ALPICAIR

Owner's Manual

Original Instructions

DC Inverter Multi VRF System

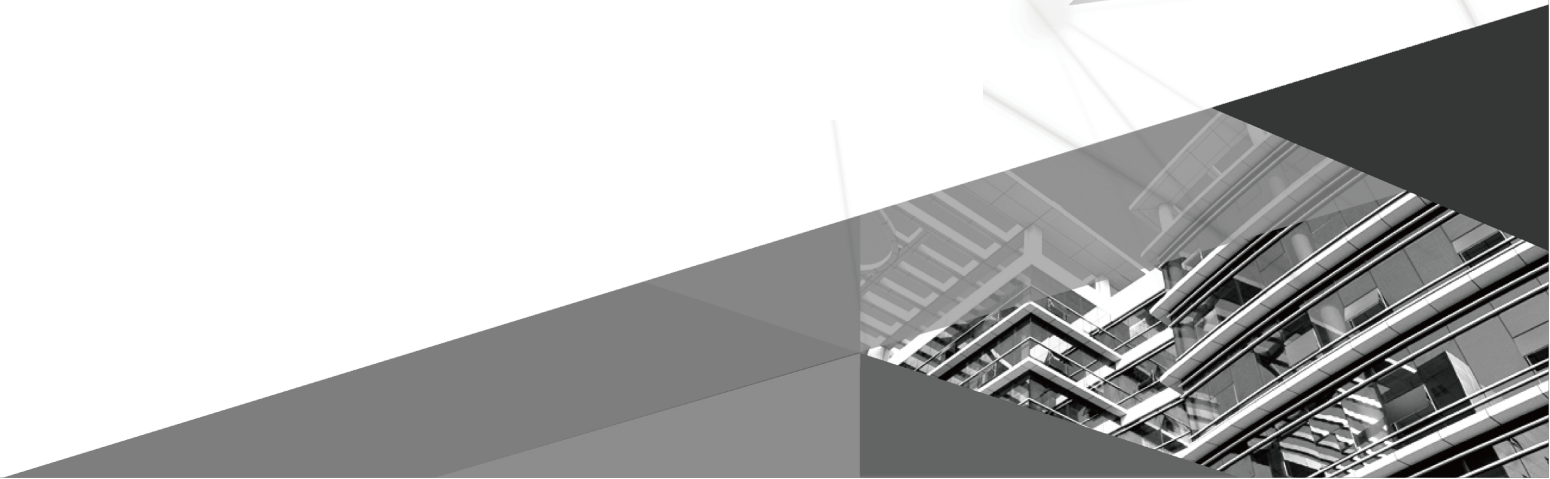
Models:

AOU-120VRDC1C

AOU-140VRDC1C

AOU-160VRDC1C

Thank you for choosing this product. Please read this Owner's Manual carefully before operation and retain it for future reference.



To Users

Thank you for selecting our product. Please read this instruction manual carefully before installing and using the product, so as to master and correctly use the product. In order to guide you to correctly install and use our product and achieve expected operating effect, we hereby instruct as below:

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

(2) In order to ensure reliability of product, the product may consume some power under stand-by status for maintaining normal communication of system and preheating refrigerant and lubricant. If the product is not to be used for long, cut off the power supply; please energize and preheat the unit in advance before reusing it.

(3) Please properly select the model according to actual using environment; otherwise it may impact the using convenience.

(4) This product can’t be installed at corrosive, inflammable or explosive environment or the place with special requirements, such as kitchen. Otherwise, it will affect the normal operation or shorten the service life of the unit, or even cause fire hazard or serious injury. As for above special places, please adopt special air conditioner with anti-corrosive or anti-explosion function.

(5) If the product needs to be installed, moved or maintained, please contact our designated dealer or local service center for professional support. Users should not disassemble or maintain the unit by themselves, otherwise it may cause relative damage, and our company will bear no responsibilities.

(6) All the illustrations and information in the instruction manual are only for reference. In order to make the product better, we will continuously conduct improvement and innovation. If there is adjustment in the product, please subject to actual product.

Exception Clauses

Manufacturer will bear no responsibilities when personal injury or property loss is caused by the following reasons:

(1) Damage the product due to improper use or misuse of the product.

(2) Alter, change, maintain or use the product with other equipment without abiding by the instruction manual of manufacturer.

(3) After verification, the defect of product is directly caused by corrosive gas.

(4) After verification, defects are due to improper operation during transportation of product.

(5) Operate, repair, maintain the unit without abiding by instruction manual or related regulations.

(6) After verification, the problem or dispute is caused by the quality specification or performance of parts and components that produced by other manufacturers.

(7) The damage is caused by natural calamities, bad using environment or force majeure.

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1 Safety Notices (Please Be Sure to Abide)

WARNING: If not abide strictly, it may cause severe damage to the unit or the people.

NOTE: If not abide strictly, it may cause slight or medium damage to the unit or the people.

This sign indicates that the operation must be prohibited. Improper operation may cause severe damage or death to people.

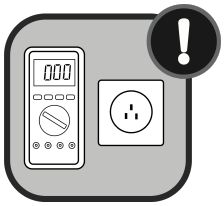
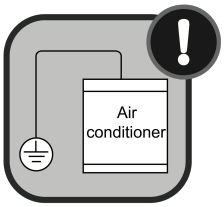
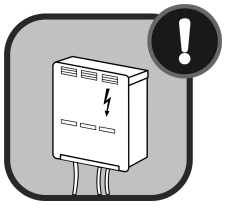
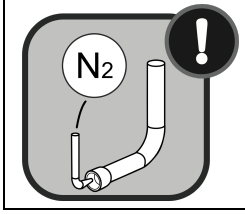
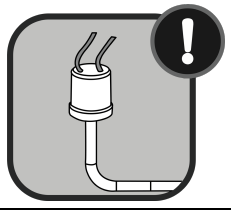
This sign indicates that the items must be observed. Improper operation may cause damage to people or property.

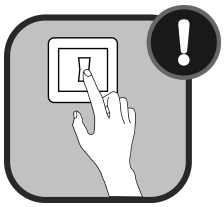
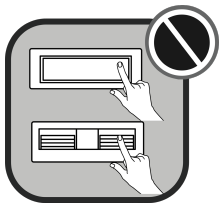
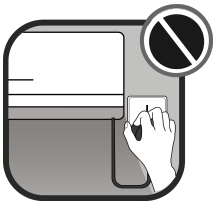
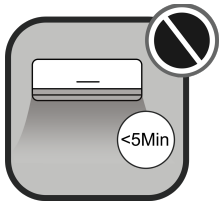
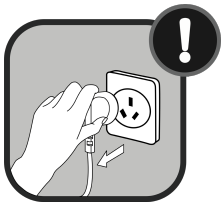
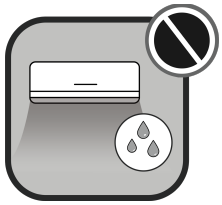
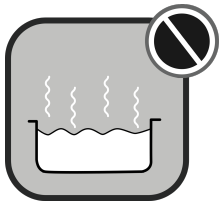
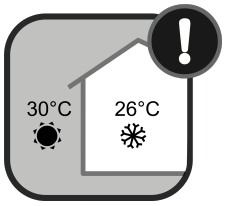
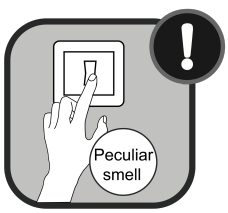
WARNING!

This Multi VRF System shall only be connected to an appliance suitable for the same refrigerant.

All units in Manual Cover is a partial unit, complying with partial unit of EN IEC 60335-2-40:2024 + A11:2024, and must only be connected to other units that have been confirmed as complying to corresponding partial unit requirements of this international standard.

The electrical interface shall comply with electrical security requirement, current shall be referred to the table of "Selection of circuit breaker and power cord." in Section 4.6.1, and safety class of construction is I.

	Please install the unit according to instructions in this manual. Read this manual carefully before starting up or checking the machine.		Installation should be performed by dealer or qualified technicians. Do not install the product by yourself. Improper installation may result in water leakage, electric shock or fire hazard.
	Make sure the local power supply is in accordance with units before installation, and check the power supply carefully.		This air conditioner must be properly grounded through the receptacle to avoid electric shock. The grounding wire shouldn't be connected with gas pipe, water pipe, lightning arrester or telephone line.
	Please use specialized accessories or parts to carry out installation, or water leakage, electric shock, fire hazard may resulted.		If refrigerant leakage happens, please ventilate the room immediately.
	Diameter of power cord must be large enough. Damaged power cord and connecting wire must be replaced by specialized electric cable.		After the power cord is connected, please install the cover of electric box to avoid danger.
	Nitrogen must be charged according to technical requirements.		Short circuit is forbidden. Do not cancel the pressure switch in case the unit may be damaged.

	For units with wired controller, do not connect power supply until the wired controller is well installed. Otherwise, the wired controller cannot be used.		When the installation is finished, please check and make sure the drain pipe, pipeline and electric wire are all well connected in order to avoid water leakage, refrigerant leakage, electric shock or fire hazard.
	Do not extend fingers or objects into air outlet or air return grille.		If you use gas heater or petroleum heater in the same room, please open the door or window to maintain good air circulation in case the room may lack of oxygen.
	Never start or stop the air conditioner by inserting or removing the power cord.		Do not turn off the air conditioner until it runs for at least 5 minutes. Otherwise, oil-return of the compressor will be affected.
	Children are not allowed to operate the air conditioner.		Do not operate the air conditioner with wet hands.
	Please turn the unit off and unplug your air conditioner before cleaning. Otherwise, it may cause electric shock or personal injury.		Do not spray water on the air conditioner or it will cause malfunction or electric shock.
	Do not expose the air conditioner directly to water or place it in a damp or corrosive environment.		Connect power supply 8 hours before operation. Do not disconnect power if you want to stop the unit in a short period of time, e.g. in one night (This is for protecting the compressor).
	Volatile liquid like thinner or gasoline will damage the appearance of air conditioner. Please use soft dry cloth or wet cloth with mild detergent to clean the outer case of air conditioner.		During Cooling mode, indoor temperature should not be set too low. Keep the difference between indoor temp and outdoor temp within 5°C.
	If abnormal condition occurs (e.g. unpleasant smell), please turn off the unit at once and disconnect power supply. Then contact our designated dealer or local service center. If the air conditioner continues to operate despite of abnormal condition, the unit may be damaged and it may cause electric shock or fire hazard).		Do not repair the air conditioner by yourself. Improper repair will cause electric shock or fire hazard. Please contact our designated dealer or local service center and have it repaired by professional technicians.

