Inverter Refrigeration

INVERTER REFRIGERATION WALK IN COLD ROOM

User Manual

PISC-02Wa1
PISF-03Wa1
PISF-04Wa1
PISF-08Wa1
PISF-05Wa1

PISF-05WSa1
PISF-08WSa1
PISF-10WSa1
PISF-12WSa1
PISF-16WSa1

PISF-30WSa1
PISF-40WSa1

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1 Precautions

Important Note: Some products of our company are filled with environmentally friendly, odorless, colorless, and flammable refrigerants, such as R32 (flammability rating: A2L).

● Please read the instructions for operation, installation and maintenance carefully before installation and use!



Before installation and use, please read this section carefully to ensure safe installation and use, and normal operation of the unit.

The following are important safety precautions that must be observed.

⚠ Caution Indicates that personal injury or property damage may occur if neglected

⚠ Warning Indicates that serious injury or death may occur if neglected.

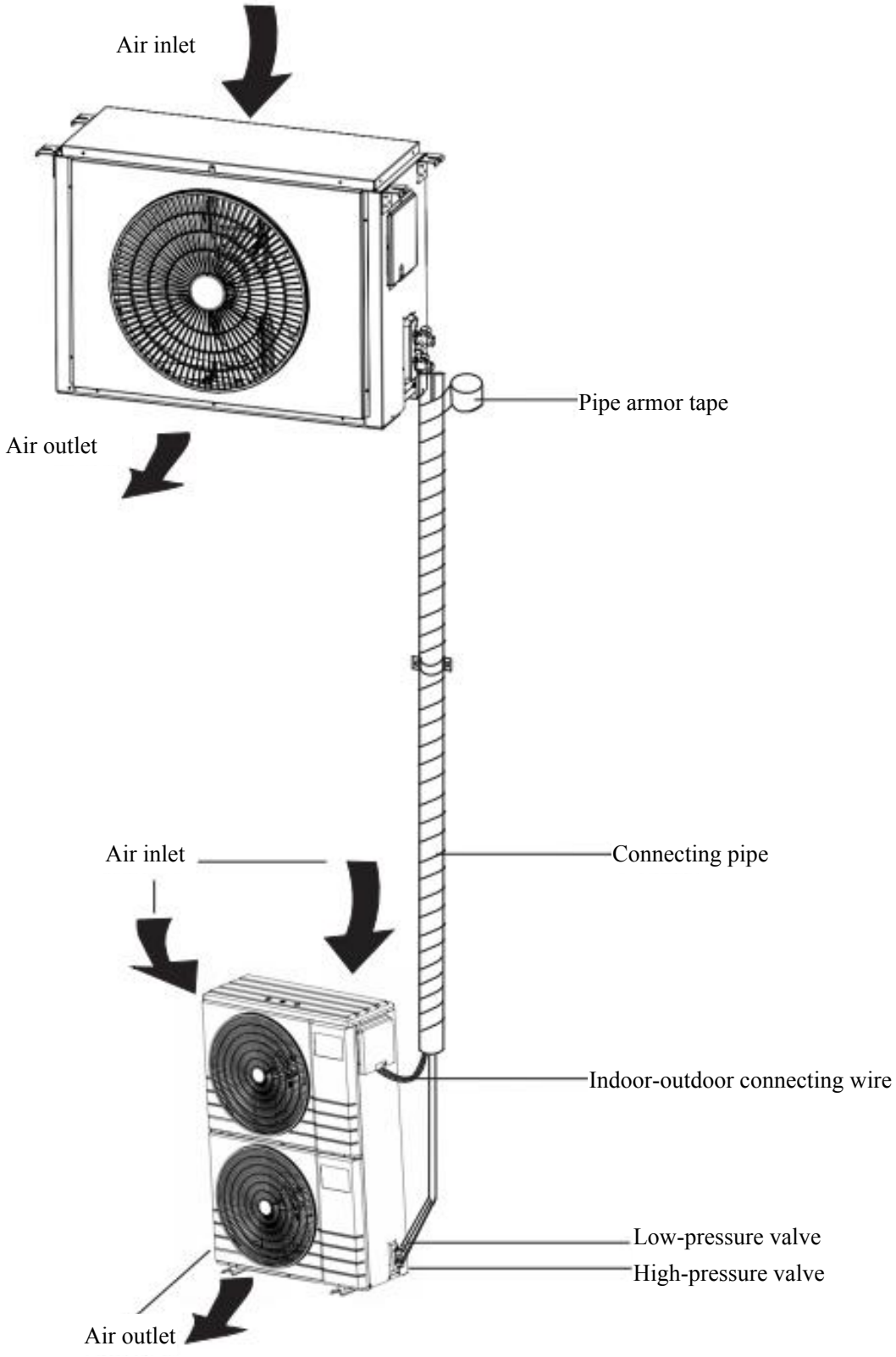
⚠ Warning

1. The unit must be installed by the dealer or professional technician with the necessary expertise. Do not install the unit yourself; otherwise, it may lead to water leakage, electric shock, fire, among others.
2. The unit's movement, repair or reinstallation should be completed by the dealer or professional technician instead of you to avoid water leakage, electric shock or fire.
3. Do not install the unit near flammable materials (paint, varnish, gasoline, chemical agents, etc.) to prevent fire or explosion.
4. In the event of a fire, immediately turn off the main power supply and take appropriate firefighting measures.
5. Use a fuse of the specified rating instead of iron or copper wire, which may lead serious damage to the unit and even a fire.
6. Do not install the unit in a place obstructed by surrounding objects or with poor airflow. Besides, do not install the unit in a place inconvenient for maintenance and repair.
7. Electrical installation should be implemented in accordance with relevant national regulations.
8. It must be equipped with a leakage circuit breaker to prevent electric shock.
9. The unit must be reliably grounded.

⚠ Caution

1. Connect cables correctly. For incorrect connection may lead to damage to electrical components.
2. Take measures to protect the wired controller and terminal connections from moisture and water ingress, which may affect the normal operation of the unit, or lead to the poor display or failure of the wired controller.
3. Do not touch the refrigerant discharge pipe with bare hands to avoid burns.
4. The unit's regular maintenance must be implemented to ensure good operating condition.
5. In case of failure and shutdown, contact the local customer service center. Restart it only after troubleshooting. It is not allowed to start the faulty unit.
6. If detecting refrigerant leakage, immediately turn off all power switches of the unit.
7. In case of frequent fuse blowout or frequent trips of leakage circuit breaker, shut down the unit immediately, turn off the manual power switch, and then ask for help from the local dealer or customer service personnel.
8. If detecting any abnormality (e.g., heat failed, burning smell, among others), stop the unit, disconnect the power supply, and contact the dealer immediately.

2 Introduction to Main Components



Note: The images above are for reference only and may differ from the actual products. Please in kind prevail!

3 Preparation before Installation

3.1 Standard Accessories

The following standard components are used as required

Accessories for Inverter Refrigeration Unit			
S/N	Name	Quantity	Remarks
1	Wired controller and connecting wire	1 piece	
2	Copper nut	2 sets	For field connection or piping
3	Indoor unit sensor connecting wire	1 piece	

3.2 Installation Location

⚠Warning!
Install and fix the unit in a location that can support the unit to ensure that the unit shall not wobble or fall.

3.2.1 Indoor Unit

(1) Ensure that the top hanging bracket has sufficient strength to bear the weight of the unit.

(2) The drain pipe should be conveniently located for water drainage.

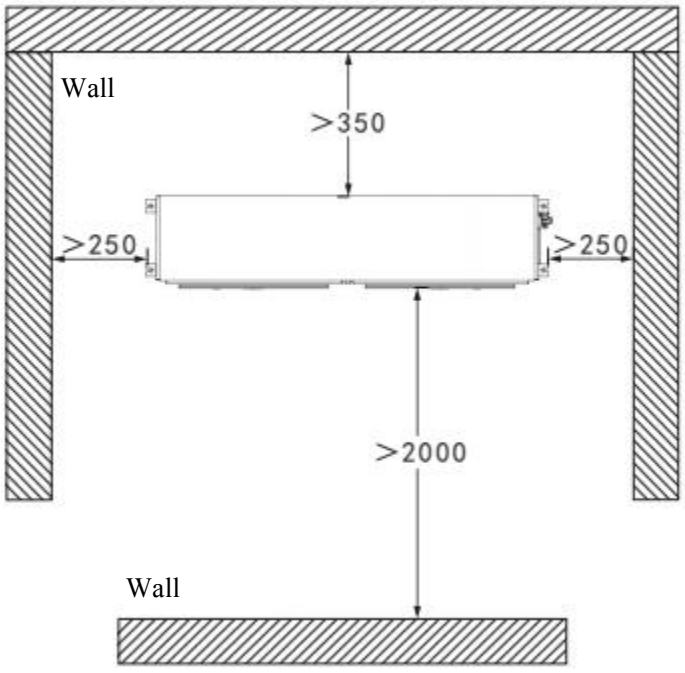
(3) The air inlet and outlet should be unobstructed and maintained in good air circulation state.

(4) The indoor unit must be installed with the distances shown in the figure below to ensure sufficient space for maintenance and repair.

(5) Keep away from the places with heat sources, fumes or at risk of flammable gas leakage.

(6) The unit should be ceiling suspended.

(7) The indoor unit has been factory-charged with nitrogen for pressure retention. Before its installation, open the valve to check whether the pressure in the unit is normal, or else, return the unit to our company for inspection. During installation, ensure that both the valves at inlets and outlets are fully opened to release all the nitrogen, and then proceed with pipe connection.



3 Preparation before Installation

3.2.2 Outdoor Unit

(1) Install the outdoor unit in a firm place to keep it level and avoid the reflow of the discharged, and leave sufficient space around the unit for maintenance.

(2) The installation site must be well-ventilated for sound air circulation of the outdoor unit. Ensure that the air inlet or outlet shall be not obstructed.

(3) The installation location must be capable of supporting the weight of the unit, soundproof and vibration-proof. Also ensure that the air and noise from the unit shall not disturb neighbors.

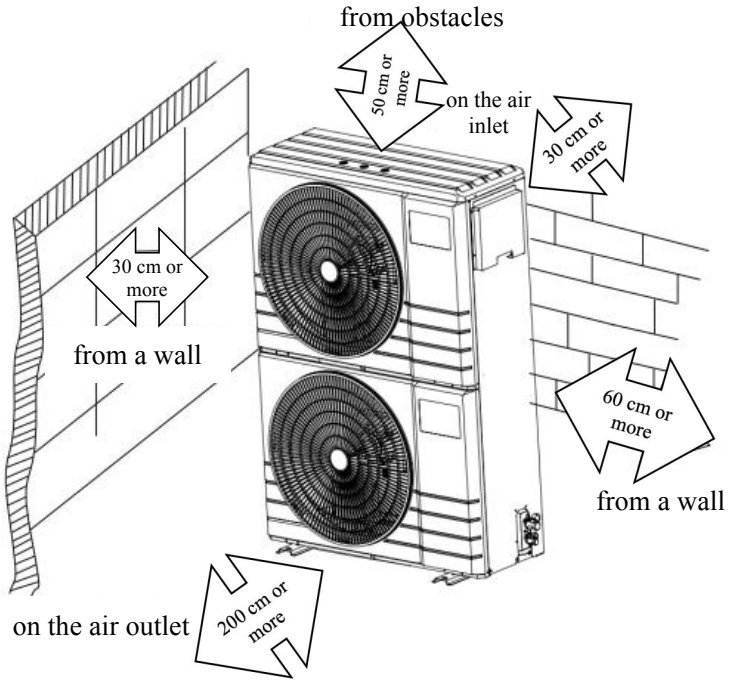
(4) A protective awning is recommended to avoid exposure to direct sunlight.

(5) Rainwater and defrost water shall be discharged normally.

(6) The unit shall be protected from snow, rubbish or oil stains.

(7) Air outlet is not directly facing strong winds.

(8) The installation distances for the outdoor unit must be reserved as shown in the figure below.



3.3 Requirements for Electrical Connection

1. The unit shall be provided with a dedicated power supply with the rated voltage as required.
2. Wiring must be carried out by a qualified technician according to the circuit diagram attached to the unit.
3. Failure to comply with electrical installation standards may result in controller malfunction or electric shock.
4. The fixed connection lines must be equipped with all-pole disconnection devices with a contact gap of at least 3 mm.
5. The leakage circuit breakers shall be set up in accordance with national technical standards for electrical equipment.
6. After all wiring work is completed, power may be turned on only after careful inspection to ensure no errors.
7. Read all labels posted on the electrical control box carefully.
8. The damaged power cord must be replaced by the qualified technician from the manufacturer, the service agent, or similar departments to avoid hazards.
9. Users must never attempt to repair the unit themselves. Improper repair of the controller may result in electric shock or damage to the controller. Contact our customer service center for repair if necessary.
10. The power cord shall be no lighter than polypropylene sheathed flexible cord.

