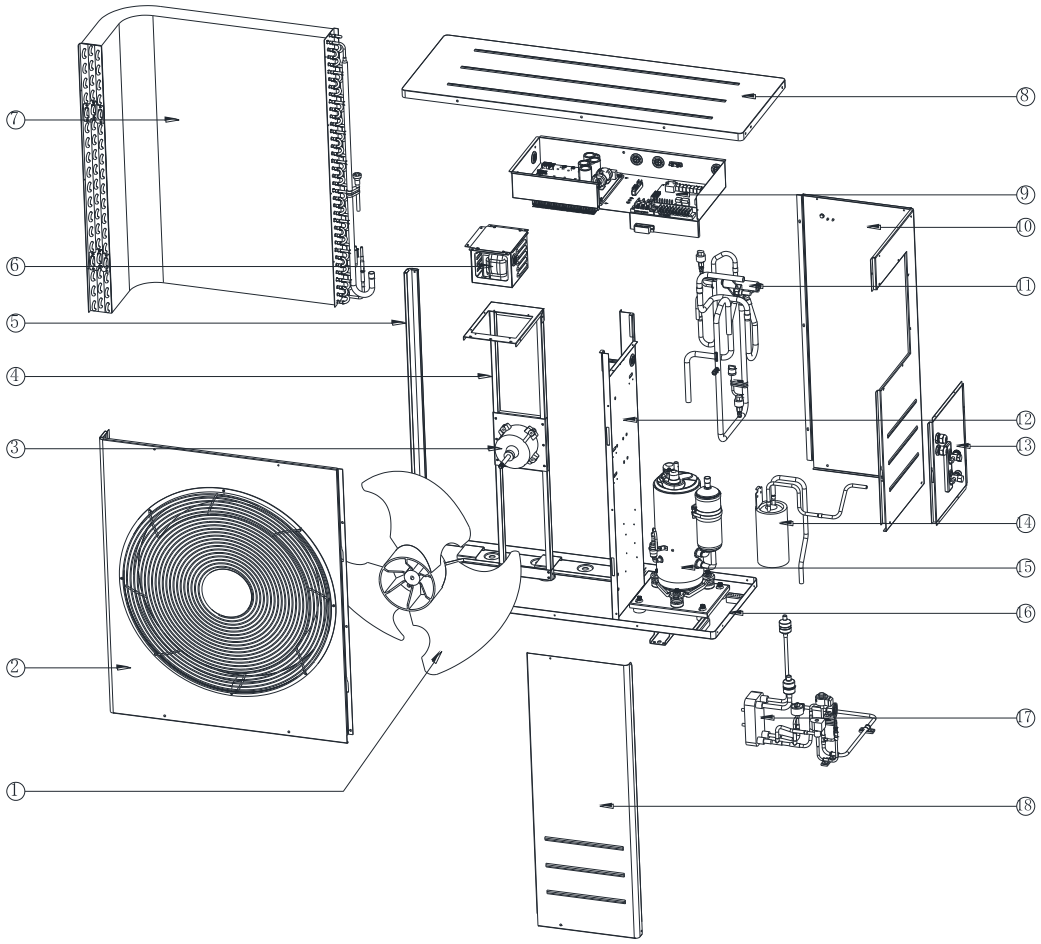
4.1.2 Indoor Unit

Model		VS90-DCS/FN	VS120-DCS/FN	VS150-DCS/FN	VS180-DCS/FN	VS220-DCS/FN
Power Supply		220V-240V～50Hz/1Ph				
Water-side heat exchanger		Coin heat exchanger				
Flow switch		Built-in				
Pump power	kW	0.15	0.15	0.15	0.15	0.15
External head of pump	m	6.0	5.5	4.5	3.5	3.0
Electric heating power	kW	2.0				
inlet and outlet pipe connector	/	DN25 inner teeth				
Rated water flow	m³/h	1.20	1.38	1.98	2.40	2.80
Water side resistance	kPa	30	30	30	30	30
Max water outlet temp(Heating)	℃	55				
Min water outlet temp(Cooling)	℃	5				

Refrigerant circuit	mm	Liquid Dia(OD):φ9.52 / Gas Dia(OD):φ15.88				
Dimensions	mm	500*300*790				
Net weight	kg	30	33	37	40	45
Sound pressure level	dB(A)	42	42	43	44	45

4.2 Structure decomposition diagram of the unit

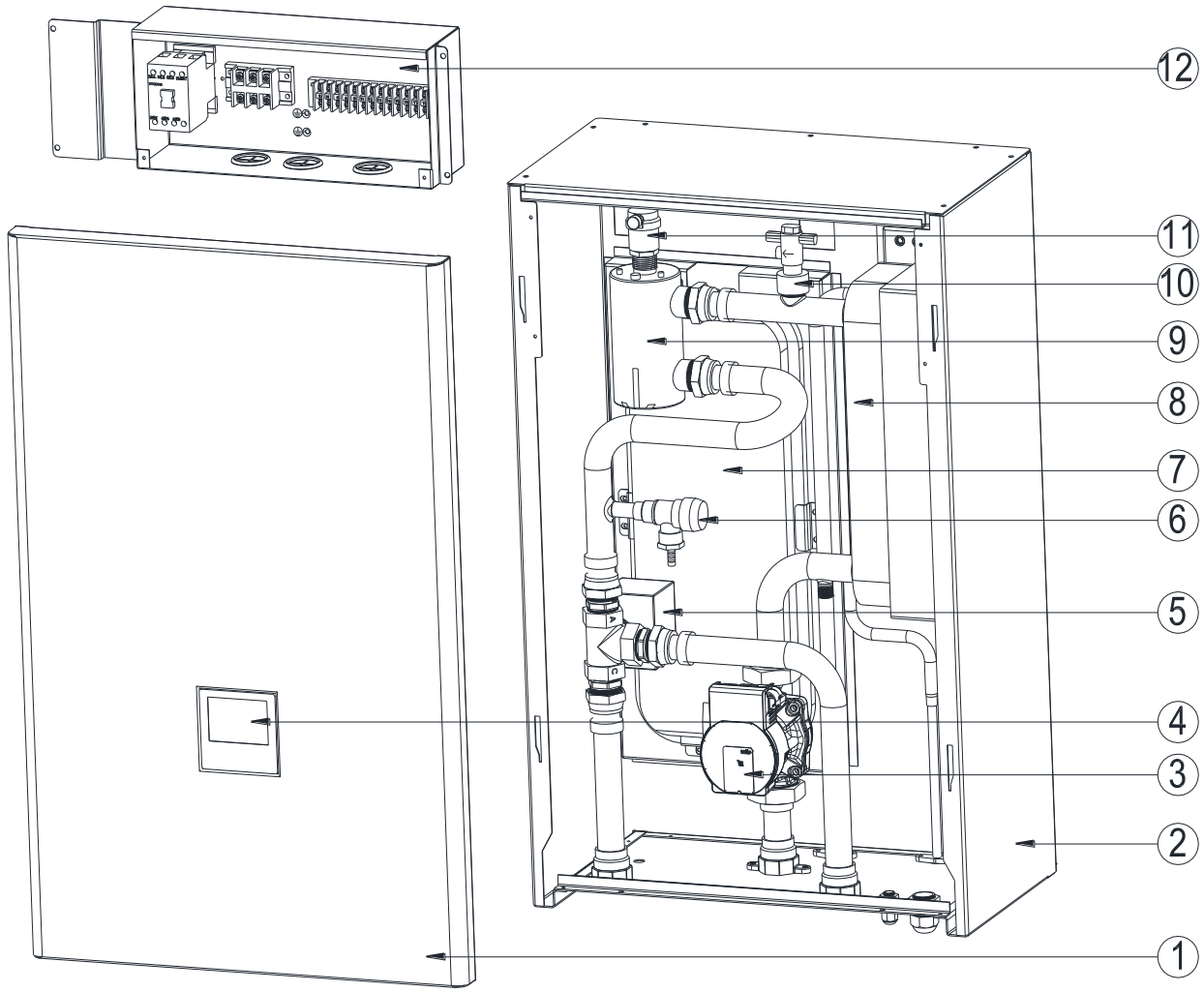
4.2.1 Decomposition Diagram of outdoor unit structure



NO.	NAME	Q'T Y
1	Outdoor fan	1
2	Tuyere Panel	1
3	Outdoor Motor	1
4	Motor Bracket	1
5	Back Post	1
6	Reactance	1
7	Condenser	1
8	Top Panel	1
9	Control Module	1

NO.	NAME	Q'T
10	Right Rear Back Plate	1
11	Four-way Valve Assembly	1
12	Partition Board	1
13	Refrigerant stop valve	1
14	Liquid Storage Tank	1
15	Compressor	1
16	Chassis	1
17	Throttling assembly	1
18	Front Panel	1

4.2.2 Structural decomposition diagram of indoor units

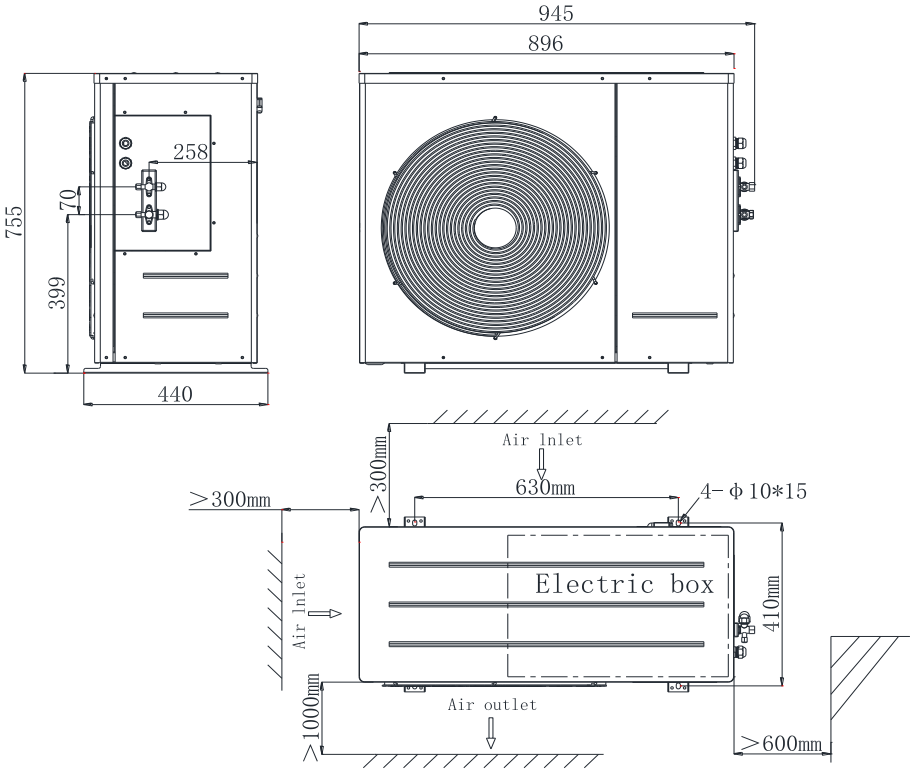


NO.	NAME	Q'TY		NO.	NAME	Q'TY
1	Box body	1		7	Expansion tank	1
2	Front Panel	1		8	Coin heat exchanger	1
3	Water pump	1		9	Backup electric heater	1
4	Controller	1		10	Water flow switch	1
5	Three-way valve	1		11	Exhaust Valve	1
6	Pressure Relief Valve	1		12	Control Module	1

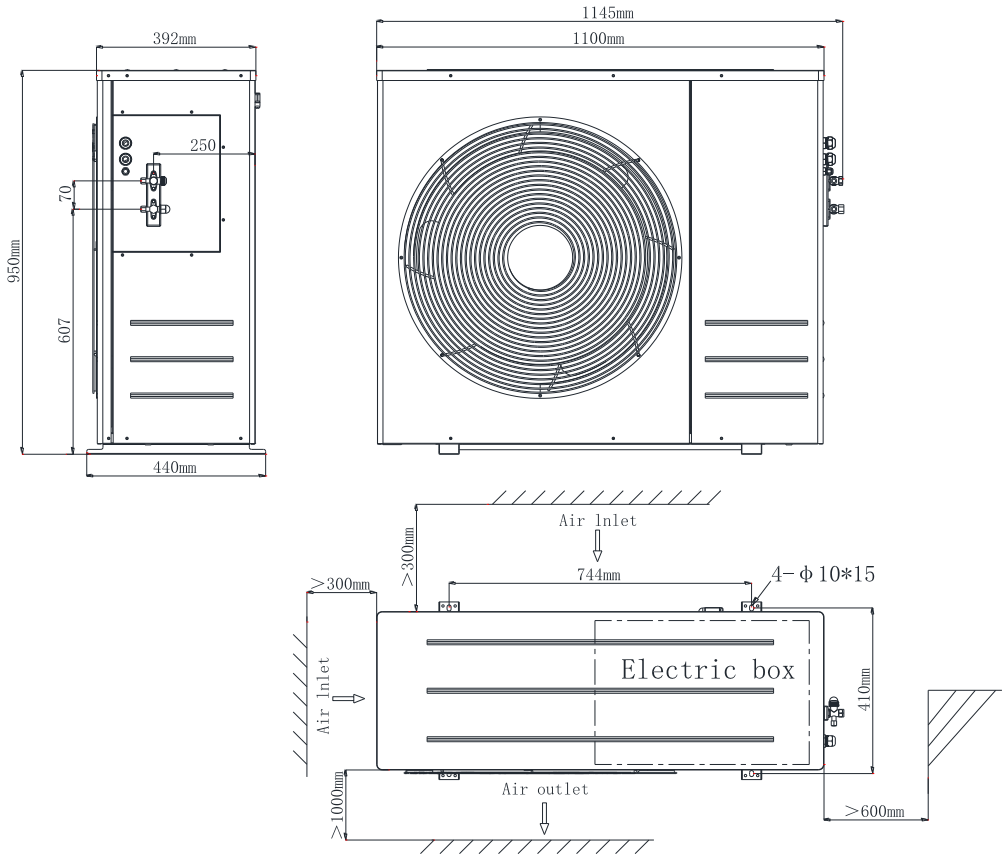
4.3 Product dimension drawing and installation space diagram

4.3.1 overall dimension diagram

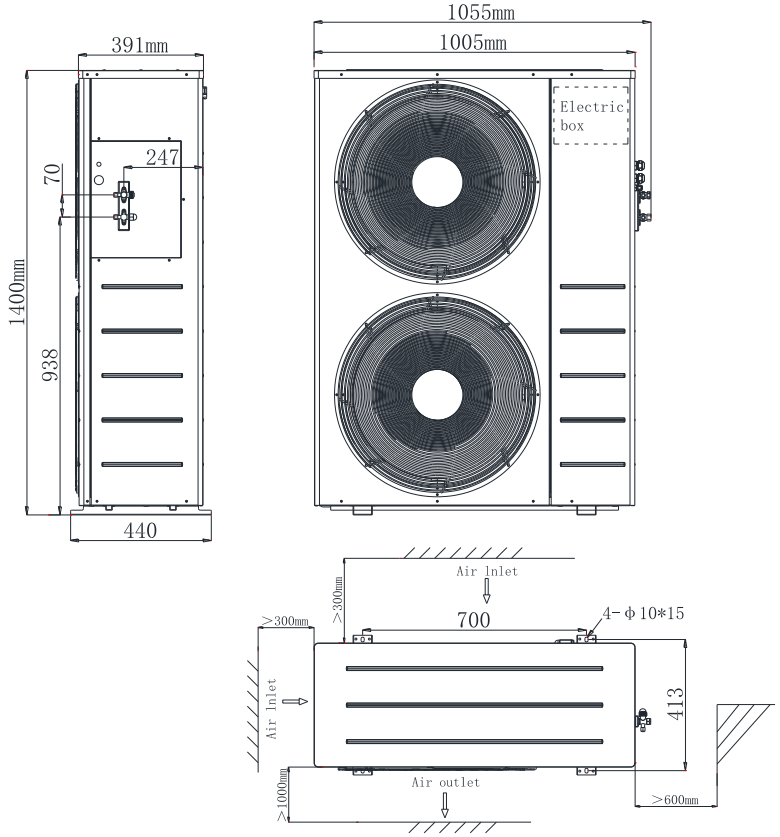
Outdoor model: VS90-DCS（220V）/FW　VS120-DCS（220V）/FW　VS90-DCS（380V）/FW　VS120-DCS（380V）/FW



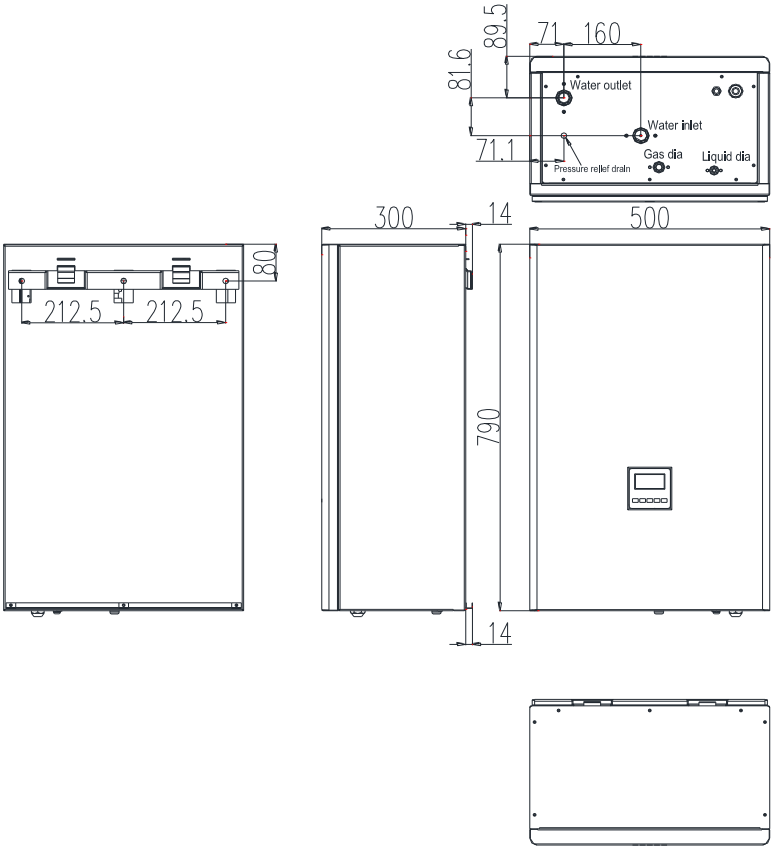
Outdoor model: VS150-DCS（220V）/FW　VS180-DCS（220V）/FW　VS150-DCS（380V）/FW VS180-DCS（380V）/FW



