



Version: 2.0

SPLIT TYPE AIR CONDITIONER

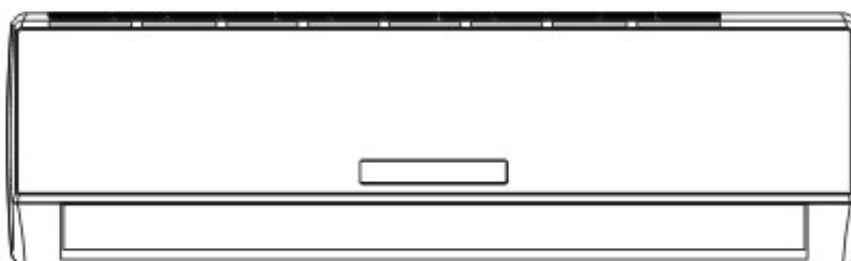
SERVICE MANUAL

HISENSE SENSATION PRO MULTI SUPERIOR DC Inverter 2026

AS-10UW4RWMQK00G

AS-13UW4RWMQK00G

AS-18UW4RFMQK00G



Hisense Corporation

MODEL:

AS-10UW4RWMQK00G	AS-13UW4RWMQK00G
AS-18UW4RFMQK00G	

Note: “ QK ” mean code of Front Panel (See in 4-1 .Product Pictures).

Contents

1. Safety Considerations.....	4
2. Product Specifications	13
3. Product Picture and Drawing.....	13
3-1. Product Pictures.....	13
3-2. Product dimensions	14
4. Installation Instruction	15
4-1. Main Tools for Installation and Maintenance.....	15
4-2. Installation Flow Diagram	16
4-3. Installation Place and Condition	17
4-6. Air Purging and Leakage Test.....	18
4-7. Test Running.....	19
5. Function Operation.....	20
5-1. Operation Range (cooling and heating)	20
5-2. Remote Controller Operation	21
5-3. Control Function.....	23
6. Electrical Characteristics.....	34
6-1. Print Circuit Board (Indoor).....	34
6-2. Fan Motor.....	35
6-3. Electric control board of indoor unit.....	37
6-4. Electric Reactor.....	38
6-5. Temperature Sensor	38
6-6. Room Card Control, Fire Protection, ON/OFF Function (Optional)	40
6-7 Wiring Remote Controller	46
7. Trouble Shooting	47
7-1. Error Code Table.....	47
7-2. Trouble Diagnosis of Protection.....	52
7-3. Trouble Diagnosis of Compressor	53
7-4. Trouble Diagnosis of Electric Communication.....	54
7-5. Diagnosis and Solution	55
7-5-1. The indoor unit fails to start.	55
7-5-2. Error code 39 (Indoor fan motor in trouble)	56
7-5-3. Error code 9 (Maximum current protection)	57
7-5-4. Error code 13 (Compressor over heat protection)	58
7-5-5. Error code 8 (Current overload protection)	59
7-5-6. Error code 16 (Cooling mode Anti-freeze protection indoor unit)	60
7-5-7. Error code 21 (Outdoor coil anti-overload protection)	61
7-5-8. Error code 11 (Outdoor EEPROM IN in trouble)	62
7-5-9. Error code 20 (Outdoor fan motor locked rotor protection)	63
7-5-10. Error code 33 & 34 & 14 & 1 & 2 (temperature sensor trouble)	64
7-5-11. Error code 6 (AC voltage higher or lower protection)	65
7-5-12. Error code 19 (Compressor driver in trouble)	66
7-5-13. Error code 36 (Communication in trouble)	68
8. Air filter maintenance	70
9. Interconnection cable replacement.....	71
10. Disassembling and assembling the sliding panel.....	73

11. Disassemble and assemble the horn.....	75
12. Disassemble and assemble the microphone box	75
13. Disassembling and assembling the indoor PCB.....	76

1. Safety Considerations

IMPORTANT!

Please Read Before Starting

This air conditioning system meets strict safety and operating standards. As the installer or service person, it is an important part of your job to install or service the system, so it operates safely and efficiently.

For safe installation and trouble-free operation, you must:

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state, and national electrical codes.
- Pay close attention to all warning and caution notices given in this manual.



WARNING

This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.



CAUTION

This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

If Necessary, Get Help

These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.

In Case of Improper Installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

SPECIAL PRECAUTIONS

When Wiring

WARNING



ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause accidental injury or death.
- Ground the unit following local electrical codes.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.

When Transporting

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

When Installing

• In a Ceiling or Wall

Make sure the ceiling/wall is strong enough to hold the unit's weight. It may be necessary to construct a strong wood or metal frame to provide added support.

• In a Room

Properly insulate any tubing run inside a room to prevent "sweating" that can cause dripping and water damage to walls and floors.

• In Moist or Uneven Locations

Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the outdoor unit. This prevents water damage and abnormal vibration.

• In an Area with High Winds

Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

• In a Snowy Area (for Heat Pump-type Systems)

Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.

When Connecting Refrigerant Tubing

△ Use the flare method for connecting tubing.

△ Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak free connection.

△ Check carefully for leaks before starting the test run.

When Servicing

△ Turn the power OFF at the main power box (mains) before opening the unit to check or repair electrical parts and wiring.

△ Keep your fingers and clothing away from any moving parts.

△ Clean up the site after you finish, remembering to check that no metal scraps or bits of wiring have been left inside the unit being serviced.

Others



CAUTION

△ Ventilate any enclosed areas when installing or testing the refrigeration system. Escaped refrigerant gas, on contact with fire or heat, can produce dangerously toxic gas.

△ Confirm upon completing installation that no refrigerant gas is leaking. If escaped gas comes in contact with a stove, gas water heater, electric room heater or other heat source, it can produce dangerously toxic gas.

NOTE:

The figure, size and parameter of the product may not be identical with the service manual, please take the actual product as the standard.

Precautions for using R32 refrigerant and R454B refrigerant

The basic installation work procedures are the same as the conventional refrigerant (R22 or R410A). However, pay attention to the following points:

1. Transport of equipment containing flammable refrigerants Compliance with the transport regulations

2. Marking of equipment using signs Compliance with local regulations

3. Disposal of equipment using flammable refrigerants Compliance with national regulations

4. Storage of equipment/appliances. The storage of equipment should be in accordance with the manufacturer's instructions.

5. Storage of packed (unsold) equipment. Storage package protection should be constructed such that mechanical damage to the equipment inside the package will not cause a leak of the refrigerant charge. The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

6. Information on servicing

6-1 Checks to the area

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. For repair to the refrigerating system, the following precautions shall be complied with prior to conducting work on the system.

6-2 Work procedure

Work shall be undertaken under a controlled procedure so as to minimize the risk of flammable gas or vapor being present while the work is being performed.

6-3 General work area

- 1) All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.
- 2) The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.

6-4 Checking for presence of refrigerant

- 1) The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres.
- 2) Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

6-5 Presence of fire extinguisher

- 1) If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand.
- 2) Have a dry powder or CO₂ fire extinguisher adjacent to the charging area.

6-6 No ignition sources

- 1) No person carrying out work in relation to a refrigeration system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion.
- 2) All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which flammable refrigerant can possibly be released to the

surrounding space.

3) Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

6-7 Ventilated area

1) Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work.

2) A degree of ventilation shall continue during the period that the work is carried out.

3) The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

6-8 Checks to the refrigeration equipment

1) Where electrical components are being changed, they shall be fit for the purpose and to the correct specification.

2) At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt consult the manufacturer's technical department for assistance.

3) The following checks shall be applied to installations using flammable refrigerants:

- The charge size is in accordance with the room size within which the refrigerant containing parts are installed;
- The ventilation machinery and outlets are operating adequately and are not obstructed;
- If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
- Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

6-9 Checks to electrical devices

1) Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures.

2) If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with.

3) If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used.

4) This shall be reported to the owner of the equipment so all parties are advised. Initial safety checks shall include:

- That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- That there no live electrical components and wiring are exposed while charging, recovering or purging the system;
- That there is continuity of earth bonding.

7. Sealed electrical components shall be replaced and shall not be repaired if the component is damaged.

8. Intrinsically safe component shall be replaced and shall not be repaired if the component is damaged

9. Cabling

1) Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects.

2) The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

10. Detection of flammable refrigerants

- 1) Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks.
- 2) A halide torch (or any other detector using a naked flame) shall not be used.

11. Leak detection methods

The following leak detection methods are deemed acceptable for systems containing flammable refrigerants:

- Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.)
- Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used.
- Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25 % maximum) is confirmed.
- Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

NOTE: Examples of leak detection fluids are

- bubble method,

- fluorescent method agents.

- If a leak is suspected, all naked flames shall be removed/ extinguished.
- If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.

Removal of refrigerant shall be according to Point 12: Removal and evacuation.

- Oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

That pipe-work including piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ASHRAE 15, ASHRAE 15.2, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed;

That after completion of field piping for split systems, the field pipework shall be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements;

The minimum test pressure for the low side of the system shall be the low side design pressure and the minimum test pressure for the high side of the system shall be the high side design pressure, unless the high side of the system, cannot be isolated from the low side of the system in which case the entire system shall be pressure tested to the low side design pressure;

Field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure.

No leak shall be detected;

The appliance shall be stored so as to prevent mechanical damage from occurring.

12. Removal and evacuation

When breaking into the refrigerant circuit to make repairs – or for any other purpose –conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration. The following procedure shall be adhered to:

- 1) safely remove refrigerant following local and national regulations;
- 2) evacuate;
- 3) purge the circuit with inert gas (optional for A2L);
- 4) evacuate (optional for A2L);
- 5) continuously flush or purge with inert gas when using flame to open circuit; and open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and

national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.

The outlet for the vacuum pump shall not be close to any potential ignition sources, and ventilation shall be available.

13. Charging procedures

1) In addition to conventional charging procedures, the following requirements shall be followed:

- Ensure that contamination of different refrigerants does not occur when using charging equipment.
- Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigeration system.

2) Prior to recharging the system, it shall be pressure tested with OFN.

3) The system shall be leak tested on completion of charging but prior to commissioning.

4) A follow up leak test shall be carried out prior to leaving the site

14. Decommissioning

1) Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail.

2) It is recommended good practice that all refrigerants are recovered safely.

Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant.

3) It is essential that electrical power is available before the task is commenced.

a) Become familiar with the equipment and its operation.

b) Isolate system electrically.

c) Before attempting the procedure ensure that:

- Mechanical handling equipment is available, if required, for handling refrigerant cylinders;
- All personal protective equipment is available and being used correctly;
- The recovery process is supervised at all times by a competent person;
- Recovery equipment and cylinders conform to the appropriate standards.

d) Pump down refrigerant system, if possible.

e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.

f) Make sure that cylinder is situated on the scales before recovery takes place.

g) Start the recovery machine and operate in accordance with manufacturer's instructions.

h) Do not overfill cylinders. (No more than 80 % volume liquid charge).

i) Do not exceed the maximum working pressure of the cylinder, even temporarily.

j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.

k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

15. Labelling

- 1) Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant.
- 2) The label shall be dated and signed.
- 3) Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

16. Recovery

- 1) When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.
- 2) When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed.
- 3) Ensure that the correct number of cylinders for holding the total system charge is available.
- 4) All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant).
- 5) Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order.
- 6) Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
- 7) The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, FLAMMABLE REFRIGERANTS. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.
- 8) The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders
- 9) If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that FLAMMABLE REFRIGERANT does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.
- 9) When moving or relocating the air conditioner, consult experienced service technicians for disconnection and reinstallation of the unit.
- 10) Do not place any other electrical products or household belongings under indoor unit or outdoor unit.
- 11) Condensation dripping from the unit might get them wet, and may cause damage or malfunction of your property.
- 12) Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- 13) The appliance shall be stored in a room without continuously operating ignition sources (for example, open flames, an operating gas appliance or an operating electric heater).
- 14) Do not pierce or burn.
- 15) Be aware that refrigerants may not contain an odor.
- 16) To keep ventilation opening clear of obstruction.
- 17) The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
- 18) The appliance shall be stored in a room without continuously operating open flames (for example an operating gas appliance) and ignition sources (for example an operating electric heater).
- 19) Any person who is involved with working on or breaking into a refrigerant circuit, opening of sealed components, opening of ventilated enclosures should hold a current valid certificate from an industry-accredited assessment authority, which authorises their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.
- 20) Servicing shall only be performed as recommended by the equipment manufacturer.
- 21) Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the

supervision of the person competent in the use of flammable refrigerants.

22) Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

23) Appliance shall be installed, operated and stored in a room with a floor area larger than 10 m² / 108 ft².

24) The installation of pipe-work shall be kept to a room with a floor area larger than 10 m² / 108 ft².

25) The pipe-work shall be compliance with national gas regulations. The maximum refrigerant charge amount is 2.5 kg/88.2 oz. The specific refrigerant charge is based on the nameplate of the outdoor unit.

26) Mechanical connectors used indoors shall comply with ISO 14903. When mechanical connectors are reused indoors, sealing parts shall be renewed. When flared joints are reused indoors, the flare part shall be re-fabricated.

27) When flared joints are reused indoors, the flare part shall be re-fabricated.

28) The installation of pipe-work shall be kept to a minimum.

29) Mechanical connections shall be accessible for maintenance purposes.

WARNING for Using R290 Refrigerant

When flammable refrigerant are employed, appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.

For R290 refrigerant models, the minimum room size needed:

$\leq 9000 \text{ Btu/h}$ units: 13m²

$> 9000 \text{ Btu/h}$ and $\leq 12000 \text{ Btu/h}$ units: 17m²

$> 12000 \text{ Btu/h}$ and $\leq 18000 \text{ Btu/h}$ units: 26m²

$> 18000 \text{ Btu/h}$ and $\leq 24000 \text{ Btu/h}$ units: 35m²

Installation space

When a flammable refrigerant is used, the requirements for installation space of appliance and/or ventilation requirements are determined according to

- the refrigerant charge (mc) used in the appliance,
- the installation location,
- the type of ventilation of the location or of the appliance.

The maximum refrigerant charge in a room shall be in accordance with the following:

$$m_{\max} = 2,5 \times (\text{LFL})^{(5/4)} \times h_0 \times (A)^{1/2}$$

or the required minimum floor area $A_{\min}$ to install an appliance with refrigerant charge mc(kg) shall be in accordance with following:

$$A_{\min} = (mc / (2,5 \times (\text{LFL})^{(5/4)} \times h_0))^2$$

where

$m_{\max}$ is the allowable maximum refrigerant charge in a room, in kg;

mc is the refrigerant charge in appliance, in kg;

$A_{\min}$ is the required minimum room area, in m²;

A is the room area, in m²;

LFL is the lower flammability limit, in kg/m³;

h_0 is the release height, the vertical distance in metres from the floor to the point of release when the appliance is installed .

$h_0 = (h_{\text{inst}} + h_{\text{rel}})$ or 0,6 m, whichever is higher.

h_{rel} is the release offset in metres from the bottom of the appliance to the point of release.

Reference installed heights are given below:

0,0 m for portable and floor mounted;

1,0 m for window mounted;

1,8 m for wall mounted;

2,2 m for ceiling mounted.

If the minimum installed height given by the manufacturer is higher than the reference installed height, then in addition A_{min} and max for the reference installed height have to be given by the manufacturer. An appliance may have multiple reference installed heights. In this case, A_{min} and max calculations shall be provided for all applicable reference installed heights.

For appliances serving one or more rooms with an air duct system, the lowest opening of the duct connection to each conditioned space or any opening of the indoor unit greater than 5 cm^2 , at the lowest position to the space, shall be used for h_0 . However, h_0 shall not be less than 0,6 m. A_{min} shall be calculated as a function of the opening heights of the duct to the spaces and the refrigerant charge for the spaces where leaked refrigerant may flow to, considering where the unit is located. A_{min} shall be calculated for the spaces where a duct is connected or an indoor unit is located. All spaces shall have a floor area more than A_{min} .

NOTE 1 This formula is not applicable for refrigerants lighter than 42 kg/kmol .

NOTE 2 Some examples of the results of the calculations according to the above formula are given in Tables 1-1 and 1-2.

NOTE 3 For factory sealed appliances, the nameplate on the unit itself marked the refrigerant charge can be used to calculate A_{min} .

NOTE 4 For field charged products, calculation of A_{min} can be based on the installed refrigerant charge not to exceed the factory specified maximum refrigerant charge.

The maximum charge in a room and the required minimum floor area to install an appliance, please refer to the "Owner's Manual Installation Manual" of the unit.

Table 1 Maximum mass of charge/kg

Type	LEF kg/m ³	h_0 m	Minimum room size/m ²						
			4	7	10	15	20	30	50
R290	0.038	0.6	0.05	0.07	0.08	0.10	0.11	0.14	0.18
		1.0	0.08	0.11	0.13	0.16	0.19	0.23	0.30
		1.8	0.15	0.20	0.24	0.29	0.34	0.41	0.53
		2.2	0.18	0.24	0.29	0.36	0.41	0.51	0.65

Table 2 Minimum room size/m²

Type	LEF kg/m ³	h_0 m	Total mass of charge/kg Minimum room size/m ²						
			0.152	0.228	0.304	0.456	0.608	0.76	0.988
R290	0.038	0.6	82	146	328	584	912	1541	
		1.0	30	53	118	210	328	555	
		1.8	9	16	36	65	101	171	
		2.2	6	11	24	43	68	115	

Explanation of symbols displayed on the indoor unit or outdoor unit.

	WARNING	This symbol shows that this appliance uses a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.
	CAUTION	This symbol shows that the operation manual should be read carefully.
	CAUTION	This symbol shows that service personnel should be handling this equipment with reference to the installation manual.
	CAUTION	This symbol shows that information is available such as the operating manual or installation manual.
	WARNING	This symbol shows that this appliance uses a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.



A2L

WARNING

This symbol shows that this appliance uses a flammable refrigerant.
If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.

2. Product Specifications

To see in technical manual.

3. Product Picture and Drawing

3-1. Product Pictures

Indoor units:

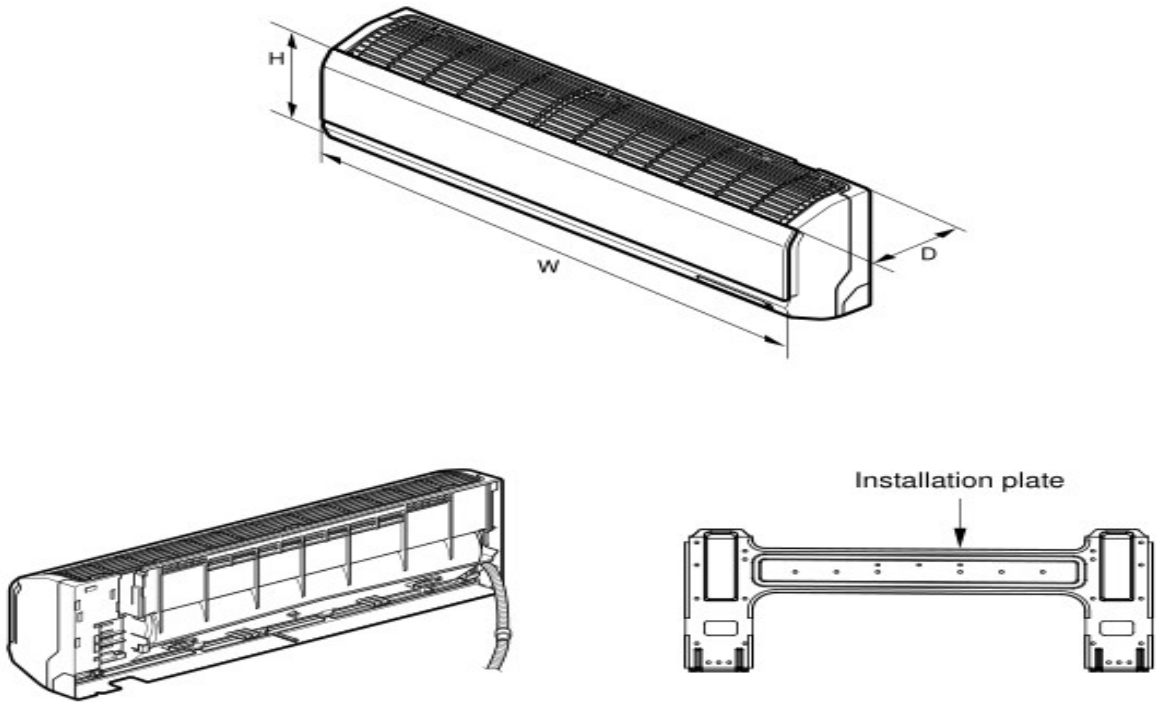
Front Panel	QK
View	

Remote controller:

Model	RTY4-0
View	

3-2. Product dimensions

Indoor units:



Model	W (mm)	H (mm)	D (mm)
AS-10UW4RWMQK00G	830	310	215
AS-13UW4RWMQK00G	830	310	215
AS-18UW4RFMQK00G	830	310	215

4. Installation Instruction



WARNING

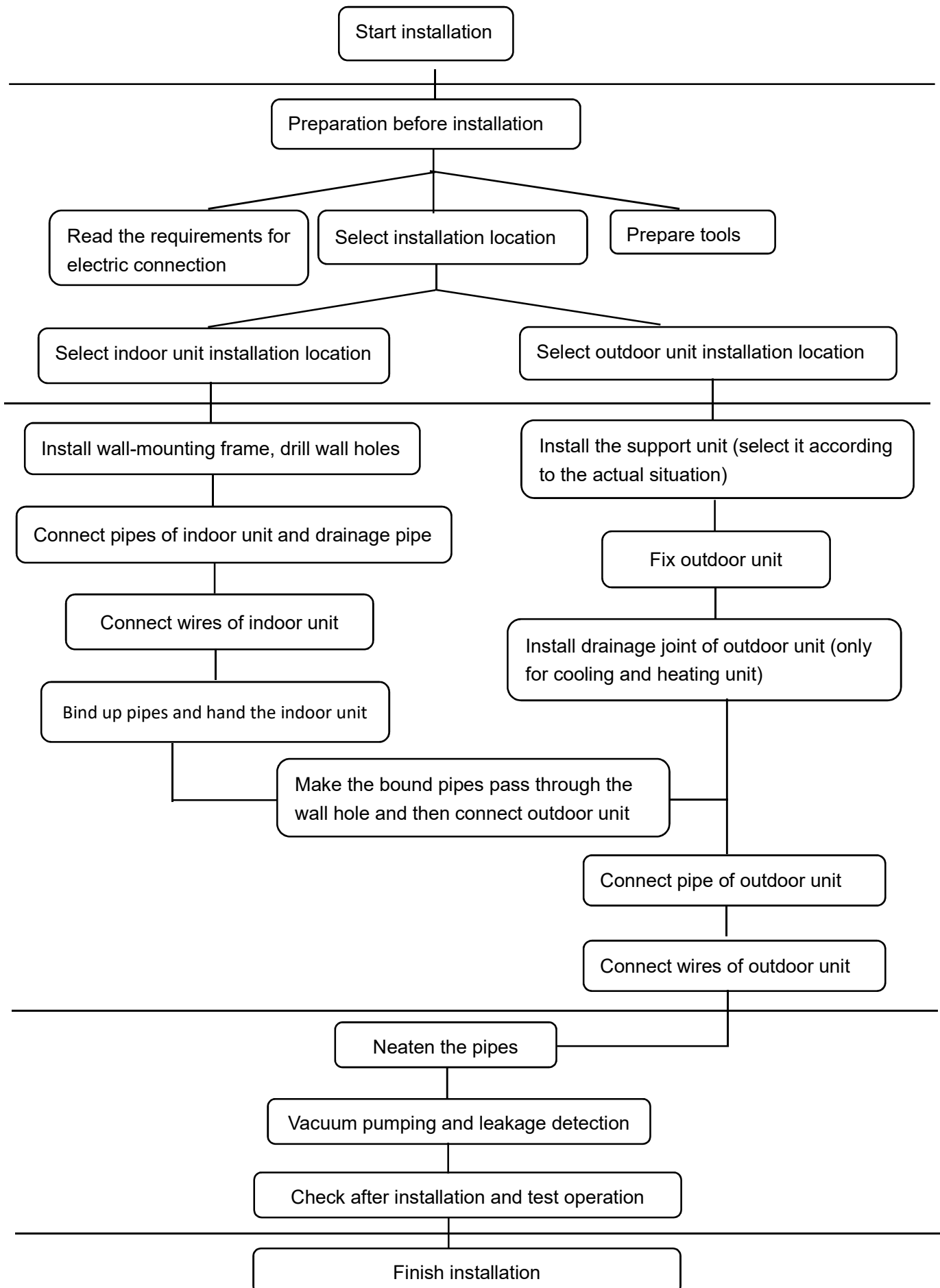
To prevent abnormal heat generation and the possibility of fire, do not place obstacles, enclosures and grilles in front of or surrounding the air conditioner in a way that may block air flow. And, more than 1 meter away from any antenna or power lines or connecting wires used for TV, radio, telephone, security system, or intercom. Electrical noise from any of these sources may affect operation.

