INSTALLATION AND REPAIR GUIDE

Split Floor-Standing Air Conditioner

121V-FSIA-2410/121V-FSA-2410

Foreword

Air conditioners are pieces of high value. In order to ensure your lawful rights and interests, please have the professional technicians to do the installation for you.

This Instruction Guide is the universal-purpose version for the models of split floor-standing air conditioners manufactured by our Co. The appearance of the units that you purchase might be slightly different from the ones described in the Guide, but it does not affect your proper operations and usage.

Please read carefully the sections corresponding to the specific model you choose, and keep the Guide properly so as to facilitate your reference at later time.

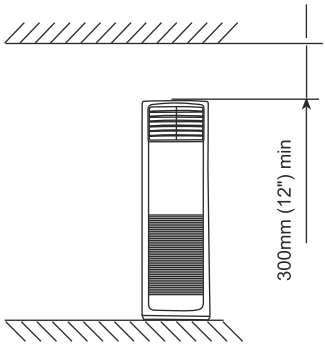
CONTENTS

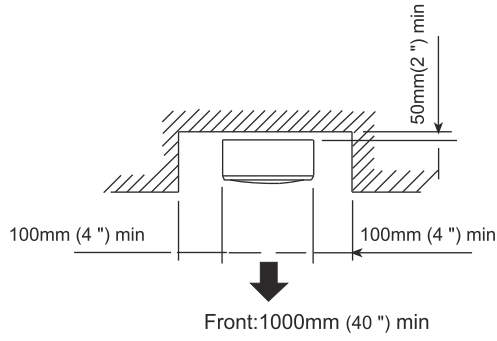
【Selection of installation positions for indoor unit】

- To be installed at the position where the air delivered from the unit can reach every corner of the room;
- To avoid being affected by the outdoor air;
- To avoid blockage to the air inlet or outlet of the unit;
- To avoid too much oil smoke or steam;
- To avoid possible generation, inflow, lingering or leakage of flammable gases;
- To avoid high-frequency facilities (such as high frequency arc welders, etc.);
- To avoid the places where acid solutions are frequently used;
- To avoid the places where some special sprayers (sulfides) are frequently used.
- Not to install a fire alarming device near the air outlet of the unit (during operation, the fire alarm device might be erroneously triggered by the warm air from the unit);

■ Make sure of enough space for installation and maintenance.

- To take into consideration the operational convenience and safety in installation, it is recommended to ensure enough space between the unit and the walls.



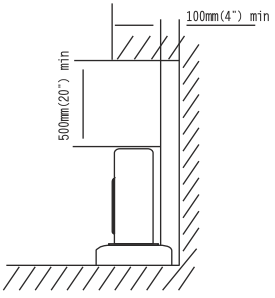


【Selection of installation positions for outdoor unit】

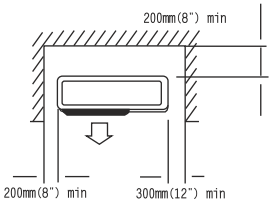
- To install the outdoor unit at the places which can stand the load of the machine weight and will not cause big vibrations and noises;
- To install the unit at the places not to be exposed to rain or direct sunshine, and the places with good ventilation;
- When installing by the sea or at the site with strong air,to ensure the fan can operate normally,the air conditioner need be installed close to a wall and use baffle plate.
- The noises generated from the unit will not affect the neighboring places;
- Do not install the unit on non-metal frame.
- Not to install the unit at the places where there might occur the generation, inflow, stay or leakage of inflammable gases;
- Pay attention to the drainage of the condensed water from the base plate during operations;
- To avoid the air outlet being directly against the wind.

Detailed space requirements around the outdoor unit

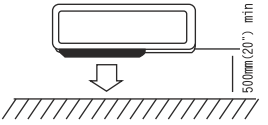
1. When there are obstacles above the unit



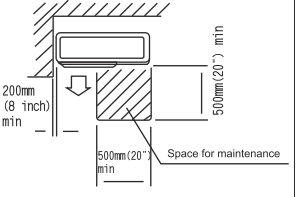
2. When the front (air outlet) is open



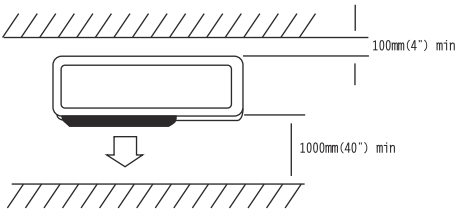
3. When there are obstacles only in the front (air outlet)



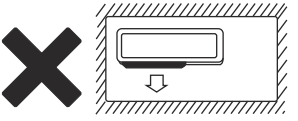
Space for maintenance
Shown as in the following figure. Keep the maintenance space in front of the unit.