Install units according to national wiring codes.
If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.
An all-pole disconnection device which has at least 3mm clearances in all poles, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

WARNING!
(1) Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
(2) The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
(3) Do not pierce or burn.
(4) Be aware that refrigerants might not contain an odour.
(5) This unit is equipped with electrically powered safety measures. To be effective, the unit must be electrically powered at all times after installation, other than when servicing.
(6) This unit is equipped with a leak detection system for safety. For leak detection to be effective, the unit must be electrically powered at all times after installation, other than when servicing.
(7) Keep any required ventilation openings clear of obstruction.
(8) Precautions shall be taken to avoid excessive vibration or pulsation to refrigerating piping.
(9) Protection devices, piping and fittings shall be protected as far as possible against adverse environmental effects, for example, the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris.
(10) Provision shall be made for expansion and contraction of long runs of piping.
(11) Piping in refrigerating systems shall be so designed and installed to minimize the likelihood hydraulic shock damaging the system.
(12) Steel pipes and components shall be protected against corrosion with a rustproof coating before applying any insulation.

If the product needs to be installed, moved or maintained, please contact our designated dealer or local service center for professional support, otherwise out company would bear no legal reliability for the related damages arising therefrom.

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

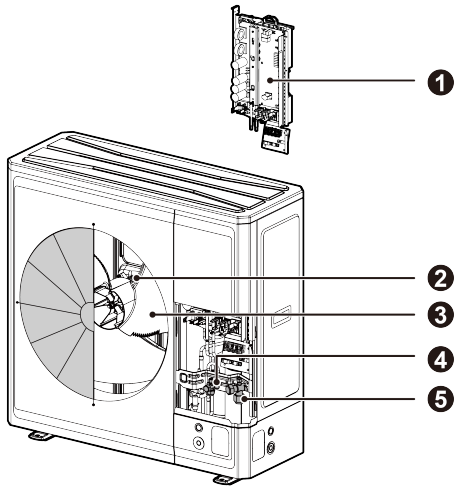


Correct Disposal of this product

This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

2 Product Introduction

2.1 Names of Main Parts



❶ Electric box assembly
❷ Motor
❸ Fan blade
❹ Liquid pipe valve
❺ Gas pipe valve

Fig. 1

2.2 Combinations of Indoor and Outdoor Units

(1) See below the number of indoor units that can be connected to the outdoor unit.

(2) The total capacity of indoor units should be within 50%~135% of that of the outdoor unit.

Model	Max sets of connectable IDUs
AOU-120VRDC1C	7
AOU-140VRDC1C	8
AOU-160VRDC1C	9

(3) Can be connected to various indoor units. When any one of the indoor units receives operating command, outdoor unit will start operation as per required capacity. When all indoor units stop, outdoor unit will be shut off.

2.3 Operating Range

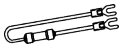
Cooling	Outdoor temperature: -5°C~55°C
Heating	Outdoor temperature: -20°C~27°C

3 Preparation before Installation

NOTES! Graphics here are only for reference. Please refer to actual products. Unspecified dimensions are all in mm.

3.1 Standard Parts

Please use the supplied standard parts as required.

Parts for Outdoor Unit				
No.	Name	Appearance	Qty	Remark
1	User Manual		1	—
2	Wiring (match with resistance)		1	Must be connected to the last IDU of communication connection

Parts for Outdoor Unit				
No.	Name	Appearance	Qty	Remark
3	Chassis gluey plug		3	—
4	Drainage joint		1	—
5	Magnetic ring		2	—

NOTES! Some accessories are not available for some models. Please refer to the present product for details.

3.2 Installation Site

(1) Select a location which is strong enough to hold unit's weight so that unit can stand still and erect.

(2) The installation position should withstand strong wind, typhoon and earthquake. The unit must be installed stably.

(3) Please keep the unit away from inflammable, explosive and corrosive gas or waste gas.

(4) Make sure the location has space for heat exchange and maintenance so that unit can operate reliably with good ventilation.

(5) ODU and IDU should stay as close as possible to shorten the length of refrigerant pipe and reduce bend angles.

(6) Select a location which is out of children's reach. Keep the unit away from children.

If the ODU is totally surrounded by walls, please refer to the following figures for space dimension:

Unit: mm

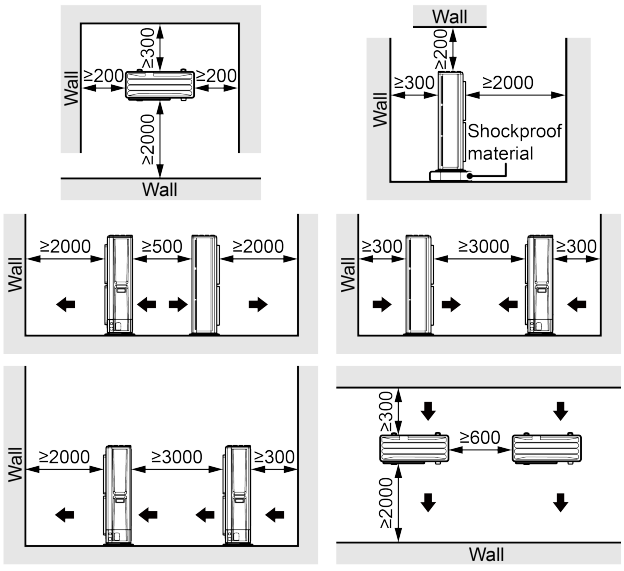


Fig. 2

3.3 Piping Work Requirements

Refer to the table below for piping work requirements:

R410A Refrigerant System	
Outer diameter (mm)	Wall thickness (mm)
Φ6.35	≥0.8
Φ9.52	≥0.8
Φ12.7	≥0.8
Φ15.9	≥1.0
Φ19.05	≥1.0

4 Installation Instruction

NOTES! Graphics here are only for reference. Please refer to actual products. Unspecified dimensions are all in mm.

4.1 Dimension of Outdoor Unit and Mounting Hole

Unit Outline and Installation Dimension(mm).

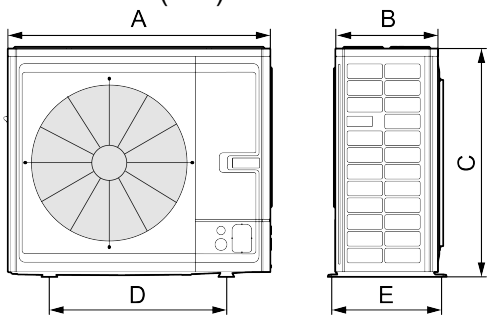


Fig. 3

Unit: mm

Model	A	B	C	D	E
AOU-120VRDC1C, AOU-140VRDC1C , AOU-160VRDC1C	990	370	955	755	395

4.2 Connection Pipe

4.2.1 Schematic Diagram of Piping Connection

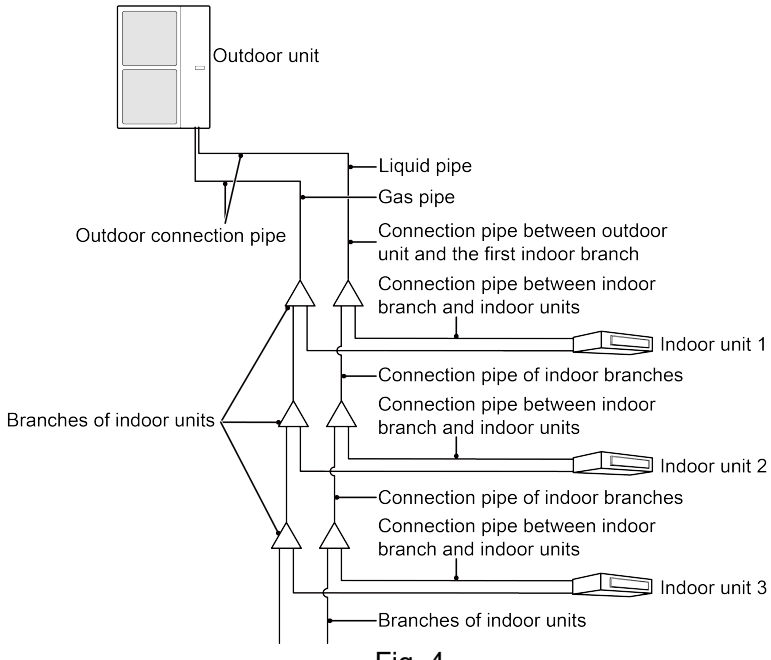


Fig. 4

4.2.2 Allowable Length and Height Difference of Connection Pipe

Y type branch joint is adopted to connect indoor and outdoor units. Connecting method is shown in the figure below:

NOTES! Equivalent length of one Y-type branch is 0.5m.