4-1. Main Tools for Installation and Maintenance

1. Level meter, measuring tape 	2. Screw driver 	3. Impact drill, drill head, electric drill 
4. Electroprobe 	5. Universal meter 	6. Torque wrench, open-end wrench, inner hexagon spanner 
7. Electronic leakage detector 	8. Vacuum pump 	9. Pressure meter 
10. Pipe pliers, pipe cutter 	11. Pipe expander, pipe bender 	12. Soldering appliance, refrigerant container 

Just for reference, some tools may be different from each place, you can use the similar tools to install the products.

4-2. Installation Flow Diagram



Note: this flow is only for reference, the more details please find the manual of Use and installation instructions

4-3. Installation Place and Condition

Indoor unit

Avoid:

- △ direct sunlight.
- △ nearby heat sources that may affect performance of the unit.
- △ areas where leakage of flammable gas may be expected.
- △ places where large amounts of oil mist exist.

Do:

- △ Select an appropriate position from which every corner of the room can be uniformly cooled.
- △ Select a location that will hold the weight of the unit.
- △ Select a location where tubing and drain hose have the shortest run to the outside. (See a)
- △ Allow room for operation and maintenance as well as unrestricted air flow around the unit. (See b)
- △ Install the unit within the maximum elevation difference (H) above or below the outdoor unit and within a total tubing length (L) from the outdoor unit as detailed (See table 1 and c)

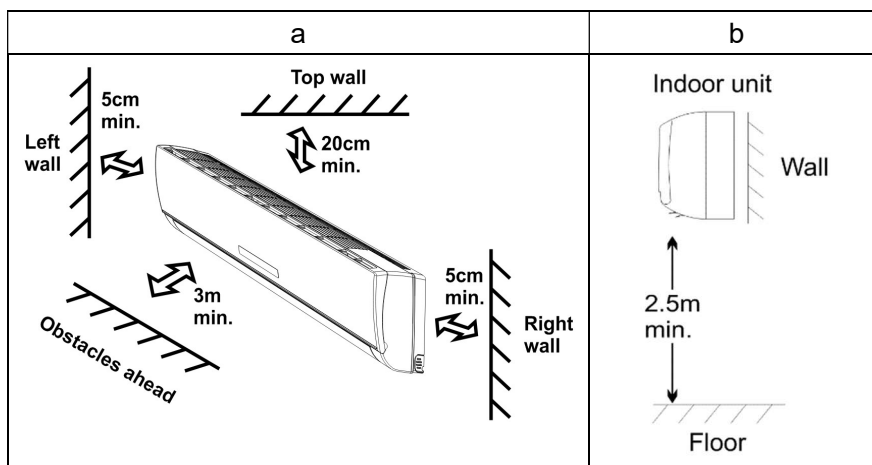


table 1

Capacity (Btu/h)	Pipe Size	
	GAS	LIQUID
10k	3/8"(Ø9.52)	1/4"(Ø6.35)
13k	3/8"(Ø9.52)	1/4"(Ø6.35)
18k	1/2"(Ø12.7)	1/4"(Ø6.35)

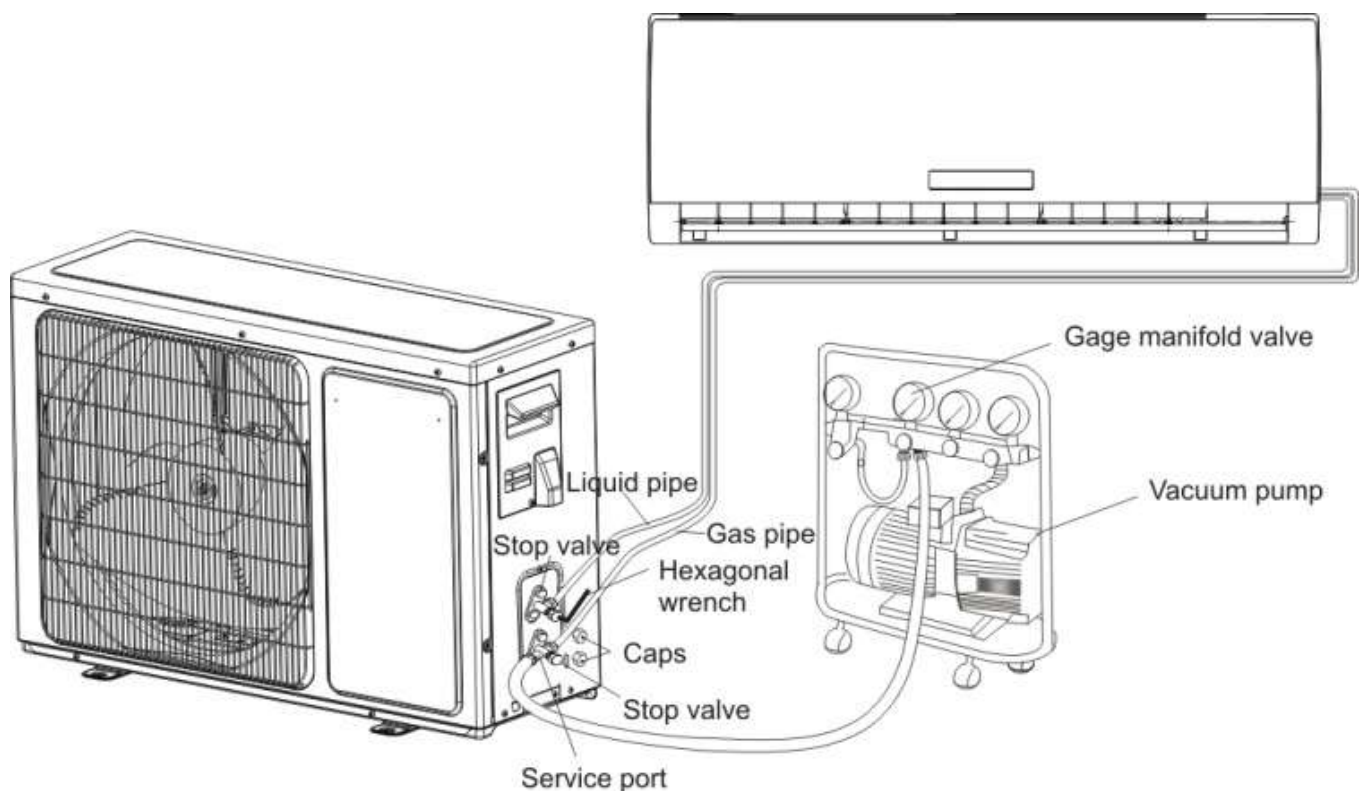
Recommended Wire Diameter:

Capacity size	Wire Diameter(mm ²)
10K~13k	1.5 (Connect wire)
18k	1.5 (Connect wire)

NOTE: In different models, the throttle assembly may be Capillary or Electronic expansion valve.

4-6. Air Purging and Leakage Test

1. Connect charging hose of manifold valve to charge end of low pressure valve (both high/low pressure valves must be tightly shut).
 2. Connect joint of charging hose to vacuum pump.
 3. Fully open the handle of Lo manifold valve.
 4. Open the vacuum pump to evacuate. At the beginning, slightly loosen joint nut of low pressure valve to check if there is air coming inside. (If noise of vacuum pump has been changed, the reading of multimeter is 0) Then tighten the nut.
 5. Keep evacuating for more than 15mins and make sure the reading of multi-meter is -1.0×10^5 pa (-76cmHg).
 6. Check the vacuum with the gage manifold valve, then close the gage manifold valve, and stop the vacuum pump.
 7. Leave it for one or two minutes. Make sure the pointer of the gage manifold valve remains in the same position.
 8. Remove the gage manifold valve quickly from the service port of the stop valve.
- After refrigerant pipes are connected and evacuated, fully open all stop valves on gas and liquid pipe sides.
9. Opening without fully opening lowers the performance and cause dangerous.
 10. Tighten the cap to the service port to obtain the initial status.
 11. Retighten the cap
 12. Leak test



4-7. Test Running

△ Check after Installation

Items to be checked	Possible malfunction
Has it been fixed firmly?	The unit may drop, shake or emit noise.
Have you done the refrigerant leakage test?	It may cause insufficient cooling(heating)capacity
Is heat insulation sufficient?	It may cause condensation and dripping.
Is water drainage satisfactory?	It may cause condensation and dripping.
Is the voltage in accordance with the rated voltage marked on the nameplate?	It may cause electric malfunction or damage the product.
Is the electric wiring and piping connection installed correctly and securely?	It may cause electric malfunction or damage the part.
Has the unit been connected to a secure earth connection?	It may cause electrical leakage.
Is the power cord specified?	It may cause electric malfunction or damage the part.
Are the inlet and outlet openings blocked?	It may cause insufficient cooling(heating)capacity.
Is the length of connection pipes and refrigerant capacity been recorded?	The refrigerant capacity is not accurate.

△Operation Test

1. Before Operation Test

- (1)Do not switch on power before installation is finished completely.
- (2)Electric wiring must be connected correctly and securely.
- (3)Cut-off valves of the connection pipes should be opened.
- (4)All the impurities such as scraps and thrums must be cleared from the unit.

2. Operation Test Method

- (1)Switch on power and press "ON/OFF" button on the remote controller to start the operation.
- (2)Press MODE button to select the COOL, HEAT (Cooling only unit is not available), FAN to check whether the operation is normal or not.

5. Function Operation

5-1. Operation Range (cooling and heating)

Temperature		Cooling operation	Heating operation
Indoor temperature	Max	32°C	27°C
	Min	21°C	7°C

*Optimum performance will be achieved within these operating temperature. If air conditioner is used outside of the above conditions, the protective device may trip and stop the appliance.

*For Tropical (T3) Climate condition models, the outdoor max temperature is 55 °C instead of 43 °C

*For some models, can keep cooling at -15 °C outdoor ambient via unique design. Normally, optimum cooling performance will be achieved above 21 °C. Please consult the merchant to get more information.

*For some models, can keep heating at -15 °C outdoor ambient , some models heat at -20 °C outdoor ambient, even heat at lower outdoor ambient

The temperature of some products is allowed beyond the range. In specific situation, please consult the merchant. When relative humidity is above 80%, if the air conditioner runs in COOLING or DRY mode with door or window opened for a long time, dew may drip down from the outlet.

5-2. Remote Controller Operation

△Remote Controller Instruction

RTY4-0

Remote controller

The remote controller transmits signals to the system.

1 MODE

Press this button to select the operation mode.

3 SUPER

Used to start or stop the fast cooling/heating. (Fast cooling operates at high fan speed with 16°C set temp automatically; Fast heating operates at auto fan speed with 30°C set temp automatically)

6 AI SMART

Used to enter Artificial Intelligence Smart Running Mode

8 SLEEP / DIMMER

Used to set or cancel Sleep Mode operation. Press this button for about 5 seconds once to start DIMMER mode, press this button for about 5 seconds once again to stop it.

7 TIMER ON / CLOCK

Used to set or cancel the timer operation. Used to set the current time.

10 TIMER OFF

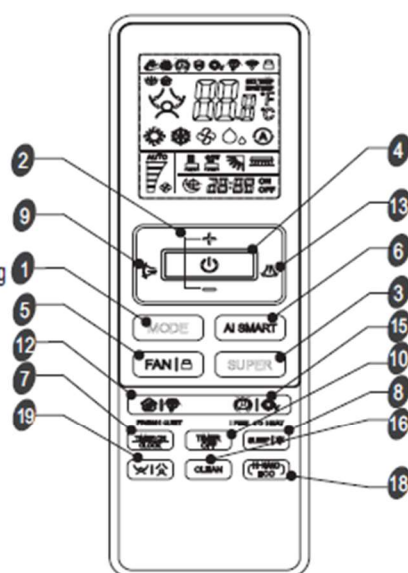
Used to set or cancel the timer operation.

12 FRESH / QUIET

Used to set or cancel Fresh Mode operation. Used to set or cancel Quiet Mode operation.

16 CLEAN

press this button once to start indoor clean mode, then the indicator "CLEAN" will display on LCD, press this button once again to stop it. Press this button for about 5 seconds once to start outdoor clean mode, then the indicator "CLEAN" will display on LCD, press this button for about 5 seconds once again to stop it.



18 HI-NANO / ECO

Used to set or cancel HI-NANO Mode operation. Used to set or cancel Economy Mode operation.

19 Airflow Follow/Avoid You (optional)

Used to set or cancel Airflow Follow You and Airflow Avoid You operation.

2 TEMP + -

Used to adjust the set temperature and the timer, also real time.

4 POWER

The appliance will be started when it is energized or will be stopped when it is in operation, if you press this button.

5 FAN / LOCK

Used to select fan speed in sequence auto, higher, high, medium, low and lower. Press this button for about 5 seconds once to start LOCK mode. Press this button for about 5 seconds once again to stop it.

9 SWING

Used to adjust vertical adjustment lower swinging and set the desired up/downairflow direction.

13 SWING (optional)

Used to adjust Horizontal adjustment lower swinging and set the desired left/right airflow direction.

15 iFEEL / 8°C HEAT

Used to set or cancel iFEEL Mode. In iFEEL mode, the Air Conditioner operates basis temperature sensor fitted in remote instead of machine. Advice to use iFEEL mode and the remote put where the indoor unit receive signal easily. Used to start or stop 8°C HEAT Mode.

❄ Cooling indicator	☀ Dry indicator	🌀 Fan only indicator	🔥 8°C Heating indicator	⬆ Heating indicator
🌀 Auto fan speed	🌀 Higher fan speed	🌀 High fan speed	🌀 Medium fan speed	🌀 Low fan speed
🌀 Lower fan speed	🌙 Sleep 1 indicator	🌙 Sleep 2 indicator	🌙 Sleep 3 indicator	🌙 Sleep 4 indicator
🌀 AI SMART indicator	🌀 Quiet indicator	🌀 Economy indicator	🌀 Super indicator	🕒 ON Display set timer
📶 Signal transmit	👤 iFeel	🕒 Display temperature	🔒 LOCK	🕒 OFF Display current time
👁 Wisdom eye indicator	🌀 Airflow Follow You indicator	🌀 Airflow Avoid You indicator		
🌀 Indoor clean indicator	🌀 Outdoor clean indicator	🌀 Airflow up and down indicator		
🌀 Airflow left and right indicator	🌀 Fresh indicator	🌀 HI-NANO indicator		

△Function Instruction

1. Major general technical parameters

1-1 Remote receiver distance (front of the air conditioner) : 8 m.

1-2 Remote receiver angle: Less than 60 degrees.

1-3 Temperature control accuracy: $\pm 1^{\circ}\text{C}$.

1-4 Time error: Less than 1%.

2. Functions of the controller

2-1 Display panel

I. Control functions of the remote controller (See operating and installation manual)

II. Display of the indoor unit

Information on the screen:

Displaying Scheme:

7-segment tube: Display set temperature or indoor temperature , and display fault code in trouble indicating. An error code is displayed according to the signal from the indoor CPU. The error code will flash for 5 seconds while displayed.

Running LED: It is on during operation. It is flashing when the unit defrost.

TIMER LED: When the timer mode works, the LED will be lighted.

Sleep LED: When the sleep mode works, the LED will be lighted, and after 10s, the LED will be off.

Compressor LED: It lights up when compressor is running.

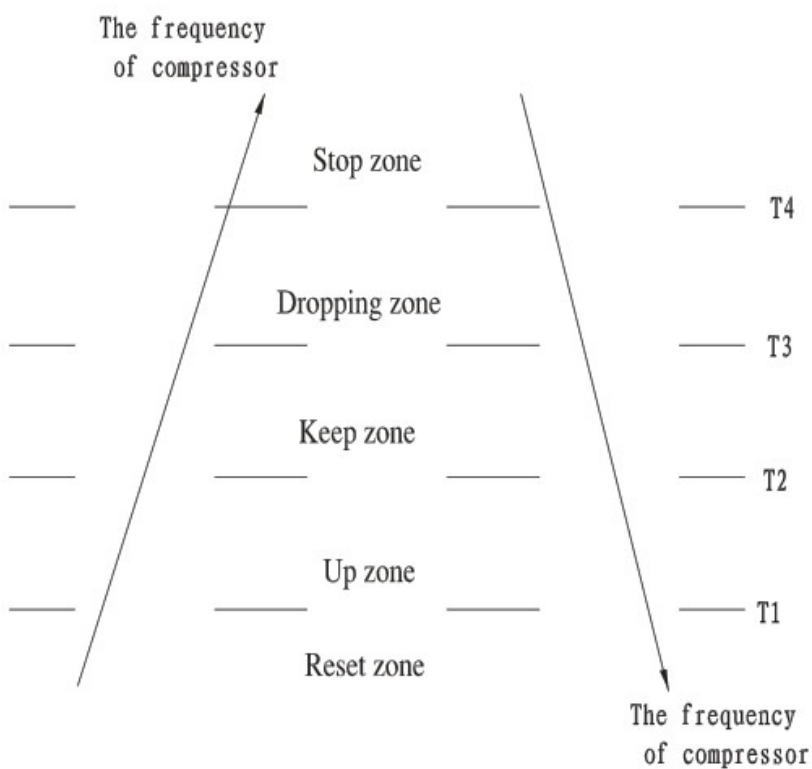
Remote control receiver: This section receives signals from the remote control.

5-3. Control Function

1、Discharge pipe temperature control

By monitoring the compressor's exhaust temperature, the current operating status of the machine is determined, and the exhaust protection controls the frequency increase, decrease, and shutdown of the compressor to achieve the purpose of protecting the machine.

the discharge temperature T	Operation
$T < T_1$	Compressor restart
$T_1 < T < T_2$	Compressor frequency increasing operation
$T_2 < T < T_3$	Compressor keeps operating at the current frequency
$T_3 < T < T_4$	Compressor frequency decreasing operation
$T_4 < T$	Compressor shutdown due to exceeding exhaust protection value, outdoor fan keeps operating at the current state



2、Heating Anti-Cold Air Protection

When the heating mode is turned on, to avoid discomfort caused by cold air blowing out immediately after startup, a cold air prevention function is set. The operation of the cold air prevention function during the startup of the heating mode is as follows

$T1=30^{\circ}\text{C}$,

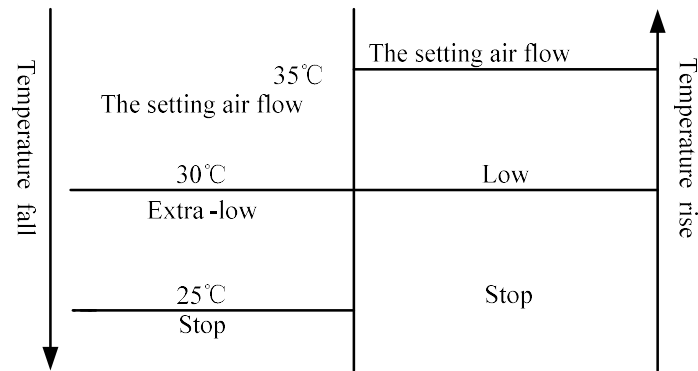
$T2=35^{\circ}\text{C}$

Detect the indoor coil temperature	Operation
coil temperature $< T1$	The indoor fan swing is set to the cold air prevention angle, and the indoor fan does not start.
$T1 \leq \text{coil temperature} < T2$	The indoor fan swing remains at the cold air prevention angle, and the indoor fan rotates at a gentle speed.
coil temperature $\geq T2$	The indoor fan swing moves to the maximum angle, and the indoor fan rotates at the set speed.

3、Control of Indoor Motor Speed During Heating Process

During the heating process, the indoor fan speed operates based on the coil temperature according to the following mode. When the unit is turned off, the indoor fan stops simultaneously with the low coil temperature, while if the temperature is high, it continues to run for approximately half a minute to dissipate residual heat

	Indoor coil temperature T	Indoor motor speed	Indoor fan swing position:
During the heating operation, the indoor motor speed changes with the coil speed.	$T \geq 30^{\circ}\text{C}$	Operate according to the speed set on the remote control	Maximum angle or angle set by the remote control
	$25^{\circ}\text{C} \leq T < 30^{\circ}\text{C}$	Operate at the slightest breeze speed	Cold air prevention angle
	$T < 25^{\circ}\text{C}$	Motor stops running	Cold air prevention angle
During the heating process, after the indoor motor stops operating, the indoor fan speed changes with the coil temperature.	$T < 30^{\circ}\text{C}$	Motor remains stopped	Cold air prevention angle
	$30^{\circ}\text{C} \leq T < 35^{\circ}\text{C}$	Motor operates at a gentle breeze speed	Cold air prevention angle
	$T \geq 35^{\circ}\text{C}$	Motor operates at the set speed	Maximum angle or angle set by the remote control



During the heating operation in automatic mode, the indoor fan speed operates in the following ways:

Indoor environmental temperature difference with set temperature T	Indoor fan speed
$T < 2^{\circ}\text{C}$	Low fan speed
$T = 2^{\circ}\text{C}$	Maintain current fan speed
$2^{\circ}\text{C} < T < 4^{\circ}\text{C}$	Medium fan speed
$T = 4^{\circ}\text{C}$	Maintain current fan speed
$T > 4^{\circ}\text{C}$	High fan speed

3.1、Control Method of Indoor Motor During Cooling

During cooling, the indoor fan speed can be controlled using the remote control. When in the automatic fan speed mode, it operates in the following way; upon shutdown, the indoor fan will continue to operate for half a minute to blow off water from the evaporator, serving the purpose of mold prevention and cleaning.

When the cooling mode is turned on in automatic mode, the fan speed defaults to low. Then, every 5 minutes or so, the current temperature is detected and it operates in the following manner:

Indoor environmental temperature difference with set temperature T	Indoor fan speed
$T < 2^{\circ}\text{C}$	Low fan speed
$T = 2^{\circ}\text{C}$	Maintain current fan speed
$2^{\circ}\text{C} < T < 4^{\circ}\text{C}$	Medium fan speed
$T = 4^{\circ}\text{C}$	Maintain current fan speed
$T > 4^{\circ}\text{C}$	High fan speed

3.2、Control Method of Indoor Motor in Dehumidification Mode

In dehumidification mode, the indoor fan speed is not adjustable, but the indoor airflow direction is adjustable. Upon shutdown, the indoor fan will continue to operate for half a minute to blow off water from the evaporator, serving the purpose of mold prevention and cleaning.

4、Control of Outdoor Motor Speed During Heating Process

During heating, the outdoor motor speed operates as follows:

When the outdoor motor is a single-speed motor, it defaults to high speed. If the outdoor motor has three speeds (high, medium, and low), it is controlled according to the following rules.

Where T1 is the temperature threshold between the outdoor low and medium temperature zones, and T2 is the temperature threshold between the outdoor medium and high temperature zones.

Outdoor ambient temperature T	Outdoor Fan Speed
$T < T1 + 1^{\circ}\text{C}$	High speed
$T = T1 + 1^{\circ}\text{C}$	Transition from high speed to medium speed
$T = T1 - 1^{\circ}\text{C}$	Transition from medium speed to high speed
$T1 + 1^{\circ}\text{C} < T < T2 + 1^{\circ}\text{C}$	Medium speed
$T = T2 + 1^{\circ}\text{C}$	Transition from medium speed to low speed
$T = T2 - 1^{\circ}\text{C}$	Transition from low speed to medium speed

4.1、Control of Outdoor Motor Speed During Cooling

During cooling, the outdoor motor speed operates as follows:

When the outdoor motor is a single-speed motor, it defaults to high speed. If the outdoor motor has three speeds (high, medium, and low), it is controlled according to the following rules.

Where T1 is the temperature threshold between the outdoor low and medium temperature zones, and T2 is the temperature threshold between the outdoor medium and high temperature zones.