4. When there are obstacles at the front and rear sides



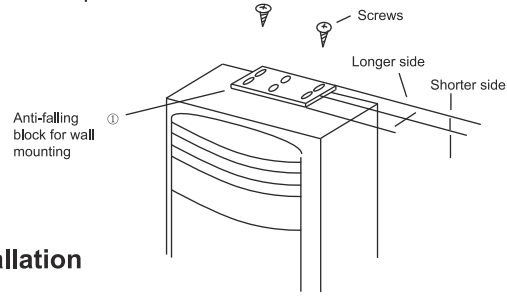
5. When there are obstacles all around the unit on four sides.
Although the top side is open, the installation is not to be done if there are obstacles all around.



- At least two sides should be kept open.

【Installation fixture of indoor unit】

As the gravity center of the unit is rather high, you have to make sure that anti-falling measures are taken after the installation position is determined so as to ensure safety.



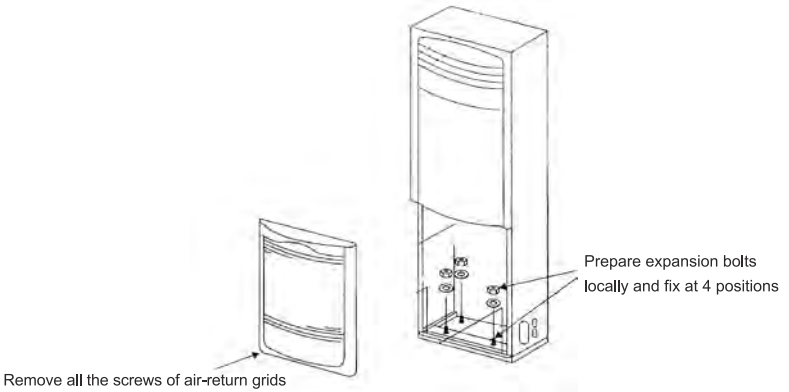
■ Anti-falling blocks Installation

● The anti-falling block (1) is to be preset on top of the unit. When installing, loosen the screws and remove it from the unit. Turn the block upside down, aligning it to the corresponding dimension on the wall and fix it firmly.

● If the top cover of the indoor unit is made of plastics, please insert the longer side of the anti-falling block into the gap between the top board and the unit body, while fixing the shorter side to the wall.

■ Indoor floor fixing (optional procedure)

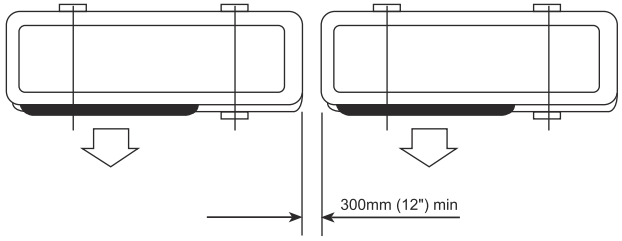
Remove the air-return grids, drill holes on the base for floor fixing. Use expansion bolts on the floor for fixing. (You have to prepare the needed expansion bolts locally).



When the walls and floor are made of materials other than wood boards, please use M8 x 60 expansion bolts for fixing.

【Installation fixture of outdoor unit】

- Try to ship the product to the installation location in its original package;
- As the gravity center of the unit is not at the installation center, special caution should be taken when using hoisting cables to lift it up;
- During shipping, the outdoor unit must not be slanted to over 45 degrees (Do not store the unit in a horizontal way).
- Use expansion bolts to fix the mounting supports on the wall;
- Use bolts and nuts to fix the outdoor unit firmly on the supports and keep on the same level;
- If the unit is installed on the wall or at the rooftop, the supports have to be firmly fixed so as to resist earthquake or strong wind.