Unit: m

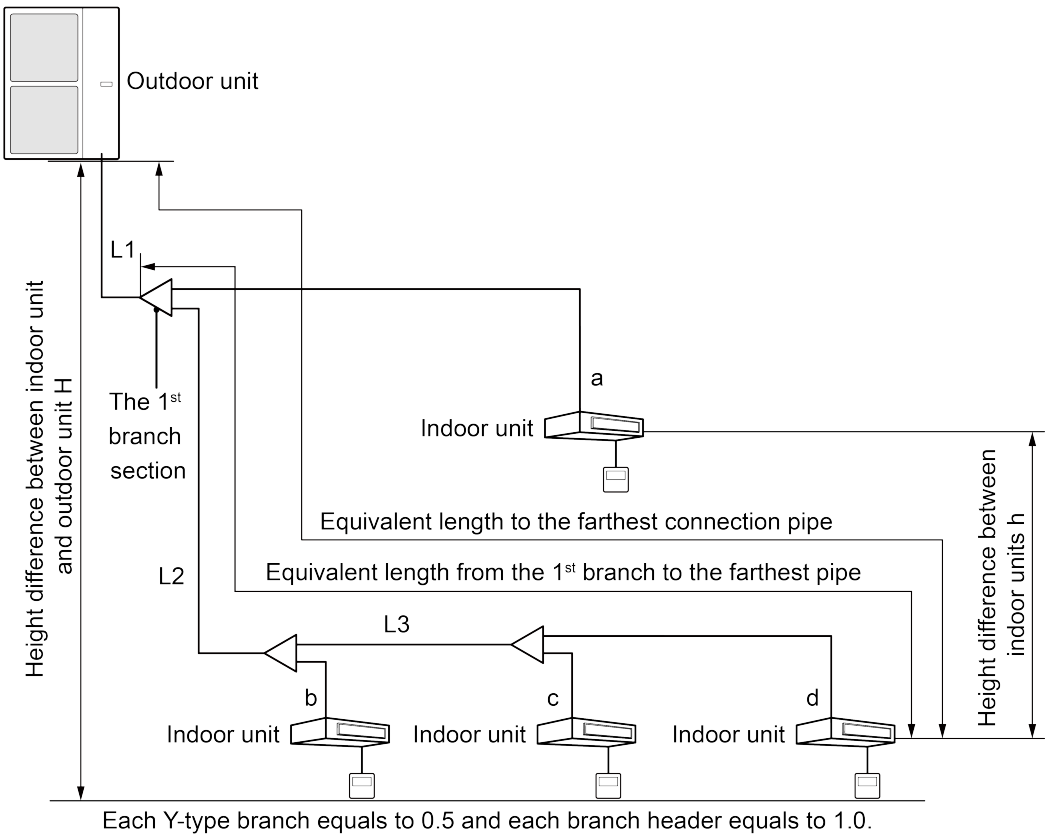


Fig. 5 Allowable Length and Height Difference of Connection Pipe

—		Allowable value	Fitting pipe
Total length (actual length) of fitting pipe		120m	L1+L2+L3+a+b+c+d
Length of farthest fitting pipe (Actual length)		60m	L1+L2+L3+d
From the 1st branch to the farthest indoor pipe		30m	L2+L3+d
Height difference between ODU and IDU	ODU at upper side	30m	—
	ODU at lower side	20m	—
Height difference between IDUs		10m	—

4.2.3 Dimension of Pipe (Main Pipe) from ODU to the 1st Indoor Branch

Dimension of pipe from ODU to the 1st indoor branch will be determined by the dimension of outdoor connection pipe.

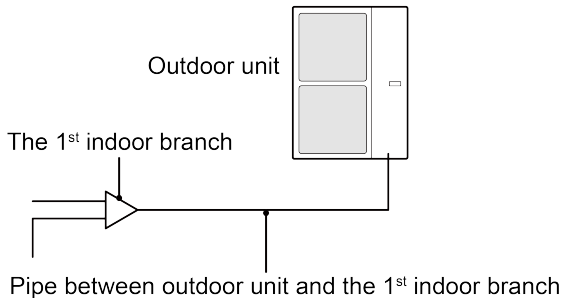


Fig. 6

Dimension of outdoor connection pipe.

Basic module	Pipe dimension	
	Gas pipe (mm)	Liquid pipe (mm)
AOU-120VRDC1C	Φ15.9	Φ9.52
AOU-140VRDC1C	Φ15.9	Φ9.52
AOU-160VRDC1C	Φ19.05	Φ9.52

4.2.4 Selection of Indoor Branches

Select indoor branches according to the total capacity of downstream indoor units. If the capacity exceeds that of the outdoor unit, capacity of outdoor unit prevails.

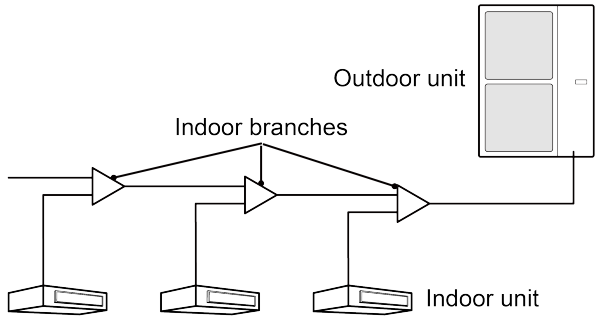


Fig. 7

R410A Refrigerant system	Total capacity of downstream indoor units X(kW)	Model
Y type branch	X<20	FQ01A/A
	20≤X≤30	FQ01B/A
	30<X≤70	FQ02/A
	70<X≤135	FQ03/A
	135<X	FQ04/A

4.2.5 Dimension of Pipe between Indoor Branches

Select pipe between indoor branches according to the capacity of downstream indoor units; if the capacity exceeds that of the outdoor unit, capacity of outdoor unit prevails.

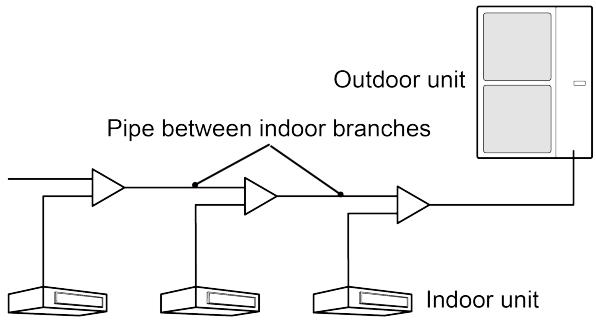


Fig. 8

Total capacity of downstream indoor units C (kW)	Gas pipe (mm)	Liquid pipe (mm)
C≤5.6	Φ12.7	Φ6.35
5.6<C≤14.2	Φ15.9	Φ9.52
14.2<C≤22.4	Φ19.05	Φ9.52

4.2.6 Dimension of Pipe between Indoor Branch and IDU

Dimension of pipe between indoor branch and IDU should be consistent with the dimension of indoor pipe.

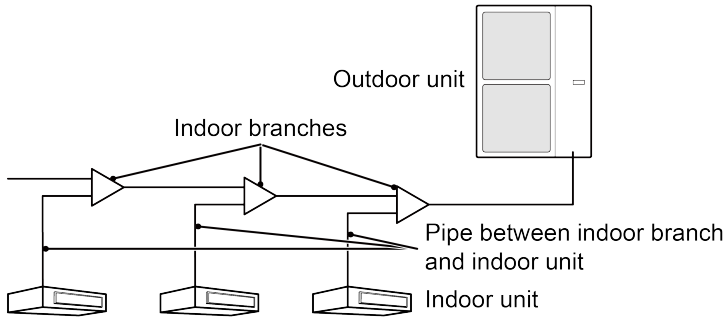


Fig. 9

Rated capacity of IDU C(kW)	Gas pipe (mm)	Liquid pipe (mm)
C≤2.8	Φ9.52	Φ6.35
2.8<C≤5.0	Φ12.7	Φ6.35
5.0<C≤14.0	Φ15.9	Φ9.52
14.0<C≤16.0	Φ19.05	Φ9.52
16.0<C≤28.0	Φ22.2	Φ9.52

NOTE! If the distance between IDU and its nearest branch is over 10m, then the liquid pipe of IDU (rated capacity ≤5.0kW) shall be enlarged.

4.3 Installation of Connection Pipe

4.3.1 Precautions for the Installation of Connection Pipe

(1) Conform to the following principles during pipe connection: Connection pipe should be as short as possible, so is the height difference between indoor and outdoor units. Keep the number of bends as little as possible. Radius of curvature should be as large as possible.

(2) Weld the connection pipe between indoor and outdoor units. Please strictly follow the requirements for welding process. Rosin joint or pin hole is not allowed.

(3) Radius of bending parts should be over 200mm. Note that pipes cannot be repeatedly bent or stretched; otherwise the material will get harder. Do not bend or stretch the pipe for more than 3 times at the same position.

4.3.2 Flaring Process

(1) Use pipe cutter to cut the connection pipe in case it is unshaped.

(2) Keep the pipe downward in case cutting scraps get into the pipe. Clear away the burrs after cutting.

(3) Remove the flared nut connecting indoor connection pipe and outdoor unit. Then use flaring tool to fix the flared nut into the pipe (as shown in Fig. 10).

(4) Check if the flared part is flaring evenly and if there is any crack.

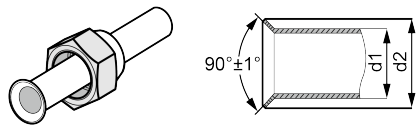


Fig. 10

4.3.3 Pipe Bending

(1) Reshape the pipe by hand. Be careful not to damage the pipe.

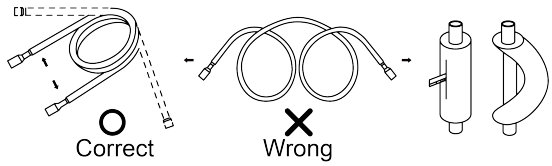


Fig. 11

(2) Do not bend the pipe over 90°.

(3) If pipe is repeatedly bent or stretched, it will get hard and difficult to bend and stretch again. Therefore, do not bend or stretch the bend for over 3 times.

(4) In case that direct bending will open cracks to the pipe, first use sharp cutter to cut the insulating layer, as shown in Fig. 11. Do not bend the pipe until it is exposed. When bending is done, wrap the pipe with insulating layer and then secure it with adhesive tape.

4.3.4 Indoor Pipe Connection

(1) Remove pipe cover and pipe plug.

(2) Direct the flared part of copper pipe to the center of screwed joint. Twist on the flared nut tightly by hand, as in Fig. 12 (Make sure indoor pipe is correctly connected. Improper location of the center will prevent flared nut from being securely twisted. Thread of nut will get damaged if the flared nut is twisted forcibly).

(3) Use torque wrench to twist on the flared nut tightly until the wrench gives out a click sound (Hold the handle of wrench and make it at right angle to the pipe. as in Fig. 13).

(4) Use sponge to wrap the un-insulated connection pipe and joint. Then tie the sponge tightly with plastic tape.

(5) Connection pipe should be supported by a bearer rather than the unit.

(6) The bending angle of piping should not be too small, otherwise the piping might have cracks. Please use a pipe bender to bend the pipe.

(7) When connecting IDU with connection pipe, do not pull the big and small joints of IDU with force in case the capillary tube or other tubes have cracks and cause leakage.