3 Preparation before Installation

11. Wiring shall be implemented according to the following requirements specified in the table below to ensure normal operation of the unit:

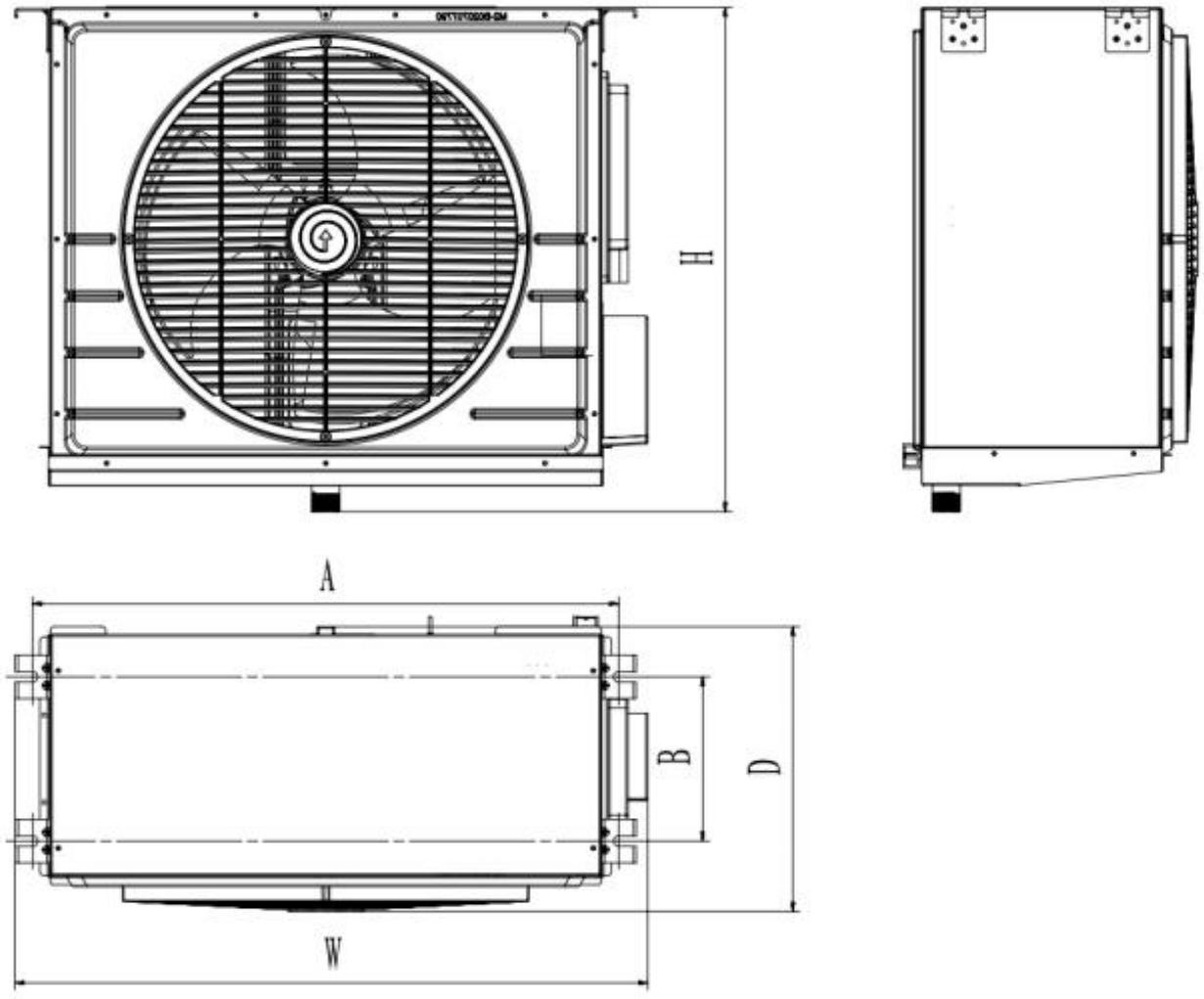
Model	Max. Operating Current	Reference Cable Type	Reference Cable Area (mm²)
PISC-02Wa1	11.8 A	YZW	1.5
PISF-03Wa1	15.5 A	YZW	2.5
PISF-04Wa1 PISF-05Wa1 PISF-08Wa1	20.0 A, 21.8 A, 26.2 A	YZW	4.0
PISF-08WSa1 PISF-08WSa1	9.1 A, 12.9 A	BVR/YZ/YC	5*2.5
PISF-10WSa1 PISF-12WSa1	18.6 A, 20.9 A, 25.6 A	BVR/YZ/YC	5*4.0
PISF-16WSa1	25.6 A	BVR/YZ/YC	5*6.0
PISF-30WSa1 PISF-40WSa1	51.2 A, 58.6 A	BVR/YZ/YC	5*16

4 Installation Guide

4.1 Installation of Indoor Unit

⚠ Warning!
Install the unit in a location capable of supporting at least five times the weight of the main unit to reduce noise and vibration.
If the installation location does not have sufficient load-bearing capacity, the indoor unit may fall and cause personal injury.
If only the panel frame is secured, the unit may become loose. Please install with care.

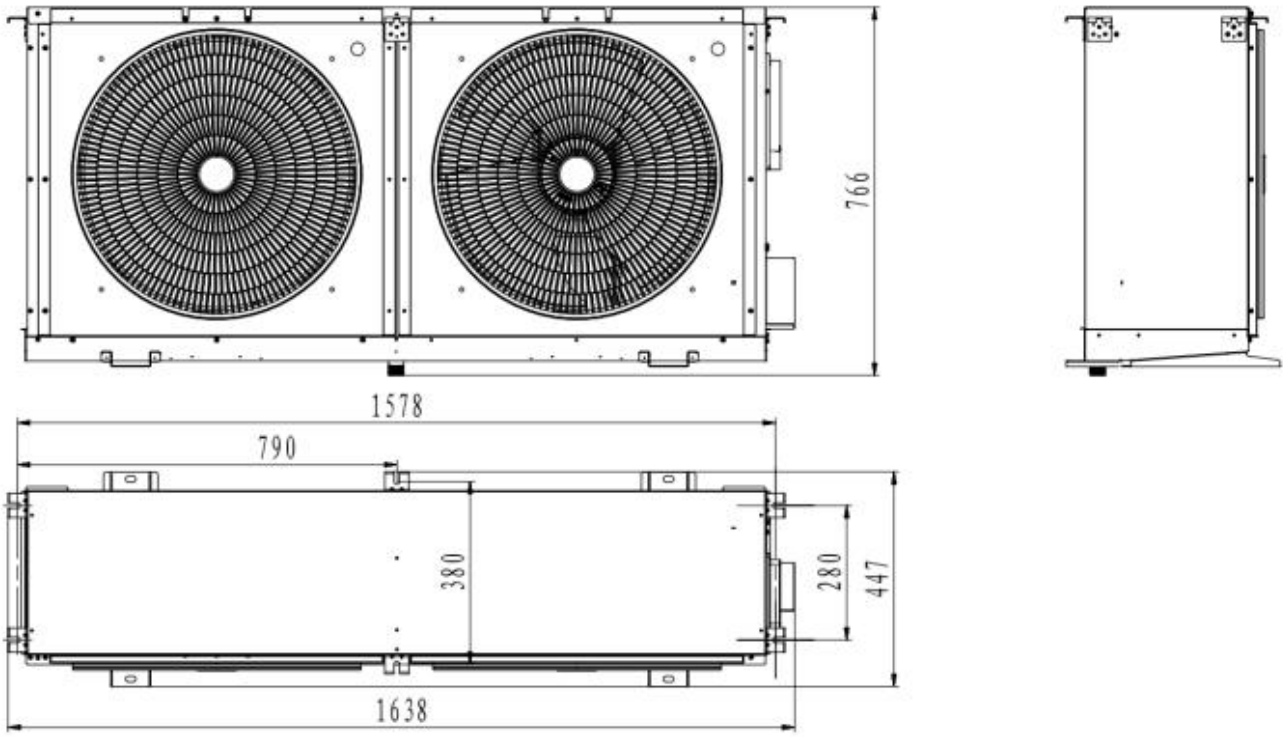
4.1.1 Dimensions & Mounting Hole Positions of Indoor Unit



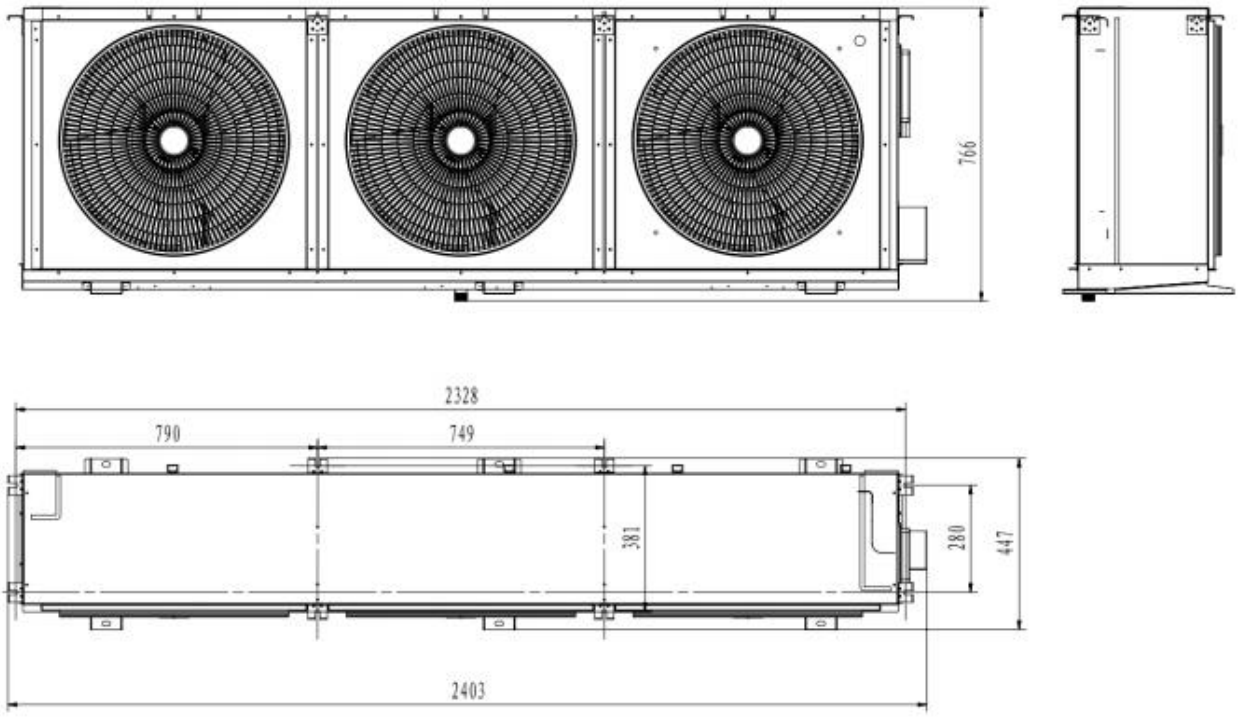
Model	W (Length)	D (Width)	H (Height)	A (length of mounting ear)	B (width of mounting ear)
PISC-02Wal/I, PISC-03Wal/I	726	326	577	673	188
PISF-04Wal/I, PISF-05Wal/I, PISF-05WSal/I	1357	326	577	1304	188
PISF-08Wal/I, PISF-08WSal/I	1988	326	577	1935	188

4 Installation Guide

PISF-10WSal/I, PISF-12WSal/I, PISF-30WSal/I



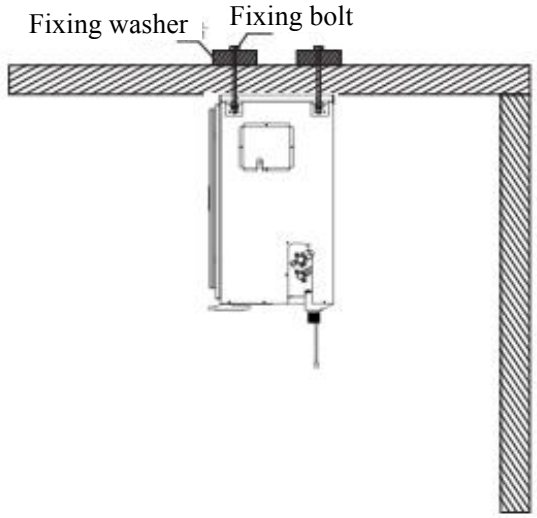
PISF-16WSa1/I, PISF-40WSa1/I



4 Installation Guide

4.1.2 Hoisting of Indoor Unit

Hoist the unit onto the bolts on the ceiling of the room, install it and then fix it with the dedicated nuts, as shown in the figure.



⚠ Notes:

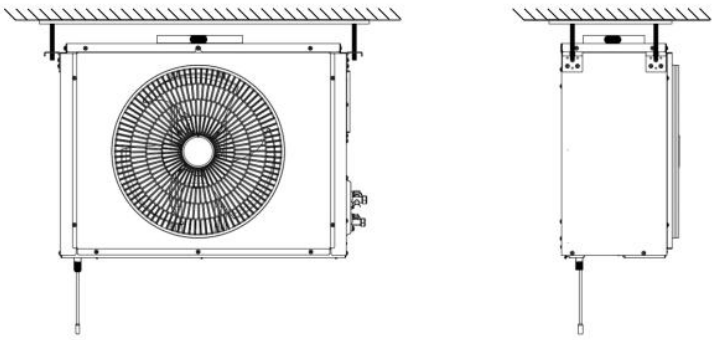
(1) Before installation, get ready all pipes (connecting pipes, drain pipes) and wires (wired controller cables, connecting cables between indoor and outdoor units) that will be connected to the indoor unit for smooth installation.

(2) If the ceiling does not have sufficient strength to support it, you may use angle iron to form a crossbeam support and fix the unit onto it.

(3) If the indoor unit is installed in the non-air-conditioning area, the unit should be insulated by the insulation foam to prevent condensation. The foam thickness shall be determined by the installation environment of the unit.

4.1.3 Level Calibration

The indoor unit must be checked for level after installation. The unit must be placed horizontally, with a slope of 1% to the drain outlet, as shown in the figure.



4.2 Installation of Outdoor Unit

The installation location must be selected according to the following requirements to ensure normal operation of the unit:

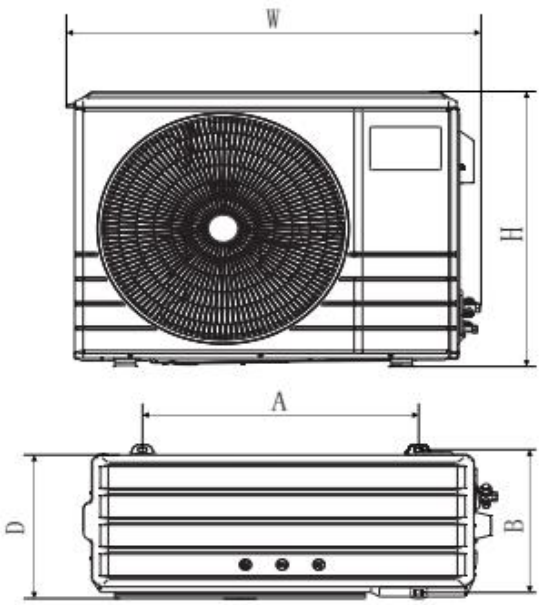
(1) Since the outdoor unit may be exposed to strong winds, it must be fixed with the bolts through the mounting holes as shown in the figure.