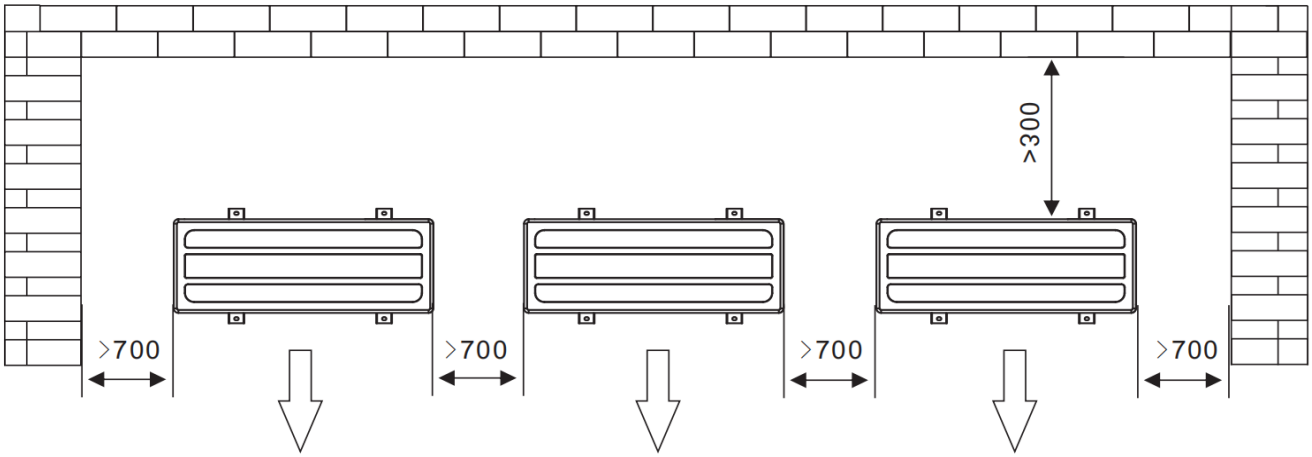
Outdoor model: VS220-DCS（220V）/FW　　VS220-DCS/（380V）FW



(2) Indoor model: VS90-DCS/FN　VS120-DCS/FN　VS150-DCS/FN　VS180-DCS/FN　VS220-DCS/FN



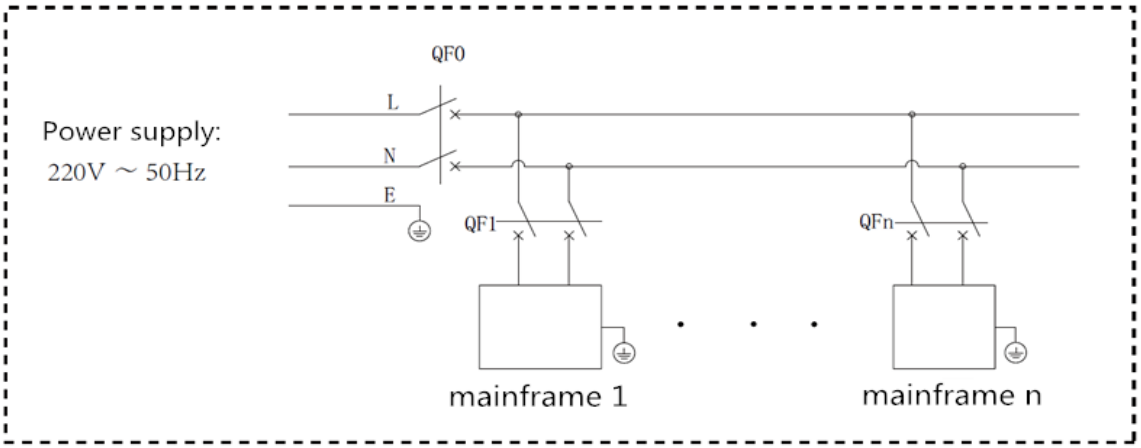
4.3.2 Installation space diagram of the unit

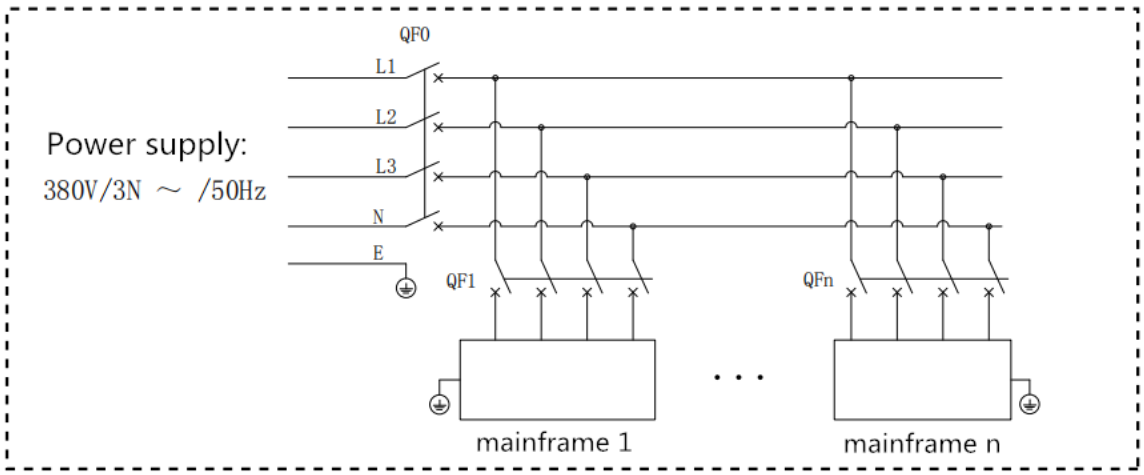


Note: If wall mounted, the stressed surface and mounting frame must have sufficient strength.

5. Wiring principle

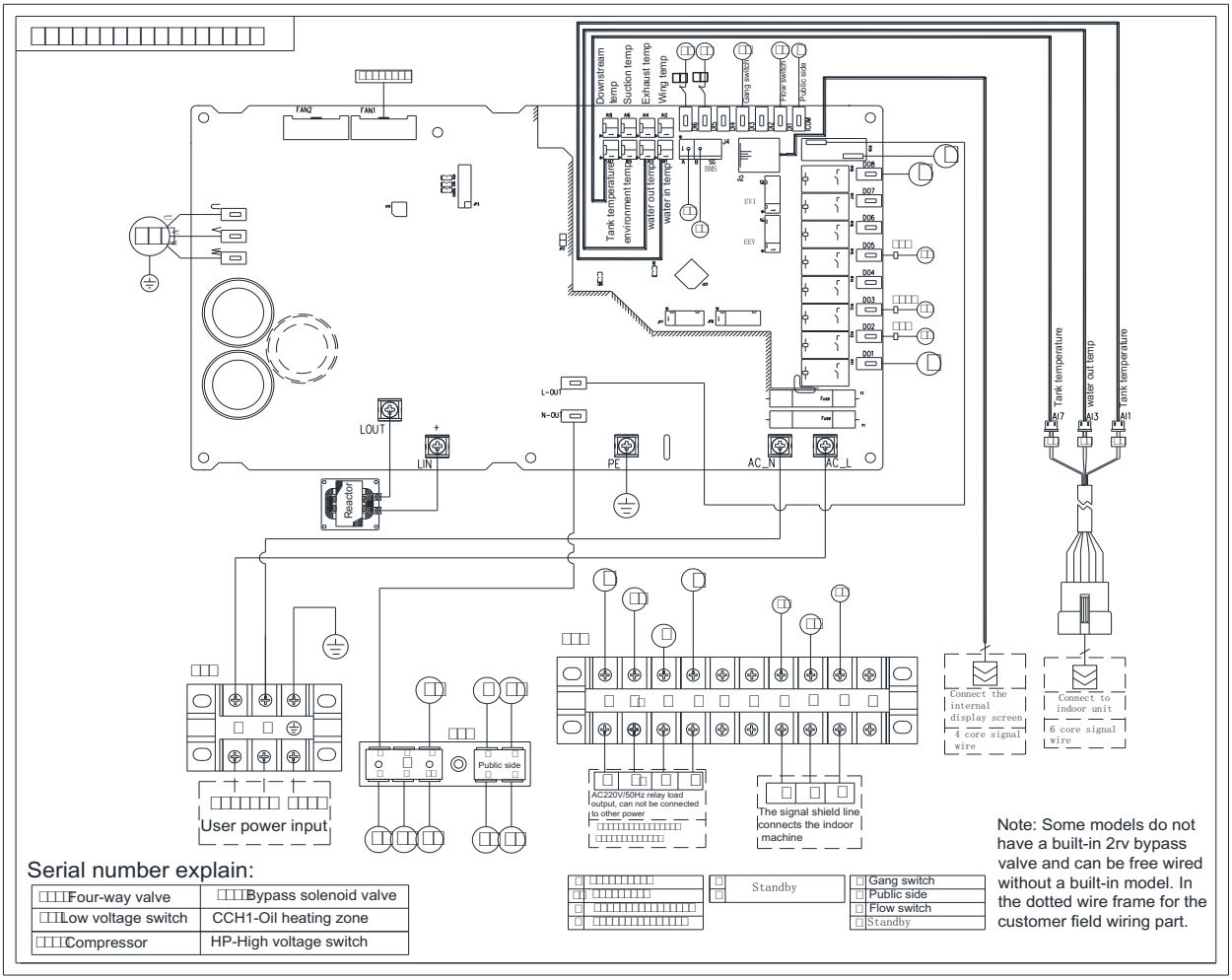
5.1 Schematic diagram of the power supply wiring





5.2 Electrical wiring diagram

Applicable model: VS90-DCS(220V)/FW VS120-DCS(220V)/FW

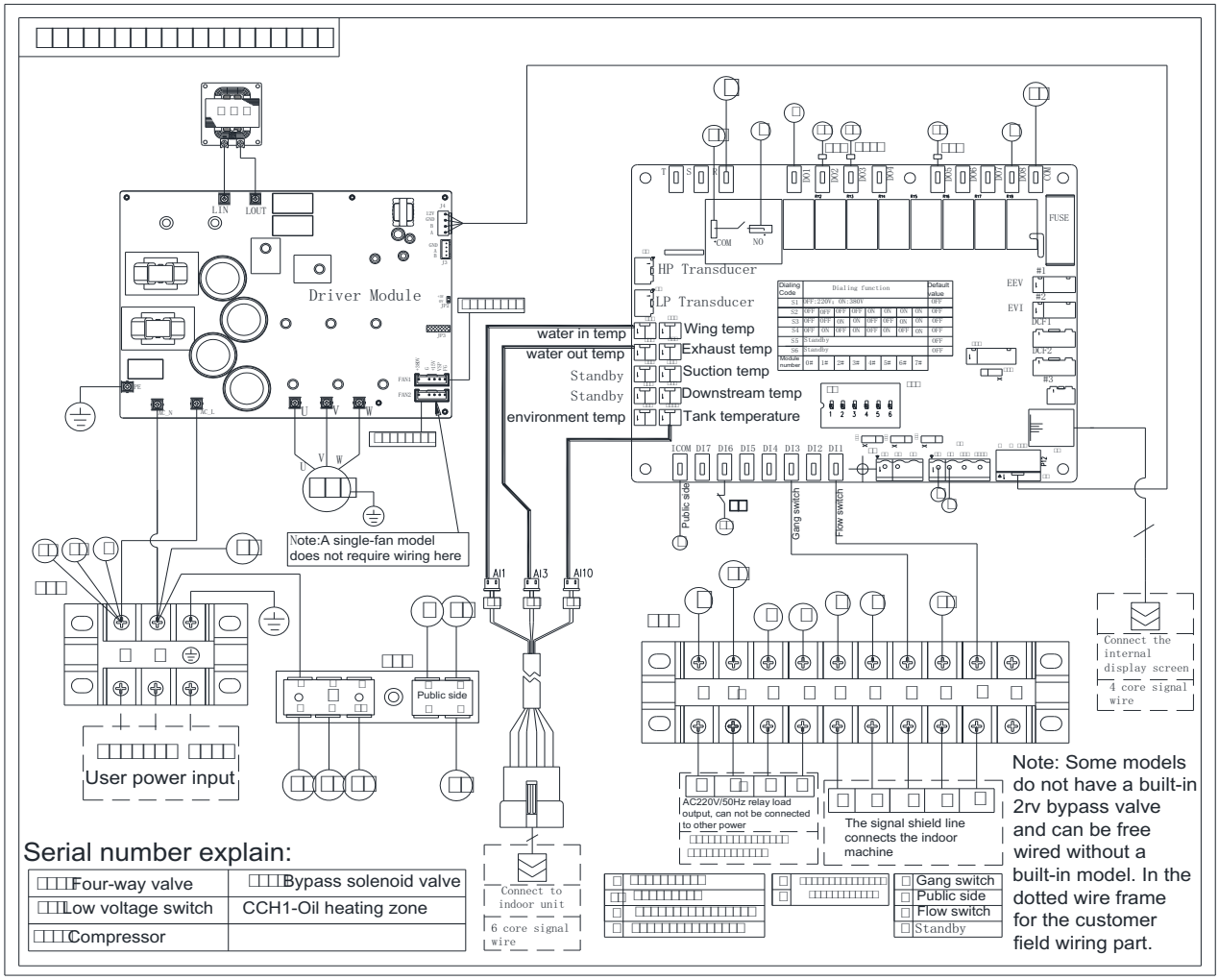


Serial number explain:

□□□□Four-way valve	□□□□Bypass solenoid valve
□□□Low voltage switch	CCH1-Oil heating zone
□□□□Compressor	HP-High voltage switch

Note: Some models do not have a built-in 2rv bypass valve and can be free wired without a built-in model. In the dotted wire frame for the customer field wiring part.

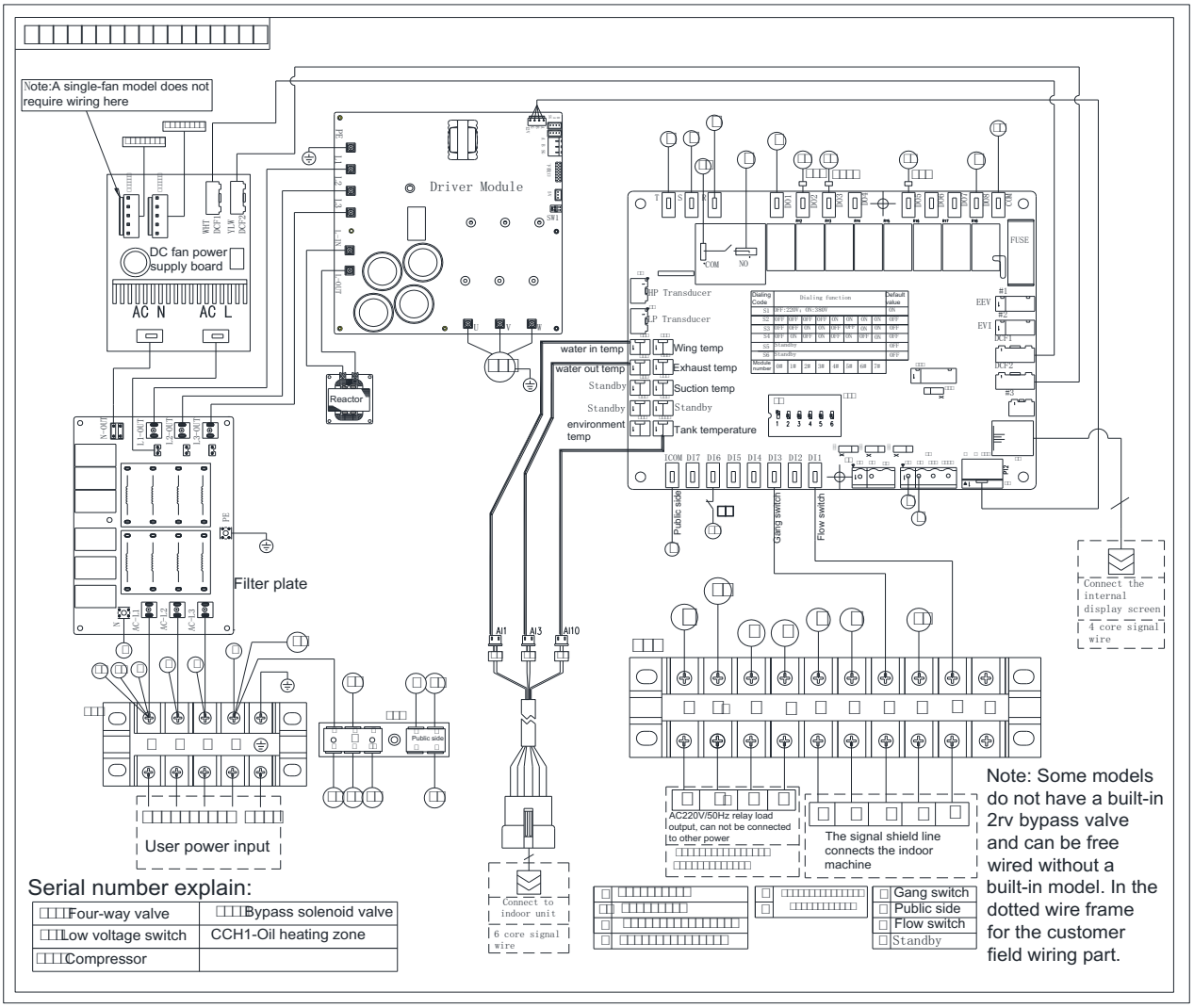
Applicable model: VS150-DCS(220V)/FW VS180-DCS(220V)/FW VS220-DCS(220V)/FW