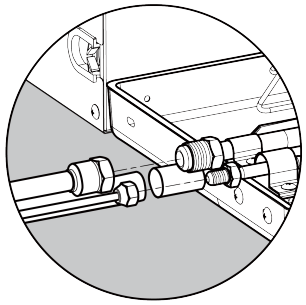


Fig. 12

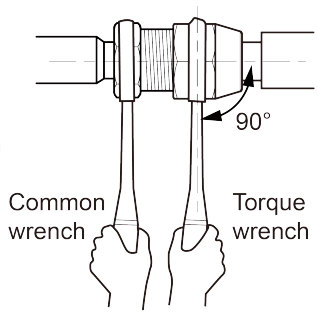


Fig. 13

Pipe dimension	Tightening torque
Φ6.35mm	15~30(N·m)
Φ9.52mm	35~40(N·m)
Φ12.7mm	45~50(N·m)
Φ15.9mm	60~65(N·m)

WARNING!	
(1)	Mechanical connectors used indoors shall comply with ISO 14903. When mechanical connectors are reused indoors, sealing parts shall be renewed.
(2)	Pipework shall be protected from physical damage.
(3)	Installation of pipework shall be kept to a minimum space required.
(4)	Do not re-use joints and copper gaskets which have been used already.
(5)	Joints made in installation between parts of refrigerant system shall be accessible for maintenance purposes.
(6)	Install the refrigerant piping or components in a position where they are unlikely to be exposed to any substance which may corrode components containing refrigerant, unless the components are constructed of materials that are inherently resistant to corrosion or are suitably protected against corrosion.
(7)	After completion of field piping for split systems, the field pipework shall be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements; field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0.25 times the maximum allowable pressure. No leak shall be detected.

4.3.5 Outdoor Pipe Connection

Twist the flared nut on the connection pipe of outdoor valves. Twisting method is the same as for indoor pipe connection.

During engineering installation, the connection pipe inside the unit must be wrapped by insulation sleeve.

According to customer requirement or space limit, outlet pipe can be installed from the front, right or rear side.

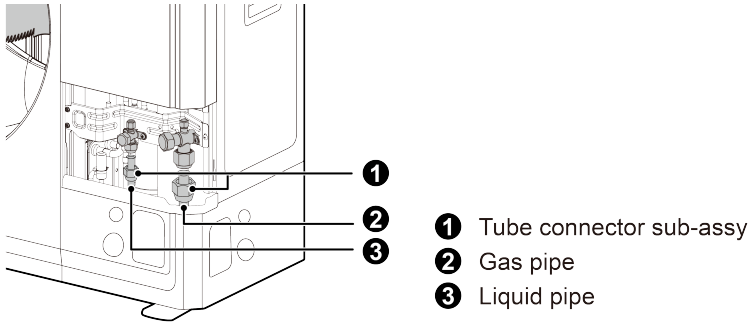


Fig. 14

4.3.6 Installation of Y-type Branch

(1) Y-type Branch.

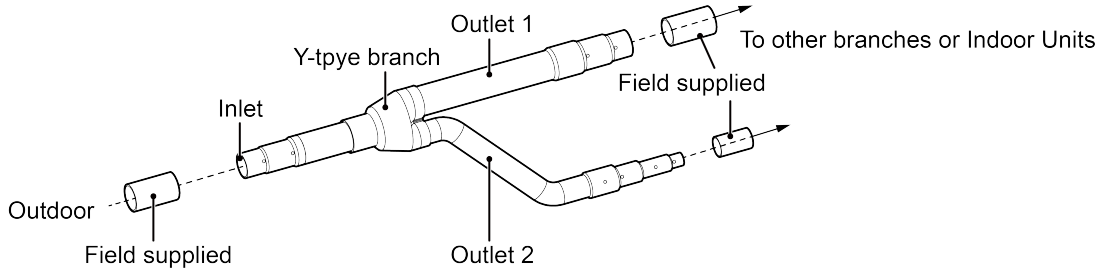


Fig. 15

(2) Y-type branch has several pipe sections with different dimension, which facilitates to match with various copper pipes. Use pipe cutter to cut in the middle of the pipe section that is of proper dimension and remove burrs as well. See Fig. 15.

(3) Y-type branch must be installed vertically or horizontally.

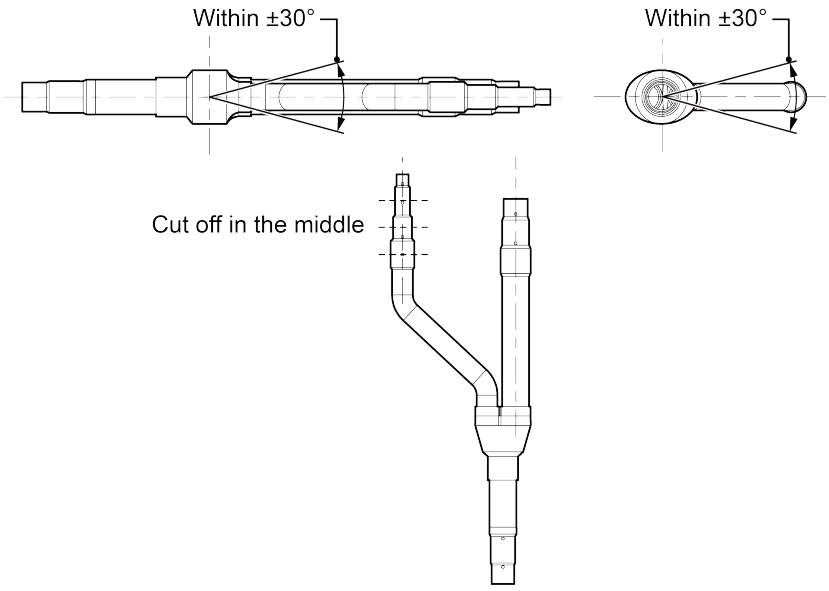


Fig. 16

(4) Branch shall be isolated by insulating material that can bear 120° or even higher temperature. The attached foam of branch cannot be taken as insulating material.

4.3.7 Thermal Insulation for Pipeline

(1) For multi VRF system, every copper pipe should be labeled so as to avoid misconnection.

(2) At the branch inlet, leave at least 500mm straight pipe section.

(3) Thermal insulation for pipeline.

1) To avoid condensate or water leakage on the connection pipe, the gas pipe and liquid pipe must be wrapped with thermal insulating material and adhesive tape for insulation from the air.

2) Thermal insulating material shall be able to bear the pipe temperature. For heat pump unit, liquid pipe should bear 70°C or above and gas pipe should bear 120°C or above. For cooling only unit, both liquid pipe and gas pipe should bear 70°C or above.

3) Example: Polyethylene foam (bear 120°C or above); foaming polyethylene (bear 100°C or above).

4) Joints of indoor and outdoor unit should be wrapped with insulating material and leave no gap between pipe and wall. See Fig. 17.

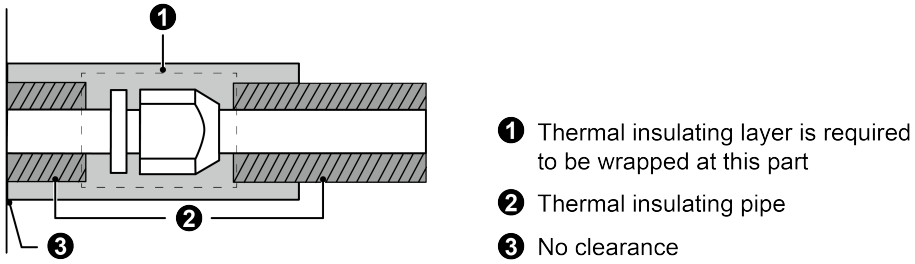


Fig. 17

5) Thermal insulating material of branches should be the same as that of the pipeline. The attached foam of branches cannot be taken as insulating material.

6) When wrapping the tape, the later circle should cover half of the former one. Don't wrap the rape too tight, otherwise the insulation effect will be weakened.

7) After wrapping the pipe, apply sealing material to completely seal the hole on the wall.

4.3.8 Support and Protection of Pipeline

(1) Support should be made for hanging connection pipe. Distance between each support cannot be over 1m.

(2) Protection against accidental damage should be made for outdoor pipeline. When pipeline exceeds 1m, a pinch board should be added for protection.

4.3.9 Installation of ODU Dry Filters

Due to the complexity of the pipeline of the VRF system, and in order to ensure the dryness and cleanliness of the pipeline and further improve the stability of the system, it is recommended to add a filter to the gas pipe and a dry filter to the liquid pipe during the construction of the project, in addition to operating in strict accordance with the welding requirements.

The operation method is as below:

First of all, weld cut-off valves respectively to the gas and liquid pipe at positions that are close to the outdoor unit and easy to operate. The cut-off valves should have the corresponding pipe diameter.

Second, install a filter (100 meshes per square foot) in the pipeline between the cut-off valve added to the gas pipe and the cut-off valve mounted on the outdoor unit; install a dry filter in the pipeline between the cut-off valve added to the liquid pipe and the cut-off valve mounted on the outdoor unit.

Finally, after debugging is completed:

Turn on all the indoor units in cooling mode for 24 hours, and remove the gas pipe filter: First, power off the whole system; then close the two cut-off valves of the gas pipe and remove the gas pipe filter; finally, directly connect a copper pipe of the same diameter to the corresponding pipeline for vacuum treatment. Then open the two cut-off valves again to resume normal operation.

Turn on all the indoor units in heating mode for 24 hours, and remove the liquid pipe dry filter: First, power off the whole system; then close the two cut-off valves of the liquid pipe and remove the liquid pipe dry filter; finally, directly connect a copper pipe of the same diameter to the corresponding pipeline for vacuum treatment. Then open the two cut-off valves again to resume normal operation.

4.4 Disassembly of Compressor Feet

In order to prevent unit from damage during transportation, 2 metal pieces are fitted to outdoor unit's compressor feet before unit leaves factory. See Fig. 18.

