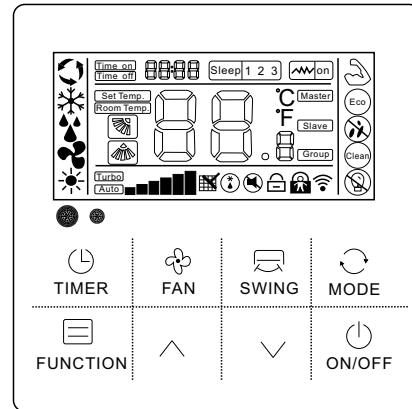


Wire controller Instructions

- Installation should be done by professional personnel.
- For the purpose of easy operation, please read this manual carefully and follow its instructions.
- Please keep the manual carefully for reference.



16437005000600

Notice for use

To ensure correct use, please read and follow these notes carefully.

Warning	There is a great possibility of serious accidents such as death, serious injury, fire or property damage caused by ignoring the contents of the warning.
Note	There is a great possibility that the optimum operation result cannot be obtained due to ignoring the contents of the precautions.

- Please entrust a local dealer or local service network station to arrange professional personnel who have air conditioner installation certificate to carry out the installation, users are strictly prohibited to carry out the installation.
- Before cleaning or maintenance, please cut off power switch; waterwashing is prohibited, which has the risk of electric shock.
- Wet hand operation is prohibited, which has the risk of electric shock.
- Pesticides, disinfectants, and flammable spray materials are prohibited for direct spraying; otherwise, it may cause a fire or the deformation of devices.
- Do not peel off the display panel by hand, which has the risk of electric shock.
- Cleaning: Wipe with a paper towel, before cleaning, please long press " ^ / ∨ " button for locking.

Installation schematic

1. Cut off the power of indoor unit.
2. As shown in Fig.1, use a flathead screw driver to pry the bottom groove of the wire controller lightly (too much force would damage circuit board), pry rotationally to open the back cover.

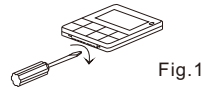


Fig.1

3. As shown in Fig.2, fix $\phi 4 * 20\text{mm}$ screws provided together with the back cover on 8 6 box, then pass lead wires through the back cover.

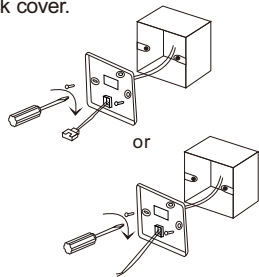


Fig.2

4. After connecting the connecting wire to the main body of the wire controller, as shown in Fig. 3, install main body part according to the following steps:
 - 1). Push the upper part of main body into the clip.
 - 2). Use the force of inclined top to install the lower part of main body (horizontal installation is prohibited, which is easy to damage the structural slot).

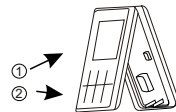


Fig.3

Installation of accessories

Please confirm whether the parts are complete.

No.	Name	Quantity
1	Wire controller	1
2	Operation and installation instructions	1

The following tools shall be prepared on site.

No.	Name	Quantity	Remark
1	Electrical box 86 *86	1	General electric box, embedded in wall.
2	Electrical tape	1	To be used at the time of wiring.
3	Big cross screwdriver	1	For the installation of electrical box.
4	Small flathead screwdriver	1	For dismantling the back cover of wire controller.

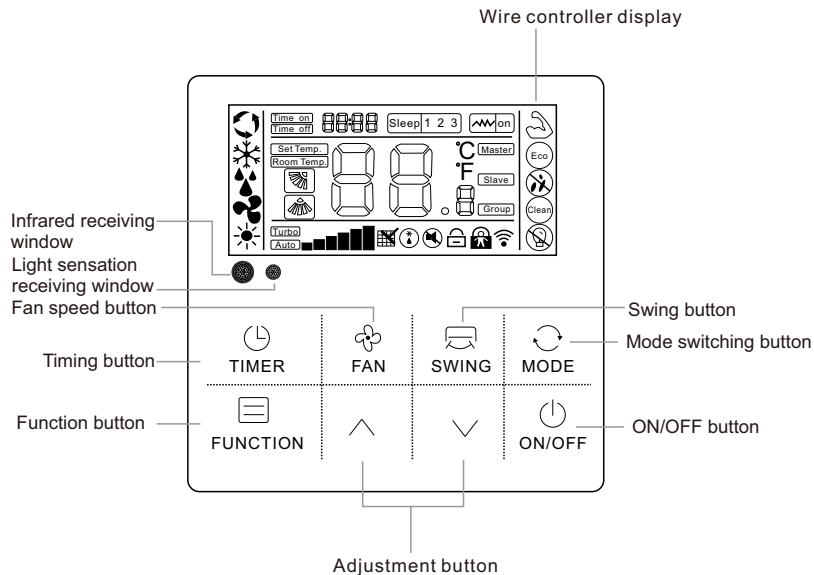
- The wire controller is low-voltage circuit, it is prohibited to directly contact with a high-voltage line or be placed together with a high-voltage line in the same wiring pipe, and interval shall be 500mm at least or more.

Technical indicators

- Power voltage range: DC 12V;
- Working ambient humidity: 0°C~50°C;
- Humidity: RH20%~RH90%;
- Button: Touch button;
- Dimensions(W*H*D): 120*120*20mm;



Main functions

- 8-key touch button input;
- Buzzer prompt tone function;
- LCD+ white backlight;
- Display the failure of main controller;
- Ambient temperature detection sensor;
- Receive the signal of wireless remote controller;



Note: The product adopts touch buttons. To ensure the validity of operation, please touch the center of each icon.

• "Child Lock" function display

Press both " ^ " and " v " buttons for more than 5S to enter locking, the controller will display "  ". In the state of locking, operations on the wired controller are disabled (but remote control receiving is valid). The method of unlocking: Press both " ^ " and " v " buttons for more than 5S or power off the unit to release the locking ("  " does not display).

• Remote control function

The wired controller can receive remote control commands and update the current status.

Start-up the unit with remote controller, wired controller work in accordance with the state set on the remote controller and displays corresponding working mode;

• Room temperature sensorequipped on the wired controller

When the wire controller is equipped with a room temperature sensor and the sensor is not damaged, it is default that the ambient temperature detected by the sensor on the controller and the temperature value will be sent to the main PCB of the unit. If the wire controller is not equipped with a room temperature sensor or the sensor is damaged, the room temperature will be detected by the temperature sensor of the unit itself.

• Fault display

When the unit has fault, the time bar will directly display the fault code and flash, the display mode is Er: MM (MM is the fault code, please read the corresponding product manual).

- **"Shielding" function display**

When unit is locked by centralized control, the wired controller will display "🔒".

- **"Mute" function display**

When the unit enter silent function, display "🔇" icon, when silent function is cancelled, the icon does not display.

Note: The unit without silent function can also set silent through wired controller, but it shows in the way of low wind grade, but "🔇" does not display.

- **"Oil Return / Defrost" function display**

When the unit is running in the state of Oil Return or Defrost, "❄️" icon is lighting on wire controller.

When the unit has finished Oil Return or Defrost process, "❄️" icon does not display.

- **"Filter Screen Clean" function display**

Filter screen cleaning reminder function: The unit can record its running time, when reaching the time set by the user, it will remind the user to clean the filter screen, so as to avoid prolonged cleaning and filter screen blockage, which can result in poor heating/cooling effect, abnormal protection, bacterial breeding, and other problems.

When the running time reaches the filter screen cleaning reminder time set by a user, the unit will give out a reminder of filter screen cleaning, wired controller displays "🧼" icon, reminding the user to clean filter screen. At this moment, long press "Timer" button for 5S to cancel the reminder, then the icon does not display. A filter screen cleaning reset signal is sent to the unit.

- **Celsius and Fahrenheit switching display**

When users set Celsius to be valid, the wired controller will display Celsius temperature. When users set Fahrenheit to be valid, the wired controller will display corresponding Fahrenheit temperature synchronously.

Detailed operation instructions

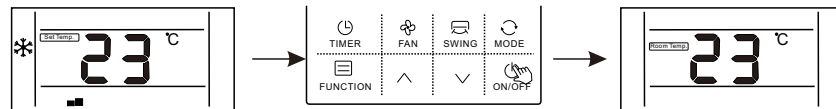
- **ON/OFF button**

Press- "ON / OFF" button to start or shutdown the unit.

1. When the unit is running, users can regulate the operation mode, fan speed, setting temperature, special functions and other parameters on the wired controller.

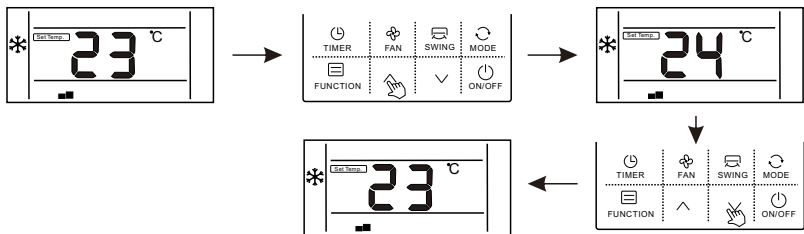


2. When the unit is standby, the wire controller displays indoor ambient temperature (Room temp.), the other content are not displayed.



- **^ / v button**—Temperature, time setting, function selection.

1. When the unit is running, press " ^ " or " v " button to increase or decrease the setting temperature by 1°C.

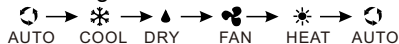


Under COOL, DRY, and HEAT modes, the setting temperature range is 16 °C ~ 32 °C;

- The controller will display "Set temp." to show the setting temperature;
- Under the function selection mode, press " ^ " or " v " button to select a function;
 - Under the timing mode, press " ^ " or " v " button to setting time.

• Mode setting

When the unit is running, press "MODE" button, the running mode will switch according to the following order:



The initial setting temperature for each mode is 24 ° C, and there is no temperature setting and automatic wind under FAN mode.

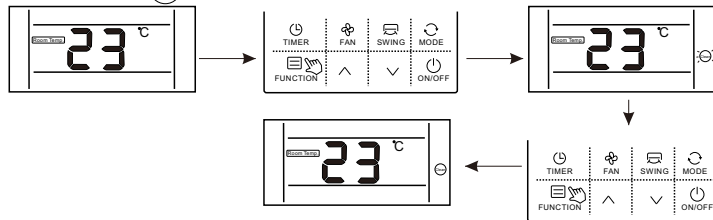
• The setting of "Wind speed"

When the unit is running, press "Fan" button to switch fan speed in the following order:

• The setting of "Clean" function

Clean function: The air conditioner can clean the evaporator automatically, which can not only keep air fresh, but also reduce the recession of cooling effect. Enter clean function :

- In the state of standby, press "Function" button to enter the interface of function selection, icon "Clean" is flashing.
- Press "Function" button again to confirm clean function, at this moment, icon "Clean" is lighting.
- When the unit is performing clean function, the wire controller will keep displaying icon "Clean", until it is finished.

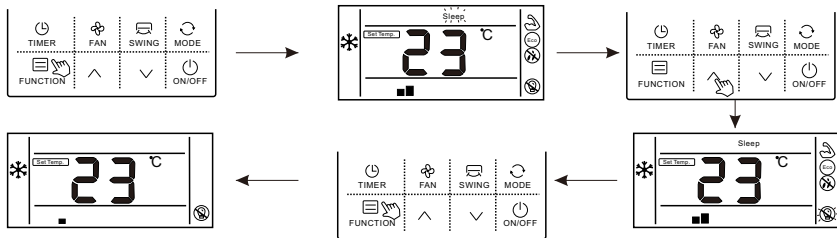


Display prompt function

• "WIFI" function display

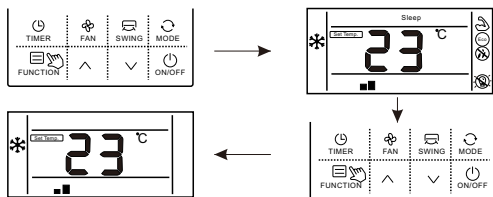
If the unit is equipped with a WIFI function module, the icon "WiFi" is lighting on wire controller.

If the unit is not equipped with a WIFI function module, the icon "WiFi" does not display.



Cancel light sensation :

1. When light sensation function is on, press "Function" button to enter the interface of function selection.
2. Press "▲" or "▼" button to switch to light sensation function, icon "☀️" is flashing.
3. Press "Function" button again to cancel light sensation function, icon "☀️" will disappear.



3-gear of fan speed: Auto → → → → Auto
(Low) (Medium) (High)

4-gear of fan speed: Auto → → → → → Auto
(Low) (Medium) (High) (Super-high)

In turbo mode, display fan speed (turbo + highest fan speed icon).

• The setting of "Swing"

1. For the unit only has the function of up and down swing:

when the unit is running, press "Swing" button to enter or cancel up and down swing. At the time of opening up and down swing, "☀️" is lighting. At the time of closed, swing icon will disappear. If the unit has positioning swing function, press "Swing" button to regulate the swing angle in the order:

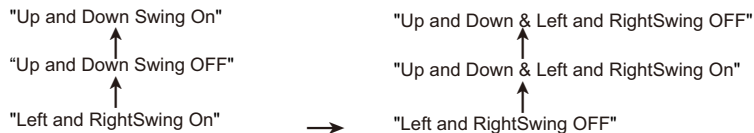


2. For the unit only has the function of left and right swing:

when the unit is running, press "Swing" button to enter or cancel left and right swing. At the time of opening left and right swing, "☀️" is lighting. At the time of closed, swing icon will disappear. If the unit has positioning swing function, press "Swing" button to regulate the swing angle in the order:



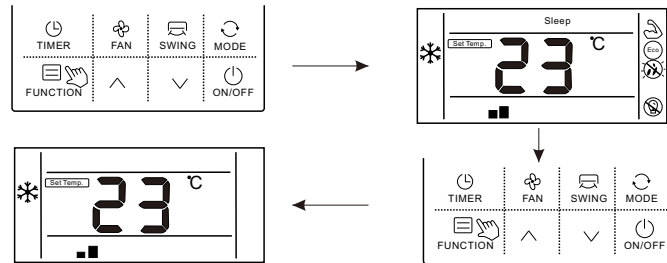
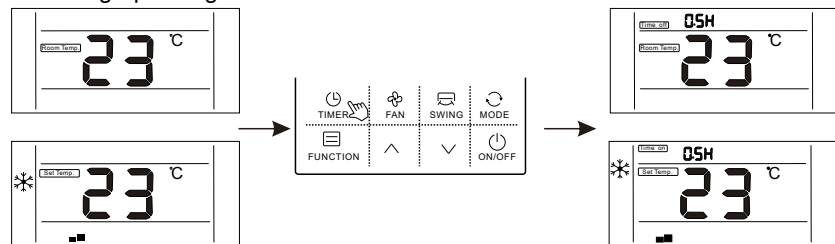
3. For the unit has the functions of left and right swing and up and down swing:
Press "Swing" button, the swing mode will switch in the following cycle order:



• "Timing" function

Users can set shutdown timing time when the unit is running, and set starting-up timing time when the unit is standby.



1. Press "Timer" button when the unit is running, the wired controller will display "Time off" and users can set the shutdown timing time; when the unit is standby, the wired controller will display "Time on", and users can set the starting-up timing time.



• The setting of "Light Sensation" function

Light sensation function: Detect the On and Off of indoor lamplight and switch to low fan speed when the lamplight is off, which can reduce the noise and create a comfortable sleep environment for users.

Enter light sensation function:

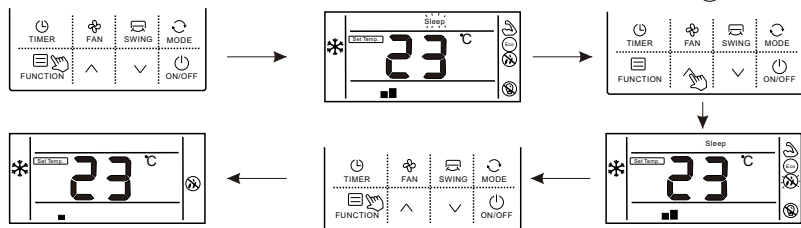
1. In the state of running, press "Function" button to enter the interface of function selection.
2. Press " ^ " or " v " to switch to light sensation function, icon "  " is flashing;
3. Press "Function" button again to enter light sensation function, at this moment, icon "  " is lighting.
4. When light sensation function is on, if the indoor lamplight is OFF and lasts for 20 minutes, the unit will automatically enter sleep mode. If the indoor lamplight is ON, and lasts for 20 minutes, the unit will cancel sleep mode and run according to the setting fan speed.

• The setting of "Mildew-proof" function

Mildew-proof function: After shutdown, the air conditioner would automatically dry the moisture in the evaporator of indoor unit, so as to avoid mildewing.

Enter mildew-proof function:

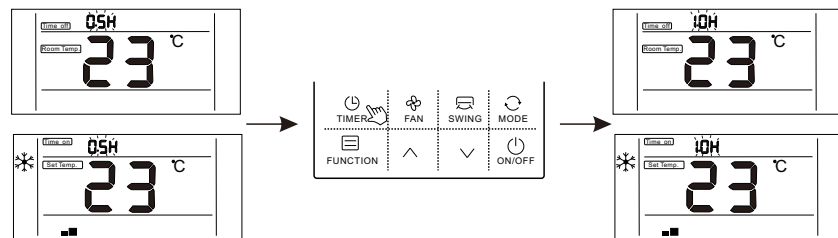
1. Under COOL and DRY mode, press "Function" button to enter the interface of function selection.
2. Press "▲" or "▼" button to switch to the mildew-proof function setting interface, at this moment, icon "❌" is flashing;
3. Press "Function" button again to enter mildew-proof function, icon "❌" is lighting.



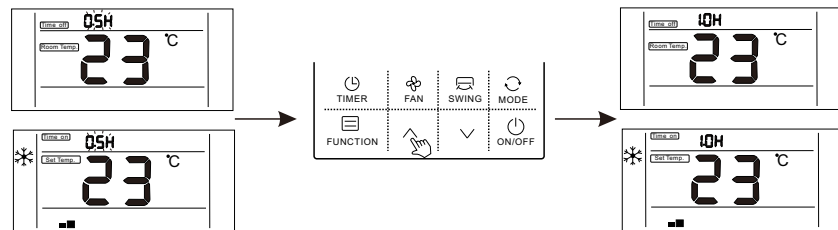
Cancel fungus-proof function:

1. When mildew proof function is ON, press "Function" button to enter the interface of function selection.
2. Press "▲" or "▼" button to mildew proof function, icon "❌" is flashing;
3. Press "Function" button again to cancel mildew proof function, icon will "❌" disappear.

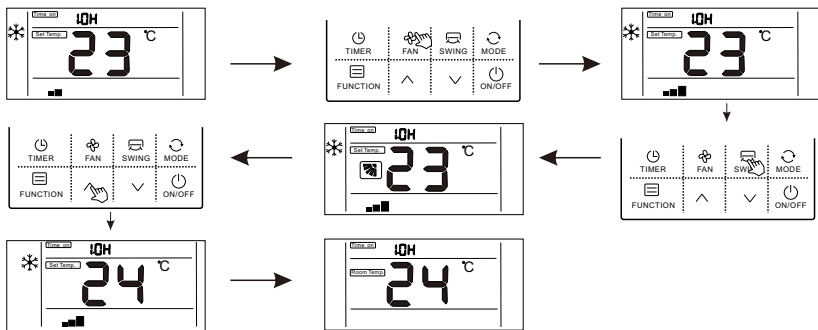
2. After entering timing time setting interface, the default timing time is 0.5H, at this moment, press "▲" or "▼" button to regulate the timing time. If the button is not pressed for 10 seconds, the timing setting will be canceled, and then return to the state of non-timing.



3. After the setting of timing, press "Timer" button again to confirm. The timing setting is successful and the time bar will stop blinking.



4. After the setting "Timer On" function, you can adjust the fan speed, running mode, set temperature, and swing angle. If there is no operation for 10 seconds, standby screen will be displayed.

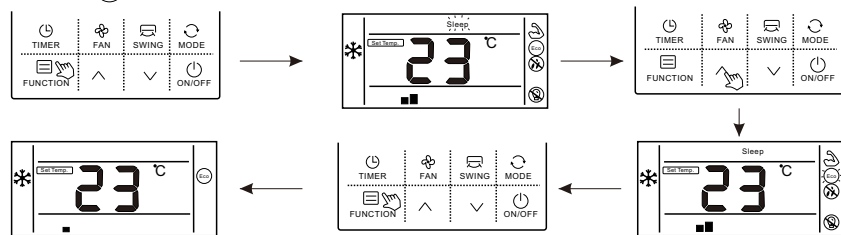


5. Timing range: 0.5 ~ 24 hours.

press " ^ " or " v " button once, the timing time will increase or decrease by 0.5 hours. When the timing time is more than 10 hours, press " ^ " or " v " button once, the timing time will increase or decrease by 1 hour.

6. Press "Timer" button or "ON / OFF" button to exit Timer ON or Timer OFF.

" Eco " icon is flashing;
3. Press "Function" button again to confirm ECO function, at this moment, icon " Eco " is lighting.

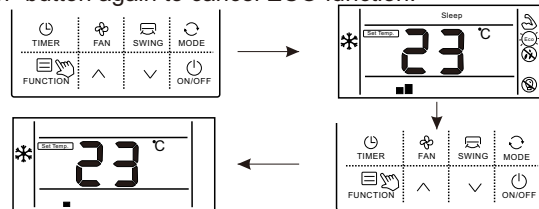


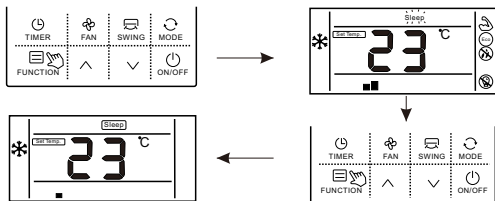
Cancel ECO function:

1. Press "Function" button to enter the interface of function selection.

2. Press " ^ " or " v " button to switch to ECO function, at this moment, " Eco " icon is flashing;

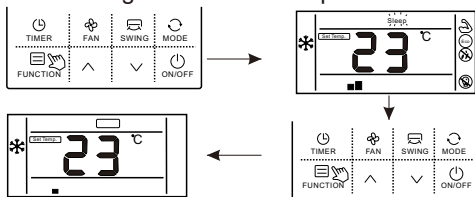
3. Press "Function" button again to cancel ECO function.





Cancel "sleep" function:

1. When sleep function is opened, press "Function" button to enter the interface of function selection.
2. Press " ^ " or " v " button to switch to sleep function, **Sleep** icon is flashing.
3. Press "Function" button again to cancel sleep function.