Serial number explain:

Four-way valve	Bypass solenoid valve
Low voltage switch	CCH1-Oil heating zone
Compressor	

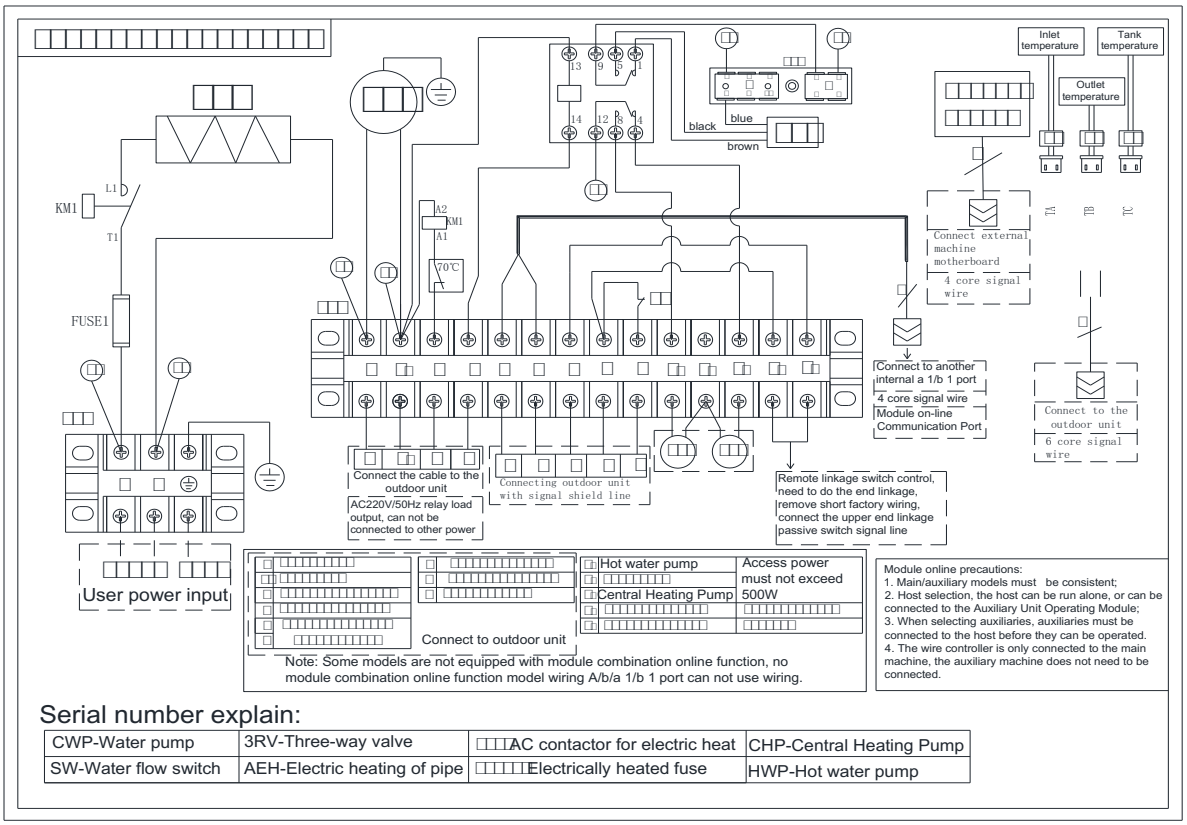
Applicable model: VS90-DCS(380V)/FW VS120-DCS(380V)/FW VS150-DCS(380V)/FW VS180-DCS(380V)/FW VS220-DCS(380V)/FW



Serial number explain:

□□□□Four-way valve	□□□□Bypass solenoid valve
□□□Low voltage switch	CCH1-Oil heating zone
□□□□Compressor	

Applicable model: VS90-DCS/FN VS120-DCS/FN VS150-DCS/FN VS180-DCS/FN VS220-DCS/FN

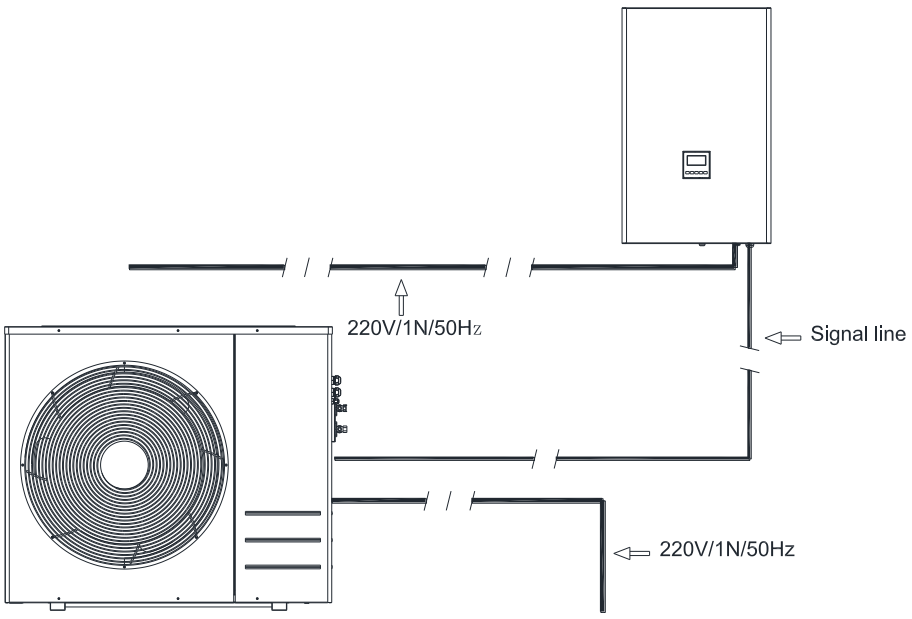


Serial number explain:

CWP-Water pump	3RV-Three-way valve	□□□AC contactor for electric heat	CHP-Central Heating Pump
SW-Water flow switch	AEH-Electric heating of pipe	□□□□□Electrically heated fuse	HWP-Hot water pump

5.3 Schematic diagram of the machine input power supply connection

One-drag and one type



One-drag and two types

Note: Subject to subsequent changes without notice, please be subject to the electrical wiring diagram in the unit.

6. Engineering design and installation

Host acceptance (attention)

When receiving the unit, please check whether the models and specifications of the purchased equipment and spare parts are in accordance with the contract. Please carefully check the unit for damage in transit, if so, record on the delivery order and notify the final carrier in writing within 72 hours, notify the local sales office, thoroughly check the unit within 15 days of arrival and notify the carrier and the local sales office.

6.1 Introduction of the heating and cooling system

6.1.1 Classification of hot and cold water systems

1) open cycle system:

A system that circulates water and air in a pipeline. The contact between the circulating water and the air is easy to corrode the pipeline. When the height difference between the user and the equipment is large, the water pump needs to overcome the static pressure and consume more power.

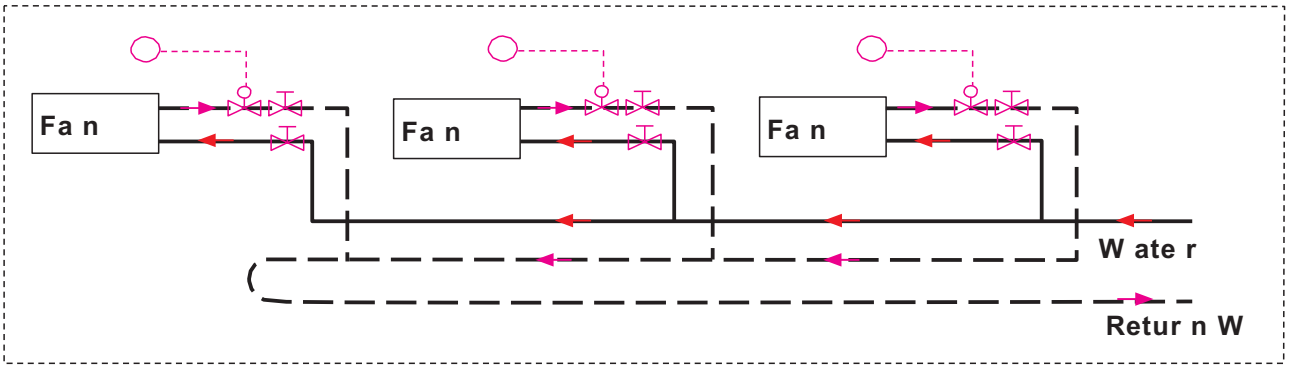
2) closed cycle system:

No contact between the piping system and the atmosphere. There is an exhaust valve at the highest point. Pipes and equipment are not prone to corrosion and do not need to be overcome. So the circulating water pump has very little power.

3) reverse return system: the flow of each branch in the parallel cycle is equal to the system.

◆ advantage: good hydraulic stability, performance balance of water distribution between the devices.

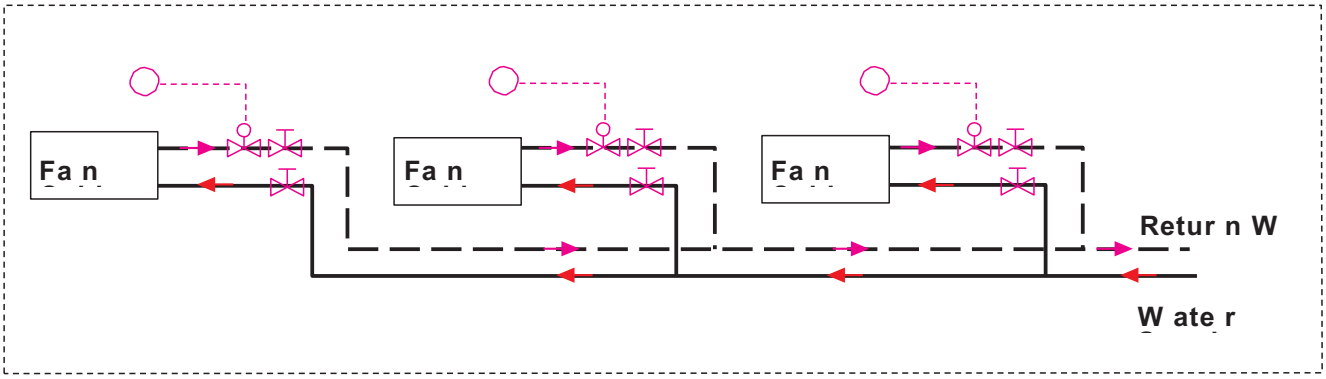
◆ disadvantages: with the use of return water pipe, the waterproof performance increases with the extended length, and the energy consumption of the pump also increases, increasing the initial investment.



4) direct return system: a system with different branch flow in the parallel cycle.

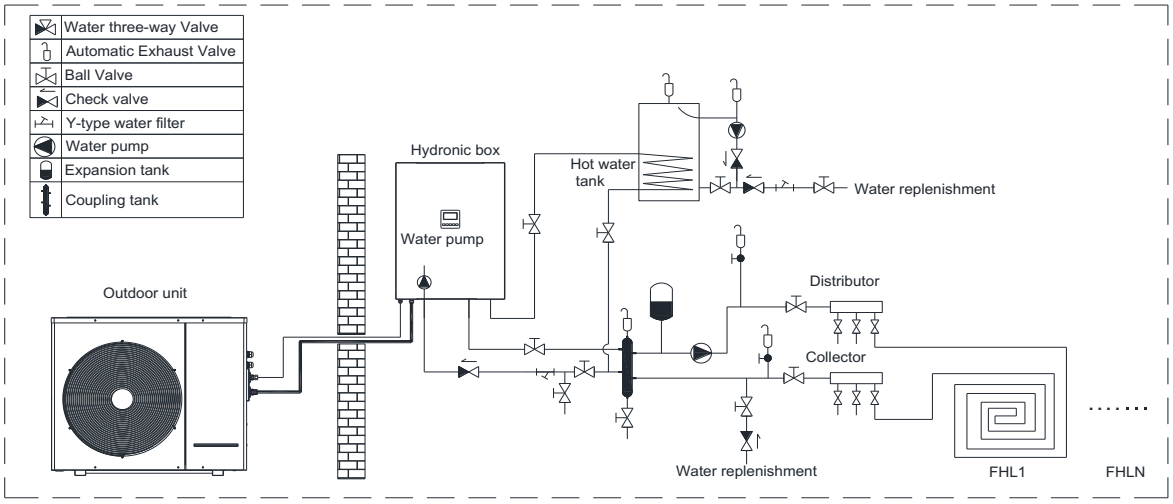
◆ advantage: the direct return system is simple, less pipeline consumption and less construction difficulty.

◆ disadvantage: the different parallel circuit length and resistance make the flow distribution difficult to balance.

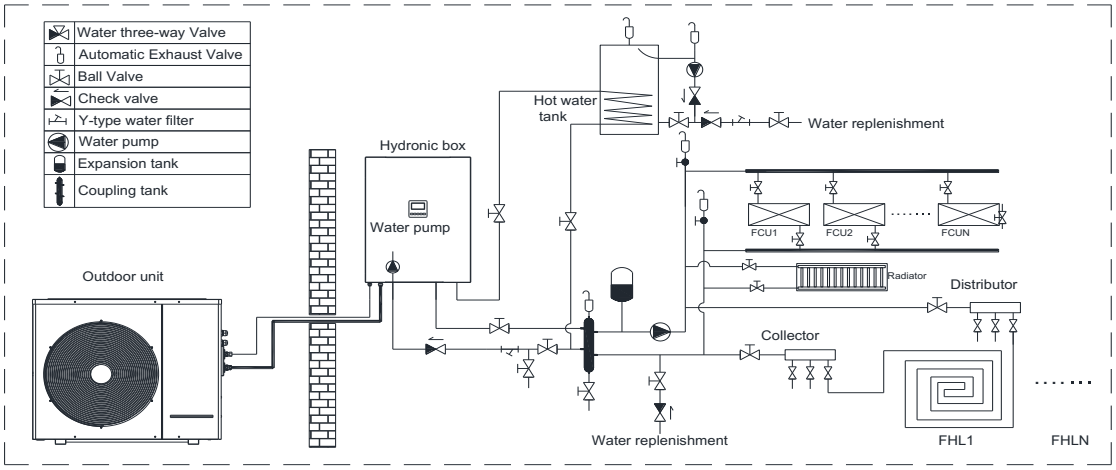


6.2 Schematic diagram of the system installation

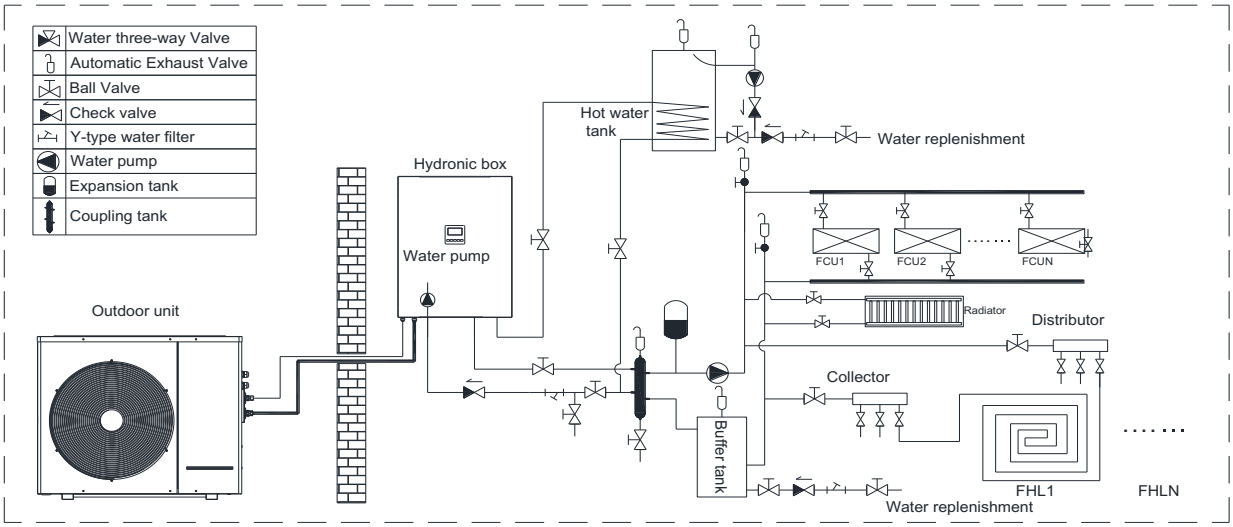
6.2.1 System schematic diagram with domestic hot water and heating.