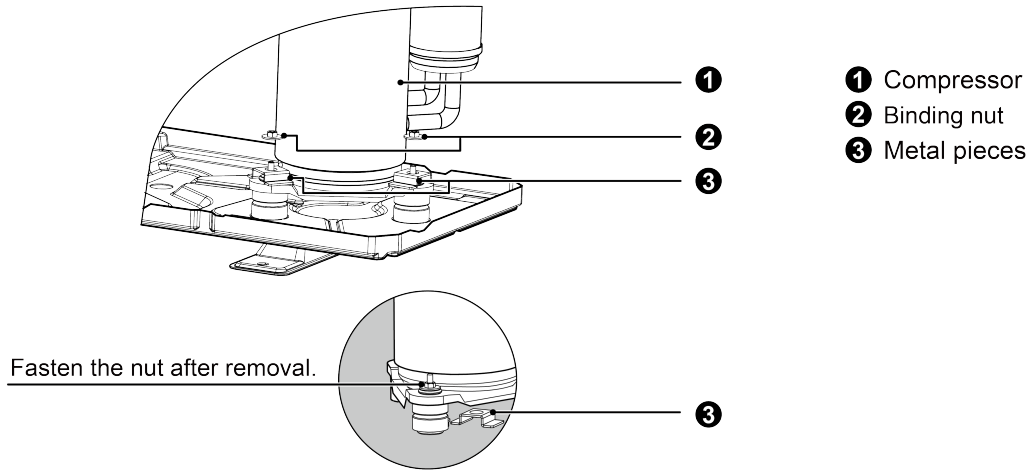


Fig. 18

When installing the unit, metal pieces for transportation must be removed. Then fasten the binding nuts again and wrap back soundproofing cotton.

NOTE!: If unit runs with metal pieces fitting on, compressor will shake abnormally and unit's operating life will be shortened.

4.5 Vacuum Pumping, Refrigerant Adding

4.5.1 Vacuum Pumping

(1) Outdoor unit has been charged with refrigerant before delivery. Field-installed connection pipe needs to be charged with additional refrigerant.

(2) Confirm whether outdoor liquid and gas valves are closed.

(3) Use vacuum pump to withdraw the air inside indoor unit and connection pipe from the outdoor valve, as shown below.

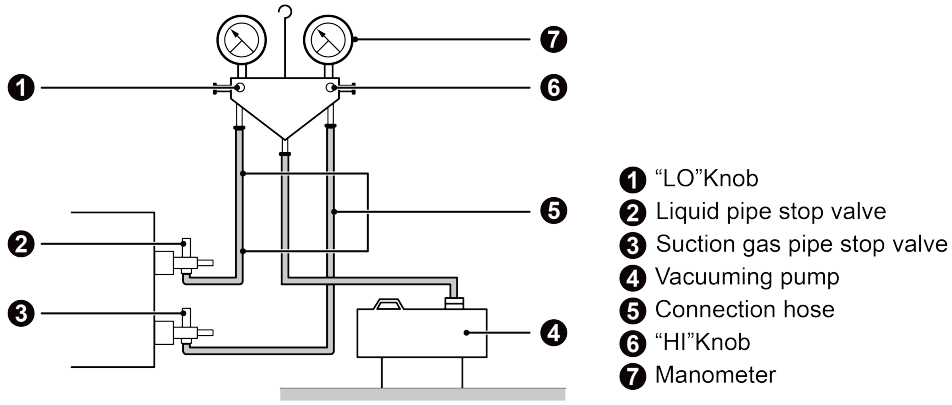


Fig. 19

4.5.2 Additional Refrigerant Charging

(1) Calculation of Additional Refrigerant Charge:

1) Additional refrigerant charge R = pipeline additional refrigerant charge A + indoor unit additional refrigerant charge B

2) Calculation of pipeline additional refrigerant charge A

Pipeline additional refrigerant charge A =∑(Liquid pipe length×amount of additional refrigerant of each 1m)

Diameter of liquid pipe (mm)	Φ19.05	Φ15.9	Φ12.7	Φ9.52	Φ6.35
kg/m	0.250	0.170	0.110	0.054	0.022

3) Calculation of indoor unit additional refrigerant charge B

B=(Quantity of IDU-2) ×0.3 kg

NOTE!

The maximum refrigerant charging volume for the system can’t exceed 7 kg (including the refrigerant charged in the factory).

Record the amount of refrigerant added to facilitate after-sales maintenance. After ensuring that the system does not leak and the compressor is not working, first charge the specified amount of R410A into the unit from the injection port of the outdoor unit liquid pipe valve until the required amount is reached. If the amount of refrigerant that needs to be added cannot be filled quickly due to pressure rise in the pipe, then power on the unit in cooling mode and charge the refrigerant through the gas valve of the outdoor unit.

(2) Calculation example.

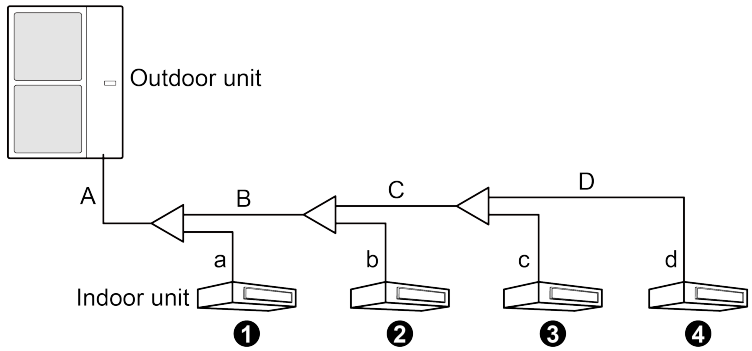


Fig. 20

IDU:

No.	IDU ❶	IDU ❷	IDU ❸	IDU ❹
Model	7.1kW	5.0kW	3.6kW	2.5kW

Liquid pipe:

No.	A	B	C	D
Pipe diameter (mm)	Φ9.52	Φ9.52	Φ9.52	Φ6.35
Length (m)	15	8	7	5
No.	a	b	c	d
Pipe diameter (mm)	Φ9.52	Φ6.35	Φ6.35	Φ6.35
Length (m)	3	3	2	1

Total length of each liquid pipe.

Φ9.52: A+B+C+a=15+8+7+3=33m

Φ6.35: D+b+c+d=5+3+2+1=11m

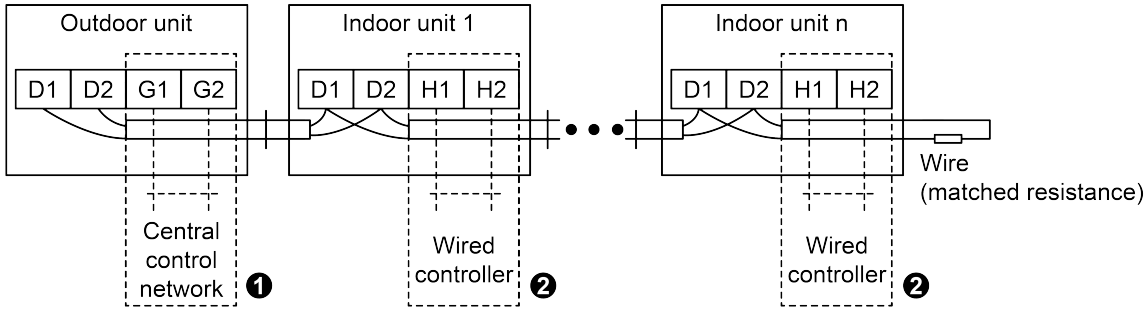
Quantity of indoor unit: 4 sets.

Therefore, the minimum quantity of additional refrigerant = (33×0.054+11×0.022) + (4-2) ×0.3= 2.624kg.

4.6 Electric Wiring

4.6.1 Wiring Diagram

(1) Connection of power cord and communication cord. Supply power for each unit separately. Each unit shall be equipped with a circuit breaker for short circuit and abnormal overload protection.

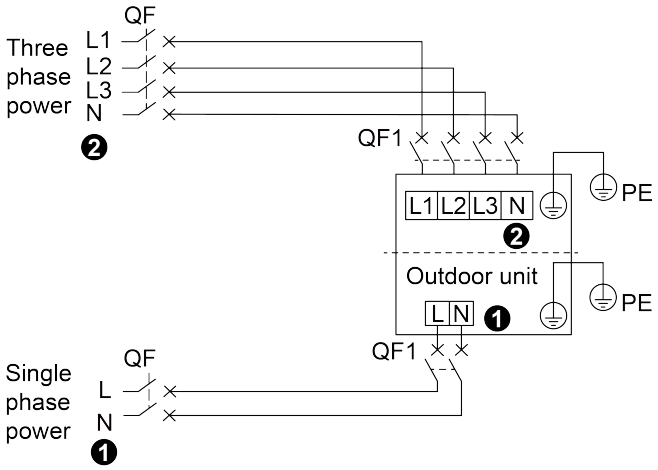


Note: (1) Whether the unit is with centralized network control function or wired controller function, please refer to the circuit diagram. For outdoor units equipped with the function of central control, connect wires according to drawing ❶. For indoor units with the function of wired control, connect wires according to drawing ❷.

(2) n represents the maximum number of connectable indoor units, which is determined by the capacity of the outdoor unit. For details, please refer to the capacity configuration instructions of the unit.

Fig. 21

NOTE: Keep all the units in the same system energized during using. Otherwise, the system will not operate normally.



NOTE:Wiring of single phase unit shall refer to ❶ and three phase unit shall refer to ❷.

Fig. 22

NOTE: Connect the power cord to the corresponding terminal and grounding screws, press and fix the power cord with wire clip. Please refer to the circuit diagram for wiring.

(2) Selection of circuit breaker and power cord.

Model	Power supply	Circuit breaker capacity (A)	Number of ground wire× Min sectional area (mm^2)	Number of power cord × Min sectional area (mm^2)
AOU-120VRDC1C	220-240V ~ 50/60Hz	32	1×4.0	2×4.0
AOU-140VRDC1C	220-240V ~ 50/60Hz	32	1×4.0	2×4.0
AOU-160VRDC1C	220-240V ~ 50/60Hz	32	1×4.0	2×4.0

NOTES:

① Specification of circuit breaker is based on the working condition where ambient temperature of circuit breaker is 40°C. If working condition changes, please adjust the specification according to national standard.

② Supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord (code designation 60245 IEC 57).

4.6.2 Engineering Wiring of Power Supply and Communication Cable

(1) Please refer to the following part for wiring. Connect the power cord and communication cord to the corresponding wiring board and grounding screws according to the circuit diagram. Press and fix the sheaths of power cord and communication cable with corresponding wire clamps.

(2) After installation, the entry point for engineering cables must be sealed with flame-retardant materials to prevent insects from entering and causing electrical safety hazards.

(3) The wiring and magnet ring shall not touch the pipeline, edge and device.

(4) For the wiring of power and communication cord, the picture is for reference only. If there're discrepancies between it and the structure in the picture, the actual unit shall prevail.

(5) Wiring is subject to the self-equipped diagram of the unit used at present.