• The setting of "ECO" function

Enter ECO function:

1. Press "Function" button to enter the interface of function selection.
2. Press " ^ " or " v " button to switch to ECO function, at this moment,

Function description

The wire controller is for the general-purpose, specific functions for the controller are subject to the functions of your air conditioning unit.
Note: In the interface of function setting, press any button such as Timer, Fan, Swing, Mode, ON/OFF, and Comfort to exit the interface and conventional operation interface will display. If there is no operation for 10S, you can exit the interface.


Enter function: Press function button to enter function selection interface, press " ^ " or " v " to select a function, and the corresponding icon will flash, press "function" button again to confirm the function.

Cancel function: Press function button to enter function selection interface, press " ^ " or " v " to select a function and the corresponding icon will flash, press "function" button again to cancel the function.

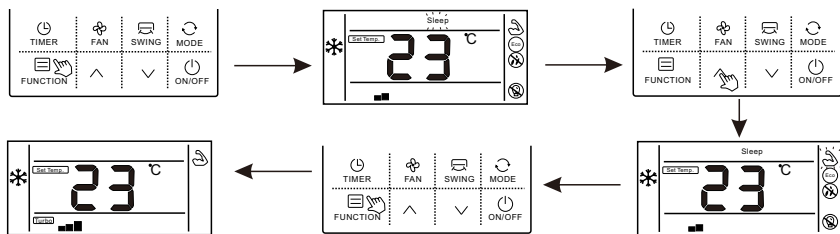
• The setting of "Turbo" function

Turbo function: The fan speed will be ultra-high in turbo mode and users can achieve rapid cooling or heating effect.

Open turbo function:

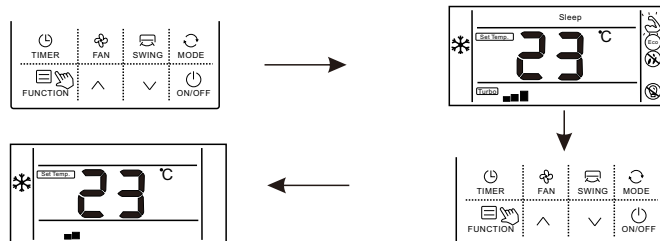
1. When the unit is running in cooling or heating mode, press "Function" key to enter the interface of function selection.
2. Press " ^ " or " v " button to switch to turbo function, at this moment, "  " icon is flashing.

3. Press "Function" button to confirm turbo function, at this moment, icon "👉", fan speed display is (Turbo and highest fan speed icon).



Cancel turbo function:

1. When turbo function is opened, press "Function" button to enter the interface of function selection.
2. Press "▲" or "▼" switch to strong function, at this moment, icon "👉" is flashing, press "Function" button to cancel strong function, and strong icon would not display.



Note: The unit without turbo function can also set turbo function on the wired controller, the performance is high fan speed, but "👉" icon and "Turbo" icon do will not display.

• The setting of "Sleep" function

Sleep function: Make indoor unit will run according to pre-set sleep temperature curve, which creates a comfortable sleep environment and improves sleep quality.

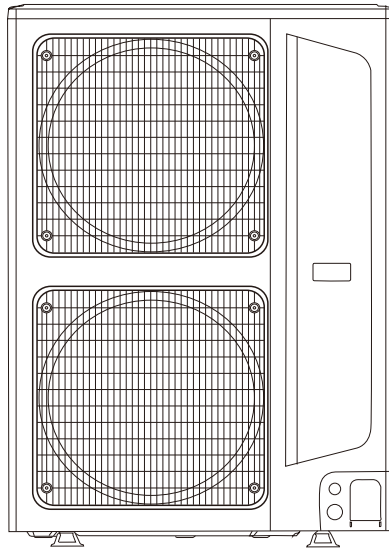
Enter sleep function:

1. In the state of running, press "Function" button to enter the interface of function selection.
2. Press "▲" or "▼" button to switch to sleep function, "Sleep" icon is flashing at this moment
3. Press "Function" button to open sleep function, at this moment, icon Sleep is lighting.

DC Inverter VRF Outdoor Unit

Installation instructions

- ◆ Installation should only be carried out by qualified technicians.
- ◆ For your convenience, please read this manual carefully and carry out all instructions in full.
- ◆ Please keep this manual in good condition for your reference.



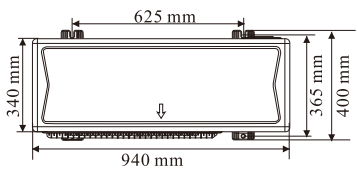
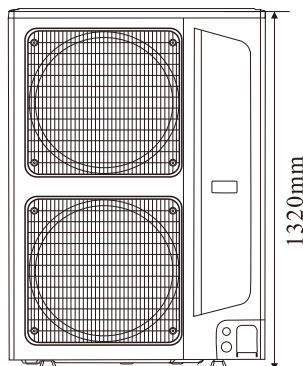
Outdoor.....	1
Installation of tubing.....	6
Electrical connections.....	13
Failure Code.....	16
Technical data.....	19

Introduction

This Manual is available for following models:



OUTDOOR

Type	36000Btu 42000Btu 48000Btu
Top View	
Elevation view	

★Position selection

Because of the high temperature (refrigeration) or condensation low evaporation temperature (heating), will affect, in order to achieve maximum bonnet operation efficiency, installation position of the choice must follow the following principles:

1. The air is not backflow air-conditioners eduction, prevent exhaust circuit, and set aside enough maintenance space around,
2. The more than 5 degrees tilt Angle is strictly prohibited.

Notice

Incorrect operation due to ignoring instruction will cause harm or damage. The seriousness is classified by the following indications:



WARNING

This symbol indicates the possibility of death or serious injury.

CAUTION

This symbol indicates the possibility of injury or damage to properties only.

WARNING

- 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.(Only for the AC with CE-MARKING)**
- 2.This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.**
(Except for the AC with CE-MARKING)
- 3.The air conditioner must be grounded. Incomplete grounding may result in electric shocks. Do not connect the earth wire to the gas pipeline, water pipeline, lightning rod, or telephone earth wire.**
- 4.Don't pull out the power plug during operating or with wet hands.**
It can cause electric shock or fire.

5.The appliance shall be installed in accordance with national wiring regulations.

6.Don't pull the power cord when pull out the power plug.

The damage of pulling power cord will cause serious electric shock.



7.The power plug must be inserted tightly.

Otherwise, it can cause electric shock or overheating, even fire.



8.Clean the dust on the plug regularly.

Otherwise the dust mixed, humidity will result in insulation fault even fire.



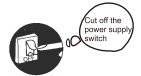
9.An earth leakage breaker with rated capacity must be installed to avoid possible electric shocks.



10.Cut off the main power switch when not using the unit for a long time. Otherwise, it may cause product failure or fire.



11.Stop operation and cut off the main power in storm or hurricane. Operation with windows opened may cause electric shock.



12.Don't install air conditioner in a place where there is flammable gas or liquid. The distance between them should above 1m. It may cause fire.



13.Don't put a finger, a rod or other object into the air outlet or inlet.

As a fan is rotating at a high speed, it will cause injury.



14.Don't touch the swinging wind vanes.

It may clamp your finger and damage the driving parts of the wind vanes.

15.Don't attempt to repair the air conditioner by yourself.

You may be hurt or cause further malfunctions.

16.Take care not let the remote control and the indoor unit watered or being too wet, or may short circuit even caused fire.

17.Don't use liquid or corrosive cleaning agent wipe the air-conditioner and sprinkle water or other liquid either.

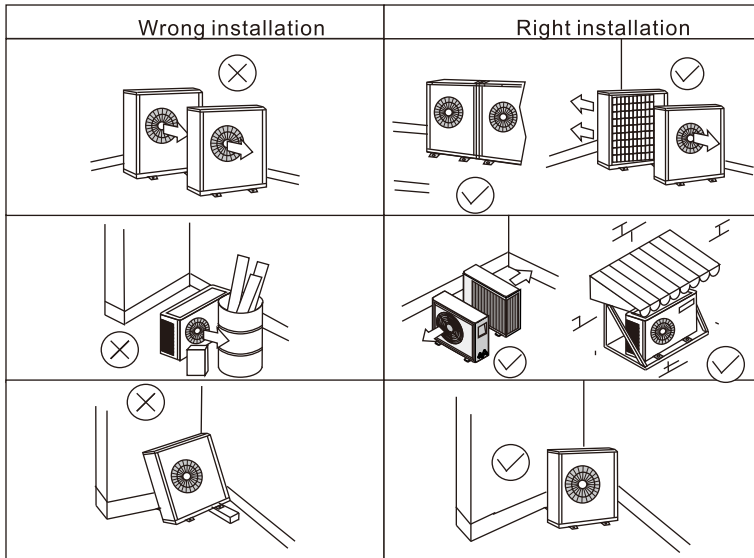
Otherwise the inclosure will be damaged even electric shock.





18.If the power supply cord is damaged, it must be replaced by the manufacture or its service agent or a similar qualified person.



■The following figures show the right installation and wrong installation:

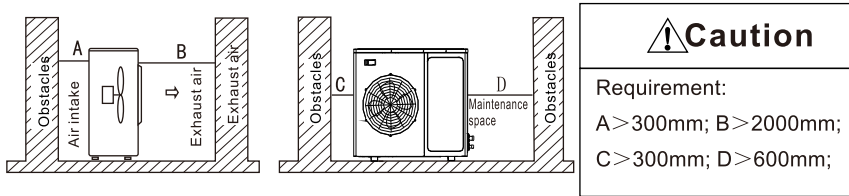


<p> Caution</p>	<ol style="list-style-type: none"> 1. The installation place must be well-ventilated, so that the unit can be move enough air to operate correctly. 2. The installation place must be enough firm to support the weight of outdoor unit and can iso late noise and vibration. 3. Avoid direct sunlight, and if necessary a sun shelter should be mounted. 4. The installation place should allow for the drainage of rainwater and water produced during defrosting. 5. The installation place should prevent the unit from getting buried in a snow drift. 6. The unit should not be installed so that the fan blows into strong winds. 7. Ensure that neither the air from the outdoor unit nor noise produced by it will affect the neighbours. 8. The unit must not be in a position where people will pile rubbish onto it or where it will be affected by exhaust gases.
<p> Warning</p>	<p>If the outdoor unit runs in a atmospheric environment where there are oil sources (including machine oil), salts (marine areas), and sulphide gas (near hot springs or oil refineries), these substances may cause unit faults.</p>

★Installation space

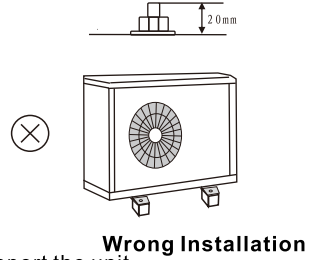
■After the installation site is selected the outdoor unit should be installed according to the following drawing in order to ensure adequate space for ventilation and correct maintenance of the outdoor unit.

Please reserve the space according to the following figure:



★Installation

1. Install a drainage channel to allow the condensate to flow smoothly away
2. During installation please ensure that the foundations are secure and level to avoid vibration and noise
3. Please bolt the outdoor unit down securely
4. The bolts for connecting the outdoor unit should protrude 20mm above the surface of the base
5. Do not just use the four corners as a foundation to support the unit

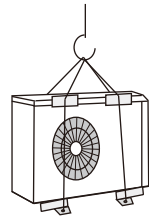


⚠ Caution	<p>Please install a drainage channel around the foundations to drain away condensate.</p> <p>When the outdoor unit is installed on a roof please ensure that it is solid enough to bear the weight of the outdoor unit, that the installation will not affect its water tightness and condensate is able to drain away freely.</p>
------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

★Transport

When the outdoor unit is to be lifted, please use two slings longer than 8m and insert cushioning material between the slings and the outdoor unit to avoid damaging the casing.

⚠ Warning	<p>Do not touch the heat exchanger at the rear of the indoor unit with your hands or any other object!</p>
------------------	------------------------------------------------------------------------------------------------------------



Correct installation

Installation of tubing

★Installation Instructions

1. Ensure the following when long pipe work is required and this is to be brazed.
 - a) Please fully install the tubing and any brazing work before connecting the pipes to the unit.
 - b) Oxygen Free Nitrogen must be used inside the pipes to prevent oxidisation.
2. If there are many joints requiring brazing during the installation of long tubing, please use an in line filter. All tubes must use refrigeration quality dehydrated copper pipe and not normal plumbing copper and should be free from moisture, dust or other contaminants.
3. Please purge the pipe with nitrogen or to eliminate any dust inside before Installation.
4. Please install the pipeline according to the pipe direction, and don't repeatedly bend and then straighten a piece of pipe more than 3 times (this will damage the copper). Please use a pipe bender to bend the pipe.

After preparing a length of pipe slide pipe insulation material over it.
5. After the connecting pipe work has been completed, connect to the indoor unit using the flare connector provided. Disconnect the flare nut from the indoor unit valve and place over the pipe facing the indoor unit. Flare the pipe as shown on page 24 and, after coating both the flare nut and both inside and outside of the flare with a light coat of refrigerant oil, tighten the nut using a torque wrench to tighten the nut and a spanner to hold the valve on the unit.

Always use a torque wrench set to the correct torque and always hold the indoor unit valve steady with another spanner. Do not under or over tighten. This process is carried out for both the small and large pipes.
6. Connect to the outdoor unit in a similar manner.
7. After the connection of tubing is completed, please carry out a full leak test on the pipe work and ensure the pipe work and connections do not leak and everything is fully insulated.

★Heat insulation and sealing



Caution

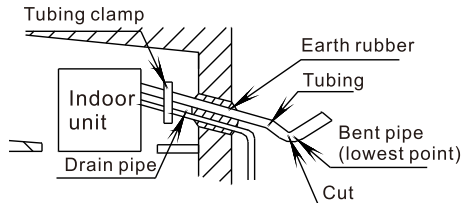
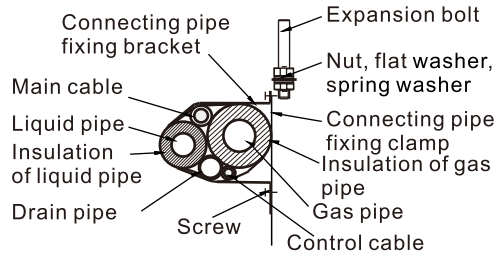
Copper tube and drain pipe must be separately insulated to prevent condensation or water leakage .

1. The copper tube should be properly insulated using materials, designed for insulating air conditioner pipe and heat resistive above 120°C.
2. Areas with very high humidity levels
This air conditioner has been fully tested in various humidity conditions, however if it runs for long periods of time in a high humidity environment then the following precautions should be carried out.

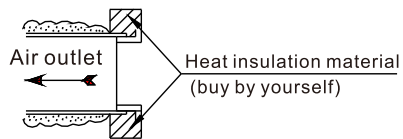
The indoor unit should be externally insulated using 10-20mm thickness glass fibre
The normal pipe insulation is around 8mm. This should be replaced with up to 30mm thickness insulation.

3. Sealing the Wall:

To prevent rainwater or other foreign bodies from entering the room and air-conditioner after installing the tubing and drain pipe, the gap between wall hole and tubing, drain pipe and electric wire should be sealed with mastic, sealant rubber or putty, or poor performance or leakage will result. If the outdoor unit is higher than indoor unit, tubing should be bent to ensure that the lowest point of the tubing is lower than the wall hole to prevent rainwater entering the room or air-conditioner along the piping system.

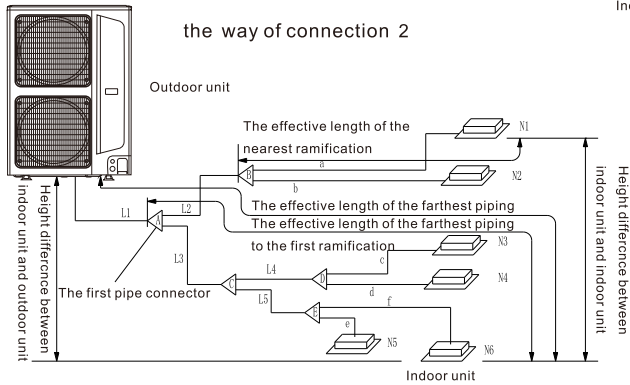
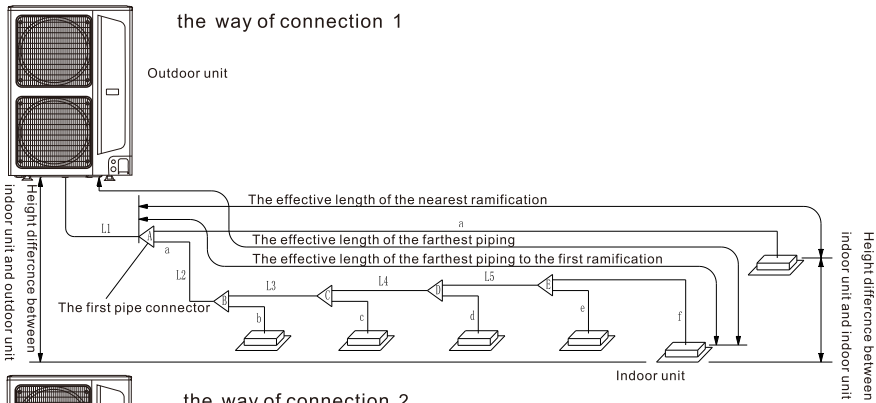


Make a cut in the heat insulation materials of bent pipe (for drainage)



Outdoor unit	Max.number of indoor unit
3600Btu	5
4200Btu	7
4800Btu	8

★Connection of refrigerant pipe



		Allowable value	Part of Auxiliary pipe	
Length of Auxiliary pipe	Over all length of auxiliary pipe (equivalent length)	$\leq 150\text{m}$	$L1 + L2 + L3 + L4 + L5 + a + b + c + d + e + f$	
	Max. length between outdoor unit and fastest indoor unit	actual length $\leq 100\text{m}$	$L1 + L2 + L3 + L4 + L5 + f(\text{way 1})$ or $L1 + L3 + L5 + f(\text{way 2})$	
		equivalent length $\leq 120\text{m}$		
	Max. length between indoor unit and the first Y branch pipe	$\leq 40\text{m}$	$L1 + L2 + L3 + L4 + L5 + f(\text{way 1})$ or $L3 + L5 + f(\text{way 2})$	
Difference of the fastest indoor unit to the closest Y branch pipe	$\leq 30\text{m}$	a, b, c, d, e, f		
High head	Level difference of indoor unit and outdoor unit	outdoor unit is at the upper part	$\leq 50\text{m}$	-
		outdoor unit is at the lower part	$\leq 40\text{m}$	-
	Level difference among indoor units	$\leq 15\text{m}$	-	-

■ Please select deoxidizing seamless copper phosphorus as refrigerant connecting pipe.

■ **Requirements for connecting pipe between indoor unit and outdoor unit**

1. Machining dimension of flared pipe section is as shown in following table;
2. When flaring nut is connected, some refrigerant oil should be applied on the flared pipe section (both inside wall and outside wall), and screw the nut by 3~4 thread pitches before finally tightening it;
3. Tightening torque is shown in the following table;
4. Carry out leakage test after completion of the installation.

Tube specification	Tightening torque	Machining dimension of flared pipe section	Shape of flared mouth	Apply refrigerant oil
φ 6.35mm	15-19N.m	8.3-8.7mm		
φ 9.52mm	35-40N.m	12.0-12.4mm		
φ 12.7mm	50-60N.m	15.4-15.8mm		
φ 15.88mm	62-76N.m	18.6-19.0mm		
φ 19.05mm	98-120N.m	22.9-23.3mm		

■ Turn back to oil

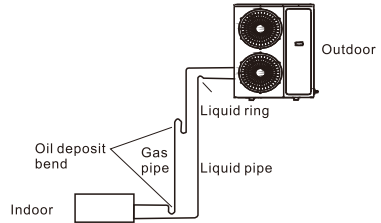
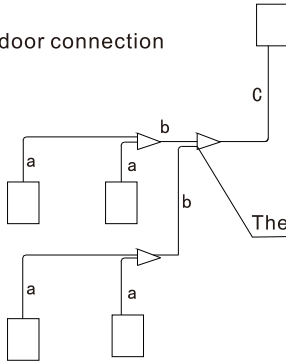
Precautions to prevent compressor oil starvation

1. Horizontal pipes should incline toward the outdoor unit using a 20:1 slope
2. If there is a height difference between the indoor and outdoor unit, oil traps should be installed in the interconnecting gas (large) pipe:
3. When the vertical pipe height difference is less than 5 meters, an oil trap should be installed at the bottom of the gas (large) pipe;
4. When the vertical pipe height difference is more than 5 meters, then for every 5 meters an oil trap must be installed at the bottom of the gas (large) pipe, and a short loop (liquid ring) should be installed at the exit of the indoor unit liquid (small) pipe;
5. When the connecting gas pipe vertical height difference is less than 5 meters but the constant rise distance is too long, an oil trap should be installed in the gas (large) pipe every 10 meters.
6. When the outdoor and indoor units are at the same elevation, the oil deposit bend and liquid ring do not need to be installed, if the horizontal connecting pipe length is less than 10 meters.

When the horizontal connecting pipe length is more than 10 metres, install an oil trap in the gas (large) pipe every 10 metres

Note: This chart is for explanation purposes.
An actual installation will differ from this according to the site conditions.

■ Piping and outdoor connection



When the installation position of indoor unit is lower than that of the outdoor unit.