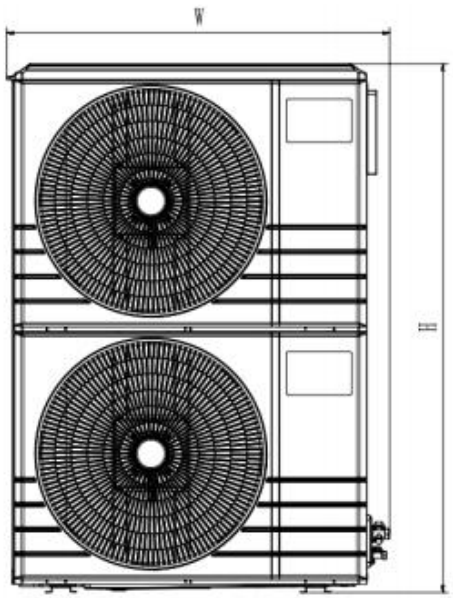
(2) A drain pipe shall be purchased separately and installed on the drain connector, for condensate water will drain from the outdoor unit in heating mode.

(3) Except for the mounting holes at the bottom of the outdoor unit, all other openings shall be plugged to avoid water leakage. (Applicable for heat pump units only)

4 Installation Guide

4.2.1 Dimensions & Mounting Hole Positions of Outdoor Unit





Model	W	H	D	A	B
PISC-02Wa1/O, PISF-03Wa1/O	797	556	336	452	311
PISF-04Wa1/O, PISF-05Wa1/O, PISF-08Wa1/OPISF-05WSa1/O, PISF-08WSa1/O	989	715	400	660	389.5
PISF-10WSa1/O	879	1060	488	541	463
PISF-12WSa1/O	994	1370	415	660	389.5
PISF-16WSa1/O	1031	1674	488	541	463
PISF-30WSa1/O	1360	1792	767	/	/
PISF-40WSa1/O	1710	930	1760	/	/

4.3 Installation and Testing of Drain Pipe

4.3.1 Installation of Condensate Drain Pipe

(1) The condensate drain pipe should have a slope of 5–10°to facilitate condensate drainage. The part of the drain pipe inside the indoor area should be insulated with thermal insulation material to prevent condensation.

(2) There is one condensate outlet both left and right side of the indoor unit each. After determining the outlet to use, seal the other with a rubber plug and fasten it with a cable tie to prevent water leakage, then wrap it with insulation material.

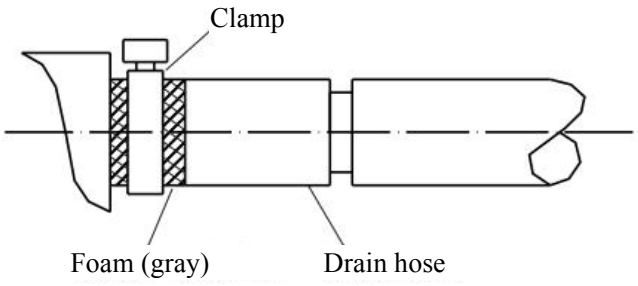
⚠Note: The connection point of the condensate drain pipes must be watertight.

4.3.2 Drain Pipe Design

(1) The drain pipe should be always inclined at a slope (1/100–1/50) to avoid water traps caused by pipe protrusions.

(2) Connect one end of the drain hose to the drain outlet of the indoor unit and the other end to a standard rigid PVC pipe, and fasten both ends with clamps (as shown in the figure). Do not bond the drain outlet and the drain hose using adhesive.

(3) When a common drain pipe is used for multiple units, the pipe should be positioned approximately 100 mm lower than the drain outlet of each unit with thicker wall.



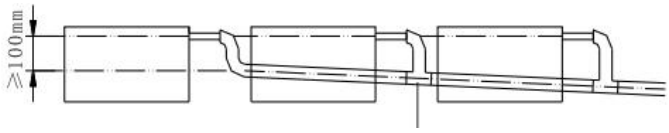
4.3.3 Installation of Drain Pipe

(1) Insert the drain hose into the drain outlet and fasten it tightly with tape.

(2) Tighten the pipe clamp to the distance between the nut and the hose less than 4 mm.

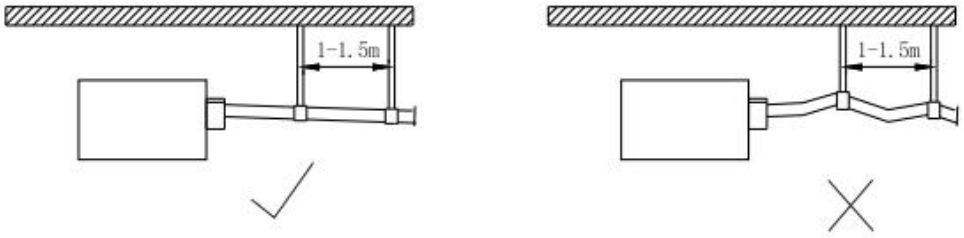
(3) The pipe clamp and hose shall be insulated with insulation foam.

(4) Multiple drain pipes shall be connected as shown in the figure below. Select a drain header that matches the unit capacity.



Drain tee (merging type)

(5) The drain pipe should be kept inclined with a slope of at least 1/100–1/50. To achieve this, support brackets shall be installed every 1–1.5 m.



4.3.4 Drainage System Test

(1) The drainage system shall be tested after the electrical installation work is completed.

(2) During test, verify that water flows correctly through the piping, and carefully inspect the connections to ensure leakage-free.

4.3.5 Connection of Pipe Heating Tape

Open the rear right pipe heating cover, insert the pipe heating tape into the outlet of the base pan to a depth as long as the actual length of the indoor pipe. Connect the pipe heating tape according to the circuit diagram.

4.4 Refrigerant Pipe Connection

4.4.1 Flaring Procedure

(1) For the dimensions of the refrigerant connecting pipes for indoor and outdoor units, please refer to the specifications in the table below.

(2) Use a pipe cutter to cut the connecting pipe, avoiding deformation of the pipe.

(3) Keep the pipe opening facing downward to prevent copper chips from entering the pipe, and remove any burrs generated by cutting.

(4) Slide the flare nut onto the connecting pipe, then use a flaring tool to flare the pipe end.

(5) Check whether the flared part is evenly expanded and free of cracks. If it passes inspection, proceed to the next step of pipe connection.

4.4.2 Pipe Bending

(1) The bending radius of the pipe should not be too small, otherwise the pipe may crack or kink. Installers should use a pipe bender for bending pipes.

(2) Do not bend the copper pipe less than 90 degrees.

(3) If bent repeatedly, the copper pipe will harden, making further bending more difficult. Therefore, the number of bends should not exceed three.

(4) Thicker connecting pipes with insulation (in general, copper pipe diameters above 10 mm) cannot be bent directly, otherwise the pipe may crack. In such cases, first cut away the insulation, expose the copper pipe for bending. Rewrap the insulation around the copper pipe and secure it with adhesive tape.

4.4.3 Connecting the Refrigerant Pipes

⚠Warning!
Ensure the unit pipes are correctly connected. Improper centering may prevent the flare nut from being tightened. Forcibly tightening the flare nut may damage the nut threads.
Hold the wrench handle at a right angle to the pipe to tighten the flare nut correctly, as shown in the figure.

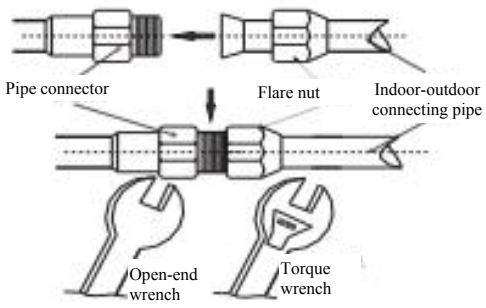
(1) Indoor Unit

1) Remove the protective cap from the threaded joint.

2) Align the center of the copper pipe flare, and hand-tighten the flare nut fully.

3) Use an open-end wrench to hold the pipe joint in place, then use a torque wrench to tighten the flare nut.

4) The required torque for tightening the nut is shown in the table on the right.



Pipe outer diameter (mm)	Required torque (N·m)
φ6.35	14-18
φ9.52/φ10	36-40
φ12.7	50-55
φ16	64-68
φ19	88-96

Caution: Do not apply excessive torque when tightening the flare nut to prevent the flare from damage.

(2) Outdoor Unit

Tighten the flare nut at the connecting pipe for the outdoor unit valves using the same method as for the indoor unit connection.

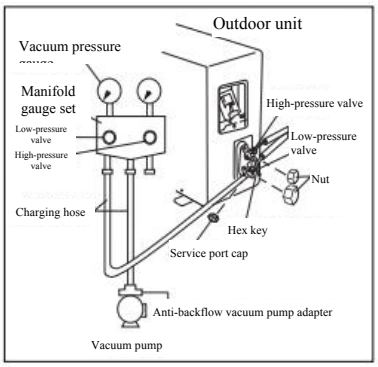
⚠ Notes:

1) When connecting the indoor unit piping, do not pull forcibly on the reducing connector of the indoor unit to avoid cracking the capillary tube or other connecting pipes of the indoor unit, which could cause refrigerant leakage.
2) The connecting pipes should be supported by brackets to avoid its weight applied to the unit.

4.4.4 Vacuum Pumping and Airtightness Check

(1) Vacuum Pumping

Use a vacuum pump to remove air from the indoor unit and connecting pipes via the service port valve core.



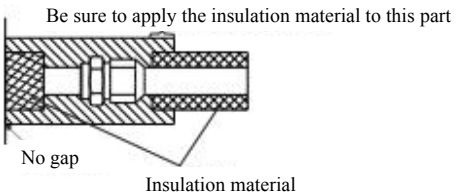
1) Connect the protrusion side (valve pin pushing side) of the charging hose from the manifold gauge set to the service port of the low-pressure valve on the outdoor unit.
2) Fully open the low-pressure valve (Low) on the manifold gauge set, and fully close the high-pressure valve (High). (Do not operate the high-pressure valve after this step.)
3) Start the vacuum pump to begin evacuation. (Be sure to use a vacuum pump equipped with an anti-backflow device. Also, read the instruction manuals supplied with the vacuum pump, vacuum pump adapter, and manifold gauge set before use to ensure correct operation.)
4) The evacuation time is approximately 20 minutes. After completion, check whether the high/low vacuum pressure gauge reading reaches -101 KPa (-76 cmHg).
5) Then fully close the low-pressure valve (Low) on the manifold gauge set, and stop the vacuum pump.
6) Maintain the vacuum for a period of time after evacuation to check for leaks in the system. In general, hold the vacuum for 3 minutes. During this period, the pressure rise must not exceed 0.005 MPa.

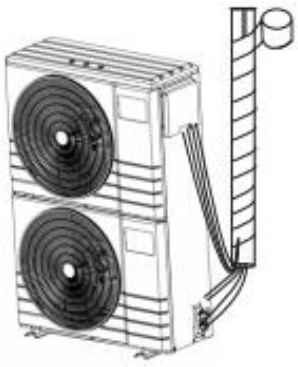
(2) Leak Detection

Apply soapy water to the pipe connections. If bubbles appear, there is a leak at that point. If available, use an electronic leak detector for such operation.

4.4.5 Installation of Insulation Material for Connecting Pipes

(1) The copper pipes must be insulated from air with insulation material and tape to prevent condensation and water leakage on the connecting pipes.
(2) Wrap the joints of the indoor unit with insulation material, ensuring that there is no gap between the insulation and the copper pipe surface of the indoor unit (as shown in the figure).





(3) Wrapping the pipe with adhesive tape

1) Bundle the connecting pipes and the electric cables together with the adhesive tape. Keep the drain pipe separate from the connecting pipes and cables to prevent condensate from overflowing the drain pipe.
2) The insulation tape shall be applied to the part from the bottom of the outdoor unit to the top of the pipe and continue up to the wall. During application, each turn should overlap half of the previous turn.
3) Secure the insulated pipe bundle to the wall with pipe clamps.

⚠ Notes:

1) Do not wrap the tape too tightly, as this will reduce the insulation effect. Ensure the condensate drain pipe is kept separate from the pipe bundle.
2) After completing the insulation work and pipe wrapping, plug the hole in the wall with sealing material to avoid the entry of rain and wind.

4.5 Cable Connection

4.5.1 Wiring Precautions

⚠Warning:

1) The Refrigeration Unit must be grounded to prevent hazards caused by insulation failure.
2) Before wiring, check the voltage indicated on the nameplate, then connect cables according to the wiring diagram. Incorrect wiring may cause the unit to malfunction or be damaged.
3) Select the power supply with a sufficient capacity, namely ensuring the cross-sectional area of the cables at least 4.0 mm².
4) The power cord shall be no lighter than polychloroprene sheathed flexible cord (No. 57 cord per IEC 60245).
5) A dedicated branch circuit and a dedicated socket shall be equipped for the power supply of the Refrigeration Unit.
6) Wiring must be carried out by the qualified electrician.
7) The leakage circuit breakers and the air circuit breakers with an electrode contact spacing over 3 mm must be set up in the fixed lines.
8) The arrangement of wires must be in line with the standard to ensure safe and normal operation of the unit.
9) Install a dedicated branch circuit breaker according to applicable laws, regulations and electrical standards.
10) Crimp terminals or solid wires must be used for all wiring. Connecting stranded wires directly to the terminal block may cause arcing.
11) Keep cables away from refrigerant pipes or moving parts such as compressors or fans.
12) Do not alter the internal wiring of the Refrigeration Unit without permission. The resulting damage or abnormal operation shall be not borne by the manufacturer.
13) The Refrigeration Unit shall be equipped with a dedicated power cord, leakage circuit breaker and air circuit breaker to address overload.