Outdoor ambient temperature T	Outdoor Fan Speed
$T < T1 + 1^{\circ}\text{C}$	Low speed
$T = T1 + 1^{\circ}\text{C}$	Transition from low speed to medium speed
$T = T1 - 1^{\circ}\text{C}$	Transition from medium speed to low speed
$T1 + 1^{\circ}\text{C} < T < T2 + 1^{\circ}\text{C}$	Medium speed
$T = T2 + 1^{\circ}\text{C}$	Transition from medium speed to high speed
$T = T2 - 1^{\circ}\text{C}$	Transition from high speed to medium speed

5、Anti-Freeze Protection

To prevent the indoor evaporator from frosting due to excessively low refrigerant temperature within the system, an indoor anti-freeze protection mechanism is implemented during the operation of the air conditioning unit. The key temperature thresholds are defined as follows:

T: Indoor coil temperature

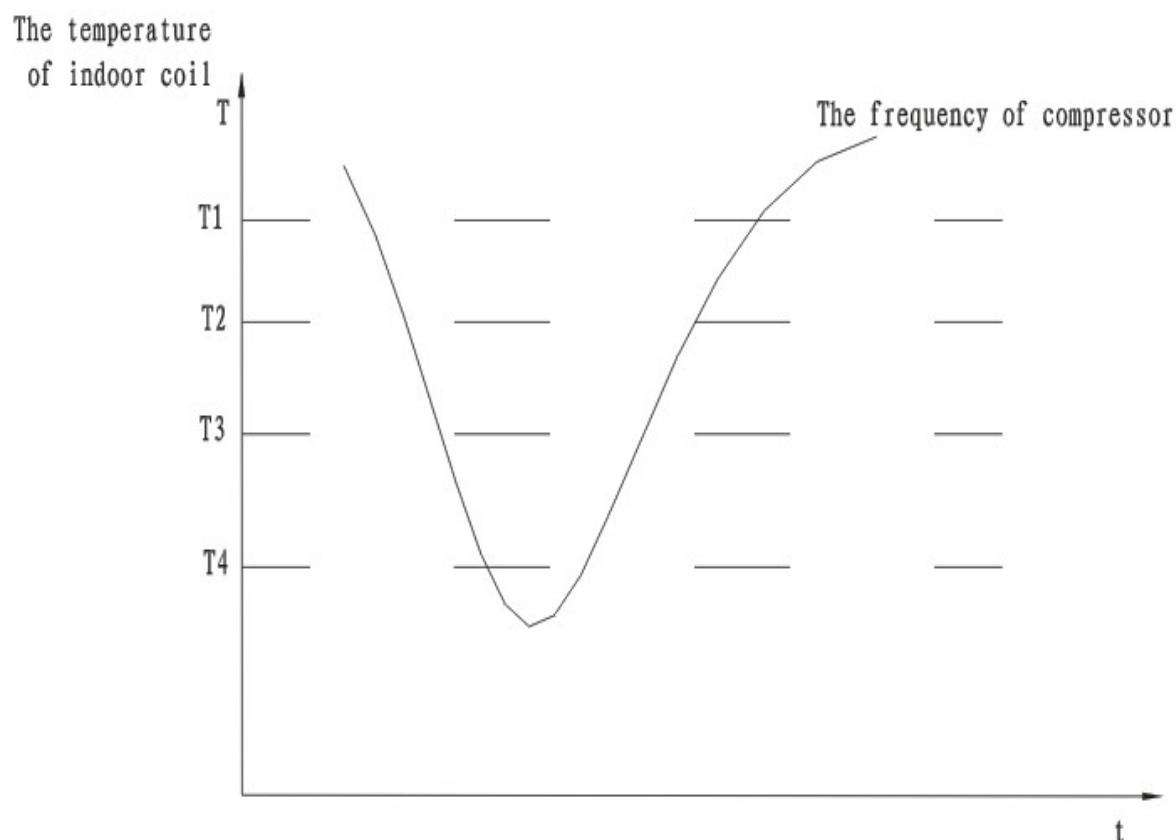
T1: Anti-freeze deactivation temperature

T2: Anti-freeze frequency-up prohibition temperature

T3: Anti-freeze frequency-down temperature

T4: Anti-freeze shutdown temperature

	Indoor Coil Temperature T	Machine Operating Status
During the cooling operation, the indoor coil temperature has an impact on the operation of the machine.	$T \geq T1$	The machine operates at the current frequency and control settings, maintaining the current frequency or adjusting the frequency up or down.
	$T3 < T \leq T2$	The machine operates at the current frequency, with frequency increases prohibited.
	$T4 < T \leq T3$	The machine begins to reduce its frequency.
	$T \leq T4$	The outdoor compressor and fan of the machine stop operating, while the indoor fan continues to run.
	$T \geq T1$	The outdoor compressor and fan of the machine resume operation.



6、Heating Low-temperature Protection

When the outdoor environment is extremely cold, it will trigger outdoor low-temperature protection, and its operation is as follows:

T1: Heating outdoor low-temperature protection temperature

	Outdoor ambient temperature T	Machine operation status
During the heating operation, the outdoor ambient temperature has an impact on the machine's operation.	$T > T1$	The machine operates at the current control, maintaining the current frequency or increasing/decreasing the frequency.
	$T \leq T1$ for one continuous minute	The compressor and fan of the outdoor stop operating, while the indoor fan continues to run.
	$T \geq T1 + 3^{\circ}\text{C}$	The compressor and fan of the outdoor resume operation.

7、Outdoor High-Temperature Protection for Cooling

When the outdoor environment is extremely hot, it will trigger outdoor high-temperature protection, and its operation is as follows:

T1: Outdoor high-temperature protection temperature for cooling

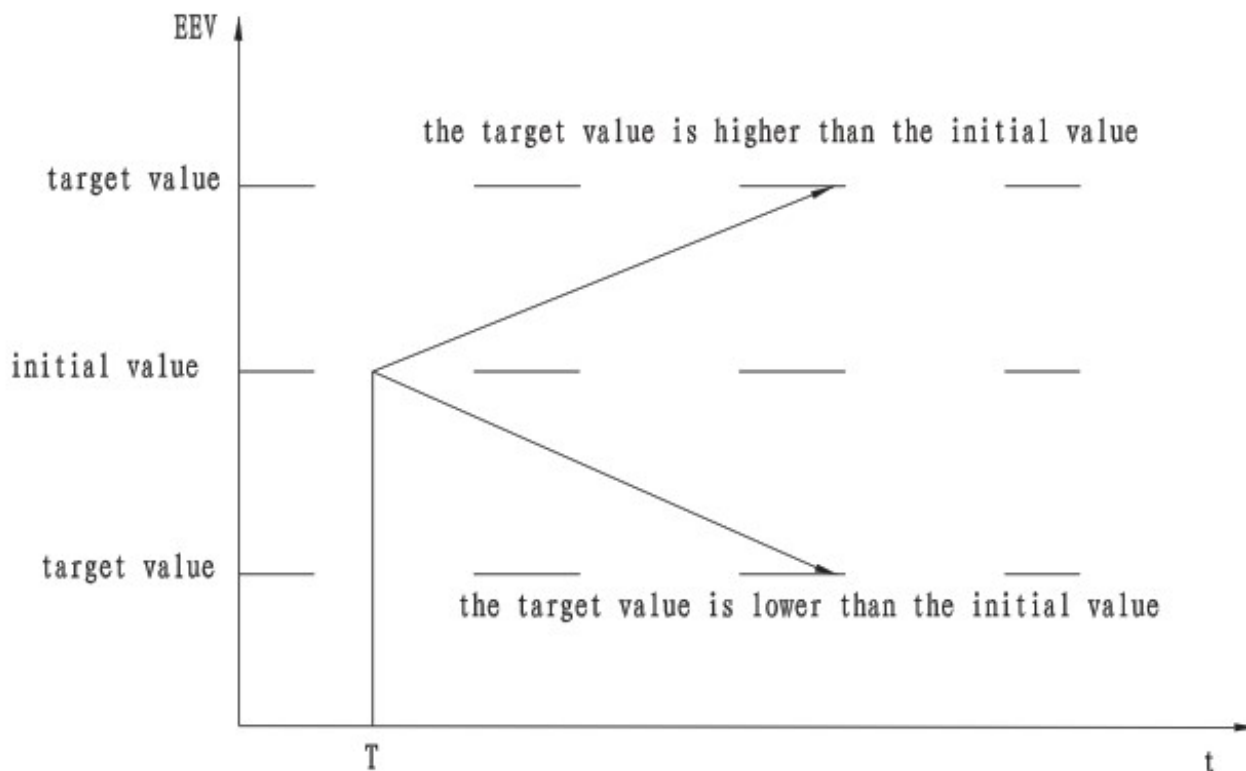
	Outdoor ambient temperature T	Machine operation status
During the cooling operation, the outdoor ambient temperature has an impact on the machine's operation.	$T < T1$	The machine operates at the current control, maintaining the current frequency or increasing/decreasing the frequency.
	$T \geq T1$ for one continuous minute	The compressor and fan of the outdoor stop operating, while the indoor fan continues to run.
	$T \leq T1 - 3^{\circ}\text{C}$	The compressor and fan of the outdoor resume operation.

8、Heating at 8°C

When the machine receives the 8°C heating function command from the remote control, it will operate in the following manner:

Machine Receiving Information	Machine operation status
The remote control activates the 8°C heating function and the machine receives the command.	At this point, the machine operates according to the set temperature of 8°C, and the indoor anti-cold air function does not function at this time.

9、Electronic Expansion Valve Control



After the machine is turned on and starts operating, the electronic expansion valve maintains its initial opening for a period of time (T). Once the operating time exceeds T, the electronic expansion valve begins to adjust its opening based on the outdoor ambient temperature and the current compressor frequency.

10、Indoor Self-Cleaning

The indoor self-cleaning process is as follows:

	Step	Machine Operation Status
Indoor self-cleaning operation process	The machine can enter the indoor self-cleaning mode while in standby, cooling, heating (for heat-cool models), dehumidifying, air blowing, or auto mode, provided that the indoor ambient temperature T meets the following condition: $0^{\circ}\text{C} \leq T \leq 32^{\circ}\text{C}$.	The indoor motor stops operating, and the indoor air deflector remains in the anti-cold air position until the self-cleaning process is complete. After completion, it returns to the previous state before entering the self-cleaning mode.
	The indoor coil temperature is $\leq -19^{\circ}\text{C}$ and this condition persists for 6 minutes, or the indoor temperature is $\leq 5^{\circ}\text{C}$ and this condition persists for 6 minutes or up to a maximum of 12 minutes.	The machine operates in heating mode, with the set defrosting frequency and opening degree. At this time, the indoor motor runs at a gentle fan speed.
	The indoor coil temperature is $\geq 40^{\circ}\text{C}$ and this condition persists for 60 seconds or up to a maximum of 7 minutes.	The machine exits this mode and returns to the state before entering the self-cleaning process.

11、Outdoor Self-Cleaning

	Step	Machine Operation Status
outdoor self-cleaning operation process	The machine can enter the outdoor self-cleaning mode while in standby, cooling, heating (for heat-cool models), dehumidifying, air blowing, or auto mode, provided that the outdoor ambient temperature T meets the following condition: $0^{\circ}\text{C} \leq T \leq 32^{\circ}\text{C}$.	The indoor air deflector remains in the anti-cold air position until the self-cleaning process is complete and then returns to the previous state. The indoor motor operates as follows: If the indoor coil temperature T is less than 32°C, it stops operating. If the indoor coil temperature T is between 32°C and 50°C (inclusive), it operates at a low fan speed for self-cleaning. If the indoor coil temperature T is greater than 50°C, it operates at a medium fan speed for self-cleaning.
	Outdoor Frosting Phase	Compressor: It operates according to the outdoor self-cleaning frequency. Currently, if the machine enters the self-cleaning mode from the cooling mode, the compressor will stop for 3 minutes before restarting, and the four-way valve will delay for approximately 1 minute to change directions. Outdoor Motor: It stops. Currently, if the machine enters the self-cleaning mode from the cooling mode, the outdoor motor will delay for approximately half a minute before stopping.
	End Conditions of Frosting	When the indoor coil temperature is $\leq -19^{\circ}\text{C}$ and this condition persists for 7 minutes or up to a maximum of 12 minutes,
	Defrosting	When the outdoor temperature T is $\leq 10^{\circ}\text{C}$, operate according to the defrosting conditions; When the outdoor temperature T is $> 10^{\circ}\text{C}$, the outdoor motor operates at a high fan speed.

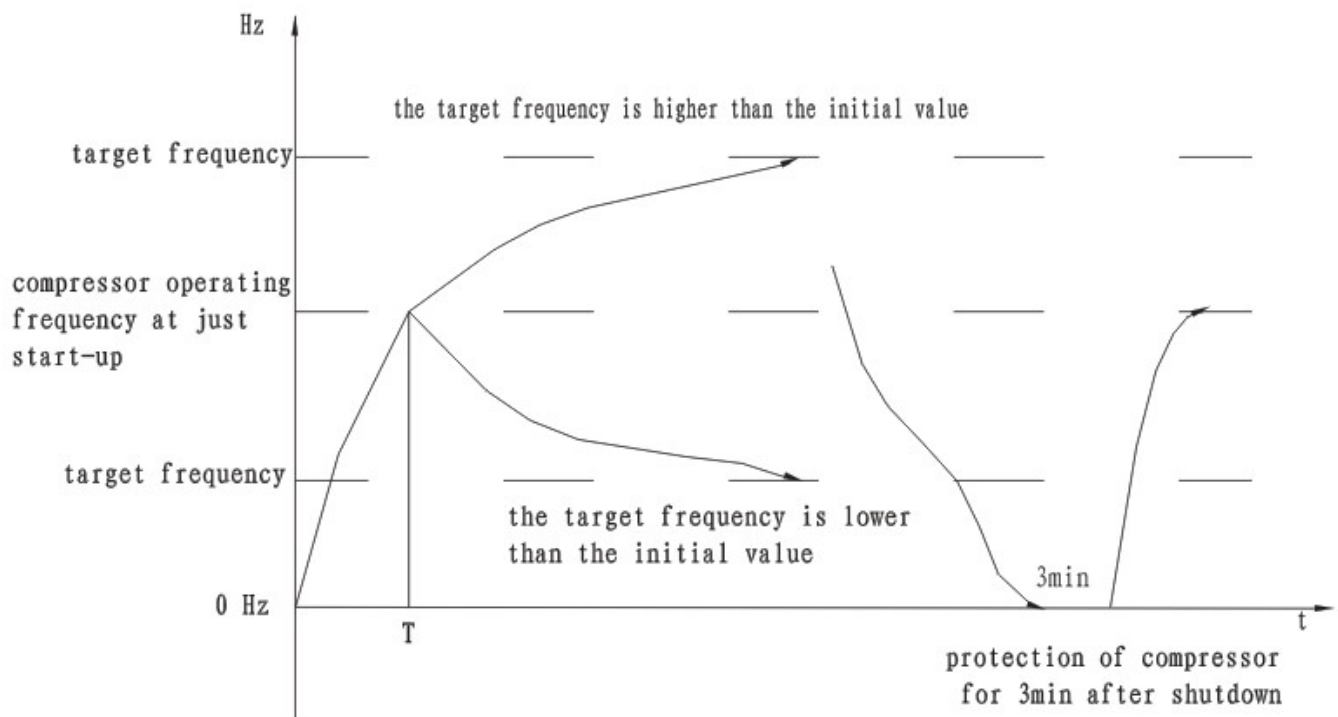
12、Silent Mode

	Components	Operation
Silent Mode	Compressor	Operate within the frequency range set for silent mode
	Indoor Fan	Operate at the silent mode speed setting
	Outdoor Fan	Operate at the silent mode speed setting. During cooling, if the outdoor temperature is high, it will operate at the current speed.

13、Automatic Mode Operation Control

	Current Indoor Temperature T	Machine Operation Action
Heat Pump Model	$T > 26^{\circ}\text{C}$	Cooling Mode
	$23^{\circ}\text{C} < T \leq 26^{\circ}\text{C}$	Dehumidification Mode
	$21^{\circ}\text{C} < T \leq 23^{\circ}\text{C}$	Air Supply Mode
	$T \leq 21^{\circ}\text{C}$	Heating Mode
Single Cooling Model	$T > 26^{\circ}\text{C}$	Cooling Mode
	$23^{\circ}\text{C} < T \leq 26^{\circ}\text{C}$	Dehumidification Mode
	$T \leq 23^{\circ}\text{C}$	Air Supply Mode

14、Control of Compressor Operating Frequency



Machine Status	Operation
During Startup	The compressor stabilizes at the first frequency for a short period of time T after starting.
After Startup Time Exceeds T	The compressor increases or decreases its frequency according to the target frequency.
During Operation	The compressor operates at the target frequency while being subject to exhaust protection, high-temperature protection, overcurrent protection, and other mechanisms.
After Shutdown and Restart	The compressor stops, and needs to wait for 3 minutes before restarting.

15、Defrosting

The following conditions need to be met simultaneously:

T1: Outdoor ambient temperature

T2: Outdoor unit coil temperature

T3: A temperature value set during product development

T4: A temperature value set during product development

Conditions	Parameter
Time Condition	The continuous heating operation time reaches the duration of t1
Temperature Condition	$T1 - T2 \geq T3$, and this condition is maintained for a continuous duration of t2
Temperature Condition	$T2 \leq T4$ and this condition is maintained for a continuous duration of t2

After meeting the above conditions, the defrosting process will be initiated, and the defrosting actions are as follows:

Component	operating during defrosting start	During defrosting	At the end of defrosting	After exiting the defrosting mode
Indoor unit	The indoor motor stops running, and the air swing is adjusted to the anti-cold-air angle.			Operate at the mode before defrosting.
Compressor	The compressor stops.	After a certain period of shutdown, the operation is performed at the defrosting frequency.	The compressor stops.	Operate at the heating frequency.
The fan motor of outdoor unit	The outdoor fan stops after the compressor has been off for seconds	The outdoor fan stops	The outdoor fan stops	When the compressor starts, the outdoor fan starts simultaneously
4-way valve	After the compressor stops for a few seconds, the four-way valve switches from heating to cooling mode.	4-way valve is operating in cooling mode	4-way valve is operating in cooling mode	Before starting the compressor, the four-way valve first switches from cooling mode to heating mode.

16、Sleep Mode

Sleep mode is valid in cooling, heating (models with heating function), and dehumidification modes, and is invalid in other modes.

Sleep mode lasts for 8 hours. When the timing shutdown function is set at the same time:

If the timing duration is less than 8 hours, the sleep mode will be maintained until the shutdown;

If the timing duration is greater than 8 hours, the machine will shut down and the timing shutdown function will be canceled when the sleep mode ends.

Sleep Mode1		
Cooling	After running for 1 hour, the set temperature value increases by 1 degree.	After running for 2 hours, the set temperature value increases by another 1 degree.
Heating	After running for 1 hour, the set temperature value decreases by 1 degree.	After running for 2 hours, the set temperature value decreases by another 1 degree.

Sleep Mode2				
Cooling	After running for 1 hour, the set temperature value increases by 1 degree.	After running for 2 hours, the set temperature value increases by another 1 degree.	After running for 6 hour, the set temperature value decreases by 1 degree.	After running for 7 hours, the set temperature value decreases by another 1 degree.
Heating	After running for 1 hour, the set temperature value decreases by 1 degree.	After running for 2 hours, the set temperature value decreases by another 1 degree.	After running for 6 hour, the set temperature value increases by 1 degree	After running for 7 hours, the set temperature value increases by another 1 degree.

Sleep Mode3				
Cooling	After running for 1 hour, the set temperature value increases by 1 degree.	After running for 2 hours, the set temperature value increases by another 2 degree.	After running for 6 hour, the set temperature value decreases by 2 degree.	After running for 7 hours, the set temperature value decreases by another 2 degree.
Heating	After running for 1 hour, the set temperature value decreases by 2 degree.	After running for 2 hours, the set temperature value decreases by another 2 degree.	After running for 6 hour, the set temperature value increases by 2 degree	After running for 7 hours, the set temperature value increases by another 2 degree.

Sleep Mode4	
Cooling	keep the current set temperature
Heating	keep the current set temperature

6. Electrical Characteristics

6-1. Print Circuit Board (Indoor)

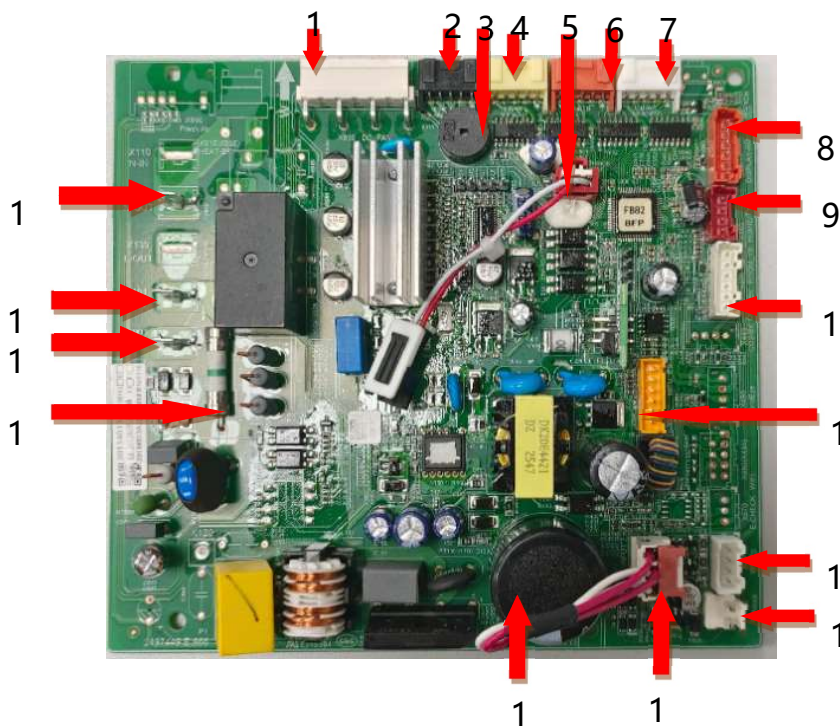
Model	Indoor Unit
AS-10UW4RWMQK00G	2437449
AS-13UW4RWMQK00G	2437449
AS-18UW4RFMQK00G	2437449

Note: 1、 “ QK ” mean code of Front Panel

2、 These colds are not spare parts' cold, Please don't use these colds to order spare parts,

Model of indoor unit:

2437449



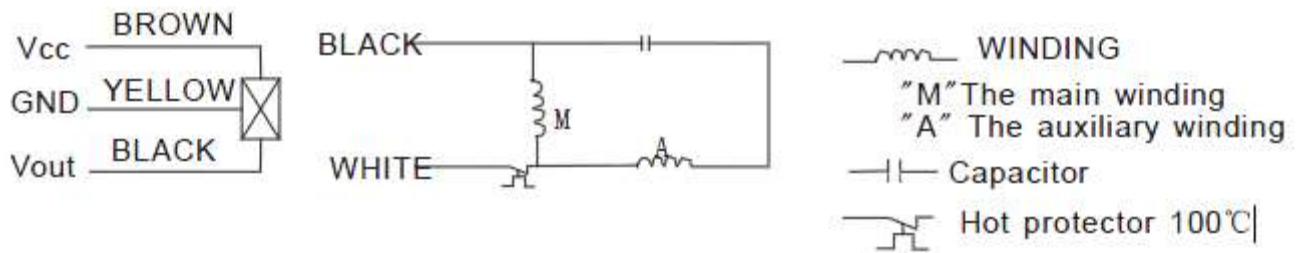
1	DC Fan Motor	11	EE writing
2	Flap Stepper Motor	12	Remote controller
3	Buzzer	13	DC12V Output
4	Flap Stepper Motor	14	On/Off Function
5	UCV / Hinano	15	Capacitor
6	Flap Stepper Motor	16	FUSE
7	Flap Stepper Motor	17	Si
8	Display	18	AC power Lin
9	Humidity. Sensor	19	AC power_ Nin
10	Coil Temp. Sensor Ambient Temp. Sensor		

6-2. Fan Motor

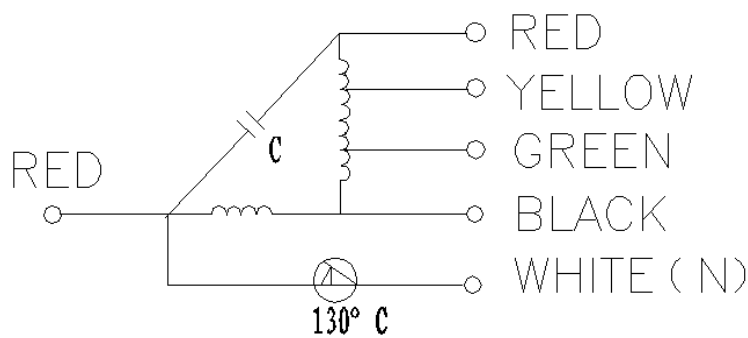
Drawings attached:

Depending on the different motors used in various machine types, there are the first, second, or third types of motor wiring diagrams as mentioned above. There are also corresponding wiring diagrams on the motor housing, and you can directly refer to the wiring diagrams on the motor housing for inspection.