The diameter of a pipe(indoor unit— Differences tube between),
The diameter of the piping specifications indoor itself

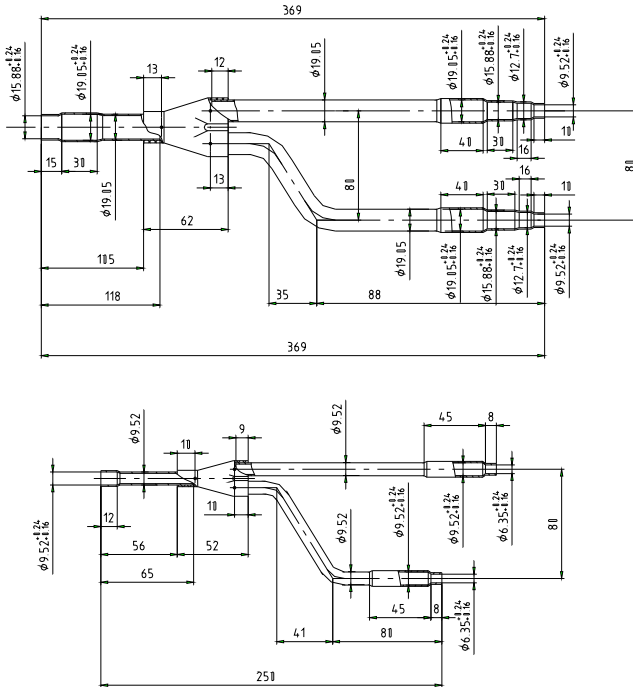
Cooling capacity(kW)	Gas pipe	Liquid pipe
2.2	φ 9.52	φ 6.35
2.8	φ 9.52	φ 6.35
3.6	φ 12.7	φ 6.35
4.0	φ 12.7	φ 6.35
4.5	φ 12.7	φ 6.35
5.6	φ 12.7	φ 6.35
7.1	φ 15.88	φ 9.52

The pipe diameter c,(ouddoor unit— between ramification pipe),
The diameter of the piping specifications air-conditioners itself

	The pipe diameter between outdoor unit and divergent joints		The diameter of the piping specifications air-conditioners itself	
	Gas pipe	Liquid pipe	Gas pipe	Liquid pipe
36000Btu	15.88	9.52	19.02	9.52
42000Btu	15.88	9.52	19.02	9.52
48000Btu	19.02	9.52	19.02	9.52

★choose the Divergent joints

(1) Ramification pipe size



★Evacuation or evacuation

1. gas-tightness test

Tightness test aims to confirm piping system of leaks, use for nitrogen gas. Using nitrogen on three points for pressure.

The first: 5.0kgf/cm², 3 minutes above can be found Play leakage

The second: 15.0kgf/cm², 3 minutes above can be found Play leakage

The third: 38kgf/cm², 24 hours above can be found Play leakage

The first section: To match the indoor casing well

The second section: Each match in vertical pipe casing well

The third section: Each match casing well into the bonnet

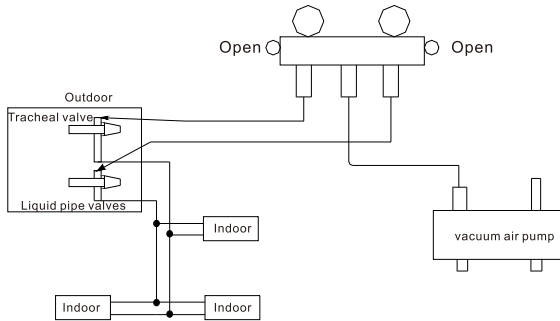
The fourth section: From indoor to air-conditioners as a whole

Note: compressed air testing system after the nitrogen pressure to 5 ~ 10 KGF/cm².

If the machine before will connect piping shelved, had better be inserted into the air, and filling of nitrogen, guarantee system of dry.

2. evacuation

Refrigerant plumbing system of time: use R410A special vacuum with (against), through the valve on the globe valve maintenance fittings and trachea globe valve overhaul joint simultaneously time, time can be completed as soon as possible.



★Refrigerants used

■Refrigerant filling quantity (additional amount)

When the total length of pipe according to connect, according to the table, additional refrigerant additional refrigerant methods are as follows:

liquid pipe diameter	Tube diameter extra additional refrigerant(kg/m)
φ 25.4	0.45
φ 22.22	0.34
φ 19.05	0.25
φ 15.88	0.17
φ 12.7	0.11
φ 9.52	0.054
φ 6.35	0.022

Note: A. When the refrigerant filling quantity does not include refrigerant piping part ($\geq 25\text{m}$) of filling quantity

B. Refrigerant piping filling quantity of additional (measure):

Refrigerant piping in the length of pipe \times Corresponding every meters of refrigerant additional amount.

Additional amount is refrigerant = $(L1 \times 0.17) + (L2 + L3 - 25) \times 0.054 + (L4 \times 0.022) = (0 \times 0.17) + (20 + 35 - 25) \times 0.054 + (20 \times 0.022) = 2.06\text{kg}$

L1: φ 15.88 liquid pipe (length); L2: φ 12.7 liquid pipe (length);

L3: φ 9.52 liquid pipe (length); L4: φ 6.35 liquid pipe (length);

Electrical connections

Warning

All electrical works must be carried out & checked by a qualified electrician and must adhere to the IET regulations, local and national legislation and industry best practice . The system must have its own independent power supply. An all pole isolating disconnect switch with at least 3mm contact separation must be installed.

The power cord and connecting cable should be either as supplied with the unit or otherwise as specified in this manual.

Do not attempt any electrical works yourself.

An Earth Leakage Protector, Power Switch and Circuit Breaker or Fuse must be installed in the dedicated power supply or there is the risk of electric shock.

The fuse specification of control panel is T3.15AL 250V;

The grounding must be reliable. If grounding is not correct, it may lead to electric shock.

All power cables should be properly secured with cable ties so that external forces cannot disconnect the wired from the terminals. Improper connections or insecure fastening can cause electric shocks or fire.

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

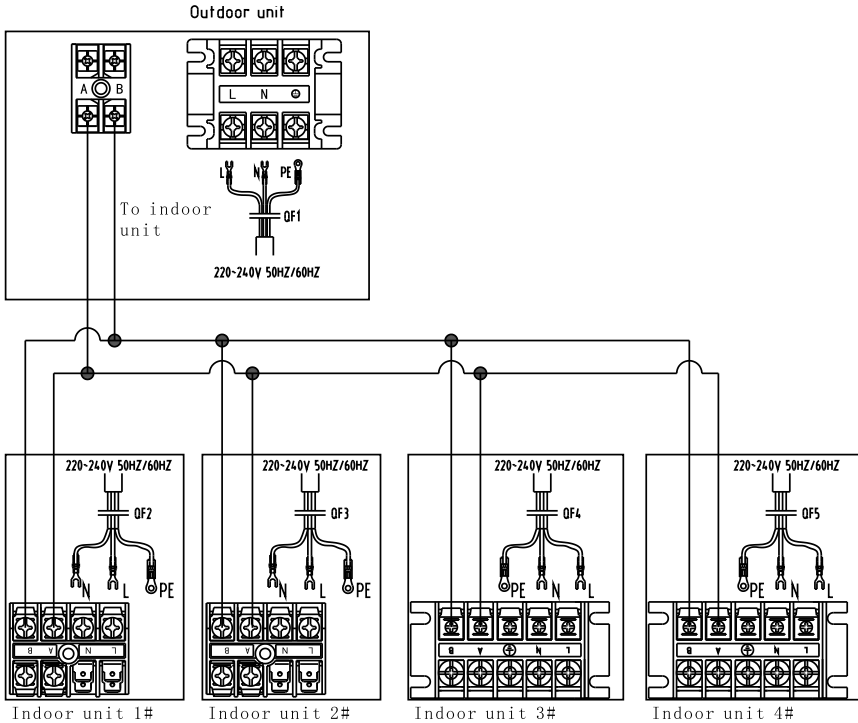
Caution

Do not connect the earth cable to gas or water pipes, telephone lines, lightning rods or the earth cables of other products.

Once the indoor and outdoor unit have been switched on, do not cut off power supply in 1 minute, (the system automatically set) otherwise abnormal operation will be caused.

- Please connect the power cord and interconnecting cable according to the wiring diagram.
- Connect the wire firmly to the terminal block using crimps and secure in order to prevent external forces pulling on the wire causing risk of fire or electric shock.
- After the electrical connection is completed, all wires should be prevented from touching other parts such as tubing, compressor etc.

★Wiring diagram



⚠ Caution

1. Power cable is the power supply cable from indoor air switch to the indoor unit or outdoor unit; Power connecting cables for indoor unit and outdoor unit are the power supply cables that connect indoor unit and outdoor unit.
2. Above-mentioned is the specifications of power supply, power cables and power connecting. Cables for indoor unit and outdoor unit of all types of air conditioners.
3. The cross-section area of power core cable is min. size, and when the power cable is long, Cross-section area of power core cable should be increased by one size, in order to avoid voltage drop
4. Power cable connecting to indoor unit is H05VV-F cable; Power cable connecting to outdoor unit and the power connecting cables for indoor unit and outdoor unit are H05RN-F cable (neoprene) stranded wire. If single-branch two ply wire, please select the cross-section area of the wire larger by one size and special electric sleeve should be used.

1. Wire specifications

Type	Power supply area(mm ²)	Grounding load area(mm ²)	Circuit Breaker (A)
	Single-phase 220~240V 50Hz/60Hz	Single-phase 220~240V 50Hz/60Hz	
36000Btu	6	6	32
42000Btu	6	6	32
48000Btu	6	6	40

2. Outdoor unit Main connection

Open the cover of terminal box, Connect the cables according to the circuit diagram.

Note: Connection on the connection end must be pressed, not any flexible.

After cables are connected correctly, bind the connecting pipes, connecting cables and draining pipes with binding tapes.

Failure Code

Fault code definition	
Fault Code	Definition of Fault Code
C1	ENV Sensor"Tau"failure
C2	Defrost Sensor "Tdef"failure
C3	Exhaust Sensor"Tda"failure
C6	Compressor suction sensor"Ts"failure
CJ	Oil temperature sensor"Tci"failure
F1	High pressure sensor "Pd"failure
F3	High pressure"Pd" protection
FB(FH)	Low discharge temperature "Tda" protection
H1	High pressure switch "HPS"protection
H4	Low pressure switch"LPS" failure
E1	4-way valve failure
H5	Lack of gas alarm
HJ	Main power failure
E3	Discharge temperature"Tda"too high shutdown protection
J2	The communication between indoor unit and outdoor unit failed
J3	The communication between Controller and module failure
J4	The communication between main control panel and fan failed
J7	Outdoor unit Controller EPROM module(AT24C04) failure
JJ	capacity exceeding failure
31	Module protection (F0)n
32	Module hardware protection
33	Module software protection
34	Compressor unconnected
35	Compressor phase current overcurrent protection
36	DC bus overvoltage or undervoltage protection
37	Compressor temperature sensor of driver module heat fins failure
38	Compressor driver module high temperature limit frequency failure
39	Compressor driver module high temperature, shur down protection
3E	Compressor Running out of step
47	Indoor unit loss failure
3H	External fan failure
E9	The temperature of driving cooling pipe too low

★Dial switch function definition:

SW1:Refrigerating capacity selection SW2:function selection

SW3:function selection

Climate type	T1	T3
SW1 	8kW	
SW1 	10kW	8kW
SW1 	12kW	10kW
SW1 	14kW	12kW
SW1 	16kW	14kW

SW2 	ON:26℃ economic locking OFF:without 26℃ economic locking(default)
SW2 	ON:Auto addressing OFF:Manual addressing (default)
SW2 	ON:The minority obeying the majority OFF:First match wins(default)
SW2 	ON :AC motor OFF:DC motor

SW3 	ON:Single-phase unit OFF:Three phase unit
SW3 	ON:Without heating for 6hours after power on OFF:heating for 6hours after power on
SW3 	ON:Silent mode OFF:Without silent(default)
SW3 	ON:Locking indoor units No. OFF:Unlocking indoor No (default)

Dial steps:

- 1.Set the second bit of SW2 to"ON"and start automatic addressing. If WiFi module is installed, it must be manually addressed; (power-off operation)
- 2.When the number of digital tube is the same as the actual number and keep 1 minute,set the fourth bit of SW3 to "ON" to lock the number of internal unit; (power operation)
- 3.Set the second bit of SW3 to "ON" and shield the heating function of power-up 6 hours (according to the actual situation). (Power-off operation)

■ Operation Instructions for Common User Level Monitoring Software

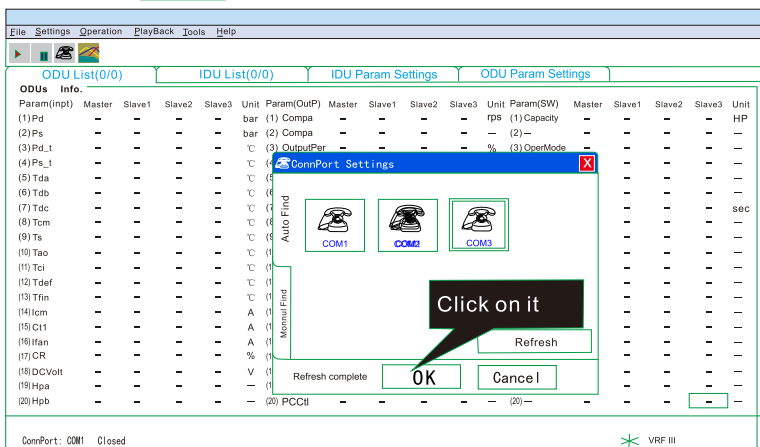
Step 1 : After finishing wiring of indoor and outdoor units, connect the monitoring tool to the outdoor unit.

Step 2 : Switch on the power supply, start the monitoring software, confirm whether the communication between outdoor and indoor units is normal, as well as address of indoor units.

Step 3 : Start up the indoor units one by one in cooling mode, observe the system operation situation according to monitoring software

ODUs		IDU List(0/0)				IDU Param Settings				ODU Param Settings				Unit			
Param(Inpt)	Master	Slave1	Slave2	Slave3	Unit	Param(OutP)	Master	Slave1	Slave2	Slave3	Unit	Param(SW)	Master	Slave1	Slave2	Slave3	Unit
(1)Pd	-	-	-	-	bar	(1) Compa	-	-	-	-	rps	(1) Capacity	-	-	-	-	HP
(2)Ps	-	-	-	-	bar	(2) Compa	-	-	-	-	-	(2) —	-	-	-	-	-
(3)Pd_t	-	-	-	-	℃	(3) OutputPer	-	-	-	-	%	(3) OperMode	-	-	-	-	-
(4)Ps_t	-	-	-	-	℃	(4) —	-	-	-	-	—	(4) OperProc	-	-	-	-	-
(5)Tdb	-	-	-	-	℃	(5) Fan1Spd	-	-	-	-	rpm	(5) Priority	-	-	-	-	-
(6)Tdb	-	-	-	-	℃	(6) Fan2Spd	-	-	-	-	rpm	(6) —	-	-	-	-	-
(7)Tdc	-	-	-	-	℃	(7) —	-	-	-	-	—	(7) CompTim	-	-	-	-	sec
(8)Tcm	-	-	-	-	℃	(8) PMV1	-	-	-	-	—	(8) FreqRZ	-	-	-	-	-
(9)Ts	-	-	-	-	℃	(9) PMV2	-	-	-	-	—	(9) PMVRZ	-	-	-	-	-
(10)Tao	-	-	-	-	℃	(10) PMV3	-	-	-	-	—	(10) PMW_SHS	-	-	-	-	-
(11)Tci	-	-	-	-	℃	(11) —	-	-	-	-	—	(11) —	-	-	-	-	-
(12)Tdef	-	-	-	-	℃	(12) Sv0	-	-	-	-	—	(12) DiagCode	-	-	-	-	-
(13)Tfin	-	-	-	-	℃	(13) Sv1	-	-	-	-	—	(13) —	-	-	-	-	-
(14)lcn	-	-	-	-	A	(14) SVA	-	-	-	-	—	(14) FirmwRev	-	-	-	-	-
(15)Ct1	-	-	-	-	A	(15) SVB	-	-	-	-	—	(15) —	-	-	-	-	-
(16)ifan	-	-	-	-	A	(16) Cha	-	-	-	-	—	(16) —	-	-	-	-	-
(17)CR	-	-	-	-	%	(17) Chb	-	-	-	-	—	(17) —	-	-	-	-	-
(18)DCVolt	-	-	-	-	V	(18) —	-	-	-	-	—	(18) —	-	-	-	-	-
(19)Hpa	-	-	-	-	—	(19) LP	-	-	-	-	—	(19) —	-	-	-	-	-
(20)Hpb	-	-	-	-	—	(20) PCCtl	-	-	-	-	—	(20) —	-	-	-	-	-

Step 4 : Click **OK** to choose the right communication port.



Step 5 : Click the start button “▶” to monitor the system.

Step 6 : Check the parameter of the outdoor units.

Step 7 : Check the parameter of indoor units.

Step 8 : Use the central controller to control the indoor units.

Technical data

Model		36000Btu	42000Btu	48000Btu
Power supply		220-240V 1N~ 50Hz / 60Hz		
Rated cooling capacity	kW	10.0	12.3	14.0
Rated heating capacity	kW	11.5	13.2	16.0
Rated cooling input power	kW	2.51	3.15	3.88
Rated heating input power	kW	2.85	3.41	3.93
Rated cooling current	A	11.26	14.13	17.38
Rated heating current	A	12.75	15.28	17.62
Max.input power	kW	5.10	5.20	7.05
Noise	dB(A)	57	57	57
Dimensions (H×W×D)	mm	1320×940×340		
Weight	kg	86		93
Liquid/Gas pip	mm	φ9.52/φ15.88		φ9.52/φ19.05

Remarks: determination conditions of capacity:

A. Cooling mode: indoor back temperature: 27°CDB/19°CWB; outdoor back temperature: 35°CDB/24°CWB. Refrigerant pipe length: 5m (horizontal).

B. Heating mode: indoor back temperature: 20°CDB, outdoor back temperature: 7°CDB/6°CWB. Refrigerant pipe length: 5m (horizontal).

C. Due to the products improvement, the right to change specifications and design without notice, please take parameter in the nameplate as final.

Installation Operation Instruction Manual

DC Inverter VRF Outdoor Unit

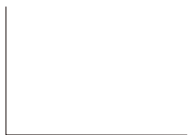
- ◆ Installation should only be carried out by qualified technicians.
- ◆ For your convenience, please read this manual carefully and carry out all instructions in full.
- ◆ Please keep this manual in good condition for your reference.



Introduction

This Manual is available for following models:

Mapping Table



The refrigerant R410A leakage contributes to climate change. Refrigerant with lower global warming potential (GWP) would contribute less to global warming than a refrigerant with higher GWP, if leaked to the atmosphere. This appliance contains a refrigerant fluid with a GWP equal to [2088]. This means that if 1 kg of this refrigerant fluid would be leaked to the atmosphere, the impact on global warming would be [2088] times higher than 1 kg of CO₂, over a period of 100 years. Never try to interfere with the refrigerant circuit yourself or disassemble the product yourself and always ask a professional.

Safety precautions

In order to prevent the risk of death, serious injury or damage to property please comply with the following important safety instructions.

The extent of possible harm is described by the following symbols.

 Warning
This symbol indicates danger of death or serious injury.










 Caution
This symbol indicates danger of death or damage to property.

The unit must be operated in accordance with the following symbols.





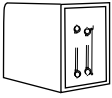












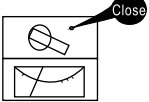

This symbol indicates something which is strictly forbidden.


This symbol indicates something which must be adhered to.

★ Protective measure




 Warning	
<p>① Your air conditioner is not designed to be installed by yourself and should only be installed by a qualified, competent and trained technician. The presence of Mains Voltage electricity and high pressure refrigerant gas make installing this system a specialist task which you should not attempt yourself. </p> <p>② Any electrical work on the air conditioner should only be carried out by a qualified, competent and trained technician and not by yourself.</p> <p>③ Ensure the electrical power is disconnected during service and maintenance.</p>	
Important	
<ul style="list-style-type: none"> This unit is not suitable for operation by minors or disabled users. Children should be prevented from operating the air conditioner. 	
 Warning	
<ul style="list-style-type: none"> This unit must be correctly earthed.  Incorrect grounding will cause earth leakage and electric shock.  	<ul style="list-style-type: none"> Earth Leakage Protection must be installed. Failure to do so carries the risk of electric shock and fire. 
 Caution	
<ul style="list-style-type: none"> Do not install either the indoor or outdoor unit in a place where flammable or explosive gases are present or there is a high risk of a fire or explosion occurring.  	<ul style="list-style-type: none"> Ensure the unit drain pipe work is properly connected and made or water leaks will occur. 

★Safety precautions

⚠ Warning		
Don't use flammable sprays near the air conditioner.		IF there are some abnormalities (such as the smell of scorching), please shut down and cut off power supply. 
Don't use open flame near the air conditioner.		Don't use sub-standard or damaged wires.  
Don't attempt to repair the air conditioner yourself.		Don't put fingers or other objects into the air conditioner. Don't touch metal parts of the heat exchanger. 
⚠ Caution		
Your air conditioner is designed for comfort cooling or heating. It is not designed for any other purpose and specifically should not be used for storing food, animals, plants, precision instruments, art or antiques, nor any other special item. It is not designed for specialist computer rooms.  		Do not use naked flames where the air flow from the unit can reach directly. The air from the unit will interrupt the combustion process and either extinguish the flame or misdirect it. Either is a danger of fire or explosion. 
Your air conditioner contains water and may also drip if the humidity of the room is too high. Do not, therefore, place any object under the unit which could be damaged in the event of water dripping on it. 		Do not direct the air from the unit directly onto animals or plants as this may be harmful to them. 
Do not sit in in the cold air stream directly for long periods. 		Ensure the room properly ventilated. 
Check the air conditioner regularly to ensure correct operation and that nothing has become loose. 	Do not clean the air-conditioner with water. 	Before cleaning the air conditioner, cut off the power.  

★Installation precautions

- Before commencing with the installation please read these installation precautions thoroughly, making sure you understand them in full.
- These installation precautions are very important for safety of you and others and should be complied with in full.
- The potential risks are described by the following symbols.

 Warning	Danger of serious injury or death.
 Caution	Danger of damage to property.
 Forbidden	Do not do this under any circumstances.

- The below symbols indicate steps which are mandatory.

 	These steps are mandatory and should be carried out without fail.
---------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------


- It is important that the unit is correctly commissioned after the installation is complete to ensure it is operating correctly.

After commissioning you should use this manual explain to the user the correct method of operating the unit and its maintenance requirements.

 Warning

- Do not attempt to install this unit yourself. Incorrect installation can cause refrigerant or water leakage, electric shock, fire or other to health and safety or property.
- Where the unit is installed must be solid enough to withstand the weight of the unit. If it is not then there is the danger of the structure collapsing or the unit falling creating a danger of serious injury or death.
- The installation should be mindful of potential damage by strong winds, earthquakes or other natural phenomena. These should not be able to cause the unit to fall over and cause an accident.
- The electrical installation should be in accordance with local and national specifications and only be carried out by qualified personnel in accordance with installation instructions. The air conditioner should have its own dedicated power supply.
- Ensure the power supply is of sufficient capacity for the unit or there is a risk of fire, electric shock or other failure.
- The wiring should be made correctly using the specified cable and properly secured to avoid the risk of external forces causing the connections to come loose. Failure to come loose.
- Failure to do this runs the risks of electric shock or fire.
Ensure the refrigerant pipe work is fully evacuated and leak tested and do not over charge with refrigerant. Over charging with refrigerant can cause a leak to occur after installation. Leaks can cause a high concentration of refrigerant in an area which may result in sudden death by asphyxiation.
- Do not carry out any electrical work unless the power supply has been disconnected.
If the unit is installed in a small room there is danger of a leak causing the refrigerant gas concentration to exceed the maximum permissible for safe breathing and this can cause sudden death by asphyxiation. Please consult your dealer about preventative measures such as audible visual leak detectors.
- When making pipe connections be sure to use a torque wrench and tighten the flare nuts to the correct torque. Over and under tightened nuts can cause refrigerant gas to leak. Do not operate the compressor unit the pipe work has been correctly made, leak tested and evacuated.
- While performing installation or maintenance ensure that no foreign objects can enter the either the unit or pipe work.