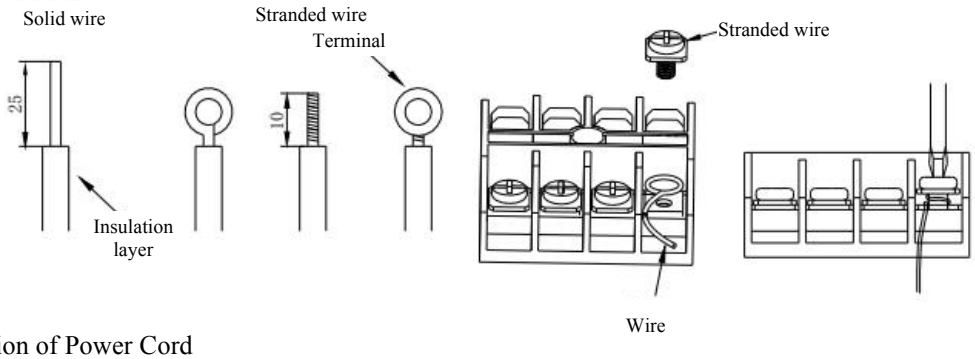
4.5.2 Connecting Wires to Terminals

(1) Connection of solid wires

1) Strip about 25 mm of insulation from the end of the solid wire with wire strippers to get the solid copper core exposed.
2) Remove the terminal screw from the terminal block with a screwdriver.
3) Bend the exposed copper wire into a ring that matches the size of the screw with pliers.
4) Thread the screw through the ring and tighten it onto the terminal block.

(2) Connection of stranded wires

1) Strip about 10 mm of insulation from the end of the stranded wire with wire strippers.
2) Remove the terminal screw from the unit.
3) Use a ring terminal (crimp terminal) or pliers to firmly crimp the ring terminal onto each strand of the stranded wire.
4) Check the position of each strand in the ring terminal, then tighten the terminal screw with a screwdriver.



4.5.3 Connection of Power Cord

(1) Open the electrical box of the indoor unit.
(2) Connect the power cord to the corresponding terminals and the ground screw.
(3) Secure the power cord with a cord clamp.

4.5.4 Connection of Signal Line for Wired Controller

(1) Open the electrical box of the indoor unit.
(2) Plug the signal line into the 4-pin connector on the PCB of the indoor unit.
(3) Secure the signal line with a cable tie.

⚠ Notes:

The following connections should be implemented according to the specified requirements to avoid electromagnetic interference, which may cause the Refrigeration Unit malfunctioning.

1) The signal line shall be routed separately from the power cord and the interconnecting wires between indoor and outdoor units.
2) The shielded wire or twisted pair wire is recommended for the wired controller when the Refrigeration Unit is installed in a location susceptible to electromagnetic interference.

4.5.5 External Wiring Diagram of the Unit

Refer to the circuit diagram supplied with the unit.

5 Post-Installation Checklist and Commissioning

5.1 Post-Installation Checklist

Item	Possible Problem
Is the unit installed securely?	The poor installation may result in fall, vibration or noise
Has a leak test been performed?	Insufficient cooling/heating capacity
Is the unit adequately insulated?	Condensation and dripping
Is drainage smooth?	Condensation and dripping
Is the supply voltage in line with the product nameplate?	Malfunction or burnt
Are the wires and pipes connected correctly?	Malfunction or burnt
Is the unit grounded?	Risk of electric shock
Is the wire type qualified?	Malfunction or burnt
Are the air inlet/outlet of indoor and outdoor units obstructed?	Insufficient cooling/heating capacity
Have the refrigerant pipe length and refrigerant charge amount been recorded?	Failed to determine the charging amount of refrigerant

5.2 Commissioning

5.2.1 Preparation for Commissioning

(1) Do not turn on the power until all installation work is completed.

(2) Verify that the control lines shall be correctly connected, and all electrical connections shall be secure.

(3) Any loose objects, especially metal chips, wire ends, etc., shall be removed from the unit.

(4) Gas valves and liquid valves shall be opened.

5.2.2 Commissioning Procedure

(1) Turn on the power and operate via the wired controller.

(2) Press the "Mode" button to select operating modes such as cooling or heating (not available for cooling-only units) and observe whether the unit operates normally.

6. Cleaning & Maintenance of Refrigeration Unit

⚠Warning!
Only clean the refrigeration Unit after shutting it down and disconnecting the power supply to avoid electric shock or injury.
Do not clean the refrigeration Unit with water under any circumstances in case of electric shock.
Clean the refrigeration Unit carefully with a stable standing platform.
Volatile liquids such as thinner or gasoline can damage the Refrigeration Unit components. Use only neutral detergent.
In case of any abnormality, turn to the after-sales service personnel for help.

6.1 Maintenance at the Beginning of the Use Season

(1) Check whether the air inlets and outlets of indoor and outdoor units are blocked.

(2) Check whether the ground wire is intact.

(3) Check whether the wiring connections and connecting pipes are intact.

(4) After turning on the power, check whether the display on the wired controller shows information.

(5) Check whether the mounting bracket of the outdoor unit is intact.

(6) Check whether the controller is in low battery level and replace the battery with new ones if finding the blurred display.

6.2 Maintenance at the End of the Use Season

(1) Run the unit in the fan mode for half a day in a sunny day to dry the inside of the unit.

(2) Turn off the power supply to save electricity if the refrigeration Unit will be idle for a long period.

(3) Check whether the mounting bracket of the outdoor unit is intact.

(4) Remove the controller if the refrigeration Unit will be idle for a long period.

7 Troubleshooting

Check it according to the following points before service request when the refrigeration Unit does not operate normally:

Symptom	Possible Cause
AC startup failed	1. Power disconnected 2. Leakage circuit trips due to electric leakage of the refrigeration Unit 3. Too low line voltage 4. Operation key turned off 5. Control circuit fault
The Refrigeration Unit stops after running for a short time	1. Condenser obstructed 2. Control circuit fault
Poor cooling effect	1. The air intake of the heat exchanger is dirty or blocked. 2. Excessive heat load resulting from too many items inside the cold storage room. 3. The door of the cold room is opened frequently. 4. Air inlet or outlet is blocked. 5. Too high set temperature, or refrigerant leakage. 6. Poor performance of the room temperature sensor.
Poor heating effect.	1. The air intake of the heat exchanger is dirty or blocked. 2. The door of the cold room is opened frequently. 3. Refrigerant leakage. 4. Control circuit fault.
The wired controller displays a fault code (see the wired controller section for details).	

⚠ Notes:

If the refrigeration unit still does not operate normally after performing the above checks and actions, immediately stop it and contact the authorized service center to address it.

8 Technical Specifications

Machine model		PISC-02Wal
Indoor unit model		PISC-02Wa1/I
Outdoor unit model		PISC-02Wa1/O
Nominal cooling capacity W (measured)		6000
Input power (W)		320-2600
Nominal conditions		10 °C/32°C
Cold storage room temperature range		-5 °C/40°C
Air inlet temperature range		-15 °C/65°C
Power supply		220-240 V/50 Hz
Maximum input power (W)		2600
Maximum input current (A)		11.8
Compressor type		Inverter compressor with enhanced vapor injection (EVI)
Refrigerant type / charge (kg)		R410A/0.85
Noise (outdoor unit) dB (A)		38-54
Outdoor unit air flow (m³/h)		1850
Connecting pipe (mm)		φ6.35/φ9.52
Throttling element		Electronic expansion valve
Pipe connection type		Threaded connection
Outdoor unit dimensions (mm)		797*556*336
Outdoor unit net weight (kg)		28
Allowable overpressure (suction/discharge) MPa		1.5/4.2
Max. working pressure (low side / high side) MPa		1.5/4.2
Max. working pressure of heat exchanger (MPa)		4.2
Type of protection against electric shock		IPX4
Internal fan	Indoor air flow (m³/h)	2000
	Indoor fan power supply	220-240 V/50 Hz
	Fan power (W)	75
Defrost power (W)		500
Indoor noise level dB (A) (low speed – high speed)		42-50
Indoor unit dimensions (mm)		726*577*326
Net weight (kg)		19

Notes:

1. Conditions for high cooling capacity: outdoor dry-bulb temperature of 35°C, indoor temperature of 27°C;
2. The parameters are subject to change, and the nameplate shall prevail;
3. The above data are measured under the condition of the unit equipped with the standard 5 m connecting pipe. If the connecting pipe length increases, the cooling capacity of the unit will decrease accordingly: cooling capacity reduced by 0%–10% as pipe length increased by 0 m to 5 m, 10%–20%, 5 m to 10 m, and 20%–30%, 10 m to 20 m.

8 Technical Specifications

Machine model		PISF-03Wal	PISF-04Wal
Indoor unit model		PISF-03Wal/I	PISF-04Wal/I
Outdoor unit model		PISF-03Wal/O	PISF-04Wa1/O
Nominal cooling capacity W (measured)		7000	8000
Input power (W)		320-3400	400-4400
Nominal conditions		10 °C/32°C	10 °C/32°C
Cold storage room temperature range		-20 °C/40°C	-20 °C/40°C
Air inlet temperature range		-35 °C/65°C	-35 °C/65°C
Power supply		220-240 V/50 Hz	220 -240V/50 Hz
Maximum input power (W)		3400	4400
Maximum input current (A)		15.5	20.0
Compressor type		Inverter compressor with enhanced vapor injection (EVI)	Inverter compressor with enhanced vapor injection (EVI)
Refrigerant type / charge (kg)		R410A/1.2	R410A/2.0
Noise (outdoor unit) dB (A)		38-54	40-56
Outdoor unit air flow (m³/h)		1850	3800
Connecting pipe (mm)		φ6.35/φ9.52	φ6.35/φ9.52
Throttling element		Electronic expansion valve	Electronic expansion valve
Pipe connection type		Threaded connection	Threaded connection
Outdoor unit dimensions (mm)		797*556*336	989*715*400
Outdoor unit net weight (kg)		34	46
Allowable overpressure (suction/discharge) MPa		1.5/4.2	1.5/4.2
Max. working pressure (low side / high side) MPa		1.5/4.2	1.5/4.2
Max. working pressure of heat exchanger (MPa)		4.2	4.2
Type of protection against electric shock		IPX4	IPX4
Internal fan	Indoor air flow (m³/h)	2000	4000
	Indoor fan power supply	220 -240V/50 Hz	220-240 V/50 Hz
	Fan power (W)	75	150
Defrost power (W)		500	800
Indoor noise level dB (A) (low speed – high speed)		42-50	46-52
Indoor unit dimensions (mm)		726*577*326	1357*577*326
Net weight (kg)		19	32.2

Notes:

1. Conditions for high cooling capacity: outdoor dry-bulb temperature of 35℃, indoor temperature of 27℃;
2. The parameters are subject to change, and the nameplate shall prevail;
3. The above data are measured under the condition of the unit equipped with the standard 5 m connecting pipe. If the connecting pipe length increases, the cooling capacity of the unit will decrease accordingly: cooling capacity reduced by 0%–10% as pipe length increased by 0 m to 5 m, 10%–20%, 5 m to 10 m, and 20%–30%, 10 m to 20 m.

8 Technical Specifications

Machine model		PISF-05Wal	PISF-08Wal
Indoor unit model		PISF-05Wal/I	PISF-08Wal/I
Outdoor unit model		PISF-05Wal/O	PISF-08Wal/O
Nominal cooling capacity W (measured)		11000	16000
Input power (W)		450-4800	830-5500
Nominal conditions		10 °C/32°C	10 °C/32°C
Cold storage room temperature range		-20 °C/40°C	-20 °C/40°C
Air inlet temperature range		-35 °C/65°C	-35 °C/65°C
Power supply		220-240 V/50 Hz	220-240 V/50 Hz
Maximum input power (W)		4800	5500
Maximum input current (A)		21.8	26.2
Compressor type		Inverter compressor with enhanced vapor injection (EVI)	Inverter compressor with enhanced vapor injection (EVI)
Refrigerant type / charge (kg)		R410A/1.8	R410A/2.0
Noise (outdoor unit) dB (A)		40-58	40-58
Outdoor unit air flow (m^3/h)		3800	3800
Connecting pipe (mm)		φ6.35/φ9.52	φ6.35/φ12.7
Throttling element		Electronic expansion valve	Electronic expansion valve
Pipe connection type		Threaded connection	Threaded connection
Outdoor unit dimensions (mm)		989*715*400	989*715*400
Outdoor unit net weight (kg)		52	53.5
Allowable overpressure (suction/discharge) MPa		1.5/4.2	1.5/4.2
Max. working pressure (low side / high side) MPa		1.5/4.2	1.5/4.2
Max. working pressure of heat exchanger (MPa)		4.2	4.2
Type of protection against electric shock		IPX4	IPX4
Internal fan	Indoor air flow (m^3/h)	4000	6000
	Indoor fan power supply	220-240 V/50 Hz	220-240 V/50 Hz
	Fan power (W)	150	210
Defrost power (W)		800	1200
Indoor noise level dB (A) (low speed – high speed)		46-52	46-54
Indoor unit dimensions (mm)		1357*577*326	1988*577*326
Net weight (kg)		32.2	47.3

Notes:

1. Conditions for high cooling capacity: outdoor dry-bulb temperature of 35°C, indoor temperature of 27°C;
2. The parameters are subject to change, and the nameplate shall prevail;
3. The above data are measured under the condition of the unit equipped with the standard 5 m connecting pipe. If the connecting pipe length increases, the cooling capacity of the unit will decrease accordingly: cooling capacity reduced by 0%–10% as pipe length increased by 0 m to 5 m, 10%–20%, 5 m to 10 m, and 20%–30%, 10 m to 20 m.