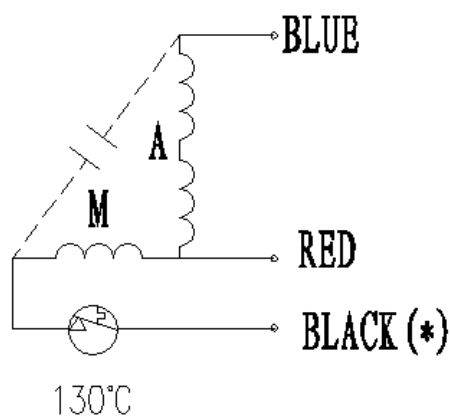
1. Motor Wiring Configuration 1



2. Motor Wiring Configuration 2



3. Motor Wiring Configuration 3



Test in resistance.

TOOL: Multimeter.

Test the resistance of the main winding. The indoor fan motor is fault if the resistance of main winding 0(short circuit)or ∞ (open circuit) .

Test in voltage

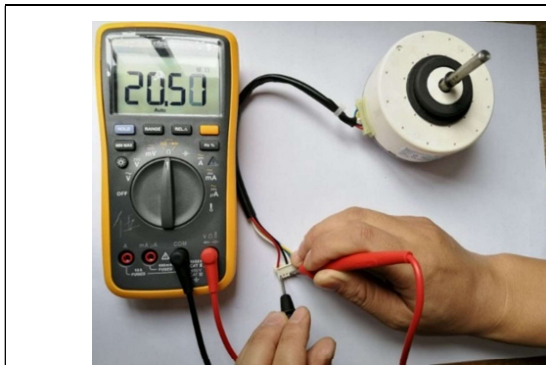
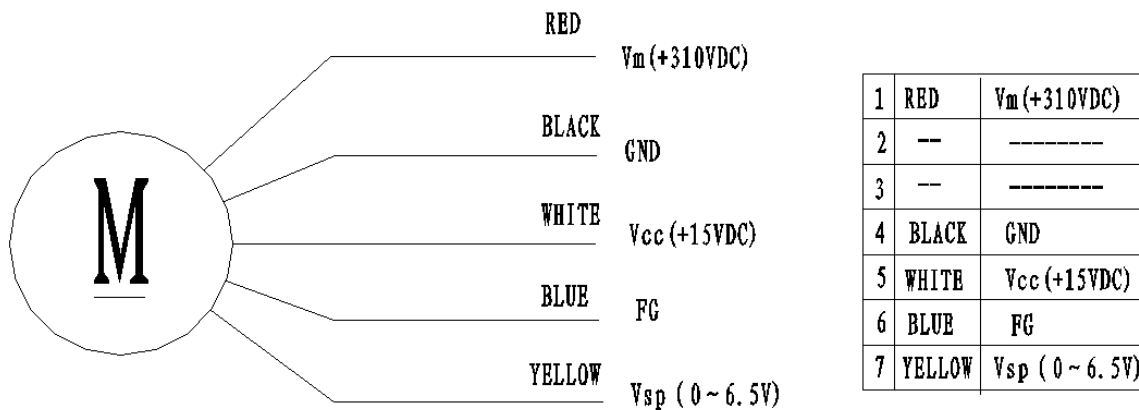
TOOL: Multimeter.

Insert screwdriver into to rotate indoor fan motor slowly for 1 revolution or over, and measure voltage “YELLOW” and “GND” on motor. The voltage repeat 0V DC and 5V DC.

Notes:

- 1) Please don't hold motor by lead wires.
- 2) Please don't plug IN/OUT the motor connecter while power ON.
- 3) Please don't drop hurl or dump motor against hard material. Malfunction may not be observed at early stage after such shock. But it may be found later, this type of mishandling void our warranty.

Indoor DC Fan Motor

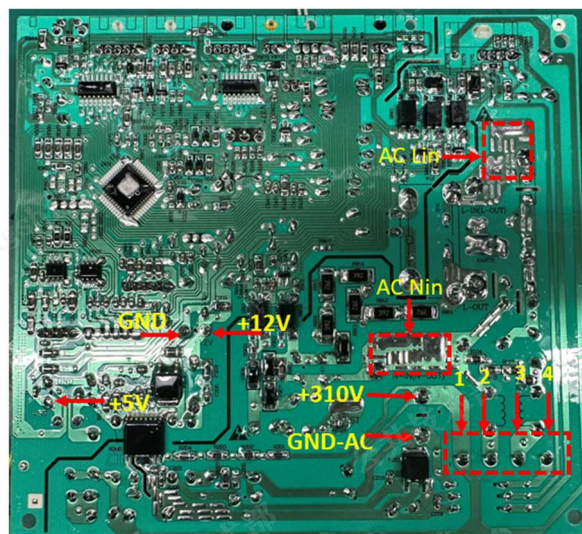


6-3. Electric control board of indoor unit

Test in voltage

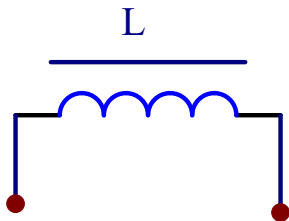
TOOL: Multimeter.

test point	value range	remark
3 and 1	0.480-0.530V	Power off, connecting the 3 for red pen, 1 for black pen with Diode mode
2 and 1	0.480-0.530V	Power off, connecting the 2 for red pen, 1 for black pen with Diode mode
4 and 3	0.480-0.530V	Power off, connecting the 4 for red pen, 3 for black pen with Diode mode
4 and 2	0.480-0.530V	Power off, connecting the 4 for red pen, 2 for black pen with Diode mode
AC Lin and AC Nin	198-242V	Power on, connecting the AC Lin for red pen, AC Nin for black pen with AC voltage mode
+310V and GND-AC	280-342V	Power on, connecting the +310V for red pen, GND-AC for black pen with DC voltage mode
GND and +12V	11.4-12.6V	Power on, connecting the +12V for red pen, GND for black pen with DC voltage mode
GND and +5V	4.95-5.05V	Power on, connecting the +5V for red pen, GND for black pen with DC voltage mode



6-4. Electric Reactor

Drawings attached:



Familiar error:

- 1) Sound abnormality
- 2) Insulation resistance disqualification.

Test in resistance.

TOOL: Multimeter.

Test the resistance of the winding. The Reactor is fault if the resistance of winding 0(short circuit) or ∞ (open circuit) .

6-5. Temperature Sensor

Parameter table attached:

1. THE PARAMETER OF THE INDOOR COIL AND INDOOR ROOM SENSOR ,THE PARAMETER OF THE OUTDOOR COIL AND OUTDOOR ENVIRONMENT SENSOR:

($R(0)=15k$ $B(0/100)=3450$)

- a. Pull the sensor off the control panel.
- b. Use a multimeter to measure the resistance of the sensor.
- c. Check with the resistance comparison table in the technical manual and confirm whether the sensor resistance is within the normal range according to the corresponding temperature.



Temperature(°C)	Resistance(k)	Voltage(V)		Temperature(°C)	Resistance(k)	Voltage(V)
-20	38.757	0.58143512		31	4.292	2.715076661
-19	36.844	0.60795346		32	4.137	2.76063657
-18	35.038	0.63530819		33	3.989	2.805589174
-17	33.331	0.66352684		34	3.847	2.850117358

-16	31.719	0.69257720		35	3.711	2.894109636
-15	30.196	0.72246147		36	3.58	2.937788018
-14	28.755	0.75321223		37	3.455	2.980713033
-13	27.392	0.78480857		38	3.335	3.023117961
-12	26.103	0.81722911		39	3.219	3.065272268
-11	24.882	0.85051031		40	3.108	3.106725146
-10	23.727	0.88458737		41	3.001	3.147759536
-9	22.632	0.91951536		42	2.899	3.187898487
-8	21.594	0.95527085		43	2.801	3.227439565
-7	20.611	0.99179340		44	2.706	3.266717909
-6	19.678	1.02913875		45	2.615	3.305249514
-5	18.794	1.06721353		46	2.528	3.342947037
-4	17.954	1.10609872		47	2.444	3.380169671
-3	17.158	1.14565549		48	2.363	3.416856492
-2	16.401	1.18599135		49	2.286	3.45247766
-1	15.683	1.22696435		50	2.211	3.487894953
0	15	1.26865672		51	2.139	3.522585993
1	14.351	1.31098658		52	2.07	3.556485356
2	13.734	1.35393437		53	2.003	3.590032381
3	13.148	1.39741342		54	1.939	3.622673675
4	12.589	1.44157386		55	1.877	3.654865988
5	12.058	1.48618720		56	1.818	3.686036427
6	11.553	1.53125563		57	1.76	3.717201166
7	11.071	1.57689691		58	1.705	3.747244673
8	10.613	1.62286005		59	1.652	3.776658768
9	10.176	1.66928515		60	1.6	3.805970149
10	9.76	1.71601615		61	1.551	3.834009923
11	9.363	1.76311968		62	1.503	3.861880963
12	8.985	1.81043663		63	1.457	3.888973616
13	8.624	1.85805887		64	1.413	3.91524643
14	8.279	1.90597205		65	1.37	3.941267388
15	7.951	1.95387327		66	1.328	3.967019291
16	7.637	2.00204130		67	1.289	3.991234935
17	7.337	2.05033368		68	1.25	4.015748031
18	7.051	2.09859271		69	1.213	4.039284017
19	6.778	2.14682606		70	1.177	4.062450215
20	6.516	2.19524793		71	1.142	4.085229093
21	6.267	2.24333597		72	1.109	4.106941536
22	6.028	2.29151689		73	1.076	4.12888601
23	5.8	2.33944954		74	1.045	4.149715216
24	5.581	2.38741691		75	1.015	4.17007359
25	5.372	2.43506494		76	0.986	4.189944134
26	5.172	2.48247664		77	0.957	4.210004953
27	4.981	2.52951096		78	0.93	4.228855721
28	4.797	2.57653834		79	0.904	4.247168554
29	4.622	2.62291710		80	0.878	4.265640683
30	4.453	2.66931854				

6-6. Room Card Control, Fire Protection, ON/OFF Function (Optional)

7-6-1. Instructions for the function setting of room card control, fire protection, ON/OFF function.

1. Factory setting

ON/OFF function is tacitly approved to be invalid when out of factory while both the room card control and fire protection functions are valid.

In case of using or cancelling the room card control / fire protection / (ON/OFF) function, use the wire controller to modify the parameters of indoor unit.

2. Function introduction

1) Room card control: a kind of control mode to control the machine startup & shutdown based on the on & off state of the room card control port.

2) Fire protection: a kind of control mode to control the machine startup & shutdown based on the on & off state of the fire protection port.

3) ON/OFF function: a kind of special control mode to achieve the control of indoor unit startup & shutdown based on the input state of the fire protection port of the indoor unit (no other way can control startup & shutdown) and output the fault status of indoor unit through OUT INPUT port.

3. Function setting

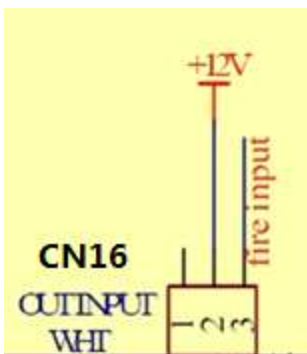


Fig.1 OUT INPUT

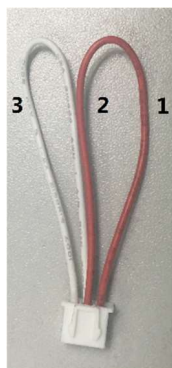


Fig.2 short wiring

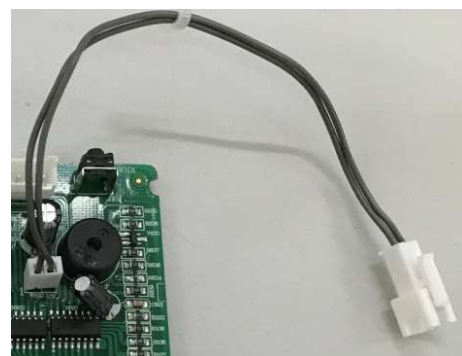


Fig.3 output line

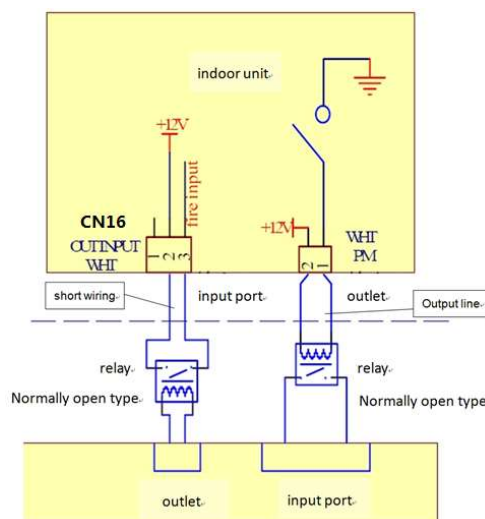


Fig.4 Hardware connection diagram

Pins of the OUT INPUT CN16 socket shown in the electrical wiring diagram of Fig 1 are tacitly approved to be in short circuit state under the factory state (an external short circuit plug shown as Figure 2).

(Illustration: the socket number in circuit is subject to the actual serial number of PCB.)

- 1) When using the room card control, the user cuts off the short wire shown in Figure 2 and connects the red lines to the control switch (supplied by user), and the connecting wire should be 22AWG or above specification. The switch is closed under normal conditions and off under abnormal conditions.
- 2) When using the fire protection , the user cuts off the short wire shown in Figure 2 and connects the White lines to the control switch (supplied by user), and the connecting wire should be 22AWG or above specification. The switch is closed under normal conditions and off under abnormal conditions.
- 3) When using the ON/OFF function, the user cuts off the short wire shown in Figure 2 and connects the White lines the ON/OFF control switch (supplied by user), and the connecting wire should be 22AWG or above specification. In normal conditions, the machine starts once the switch is closed and the machine shuts down once the switch is off.

4 Setting method

This machine defaults that the room card control is effective, which can be switched between the room card control and ON/OFF function through wire controller. The specific operations are as follows:

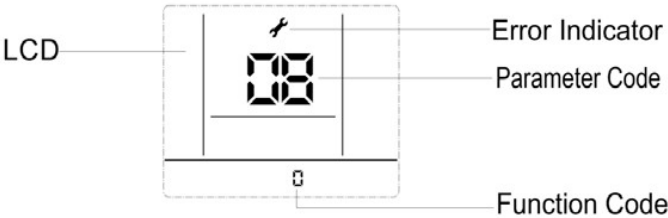


Fig. 1



Fig.2 YXE-E01U(E)

The EE address number of ON/OFF function is 25: first enter the parameter number 17, and then adjust to the EE address number 25.

Exhibit 1: Built-in EE settings combination

EE DATA	Red Line (1+2)	White Line (2+3)
0	Void	Void
1	Hotel Room Card Control	Void
2	Void	Fire Protection Control
3	Hotel Room Card Control	Fire Protection Control
4	Void	ON/OFF

Reading and writing EE operations through wire remote controller are as follows:

(1) Operations: In any state, hold down both “MODE” button and “ADD.FUNC.” button for 3 seconds to enter read and write parameters.

Result: The buzzer makes a functional sounds. On display screen, the symbol  and the parameter number flash at the same time.

Note: For YXE-D01U(E), replace “ADD.FUNC.” button with “FUNC” button.

Note: For YXE-A03U(E), replace “ADD.FUNC.” button with “Fan speed” button.

(2) Operations: In a state of that, The symbol  and the parameter number flash at the same time, press ▲ button or ▼ button.

Result: On display screen, the parameter number increases or decreases by 1 correspondingly (0-25), and the parameter data changes correspondingly.

(3) Operations: In a state of that, the symbol  and the parameter number 17 flash at the same time, press “ENTER” button to enter the EE reading.

Result: On display screen, the symbol  does not flash, and the EE address flashes.

Note: For YXE-A03U(E), replace “ENTER” button with “Timer” button.

(4) Operations: In a state of that, the symbol  does not flash, and the EE address flashes, press ▲ button or ▼ button.

Result: On display screen, the EE address increases or decreases by 1 (0-255) correspondingly, and the parameter data changes correspondingly.

(5) Operations: In a state of that, the symbol  does not flash, and the EE address number 25 flash, press “ENTER” button to enter the EE writing.

Result: On display screen, the symbol  and the EE address number 25 do not flash, and the function code corresponding to the EE address flashes.

Note: For YXE-A03U(E), replace “ENTER” button with “Timer” button.

(6) Operations: In a state of that, the symbol  and the EE address number 25 do not flash, and the function code corresponding to the EE address flashes, press ▲ button or ▼ button.

Result: On display screen, the function code corresponding to the EE address increases or decreases by 1.

(7) Operations: In a state of that, the symbol  and the EE address number 25 do not flash, and the function code corresponding to the EE address flashes, press “ENTER” button.

Result: On display screen, the symbol  does not flash, and the EE address number 25 flashes to display the function code of EE after modification.

Note: For YXE-A03U(E), replace “ENTER” button with “Timer” button.

(8) Press “ON/OFF” button or “CANCEL” button to exit.

Note: For YXE-A03U(E), Press “ON/OFF” button to exit.

7-6-2.Instructions for the function setting of room card control, fire protection, ON/OFF function.

1. Factory setting

ON/OFF function is tacitly approved to be invalid when out of factory while both the room card control and

fire protection functions are valid.

In case of using or cancelling the room card control / fire protection / (ON/OFF) function, use the wire controller to modify the parameters of indoor unit.

2. Function introduction

(1) Room card control: a kind of control mode to control the machine startup & shutdown based on the on & off state of the room card control port.

(2) Fire protection: a kind of control mode to control the machine startup & shutdown based on the on & off state of the fire protection port.

(3) ON/OFF function: a kind of special control mode to achieve the control of indoor unit startup & shutdown based on the input state of the fire protection port of the indoor unit (no other way can control startup & shutdown) and output the fault status of indoor unit through OUT INPUT port.

3. Function setting

3.1 Hardware connection

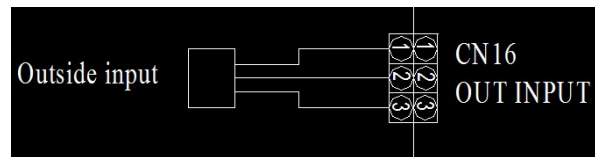


Fig.1 electrical wiring diagram



Fig.2 short wiring (old)

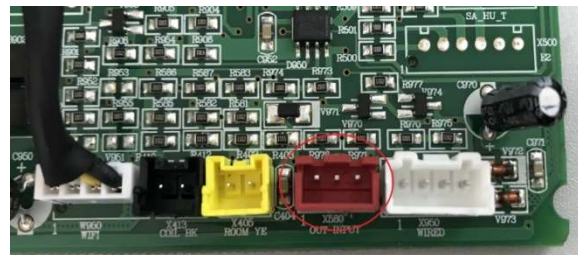


Fig.3 main control board



Fig.2 short wiring (new)



Fig.3 main control board

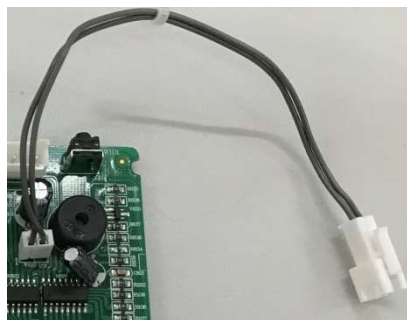


Fig.4 output line

3 pins of the OUT INPUT CN16 socket shown in the electrical wiring diagram of Figure 1 are tacitly approved to be in short circuit state under the factory state (an external short circuit plug shown as Figure 2), and the

OUT INPUT CN16 socket of main control board is shown as Figure 3.

(Illustration: the socket number in circuit is subject to the actual serial number of PCB.)

- 4) When using the room card control or fire protection , the user cuts off the short wire shown in Figure 2 and connects the red line and the black line to the control switch (supplied by user), and the connecting wire should be 22AWG or above specification. The switch is closed under normal conditions and off under abnormal conditions.
- 5) When using the ON/OFF function, the user cuts off the short wire shown in Figure 2 and connects the black line and the white line to the ON/OFF control switch (supplied by user), and the connecting wire should be 22AWG or above specification. In normal conditions, the machine starts once the switch is closed and the machine shuts down once the switch is off.

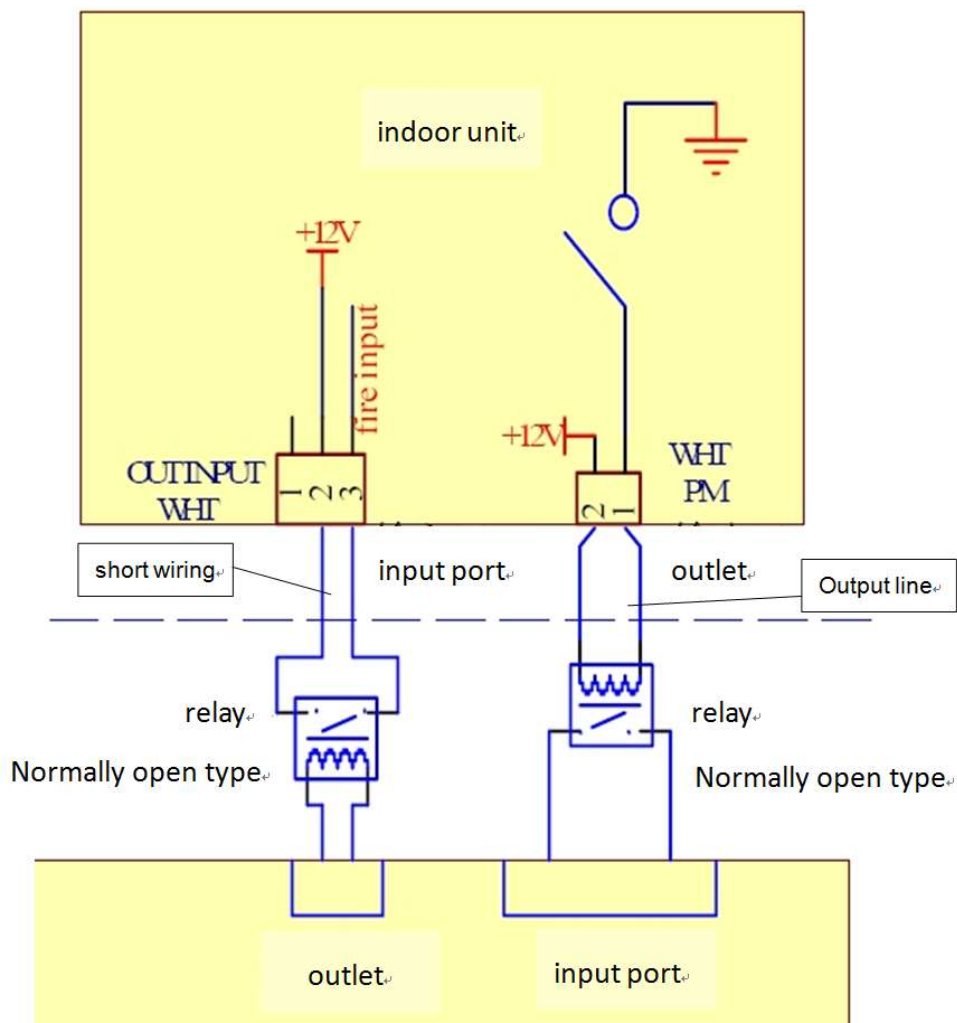


Fig.5 Hardware connection diagram

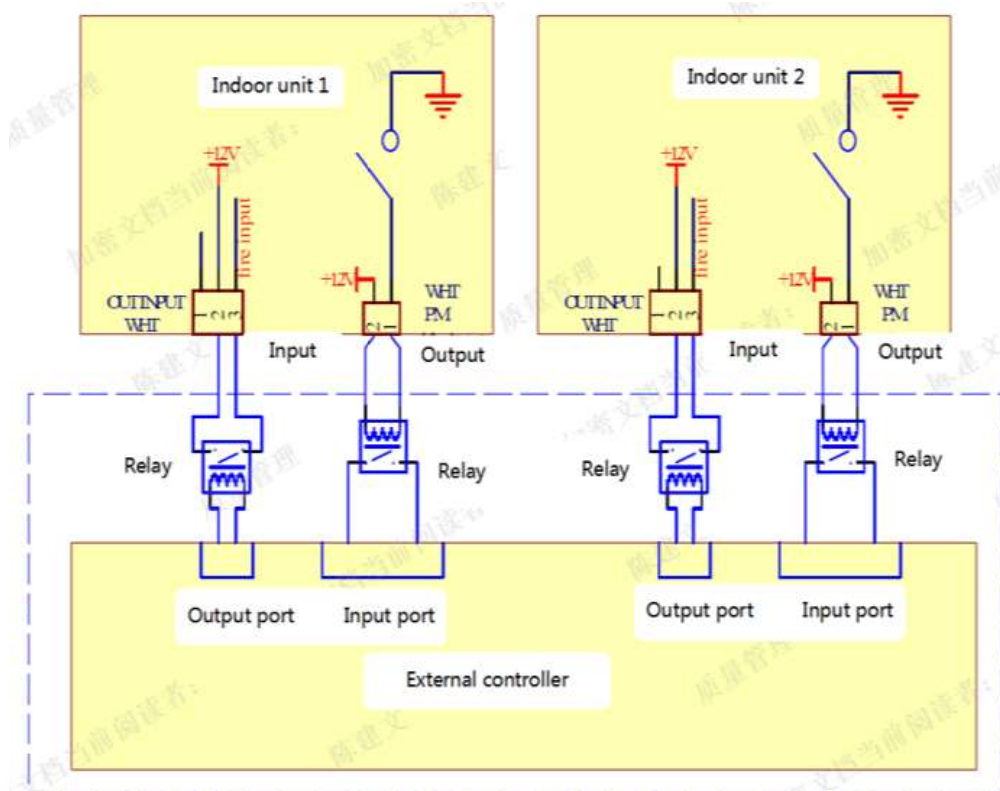
Master slave

1、Indoor unit plan:

- 1) Two indoor units must be the Universal units, and have the ON/OFF function;
- 2) Must set ON/OFF function;

2、Set step:

- 1) Set the indoor unit mode, fan speed , temp. and flap angle;
- 2) Use the wire control remote to set ON/OFF function;
- 3) Cut the white line, and connect the external controller;
- 4) Output line connect the external controller;
- 5) Do the same work to another indoor unit.