Warning

- Do not use any refrigerant other than the one indicated on the outdoor unit name plate. Do not allow foreign bodies or moisture to enter the pipe work during installation and ensure the pipe work is fully leak tested and evacuated before running the unit. If the refrigerant gas becomes contaminated with moisture, air or other gases then unit will not perform correctly and there is a risk of leakage, explosion or other damage to the unit.
- Do not extend the power cable or use multiple power cables.
- Do not place the outdoor unit near balconies or anywhere children can climb onto it and potentially fall off and injure themselves.
- If there is a refrigerant leak during installation immediately ventilate the space thoroughly. Once the installation is complete carry out a thorough leak test of system.
- Never allow refrigerant gas to make contact with sparks or naked flames and burning refrigerant releases poisonous gases. Ensure the electrical supply cable is properly protected and connections are made properly. Bad connections will cause the cable to overheat and potentially cause electric shocks or fire.
- An Earth leakage protector must be installed. The entire electrical installation should be checked by a qualified electrician to avoid the potential for electrical shocks or fire. The unit must be adequately earthed. 
- Never connect the earth wire to gas or water pipes, lighting rods or telephone cables. Inadequate grounding of the earth cable may lead to the danger of serious injury or death by electric shock.
- 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. (Only for the AC with CE-MARKING)
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance. (Except for the AC with CE-MARKING)
- For 8HP, 10HP and 12HP
This equipment complies with EN 61000-3-12:2011 provided that the short-circuit power S_{sc} is greater than or equal to 5116.478 kVA at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power S_{sc} greater than or equal to 5116.478 kVA.
- For 14HP and 16HP
This equipment complies with EN 61000-3-12:2011 provided that the short-circuit power S_{sc} is greater than or equal to 7420.106 kVA at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power S_{sc} greater than or equal to 7420.106 kVA.
- For 18HP, 20HP and 22HP
This equipment complies with EN 61000-3-12:2011 provided that the short-circuit power S_{sc} is greater than or equal to 9844.977 kVA at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power S_{sc} greater than or equal to 9844.977 kVA.

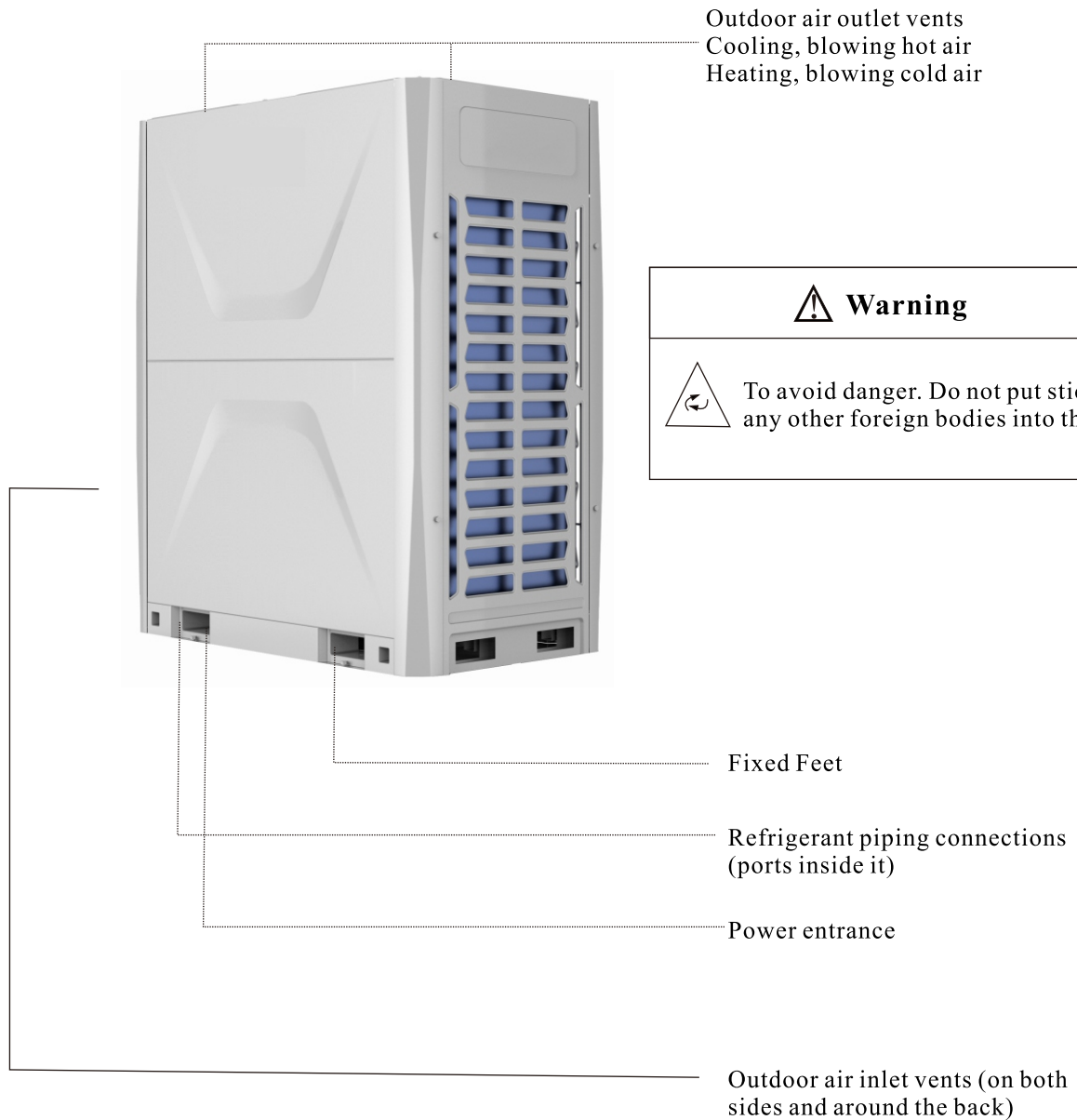
 **Caution**

- Ensure the drain pipe is installed in accordance with the installation instructions and adequately insulated to protect against condensation forming. Badly installed drain pipe work can cause expensive damage due to water leaks.
- Your air conditioner contains sophisticated electronic controls which may be subject to interference from radios, televisions, mobile telephones or other electronic goods. Do not operate these items near air conditioner or they may cause the unit to fail.
We suggest maintaining a distance from these items to indoor unit at least 1 meter and to the outdoor unit of at least 2 meter.
Depending upon the type and frequency of the electromagnetic signal you may need to leave a longer distance than this.

 **Forbidden**

- Do not try and install, service or remove the air conditioner yourself. Contact the dealer or service center.
- Do not mount this system in a vehicle, ship, aircraft or other place which will move while the unit is in operation.
- Do not install this unit where there will flammable or explosive gases present. If these leak and accumulate near the air conditioner than a fire or explosion may result.

All Parts' Name and Role






Note

- Air conditioning only can be worked after power switch be opened more than 12 hours. In addition, please do not cut off the power supply, when that is a short period of time around day and night stands. (This is to heat the compressor, avoided the compressor starting with liquid.)
- Be careful not to plug air inlet and outlet vents. Otherwise, air conditioner may be a degradation performance or automatically start-up the protection fixture to stop running.

Installation Notes

Installation Sites



 Note	 Installation Sites confirmed	Do not install in the place where flammable gas can be easily leaked. Once flammable gas leaks and strands around the outdoor unit, it may trigger fires.
	 Fixation Confirmed	Confirm the base whether firmly installed. If the foundation is not so solid, outdoor machines may fall down and transform an accident.




Request

- Please avoid closing with high frequency facilities.
- Avoid installing in the following places: the place with much oil (including engine oil) foam or steam, including the areas with much sea salt, including the place has many sulfides hot springs. It is easy to occur accidents in these places.
- Please contact dealers if it will be installed under a special requirement.
- The air inlets of outdoor unit should have a open around to be sure it has a well-ventilation.
- Avoid the strong winds blowing the inlet and outlet vent directly.
- In the snow region, should be installed a shelf for the outdoor unit to anti-snow or anti-ice. More details please contact the dealer advisory.

Attention to the operative noise

- Do not choose the place where may spread the noise more louder.
- The noise level will increase when there has obstructions near by the outdoor unit.
- Choose a right place, avoid outdoor unit's hot or cold wind blowing to your neighbors and avoid the machine's noise be an inconvenience to them.

 Warning	 Confirmed grounding	Confirm whether the correct grounding. It will cause an electrocution if there has an imperfect grounding.
-------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------

 Note	 Leakage circuit protection confirmed	Confirm whether have installed the leakage protection switch. The leakage protection switch must be installed. Otherwise it may cause electrocution.
	 Correct fuse confirmed	Do not use the fuse that do not have the appropriate capacity. It is possible to cause a failure or causing electrocution if using the copper wire or ferric wire.

Operation And Performance

About Three-minute Protection

- It should take about three minutes to restart the unit after stop running or re-run the unit with manual switch. This is the self-protection of the compressor.

Cooling & Heating

- Indoor unit of DC inverter scroll central air-conditioning can be individually controlled, but the same system's outdoor unit can't be cooling or heating at the same time.
- When it has conflict between cooling and heating type, mainly considered that mode which is operating at present, the other contrary mode make panel flashing, one indoor unit stop running, the other working indoor AC keep running as usual.

Heating Characteristics

- Operation will not be immediately at the start of hot air blowing, after around 3~5 minutes (delay or forward according to the temperature around) it will blowing hot air when indoor heat exchanger be heat enough.
- The outdoor's fan motor might cease when there's a high outdoor temperature.
- During the air supply operation, if the other indoor units on a heating model, it is possible to suspend air supply in order to prevent hot air blowing.

Defrost In Heating Mode

- On heating model, outdoor machines occur the frost phenomenon, in order to improve the heating effect, automatic running defrost operation (about 2~10 minutes), the drainage vent from the outdoor unit.
- On the defrosting mode, the outdoor fan motor stop running, indoor units also stop the fan motor running.

Running Conditions

For the proper use, running in the following conditions.

Cooling	Outdoor air temperature	-5°C~52°C T3:-10-55
	Room temperature	21°C~32°C
	Room humidity	≤80% Humidity over 80%and long-term running, it may have condensate water on the surface or blow the mist cooling air around the outlet.
Heating	Outdoor air temperature	-25°C~24°C T3:-20~24
	Room temperature	≤28°C

Once running another conditions which did not in the above-mentioned, it will activate protective device operation and stop running.

Protection Device (High Voltage Switch)

This device terminate running automatically during a compulsory working. Protection device moves circumstances, stop running, and show the trouble code. In the event of the following circumstances, the protection of installations is activated.

■ Cooling

- Outdoor Unit's inlet or outlet was full of plug.
- Sustained strong winds blow to the outdoor unit's tuyere.

■ Heating

- Indoor unit's filter conglutinate too much excessive dust and litter.
- Indoor unit's outlet has been obturated.

When protection device actions, please manually cut off the power switch, do not restart it till founded the reasons.

The Power Cut

- If there's a power cut during the running, then there will be a cessation of all operations.
- Restart it after the power cut, the indicator of wired controller will flicker for a notice.
- When re-start again, please press re-operation/ stop button.

■ Multifunction Happens During Operation

If malfunction happens during operation because of the thunder and lightning, the automobile radio and so on, please do shut off the manual power switch, after electrifying again, then presses re-operation/ stop button.

Heating Capacity

- The system is absorbing heat from the outside, and releasing them to the indoor, once the outdoor temperature become lower, then the heating capacity will be lower.
- Proposed use other heating equipments together when outdoor temperature is too low.
- In the alpine areas where has a particularly low temperature, the heating effect will be even better if the indoor unit has auxiliary electric heating device.
(Please read the detailed from Indoor Unit Manual)

Abnormal Situation

Before you declare the maintenance services, please refer to the following table when there's event of the following situations.

	Phenomenon	Reasons
It's not Failure	<p>Outdoor Unit</p> <ul style="list-style-type: none"> ● White mist or water appeared. ● Make a sound of "Pu-Pu" every now and then. <p>Indoor Unit</p> <ul style="list-style-type: none"> ● The wind has peculiar smell ● Running lights flashing. ● "Cooling" or "heating" lights flashing on the operation panel. 	<ul style="list-style-type: none"> ● Outdoor's fan motor stop defrosting automatically. ● The electro-valve make the sound at the beginning and the ending of the defrost progress. ● There occur a voice alike stream during or ending the working. The voice will be more louder after 3~15 minutes, that is the voice of refrigerant flowing or the voice of dehumidification water's drainage. ● There's a "Pu-Pu" minor voice during its working, cause the reason of temperature changes, heat exchangers minor expand and make that voice. ● The dust from walls, carpets, furniture, clothing, cigarettes and cosmetics attached to the air-conditioning. ● Restart the unit after a power cut though the manual power switch, lights flashing. ● As a multi-units used, the lights flash and it stop running in the following situations. <ul style="list-style-type: none"> ① Do not cooling cause the other indoor machines' infection. ② When there's a antinomy between the model has been set and the model fixed. ③ Stop blowing to prevent the cooling wind blowing out.
Please Check It Once More	● Run or stop automatically	● Whether the timer be mis-operated.
	● Not running	<ul style="list-style-type: none"> ● Whether power cut. ● Manual power switch turn off or turn on. ● Whether the fuse be cut. ● Whether the protection device work or not (Fault Code). ● Whether the timer has reach the ordered time (running lights flashing).
	● Poor effect of heating or cooling	<ul style="list-style-type: none"> ● Whether the outdoor unit's outlet or inlet has been blocked. ● Whether doors and windows open. ● Whether the filter has full of dust and garbage blocking. ● Whether that is a appropriate position for the wind guide bar. ● Whether the wind switching model is "blow". ● Whether it is appropriate temperature setting. ● Whether the indoor's operation mode is assort with other indoor units.

Following situations should be stopped running immediately, cutting off power switch manually, and distributors to contact.

- Switch action inaccurate.
- Fuses or leakage protection frequently cut.
- Misuse foreign bodies or water enter into the air-conditioning.

Installation Instructions

Some Items Should Be Taken Before Reading The Installation Manual

1. This installation manual applies for the outdoor unit.
2. When installing the indoor unit, please refer to the installation manual for indoor unit.

Key Points

Key Points Of Inspection When Installing

Installation

Recognized model, name, to avoid mistakes when installing.

Refrigerant Piping

- Refrigerant piping should be used together with the specific (optional) refrigerant distributor. (ramification joints, ramification header).
- Refrigerant piping should take the pipes with the designated diameter.
- Nitrogen gas with the certain pressure should be charged to the refrigerant piping before welding.
- Insulation for the refrigerant piping should be taken.
- When the installation for the refrigerant piping is finished, the indoor unit should power off before the airtight experiment and vacuumize. Airtight experiment and vacuumize should be taken respectively for the gas side and liquid side.

Leakage Testing

- Refrigerant piping must take the airtight experiment [nitrogen gas with the pressure of 4.2Mpa(43Kgf/cm²)].

Vacuumize

- Vacuum pumps must be used when vacuumizing for connecting piping, and both gas side and liquid side should take at the same time.

Refrigerant Supplementary

- When exceeding the refrigerant supplementary for benchmark piping length, it should take the formula in case of the piping length (real length) to find the additional volume of each system.
- Take down the refrigerant supplementary, piping length (real length) and the height differences between indoor unit and outdoor unit on the service table for outdoor unit (electronic control box), in case of uses.
- The unit has automatic perfusion function, after debugging, the detailed operation is contained in the content of "refrigerant filling" module.

Electrical Wiring

- Power capacity, the choice of wire diameter, based on the design manual. Air conditioning power line is bigger than General Motors Power Line.
- To prevent the mis-actions of air conditioners, must take care not to let power line (380V 3N~) and the indoor and outdoor connectivity wiring (low-voltage wiring) staggered, winding.
- Indoor unit should power on after the airtight experiment and vacuumize.
- Address for the outdoor unit must be set, detailed in the "address for outdoor unit code".

Trial Operation

- Trial operation can be taken after the Outdoor unit is powered on for more than 6 hours.

Installation Sites

Attention

1. Avoid installation in the following sites:

- Areas with Combustible Gas-leak Areas with oil.
- Areas with High salt content (coastal area).
- Areas with sour gas. (Hot Springs area)
(Once in the use of these special places, the air conditioning will be a failure, so be sure to observe the use of air-conditioned places requirements.)
- The sites that noise of outdoor unit impacts the normal life of local people.
- The sites that not be able to sustain the weight of outdoor unit.
- The sites that not with the same horizontal level.
- The sites that the ventilation is poor.
- The sites with a private power generation equipment and high-frequency.
- The sites with strong electromagnetic interferences.

2. Metal part of the building and the grounding metal part of the air-conditioning, please refer to the national electrical standards implementation.

Attention to the operative noise

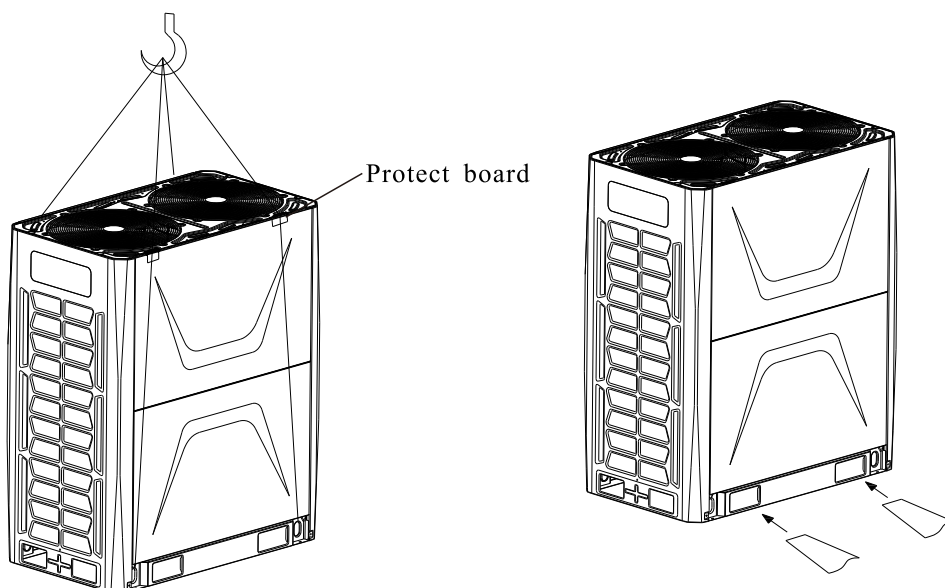
- Do not choose the place where may spread the noise more louder.
- The noise level will increase when there has obstructions near by the outdoor unit.
- Choose a right place, avoid outdoor unit's hot or cold wind blowing to your neighbors and avoid the machine's noise be an inconvenience to them.

The Transit For Outdoor Unit

1. Steel wire can be used for transit:

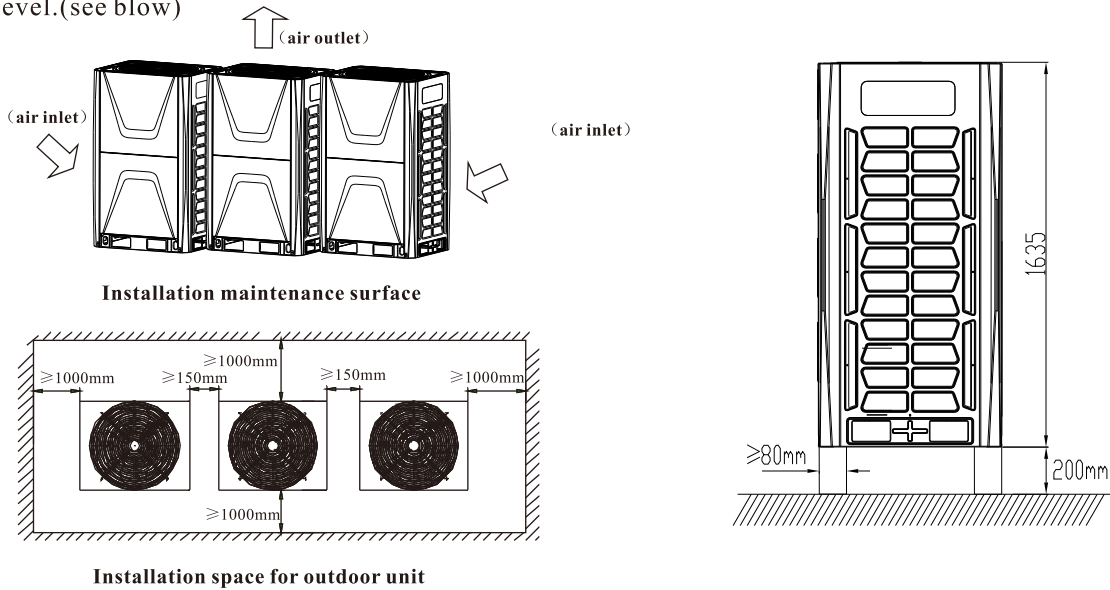
- Please use four pieces of steel wires with the diameter more than 6 mm to hang the outdoor unit, take care of the barycenter, in case of sliding and dumping.
- To avoid the surface injury and deformation, please use protect boards between the contact point of the steel wire and the air conditioner.
- When transit finishes, please take off the transportation plate.