8 Technical Specifications

Machine model		PISF-05WSal	PISF-08WSal
Indoor unit model		PISF-05WSa1/I	PISF-08WSal/I
Outdoor unit model		PISF-05WSal/O	PISF-08WSal/O
Nominal cooling capacity W (measured)		11500	16000
Input power (W)		450-4800	830-6800
Nominal conditions		10 °C/32°C	10 °C/32°C
Cold storage room temperature range		-20 °C/40°C	-20 °C/40°C
Air inlet temperature range		-35 °C/65°C	-35 °C/65°C
Power supply		380 V 3N~/50 Hz	380 V 3N~/50 Hz
Maximum input power (W)		4800	6800
Maximum input current (A)		9.1	12.9
Compressor type		Inverter compressor with enhanced vapor injection (EVI)	Inverter compressor with enhanced vapor injection (EVI)
Refrigerant type / charge (kg)		R410A/1.8	R410A/2.0
Noise (outdoor unit) dB (A)		40-58	40-58
Outdoor unit air flow (m³/h)		3800	3800
Connecting pipe (mm)		φ6.35/φ9.52	φ6.35/φ12.7
Throttling element		Electronic expansion valve	Electronic expansion valve
Pipe connection type		Threaded connection	Threaded connection
Outdoor unit dimensions (mm)		989*715*400	989*715*400
Outdoor unit net weight (kg)		53	54.5
Allowable overpressure (suction/discharge) MPa		1.5/4.2	1.5/4.2
Max. working pressure (low side / high side) MPa		1.5/4.2	1.5/4.2
Max. working pressure of heat exchanger (MPa)		4.2	4.2
Type of protection against electric shock		IPX4	IPX4
Internal fan	Indoor air flow (m³/h)	4000	6000
	Indoor fan power supply	220 -240V/50 Hz	220-240 V/50 Hz
	Fan power (W)	150	210
Defrost power (W)		800	1200
Indoor noise level dB (A) (low speed – high speed)		46-52	46-54
Indoor unit dimensions (mm)		1357*577*326	1988*577*326
Net weight (kg)		32.2	47.3

Notes:

1. Conditions for high cooling capacity: outdoor dry-bulb temperature of 35℃, indoor temperature of 27℃;
2. The parameters are subject to change, and the nameplate shall prevail;
3. The above data are measured under the condition of the unit equipped with the standard 5 m connecting pipe. If the connecting pipe length increases, the cooling capacity of the unit will decrease accordingly: cooling capacity reduced by 0%–10% as pipe length increased by 0 m to 5 m, 10%–20%, 5 m to 10 m, and 20%–30%, 10 m to 20 m.

8 Technical Specifications

Machine model		PISF-10WSal	PISF-12WSal
Indoor unit model		PISF-10WSal/I	PISF-12WSa1/I
Outdoor unit model		PISF-10WSa1/O	PISF-12WSa1/O
Nominal cooling capacity W (measured)		18000	23000
Input power (W)		1050-9800	1300-11000
Nominal conditions		10 °C/32°C	10 °C/32°C
Cold storage room temperature range		-20 °C/40°C	-20 °C/40°C
Air inlet temperature range		-35 °C/65°C	-35 °C/65°C
Power supply		380 V 3N~/50 Hz	380 V 3N~/50 Hz
Maximum input power (W)		9800	11000
Maximum input current (A)		18.6	20.9
Compressor type		Inverter compressor with enhanced vapor injection (EVI)	Inverter compressor with enhanced vapor injection (EVI)
Refrigerant type / charge (kg)		R410A/3.5	R410A/3.6
Noise (outdoor unit) dB (A)		42-66	42-60
Outdoor unit air flow (m³/h)		6000	6000
Connecting pipe (mm)		φ9.52/φ16	φ9.52/φ16
Throttling element		Electronic expansion valve	Electronic expansion valve
Pipe connection type		Threaded connection	Threaded connection
Outdoor unit dimensions (mm)		879*1060*488	994*1370*415
Outdoor unit net weight (kg)		88	102
Allowable overpressure (suction/discharge) MPa		1.5/4.2	1.5/4.2
Max. working pressure (low side / high side) MPa		1.5/4.2	1.5/4.2
Max. working pressure of heat exchanger (MPa)		4.2	4.2
Type of protection against electric shock		IPX4	IPX4
Internal fan	Indoor air flow (m³/h)	6500	6500
	Indoor fan power supply	220-240 V/50 Hz	220 -240V/50 Hz
	Fan power (W)	240	240
Defrost power (W)		1200	1200
Indoor noise level dB (A) (low speed – high speed)		46-56	46-56
Indoor unit dimensions (mm)		1638*766*447	1638*766*447
Net weight (kg)		59.5	59.5

Notes:

1. Conditions for high cooling capacity: outdoor dry-bulb temperature of 35°C, indoor temperature of 27°C;
2. The parameters are subject to change, and the nameplate shall prevail;
3. The above data are measured under the condition of the unit equipped with the standard 5 m connecting pipe. If the connecting pipe length increases, the cooling capacity of the unit will decrease accordingly: cooling capacity reduced by 0% – 10% as pipe length increased by 0 m to 5 m, 10% – 20%, 5 m to 10 m, and 20% – 30%, 10 m to 20 m.

8 Technical Specifications

Machine model		PISF-16WSa1	
Indoor unit model		PISF-16WSal/I	
Outdoor unit model		PISF-16WSa1/O	
Nominal cooling capacity W (measured)		30000	
Input power (W)		2000-13500	
Nominal conditions		10 °C/32°C	
Cold storage room temperature range		-20 °C/40°C	
Air inlet temperature range		-35 °C/65°C	
Power supply		380 V 3N~/50 Hz	
Maximum input power (W)		13500	
Maximum input current (A)		25.6	
Compressor type		Inverter compressor with enhanced vapor injection (EVI)	
Refrigerant type / charge (kg)		R410A/3.5	
Noise (outdoor unit) dB (A)		45-65	
Outdoor unit air flow (m³/h)		12000	
Connecting pipe (mm)		φ9.52/φ19	
Throttling element		Electronic expansion valve	
Pipe connection type		Threaded connection	
Outdoor unit dimensions (mm)		1031*1674*488	
Outdoor unit net weight (kg)		123	
Allowable overpressure (suction/discharge) MPa		1.5/4.2	
Max. working pressure (low side / high side) MPa		1.5/4.2	
Max. working pressure of heat exchanger (MPa)		4.2	
Type of protection against electric shock		IPX4	
Internal fan	Indoor air flow (m³/h)	9000	
	Indoor fan power supply	220-240 V/50 Hz	
	Fan power (W)	320	
Defrost power (W)		1500	
Indoor noise level dB (A) (low speed – high speed)		50-58	
Indoor unit dimensions (mm)		2403*766*447	
Net weight (kg)		85	

Notes:

1. Conditions for high cooling capacity: outdoor dry-bulb temperature of 35°C, indoor temperature of 27°C;
2. The parameters are subject to change, and the nameplate shall prevail;
3. The above data are measured under the condition of the unit equipped with the standard 5 m connecting pipe. If the connecting pipe length increases, the cooling capacity of the unit will decrease accordingly: cooling capacity reduced by 0% – 10% as pipe length increased by 0 m to 5 m, 10% – 20%, 5 m to 10 m, and 20% – 30%, 10 m to 20 m.

8 Technical Specifications

Machine model		PISF-30WSal	PISF-40WSal
Indoor unit model		PISF-30WSal/I	PISF-40WSal/I
Outdoor unit model		PISF-30WSal/O	PISF-40WSa1/O
Nominal cooling capacity W (measured)		64000	85000
Input power (W)		4000-27000	5000-28000
Nominal conditions		10 °C/32°C	10 °C/32°C
Cold storage room temperature range		-20 °C/40°C	-20 °C/40°C
Air inlet temperature range		-35 °C/65°C	-35 °C/65°C
Power supply		380 V 3N~/50 Hz	380 V 3N~/50 Hz
Maximum input power (W)		27000	28000
Maximum input current (A)		51.2	58.6
Compressor type		Inverter compressor with enhanced vapor injection (EVI)	Inverter compressor with enhanced vapor injection (EVI)
Refrigerant type / charge (kg)		R410A/2*4.3	R410A/2*6.0
Noise (outdoor unit) dB (A)		45-65	42-60
Outdoor unit air flow (m³/h)		12000	23000
Connecting pipe (mm)		φ9.52/φ19	φ9.52/φ19
Throttling element		Electronic expansion valve	Electronic expansion valve
Pipe connection type		Threaded connection	Threaded connection
Outdoor unit dimensions (mm)		1360*1792*767	1710*930*1760
Outdoor unit net weight (kg)		303	395
Allowable overpressure (suction/discharge) MPa		1.5/4.2	1.5/4.2
Max. working pressure (low side / high side) MPa		1.5/4.2	1.5/4.2
Max. working pressure of heat exchanger (MPa)		4.2	4.2
Type of protection against electric shock		IPX4	IPX4
Internal fan	Indoor air flow (m³/h)	6500	9000
	Indoor fan power supply	220-240 V/50 Hz	220 -240V/50 Hz
	Fan power (W)	240	320
Defrost power (W)		1200	1500
Indoor noise level dB (A) (low speed – high speed)		46-56	50-58
Indoor unit dimensions (mm)		1638*766*447	2403*766*447
Net weight (kg)		59.5	85

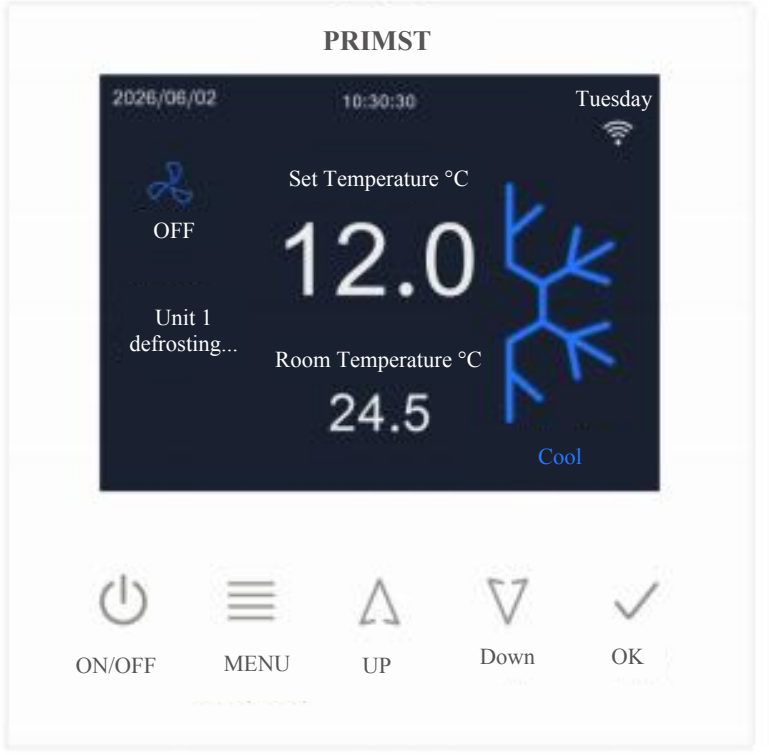
Notes:

1. Conditions for high cooling capacity: outdoor dry-bulb temperature of 35°C, indoor temperature of 27°C;
2. The parameters are subject to change, and the nameplate shall prevail;
3. The above data are measured under the condition of the unit equipped with the standard 5 m connecting pipe. If the connecting pipe length increases, the cooling capacity of the unit will decrease accordingly: cooling capacity reduced by 0% – 10% as pipe length increased by 0 m to 5 m, 10% – 20%, 5 m to 10 m, and 20% – 30%, 10 m to 20 m.

9 Operation Instructions & Fault Code Meanings of Wired Controller

1. Wired Controller – Appearance and Key Description

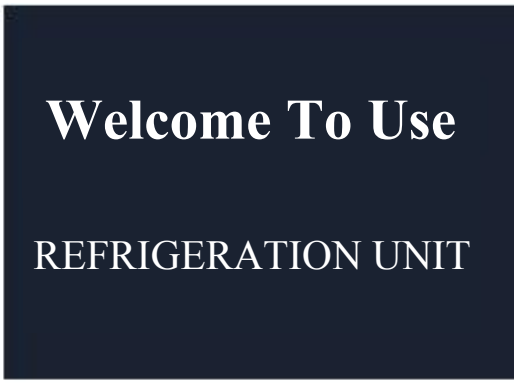
The wired controller features 5 basic keys and an LCD dot matrix display. The layout of the keys on the panel is shown in the figure below. The user can perform unit's operations such as power on/off, parameter setting, operating status inquiry, and fault query via the wired controller, and it can display operating parameters.



2. Initial Screen

2.1 After the wired controller is powered on, "Initial Screen 1" is displayed first. This display switches to "Initial Screen 2" after 3 seconds.

2.2 After 3 seconds, "Initial Screen 2" automatically switches to the "Main Screen".

Initial Screen 1	Initial Screen 2
	

9 Operation Instructions & Fault Code Meanings of Wired Controller

3. Main Screen

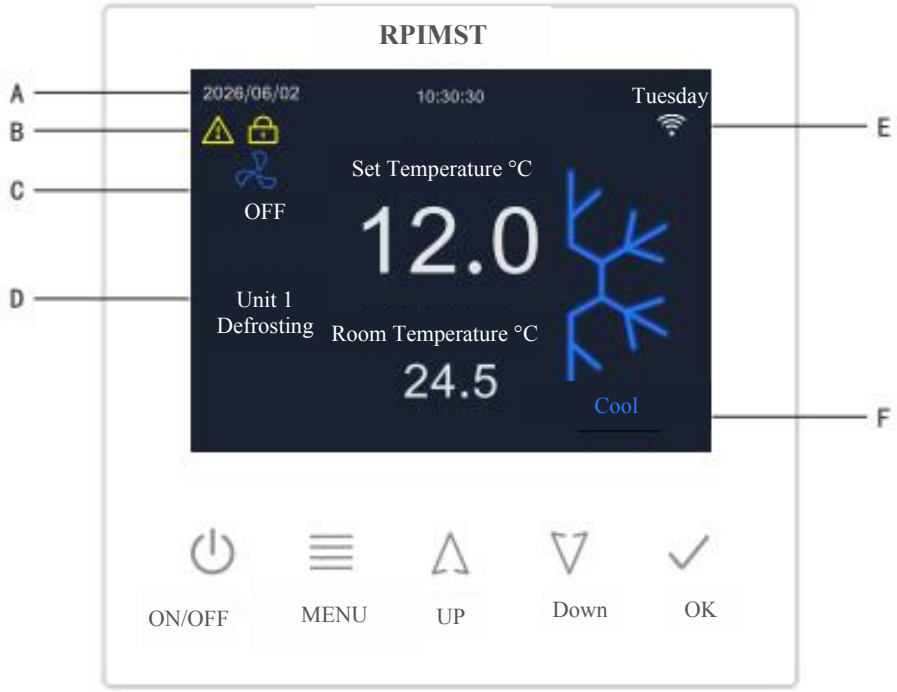
3.1 Entering the Main Screen

3.1.1 After power-on, the system switches to the main screen automatically from the Initial Screen.

3.1.2 From other screens, press the “ON/OFF” key to directly enter the main screen, or repeatedly press the “MENU” key to step back until the main screen is reached.