【Installation of refrigerant pipe and drainage tube】

- In some special cases, it is needed to buy thermal insulation materials with a thickness of 12mm minimum and the thermal sheath with good property so as to prevent from dew-dropping.
- When the installation of the drainage tube passes the indoor space, thermal-keeping measures should be taken to prevent from dew-dropping.
- Our Co. accessories for piping lines are recommended in general.

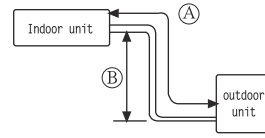
I Dimensions of refrigerant pipe and drainage tube (outer diameter)

In the case that there is the need to purchase additional refrigerant pipe or drainage tube, please refer to the following table: (unit: mm)

Item \ Cooling capacity		4100~5100W	6000~7500W	10000~14500W
Refrigerant pipe	Liquid pipe	∅6.35(1/4")	∅9.52(3/8")	∅ 9.52(3/8")/∅12.7(1/2")
	Gas pipe	∅12.7(1/2")	∅15.88(5/8")	∅ 19.05(3/4")
Drainage tube		PVC tubes ...VP-20 [Outer diameter 26(1")]		

II High differences of the indoor and outdoor units, length limits to the refrigerant piping lines

Cooling capacity	A. Length of Piping Line (one-way)	B. Height Differences
4100~5100W	10m(32'10")max.	5m(16'5")max.
6000~7500W	15m(49'2")max.	5m(16'5")max.
10000~14500W	20m(65'7")max.	5m(16'5")max.



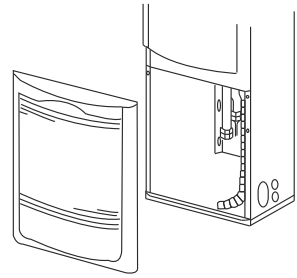
● Either the indoor unit or the outdoor unit can be higher, but the height difference must comply the above-stated requirements.

● Try to reduce the bending of the piping line as much as possible so as to avoid possible negative impacts upon the performances of the units.

III Refrigerant pipes installation

■ **Prior to connect the refrigerant pipes**

1.Remove all the screws on the handle of the air-return grids ,or the screws on both top sides of bottom panel,for the machine which need not be fixed by the screws,you can directly pull out the air-return grids or the bottom panel.



■ **Connect the refrigerant pipes**

1.Keep the stop-valve or ball-valve of the outdoor unit in the original closed state .Remove the screws nuts,dust-resistance caps and pipe end screw blocks from the indoor and outdoor pipes.

2.Do the bell-mouth connections quickly,connect all the refrigerant pipes.

■ **Schematic diagram for the installation of the outdoor unit refrigerant piping system**

Fig 1

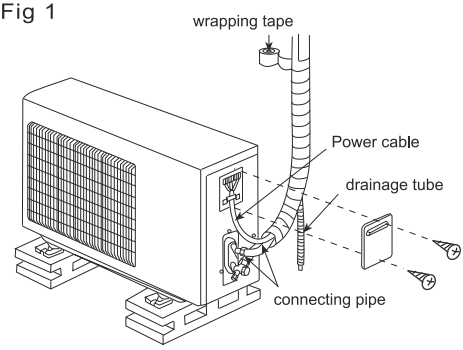
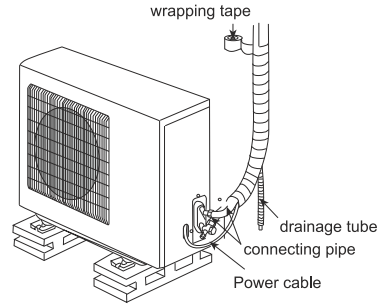


Fig 2



Note:

1.Connect the indoor pipes first,then the outdor pipes.

2.When bending the equipped pipes,please be careful not to damage the connection pipes.

3.Before tightening the bell-mouth nuts,a thin layer of anti-freezing grease should be placed on the surface of the connection between the pipe and the join.

4.Do not screw the connector nut too tightly,or it is possible to cause leakeage.