2. Using forklifts to transit.

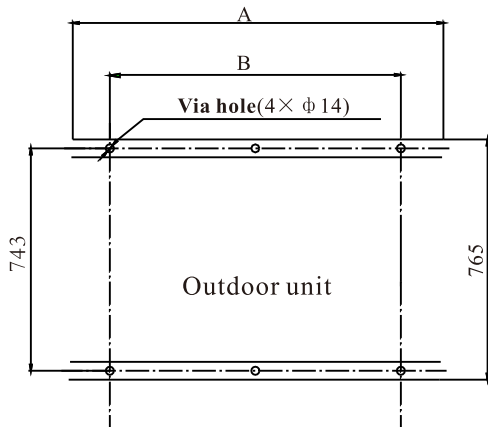


Mounting Space

1. When installing, set aside the maintenance space as shown the following diagram; installing the outdoor unit, power equipment should install at the side of outdoor unit, as to the installation method please refer to the power equipment installation manuals.
2. Please ensure the necessary space for maintenance, and the modules within the same system must be placed at the same level. (see blow)



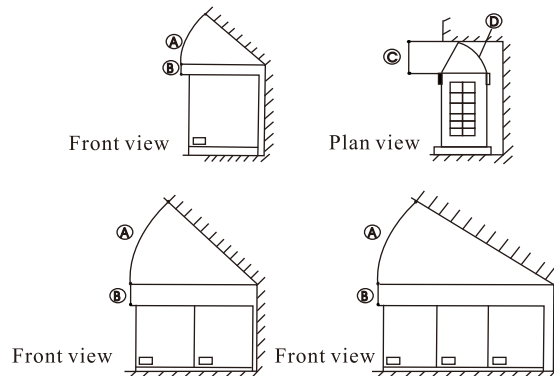
3. The installation space for anchor bolt please refer to the following drawing;



	A	B
8HP-12HP	990	730
14HP-22HP	1340	1085

4. When there is the barrier above the outdoor unit.

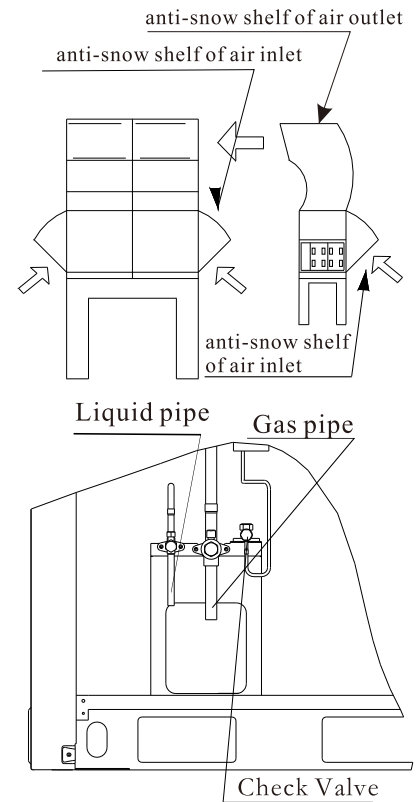
- (A) >45°
- (B) >300mm
- (C) >1000mm
- (D) Guide vane



Note: If there are piling stuff around the outdoor unit, then the height from the head of outdoor unit should more than 800 mm.
If the size is less than above-mentioned requirements, then need to increase mechanical exhaust devices.

Outdoor Unit Installation

As to the snowfall area, it is necessary to install anti-snow facilities. (see below) (anti-snow facilities incomplete,the fault-prone). To avoid the infection of the snow, elevated-lift, install the anti-snow shelf at the site of air inlet and outlei.



Refrigerant Piping

- 1.The joints of refrigerant piping are at the internal side of ODU,so please remove the under pull first.
- 2.Piping can remove from the baseboard of outdoor unit or low left conner square hole.
- 3.When connecting , first pass the L-type pipe through the base plate ,and the square hole of the crossbeam leads to the left,then to the left,to the right or backward to install the refrigerant ramification.

Notes

In order to prevent internal piping nitride, nitrogen filling operations must be taken when the piping is welding, otherwise oxidation chip will plug the refrigeration cycling.

The Panel of Outdoor Unit Installation

- While removing the panel① for the first time, we need take out the EPE cotton② on the bottom and loosen screws②. Pat the panel or insert a screwdriver to the gap between the panels④, pry down the panel gently. Please prevent the panel from slipping, as shown in Figure 1.
- While assembling the lower panel, we should lean the hemline of the lower panel on base beam, then adjust the panel against to the side plates, lift the panel up from both bottom sides, as shown in Figure 3.
- The instructions for pipeline connection and the location of the electric box are respectively shown in Figure 2 and figure4.

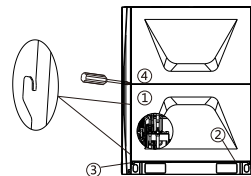


Figure 1

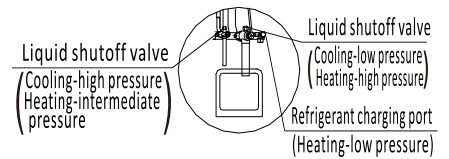


Figure 2



Figure 3

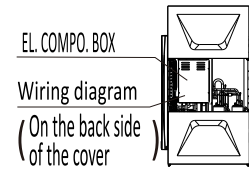


Figure 4

Outdoor Unit Combination

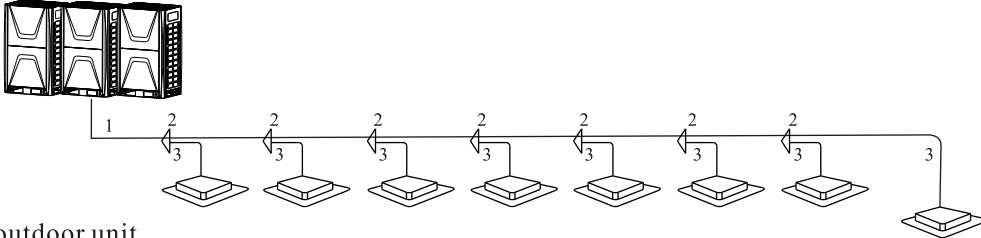
Type (HP)	Ways of combination	Type (HP)	Ways of combination	Type (HP)	Ways of combination	Type (HP)	Ways of combination
8	8×1	30	10+20	52	10+20+22	74	10+20+22+22
10	10×1	32	10+22	54	10+22+22	76	10+22+22+22
12	12×1	34	12+22	56	12+22+22	78	12+22+22+22
14	14×1	36	14+22	58	14+22+22	80	14+22+22+22
16	16×1	38	16+22	60	16+22+22	82	16+22+22+22
18	18×1	40	18+22	62	18+22+22	84	18+22+22+22
20	20×1	42	20+22	64	20+22+22	86	20+22+22+22
22	22×1	44	22+22	66	22+22+22	88	22+22+22+22
24	12+12	46	12+12+22	68	12+12+22+22		
26	10+16	48	10+16+22	70	10+16+22+22		
28	12+16	50	12+16+22	72	12+16+22+22		

Piping Size And Connection Method

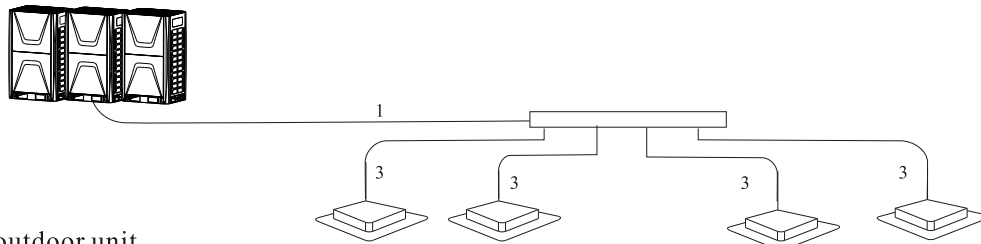
Table 1: Pipe category

Name of piping	Piping connecting position	As the following coding
Main tube	The pipes between outdoor unit and the first ramification pipe of indoor unit	1
Main piping	The pipes after the ramification pipe, indirectly connect with the indoor unit	2
Branch piping	The pipes after the ramification pipe and directly connect with the indoor unit	3

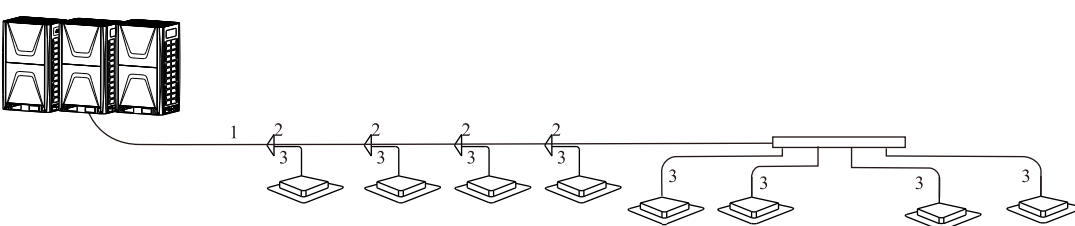
① outdoor unit



② outdoor unit



③ outdoor unit



<Sketch for module installation>

Diameter of piping 1 depends on the total capacity of outdoor unit connected to the branch pipe.

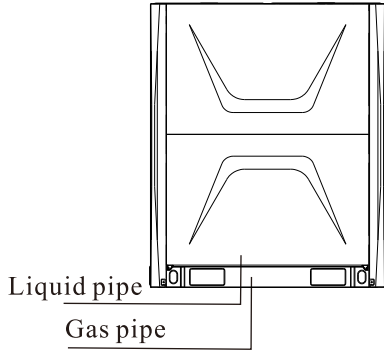
Total capacity of outdoor unit(HP)	Diameter of main tube (outdoor unit to 1st branch) < 90m		Diameter of main tube (outdoor unit to 1st branch) ≥ 90m	
	Gas side/Liquid side	The 1 st branch pipe	Gas side/Liquid side	The 1 st branch pipe
8	φ22.2/φ12.7	AFG-12B	φ22.2/φ12.7	AFG-12A
10			φ25.4/φ12.7	AFG-24A
12			φ28.6/φ15.88	AFG-24A
14	φ28.6/φ15.88	AFG-24B	φ28.6/φ15.88	AFG-24A
16			φ31.8/φ15.88	AFG-34A
18 ~ 22	φ28.6/φ15.88	AFG-24B	φ31.8/φ19.05	AFG-34A
24 ~ 34	φ31.8/φ19.05	AFG-34B	φ38.1/φ22.2	AFG-50A
36 ~ 48	φ38.1/φ19.05	AFG-50B	φ41.3/φ22.2	AFG-50A
50 ~ 66	φ41.3/φ22.2	AFG-50B	φ44.5/φ25.4	AFG-64A
68 ~ 88	φ44.5/φ25.4	AFG-64B	φ47.6/φ25.4	AFG-64A

Notice:

- 1) All piping refers to the sum of gas pipe equivalent length and liquid pipe equivalent length in the table.
- 2) Diameter of main tube depends on the 1st branch pipe of outdoor unit when the total capacity of indoor is larger than the total capacity of outdoor unit.
- 3) Y type branch pipe is priority selection, and U type branch pipe and comb type are selected on special occasion. T type branch pipe is forbidden to use. All branch pipes must be installed horizontally l.

- 4) Size of single module 12HP's liquid piping is $\Phi 12.7$, which is not accordance with the size of main tube ($\Phi 15.88$). Then the liquid piping should be connected with the main tube through an adjustable tube which its tube size turns from $\Phi 12.7$ to $\Phi 15.88$.
- 5) When the outdoor capacity reaches 50~66HP, size of gas branch piping is $\Phi 38.1$, which is not accordance with the size of main tube($\Phi 41.3$). Then the gas branch piping should be connected with the main tube through an adjustable tube which its tube size turns from $\Phi 38.1$ to $\Phi 41.3$.
- 6) When the outdoor capacity reaches 68~88HP, size of gas & liquid branch piping are $\Phi 47.6$ & $\Phi 22.2$, which are not accordance with the main tube($\Phi 44.5$ & $\Phi 25.4$). Then the gas & liquid branch piping should be connected with the main tube through adjustable tubes which theirs tube size turns from $\Phi 47.6$ to $\Phi 44.5$ and from $\Phi 22.2$ to $\Phi 25.4$.

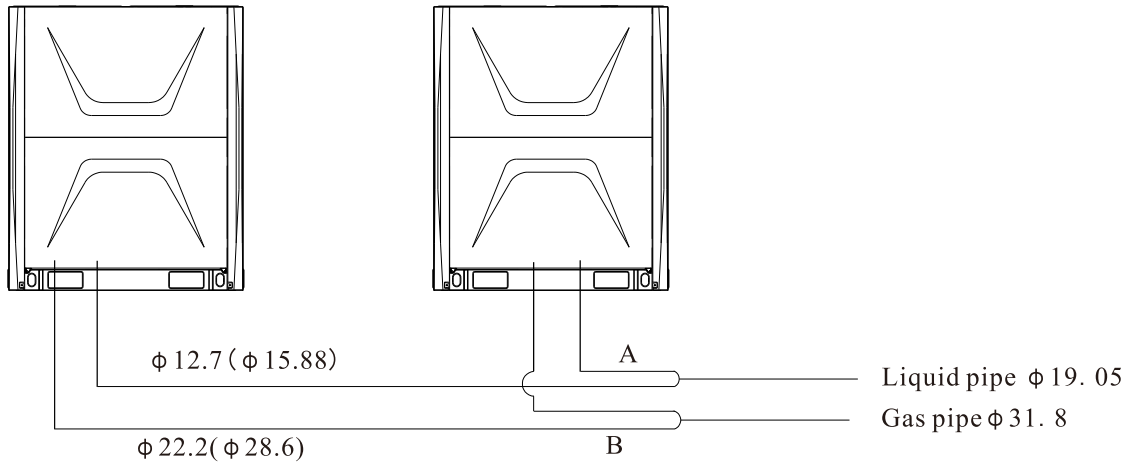
● One module



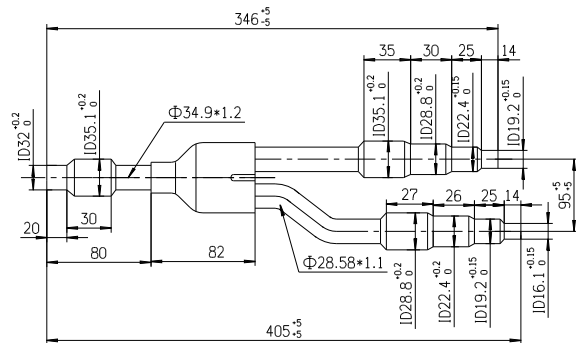
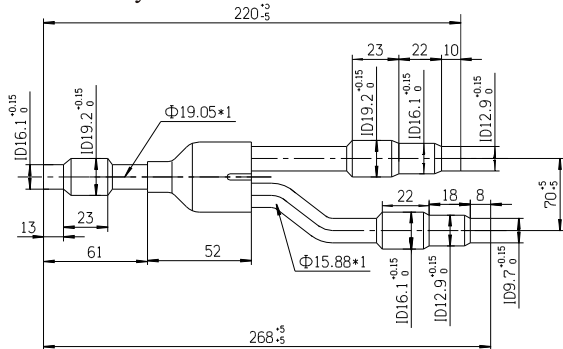
Note: The size for 8HP、10HP、12HP piping liquid side $\Phi 12.7$, gas side $\Phi 22.2$;
 The size for 14HP、16HP、18HP、20HP、22HP piping liquid side $\Phi 15.88$, gas side $\Phi 28.6$;

● Two modules combination

(1)24HP~34HP

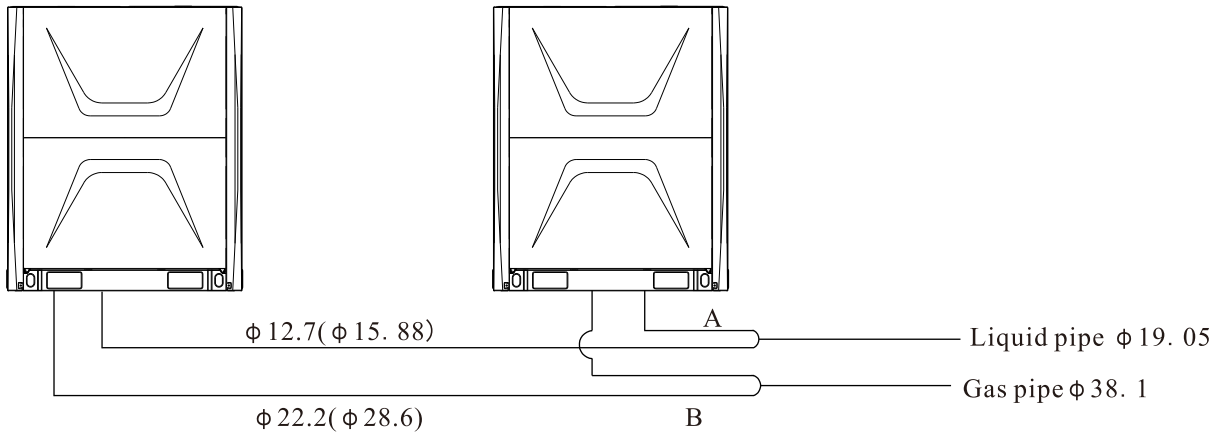


Note: The sketch drawing for size A of liquid side Y shape three way valves as follows: The sketch drawing for size B of gas side Y shape three way valves as follows:



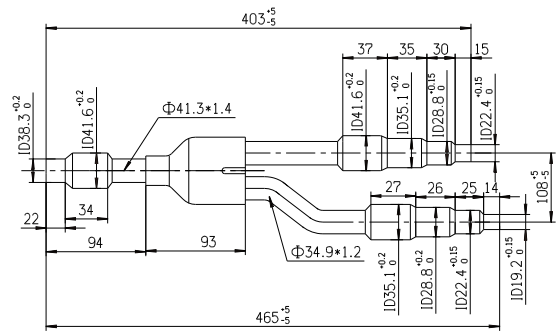
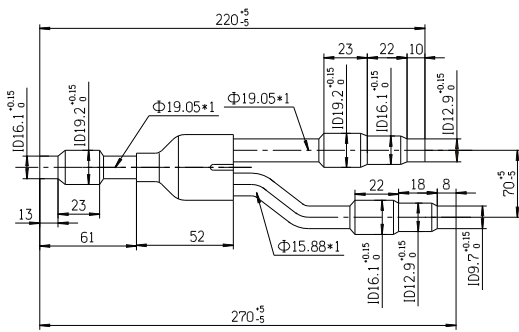
The model of gas side and liquid side Y shape three way valve is AFG -34B .

(2)36HP~44HP



Note: The sketch drawing for size of liquid side Y shape three-way valve A as follows:

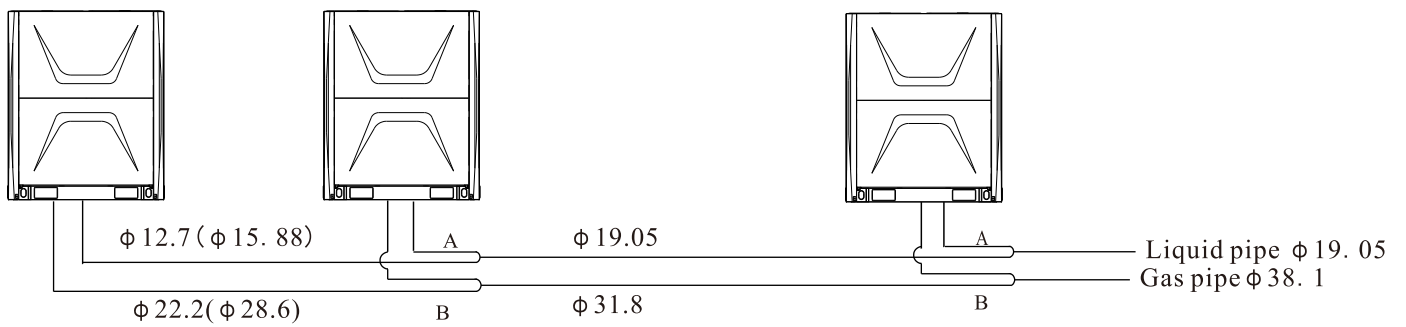
The sketch drawing for size of gas side Y shape three-way valve B as follows:



The model of gas side and liquid side Y shape three-way valve is AFG -50B .

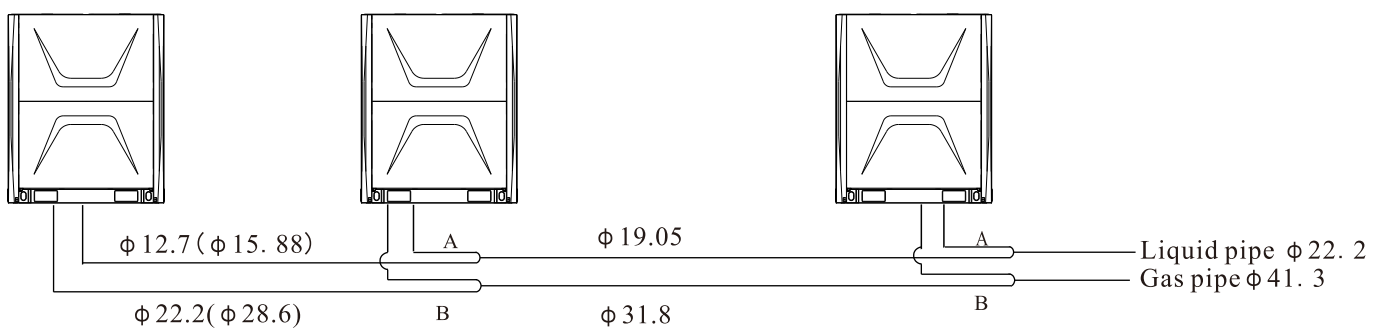
● Three modules combination

(1)46HP~48HP

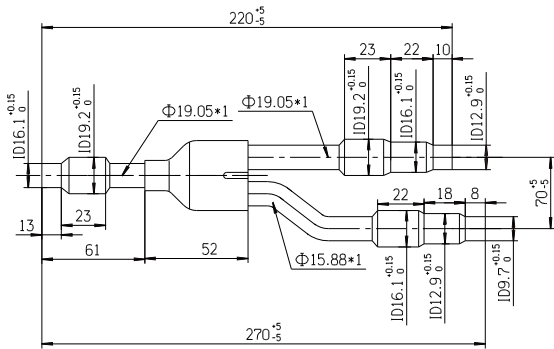


The model of gas side and liquid side Y shape three-way valve is AFG -50B.