3.2 Information Displayed on the Main Screen

3.2.1 On the main screen, the following information on the unit is available:



A. Date, clock time, and day of the week;

B. “Fault” icon: When the “Fault” icon appears, double-press the “OK” key to enter the fault display screen. “Child Lock” icon: When the “Child Lock” icon appears, press and hold the “OK” key to make it disappear; press and hold the key again to display it;

C. Unit operating status;

D. Current status of unit - "Defrost ";

E. "WIFI" status;

F. Current operating mode of the unit.

3.2.2 Instructions for Key Functions

A. “ON/OFF” key: Press this key to display the screen as shown in Figure 1;

B. "MENU(long press)" key: Press this key to display the screen shown in Figure 3; long press to enter the mode switching screen (Figure 4 – password screen). After entering the correct password, return to the main screen; long press again to switch modes;

C. "Up/ Down" key: Used to modify parameters, scroll up/down, or adjust the set temperature. Enter the password screen shown in Figure 5 for temperature setting. Enter the correct password to return to the main screen for the temperature setting.

D. "OK" key: Long press to enable the “Child Lock” function; long press again to disable it. When the “Fault” icon appears, double-press this key to enter the fault display screen.

9 Operation Instructions & Fault Code Meanings of Wired Controller

3. Main Screen

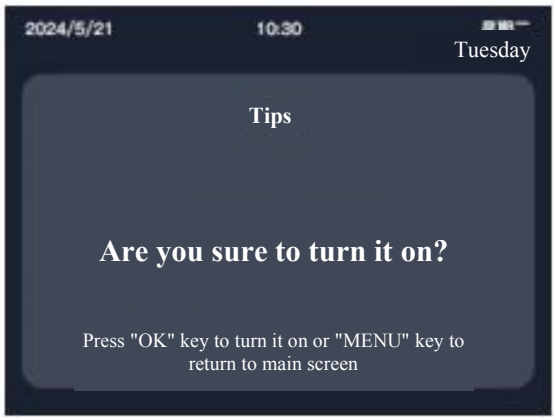


Figure 1

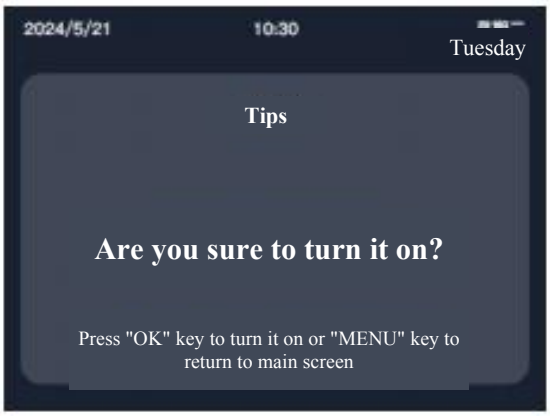


Figure 2

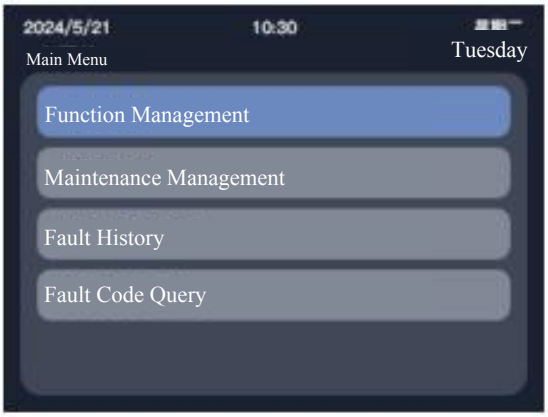


Figure 3

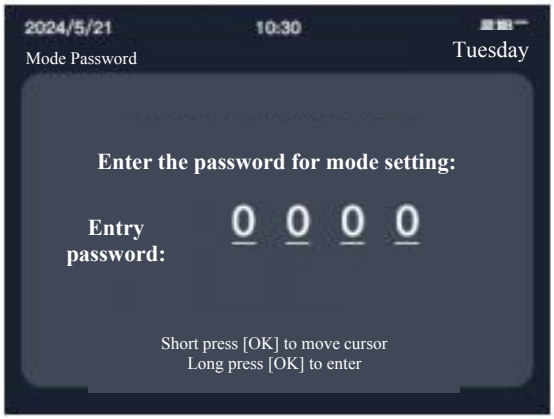


Figure 4

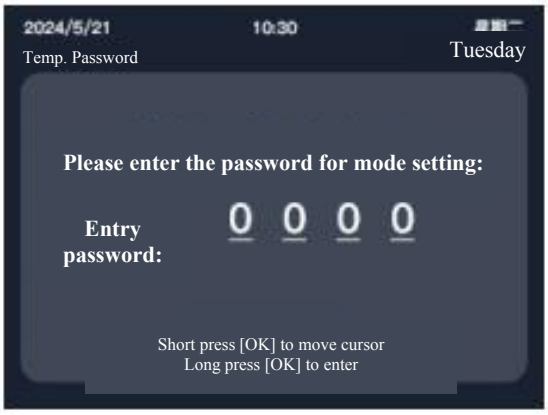
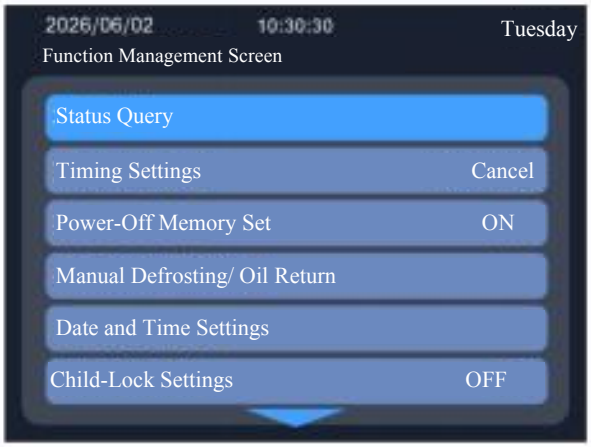
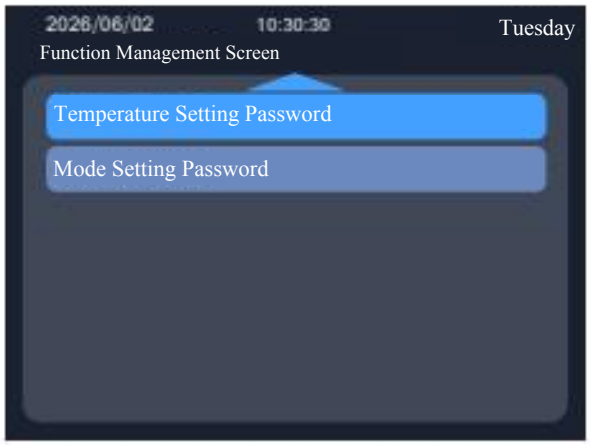


Figure 5

9 Operation Instructions & Fault Code Meanings of Wired Controller

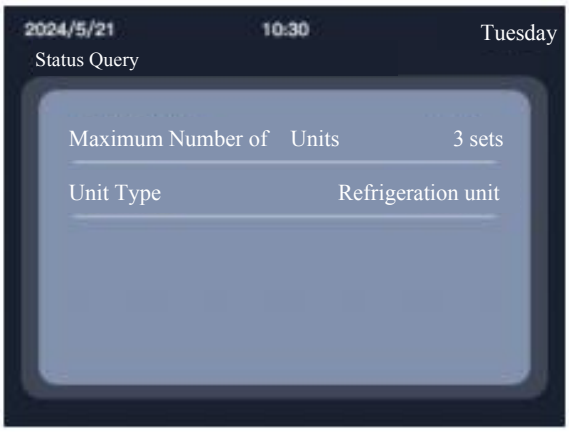
4. Function Management Screen



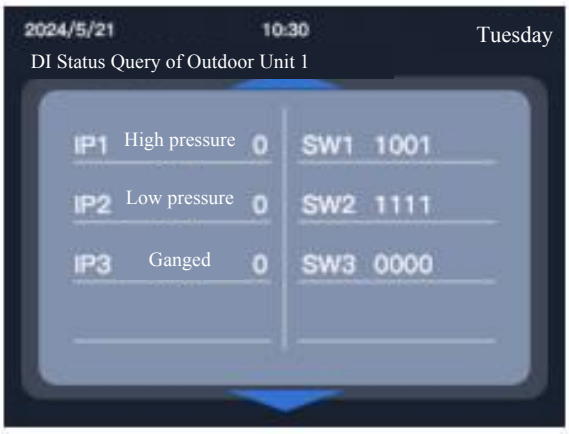


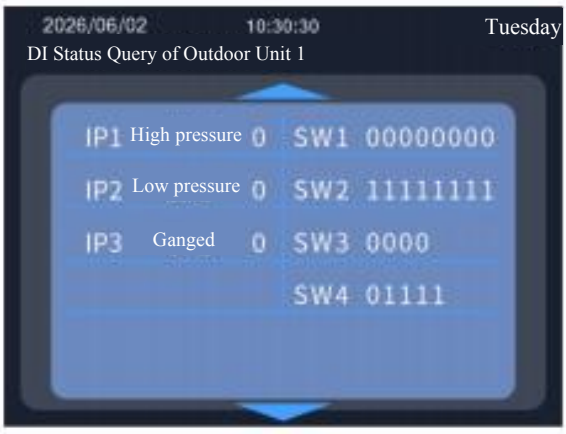
4.1 Status Query

4.1.1 Press the "OK" key to enter the following screen and page through and query the unit status via the “Up/Down” key:

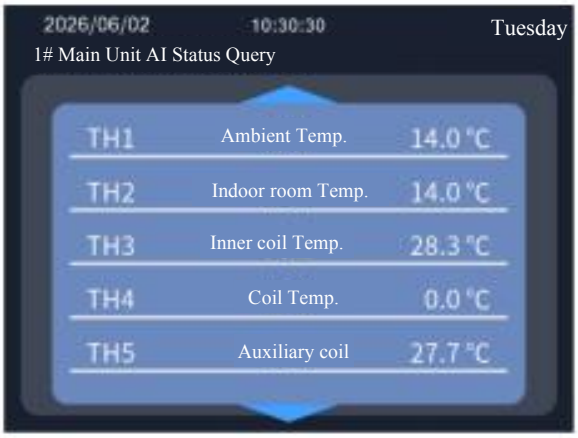


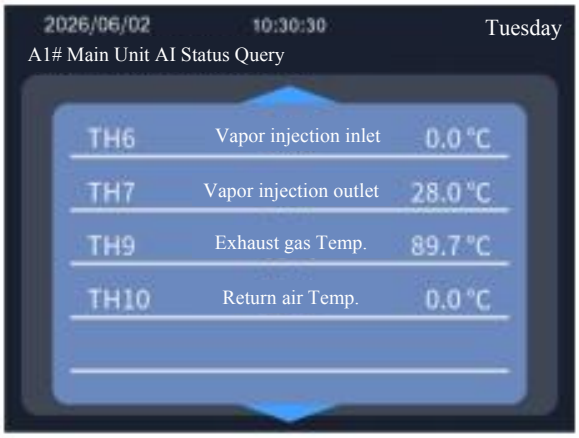


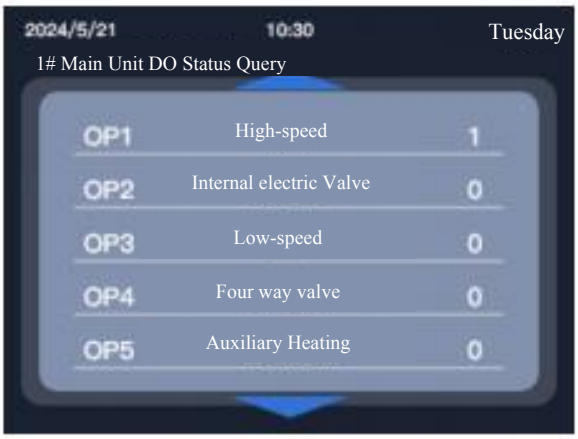




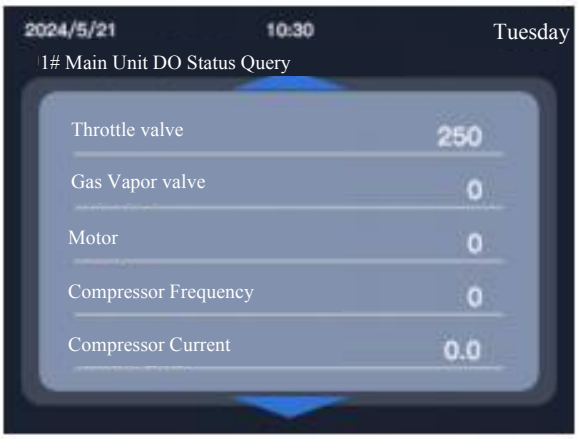
4.1.2 Query the relevant operating parameters and status of the unit in the following screen:



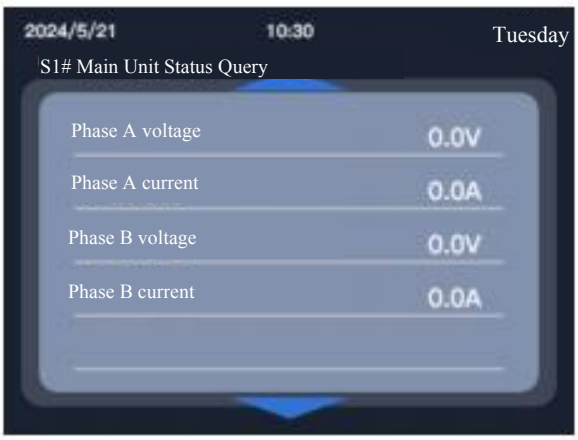


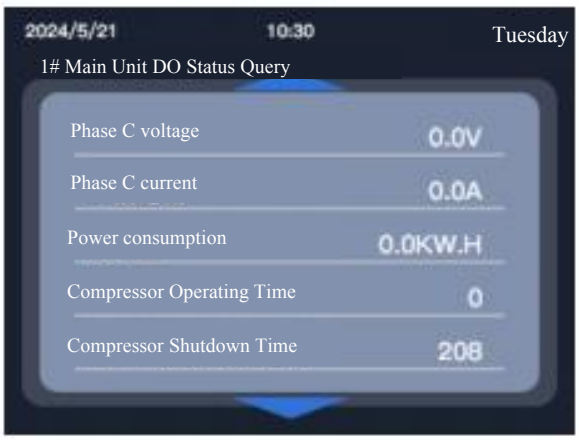












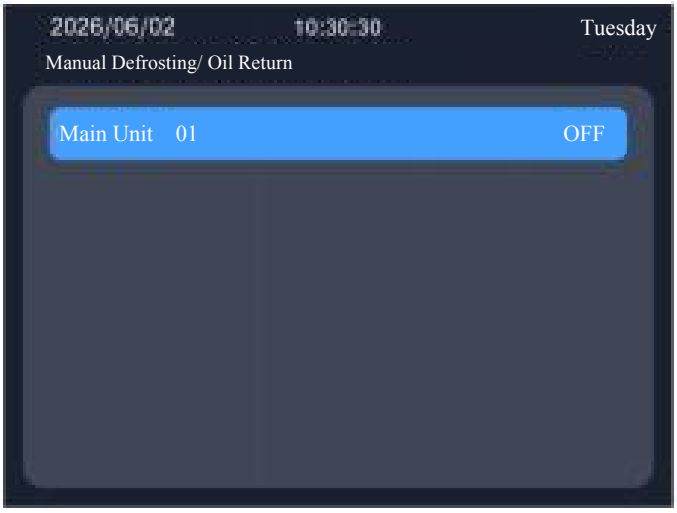
9 Operation Instructions & Fault Code Meanings of Wired Controller

4.2 Power-Off Memory Settings

Press the "OK" key to enable or disable "Power-Off Memory"; then press the "OK" key again to complete the settings of such function.

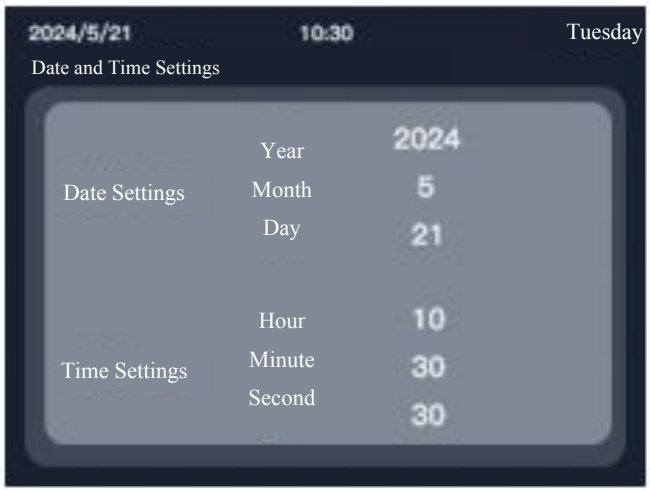
4.3 Manual Defrost / Oil Return Settings

Press the "OK" key to enter the manual defrost / oil return screen for enabling or disabling manual defrost / oil return for the master and slave units. After that, press the "OK" key again to complete the settings.



4.4 Time and Date Settings

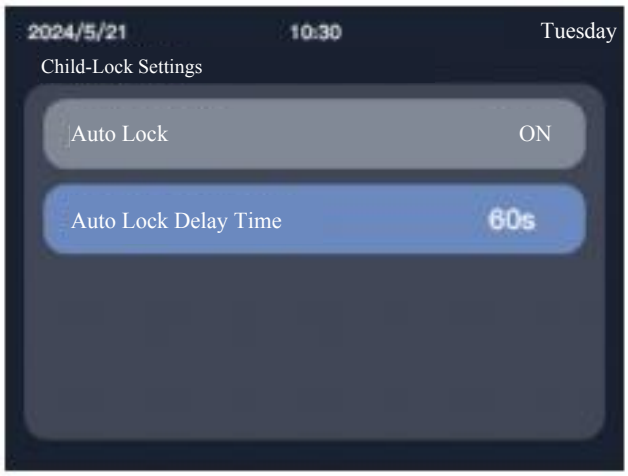
Settings of “Time and Date” are available.



9 Operation Instructions & Fault Code Meanings of Wired Controller

4.5 Child Lock Settings

"Auto Lock": Enabled by default. Press the "OK" key, then the “Up/Down” key to enable or disable it. "Auto Lock Delay Time": 60 seconds by default; press the "OK" key, then the “Up/Down” key to adjust the delay time.



4.6 Password Management

4.6.1 "Temperature Set Password": Press the "OK" key to enter the password resetting screen (as shown in Figure 1 and Figure 2).

4.6.2 "Password for Mode Setting": Press the "OK" key to enter the password resetting screen (as shown in Figure 1 and Figure 2).

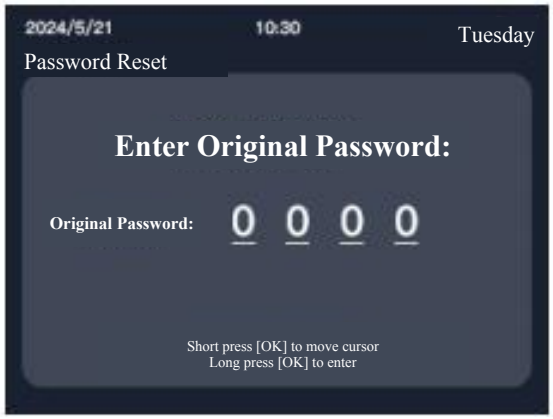


Figure 1

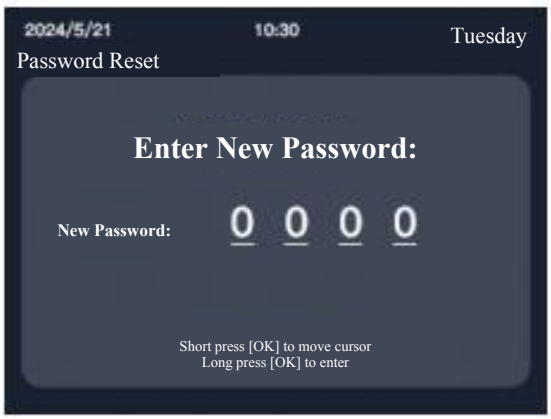
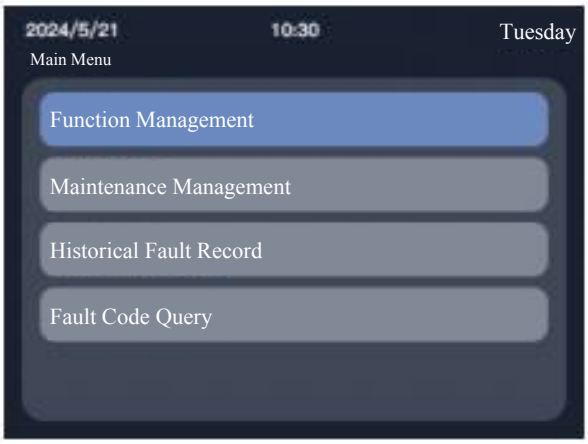


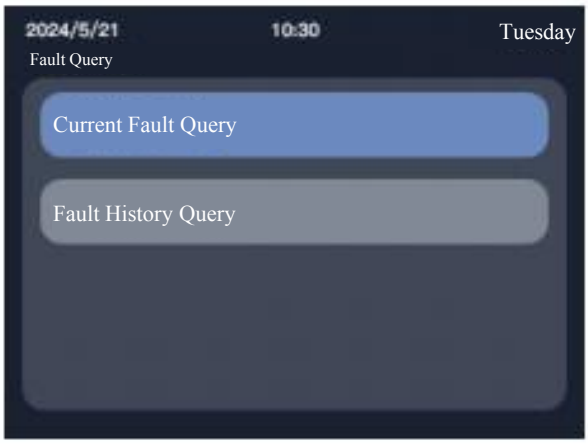
Figure 2

9 Operation Instructions & Fault Code Meanings of Wired Controller

5. Fault History Screen

Select "Fault History" and press the "OK" key to enter the current fault query screen and the fault history query screen. Press the “Up/Down” key to choose the current fault query and history fault query, then press the "OK" key to enter the following screen:



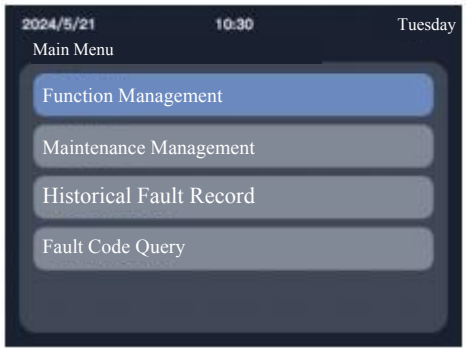






9 Operation Instructions & Fault Code Meanings of Wired Controller

6. Fault Code Query Screen



Select "Fault Code Query" and press the "OK" key to enter the screen displaying the fault code list:

Fault Code	Description	Fault Code	Description
00h	Indoor unit communication fault	57h	Refrigerant leakage fault
01h	Indoor unit EEPROM fault	58h	Outdoor fan Motor fault
03h	Outdoor unit communication fault	61h	Power phase loss protection
05h	Outdoor unit EEPROM fault	71h	Discharge Temperature Overheat Protection
10h	Plate Heat Exchanger - inlet temperature sensor fault	72h	High Load protection
11h (32h)	Indoor coil temperature sensor fault	73h	Input over current protection
12h (31h)	Cold room temperature sensor fault	74h	Indoor Coil freeze protection
13h	Evaporator temperature sensor fault	75h	Compressor shell overheat protection
17h	Gas shortage or Four-way valve fault	77h	High pressure protection or shell temperature controlling fault
21h	Injection inlet temperature sensor fault	81h	PFC module Anomaly protection
22h	Injection outlet temperature sensor fault	82h	Total power Anomaly protection
24h	Suction temperature sensor fault	83h	Current detection circuit fault / compressor
25h	Discharge pressure sensor fault	90h	Compressor drive communication fault
26h	Suction pressure sensor fault	91h	Compressor IPM Module Anomaly protection
34h	DIP switch setting Fault	92h	Compressor phase loss protection
35h	Outdoor Ambient temperature sensor fault	93h	Compressor out of synchronization
36h	Outdoor coil temperature sensor fault	94h	Compressor DC bus over voltage
37h	Discharge temperature sensor fault	95h	Compressor over current
40h	Low pressure protection	96h	Compressor DC Bus Under voltage
55h	Compressor start failure	97h	Compressor AC input power Anomaly
56h	Pipe sensor installation fault		

10 Safety Precautions for Installation and Maintenance

1. Unpacking Inspection

● Unpack and inspect the refrigeration unit in a well-ventilated area. No ignition sources are permitted during the inspection.

● During unpacking inspection of the outdoor unit, check for refrigerant leakage. If leakage is found, the refrigeration unit must not be installed.

● Check the unit for any signs of impact damage and ensure the appearance is in good condition.

2. Inspection of Installation Site

● Verify that the refrigerant indicated on the outdoor unit nameplate is R410a (or R32).

● The unit should be installed in a well-ventilated environment.

● Check the surroundings of the installation site to ensure there is no risk of flammable or ignition sources.

3. Installation Process Control

● Open flames are prohibited, including welding and smoking. Do not use mobile phones. The user shall be informed not to cook with open flames. It is recommended that appliances that emit radiation (e.g., televisions, microwave ovens) be kept off.

● In dry seasons, take anti-static measures, such as wearing pure cotton clothing and pure cotton gloves.

● The leak detector should work during the installation process.

● If refrigerant leakage occurs during installation, immediately open doors and windows to ventilate the room. Measure the refrigerant concentration in the room until it reaches a safe level. If the leakage affects the performance of the Refrigeration Unit, stop it immediately. The unit must be returned to a service center for handling. Do not perform welding or other pipe repairs at the user's premises.

4. Qualification Requirements for Service Personnel

● All service personnel or those working on the refrigerant circuit shall hold a valid certificate from an industry-recognized assessment body, certifying that they have the qualifications required by industry-recognized assessment codes for safe handling of refrigerants.

● The maintenance and repair of the unit can only be carried out in accordance with the methods recommended by the manufacturer. If other professionals are required to assist in maintenance and repair, such work shall be performed under the supervision of a person qualified to work with flammable refrigerants.

5. Site Inspection

● Before service of the refrigeration unit with a flammable refrigerant, a safety check must be performed to minimize the risk of ignition. During the maintenance of the refrigeration system, the precautions described below shall be followed before any operation on the system.

6. Work Procedure

● Work shall be carried out under a controlled procedure to minimize the risk of flammable gas or vapor being present during the work.

(1) General work area

● All service personnel and others in the work area shall be informed of the nature of the work. Work in confined spaces should be avoided. The work areas shall be appropriately isolated and the working conditions within the area kept safe by controlling flammable materials.