Please refer to the below Table 1for the related torque

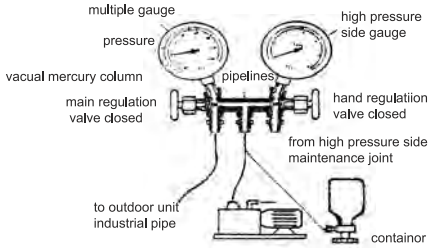
Outer diameter of copper pipe	Tightening torque	Strengthened tightening torque
∅ 6.35(1/4")	160kgf·cm(63kgf.inch)	200kgf·cm(79kgf.inch)
∅ 9.52(3/8")	300kgf·cm(118kgf.inch)	350kgf·cm(138kgf.inch)
∅ 12.7(1/2")	500kgf·cm(197kgf.inch)	550kgf·cm(216kgf.inch)
∅ 15.88(5/8")	750kgf·cm(295kgf.inch)	800kgf·cm(315kgf.inch)
∅ 19.05(3/4")	1200kgf·cm(472kgf.inch)	1400kgf·cm(551kgf.inch)

IV. Installation of drainage tubes

- The drainage tubes must be slanted downwards to ensure that water is not accumulated;
- There might be condensing water on the surface of the drainage tubes. Please purchase thermal insulation sheath as needed;
- The joints must be firmly adhered together by applying polyvinyl adhesives to prevent from leakage;
- Do not directly insert the drainage tube into the sewer tunnel which might generate sulfate gases or into the places which might generate unpleasant smell.

【Exhaust air and leakage detection】

■ If possible,it is better to use pump vacuum to exhaust the air.The procedures must be operated by professional technicians.



Refrigerant charging diagram

■ If the refrigerant is for R22,you can choose the suitable methods to exhaust air according to following table:

Remark: if have moved the air conditioner unit that have installed and operated to another place, then need refrigerant pot to exhaust the air.

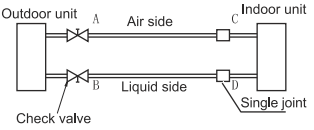
Pipe length	Exhaust air methods	Add refrigerant volume	
<5m(16'5")	Use the refrigerant in outdoor unit	——	
5-10m (16'5"-32'10")	Use refrigerant pot	Liquid pipe diameter Ø6.35(1/4")	(Connecting pipe length-5m)x30g or (Connecting pipe length-16'5")x0.76g
		Liquid pipe diameter:Ø9.52(3/8")	(Connecting pipe length-5m)x65g or (Connecting pipe length-16'5")x1.65g
		Liquid pipe diameter:Ø12.7(1/2")	(Connecting pipe length-5m)x100g or (Connecting pipe length-16'5")x2.54g

■use refrigerant in outdoor unit to exhaust the air

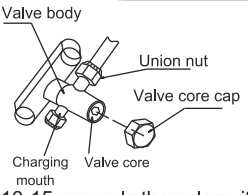
1.Tighten the union nut B,C,D with wrenchs according to torque Table 1,then loose half-circle after tightening union nut A

2.Turn the valve core of valve B about 6-7 seconds with an angle of 45 anti-clockwisely to exhaust the air from valve A,then tighten the union nut A.

3.Open the valve core of check valve B and A completely,then tighten the valve core cap of the check valve.



■use refrigerant pot to exhaust the air



1.Tighten the union nut C and D of indoor unit ,also for union nut A of outdoor unit(refer to above torqueTable1).
2.Connect the charging hose of refrigerant pot with the charging mouth of valve A
3.Loose the union nut B of outdoor unit slightly.
4.Open the valve of refrigerant pot,charge the refrigerant about 10-15 seconds,then close it completely.
5.Wait until the sound of air flowing in union nut B was decreased obviously,then tighten the union nut B.
6.Remove the charging hose from the charging mouth of valve A,then push the needle valve of charging mouth with the tool like hexagon spanner to outlet the remain refrigerant from the pipe,until no sound of air flowing be heard,then tighten the valve cap of charging mouth.
7.Open the valve core of check valve Band A of outdoor unit completely,then tighten the valve core cap of check valve.

■After exhaust air have done, should detect leakage according to the possible leakage points during the installation of air conditioner units.
1. To scribble the suds or bubble evenly on the possible leakage points, to see if have bubbles comes out.
2. Use the probe of leakage detection instrument to check the possible leakage points.