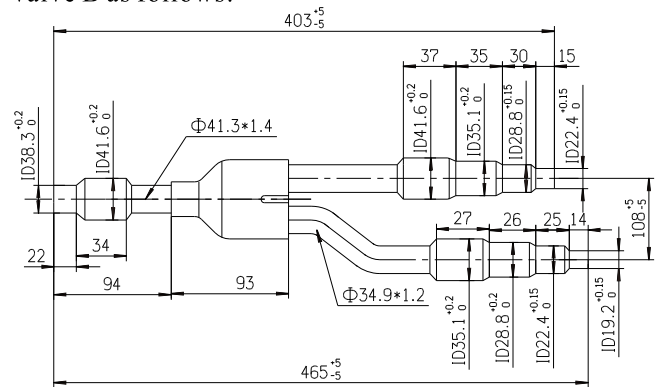
(2)50HP~66HP



Note: The sketch drawing for size of liquid side Y shape three-way valve A as follows:



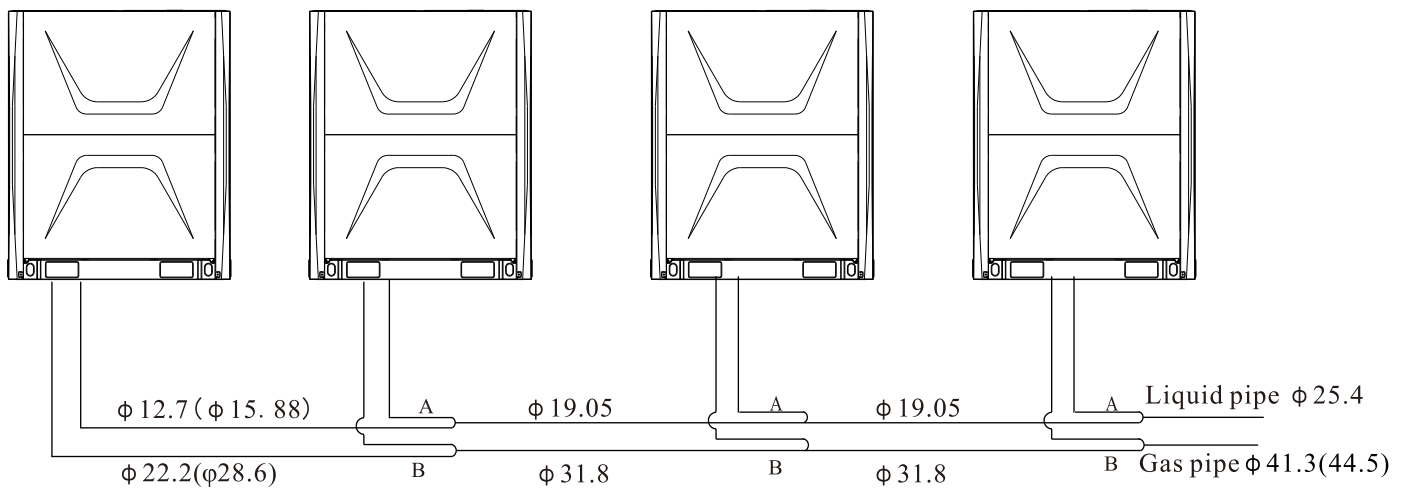
The sketch drawing for size of gas side Y shape three-way valve B as follows:



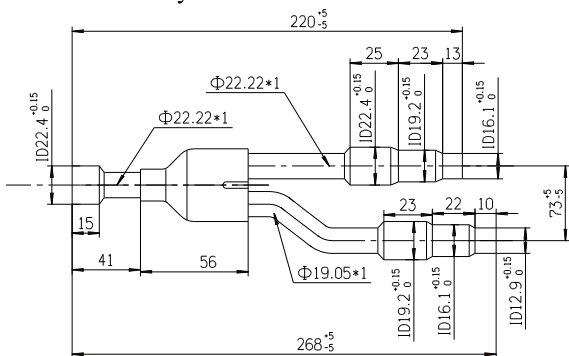
The model of gas side and liquid side Y shape three-way valve is AFG -50B

● Four modules combination

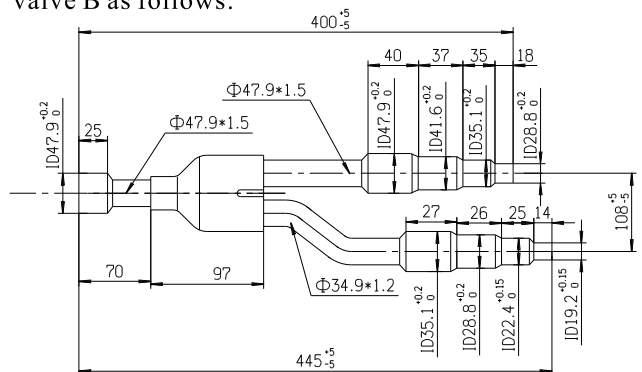
68HP~88HP



Note: The sketch drawing for size of liquid side Y shape three-way valve A as follows:



The sketch drawing for size of gas side Y shape three-way valve B as follows:



The model of gas side and liquid side Y shape three-way valve is AFG-64B

Table 3

Diameter of piping 2 depends on the total capacity of indoor unit connected to the branch pipe.

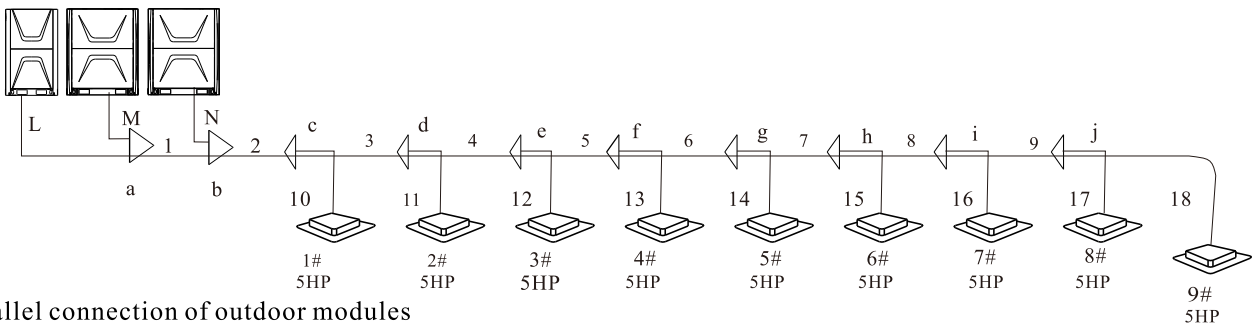
Total capacity indoor unit (kW)	The main piping (gas side/liquid side)	Apply ramification
$A \leq 5.6$	$\phi 12.7 / \phi 6.35$	AFG-00B
$5.6 < A \leq 16$	$\phi 15.88 / \phi 9.52$	AFG-00B
$16 < A \leq 22.4$	$\phi 19.05 / \phi 9.52$	AFG-00B
$22.4 < A \leq 33$	$\phi 22.2 / \phi 9.52$	AFG-12B
$33 < A \leq 47$	$\phi 28.6 / \phi 12.7$	AFG-24B
$47 < A \leq 68$	$\phi 28.6 / \phi 15.88$	AFG-24B
$68 < A \leq 95$	$\phi 31.8 / \phi 19.05$	AFG-34B
$95 < A \leq 140$	$\phi 38.1 / \phi 19.05$	AFG-50B
$95 < A \leq 140$	$\phi 41.3 / \phi 22.2$	AFG-64B
$180 < A$	$\phi 44.5 / \phi 25.4$	AFG-64B

Notice:

1. The 1st branch pipe depends on the total capacity of outdoor unit, and the other branch pipe shouldn't not larger than the 1st branch pipe.
2. Transfer must be appropriate when the dimension between branch and main tube pipe isn't in conformity.

Eg: Take the (16+16+12) HP, three modules combination as an example to illustrate the election of piping.
(Assume that all piping equivalent length is less than 90 m)

12HP 16HP 16HP



Parallel connection of outdoor modules

(Diameter of main tube refers to table 2 according to the corresponding total capacity of outdoor unit.)

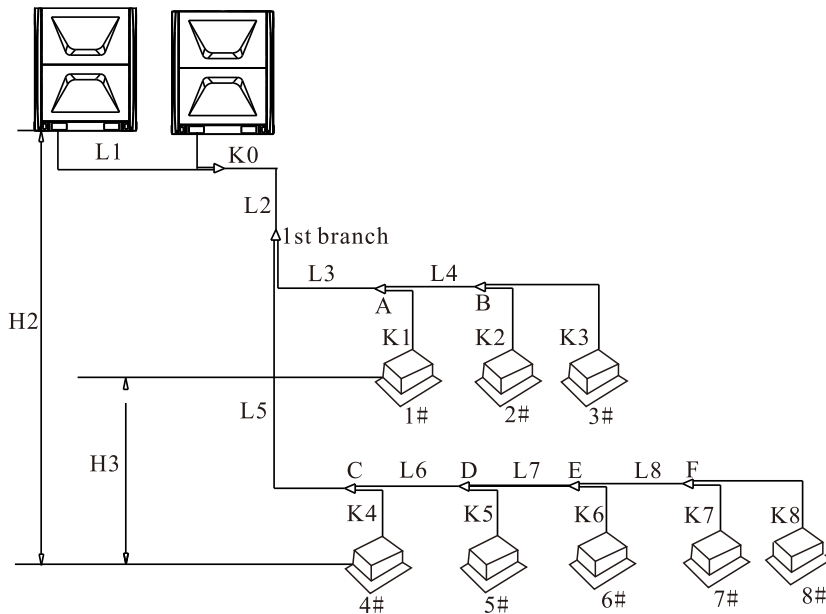
1. Pipe diameter of L, M and N depends on HP of corresponding outdoor unit, which is $\phi 22.2 / \phi 12.7, \phi 28.6 / \phi 15.88, \phi 28.6 / \phi 15.88$ respectively.
2. Corresponding HP of 1 is “12HP+16HP=28HP” and its pipe diameter is $\phi 31.8 / \phi 19.05$. Y-type branch pipe “a” should use the type of AFG-34B.
3. Pipe “2” is main pipe. Dimension of both pipe “2” and Branch pipe depends on total capacity of outdoor unit. Sum of total capacity of outdoor units is “12+16+16=44HP”. Dimension of pipe “2” is $\phi 38.1 / \phi 19.05$. Y-type branch pipe “c” should use AFG-50B and Y-type branch pipe “b” should use AFG-50B.

For indoor side:

(Diameter of auxiliary pipe refers to table 4 according to model of indoor unit, and diameter of main pipe refers to table 3 according to the total capacity of indoor unit.)

1. Branch auxiliary pipes include 10~18 and the dimension of auxiliary pipe 10 is $\phi 15.88 / \phi 9.52$, the dimension of auxiliary pipe 11~18 is $\phi 19.05 / \phi 9.52$.
2. Downstream indoor units of main auxiliary pipe “9” include 8# and 9#. Its HP sum is “5+5=10HP”. Dimension of pipe “9” is $\phi 22.2 / \phi 9.52$. Branch pipe “j” should use AFG-12B.
3. Downstream indoor units of main auxiliary pipe “8” include 7#, 8# and 9#. Its HP sum is “5×3=15HP”. Dimension of pipe “8” is $\phi 28.6 / \phi 12.7$. Branch pipe “i” should use AFG-24B.
4. Downstream indoor units of main auxiliary pipe “7” include 6#~9#. Its HP sum is “5×4=20HP”. Dimension of pipe “7” is $\phi 28.6 / \phi 15.88$. Branch pipe “h” should use AFG-24B.
5. Downstream indoor units of main auxiliary pipe “6” include 5#~9#. Its HP sum is “5×5=25HP”. Dimension of pipe “6” is $\phi 28.6 / \phi 15.88$. Branch pipe “g” should use AFG-24B.
6. Downstream indoor units of main auxiliary pipe “5” include 4#~9#. Its HP sum is “5×6=30HP”. Dimension of pipe “5” is $\phi 31.8 / \phi 19.05$. Branch pipe “f” should use AFG-34B.
7. Downstream indoor units of main auxiliary pipe “4” include 3#~9#. Its HP sum is “5×7=35HP”. Dimension of pipe “4” is $\phi 31.8 / \phi 19.05$. Branch pipe “e” should use AFG-34B.
8. Downstream indoor units of main auxiliary pipe “3” include 2#~9#. Its HP sum is “5×8=40HP”. Dimension of pipe “3” is $\phi 38.1 / \phi 19.05$. Branch pipe “d” should use AFG-50B.

Remove The Garbage And Water From The Piping



		Allowable value	Part of Auxiliary pipe	
Piping Length	Max.Total piping length	1000m	$L1+L2+L3+L4+L5+L6+L7+L8+k0+ k1+ k2 + k3+ k4+k5+ k6+ k7+ k8 \leq 1000m$	
	Max. Equivalent length between outdoor unit and farthest indoor unit	240m	$L1+L2+L5+L6+L7+L8+k8 \leq 240m$	
	Max. piping length from 1st indoor unit branch to the farthest indoor unit	40m	$L5+L6+L7+L8+ k8 \leq 40m$	
		90m*	$L5+L6+L7+L8+ k8 \leq 90m$ & $(L5+L6+L7+L8+ k8) - (L3+K1) \leq 40m$	
	Level difference Between ODU & IDU	ODU is up	110m	$H2 \leq 110m$
		ODU is down	110m	$H2 \leq 110m$
Level difference among indoor units		30m	$H3 \leq 300m$	

Note:

It is necessary to increase the pipes size of the liquid and gas piping if the equivalent length between indoor unit and the first branch pipe is over 40m.

Leakage Testing

- 1.After finishing the piping connection of outdoor unit, please connect the high pressure side piping and high pressure valve.
- 2.Make the low pressure side piping and mater joints accessory well-welded.
- 3.Charge the nitrogen gas from connection point of high side valve and mater joints, then start the leakage testing.
- 4.After the leakage testing, please make the low pressure ball valve and low pressure valve well-welded.

Note

- 1.The nitrogen gas [4.2MPa (43kgf/cm²)] with a certain pressure is used for the leakage testing.
- 2.It is not allowed to charge the nitrogen gas after the connection of low pressure side piping and low pressure valve.
- 3.It is forbidden to use oxygen, flammable gas and poisonous gas.
- 4.Use wet cloth to wrap the high pressure valve and balance valve.

Use Vacuum Pumps For Vacuuming

- Use vacuum pump for vacuuming, refrigerant gas is not allowed for air exclusion.
- Vacuuming is stated from the liquid side and the gas side at the same time, it is also necessary for gas balance piping and oil balance piping to vacuum, what is more it is vacuum request is less than 30Pa.

With All The Valves ON

Extra Refrigerant Value

According to the diameter and length of the liquid side connection pipe for outdoor unit and indoor unit to calculate the extra refrigerant value, the refrigerant is R410a.

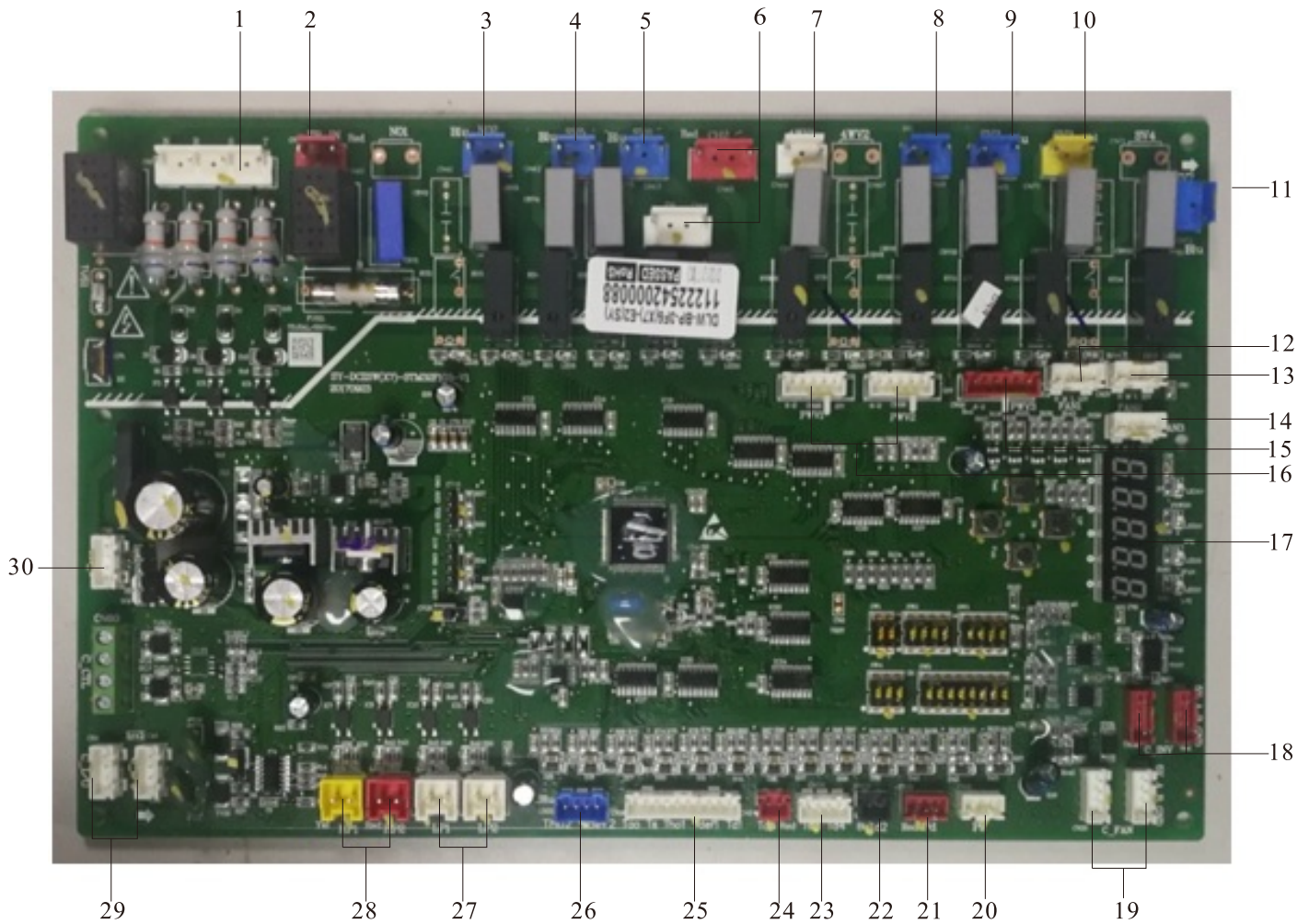
Diameter for Liquid side piping	Extra refrigerant value to the effective 1m pipe length
φ 25.4	0. 45kg
φ 22.2	0. 34kg
φ 19.05	0. 25kg
φ 15.88	0. 17kg
φ 12.7	0. 11kg
φ 9.52	0. 054kg
φ 6.35	0. 022kg

Address Dial Code For Outdoor Unit

- Address dial code for outdoor unit norm as following:

Address for outdoor unit	
0#	00
1#	01
2#	10
3#	11

Notice: In the table,0 means switch "Number", 1 means switch "ON" .When you want to change any set,please consult our factory first.



1	NRST	16	PMV1、PMV2
2	Tran in	17	digital tube
3	Contactora	18	INV COMP signal
4	Sv5	19	DC fan signal
5	Sv6	20	Ps
6	CH1、CH2	21	Ph
7	SV0	22	Td2
8	SV1	23	Toil、Tliq
9	SV2	24	Td1
10	SV3	25	SW2C
11	SV7	26	Tgi、Tgo
12	FAN1(obligate)	27	LP1、LP2
13	FAN2(obligate)	28	HP1、HP2
14	FAN3(obligate)	29	In/out BUS、A1 B1 A2 B2
15	PMV3	30	Tran out

Electrical Connections

Warning

All electrical works must be carried out & checked by a qualified electrician and must adhere to the IET regulations, local and national legislation and industry best practice. The system must have its own independent power supply. An all pole isolating disconnect switch with at least 3mm contact separation must be installed. The power cord and connecting cable should be either as supplied with the unit or otherwise as specified in this manual.

Do not attempt any electrical works yourself.

An Earth Leakage Protector, Power Switch and Circuit Breaker or Fuse must be installed in the dedicated power supply or there is the risk of electric shock.

The fuse specification of indoor unit single-phase control panel is T3.15AL 250V;

The fuse specification of outdoor unit single-phase control panel is T6.3AL 250V;

The fuse specification of three-phase control panel is T3.15AL 250V;

The fuse specification of fan motor is T10AL 250V.

The grounding must be reliable. If grounding is not correct, it may lead to electric shock.

All power cables should be properly secured with cable ties so that external forces cannot disconnect the wires from the terminals. Improper connections or insecure fastening can cause electric shocks or fire.

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

Caution

Do not connect the earth cable to gas or water pipes, telephone lines, lightning rods or the earth cables of other products.

Do not connect the earth cable to gas or water pipes, telephone lines, lightning rods or the earth cables of other products.

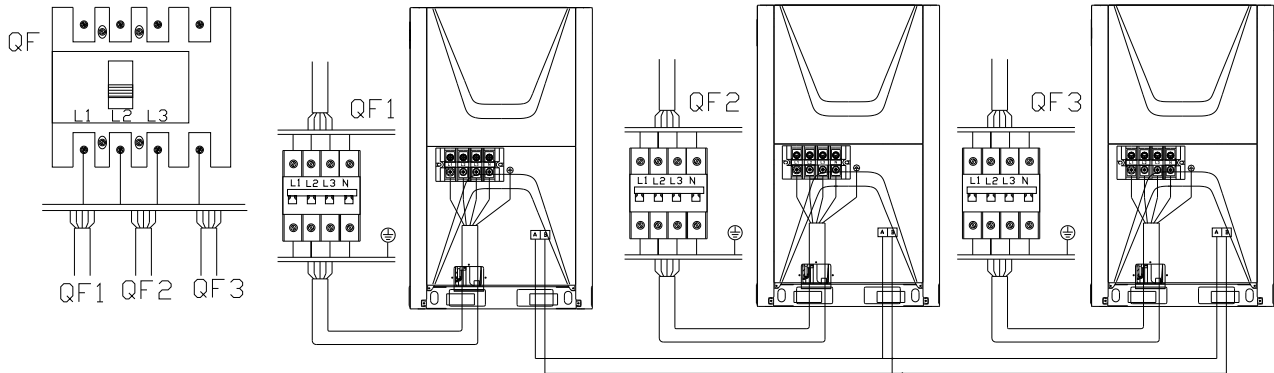
- Please connect the power cord and interconnecting cable according to the wiring diagram.
- Connect the wire firmly to the terminal block using crimps and secure in order to prevent external forces pulling on the wire causing risk of fire or electric shock.
- After the electrical connection is completed, all wires should be prevented from touching other parts such as tubing, compressor etc.
- Please design specialized power for both outdoor and indoor units respectively.
- Design the connection wiring system for outdoor unit and wiring system for refrigerant as the same system.
- Indoor signal wire and wire controller matching wire are low voltage return circuit, as a result, high voltage matching wire direct connection shouldn't be put in same wire tube.