(2) Check for presence of refrigerant

● Before and during work, the area shall be monitored for presence of refrigerant with an appropriate refrigerant detector to ensure that technicians are aware of the possible presence of flammable gas. Ensure that the leak detection equipment used is suitable for flammable refrigerants (e.g., non-sparking, adequately sealed, or intrinsically safe).

(3) Placement of fire extinguisher

● A suitable fire extinguisher shall be kept nearby when hot work is performed on the refrigeration system or related parts. A dry powder or CO_2 fire extinguisher shall be provided in the refrigerant charging area.

(4) No ignition sources

● No form of ignition source that could cause fire or explosion shall be used when working on exposed piping that contains or has contained a flammable refrigerant. All ignition sources, including smoking, shall be kept away from the installation, repair, removal, and disposal area where there is a possibility that flammable refrigerant may be released into the surrounding environment. Before starting work, check the area around the unit to ensure there is no risk of flammable or ignition sources. "No Smoking" sign should be set up in the work area.

(5) Ventilated area (doors and windows open)

● Ensure that the work area is open or adequately ventilated before opening the system or performing hot work. Keep the area well-ventilated throughout the work. Ventilation will safely dilute the leaked refrigerant and quickly release it into the atmosphere.

(6) Check of refrigeration equipment

● If electrical components are replaced, they shall be installed according to their intended use and correct operating instructions. At all times, the manufacturer's maintenance and service guidelines shall be followed. If you have any questions, please consult the technical department of the manufacturer.

For Refrigeration Units using flammable refrigerants, the following checks shall be conducted:

a. The charge amount shall be determined according to the size of the room where components containing refrigerant are installed.

b. Ventilation equipment shall operate properly, and air vents shall be unobstructed.

c. If an indirect refrigeration circuit is used, check whether refrigerant is present in the secondary circuit.

d. The label on the Refrigeration Unit should be clearly visible. Illegible marks and symbols shall be corrected.

e. Refrigerant piping or electrical components shall not be installed in an environment that may contain substances corrosive to refrigerant-containing components, unless the electrical components themselves are made of corrosion-resistant material or are provided with suitable anti-corrosion protection.

(7) Check of electrical devices

● The repair and maintenance of electrical components should start with the initial safety inspection and component inspection. If a safety-related defect is found, the appliance shall be disconnected from the power supply until the defect is properly addressed. If the defect cannot be completely resolved and continued operation is necessary, a suitable temporary solution shall be adopted. Report this situation to the appliance owner and warn all relevant personnel.

The initial safety check shall include: a) Capacitor discharge – it shall be carried out in a safe manner to avoid sparking; b) No exposed electrical components or wires during charging, recovery and cleaning of the system; c) Continuity of grounding.

7. Cables

● Check cables for wear, corrosion, over pressure, vibration, sharp edges or other adverse environmental effects. This inspection should also take into account the effects of aging or continuous vibration of compressors and fans on the cables.

8. Check for flammable refrigerant

● Refrigerant leakage inspection should be carried out in an environment free of potential ignition sources. Halogen probes (or any other detectors that use an open flame) shall not be used.

9. Leakage detection methods

● For systems containing flammable refrigerants, the following leak detection methods are acceptable:

● Electronic leak detectors may be used for the detection of flammable refrigerants, but their sensitivity may be insufficient, or they may be recalibrated. (The calibration shall be performed in a refrigerant-free environment.) Ensure that the leak detector is not a potential ignition source and is suitable for the refrigerant being detected. The leak detector shall be set to the lowest flammable concentration of the refrigerant (as a percentage), calibrated with the refrigerant used, and adjusted to the range for appropriate gas concentration test (up to 25%).

● Fluids used for leak detection are suitable for most refrigerants, but chlorine-containing solvents shall not be used to avoid reaction between chlorine and the refrigerant and corrosion of copper piping.

● If a leak is suspected, all open flames shall be removed from the area or extinguished.

● If a leak is found at a location that requires brazing, all refrigerant shall be recovered or completely isolated in a part of the system away from the leak point (using shut-off valves). Before and during brazing, the entire system shall be purged with oxygen-free nitrogen (OFN).

10. Removal and evacuation

● The maintenance or other operations on the refrigeration system should be implemented according to the regular procedures. However, special attention shall be paid to the flammability of the refrigerant, and the following procedure shall be adopted:

(1) Remove the refrigerant.

(2) Purge the piping with inert gas.

(3) Evacuate.

(4) Purge again with inert gas.

(5) Cut the piping or perform brazing. The system shall be flushed with oxygen-free nitrogen to ensure safety.

● The refrigerant shall be recovered into a suitable storage cylinder. The system should be purged with oxygen-free nitrogen to ensure safety. This process may need to be repeated several times. Compressed air or oxygen shall not be used for this work.

● The purging process consists of charging oxygen-free nitrogen into the system (while under vacuum) to reach working pressure, then discharging the nitrogen to the atmosphere, and finally pulling the system into vacuum again. This process shall be repeated until all the refrigerant in the system is removed. After the final charge of oxygen-free nitrogen, discharge the gas to atmospheric pressure, then the system can be brazed. This procedure is necessary when brazing of piping is required.

● Ensure that there are no ignition sources near the outlet of the vacuum pump and that the site is well-ventilated.

10 Safety Precautions for Installation and Maintenance

11. Refrigerant charging procedure

● As a supplement to the normal procedure, the following requirements are added:

● Ensure that contamination of different refrigerants does not occur when using refrigerant charging equipment. Charging hoses shall be as short as possible to minimize the amount of refrigerant remaining inside them. Refrigerant cylinders shall be kept upright. Ensure that the refrigeration system is grounded before charging the refrigerant. After charging the refrigerant (or even if not yet complete), label the system. Take care to avoid overcharge. Before recharging the system, perform a pressure test with oxygen-free nitrogen (OFN). After completing refrigerant charging, perform a leak test before commissioning. Perform another leak test before leaving the area.

12. Decommissioning

● Before carrying out this procedure, the technician shall be fully familiar with the unit and all its characteristics. It is recommended to follow safe practices for refrigerant recovery. If the recovered refrigerant is to be reused, the samples of the refrigerant and oil shall be tested before reuse, and the required power supply is available before testing.

(1) Become familiar with the equipment and its operation.

(2) Disconnect the power supply.

(3) Before performing this procedure, ensure that: mechanical handling equipment is available (if needed) for handling refrigerant cylinders; all personal protective equipment is effective and can be used correctly; the entire recovery process is supervised by a qualified person; recovery equipment and cylinders comply with the relevant standards.

(4) Evacuate the refrigeration system if possible.

(5) If a vacuum cannot be achieved, evacuate from multiple points to extract refrigerant from various parts of the system.

(6) Ensure that the cylinder has sufficient capacity before starting recovery.

(7) Start and operate the recovery equipment according to the manufacturer's operating instructions.

(8) Do not overfill the cylinder (liquid fill shall not exceed 80% of the cylinder capacity).

(9) Do not exceed the cylinder's maximum working pressure, even for a short time.

(10) After the cylinder is filled and the operation is complete, ensure that the cylinder and equipment are removed promptly and that all shut-off valves on the equipment are closed.

(11) Recovered refrigerant shall not be charged into another refrigeration system unless it has been purified and tested.

13. Labelling

● After the appliance has been decommissioned and the refrigerant has been evacuated, it shall be labelled. The label shall include the date and a signature. Ensure that the label on the appliance indicates that the appliance contains a flammable refrigerant.

14. Recovery

● The refrigerant shall be removed from the system before servicing or decommissioning the system. It is recommended to completely remove the refrigerant as far as possible.

● Only dedicated refrigerant cylinders shall be used to storage the refrigerant. Ensure that the cylinder capacity is appropriate for the total refrigerant charge in the system. All cylinders shall be intended for recovery of refrigerant and labelled as such (i.e., dedicated for refrigerant recovery). Cylinders shall be equipped with pressure relief valves and shut-off valves in good condition. If possible, empty cylinders shall be evacuated and kept at ambient temperature before use.

● The recovery equipment shall be kept in good working order, provided with the operating instructions readily available. The equipment shall be suitable for the recovery of flammable refrigerants. In addition, a properly calibrated and functioning weighing scale shall be available. Hoses shall be equipped with leak-free, detachable connectors and shall be in good condition. Before using the recovery equipment, check that it is in good condition, properly maintained, and that all electrical components are sealed to prevent fire in the event of refrigerant leakage. In case of doubt, consult the manufacturer.

● Recovered refrigerant shall be placed in a suitable cylinder and accompanied by transport instructions, then returned to the refrigerant manufacturer. Do not mix refrigerants in the recovery equipment, especially in cylinders.

● Before removal of the compressor or clearing compressor oil, ensure that the compressor has been evacuated to an adequate level so that no flammable refrigerant remains in the oil. Evacuation shall be carried out before the compressor is returned to the supplier. Only electric heating is allowed to heat the compressor housing to speed up this process. When oil is drained from the system, it shall be done safely.

4G Provisioning Guide

Note: Some models are equipped with a 4G function. Please refer to the actual product purchased for details.

This manual contains the 4G Provisioning Guide. Please keep it properly for future reference.

Thank you for choosing the PRIMST inverter refrigeration unit. The wired controller of the PRIMST inverter refrigeration is equipped with a 4G module, which, working with a smartphone, allows the use of the PRIMST APP and the PRIMST Smart WeChat Mini Program to remotely control the unit. Before use, ensure that your mobile phone and the 4G network are functioning properly!

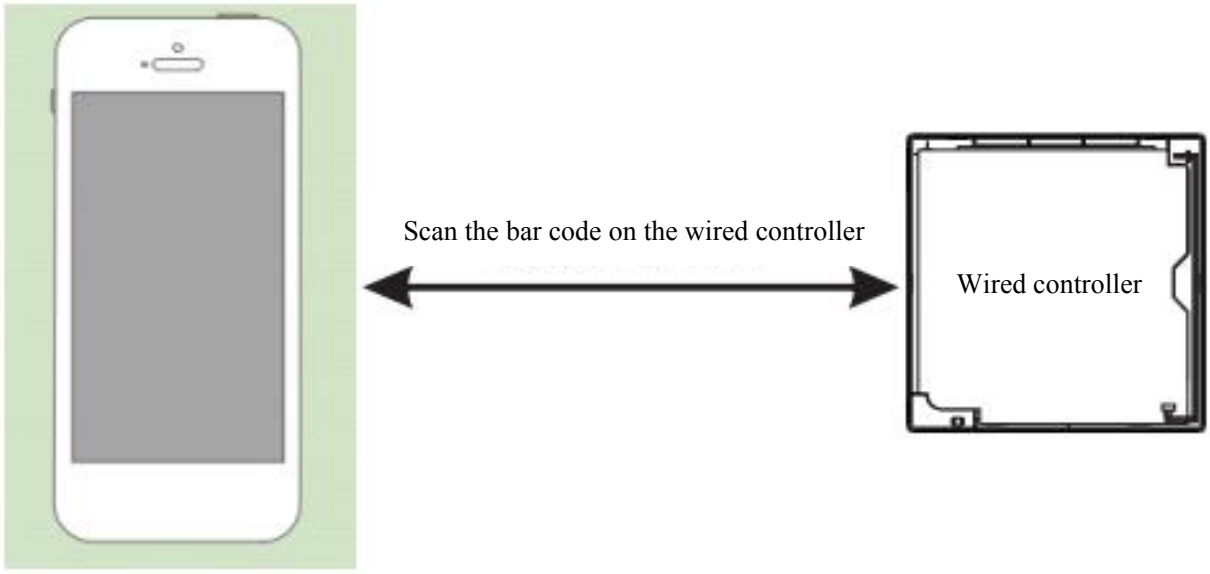
This section provides instructions for the 4G control of the PRIMST inverter refrigeration unit.

Precautions for Use

1. Ensure that the 4G network signal is strong.
2. Ensure that the 4G bar code is intact.
3. Ensure sufficient data traffic is available.
4. For more information and service, please contact the customer service department.

4G Framework Diagram of PRIMST inverter refrigeration Unit.

Open the APP or WeChat Mini Program in your mobile phone



4G Provisioning Guide

PRIMST Smart

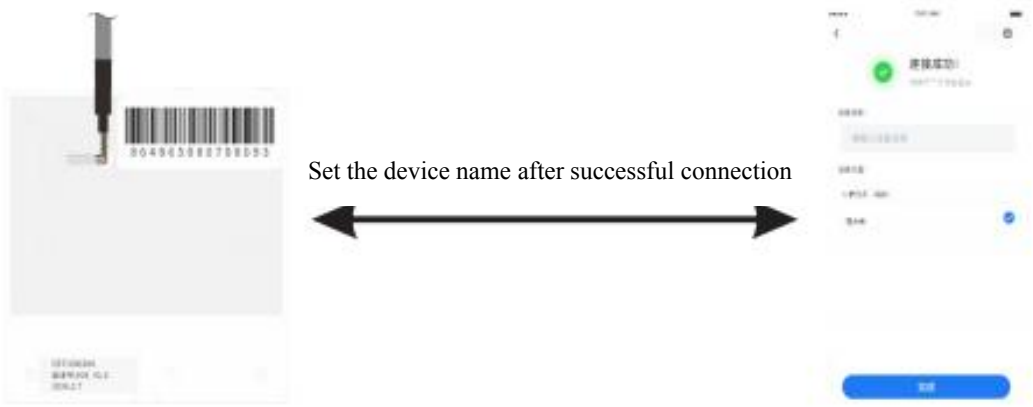
1. Download the APP

Please download and install the "PRIMST Smart" APP according to the instructions.

1) For Android users, please search for "PRIMST Smart" in the Store.

2) For iOS users, please search for "PRIMST Smart" in the Apple App Store.

2. After scanning the barcode on the back of the wired controller and successful connection, set the device name.



Packing List

S/N	Name	Unit	Quantity	Remarks
1	Outdoor unit	Unit	1	
2	Indoor unit	Unit	1	
3	Wired controller (with connecting wires)	Piece	1	
4	Pipe nut	Set	2	
5	Sensor connecting wire	Piece	1	

Note: Standard accessories may vary by product. Please refer to the actual product purchased.