【Connections of power cables】

● Special purpose power source should be utilized along with proper breaker installation;

● Make sure of the applicable voltage and cables or wires for the specific model to be used, before doing the connections;

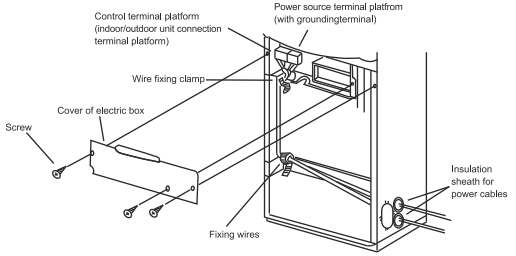
● The cable connections must be done in accordance with the requirements specified in the drawings. The screws have to be tightened firmly to prevent from being loose;

● Check carefully the wiring codes at the terminal platform. Both the indoor and outdoor units have wiring codes, which should be matched one by one to avoid wrong connections;

● The wiring terminals of the indoor and outdoor units must not be connected to the 220V power source, otherwise faulty performances or hazards might be incurred.

Cable connections for indoor unit(Please tighten the screws at the terminals firmly)

1. Remove the fixing screws of the electric box and take the box down;
2. Connect the power cables and control cables;
3. Fix the connected cables by clamps;
4. The grounding wire must be connected firmly;
5. If the cables contact the piping lines, there might be dew drops. Please make proper treatment for the wires.

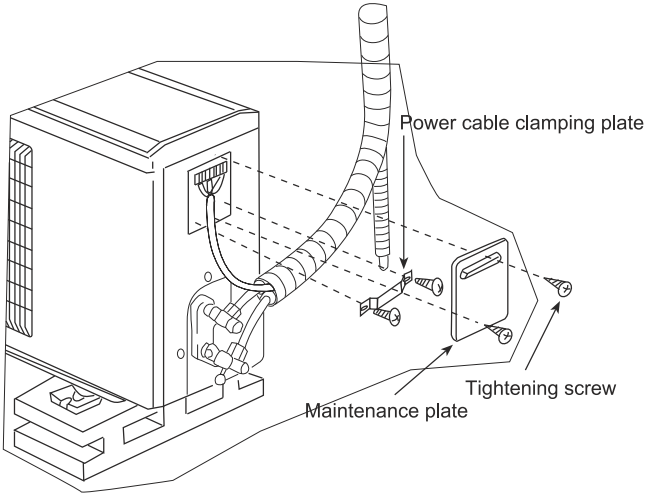


● **After the cable connection is completed, the removed parts must be installed back to their original places.**

Cable connections for outdoor unit

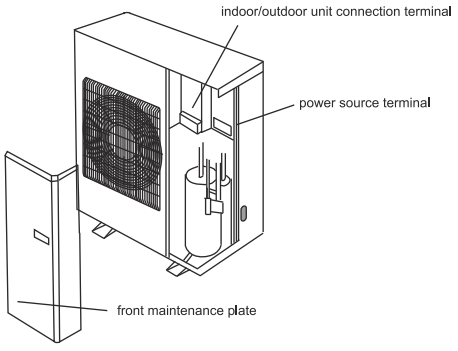
● Outdoor unit as shown below figure

1. Remove the screws of the maintenance plate and take the plate off;
2. Remove the screws of the cable clamping plate to loosen the clamping plate;
3. Connect the power cables and control wires;
4. Install the clamping plate, tighten the cables and wires and then place the maintenance plate back.

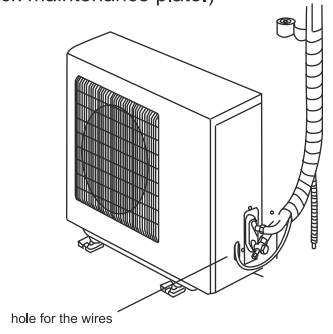


● Outdoor unit as shown below figure

1. Remove the front maintenance plate



2. Connect the power cables and control wires. (There is a hole for the wires on the back maintenance plate.)



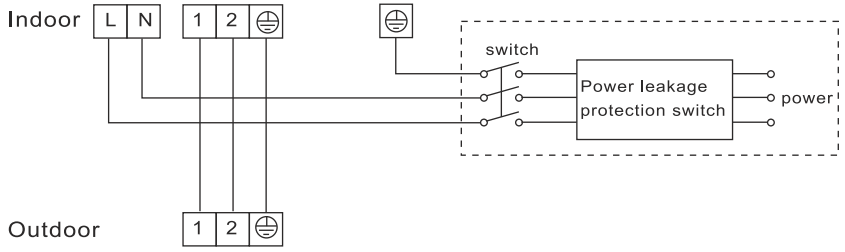
Note:Firmly tighten the screws of the terminal platform