Power Wiring

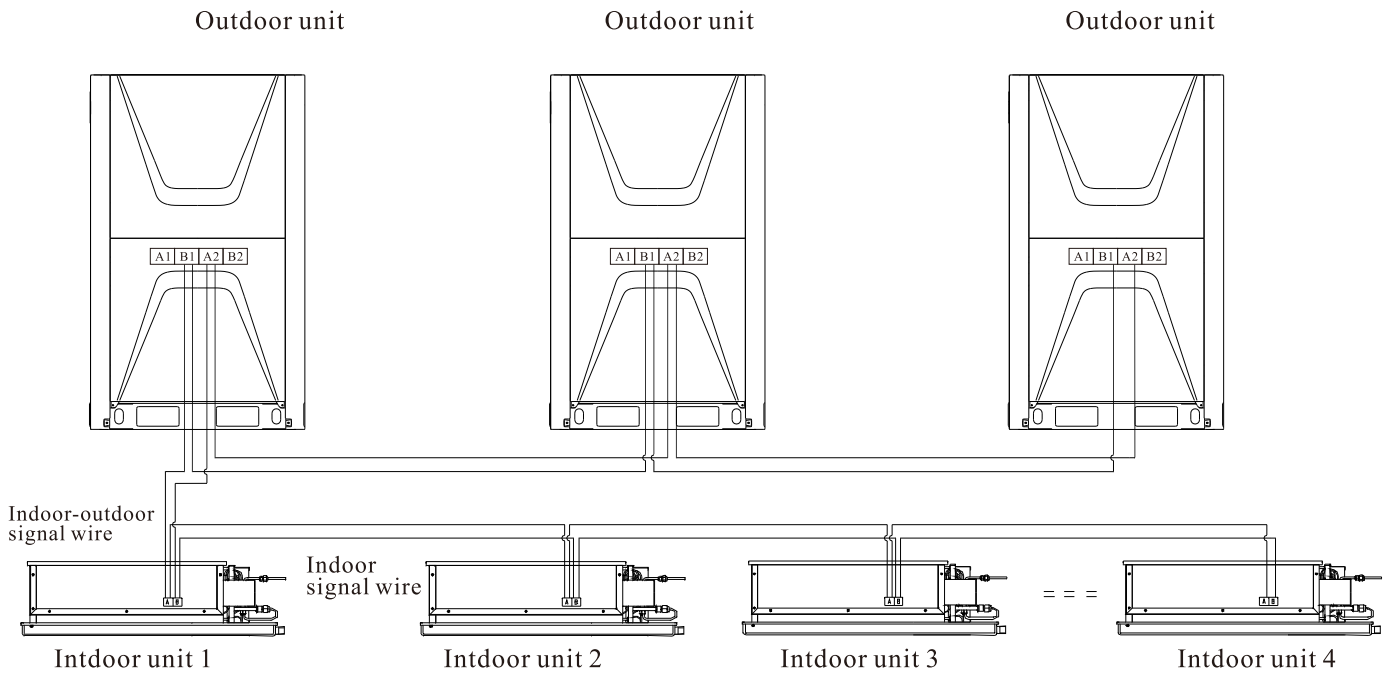
(Outdoor unit wiring for signal wire)

Type	Power cut area (mm ²)	Ground wire cut area (mm ²)	Circuit Breaker(A)
8HP	4	4	32
10HP	6	6	32
12HP	6	6	40
14HP	6	6	50
16HP	6	6	50
18HP	10	10	63
20HP	10	10	63
22HP	16	16	63

<Sketch drawing for outdoor wiring>



<Drawing for signal wiring of indoor and outdoor unit>



Trial Operation

Please finish it according to the indication "attention for operation" on the electrical appliance cover.

Note

- 1. Trial operation of outdoor unit must be started after powered on more than 12 hours.
- 2. Make sure all valves are open, then start the trial operation.
- 3. Compulsive operation is definitely prohibited.

Fill Out The Names For Connection System

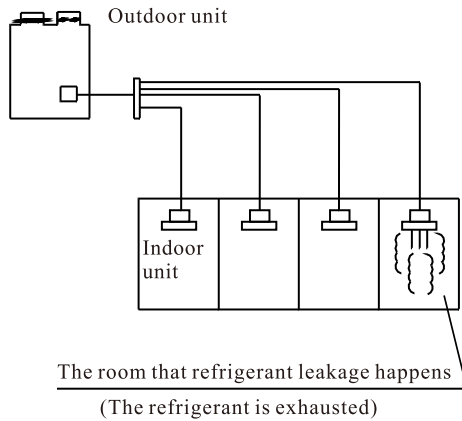
In order to identify the indoor unit system from the outdoor unit when setting several indoor units, you should nominate every system and notify them on refrigerant or electrical control box for outdoor unit.

Indoor unit type	
Room name Example: second floor, first system, indoor Mark: -2F-1	

Refrigerant Leakage For Operation

R410a is applied as the refrigerant. R410a is not toxic in itself, and this material is noncombustible. Proper room in size for the central AC is required, so, the concentration of refrigerant will not exceed the limit in case of leaking. Beside this, other necessary measures can be taken.

- Limit concentration-the non-harmful concentration of Freon gas Limit concentration of R410a:0.3[kg/m³]



Confirm the limit concentration as following and take relevant essential measures.

- 1、 Calculate out the entire filling value of refrigerant (A [kg])

Entire value = Filling value when for sale (13 [kg]) +extra value for relevant matching pipe

- 2、 Calculate out the indoor room volume (according to minimum volume)

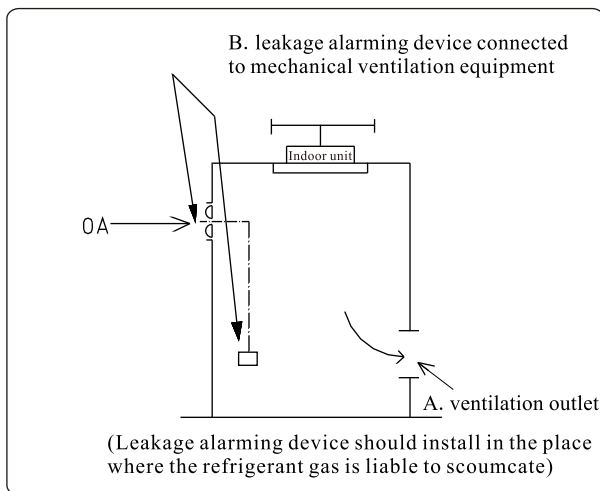
Calculate out the volume of refrigerant.

$$\frac{A[\text{kg}]}{B[\text{m}^3]} \leq \text{the limit concentration} : 0.3[\text{kg/m}^3]$$

Countermeasure for excessive concentration

1. In order to reduce the concentration under the limit, you are strongly recommended to install mechanical hood. (ventilation should be usual)

2. Please install leakage alarming device connected to mechanical ventilation equipment when frequent ventilation is impossible.



Electric Wiring

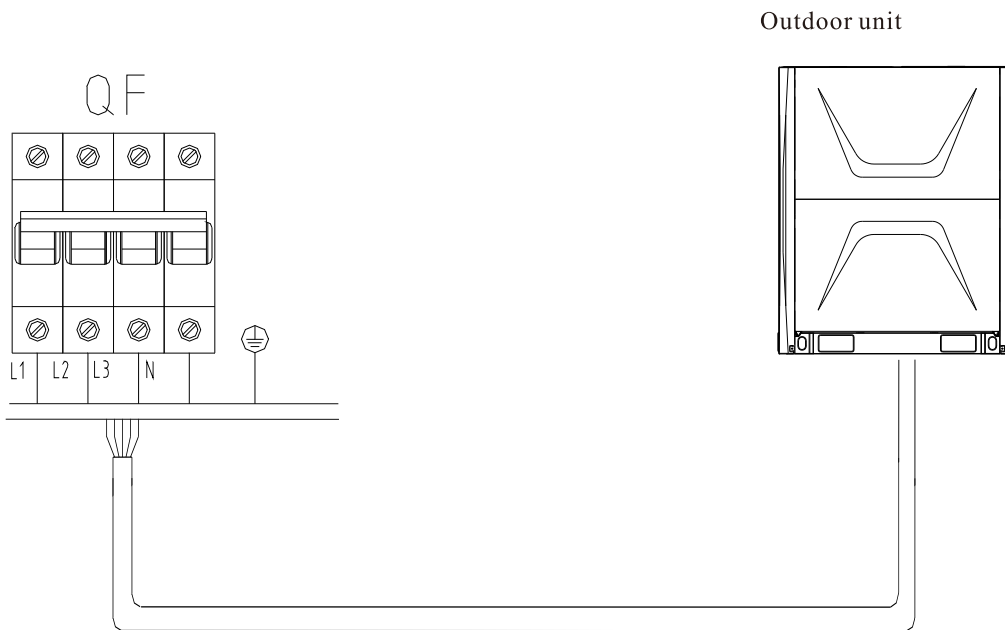
Note

- Please design specialized power for both outdoor and indoor units respectively.
- Power should be designed as specialized an branched return circuit, install power leakage protector, manual switch.
- Power leakage protector and manual switch must be universal as to the power of indoor units connected to same outdoor unit.(same return circuit for outdoor unit power in same system: on/off condition should be synchronous)
- Design the connection wiring system for outdoor unit and wiring system for refrigerant as the same system.
- In order to reduce the disturb, double-core shield double twist wires as the signal wire for indoor unit. Don't apply the double-core wire.
- Please conduct the relevant national standard for electricians.
- Power wiring must be finished by electrician.

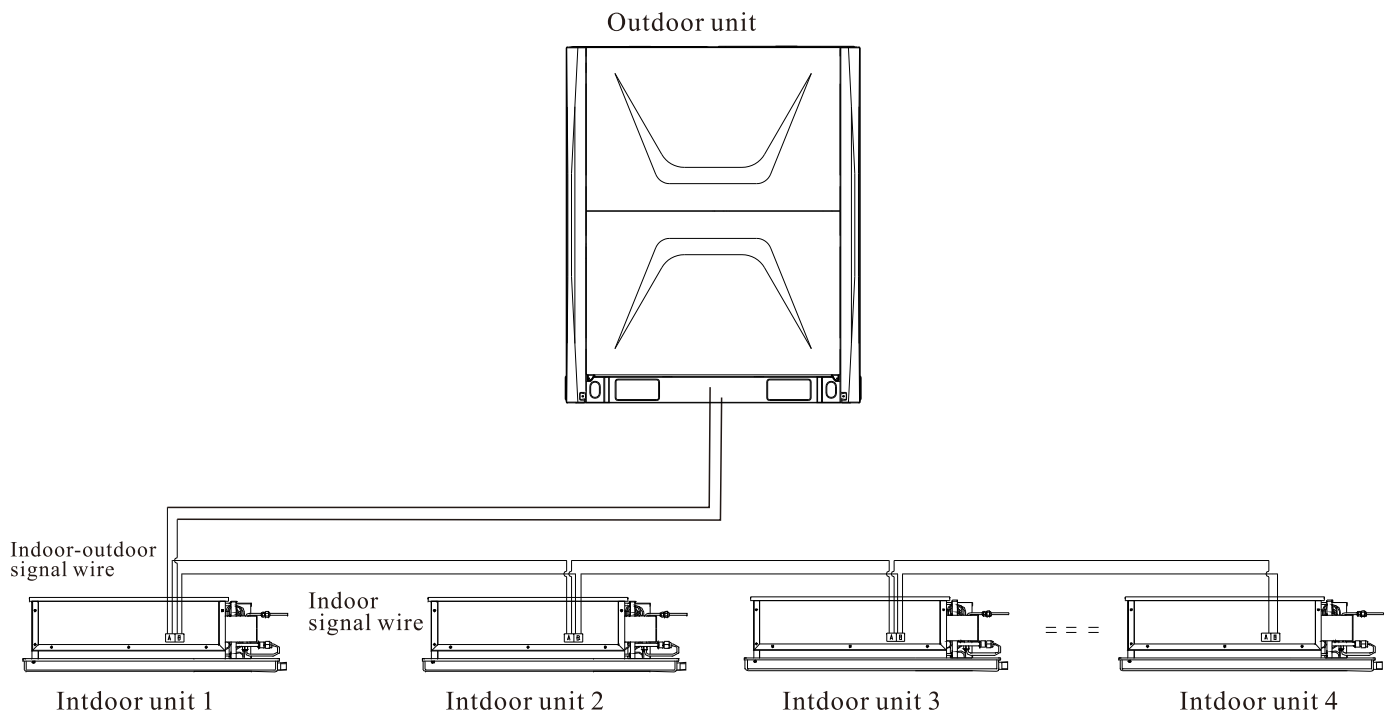
Note

Indoor signal wire and wire controller matching wire are low voltage return circuit, as a result, high voltage matching wire direct connection shouldn't be put in same wire tube.

<Sketch drawing for outdoor wiring>



<Drawing for signal wiring of indoor and outdoor unit>



Trial Operation

Please finish it according to the indication "attention for operation" on the electrical appliance cover.

Note

1. Trial operation of outdoor unit must be started after powered on more than 12 hours.
2. Make sure all valves are open, then start the trial operation.
3. Compulsive operation is definitely prohibited.

Fill Out the Names for Connection System

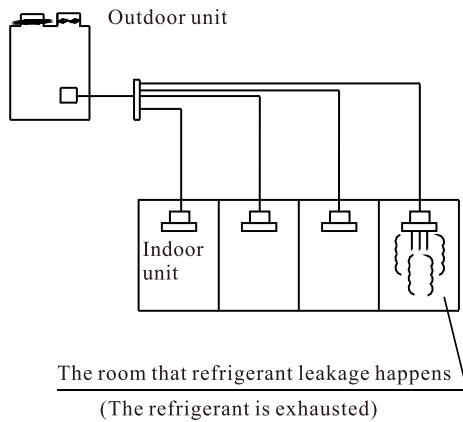
In order to identify the indoor unit system from the outdoor unit when setting several indoor units, you should nominate every system and notify them on refrigerant of electrical control box for outdoor unit.

Indoor unit type	
Room name Example: second floor, first system, indoor Mark: -2F-1	

Refrigerant Leakage For Operation

R410a is applied as the refrigerant. R410a is not toxic in itself, and this material is noncombustible. Proper room in size for the central AC is required, so, the concentration of refrigerant will not exceed the limit in case of leaking. Beside this, other necessary measures can be taken.

- Limit concentration-the non-harmful concentration of Freon gas Limit concentration of R410a:0.3[kg/m³]



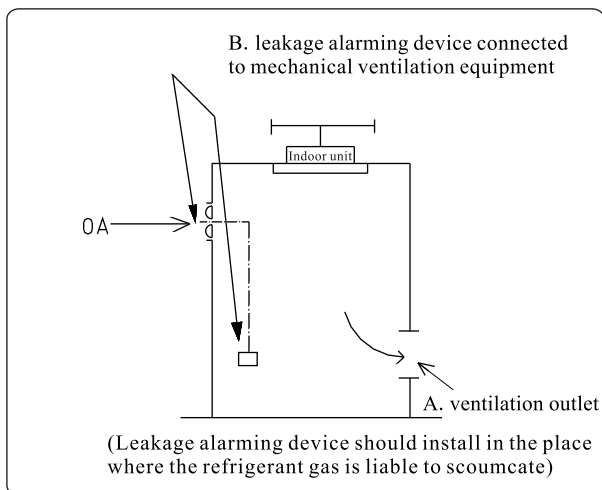
Confirm the limit concentration as following and take relevant essential measures.

- 1、 Calculate out the entire filling value of refrigerant (A [kg])
Entire value = Filling value when for sale (13 [kg]) +extra value for relevant matching pipe
- 2、 Calculate out the indoor room volume (according to minimum volume)
Calculate out the volume of refrigerant.

$$\frac{A[\text{Kg}]}{B[\text{m}^3]} \leq \text{the limit concentration} : 0.3[\text{Kg}/\text{m}^3]$$

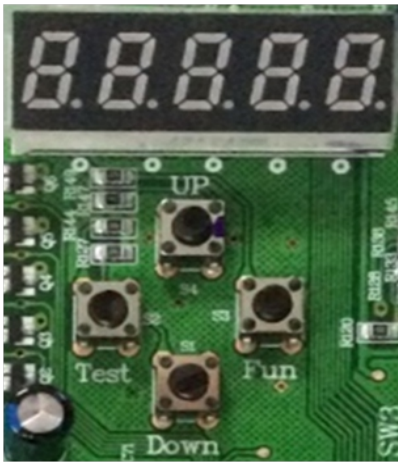
Countermeasure for excessive concentration

1. In order to reduce the concentration under the limit, you are strongly recommended to install mechanical hood. (ventilation should be usual)
2. Please install leakage alarming device connected to mechanical ventilation equipment when frequent ventilation is impossible.



Project Commissioning & Debugging

1 Key-display system :



2 Basic Steps of Project Commissioning

Power on, then the main PCB digital tube displays “d. ”, it means the system is waiting for commissioning; if it displays standby “ 1. . . . 16 ” or locking “ L o c k . ”, it means that the system has finished commissioning.

3 Basic Operations of Project Commissioning asic Operat

● Enter/ exit

Long press “Fun” button for more than 5 secs to enter project commissioning; then, long press “Test” button for more than 5 secs to exit.

● Quick finish

After completing Step “3”, long press “Fun” + “Test” buttons for more than 5 secs to complete project commissioning in advance, the system enters the state of normal standby.

3.1 Master unit setting and Indoor unit addressing mode selection

The system must set DIP address to make one module as master unit, the rest are slave unit. After setting master and slave- units correctly, digital tube displays “ 1. . . . 0 ” (the left means 1st step, the right shows the addressing mode, “0” means manual addressing, “1” means automatic addressing), press “Up” or “Down” buttons to choose, short press “Fun” to confirm; after confirmation, digital tube displays “ 1. . . . 0 ” or “ 1. . . . 1 ”, 2 secs later, enter step 2. Attention, if manual addressing is chosen, manually set the indoor unit address by remote controller or line controller.

If you choose manual addressing 1. . . . 0, you need to manually set IDU address

3.2 Determination of the quantity of outdoor unit modules

Digital tube displays “ 2. . . . 1 ” (the left means 2nd step, the right shows the quantity of outdoor units), if display quantity and actual quantity are inconsistent, need to conduct manual check (DIP address, communication line and etc.) and commissioning confirmation. If they are consistent, short press “Fun” button to confirm, digital tube displays like “ 2. . . . 1 ” or, 2 secs later, enter step 3.

3.3 Determination of the quantity of indoor units

Digital tube displays “ 3. . . . 16 ” (the left means 3rd step, the right shows the quantity of indoor units), if display quantity and actual quantity are inconsistent, need to conduct check (power lines and communication lines of indoor units, and etc.) and commissioning confirmation. If they are consistent, short press “Fun” button to confirm. digital tube displays like “ 3. . . . 16 ”, 2 secs later, enter step 4.

3.4 Confirmation of the internal communication of outdoor units

Automatically detects the communication between master controller and driver; after 2 secs, if the communication with the fan drive is faulty, it displays “ 4. . . . 13 ”, all buttons are invalid, cannot enter the next judgment; if it is normal, then the module displays “ 4. . . . ”. If the internal communication of outdoor electronic control box is normal, then conduct system indoor and outdoor units ratio test, if it is out of range, display “ 4. . . . 11 ”, if ratio is normal, 2 secs later, enter the next step.

3.5 Confirmation of the internal components of an outdoor unit

Automatically check components of outdoor units, being detected, display “ 5. . . . ”, if it's failure, then corresponding failure displays, for example, “ 5. . . . 1F4 ”; the left means step 5, the middle is the faulty outdoor unit's address, the last two is fault code. Only displays the fault with the highest priority. If all failure are solved, display normally; in case that several modules occur faults, displays the fault codes in turn by address order. It cannot enter the next judgment; if all faults are solved, digital tube displays “ 5. . . . ”, 2 secs later, enter step 6.

3.6 Adjustment on the components of an indoor unit

Digital tube displays “**6. . . .**”. If one indoor unit occurs a fault, display project number circularly, and the fault code like “**6. 5A4**”. If several indoor unit occur faults, display the addresses and the fault code circularly. At that moment, all buttons are invalid, cannot enter the next step. If no fault, digital tube displays “**6. . . .**”, 2 secs later, enter step 7.

3.7 Confirmation and adjustment of compressor preheating

If the outdoor unit has been continuously energized for more than 6 hours, displays “**7. . . .**”, means the completion of preheating, 2 secs later, enter step 8. Otherwise display “**7.4 = 36**”, The first digit means step 7, the rest indicates preheating time(hour : min). Short press “Fun” button, can skip waiting and enter step 8.

3.8 Refrigerant judgment before starting

Refrigerant judgment, display “**8. . . .**”. If any [module low pressure P secs] ≤ -25°C, then report refrigerant lack protection, display “**8. H5**”, all buttons are invalid, it required to check if the system refrigerant is normal, or there is any leakage. If it is normal, display “**8. . . .**”, 2 secs later, enter step 9.

3.9 Status judgment on outdoor unit valve before starting

The status judgment of outdoor unit valve “**9. . . .**”, 2sec later, enter the next step.

3.10 Confirmation of start commissioning

This step, displays “**10. . . .**”, waiting for start commissioning. Press “Fun” button to start, automatically select operating mode according to outdoor environment temperature: ≥ 20 °C, running cooling model; < 20 °C, running heating model. 2 secs later, automatically enter the next step(step 11 or step 12), digital tube displays “**10. . . .**”.

3.11 Commissioning of cooling operation

Refrigerating operation, all indoor units are turned on, setted 16°C & high speed, digital tube displays “**11. . . .**”. In the operation, if it's failure, displays 'Err' and fault code, like “**Err.F3**”. 20min later, or accumulated for 25min, if the system is not abnormal, displays “**1. . . . 16**” or locking “**L o C .**”. Project commissioning is finished.

3.12 Commissioning of heating operation

Heating operation, all indoor units are turned on, setted 30°C & high speed, digital tube displays “**12. . . .**”, after 10min, if it is normal, display will not change. 20min later, or accumulated for 25min, if the system is not abnormal, displays “**12. . . .**”, after 5s, enters normal standby status “**1. . . . 16**” or locking “**L o C .**”. Project commissioning is finished.

Function and Parameter

1 Instructions of Functions

Function list and option guidance shows in the table below, items can be set in 2 ways as follow

- (1) by dial switch (turn off –on the power after you change the switch) .
- (2) by key and menu option.

Function names	Option method	Switch/ Function number
Silent	Switch	SW5-1、 2
Model priority	Switch	SW5-3、 4
Static pressure	Switch	SW5-5、 6
Comp emergency	Switch	SW4-1、 2
ODU emergency	Switch	SW4-3
IDU/ODU rate	Key and menu	1
Clean	Key and menu	2
Variable ET	Key and menu	3
Blow off snow	Key and menu	4
Vacuumize	Key and menu	5
26°C setting	Key and menu	6
Refrigerant recycle	Key and menu	7
Auto-fill	Key and menu	8

1.1 Functions set by switch

Comp emergency	ODU emergency	Silent	Model priority	Static pressure
SW4-1、 2 :	SW4-3 :	SW5-1、 2 :	SW5-3、 4 :	SW5-5、 6 :
00 : comp1 normal	0 : this ODU normal	00 : without silent	00 : first dominant	00 : without
01 : comp1 emergency	1 : this ODU emergency	01 : silent night	01 : heating dominant	01 : low
10 : comp2 emergency		10 : normal silent	10 : cooling dominant	10 : mid
11 : comp3 emergency		11 : super model	11 : few obey more	11 : high

Notice: In the table, 0 means switch "Number", 1 means switch "ON". When you want to change any set, please consult our factory first. When you set Comp or ODU emergency, please close the Gas/Liquid valve, and solve the problem in 24-48h, because the emergency can only work long. After solving the problem, please cancel emergency setting, or the ODU can not run.