6.2.2 With domestic hot water and cold and warm system schematic diagram.



6.2.3 Equipped with buffer water tank heating and cooling system and domestic hot water schematic diagram.



6.3 Installation instructions

6.3.1 instructions before installation

- Unit installation and adjustment shall be completed by entrusted professionals;
- Before installation, purchase the materials in advance. Important materials required by the unit, such as cable, leakage protector, air switch, water pump, etc., should be purchased according to the technical parameters of the unit; and other auxiliary parts such as distribution box, cable pipe, fixing fittings, insulation materials, water pipe fittings can be selected according to local specifications;
- Special power supply line of the unit is adopted, and the capacity meets the technical requirements of the unit. The unit shall be reliably grounded to prevent insulation failure;
- Plan the unit installation plan according to the principles of safety, reliability and economy, determine the installation position of the unit, and number the pipeline and valve parts;
- The unit is placed in the installation site with many dust debris, heavy lampblack and humid environment, or if the installation period exceeds 5 days, appropriate protective measures must be taken for the whole unit, such as wrapping the machine with plastic cloth;
- Please install in strict accordance with this manual and relevant national and local air conditioning / or heat pump construction specifications;
- The power supply must be consistent with the unit nameplate, and the maximum deviation of the power supply voltage shall not exceed 10%.

6.3.2 Installation environment

- Provide adequate space for installation and maintenance
- The air inlet and outlet are barrier-free. If there is an obstacle above the unit, please be more than 2 meters above the kitchen of the unit. Pay attention to the influence of the monsoon and avoid the monsoon direction.
- The unit shall not be installed in damp and uneven places, far away from too high or low temperature heat sources, flammable products, corrosive gas, strong electromagnetic field, heavy dust and heavy lampblack.
- If the exhaust requirements can not be met, the air guide duct shall be installed.
- Easy installation of connecting pipes and electrical connections.
- The support surface is flat and can withstand the weight of the unit, and can be installed horizontally without increasing noise and vibration.

6.3.3 Handling and installation

- Due to the large product quality and volume, please use the loading machine (e. g. mobile crane) for handling. The sling shall pass through the lifting hole of the groove steel base and can not rely on the wooden foot, and the unit cannot be inverted during handling and installation.
- Select the correct move-in path.
- Try to carry the local machine in the original condition
- If the fruit unit is installed on the metal part of the building, the electrical insulation work must be done well, and it must comply with the relevant technical standards of the electrical equipment.

6.3.4 Unit pipe connection

(1) main technical processes and installation of water treatment systems

Installation of water pipe hanger and prefabricated pipe (installation from main line to branch pipe to equipment port, installation quality of spare parts, pipe hydraulic test to prevent pipe leakage danger and pipe insulation appearance acceptance (together with other equipment acceptance)

(2) Installation of polypropylene pipe PPR

- The flow of PPR pipeline shall not exceed 2m/s, generally using 1-1.5m/s;
- Double steel pipes shall be provided when the pipe passes through the floor. The top of the double steel pipe shall be 50mm, above the bottom of the ground and shall be consistent with the ground level;
- Pipes or fittings shall be placed in well-ventilated places to prevent direct sunlight;
- The access pipe cannot be installed after the unit is fixed.
- Select the suitable water pump and pipe material according to the unit technical parameters to eliminate the fault shutdown due to improper fitting specifications.
- Do not leave other debris in the pipeline system during connecting the pipeline.
- Install the design schematic diagram to connect the pipeline, and install the relevant national construction standards for construction to facilitate the maintenance and maintenance of the unit during use.
- Water pipe installation shall be horizontal and vertical, arranged reasonable to minimize bending and reduce resistance loss of water system.
- After the installation between tap water supply pipe, main machine and water tank, the tight hydraulic test shall be conducted and sewage discharge, to ensure the cleanliness of the system.
- Thermal insulation and insulation materials must be sealed with hydration and circulating pipes.
- The minimum spacing for different pipelines is shown in the table below

PPR hot water pipe hanger installation space

Nominal Outside Diameter (De)/ mm	20	25	32	40	50	63	75	90	110
Horizontal tube/ m	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.5
Riser pipe/ m	0.9	1.0	1.2	1.4	1.6	1.7	1.7	1.8	2.0

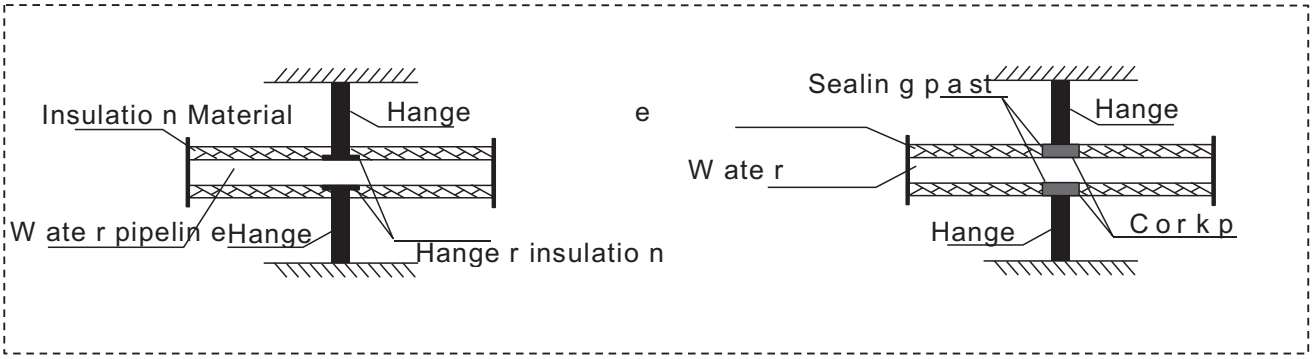
Note:

The exhaust valve of the air conditioning system must be installed at the highest point and the inlet lines are recommended. If the open expansion tank is used, the high point difference of the tank bottom from the fixed pressure point shall not be less than 2 m. If all two-pass valves are used at the end, the supervisor shall take bypass measures, otherwise some three-pass valve shall be installed at the end. If the air disc + ground heating, it is best to use the secondary valve + main bypass measures.

(3) Insulation and sealing method

- Connect polyethylene (polyethylene or rubber), foam rubber, and ensure each joint is tight and the outer layer is covered by damp proof plastic cloth. The number of rings per circle shall be no less than 30mm. The slope of the risers and pipes shall be conducted in the upward direction.
- The insulation pipe shall not be cut off through the wall or floor; the suspension supports must be installed outside

the pipe insulation material. Avoid formation of "cold bridge" by hanger, bracket, cushion insert. The following figure shows two basic methods:



6.3.5 Unit installation procedure

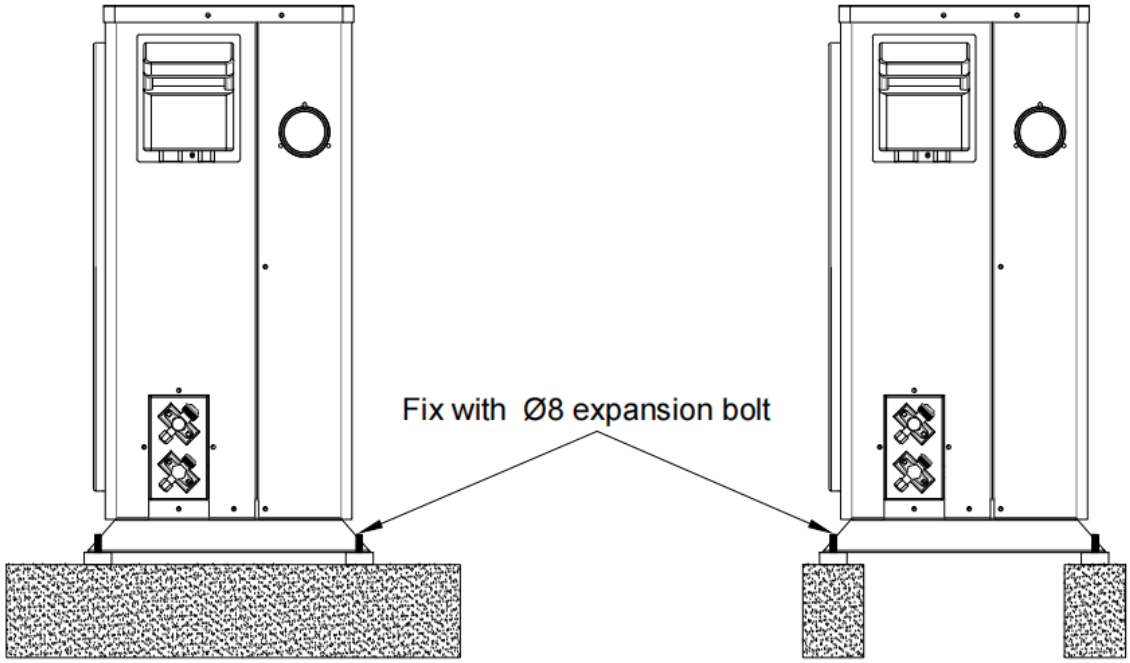
(1) External machine installation

When installing the external machine, refer to the installation instructions and select a suitable installation location.

A. checks the strength and level of the installation position, and the machine will not cause vibration or noise after installation

B. prepares four sets of foundation Φ 8 expansion bolts, nuts, and shock-proof rubber pads each. (Optional)

C. Fixed the machine with the foundation bolts according to the foundation drawing. It is best to screw it into the foundation bolts with 20mm left on the foundation surface

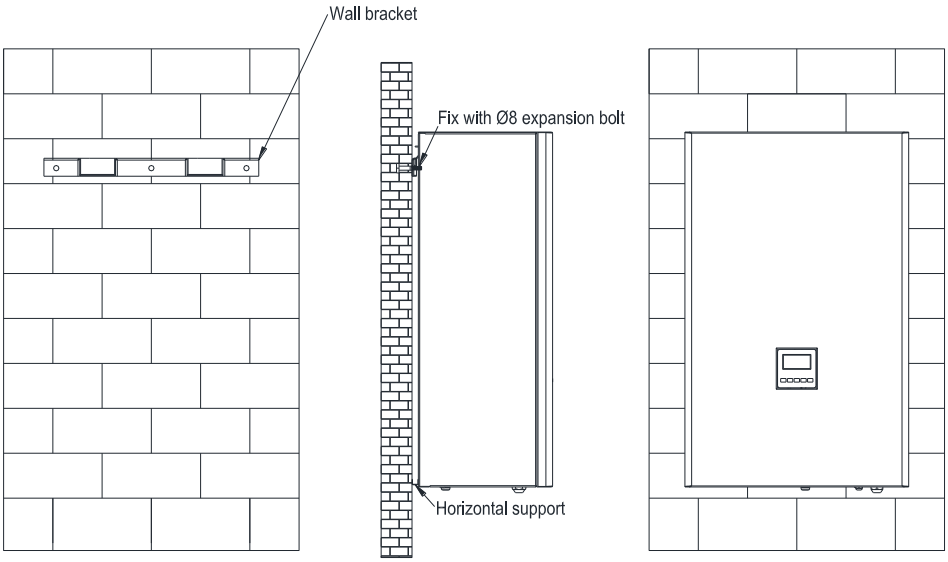


(2) Internal machine installation

A. checks the strength and level of the installation position, and the machine will not cause vibration or noise after installation

B. Prepare the base Φ 8 expansion bolt, nuts

C. Fixed the machine with the foundation bolts according to the foundation drawing. It is best to screw it into the foundation bolts with 20mm left on the foundation surface.



When connecting the fluorpipe, use two wrenches to tighten or loosen the nuts. Otherwise, will damage the pipe and cause leakage.

Installation work of connecting pipeline

Pipeline installation must be installed by experienced refrigeration technicians and comply with relevant local laws and regulations

Pipe expansion section

Expand each orifice and follow the following steps:

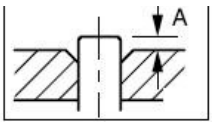
A. cuts the tube with a tube cutting tool

B. removes the burrs and the cut surface goes down to prevent debris from falling into the tube

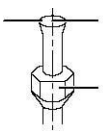
1. right-angle cutting
2. cleans up the burrs

C. removes the brass nut from the stop valve and covers the nut over the tube

D. Expand the pipe ports. Place them in the position shown below



		Traditional mouth	
	R32 expansion worker	Clutch class Type	Wing screw Type
A	0-0.5 mm	1.0-1.5 mm	1.5-2.0 mm



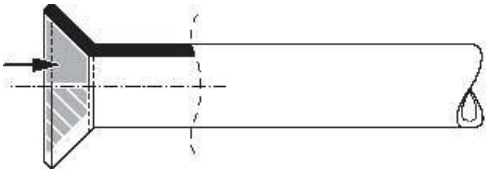
Check the expansion

1.The internal surface of the expansion port cannot be defective
2.The mouth expansion should be successful
3.Ensures that the nuts are appropriate

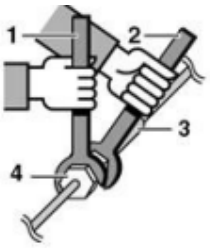
Note

- Do not use mineral oil at the expansion
- Mineral oil entering the system will shorten the service life of the machine
- Do not use the installed and used piping.
- Do not install the dryer on the R32 machine to ensure its service life. Dry material may dissolve and damage the system.
- If the expansion is not good, it will cause refrigerant gas leakage.

A. When connects the nut, apply ether or ester oil on the internal surface of the nut and hand it three or four laps before tightening



B.Use both wrenches when releasing the nuts. When connecting the pipe, tighten the nuts with the wrench and torque wrench to prevent nut cracking or leakage.

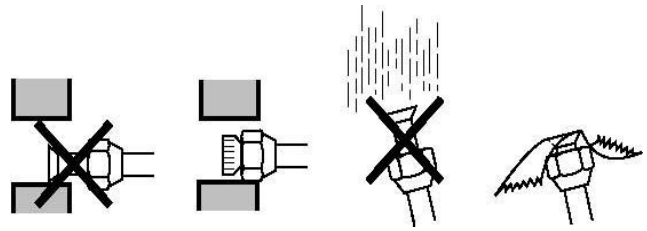


1. Force with a wrench
2. Wrench
3. Piping group
4. Forged nuts

External diameter		Torque
mm	Inch	Kgf.m
6.35	1/4	1.8 ~ 2.5
9.52	3/8	3.4 ~ 4.2
12.7	1/2	5.5 ~ 6.6
15.88	5/8	6.6 ~ 8.2
19.05	3/4	9.9 ~ 12.1

Refrigerant piping engineering
Pipe operation Guide

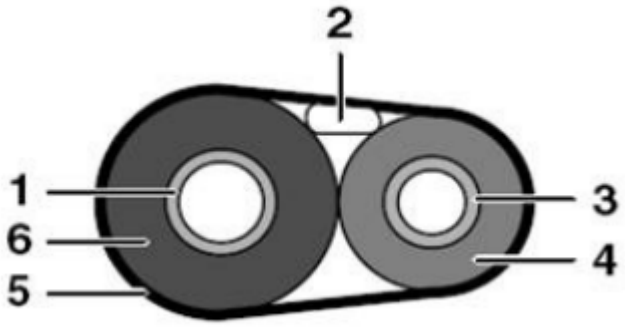
- Protect the pipe mouth,moisture-proof and dust-proof
- All piping bends shall be as gentle as possible and bent with a bending machine
- The bending radius shall be 30-40mm, or greater



Selection of copper and heat insulation materials
Use commercial copper tubes and components

- Insulation material: polyethylene foam
  Thermal conversion rate: 0.041 to 0.052 W/mK (0.035 to 0.045 kcal / mh °C) fluoro trachea surface temperature up to 110 °C selected insulation to withstand this temperature
- Fluoro and liquid pipes must be insulated, specifications as follows

Pipe fitting specification		Heat insulation pipe	
External diameter	Thickness	Internal diameter	Thickness
9.52 mm (3/8")	≥0.75 mm	10-12 mm	≥10 mm
15.88 mm (5/8")	≥1.0 mm	20-24 mm	≥13 mm



1. Air tube
2. Internal cables
3. The liquid pipe
4. Heat insulation of liquid pipe
5. Tie
6. Heat insulation of trachea

Check for the gas leakage
After all piping connections and the external and inner connections, check for gas leaks.

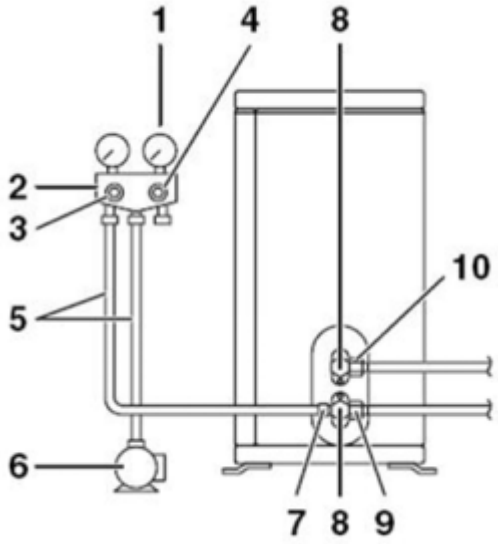
Warning

- Do not mix substances into the refrigerant circulation pipe except the specified refrigerant (R32).
- When the refrigerant leaks, ventilate the room as soon as possible
- The R32 refrigerant and other refrigerant media cannot be

discharged directly into the environment.

Note

- Use a R32a-dedicated vacuum pump. Using the same vacuum pump for different refrigerant may damage the vacuum pump or machine
- Operate the stop valve stem with a hexagonal wrench (5mm)
- All refrigerant pipe interfaces shall be tightened using a torque wrench to the specified torque. Refer to the "Connecting Refrigerant Pipe to External" guide for details



1. Pressure gauge
2. Pressure pipe connection table
3. Low pressure valve
4. High pressure valve
5. Charge hose
6. Vacuum pump
7. Check port
8. cover
9. Gas stop valve
10. Liquid stop valve

For additional refrigerant, refer to the nameplate of the machine, indicating the type of refrigerant and the required quantity required.