(6) Shielded cables must be used for communication lines.

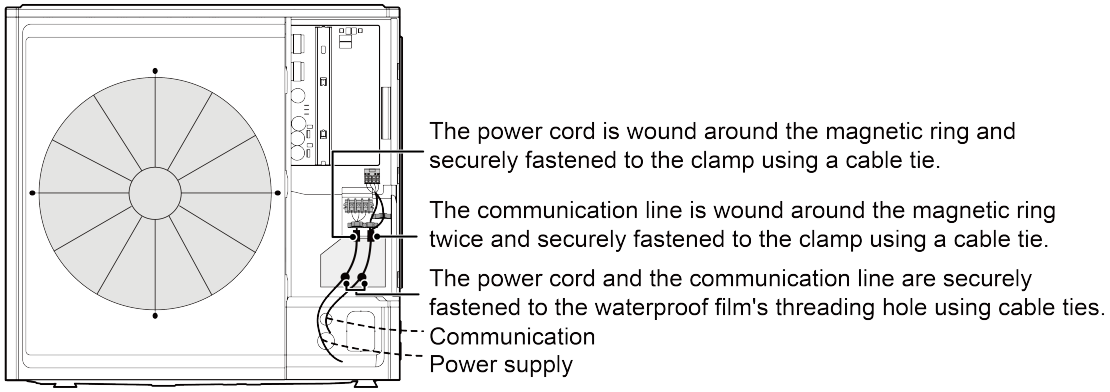


Fig. 23

5 Check Items after Installation and Test Operation

5.1 Check Items after Installation

Check items	Possible conditions due to improper installation	Check
Each part of the unit is installed securely?	Unit may drop, shake or emit noise.	
Gas leakage test is taken or not?	Insufficient cooling (heating) capacity.	
Unit gets proper thermal insulation or not?	There may be condensation and dripping.	
Drainage is smooth or not?	There may be condensation and dripping.	
Is the voltage in accordance with the rated voltage specified on the nameplate?	Unit may have malfunction or components may get damaged.	
is the electric wiring and pipe connection installed correctly?	Unit may have malfunction or components may get damaged.	
Unit is securely grounded or not?	Electrical leakage.	
Power cord meets the required specification?	Unit may have malfunction or components may get damaged.	
Is the air inlet/outlet blocked?	Insufficient cooling (heating) capacity.	
Length of refrigerant pipe and the charging amount of refrigerant are recorded or not?	The refrigerant charging amount is not accurate.	
Binding pieces on compressor feet are removed or not?	Compressor may get damaged.	

5.2 Test Operation and Debugging

NOTES:

① After finishing the first installation or replacing the main board of outdoor unit, it is necessary to perform test operation and debugging. Otherwise, unit won't be able to work.

② Test operation and debugging must be performed by professional technicians or under the guidance of professional technicians.

5.2.1 Prepare the Test Operation and Debugging

(1) Do not connect power until all installation work is finished.

(2) All control circuits and wires are correctly and securely connected.

(3) Check whether the fixing loops for compressor foots are removed.

(4) All small pieces, especially metal chips, thread ends and forceps holder, must be removed from the unit.

(5) Check whether unit's appearance and pipeline system has been damaged during transportation.

(6) Calculate the quantity of refrigerant that needs to be added according to the pipe length. Pre-charge the refrigerant. In case that the required charging quantity is not reached while refrigerant can't be added, record the quantity of refrigerant that still needs to add and complement the quantity during test operation. For details of adding refrigerant during test operation, see below.

(7) After refrigerant is added, make sure valves of outdoor unit are completely open.

(8) For the convenience of troubleshooting during debugging, unit shall be connected to a PC with applicable debugging software. Make sure unit's real-time data can be checked through this computer. The installation and connection of debugging software can be found in the Service Manual.

(9) Before test operation, make sure unit is power on and compressor has been preheated for more than 8 hours. Touch the unit to check whether it's normally preheated. If yes, start test operation. Otherwise, compressor might be damaged.

5.2.2 Test Operation and Debugging

Description of test operation procedures and main board display of ODU

Description of each stage of debugging progress			
—	Debugging code		Code meaning and operation method
Progress	LED		
	Code	Display status	
01_ Setting of master control unit	A0	ON	The unit is in debugging standby status. Press and hold the button SW3 for over 5s, and it will automatically start debugging.
	01	ON	The master outdoor unit is automatically set by the system. 2s later, the next step "Address allocation" starts.
02_ Address allocation	02	Flashing	The system is allocating addresses. 10s later, it will display as below.
	02	ON	Address allocation is done. 2s later, the next step starts.
03_ ODU quantity confirmation	03/01	Display circularly	The system is confirming. 2s later, the next step starts.
04_ Quantity confirmation	04/00~n	Display circularly	"00~n" displays the quantity of indoor units identified by the system. The displayed quantity may be different from the actual quantity. Please check personally. If the actual quantity is different from the displayed one, power off the indoor and outdoor units, and check if the connection of IDU communication lines is faulted. After checking, connect power and start debugging from step 01. If the displayed quantity is correct, press the button SW3 on the main board in 30s to confirm it; if it is not confirmed within 30s, the system will automatically enter the next step. After confirmation, it will display as below.

Description of each stage of debugging progress			
—	Debugging code		Code meaning and operation method
Progress	LED		
	Code	Display status	
04_ Quantity confirmation	04/oC	Display circularly	The quantity of indoor units has been confirmed. 2s later, the next step starts.
05_ Detection of ODU internal communication and capacity ratio	05/C2 05/C3	Display circularly	The main control of the outdoor unit cannot communicate normally with the drive. Please check whether the communication line connection between the outdoor unit main board and the drive board is normal, and proceed to the next step after troubleshooting. If the outdoor unit needs to be powered off during the troubleshooting process, restart debugging from step 01 after the unit is powered on.
	05/oC	Display circularly	The main control of the outdoor unit can communicate normally with the drive. Then the system will detect the capacity ratio of indoor and outdoor units. If the ratio is within range, the system will automatically enter the next step after 2s; if the capacity ratio is out of range, it will display as below.
	05/CH	Display circularly	The rated capacity ratio of indoor units is too high. Change the combination of indoor and outdoor units to make the capacity ratio within a reasonable range, and restart debugging from step 01.
	05/CL	Display circularly	The rated capacity ratio of indoor units is too low. Change the combination of indoor and outdoor units to make the capacity ratio within a reasonable range, and restart debugging from step 01.
06_ Detection of ODU components	06/ Corresponding error code	Display circularly	Outdoor unit components are faulted. The corresponding error code flashes, except "06". After errors are eliminated, it will automatically enter the next step. If the outdoor unit needs to be powered off during the troubleshooting process, restart debugging from step 01 after the unit is powered on.
	06/oC	Display circularly	The system detects no error on outdoor unit components. 10s later, the next step starts.
07_ Detection of IDU components	07/XX/ Corresponding error code	Display circularly	The system detects errors on indoor unit components. XX represents the project code of the faulty indoor unit. For example, when indoor unit No.01 has errors d5 and d6 and indoor unit No.03 has errors d6 and d7, the nixie tube circularly displays "07", "01", "d5", "d6", "03", "d6", "d7". After errors are eliminated, it will automatically enter the next step. If the outdoor unit needs to be powered off during the troubleshooting process, restart debugging from step 01 after the unit is powered on.
	07/XXXX/ Corresponding error code	Display circularly	If errors occur to an indoor unit whose project code has 3 or more digits, the upper two digits of the project code will be displayed first, then the lower two digits and finally the error code. For example: If indoor unit No.101 has the error L1, the nixie tube will circularly display "01", "01", and "L1". If multiple errors occur to multiple indoor units, the display method is the same.
	07/oC	Display circularly	There is no error on indoor unit components. 5s later, the next step starts.

Description of each stage of debugging progress			
—	Debugging code		Code meaning and operation method
Progress	LED		
	Code	Display status	
08_ Compressor preheating confirmation	08/U0	Display circularly	The compressor is not sufficiently preheated. The nixie tube will keep displaying as shown on the left until the preheating time of the compressor reaches 8 hours. Pressing SW3 can skip the waiting time, and the system will enter the next step 2s later (Note: If the compressor is started when the preheating time is less than 8 hours, there is a risk of damage to the compressor, please be careful).
	08/oC	Display circularly	If the outdoor unit has been continuously connected to power for a period of ⩾8h, or the last time when the unit was continuously connected to power for a period of ⩾ 8h is within 2 hours from the current time (a clock chip is required), it means compressor preheating is completed. 2s later, the next step starts.
09_ Refrigerant judgment before startup	09/U4	Display circularly	Refrigerant in the system is insufficient. In this case, startup is prohibited and buttons are all invalid. Please power off the indoor and outdoor units, and check whether there is leakage in the pipeline. After fixing the leakage problem, recharge the refrigerant as per the required amount. After recharging, re-energize the unit and start debugging again from step 01 (Note: The unit must be powered off before refrigerant charging. This is to prevent the unit from automatically entering the next step to start running during refrigerant charging).
	09/oC	Display circularly	The amount of refrigerant in the system is normal. 2s later, the next step starts.
10_ Debugging	15/AC	Display circularly	During the debugging process, if the system has been running for 50 minutes without an error, it is determined that the system is normal. After the whole system is shut down for 5s, it will enter standby mode.
	15/Corresponding error code	Display circularly	An error occurs during debugging.
11_ Debugging completed	oF	ON	The whole unit has finished debugging and the system is in standby mode.