Master slave connection diagram

3.2 Timing sequence description:

(1) Room card control:

1) Control of room card disconnection: the air conditioner shall be shut down after the room card control signal is disconnected. In this state, the indoor unit can't be started. If the user performs starting operation, the wire controller shall not respond and displays power-off.

2) Control of room card connection: after the short circuit of room card control interface, release power-on restrictions, the wire controller maintains power-off and the startup & shutdown control is effective.

(2) Fire protection

1) Access to fire protection: the air conditioner shall be shut down after the fire protection signal is disconnected. In this state, the indoor unit can't be started. If the user performs starting operation, the wire controller shall not respond and displays power-off.

2) Cancellation of fire protection: after the short circuit of fire protection signal, release power-on restrictions, the wire controller maintains power-off and the startup & shutdown control is effective.

(3) ON/OFF function

1) In the situation where ON/OFF function is effect, the port is closed and in short circuit, the indoor unit starts; the indoor unit shuts down once the port is disconnected;

2) Other operation information (such as mode, air speed, air door, etc.) except for startup & shutdown can be set through the wire controller, remote-controller and WIFI module;

3) In the mode of ON/OFF function, wire controller, remote-controller, WIFI module and room card control cannot control the machine startup & shutdown, and nor can in the mode of the timing or sleep function.

4) There will be 12V signal output when machine fault occurs.

3.3 Relative priorities of instructions

ON/OFF function has the highest priority. The room card control shall be invalid when ON/OFF function is effective.

The room card control and fire protection can not be selected at the same time, only one can be selected.

6-7 Wiring Remote Controller

Model
YXE-E01U(E)

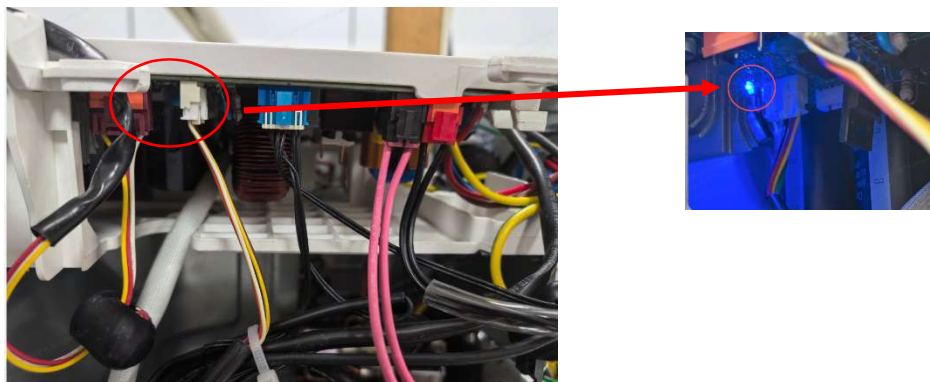
Note: Installation Manual and Use And Installation Instructions are separate documents.

7.Trouble Shooting

7-1. Error Code Table

1.Indication on the outdoor unit:

When the unit has the trouble and the compressor stops running, you can query the fault according to the number of flashes of the fault lamp, refer to the following figure for details .



The fault code consists of long flash and short flash, and the corresponding numbers of long flash and short flash are added together, which is the corresponding fault code, fault codes are displayed in a cycle every 3 seconds.

No fault, the LED lights are off.

Short flash: The LED fault code light flashes at a frequency of 0.5S (Light: 0.5s, Off: 0.5s) , and the number of flashes represents the corresponding value.

Long flashing: The LED fault code light flashes at a frequency of 2S (Light: 2s, Off: 0.5s) , the number of flashes multiplied by 10 represents the corresponding value.

Note: *When the fault code value is less than 10, the fault code light only has a short flash, when the fault code is greater than or equal to 10, the fault code is composed of long flash and short flash, and the long flash is carried out first, and the short flash is carried out later.*

2.Indication by the indoor unit:

2.1.The 7-segment tube of the indoor display board will show the error code automatically when the unit has the following trouble:

Error code	Content	The root cause is may be one of the following
EA	the error code will display when the communication between display board and control board have in trouble	a. The connection between the display board and control board is loose; b. The indoor control board is failure. c. The wiring of the display board is failure.

2.2.When the unit has the following trouble and the compressor stops running, press the Super button on the remote controller for 4 times in ten seconds and the 7-segment tube of the display board will show the error code as the following, if two malfunction happened at the same time, it need press the Super button for 4 times again, the LED will show the other error code.

The fault code comparison table is as follows:

Error code	Content	The root cause is may be one of the following
0	Normal	
1	The failure for temperature sensor of outdoor coil	a. The outdoor temperature sensor loose; b. the outdoor temperature sensor is failure; c. The indoor control board is failure
2	Compressor exhaust temperature sensor in trouble	a. the compressor exhaust temperature sensor connect loose; b. the compressor exhaust temperature sensor is failure; c. the outdoor control board is failure
6	AC voltage higher or lower protection	a. the supply voltage is higher or lower than normal; b. the inner supply voltage of the unit is higher or lower than normal
7	Communication failure between the indoor unit and outdoor unit	a. the communication cable connect loose; b. the communication cable is failure; c. the connection between the filter board and the outdoor control board is incorrect or loose; d. the connection between the filter board and the terminal is incorrect or loose; e. the indoor control board is failure; f. the PFC board is failure; g. the power board is failure; h. the outdoor control board is failure.
8	Current overload protection	a. the fan motor run abnormally; b. the condenser and evaporator is dirty; c. the air inlet and outlet is abnormally
11	Outdoor EEPROM in trouble	a. the EEPROM chip is loose; b. the EEPROM chip inserted with opposite direction; c. the EEPROM chip is failure
12	Outdoor ambient temperature too low or too high protection	Outdoor ambient temperature too low or too high
13	Compressor exhaust temperature too high protection	a. the compressor exhaust temperature sensor is failure; b. the refrigerant of the unit is not enough
14	Outdoor ambient temperature sensor in trouble	a. the outdoor ambient temperature sensor connect loose b. the outdoor ambient temperature sensor is failure; c. the outdoor control board is failure
15	Compressor shell temperature too high protection	a. the compressor exhaust temperature sensor connect loose b. the refrigerant of the unit is not enough
16	Anti-freeze protection with cooling or overload protection with heating in	a. the indoor coil temperature sensor connect loose; b. the indoor coil temperature sensor is failure; c. the indoor control board is failure

		d. the refrigerant system is abnormal.
19	Compressor drive in trouble	a. the outdoor drive board is failure; b. the compressor is failure c. the outdoor control board is failure
20	Outdoor fan motor locked rotor protection	a. the connection of the outdoor fan motor is loose; b. there are something block the outdoor fan; c. the fan motor is failure; d. the outdoor control board is failure
21	Outdoor coil anti-overload protection with cooling	a. the refrigerant is too much; b. the outdoor fan motor is failure; c. the outdoor fan is broken; d. the condenser is dirty; e. the air inlet and air outlet of the indoor unit and the outdoor unit is not normally
22	Compressor pre heating process	it is normal mode in cold weather
24	Chip in outdoor board in trouble	a. Using the wrong drive board; b. Using the wrong compressor.
26	IPM temperature protection shutdown	a. Radiator sensor fails b. Detection circuit of the sensor on the control panel fails
28	In heating mode, outdoor ambient temperature too high protection	Outdoor ambient temperature too high
30	Outdoor PFC failure	a. the PFC is failure; b. the outdoor drive board is failure;
33	The failure for temperature sensor of indoor room	a. The indoor room temperature sensor loose; b. The indoor room temperature sensor is failure; c. The indoor control board is failure.
34	The failure for temperature sensor of indoor coil temperature	a. The indoor coil temperature sensor loose; b. The indoor coil temperature sensor is failure; c. The indoor control board is failure.
36	Communication failure between the indoor unit and outdoor unit	a. the communication cable connect loose; b. the communication cable is failure; c. the connection between the filter board and the outdoor control board is incorrect or loose; d. the connection between the filter board and the terminal is incorrect or loose; e. the indoor control board is failure; f. the PFC board is failure; g. the power board is failure; h. the outdoor control board is failure.
38	Indoor EEPROM failure	a. The EEPROM chip loose;

		b. The indoor control board is failure
39	Indoor fan motor run abnormally	a. There are something block the indoor fan motor; b. The fan motor cord connect loose; c. The fan motor is failure; d. The indoor control board is failure
41	The failure for Indoor grounding protective	The indoor control board is failure
44	Faulty human sensor	a. Loose human sensors b. human sensors is failure; c. he indoor control board is failure. d. The display board is failure. e. The communication between the display board and the main control board is faulty f. The communication between the display board and the human sensor is faulty
46	Faulty humidity sensor	a. Loose humidity sensor; b. humidity sensor is failure; c. The indoor control board is failure.
48	Lack of refrigerant failure	a. Indoor leaks b. Outdoor leaks c. connecting pipe leaks d. The refrigerant sensor detects the fault
50	Fresh air failure (suitable for some models)	a. The fresh air motor is failure; b. the connecting line is loose c. The indoor control board is failure.
54	Multi-system product mode conflicts	The operation mode of the Multi-system product indoor unit is inconsistent
56	Four-way valve reversing failure	Four-way valve failure
57	The refrigerant sensor communication failure or the refrigerant sensor itself failure	a. refrigerant sensor is failure; b. The indoor board is faulty c. The communication between the indoor panel and the refrigerant sensor is faulty
60	Wifi failure	a. The communication between the wifi module and the air conditioning board is faulty(The air conditioner board does not receive the signal of the WIFI module, or the WIFI module does not receive the signal of the air conditioner board) b. The wireless signal is not detected c. The camera WIFI function self-test fails (no fault information), WAN failure, LAN failure

66	The concentration of the refrigerant sensor is over-faulted	a. Indoor leaks b. Outdoor leaks c. connecting pipe leaks d. The refrigerant sensor detects the fault
70	Light sensation failure (suitable for some models))	a. The display control board is failure; b. the connecting line is loose c. The indoor control board is failure.
74	CO2 failure (suitable for some models))	a. The sensor is failure; b. the connecting line is loose c. The indoor control board is failure.
78	The valve is not open for protection	The valve is not ope
79	The indoor unit and outdoor unit brand match incorrectly	a. Indoor and outdoor are not the same model b. Outdoor branding error.

The failure is detected when the room temperature sensor broken or shorted over 5 sec.

The failure is detected when the temperature sensor of heater exchange broken or shorted over 5 sec.

The failure is detected when each setting data is not match after the EEPPOM self-check two times.

The failure is occur when the grounding signal is not detected after the appliance power ON.

7-2. Trouble Diagnosis of Protection

Protection diagnosis of the complete machine (all types of protection during operation, i.e. under-voltage, over-voltage and overcurrent protection)

Note: List all types of protection that may occur to the complete machine and describe the conditions and signs of the start, course and end of such protection.

Voltage protection

Protection against AC input over-voltage/under-voltage

1.Conditions for protection against AC input over-voltage/under-voltage:

If the input AC voltage is greater than “protective over-voltage value” or less than “protective under-voltage value” for five seconds, over-voltage/under-voltage protection starts.

2.Protection actions against AC input over-voltage/under-voltage

The system stops operation.

3. Conditions for ending AC input over-voltage/under-voltage:

If the input AC voltage is lower than “the protective over-voltage value” -10V, or higher than “the protective under-voltage value” +10V, the over-voltage/under-voltage protection will be released.

Current protection:

1.Protection against over-current

Conditions for over-current protection: if the current is equal to or greater than “current value for starting the refrigeration current protection (E2 value)” for six seconds, over-current protection starts. Protection actions against over-current: indoor display screen and outdoor indicator give indications, the compressor and outdoor fan stop, but indoor fan runs normally.

Condition for ending over-current protection: when the current drops below “current value for releasing the refrigeration current protection (E2 value)”, over-current protection will be released.

2.Frequency decreasing for over-current

Conditions for over-current **frequency decreasing**: if the current is equal to or greater than “current value for starting the refrigeration current protective frequency decreasing (E2 value)”, over-current **frequency decreasing** starts.

Over-current **frequency decreasing** actions: the compressor will decrease frequency at rate of (E2 value)Hz/S. The indoor and outdoor fans run.

Conditions for ending over-current **frequency decreasing**: when the current drops below “current value for starting the refrigeration current protective prohibition of frequency rising (E2 value)”, over-current under-clocking will be released.

3.Prohibition of frequency increasing of compressor exhausting

Conditions for prohibition of frequency rising of compressor discharge

Condition 1: in the case of frequency decreasing of compressor discharge, the discharge temperature of the compressor drops below X4°C.

Condition 2: in normal operation, the discharge temperature of compressor reaches $X5^{\circ}\text{C}$.

Either of the above two conditions is met, prohibition of frequency rising of compressor discharge begins.

Actions relates to prohibition of frequency rising of compressor discharge: the frequency of compressor maintains at the current level, which may decrease as the case requires while cannot rise. The indoor and outdoor fans run.

Condition for ending prohibition of frequency rising of compressor discharge: if the temperature of compressor discharge drops below $X6^{\circ}\text{C}$, prohibition of frequency rising of compressor discharge will be released.

4. Prohibition of frequency for anti-overload of outdoor coiled pipe

Condition for anti-overload prohibition of frequency of outdoor coiled pipe: in the case of anti-overload frequency decreasing of outdoor coiled pipe, anti-overload prohibition of frequency of the unit begins when the temperature of outdoor coiled pipe drops below “the anti-overload frequency decreasing temperature of outdoor coiled pipe”.

Actions relates to anti-overload prohibition of frequency of outdoor coiled pipe: the frequency of compressor maintains at the current level, which may decrease as the case requires while cannot rise. The indoor and outdoor fans run.

Condition for ending anti-overload prohibition of frequency of outdoor coiled pipe: if the temperature of outdoor coiled pipe drops below “temperature to release the anti-overload state of outdoor coiled pipe”, anti-overload prohibition of frequency of outdoor coiled pipe will be released.

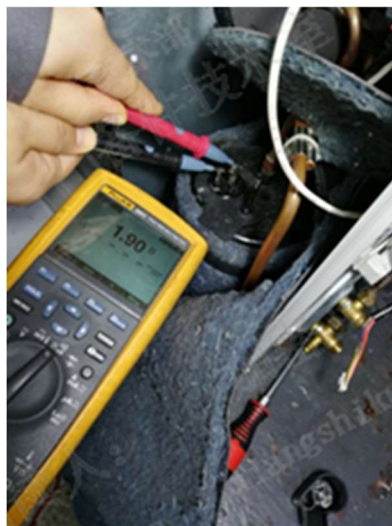
7-3. Trouble Diagnosis of Compressor

Judging the connecting terminals of inverter compressor:

It is impossible to identify terminals U, V and W of inverter compressor with multi-meter. Just connect the terminals in the same way as the original unit when replacing the compressor. A wrong connection will lead to reverse and loud noise of the compressor.

Resistance of compressor coil:

Measure the resistance between any two terminals, which are about a few Ohms, three phases having the same resistance.



7-4. Trouble Diagnosis of Electric Communication

Step one: to determine whether the connecting cables and tether cables of indoor/outdoor units are correctly wired. If not, change wiring order and test connection.

Step two: to determine whether there is loose connection.

Fasten the connection in the case of loose connection and then conduct verification.

Step three: measure the voltage between SI and N with multi-meter and see whether the voltage fluctuates between 0V and 24V. Please directly replace indoor and outdoor control boards if there are not voltage fluctuations.



7-5. Diagnosis and Solution

7-5-1. The indoor unit fails to start.

Error code: **Indoor displays: /** **outdoor displays: /**

Method of Malfunction Detection:

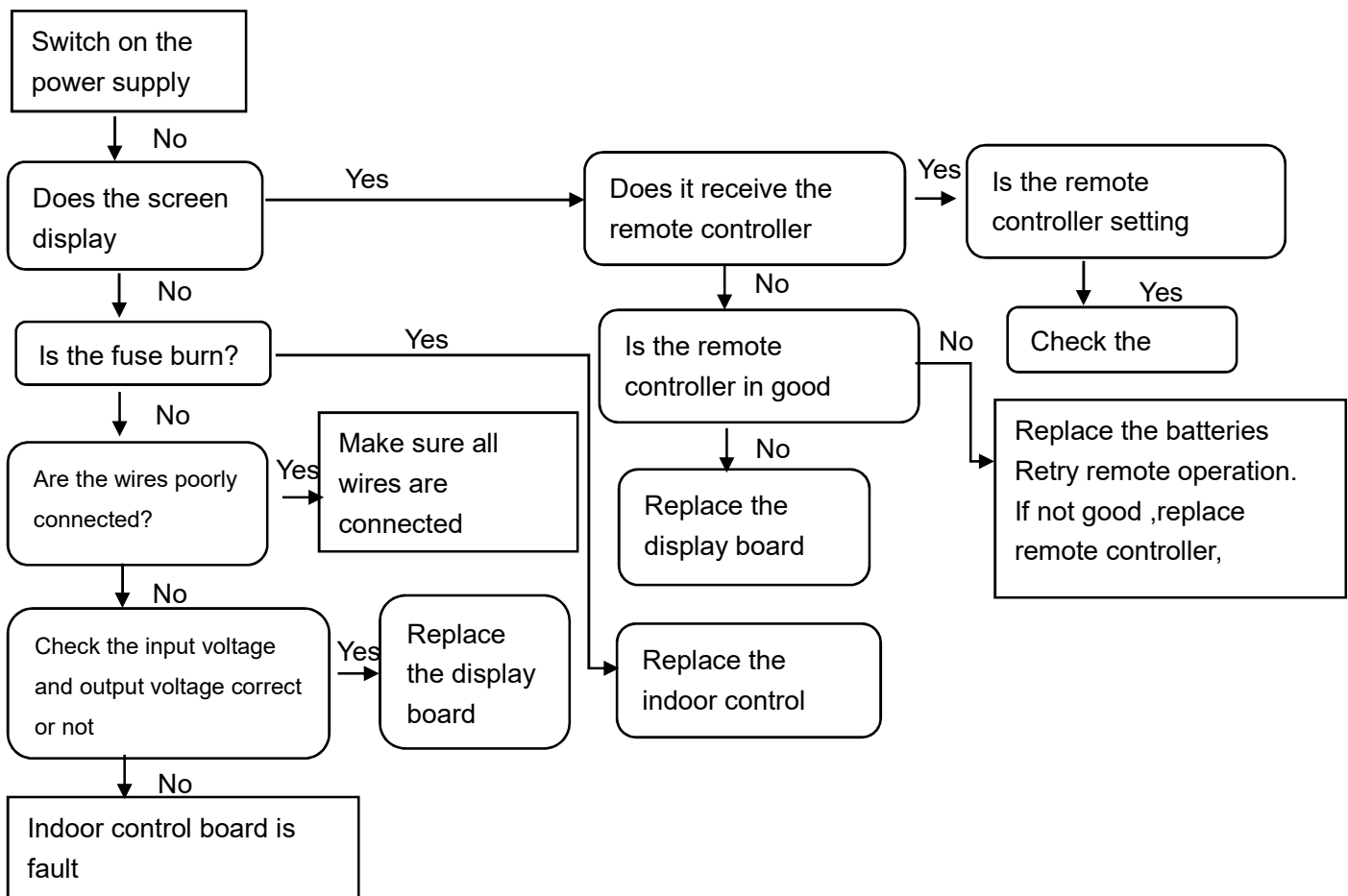
The machine fails to detect a power source or there is a malfunction within its internal components, preventing it from executing the startup and operational commands.

Supposed Causes:

- The remote control has malfunctioned and is unable to transmit signals properly.
- The machine's interconnection cable or power cord has become loose, preventing effective power supply to the internal components of the machine.
- The display component has failed, rendering it unable to display or receive signals.
- There is an error in the power supply, providing either too high or too low voltage to the machine.
- The indoor electronic control board has malfunctioned.

Solution to Malfunction:

- Check the remote control to confirm that its settings, batteries, and other functions are normal.
- Inspect the connecting cables or power cords and secure them tightly.
- Replace the display component.
- Provide a normal voltage that the machine can operate within.
- Replace the indoor control board.