【Schematic diagram of electric principles】

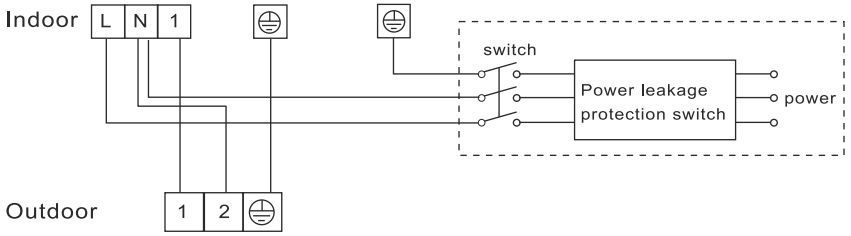
Control wires for indoor and outdoor units

4100W、4600W、5100W、6100W(cooling-only model) series1

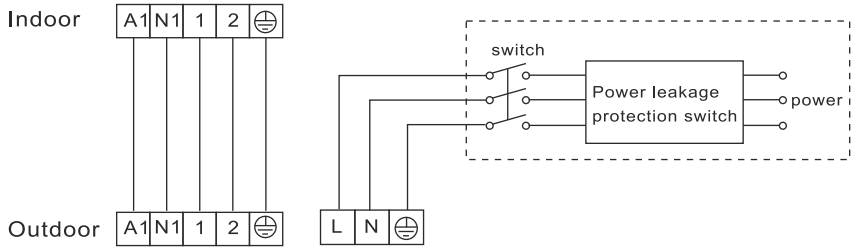
(Please choose the suitable control wires dingram according to the terminal codes features)



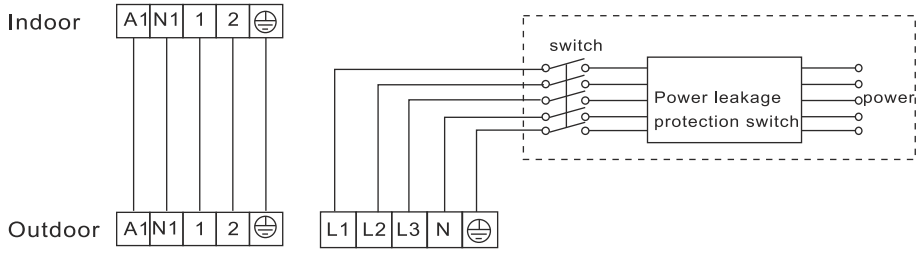
4100W、4600W、5100W、6100W(cooling-only model) series 2



7000W、7200W、7500W、10000W(cooling-only model) series(1 phase)

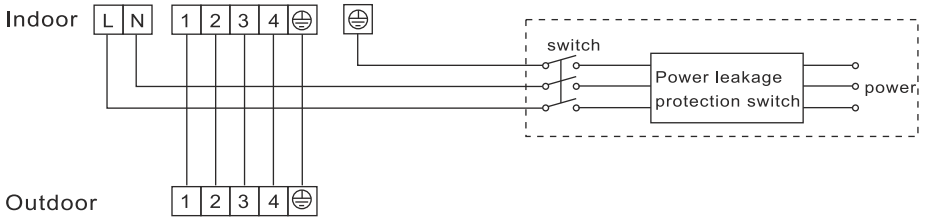


7000W、7500W、12000W、12500W(cooling-only model) series1(3 phase)