5.2.3 Appendix: Reference of Normal Operation Parameters

No	Debug item		Parameter name	Unit	Reference
1	System parameters	ODU parameters	Outdoor temperature	°C	—
2			Compressor discharge temp	°C	When compressor starts, discharge temp in cool mode is within 70°C~105°C and at least 10°C higher than the high pressure saturation temp. As for temp in heat mode, it is within 65°C~90°C and at least 10°C higher than the high pressure saturation temp.
3			Defrosting temp	°C	In cool mode, defrosting temp is 4°C~10°C lower than system's high pressure value. In heat mode, defrosting temp is about 2°C different from system's low pressure value.
4			System high pressure	°C	In cool mode, the normal high pressure value is within 20°C~55°C. According to the change of ambient temp and system's operating capacity, the high pressure value will be 10°C~30°C higher than ambient temp. The higher ambient temp is, the smaller temp difference is. If ambient temp is 25°C ~35°C in cool mode, system's high pressure value will be within 44°C~53°C. In heat mode, if ambient temp is above -5°C, system's high pressure value is within 40°C~52°C. If ambient temp is low and many IDUs are turned on, the high pressure will be lower.
5			System low pressure	°C	When ambient temp in cool mode is 25°C ~35°C, the low pressure value is 0°C~8°C. When ambient temp in heat mode is above -5°C, the low pressure value is -15°C~8°C.
6			Opening angle of thermal EXV	PLS	In cool mode, the thermal electronic expansion valve remains 480PLS. In heat mode, the adjustable opening angle of EXV is 50~480PLS.
7			Compressor's operating freq	Hz	Changes in 15Hz~95Hz.
8			Compressor's operating current	A	When compressor works normally, the current is no more than 18.4A.
9			Compressor's IPM temp	°C	When ambient temp is below 35°C, IPM temp is lower than 80°C and the highest temp won't be above 95°C.
10			Fan motor's operating freq	Hz	Changes in 0~46Hz according to system's pressure.
11		IDU parameters	IDU ambient temp	°C	—
12			Indoor heat exchanger's inlet temp	°C	According to ambient temp, for a same IDU in cool mode, the inlet temp will be 1°C~7°C lower than the outlet temp, and 4°C~9°C higher than the low pressure value. For a same IDU in heat mode, the inlet temp will be 10°C~20°C lower than the outlet temp.
13			Indoor heat exchanger's inlet temp	°C	
14			Opening angle of indoor EXV	PLS	In cool mode, the opening angle of indoor EXV varies within 70~480PLS. In heat mode, the opening angle of indoor EXV varies within 120~480PLS.

No	Debug item	Parameter name	Unit	Reference
15	Communication parameters	Communication data	—	Number of IDUs detected by software is the same with the actual number. No communication error.
16	Drainage system	—	—	Indoor unit can drain water out completely and smoothly. Condensate pipe has no backward slope of water; Water of outdoor unit can be drained completely through drainage pipe. No water drop from unit base.
17	Others	—	—	Compressor and indoor/outdoor fan motor do not have strange noise. Unit can operate normally.

6 Common Malfunctions and Troubleshooting

WARNING!

① If an abnormal situation (such as peculiar smell) occurs, please stop the operation immediately and turn off the main power supply, and then contact AlpicAir authorized maintenance center. If the unit continues to operate under abnormal situation, the air conditioner will be damaged and an electric shock or fire accident may result.

② Do not maintain the air conditioner by yourself, misoperation may cause electric shock or fire hazard. Please contact professional personnel of AlpicAir authorized maintenance center to maintain.

● Before asking for maintenance, please check the following issues first.

Phenomenon	Causes	Troubleshooting
Air conditioner can't operate	Fuse is broken or circuit breaker is open	Replace fuse or close the circuit breaker
	Power failure	Restart up the unit and then the unit will operate
	Power supply is not connected	Connect the power supply
	The power for batteries of remote controller is insufficient	Replace the batteries
	Remote controller is not within the remote control range	Remote control range is within 8m
Air conditioner operates, while it stops operation immediately	Air inlet or air outlet of indoor unit/outdoor unit is blocked	Eliminate the obstacles
Cooling or heating is abnormal	Air inlet or air outlet of indoor unit/outdoor unit is blocked	Eliminate the obstacles
	Temperature setting is improper	Adjust temperature setting by remote controller or wired controller
	Fan speed is set too low	Adjust fan speed setting by remote controller or wired controller
	Fan direction is not correct	Adjust fan direction setting by remote controller or wired controller
Cooling or heating is abnormal	Door or window is open	Close door and window
	Direct sunshine	Hang curtains or window shade at the window
	Too many persons in the room	—
	Too many thermal source in the room	Reduce the thermal source
	The filter is dirty and blocked	Clean the filter

NOTES!

If problem cannot be solved after checking above items, please contact AlpicAir service center and indicate phenomena and models.

● Following circumstance are not malfunction.

Phenomenon		Causes
Unit doesn't run	When unit is started immediately after it is just turned off	Overload protection switch makes it run after 3 minutes delay
	When power is turned on	Standby operating for about 1 minute
Mist comes from the unit	Under cooling	Indoor high humidity air is cooled rapidly
Noise is emitted	When the power supply is connected, there is small "dada" sound.	It is the sound of startup action of electronic expansion valve.
	When the system is conducting cooling or defrosting, there is continuous "sa ——" sound.	This is the sound of refrigerant flowing inside the unit.
	When the system is switching cooling and heating modes; during heating operation, the unit enters or quits defrosting operation or oil return operation, there is "chi ——" sound.	This is the sound for direction reversal of 4-way valve.
	When the system is started or stopped for a short time, you can hear the sound of "sa ——"; you can also hear this sound for a short time after the start or stop of the defrosting operation.	This is the sound produced when the refrigerant stops or changes the flow.
	When the system is in cooling operation or after it stops running, a continuous "sa ——" sound can be heard	This is the operation sound of drain system.
	When the system is running or after it stops running, a "creaking" sound can be heard.	This is the sound produced when plastic parts such as panel expansion and contraction due to temperature changes.
	When the system is in heating operation, after the indoor unit stops running, the sound like running water can be heard.	The unit is melting the frost on the outdoor unit, please wait about 10 minutes (due to different unit models, the waiting time will vary).
	When the indoor unit stops running, a faint "sa ——" sound or "gurgling" sound can be heard.	This sound can be heard when other indoor units are running. This is to prevent oil and refrigerant from staying in the indoor unit, and to keep a small amount of refrigerant flowing.
	When the unit is running, the operating sound of the compressor changes.	This is caused by changes in compressor operating frequency.
	During the operation of the unit or after the operation is started or stopped, a continuous "sa ——" sound can be heard.	This is the sound produced when the refrigerant bypass valve operates.
	When the operating mode of the unit changes, the indoor unit and outdoor unit will produce " sa ——" and "gurgling" sounds.	This is the sound produced when the refrigerant stops or changes flow.
	The sound from the outdoor unit can be heard indoors	This is because the outdoor unit is installed close to the window or wall, and the sound insulation is poor, and the external noise is transmitted in.
There is dust blowing out from the unit	Start operation after it is not used for a long time	Dust in indoor unit is blew out.
The unit emits odor	Operating	The odor of the air conditioner is sucked into the room and then blown out.

Phenomenon		Causes
The indoor unit is still running after shutting down	The indoor unit is still running after shutting down	The fan of indoor unit will continue to work for 20 to 70 seconds to fully use the residual cooling or heat of the heat exchanger, and to prepare for the next use.
Mode conflict	Cooling or heating mode cannot start up	When the selected operation mode of the indoor unit conflicts with the operation mode of the outdoor unit, after five seconds, the indoor unit error indicator flashes or the remote controller displays the operation conflict, and the indoor unit shuts down. At this time, the indoor unit can be converted to run with the outdoor unit. The mode can be restored to normal without conflict. The cooling mode and dry mode do not conflict, and the air supply does not conflict with any mode.

7 Error Indication

Inquiry method of error indication: combine division symbol and content symbol to check the corresponding error.

Indoor:

Error Code	Content	Error Code	Content
L0	Malfunction of IDU (uniform)	d1	Indoor PCB is poor
L1	Protection of indoor fan	d2	Malfunction of lower water temperature sensor of water tank
L2	Auxiliary heating protection	d3	Malfunction of ambient temperature sensor
L3	Water-full protection	d4	Malfunction of entry-tube temperature sensor
L4	Abnormal power supply for wired controller	d5	Malfunction of middle temperature sensor
L5	Freeze prevention protection	d6	Malfunction of exit-tube temperature sensor
L6	Mode shock	d7	Malfunction of humidity sensor
L7	No main IDU	d8	Malfunction of water temperature sensor
L8	Power supply is insufficient	d9	Malfunction of jumper cap
L9	For single control over multiple units, number of IDU is inconsistent	dA	Web address of IDU is abnormal
LA	For single control over multiple units, IDU series is inconsistent	dH	PCB of wired controller is abnormal
LH	Alarm due to bad air quality	dC	Abnormal setting for capacity button
LC	IDU is not matching with outdoor unit	dL	Malfunction of air outlet temperature sensor
LL	Malfunction of water flow switch	dE	Malfunction of indoor CO_2 sensor
LE	Rotation speed of EC DC water pump is abnormal	dF	Malfunction of upper water temperature sensor of water tank
LF	Malfunction of shunt valve setting	dJ	Malfunction of backwater temperature sensor
LJ	Setting of functional DIP switch code is wrong	dP	Malfunction of inlet tube temperature sensor of generator
LP	Zero-crossing malfunction of PG motor	dU	Malfunction of drainage pipe temperature sensor of generator
LU	Indoor unit's branch is not inconsistent for one-to-more unit of heat recovery system	db	Debugging status
Lb	Inconsistent IDU of group-controlled reheat and dehumidification system	dd	Malfunction of solar power temperature sensor
y1	Malfunction of inlet tube temperature sensor 2	dn	Malfunction of swing parts
y2	Malfunction of outlet tube temperature sensor 2	dy	Malfunction of water temperature sensor
y7	Malfunction of fresh air intake temperature sensor	y8	Main error of indoor air box sensor

Error Code	Content	Error Code	Content
yA	IFD malfunction	yb	Refrigerant Leakage Protection
yd	Malfunction of Refrigerant Detection Sensor	En	Malfunction of System Refrigerant Detection

Outdoor:

Error Code	Content	Error Code	Content
F0	Main board of ODU is poor	E0	Malfunction of ODU (uniform)
F1	Malfunction of high-pressure sensor	E1	High-pressure protection
F3	Malfunction of low-pressure sensor	E2	Discharge low-temperature protection
F5	Malfunction of discharge temperature sensor of compressor 1	E3	Low-pressure protection
F6	Malfunction of exit-tube temperature sensor	E4	High discharge temperature protection of compressor
F7	Malfunction of humidity sensor	Ed	Drive module low temperature protection
F8	Malfunction of water temperature sensor	J0	Protection for other modules
F9	Malfunction of jumper cap	J1	Over-current protection of compressor 1
FA	Web address of IDU is abnormal	J2	Over-current protection of compressor 2
FC	Current sensor of compressor 2 is abnormal	J3	Over-current protection of compressor 3
FL	Current sensor of compressor 3 is abnormal	J4	Over-current protection of compressor 4
FE	Current sensor of compressor 4 is abnormal	J5	Over-current protection of compressor 5
FF	Current sensor of compressor 5 is abnormal	J6	Over-current protection for compressor 6
FJ	Current sensor of compressor 6 is abnormal	J7	Gas-mixing protection of 4-way valve
FP	Malfunction of DC motor	J8	High pressure ratio protection of system
FU	Malfunction of casing top temperature sensor of compressor 1	J9	Low pressure ratio protection of system
Fb	Malfunction of casing top temperature sensor of compressor 2	JA	Protection because of abnormal pressure
Fd	Malfunction of exit tube temperature sensor of mode exchanger	JC	Water flow switch protection
Fn	Malfunction of inlet tube temperature sensor of mode exchanger	JL	Protection because high pressure is too low
b1	Malfunction of outdoor ambient temperature sensor	JE	Oil-return pipe is blocked
b2	Malfunction of defrosting temperature sensor 1	JF	Oil-return pipe is leaking
b3	Malfunction of defrosting temperature sensor 2	P0	malfunction of driving board of compressor (uniform)
b4	Malfunction of liquid temperature sensor of sub-cooler	P1	Driving board of compressor operates abnormally (uniform)
b5	Malfunction of gas temperature sensor of sub-cooler	P2	Voltage protection of driving board power of compressor (uniform)
b6	Malfunction of inlet temp sensor of gas-liquid separator	P3	Reset protection of driving module of compressor
b7	Malfunction of outlet temp sensor of gas-liquid separator	P4	Drive PFC protection of compressor
b8	Malfunction of outdoor humidity sensor	P5	Over-current protection of inverter compressor
b9	Malfunction of gas temperature sensor of heat exchanger	P6	Drive IPM module protection of compressor
bA	Malfunction of oil-return temperature sensor 1	P7	Malfunction of drive temperature sensor of compressor
bH	Clock of system is abnormal	P8	Drive IPM high temperature protection of compressor
bE	Malfunction of inlet tube temperature sensor of condenser	P9	Desynchronizing protection of inverter compressor
bF	Malfunction of outlet tube temperature sensor of condenser	PA	Malfunction of drive storage chip of compressor
bJ	High-pressure sensor and low-pressure sensor are connected reversely	PH	High-voltage protection of compressor’s drive DC bus bar

Error Code	Content	Error Code	Content
bP	Malfunction of temperature sensor of oil-return 2	PC	Drive current detection circuit malfunction of compressor
bU	Malfunction of temperature sensor of oil return 3	PL	Low-voltage protection of compressor's drive DC bus bar
bb	Malfunction of temperature sensor of oil return 4	PE	Phase-lacking of inverter compressor
bd	Malfunction of air inlet temperature sensor of subcooler	PF	Drive charging circuit malfunction of compressor
bn	Malfunction of liquid inlet temperature sensor of subcooler	PJ	Failure startup of inverter compressor
H0	Malfunction of driving board of fan (uniform)	PP	AC current protection of inverter compressor
H1	Driving board of fan operates abnormally (uniform)	PU	AC input voltage of drive of inverter compressor
H2	Voltage protection of driving board power of fan (uniform)	Py	DIP switch code or jumper cap of compressor driver is abnormal
H3	Reset protection of driving module of fan	G0	PV reversed connection protection
H4	Drive PFC protection of fan	G1	PV Anti-islanding protection
H5	Over-current protection of inverter fan	G2	PV DC overcurrent protection
H6	Drive IPM module protection of fan	G3	PV power generation overload
H7	Malfunction of drive temperature sensor of fan	G4	PV leakage current protection
H8	Drive IPM high temperature protection of fan	G5	Phase-lacking protection at power grid side
H9	Desynchronizing protection of inverter fan	G6	Phase-lacking protection at power grid side
HA	Malfunction of drive storage chip of inverter outdoor fan	G7	PV LVRT
HH	High-voltage protection of fan's drive DC bus bar	G8	Overcurrent protection at power grid side
HC	Drive current detection circuit malfunction of fan	G9	Drive IPM module protection at power grid side
HL	Low-voltage protection of fan's drive DC bus bar	GA	Low/high input voltage protection at power grid side
HE	Phase-lacking of inverter fan	GH	Photovoltaic DC\DC protection
HF	Drive charging circuit malfunction of fan	GC	Photovoltaic DC hardware overcurrent protection
HJ	Failure startup of inverter fan	GL	Grid side hardware overcurrent protection
HP	AC current protection of inverter fan	GE	High or low photovoltaic voltage protection
HU	AC input voltage of drive of inverter fan	GF	DC bus neutral-point potential unbalance protection
Gd	Grid side current sensor protection	GJ	Grid side module high-temperature protection
Gn	Insulation resistance protection	GP	Grid side temperature sensor protection
Gy	Unrecoverable error of grid drive (photovoltaic)	GU	Charging circuit protection
Gb	Grid side relay protection	—	—

Debugging:

Error Code	Content	Error Code	Content
U0	Preheat time of compressor is insufficient	Cd	Communication malfunction between mode exchanger and ODU
U2	Wrong setting of ODU's capacity code/jumper cap	Cn	Malfunction of network for IDU and ODU of mode exchanger
U3	Power supply phase sequence protection	Cy	Communication malfunction of mode exchanger
U4	Refrigerant-lacking protection	C0	Communication malfunction between IDU, ODU and IDU's wired controller
U5	Wrong address for driving board of compressor	C1	Communication malfunction between main control and DC-DC controller
U6	Alarm because valve is abnormal	C2	Communication malfunction between main control and inverter compressor driver

Error Code	Content	Error Code	Content
U7	Power grid DRED0 response protection	C3	Communication malfunction between main control and inverter fan driver
U8	Short-circuit malfunction of IDU	C4	Malfunction of lack of IDU
U9	Malfunction of pipe-line for ODU	C5	Alarm because project code of IDU is inconsistent
UA	DC bus overvoltage protection at power grid side	C6	Alarm because ODU quantity is inconsistent
UH	DC bus undervoltage protection at power grid side	C7	Abnormal communication of converter
UC	Setting of main IDU is successful	C8	Emergency status of compressor
UL	Emergency operation DIP switch code of compressor is wrong	C9	Emergency status of fan
UE	Charging of refrigerant is invalid	CA	Emergency status of module
UF	Identification malfunction of IDU of mode exchanger	CH	Rated capacity is too high
UJ	FO protection for PV module	CC	Malfunction of lack of main control unit
Ud	Grid-connected driver board error	CL	Rated capacity is too low
Un	Communication malfunction between main control and inverter	CE	Communication malfunction between mode exchanger and IDU
Uy	Over-temperature protection for PV module	CF	Malfunction of multiple main control units
CU	Communication malfunction between IDU and the receiving lamp plate	CJ	Address DIP switch code of system is shocking
Cb	Overflow distribution of IP address	CP	Malfunction of multiple main wired controllers

Status:

Error Code	Content	Error Code	Content
A0	Unit waiting for debugging	n0	SE operation setting of system
A2	Refrigerant recovery operation of after-sales	n3	Compulsory defrosting
A3	Defrosting	n4	Limit setting for max. capacity/output capacity
A4	Oil-return	n5	Compulsory excursion of engineering code of IDU
A6	Heat pump function setting	n6	Inquiry of malfunction
A7	Quiet mode setting	n7	Inquiry of parameters
A8	Vacuum pump mode	n8	Inquiry of project code of IDU
AH	Heating	n9	Check quantity of IDU on line
AC	Cooling	nA	Heat pump unit
AL	Charging refrigerant automatically	nH	Heating only unit
AE	Charging refrigerant manually	nC	Cooling only unit
AF	Fan	nE	Negative sign code
AJ	Alarm for cleaning filter	nF	Fan model
AP	Debugging confirmation for startup of unit	nJ	High temperature prevention when heating
AU	Long-distance emergency stop	nU	Eliminate the long-distance shielding command of IDU
Ab	Emergency stop of operation	nb	Bar code inquiry
Ad	Limit operation	nn	Length modification of connection pipe of ODU
An	Child lock status	Ay	Shielding status

8 Maintenance and Care

Regular check, maintenance and care can extend unit’s service life. Please have specialized person in charge of the management of air conditioners.

8.1 Outdoor Heat Exchanger

Outdoor heat exchanger shall be cleaned regularly, which is at least once every two months. You can use a dust catcher with nylon brush to clean away the dust on the heat exchanger. If compressed air source is available, it also can be used to clean the heat exchanger. Do not clean it with water.

8.2 Drain Pipe

Please check regularly whether drain pipe is blocked or not. Make sure condensate can be drained out smoothly.

8.3 Notice before Seasonal Use

(1) Check whether air inlets and air outlets of indoor and outdoor units are blocked.
(2) Check whether ground connection is reliable or not.
(3) Check whether batteries in the remote controller are replaced or not.
(4) Check whether air filter is properly installed.
(5) If unit starts up after not operating for a long time, it should be power on 8 hours before operation starts so as to preheat the outdoor compressor.
(6) Check whether outdoor unit is securely installed. If there is any problem, please contact AlpicAir authorized service center.

8.4 Maintenance after Seasonal Use

(1) Disconnect power of the entire system.
(2) Clean the air filter and outer case of indoor and outdoor units.
(3) Clean away the dust and obstacles on indoor and outdoor units.
(4) If outdoor unit has rust, please apply some paint to it so as to prevent the rust from growing.

8.5 Parts Replacement

Parts and components can be obtained from nearby AlpicAir office or AlpicAir distributor.

NOTE!: When you are conducting air tightness test and leakage test, do not mix oxygen, C2H2 or other dangerous gas into the refrigerant circuit. Otherwise, it may lead to danger. Use nitrogen or refrigerant to conduct the tests.

9 After-sales Service

If there’s quality defect or other problems in the product, please contact AlpicAir local after-sales service department for help.

Warranty must be based on the following conditions:

(1) Product’s initial startup must be performed by professional technicians from AlpicAir service center or persons assigned by AlpicAir.
(2) Only AlpicAir spare parts are used.
(3) All instructions of unit operation and maintenance in this manual must be strictly followed according to set period and set frequency.
(4) Any breach of the above conditions will disable the warranty.


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