7-5-2.Error code 39 (Indoor fan motor in trouble)

Error code: Indoor displays: 39 outdoor displays: /

Method of Malfunction Detection:

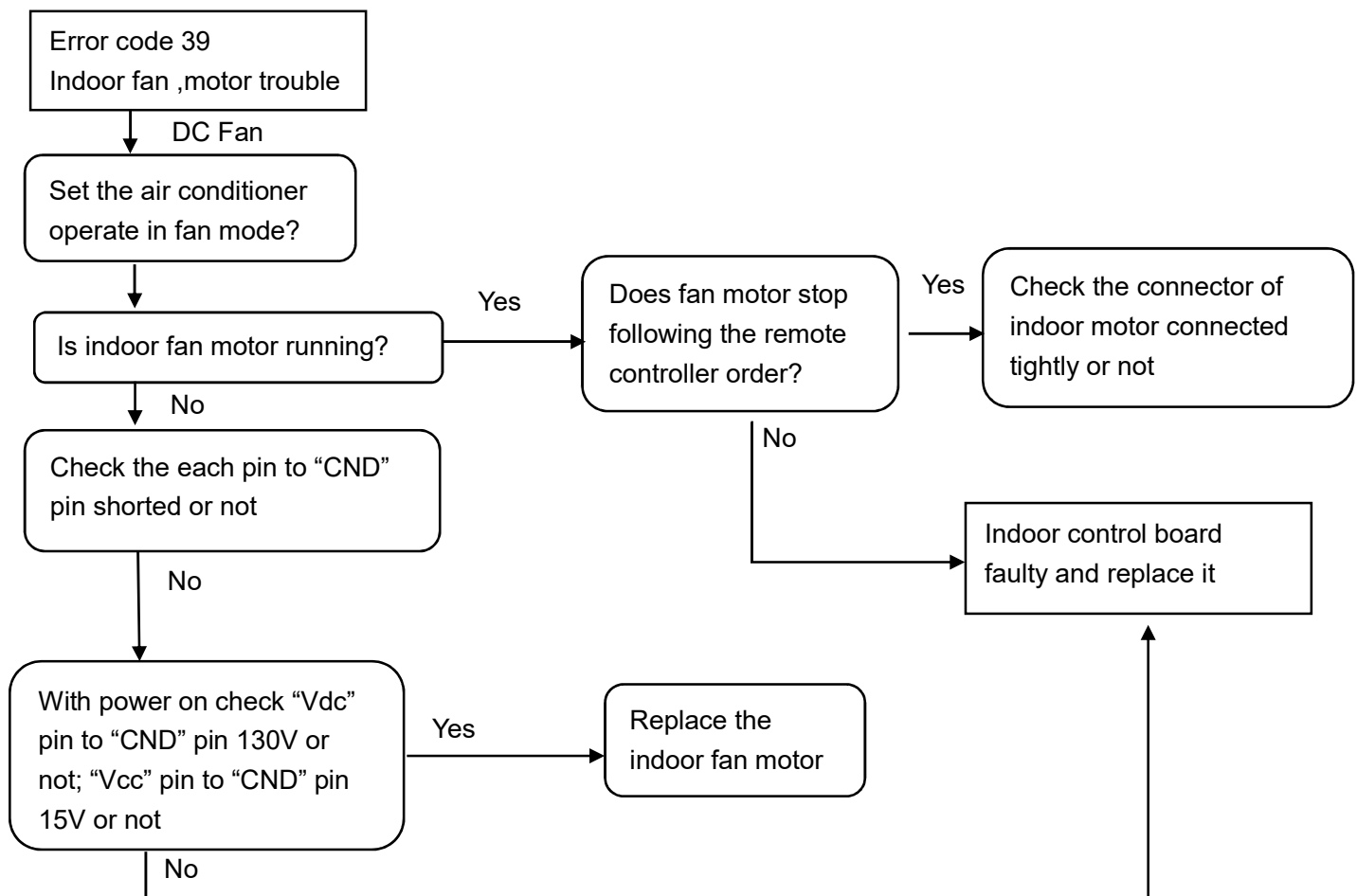
The indoor control board has detected abnormal operation of the indoor motor.

Supposed Causes:

- a. There are something block the indoor fan motor
- b. The fan motor cord connects loose
- c. The fan motor is failure
- d. The indoor control board is failure

Solution to Malfunction:

- a. Take inspection of motor
- b. Reconnect the connecting line
- c. Replace the motor
- d. Replace the indoor control board.



DC Fan test point:

7-5-3.Error code 9 (Maximum current protection)

Error code: Indoor displays: 9 outdoor displays: /

Method of Malfunction Detection:

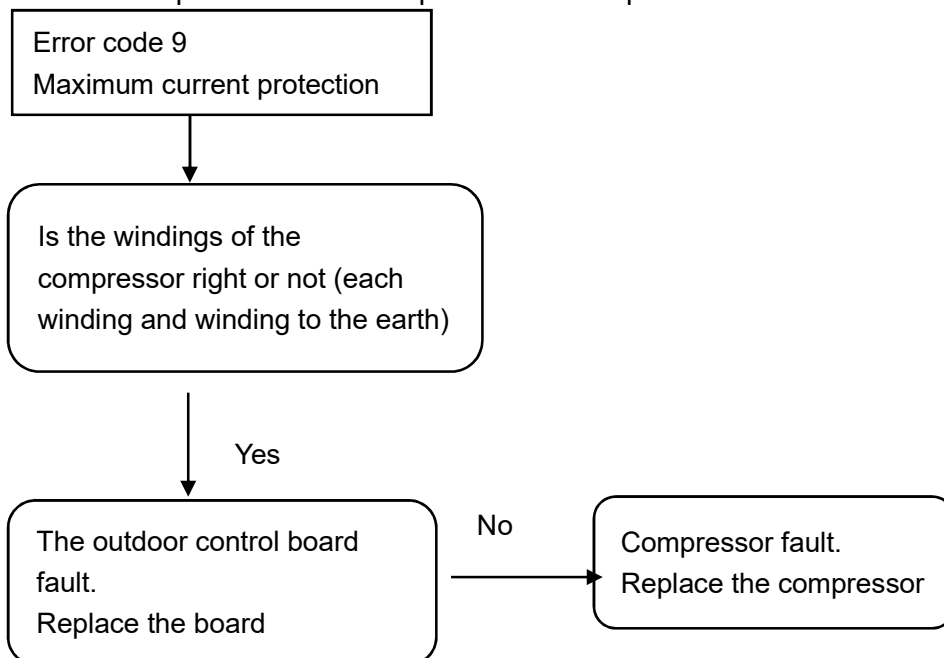
The outdoor electrical control board detects that the overall current value of the machine is greater than the current value set in its parameters.

Supposed Causes:

- a. the outdoor control board is short circuit
- b. the drive board is short circuit
- c. the other components is short circuit

Solution to Malfunction:

- a. Replace the outdoor control board
- b. Replace the outdoor control board
- c. Inspect the other components and Replace the one witch is short circuit



7-5-4.Error code 13 (Compressor over heat protection)

Error code: Indoor displays: 13 outdoor displays: /

Method of Malfunction Detection:

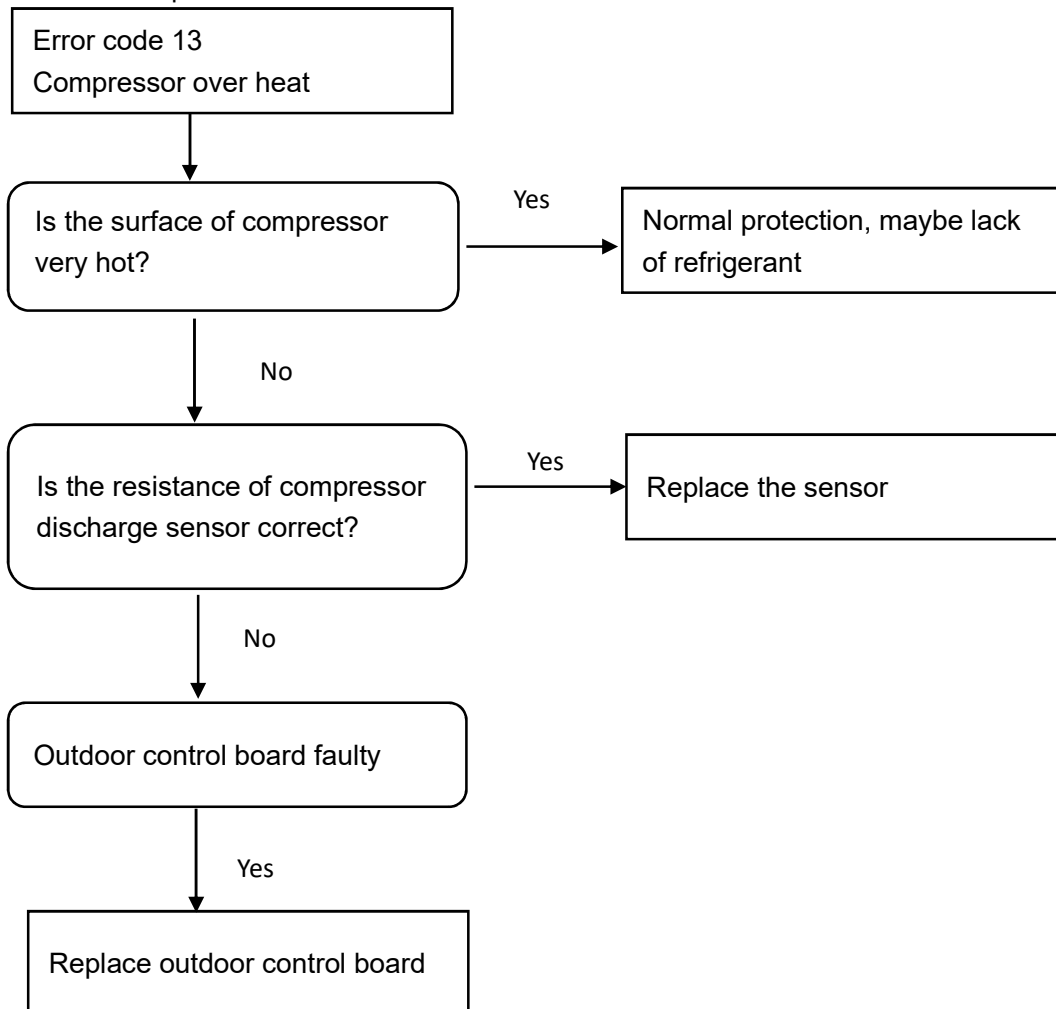
The outdoor exhaust temperature sensor detects that the compressor exhaust temperature exceeds the value set in the parameters.

Supposed Causes:

- a. The compressor exhaust temperature sensor is failure
- b. The refrigerant of the unit is not enough
- c. Outdoor ambient temperature exceeds the limit
- d. The outdoor control board is failure

Solution to Malfunction:

- a. Replace the compressor exhaust temperature sensor
- b. Recharge the refrigerant
- c. Reboot the product when the outdoor ambient temperature within opration range
- d. Replace the outdoor control board



7-5-5.Error code 8 (Current overload protection)

Error code: Indoor displays: 8 outdoor displays: /

Method of Malfunction Detection:

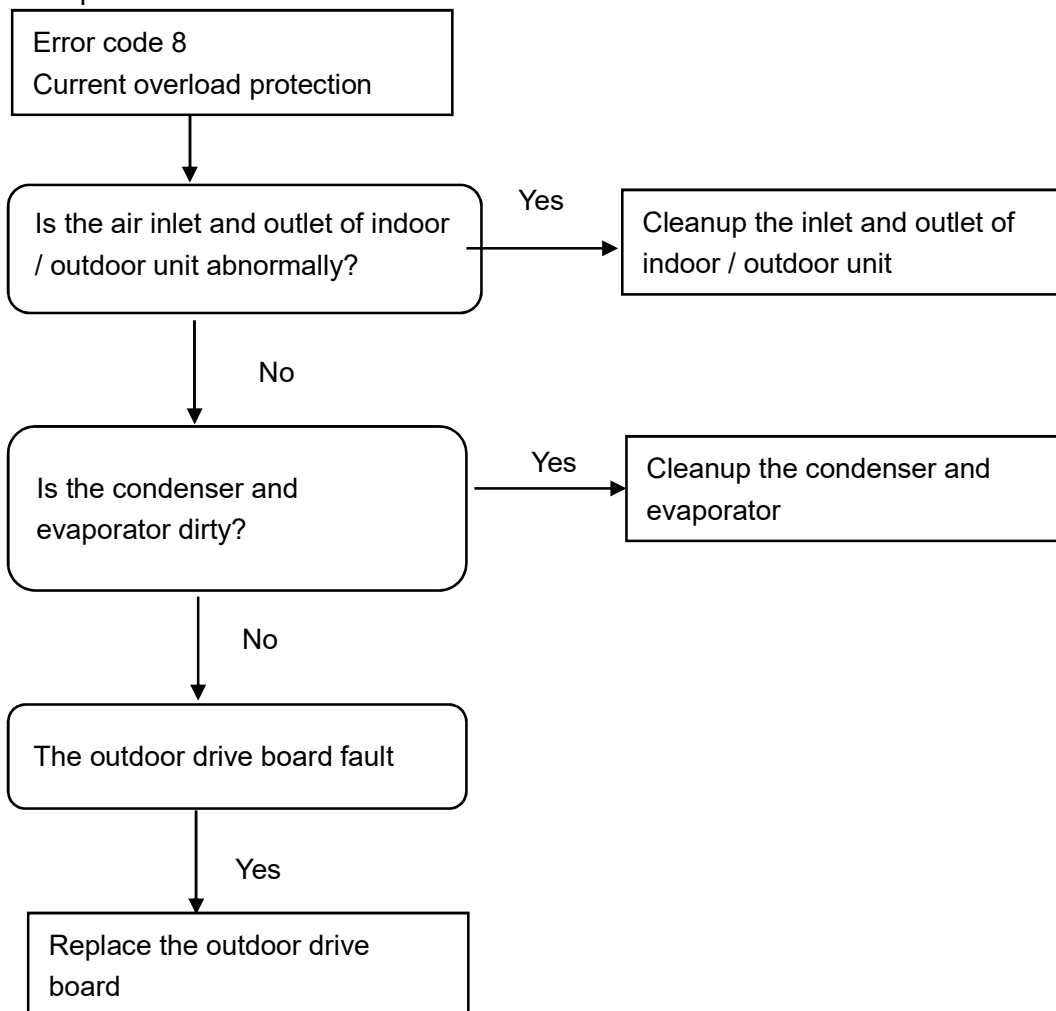
The outdoor control board monitors the overall current of the machine and detects that the current value exceeds the parameter-set current value

Supposed Causes:

- a. The fan motor run abnormally
- b. The condenser and evaporator is dirty
- c. The air inlet and outlet is abnormally

Solution to Malfunction:

- a. Replace the fan motor
- b. Clean the condenser and evaporator
- c. Inspect the air inlet and outlet



7-5-6.Error code 16 (Cooling mode Anti-freeze protection indoor unit)

Error code: Indoor displays: 16 outdoor displays: /

Method of Malfunction Detection:

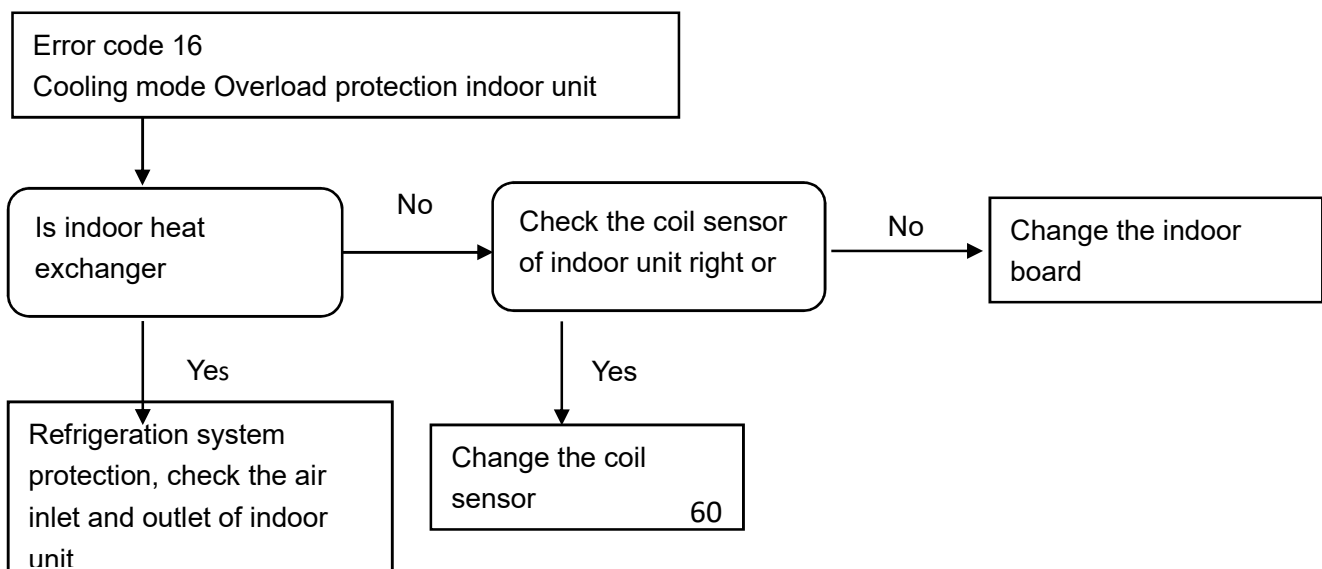
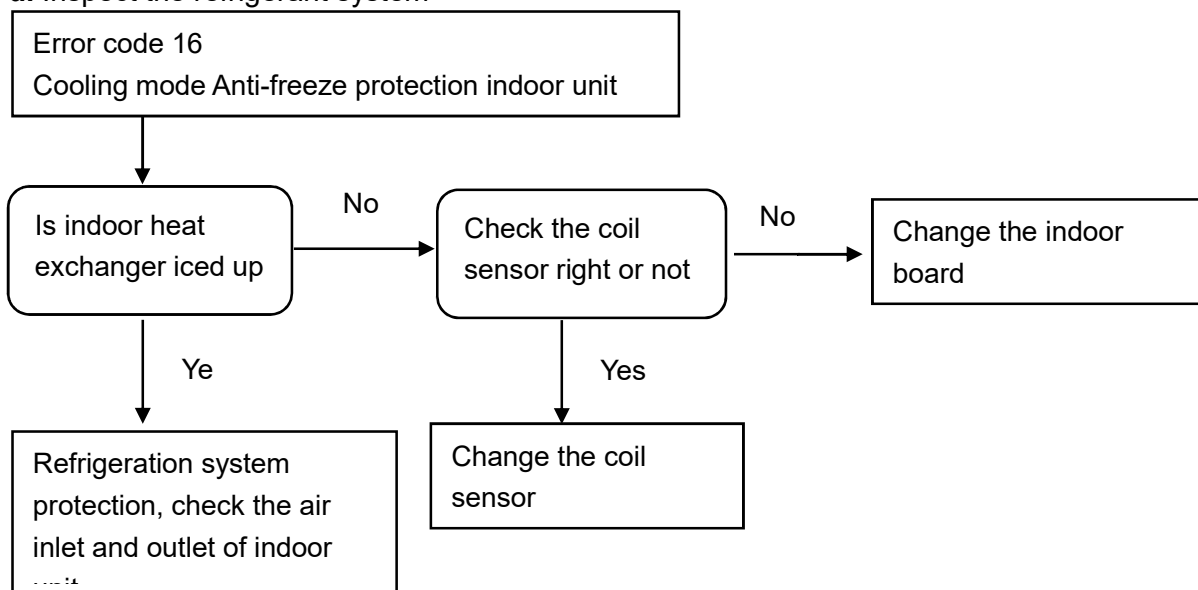
During cooling, the indoor electrical control board detects that the indoor coil temperature is less than the parameter-set value, or during heating, the indoor electrical control board detects that the indoor coil temperature is greater than the parameter-set value.

Supposed Causes:

- a. The indoor coil temperature sensor connect loose
- b. The indoor coil temperature sensor is failure
- c. The indoor control board is failure
- d. The refrigerant system is abnormal

Solution to Malfunction:

- a. Reconnect the indoor coil temperature sensor
- b. Replace the indoor coil temperature sensor
- c. Replace the indoor control board
- d. Inspect the refrigerant system



7-5-7.Error code 21 (Outdoor coil anti-overload protection)

Error code: Indoor displays: 21 outdoor displays: /

Method of Malfunction Detection:

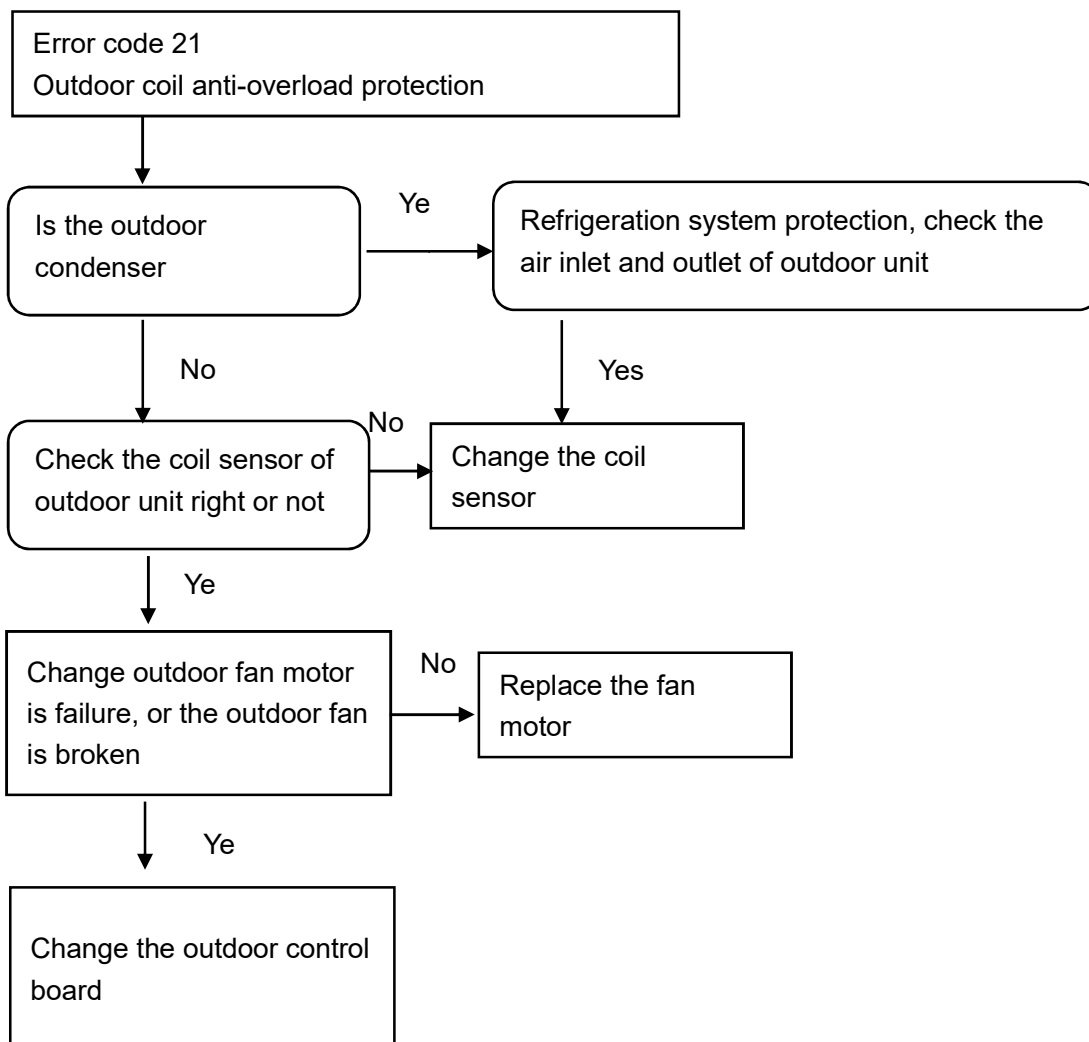
The outdoor control board detects that the outdoor coil temperature is greater than the parameter-set value.

Supposed Causes:

- a. The outdoor fan motor is failure, or the outdoor fan is broken
- b. The coil sensor of outdoor unit is failure
- c. The condenser is dirty
- d. The air inlet and air outlet of the indoor unit and the outdoor unit is not normally
- e. The outdoor control board is failure

Solution to Malfunction:

- a. Replace the fan motor
- b. Replace the fan
- c. Clean the condenser
- d. Take inspection of air inlet and air outlet of the indoor unit and the outdoor unit
- e. Replace the outdoor control board



7-5-8.Error code 11 (Outdoor EERROM IN in trouble)

Error code: Indoor displays: 11 outdoor displays: /

Method of Malfunction Detection:

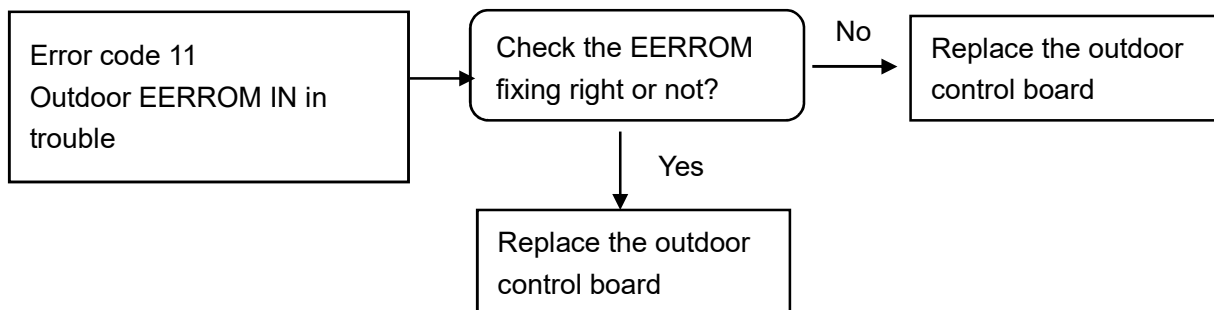
The outdoor control board is unable to properly read the outdoor EEPROM parameters.