1.2 Functions set by key and menu

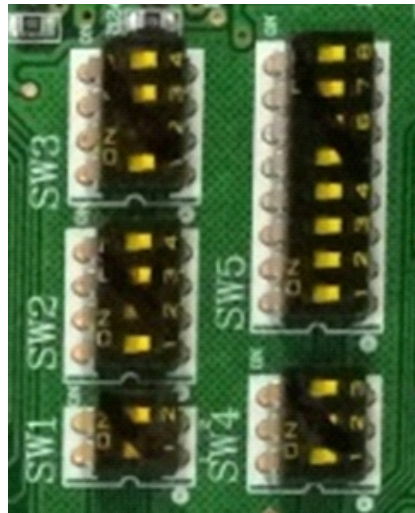
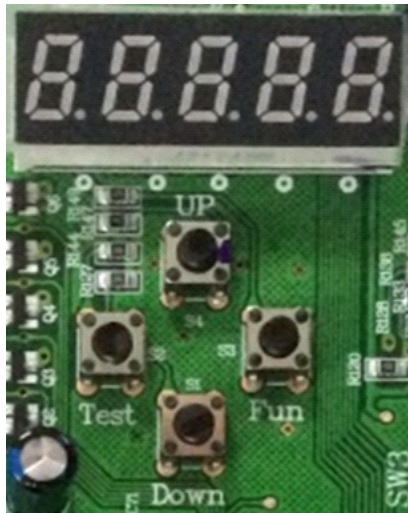
Function names	remember or not	Display	Instructions
IDU/ODU rate	Y	/	Set max IDU/ODU rate allowed
Clean	N	CLE.	Outdoor fan run in special model to clean the condenser
Variable ET	Y	/	3 different evaporate temperature : normal、 energy saving、 comfort
Blow off snow	Y	/	Set cycle for blowing off snow on the top
Vacuumize	N	PuA.	Ready for vacuumize
26°C lock	Y	/	Setting temperature lock at 20/26°C
Ref recycle	N	rCCL.	Recycle refrigerant to ODU

2 Function/Parameter Checking and Setting

2.1 Key-display And Switch Guidance

There is a key and menu system for function Checking/Setting or display. The 1st step is main menu , 2nd step is for function choosing , 3rd step is for cheching/setting parameter of some functions. Press Fun key to the below step , Press Test key to the up step , Press Up、 Down key to choose the function or parameter you want. After Debugging and lock-relieving ,the system is standing-by,press Fun key for 2 second into the 1st step---the Main menu,digital tube displays like **E.** (shane).

The 1st step---the Main menu include Status Checking **E.** , Parameter Checking **P.** Parameter Setting **L.** , Debug **d.** , Restore to factory setting **r.** ,press Up or Down key to choose the function you want,then press Fun-key into the function to check or set.



2.2 Status Checking

In the 1st step---Main menu , choose Status Checking **E.** , press Fun key into the 2nd step, then you can check the running status of the system, like frequency of compressor and so on.

For example: Digital displays like **1. 64.0**, means parameter name corresponding No.1, 640 means the parameter is 64. whole means frequency of comp 1 is 64rps. The number and parameter name corresponds as below:

No	parameter name	units	No	parameter name	units
1	Freq of comp 1	rps	11	Tci1(inlet of condenser 1)	0.1°C
2	Freq of comp 2	rps	12	Tci1(inlet of condenser 2)	0.1°C
3	Step of PMV1	pls	13	Tdef1(defrost temperature)	0.1°C
4	Step of PMV2	pls	14	Tdef2(defrost temperature)	0.1°C
5	Pd_t	0.1°C	15	Gas inlet of plate heat exchanger temperature	0.1°C
6	Ps_t	0.1°C	15	Gas outlet of plate heat exchanger temperature	0.1°C
7	Temp of comp 1	0.1°C	15	Liquid outlet of plate heat exchanger temperature	0.1°C
8	Temp of comp 2	0.1°C	15	Oil temperature	0.1°C
9	Tao	0.1°C	19	Edition of procedure	/
10	Ts(suction)	0.1°C			

2.3 Parameter Checking


In the 1st step---Main menu , choose Parameter Checking **P.** , and press Fun key, then you can check parameter of some functions by choosing the number in the table below.


For example: Digital displays like **P. 135** (P-light, 1-shane), then press Fun key to the down step, it will show you a parameter like **135**, means the max rate of IDU/ODU (No 1) is setted 135%.

Function number	function name	remember or not
1	Rate of IDU/ODU	Y
3	Variable Evaporate Temperature	Y
4	Blow off snow	Y
6	26°C Lock	Y

2.4 Function/Parameter Setting

In the 1st step--Main menu, choose Parameter Setting , press Fun key, then you can set some Function/Parameter you want by choosing the Function Number.

For example: Digital displays  (C-light, 1-shane), press Up or Down key to choose the number of function you want, then press Fun key to get into down step to set if it's need. Change the setting by pressing Up or Down key, then Fun key to confirm. The function name and number show in the table below.

Function names	Option			Notice
	1st step	2nd step	3rd step	
	Main menu	Function Number Choosing	Parameter Settinging	
Rate of IDU/ODU		1	135 : IDU/ODU ≤ 135% 200 : IDU/ODU ≤ 200%	135 is default, when you change it, it will influence the comfort, please consult our factory first.
Clean		2	/	Choose the number at 2nd step and confirm, the outdoor fan will run immediately, only one time.
Variable ET		3	Choose number to set model 0 : normal 1 : energy saving 2 : comfort	0 is default, when you change it, it will influence the comfort or power consumption
Blow off snow		4	Choose number to set cycle 0 : without this function 1 : 0.5h 2 : 1h 3 : 3h 4 : 10h	After pressing Fun key to confirm, the outdoor fan will run to blowing off snow automatically and cycle by cycle, if you choose 1、2、3、4
Vacuumize		5	/	Choose the number at 2nd step and confirm, the ODU will be ready for vacuumize. If set on the Master unit, the system.
26°Clock		6	Choose number to set model 0 : without this function 1 : lock 20/26°C	If choose 1, the IDU setting temperature will be locked at 20°C in heating model and 26°C in cooling model at any time.
Refrecycle		7	/	Recycle refrigerant to ODU
Auto-fill		8	/	Choose number 8 at 2nd step and confirm to start Auto-fill. Please read refrigerant filling module carefully, and operate as it requires

Refrigerant charging

Calculate the additional amount according to the condition of pipe connection before debug. If the refrigerant is insufficient after debugging, additional refrigerant is required, which can be operated automatically or manually.

Automatic filling method

Refrigerant filling	Into the Function	After the commissioning of the project, through the function menu, choose \square to enter the Auto-fill function. Then, all the ODU and IDU will run up automatically.
	Refrigerant judge	Judgement: It will display $F \mid \square \mid \square$, until it is stable. (The Judgement keeps about 15 minutes)
	Refrigerant state	After Refrigerant judge, it will show you the situation of the system on the digital tube as follow: <ul style="list-style-type: none"> ● $F \mid \square \mid \square$ Lack refrigerant. Need to add refrigerants by automatic infusion or manual infusion. ● $F \mid \square \mid \square$ It's ok, No need to add or reduce. ● $F \mid \square \mid \square$ Too much refrigerant. Need to reduce some refrigerant.
	Refrigerant filling process	<p>The process of adding and reducing:</p> <ul style="list-style-type: none"> ● When the digital tube display $F \mid \square \mid \square$, press Fun key to start refrigerant filling. When displays $F \mid \square \mid \square$, means that it is about to complete. 3 minutes later, it turns to $F \mid \square \mid \square$, means that the filling is finished and the system will stop running automatically. Then please close the service valve. About 3 minutes later the system will stop running. ● When it displays $F \mid \square \mid \square$, you need to reduce some refrigerant. Then it displays $F \mid \square \mid \square$, means there ducing will finish in a few mins. When it turns to $F \mid \square \mid \square$, means it's completed, about 3 minutes later the system will stop running automatically. Please finish reducing and close the service valve.
Function exit operation	<p>Exit the operation, fill the end:</p> <ul style="list-style-type: none"> ● Long press Test key 5 seconds, force withdrawal refrigerant filling, the machine enters standby state. ● When the digital tube display $F \mid \square \mid \square$, press the function key to confirm the filling completed, the machine entered standby state. ● When refrigerant filling continues $30 * N$ minutes (N for the numbers of modules), force with drawal refrigerant filling, them achine enters standby state. 	

Notice:

- 1 When adding refrigerant, please wear safty goggle and safty gloves
- 2 Before adding refrigerant, please check the situation of pipe connection, wire connection, vaccmizem, installation.
- 3 **Adding refrigerant from the service valve!**
- 4 When adding refrigerant, you should turn down the tank to make shoule it's adding liquid refrigerant.
- 5 **After adding refrigerant, please close the service valve, or it will add too much, because the refrigerant will keep adding by pressure-drop even though the system has stopped running.**
- 6 Auto Refri-add can only used in such condition: $15^{\circ}\text{C} \leq \text{Tao}(\text{OutDoor temperature}) \leq 40^{\circ}\text{C}$ and $10^{\circ}\text{C} \leq \text{Tai}(\text{InDoor temperature}) \leq 32^{\circ}\text{C}$, and IDUs (cappacity $\leq 1.5\text{HP}$) is less than 70% in the system.
- 7 When the OutDoor temperature is about 35°C , it can add about 25kg per hour (At 15°C , it becomes 15kg per hour.)

Fault Code

Mode	Fault Code	Definition of Fault Code	Fault Code	Definition of Fault Code
Indoor unit	A1	Indoor ambient temperature sensor failure	A8	Indoor unit EEPROM module failure
	A2	Temperature sensor about middle position of evaporator failure	A9	The communication between indoor unit and outdoor unit failed
	A3	Indoor coil pipe inlet temperature sensor failure	AA	The communication between indoor unit and wire controller failed
	A4	Indoor coil pipe outlet temperature sensor failure	AC	Two or more indoor unit central control system address repeated
	A5	Indoor water pump failure	AE	Operation mode conflict
	A6	Failure of indoor PG fan	AH	Two or more indoor unit refrigerant system address repeated
			AJ	Indoor unit total capacity exceeded
Outdoor unit	H1	HPSa fault	JJ	Indoor unit total capacity exceeding
	H5	Refrigerant shortage protection	E1	The four-valve is in fault
	HJ	Missing phase or phase sequence errors in three-phase power supply	E3	DC inverter compressor 1 discharge temperature "Tda" too high shutdown protection
	HF	Low oil temperature protection	E4	DC inverter compressor 2 discharge temperature "Tda" too high shutdown protection
	C1	Environment temperature sensor Tao fault	E9	Drive refrigerant cooling pipe low temperature protection
	C2	Deforst temperature sensor Tdef fault	F1	High pressure sensor "Pd" failure
	C3	Discharge temperature of inverter compressor 1 failure	F3	High pressure sensor "Pd" protection.
	C4	Discharge temperature of inverter compressor 2 failure	F4	Low pressure sensor "Ps" failure.
	C6	Suction temperature of compressor failure	F6	Low pressure sensor "Ps" protection.
	C9	Heat exchanger inlet Tco1 fault	F8	Compression ratio too high protection
	CJ	Oil temperature Toila fault	F9	Compression ratio too low protection
	CC	Liquid outlet of plate heat exchanger temperature sensor fault	FH	DC inverter discharge temperature "Tda" too low shutdown protection
	CE	Gas inlet of plate heat exchanger temperature sensor fault	31	IPM module protection
	CF	Gas outlet of plate heat exchanger temperature sensor fault	32	Compressor 1 Module hardware protection
	J1	The communication between ODU and ODU failed	33	Compressor 1 Module software protection
	J2	Communication error between outdoor and indoor unit.	34	Compressor 1 unconnected
	J3	The communication between PCB and INV module failure	35	Compressor 1 phase current overload protection
	J4	The communication between main PCB and DC fan motor drive module failure	36	Compressor 1 DC bus voltage over-voltage or under-voltage failure
J5	Outdoor unit parameter setting incorrect	37	Compressor 1 temperature sensor of drive module heat fins failure	
J7	Outdoor unit main control PCB ERROM module failure	38	Compressor 1 drive module high temperature limit frequency failure	

Fault Code

Mode	Fault Code	Definition of Fault Code	Fault Code	Definition of Fault Code
Outdoor unit	39	Compressor 1 drive module high Temp. shutdown protection	54	Compressor 2 unconnected
	3A	DC fan motor 1 drive module protection	55	Compressor 2 phase current overload protection
	3H	DC fan motor 1 drive module start failure or Running out of step	56	Compressor 2 DC bus voltage over-voltage or under-voltage failure
	3C	DC fan motor 1 drive module overcurrent protection or overcurrent sensor failure	57	Compressor 2 temperature sensor of drive module heat fins failure
	3J	DC fan motor 1 drive module over-voltage or under-voltage protection	58	Compressor 2 drive module high temperature limit frequency failure
	3E	Compressor 1 input current protection	59	Compressor 2 drive module high Temp. shutdown protection
	3F	Compressor 1 drive module PFC protection	5A	DC fan motor 2 drive module protection
	41	DC fan motor 1 drive module IPM alarm	5H	DC fan motor 2 drive module start failure or Running out of step
	47	Indoor unit loss failure	5C	DC fan motor 2 drive module overcurrent protection or overcurrent sensor failure
	49	DC fan motor 2 drive module IPM alarm	5J	DC fan motor 2 drive module over-voltage or under-voltage protection
	51	Compressor 2 drive module IPM protection	5E	Compressor 2 input current protection
	52	Compressor 2 Module hardware protection	5F	Compressor 2 drive module PFC protection
	53	Compressor 2 Module software protection		

ANNEX I :ARVSystem Commissioning Table

Project name				Location(Country&Region,City)			
Dealer info.		Company:			Contactor:		
Installer info.					Contactor:		
System info.	Total capacity	Kw		Indoor units quantity			
	ODU1	Capacity	Kw	Bar code		Date of Manu.	
	ODU2	Capacity	Kw	Bar code		Date of Manu.	
	ODU3	Capacity	Kw	Bar code		Date of Manu.	
	ODU4	Capacity	Kw	Bar code		Date of Manu.	

Checking points for installation

(A)must be amended before starting the system				
(B)allowed to start the system before amending				
(C)no impacts on system operation				
Outdoor unit installation	1.Is there anything block the way of ventilation?	B	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	2.Is there any big power equipment around?	B	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	3.Dose any antivibration material installed?	B	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	4.Is the unit exposed in the air with explosive gas or corrsive stream?	B	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	5.Is there any preparation for drainage water discharge?	C	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	6.Is the basement firm?	B	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	7.Is there any vertical height difference between the basements?	C	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	8.If it is convenient for future maintenance?	C	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Indoor unit installation	1.Check the balance of indoor unit installation?	C	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	2.Check if there is anything block the way of ventilation?	B	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	3.Is there any return air duct installed if it is sealed type?	C	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	4.Check if the layout of supply air inlet and outlet is reasonable or not ?	C	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	5.Is the installation of drainage pipe correct?	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Piping system	1.Is there any leakage in the pipe system?	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	2.Is the pipe system completely covered with insulation material?	B	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	3.Does all the pipe connect to the indoor/outdoor units tightly?	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	4.Does the oil traps be installed correctly?(Over 10m)	C	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	5.Is there any protection covers for the insulation material in the place where expose to the direct sunshine or rain?	C	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	6.Wire down the volume of addition charged refrigerant R410a: _____ Kg _____	C	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Electricity parts	1.Is the capacity of circuit breaker and cables enough or not? Circuit breaker: _____ A Calbe size: _____ mm ²	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	2.Check the sequence of power supply?	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	3.Check the balance between different phases to see if it within the range of 2%	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	4.The voltage of power supply should be no more or lower than 10% of the rated voltage on the nameplate	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Checking procedure for AC units

Outdoor units	1. Check the address setting for outdoor condensing system to see if there is anything wrong	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	2. Check the power supply cable to see if there is any connection loose	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	3. Turn on all the circuit breakers to see if there is any outdoor unit missing with the power	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	4. Check the inside of outdoor unit to see if there is any loose of components connection, such as high pressure switch, communication cable, etc.	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	5. Check the open status of gas valve, liquid valve?	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	6. Check if there is any broken of the outdoor unit appearance	C	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	7. Is the connection sequence of compressor power cable correct?	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	8. Check the resistance between the compressor and ground to see if the valve is infinite	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	9. Check the status of compressor electric heater to see if it works properly	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	10. Is there any abnormal noise after starting up the compressor	B	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Indoor units	1. Check the address setting for each indoor and wired controller to see if it is correct	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	2. Check the settings of function code of indoor unit	B	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	3. Turn on the power to see if every unit could come with power	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	4. Turn on the indoor unit in fan mode to check the status of fan motor and louver motor	B	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Operation test

1. Go and see if the whole system has been powered at least for 8 hours (in winter)	A	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2. Write down the temperature condition for future reference Outdoor temperature:	C	Yes <input type="checkbox"/>	No <input type="checkbox"/>
3. Test the high pressure and low pressure to see if it is normal	C	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4. Use commissioning software to record all the operation data to decide if the system is in the best condition or not	C	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Photo connection				
Photo for project building	Photo for outdoor unit address			
	ODU1	ODU2	ODU3	ODU4
Photos for outdoor unit nameplates	Photo for outdoor unit ventilation		Photo for power supply	
Photos for oil trap (optional)	Photo for Y-joints branch		Photo for insulation	
Photos for outdoor unit anti-vibration	Photos for air inlet and outlet layout(indoor unit)		Photo for controllers	

Operation data records				
Outdoor unit 1	Power input(V)	L1L2	L2L3	L3L1
		L1N	L2N	L3N
	Current(A)	L1	L2	L3
	HP(Mpa)		LP(Mpa)	
	Tcm		Tdef	
	Outdoor T(°C)		EXV(p)PMV	
	Running frequency(Hz)		Fan speed	
	Discharge T(°C)	Dt1	Dt2	/
Suction T(°C)	Tsi	TS	/	
Outdoor unit 2	Power input(V)	L1L2	L2L3	L3L1
		L1N	L2N	L3N
	Current(A)	L1	L2	L3
	HP(Mpa)		LP(Mpa)	
	Tcm		Tdef	
	Outdoor T(°C)		EXV(p)PMV	
	Running frequency(Hz)		Fan speed	
	Discharge T(°C)	Dt1	Dt2	/
Suction T(°C)	Tsi	TS	/	

Outdoor unit 3	Power input(V)		L1L2		L2L3		L3L1	
			L1N		L2N		L3N	
			L1		L2		L3	
	Current(A)		L1		L2		L3	
			HP(Mpa)		LP(Mpa)			
	Tcm		Tdef					
	Outdoor T(°C)		EXV(p)PMV					
	Running frequency(Hz)		Fan speed					
	Discharge T(°C)		Dti		Dt2		/	
			Tsi		TS		/	
Suction T(°C)								
Outdoor unit 4	Power input(V)		L1L2		L2L3		L3L1	
			L1N		L2N		L3N	
			L1		L2		L3	
	Current(A)		L1		L2		L3	
			HP(Mpa)		LP(Mpa)			
	Tcm		Tdef					
	Outdoor T(°C)		EXV(p)PMV					
	Running frequency(Hz)		Fan speed					
	Discharge T(°C)		Dti		Dt2		/	
			Tsi		TS		/	
Suction T(°C)								
Indoor unit	Mode	Setting T(°C)	EXV steps(p)	Inlet T (°C)	Outlet T (°C)	Room T(°C)	Fan speed	
NO.1								
NO.2								
NO.3								
NO.4								
NO.5								
NO.6								
NO.7								
NO.8								
NO.9								
NO.10								
NO.11								
NO.12								
NO.13								
NO.14								
NO.15								
NO.16								
NO.17								
NO.18								
NO.19								
NO.20								

NO.21							
NO.22							
NO.23							
NO.24							
NO.25							
NO.26							
NO.27							
NO.28							
NO.29							
NO.30							
NO.31							
NO.32							
NO.33							
NO.34							
NO.35							
NO.36							
NO.37							
NO.38							
NO.39							
NO.40							
NO.41							
NO.42							
NO.43							
NO.44							
NO.45							
NO.46							
NO.47							
NO.48							
NO.49							
NO.50							
NO.51							
NO.52							
NO.53							
NO.54							

Commissioning conclusion

Final conclusion for commissioning

Pass

Fail to pass see suggestions attached

Training completed?

Dealer	Comments: Signature: Date:
Installer	Comments: Signature: Date:
Owner	Comments: Signature: Date:

DE-COMMISSIONING, DISMANTLING & DISPOSAL

This product contains refrigerant under pressure, rotating parts, and electrical connections which may be a danger & cause injury. All work must only be carried out by competent persons using suitable protective clothing and safety precautions.



Read the Manual



Risk of Electric Shock

RoHS



Unit is Remotely controlled
& may start without warning



1. Isolate all sources of electrical supply to the unit including any control system supplies switched by the unit. Ensure that all points of electrical and gas isolation are secured in the OFF position. The supply cables and gas pipe work may then be disconnected and removed. For points of connection refer to unit installation instructions.
2. Remove all refrigerant from each system of the unit into a suitable container using a refrigerant reclaim or recovery unit. This refrigerant may then be reused, if appropriate, or returned to the manufacturer for disposal. Under NO circumstances should refrigerant be vented to atmosphere. Where appropriate, drain the refrigerant oil from each system into a suitable container and dispose of according to local laws and regulations governing disposal of oily wastes.
3. Packaged units can generally be removed in one piece after disconnection as above. Any fixing down bolts should be removed and then unit lifted from position using the points provided and equipment of adequate lifting capacity. Reference MUST be made to the unit installation instructions for unit weight and correct methods of lifting. Note that any residual or spilt refrigerant oil should be mopped up and disposed of as described above.
4. After removal from position the unit parts may be disposed of according to local laws and regulations.
5. Meaning of crossed Out wheeled dustbin: Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well being. When replacing old appliances with new ones, the retailer is legally obligated to take back your old appliance for disposals at least free of charge.