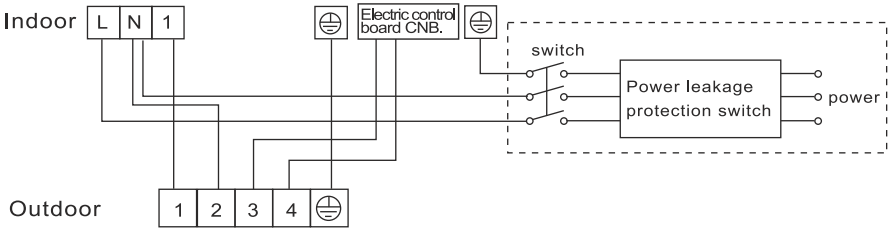


4100W、4600W、5100W、6100W(cooling and heating model) series1

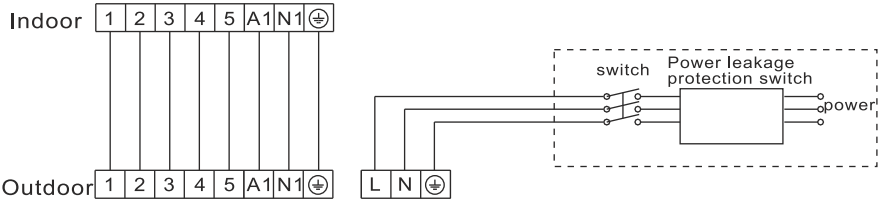
(Please choose the suitable control wires dingram according to the terminal codes features)



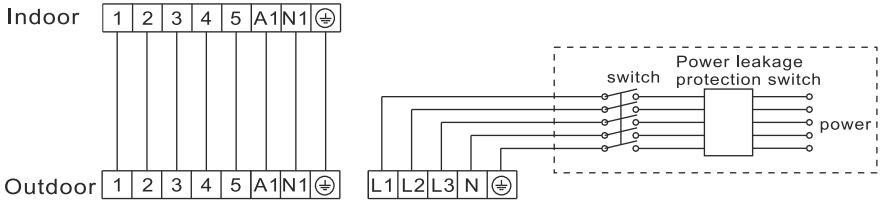
4100W、4600W、5100W、6100W(cooling and heating model) series 2



7000W、7200W、7500W、10000W(cooling and heating model) series (1 phase)

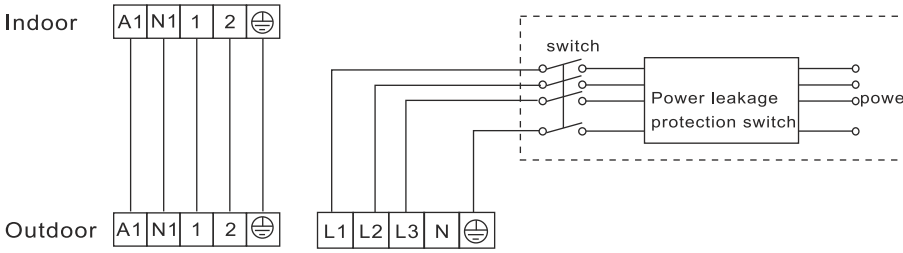


7000W、7500W、12000W、12500W(cooling and heating model) series 1(3 phase)

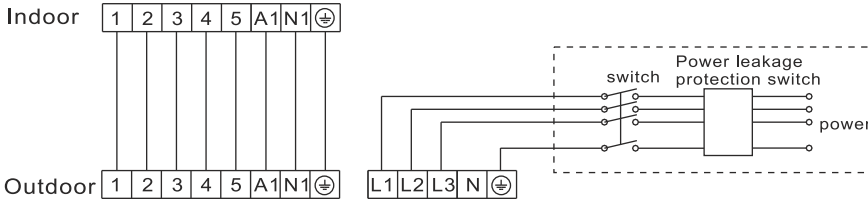


There are some special control wires as below for indoor and outdoor units.

12000W、12500W、14500W(cooling-only model) series 2(3 phase)



12000W、12500W、14500W(cooling and heating model) series 2 (3 phase)



Note:

1.The wirings of the indoor unit and outdoor unit must be matched one by one in accordance with the terminal codes.

2.The part with dotted lines in the above diagram is to be prepared by the end-users.

3.This diagram is only for your reference.The actual wiring is subjected to the drawing supplied with the unit you purchased.

【Self diagnosis functions】

Our company has provided the thoughtful services for customer,and the air conditioner had been installed self diagnosis system to display the code for failure.

Content of defect	Self-check code of luminotron	Digital self-check code	TIME/TEMP lamp code	Number code
Abnormality of indoor temperature sensor	Flicker 2 times /4s	E2	11-28 1-18	11
Abnormality of Indoor coil temperature sensor	Flicker 3 times /5s	E3	10-27 1-18	10
Abnormality of outdoor unit	Flicker 4 times /6s	E4	12-29 1-18	12
Abnormality of feeback signal	Flicker 7 times /9s	E7	8-25 1-18	13
Over heat protection/Defrosting	Flicker 8 times /10s	E8	7-24 1-18	7