Supposed Causes:

- a. The EEPROM chip is loose
- b. The EEPROM chip inserted with opposite direction
- c. The EEPROM chip is failure

Solution to Malfunction:

- a. Replace the outdoor control board
- b. Replace the outdoor control board
- c. Replace the outdoor control board



7-5-9.Error code 20 (Outdoor fan motor locked rotor protection)

Error code: Indoor displays: 20 outdoor displays: /

Method of Malfunction Detection:

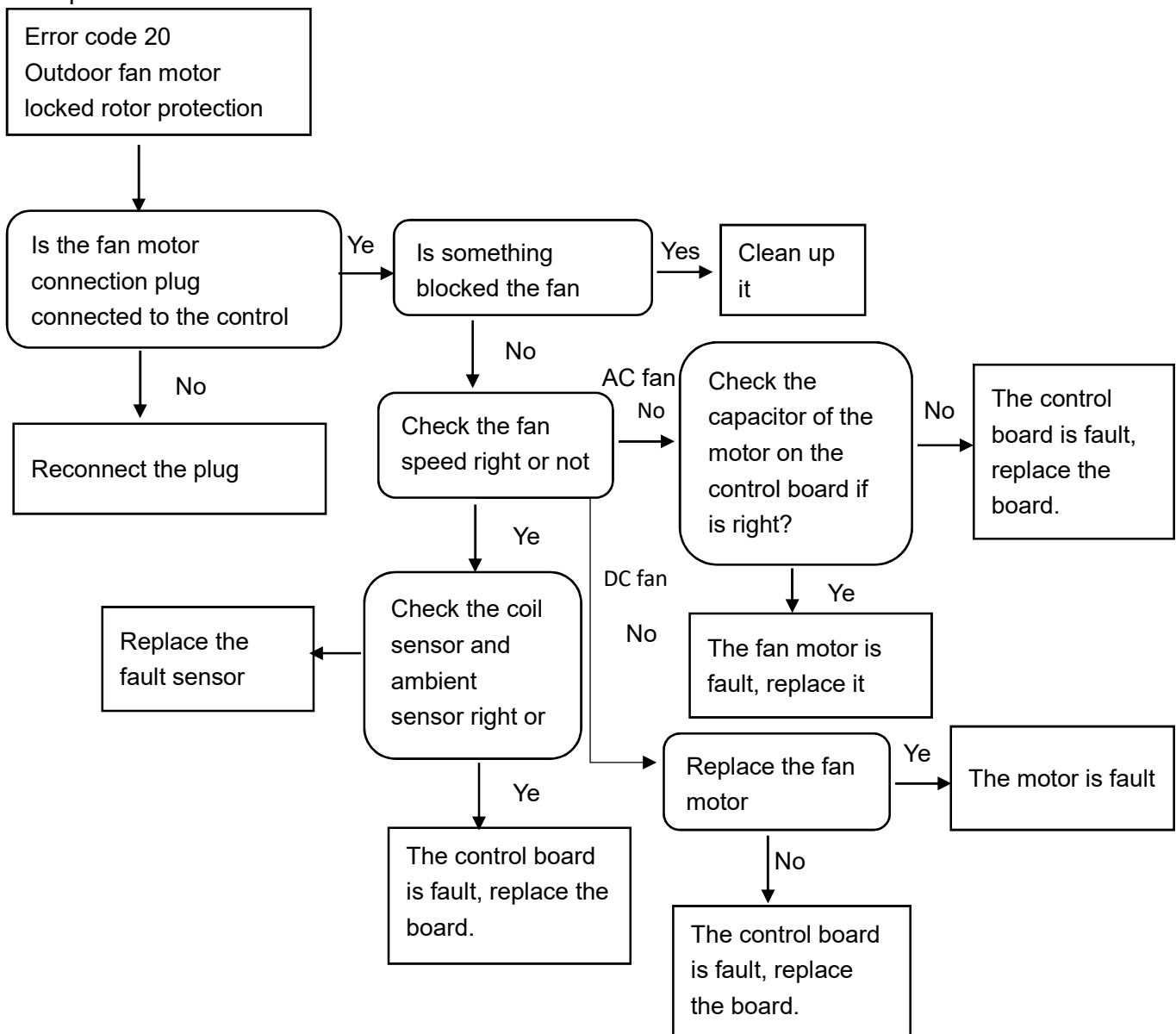
The outdoor control board detects abnormal operation of the outdoor motor.

Supposed Causes:

- a. the connection of the outdoor fan motor is loose
- b. there are something block the outdoor fan
- c. the fan motor is failure
- d. the outdoor control board is failure

Solution to Malfunction:

- a. Reconnect the connection of the outdoor fan motor
- b. Remove any obstructions
- c. Replace the fan motor
- d. Replace the outdoor control board



7-5-10.Error code 33 & 34 & 14 & 1 & 2 (temperature sensor trouble)

Error code: Indoor displays: 33 / 34 / 14 / 1 / 2 outdoor displays: /

Method of Malfunction Detection:

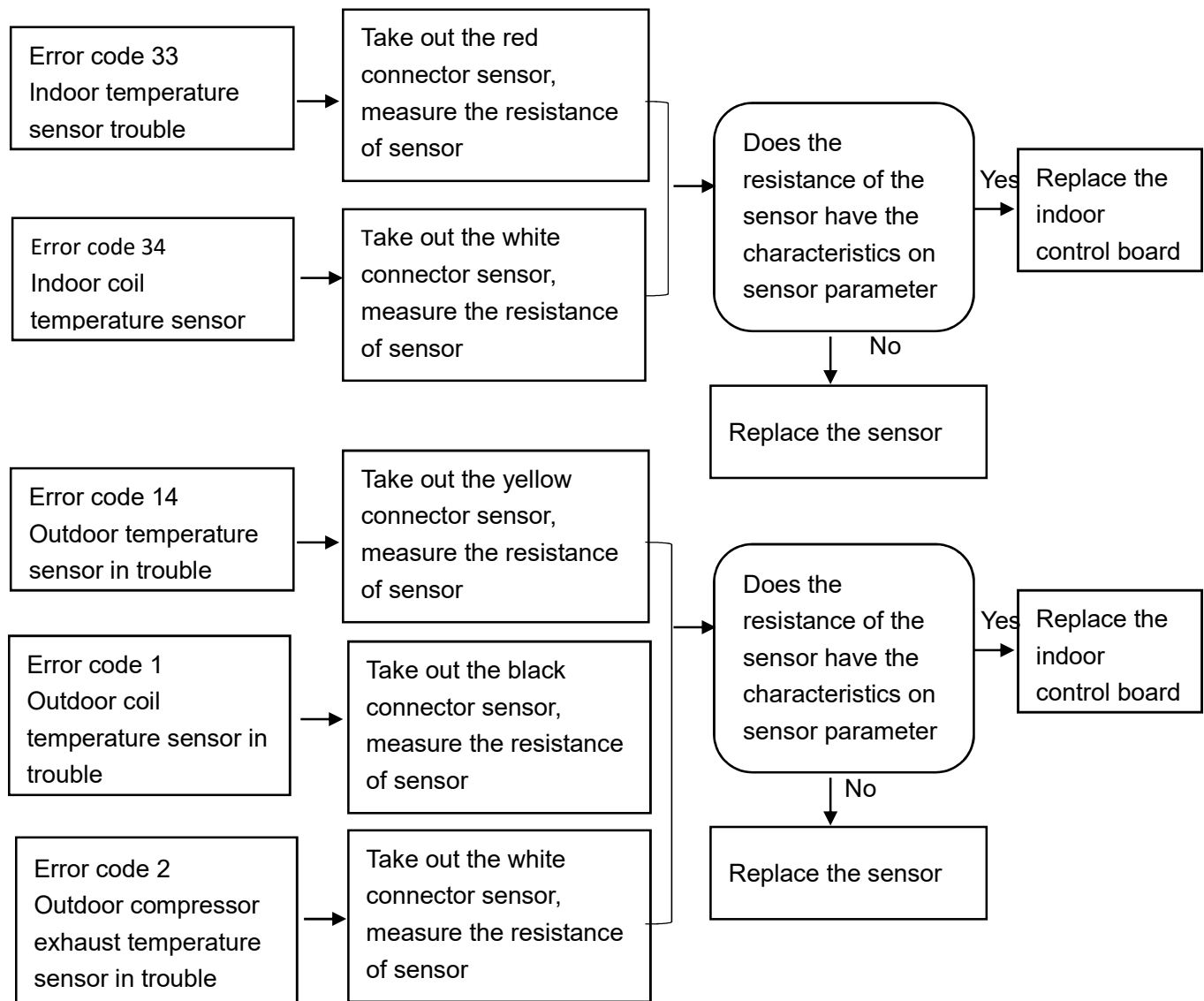
The indoor and outdoor control boards are unable to read the indoor and outdoor temperature sensors.

Supposed Causes:

- a. The temperature sensor loose
- b. The temperature sensor is failure
- c. The control board is failure

Solution to Malfunction:

- a. Reconnect the temperature sensor
- b. Replace the temperature sensor
- c. Replace the control board.



7-5-11.Error code 6 (AC voltage higher or lower protection)

Error code: Indoor display: 6 outdoor displays: /

Method of Malfunction Detection:

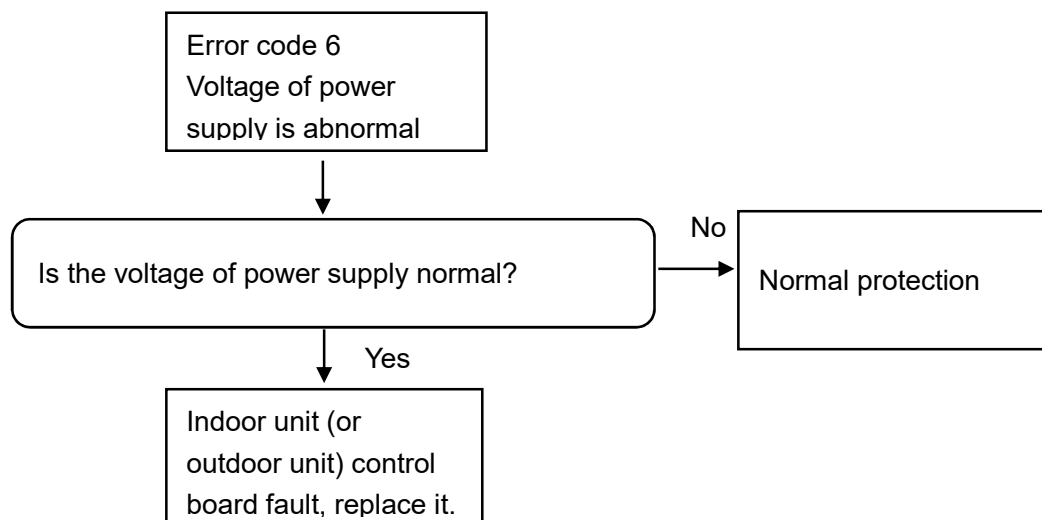
The outdoor or outdoor control board detects that the supplied voltage is either above or below the parameter-set value.

Supposed Causes:

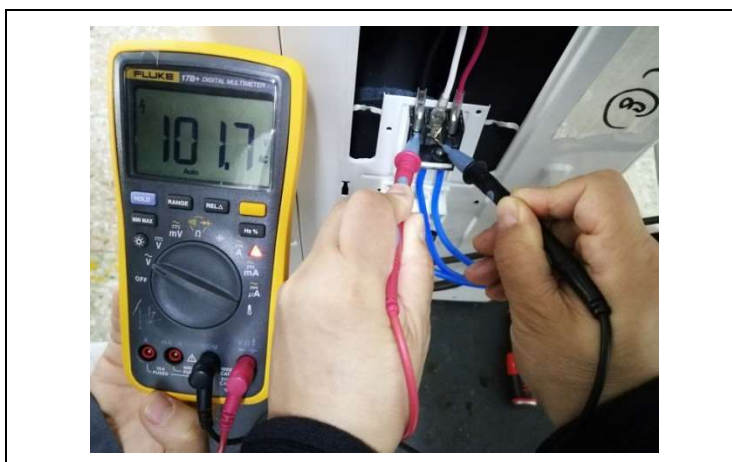
- a. The supply voltage is higher or lower than normal
- b. The inner supply voltage of the unit is higher or lower than normal
- c. The indoor unit (or outdoor unit) control board is failure

Solution to Malfunction:

- a. Supply the stable power
- b. Supply the stable power
- c. Replace the indoor unit (or outdoor unit) control board.



AC voltage test point:



The voltage protection values is different according to the model

7-5-12.Error code 19 (Compressor driver in trouble)

Error code: Indoor display: 19 outdoor displays: /

Method of Malfunction Detection:

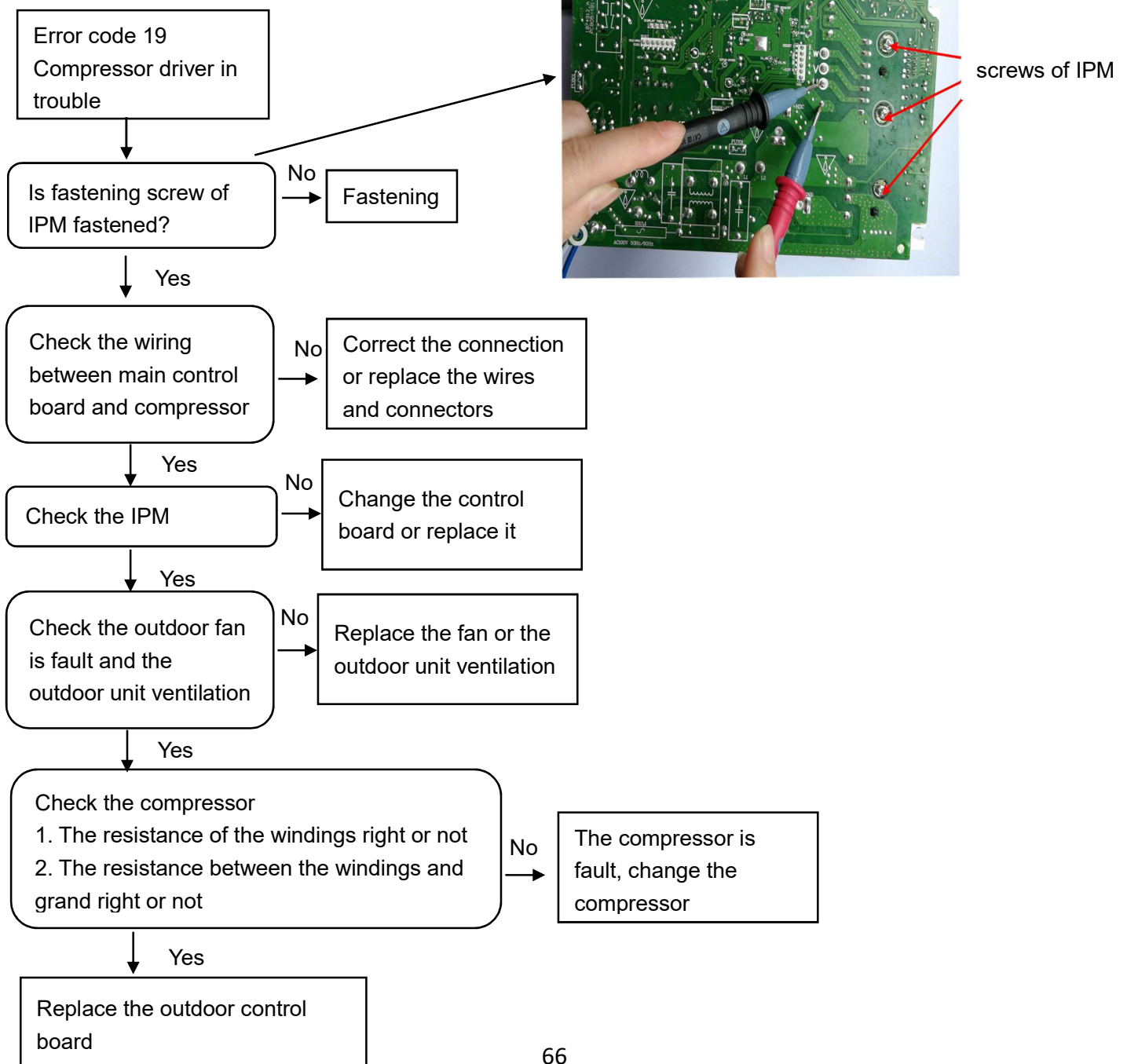
The outdoor control board detects an abnormality in the drive module, preventing it from normally driving the compressor to operate.

Supposed Causes:

- a. the outdoor drive board is failure;
- b. the compressor is failure
- c. the outdoor control board is failure

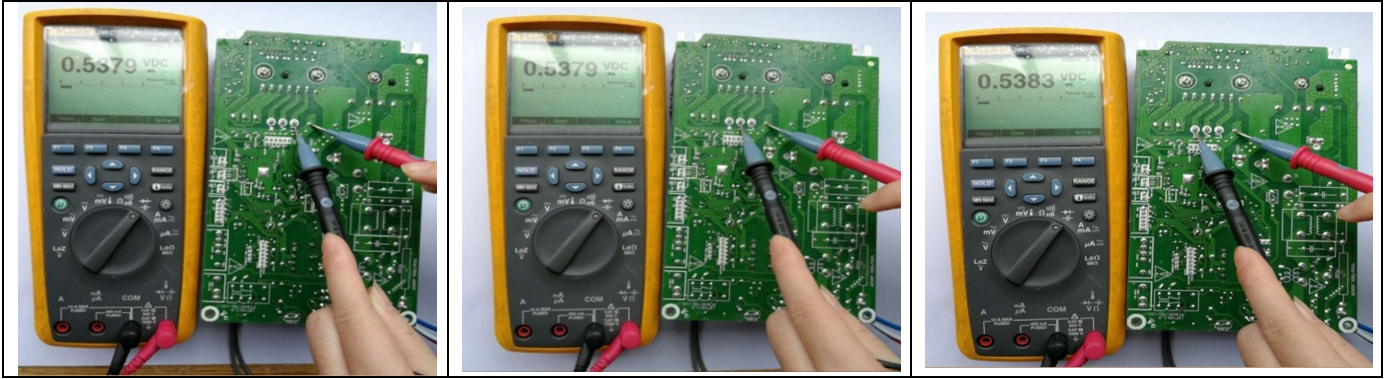
Solution to Malfunction:

- a. Replace the outdoor control board
- b. Replace the outdoor control board
- c. Replace the compressor



test point:

Forward of IPM P-U/P-V/P-W test :



Reverse of IPM P-U/P-V/P-W test:



Forward of IPM N-U/N-V/N-W test :

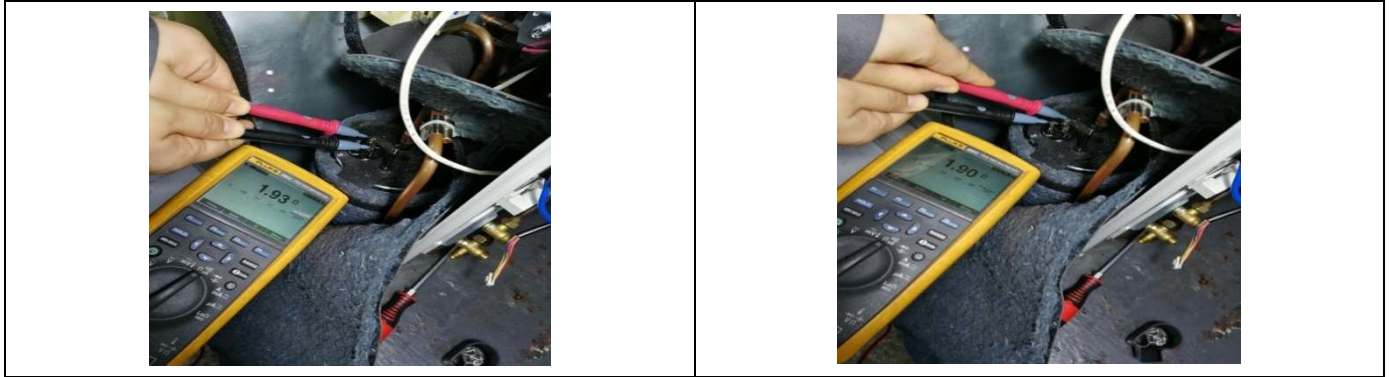


Reverse of IPM N-U/N-V/N-W test :



test point:

The resistance of the compressor U-W\W-W



7-5-13.Error code 36 (Communication in trouble)

Error code: Indoor display: 36 outdoor displays: /

Method of Malfunction Detection:

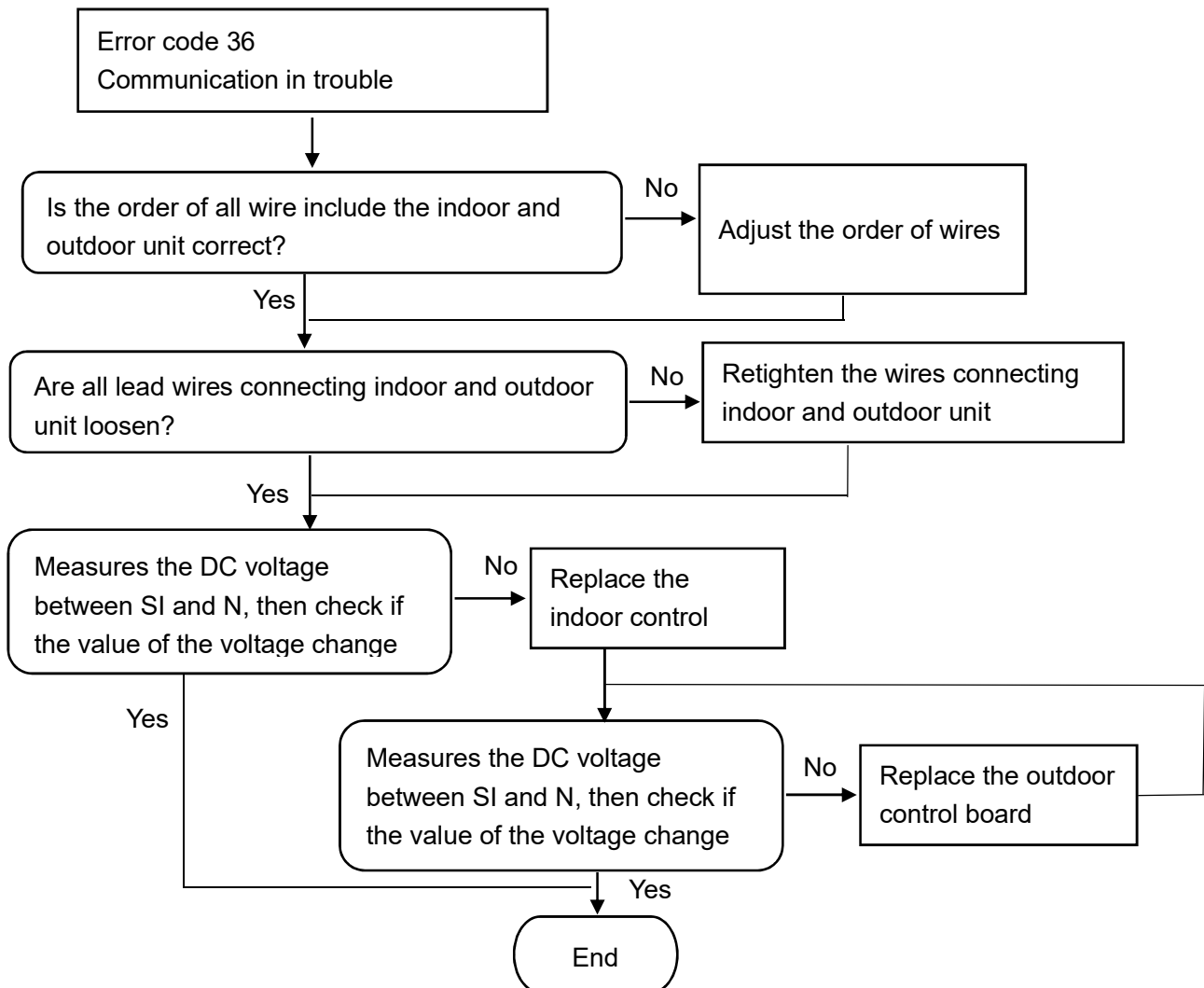
The indoor and outdoor control boards are unable to establish communication, and the indoor control board cannot read the signals from the outdoor control board.