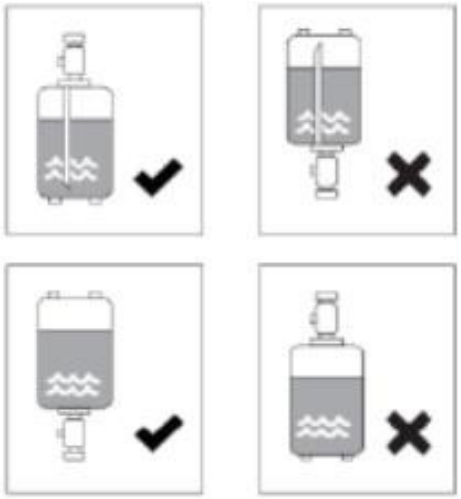
Add the refrigerant

Refrigerant tube parameters	VS90-DCS	VS120-DCS	VS150-DCS	VS180-DCS	VS220-DCS
Maximum allowable length of pipe	10m				
Maximum allowable height	5 m				
Add refrigerant and require a	35 g/ meters				
Gas pipe	15.88mm (5/8")				

Liquid pipe	9.52mm (3/8")

Add the R32 considerations

Add the specified amount of refrigerant into the liquid tube in liquid form. Because the refrigerant is a mixed refrigerant, injected into the tube in gaseous, may change the composition of the refrigerant so that it cannot operate properly

- Before injection, check the cylinder for a siphon configuration
- 

Check it before

startup

1. Field wiring inspection: check whether the specifications and wiring conditions of the connection line meet the requirements.
2. Air switch or protection device: Check the capacity of the air switch and relevant specifications.
3. grounding wire: connect the grounding wire correctly and tighten the grounding terminals.
3. Fixed: Check whether the machine is fixed to avoid abnormal noise and vibration during startup.
4. Equipment: Check for damaged components or pipe extrusion inside the machine.
5. Refrigerant leakage: Check the machine for refrigerant leakage. If so, contact the local dealer.
7. power voltage: Check and confirm the supply voltage shall be consistent with the machine nameplate.
8.: Make sure the exhaust port of the exhaust valve is open (at least 2 laps).
9. waterway valve: Install all valves correctly and open.

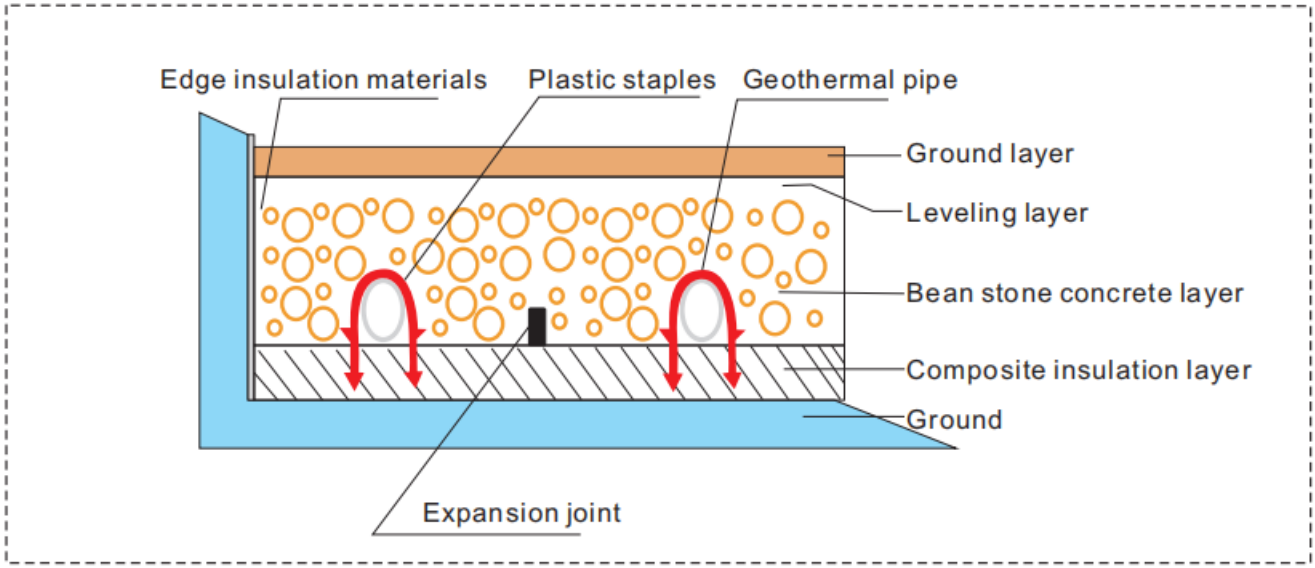
Running the system after closing the valve will damage the pump!

6.3.5 Floor heating pipe laying

6.3.5.1 laying method

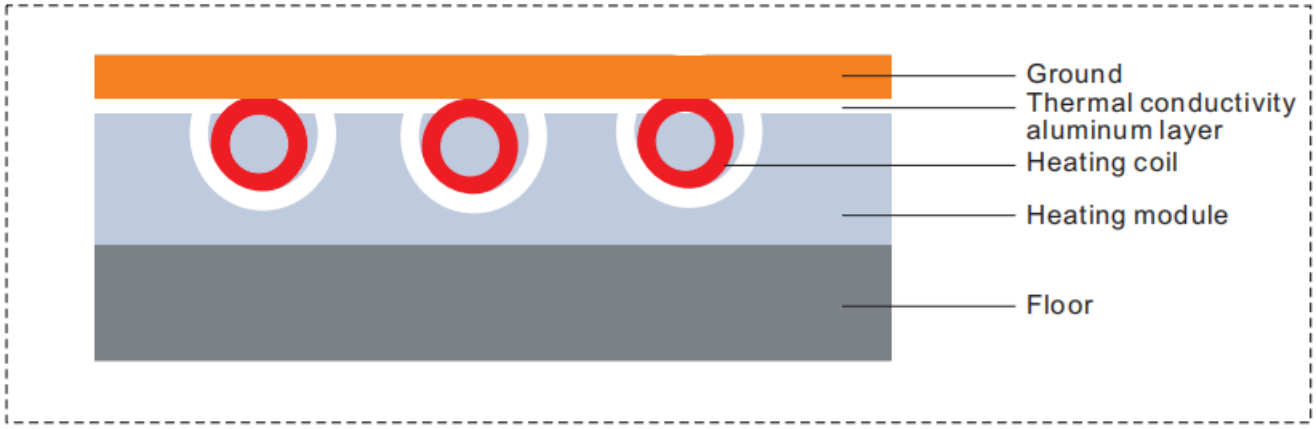
(1) Wet-type laying method

After pipeline laying, cement cover shall be applied, with installation height higher than dry paving method, but good heat storage performance and low cost; installation height: 70-80mm. The figure is shown below:

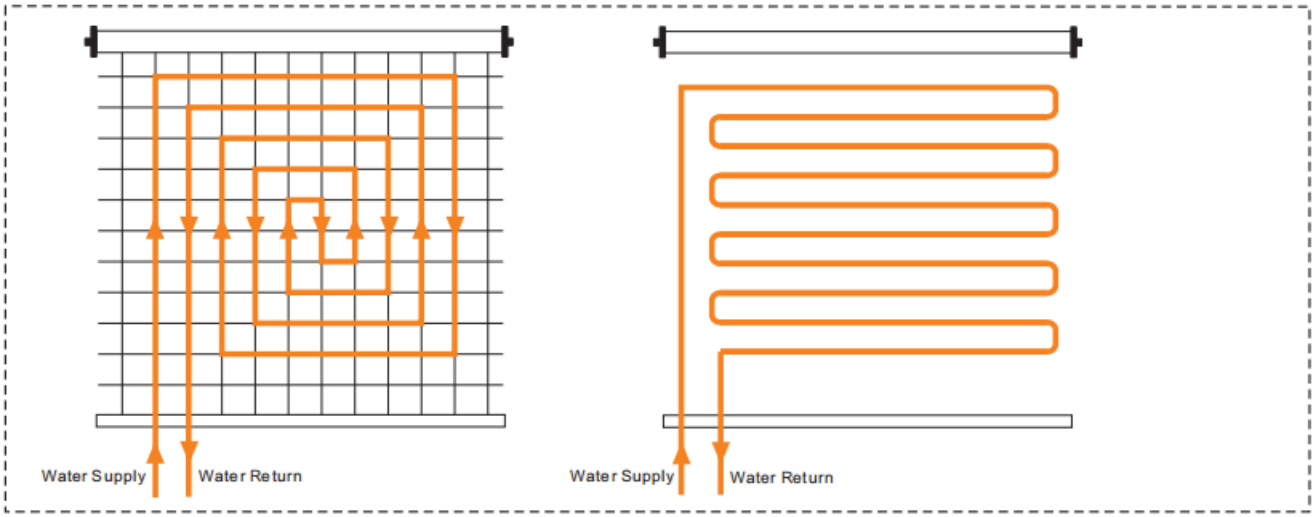


(2) Dry-type laying method:

Insert the pipe directly into a special template without any filler. Simple but expensive, quick heat dissipation, low installation height, installation height: 30-35mm



(3) Style drawing of floor heating pipe laying



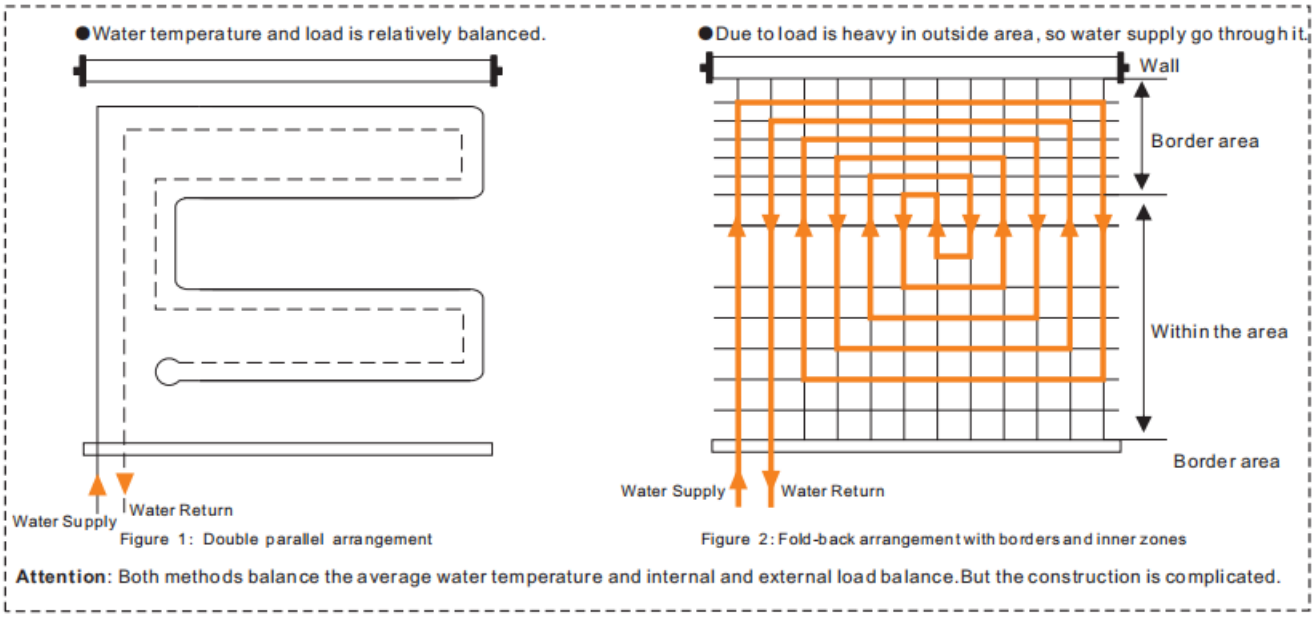


Figure 1: Double parallel arrangement

Figure 2: Fold-back arrangement with borders and inner zones

Attention: Both methods balance the average water temperature and internal and external load balance.But the construction is complicated.

6.3.5.2 Installation process

Step 1: Ground level
Step 2: Installation of the catchment area
Step 3: Stick the edge angle insulation panel along the wall
Step 4: Spread the insulation layer on the leveling layer
Step 5: Lay the steel mesh
Step 6: Secure the insulation plate with a pipe clamp
Step 7: Lay the floor heating pipe
Step 8: Lay the cement

6.3.5.3 installation requirements and considerations

- When the floor side length of the local plate radiation heating exceeds 8m or its area exceeds 40 ㎡, the joint length of 5~8m, is the same height as the fine stone concrete cushion. Its ruler size 5~8m, is the same as the fine stone concrete cushion.
- Flexible double tubes of a length greater than 400mm shall be provided when the plastic pipes pass through the expansion joint. Where the water separator and heating pipe are concentrated, it shall be adopted less than 1000mm are protected to weaken the thermal expansion of the concrete. Fill the joints with an elastic expansion paste (or imported elastic sealant).
- The ground heating pipe passes the acceptance inspection, and the fine stone concrete shall be supplemented. The ground heating pipe pressure needs to be maintained at no less than 0.4MPa,
- Filters shall be installed at the water inlet to prevent other objects, and clear water shall be used as the water source.
- Pressure tests of the system shall be carried out after the riser is connected to the hydraulic separator. This pressure is equivalent to the system peak operating pressure plus 0.2MPa and not less than

After the pressure drop is less than 0.02 MPa, restored to working pressure within 0.6MPa,10 minutes, no leakage.

6.3.6 Radiator installation

6.3.6.1 Radiator installation process

Step 1: Cover the ground floor or the wall
Step 2: Lay the pipeline and lay the protective trench.
Step 3: Install the hydraulic separator
Step 4: Test the pressure of radiator and pipe. Test pressure shall be 1.5 times the normal pressure level and no leakage within 3-5 minutes.

6.3.6.2 installation requirements and considerations

- When the distance between the bottom of the radiator is more than or equal to 100mm, the distance between the top and the outer cover shall be less than 100mm.
- When installing non-bearing wall, use wall piercing screws fixed by steel plates on both sides. The thickness shall not be less than 30 * 30 * 3mm;
- The insulation wall expansion bolts must pass through the internal insulation layer into the wall, with the wall depth of not less than 50mm.
- The top of the radiator shall be kept straight during installation. The blowing side should be slightly higher to exhaust the

internal gas.

- The ook spacing corresponds to the number of films and should not be concentrated or overdispersed, appropriately increasing the number of hooks when using the longer parts.
- Install the radiator to protect its appearance.
- Protective housing shall be used when hot pipes pass through materials like walls and floors, and pipe clips shall be added every 300mm.
- Valves must be installed at the inlet and outlet of each radiator to keep the radiator with water during non-heating season.
- The temperature control valve shall be installed horizontally.

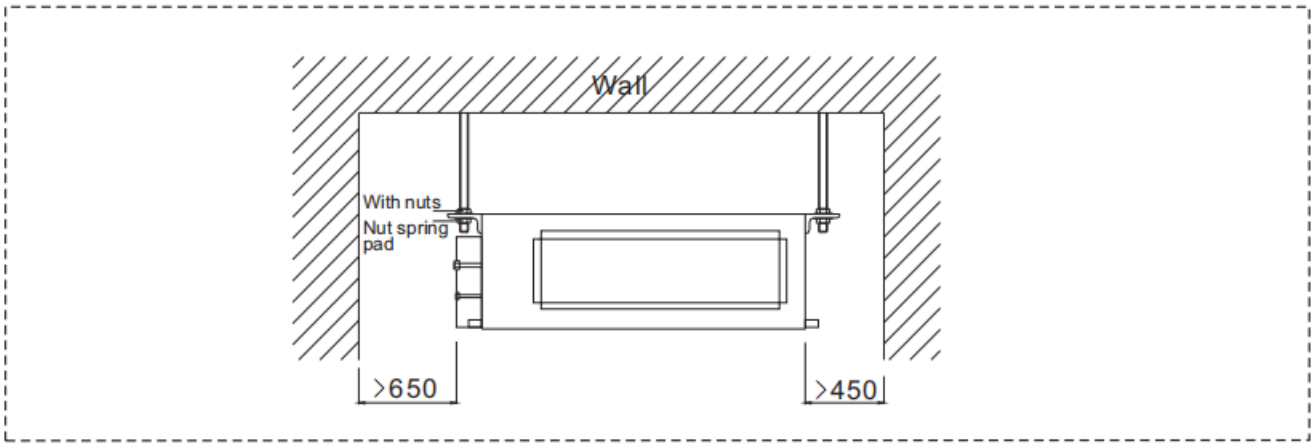
6.3.7 Fan coil installation

6.3.7.1 Preparation before installation

- Flash avoidance doors for inspection shall be kept in the concealed mounted horizontal fan duct and ceiling for removal and maintenance of the fan coil.
- Confirm the location of the piping and electrical connections before installation.
- Check the hanger structure to withstand the weight of the device.
- All fan coils must be installed horizontally to ensure smooth drainage and normal operation.

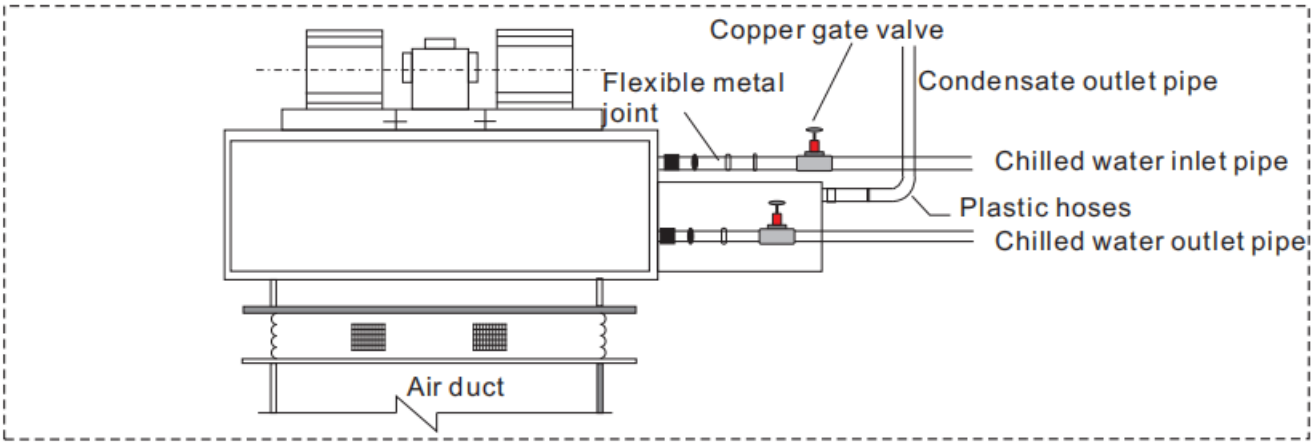
6.3.7.2 Installation of the fan coil

- The hanger shall be installed firmly in the correct position, and the hanger shall not be swung at will. When connected with the tray, double nuts shall be maintained at high and positive position, and the installation height and slope shall be correct (as shown below).
- Set the fan coil lift position and height according to the construction drawing, and then prefabricated the expansion bolts of the boom to secure the lifting point. Finally, place the fan coil in the correct position.
- Expansion bolt is φ8 expansion bolt, boom is φ8 round steel, angle steel;
- The condensing end of the fan coil shall be lower than the other end to make the condensate flow smoothly or keep the fan duct placed horizontally;
- The ceiling below the horizontal concealed fan coil shall be reserved for maintenance and shall be not less than 400 * 600mm.



6.3.7.3 Pipe fitting connection for the fan coil

- The fan coil return valve and water filter shall be installed near the fan coil unit;
- Connect hot and cold pipes to fan coil with metal bellows and the length of hose shall be less than 300mm. It is recommended to use transparent plastic hose and fix it with hose fixtures to avoid leakage; proper angle is required to reach the condensate water position, and the condensate tray shall be protected from ponding and backflow.
- The hot and cold pipes shall be connected with the fan coil pipe with clean water. Y type filter shall be added to the inlet to prevent blockage of the heat exchanger.
- The inlet and outlet connection of the fan coil must be firmly connected to prevent leakage.



6.3.7.4 Water system pipeline plane layout principle

- As many pipes should be as hidden as possible.
- Reduce the amount of decoration and avoid pipeline exposure;
- Try to use the ceiling to install water pipes and raise the fan coil;
- Pipe system shall be as simple as possible to reduce pipe resistance.
- The exhaust unit shall be installed outdoors as much as possible.

6.3.8 Selection and installation requirements of water tank installation position

Note: The water quality of the unit shall meet the following requirements: full hardness ≤ 200mg/L, chloride ion ≤ 50mg/L, PH value 6.5-8.5; the water heat exchanger shall be cleaned regularly.

- Water tanks shall be placed in unventilated places wherever possible to avoid heat dissipation. Do not install water storage tanks in contaminated or corrosive gases.
- It can be installed outdoors or on the roof (determined according to the tank size, building carrying capacity, etc.). The installation level of the water tank shall not be lower than that of the main machine.
- Water storage tanks shall comply with relevant regulations. It shall have good insulation performance and corrosion resistance, while the tank lining shall be made of food grade stainless steel, the inner wall and equal pressure when the storage tank is full of water. The outer wall of the tank shall be well gas tight (ensure that rainwater does not penetrate into the tank) and can withstand weight without deformation when the tank is full of water.
- Sewage drain shall be provided in the tank for regular cleaning of the tank.

Note: When installing the water tank, the low water level switch setting shall be at least 70mm. higher than the water inlet of the main machine The heating pipe shall be at least 70mm. above the heat pump circulation inlet

6.3.9 Electrical installation

- Please work after confirming that all the hazardous power supply has been disconnected.
- The unit shall use a special power supply, which meets the unit nameplate requirements.
- Please confirm that the grounding wire is reliably grounded, it is strictly prohibited to use the unit without reliable grounding, do not connect the grounding wire to the zero line, tap water pipe or lightning protection device, to prevent accidents.
- The wiring construction must be installed by a professional installation technician.
- Install the national technical standards for electrical equipment and set the leakage protection device.
- When the power line and sensor wire shall be lengthened, the wiring shall be correct, the connector shall be welded with electric dering iron after the coat hot shrink pipe insulation, and can not enter water at the connector.
- The machine is not equipped with the power cord, please refer to the specified power specifications, two wires are not allowed to refute. The power cord shall not be greater than the Neoprene sheath wire IEC60245 Line 57 (Type YZW) and its size shall not be less than the quoted value.
- The fixed line must be provided with a safe disconnection device with at least 3 mm contact opening distance;
- After the completion of all wiring construction, the wiring should be carefully checked to contact the power supply;
- If the power cord is damaged, it must be replaced by the manufacturer, maintenance and similar professionals to

avoid danger.

- Always use special lines, no one line with other electrical appliances, distribution wiring must meet the following requirements:

Cable cross section area (diameter), switch (socket) and fuse specifications compared with load current

Special power distribution circuit for the unit			User power supply bus power distribution circuit		
Maximum unit current (A)	Lead cross-section area (mm^2)	Fuse specification for the socket or switch (A)	Maximum bus current is X (1.5~3 times) (A)	Bus cross-sectional area (mm^2)	Switch / Fuse specification (A)
≤10	1～1.5	16/16	≤16	1.5～4	32/25
≤16	1.5～2.5	32/25	≤25	2.5～4	63/50
≤25	2.5～4	63/50	≤32	4～10	63/50
≤32	4～6	63/50	≤40	6～16	100/80
			≤63	10～25	125/125

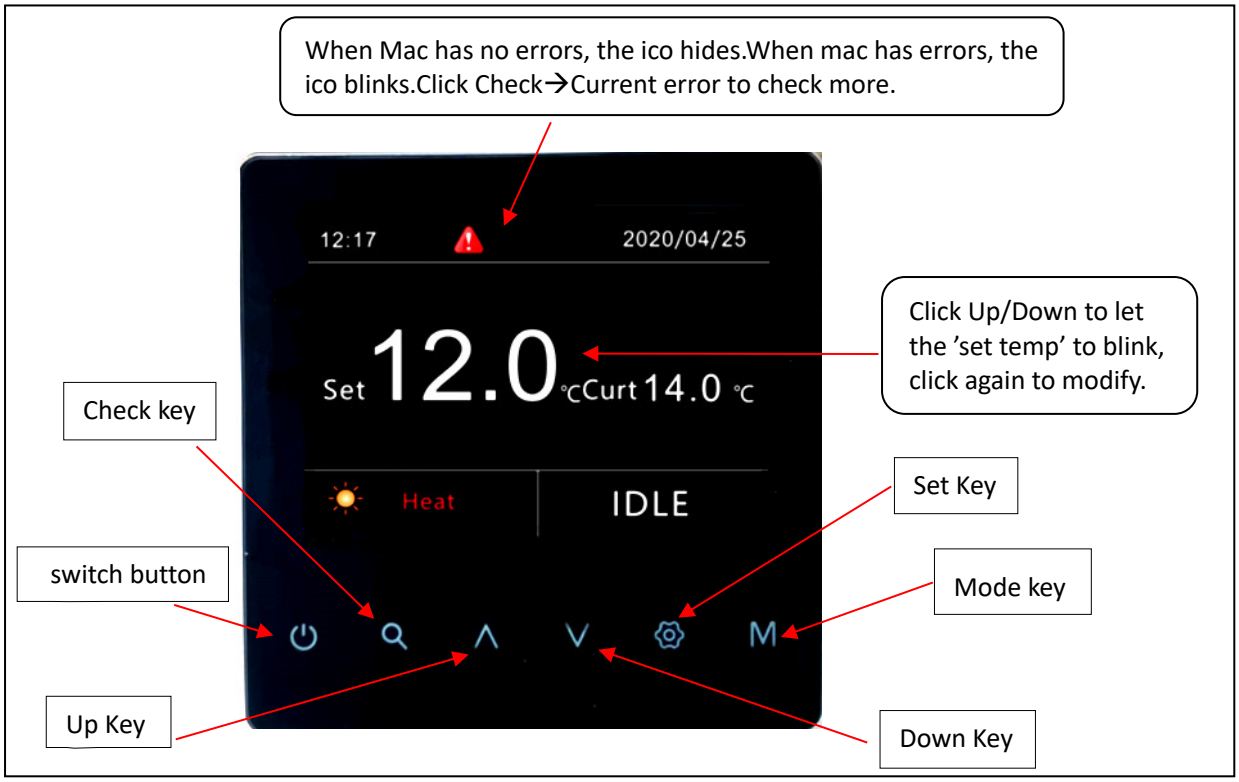
Note: After all wiring construction, carefully check to connect the power.

7. Installation and use of the unit control controller

7.1 Installation instructions

- Connect the specified terminal in the unit electric control box to the extended communication line of distribution.
- The line controller is a low-voltage circuit. It is strictly prohibited to have direct contact with 220V municipal power or high-voltage line above 380V, and shall not be placed in the same wiring pipe.
- Transition or extended connections shall not be made in the middle of the line controller connector.
- After the wire controller is connected, its signal line shall not be insulated with memeter.
- The line controller should be stationary, otherwise the damage may cause deformation of the rear cover and rupture of the LCD.
- The connection cable of the line controller needs to leave a certain length, and the line controller can be removed while maintenance.

7.2 Face main

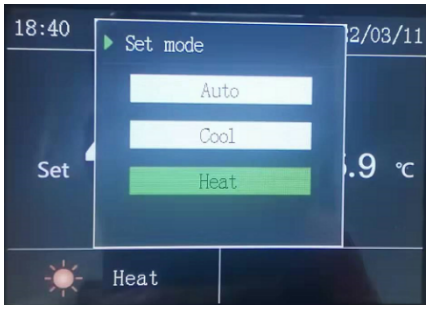


7.3 Face Switchgear

On-off operation：When the display is turned off， Press  to power up， Press  to turn it on again， Press the  to cancel the operation， When the display is turned on， Press  to turn off， Press  to turn off.

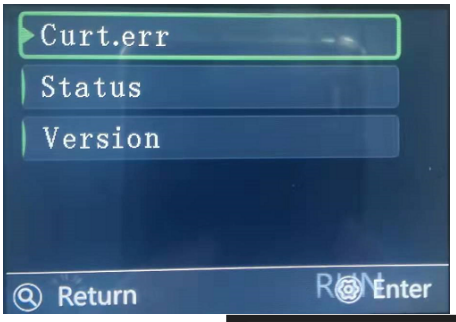
7.4 Mode setting interface

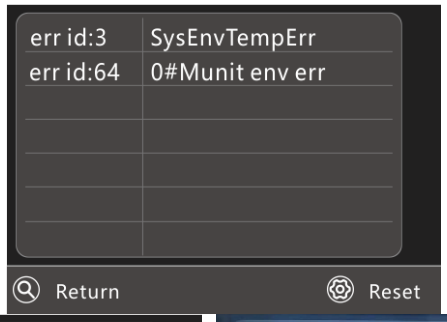
Mode setting operation:Press  to enter the mode settings screen； Press  or  to change mode， Then Press  or  to cancel and exit.

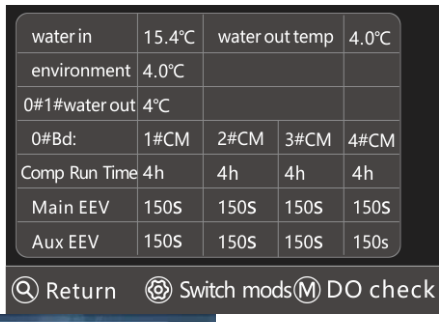


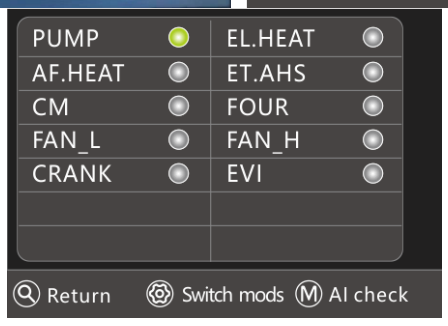
7.5 Face check

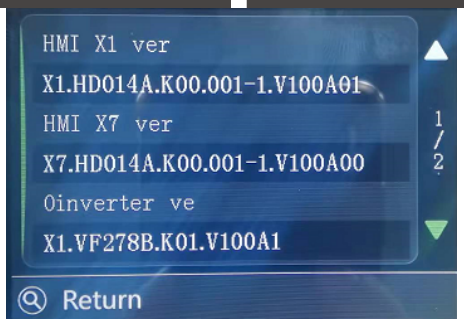
Press the  to enter the query interface,Then press the  or  to select the menu bar to enter， Press  to enter the Submenu of your choice or press the  to return.





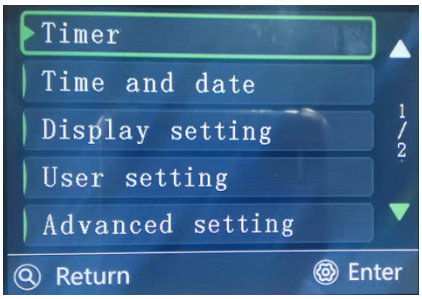


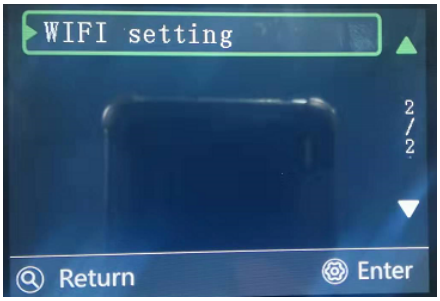




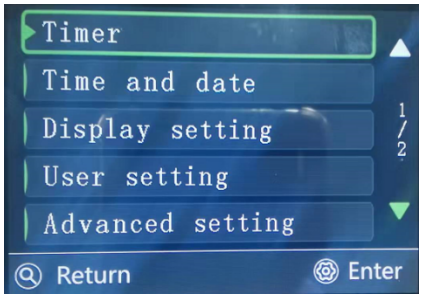
7.6 Set up the interface

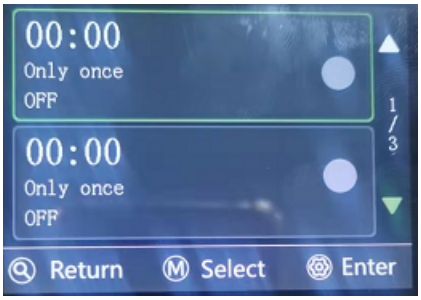
Press  to enter the settings screen, and press the  to exit.



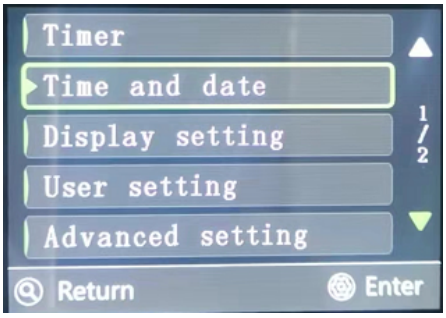


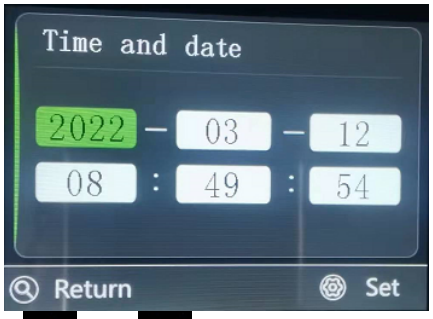
In the settings screen, press the up or down button to select the ‘Timer’ Bar, and press OK to type.



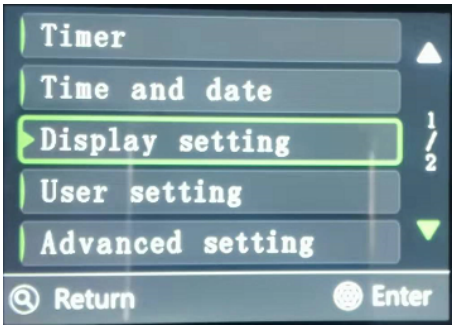


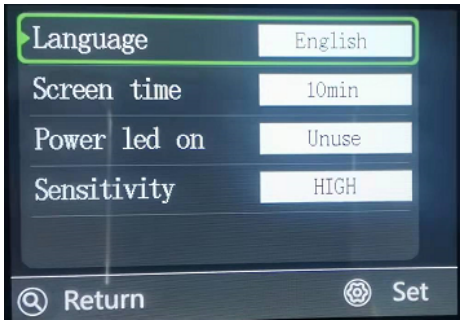
Time and date setting：In the settings screen，Press the ∧ or ∨ to select the time and date column and Press ⚙ to enter，Then according to the bottom of the display prompt for the date and time setting.