Supposed Causes:

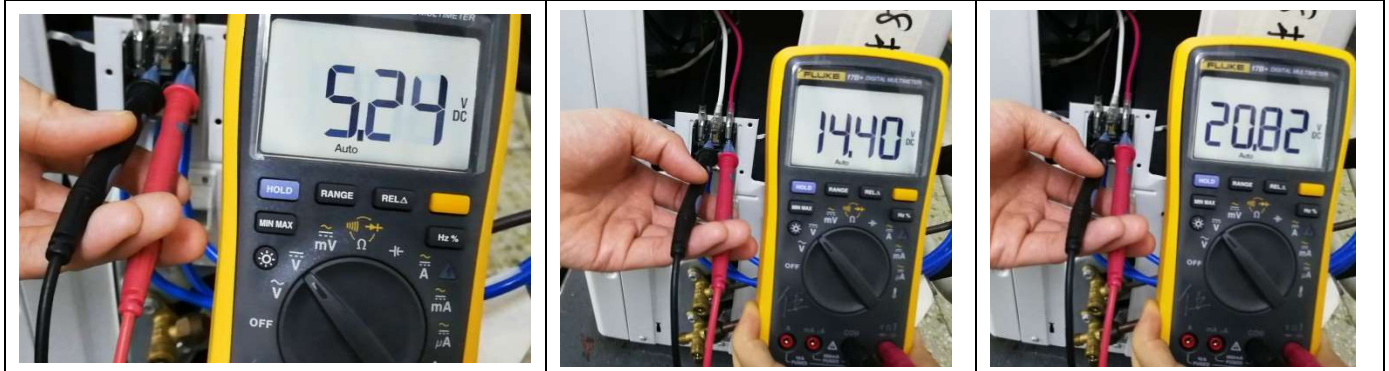
- a. the communication cable connects loose
- b. the communication cable is failure
- c. the connection between the filter board and the outdoor control board is incorrect or loose
- d. the connection between the filter board and the terminal is incorrect or loose
- e. the indoor control board is failure
- f. the PFC board is failure
- g. the power board is failure
- h. the outdoor control board is failure

Solution to Malfunction:

- a. Reconnect the communication cable
- b. Replace the communication cable
- c. Reconnect the communication between the filter board and the outdoor control board
- d. Reconnect the communication between the filter board and the terminal
- e. Replace the indoor control board
- f. Replace the indoor control board
- g. Replace the indoor control board
- h. Replace the outdoor control board

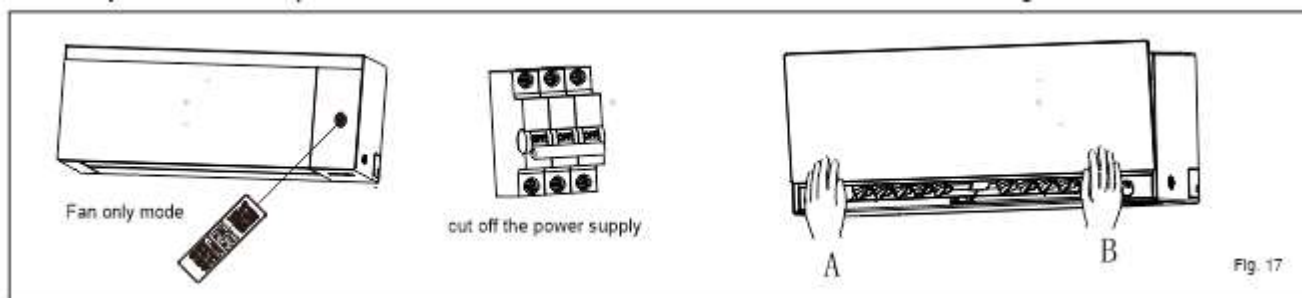


SI and N test point:

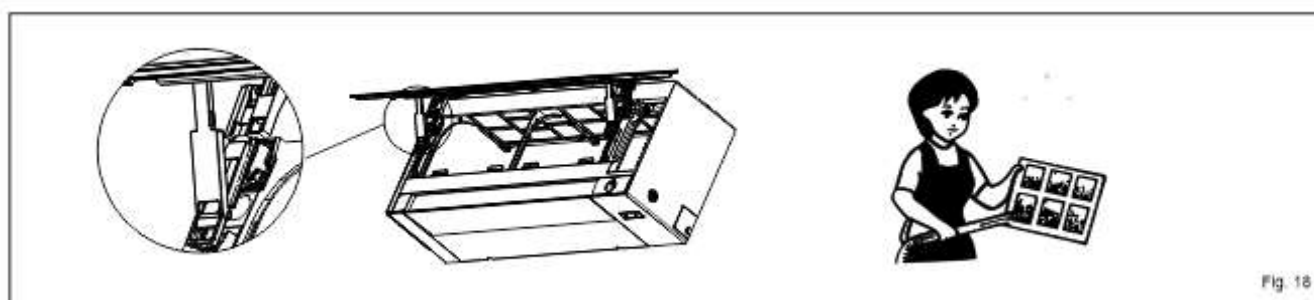


8. Air filter maintenance

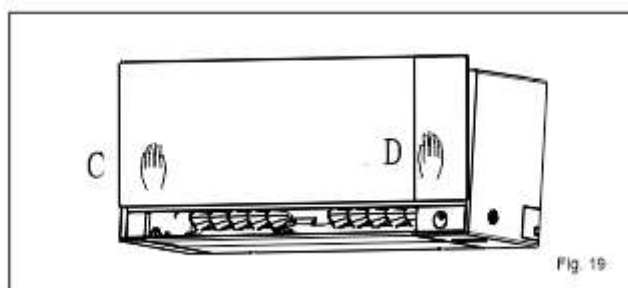
1) Power on the air conditioner use the Remote Controller and enter the Fan only mode, after the panel of the air conditioner is raised, cut off the power supply of the air conditioner, and lift the panel outward at positions A and B by hand until the panel buckle is detached from the outer cover, as shown in Fig. 17



2) Open the panel, prop up the support rod, take out the filter for cleaning, and reinstall it into the air conditioner after the filter is cleaned, as shown in Fig.18.



3) After reinstalling the filter, press the C and D positions on the panel by hand to complete the panel installation, reconnect the air conditioner power supply, and complete the filter maintenance operation, as shown in Fig. 19.



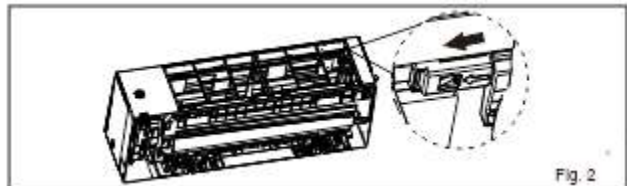
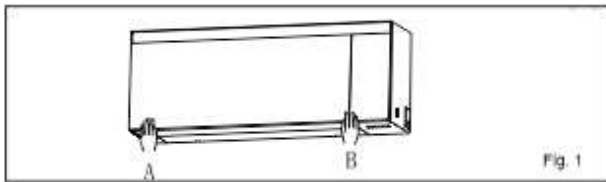
9. Interconnection cable replacement

If the interconnection cable that comes with the product meets the installation conditions, you do not need to replace the cable, can directly connection the pipe in accordance with the steps of “Indoor Unit Piping Installation”, if it does not meet the installation conditions, follow the steps below to replace the cable.

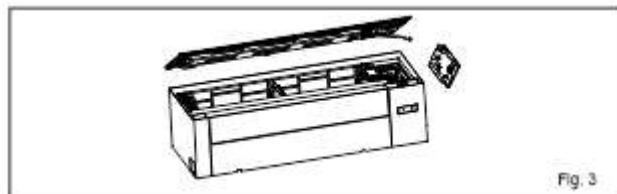
1) Before hanging the unit onto mounting plate, first remove the panel.

a. Lift the panel outward with your hand at positions A and B until the panel buckle is detached from the cover, as shown in Fig. 1.

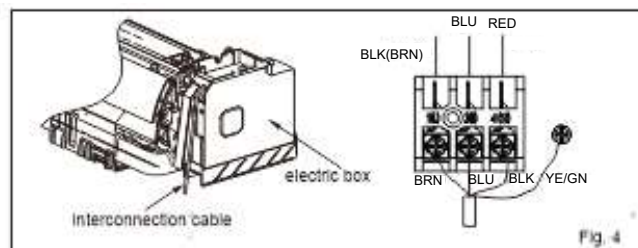
b. Push the retainer post on the back of the panel to the left until the locating post is out of the dowel hole, and then the panel can be separated from the outer cover. as shown in Fig. 2.



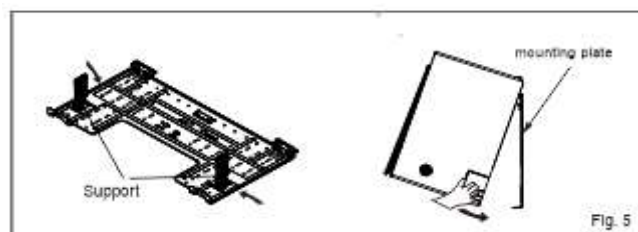
c. Loosen the screws of the electrical box cover, remove the electrical box cover, pull out the terminal of the display board, and remove the panel, as shown in Fig. 3



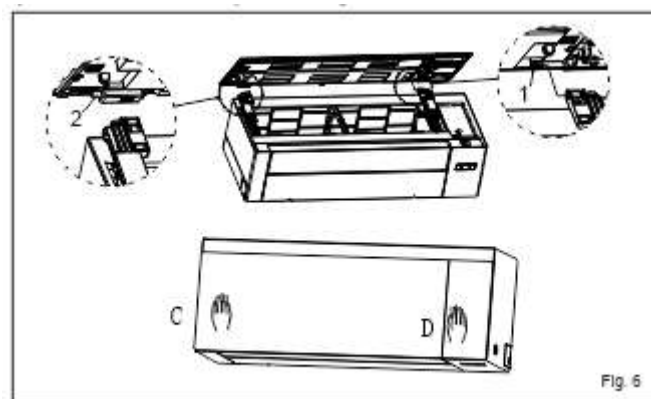
2) Thread the interconnection cable through the wiring groove of the electrical box, and connect the cable according to the circuit diagram, as shown in Fig. 4.



3) Install the wall mounting plate to the wall, close the two supports on the wall mounting plate, then move the unit step by step to reach the best installation, then press the unit into 2 down slots, as shown in Fig. 5.



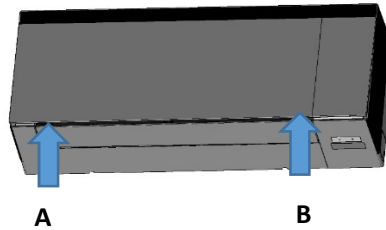
4) After changing the interconnection cable, plug the terminal block of the display board into the control board, install the cover of the electrical box, tighten the screws, power on the air conditioner, select the Fan only mode to start the air conditioner, after the movable bracket automatically rises, disconnect the power supply of the air conditioner, insert the positioning column 1 into the positioning hole on the support plate, and then insert the positioning column 2 at the other end into the positioning hole on the support plate, and press the position C and D on the panel to close the panel, Fig. 6.



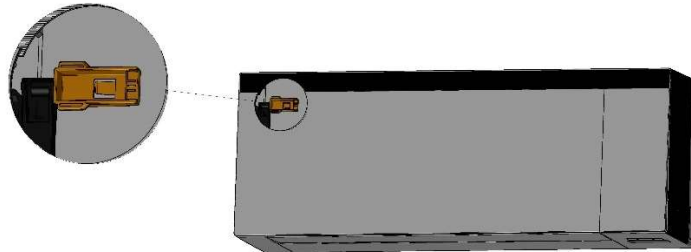
10. Disassembling and assembling the sliding panel

Method 1:

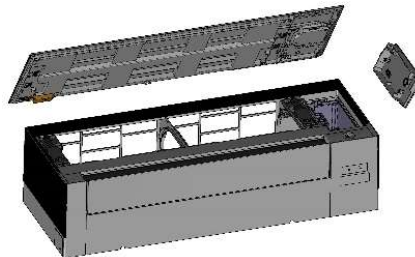
1. Use your hand to lift the panel outward at positions A and B until the buckle position is detached.



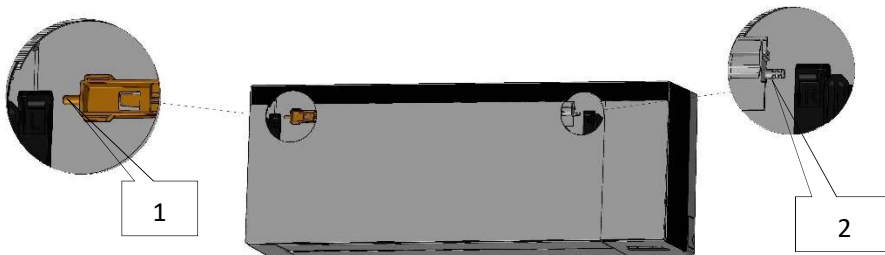
2. Push the retainer post on the back of the panel to the left until the locating post is out of the dowel hole, separating the panel from the outer cover.



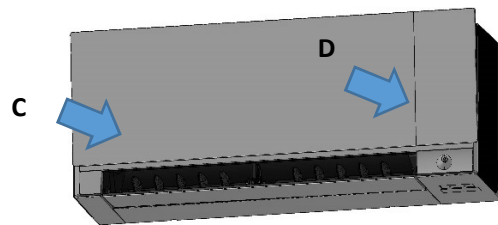
3. After removing the panel, loosen the screws of the electrical box cover, remove the electrical box cover, and pull out the terminal block of the display board.



4. After pushing the movable stand up with your hands, plug the terminal block of the display board into the control board, install the cover of the electrical box, tighten the screws, insert the positioning column 2 into the positioning hole on the support plate, and then insert the positioning column 1 at the other end into the positioning hole on the support plate.

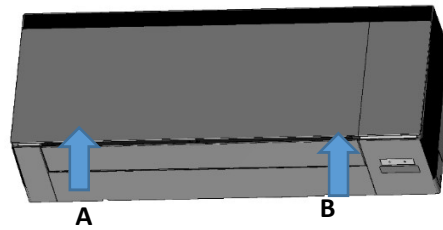


5. After reinstalling the panel, press positions C and D on the panel to close the panel.

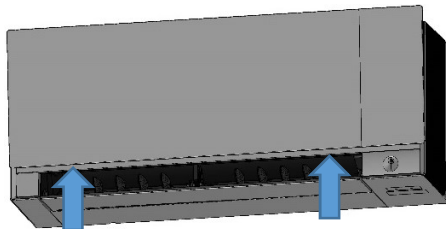


Method 2:

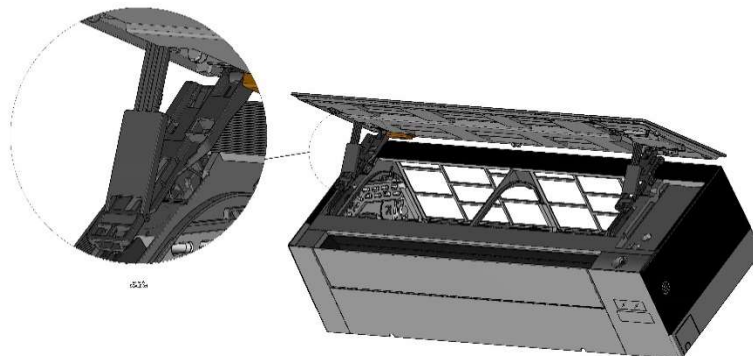
1. Use your hand to lift the panel outward at positions A and B until the buckle position is detached.



2. Push the panel up with your hands.

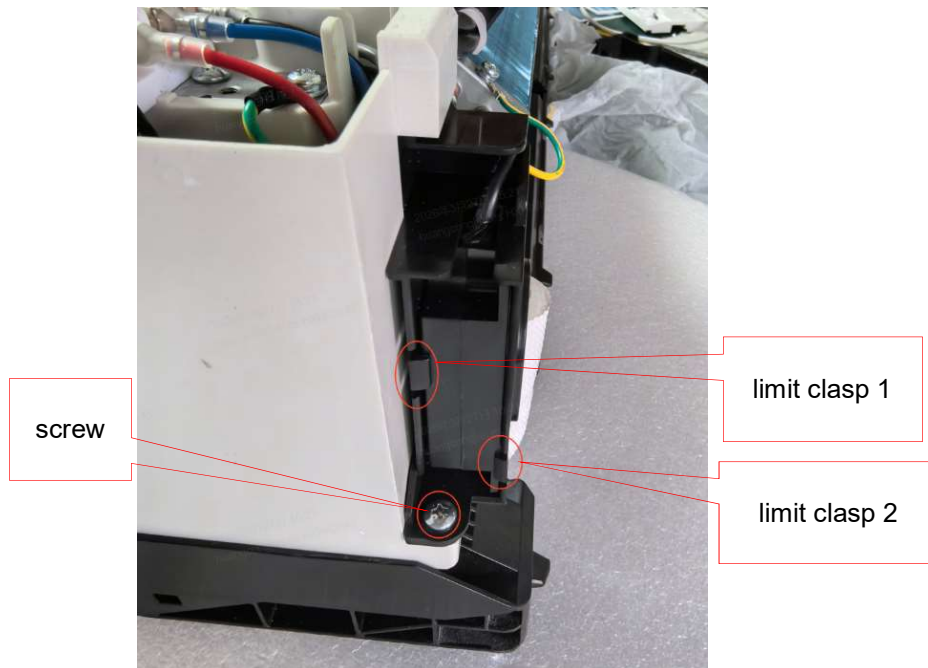


3. Lift the panel and support the poles.



11. Disassemble and assemble the horn

1.Remove the screw, pull the limit clasp 1 outward, take out the old horn, and replace it with a new one.

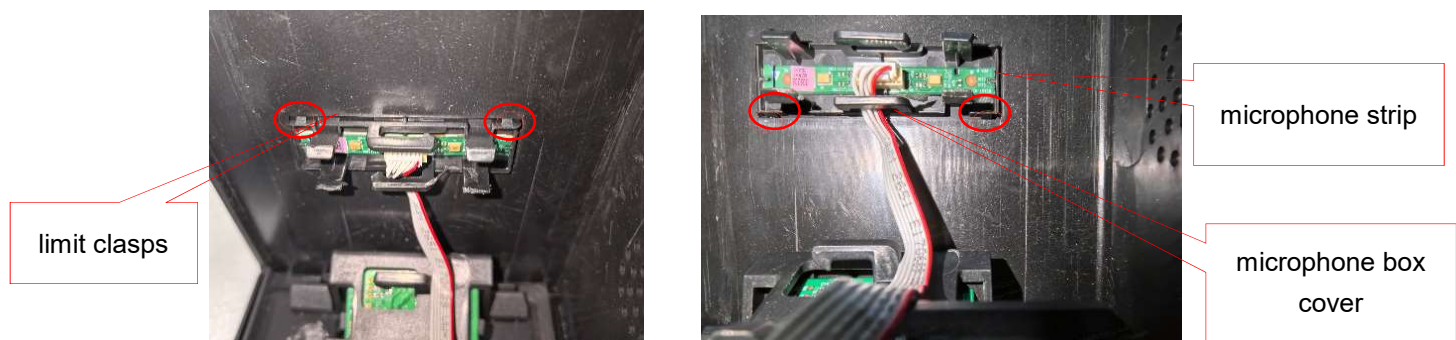


12. Disassemble and assemble the microphone box

1. Press the four limit clasps to remove the microphone box;

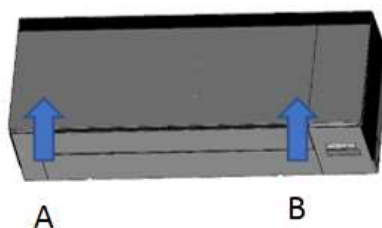


2. Press four the limit clasps to remove the microphone strip and box cover and replace them with new ones

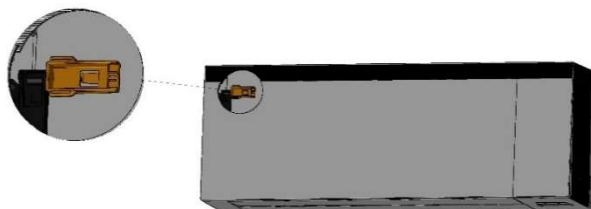


13. Disassembling and assembling the indoor PCB

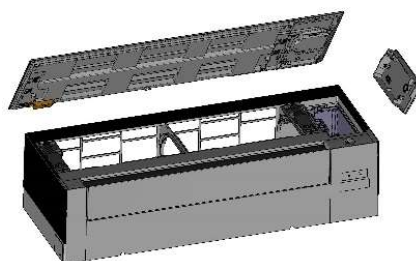
1. Use your hand to lift the panel outward at positions A and B until the buckle position is detached.



2. Push the retainer post on the back of the panel to the left until the locating post is out of the dowel hole, separating the panel from the outer cover.

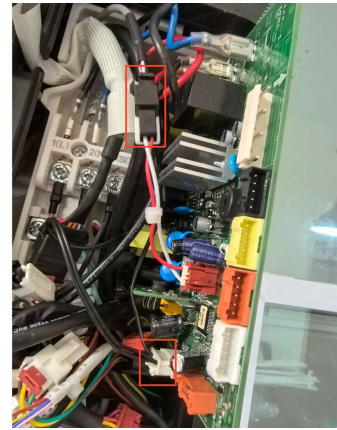
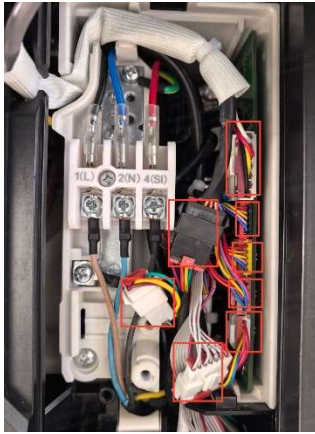


3. After removing the panel, loosen the screws of the electric control box cover, remove the electric control box cover, and pull out the terminal of the display board.



4. Unplug the terminal block on the electric control board, replace it with a new electric control board, and plug in the terminal block.

4-1: Remove the DC fan terminal blocks of the controller, black stepper motor terminals, yellow stepper motor terminals, red stepper motor terminals, white stepper motor terminals, display docking terminals, MIC docking terminals, Hinao docking terminals, human sensing docking terminals, adapter board terminals, humidity sensor terminals, temperature sensor terminals, horn docking terminals.



Notes:

1. When removing the terminal connecting wire, pay attention to the self-locking position of the terminal, and do not forcibly pull it.
2. The terminal with the lock plate can be removed first and then the terminal can be removed.

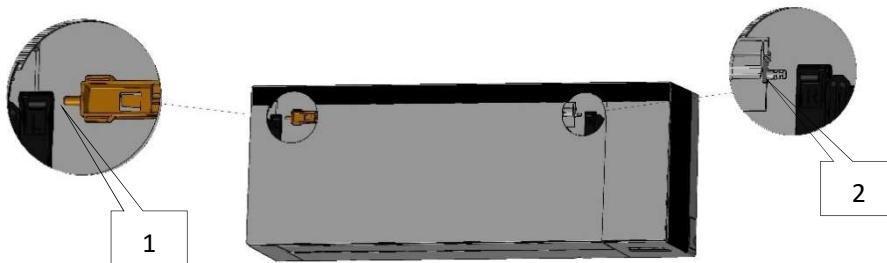
4-2: Remove the power cord terminals of the controller (black: live wire, blue: neutral wire, red: communication cable).



Notes:

1. Pay attention to the lock plate when removing the terminal, and cannot forcibly remove it.
2. Press the cleats and pull the terminal upwards at the same time to remove them.

5. After pushing the movable stand up with your hands, plug the terminal block of the display board into the control board, install the cover of the electrical box, tighten the screws, insert the positioning column 2 into the positioning hole on the support plate, and then insert the positioning column 1 at the other end into the positioning hole on the support plate.



6. After reinstalling the panel, press positions C and D on the panel to close the panel.