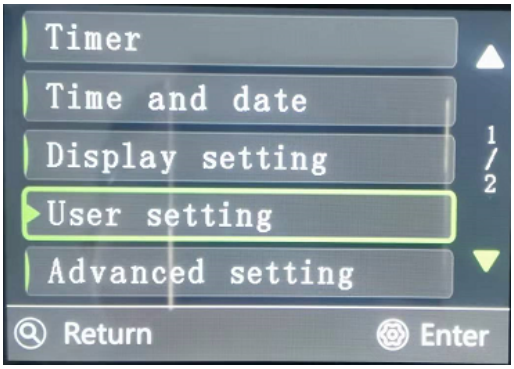


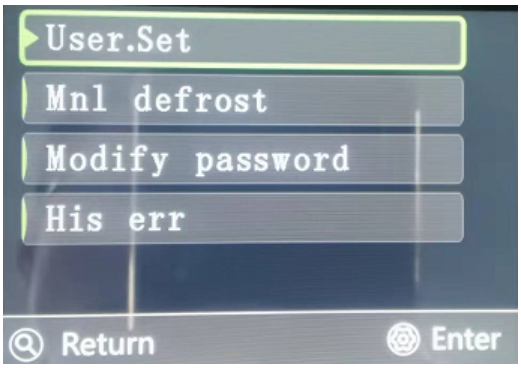
Display setting：In the settings screen，Press the ∧ or ∨ to select the Display setting and Press ⚙ to enter，Then according to the bottom of the display prompt information to set up the display interface.



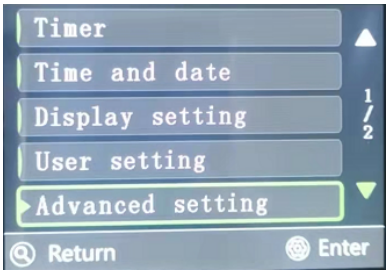


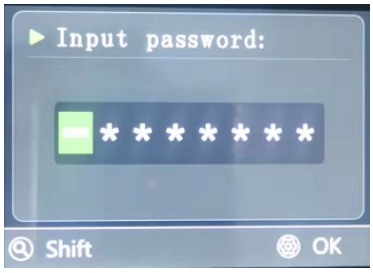
User setting：In the settings screen.Press the ∧ or ∨ to select the user setting and Press ⚙ to enter，Then according to the display prompt information at the bottom of the user interface, access to the user interface can be user parameter settings, manual defrosting, password changes and history of failure query.

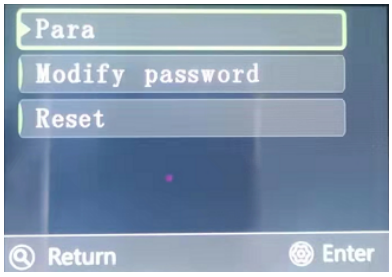




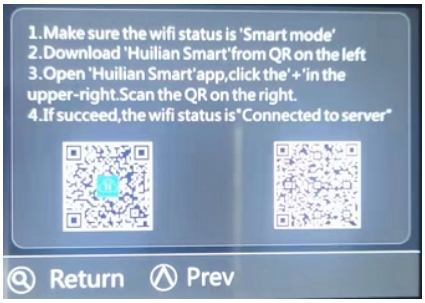
Advanced setting：In the settings screen.Press the ∧ or ∨ to select the Advanced setting and Press ⚙ to enter.Advanced setting requires a password to enter.





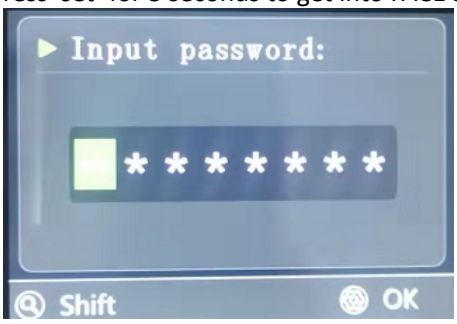


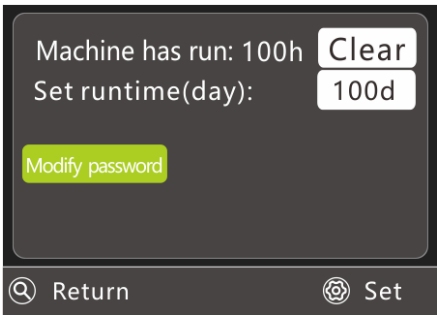
WIFI setting：In the settings screen. Press the ∧ or ∨ to select the WIFI setting and Press ⚙ to enter.Go to the WIFI settings screen, which contains the WIFI setting and the Internet Qr Code. Press ⚙ to reset the wi-fi



7.7 Face server

When in FACE OPEN, press ‘set’ for 3 seconds to get into FACE SERVER.





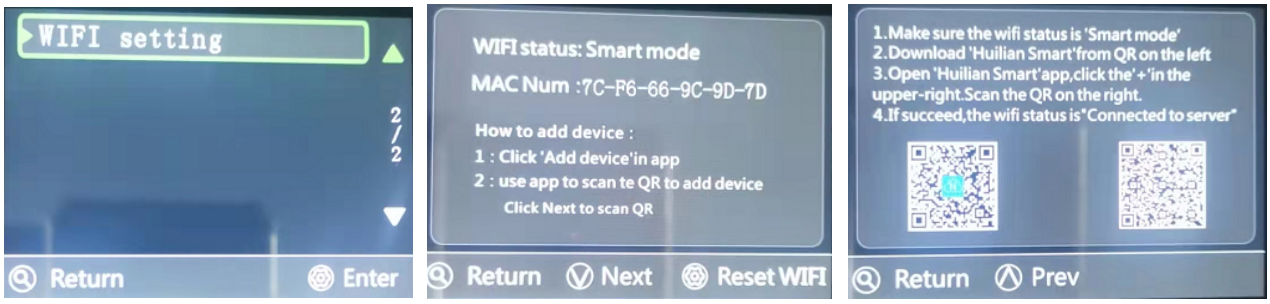
7.8 Use instructions of the equipment distribution network.

7.8.1 Download the APP

Download the handheld APP, by scanning the QR code to register and log in, while allowing all access for the best experience.

7.8.2 checks the device WIFI status

Before the operation of equipment distribution network, please check the current WIFI status of the equipment to ensure the smooth operation of subsequent distribution network. Find the corresponding methods and steps to check the status of equipment WIFI according to the product model.



7.8.3 Cell Phone Connect to the WIFI.

Make sure that the mobile phone is in the same Wi-Fi environment as the pending distribution network equipment, select the 2.4GHz Wi-Fi network on the mobile phone and enter the password, so that the mobile phone is connected to the WIFI..

Note:

If the Wi-Fi in the current environment is 5GHz, first set the router to 2.4GHz, common router setup as follows: If your router supports both Wi-Fi, of 2.4GHz and 5GHz but can only find one Wi-Fi name on the WiFi search page on the phone, refer to the following steps (because the different brands, subject to the router instructions):

1, enters the Infinite Settings (Wireless) page of the router (the access method is usually on the label on the back of the router)

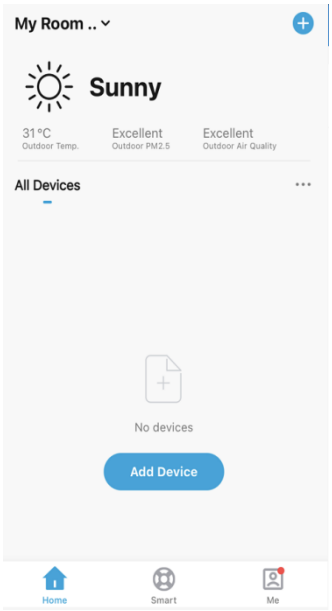
2, found the setup interface for 2.4GHz and changed the Wi-Fi name (SSID) to "xxx-2.4G", Save Settings.

3, found the setup interface for 5GHz and changed the Wi-Fi name (SSID) to "xxx-5G", save settings.

4, After the name changed, "xxx-2.4G" and "xxx-5G" can be found in the Wi-Fi search page of the phone.

7.8.4 Adds devices

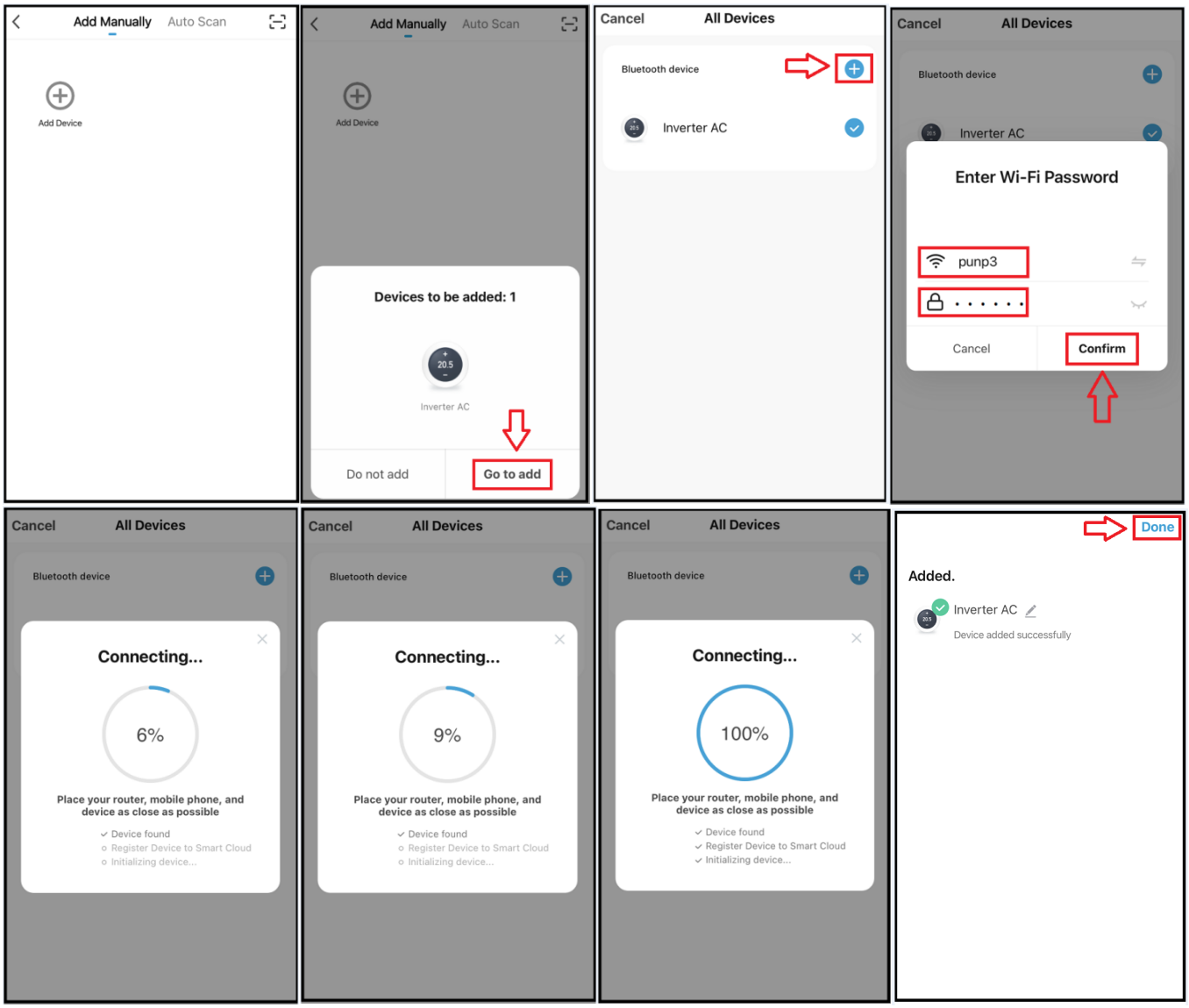
1) turns on mobile phone Wi-Fi and Bluetooth and enables location access, please make sure that mobile phone Wi-Fi and Bluetooth are on to allow for the optimal distribution network experience;
2) phone opens the navigation bar at the bottom of "Palm Alliance" APP, and select "Home";
3) shall click the "+" button in the top right corner of the home page, or the "Add Equipment" button in the center of the home page to enter the equipment adding interface;



4) In the Device Add interface, try adding a device in one of the following ways:

A. Quick sensing

The mobile phone enters the device adding interface. After waiting for a moment, it will automatically pop-up window of "Find the equipment to be added". At this time, choose "Go to add" to add the equipment, and complete the equipment addition according to the guidance of the following figure below.



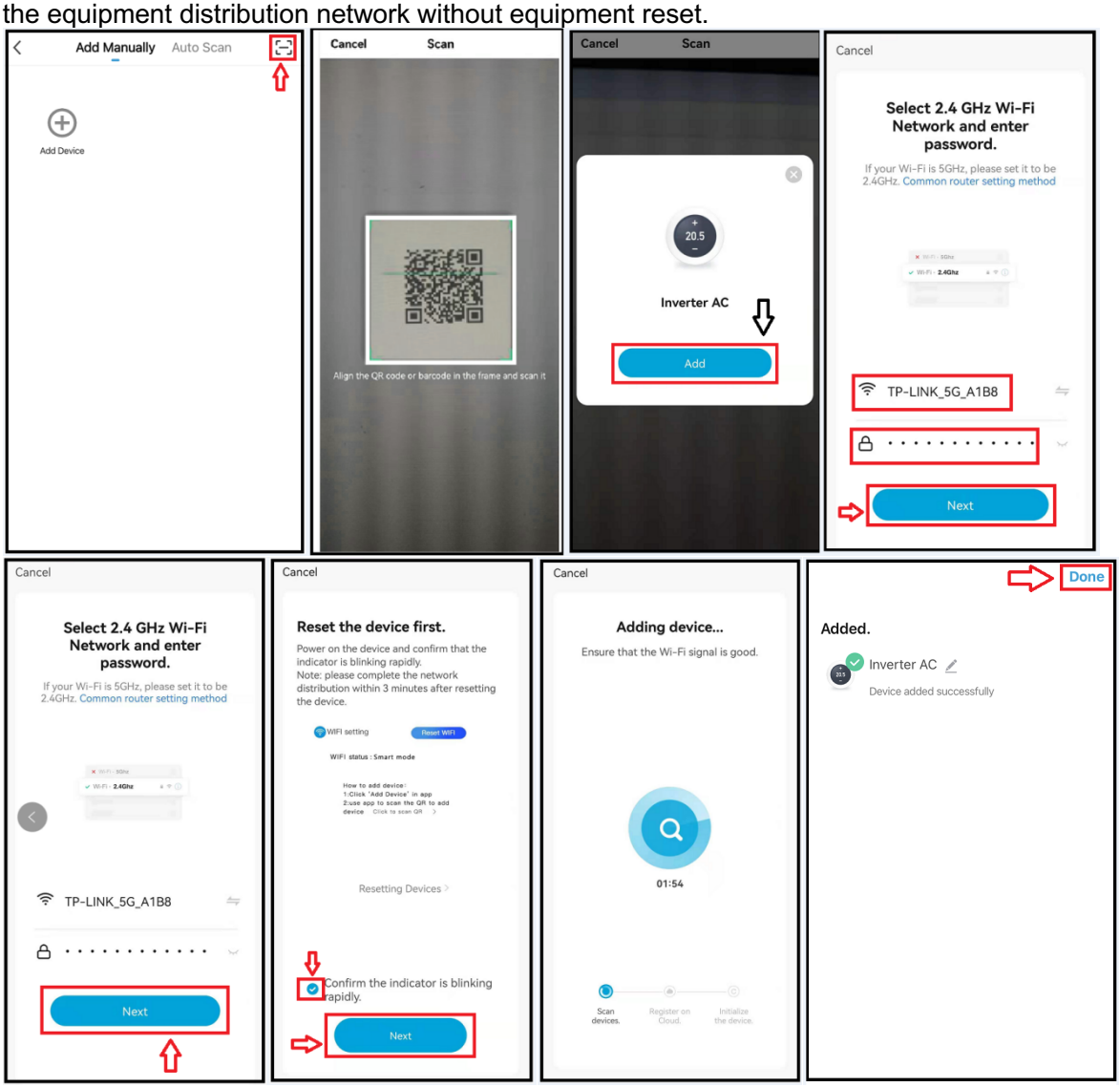
B. Scan the code for the distribution network

Click the "scan" icon in the upper right corner of the equipment addition interface, put the QR code of the equipment distribution network into the box to automatically scan, and complete the equipment addition operation according to the following steps below.

Note:

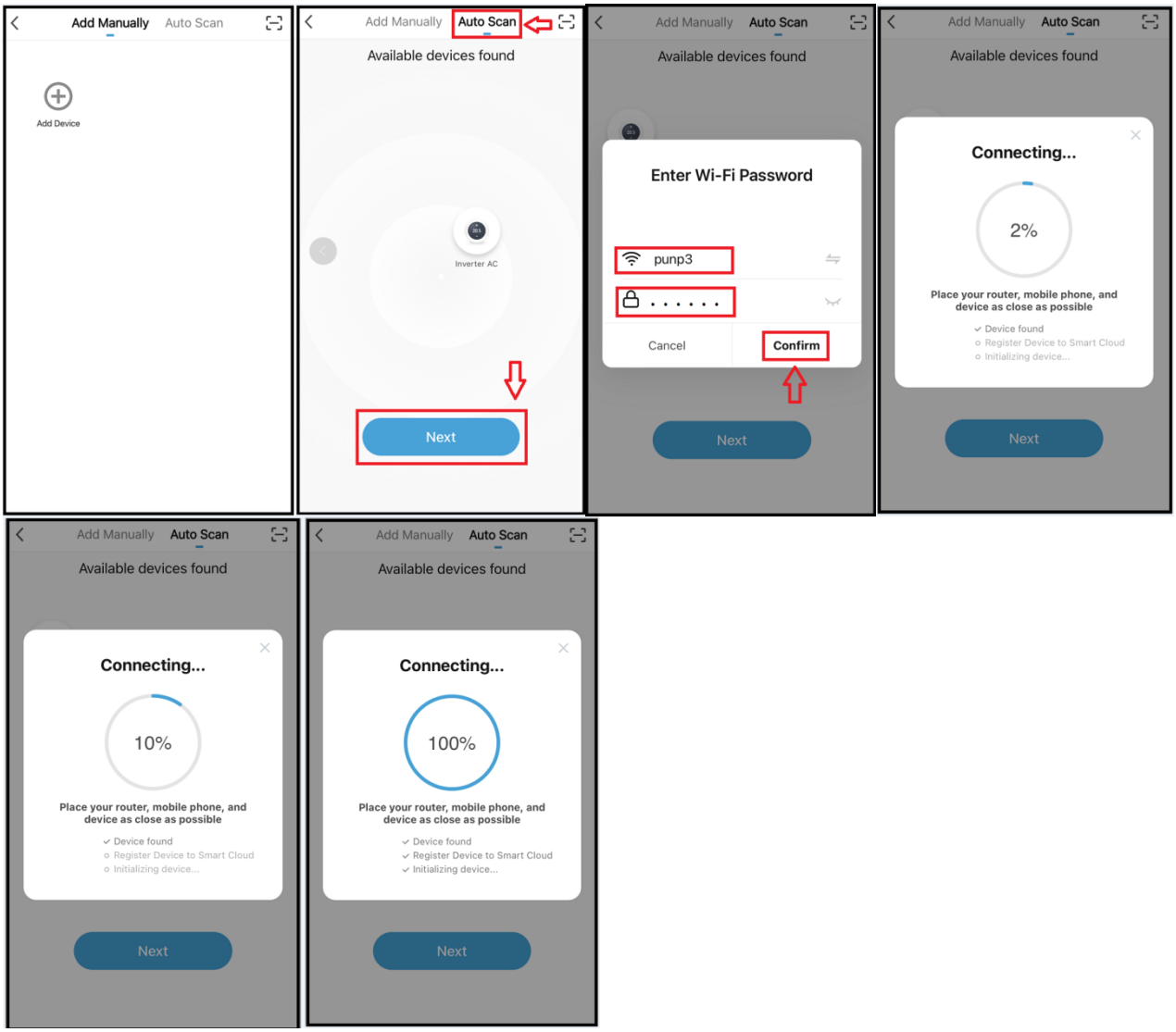
1)Please obtain the QR code of equipment distribution network from the corresponding operating manual of the manufacturer.

2) If has checked and confirmed that the WIFI status of the equipment is correct, under "Please reset the equipment first" step, please directly check "Confirm the WIFI status" and click "Next" button to directly conduct the equipment distribution network without equipment reset.



C. Auto Scan

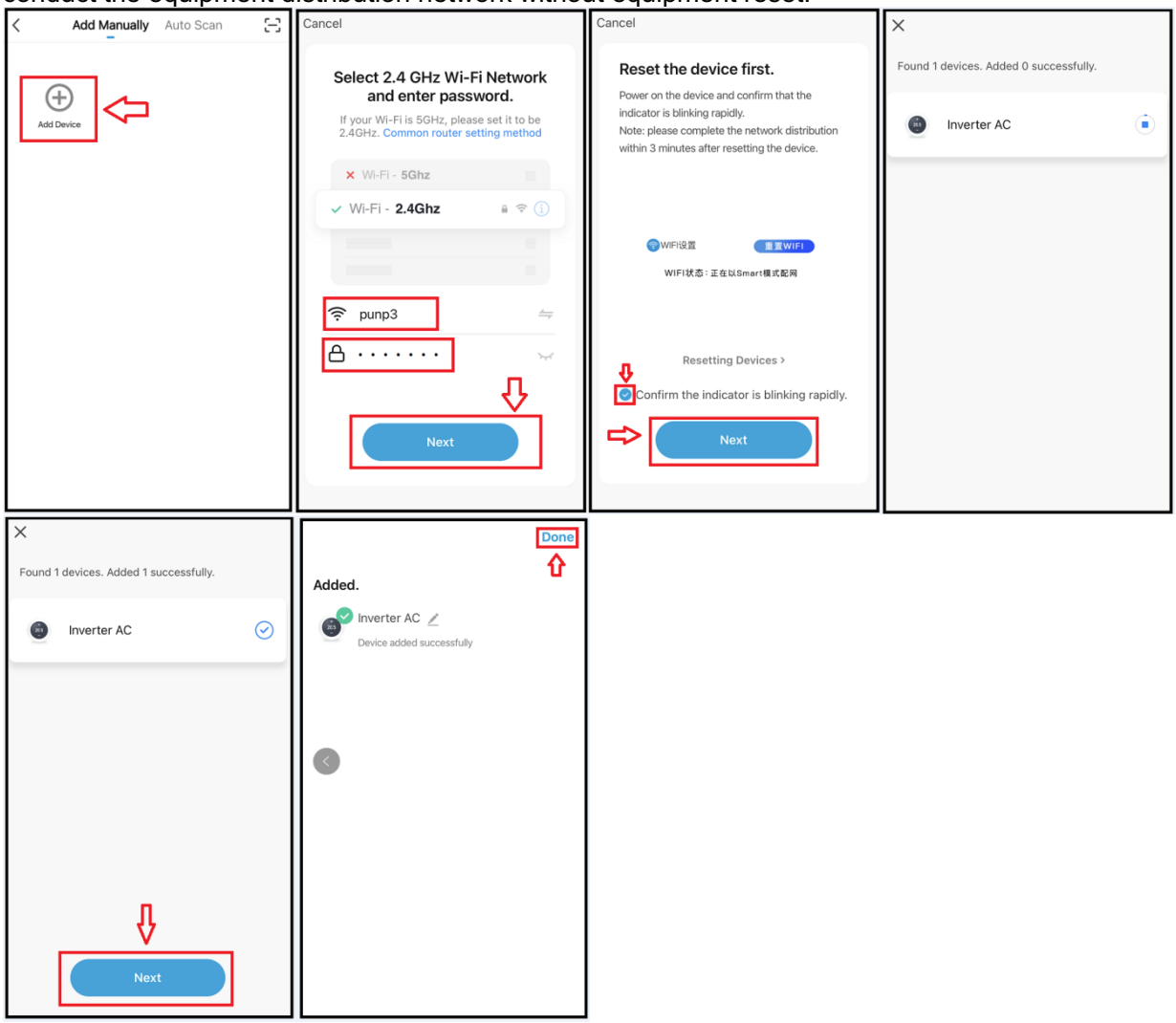
At the top of the interface, select "Auto Scan", the phone will automatically discover the nearby available equipment. After discovering the equipment, click Next, and complete the subsequent distribution network operation according to the instructions of the following figure below.



D. Add Manually

Label bar at the top of the device add interface, select Manual Add, and select the Add Device icon button to add it manually. Please add the device according to the instructions in the figure below

Note: If the WIFI status has been checked and confirmed that the equipment WIFI is correct, under "Please reset the equipment first", please directly check "confirm the WIFI status" and click "Next" button to directly conduct the equipment distribution network without equipment reset.

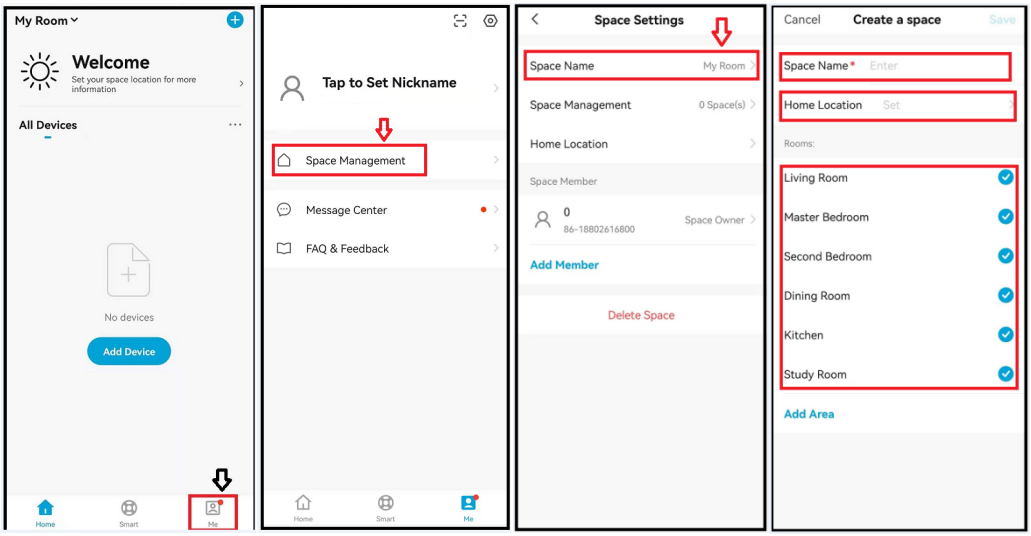


E. Improve the space information

1) mobile phone into the "handheld Hui alliance" APP, click "My" - "Space Management" - "My Space" to improve the space information, can include: space name, home location, and the new space area, please follow the guidance of the following figure below to enter the "improve space information" interface.

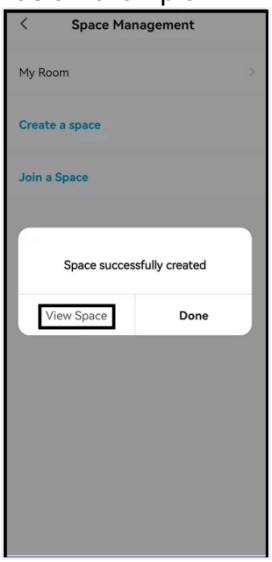
Note 1: To create new space, click Create Space

2: Multiple new areas in the space are conducive to refining equipment management.



2)After the space information is complete, please click "Save" in the top right corner to save the perfect space information. After the space information is updated, click "View Space" in the prompt box to further add new members to the space. By adding members, the relevant personnel can access all the devices in the current space Follow the instructions below to improve the space information and add space members.

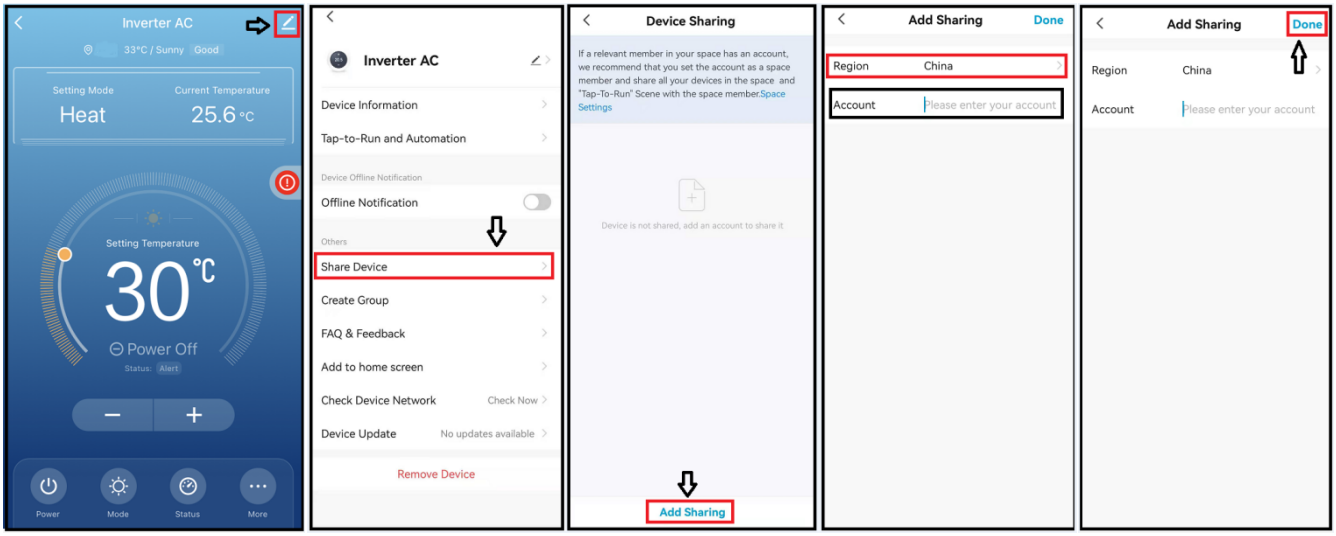
Note: Invitation methods to add space members include: App account addition, SMS and message sending invitation code, etc. Take App account addition as an example.



7.8.5 Shared device

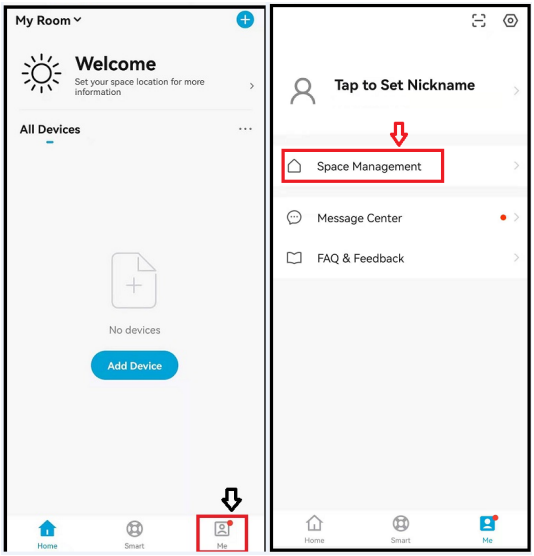
7.8.5.1 Devices are shared separately

After the mobile phone enters the equipment panel, click the "Modify" icon button in the upper right corner to enter the equipment details interface. Click "Share Device" - "Add Sharing" and enter the App account you want to share (which is your mobile phone number or mailbox when registered) to share your device separately to other users. Complete separate sharing according to the instructions below.



7.8.5.2 Space sharing

If there are multiple devices need to share in the same space, it is recommended to choose the appropriate space in My-Space Management, and enter the Space Settings interface to add and invite space members, as shown in the figure below. When space members are invited, they can use all the devices within the space.



8. Error table

Main control class fault:

Error display	Error display	Error display	Error display
EEPROM data error	Insufficient water flow	Return temperature difference is too large	Pressure top temperature probe fault
System maintenance data error	Power supply failure	Return return temperature difference is abnormal	Radiator-fan temperature probe fault
frequency converter communication fault	Electric and auxiliary thermal protection	Anti-ice temperature is too low	Exhaust temperature probe fault
Frequency converter failure	Fan protection	Emergency defrosting is frequent	Inspiration temperature probe fault
In the frequency conversion model setting	Press high pressure	Refrigeration and suction is too low	Rear-valve temperature probe failure
Internal and external machine communication failure	Pressure transmission and high pressure is too high	Compressor current is too small	Anti-ice temperature probe failure
Internal and external machine communication is abnormal	Press at low pressure	Compressor current is too large	Economist inlet temperature probe
EX_EC1 communication failure	Pressure transmission pressure is too low	Temperature difference between suction and drainage is abnormal	Economist outlet temperature probe
EX_EC2 communication failure	The exhaust temperature is too high	Refrigeration and evaporation is too low	Low-voltage pressure transmission fault
EX_EC1 failure	The outlet temperature on the air-conditioning side is too low	Environmental temperature probe fault	High pressure pressure transmission fault
EX_EC2 failure	Air conditioning side	Indoor ring	

	return temperature is too low	temperature failure	
Fan 1 rotational speed is abnormal	The outlet temperature on the air-conditioning side is too high	Return water temperature probe fault	
Fan 2 rotational speed is abnormal	The return temperature on the side of the air conditioning is too high	Water outlet temperature probe fault	

Frequter converter fault:

Error display	Error display	Error display	Error display
VF01 starts the over-stream	VF10 input is the default phase	VF19D-axis current is too high	VF28 stall failure
VF02 accelerates the overflow	VF11 output is a missing the phase	VF20Q-axis current is too high	VF29 interrupt overflow 1
VF03 slows over flow	VF12 device protection	VF21 storage has failed	VF30 interrupt overflow 2
VF04 constant speed overcurrent	VF13 is overheated	VF22 communication exception	VF31 starts the rotor shake
VF05 accelerates the overpressure	VF14 overload	VF23 current detection	The VF32 runs the rotor to shake
VF06 deceleration and overpressure	VF15 compressor overload	VF25 starts blocking blocking	VF33 frequency conversion PFC overcurrent
VF07 constant speed overpressure	VF17 Overload	VF26 is running blocking	VF34 PFC current is too high
VF08 Overpressure on standby	VF18 speed is too large	VF27 heat dissipation detection	VF35 PFC active current is too high

9. Unit commissioning and trial operation

9.1 About maintenance and maintenance

1, The water filter installed outside the Machine shall be cleaned regularly to ensure the water quality in the system to avoid the damage caused by the dirty blockage of the water filter.
2, Users shall pay attention when using and maintaining the unit; all safety protection devices in the unit are set before leaving the factory, and do not adjust automatically.
3, Often checks whether the wiring of the unit power supply and electrical system are firm, and whether the electrical components are abnormal, and if they should be repaired and replaced in time.
4, Often checks whether the exhaust device of the pipeline system is working properly to avoid reducing air entering the system, thus affecting the heat production of the unit and the reliability of the unit operation.
5, Check whether the water pump and water channel valve are working normally, and the water pipe and water pipe joints are enough leakage.
6, Unit shall be kept clean, dry and well ventilated. Clean the air side heat exchanger regularly (10~12 months) to maintain good heat exchange.
7, Often check the operation of various components of the unit, check for oil pollution at the inflatable valve of the pipeline connection box in the machine, to ensure no refrigerant leakage of the unit.
8, Do not pile sundries around unit to avoid blocking air outlet. Around the unit shall be clean, dry and well ventilated.

9.2 Operating conditions of the unit

1,Whether the condensate drainage is normal.
2, Whether inlet water temperature and temperature difference is normal.
3, If any vibration and abnormal sound at running.
4, Whether the generated wind, noise and condensate affect the neighbors
5, Check for refrigerant leaks.
6, After running for a period of time (generally 3 days), it can be used.